# ELECTRICAL SYSTEM

# SECTION EL



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

NFEL0001

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 NISSAN MODEL A33 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, crash zone sensor, 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 NISSAN 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. SRS wiring harnesses can be identified by yellow harness connector.**

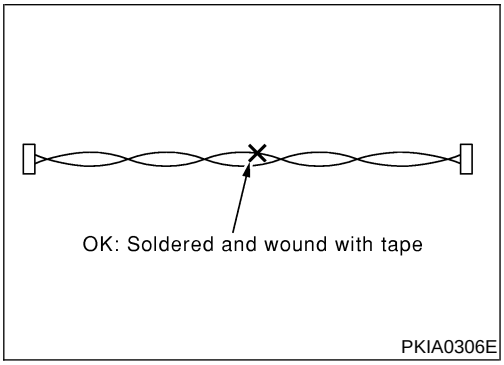
## Precautions for Trouble Diagnosis

NFEL0265

### CAN SYSTEM

NFEL0265S01

- Do not apply voltage of 7.0V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0V or less.



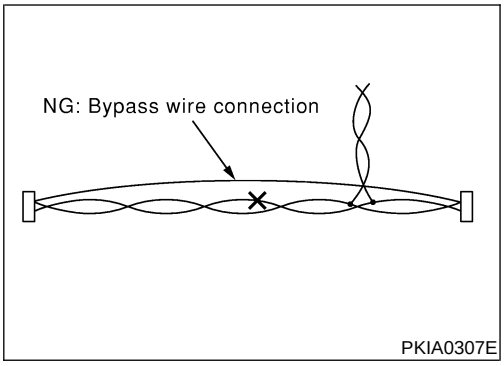

## Precautions for Harness Repair

NFEL0266

### CAN SYSTEM

NFEL0266S01

- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in)]




- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)

## Wiring Diagrams and Trouble Diagnosis

NFEL0002

When you read wiring diagrams, refer to the following:

- GI-11, "HOW TO READ WIRING DIAGRAMS"
- EL-10, "POWER SUPPLY ROUTING" for power distribution circuit

When you perform trouble diagnosis, refer to the following:

- GI-35, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES"
- GI-24, "HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT"

Check for any Service bulletins before servicing the vehicle.

# Description

NFEL0003

## HARNESS CONNECTOR (TAB-LOCKING TYPE)

NFEL0003S01

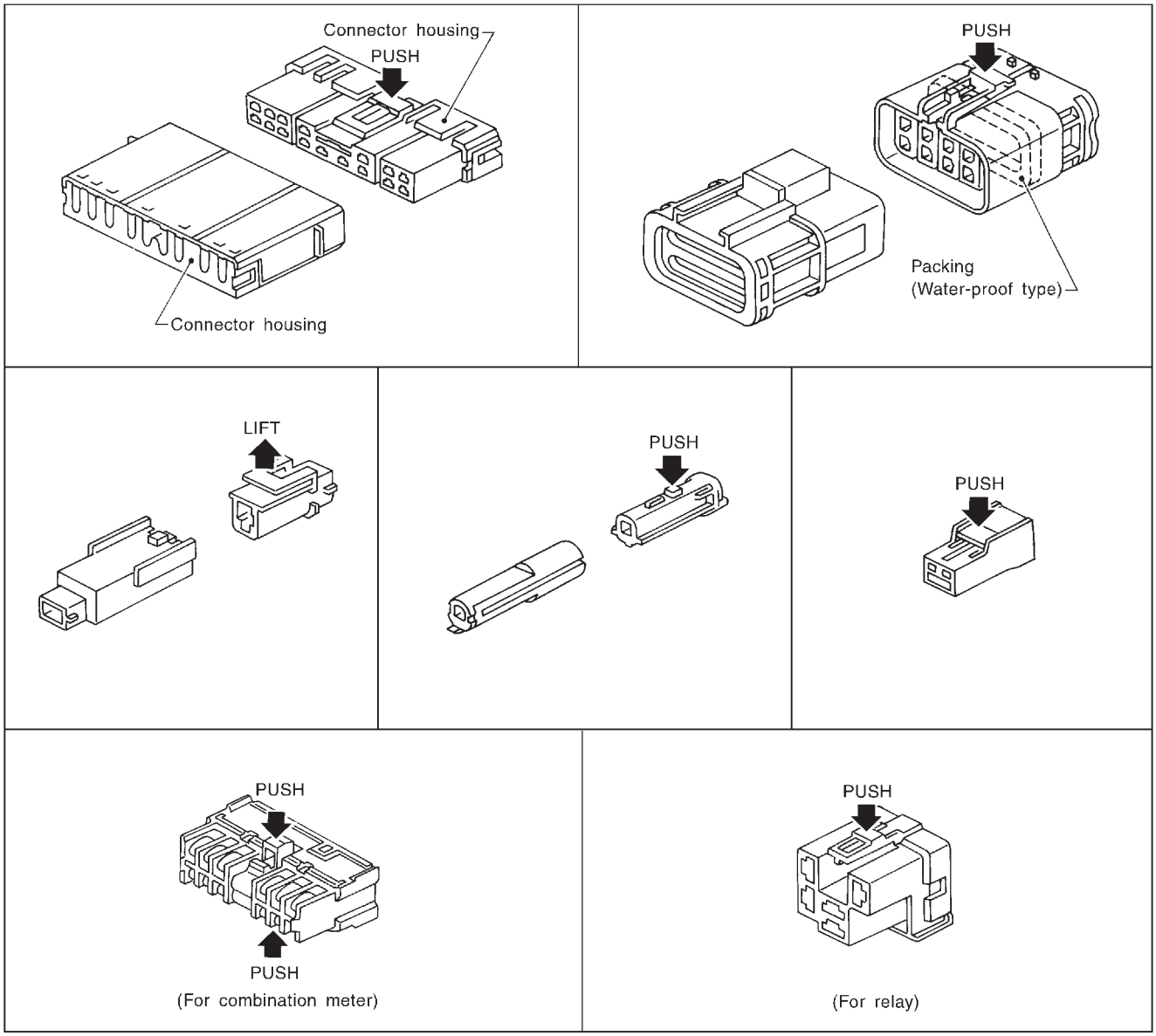
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to the illustration below.

**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

## HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

=NFEL0003S02

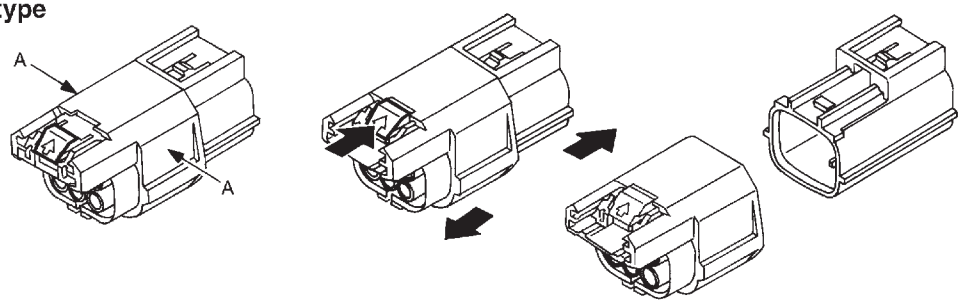
- A new style slide-locking type connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.
- The slide-locking type connectors are disconnected by pushing or pulling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

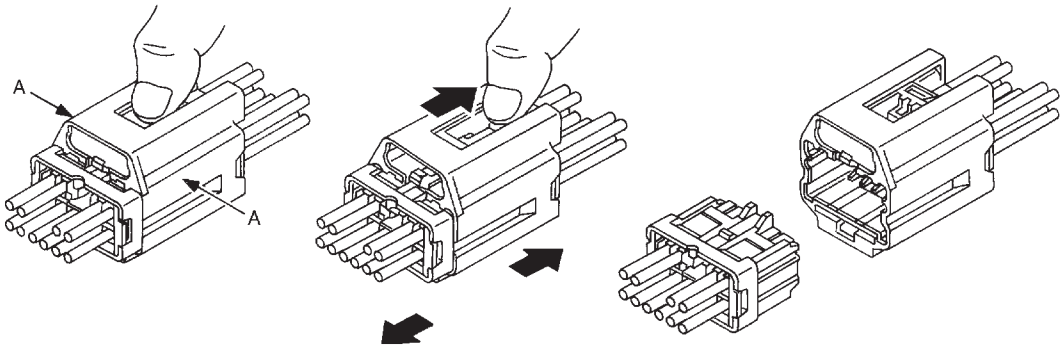



① Firmly grasp shell of connector housing at A.

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

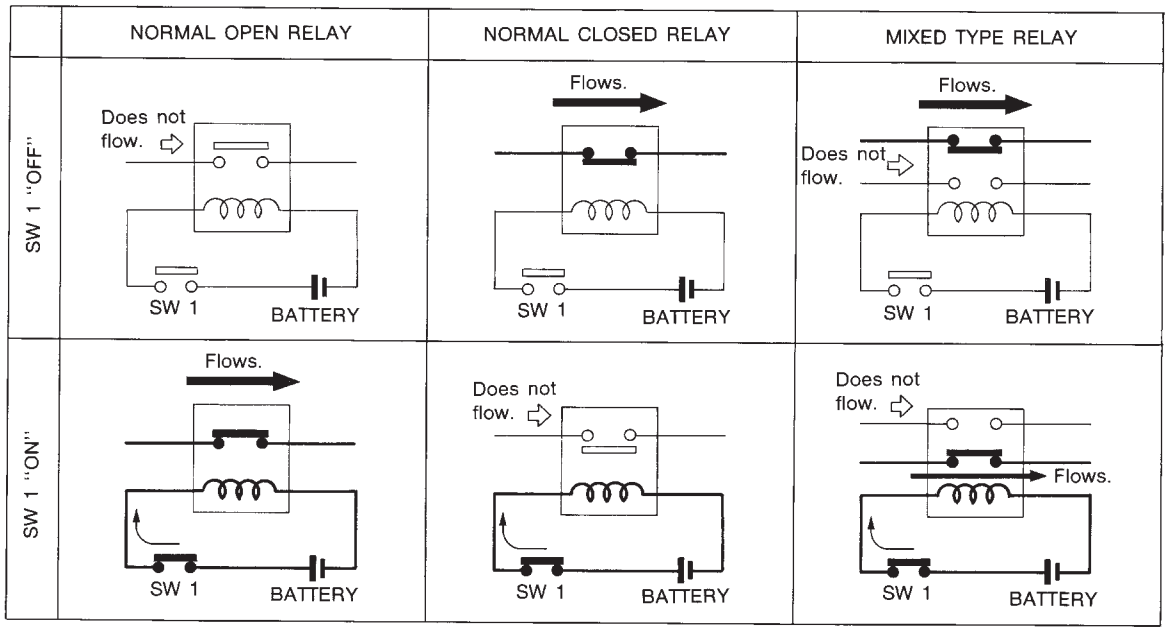
# Description

NFEL0004

## NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

NFEL0004S01

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

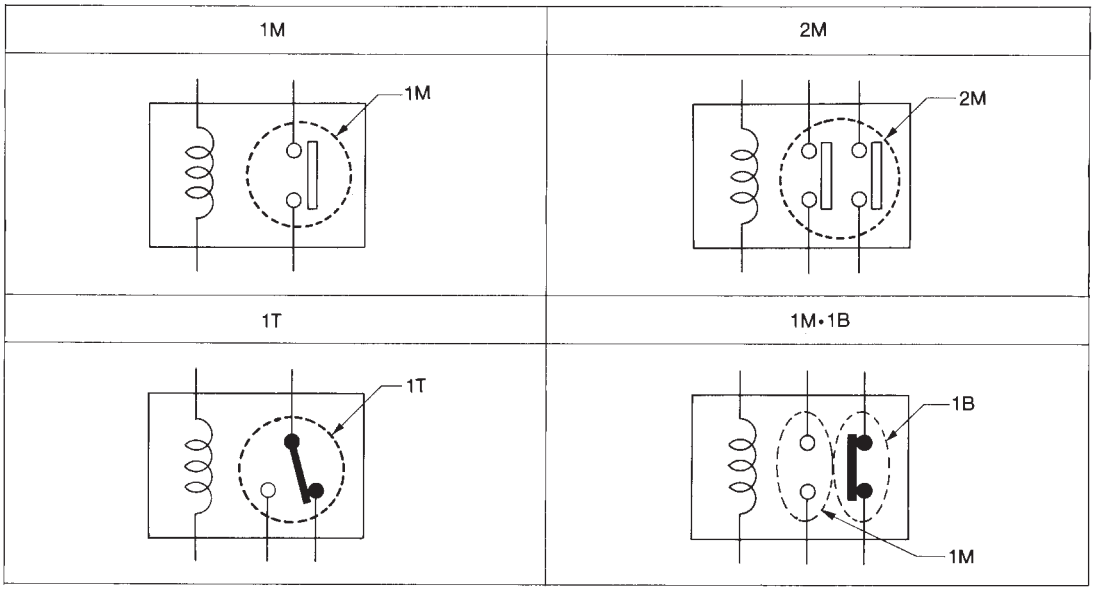



SEL881H

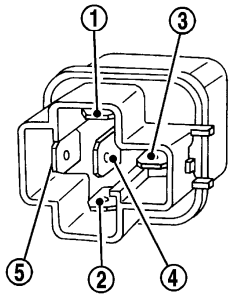
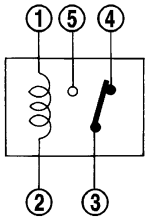
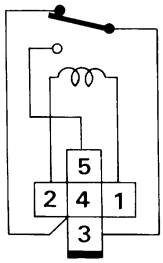
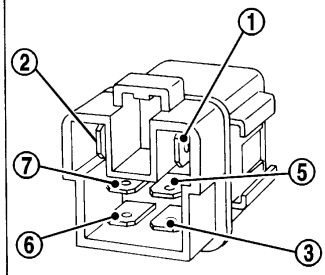
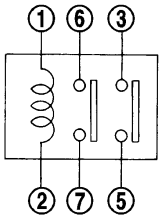
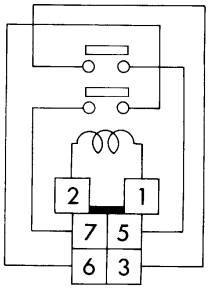
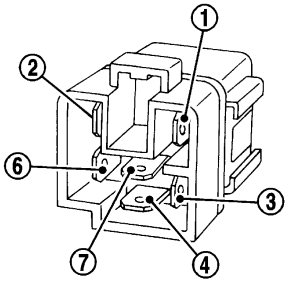
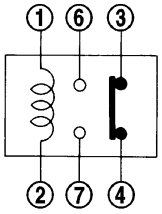
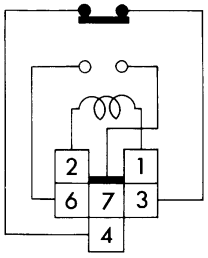
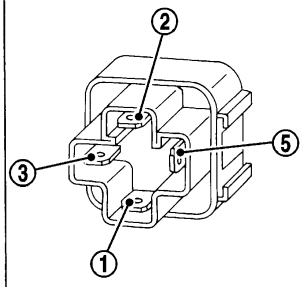
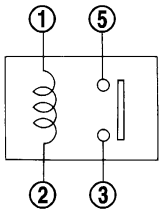
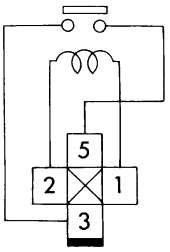
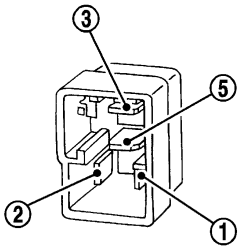
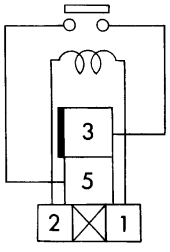
## TYPE OF STANDARDIZED RELAYS

NFEL0004S02

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




SEL882H

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

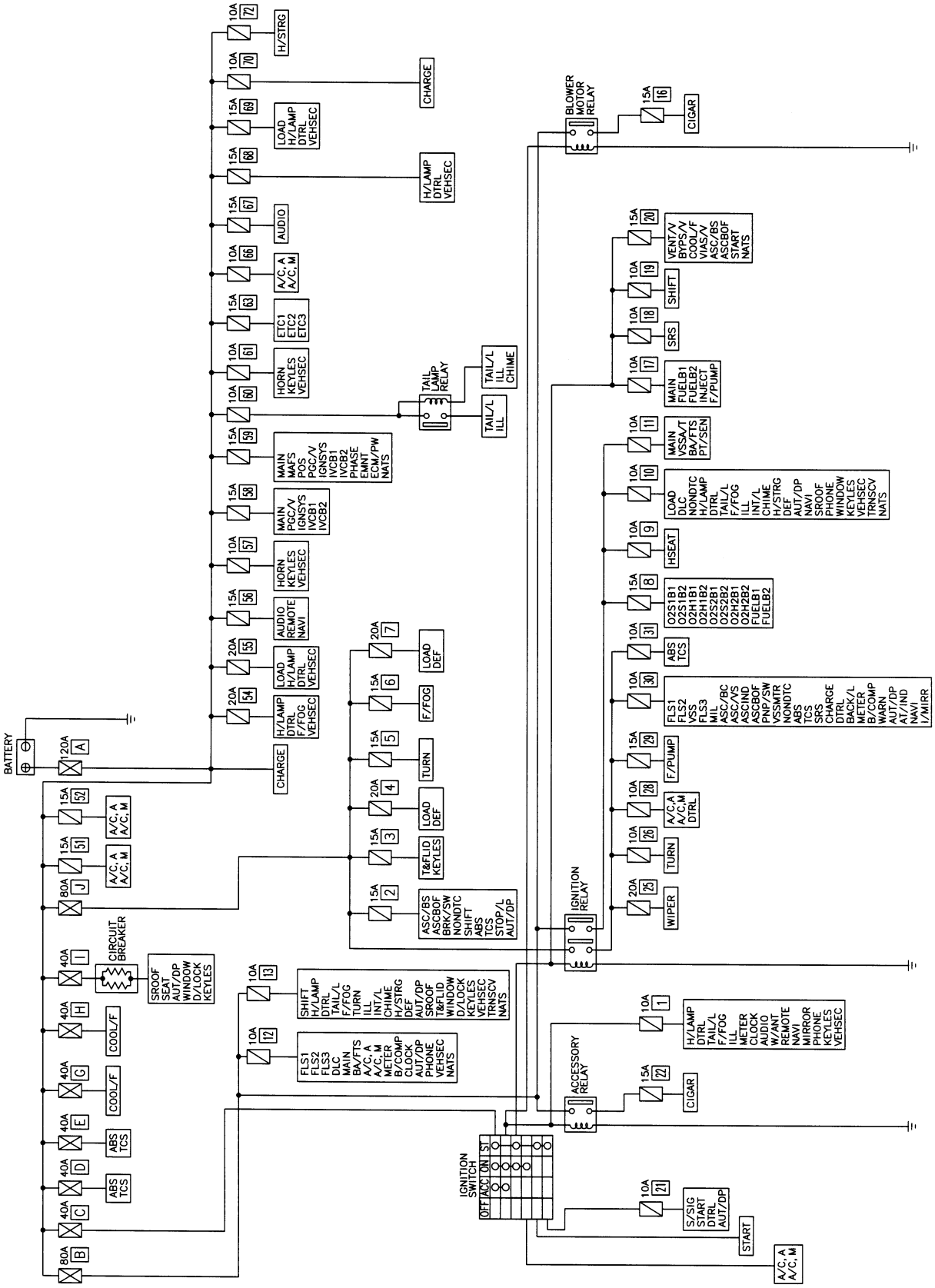
The arrangement of terminal numbers on the actual relays may differ from those shown above.

SEL188W

## Schematic

NFEL0005

For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-19.




MEL712P

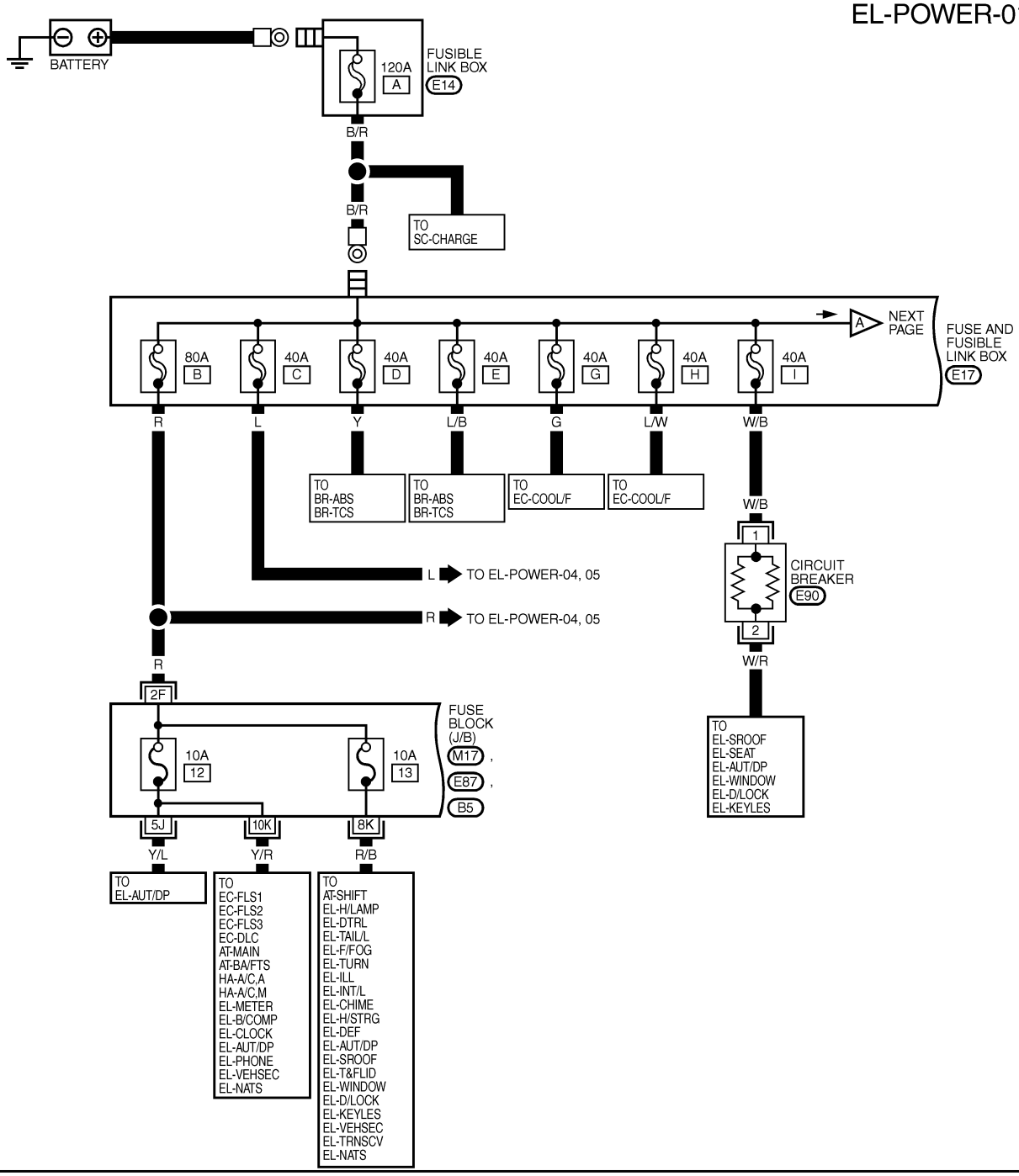
# Wiring Diagram — POWER —

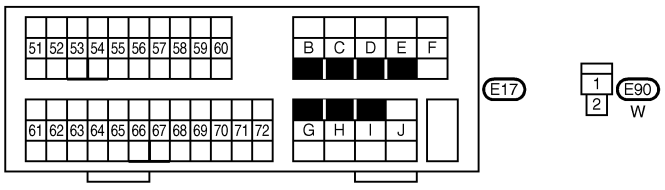
NFEL0006

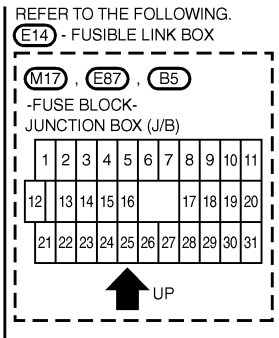
## BATTERY POWER SUPPLY — IGNITION SW. IN ANY POSITION

NFEL0006S01

EL-POWER-01

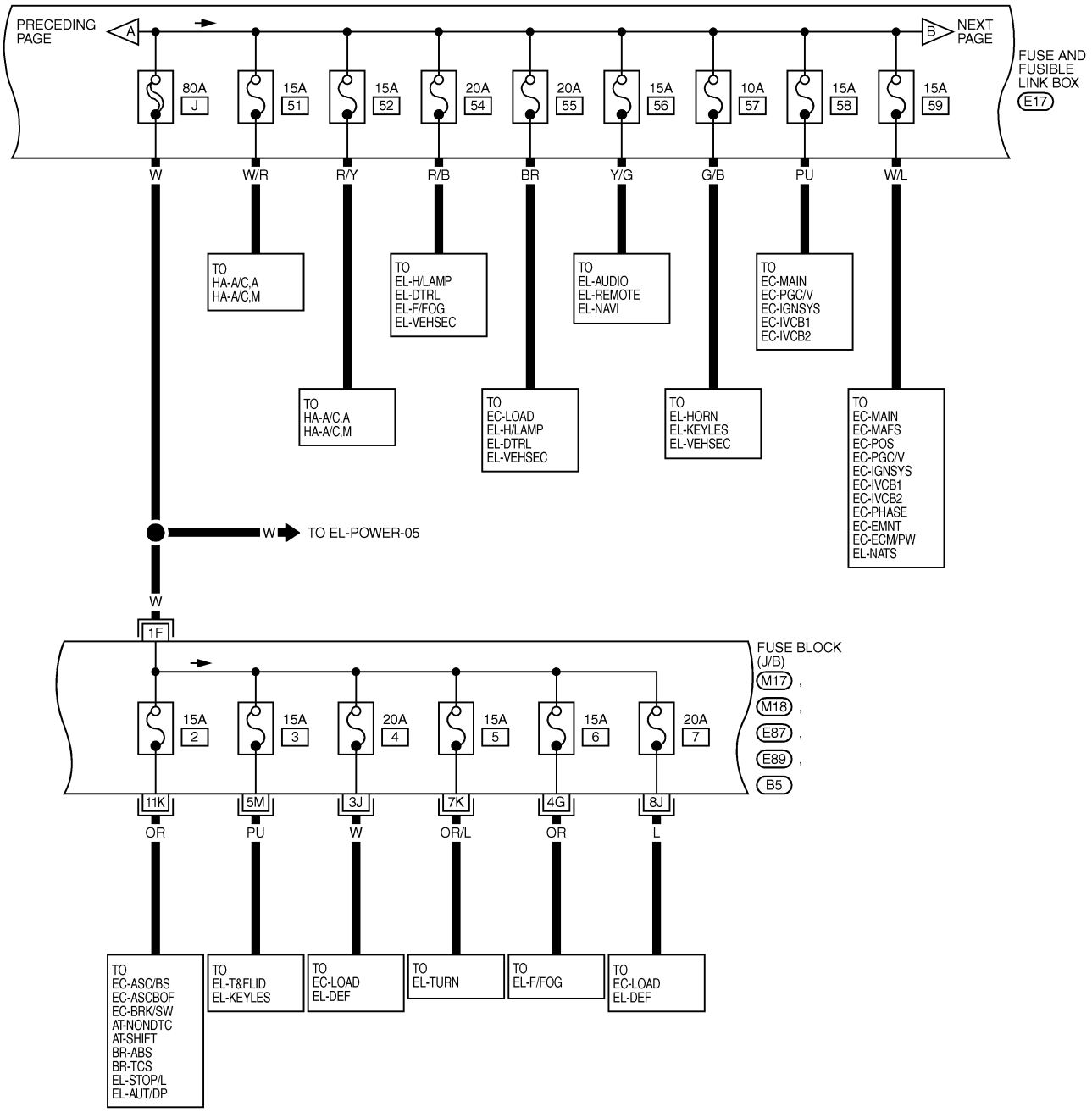


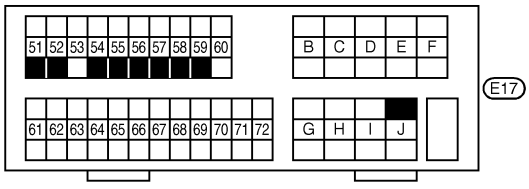



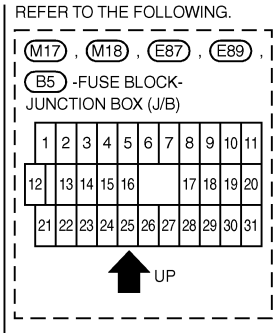




MEL083O

EL-POWER-02

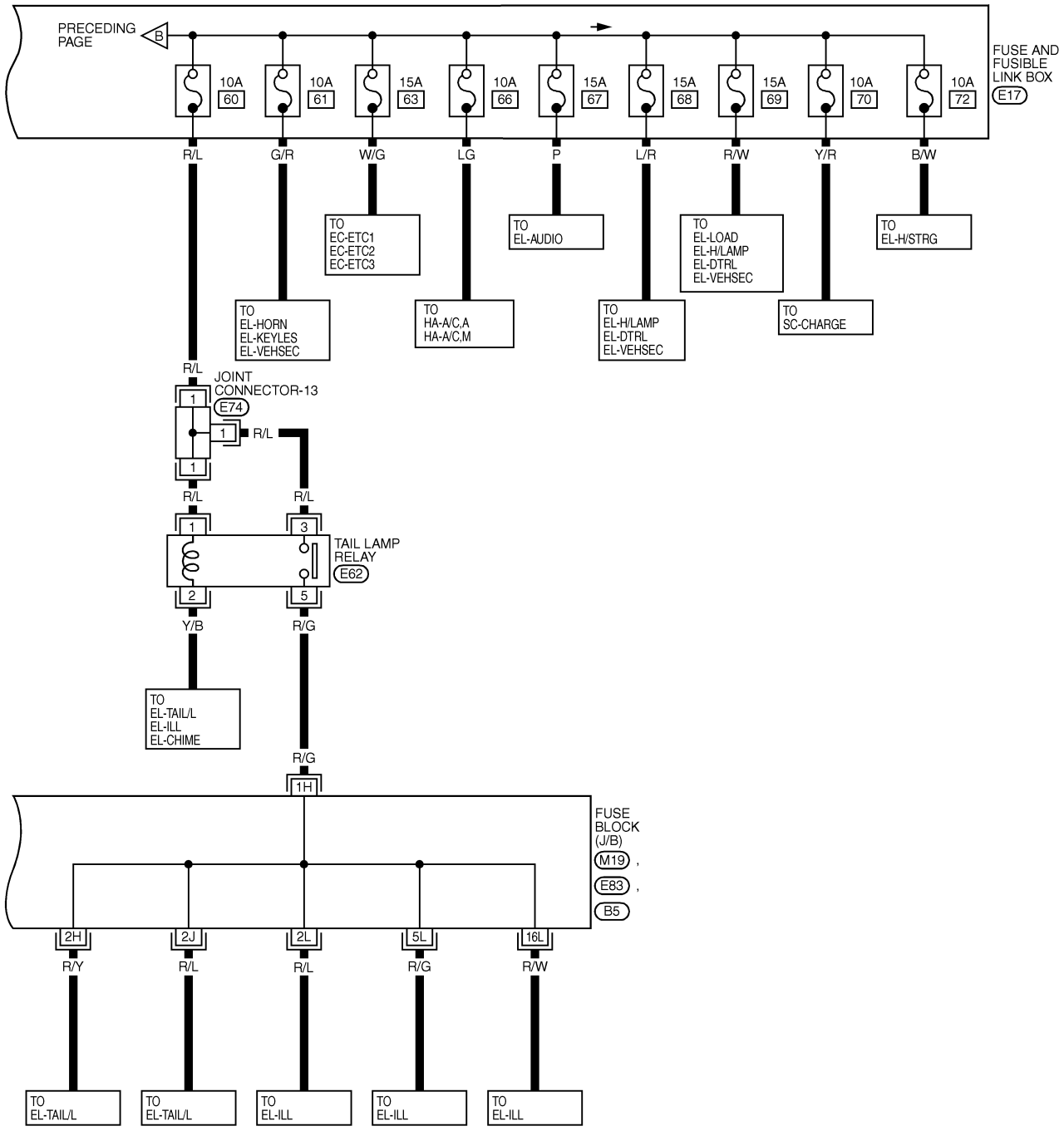


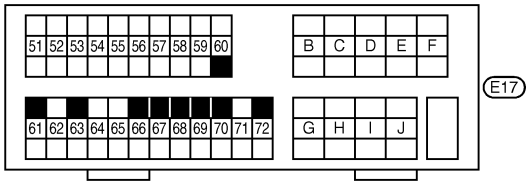



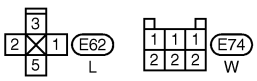




MEL713P

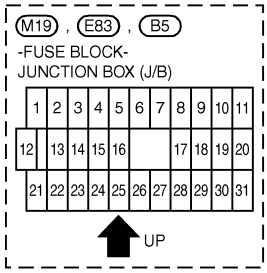
EL-POWER-03




REFER TO THE FOLLOWING.



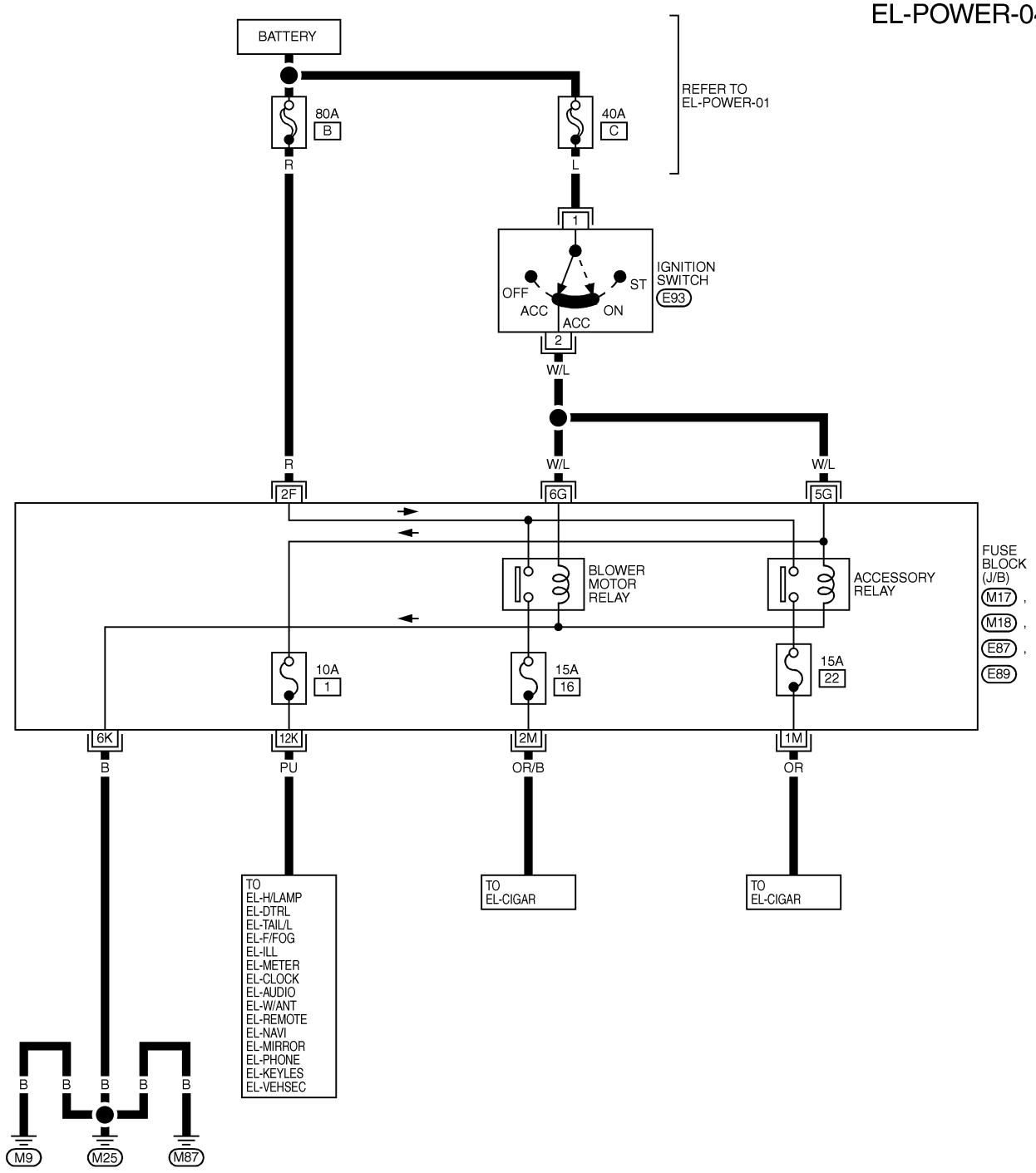

MEL085O

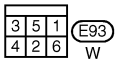
*Wiring Diagram — POWER — (Cont'd)*

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

NFEL0006S02

EL-POWER-04

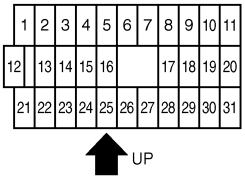



REFER TO THE FOLLOWING.

M17 , M18 , E87 , E89

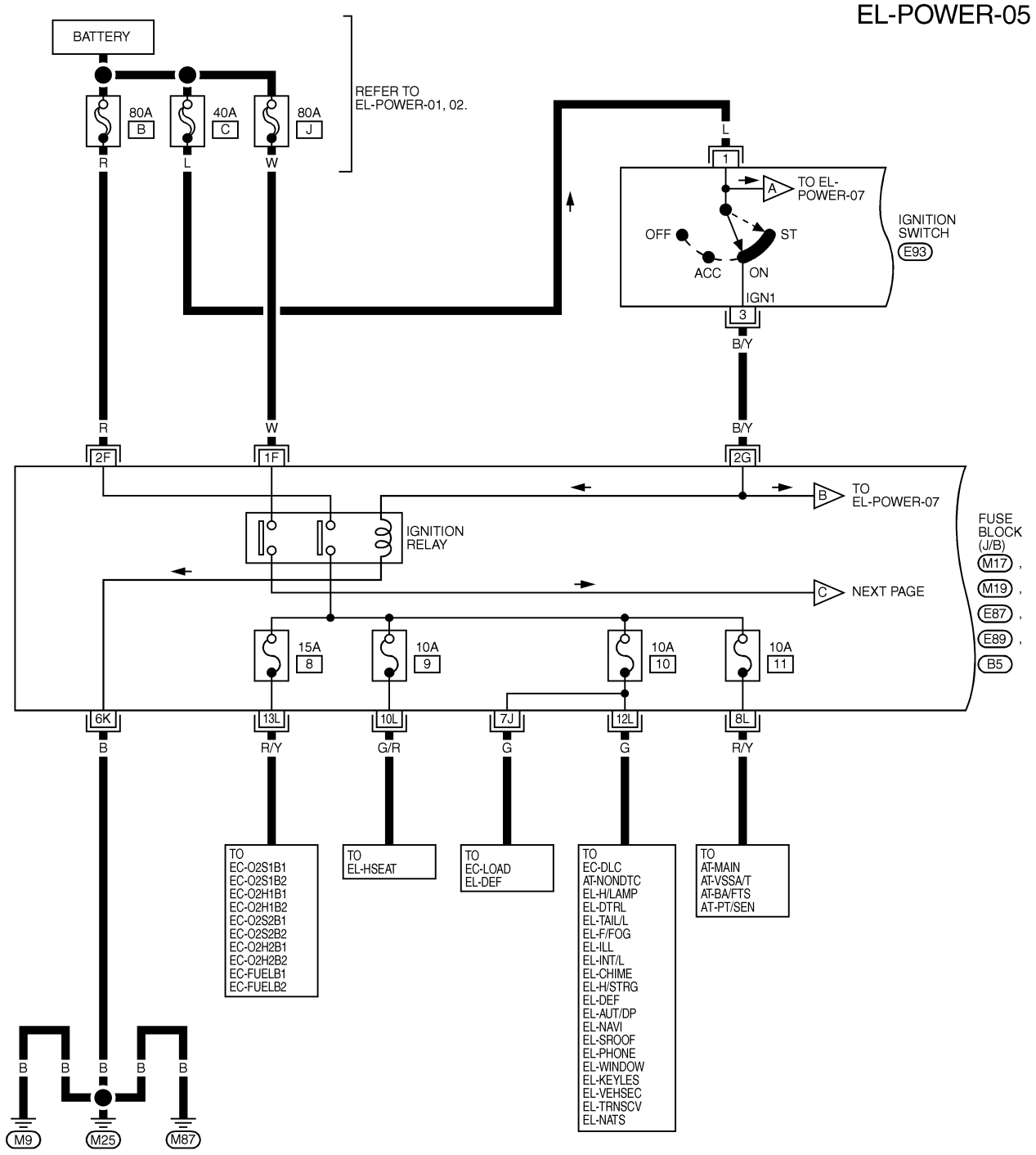
-FUSE BLOCK-
JUNCTION BOX (J/B)

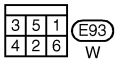


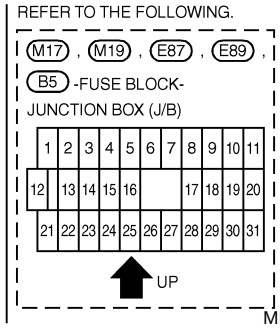

MEL086O

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

NFEL0006S03

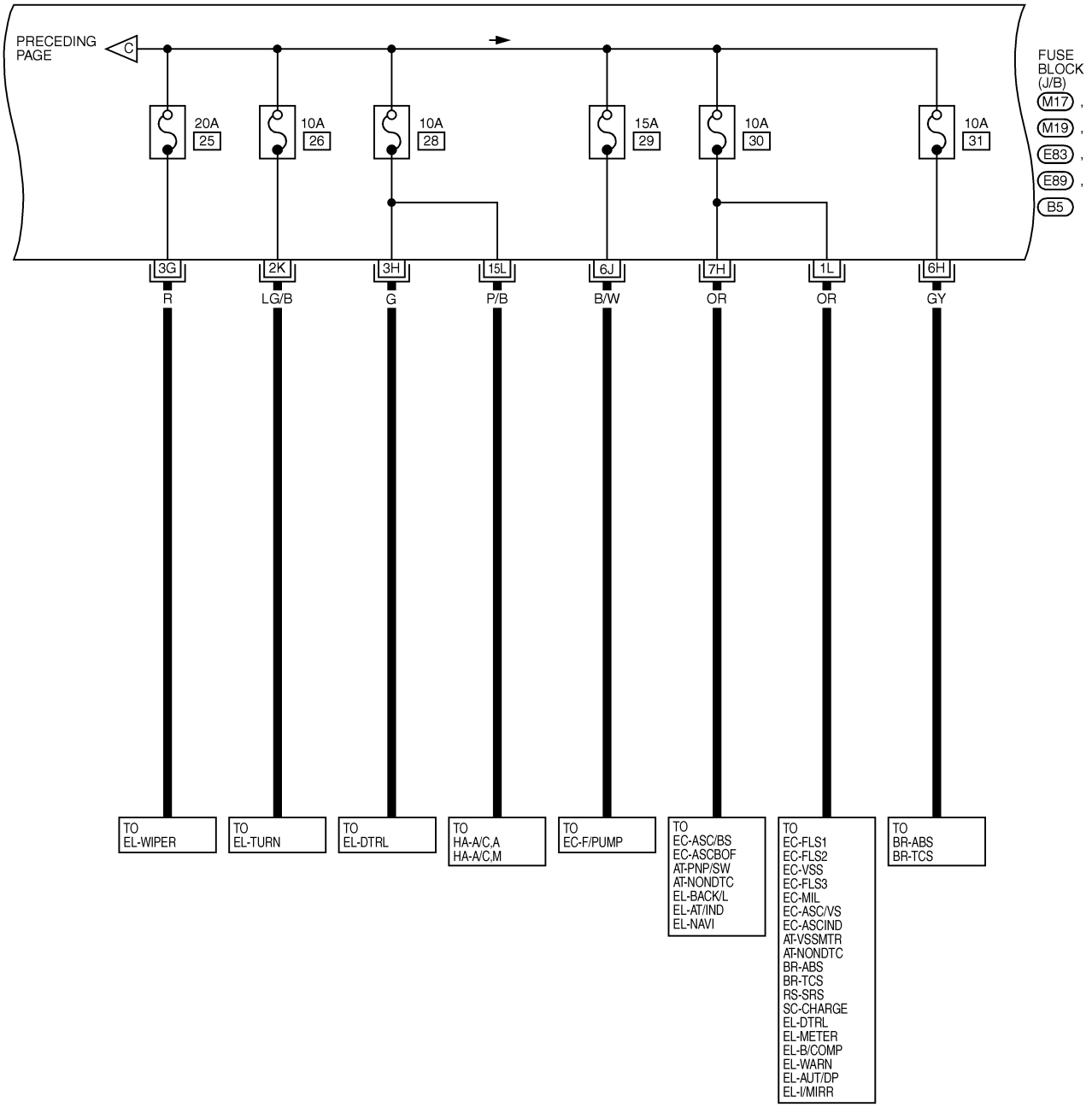


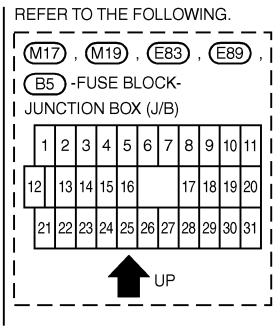




MEL087O

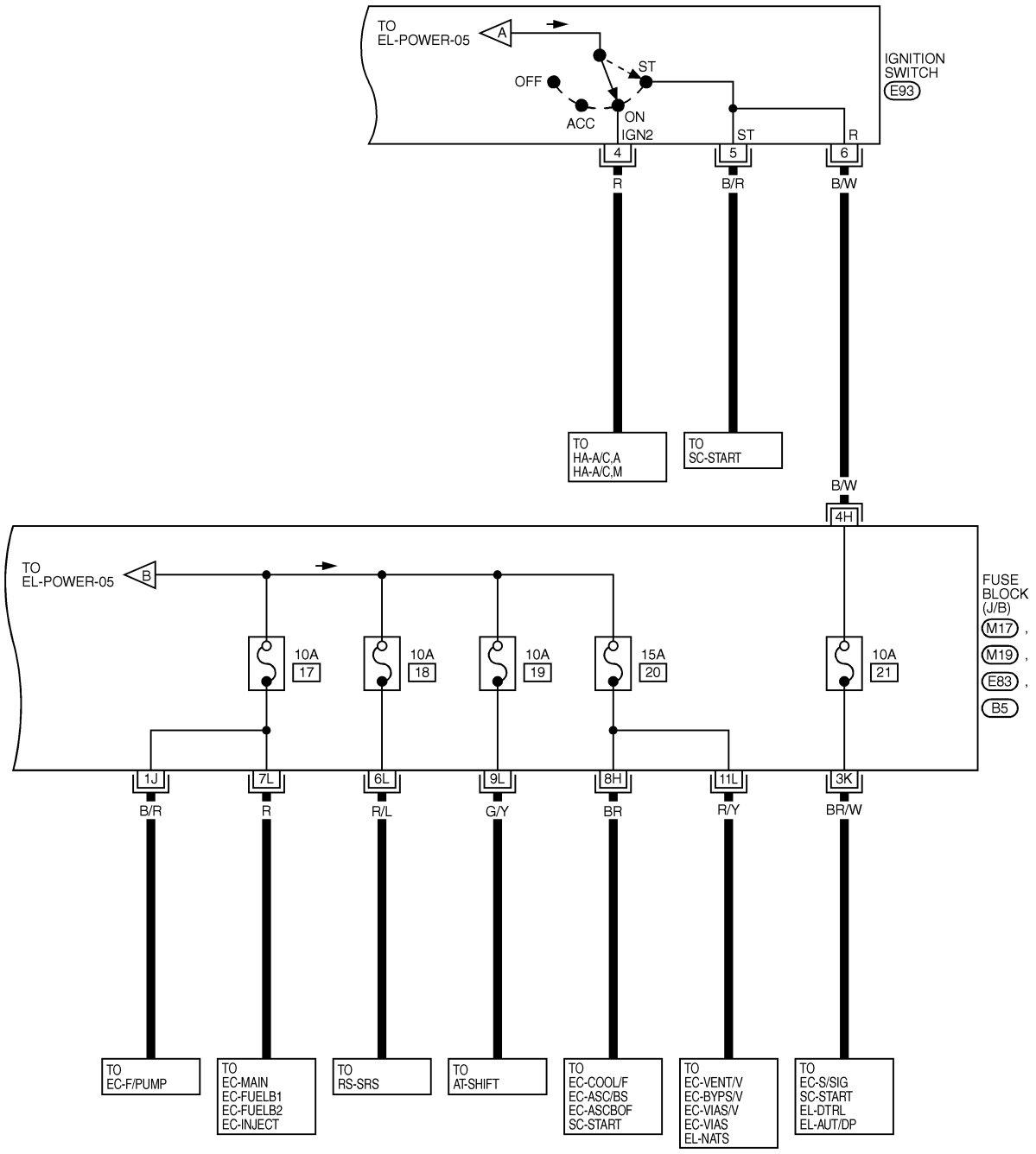
EL-POWER-06

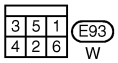



MEL088O

EL-POWER-07

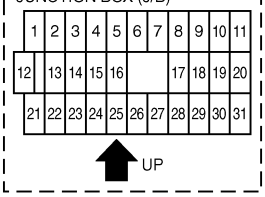


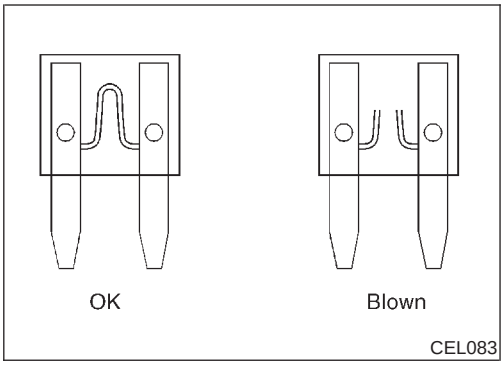

REFER TO THE FOLLOWING.

M17 , M19 , E83 , B5

-FUSE BLOCK-
JUNCTION BOX (J/B)




MEL089O



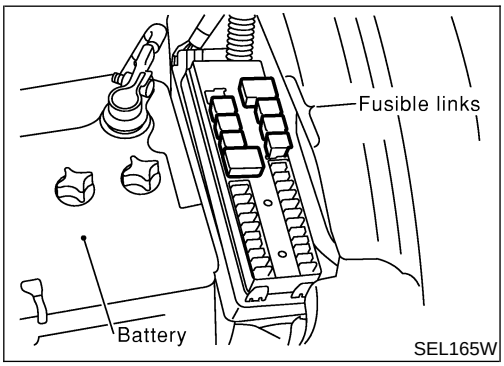

## Inspection

NFEL0007

### FUSE

NFEL0007S01

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



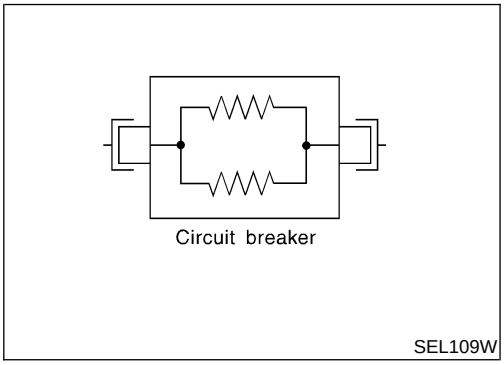

### FUSIBLE LINK

NFEL0007S02

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

**CAUTION:**

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




### CIRCUIT BREAKER (PTC THERMISTOR TYPE)

NFEL0007S03

The PTC thermistor generates heat in response to current flow. The temperature (and resistance) of the thermistor element varies with current flow. Excessive current flow will cause the element’s temperature to rise. When the temperature reaches a specified level, the electrical resistance will rise sharply to control the circuit current.

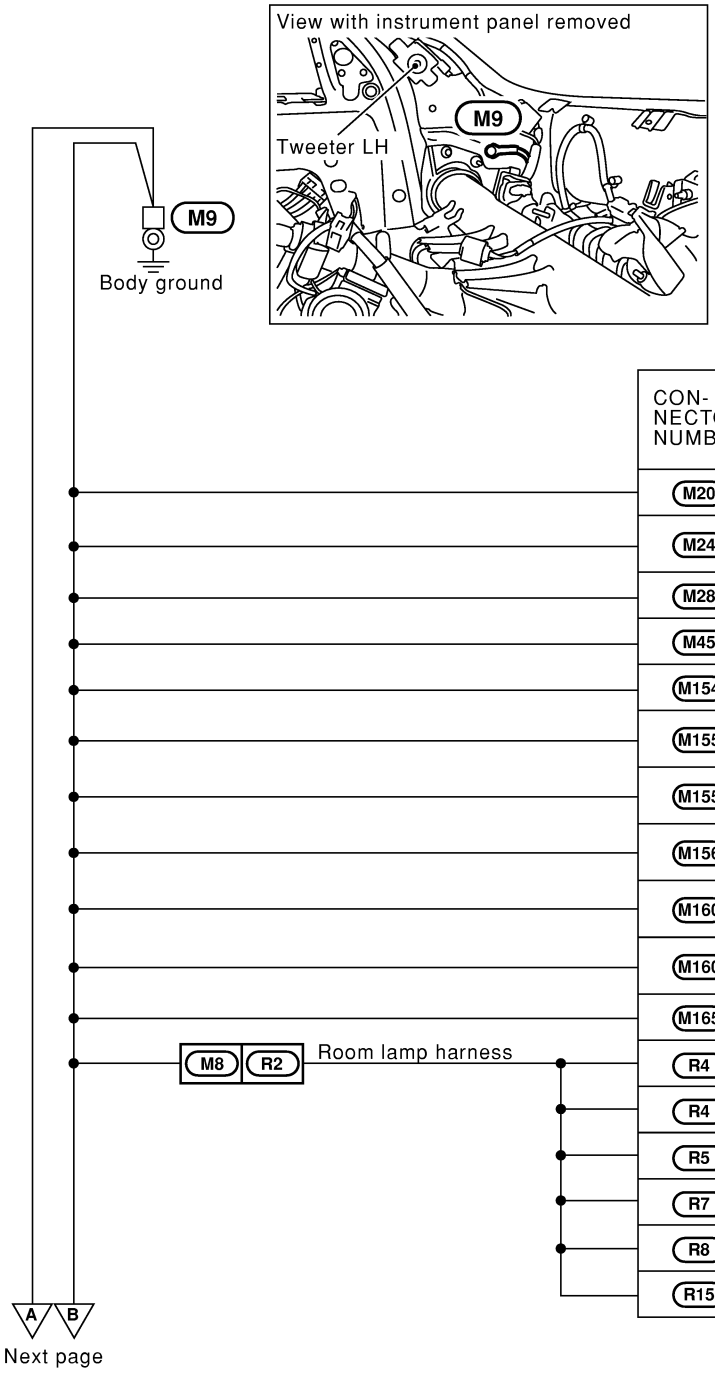
Reduced current flow will cause the element to cool. Resistance falls accordingly and normal circuit current flow is allowed to resume.

# Ground Distribution

NFEL0008

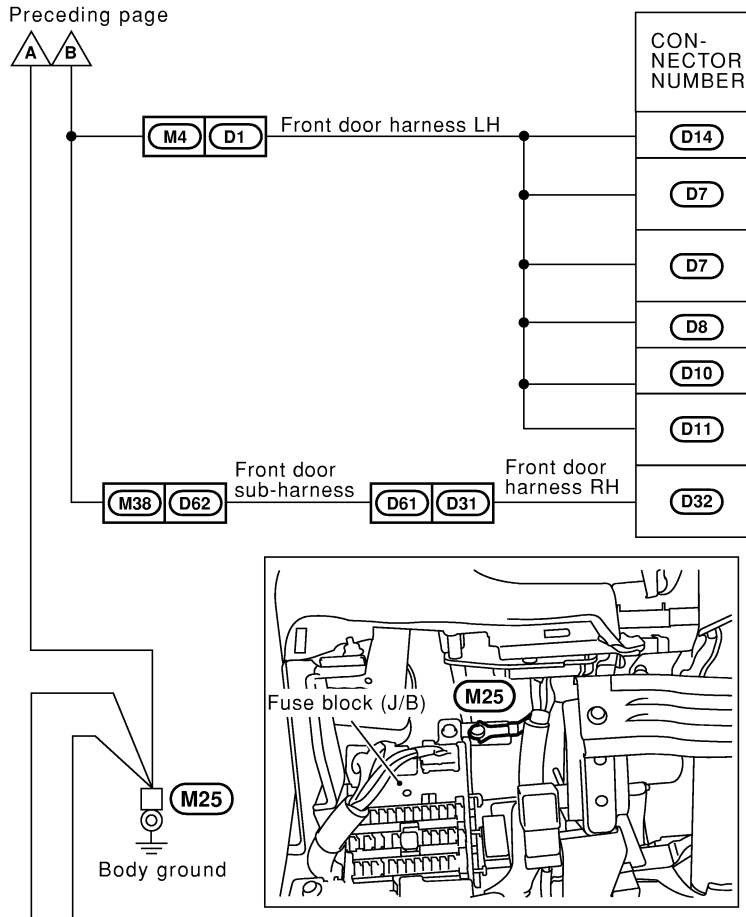
## MAIN HARNESS

NFEL0008S01




| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| M20 | Power window relay |
| M24 | Door mirror remote control switch (Illumination) |
| M28 | Data link connector (Terminal No. 4) |
| M45 | TCS ON/OFF switch (With TCS) |
| M154 | Memory seat cancel switch (With memory seat) |
| M155 | Heated steering switch (With heated steering) (Terminal No. 2) |
| M155 | Heated steering switch (With heated steering) (Terminal No. 5) |
| M156 | Combination switch (With heated steering) (Terminal No. 2) |
| M160 | Rear window defogger switch (With navigation system) (Terminal No. 2) |
| M160 | Rear window defogger switch (With navigation system) (Terminal No. 5) |
| M165 | A/T device (With A/T) (Terminal No. 2) |
| R4 | Vanity mirror LH (Illumination) |
| R4 | Homelink universal transceiver |
| R5 | Sunroof motor (With sunroof) |
| R7 | Spot lamp |
| R8 | Vanity mirror RH (Illumination) |
| R15 | Auto anti-dazzling inside mirror |

MEL736P




| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| D14 | Memory seat switch |
| D7 | Trunk and fuel lid opener switch (Terminal No. 2) |
| D7 | Trunk and fuel lid opener switch (Terminal No. 4) |
| D8 | Front door key cylinder switch LH |
| D10 | Front power window main switch |
| D11 | Door mirror actuator LH (With door mirror defogger) |
| D32 | Door mirror actuator RH (With door mirror defogger) |

| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| M16 | Telephone |
| M17 | Fuse block (J/B) (Terminal No. 6K)<br>• Accessory relay<br>• Blower motor relay<br>• Ignition relay |
| M21 | Combination flasher unit |
| M23 | Illumination control switch |
| M32 | Combination meter (Terminal No. 30)<br>• ABS indicator<br>• A/T indicator (With A/T)<br>• Turn signal indicator |
| M33 | Combination meter (Terminal No. 22)<br>• Air bag warning lamp<br>• Fuel gauge<br>• Odo/trip meter<br>• Speedometer<br>• Tachometer<br>• Water temp. gauge<br>• Board computer |
| M53 | Cigarette lighter |

MEL062O

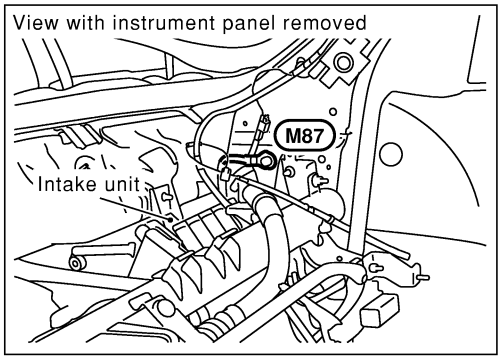
Preceding page

C D

| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| M72 | Ashtray illumination |
| M78 | Power socket |
| M144 | Smart entrance control unit (Terminal No. 43) |
| M146 | Air bag diagnosis sensor unit (Terminal No. 2) |
| M152 | Clock |
| M163 | Shift lock control unit (With A/T) |
| M168 | Display and NAVI control unit (Terminal No. 3) |
| M168 | Display and NAVI control unit (Terminal No. 4) |
| M169 | Display and NAVI control unit (Terminal No. 33) |

M30 M151 Main sub-harness-1

View with instrument panel removed




M87

Body ground

| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| M31 | Fan control amp. (With auto A/C) |
| M58 | Fan switch (With manual A/C) |
| M34 | Combination meter (Terminal No. 59)<br>• Board computer |
| M44 | In-vehicle sensor (With auto A/C) |
| M48 | Mode door motor (With manual A/C) |
| M49 | Mode door motor (With auto A/C) |
| M50 | Air mix door motor (With manual A/C) |
| M51 | Air mix door motor (With auto A/C) |
| M56 | A/C control unit (With manual A/C) |
| M60 | A/C auto amp. (With auto A/C)<br>(Without navigation system) |
| M74 | Heated seat switch LH |
| M75 | Heated seat switch RH |
| M80 | Intake sensor (With auto A/C) |
| M82 | Glove box lamp |
| M83 | Intake door motor (With manual A/C) |
| M84 | Intake door motor (With auto A/C) |
| M85 | Sunload sensor (With auto A/C) |
| M145 | Smart entrance control unit (Terminal No. 64) |
| M171 | A/C auto amp. (With auto A/C)<br>(With navigation system) |
| E55 | Ambient sensor (With auto A/C) |
| D33 | Front power window switch RH |

M15 E81 Engine room harness

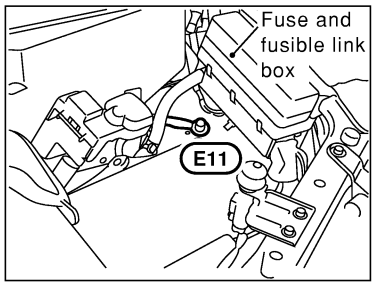
M39 D63 Door sub-harness

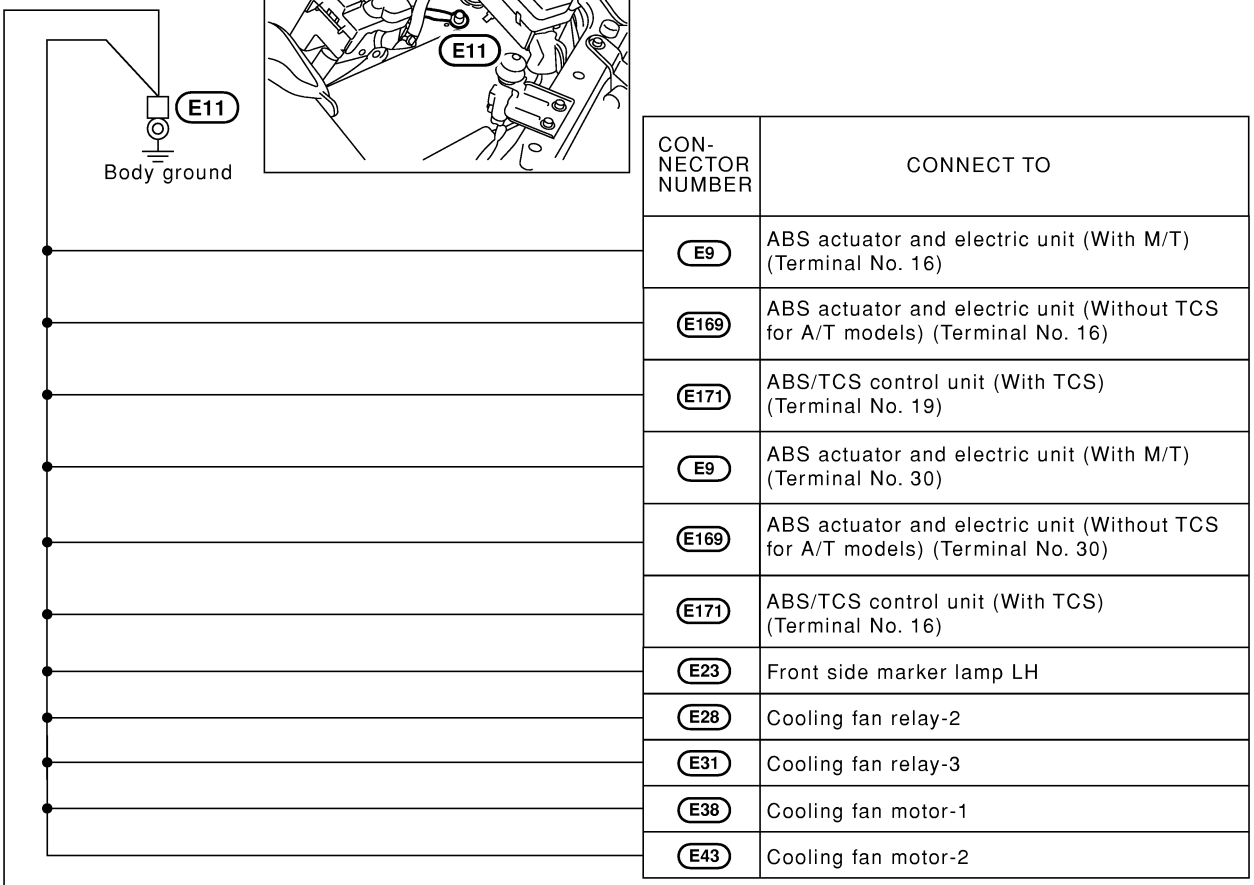
D61 D31 Door harness front RH

MEL063O

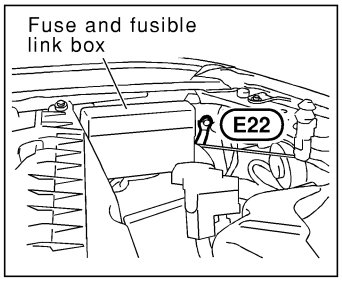
## ENGINE ROOM HARNESS

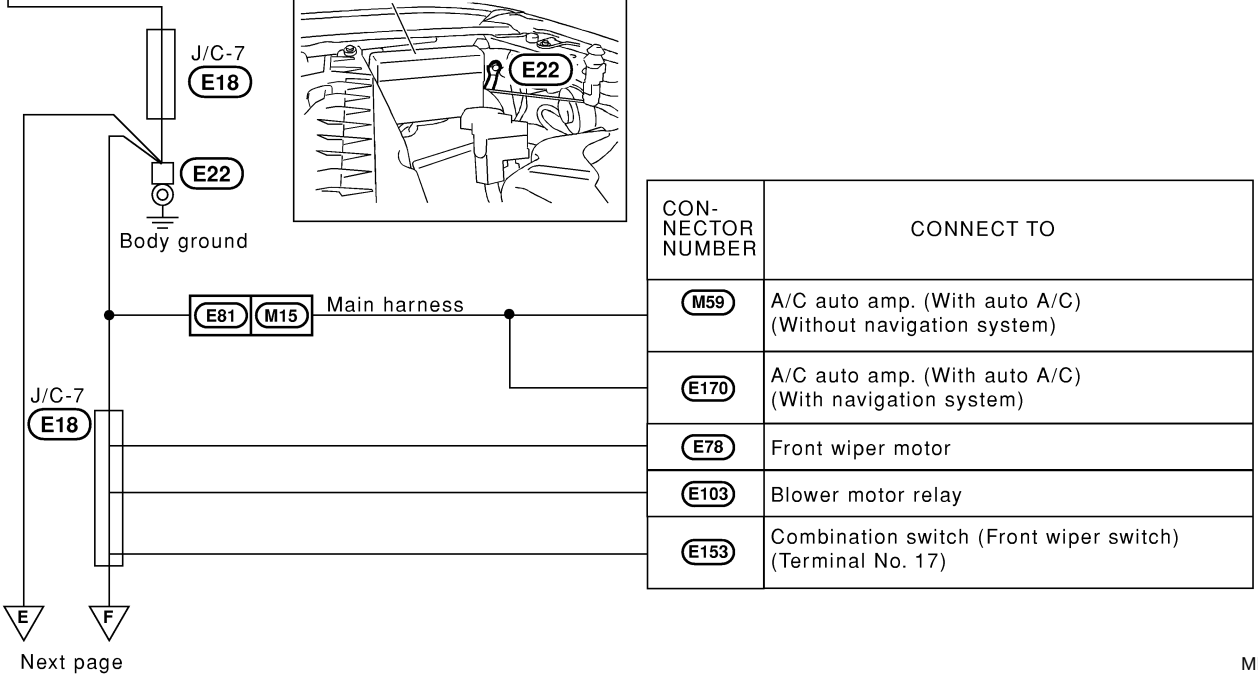
NFEL0008S02




| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| E9 | ABS actuator and electric unit (With M/T) (Terminal No. 16) |
| E169 | ABS actuator and electric unit (Without TCS for A/T models) (Terminal No. 16) |
| E171 | ABS/TCS control unit (With TCS) (Terminal No. 19) |
| E9 | ABS actuator and electric unit (With M/T) (Terminal No. 30) |
| E169 | ABS actuator and electric unit (Without TCS for A/T models) (Terminal No. 30) |
| E171 | ABS/TCS control unit (With TCS) (Terminal No. 16) |
| E23 | Front side marker lamp LH |
| E28 | Cooling fan relay-2 |
| E31 | Cooling fan relay-3 |
| E38 | Cooling fan motor-1 |
| E43 | Cooling fan motor-2 |



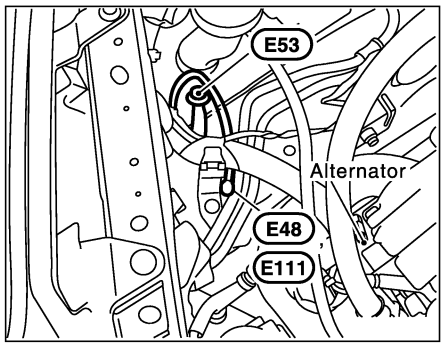

| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| M59 | A/C auto amp. (With auto A/C) (Without navigation system) |
| E170 | A/C auto amp. (With auto A/C) (With navigation system) |
| E78 | Front wiper motor |
| E103 | Blower motor relay |
| E153 | Combination switch (Front wiper switch) (Terminal No. 17) |

MEL064O

Preceding page

E F

| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| E63 | Vehicle security horn relay-2 |
| E84 | Clutch interlock switch (With M/T) |
| E151 | Combination switch (Lighting switch) (Terminal No. 5) |
| E164 | Front turn signal lamp LH |
| E165 | Headlamp LH (Low and parking lamp) |
| E167 | Front fog lamp LH |

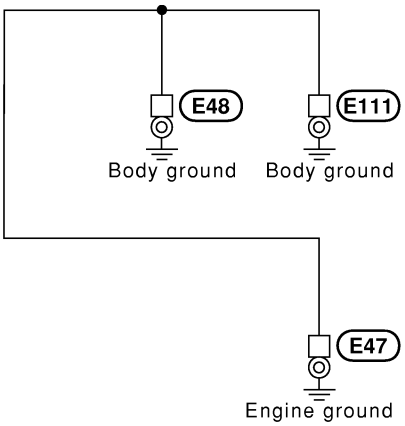


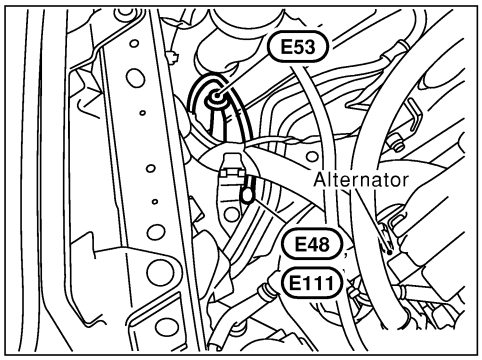

E53

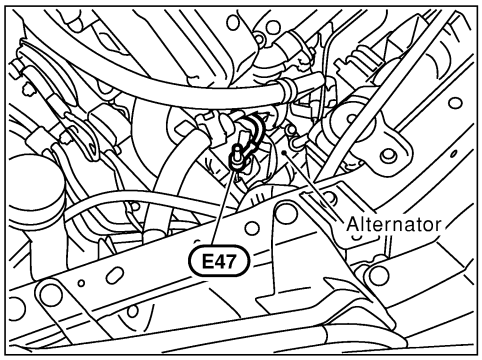
Body ground

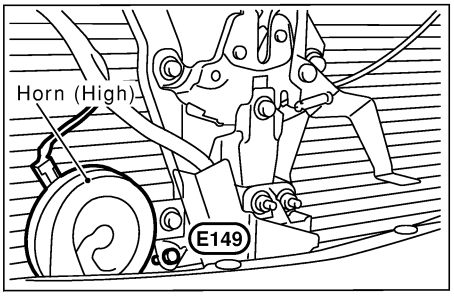
| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| E1 | Brake fluid level switch |
| E26 | Hood switch |
| E42 | Washer level switch |
| E49 | Front side marker lamp RH |
| E59 | Daytime light control unit (For Canada) (Terminal No. 16) |
| E69 | Door mirror defogger relay (With door mirror defogger) |
| E151 | Combination switch (Lighting switch) (Terminal No. 8) |
| E154 | Front fog lamp RH |
| E160 | Front turn signal lamp RH |
| E161 | Headlamp RH (Low and parking lamp) |

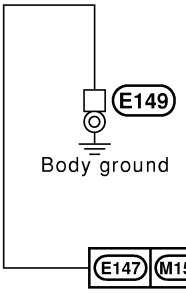
MEL065O



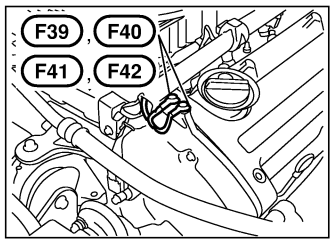



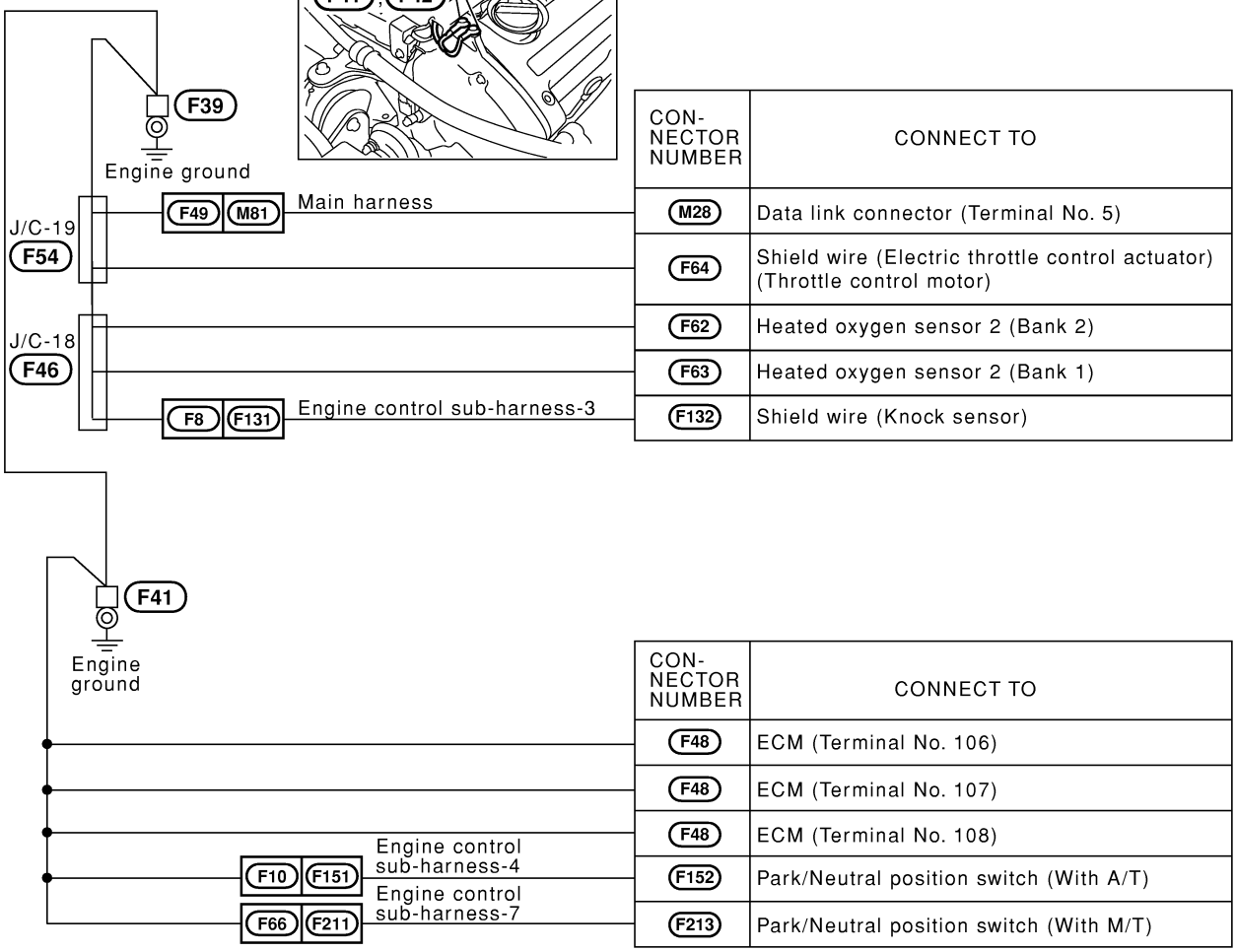

| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| M146 | Shield wire (Air bag diagnosis sensor unit) (Terminal No. 16) |

MEL066O

## ENGINE CONTROL HARNESS

NFEL0008S03

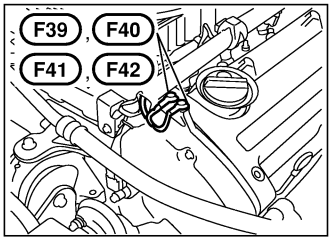


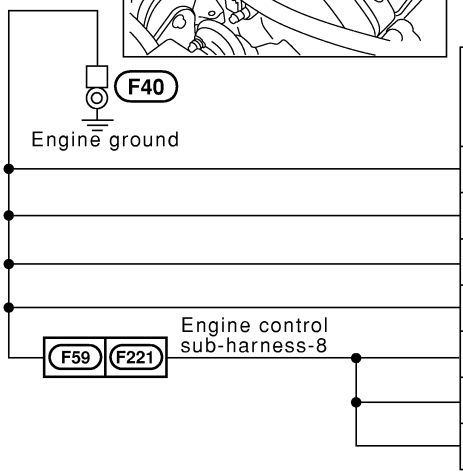




| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| M28 | Data link connector (Terminal No. 5) |
| F64 | Shield wire (Electric throttle control actuator) (Throttle control motor) |
| F62 | Heated oxygen sensor 2 (Bank 2) |
| F63 | Heated oxygen sensor 2 (Bank 1) |
| F132 | Shield wire (Knock sensor) |

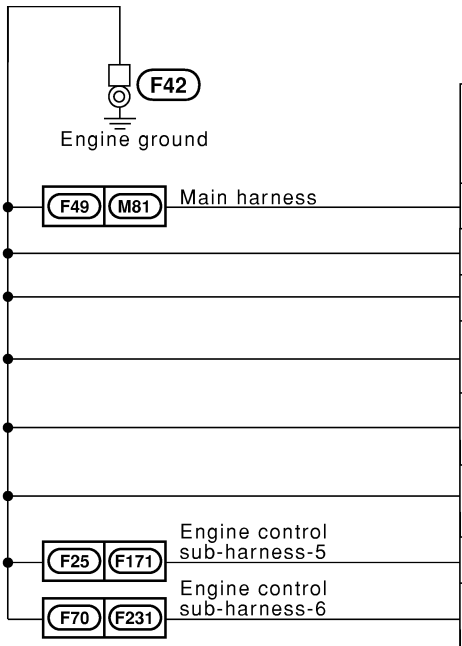
| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| F48 | ECM (Terminal No. 106) |
| F48 | ECM (Terminal No. 107) |
| F48 | ECM (Terminal No. 108) |
| F152 | Park/Neutral position switch (With A/T) |
| F213 | Park/Neutral position switch (With M/T) |

MEL067O




| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| F30 | Ignition coil No. 6 |
| F31 | Ignition coil No. 4 |
| F35 | Ignition coil No. 2 |
| F34 | Condenser |
| F222 | Ignition coil No. 1 |
| F223 | Ignition coil No. 3 |
| F224 | Ignition coil No. 5 |

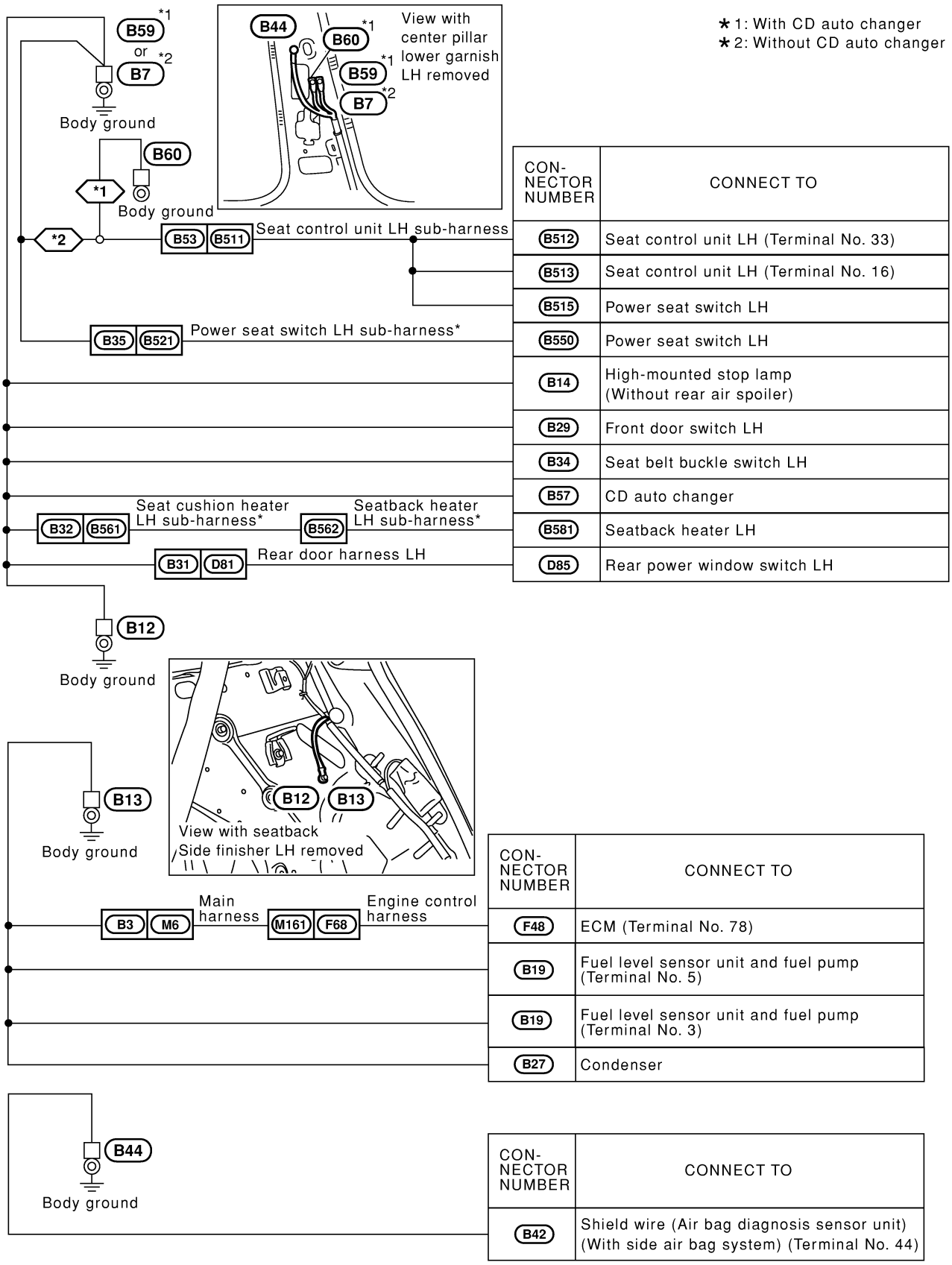



| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| M42 | NVIS (NATS) IMMU |
| F48 | ECM (Terminal No. 48) |
| F48 | ECM (Terminal No. 57) |
| F50 | TCM (Transmission control module) (Terminal No. 25) |
| F50 | TCM (Transmission control module) (Terminal No. 48) |
| F65 | Camshaft position sensor (PHASE) (Bank 2) |
| F173 | Crankshaft position sensor (POS) |
| F232 | Camshaft position sensor (PHASE) (Bank 1) |

MEL068O

## BODY HARNESS

NFEL0008S04




✱1: With CD auto changer
✱2: Without CD auto changer

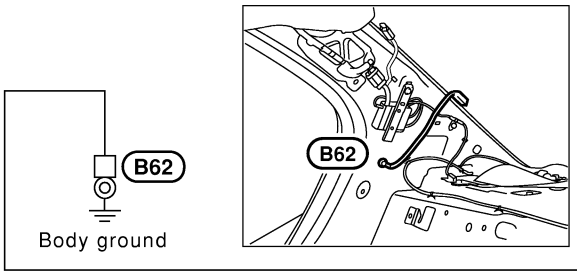
| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| B512 | Seat control unit LH (Terminal No. 33) |
| B513 | Seat control unit LH (Terminal No. 16) |
| B515 | Power seat switch LH |
| B550 | Power seat switch LH |
| B14 | High-mounted stop lamp (Without rear air spoiler) |
| B29 | Front door switch LH |
| B34 | Seat belt buckle switch LH |
| B57 | CD auto changer |
| B581 | Seatback heater LH |
| D85 | Rear power window switch LH |

| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| F48 | ECM (Terminal No. 78) |
| B19 | Fuel level sensor unit and fuel pump (Terminal No. 5) |
| B19 | Fuel level sensor unit and fuel pump (Terminal No. 3) |
| B27 | Condenser |

| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| B42 | Shield wire (Air bag diagnosis sensor unit) (With side air bag system) (Terminal No. 44) |

*: This sub-harness is not shown in "Harness layout", EL section.

MEL833P

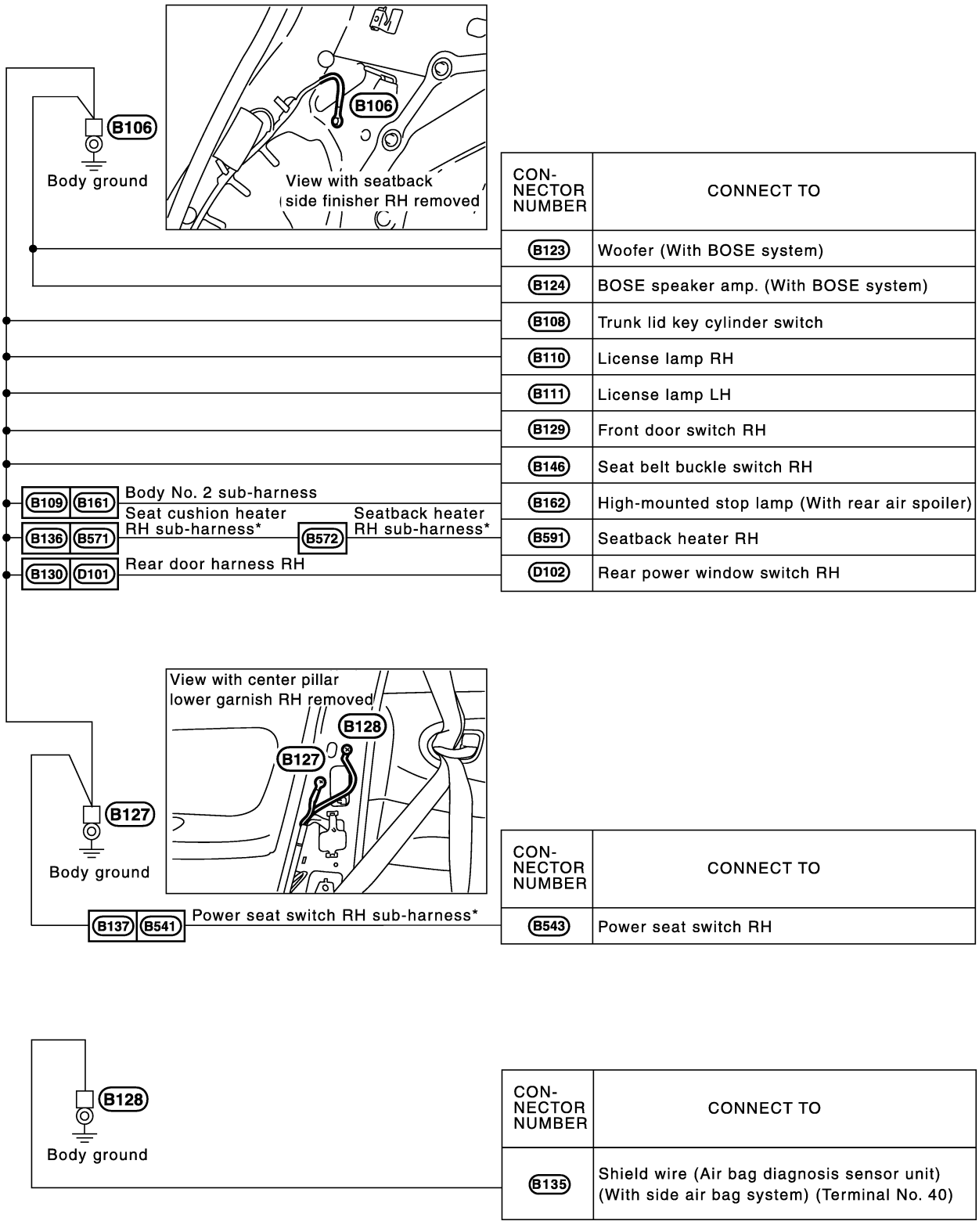



| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| B61 | Rear window defogger (–) |

MEL347K

## BODY NO. 2 HARNESS

=NFEL0008S05




| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| B123 | Woofer (With BOSE system) |
| B124 | BOSE speaker amp. (With BOSE system) |
| B108 | Trunk lid key cylinder switch |
| B110 | License lamp RH |
| B111 | License lamp LH |
| B129 | Front door switch RH |
| B146 | Seat belt buckle switch RH |
| B162 | High-mounted stop lamp (With rear air spoiler) |
| B591 | Seatback heater RH |
| D102 | Rear power window switch RH |

| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| B543 | Power seat switch RH |

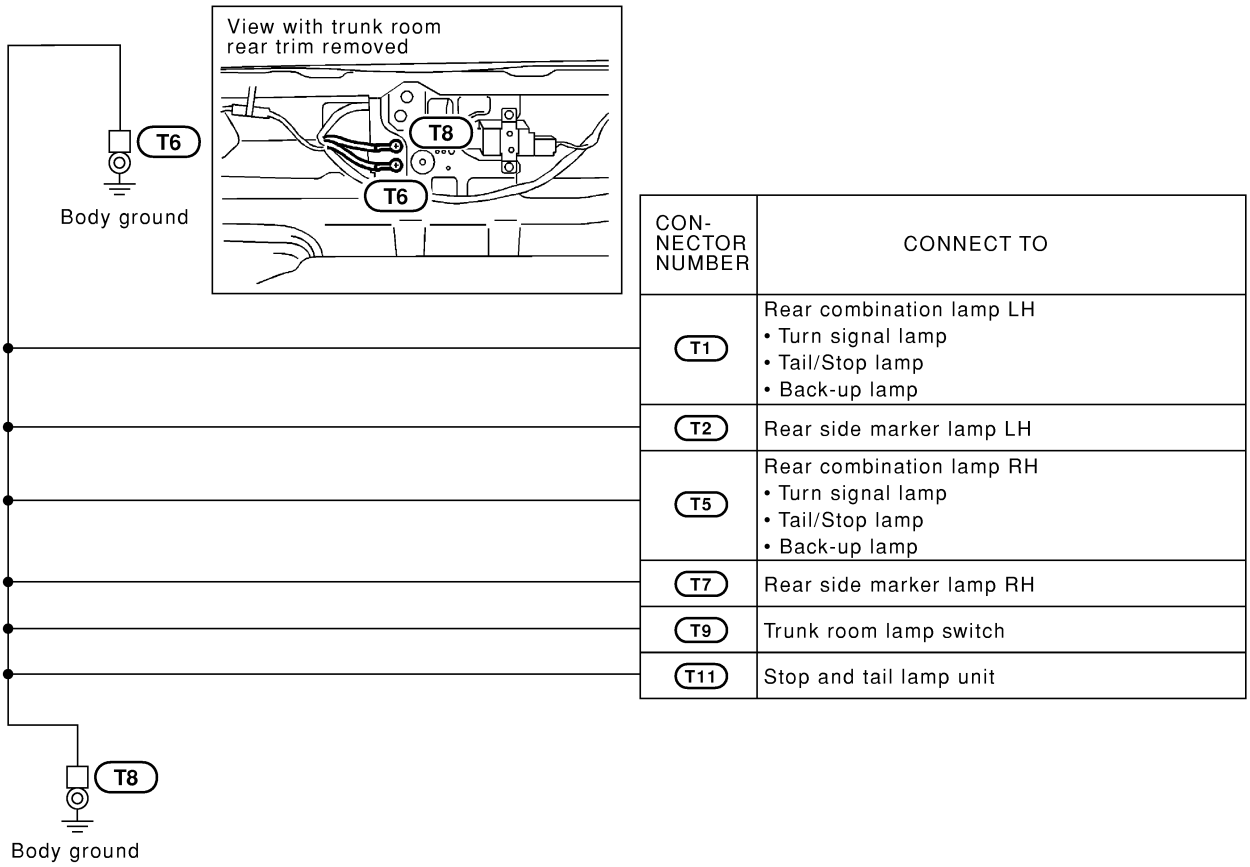
| CONNECTOR NUMBER | CONNECT TO |
|---|---|
| B135 | Shield wire (Air bag diagnosis sensor unit) (With side air bag system) (Terminal No. 40) |

*: This sub-harness is not shown in "Harness layout", EL section.

MEL070O

## TAIL HARNESS

NFEL0008S06

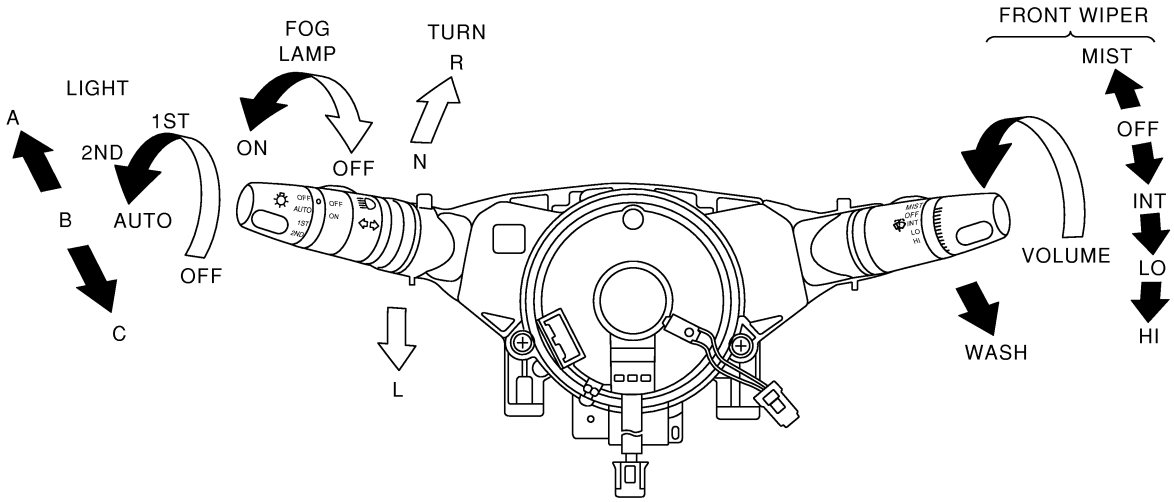


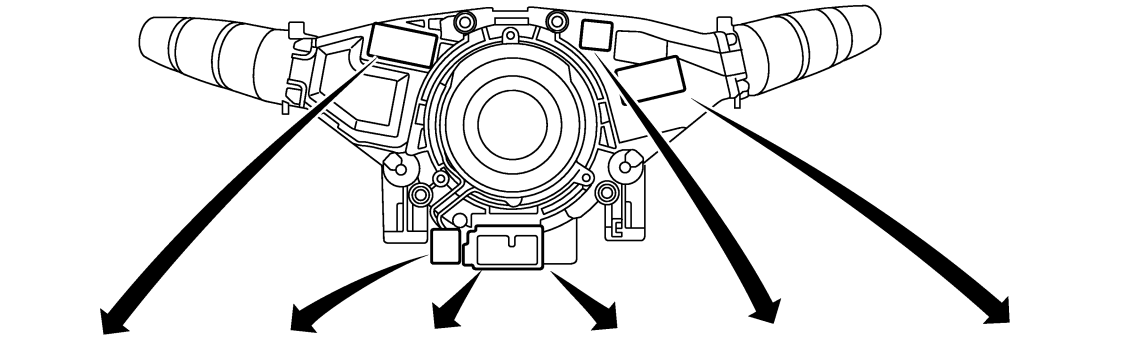

| CON-NECTOR NUMBER | CONNECT TO |
|---|---|
| T1 | Rear combination lamp LH<br>• Turn signal lamp<br>• Tail/Stop lamp<br>• Back-up lamp |
| T2 | Rear side marker lamp LH |
| T5 | Rear combination lamp RH<br>• Turn signal lamp<br>• Tail/Stop lamp<br>• Back-up lamp |
| T7 | Rear side marker lamp RH |
| T9 | Trunk room lamp switch |
| T11 | Stop and tail lamp unit |

MEL203O

## Check

NFEL0009




LIGHTING SWITCH

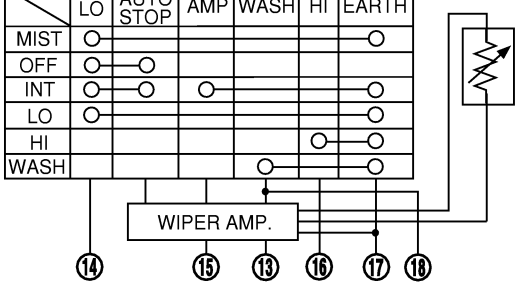
| | OFF | AUTO | 1ST | 2ND |
|---|---|---|---|---|
| 5 | | | ○ | ○ |
| 11 | | | ○ | ○ |
| 8 | | | | ○ |
| 12 | | | | ○ |
| 42 | | ○ | | |
| (8) | | ○ | | |

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

FRONT WIPER AND WASHER SWITCH

| | LO | AUTO STOP | AMP | WASH | HI | EARTH |
|---|---|---|---|---|---|---|
| MIST | ○ | | | | | ○ |
| OFF | ○ | ○ | | | | |
| INT | ○ | ○ | ○ | | | ○ |
| LO | ○ | | | | | ○ |
| HI | | | | | ○ | ○ |
| WASH | | | | ○ | | ○ |

VARIABLE INTERMITTENT WIPER VOLUME



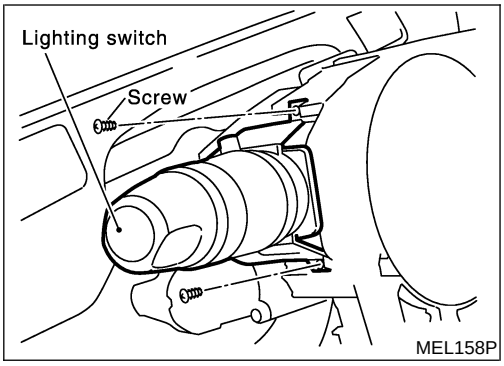

FRONT FOG LAMP SWITCH

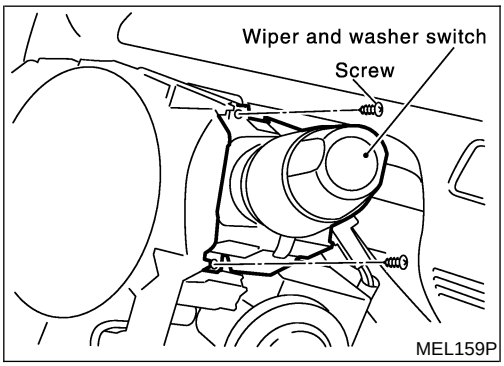
| | OFF | ON |
|---|---|---|
| 31 | | ○ |
| 32 | | ○ |

TURN SIGNAL LAMP SWITCH

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

MEL078O




## Replacement

NFEL0010

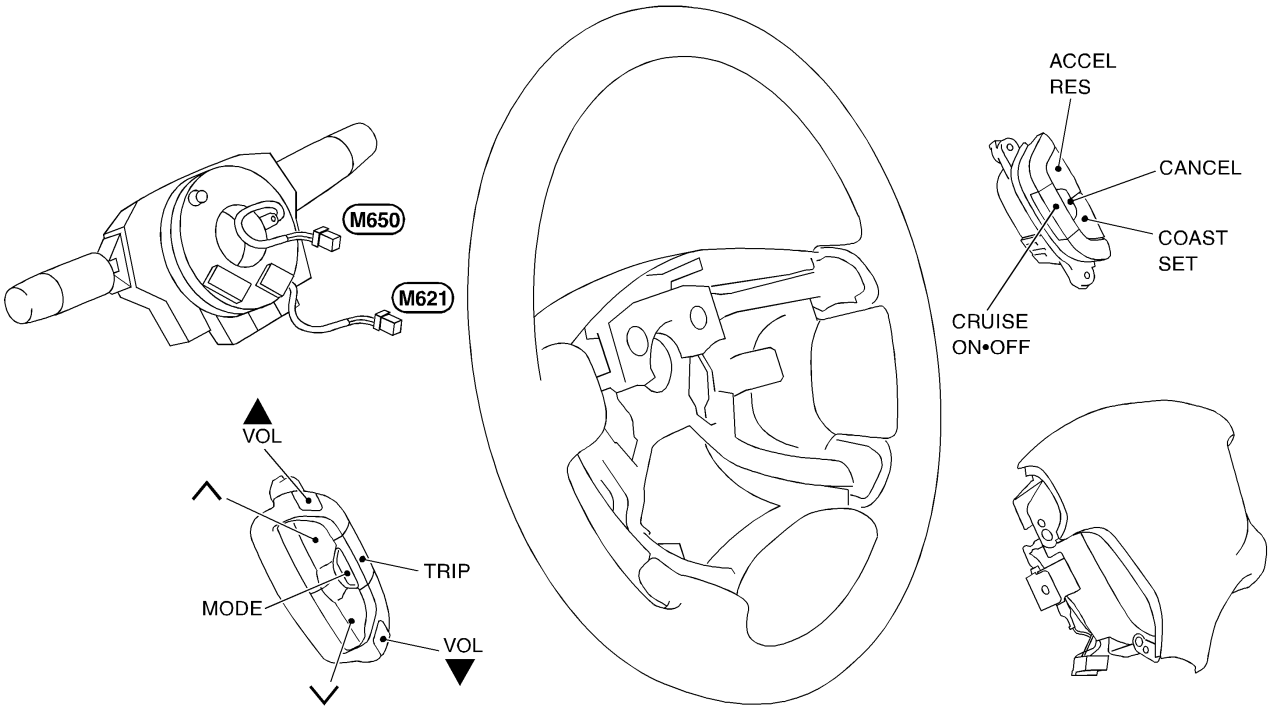
**For removal and installation of spiral cable, refer to RS-20, "Installation — Air Bag Module and Spiral Cable".**

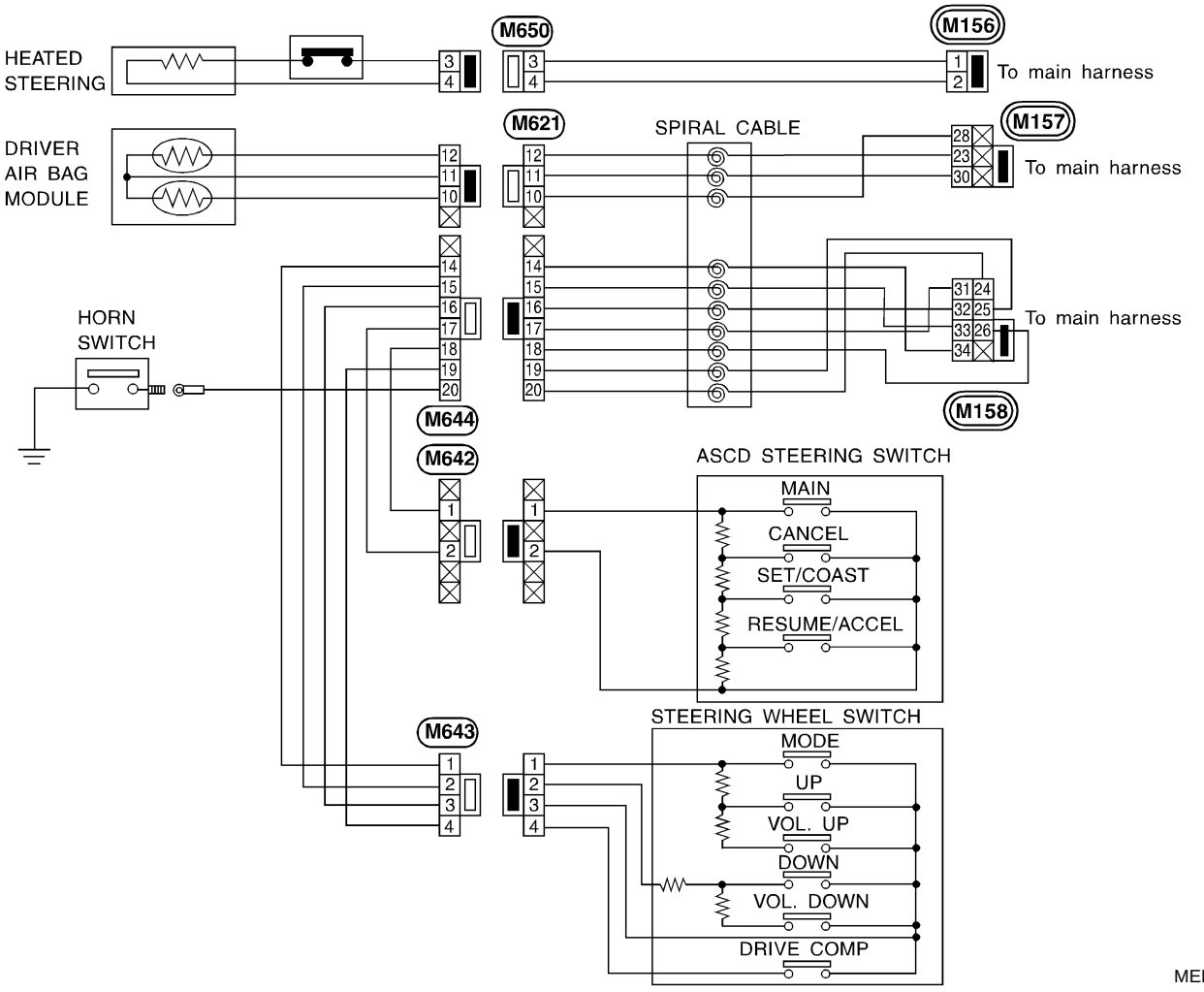
- Each switch can be replaced without removing spiral cable.

1. Remove the instrument lower panel on driver side.
2. Remove the steering column cover.
3. Remove lighting switch or wiper and washer switch mounting screw.
4. Remove lighting switch or wiper and washer switch from the spiral cable.
5. Disconnect lighting switch or wiper and washer switch connector.

## Check

NFEL0011

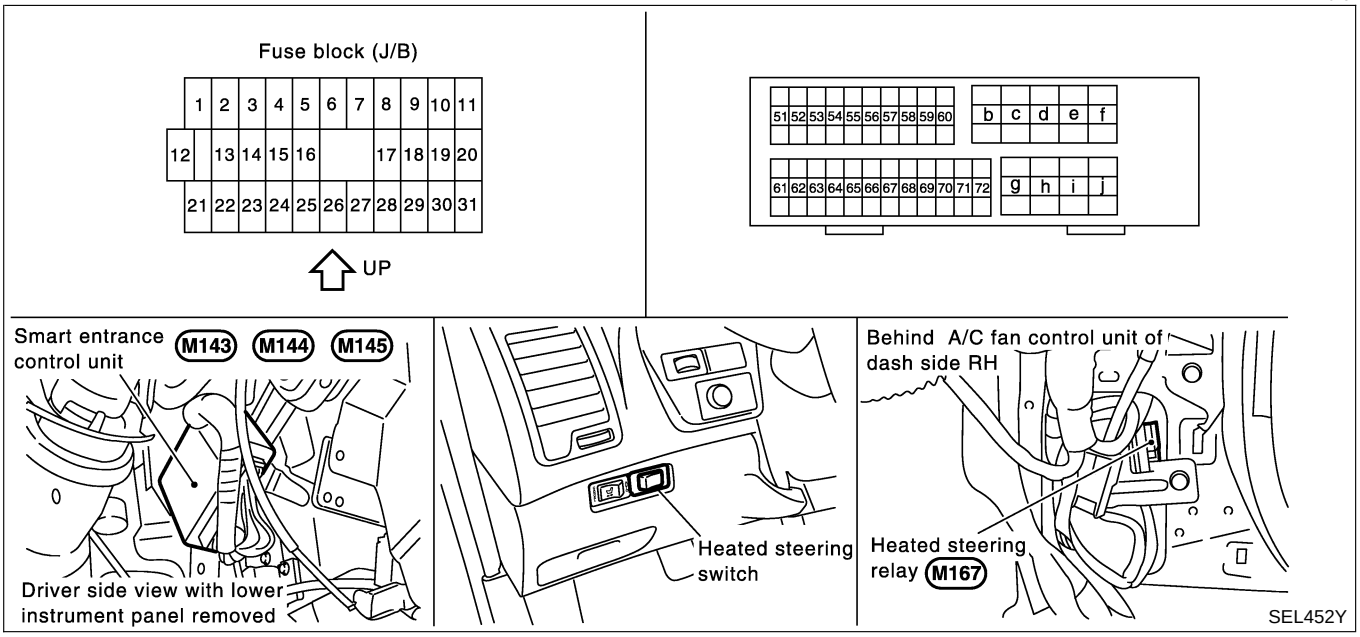



MEL079O

## Component Parts and Harness Connector Location

NFEL0281




## System Description

NFEL0282

The heated steering system is controlled by the smart entrance control unit. The heated steering system operates only for approximately 30 minutes after heated steering switch is turned “ON”.
Then the heated steering system is turned “OFF” when the heated steering switch is turned “ON” again or ignition switch “OFF” within 30 minutes after heated steering system “ON”.
Power is supplied at all times

- to smart entrance control unit terminal 49
- through 10A fuse [No. 13, located in the fuse block (J/B)]
- to heated steering relay terminal 3
- through 10A fuse (No. 72, located in the fuse and fusible link box)

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

- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to the heated steering relay terminal 1 and
- to smart entrance control unit terminal 27.

Ground is supplied

- to terminal 2 and 5 of heated steering switch and
- to combination switch (heated steering switch) terminal 2
- through body grounds M9, M25 and M87.

When the heated steering switch is turned ON, ground is supplied

- through terminal 1 of heated steering switch
- to smart entrance control unit terminal 4.

Terminal 40 of the smart entrance control unit then supplies ground to the heated steering relay terminal 2.
With power and ground supplied, the heated steering relay is energized.
Power is supplied

- through terminal 5 of heated steering relay
- to heated steering switch terminal 4 and
- to combination switch (heated steering switch) terminal 1.
- through terminal 3 of combination switch (heated steering switch)
- to the heated steering (thermostat).

Ground is supplied for heated steering

- through heated steering

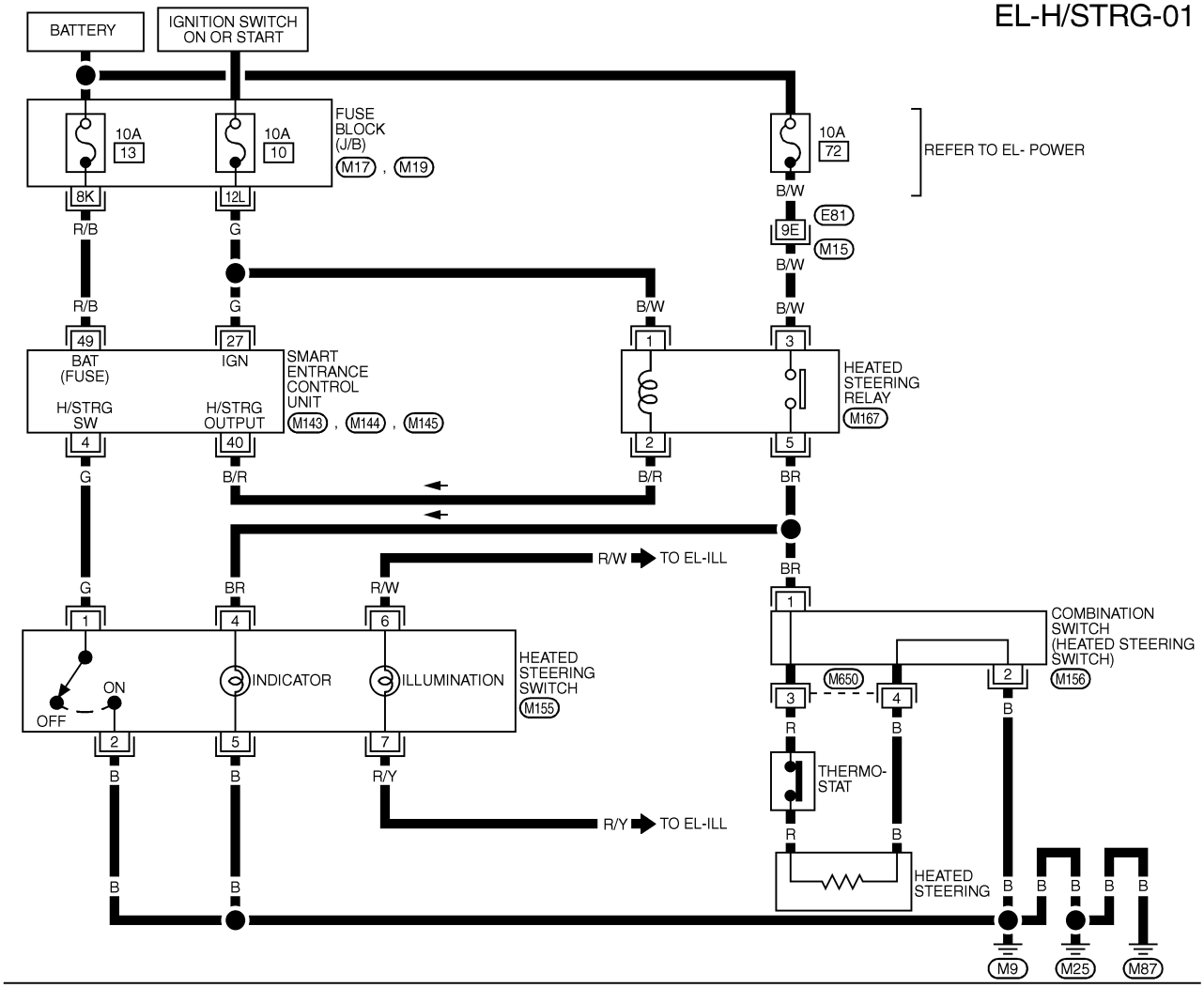
- to combination switch (heated steering switch) terminal 4.

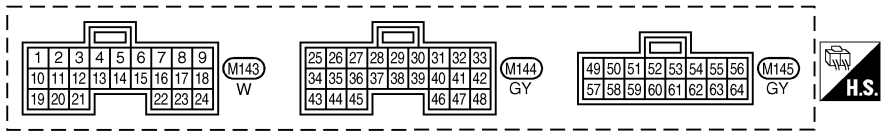
With power and ground supplied, the heated steering heats.
When the system is activated, the heated steering indicator lamp illuminates in the heated steering switch.

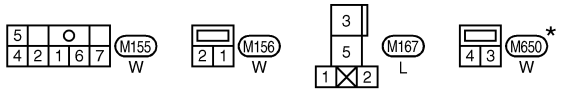
## Wiring Diagram — H/STRG —

=NFEL0267

EL-H/STRG-01




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL133O

* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT" , EL SECTION.

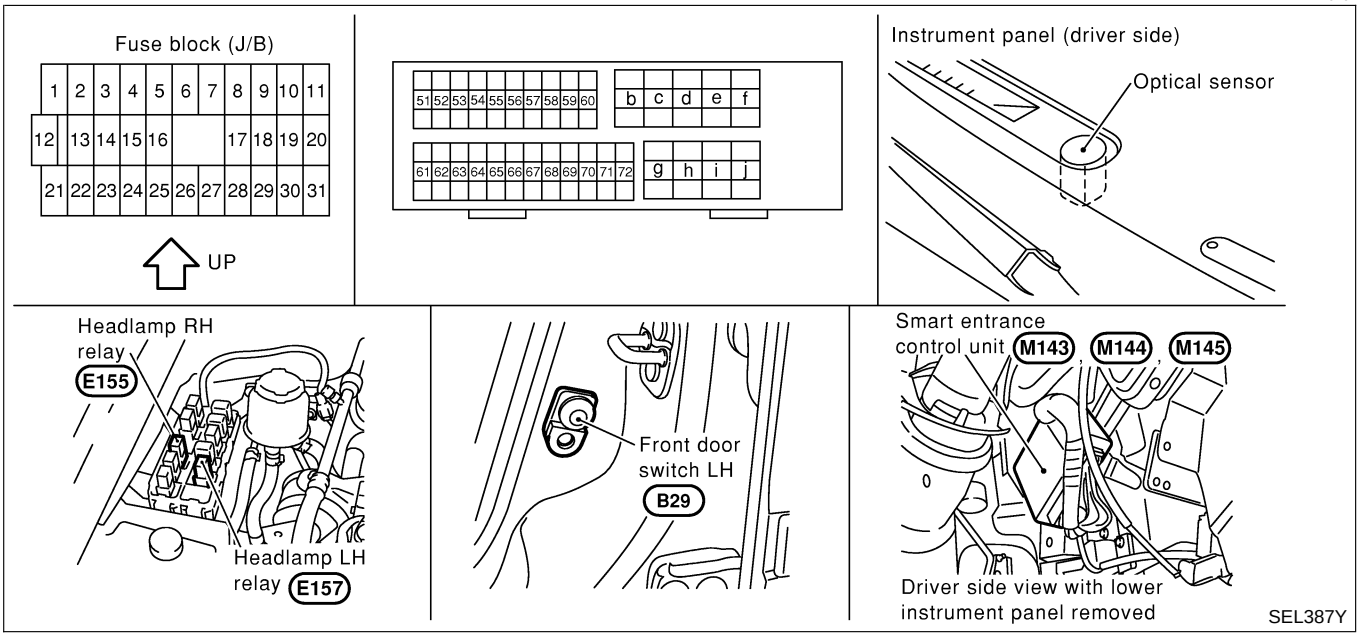
**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 4 | G | HEATED STEERING SWITCH | OFF → ON (ONLY WHEN PUSHED) | 5V → 0V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | 12V |
| 40 | B/R | HEATED STEERING RELAY | OFF → ON (IGNITION KEY IS IN "ON" POSITION) | 12V → 0V |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |

SEL478Y

## Component Parts and Harness Connector Location

NFEL0197




## System Description

NFEL0198

The headlamp operation is controlled by the lighting switch which is built into the combination switch and smart entrance control unit. And the headlamp battery saver system is controlled by the smart entrance control unit.

### OUTLINE

NFEL0198S01

Power is supplied at all times

- to headlamp LH relay terminals 1 and 6
- through 20A fuse (No. 54, located in the fuse and fusible link box), and
- to headlamp LH relay terminal 3
- through 15A fuse (No. 68, located in the fuse and fusible link box), and
- to headlamp RH relay terminals 1 and 6
- through 20A fuse (No. 55, located in the fuse and fusible link box), and
- to headlamp RH relay terminal 3
- through 15A fuse (No. 69, located in the fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 10A fuse [No. 13, located in the fuse block (J/B)].

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

- to smart entrance control unit terminal 27
- through 10A fuse [No. 10, located in the fuse block (J/B)].

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

- to smart entrance control unit terminal 26
- through 10A fuse [No. 1, located in the fuse block (J/B)]

Ground is supplied

- to smart entrance control unit terminals 43 and 64
- through body grounds M9, M25 and M87.

### POWER SUPPLY TO LOW BEAM AND HIGH BEAM

NFEL0198S07

When lighting switch is in 2ND or PASS position, ground is supplied

- to headlamp LH relay terminal 2 from smart entrance control unit terminal 21
- through smart entrance control unit terminal 22,
- from lighting switch terminal 12, and
- to headlamp RH relay terminal 2 from smart entrance control unit terminal 59

- through smart entrance control unit terminal 60,
- from lighting switch terminal 12.

Headlamp relays (LH and RH) are energized and then power is supplied to headlamps (LH and RH).

### LOW BEAM OPERATION

NFEL0198S02

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

- from terminal 7 of each headlamp relay
- to terminal 1 of each headlamp

Ground is supplied

- to headlamp LH terminal 2
- through body grounds E11, E22 and E53, and
- to headlamp RH terminal 2
- through body grounds E11, E22 and E53.

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

### HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

NFEL0198S03

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

- from terminal 5 of each headlamp relay
- to terminal 4 of each headlamp, and
- to combination meter terminal 26 for the HIGH BEAM indicator.

Ground is supplied

- to headlamp LH terminal 5
- through lighting switch terminals 6 and 5
- through body grounds E11, E22 and E53, and
- to headlamp RH terminal 5
- to combination meter terminal 27 for the HIGH BEAM indicator
- through lighting switch terminals 9 and 8
- through body grounds E11, E22 and E53.

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

### EXTERIOR LAMP BATTERY SAVER CONTROL

NFEL0198S04

While the headlamp is turned ON by "2ND" of light switch, the 5 minute timer is activated when the ignition switch is turned from ON (or START) to OFF (ACC OFF).
Continuity between terminals 21 and 22, and between terminals 59 and 60 of smart entrance control unit will be disturbed after 5 minutes, then the headlamps will be turned off.
While the headlamp is turned ON by "AUTO" of light switch, the 5 minutes timer is activated when the ignition switch signal changes from ON (or START) to OFF (ACC OFF), and either one of LH or RH front door switch ON signal is input.
The auto light delay off timer is activated as the following:

- When the door switch signal changes from ON to OFF while the timer is activated, the timer in operation is discontinued and the 45 second timer is reset.
- When the door switch signal changes from OFF to ON while the timer is activated, the timer is discontinued and the 45 second timer is reset.
- When the one of four door switch signals changes from OFF to ON while the timer is activated, the timer is discontinued and the 5 minute timer is reset.
- When all the door switch ON signals are input while the timer is activated, the timer is discontinued and the 45 second timer is reset.

Exterior lamp battery saver control mode and auto light delay off timer period can be changed by the function setting of CONSULT-II (EL-46).
When the lighting switch is turned from OFF to 2ND after headlamps are turned to off by the battery saver control, ground is supplied

- to smart entrance control unit terminals 20 and 58 from lighting switch terminal 11, and then,
- to headlamp LH and RH relays terminal 2 from smart entrance control unit terminals 21 and 59,
- through smart entrance control unit terminals 22 and 60 and
- through lighting switch terminal 12.

Then headlamps illuminate again.

## AUTO LIGHT OPERATION

NFEL0198S06

The auto light control system has an auto light sensor inside it that detects outside brightness.
When lighting switch is in "AUTO" position, ground is supplied

- to smart entrance control unit terminal 23
- from lighting switch terminal 42.

When ignition switch is turn to "ON" or "START" position and
Outside brightness is darker than prescribed level.
Ground is supplied

- to headlamp relay LH and RH terminals 2
- through smart entrance control unit terminal 21, 59 and 43, 64.

Then both headlamp relays and tail lamp relay are energized, headlamps (low or high) and tail lamps are illuminate according to switch position.
Auto light operation allows headlamps and tail lamps to go off when outside brightness is brighter than prescribed level.

**NOTE:**
**The delay time changes (maximum of 20 seconds) as the outside brightness changes.**

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

## VEHICLE SECURITY SYSTEM

NFEL0198S05

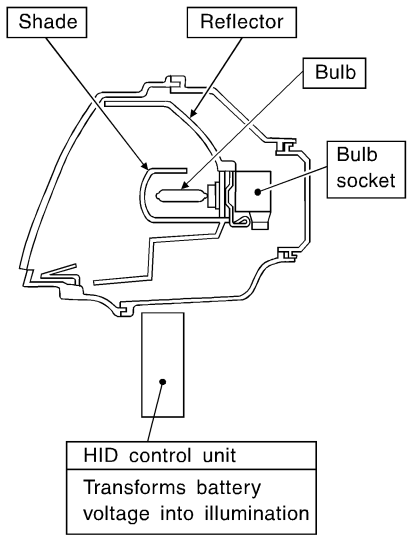
The vehicle security system will flash the low beams if the system is triggered. Refer to "VEHICLE SECURITY (THEFT WARNING) SYSTEM" (EL-311).

## XENON HEADLAMP

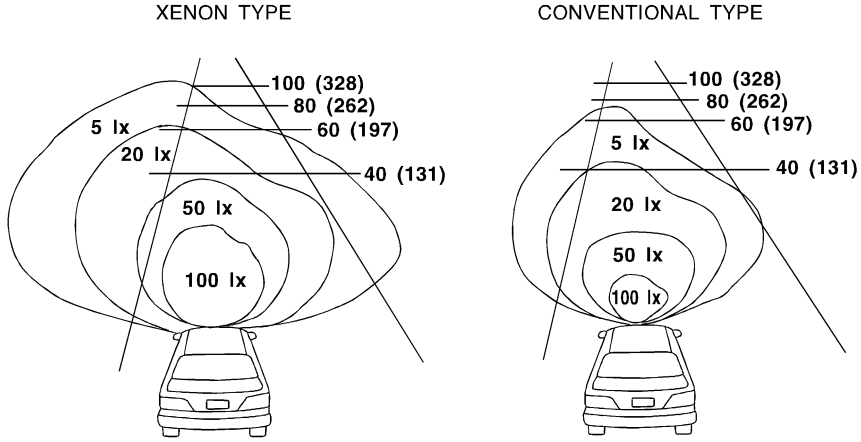
NFEL0198S08

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.



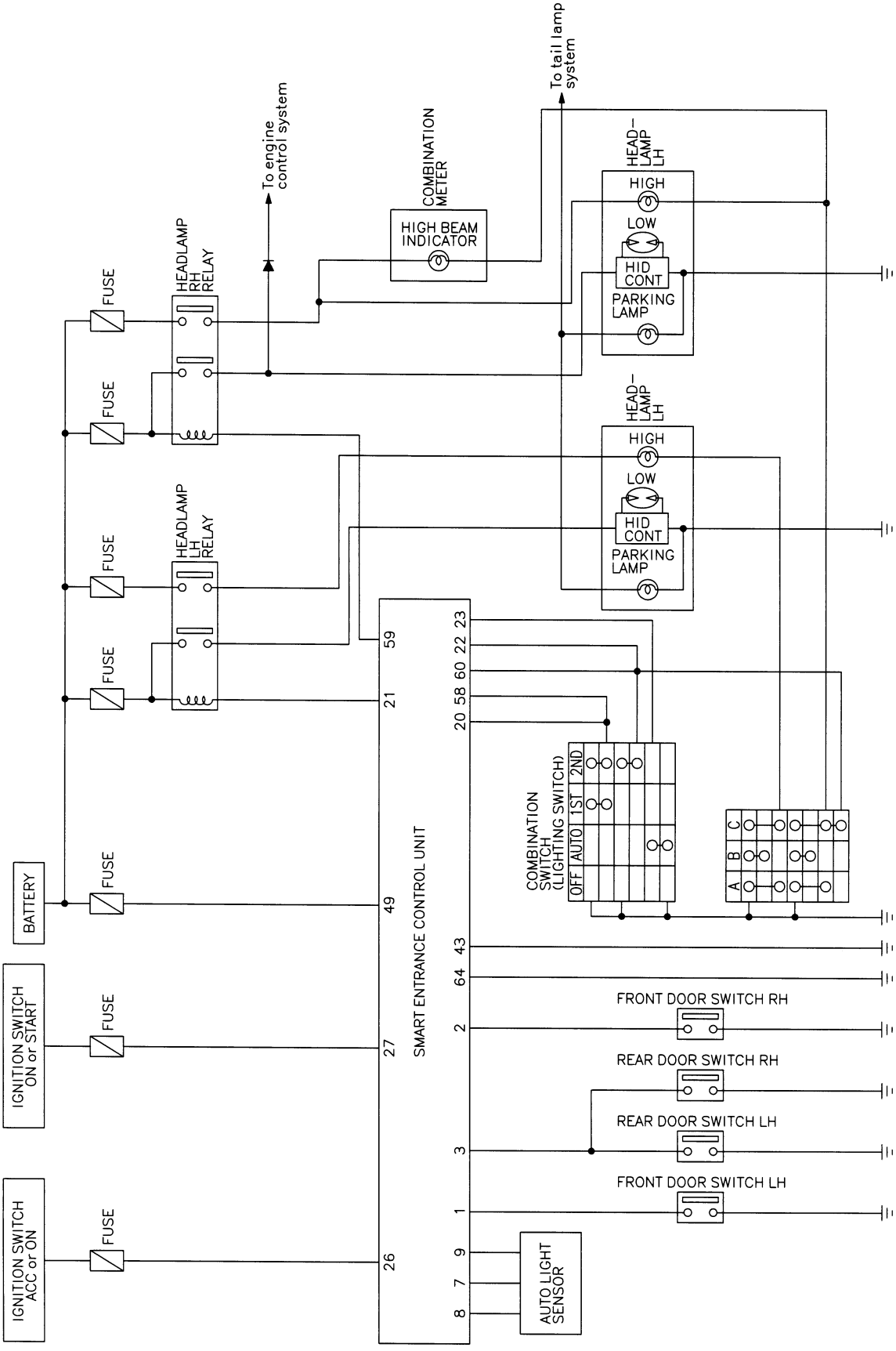

Structure of the new xenon headlamp
HID: High Intensity Discharge




SEL477Y

## Schematic

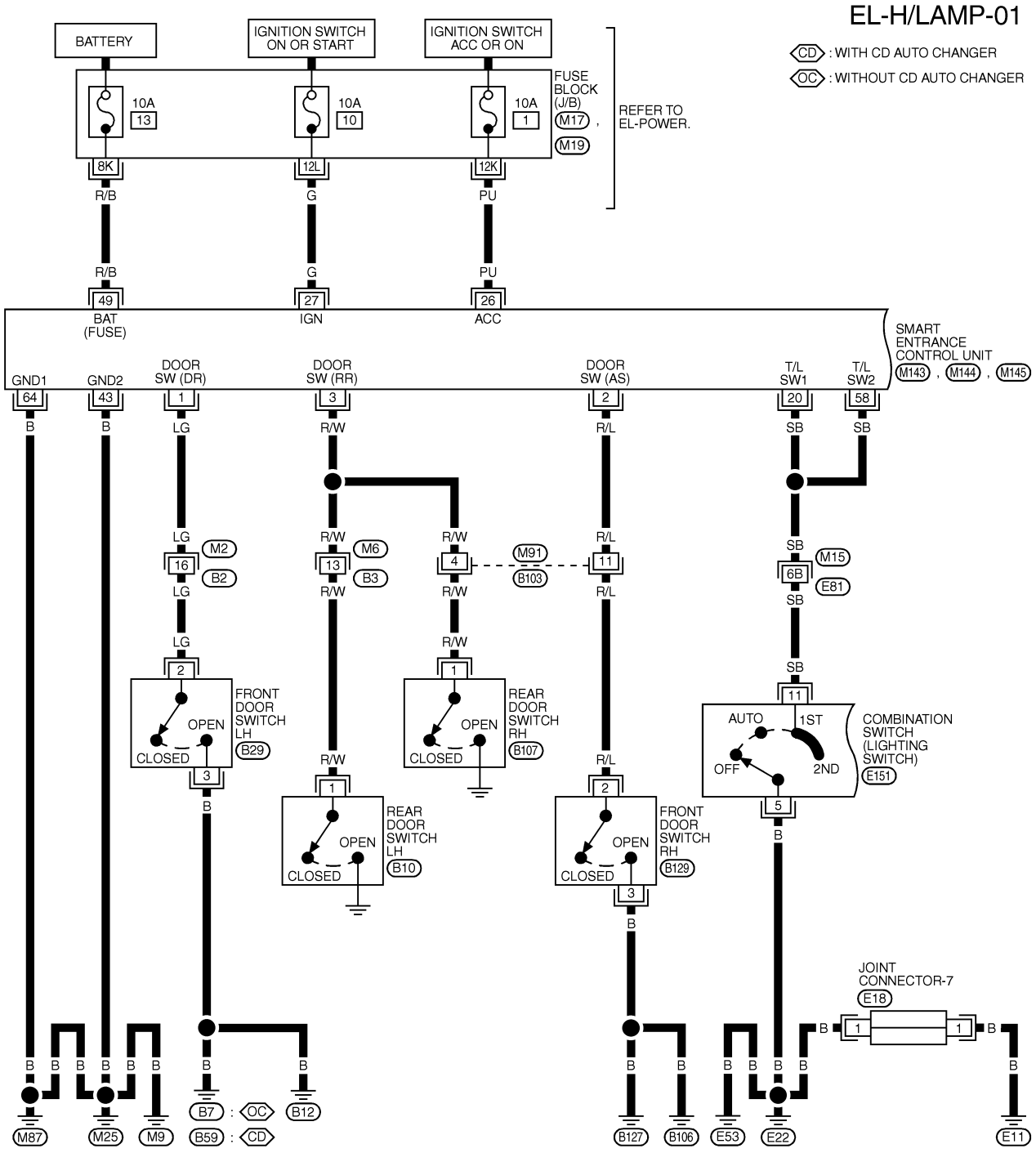
NFEL0199

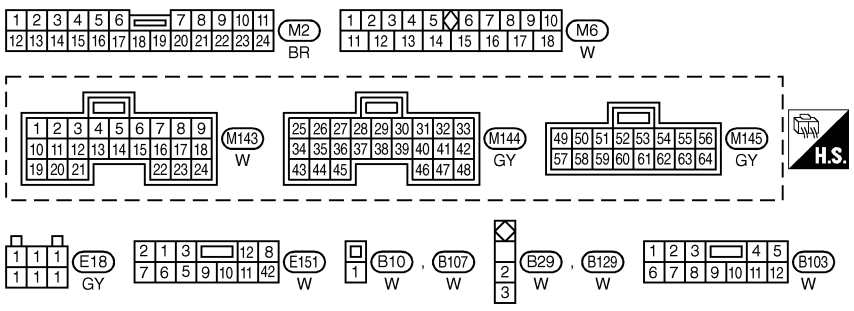



MEL714P

## Wiring Diagram — H/LAMP —

NFEL0013

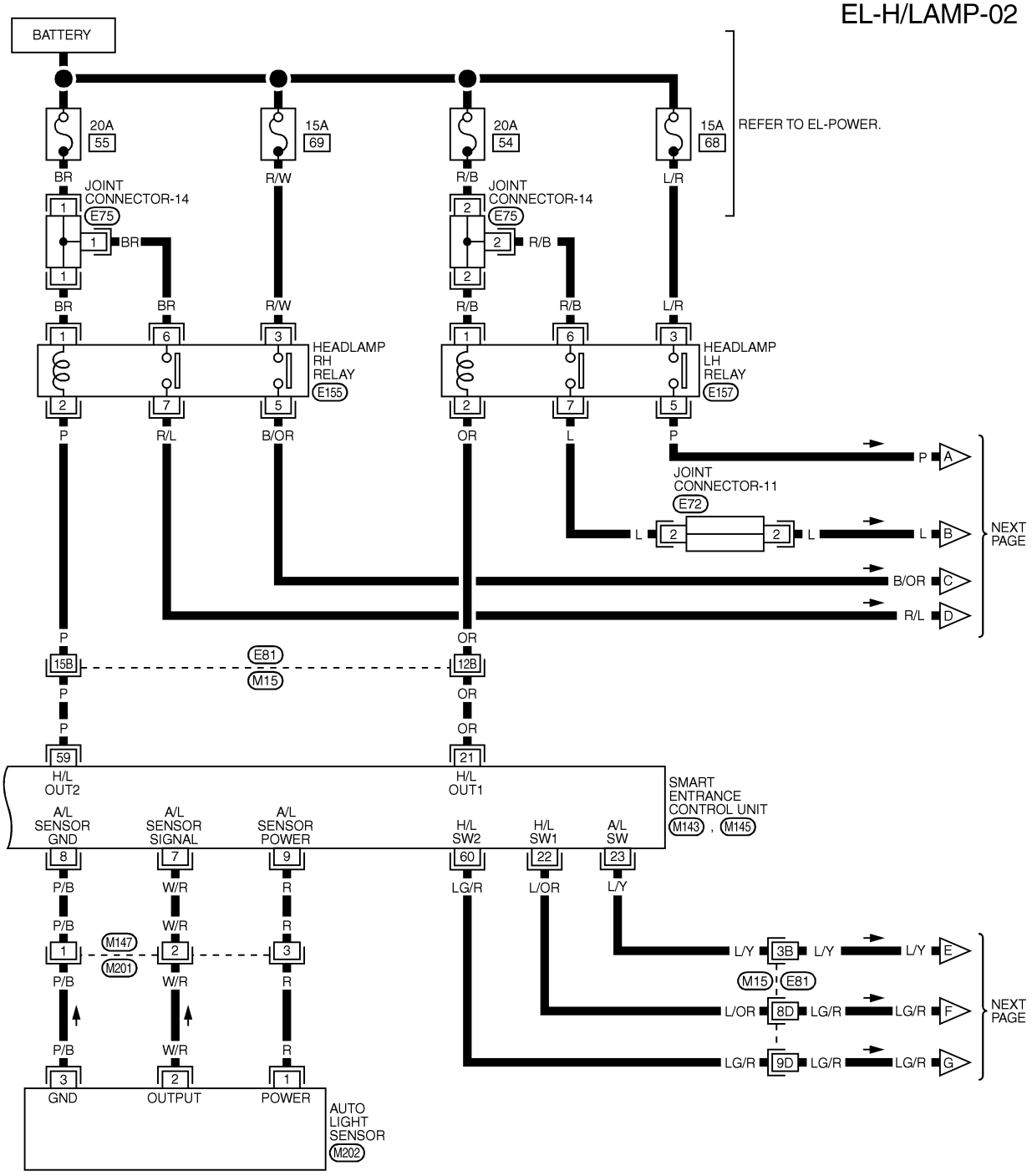


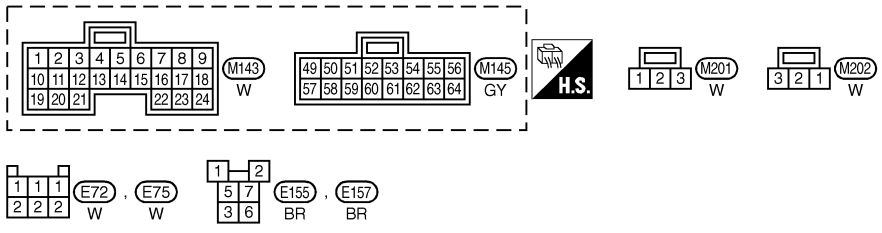




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL715P

EL-H/LAMP-02

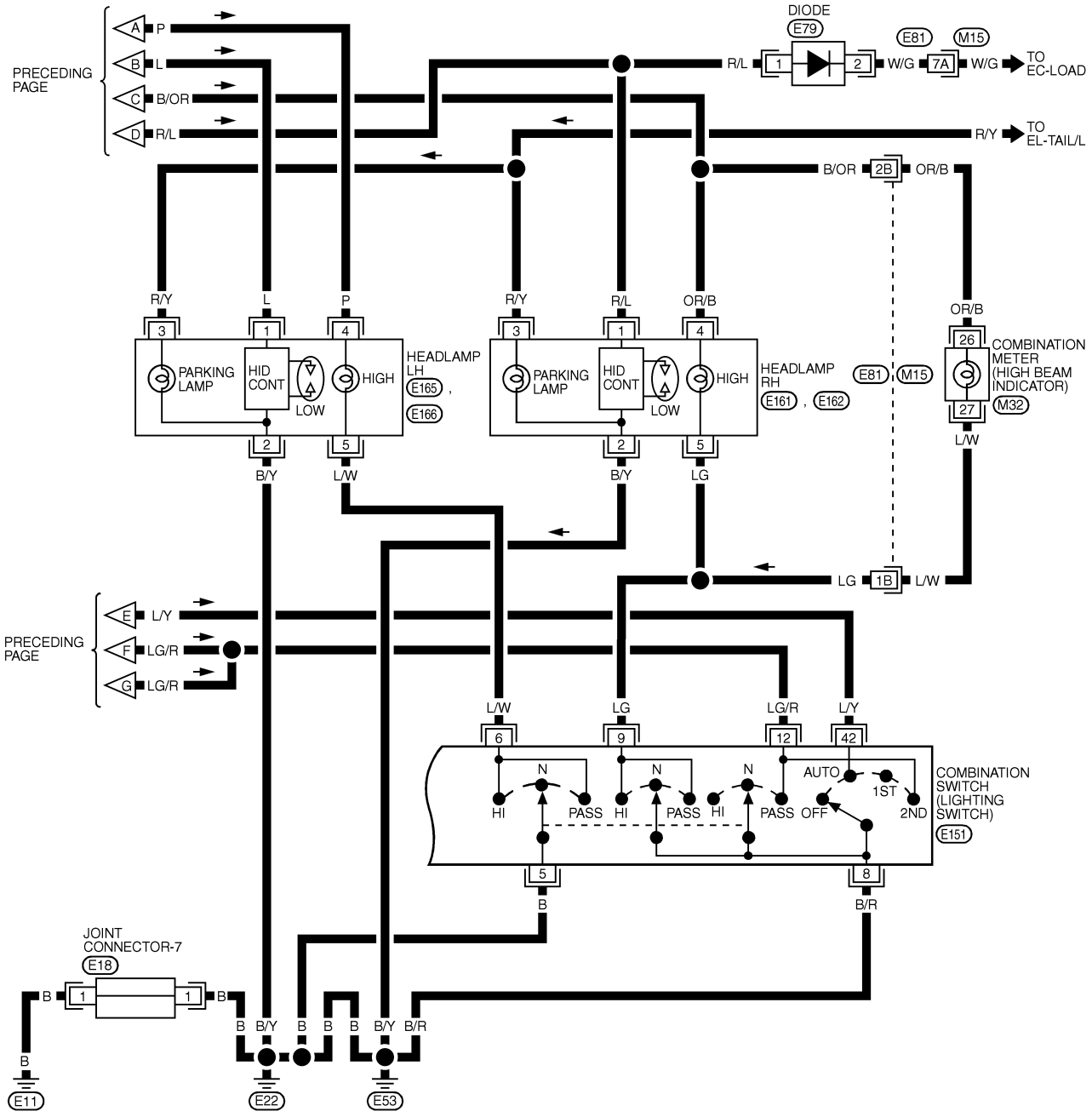



REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL092O

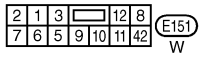
EL-H/LAMP-03

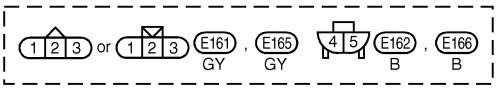








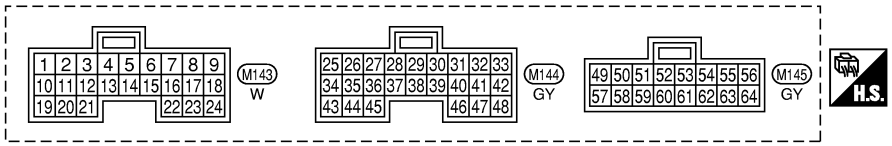



REFER TO THE FOLLOWING.
M15 - SUPER MULTIPLE JUNCTION (SMJ)

MEL826P

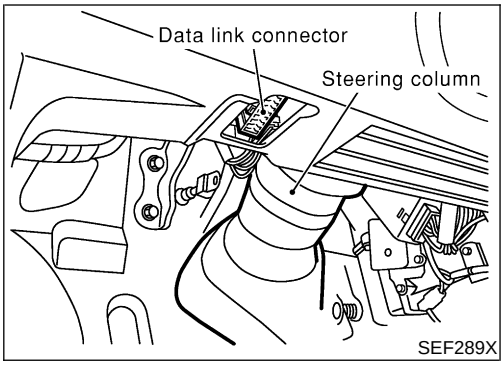
**SMART ENTRANCE CONTROL UNIT CONNECTOR**




**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | | | DATA (DC) |
|---|---|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 3 | R/W | REAR DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 7 | W/R | AUTO LIGHT SENSOR (SIGNAL) | IGNITION SWITCH "ON" POSITION | LIGHT IS APPLIED TO AUTO LIGHT SENSOR | | 1 TO 5V |
| | | | | LIGHT IS NOT APPLIED TO AUTO LIGHT SENSOR | | LESS THAN 1V |
| 8 | P/B | AUTO LIGHT SENSOR (GND) | – | | | – |
| 9 | R | AUTO LIGHT SENSOR (POWER) | IGNITION SWITCH (OFF → ON) | | | 0V → 5V |
| 20 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION) | | | 12V → 0V |
| 21 | OR | HEADLAMP LH RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL | | | 0V |
| 22 | L/OR | HEADLAMP SWITCH | LIGHTING SWITCH | EXCEPT PASS OR 2ND POSITION | | 12V |
| | | | | PASS OR 2ND POSITION | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | 10V → 12V |
| 23 | L/Y | HEADLAMP SWITCH | IGNITION SWITCH "ON" POSITION | LIGHTING SWITCH (EXCEPT AUTO → AUTO POSITION) | | 12V → 0V |
| 26 | PU | IGNITION SWITCH (ACC) | "ACC" POSITION | | | 12V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | | | 12V |
| 43 | B | GROUND | – | | | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | | | 12V |
| 58 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION) | | | 12V → 0V |
| 59 | P | HEADLAMP RH RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | LESS THAN 1V → 12V |
| 60 | LG/R | HEADLAMP SWITCH | LIGHTING SWITCH | EXCEPT PASS OR 2ND POSITION | | 12V |
| | | | | PASS OR 2ND POSITION | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | 10V → 12V |
| 64 | B | GROUND | – | | | – |

SEL583Y



SEF289X

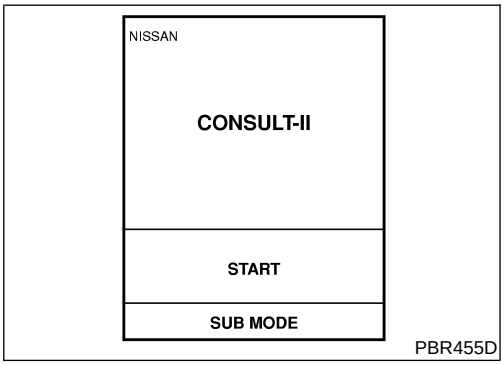
## CONSULT-II Inspection Procedure

NFEL0200

**“HEAD LAMP”**

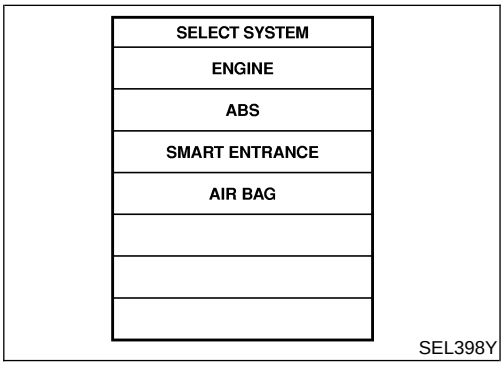
NFEL0200S01

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



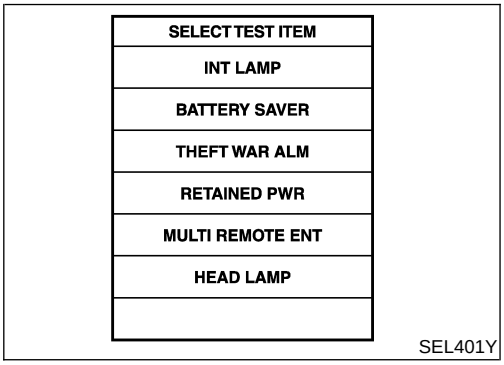
PBR455D

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



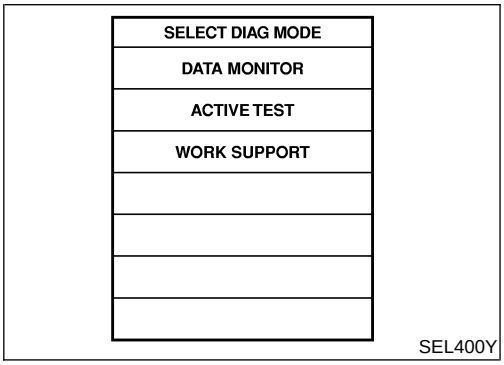
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL401Y

6. Touch “HEAD LAMP”.



SEL400Y

7. Select diagnosis mode.
   “DATA MONITOR”, “ACTIVE TEST” and “WORK SUPPORT” are available.

# CONSULT-II Application Items

NFEL0201

## "HEAD LAMP"

NFEL0201S02

### Data Monitor

NFEL0201S0201

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch in ON position. |
| ACC ON SW | Indicates [ON/OFF] condition of ignition switch in ACC position. |
| AUTO LIGT SW | Displays status of the lighting switch as judged from the lighting switch signal.<br>(AUTO position: ON/Other than AUTO position: OFF) |
| AUTO LIGT SENS | Displays "Illumination outside of the vehicle (close to 5V when light/close to 0V when dark)" as judged from the optical sensor signal. |
| LIGHT SW 1ST | Displays status of the lighting switch as judged from the lighting switch signal.<br>(1ST or 2ND position: ON/Other than 1ST and 2ND position: OFF) |
| LIGHT SW 2ND | Displays status of the lighting switch as judged from the lighting switch signal.<br>(2ND position: ON/Other than 2ND position: OFF) |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |
| DOOR SW-AS | Indicates [ON/OFF] condition of door switch RH. |
| DOOR SW-RR | Indicates [ON/OFF] condition of rear door switch. |

### Active Test

NFEL0201S0202

| Test Item | Description |
|---|---|
| TAIL LAMP | Tail lamp relay can be operated by on-off operation of the tail lamp. |
| HEAD LAMP | Headlamp relay can be operated by on-off operation of the headlamp. |
| AUTO LIGHT | Night time dimming signal can be operated by on-off operation. |

### Work Support

NFEL0201S0203

| Work Item | Description |
|---|---|
| AUTO LIGHT SET | Auto light sensitivity can be changed in this mode. Sensitivity can be adjusted in four modes.<br>● MODE 1 (Normal)/MODE 2 (Sensitive)/MODE 3 (Desensitized)/MODE 4 (Insensitive) |
| BATTERY SAVER SET | Exterior lamp battery saver control mode can be changed in this mode. Selects exterior lamp battery saver control mode between two modes.<br>● MODE 1 (ON)/MODE 2 (OFF) |
| ILL DELAY SET | Auto light delay off timer period can be changed in this mode. Selects auto light delay off timer period among eight modes.<br>● MODE 1 (45 sec.)/MODE 2 (OFF)/MODE 3 (30 sec.)/MODE 4 (60 sec.)/ MODE 5 (90 sec.)/ MODE 6 (120 sec.)/MODE 7 (150 sec.)/MODE 8 (180 sec.) |

# Trouble Diagnoses

NFEL0268

**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.**

| Symptom | Possible cause | Repair order |
|---|---|---|
| Neither headlamp operates. | 1. 10A fuse<br>2. Lighting switch<br>3. Smart entrance control unit | 1. Check 10A fuse [No. 13, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 49 of smart entrance control unit.<br>2. Check Lighting switch.<br>3. Check smart entrance control unit. (EL-350) |
| LH headlamp (low and high beam) does not operate, but RH headlamp (low and high beam) does operate. | 1. 20A fuse<br>2. Headlamp LH relay<br>3. Headlamp LH relay circuit<br>4. Lighting switch circuit<br>5. Smart entrance control unit | 1. Check 20A fuse (No. 54, located in fuse and fusible link box). Verify battery positive voltage is present at terminals 1 and 6 of headlamp LH relay.<br>2. Check headlamp LH relay.<br>3. Check harness between headlamp LH relay and smart entrance control unit.<br>4. Check harness between smart entrance control unit and lighting switch.<br>5. Check smart entrance control unit. (EL-350) |
| RH headlamp (low and high beam) does not operate, but LH headlamp (low and high beam) does operate. | 1. 20A fuse<br>2. Headlamp RH relay<br>3. Headlamp RH relay circuit<br>4. Lighting switch circuit<br>5. Smart entrance control unit | 1. Check 20A fuse (No. 55, located in fuse and fusible link box). Verify battery positive voltage is present at terminals 1 and 6 of headlamp RH relay.<br>2. Check headlamp RH relay.<br>3. Check harness between headlamp RH relay and smart entrance control unit.<br>4. Check harness between smart entrance control unit and lighting switch.<br>5. Check smart entrance control unit. (EL-350) |
| LH high beam does not operate, but LH low beam operates. | 1. Bulb<br>2. 15A fuse<br>3. Headlamp LH relay<br>4. Open in the LH high beams circuit<br>5. Lighting switch<br>6. Lighting switch ground circuit | 1. Check bulb.<br>2. Check 15A fuse (No. 68, located in fuse and fusible link box). Verify battery positive voltage is present at terminal 3 of headlamp LH relay.<br>3. Check headlamp LH relay.<br>4. Check the following.<br>a. Harness between headlamp relay LH terminal 5 and LH headlamp for open circuit<br>b. Harness between LH headlamp and lighting switch for open circuit<br>5. Check lighting switch.<br>6. Check harness between lighting switch and ground. |
| LH low beam does not operate, but LH high beam operates. | 1. Headlamp relay LH<br>2. Open in the LH low beam circuit<br>3. LH low beam ground circuit<br>4. Xenon bulb<br>5. HID control unit | 1. Check headlamp relay LH<br>2. Check harness between headlamp relay LH terminal 7 and LH headlamp for open circuit.<br>3. Check harness between LH headlamp and ground.<br>4. Replace the xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.)<br>5. Replace the HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) |
| RH high beam does not operate, but RH low beam operates. | 1. Bulb<br>2. 15A fuse<br>3. Headlamp RH relay<br>4. Open in the RH high beams circuit<br>5. Lighting switch<br>6. Lighting switch ground circuit | 1. Check bulb.<br>2. Check 15A fuse (No. 69, located in fuse and fusible link box). Verify battery positive voltage is present at terminal 3 of headlamp RH relay.<br>3. Check headlamp RH relay.<br>4. Check the following.<br>a. Harness between headlamp relay RH terminal 5 and RH headlamp for open circuit<br>b. Harness between RH headlamp and lighting switch for open circuit<br>5. Check lighting switch.<br>6. Check harness between lighting switch and ground. |

| Symptom | Possible cause | Repair order |
|---|---|---|
| RH low beam does not operate, but RH high beam operates. | 1. Headlamp relay RH<br>2. Open in the RH low beam circuit<br>3. RH low beam ground circuit<br>4. Xenon bulb<br>5. HID control unit | 1. Check headlamp relay RH<br>2. Check harness between headlamp relay RH terminal 7 and RH headlamp for open circuit.<br>3. Check harness between RH headlamp and ground.<br>4. Replace the xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.)<br>5. Replace the HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) |
| High beam indicator does not work. | 1. Bulb<br>2. Open in high beam circuit | 1. Check bulb in combination meter.<br>2. Check the following.<br>a. Harness between headlamp RH relay and combination meter for an open circuit<br>b. Harness between high beam indicator and lighting switch |
| Exterior lamp battery saver control does not operate properly. | 1. Door switch LH or RH circuit<br>2. Smart entrance control unit | 1. Check the following.<br>a. Harness between smart entrance control unit and LH or RH door switch for open or short circuit<br>b. LH or RH door switch ground circuit<br>c. LH or RH door switch<br>2. Check smart entrance control unit. (EL-350) |

## Bulb Replacement

NFEL0269

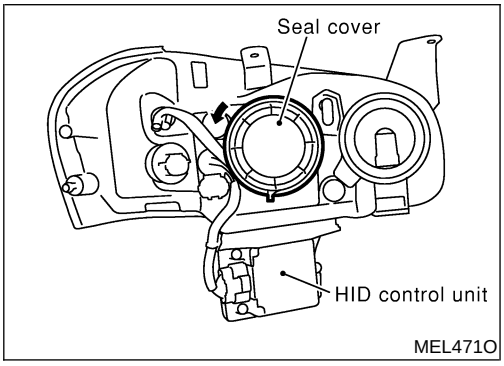
**CAUTION:**

- **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.

**WARNING:**

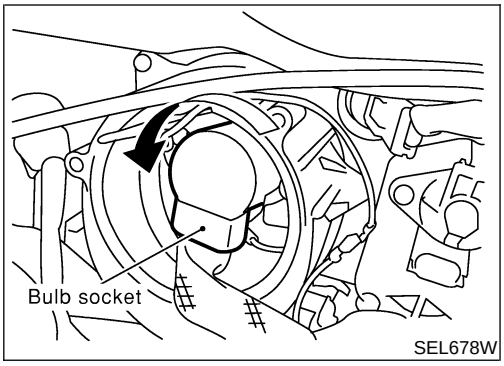
**Never service a xenon headlamp without disconnecting negative battery cable and with wet hands.**



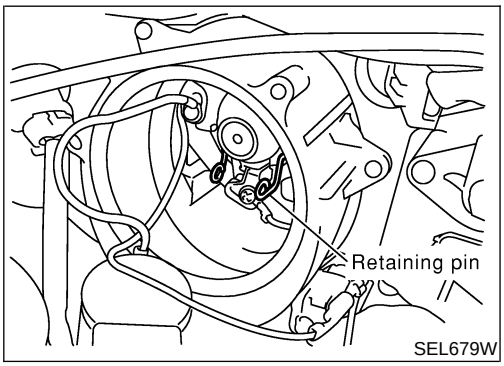

### XENON BULB (LOW BEAM)

NFEL0269S01

1. Remove headlamp seal cover by turning it counterclockwise.



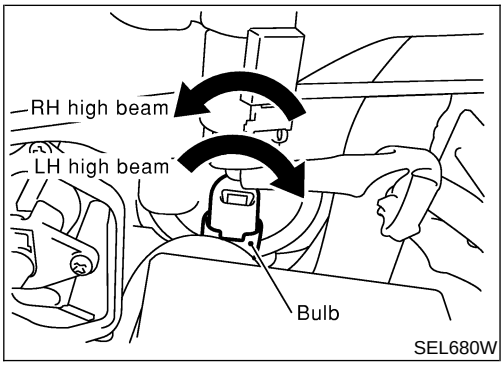

2. Turn bulb socket counterclockwise with keep pushing, then remove it.




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

**CAUTION:**

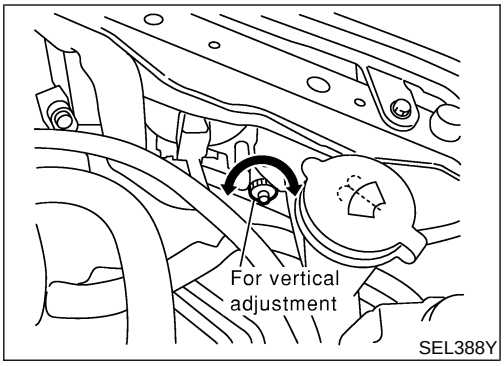
- **When disposing of the xenon bulb, do not break it; always dispose of it as is.**
- **Make sure to install the bulb securely; if the xenon bulb is improperly installed in its socket, high-tension current leaks occur. This may lead to a melted bulb and/or bulb socket.**




## HIGH BEAM

NFEL0269S02

1. Turn the bulb clockwise (LH high beam) or counterclockwise (RH high beam).
2. Remove the bulb.
3. Install in the reverse order of removal.




# Aiming Adjustment

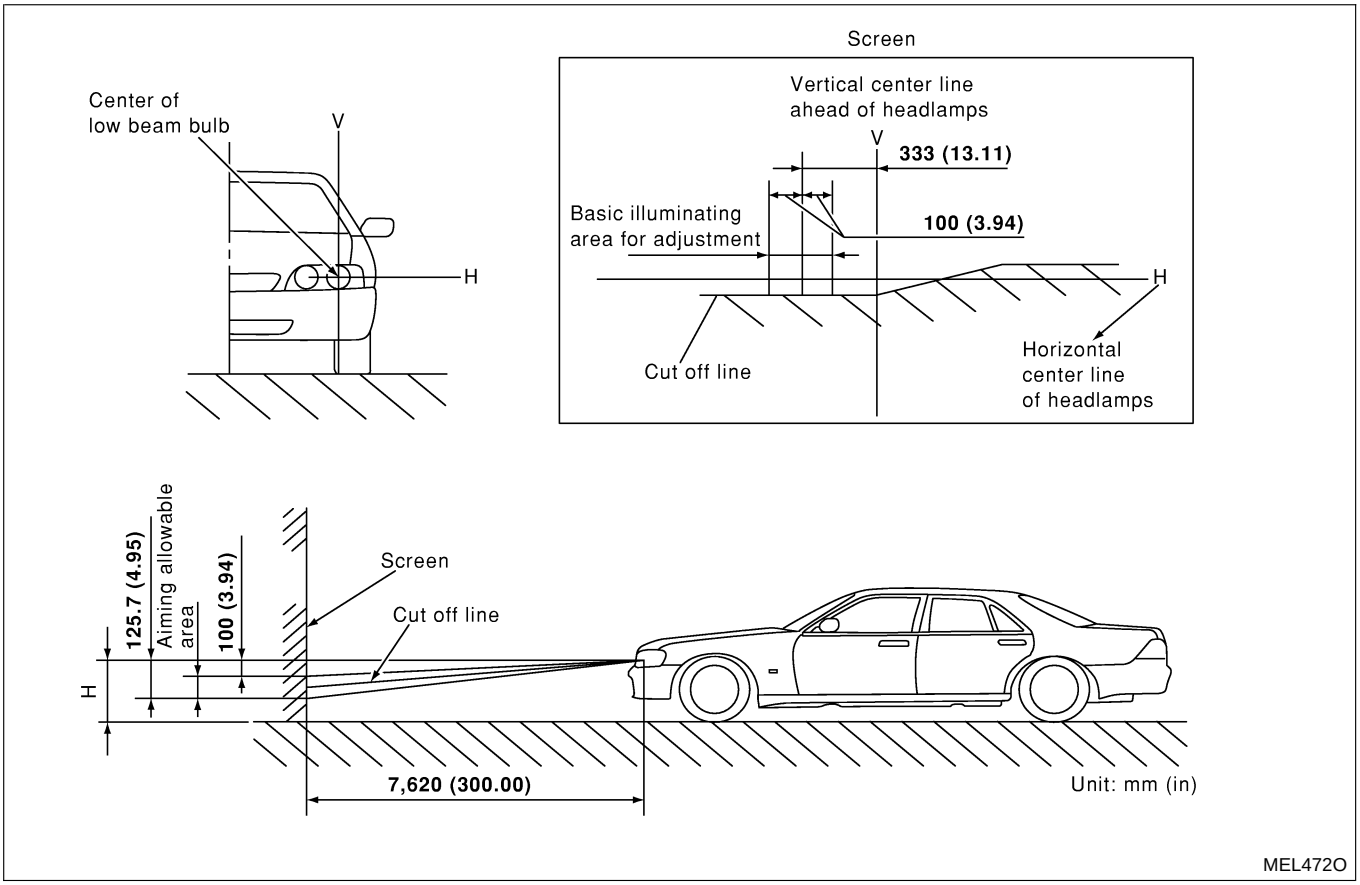
=NFEL0270

## LOW BEAM

NFEL0270S01

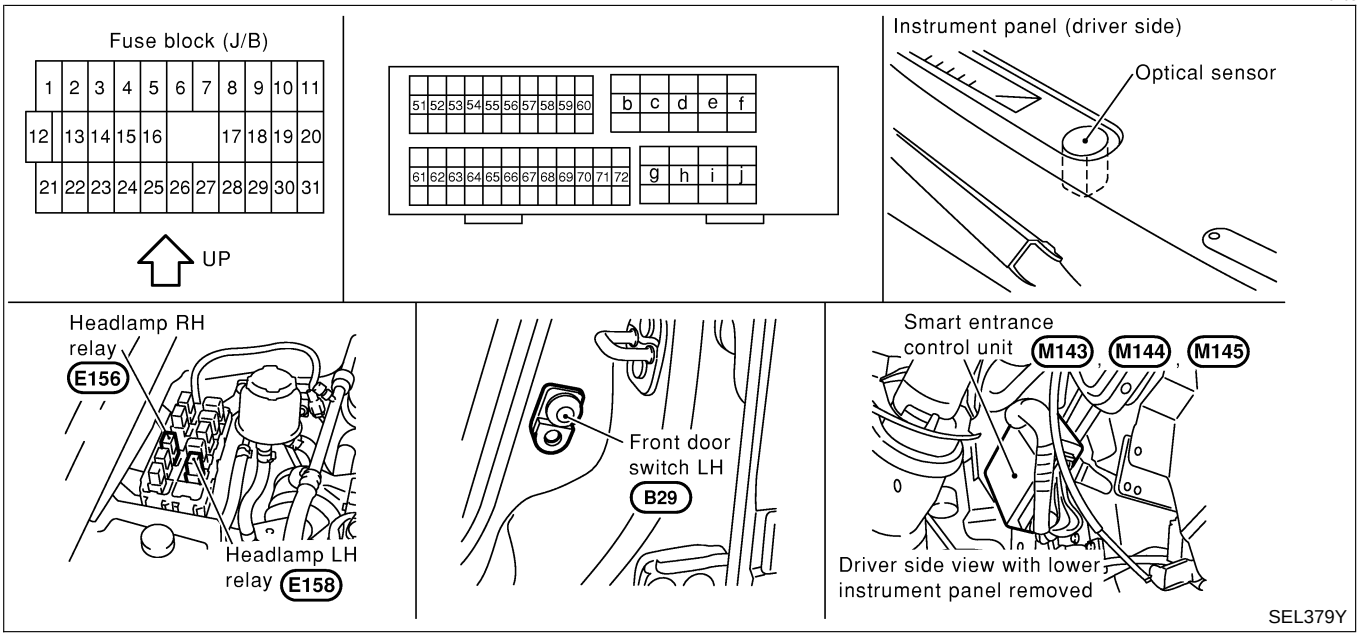
1. Turn headlamp low beam on.
2. Use adjusting screw to perform aiming adjustment.

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



## Component Parts and Harness Connector Location

NFEL0203




## System Description

NFEL0204

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.

And battery saver system is controlled by the smart entrance control unit.

Power is supplied at all times

- to headlamp LH relay terminals 1 and 6
- through 20A fuse (No. 54, located in the fuse and fusible link box), and
- to headlamp RH relay terminals 1 and 6
- through 20A fuse (No. 55, located in the fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 10A fuse [No. 13, located in the fuse block (J/B)].

Ground is supplied

- to daytime light control unit terminal 16
- through body grounds E11, E22 and E53, and
- to smart entrance control unit terminals 43 and 64
- through body grounds M9, M25 and M87.

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

- to daytime light control unit terminal 3
- through 10A fuse [No. 28, located in the fuse block (J/B)], and
- to smart entrance control unit terminal 27
- through 10A fuse [No. 10, located in the fuse block (J/B)].

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

- to smart entrance control unit terminal 26
- through 10A fuse [No. 1, located in the fuse block (J/B)].

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

- to daytime light control unit terminal 2
- through 10A fuse [No. 21, located in the fuse block (J/B)].

## HEADLAMP OPERATION

NFEL0204S01

### Power Supply to Low Beam and High Beam

NFEL0204S0107

When lighting switch is in 2ND or PASS position, ground is supplied

- to headlamp LH relay terminal 2 from smart entrance control unit terminal 21
- through smart entrance control unit terminal 22
- from lighting switch terminal 12, and
- to headlamp RH relay terminal 2 from smart entrance control unit terminal 59
- through smart entrnace control unit terminal 60
- from lighting switch terminal 12.

Headlamp relays (LH and RH) are energized and then power is supplied to headlamps (LH and RH).

### Low Beam Operation

NFEL0204S0103

When the lighting switch is turned to 2ND and LOW ("B") positions, ground is supplied

- to terminal 2 of the headlamp LH
- through body grounds E11, E22 and E53.

Ground is also supplied

- to terminal 2 of the headlamp RH
- through body grounds E11, E22 and E53.

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

### High Beam Operation/Flash-to-pass Operation

NFEL0204S0104

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

- to terminal 5 of LH headlamp
- through daytime light control unit terminals 10 and 14, and
- to combination meter terminal 27 for the HIGH BEAM indicator
- through lighting switch terminals 9 and 8
- through body grounds E11, E22 and E53.

Ground is also supplied

- to terminal 5 of RH headlamp
- through daytime light control unit terminals 9 and 13
- through lighting switch terminals 6 and 5
- through body grounds E11, E22 and E53.

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

## EXTERIOR LAMP BATTERY SAVER CONTROL

NFEL0204S02

While the headlamp is turned ON by "2ND" of light switch, the 5 minute timer is activated when the ignition switch is turned from ON (or START) to OFF (ACC OFF).
Continuity between terminals 21 and 22, and between terminals 59 and 60 of smart entrance control unit will be disturbed after 5 minutes, then the headlamps will be turned off.
While the headlamp is turned ON by "AUTO" of light switch, the 5 minute timer is activated when the ignition switch signal changes from ON (or START) to OFF (ACC OFF), and either one of LH or RH front door switch ON signal is input.
The auto light delay off timer is activated as the following:

- When the door switch signal changes from ON to OFF while the timer is activated, the timer in operation is discontinued and the 45 second timer is reset.
- When the door switch signal changes from OFF to ON while the timer is activated, the timer is discontinued and the 45 second timer is reset.
- When the one of four door switch signals changes from OFF to ON while the timer is activated, the timer is discontinued and the 5 minute timer is reset.
- When all the door switch ON signals are input while the timer is activated, the timer is discontinued and the 45 second timer is reset.

Exterior lamp battery saver control mode and auto light delay off timer period can be changed by the function setting of CONSULT-II (EL-46).
When the lighting switch is turned from OFF to 2ND after headlamps are turned to off by the battery saver control, ground is supply

- to smart entrance control unit terminals 20 and 58 from lighting switch terminal 11, and then
- to headlamp LH and RH relays terminal 2 from headlamp battery saver control unit terminals 21 and 59
- through smart entrance control unit terminals 22 and 60, and
- through lighting switch terminal 12.

Then headlamps illuminate again.

### AUTO LIGHT OPERATION

NFEL0204S05

For auto light operation, refer to "HEADLAMP" (EL-39).

### DAYTIME LIGHT OPERATION

NFEL0204S03

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 4 of RH headlamp
- through terminal 5 of RH headlamp
- to daytime light control unit terminal 9
- through daytime light control unit terminal 6
- to terminal 4 of LH headlamp.

Ground is supplied to terminal 5 of LH headlamp.

- through daytime light control unit terminal 16
- through body grounds E11, E22 and E53.

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

### OPERATION

NFEL0204S04

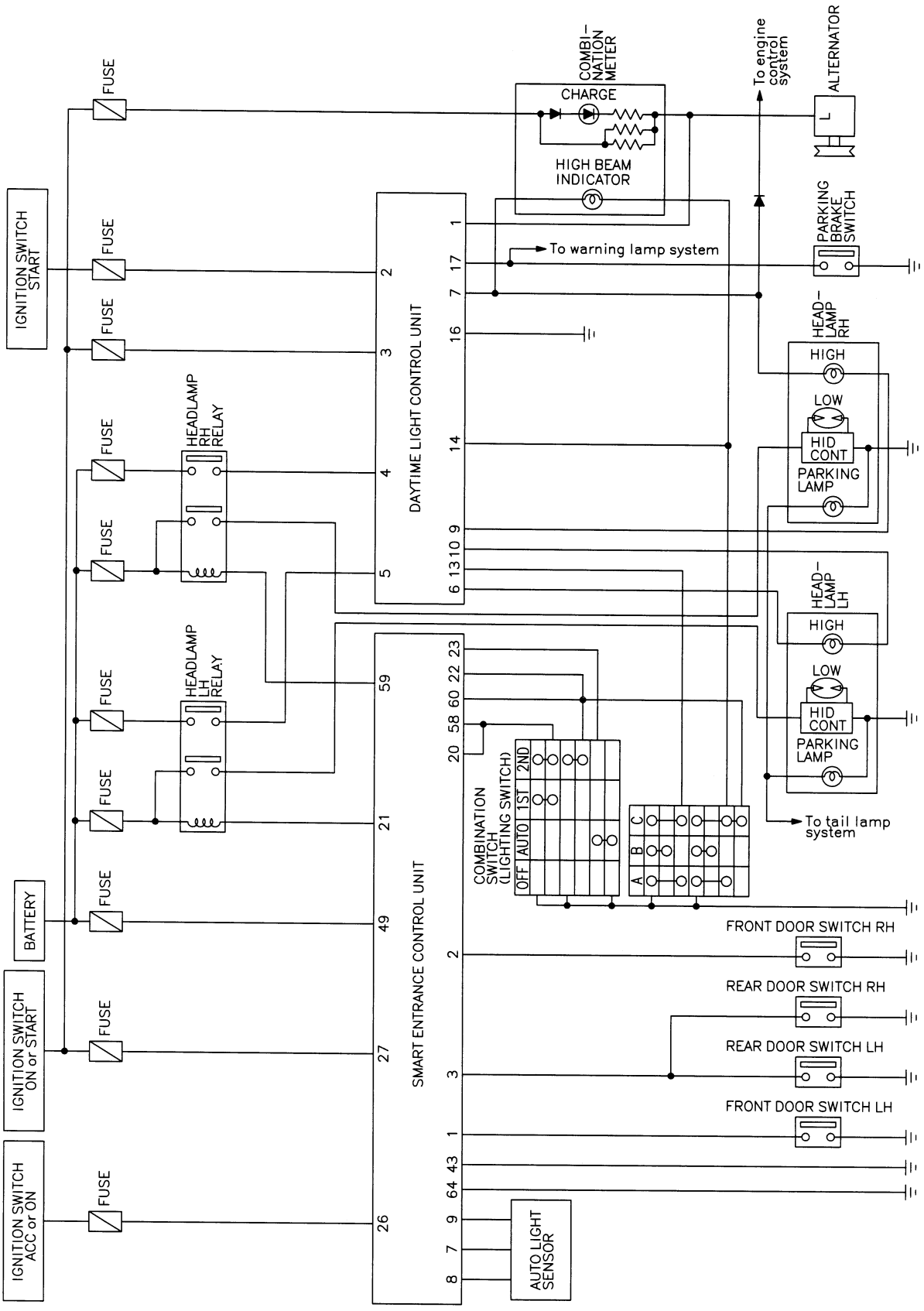
After starting the engine with the lighting switch in the "OFF" or "1ST" position, the headlamp high beam automatically turns on. Lighting switch operations other than the above are the same as conventional light systems.

| 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 | O | O | X | O | △* | △* | O | △* | △* | O | O | X | O |
| | Low beam | X | X | X | X | X | O | O | O | O | X | X | X | X | X | O | O | O | O |
| Clearance and tail lamp | | X | X | X | O | O | O | O | O | O | X | X | X | O | O | O | O | O | O |
| License and instrument illumination lamp | | X | X | X | O | O | O | O | O | O | X | X | X | O | O | O | O | O | O |

A: "HIGH BEAM" position
B: "LOW BEAM" position
C: "FLASH TO PASS" position
O : 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

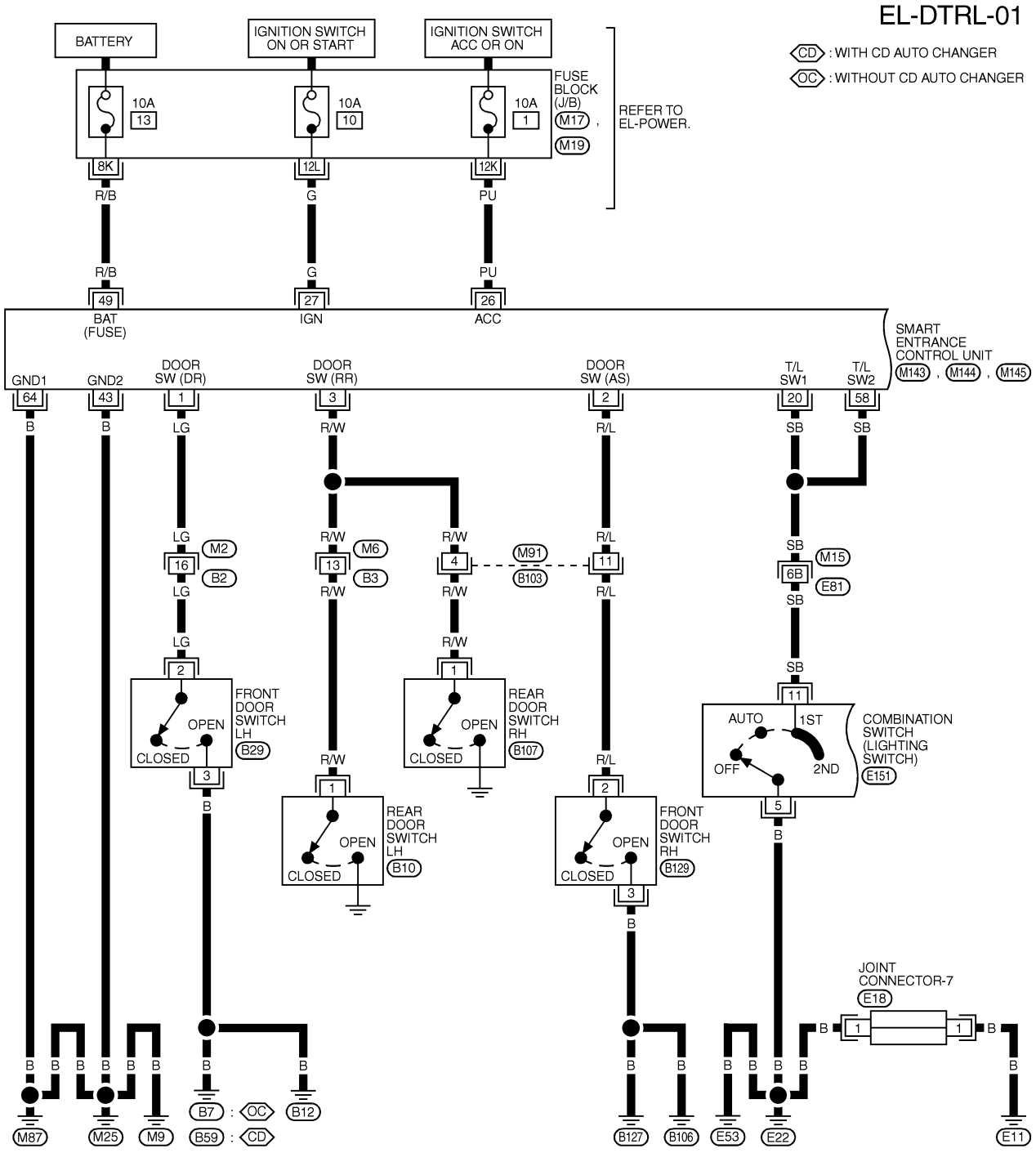
NFEL0205

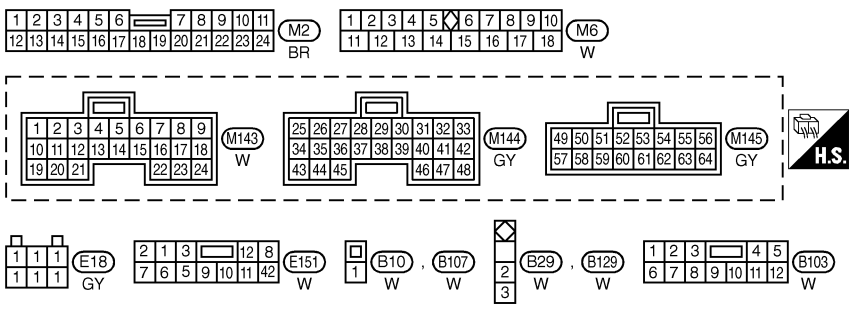



MEL717P

## Wiring Diagram — DTRL —

NFEL0020



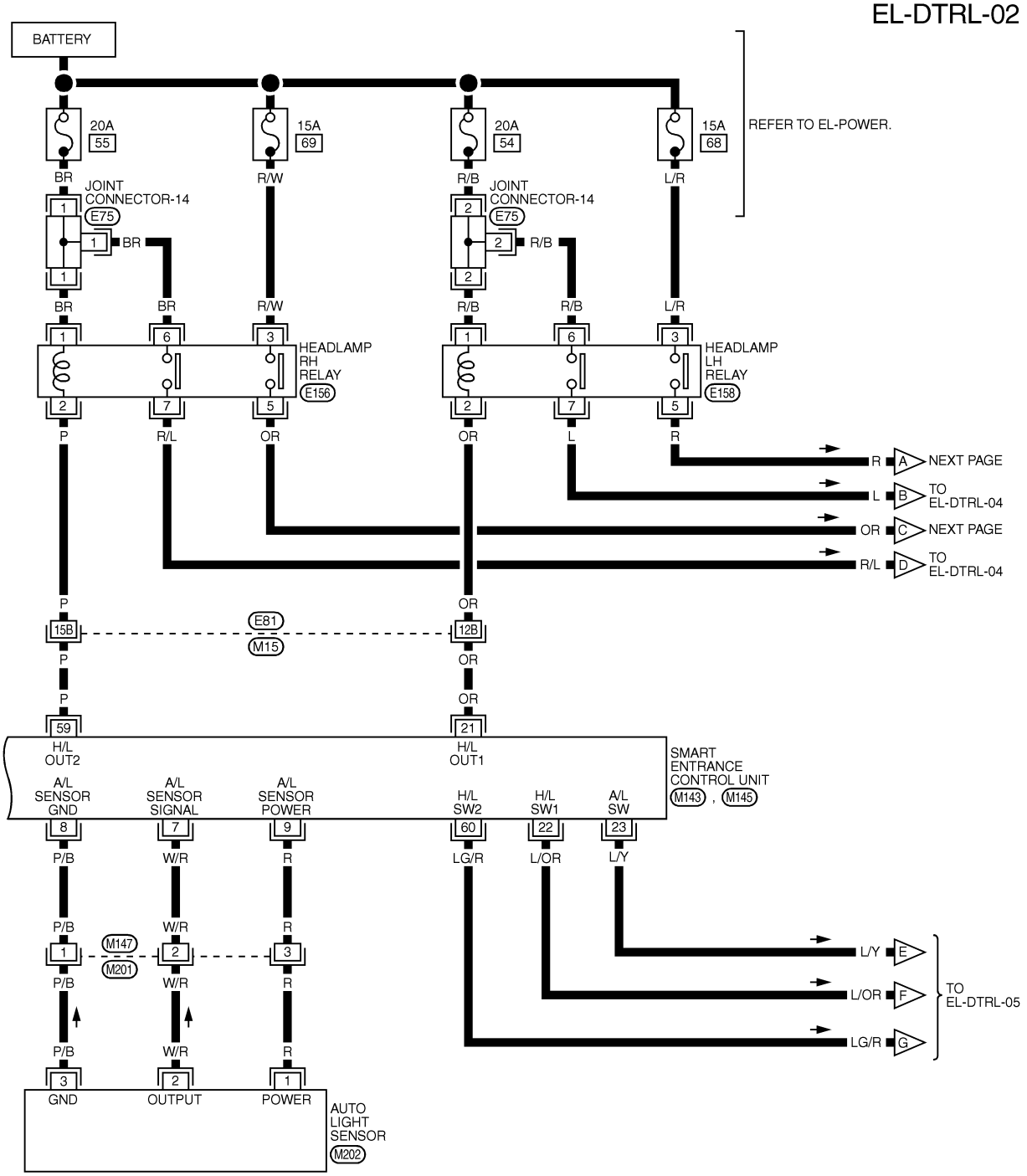



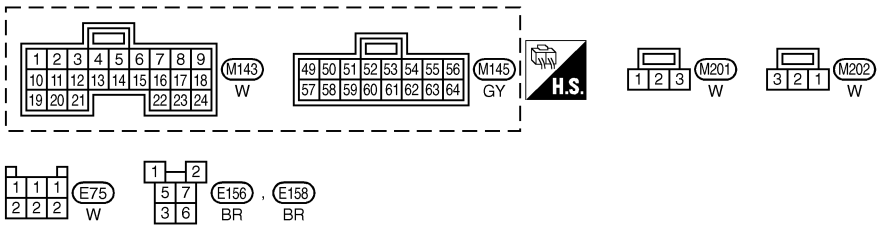

REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL718P

*Wiring Diagram — DTRL — (Cont'd)*

EL-DTRL-02

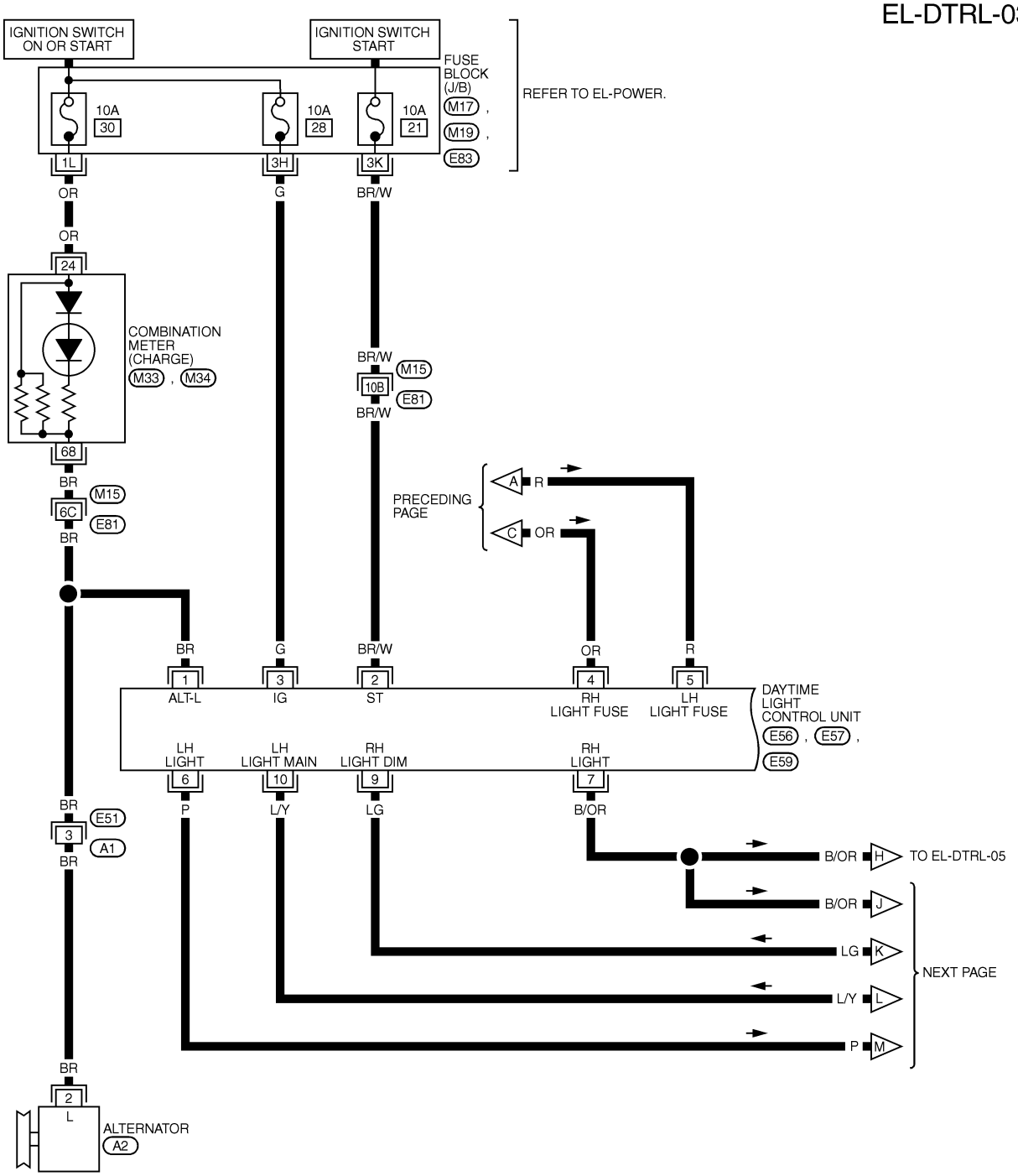


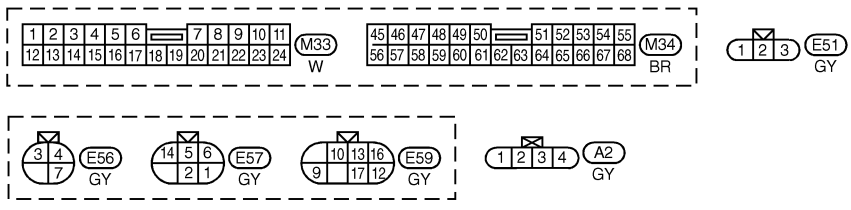




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL096O

EL-DTRL-03



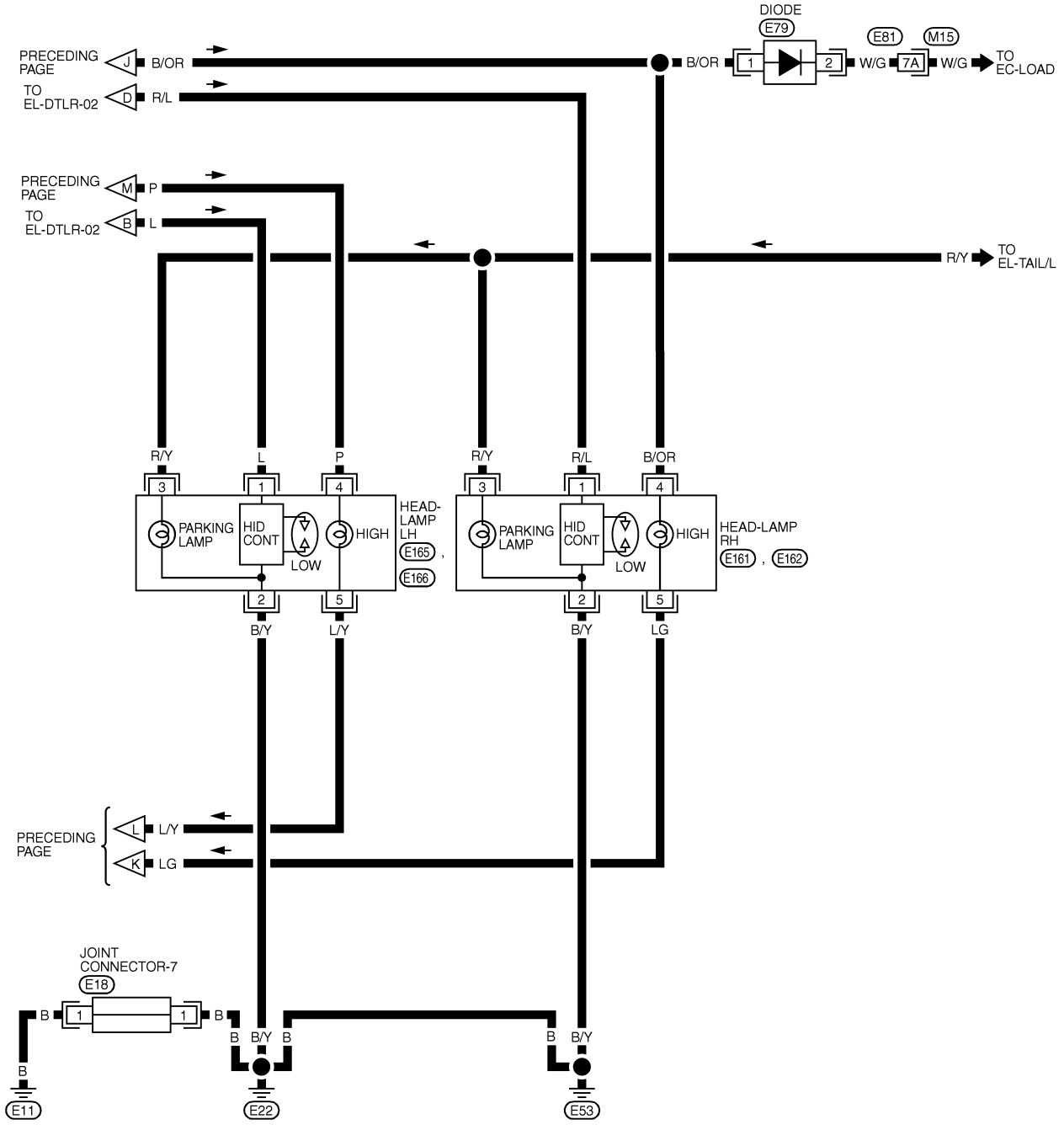



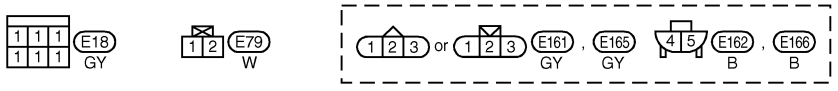

REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 , E83
-FUSE BLOCK- JUNCTION BOX (J/B)

MEL719P

*Wiring Diagram — DTRL — (Cont'd)*

EL-DTRL-04

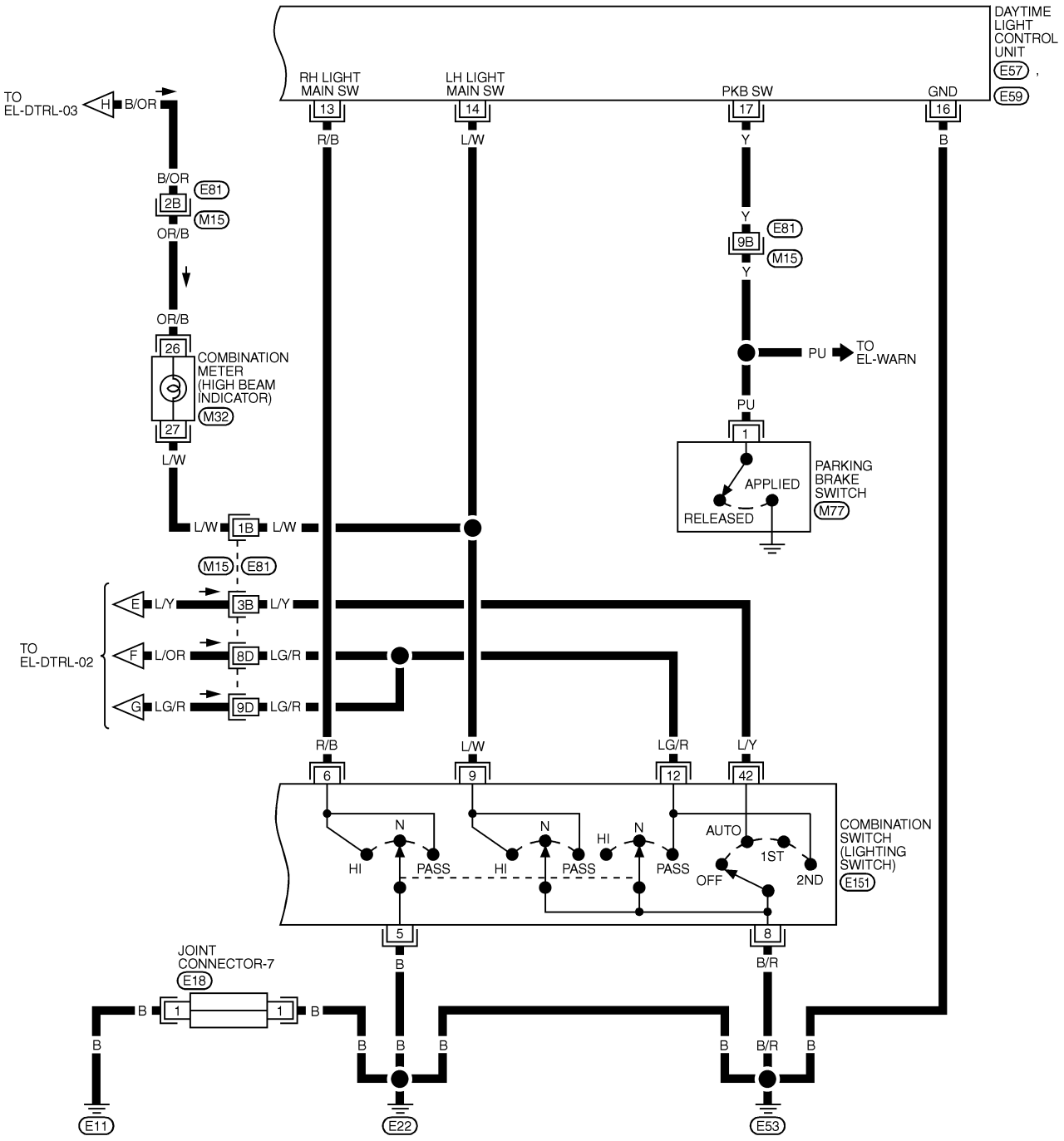


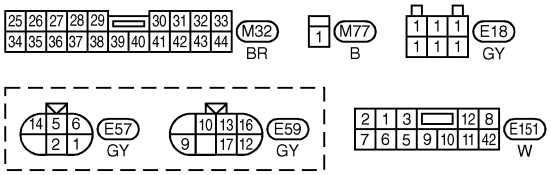




REFER TO THE FOLLOWING.
M15 - SUPER MULTIPLE JUNCTION (SMJ)

MEL827P

EL-DTRL-05




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL757P

## Trouble Diagnoses

NFEL0206

**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.)**

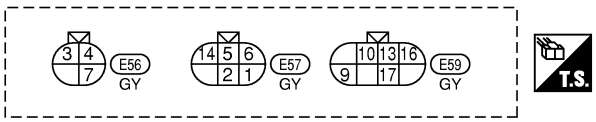
**CAUTION:**

**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.**

| Symptom | Possible cause | Repair order |
|---|---|---|
| Neither headlamp operates. | 1. 10A fuse<br>2. Lighting switch<br>3. Smart entrance control unit | 1. Check 10A fuse [No. 13, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 49 of smart entrance control unit.<br>2. Check Lighting switch.<br>3. Check smart entrance control unit. (EL-350) |
| LH headlamp (low and high beam) does not operate, but RH headlamp (low and high beam) does operate. | 1. 20A fuse<br>2. Headlamp LH relay<br>3. Headlamp LH relay circuit<br>4. Lighting switch circuit<br>5. Smart entrance control unit | 1. Check 20A fuse (No. 54, located in fuse and fusible link box). Verify battery positive voltage is present at terminals 1 and 6 of headlamp LH relay.<br>2. Check headlamp LH relay.<br>3. Check harness between headlamp LH relay and smart entrance control unit.<br>4. Check harness between smart entrance control unit and lighting switch.<br>5. Check smart entrance control unit. (EL-350) |
| RH headlamp (low and high beam) does not operate, but LH headlamp (low and high beam) does operate. | 1. 20A fuse<br>2. Headlamp RH relay<br>3. Headlamp RH relay circuit<br>4. Lighting switch circuit<br>5. Smart entrance control unit | 1. Check 20A fuse (No. 55, located in fuse and fusible link box). Verify battery positive voltage is present at terminals 1 and 6 of headlamp RH relay.<br>2. Check headlamp RH relay.<br>3. Check harness between headlamp RH relay and smart entrance control unit.<br>4. Check harness between smart entrance control unit and lighting switch.<br>5. Check smart entrance control unit. (EL-350) |
| LH high beam does not operate, but LH low beam operates. | 1. Bulb<br>2. 15A fuse<br>3. Headlamp LH relay<br>4. Headlamp LH relay circuit<br>5. Headlamp LH high beams circuit<br>6. Lighting switch<br>7. Lighting switch circuit<br>8. Daytime light control unit | 1. Check bulb.<br>2. Check 15A fuse (No. 68, located in fuse and fusible link box). Verify battery positive voltage is present at terminal 3 of headlamp LH relay.<br>3. Check headlamp LH relay.<br>4. Check harness between headlamp LH relay and daytime light control unit.<br>5. Check harness between LH headlamp and lighting switch.<br>6. Check lighting switch.<br>7. Check the following.<br>a. Harness between daytime light control unit and lighting switch<br>b. Harness between lighting switch and ground<br>8. Check daytime light control unit. |

| Symptom | Possible cause | Repair order |
|---|---|---|
| LH low beam does not operate, but LH high beam operates. | 1. Headlamp relay LH<br>2. Open in the LH low beam circuit<br>3. LH low beam ground circuit<br>4. Xenon bulb<br>5. HID control unit | 1. Check headlamp relay LH.<br>2. Check harness between headlamp relay LH terminal 7 and LH headlamp for open circuit.<br>3. Check harness between LH headlamp and ground.<br>4. Replace the xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.)<br>5. Replace the HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) |
| RH high beam does not operate, but RH low beam operates. | 1. Bulb<br>2. 15A fuse<br>3. Headlamp RH relay<br>4. Headlamp RH relay circuit<br>5. Open in the RH high beams circuit<br>6. Lighting switch<br>7. Lighting switch circuit<br>8. Daytime light control unit | 1. Check bulb.<br>2. Check 15A fuse (No. 69, located in fuse and fusible link box). Verify battery positive voltage is present at terminal 3 of headlamp RH relay.<br>3. Check headlamp RH relay.<br>4. Check harness between headlamp RH relay and daytime light control unit.<br>5. Check harness between RH headlamp and lighting switch.<br>6. Check lighting switch.<br>7. Check the following.<br>a. Harness between daytime control unit and lighting switch<br>b. Harness between lighting switch and ground<br>8. Check daytime light control unit. |
| RH low beam does not operate, but RH high beam operates. | 1. Headlamp relay RH<br>2. Open in the RH low beam circuit<br>3. RH low beam ground circuit<br>4. Xenon bulb<br>5. HID control unit | 1. Check headlamp relay RH.<br>2. Check harness between headlamp relay RH terminal 7 and RH headlamp for open circuit.<br>3. Check harness between RH headlamp and ground.<br>4. Replace the xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.)<br>5. Replace the HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) |
| High beam indicator does not work. | 1. Bulb<br>2. Open in high beam circuit | 1. Check bulb in combination meter.<br>2. Check the following.<br>a. Harness between daytime light control unit and combination meter for an open circuit<br>b. Harness between high beam indicator and lighting switch |
| Exterior lamp battery saver control does not operate properly. | 1. Door switch LH or RH circuit<br>2. Smart entrance control unit | 1. Check the following.<br>a. Harness between smart entrance control unit and LH or RH door switch for open or short circuit<br>b. LH or RH door switch ground circuit<br>c. LH or RH door switch<br>2. Check smart entrance control unit. (EL-350) |
| Daytime light control does not operate properly. | 1. Bulb<br>2. Fuse check<br>3. Parking brake switch<br>4. Parking brake switch circuit<br>5. Daytime control unit | 1. Check bulb.<br>2. Check the following.<br>a. 10A fuse [No. 28, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 3 of daytime light control unit.<br>b. 10A fuse [No. 21, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 2 of daytime light control unit.<br>3. Check parking brake switch.<br>4. Check harness between parking brake switch and daytime light control unit.<br>5. Check daytime light control unit. (EL-62) |

DAYTIME LIGHT CONTROL UNIT CONNECTOR




SEL584Y

## DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

NFEL0206S01

| Terminal No. | Wire color | Item | Condition | | Voltage (Approximate values) |
|---|---|---|---|---|---|
| 1 | BR | 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 | BR/W | 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 | 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 | OR | Power source |  | When turning ignition switch to "ON" | Battery voltage |
| | | |  | When turning ignition switch to "OFF" | Battery voltage |
| 5 | R | Power source |  | When turning ignition switch to "ON" | Battery voltage |
| | | |  | When turning ignition switch to "OFF" | Battery voltage |

| Terminal No. | Wire color | Item | Condition | | Voltage (Approximate values) |
|---|---|---|---|---|---|
| 6 | P | LH hi beam | | When lighting switch is turned to the 2ND position with "HI BEAM" position | Battery voltage |
| | | |  | When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation)<br>**CAUTION:**<br>**Block wheels and ensure selector lever is in N or P position.** | Approx. half battery voltage |
| 7 | B/OR | RH hi beam | | When lighting switch is turned to the 2ND position with "HI BEAM" position | Battery voltage |
| | | |  | When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation)<br>**CAUTION:**<br>**Block wheels and ensure selector lever is in N or P position.** | Approx. half battery voltage |
| 9 | LG | RH hi beam (ground) | | When lighting switch is turned to the 2ND position with "HI BEAM" position | Less than 1V |
| | | |  | When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation)<br>**CAUTION:**<br>**Block wheels and ensure selector lever is in N or P position.** | Approx. half battery voltage |
| 10 | L/Y | LH hi beam (ground) | | When lighting switch is turned to the 2ND position with "HI BEAM" position | Less than 1V |
| | | |  | When releasing parking brake with engine running and turning lighting switch to "OFF" (daytime light operation)<br>**CAUTION:**<br>**Block wheels and ensure selector lever is in N or P position.** | Approx. half battery voltage |
| 13<br>14 | R/B<br>L/W | Lighting switch (Hi beam) | | When turning lighting switch to "HI BEAM" | Battery voltage |
| | | | | When turning lighting switch to "FLASH TO PASS" | Battery voltage |
| 16 | B | Ground | | — | — |
| 17 | Y | Parking brake switch |  | When parking brake is released | Battery voltage |
| | | | | When parking brake is set | Less than 1.5V |

## Bulb Replacement

NFEL0022

Refer to "HEADLAMP (FOR USA)" (EL-48).

## Aiming Adjustment

NFEL0023

Refer to “HEADLAMP (FOR USA)” (EL-50).

## System Description

NFEL0256

The parking, license and tail lamp operation is controlled by the lighting switch which is built into the combination switch and smart entrance control unit. The battery saver system is controlled by the smart entrance control unit.

Power is supplied at all times

- to tail lamp relay terminals 1 and 3
- through 10A fuse (No. 60, located in the fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 10A fuse [No. 13, located in the fuse block (J/B)].

When ignition switch is in ON or START position, power is supplied

- to smart entrance control unit terminal 27
- through 10A fuse [No. 10, located in the fuse block (J/B)].

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

- to smart entrance control unit terminal 26
- through 10A fuse [No. 1, located in the fuse block (J/B)].

Ground is supplied to smart entrance control unit terminals 43 and 64

- through body grounds M9, M25 and M87.

### LIGHTING OPERATION BY LIGHTING SWITCH

NFEL0256S01

When lighting switch is in 1ST (or 2ND) position, ground is supplied

- to tail lamp relay terminal 2 from smart entrance control unit terminals 19 and 57
- through smart entrance control unit terminals 20 and 58, and
- through lighting switch and body grounds E11, E22 and E53.
- to stop and tail lamp unit terminal 6
- through body grounds T6 and T8.

Tail lamp relay is energized and power is supplied

- to stop and tail lamp unit terminal 4
- through tail lamp relay terminal 5
- to each rear combination lamp terminals 1
- through stop and tail lamp unit terminal 3.

When the tail lamp illuminates, ground is supplied

- through body grounds T6 and T8
- to each rear combination lamp terminal 6.

Tail lamp relay is then energized and the parking, license, side marker and tail lamps illuminate.

### LIGHTING OPERATION BY AUTO LIGHT CONTROL SYSTEM

NFEL0256S02

When lighting switch is in AUTO position, ground is supplied

- to tail lamp relay terminal 2 from smart entrance control unit terminals 19 and 57
- through smart entrance control unit terminals 43 and 64, and
- to body grounds M9, M25 and M87.

Tail lamp relay is then energized and the parking, license, side marker and tail lamps illuminate.

### EXTERIOR LAMP BATTERY SAVER CONTROL

NFEL0256S03

While parking, license, side maker and tail lamps are turned ON by “1ST” or “2ND” of lighting switch, the 5 minutes timer is activated when the ignition switch is turned from ON (or START) to OFF (ACC OFF).

Continuity between terminals 19 and 20, and between terminals 57 and 58 of smart entrance control unit will be disturbed after 5 minutes, then the headlamps will be turned off.

Then the parking, license, side marker and tail lamps are turned off.

While the headlamp is turned ON by “AUTO” of lighting switch, the 5 minute timer is activated when the ignition switch signal changes from ON (or START) to OFF (ACC OFF), and either one of LH or RH front door switch ON signal is input.

The auto light delay off timer is activated as the following:

- When the door switch signal changes from ON to OFF while the timer is activated, the timer in operation is discontinued and the 45 second timer is reset.

- When the door switch signal changes from OFF to ON while the timer is activated, the timer is discontinued and the 45 second timer is reset.
- When the one of four door switch signals changes from OFF to ON while the timer is activated, the timer is discontinued and the 5 minute timer is reset.
- When all the door switch ON signals are input while the timer is activated, the timer is discontinued and the 45 second timer is reset.

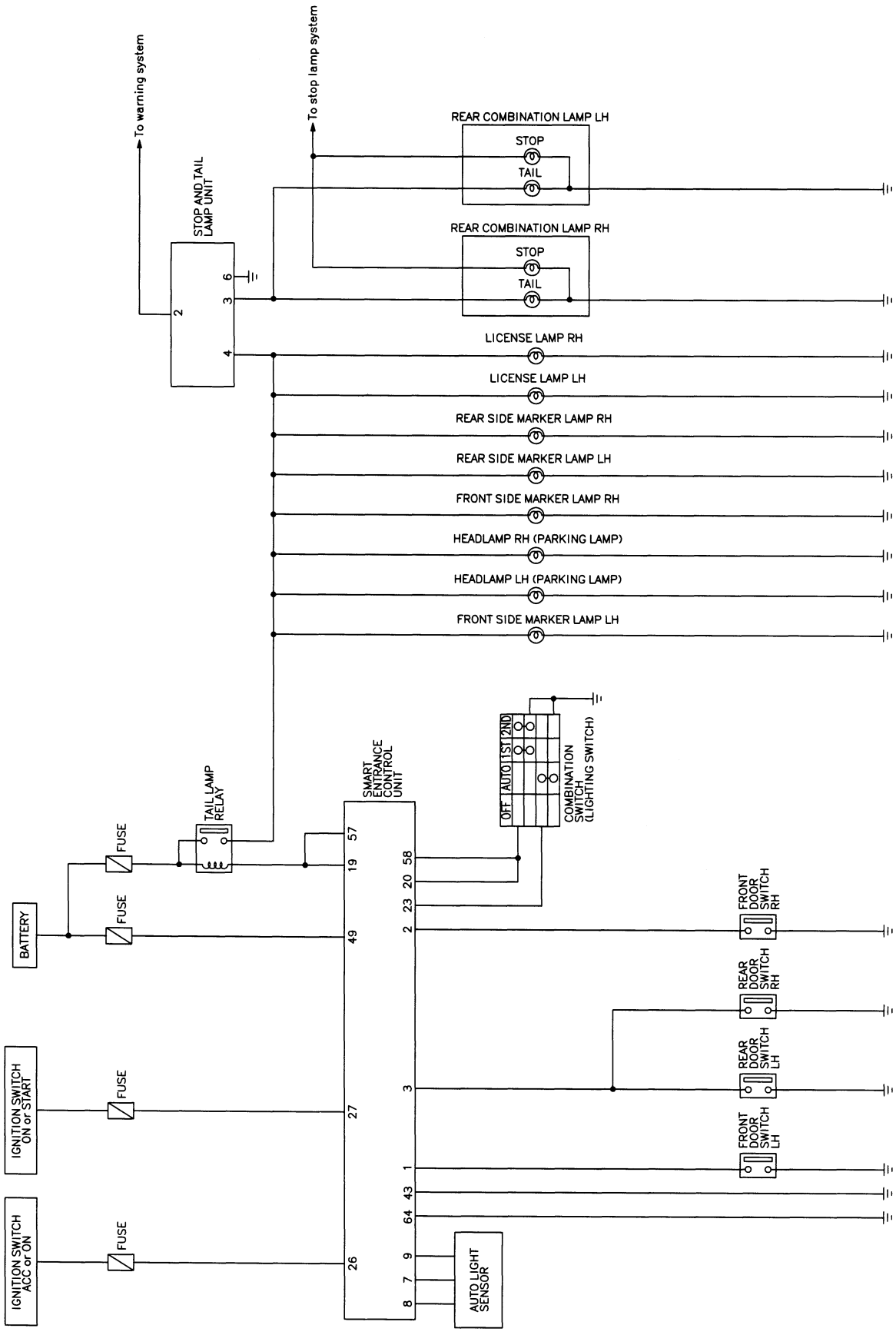
Exterior lamp battery saver control mode and auto light delay off timer period can be changed by the function setting of CONSULT-II (EL-46).
When the lighting switch is turned from OFF to 1ST (or 2ND) after the parking, license, side marker and tail lamps are turned off by the battery saver control, ground is supplied.

- to smart entrance control unit terminals 20 and 58 from lighting switch terminal 11, and
- to tail lamp relay terminal 2 from smart entrance control unit terminals 19 and 57.

Then the parking, license, side marker and tail lamps illuminate again.

## Schematic

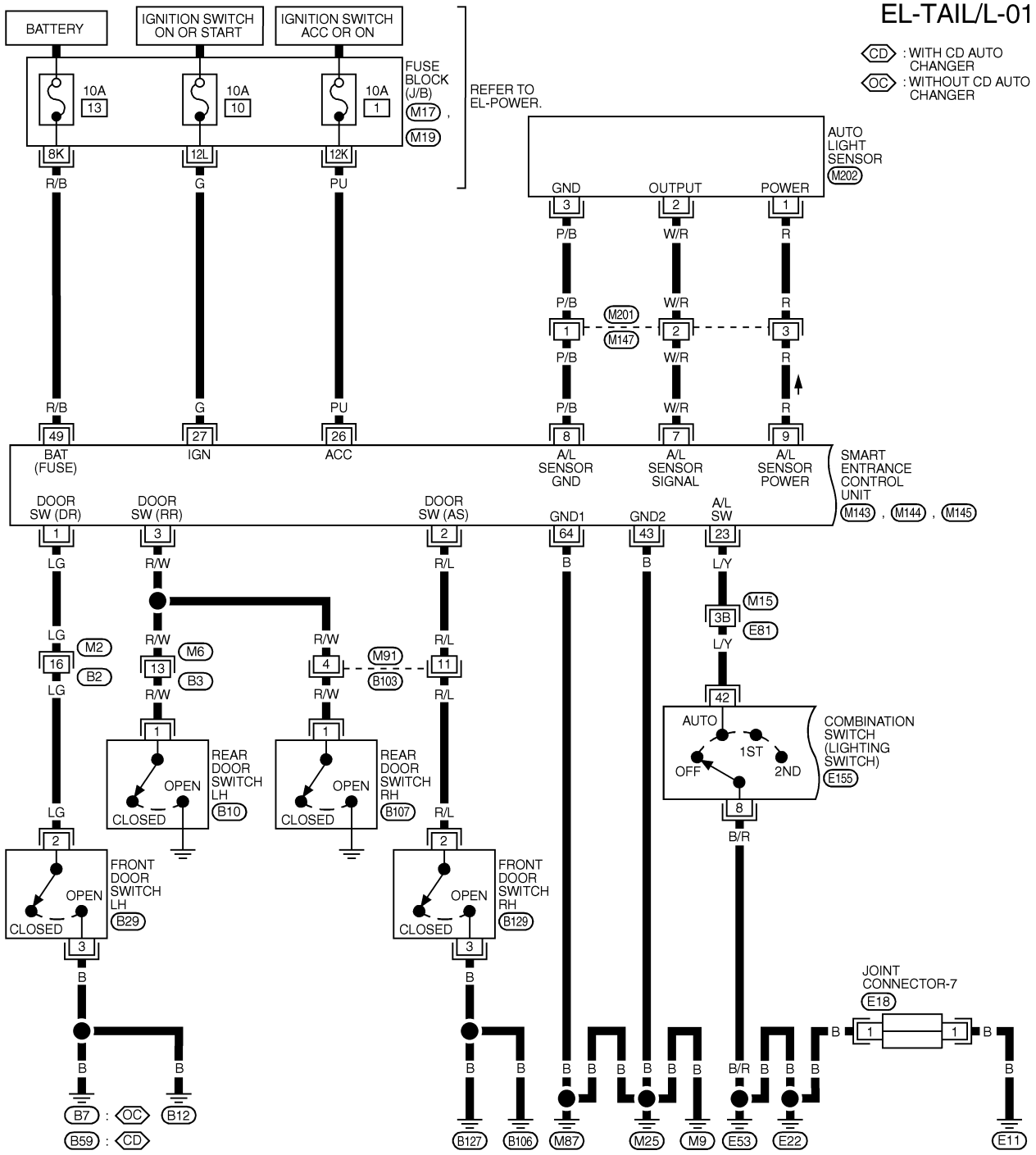
NFEL0208

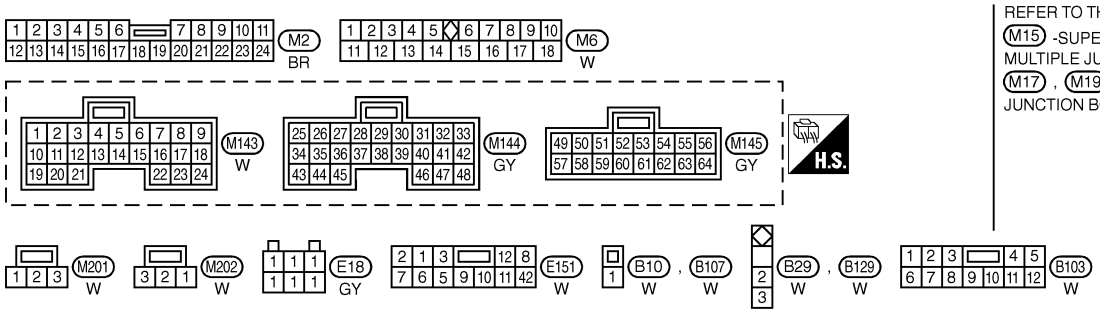



MEL721P

## Wiring Diagram — TAIL/L —

NFEL0024

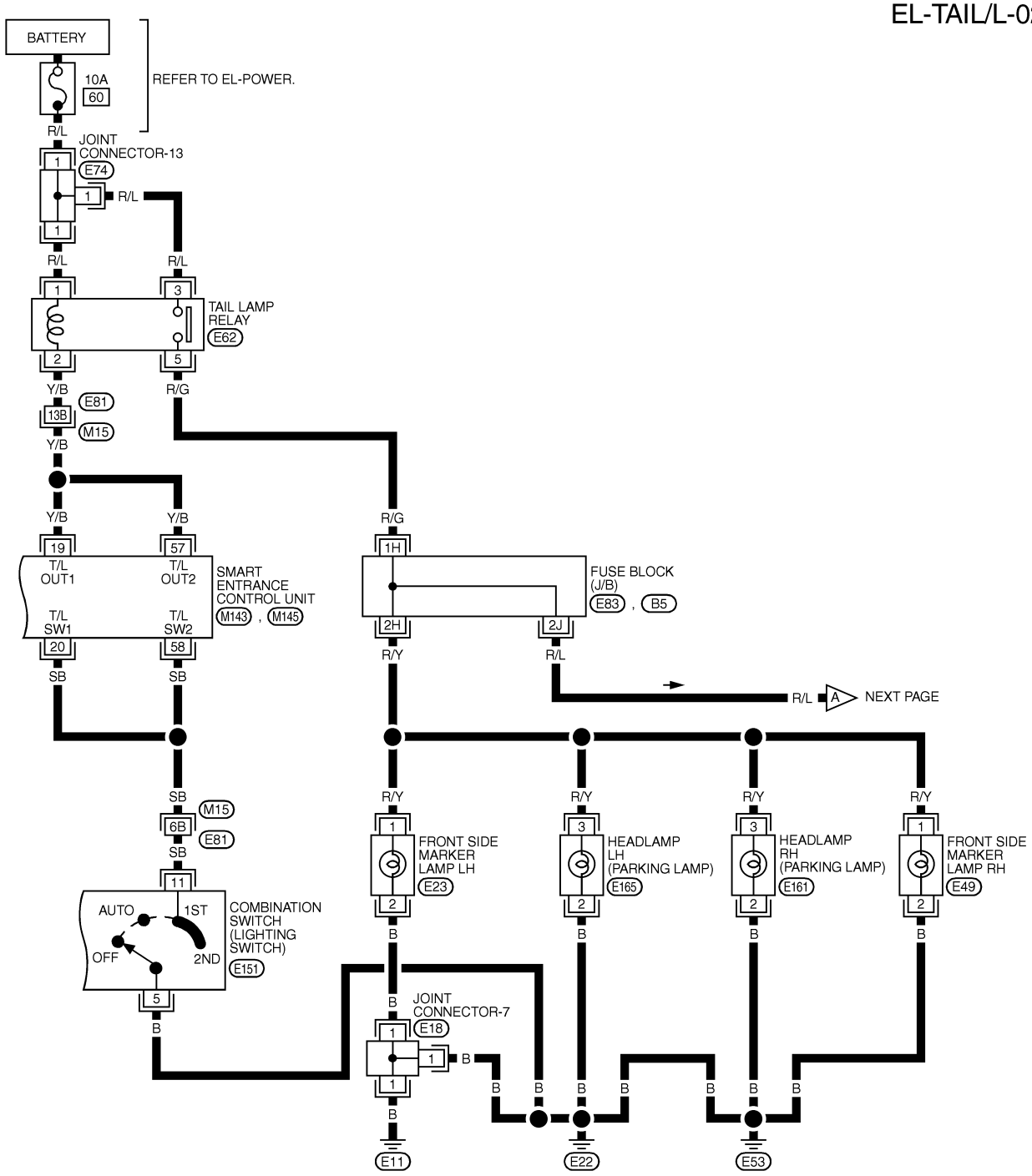


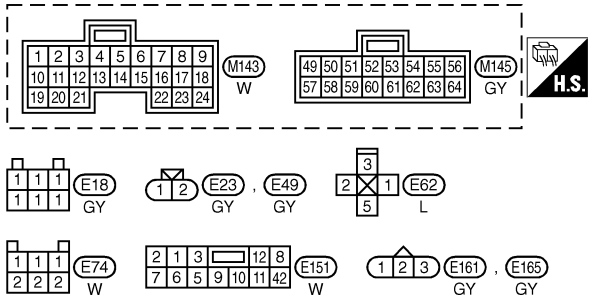




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL722P

EL-TAIL/L-02



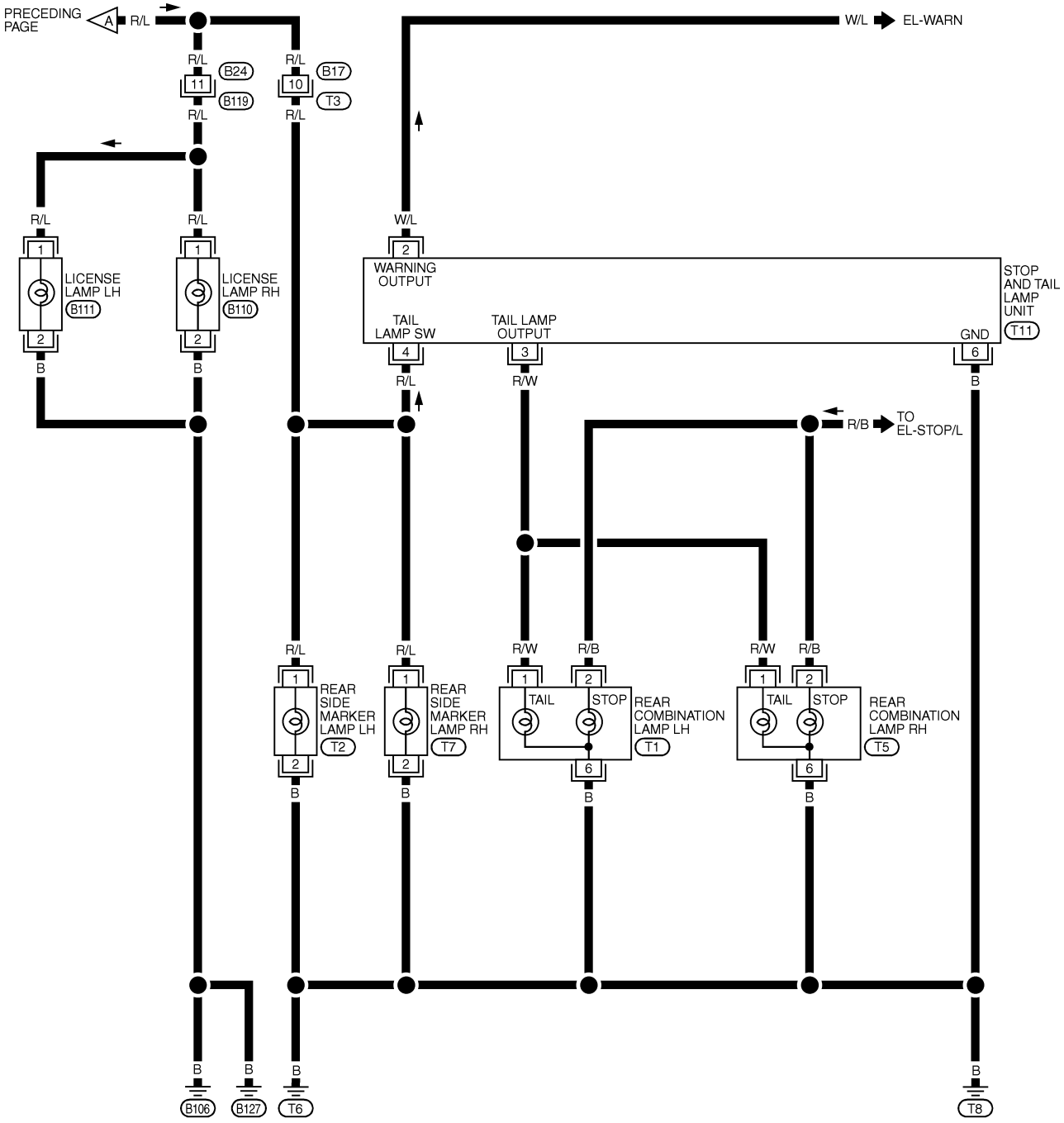



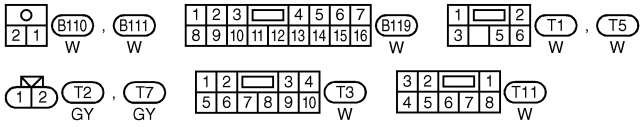

REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
E83 , B5 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL102O

*Wiring Diagram — TAIL/L — (Cont'd)*

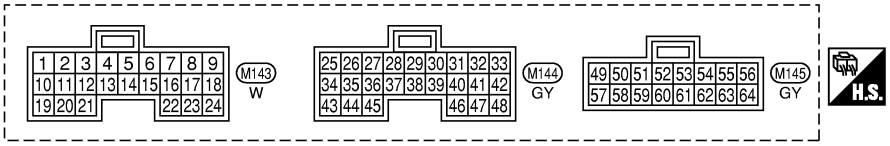
EL-TAIL/L-03




MEL103O

**SMART ENTRANCE CONTROL UNIT CONNECTOR**




**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | | | DATA (DC) |
|---|---|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 3 | R/W | REAR DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 7 | W/R | AUTO LIGHT SENSOR (SIGNAL) | IGNITION SWITCH "ON" POSITION | LIGHT IS APPLIED TO AUTO LIGHT SENSOR | | 1 TO 5V |
| | | | | LIGHT IS NOT APPLIED TO AUTO LIGHT SENSOR | | LESS THAN 1V |
| 8 | P/B | AUTO LIGHT SENSOR (GND) | – | | | – |
| 9 | R | AUTO LIGHT SENSOR (POWER) | IGNITION SWITCH (OFF → ON) | | | 0V → 5V |
| 19 | Y/B | TAIL LAMP RELAY (Out put) | IGNITION SWITCH (WITH LIGHTING SWITCH 1ST OR 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | LESS THAN 1V → 12V |
| 20 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION) | | | 12V → 0V |
| 23 | L/Y | HEADLAMP SWITCH | IGNITION SWITCH "ON" POSITION | LIGHTING SWITCH (EXCEPT AUTO → AUTO POSITION) | | 12V → 0V |
| 26 | PU | IGNITION SWITCH (ACC) | "ACC" POSITION | | | 12V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | | | 12V |
| 43 | B | GROUND | – | | | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | | | 12V |
| 57 | Y/B | TAIL LAMP RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 1ST OR 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | LESS THAN 1V → 12V |
| 58 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION) | | | 12V → 0V |
| 64 | B | GROUND | – | | | – |

SEL585Y

**NOTE:**
For CONSULT-II Inspection Procedure, refer to "HEADLAMP (FOR USA)" (EL-45).
For CONSULT-II Application Items, refer to "HEADLAMP (FOR USA)" (EL-46).

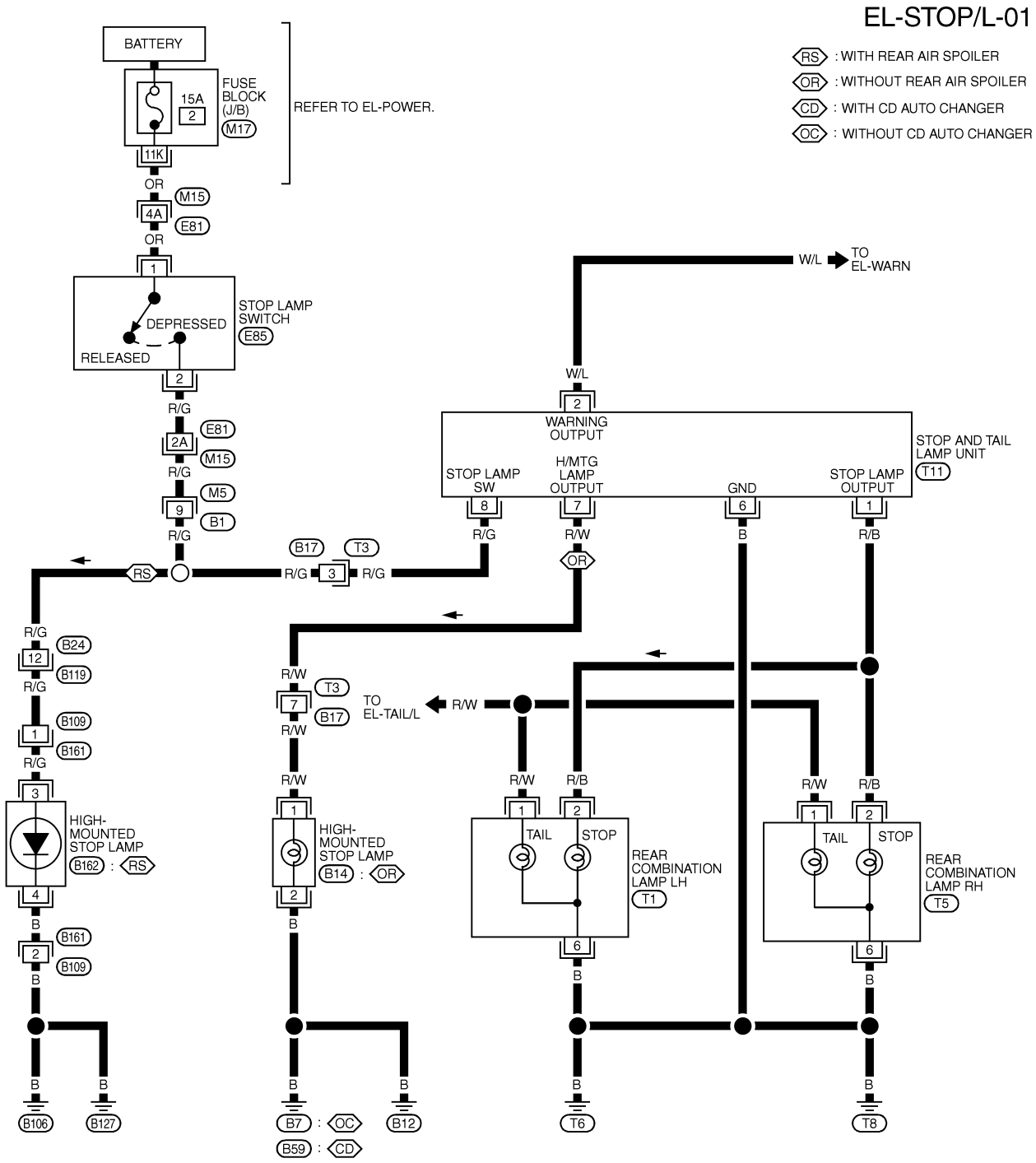
## Trouble Diagnoses

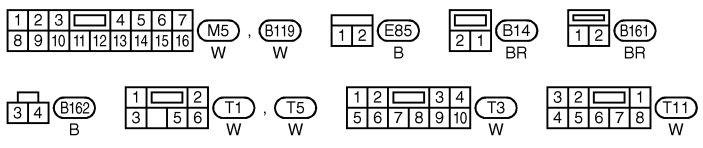
=NFEL0257

| Symptom | Possible cause | Repair order |
|---|---|---|
| No lamps operate (including headlamps). | 1. 10A fuse<br>2. Lighting switch<br>3. Smart entrance control unit | 1. Check 10A fuse [No. 13, lacated in fuse block (J/B)]. Verify battery positive voltage is present at terminal 49 of smart entrance control unit.<br>2. Check lighting switch.<br>3. Check smart entrance control unit. (EL-350) |
| No parking, side marker, license and tail lamps operate, but headlamps do operate. | 1. 10A fuse<br>2. Tail lamp relay<br>3. Tail lamp relay circuit<br>4. Lighting switch<br>5. Lighting switch circuit<br>6. Smart entrance control unit | 1. Check 10A fuse (No. 60, located in fuse and fusible link box). Verify battery positive voltage is present at terminals 1 and 3 of tail lamp relay.<br>2. Check tail lamp relay.<br>3. Check harness between smart entrance control unit terminals 19 and 57 and tail lamp relay terminal 2. Check harness between tail lamp relay terminal 5 and ground.<br>4. Check lighting switch.<br>5. Check harness between lighting switch terminal 11 and smart entrance control unit terminals 20 and 58. Check harness between lighting switch terminal 5 and ground.<br>6. Check smart entrance control unit. (EL-350) |
| Tail lamp only does not operate. | 1. Tail lamp relay circuit<br>2. Rear combination lamp circuit<br>3. Stop and tail lamp unit | 1. Check harness between tail lamp relay terminal 5 and stop and tail lamp unit terminal 4.<br>2. Check harness between each rear combination lamp terminal 1 and stop and tail lamp unit terminal 3.<br>3. Check stop and tail lamp unit. |
| Exterior lamp battery saver control does not operate properly. | 1. Door switch LH or RH circuit<br>2. Smart entrance control unit | 1. Check the following.<br>a. Harness between smart entrance control unit and LH or RH door switch for open or short circuit<br>b. LH or RH door switch ground circuit<br>c. LH or RH door switch<br>2. Check smart entrance control unit. (EL-350) |

# Wiring Diagram — STOP/L —

NFEL0025



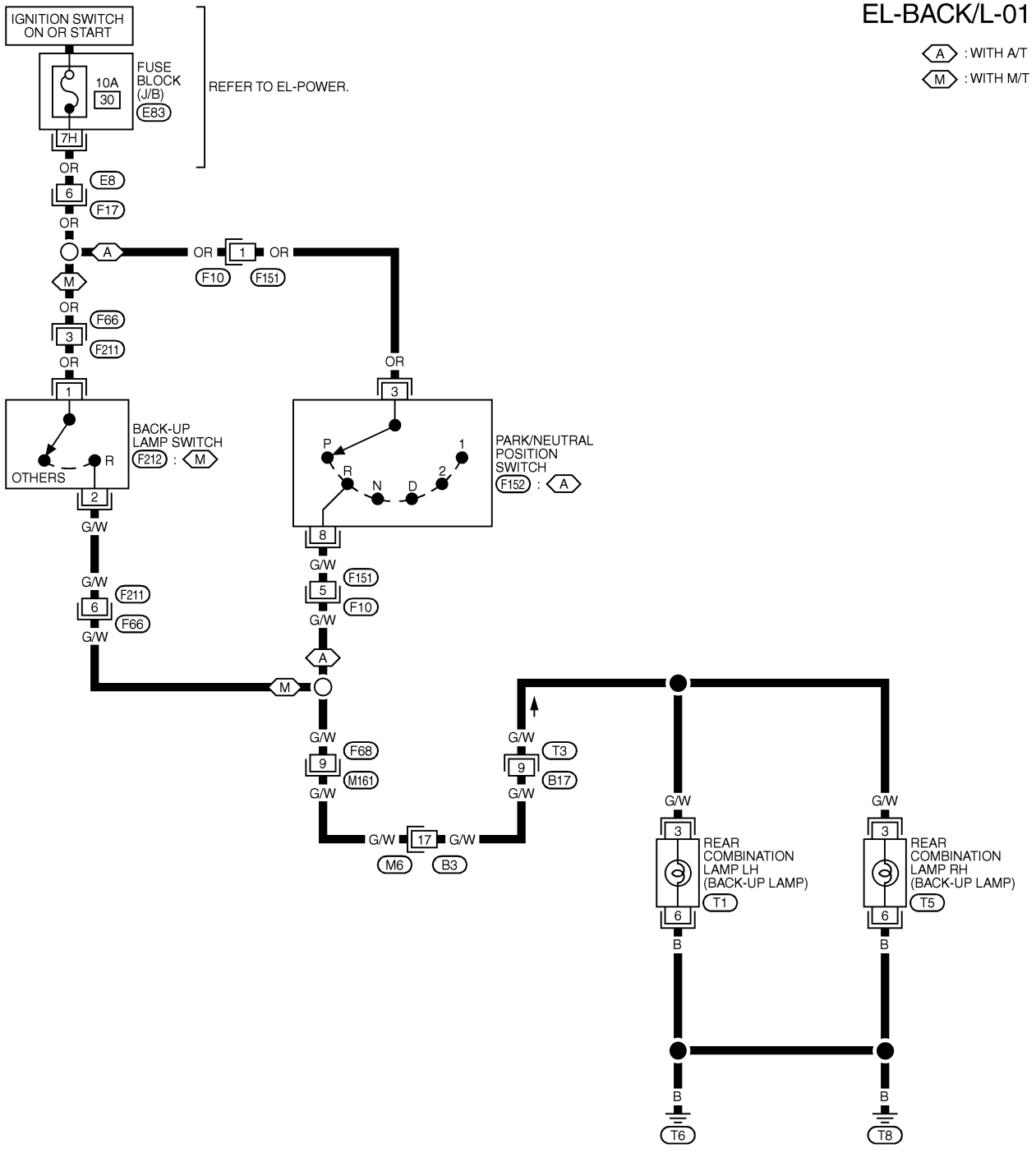



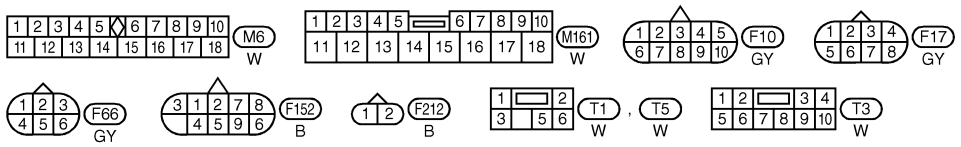

REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL104O

## Wiring Diagram — BACK/L —

NFEL0026




REFER TO THE FOLLOWING.
E83 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL723P

# System Description

NFEL0164

## OUTLINE

NFEL0164S01

Power is supplied at all times
- to headlamp LH relay terminals 1 and 6
- through 20A fuse (No. 54, located in the fuse and fusible link box) and
- to smart entrance control unit terminal 49
- through 10A fuse [No. 13, located in the fuse block (J/B)], and
- to front fog lamp relay terminal 3
- through 15A fuse [No. 6, located in the fuse block (J/B)].

When ignition switch is in ON or START position, power is supplied
- to smart entrance control unit terminal 27
- through 10A fuse [No. 10, located in the fuse block (J/B)].

When the ignition switch is in the ACC or ON position, power is supplied
- to smart entrance control unit terminal 26
- through 10A fuse [No. 1, located in the fuse block (J/B)].

Ground is supplied to smart entrance control unit terminals 43 and 64.
When lighting switch is in 2ND position, ground is supplied
- to headlamp LH relay terminal 2 from smart entrance control unit terminal 21.
- through smart entrance control unit terminals 22 and 60, and
- through lighting switch, and body grounds E11, E22 and E53.

Headlamp LH relay is then energized.

## FOG LAMP OPERATION

NFEL0164S02

The fog lamp switch is built into the combination switch. The lighting switch must be in the 2ND position for fog lamp operation.
With the fog lamp switch in the ON position, ground is supplied
- to fog lamp relay terminal 2
- through the fog lamp switch and body grounds E11, E22 and E53.

The fog lamp relay is energized and power is supplied
- from fog lamp relay terminal 5
- to terminal 2 of each fog lamp.

Ground is supplied to terminal 1 of each fog lamp through body grounds E11, E22 and E53.
With power and ground supplied, the fog lamps illuminate.

## EXTERIOR LAMP BATTERY SAVER CONTROL

NFEL0164S03

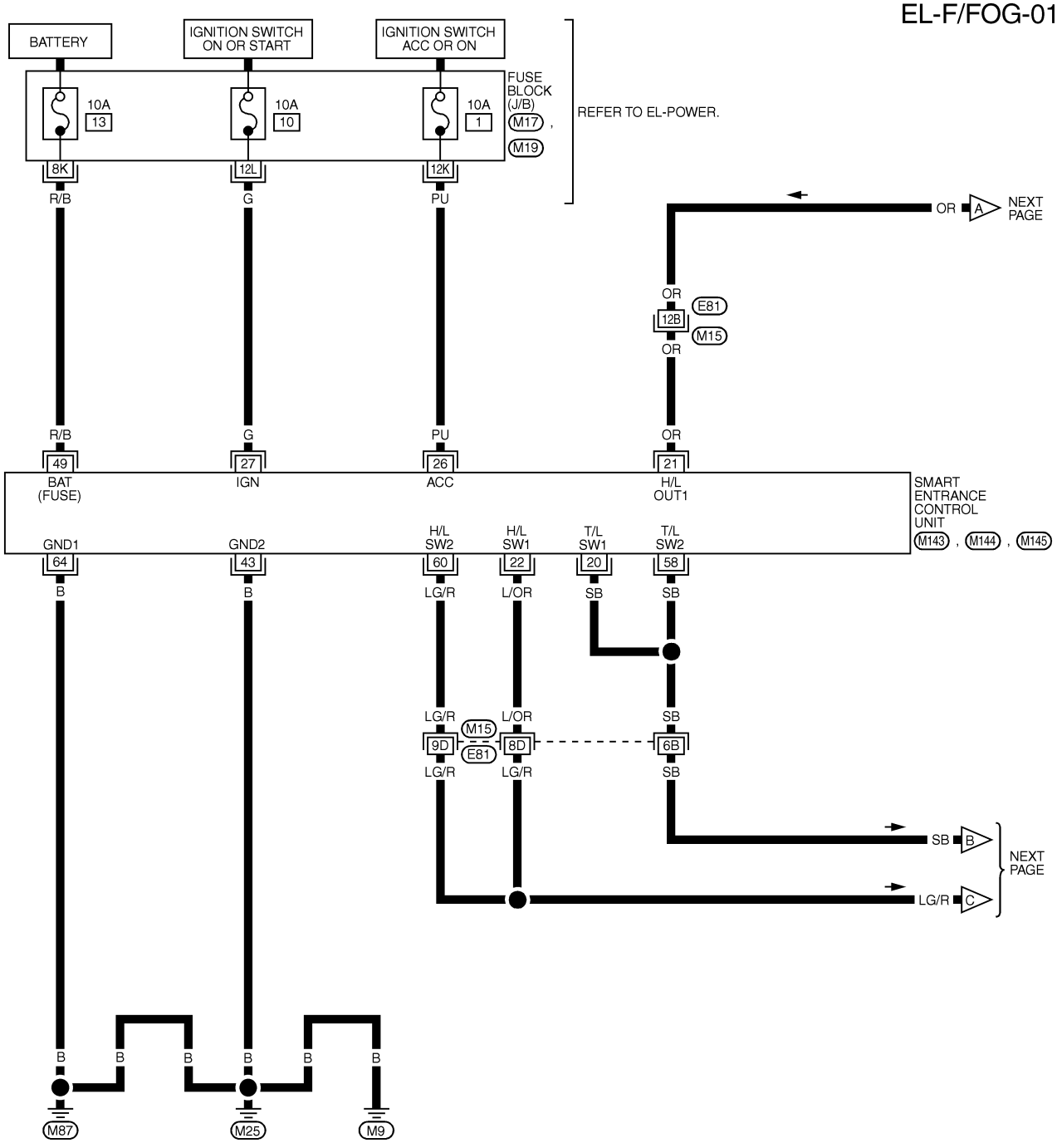
Fog lamps will remain on for a short while after the ignition switch is turned OFF (ACC OFF) from ON (or START).
Continuity between terminals 21 and 60 of smart entrance control unit will be disturbed after 5 minutes, then the headlamps will be turned off.
Then fog lamps are turned to off.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II (EL-46).
When the lighting switch is turned from OFF to 2ND after fog lamps are turned off by the battery saver control, ground is supplied
- to smart entrance control unit terminals 20 and 58 from lighting switch terminal 11, and then
- to headlamp LH relay terminal 2 from smart entrance control unit terminal 21
- through smart entrance control unit terminals 22 and 60 from lighting switch terminal 12.

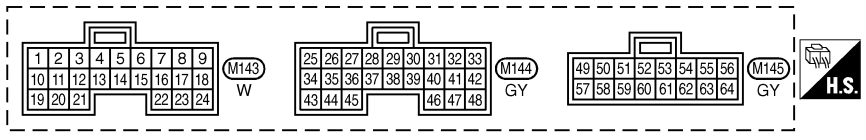
Then the fog lamps illuminate again.

## Wiring Diagram — F/FOG —

NFEL0028

EL-F/FOG-01

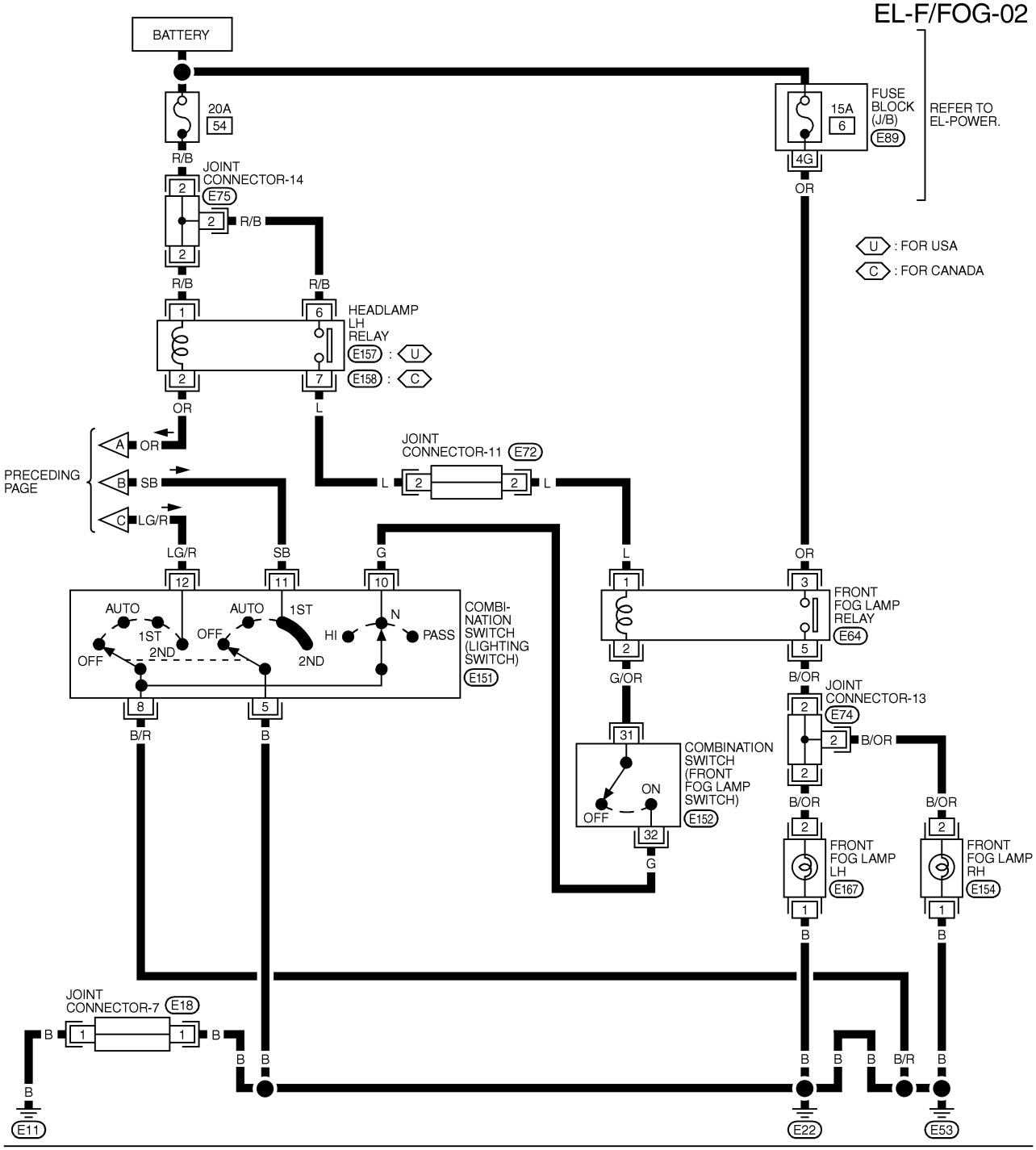


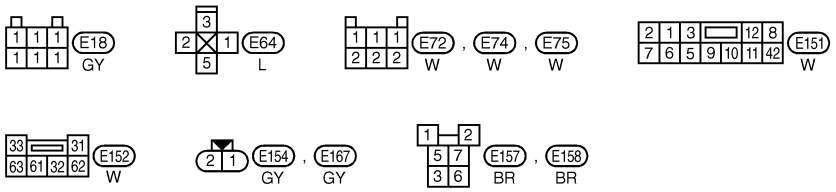




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL106O

EL-F/FOG-02



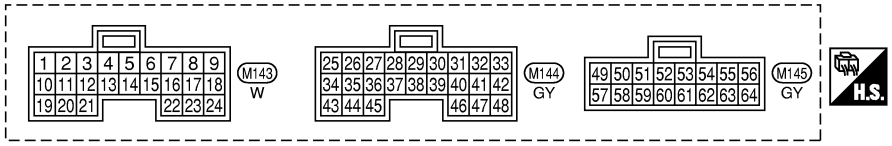




REFER TO THE FOLLOWING.

E89 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL107O

**SMART ENTRANCE CONTROL UNIT CONNECTOR**

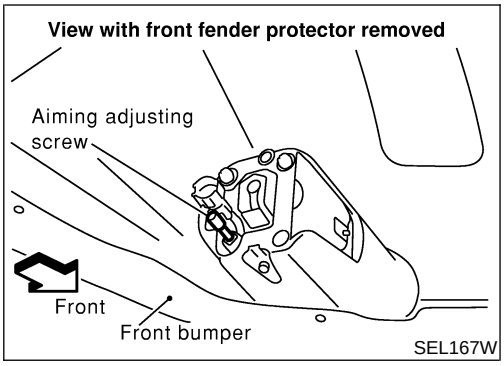


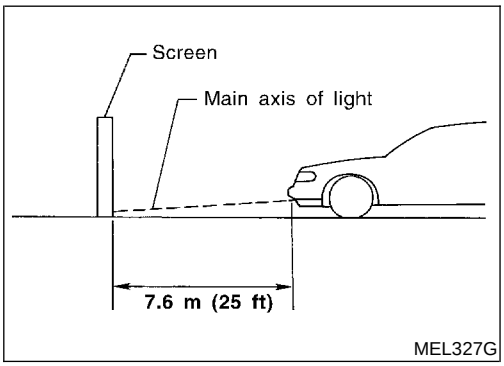

**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

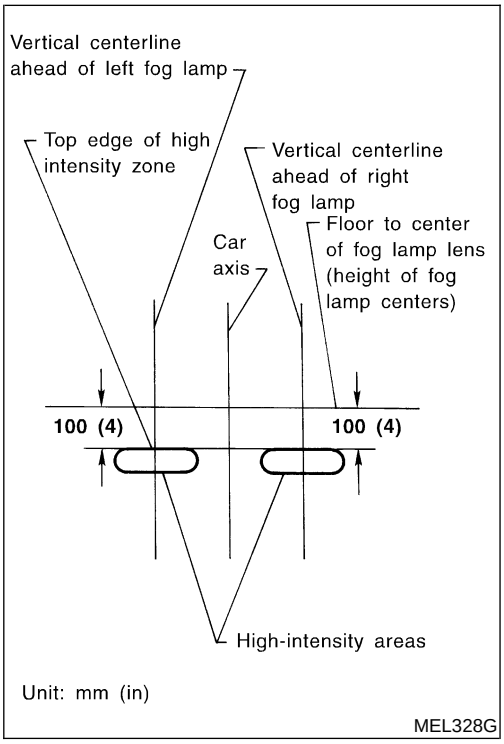
| TERMINAL | WIRE COLOR | ITEM | CONDITION | | | DATA (DC) |
|---|---|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 20 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO→1ST OR 2ND POSITION) | | | 12V → 0V |
| 21 | OR | HEADLAMP LH RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH OFF OR 1ST) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL | | | 0V |
| 22 | L/OR | HEADLAMP SWITCH | LIGHTING SWITCH | EXCEPT PASS OR 2ND POSITION | | 12V |
| | | | | PASS OR 2ND POSITION | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | 10V → 12V |
| 26 | PU | IGNITION SWITCH (ACC) | "ACC" POSITION | | | 12V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | | | 12V |
| 43 | B | GROUND | – | | | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | | | 12V |
| 58 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION) | | | 12V → 0V |
| 60 | LG/R | HEADLAMP SWITCH | LIGHTING SWITCH | EXCEPT PASS OR 2ND POSITION | | 12V |
| | | | | PASS OR 2ND POSITION | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | 10V → 12V |
| 64 | B | GROUND | – | | | – |

SEL586Y

**NOTE:**
For CONSULT-II Inspection Procedure, refer to "HEADLAMP (FOR USA)" (EL-45).
For CONSULT-II Application Items, refer to "HEADLAMP (FOR USA)" (EL-46).
Trouble Diagnoses for exterior lamp battery saver control, refer to "HEADLAMP (FOR USA)" (EL-46).




## Aiming Adjustment

=NFEL0029

Before performing aiming adjustment, make sure of the following.

1) Keep all tires inflated to correct pressure.
2) Place vehicle on level ground.
3) 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.

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. Remove front fog lamp rim. For detail, refer to "BODY END" in BT section.
3. Turn front fog lamps ON.
4. 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.

# System Description

NFEL0030

## TURN SIGNAL OPERATION

NFEL0030S01

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

- through 10A fuse [No. 26, 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 M9, M25 and M87.

### LH Turn

NFEL0030S0101

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

- front turn signal lamp LH terminal 1
- combination meter terminal 25
- rear combination lamp LH terminal 5.

Ground is supplied to the front turn signal lamp LH terminal 2 through body grounds E11, E22 and E53.
Ground is supplied to the rear combination lamp LH terminal 6 through body grounds T6 and T8.
Ground is supplied to combination meter terminal 30 through body grounds M9, M25 and M87.
With power and ground supplied, the combination flasher unit controls the flashing of the LH turn signal lamps.

### RH Turn

NFEL0030S0102

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

- front turn signal lamp RH terminal 1
- combination meter terminal 29
- rear combination lamp RH terminal 5.

Ground is supplied to the front turn signal lamp RH terminal 2 through body grounds E11, E22 and E53.
Ground is supplied to the rear combination lamp RH terminal 6 through body grounds T6 and T8.
Ground is supplied to combination meter terminal 30 through body grounds M9, M25 and M87.
With power and ground supplied, the combination flasher unit controls the flashing of the RH turn signal lamps.

## HAZARD LAMP OPERATION

NFEL0030S02

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

- 15A fuse [No. 5, 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 M9, M25 and M87.
Power is supplied through terminal 5 of the hazard switch to

- front turn signal lamp LH terminal 1
- combination meter terminal 25
- rear combination lamp LH terminal 5.

Power is supplied through terminal 6 of the hazard switch to

- front turn signal lamp RH terminal 1
- combination meter terminal 29
- rear combination lamp RH terminal 5.

Ground is supplied to terminal 2 of each front turn signal lamp through body grounds E11, E22 and E53.
Ground is supplied to terminal 6 of each rear combination lamp through body grounds T6 and T8.
Ground is supplied to combination meter terminal 30 through body grounds M9, M25 and M87.
With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

## REMOTE KEYLESS ENTRY SYSTEM OPERATION

NFEL0030S03

Power is supplied at all times.

- to smart entrance control unit terminal 49
- through 10A fuse [No. 13, located in the fuse block (J/B)].

Ground is supplied to smart entrance control unit terminal 43 and 64.
Refer to "REMOTE KEYLESS ENTRY SYSTEM", EL-277.
When smart entrance control unit receives LOCK or UNLOCK siganl from keyfob with all doors closed, power is supplied

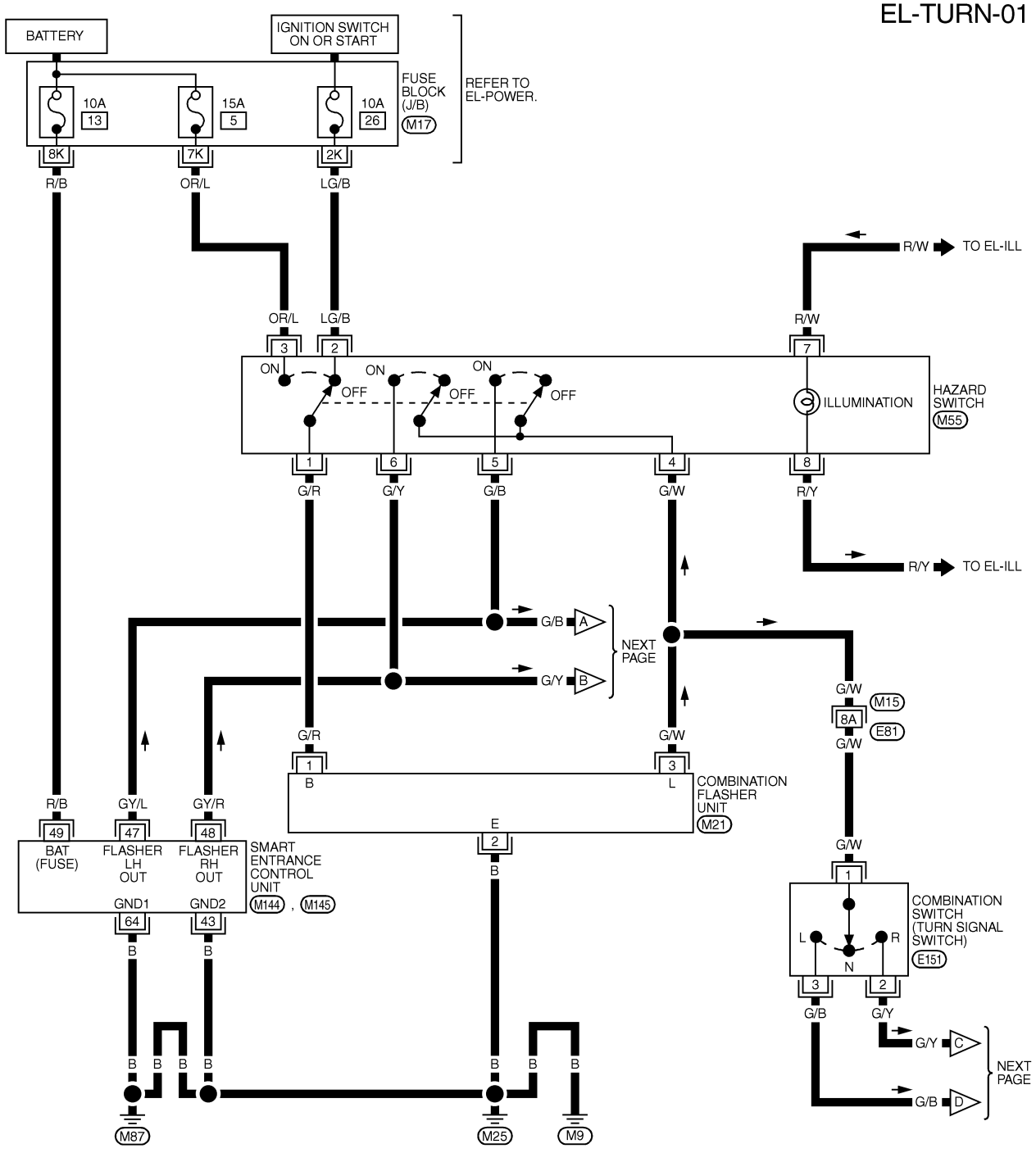
- through smart entrance control unit terminal 47
- to front turn signal lamp LH terminal 1 and
- to combination meter terminal 25 and
- to rear combination lamp LH terminal 5, and
- through smart entrance control unit terminal 48
- to front turn signal lamp RH terminal 1 and
- to combination meter terminal 29 and
- to rear combination lamp RH terminal 5

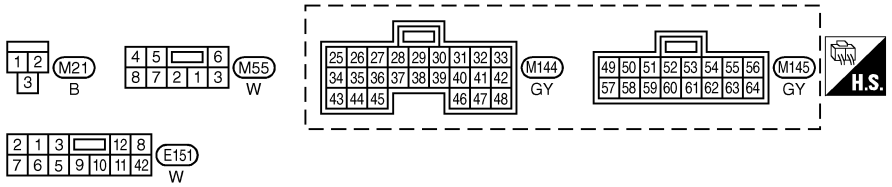
Ground is supplied to terminal 2 of each front turn signal lamp through body grounds E11, E22 and E53.
Ground is supplied to terminal 6 of each rear combination lamp through body grounds T6 and T8.
Ground is supplied to combination meter terminal 30 through body grounds M9, M25 and M87.
With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

## Wiring Diagram — TURN —

NFEL0032

EL-TURN-01

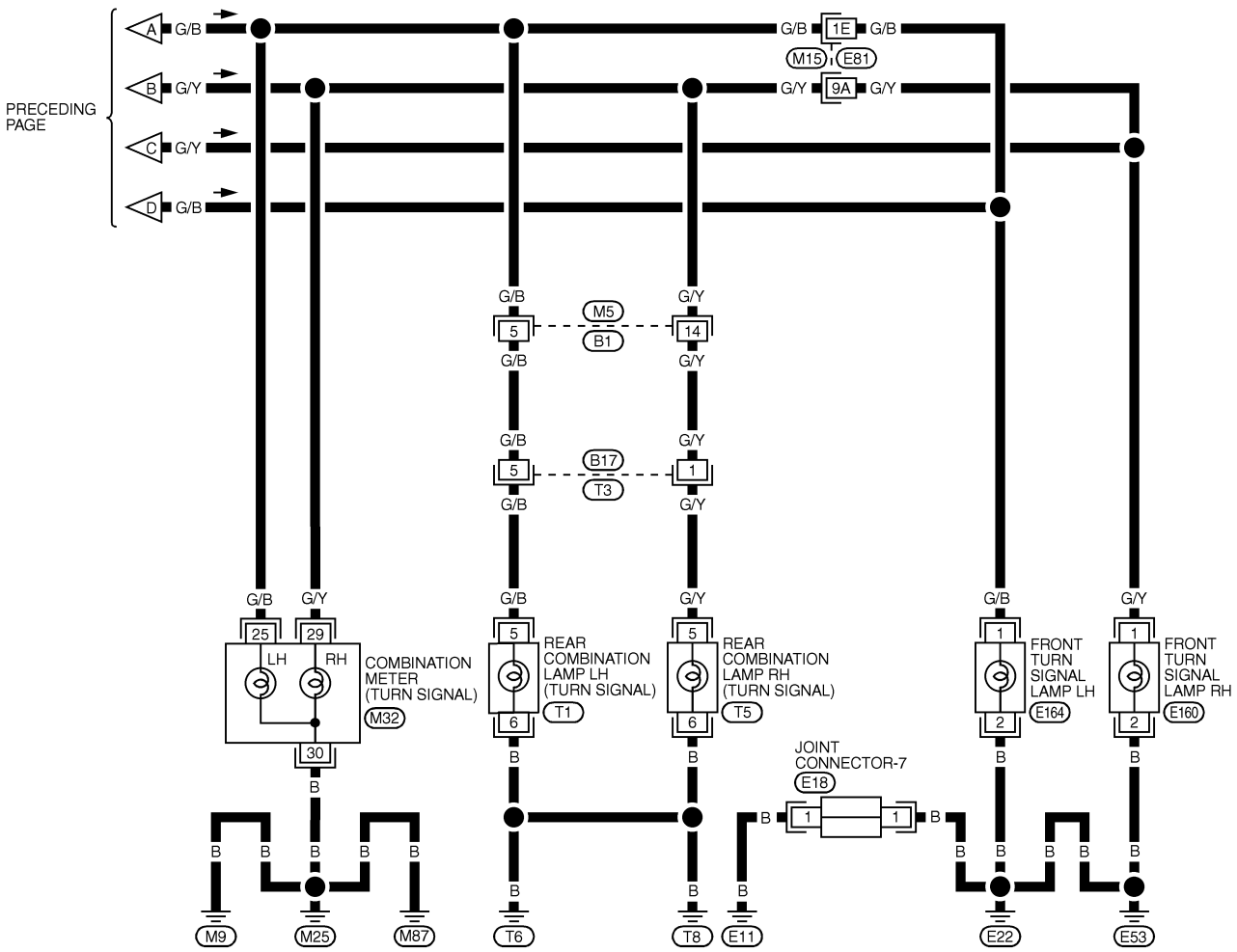


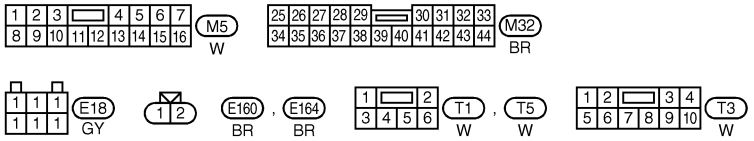




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL108O

EL-TURN-02




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL109O

**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

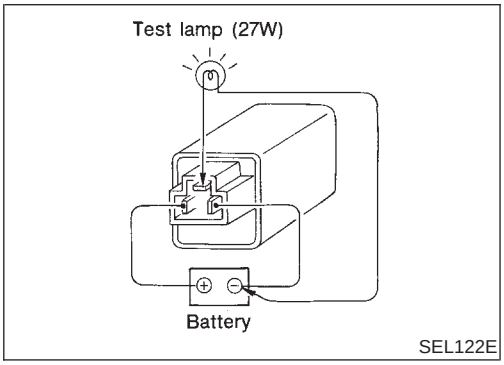
| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 43 | B | GROUND | – | – |
| 47 | GY/L | LH TURN SIGNAL LAMP | WHEN DOOR LOCK OR UNLOCK IS OPERATED USING KEYFOB (ON → OFF) | 12V → 0V |
| 48 | GY/R | RH TURN SIGNAL LAMP | WHEN DOOR LOCK OR UNLOCK IS OPERATED USING KEYFOB (ON → OFF) | 12V → 0V |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 64 | B | GROUND | – | – |

SEL392Y

## Trouble Diagnoses

NFEL0033

| 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.<br>3. Check wiring to combination flasher unit for open circuit. |
| Turn signal lamps do not operate but hazard warning lamps operate. | 1. 10A fuse<br>2. Hazard switch<br>3. Turn signal switch<br>4. Open in turn signal switch circuit | 1. Check 10A fuse [No. 26, located in 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 the wire between combination flasher unit terminal 3 and turn signal switch terminal 1 for open circuit. |
| Hazard warning lamps do not operate but turn signal lamps operate. | 1. 15A fuse<br>2. Hazard switch<br>3. Open in hazard switch circuit | 1. Check 15A fuse [No. 5, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 3 of hazard switch.<br>2. Check hazard switch.<br>3. Check the wire between combination flasher unit terminal 3 and hazard switch terminal 4 for open circuit. |
| Front turn signal lamp LH or RH does not operate. | 1. Bulb<br>2. Grounds E11, E22 and E53<br>3. Front turn signal lamp circuit | 1. Check bulb.<br>2. Check grounds E11, E22 and E53.<br>3. Check the wire between combination switch and front turn signal lamp. |
| Rear turn signal lamp LH or RH does not operate. | 1. Bulb<br>2. Grounds T6 and T8<br>3. Rear turn signal lamp circuit | 1. Check bulb.<br>2. Check grounds T6 and T8.<br>3. Check the wire between combination switch and rear turn signal lamp. |
| LH and RH turn indicators do not operate. | 1. Ground | 1. Check grounds M9, M25 and M87. |
| LH or RH turn indicator does not operate. | 1. Bulb<br>2. Turn indicator circuit | 1. Check bulb in combination meter.<br>2. Check the wire between hazard switch and combination meter. |



SEL122E

## Electrical Components Inspection

NFEL0034

### COMBINATION FLASHER UNIT CHECK

NFEL0034S01

- 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

NFEL0258

The illumination lamp operation is controlled by the lighting switch which is built into the combination switch and smart entrance control unit. The battery saver system is controlled by smart entrance control unit.
Power is supplied at all times

- to tail lamp relay terminals 1 and 3
- through 10A fuse (No. 60, located in the fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 10A fuse [No. 13, located in the fuse block (J/B)].

When ignition switch is in ON or START position, power is supplied

- to smart entrance control unit terminal 27
- through 10A fuse [No. 10, located in the fuse block (J/B)], and

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

- to smart entrance control unit terminal 26
- through 10A fuse [No. 1, located in the fuse block (J/B)].

Ground is supplied to smart entrance control unit terminals 43 and 64 from body grounds M9, M25 and M87.

### LIGHTING OPERATION BY LIGHTING SWITCH

NFEL0258S01

When lighting switch is 1ST (or 2ND) position, ground is supplied

- to tail lamp relay terminal 2 from smart entrance control unit terminals 19 and 57
- through smart entrance control unit terminals 20 and 58, and
- through lighting switch and body grounds E11, E22 and E53.

Tail lamp relay is then energized and illumination lamps illuminate.
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 ground for all of the components except for door mirror remote control switch, clock and grove box lamp ashtray are controlled through terminals 2 and 3 of the illumination control switch and body grounds M9, M25 and M87.

### EXTERIOR LAMP BATTERY SAVER CONTROL

NFEL0258S02

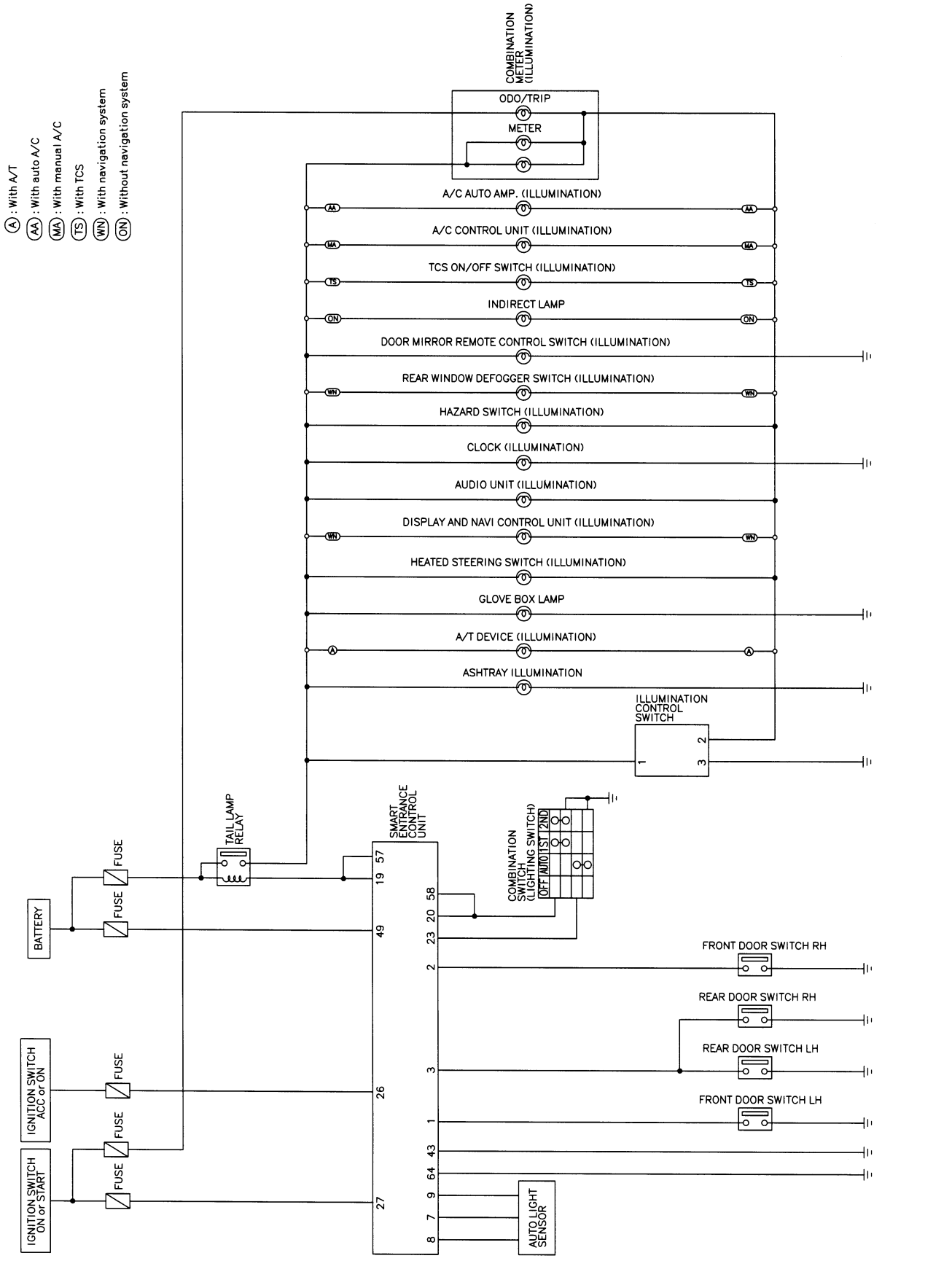
Illumination lamps will remain on for a short while after the ignition switch is turned OFF (ACC OFF) from ON (or START).
Continuity between terminals 19 and 20, and between terminals 57 and 58 of smart entrance control unit will be disturbed after 5 minutes, then the headlamps will be turned off.
Then illumination lamps are turned off.
Exterior lamp battery saver control mode can be changed by the function setting of CONSULT-II (EL-46).
When the lighting switch is turned from OFF to 1ST (or 2ND) after illumination lamps are turned off by the battery saver control, ground is supplied

- to smart entrance control unit terminals 20 and 58 from lighting switch terminal 11, and
- to tail lamp relay terminal 2 from smart entrance control unit terminals 19 and 57.

Then illumination lamps illuminate again.

## Schematic

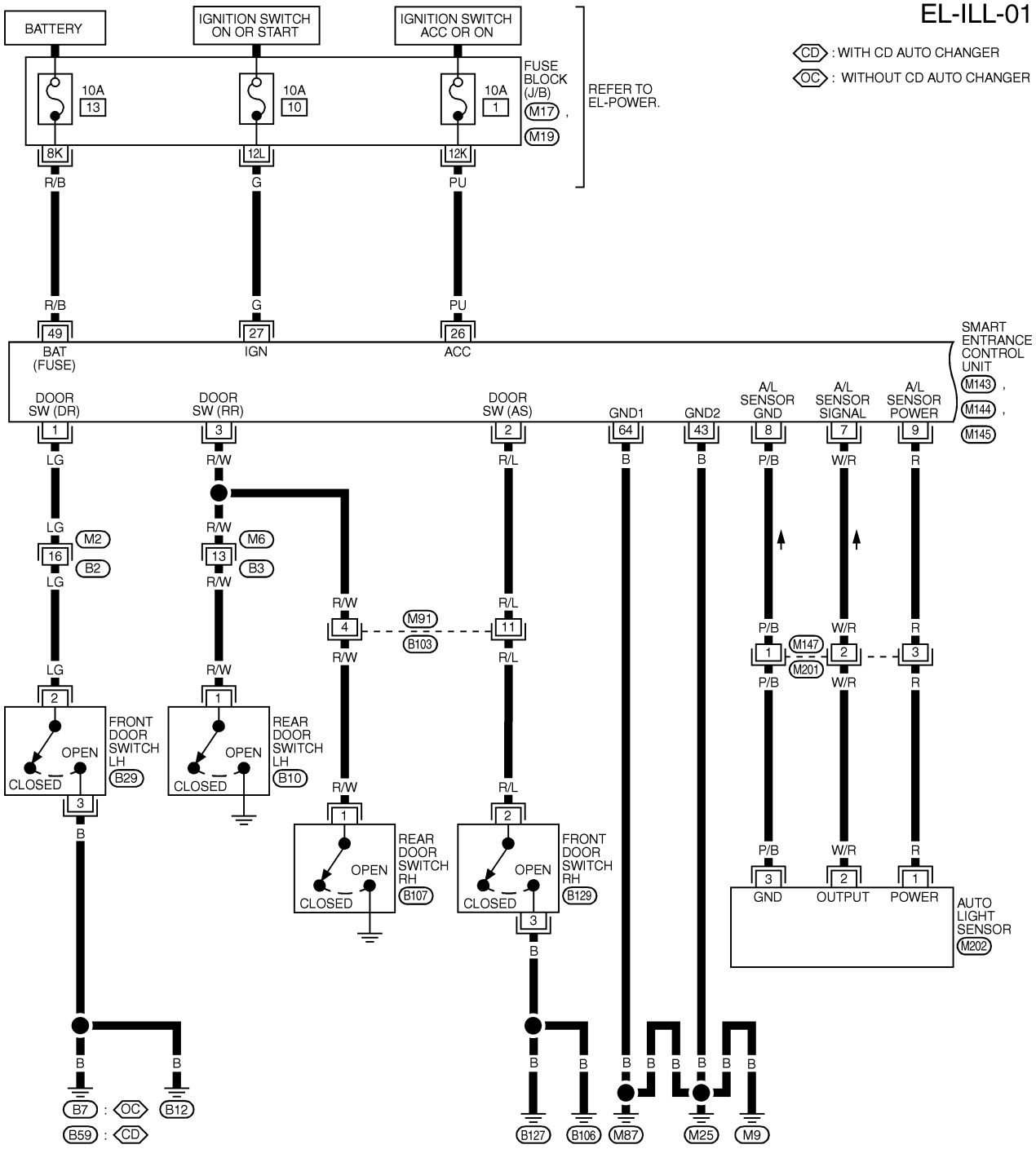
NFEL0036

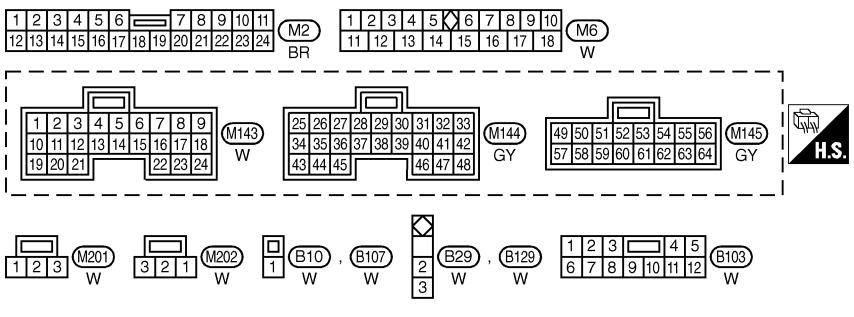



MEL724P

# Wiring Diagram — ILL —

NFEL0037

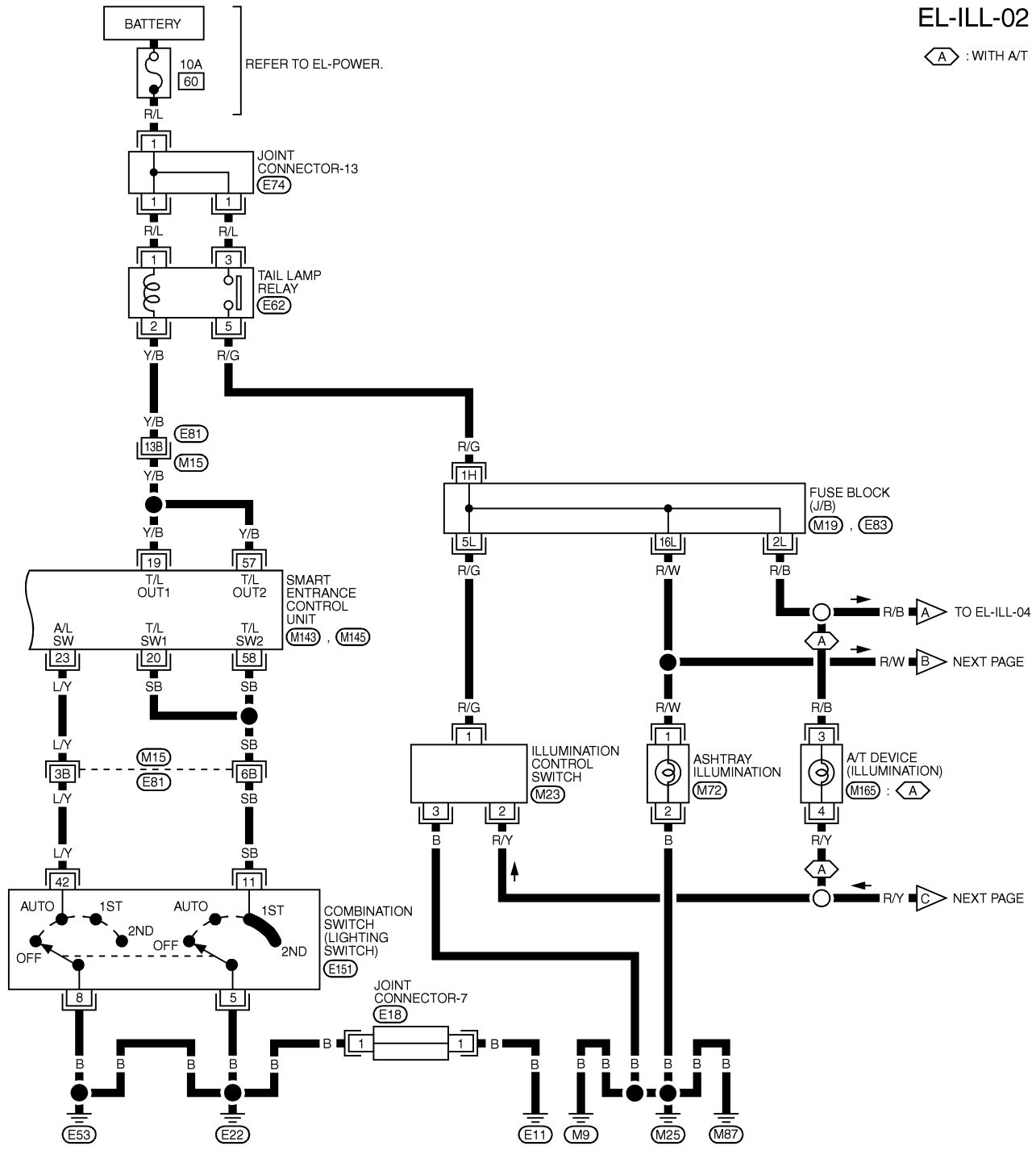



REFER TO THE FOLLOWING.
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

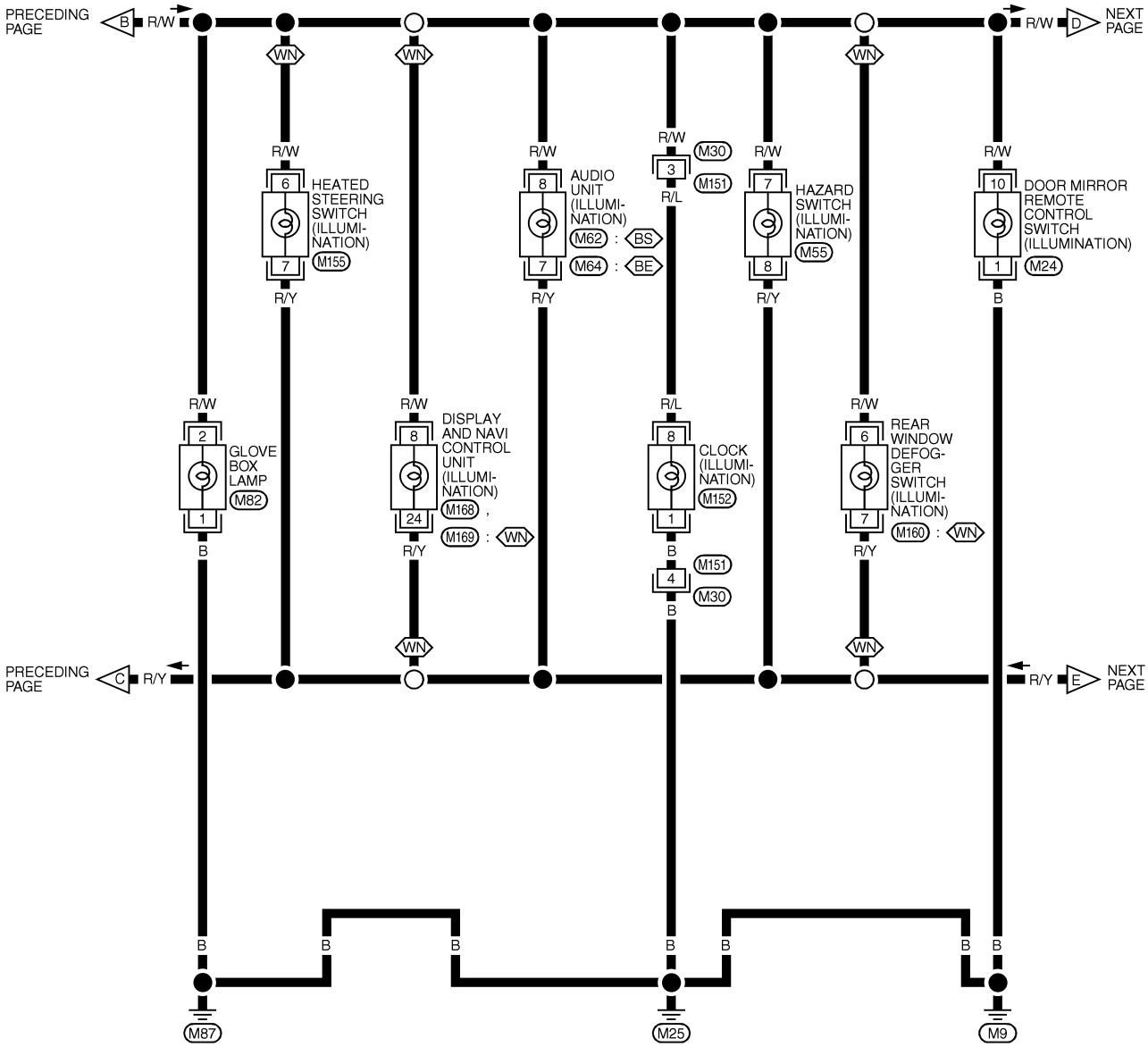
MEL725P

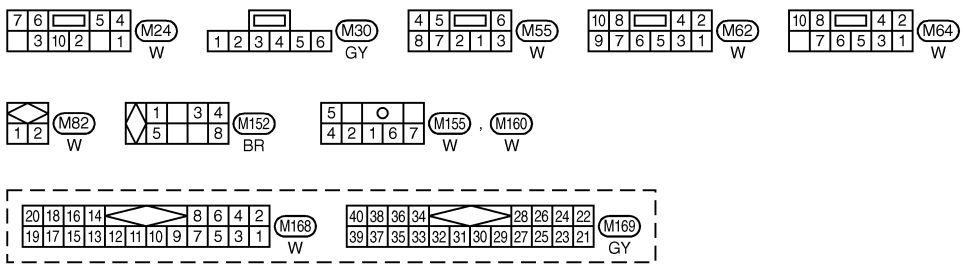
*Wiring Diagram — ILL — (Cont'd)*



EL-ILL-03

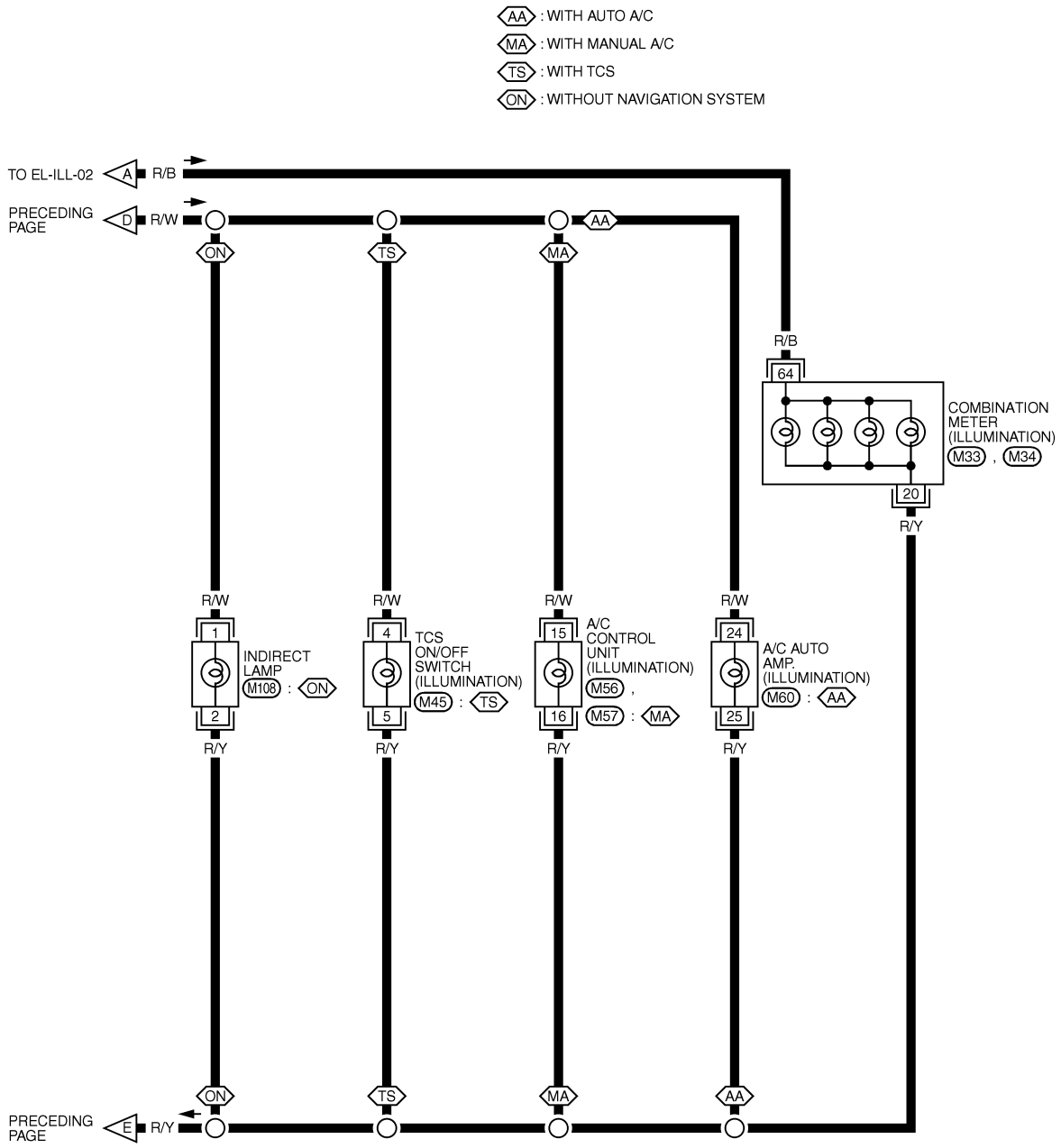
BS : WITH BOSE SYSTEM
BE : WITH BASE SYSTEM
WN : WITH NAVIGATION SYSTEM

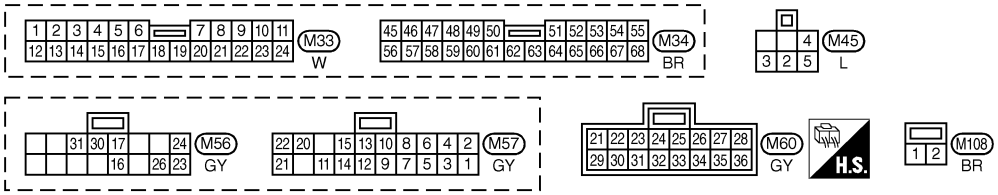



MEL726P

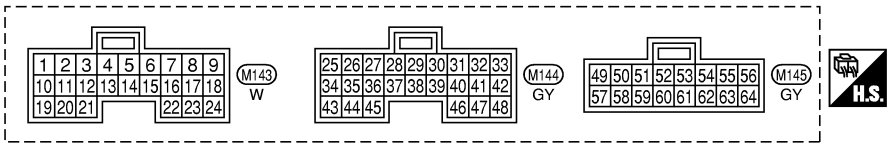
EL-ILL-04




MEL114O

**SMART ENTRANCE CONTROL UNIT CONNECTOR**




**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | | | DATA (DC) |
|---|---|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 3 | R/W | REAR DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 7 | W/R | AUTO LIGHT SENSOR (SIGNAL) | IGNITION SWITCH "ON" POSITION | LIGHT IS APPLIED TO AUTO LIGHT SENSOR | | 1 TO 5V |
| | | | | LIGHT IS NOT APPLIED TO AUTO LIGHT SENSOR | | LESS THAN 1V |
| 8 | P/B | AUTO LIGHT SENSOR (GND) | – | | | – |
| 9 | R | AUTO LIGHT SENSOR (POWER) | IGNITION SWITCH (OFF → ON) | | | 0V → 5V |
| 19 | Y/B | TAIL LAMP RELAY (Out put) | IGNITION SWITCH (WITH LIGHTING SWITCH 1ST OR 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | 0V → 12V |
| 20 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO→1ST OR 2ND POSITION) | | | 12V → 0V |
| 23 | L/Y | HEADLAMP SWITCH | IGNITION SWITCH "ON" POSITION | LIGHTING SWITCH (EXCEPT AUTO → AUTO POSITION) | | 12V → 0V |
| 26 | PU | IGNITION SWITCH (ACC) | "ACC" POSITION | | | 12V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | | | 12V |
| 43 | B | GROUND | – | | | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | | | 12V |
| 57 | Y/B | TAIL LAMP RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 1ST OR 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | LESS THAN 1V → 12V |
| 58 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION) | | | 12V → 0V |
| 64 | B | GROUND | – | | | – |

SEL587Y

**NOTE:**
For CONSULT-II Inspection Procedure, refer to "HEADLAMP (FOR USA)" (EL-45).
For CONSULT-II Application Items, refer to "HEADLAMP (FOR USA)" (EL-46).
Trouble Diagnoses for exterior lamp battery saver control, refer to "HEADLAMP (FOR USA)" (EL-46).

## System Description

NFEL0165

### POWER SUPPLY AND GROUND

NFEL0165S01

Power is supplied at all times:

- through 10A fuse [No. 13, located in the fuse block (J/B)]
- to key switch terminals 2 (M/T) or 3 (A/T) and
- to smart entrance control unit terminal 49.

When the key is removed from ignition key cylinder, power is interrupted:

- through key switch terminals 1 (M/T) or 4 (A/T)
- to smart entrance control unit terminal 25.

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

- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to smart entrance control unit terminal 27.

Ground is supplied:

- to smart entrance control unit terminal 43 and 64
- through body grounds terminals M9, M25 and M87.

When the front driver side door is opened, ground is supplied:

- through body grounds B12 and B7 (without CD auto changer), or B59 (with CD auto changer)
- to front door switch LH terminal 3
- from front door switch LH terminal 2
- to smart entrance control unit terminal 1.

When the front passenger side door is opened, ground is supplied:

- through body grounds B106 and B127
- to front door switch RH terminal 3
- from front door switch RH terminal 2
- to smart entrance control unit terminal 2.

When any other door (except front door) is opened, ground is supplied to smart entrance control unit terminal 3 in the same manner as the front door switch.
When the front driver side door is unlocked by the door lock and unlock switch, the smart entrance control unit receives a ground signal:

- through body grounds terminals M9, M25 and M87
- to front power window switch terminal 5 (LH) or 7 (RH)
- from front power window switch terminal 8 (LH) or 11 (RH)
- to smart entrance control unit terminal 33.

When the front driver side door is unlocked by the front door key cylinder switch, the smart entrance control unit receives a ground signal:

- through body grounds terminals M9, M25 and M87
- to front door key cylinder switch LH terminal 2
- from front door key cylinder switch LH terminal 1
- to front power window main switch terminal 19
- from front power window main switch terminal 8
- to smart entrance control unit terminal 33.

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

- through smart entrance control unit terminal 31
- to interior lamp terminal 2.

With power and ground supplied, the interior lamp illuminates.

### SWITCH OPERATION

NFEL0165S02

When interior lamp switch is ON, ground is supplied:

- through case grounds of interior lamp
- to interior lamp.

And power is supplied:

- to interior lamp terminal 1

- from smart entrance control unit terminal 50.

When spot lamp (LH and/or RH) is ON, ground is supplied:

- through body grounds M9, M25 and M87
- to spot lamp terminal 2.

And power is supplied:

- to spot lamp terminal 1
- from smart entrance control unit terminal 50.

When vanity mirror illumination (LH and/or RH) is ON, ground is supplied:

- through body grounds M9, M25 and M87
- to vanity mirror illuminations (LH and RH) terminal 2.

And power is supplied:

- to vanity mirror illuminations (LH and RH) terminal 1
- from smart entrance control unit terminal 50.

When rear door switch LH and/or RH is ON (door is opened), the smart entrance control unit receives a ground signal:

- through case ground of the rear door switch
- from the rear door switch terminal 1
- to smart entrance control unit terminal 3.
- from smart entrance control unit terminal 32
- to front step lamp LH and RH terminal 1.

And power is supplied:

- to front step lamp LH and RH terminal 2
- from smart entrance control unit terminal 50.

When front door switch LH and/or RH is ON (door is opened), ground is supplied:

- through body grounds B12 and B7 (without CD auto changer), or B57 (with CD auto changer), and/or B106 and B127
- to the front door switch terminal 3
- from the front door switch terminal 2
- to smart entrance control unit terminal 1 and/or 2
- from smart entrance control unit terminal 32
- to front step lamp LH and RH terminal 1.

And power is supplied:

- to front step lamp LH and RH terminal 2
- from smart entrance control unit terminal 50.

When trunk room lamp switch is ON (trunk lid is opened), ground is supplied:

- through body grounds T6 and T8
- to trunk room lamp switch terminal 2
- from trunk room lamp switch terminal 1
- to trunk room lamp terminal 1

And power is supplied:

- to trunk room lamp terminal 2
- through 10A fuse [No. 13, located in the fuse block (J/B)].

With power and ground supplied, interior lamps turn ON.

## INTERIOR LAMP TIMER OPERATION

NFEL0165S03

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

- unlock signal is supplied from driver's door unlock sensor while all doors are closed and key is out of ignition key cylinder
- unlock signal is supplied from keyfob or door key cylinder while driver's door is locked and all doors are closed
- key is removed from ignition key cylinder while all doors are closed

- driver's door is opened and then closed while key is out of the iginition key cylinder. (However, if the driver's door is closed with the key inserted in the ignition key cylinder after the driver's door is opened with the key removed, the timer is operated.)

The timer is canceled when:

- driver's door is locked,
- driver's door is opened, or
- ignition switch is turned ON.

When driver's door is locked, interior room lamp timer is canceled as described before.
However, ignition key hole illumination remains on for about 30 seconds after driver's door has been locked.

### ON-OFF CONTROL

NFEL0165S04

When the driver side door, front passenger door, rear LH or RH door is opened, the interior room lamp turns on while the interior room lamp switch is in the "DOOR" position.
When any door is opened, step lamps turn ON.

### INTERIOR LAMP BATTERY SAVER CONTROL

NFEL0165S05

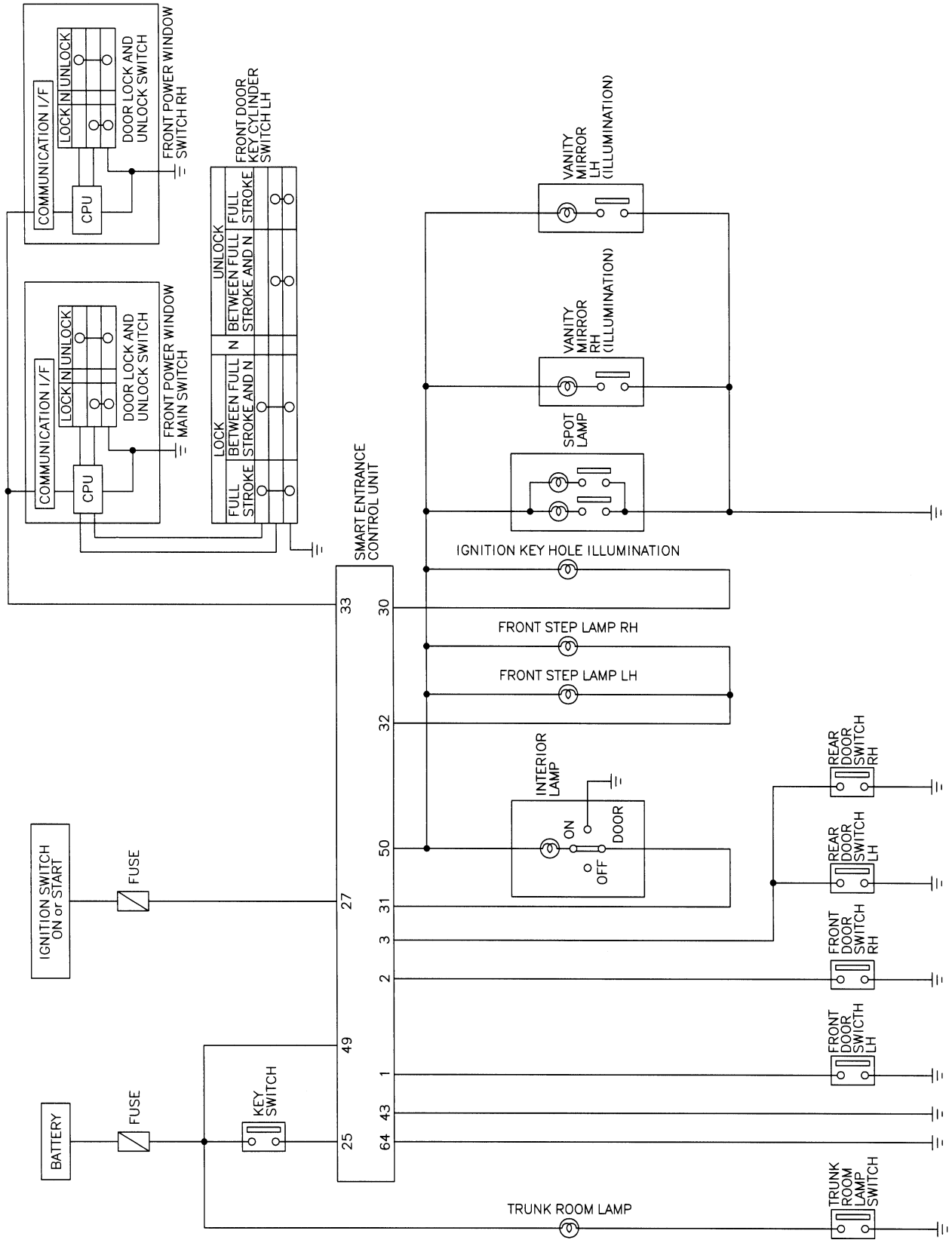
The lamp turns off automatically when interior lamp, step lamp, spot lamp and/or vanity mirror illumination is illuminated with the ignition key is in OFF position, if the lamp remains lit by the door switch open signal or if the lamp switch is in ON position for more than 30 minutes.
After lamps turn OFF by the battery saver system, the lamps illuminate again when:

- driver's door is locked or unlocked,
- door is opened or closed,
- key is removed from ignition key cylinder or inserted in ignition key cylinder.

Interior lamp battery saver control period can be changed by the function setting of CONSULT-II (EL-102).

## Schematic

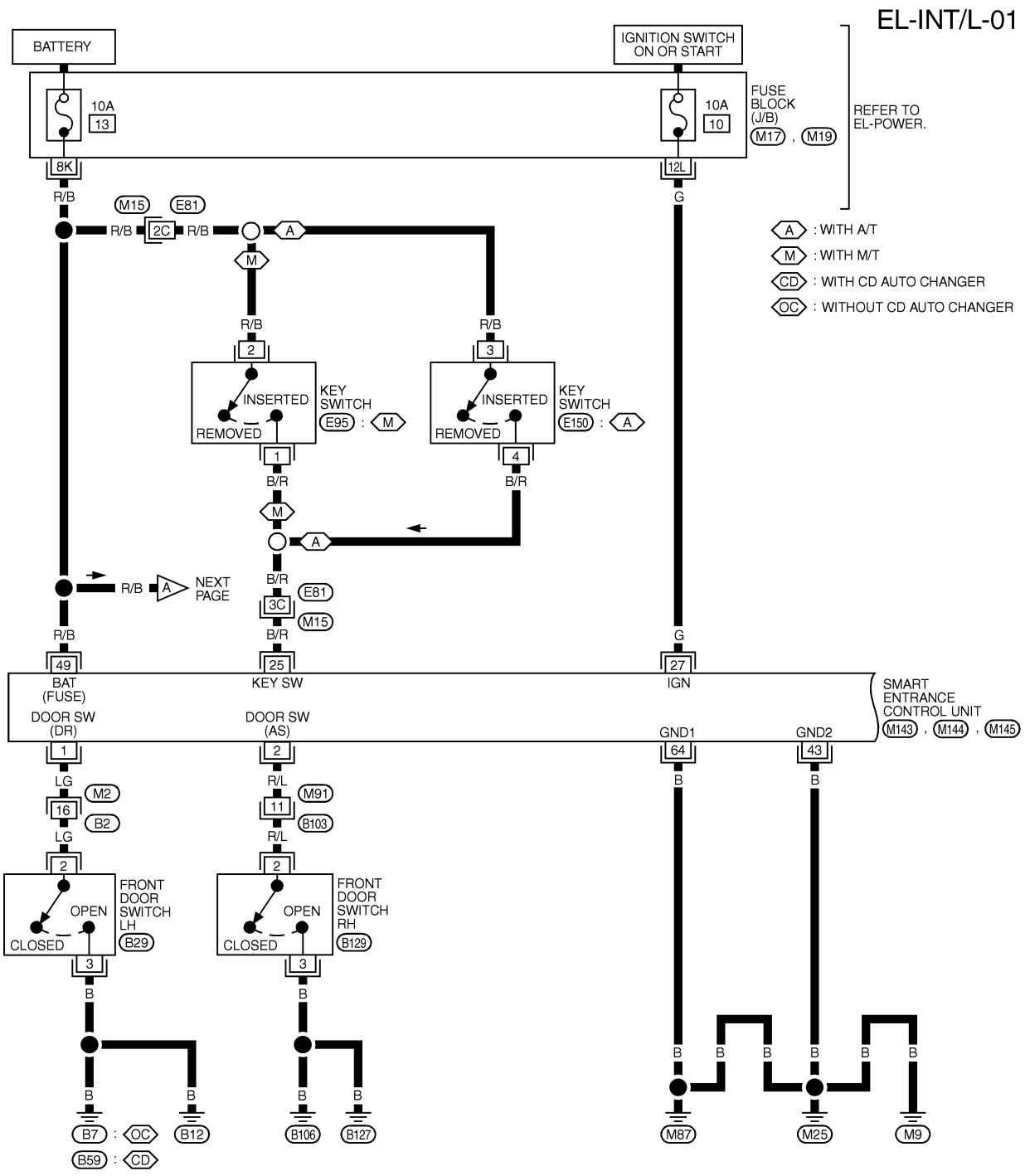
NFEL0212

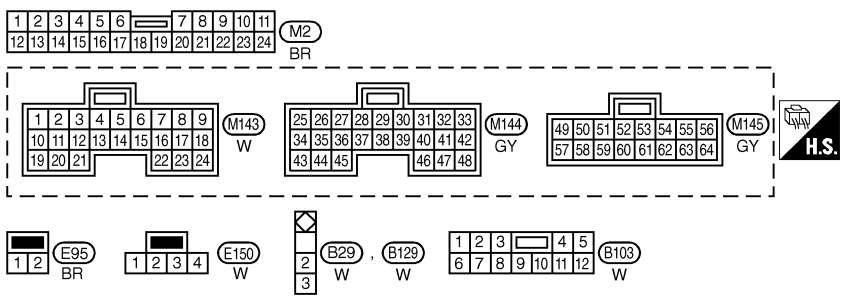



MEL115O

## Wiring Diagram — INT/L —

NFEL0163

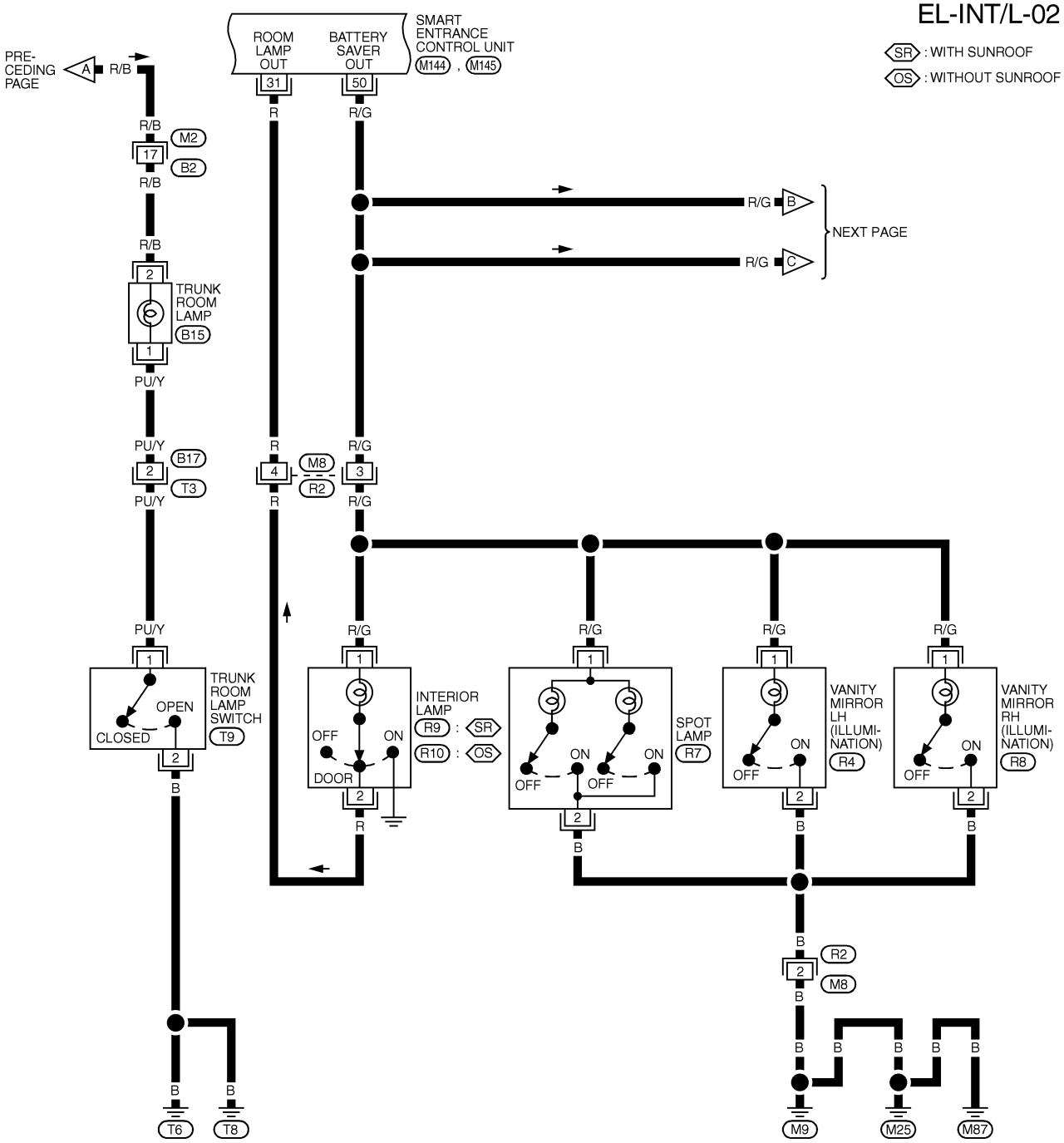


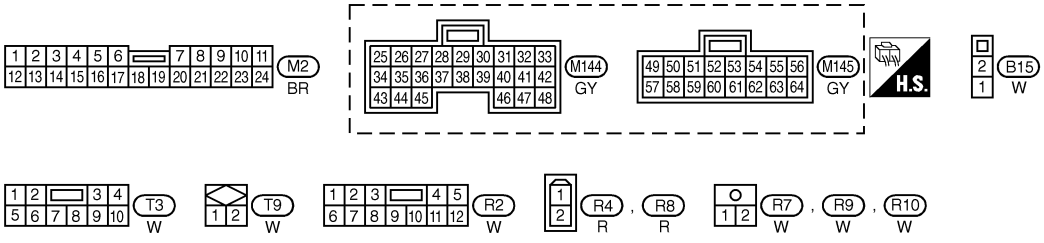




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL740P

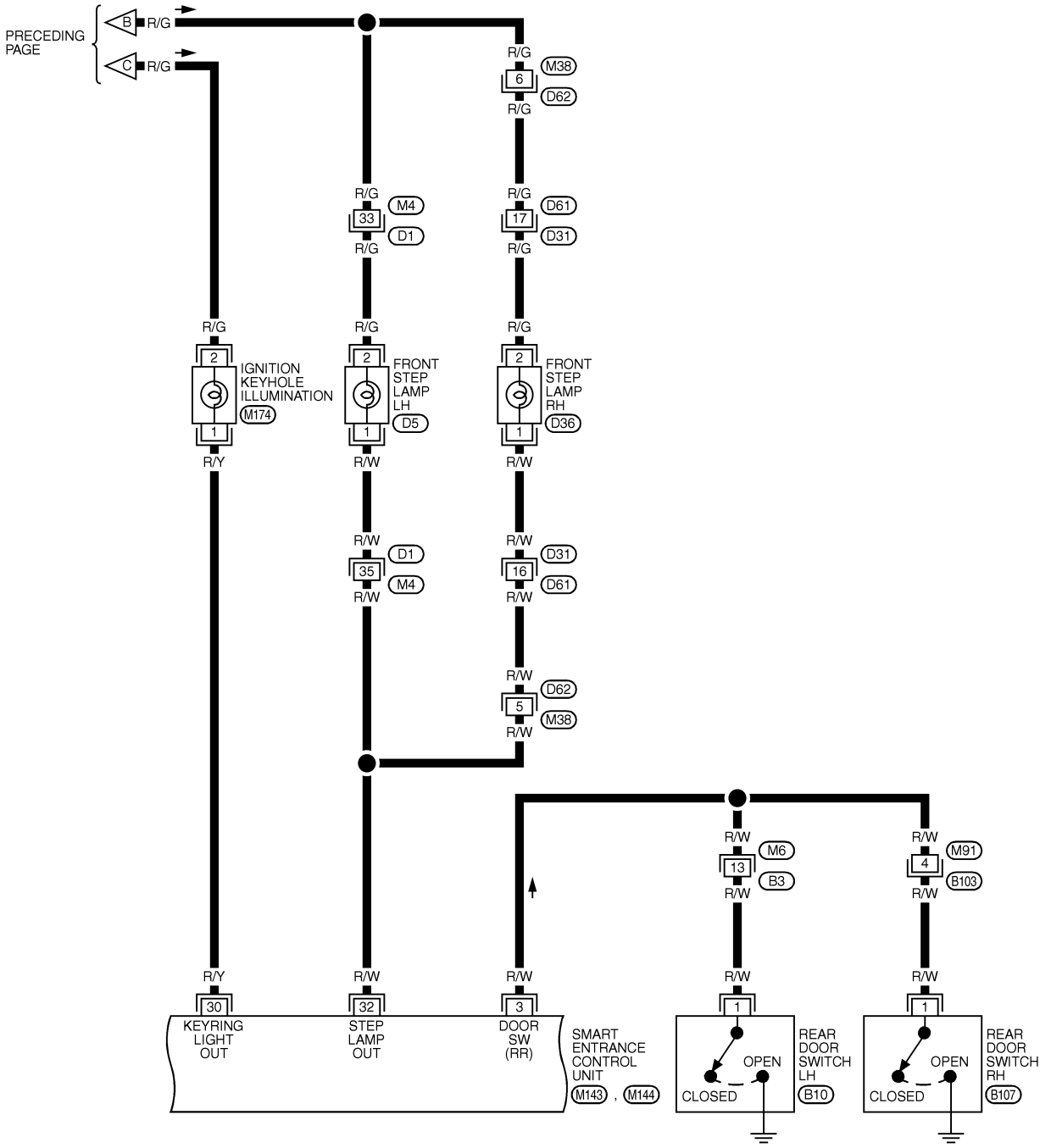
EL-INT/L-02

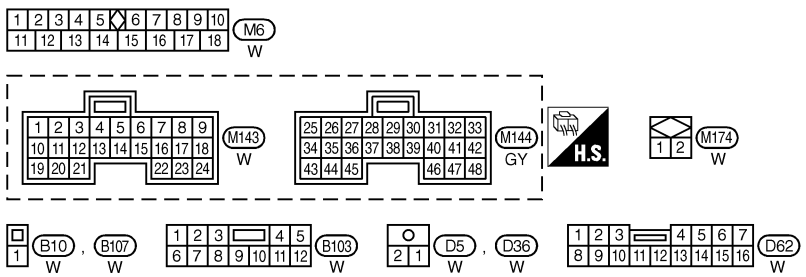



MEL117O

EL-INT/L-03

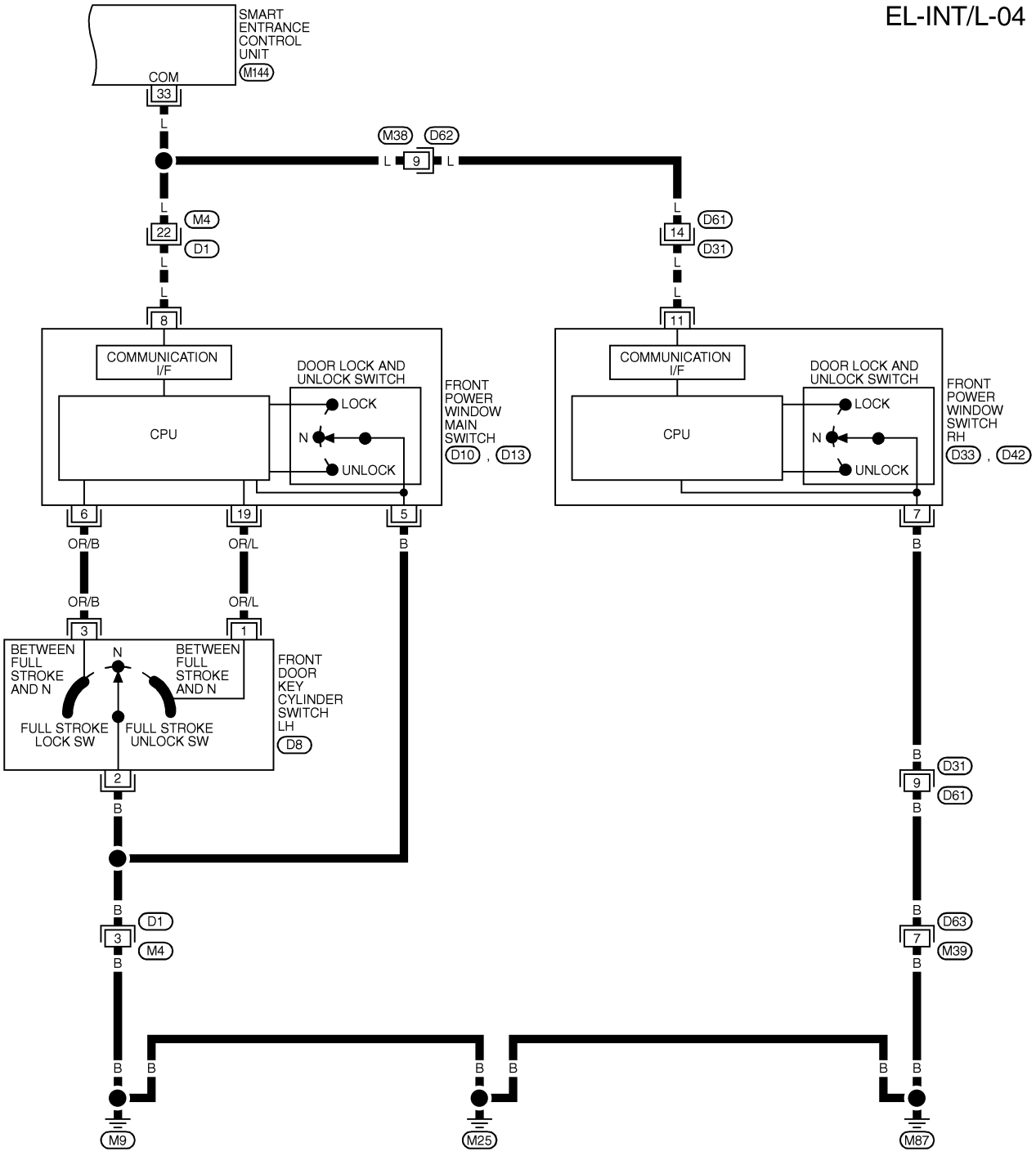


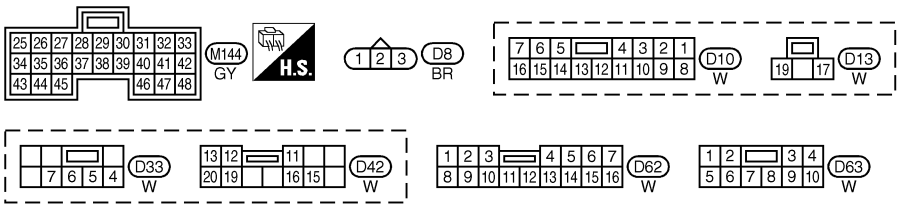




REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

MEL751O

EL-INT/L-04

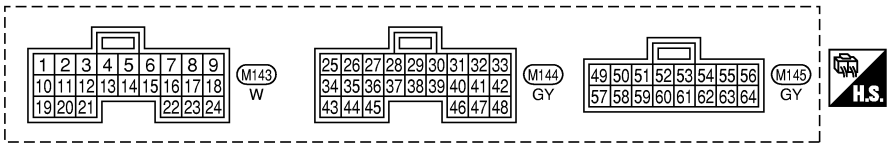



REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

MEL118O

**SMART ENTRANCE CONTROL UNIT CONNECTOR**

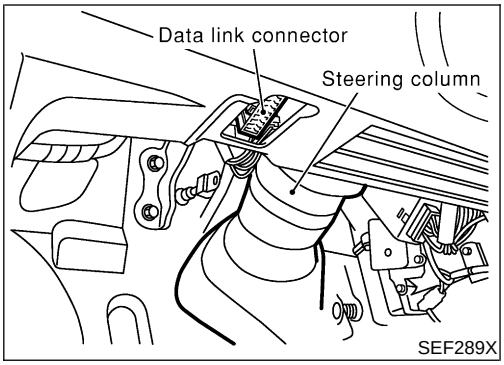



**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 5V → 0V |
| 3 | R/W | REAR DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 5V → 0V |
| 25 | B/R | IGNITION KEY SWITCH (INSERT) | KEY INSERTED → KEY REMOVED FROM IGN KEY CYLINDER | 12V → 0V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | 12V |
| 30 | R/Y | IGNITION KEYHOLE ILLUMINATION | WHEN DOORS ARE UNLOCKED USING KEYFOB (OFF → UNLOCK) | 12V → 0V |
| 31 | R | INTERIOR LAMP | WHEN DOORS ARE LOCKED USING KEYFOB (UNLOCK → LOCK WITH LAMP SWITCH IN "DOOR" POSITION) | 12V |
| 32 | R/W | FRONT STEP LAMP | ANY DOOR SWITCH: ON (OPEN) → OFF (CLOSED) | 0V → 12V |
| 33 | L | COMMUNICATION INTERFACE | DOOR LOCK & UNLOCK SWITCHES (NEUTRAL → LOCK/UNLOCK)<br>FRONT DOOR KEY CYLINDER SWITCH LH (NEUTRAL → LOCK/UNLOCK) | *1 |
| 43 | B | GROUND | – | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 50 | R/G | BATTERY SAVER (INTERIOR LAMP) | BATTERY SAVER DOSE OPERATE → DOES NOT OPERATE (ON → OFF) | 12V → 0V |
| 64 | B | GROUND | – | – |

*1: REFER TO "SMART ENTRANCE CONTROL UNIT INSPECTION TABLE" IN "SMART ENTRANCE CONTROL UNIT".

SEL588Y



SEF289X

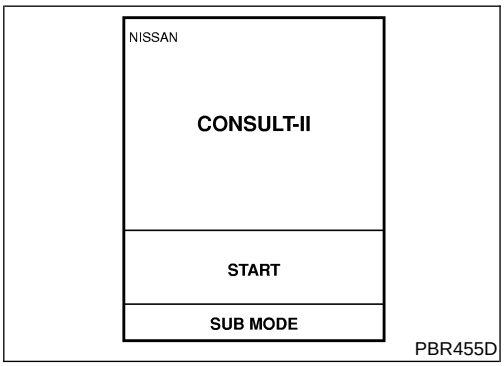
## CONSULT-II Inspection Procedure

=NFEL0213

### "INT LAMP"/"BATTERY SAVER"

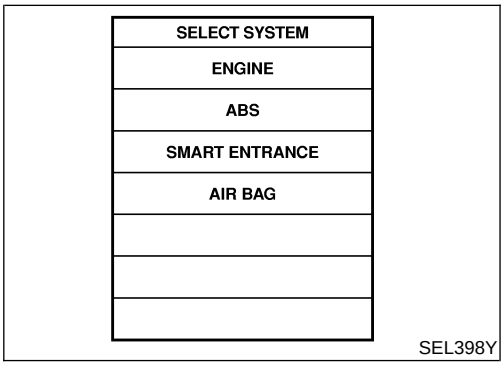
NFEL0213S01

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



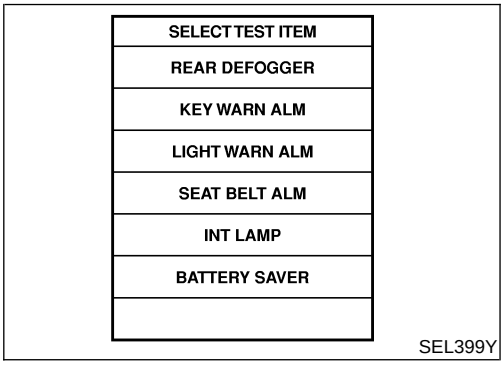
PBR455D

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



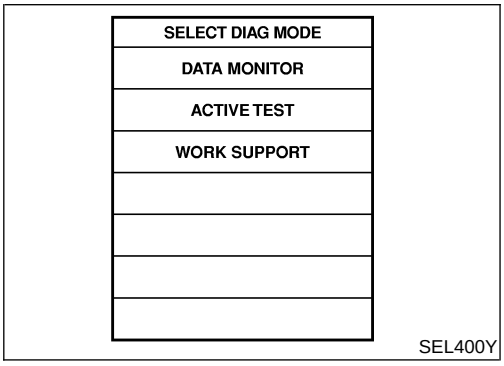
SEL398Y

5. Touch "SMART ENTRANCE".



SEL399Y

6. Touch "INT LAMP" or "BATTERY SAVER".



SEL400Y

7. Select diagnosis mode.
   "DATA MONITOR", "ACTIVE TEST" and "WORK SUPPORT" are available for "INT LAMP" and "BATTERY SAVER".

# CONSULT-II Application Items

NFEL0259

## "INT LAMP"
## Data Monitor

NFEL0259S01

NFEL0259S0101

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| DOOR SW-RR | Indicates [ON/OFF] condition of ignition switch. |
| KEY ON SW | Indicates [ON/OFF] condition of key switch. |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |
| DOOR SW-AS | Indicates [ON/OFF] condition of front door switch RH. |
| LOCK SW DR/AS | Indicates [ON/OFF] condition of front door lock switch. |
| UNLK SW DR/AS | Indicates [ON/OFF] condition of front door lock switch. |
| KEY CYL LK-SW | Indicates [ON/OFF] condition of front door key cylinder switch. |
| KEY CYL UN-SW | Indicates [ON/OFF] condition of front door key cylinder switch. |
| LK BUTTON/SIG | Indicates [ON/OFF] condition of unlock signal from keyfob. |
| UN BUTTON/SIG | Indicates [ON/OFF] condition of unlock signal from keyfob. |

## Active Test

NFEL0259S0102

| Test Item | Description |
|---|---|
| INT LAMP | This test enables to check interior lamp operation.<br>When "ON" on CONSULT-II screen is touched:<br>● Interior lamp turns on when the switch is at DOOR.<br>(Smart entrance control unit supplies power and ground to interior lamp.) |
| IGN ILLUM | This test enables to check ignition key hole illumination operation. The illumination turns on when "ON" on CONSULT-II screen is touched. |
| STEP LAMP | This test enables to check step lamp operation.<br>The illumination turns on when "ON" on CONSULT-II screen is touched. |

## Work Support

NFEL0259S0103

| Work Item | Description |
|---|---|
| ROOM LAMP TIMER SET | Interior lamp timer mode can be changed by mode setting. Selects ON-OFF of the room lamp illumination at the time the driver door is unlocked. |

## "BATTERY SAVER"
## Data Monitor

NFEL0259S02

NFEL0259S0201

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| DOOR SW-RR | Indicates [ON/OFF] condition of ignition switch. |
| KEY ON SW | Indicates [ON/OFF] condition of key switch. |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |
| DOOR SW-AS | Indicates [ON/OFF] condition of front door switch RH. |
| LOCK SW DR/AS | Indicates [ON/OFF] condition of front door lock switch. |
| UNLK SW DR/AS | Indicates [ON/OFF] condition of front door lock switch. |
| KEY CYL LK-SW | Indicates [ON/OFF] condition of front door key cylinder switch. |

| Monitored Item | Description |
|---|---|
| KEY CYL UN-SW | Indicates [ON/OFF] condition of front door key cylinder switch. |
| LK BUTTON/SIG | Indicates [ON/OFF] condition of unlock signal from keyfob. |
| UN BUTTON/SIG | Indicates [ON/OFF] condition of unlock signal from keyfob. |

## Active Test

NFEL0259S0202

| Test Item | Description |
|---|---|
| BATTERY SAVER | This test enables to check interior lamp, front step lamps, spot lamp and vanity mirror illuminations operations.<br>When touching "ON" on CONSULT-II screen.<br>● Interior lamp turns on when the switch is in ON.<br>(Smart entrance control unit supplies power to interior lamp.)<br>● Front step lamps turn on when any doors are open.<br>(Smart entrance control unit supplies power to front step lamps.)<br>● Spot lamp, vanity mirror illuminations turn on when the switch is in ON.<br>(Smart entrance control unit supplies power to Spot lamp, vanity mirror illuminations.) |

## Work Support

NFEL0259S0203

| Work Item | Description |
|---|---|
| ROOM LAMP BAT SAV SET | Interior lamp battery saver control period can be changed by mode setting. Selects interior lamp battery saver control period between two modes.<br>● MODE 1 (30 minutes)/MODE 2 (60 minutes) |

# Trouble Diagnoses for Interior Lamp Timer

=NFEL0215

## DIAGNOSTIC PROCEDURE 1

NFEL0215S01

**SYMPTOM: Interior lamp timer does not operate.**

| 1 | CHECK IGNITION ON SIGNAL |
|---|---|

**With CONSULT-II**

Check ignition switch ON signal (“IGN ON SW”) in “DATA MONITOR” mode with CONSULT-II.

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

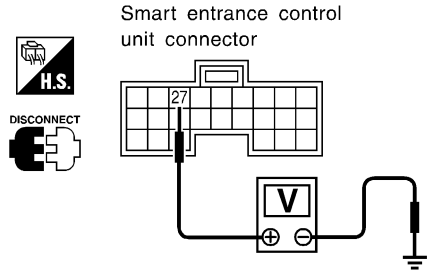
When ignition switch is ON:
**IGN ON SW ON**

When ignition switch is OFF:
**IGN ON SW OFF**

SEL318W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M144 terminal 27 (G) and ground.




| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| (+) | (–) | OFF | ACC | ON |
| 27 | Ground | 0V | 0V | Battery voltage |

SEL003Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 10, located in fuse block (J/B)]<br>● Harness for open or short between smart entrance control unit and fuse |

| 2 | CHECK FRONT LH DOOR SWITCH INPUT SIGNAL |
|---|---|

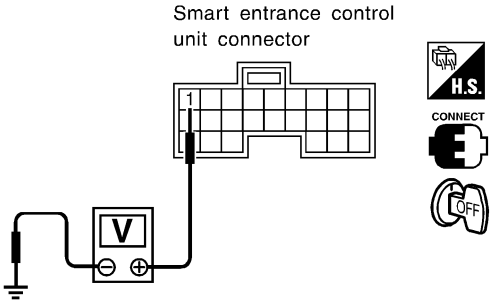
**With CONSULT-II**
Check driver door switch signal ("DOOR SW-DR") in "DATA MONITOR" mode with CONSULT-II.

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

When front LH door is open:
**DOOR SW-DR ON**
When driver's door is closed:
**DOOR SW-DR OFF**

SEL319WA

**Without CONSULT-II**
Check voltage between smart entrance control unit harness connector M143 terminal 1 (LG) and ground.




**Voltage [V]:**
**Condition of driver's door: CLOSED**
**Approx. 5**
**Condition of driver's door: OPENED**
**0**

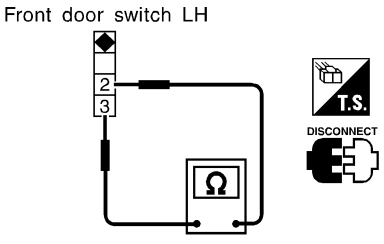
SEL004Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | GO TO 3. |

| 3 | CHECK FRONT LH DOOR SWITCH |
|---|---|

Check continuity between door switch connector B29 terminals 2 and 3.




**Continuity:**
**Door switch is pushed.**
**No**
**Door switch is released.**
**Yes**

SEL325WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>• Front LH door switch ground circuit and condition<br>• Harness for open or short between smart entrance control unit and front LH door switch |
| NG | ▶ | Replace front LH door switch. |

| 4 | CHECK FRONT RH DOOR SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check driver door switch signal ("DOOR SW-AS") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-AS | OFF |

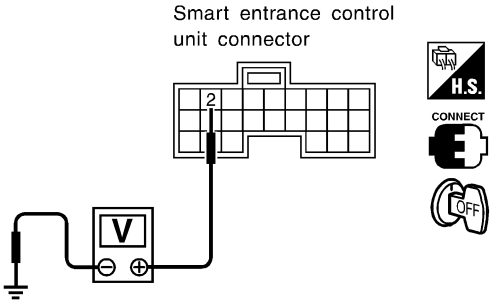
When front RH door is open:
**DOOR SW-AS ON**

When driver's door is closed:
**DOOR SW-AS OFF**

SEL153Y

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminal 2 (R/L) and ground.




**Voltage [V]:**
**Condition of front RH door: CLOSED**
**Approx. 5**
**Condition of front RH door: OPENED**
**0**

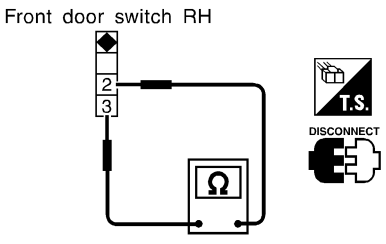
SEL152Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 6. |
| NG | ▶ | GO TO 5. |

| 5 | CHECK FRONT RH DOOR SWITCH |
|---|---|

Check continuity between door switch connector B129 terminals 2 and 3.




**Continuity:**
**Door switch is pushed.**
**No**
**Door switch is released.**
**Yes**

SEL325WC

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>• Front RH door switch ground circuit and condition<br>• Harness for open or short between smart entrance control unit and front RH door switch |
| NG | ▶ | Replace front RH door switch. |

**6 CHECK REAR LH AND RH DOOR SWITCHES INPUT SIGNAL**

**With CONSULT-II**
Check door switches ("DOOR SW-RR") in "DATA MONITOR" mode with CONSULT-II.

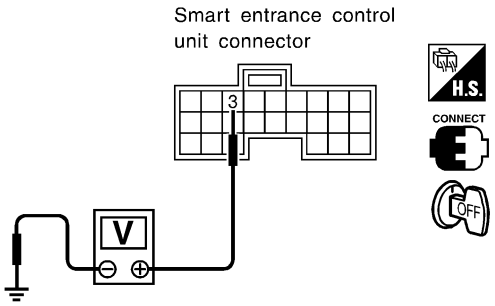
| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-RR | OFF |

When rear door LH and/or RH is open:
**DOOR SW-RR ON**

When driver's door is closed:
**DOOR SW-RR OFF**

SEL154Y

**Without CONSULT-II**
Check voltage between smart entrance control unit harness connector M143 terminals 3 (R/W) and ground.




**Voltage [V]:**
**Condition of rear LH and/or RH door: CLOSED**
**Approx. 5**
**Condition of rear LH and/or RH door: OPENED**
**0**

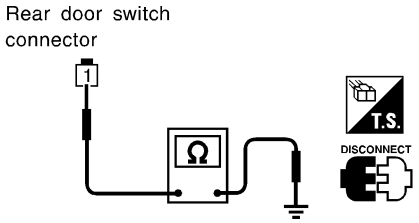
SEL155Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 8. |
| NG | ▶ | GO TO 7. |

**7 CHECK REAR LH AND RH DOOR SWITCHES**

1. Disconnect door switch harness connector.
2. Check continuity between door switch terminal 1 and ground.




**Continuity:**
**Door switch is pushed.**
**No**
**Door switch is released.**
**Yes**

SEL156Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>• Rear LH and/or RH door switch ground circuit or door switch ground condition<br>• Harness for open or short between smart entrance control unit and rear LH and/or RH door switch |
| NG | ▶ | Replace rear LH and/or RH door switch. |

| 8 | CHECK KEY SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check key switch ("KEY ON SW") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY ON SW | ON |

When key is inserted to ignition key cylinder:

**KEY ON SW ON**

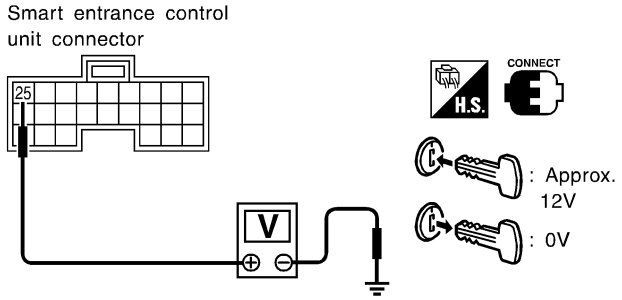
When key is removed from ignition key cylinder:

**KEY ON SW OFF**

SEL315W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M144 terminal 25 (B/R) and ground.




**Voltage [V]:**

**Condition of key switch: Key is inserted.**

**Approx. 12**

**Condition of key switch: Key is removed.**

**0**

SEL011Y

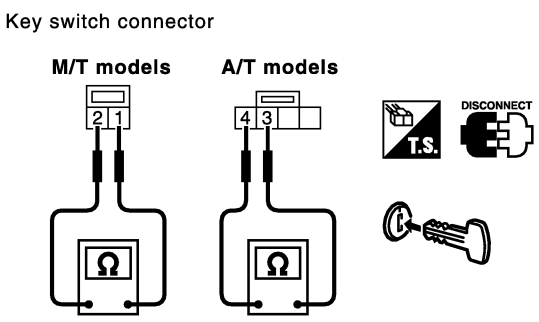
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 10. |
| NG | ▶ | GO TO 9. |

| 9 | CHECK KEY SWITCH (INSERT) |
|---|---|

Check the following.

- Continuity between key switch harness connector E95 terminals 1 and 2 (M/T models)
- Continuity between key switch harness connector E150 terminals 3 and 4 (A/T models)




**Continuity:**

**Condition of key switch: Key is inserted.**

**Yes**

**Condition of key switch: Key is inserted.**

**No**

SEL395Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>• 10A fuse [No. 13, located in fuse block (J/B)]<br>• Harness for open or short between key switch and fuse<br>• Harness for open or short between smart entrance control unit and key switch |
| NG | ▶ | Replace key switch. |

| 10 | CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check door lock/unlock switch ("LOCK SW DR/AS"/"UNLK SW DR/AS") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LOCK SW DR/AS | OFF |
| UNLK SW DR/AS | OFF |

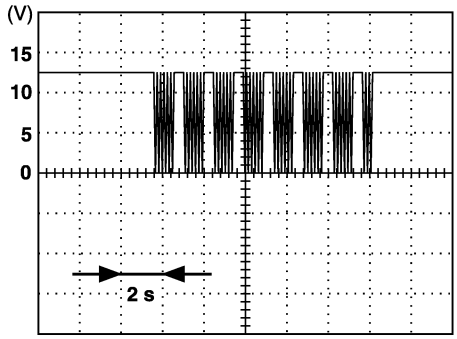
When lock/unlock switch is turned to LOCK:
**LOCK SW DR/AS ON**

When lock/unlock switch is turned to UNLOCK:
**UNLK SW DR/AS ON**

SEL341W

**Without CONSULT-II**

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when door lock/unlock switch is turned "LOCK" or "UNLOCK".
3. Make sure signals which are shown in the figure below can be detected during 10 sec. just after door lock/unlock switch is turned "LOCK" or "UNLOCK".




**Voltage:**
**12V → 9V (10 sec.) measurement by analog circuit tester.**

SEL396Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 11. |
| NG | ▶ | **Check the following.**<br>● Ground circuit for each front power window switch<br>● Harness for open or short between each front power window switch and smart entrance control unit connector<br>If above systems are normal, replace the front power window switch. |

| 11 | CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL) |
|---|---|

**With CONSULT-II**

Check front door key cylinder switch ("KEY CYL LK-SW"/"KEY CYL UN-SW") in "DATA MONITOR" mode with CONSULT-II.

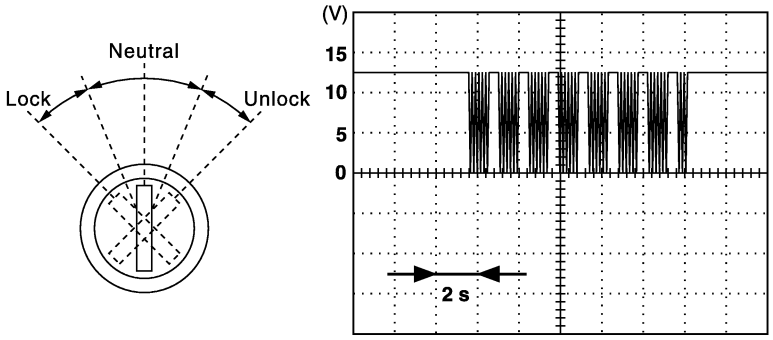
| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY CYL LK-SW | OFF |
| KEY CYL UN-SW | OFF |

When key inserted in front key cylinder is turned to LOCK:
**KEY CYL LK-SW ON**
When key inserted in front key cylinder is turned to UNLOCK:
**KEY CYL UN-SW ON**

SEL342W

**Without CONSULT-II**

1. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when key inserted in front key cylinder is turned "LOCK" or "UNLOCK".
2. Make sure signals which are shown in the figure below can be detected during 10 sec. just after key is turned "LOCK" or "UNLOCK".




**Voltage:**
**12V → 9V (10 sec.) measurement by analog circuit tester.**

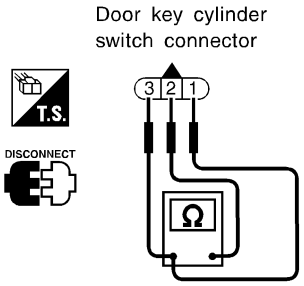
SEL397Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace smart entrance control unit. |
| NG | ▶ | GO TO 12. |

**12 CHECK DOOR KEY CYLINDER SWITCH**

1. Disconnect door key cylinder switch harness connector D8.
2. Check continuity between door key cylinder switch terminals.




① : Door unlock switch terminal
② : Ground terminal
③ : Door lock switch terminal

| Terminals | Key position | Continuity |
|---|---|---|
| ③ - ② | Neutral/Unlock | No |
| | Lock | Yes |
| ① - ② | Neutral/Lock | No |
| | Unlock | Yes |

SEL187Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Door key cylinder switch ground circuit<br>● Harness for open or short between front power window main switch and door key cylinder switch<br>If above systems are normal, replace the front power window mian switch. |
| NG | ▶ | Replace door key cylinder switch. |

## DIAGNOSTIC PROCEDURE 2

NFEL0215S02

**SYMPTOM: Interior lamp timer does not cancel properly.**

**1 CHECK IGNITION ON SIGNAL**

**With CONSULT-II**

Check ignition switch ON signal ("IGN ON SW") in "DATA MONITOR" mode with CONSULT-II.

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

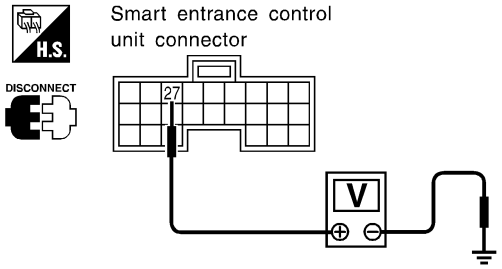
When ignition switch is ON:
**IGN ON SW ON**

When ignition switch is OFF:
**IGN ON SW OFF**

SEL318W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M144 terminal 27 (G) and ground.




| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| (+) | (–) | OFF | ACC | ON |
| 27 | Ground | 0V | 0V | Battery voltage |

SEL995X

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 10, located in fuse block (J/B)]<br>● Harness for open or short between smart entrance control unit and fuse |

| 2 | CHECK FRONT LH DOOR SWITCH INPUT SIGNAL |
|---|---|

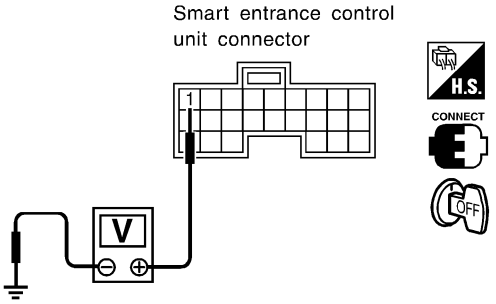
**With CONSULT-II**
Check driver door switch signal ("DOOR SW-DR") in "DATA MONITOR" mode with CONSULT-II.

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

When front LH door is open:
**DOOR SW-DR ON**
When driver's door is closed:
**DOOR SW-DR OFF**

SEL319WA

**Without CONSULT-II**
Check voltage between smart entrance control unit harness connector M143 terminal 1 (LG) and ground.




**Voltage [V]:**
**Condition of driver's door: CLOSED**
**Approx. 5**
**Condition of driver's door: OPEN**
**0**

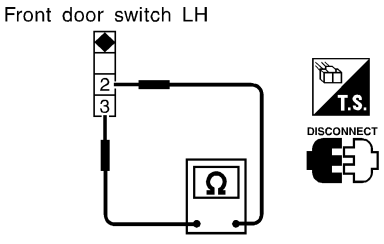
SEL004YA

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | GO TO 3. |

| 3 | CHECK FRONT LH DOOR SWITCH |
|---|---|

Check continuity between door switch connector B29 terminals 2 and 3.




**Continuity:**
**Door switch is pushed.**
**No**
**Door switch is released.**
**Yes**

SEL325WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>• Front LH door switch ground circuit and condition<br>• Harness for open or short between smart entrance control unit and front LH door switch |
| NG | ▶ | Replace front LH door switch. |

| 4 | CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check door lock/unlock switch ("LOCK SW DR/AS"/"UNLK SW DR/AS") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LOCK SW DR/AS | OFF |
| UNLK SW DR/AS | OFF |

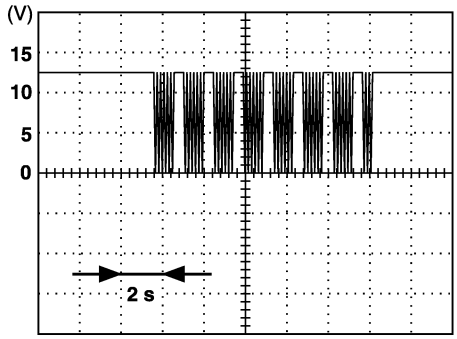
When lock/unlock switch is turned to LOCK:
**LOCK SW DR/AS ON**

When lock/unlock switch is turned to UNLOCK:
**UNLK SW DR/AS ON**

SEL341W

**Without CONSULT-II**

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when door lock/unlock switch is turned "LOCK" or "UNLOCK".
3. Make sure signals which are shown in the figure below can be detected during 10 sec. just after door lock/unlock switch is turned "LOCK" or "UNLOCK".




**Voltage:**
**12V → 9V (10 sec.) measurement by analog circuit tester.**

SEL396Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 5. |
| NG | ▶ | **Check the following.**<br>● Ground circuit for each front power window switch<br>● Harness for open or short between each front power window switch and smart entrance control unit connector<br>If above systems are normal, replace the front power window switch. |

| 5 | CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL) |
|---|---|

**With CONSULT-II**

Check front door key cylinder switch ("KEY CYL LK-SW"/"KEY CYL UN-SW") in "DATA MONITOR" mode with CONSULT-II.

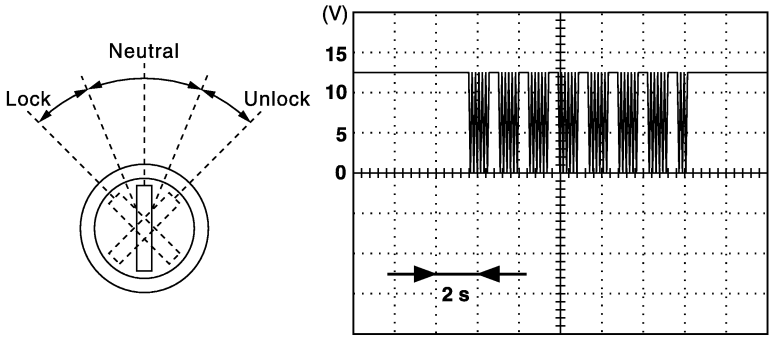
| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY CYL LK-SW | OFF |
| KEY CYL UN-SW | OFF |

When key inserted in front key cylinder is turned to LOCK:
**KEY CYL LK-SW ON**
When key inserted in front key cylinder is turned to UNLOCK:
**KEY CYL UN-SW ON**

SEL342W

**Without CONSULT-II**

1. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when key inserted in front key cylinder is turned "LOCK" or "UNLOCK".
2. Make sure signals which are shown in the figure below can be detected during 10 sec. just after key is turned "LOCK" or "UNLOCK".




**Voltage:**
**12V → 9V (10 sec.) measurement by analog circuit tester.**

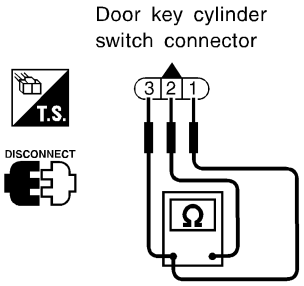
SEL397Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace smart entrance control unit. |
| NG | ▶ | GO TO 6. |

**6 CHECK DOOR KEY CYLINDER SWITCH**

1. Disconnect door key cylinder switch harness connector D8.
2. Check continuity between door key cylinder switch terminals.




① : Door unlock switch terminal
② : Ground terminal
③ : Door lock switch terminal

| Terminals | Key position | Continuity |
|---|---|---|
| ③ - ② | Neutral/Unlock | No |
| | Lock | Yes |
| ① - ② | Neutral/Lock | No |
| | Unlock | Yes |

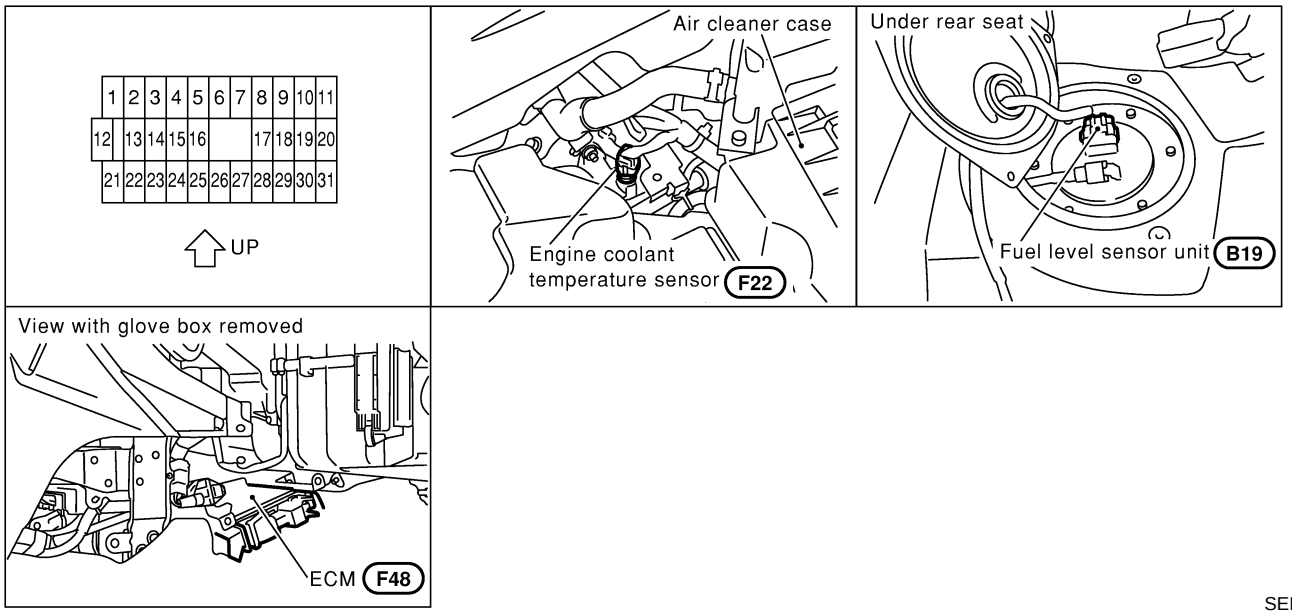
SEL187Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Door key cylinder switch ground circuit<br>● Harness for open or short between front power window main switch and door key cylinder switch<br>If above systems are normal, replace the front power window main switch. |
| NG | ▶ | Replace door key cylinder switch. |

## Component Parts and Harness Connector Location

NFEL0041




SEL380Y

## System Description

NFEL0042

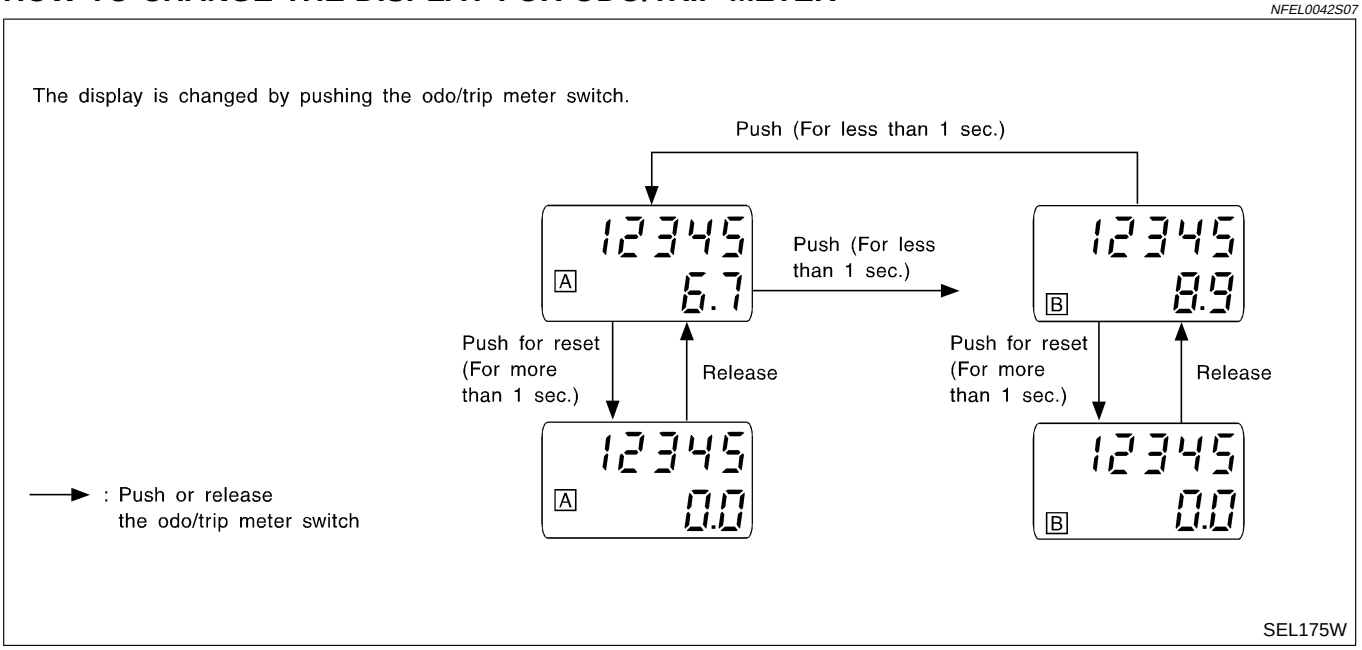
### UNIFIED CONTROL METER

NFEL0042S06

- Speedometer, odo/trip meter, tachometer, fuel gauge and water temperature gauge are controlled totally by control unit built-in combination meter.
- 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

NFEL0042S07




SEL175W

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

## POWER SUPPLY AND GROUND CIRCUIT

NFEL0042S08

Power is supplied at all times

- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to combination meter terminal 23.

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

- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to combination meter terminal 31.

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

- through 10A fuse [No. 30, located in the fuse block (J/B)]
- to combination meter terminal 24.

Ground is supplied

- to combination meter terminal 22
- through body grounds M9, M25 and M87.

## WATER TEMPERATURE GAUGE

NFEL0042S01

The water temperature gauge indicates the engine coolant temperature. The reading on the gauge is received engine coolant temperature signal from ECM. ECM is detected by water temperature sensor.
The water temperature gauge is received by a signal

- from ECM terminal 18
- to combination meter terminal 18

The needle on the gauge moves from "C" to "H"

## TACHOMETER

NFEL0042S02

The tachometer indicates engine speed in revolutions per minute (rpm).
The tachometer is regulated by a signal

- from terminal 34 of the ECM
- to combination meter terminal 16 for the tachometer.

## FUEL GAUGE

NFEL0042S03

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 17 for the fuel gauge
- from terminal 2 of the fuel level sensor unit
- through terminal 5 of the fuel level sensor unit and
- through body ground B13.

## SPEEDOMETER

NFEL0042S04

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

- from combination meter terminal 15 for the speedometer
- to terminal 22 of ABS/TCS control unit (with TCS).
- to terminal 18 (A/T) or 19 (M/T) of ABS actuator and electric unit (without TCS).

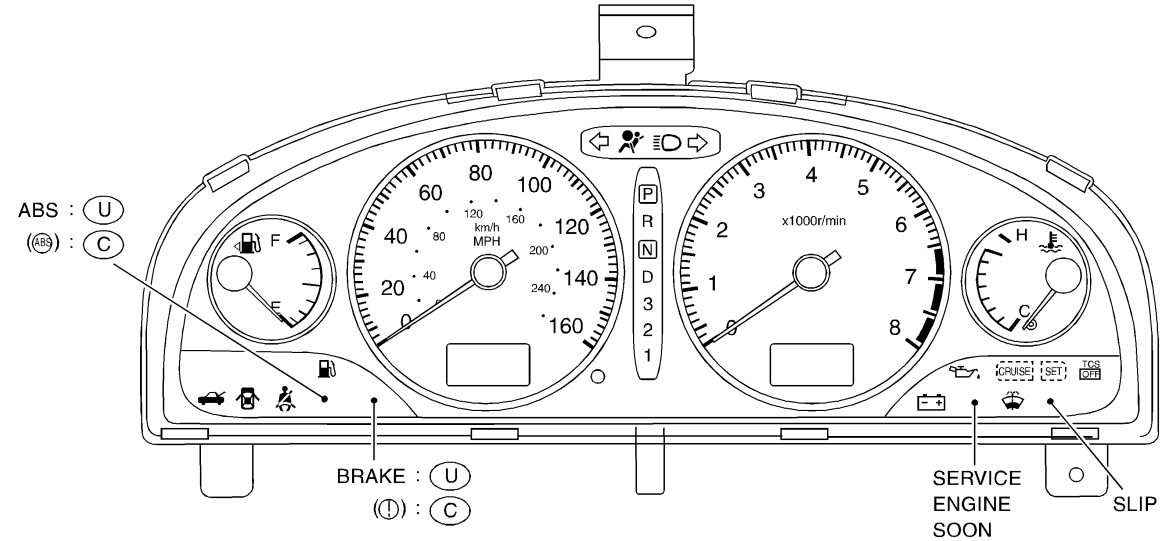
The speedometer converts the voltage into the vehicle speed displayed.

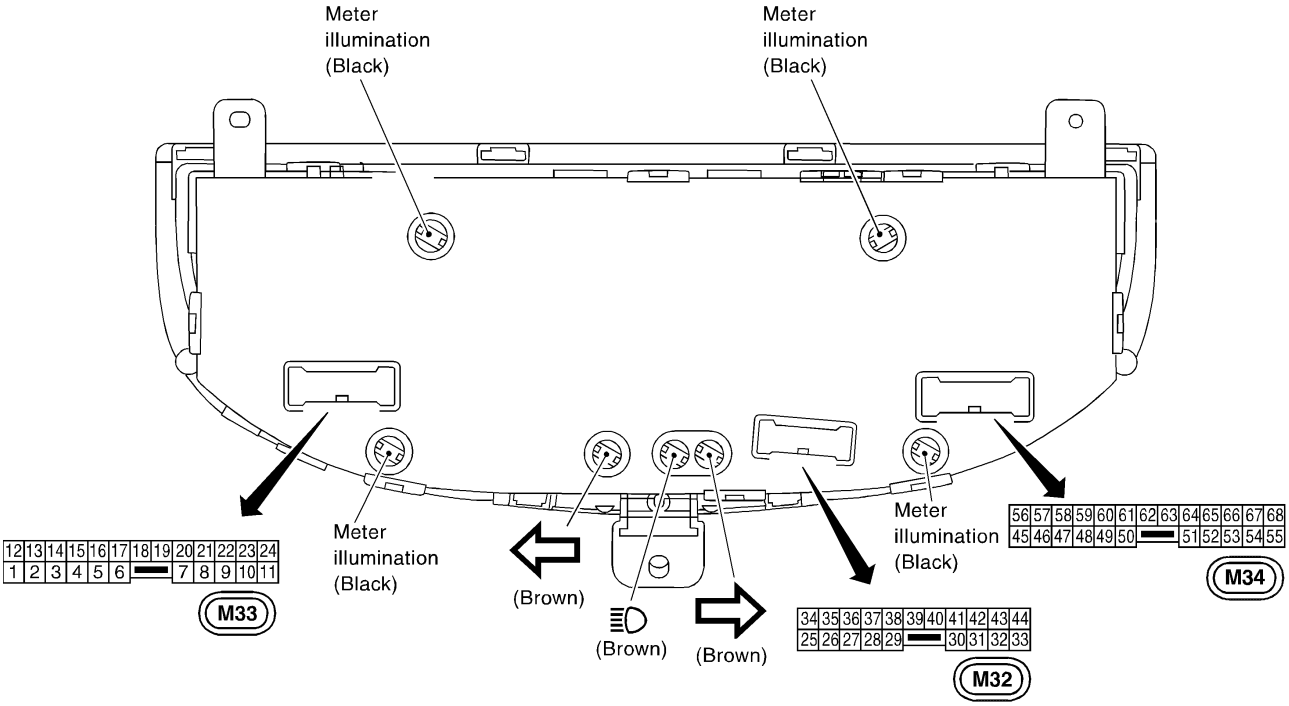
# Combination Meter

NFEL0043

## CHECK

NFEL0043S01




| Bulb socket color | Bulb wattage |
|---|---|
| Brown | 1.4W |
| Black | 3W |

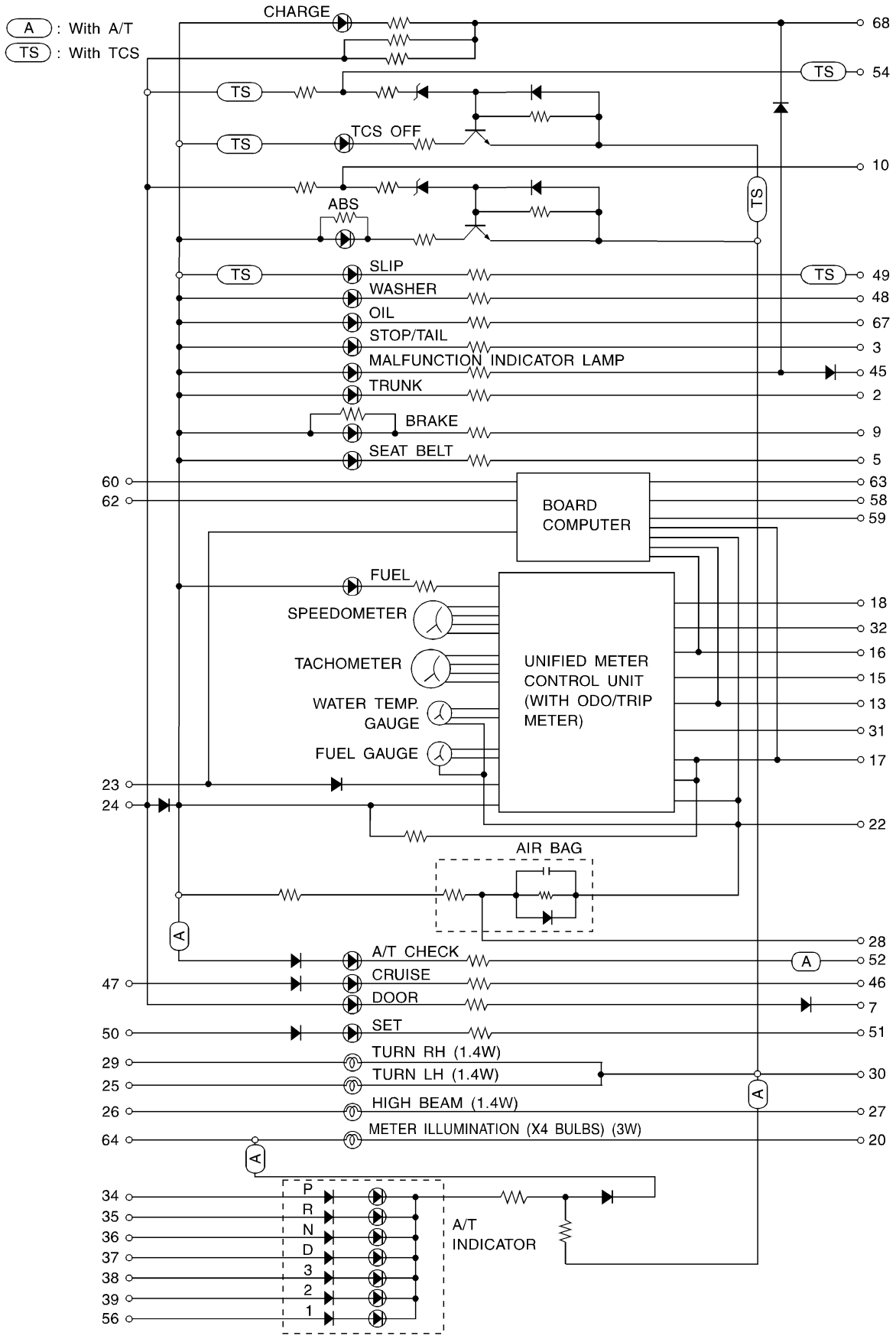
( ): Bulb socket color

U : For USA
C : For Canada

MEL080O

## Schematic

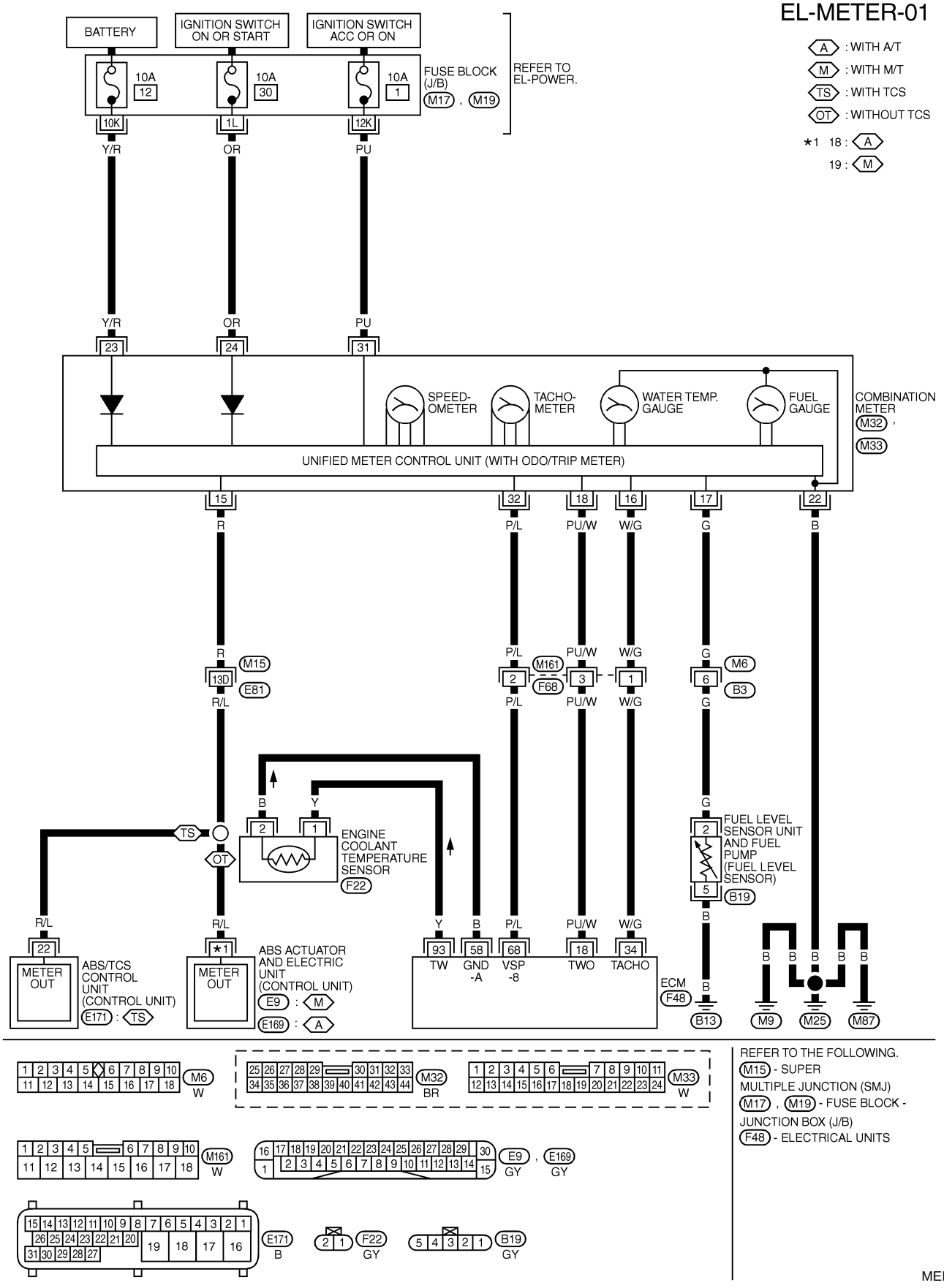
NFEL0254




MEL081O

# Wiring Diagram — METER —

NFEL0045



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

NFEL0151

## DIAGNOSIS FUNCTION

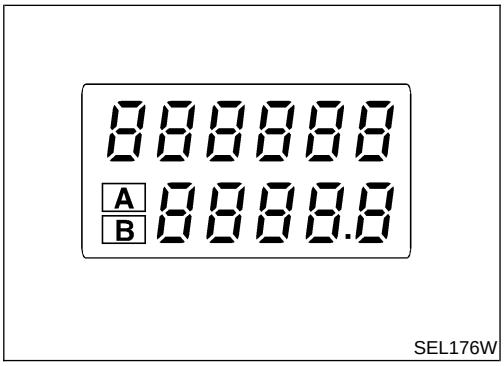
NFEL0151S01

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

## HOW TO ALTERNATE DIAGNOSIS MODE

NFEL0151S02

1. Turn ignition switch to ON and change odo/trip meter to “TRIP”.
2. Turn ignition switch to OFF.
3. Turn ignition switch to ON when pushing odo/trip meter switch.
4. Release odo/trip meter switch 1 second after ignition switch is turned ON.
5. Push odo/trip meter switch more than three times within 7 seconds.

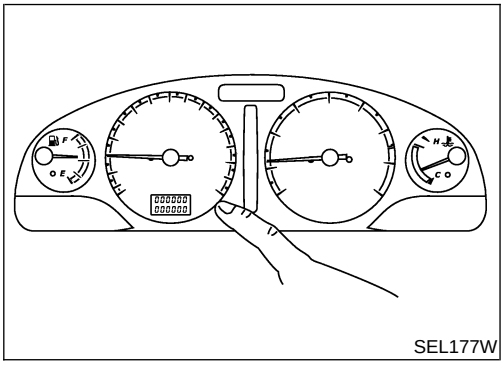


SEL176W

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

**NOTE:**
If some segments are not turned on, unified meter control unit assembly should be replaced.

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


SEL177W

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.

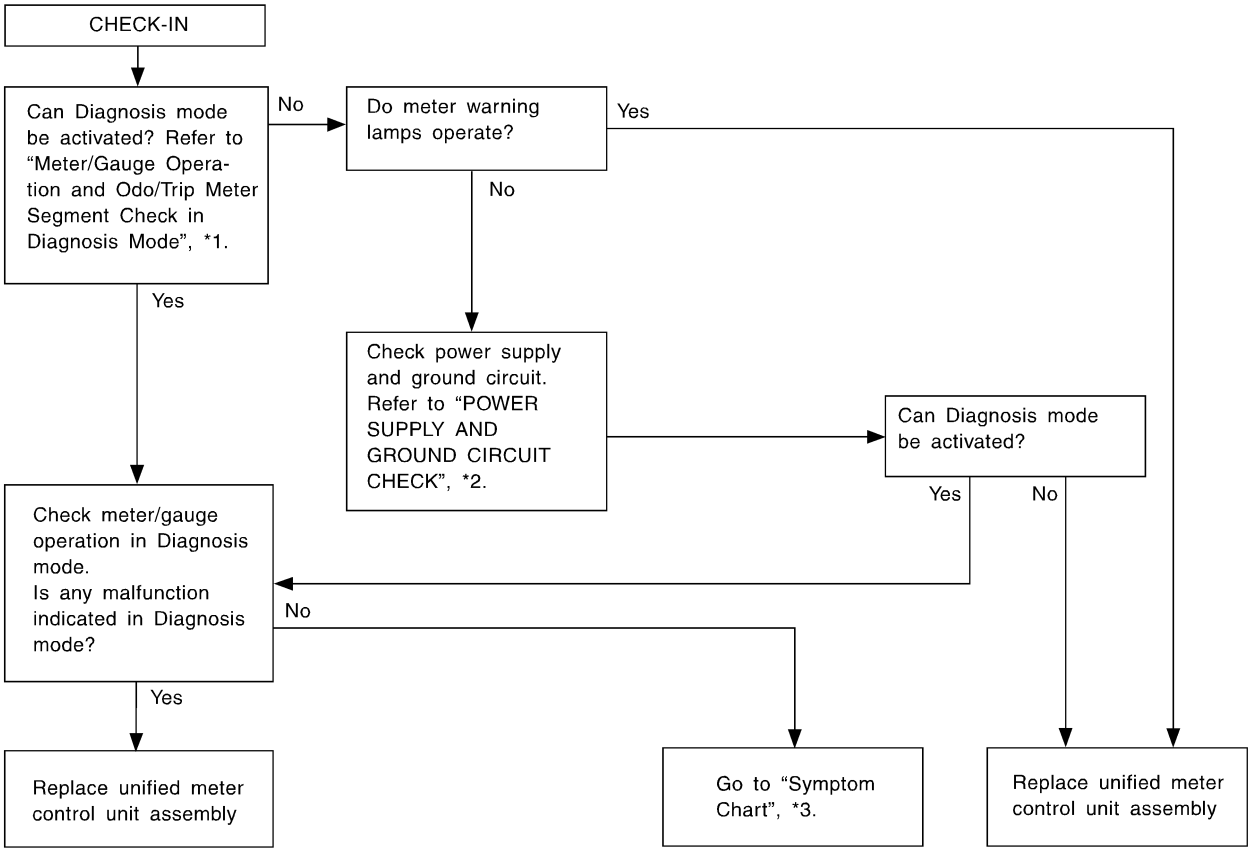
**NOTE:**
It takes about a few seconds for indication of fuel gauge and water temperature gauge to become stable.

# Trouble Diagnoses

## PRELIMINARY CHECK

NFEL0046

NFEL0046S04




SEL479Y

*1: Meter/Gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode (EL-122)

*2: POWER SUPPLY AND GROUND CIRCUIT CHECK (EL-124)

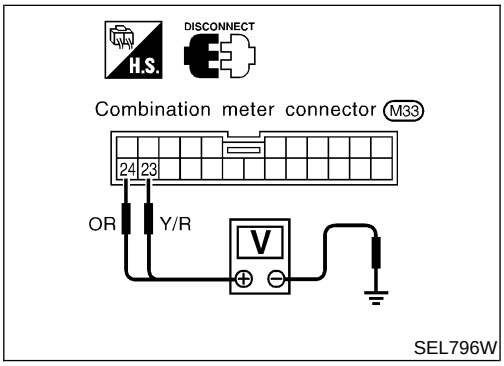
*3: Symptom Chart (EL-124)

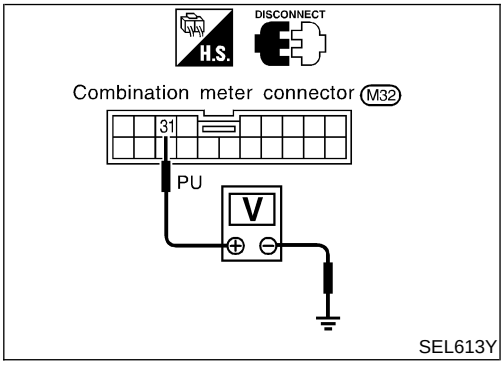
## SYMPTOM CHART

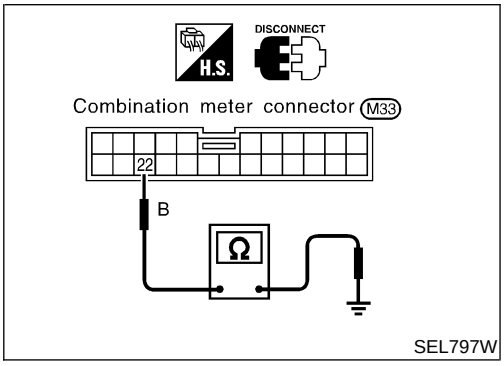
NFEL0046S10

| Symptom | Possible causes | Repair order |
|---|---|---|
| One of speedometer/ tachometer/fuel gauge/ water temp. gauge is malfunctioning. | 1. Sensor signal<br>- Vehicle speed signal<br>- Engine revolution signal<br>- Fuel gauge<br>- Water temp. gauge<br>2. Unified meter control unit | 1. Check the sensor for malfunctioning meter/gauge.<br>INSPECTION/VEHICLE SPEED SENSOR (Refer to EL-125.)<br>INSPECTION/ENGINE REVOLUTION SIGNAL (Refer to EL-126.)<br>INSPECTION/FUEL LEVEL SENSOR UNIT (Refer to EL-127.)<br>INSPECTION/THERMAL TRANSMITTER (Refer to EL-128.)<br>2. Replace unified meter control unit assembly. |
| Multiple meter/gauge are malfunctioning. (except odo/trip meter) | Unified meter control unit | |

Before starting trouble diagnoses below, perform PRELIMINARY CHECK, EL-123.




## POWER SUPPLY AND GROUND CIRCUIT CHECK

NFEL0046S07

### Power Supply Circuit Check

NFEL0046S0701

| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| (+) | (−) | OFF | ACC | ON |
| 23 | Ground | Battery voltage | Battery voltage | Battery voltage |
| 24 | Ground | 0V | 0V | Battery voltage |
| 31 | Ground | 0V | Battery voltage | Battery voltage |

If NG, check the following.

- 10A fuse [No. 12, located in fuse block (J/B)]
- 10A fuse [No. 30, located in fuse block (J/B)]
- 10A fuse [No. 1, located in fuse block (J/B)]
- Harness for open or short between fuse and combination meter

### Ground Circuit Check

NFEL0046S0702

| Terminals | Continuity |
|---|---|
| 22 - Ground | Yes |

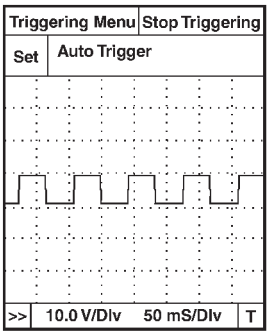
## INSPECTION/VEHICLE SPEED SENSOR

=NFEL0046S03

**1 CHECK ABS CONTROL UNIT OUTPUT SIGNAL**

**With CONSULT-II**

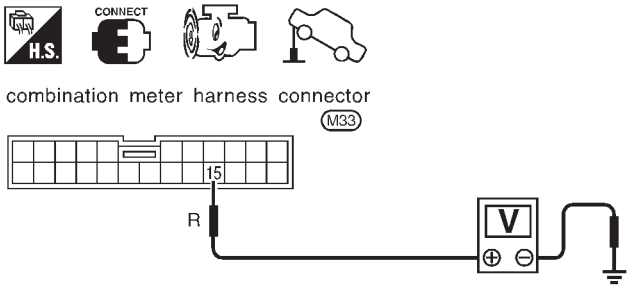
1. Lift up drive wheels.
2. Start engine and drive vehicle at more than 20 km/h (12 MPH).
3. Check signal between combination meter terminal 15 and ground when rotating wheels with engine at idle. (Use "SIMPLE OSCILLOSCOPE" in "SUB MODE" with CONSULT-II.)




SEL938W

**Without CONSULT-II**

1. Lift up drive wheels.
2. Start engine and drive vehicle at more than 20 km/h (12 MPH).
3. Check voltage between combination meter terminal 15 and ground when rotating wheels with engine at idle.




**Voltage: Approx. 0 - 5V**

SEL939W

**OK or NG**

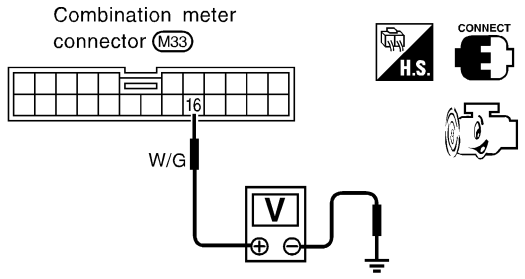
| | | |
|---|---|---|
| OK | ▶ | ABS/TCS control unit or ABS actuator and electric unit is OK. |
| NG | ▶ | **Check the following.**<br>● Harness for open or short between ABS/TCS control unit or ABS actuator and electric unit and combination meter.<br>● ABS/TCS control unit or ABS actuator and electric unit. Refer to BR-110 (with TCS), BR-61 (without TCS), "Wheel Sensor or Rotor". |

## INSPECTION/ENGINE REVOLUTION SIGNAL

NFEL0046S02

| 1 | CHECK ECM OUTPUT |
|---|---|

1. Start engine.
2. Check voltage between combination meter terminals 16 and ground at idle and 2,000 rpm.




**Higher rpm = Higher voltage**
**Lower rpm = Lower voltage**
**Voltage should change with rpm.**

SEL364W

**OK or NG**

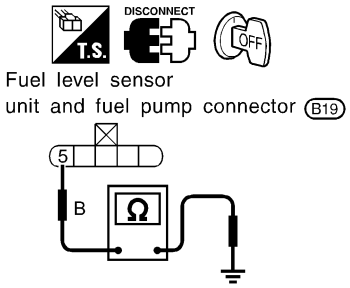
| | | |
|---|---|---|
| OK | ▶ | Engine revolution signal is OK. |
| NG | ▶ | Harness for open or short between ECM and combination meter |

## INSPECTION/FUEL LEVEL SENSOR UNIT

=NFEL0046S08

| 1 | CHECK GROUND CIRCUIT FOR FUEL LEVEL SENSOR UNIT |
|---|---|

Check harness continuity between fuel level sensor unit and fuel pump connector terminal 5 and ground.




**Continuity should exist.**

SEL182W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Repair harness or connector. |

| 2 | CHECK FUEL LEVEL SENSOR UNIT |
|---|---|

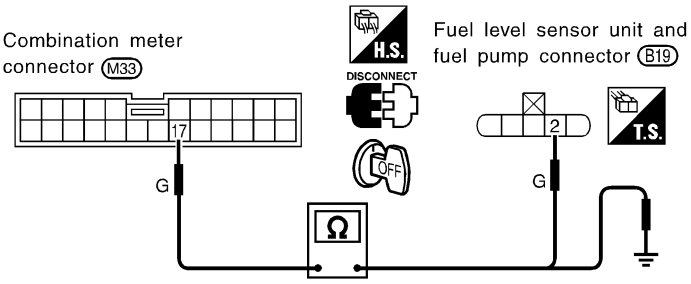
Refer to "FUEL LEVEL SENSOR UNIT CHECK" (EL-129).

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Replace fuel level sensor unit. |

| 3 | CHECK HARNESS FOR OPEN OR SHORT |
|---|---|

1. Disconnect combination meter connector and fuel level sensor unit and fuel pump connector.
2. Check continuity between combination meter terminal 17 and fuel level sensor unit and fuel pump connector terminal 2.
   **Continuity should exist.**
3. Check continuity between combination meter terminal 17 and ground.
   **Continuity should not exist.**




SEL183W

**OK or NG**

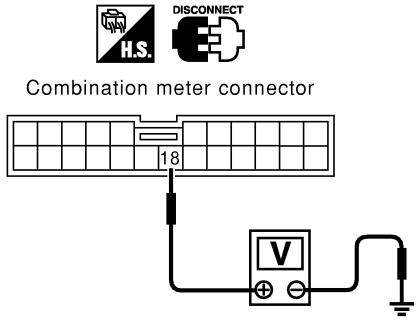
| | | |
|---|---|---|
| OK | ▶ | Fuel level sensor unit is OK. |
| NG | ▶ | Repair harness or connector. |

## INSPECTION/THERMAL TRANSMITTER

=NFEL0046S09

### 1 CHECK ECM OUTPUT

1. Disconnect combination meter.
2. Check voltage between combination meter harness connector M33 terminal 18 (PU/W) and ground.
   **Battery voltage should exist.**




| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| (+) | (−) | OFF | ACC | ON |
| 18 | Ground | 0V | 0V | Battery voltage |

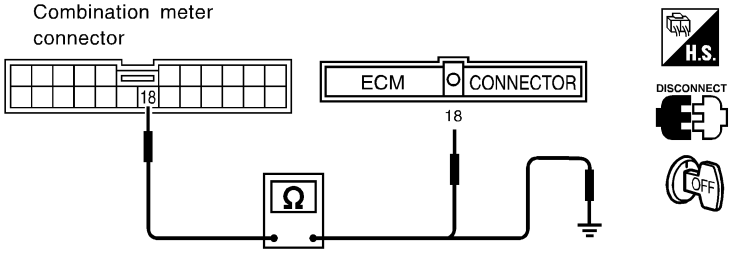
SEL413Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Replace. |

### 2 CHECK HARNESS FOR OPEN OR SHORT

1. Disconnect combination meter connector and ECM connector.
2. Check continuity between combination meter terminal 18 and ECM terminal 18.
   **Continuity should exist.**
3. Check continuity between combination meter terminal 18 and ground.
   **Continuity should not exist.**



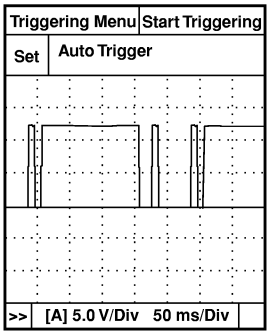

SEL417Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Thermal transmitter is OK. |
| NG | ▶ | Repair harness or connector. |

| 3 | CHECK WATER TEMPERATURE OUTPUT SIGNAL |
|---|---|

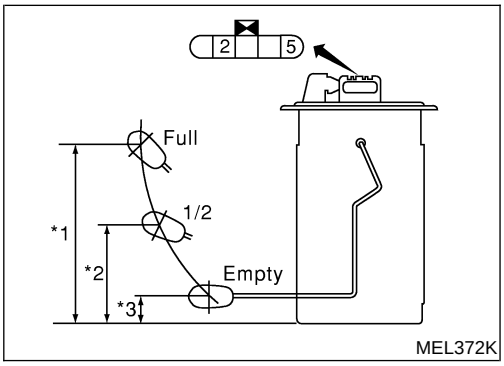
1. Connect combination meter connector and ECM connector.
2. Start engine.
3. Check output signal between combination meter harness connector M33 terminal 18 (PU/W) and ground. (Use "SIMPLE OSCILLOSCOPE" in "SUB MODE" with CONSULT-II.




SEL414Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace combination meter. |
| NG | ▶ | Check ECM. |




MEL372K

## Electrical Components Inspection

NFEL0047

### FUEL LEVEL SENSOR UNIT CHECK

NFEL0047S01

- For removal, refer to FE-6.

Check the resistance between terminals 2 and 5.

| Ohmmeter (+) | Ohmmeter (−) | | Float position mm (in) | | Resistance value Ω |
|---|---|---|---|---|---|
| 2 | 5 | *1 | Full | 158 (6.22) | Approx. 4.5 - 5.5 |
| | | *2 | 1/2 | 89.7 (3.531) | 31.5 - 33.5 |
| | | *3 | Empty | 22.1 (0.870) | 80.0 - 80.3 |

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

## System Description

NFEL0283

### FUNCTION

NFEL0283S01

This board computer can indicate following items.

- Outside air temperature
- Range (Cruising possible distance)
- Journey time (hour meter)
- Average fuel consumption
- Average vehicle speed

**Outside air temperature indication**

- This indicator shows indication of outside air temperature while ignition switch is in ON position.
- Ambient sensor is used commonly by auto air conditioner and this board computer. When auto air conditioner operates, board computer will correct ambient sensor signal based on positive voltage signal to terminal 60 of board computer from A/C auto amp.
- Indication range is between −30 and +55°C (−22 and 131°F). (When outside temperature is less than −30°C (−22°F) or more than +55°C (131°F), display shows "- - - -".)
- When outside temperature is less than 3°C (37°F) continuously, display will blink as a warning. In this case, the display will change to the OUTSIDE AIR TEMPERATURE mode even though the display is showing a different item. (See NOTE.)
- The indicated temperature is not affected by engine heat. It changes only when one of the following condition exists.

a) When vehicle speed is more than 20 km/h (12 MPH).
b) The ignition key has been turned to OFF position for more than 3.5 hours.
c) When outside temperature is lower than indicated temperature.

**Range (Cruising possible distance) indication**

- The range indication provides driver with an estimation of the distance that can be driven before refueling. The range is conducted by fuel tank gauge unit (fuel remaining), ECM pulse signal (fuel consumption) and vehicle speed signal.
- Indication will be refreshed every 30 seconds.
- When fuel remaining is less than approx. 10.8 ℓ (11-3/8 US qt, 9-1/2 Imp qt), indication will blink as a warning. If the fuel remaining less than approx. 10.5 ℓ (11-1/8 US qt, 9-1/4 Imp qt), indication will show "- - - -". In this case, the display will change to the RANGE mode automatically even though the display is showing a different item. (See NOTE.)

**Average fuel consumption**

- Average fuel consumption indication is conducted by ECM pulse signal and vehicle speed signal after system is reset.
- Indication will be refreshed every 30 seconds.
- After reset operation, the display shows "...." until the vehicle is driven 500 m (1,600 ft) and 30 seconds has passed.

**Average vehicle speed**

- Average vehicle speed indication is conducted by running distance and running time.
- Indication will be refreshed every 30 seconds.
- After reset operation, the displays shows "...." for 30 seconds.

**Journey time**

- Journey time indication is conducted by integration of ignition ON time.

### HOW TO CHANGE/RESET INDICATION

NFEL0283S02

- Indication can be changed by in following order by pushing board computer steering switch "TRIP".
  OUTSIDE AIR TEMPERATURE → RANGE → AVERAGE FUEL CONSUMPTION → AVERAGE VEHICLE SPEED → JOURNEY TIME
- Continuous pushing the switch (more than 0.8 second) can reset the indication of journey time (hour meter), average vehicle speed and average fuel consumption.

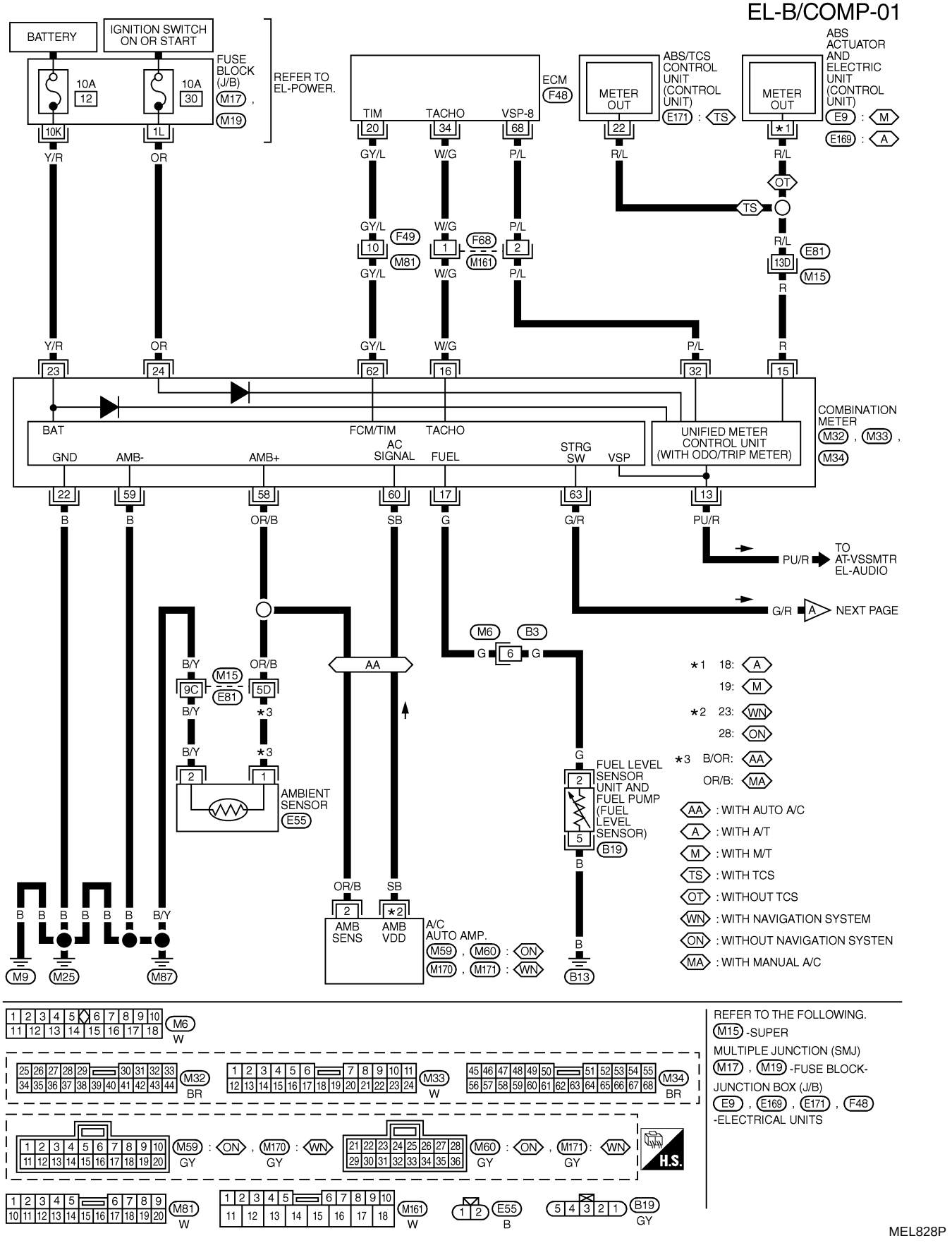
**NOTE:**

- **After the display changes automatically, the indication can be changed to the last mode by pushing the board computer steering switch. In this case, the cursor ("▲") will blink as a warning.**

- **When the OUTSIDE AIR TEMPERATURE warning and the RANGE warning match warning conditions at the same time, the display automatically indicates the OUTSIDE AIR TEMPERATURE.**

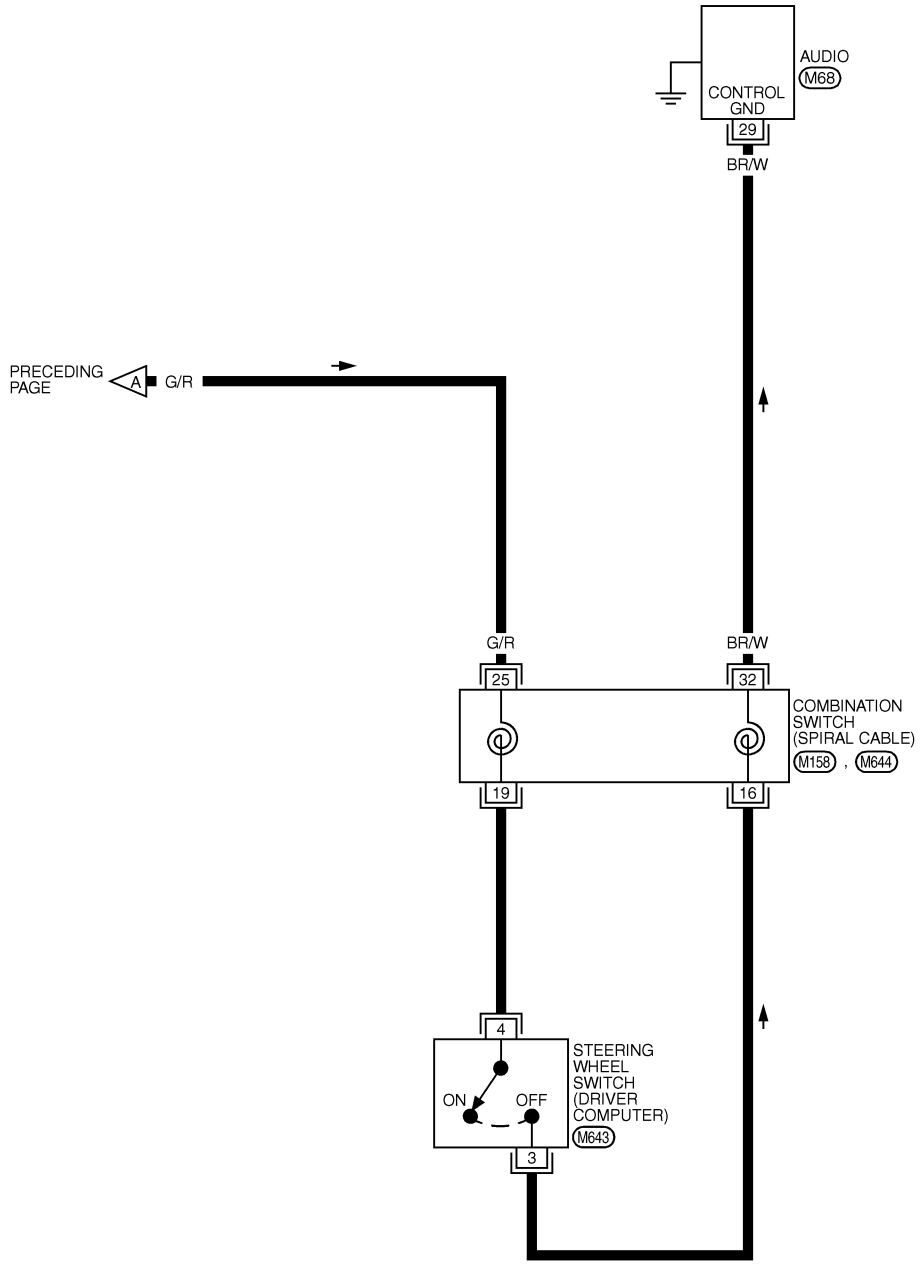
## Wiring Diagram — B/COMP —

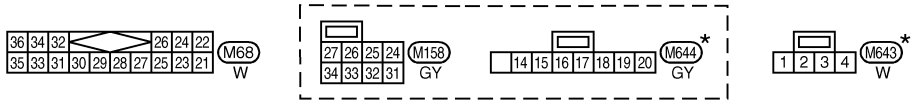
NFEL0284




MEL828P

EL-B/COMP-02




* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT" , EL SECTION.

MEL727P

# Trouble Diagnoses

=NFEL0285

## SEGMENT CHECK

NFEL0285S01

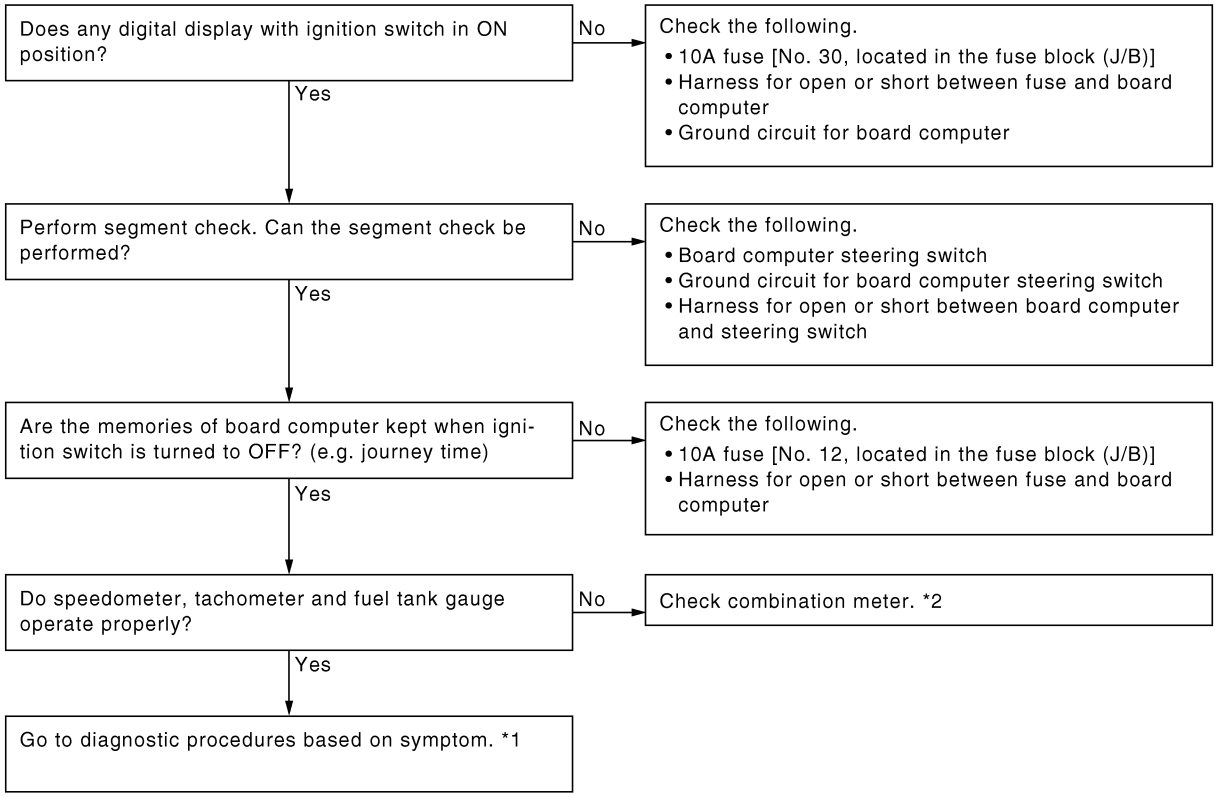
Board computer display segment can be checked by the procedure shown below.

1. Turn ignition switch to ON position with pushing board computer steering switch “TRIP”. Then segment check will start.
2. Segment check will end after 1 cycle of segment check is performed or any of following conditions exists.

- Ignition switch is returned to ACC or OFF position.
- Vehicle speed signal is input.

## PRELIMINARY CHECK

NFEL0285S02




SEL831W

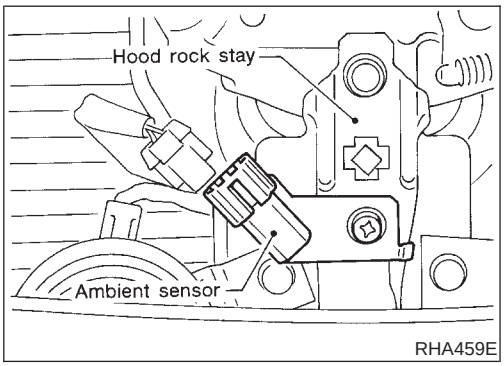
*1 EL-134 *2 EL-122

## DIAGNOSES PROCEDURE

NFEL0285S03

| Symptom | Possible cause | Repair order |
|---|---|---|
| Outside air temperature is not displayed properly. (It may take a short time to steady the indication after ignition switch is turned to ON.) | 1. Ambient sensor<br>2. Ambient sensor circuit<br>3. A/C on signal (For models with auto A/C)<br>4. Vehicle speed sensor signal | 1. Check ambient sensor. Refer to “Electrical Components Inspection”, EL-135.<br>2. Check harness for open or short between ambient sensor and board computer.<br>3. Verify more than 4V is present at terminal 60 of board computer when A/C is operated.<br>4. Make sure journey distance (trip) is displayed properly. If NG, check journey distance (trip) display. |
| Range (Cruising possible distance) is not displayed properly. | 1. Average fuel consumption display<br>2. Fuel tank gauge signal circuit | 1. Make sure fuel consumption is displayed properly. If NG, check fuel consumption display.<br>2. Make sure fuel gauge operates properly. If NG, check fuel gauge. Refer to EL-127. |

| Symptom | Possible cause | Repair order |
|---|---|---|
| Journey time (hour meter) is not indicated properly. | 1. 10A fuse | 1. 10A fuse [No. 12, located in the fuse block (J/B)]. Verify battery voltage is present at terminal 23 of combination meter. |
| Average fuel consumption is not displayed properly. | Fuel consumption signal | Check harness for open or short between ECM terminals (20, 34) and combination meter terminals (62, 16). |
| Average vehicle speed is not indicated properly. | Journey time (hour meter) display | Make sure journey time is displayed properly. If NG, check journey time display. |



RHA459E

## Electrical Components Inspection

NFEL0286

### AMBIENT SENSOR

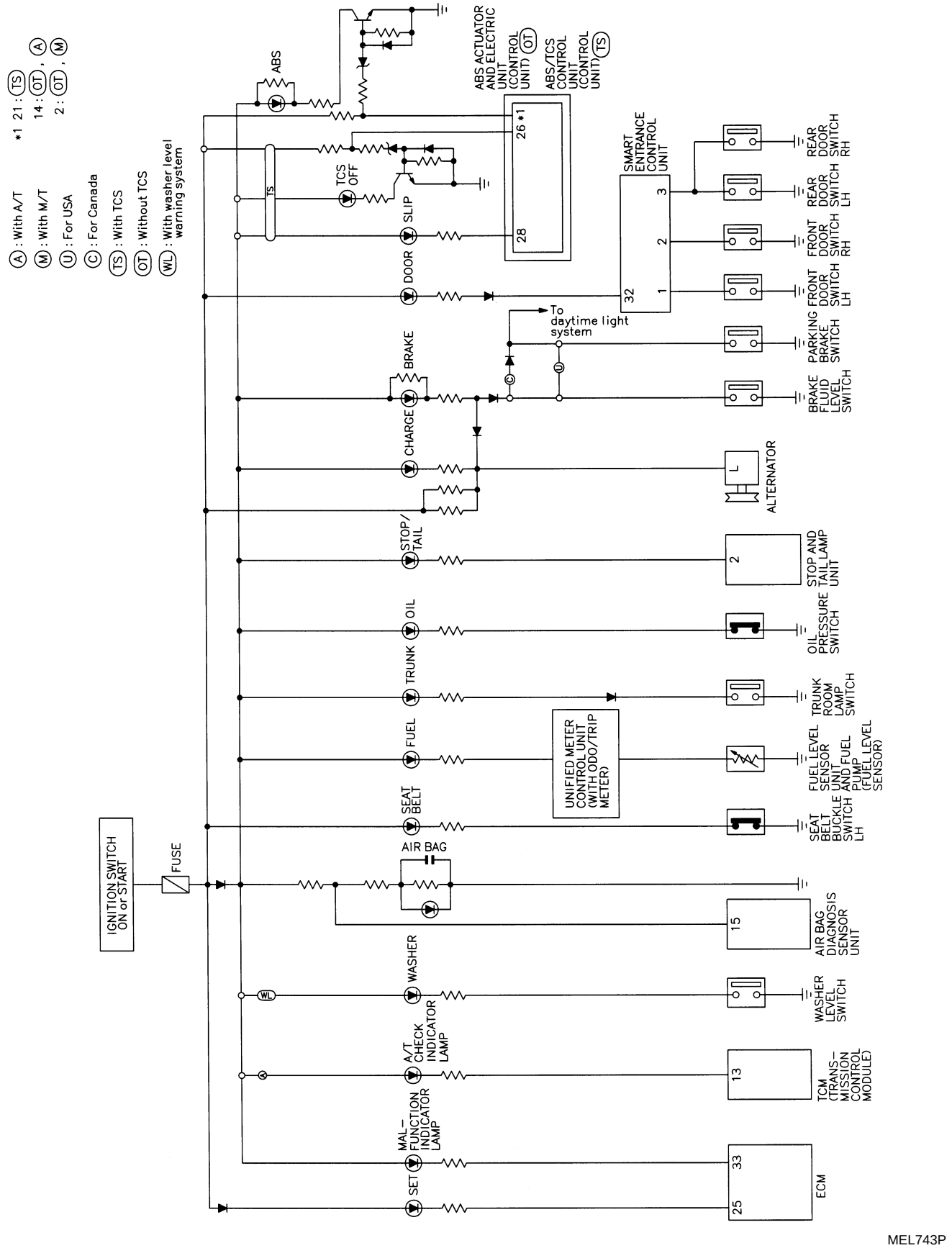
NFEL0286S01

The ambient sensor is attached to the radiator core support. It detects ambient temperature and converts it into a resistance value which is then input to A/C auto amp. and board computer.
After disconnecting ambient sensor harness connector, measure resistance between terminals 1 and 2, using the table below.

| Temperature °C (°F) | Resistance kΩ |
|---|---|
| −15 (5) | 12.73 |
| −10 (14) | 9.92 |
| −5 (23) | 7.80 |
| 0 (32) | 6.19 |
| 5 (41) | 4.95 |
| 10 (50) | 3.99 |
| 15 (59) | 3.24 |
| 20 (68) | 2.65 |
| 25 (77) | 2.19 |
| 30 (86) | 1.81 |
| 35 (95) | 1.51 |
| 40 (104) | 1.27 |
| 45 (113) | 1.07 |

## Schematic

NFEL0049

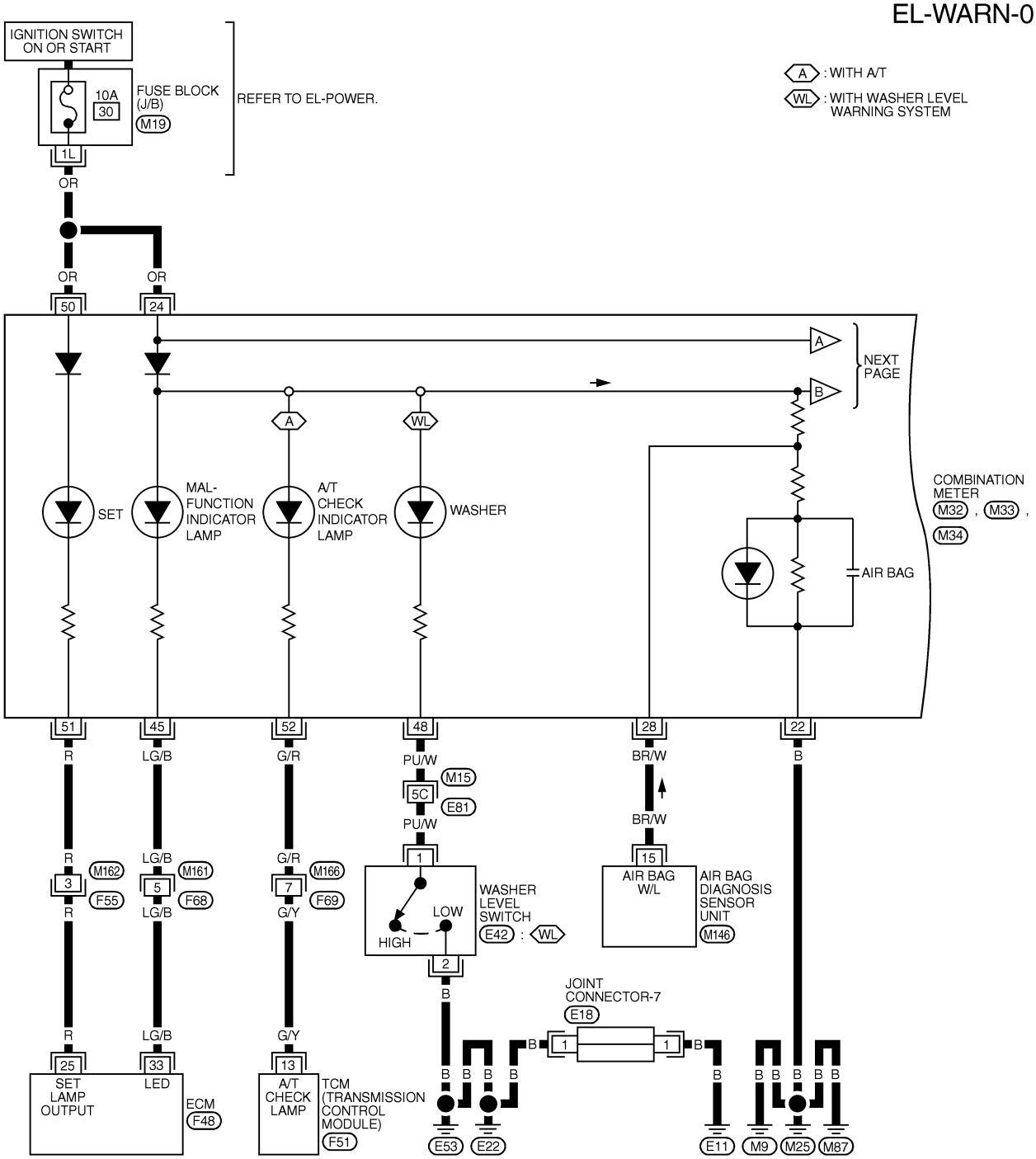


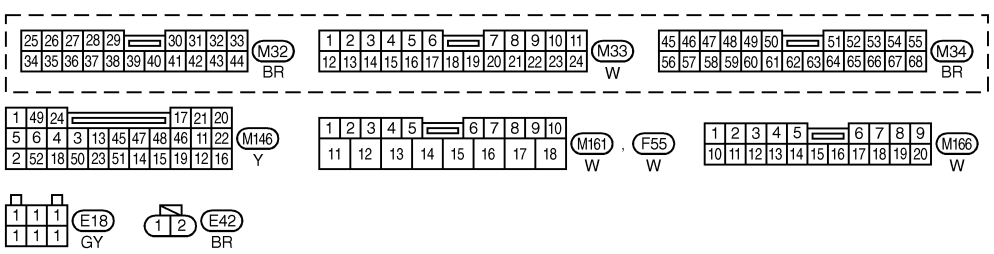

MEL743P

## Wiring Diagram — WARN —

NFEL0050

EL-WARN-01

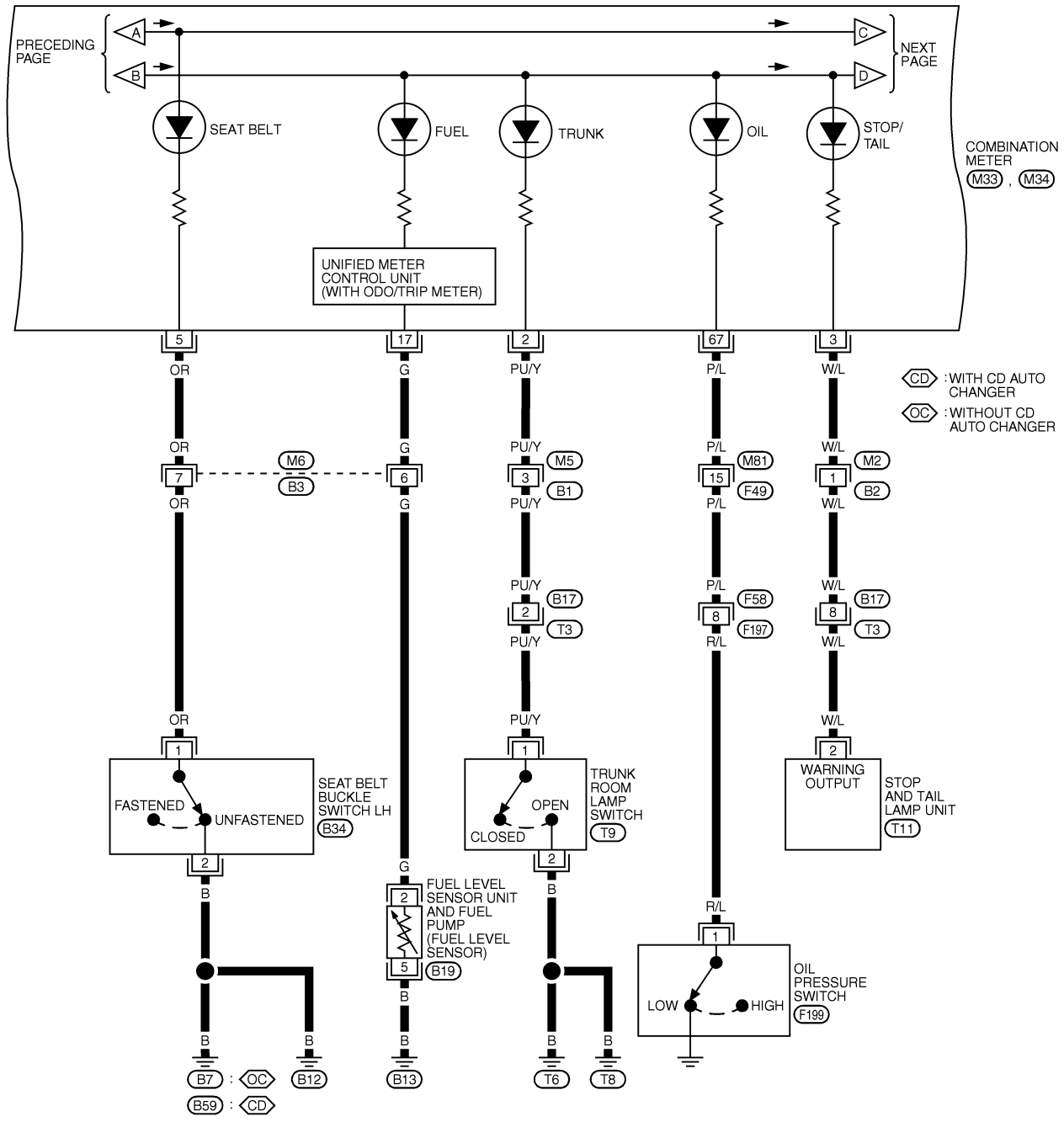


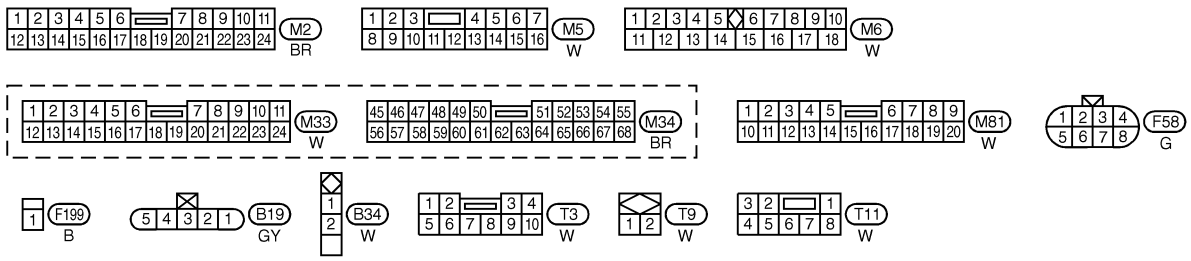




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M19 -FUSE BLOCK-JUNCTION BOX (J/B)
F48, F51 -ELECTRICAL UNITS-

MEL123O

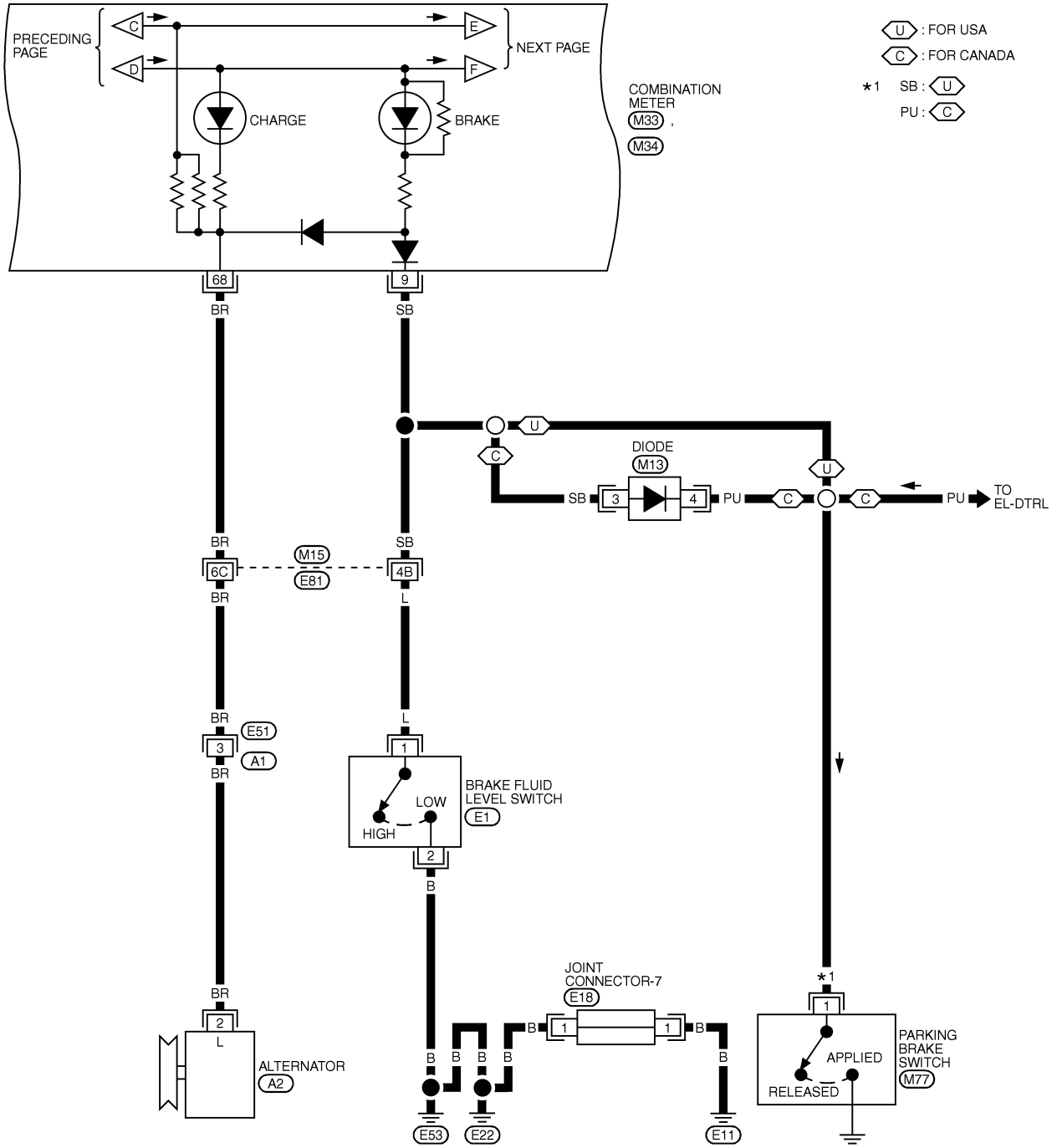
EL-WARN-02

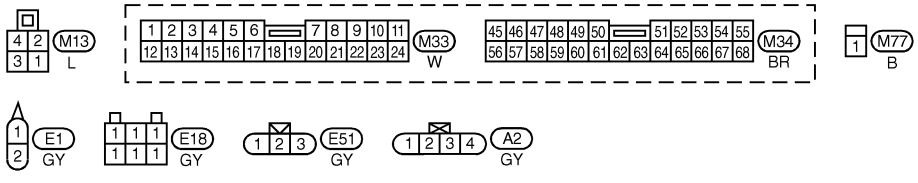



MEL744P

EL-WARN-03

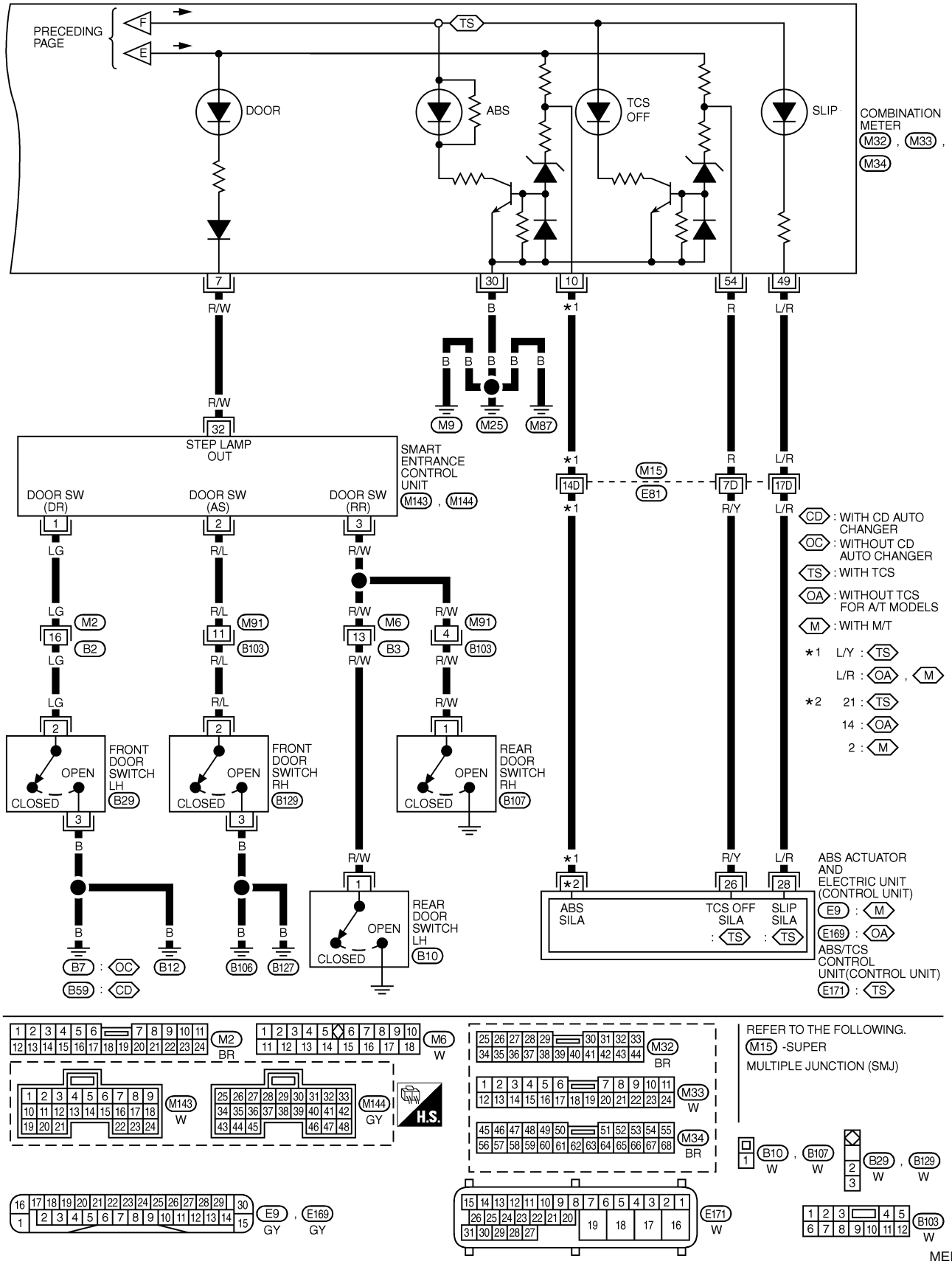


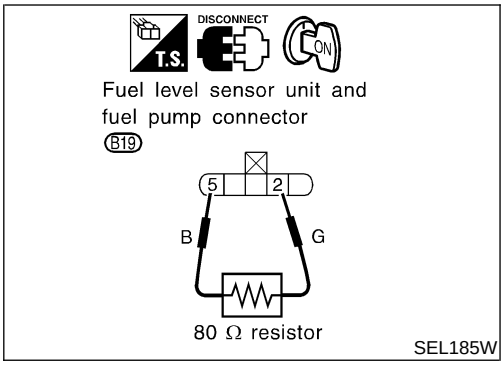




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL125O

EL-WARN-04


PRECEDING PAGE
F
E
TS
DOOR
ABS
TCS OFF
SLIP
COMBINATION METER
M32 , M33 , M34
7
30
10
54
49
R/W
B
*1
R
L/R
M9
M25
M87
32
STEP LAMP OUT
SMART ENTRANCE CONTROL UNIT
M143 , M144
DOOR SW (DR)
DOOR SW (AS)
DOOR SW (RR)
M15
E81
14D
7D
17D
CD : WITH CD AUTO CHANGER
OC : WITHOUT CD AUTO CHANGER
TS : WITH TCS
OA : WITHOUT TCS FOR A/T MODELS
M : WITH M/T
*1 L/Y : TS
L/R : OA , M
*2 21 : TS
14 : OA
2 : M
LG
R/L
R/W
R/Y
M2
B2
M91
B103
M6
B3
B29
B129
B107
FRONT DOOR SWITCH LH
FRONT DOOR SWITCH RH
REAR DOOR SWITCH RH
REAR DOOR SWITCH LH
OPEN
CLOSED
B10
B7 : OC
B59 : CD
B12
B106
B127
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E9 : M
E169 : OA
ABS SILA
TCS OFF SILA : TS
SLIP SILA : TS
ABS/TCS CONTROL UNIT(CONTROL UNIT)
E171 : TS
M2 BR
M6 W
M143 W
M144 GY
H.S.
M32 BR
M33 W
M34 BR
REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
B10 W
B107 W
B29 W
B129 W
E9 GY
E169 GY
E171 W
B103 W
MEL745P




# Electrical Components Inspection

NFEL0051

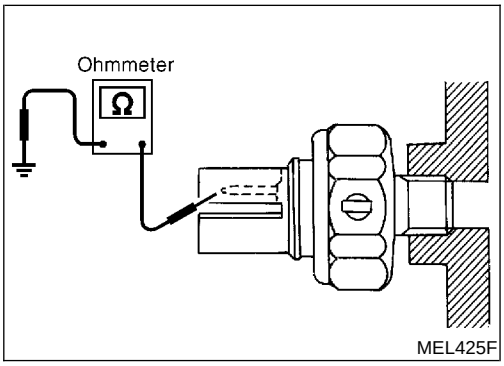
## FUEL WARNING LAMP OPERATION CHECK

NFEL0051S01

1. Turn ignition switch “OFF”.
2. Disconnect fuel level sensor unit and fuel pump harness connector B19.
3. Connect a resistor (80Ω) between fuel level sensor unit and fuel pump harness connector terminals 2 and 5.
4. Turn ignition switch “ON”.

**The fuel warning lamp should come on.**

**NOTE:**
ECM might store the 1st trip DTC P0180 and the 1st trip DTC P0464 during this inspection.
If the DTC is stored in ECM memory, erase the DTC after reconnecting fuel level sensor unit and fuel pump harness connector.
Refer to EC-91, “HOW TO ERASE EMISSION-RELATED DIAGNOSTIC INFORMATION”.

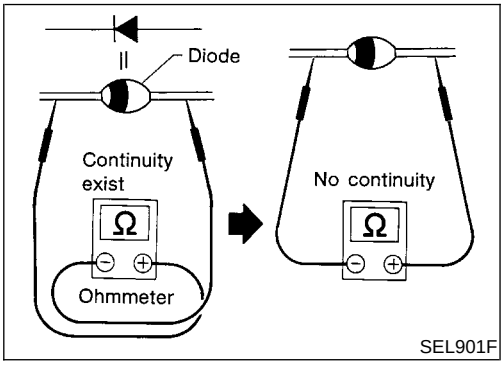



## OIL PRESSURE SWITCH CHECK

NFEL0051S02

| | Oil pressure kPa (kg/cm$^2$, psi) | Continuity |
|---|---|---|
| Engine running | More than 10 - 20 (0.1 - 0.2, 1 - 3) | No |
| Engine not running | Less than 10 - 20 (0.1 - 0.2, 1 - 3) | Yes |

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




## DIODE CHECK

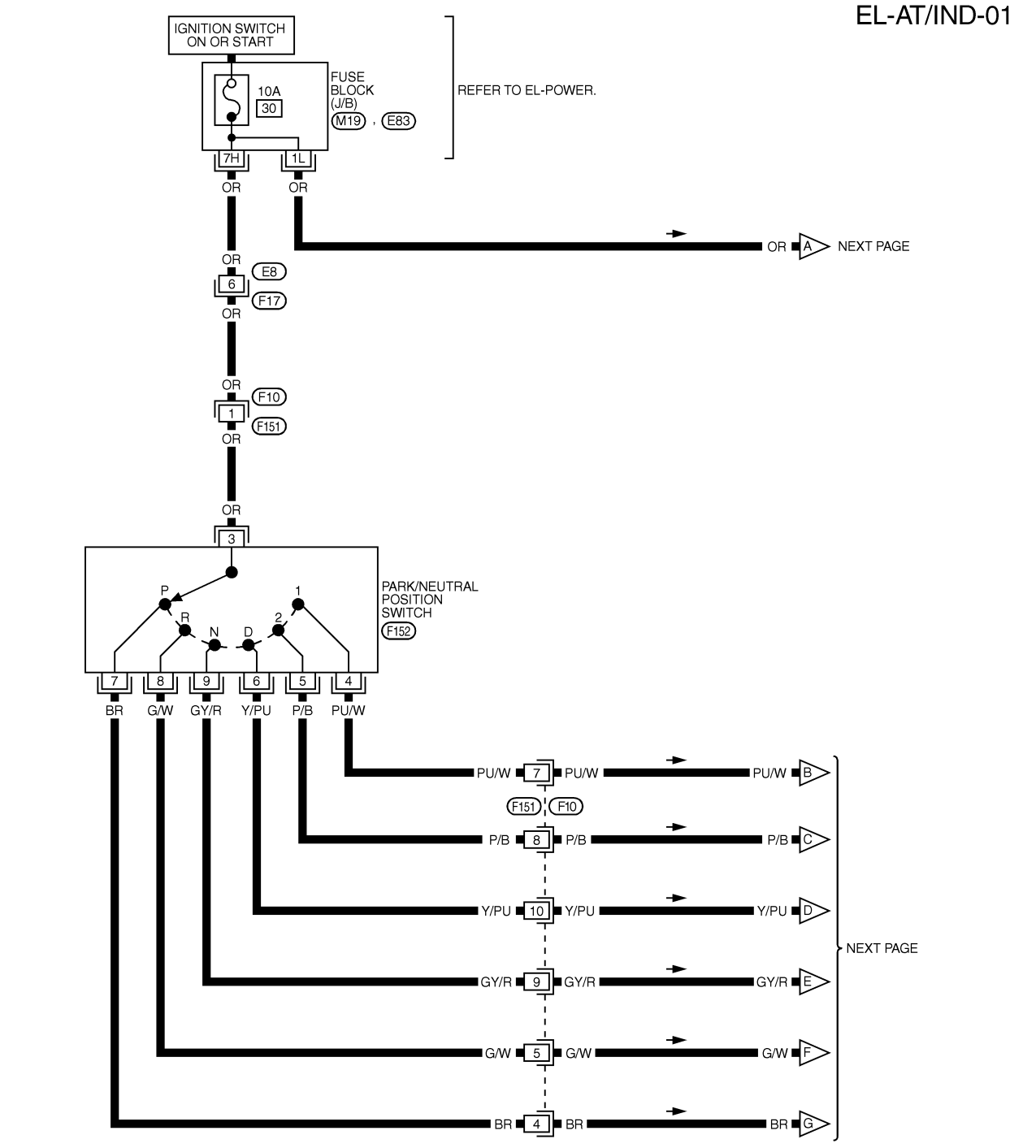
NFEL0051S03

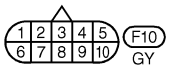
- Check continuity using an ohmmeter.
- Diode is functioning properly if test results are as shown in the figure at left.
- Check diodes at the combination meter harness connector instead of on the combination meter assembly. Refer to EL-137, “WARNING LAMP” wiring diagrams.

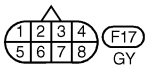
**NOTE:**
Specification may vary depending on the type of tester. Before performing this inspection, be sure to refer to the instruction manual for the tester to be used.

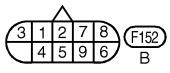
## Wiring Diagram — AT/IND —

NFEL0159



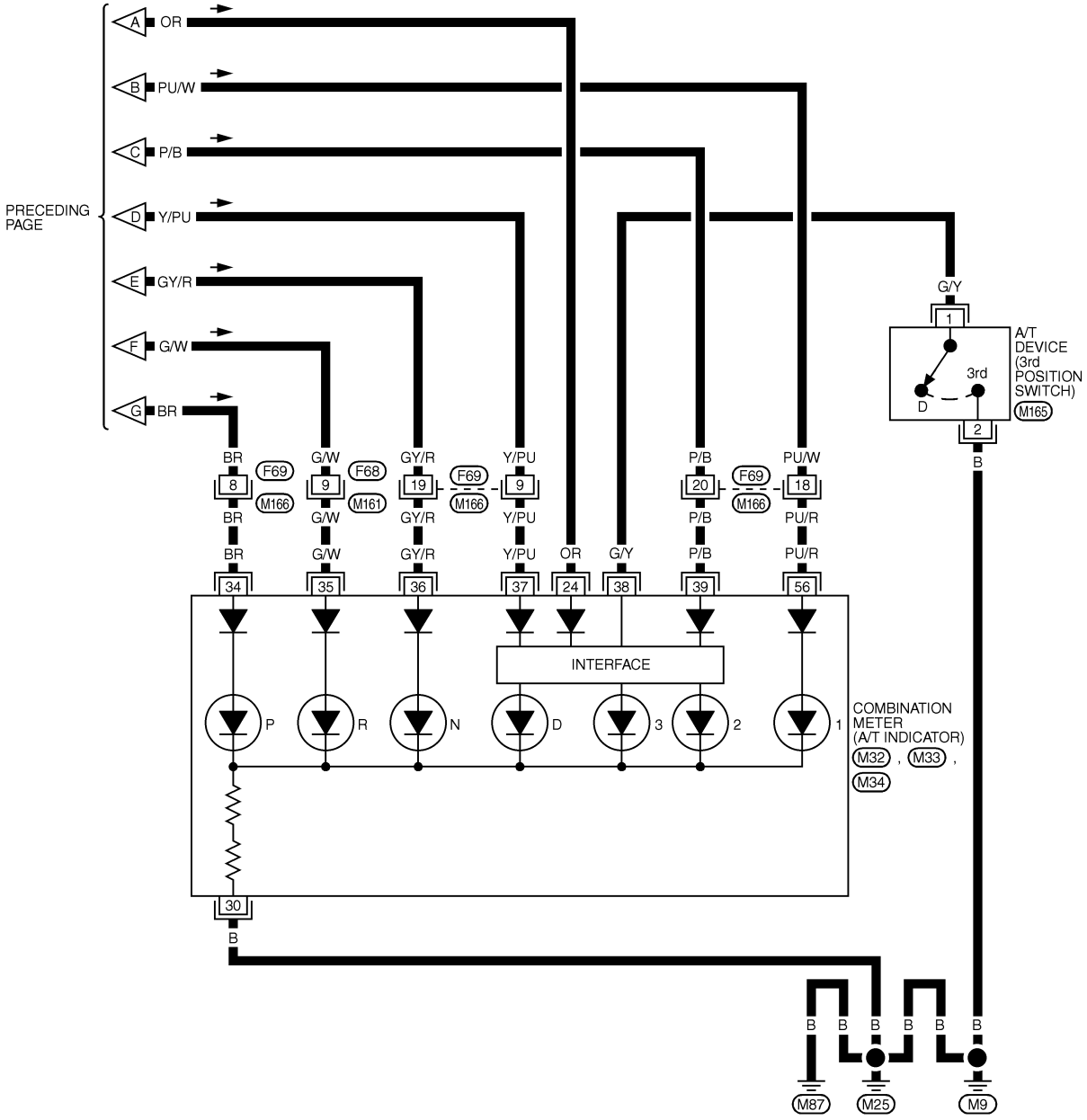



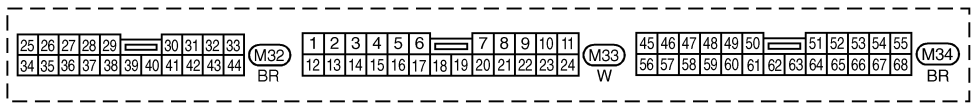



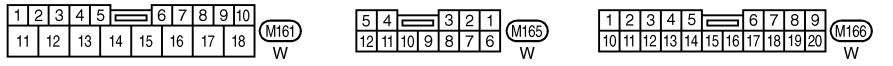



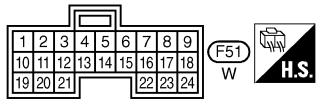

REFER TO THE FOLLOWING.
M19 , E83 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL728P


PRECEDING PAGE
A OR
B PU/W
C P/B
D Y/PU
E GY/R
F G/W
G BR
G/Y
1
A/T DEVICE (3rd POSITION SWITCH)
M165
3rd
D
2
B
BR F69 8 M166
G/W F68 9 M161
GY/R F69 19 M166
Y/PU F69 9 M166
P/B F69 20 M166
PU/W 18
BR 34
G/W 35
GY/R 36
Y/PU 37
OR 24
G/Y 38
P/B 39
PU/R 56
INTERFACE
P
R
N
D
3
2
1
COMBINATION METER (A/T INDICATOR)
M32 , M33 , M34
30
B
B B B B B B
M87
M25
M9


M32 BR
M33 W
M34 BR

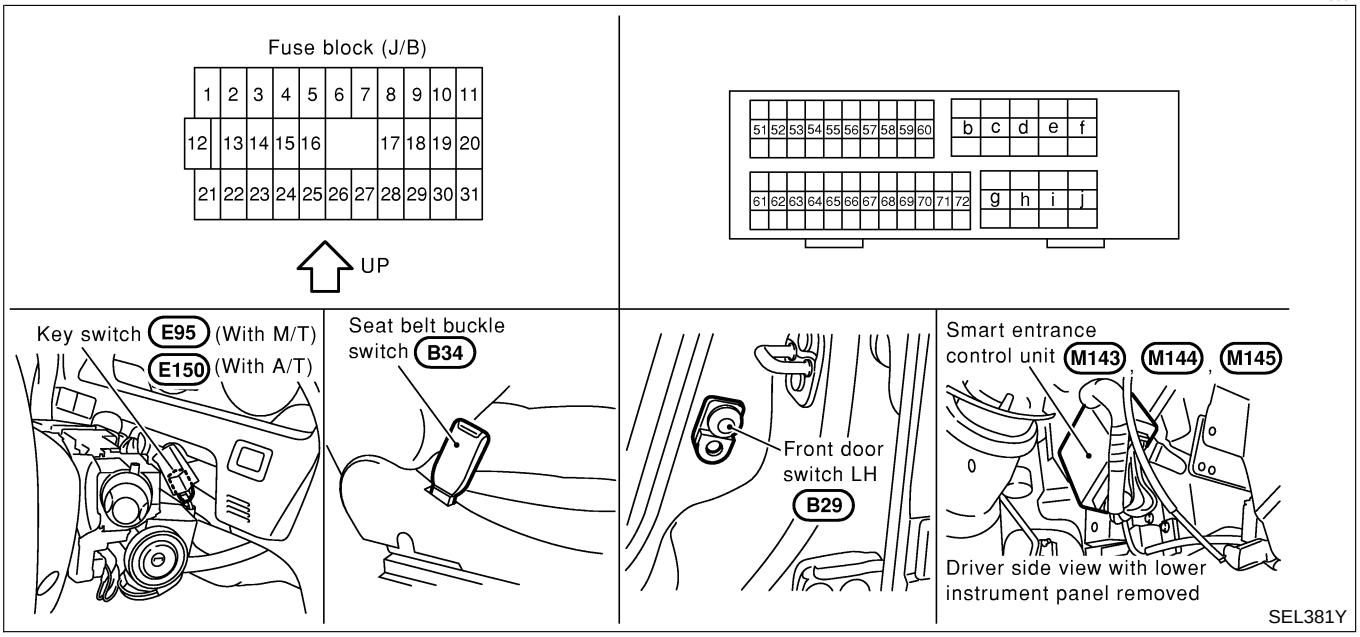

M161 W
M165 W
M166 W


F51 W
H.S.

MEL756P

## Component Parts and Harness Connector Location

NFEL0052




## System Description

NFEL0053

The warning chime is controlled by the smart entrance control unit.
The warning chime is located in the smart entrance control unit.
Power is supplied at all times

- through 10A fuse [No. 13, located in fuse block (J/B)]
- to smart entrance control unit terminal 49 and
- to key switch terminal 2 (M/T) or 3 (A/T)
- through 10A fuse (No. 60, located in the fuse and fusible link box)
- to tail lamp relay terminals 1 and 3.

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

- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to smart entrance control unit terminal 27.

Ground is supplied to smart entrance control unit terminals 43 and 64 through body grounds M9, M25 and M87.
When a signal, or combination of signals, is received by the smart entrance control unit, the warning chime will sound.

### IGNITION KEY WARNING CHIME

NFEL0053S01

With the key in the ignition switch in the OFF position, and the driver's door open, the warning chime will sound.
Power is supplied

- from key switch terminal 1 (M/T) or 4 (A/T)
- to smart entrance control unit terminal 25.

Ground is supplied

- from front door switch LH (driver side) terminal 2
- to smart entrance control unit terminal 1.

Front door switch LH (driver side) terminal 3 is grounded through body grounds B7 (without CD auto changer) or B59 (with CD auto changer) and B12.

### LIGHT WARNING CHIME

NFEL0053S02

With ignition switch OFF, driver's door open, and lighting switch in 1ST or 2ND position, warning chime will sound. Power is supplied.

- from tail lamp relay terminal 2
- to smart entrance control unit terminals 19 and 57.

Ground is supplied

- from front door switch LH (driver side) terminal 2
- to smart entrance control unit terminal 1.

Front door switch LH (driver side) terminal 3 is grounded through body grounds B7 (without CD auto changer) or B59 (with CD auto changer) and B12.

## SEAT BELT WARNING CHIME

NFEL0053S03

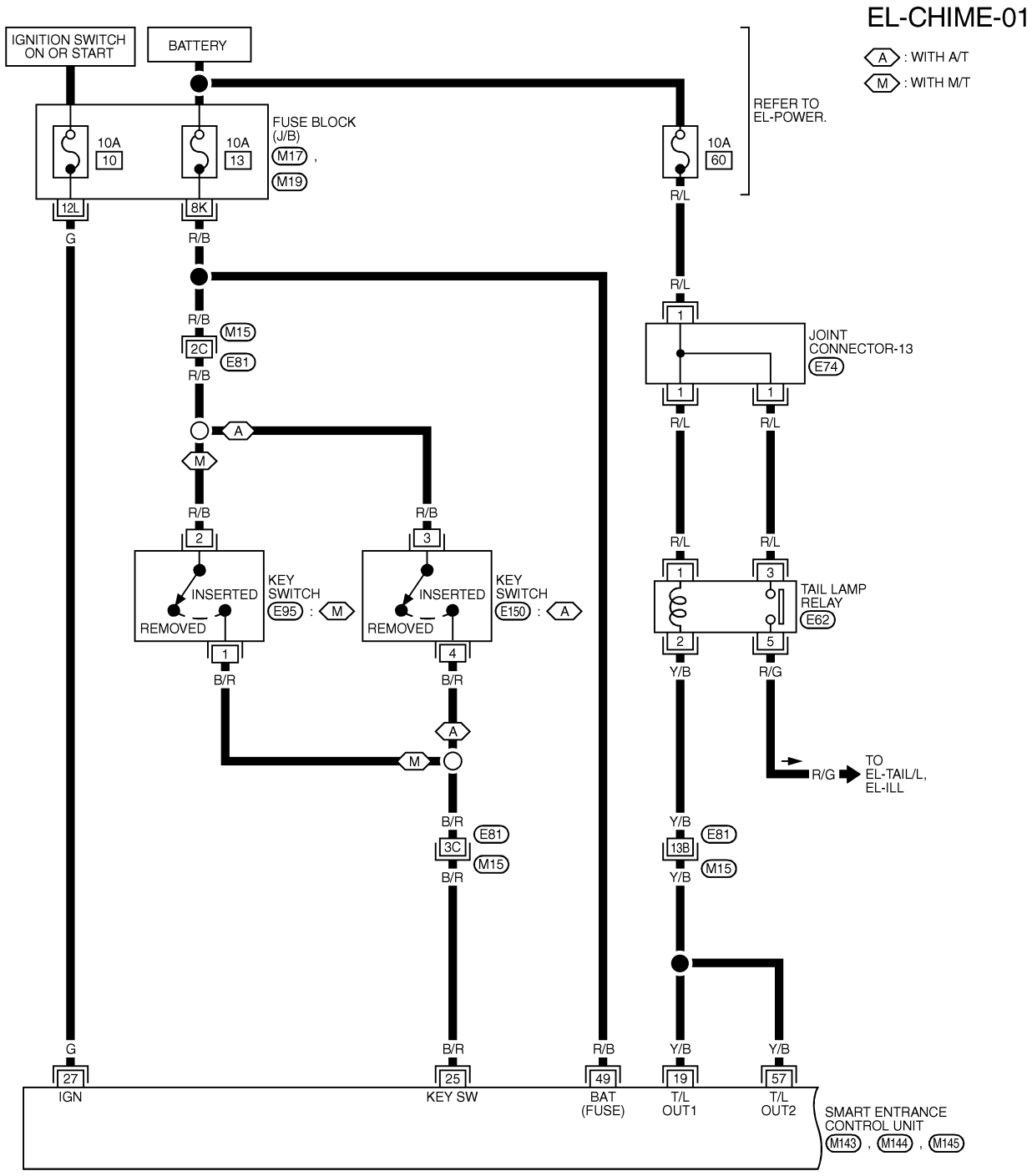
With ignition switch turned ON and seat belt unfastened (seat belt switch ON), warning chime will sound for approximately 6 seconds.
Ground is supplied

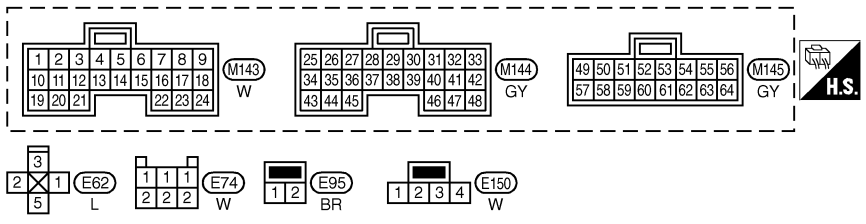
- from seat belt switch terminal 1
- to smart entrance control unit terminal 28.

Seat belt switch terminal 2 is grounded through body grounds B7 (without CD auto changer) or B59 (with CD auto changer) and B12.

## Wiring Diagram — CHIME —

NFEL0054

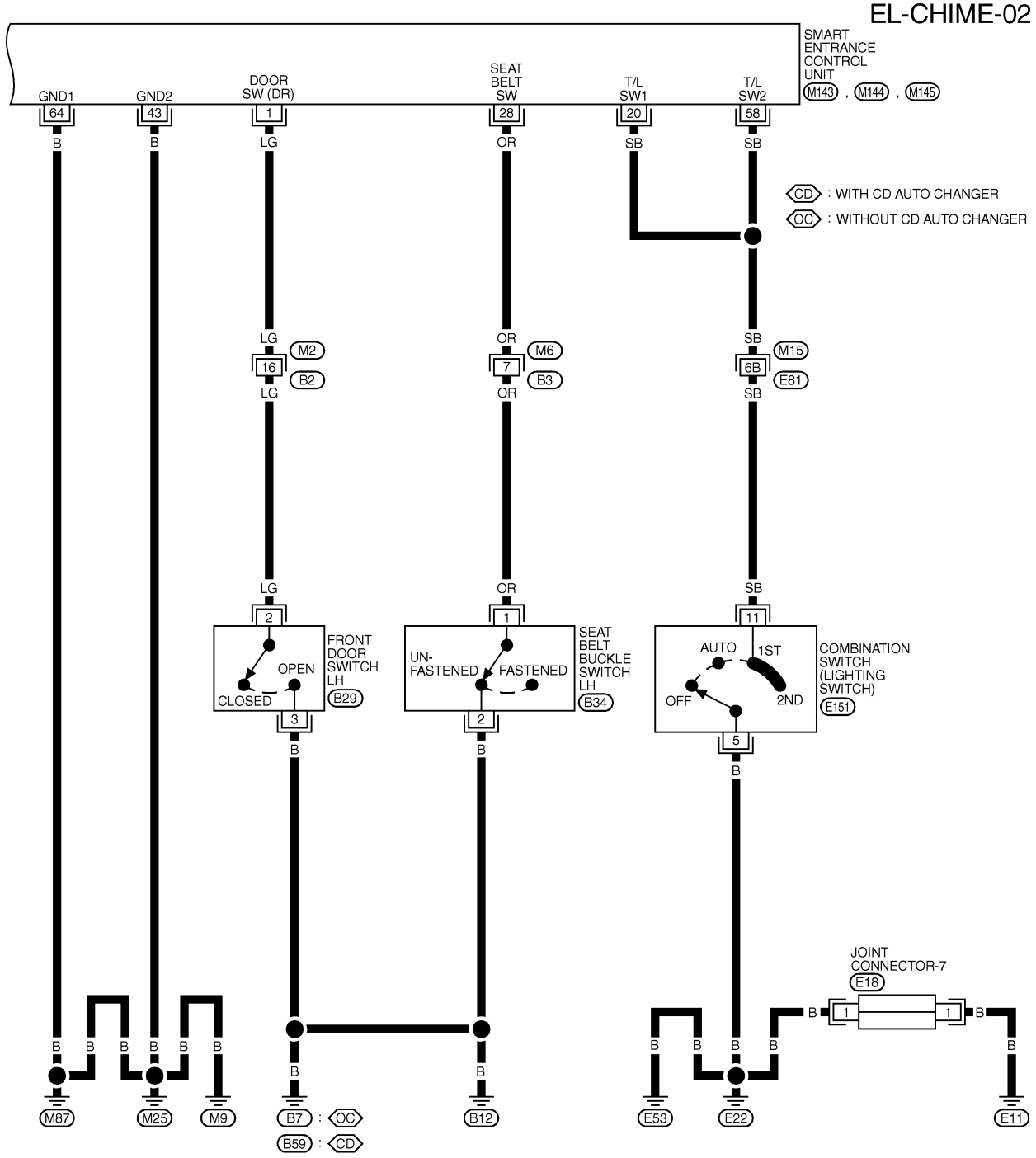


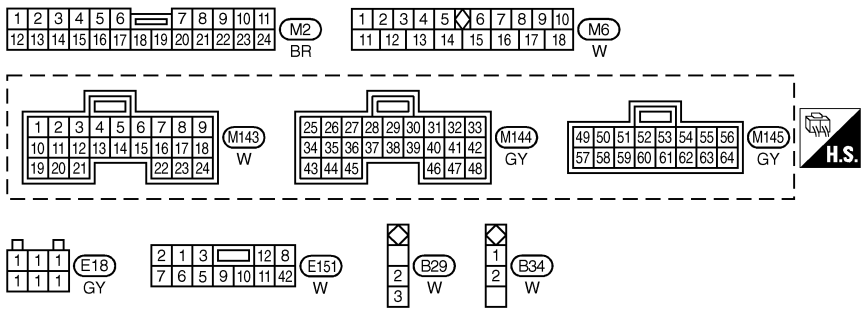




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL129O

EL-CHIME-02

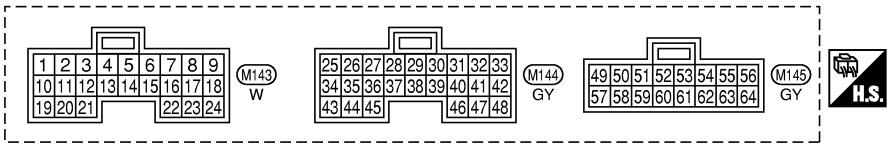



REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL130O

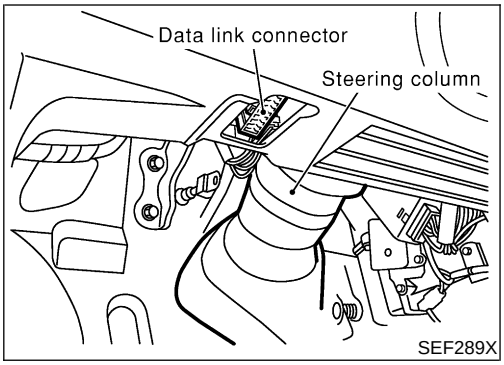
**SMART ENTRANCE CONTROL UNIT CONNECTOR**




**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | | | DATA (DC) |
|---|---|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 12V → 0V |
| 19 | Y/B | TAIL LAMP RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 1ST OR 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | LESS THAN 1V → 12V |
| 20 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION) | | | 12V → 0V |
| 25 | B/R | IGNITION KEY SWITCH (INSERT) | KEY INSERTED → KEY REMOVED FROM IGN KEY CYLINDER | | | 12V → 0V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | | | 12V |
| 28 | OR | SEAT BELT BUCKLE SWITCH | UNFASTENED → FASTENED (IGNITION SWITCH IS IN "ON" POSITION) | | | 0V → 12V |
| 43 | B | GROUND | – | | | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | | | 12V |
| 57 | Y/B | TAIL LAMP RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 1ST OR 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | LESS THAN 1V → 12V |
| 58 | SB | TAIL LAMP SWITCH | LIGHTING SWITCH (OFF OR AUTO → 1ST OR 2ND POSITION) | | | 12V → 0V |
| 64 | B | GROUND | – | | | – |

SEL589Y



SEF289X

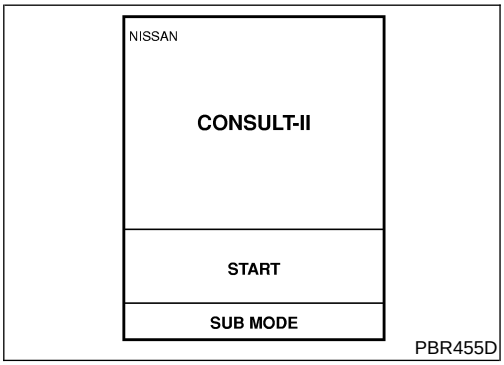
## CONSULT-II Inspection Procedure

=NFEL0216

### "KEY WARN ALM"/"LIGHT WARN ALM"/"SEAT BELT ALM"

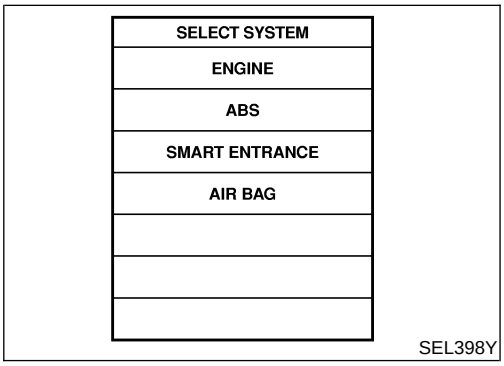
NFEL0216S01

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



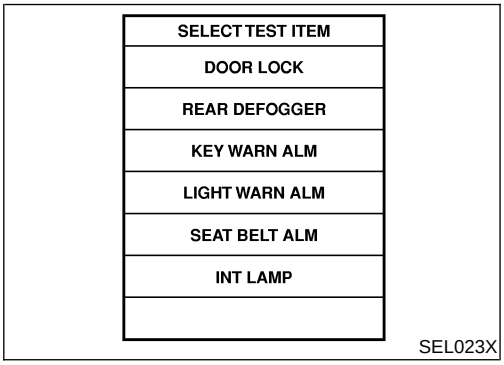
PBR455D

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



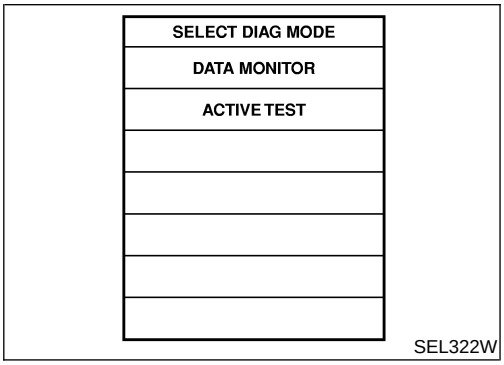
SEL398Y

5. Touch "SMART ENTRANCE".



SEL023X

6. Touch "KEY WARN ALM", "LIGHT WARN ALM" or "SEAT BELT ALM".



SEL322W

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

# CONSULT-II Application Items

NFEL0217

## "KEY WARNING ALARM"
## Data Monitor

NFEL0217S01

NFEL0217S0101

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| KEY ON SW | Indicates [ON/OFF] condition of key switch. |
| DOOR SW DR | Indicates [ON/OFF] condition of front door switch LH. |

## Active Test

NFEL0217S0102

| Test Item | Description |
|---|---|
| CHIME | This test is able to check key warning chime operation. Key warning chime sounds for 2 seconds after touching "ON" on CONSULT-II screen. |

## "LIGHT WARN ALM"
## Data Monitor

NFEL0217S02

NFEL0217S0201

| Monitored Item | Description |
|---|---|
| LIGHT SW 1ST | Indicates [ON/OFF] condition of lighting switch. |
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |

## Active Test

NFEL0217S0202

| Test Item | Description |
|---|---|
| CHIME | This test is able to check light warning chime operation. Light warning chime sounds for 2 seconds after touching "ON" on CONSULT-II screen. |

## "SEAT BELT WARM ALM"
## Data Monitor

NFEL0217S03

NFEL0217S0301

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| SEAT BELT SW | Indicates [ON/OFF] condition of seat belt switch. |

## Active Test

NFEL0217S0302

| Test Item | Description |
|---|---|
| CHIME | This test is able to check seat belt warning chime operation. Seat belt warning chime sounds for 2 seconds after touching "ON" on CONSULT-II screen. |

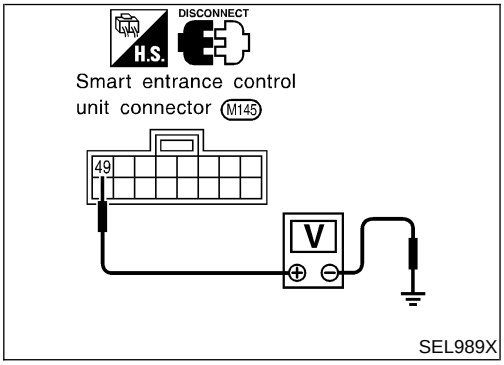
# Trouble Diagnoses

## SYMPTOM CHART

NFEL0055

NFEL0055S01

| REFERENCE PAGE (EL- ) | 151 | 153 | 154 | 155 | 156 |
|---|---|---|---|---|---|
| SYMPTOM | POWER SUPPLY AND GROUND CIRCUIT CHECK | DIAGNOSTIC PROCEDURE 1 (LIGHTING SWITCH INPUT SIGNAL CHECK) | DIAGNOSTIC PROCEDURE 2 (KEY SWITCH INSERT SIGNAL CHECK) | DIAGNOSTIC PROCEDURE 3 (SEAT BELT BUCKLE SWITCH CHECK) | DIAGNOSTIC PROCEDURE 4 |
| Light warning chime does not activate. | X | X | | | X |
| Ignition key warning chime does not activate. | X | | X | | X |
| Seat belt warning chime does not activate. | X | | | X | X |
| All warning chimes do not activate. | X | | | | X |



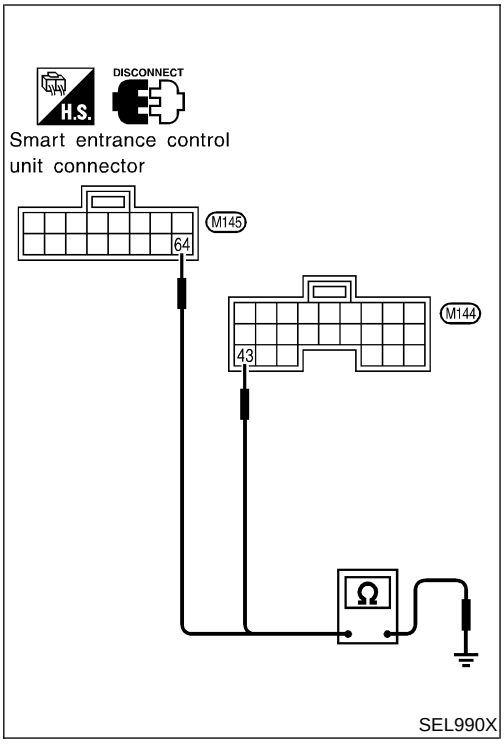

## POWER SUPPLY AND GROUND CIRCUIT CHECK

NFEL0055S02

### Power Supply Circuit Check

NFEL0055S0201

| Terminals (Wire color) | Voltage |
|---|---|
| 49 (R/B) - Ground | Battery voltage |




## Ground Circuit Check

NFEL0055S0202

| Terminals (Wire color) | Continuity |
|---|---|
| 43 (B) - Ground | Yes |
| 64 (B) - Ground | Yes |

## DIAGNOSTIC PROCEDURE 1 (LIGHTING SWITCH INPUT SIGNAL CHECK)

*=NFEL0055S03*

| 1 | CHECK LIGHTING SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check lighting switch ("LIGHT SW 1ST") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LIGHT SW 1ST | OFF |

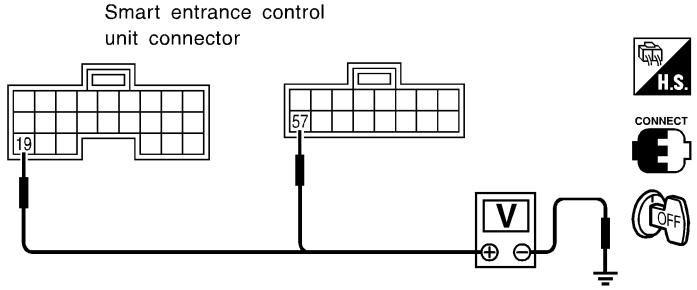
When lighting switch is in 1st or 2nd position:
**LIGHT SW 1ST ON**

When lighting switch is in OFF position:
**LIGHT SW 1ST OFF**

SEL991X

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminal 19 (Y/B), connector M145 terminal 57 (Y/B) and ground.




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

SEL992XA

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Lighting switch is OK. |
| NG | ▶ | **Check the following.**<br>● 10A fuse (No. 60, located in the fuse and fusible link box)<br>● Harness for open or short between smart entrance control unit and tail lamp relay |

## DIAGNOSTIC PROCEDURE 2 (KEY SWITCH INSERT SIGNAL CHECK)

=NFEL0055S04

| 1 | CHECK KEY SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check key switch ("KEY ON SW") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY ON SW | ON |

When key is inserted to ignition key cylinder:

**KEY ON SW ON**

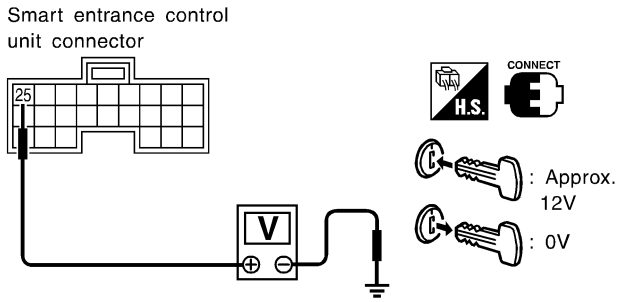
When key is removed from ignition key cylinder:

**KEY ON SW OFF**

SEL315W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M144 terminal 25 (B/R) and ground.




**Voltage [V]:**

**Condition of key switch: Key is inserted.**

**Approx. 12**

**Condition of key switch: Key is removed.**

**0**

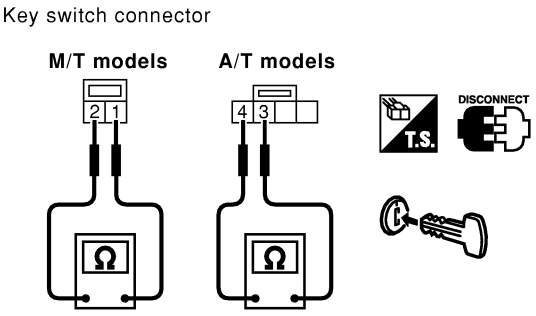
SEL011Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Key switch is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK KEY SWITCH (INSERT) |
|---|---|

Check continuity between connector E95 terminals 1 and 2 or connector E150 terminals 3 and 4.




**Continuity:**

**Condition of key switch: Key is inserted.**

**Yes**

**Condition of key switch: Key is removed.**

**No**

SEL614Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● 10A fuse [No. 13, located in fuse block (J/B)]<br>● Harness for open or short between key switch and fuse<br>● Harness for open or short between smart entrance control unit and key switch |
| NG | ▶ | Replace key switch. |

## DIAGNOSTIC PROCEDURE 3 (SEAT BELT BUCKLE SWITCH CHECK)

=NFEL0055S05

| 1 | CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check seat belt buckle switch ("SEAT BELT SW") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| SEAT BELT SW | ON |

When seat belt is fastened:
**SEAT BELT SW ON**

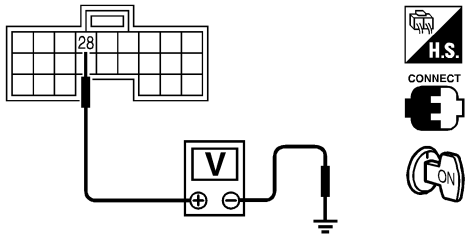
When seat belt is released:
**SEAT BELT SW OFF**

SEL317W

**Without CONSULT-II**

1. Turn ignition switch "ON".
2. Check voltage between smart entrance control unit harness connector M144 terminal 28 (OR) and ground.

Smart entrance control unit connector




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

SEL994XA

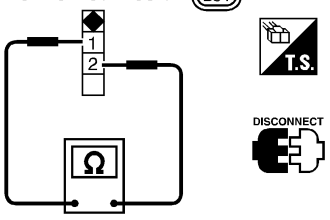
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Seat belt buckle switch is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK SEAT BELT BUCKLE SWITCH |
|---|---|

Check continuity between terminals 1 and 2 when seat belt is fastened and unfastened.

Seat belt buckle switch connector B34




**Continuity:**
**Seat belt is fastened.**
**No**
**Seat belt is unfastened.**
**Yes**

SEL313W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Seat belt buckle switch ground circuit<br>● Harness for open or short between smart entrance control unit and seat belt buckle switch |
| NG | ▶ | Replace seat belt buckle switch. |

## DIAGNOSTIC PROCEDURE 4

NFEL0055S06

**1** **CHECK IGNITION ON SIGNAL**

**With CONSULT-II**

Check ignition switch ON signal ("IGN ON SW") in "DATA MONITOR" mode with CONSULT-II.

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

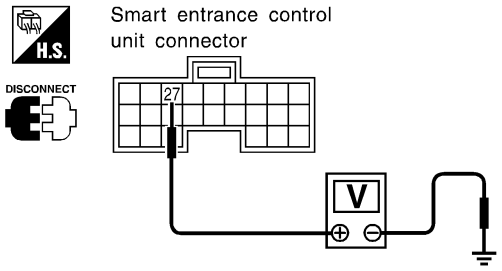
When ignition switch is ON:
**IGN ON SW ON**

When ignition switch is OFF:
**IGN ON SW OFF**

SEL318W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M144 terminal 27 (G) and ground.




| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| (+) | (–) | OFF | ACC | ON |
| 27 | Ground | 0V | 0V | Battery voltage |

SEL995X

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 10, located in fuse block (J/B)]<br>● Harness for open or short between smart entrance control unit and fuse |

| 2 | CHECK DOOR SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check driver door switch signal ("DOOR SW-DR") in "DATA MONITOR" mode with CONSULT-II.

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

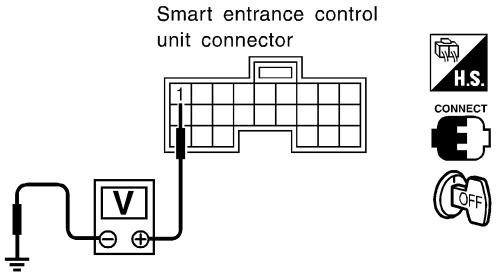
When driver's door is open:
**DOOR SW-DR ON**

When driver's door is closed:
**DOOR SW-DR OFF**

SEL319W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminal 1 (LG) and ground.




**Voltage [V]:**
**Condition of driver's door: CLOSED**
**Approx. 12**
**Condition of driver's door: OPENED**
**0**

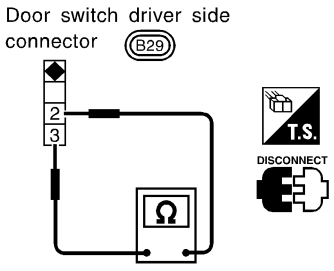
SEL996XA

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | GO TO 3. |

| 3 | CHECK DRIVER SIDE DOOR SWITCH |
|---|---|

Check continuity between terminals 2 and 3.




**Continuity:**
**Door switch is pushed.**
**No**
**Door switch is released.**
**Yes**

SEL325W

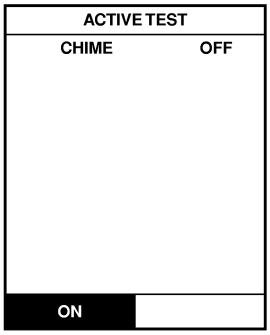
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>• Driver side door switch ground circuit and condition<br>• Harness for open or short between smart entrance control unit and driver side door switch |
| NG | ▶ | Replace driver side door switch. |

| 4 | CHECK WARNING CHIME |
|---|---|

**With CONSULT-II**

Perform "CHIME" in "ACTIVE TEST" mode with CONSULT-II.




**Warning chime should operate.**

SEL320W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | System is OK. |
| NG | ▶ | Replace smart entrance control unit. |

# System Description

NFEL0057

## WIPER OPERATION

NFEL0057S01

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

- LO speed
- HI speed
- INT (Intermittent)

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

- through 20A fuse [No. 25, located in the fuse block (J/B)]
- to wiper motor terminal 4 and
- to wiper switch terminal 15.

### Low (Mist) and High Speed Wiper Operation

NFEL0057S0101

Ground is supplied to wiper switch terminal 17 through body grounds E11, E22 and E53.
When the wiper switch is placed in the LO or MIST position, ground is supplied

- through terminal 14 of the wiper switch
- to wiper motor terminal 3.

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

- through terminal 16 of the wiper switch
- to wiper motor terminal 1.

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

### Auto Stop Operation

NFEL0057S0102

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

- from terminal 14 of the wiper switch
- to wiper motor terminal 3, in order to continue wiper motor operation at low speed.

Ground is also supplied

- through terminal 13 of the wiper switch
- to wiper motor terminal 2
- through terminal 6 of the wiper motor, and
- through body grounds E11, E22 and E53.

When wiper arms reach base of windshield, wiper motor terminals 2 and 4 are connected instead of terminals 2 and 6. Wiper motor will then stop wiper arms at the STOP position.

### Intermittent Operation

NFEL0057S0103

The wiper motor operates the wiper arms one time at low speed at a set interval of approximately 3 to 13 seconds. This feature is controlled by the wiper amplifier (INT SW) combined with wiper switch.
When the wiper switch is placed in the INT position, ground is supplied to wiper amplifier.
The desired interval time is input to wiper amplifier (INT VR) from wiper volume switch combined with wiper switch.
Then intermittent ground is supplied

- to wiper motor terminal 3
- from terminal 14 of wiper switch
- through wiper amplifier (OUTPUT).

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

## WASHER OPERATION

NFEL0057S02

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

- through 20A fuse [No. 25, located in the fuse block (J/B)]
- to washer motor terminal 1.

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

- to washer motor terminal 2, and
- from terminal 18 of the wiper switch

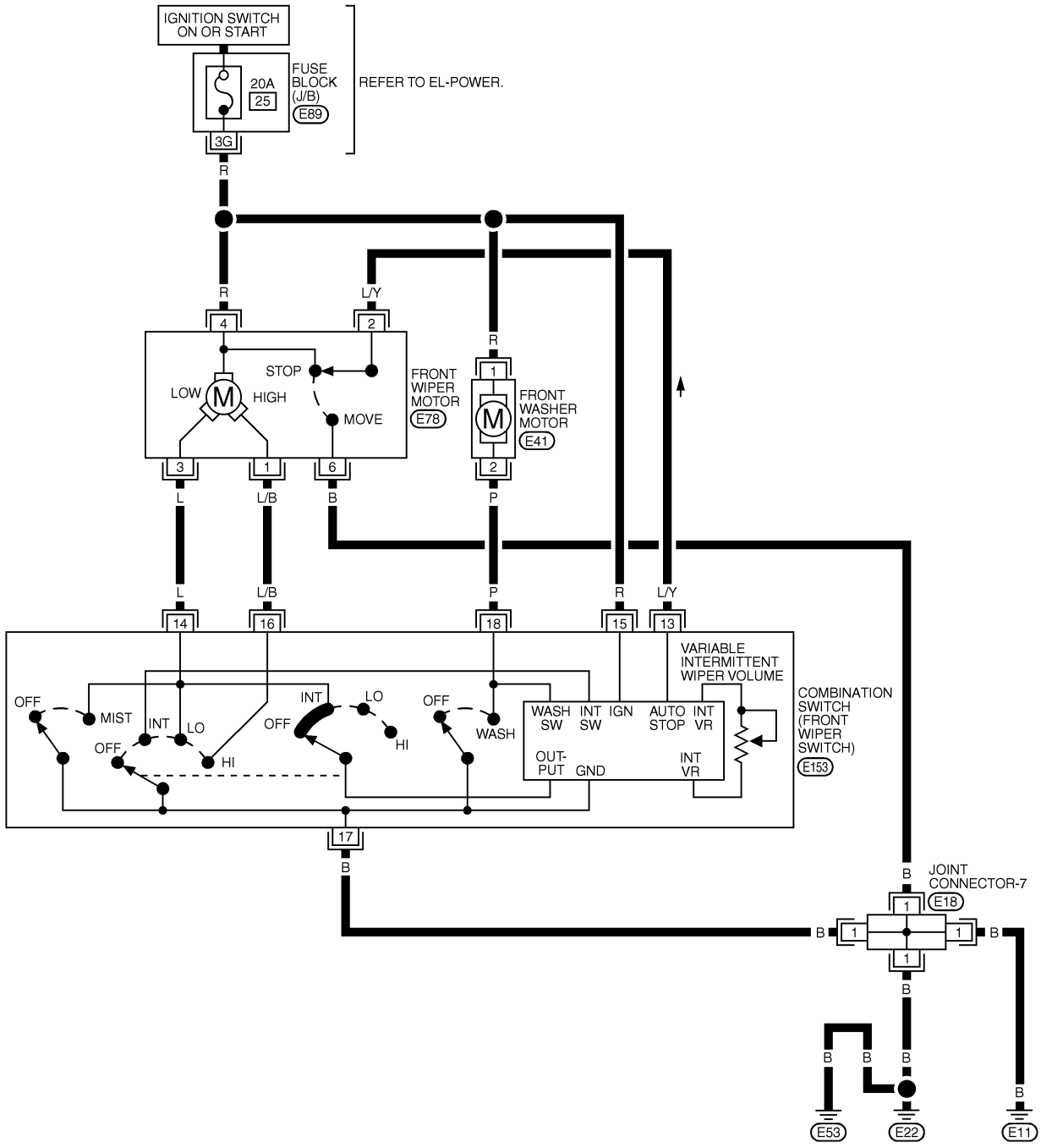
- through terminal 17 of the wiper switch, and
- through body grounds E11, E22 and E53.

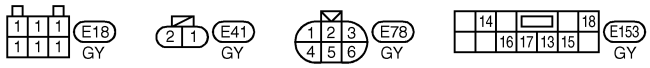
With power and ground supplied, the washer motor operates.
When the lever is pulled to the WASH position for one second or more, the wiper motor operates at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the wiper amplifier in the same manner as the intermittent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

# Wiring Diagram — WIPER —

NFEL0058

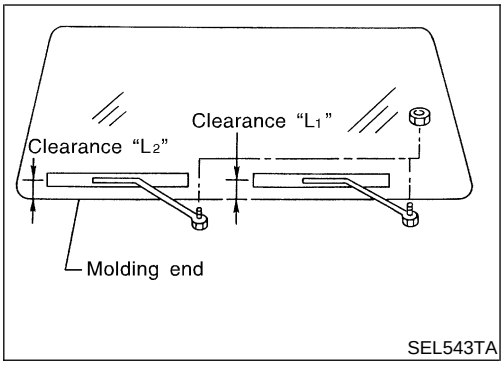
EL-WIPER-01




REFER TO THE FOLLOWING.
E89 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL131O



SEL543TA

## Removal and Installation

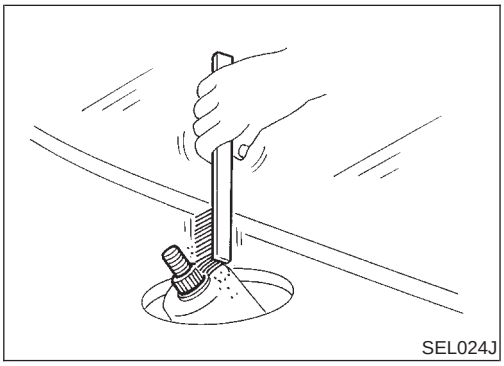
NFEL0060

### WIPER ARMS

NFEL0060S01

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 "$L_1$": 48 - 64 mm (1.89 - 2.52 in)**
   **Clearance "$L_2$": 40 - 56 mm (1.57 - 2.20 in)**

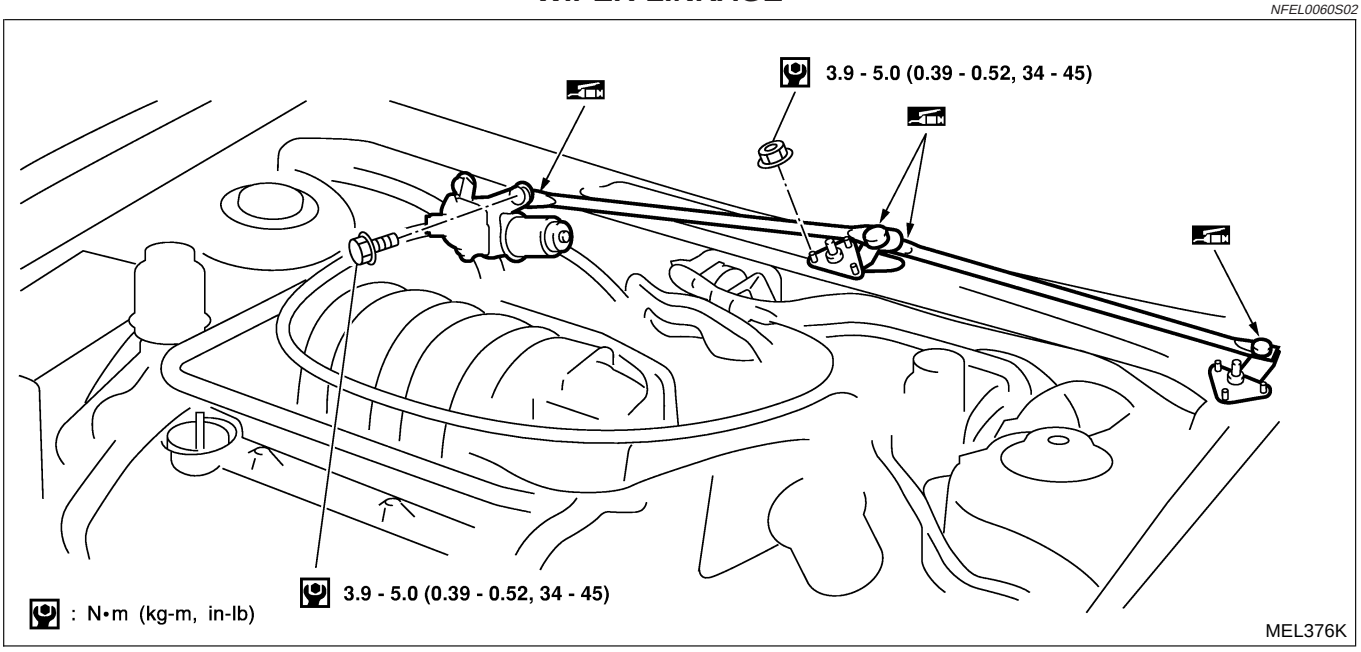
- Tighten wiper arm nuts to specified torque.
  **Front wiper: 21 - 26 N·m (2.1 - 2.7 kg-m, 16 - 19 ft-lb)**


SEL024J

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

### WIPER LINKAGE

NFEL0060S02



MEL376K

## Removal

NFEL0060S0201

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

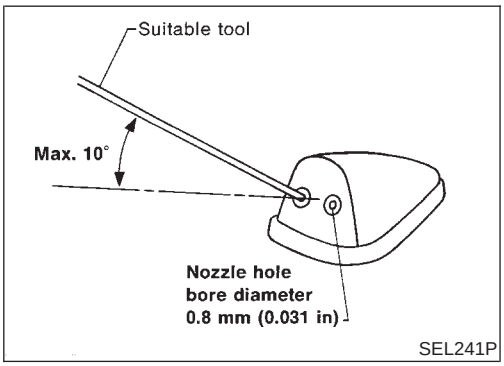
**Be careful not to break ball joint rubber boot.**

## Installation

NFEL0060S0202

- Grease ball joint portion before installation.

1. Installation is the reverse order of removal.



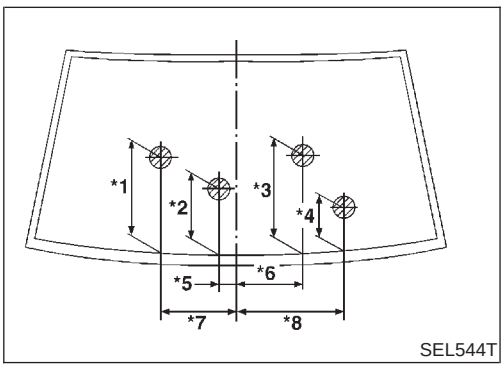
SEL241P

## Washer Nozzle Adjustment

NFEL0061

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

**Adjustable range: ±10°**



SEL544T

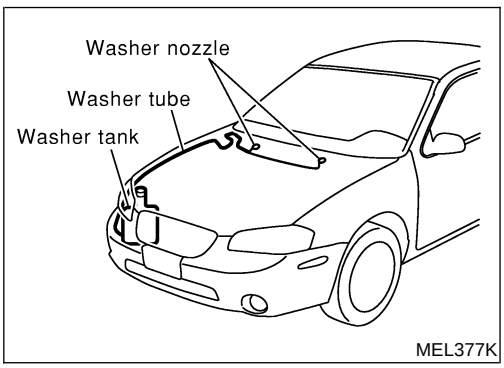
Unit: mm (in)

| | | | |
|---|---|---|---|
| *1 | 341 (13.43) | *5 | 154 (6.06) |
| *2 | 286 (11.26) | *6 | 203 (7.99) |
| *3 | 285 (11.22) | *7 | 382 (15.04) |
| *4 | 152 (5.98) | *8 | 385 (15.16) |

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

## Washer Tube Layout

NFEL0062

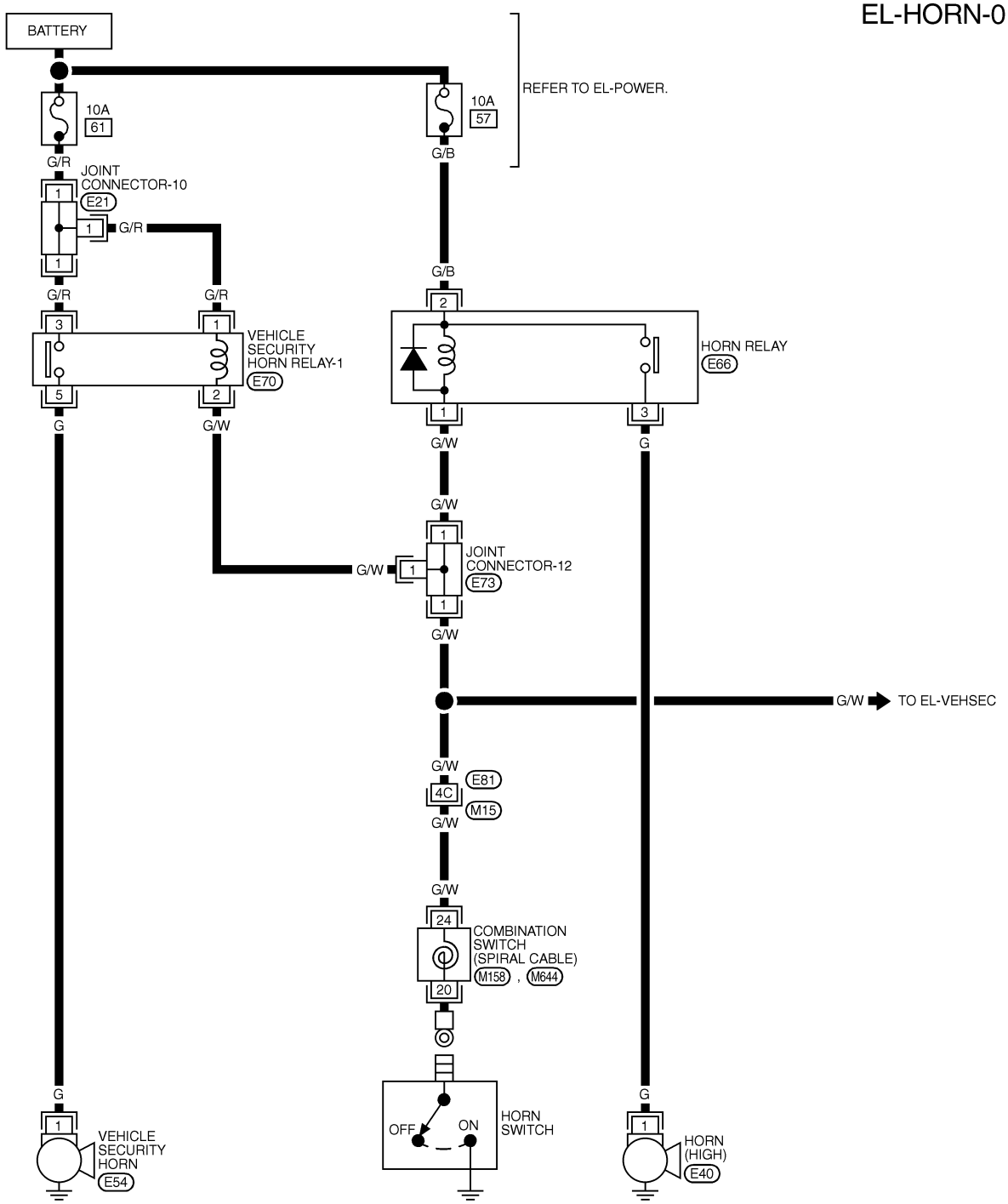


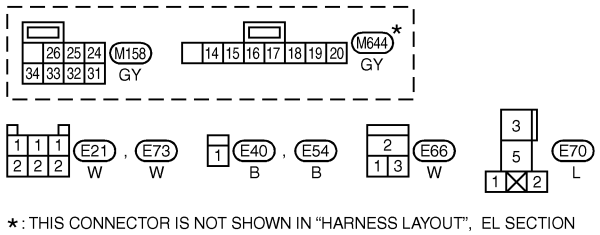
MEL377K

## Wiring Diagram — HORN —

NFEL0071

EL-HORN-01




★: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION

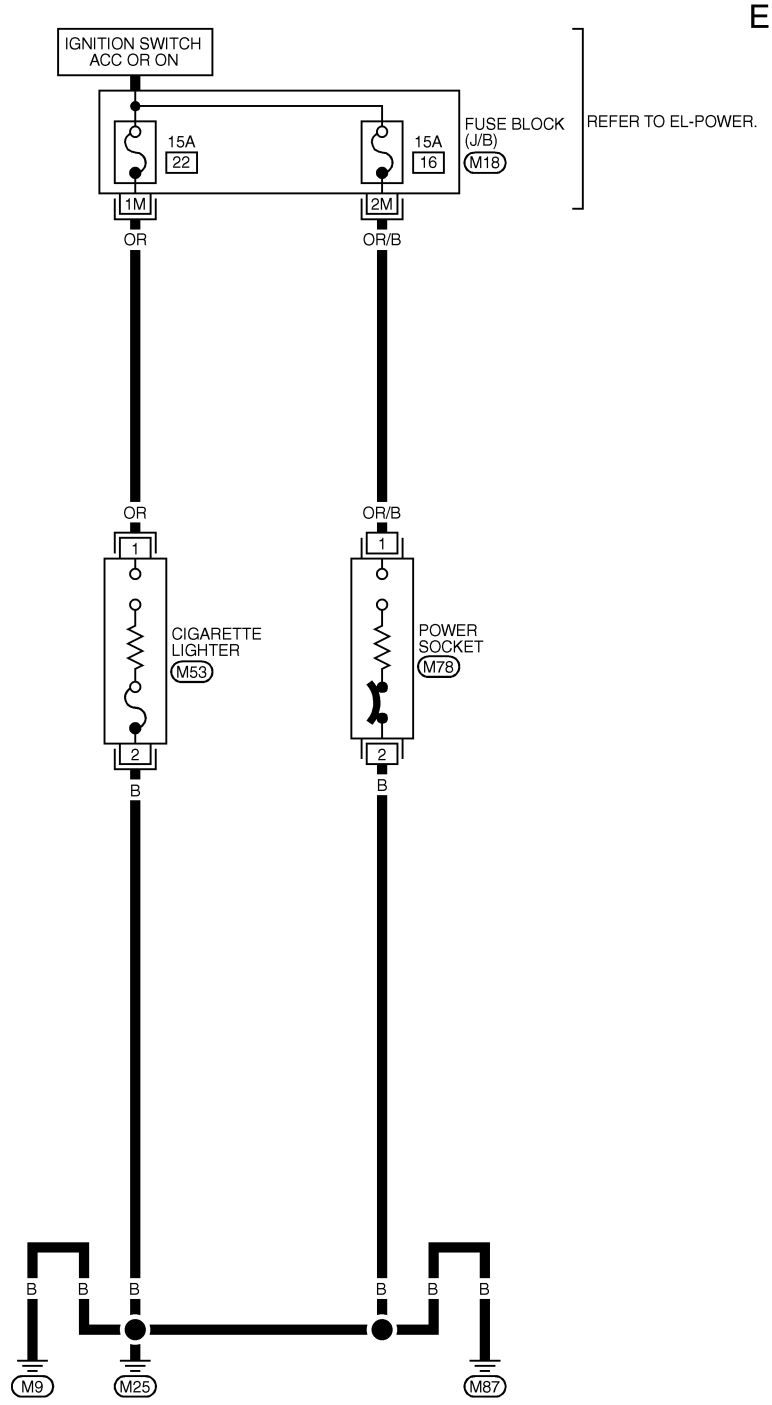
REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL729P

## Wiring Diagram — CIGAR —

NFEL0156

EL-CIGAR-01




2 1 M53 B

1 2 M78 B

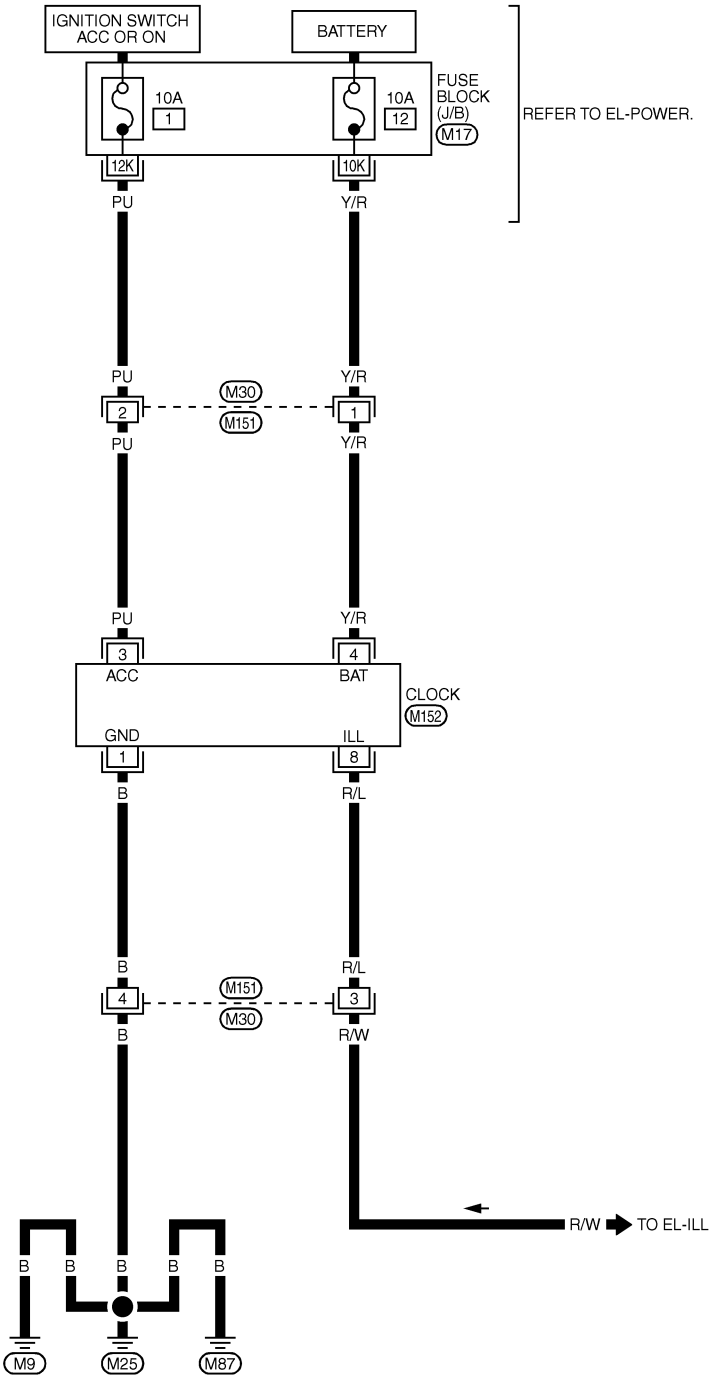
REFER TO THE FOLLOWING.
M18 -FUSE BLOCK-
JUNCTION BOX (J/B)

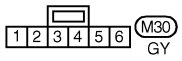
MEL204O

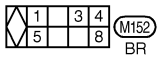
# Wiring Diagram — CLOCK —

NFEL0166

EL-CLOCK-01



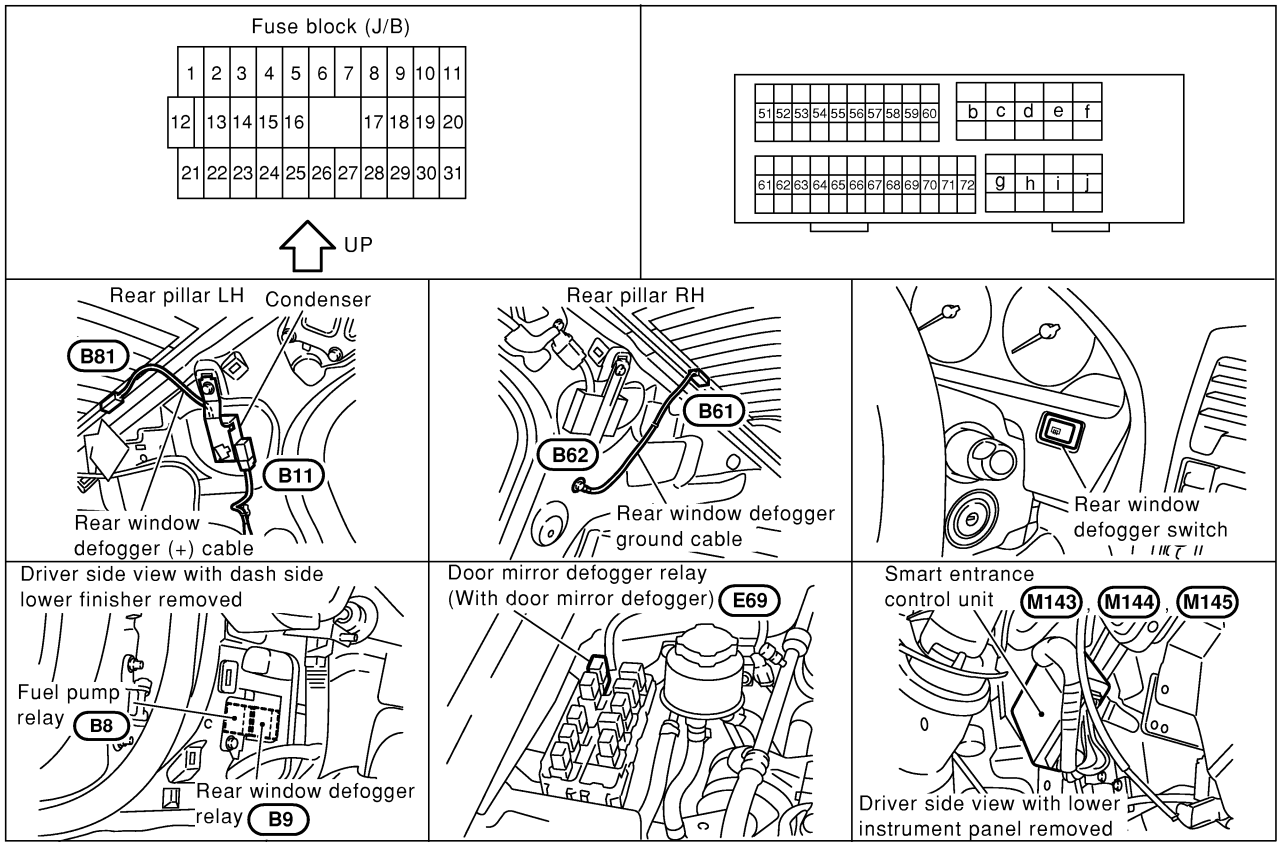




REFER TO THE FOLLOWING.
M17 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL277K

## Component Parts and Harness Connector Location

NFEL0072




SEL382Y

## System Description

NFEL0073

The rear window defogger system is controlled by the smart entrance control unit. The rear window defogger operates only for approximately 15 minutes.

Power is supplied at all times

- to rear window defogger relay terminal 3
- through 20A fuse [No. 7, located in the fuse block (J/B)] and
- to rear window defogger relay terminal 6
- through 20A fuse [No. 4, located in the fuse block (J/B)].
- to smart entrance control unit terminal 49
- through 10A fuse [No. 13, located in the fuse block (J/B)].

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

- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to the rear window defogger relay terminal 1 and
- to smart entrance control unit terminal 27.

Ground is supplied

- to terminals 2 and 5 of the rear window defogger switch
- through body grounds M9, M25 and M87 (with navigation system),
- to terminal 32 of the A/C auto amp. (with auto A/C) or
- to terminal 17 of the A/C control unit (with manual A/C)
- through body grounds M9, M25 and M87 (without navigation system).
- to smart entrance control unit terminals 43 and 64 and rear window defogger switch terminal 5

- through body grounds M9, M25 and M87.

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

- through terminal 1 of the rear window defogger switch (with navigation system),
- through terminal 31 of the A/C auto amp. or 9 of the A/C control unit (with manual A/C)
- to smart entrance control unit terminal 14.

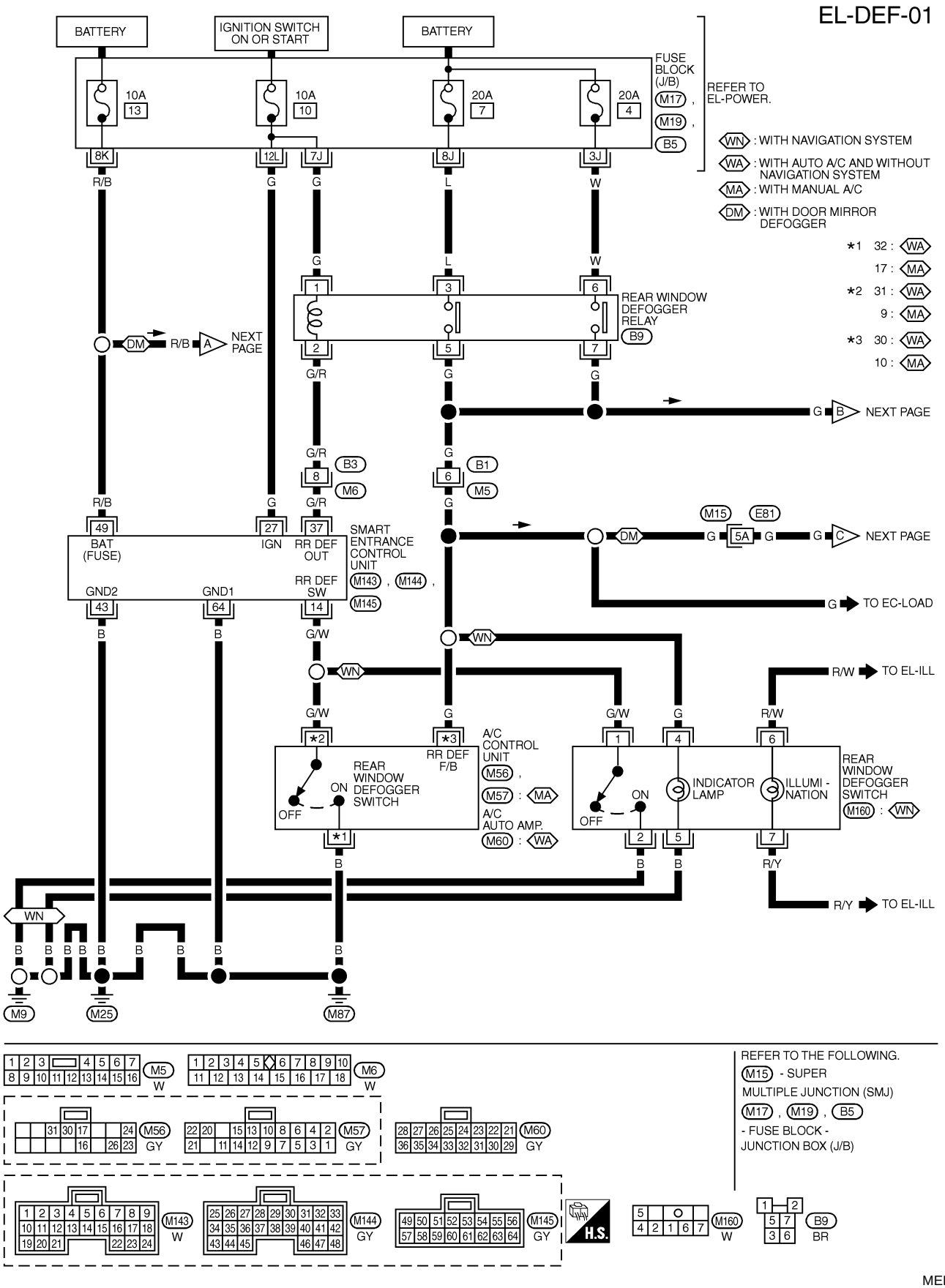
Terminal 37 of the smart entrance control unit then supplies ground to the rear window defogger relay terminal 2.
With power and ground supplied, the rear window defogger relay is energized.
Power is supplied

- through terminals 5 and 7 of the rear window defogger relay
- to the rear window defogger and
- to terminal 30 of the A/C auto amp. (with auto A/C) or
- to terminal 10 of the A/C control unit (with manual A/C)
- to rear window defogger switch terminal 4 (with navigation system).

The rear window defogger has an independent ground.
With power and ground supplied, the rear window defogger filaments heat and defog the rear window.
When the system is activated, the rear window defogger indicator illuminates in the rear window defogger switch.

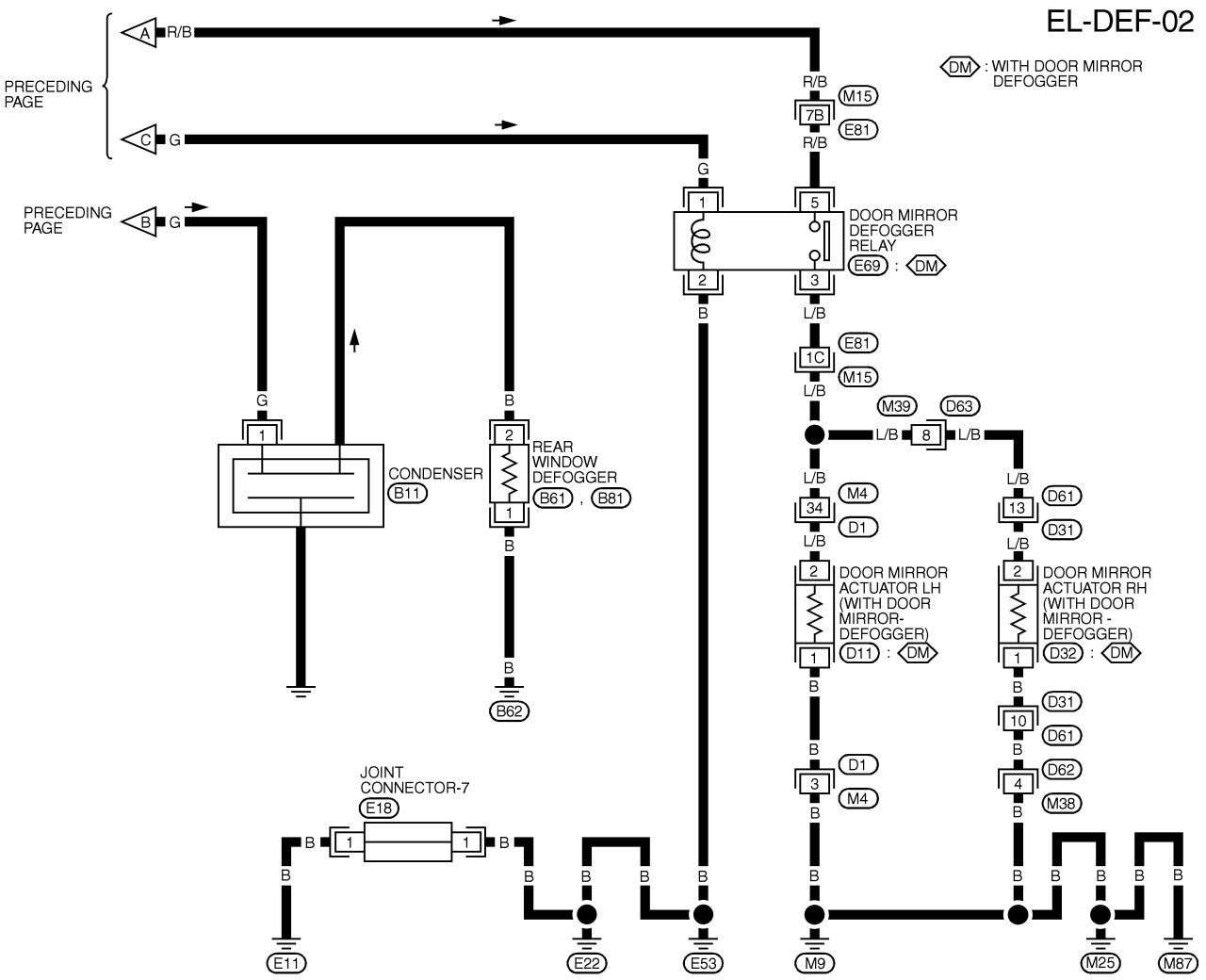
# Wiring Diagram — DEF —

=NFEL0074




MEL135O

*Wiring Diagram — DEF — (Cont'd)*



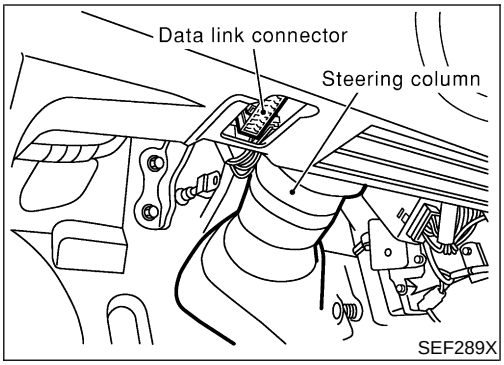

MEL136O

* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 14 | G/W | REAR WINDOW DEFOGGER SWITCH | OFF → ON (WHEN ONLY PUSHED) | 5V → 0V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | 12V |
| 37 | G/R | REAR WINDOW DEFOGGER RELAY | OFF → ON (IGNITION SWITCH IS IN "ON" POSITION) | 12V → 0V |
| 43 | B | GROUND | – | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 64 | B | GROUND | – | – |

SEL199YA



SEF289X

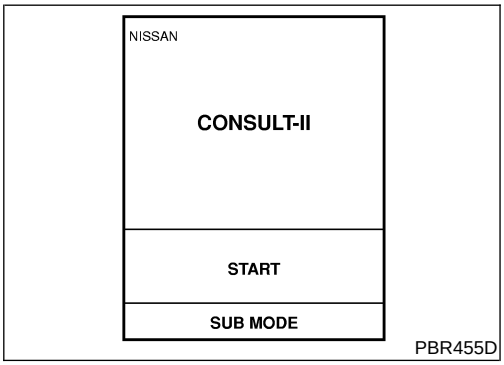
## CONSULT-II Inspection Procedure

NFEL0218

### "REAR DEFOGGER"

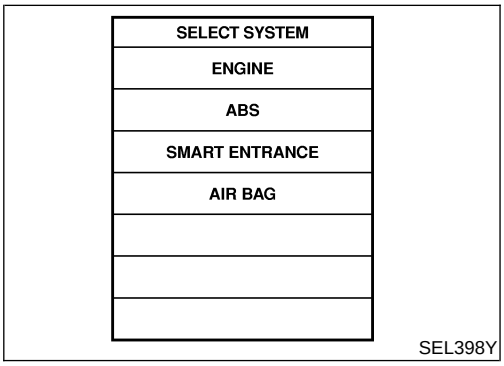
NFEL0218S01

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



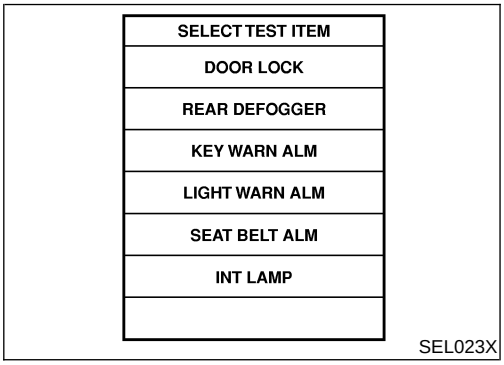
PBR455D

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



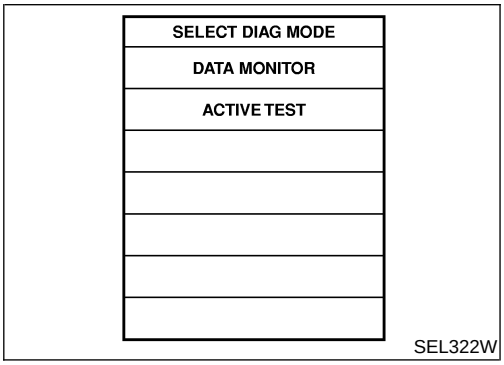
SEL398Y

5. Touch "SMART ENTRANCE".



SEL023X

6. Touch "REAR DEFOGGER".



SEL322W

7. Select diagnosis mode.
   "DATA MONITOR" and "ACTIVE TEST" are available.

# CONSULT-II Application Items

NFEL0219

## “REAR DEFOGGER”

NFEL0219S01

### Data Monitor

NFEL0219S0101

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| REAR DEF SW | Indicates [ON/OFF] condition of rear window defogger switch. |

### Active Test

NFEL0219S0102

| Test Item | Description |
|---|---|
| REAR DEFOGGER | This test is able to check rear window defogger operation. Rear window defogger activates when “ON” on CONSULT-II screen is touched. |

# Trouble Diagnoses

NFEL0075

## DIAGNOSTIC PROCEDURE

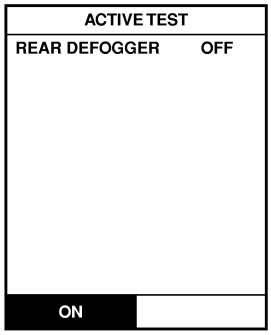
NFEL0075S01

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

| 1 | CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL |
|---|---|

**With CONSULT-II**

Select “ACTIVE TEST” in “REAR DEFOGGER” with CONSULT-II.

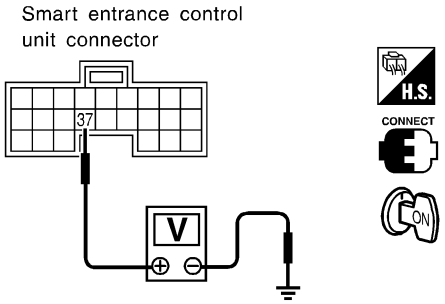



**Rear window defogger and rear window defogger switch indicator should operate when the “ON” button on the CONSULT-II screen is touched.**

SEL353W

**Without CONSULT-II**

1. Turn ignition switch to ON position.
2. Check voltage between smart entrance control unit harness connector M144 terminal 37 (G/R) and ground.




**Voltage [V]:**

**Rear window defogger switch is “OFF”.**

**Approx. 12**

**Rear window defogger switch is “ON”.**

**0**

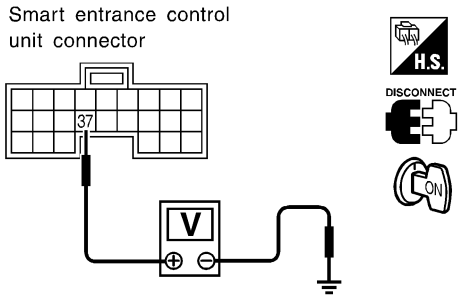
SEL997X

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Rear window defogger relay (Refer to EL-177.)<br>● Rear window defogger circuit<br>● Rear window defogger filament (Refer to EL-178.) |
| NG | ▶ | GO TO 2. |

| 2 | CHECK DEFOGGER RELAY COIL SIDE CIRCUIT |
|---|---|

1. Disconnect control unit connector.
2. Turn ignition switch to ON position.
3. Check voltage between smart entrance control unit harness connector M144 terminal 37 (G/R) and ground.




**Battery voltage should exist.**

SEL998X

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 10, located in the fuse block (J/B)]<br>● Rear window defogger relay<br>● Harness for open or short between 10A fuse [No. 10, located in the fuse block (J/B)] and rear window defogger relay<br>● Harness for open or short between rear window defogger relay and smart entrance control unit |

| 3 | CHECK REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Select "REAR DEF SW" in "DATA MONITOR" mode with CONSULT-II.

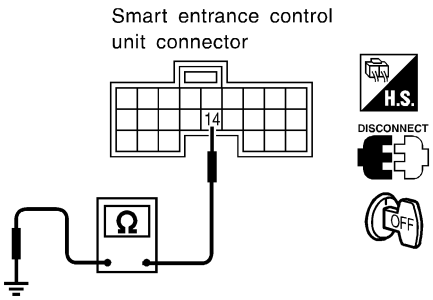
| DATA MONITOR | |
|---|---|
| MONITOR | |
| REAR DEF SW | ON |

When rear window defogger switch is pushed:
**REAR DEF SW should be ON.**

SEL352W

**Without CONSULT-II**

Check continuity between smart entrance control unit harness connector M143 terminal 14 (G/W) and ground.




**Continuity:**
**Rear window defogger switch is pushed.**
**Continuity should exist.**
**Rear window defogger switch is released.**
**Continuity should not exist.**

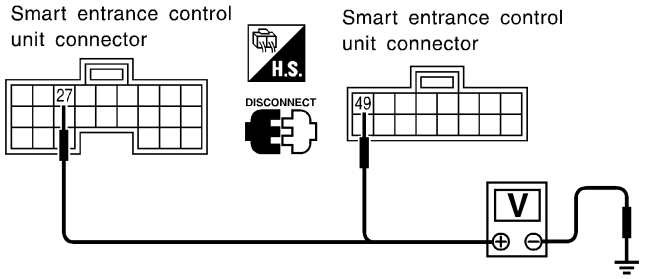
SEL999X

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | **Check the following.**<br>● Rear window defogger switch (Refer to EL-177.)<br>● Harness for open or short between smart entrance control unit and rear window defogger switch<br>● Rear window defogger switch ground circuit |

| 4 | CHECK POWER SUPPLY AND IGNITION INPUT SIGNAL |
|---|---|

Check voltage between smart entrance control unit harness connector M144 terminal 27 (G), M145 terminal 49 (R/B) and ground.




| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| (+) | (−) | OFF | ACC | ON |
| 49 | Ground | Battery voltage | Battery voltage | Battery voltage |
| 27 | Ground | 0V | 0V | Battery voltage |

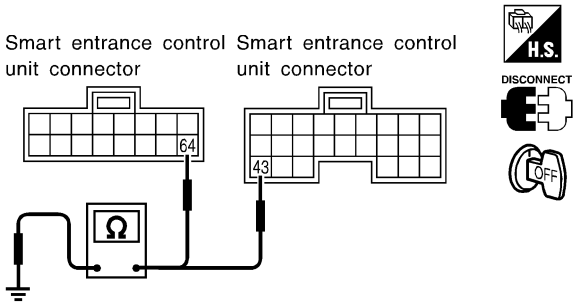
SEL001Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 5. |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 10 or No. 13, located in the fuse block (J/B)]<br>● Harness for open or short between smart entrance control unit and fuse |

| 5 | CHECK CONTROL UNIT GROUND CIRCUIT |
|---|---|

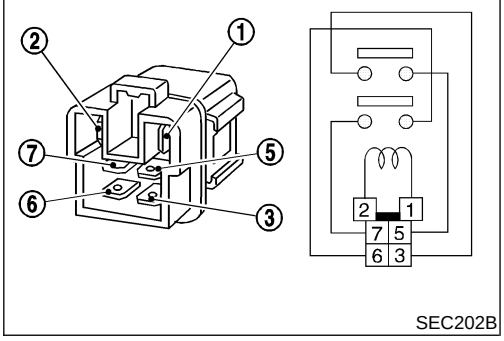
Check continuity between smart entrance control unit harness connector M144 terminal 43 (B), M145 terminal 64 (B) and ground.




**Continuity should exist.**

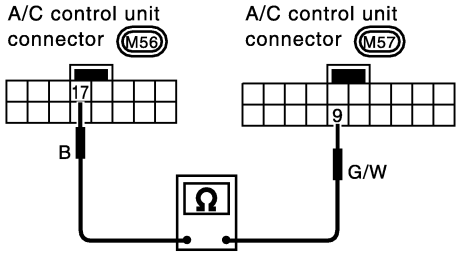
SEL002Y

| | | |
|---|---|---|
| Yes | ▶ | Replace smart entrance control unit. |
| No | ▶ | Repair harness or connectors. |

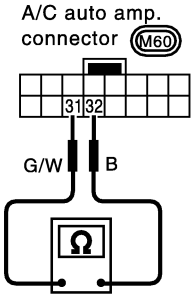


SEC202B

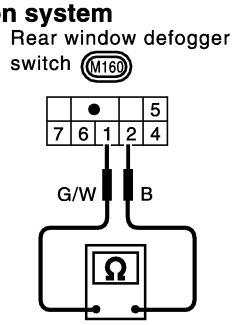
**With manual A/C**




**With auto A/C and without navigation system**




**With auto A/C and navigation system**



MEL474O

# Electrical Components Inspection

=NFEL0076

## REAR WINDOW DEFOGGER RELAY

NFEL0076S01

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

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

## REAR WINDOW DEFOGGER SWITCH

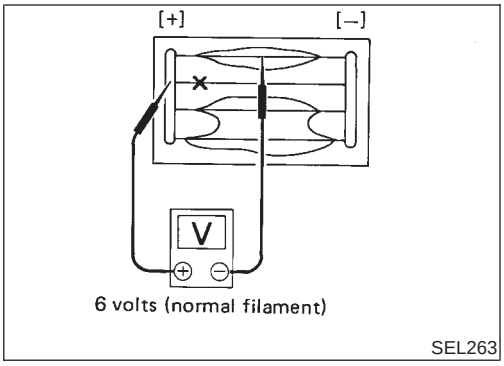
NFEL0076S02

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

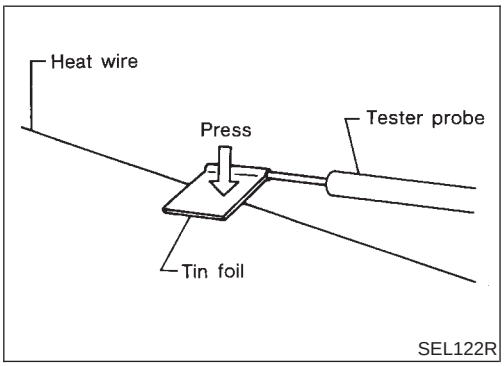
| Terminals | Condition | Continuity |
|---|---|---|
| 9 - 17 (with manual A/C)<br>31 - 32 (with auto A/C and without navigation system)<br>1 - 2 (with auto A/C and navigation system) | Rear window defogger switch is pushed. | Yes |
| | Rear window defogger switch is released. | No |

## Filament Check

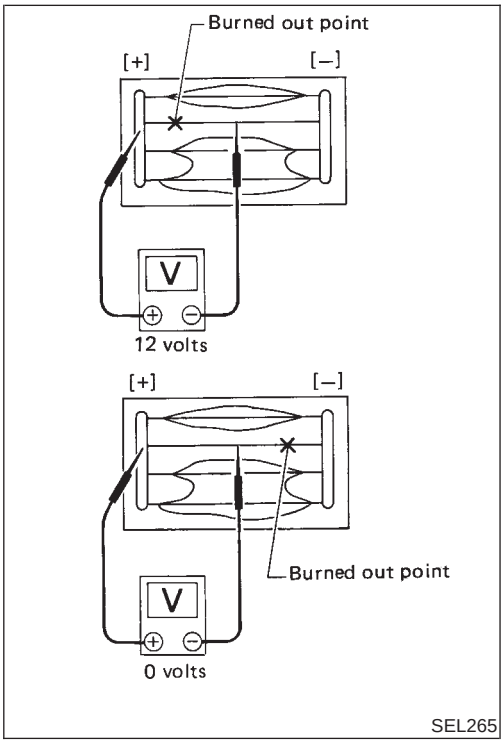
=NFEL0077



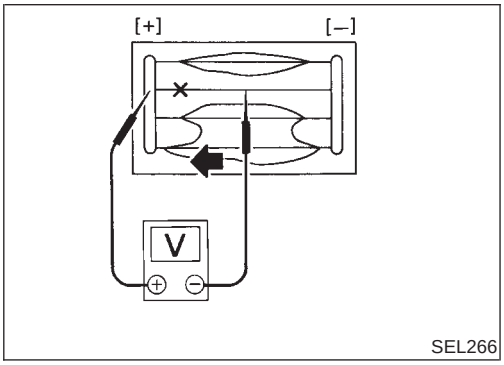

1. Attach probe circuit tester (in volt range) to middle portion of each filament.




- **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 to left and right along filament. Test needle will swing abruptly when probe passes the point.

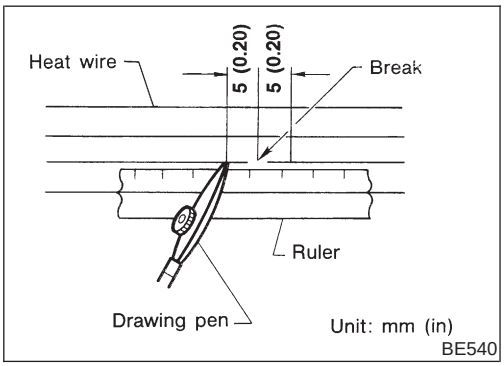
# Filament Repair

NFEL0078

## REPAIR EQUIPMENT

NFEL0078S01

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



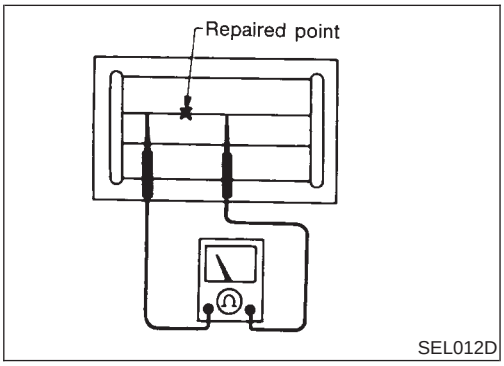

## REPAIRING PROCEDURE

NFEL0078S02

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.

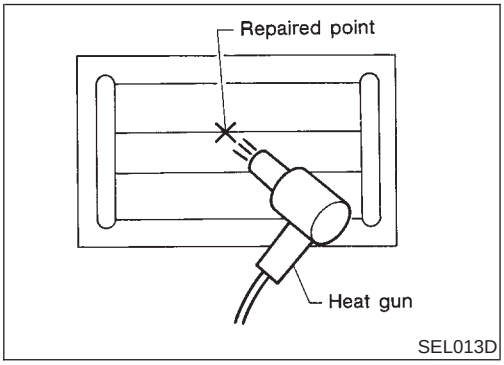
**Shake silver composition container before use.**

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

NFEL0079

## BASE SYSTEM

NFEL0079S01

Refer to Owner's Manual for audio system operating instructions.
Power is supplied at all times

- through 15A fuse (No. 56, located in the fuse and fusible link box)
- to audio unit terminal 6.

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

- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.
Audio signals are supplied

- through audio unit terminals 1, 2, 3, 4, 13, 14, 15 and 16
- to terminals 1 and 2 of front door speaker LH and RH
- to terminals 1 and 2 of rear door speaker LH and RH
- to terminals 1 and 2 of tweeter LH and RH (with 6 speakers).

## BOSE SYSTEM

NFEL0079S02

Refer to Owner's Manual for audio system operating instructions.
Power is supplied at all times

- through 15A fuse (No. 56, located in the fuse and fusible link box)
- to Bose speaker amp. terminal 27, and
- to CD auto changer terminal 3 (with CD auto changer)
- to audio unit terminal 6.
- through 15A fuse (No. 67, located in the fuse and fusible link box)
- to woofer terminal 48.

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

- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to CD auto changer terminal 1 (with CD auto changer) and
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.
Ground is supplied

- to Bose speaker amp. terminal 40, and
- to woofer terminal 47
- through body grounds B106 and B127.
- to CD auto changer terminal 7 (with CD auto changer)
- through body grounds B12 and B59.

When the audio unit POWER button is pressed, power is supplied to BOSE speaker amp. terminal 25 and woofer terminal 45 from audio unit terminal 12.
CD (audio) signals are supplied (with CD auto changer)

- through CD auto changer terminals 16, 6, 15 and 5
- to terminals 41, 42, 43 and 44 of the audio unit.

Audio signals are supplied

- through audio unit terminals 2, 1, 4, 3, 14, 13, 16 and 15
- to Bose speaker amp. terminals 33, 20, 35, 22, 34, 21, 36 and 23.
- through audio unit terminal 12
- to Bose speaker amp. terminal 25 and
- to woofer terminal 45.

Audio signals are amplified by the Bose speaker amp.
The amplified audio signals are supplied

- through Bose speaker amp. terminals 30, 31, 28, 29, 18, 17, 41 and 42
- to terminals 1 and 2 of the front door speaker LH and RH
- to terminals 1 and 2 of the tweeter LH and RH,
- to terminals 1 and 2 of the rear speaker LH and RH.

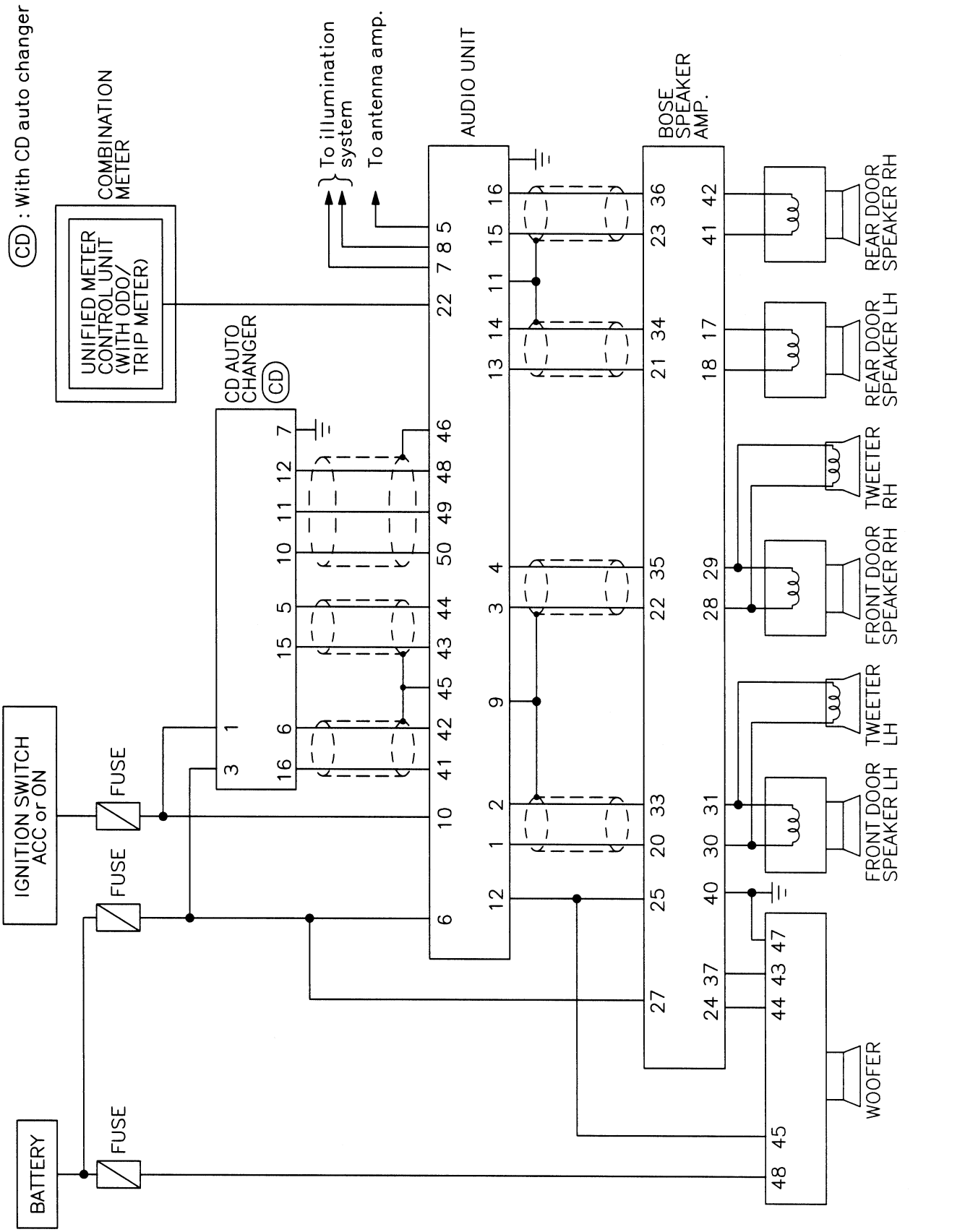
- through Bose speaker amp. terminals 24 and 37
- to terminal 44 and 43 of the woofer.

## Schematic

NFEL0167

NFEL0167S01

### BOSE SYSTEM



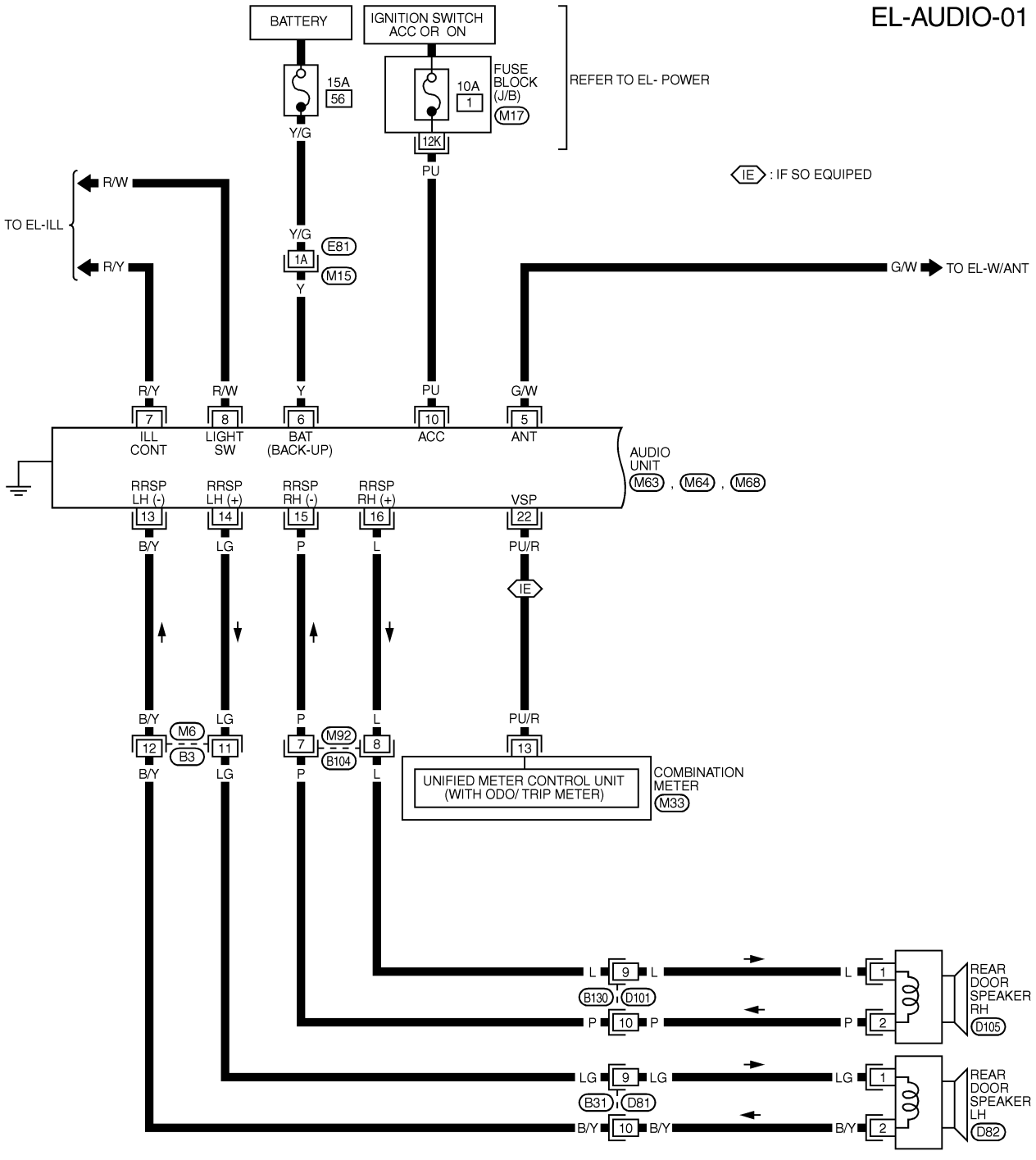

MEL138O

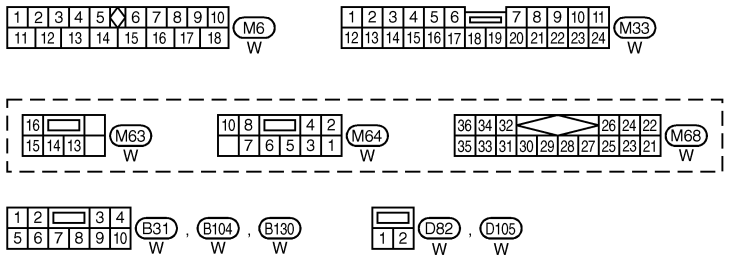
# Wiring Diagram — AUDIO —

NFEL0081

## BASE SYSTEM

NFEL0081S01

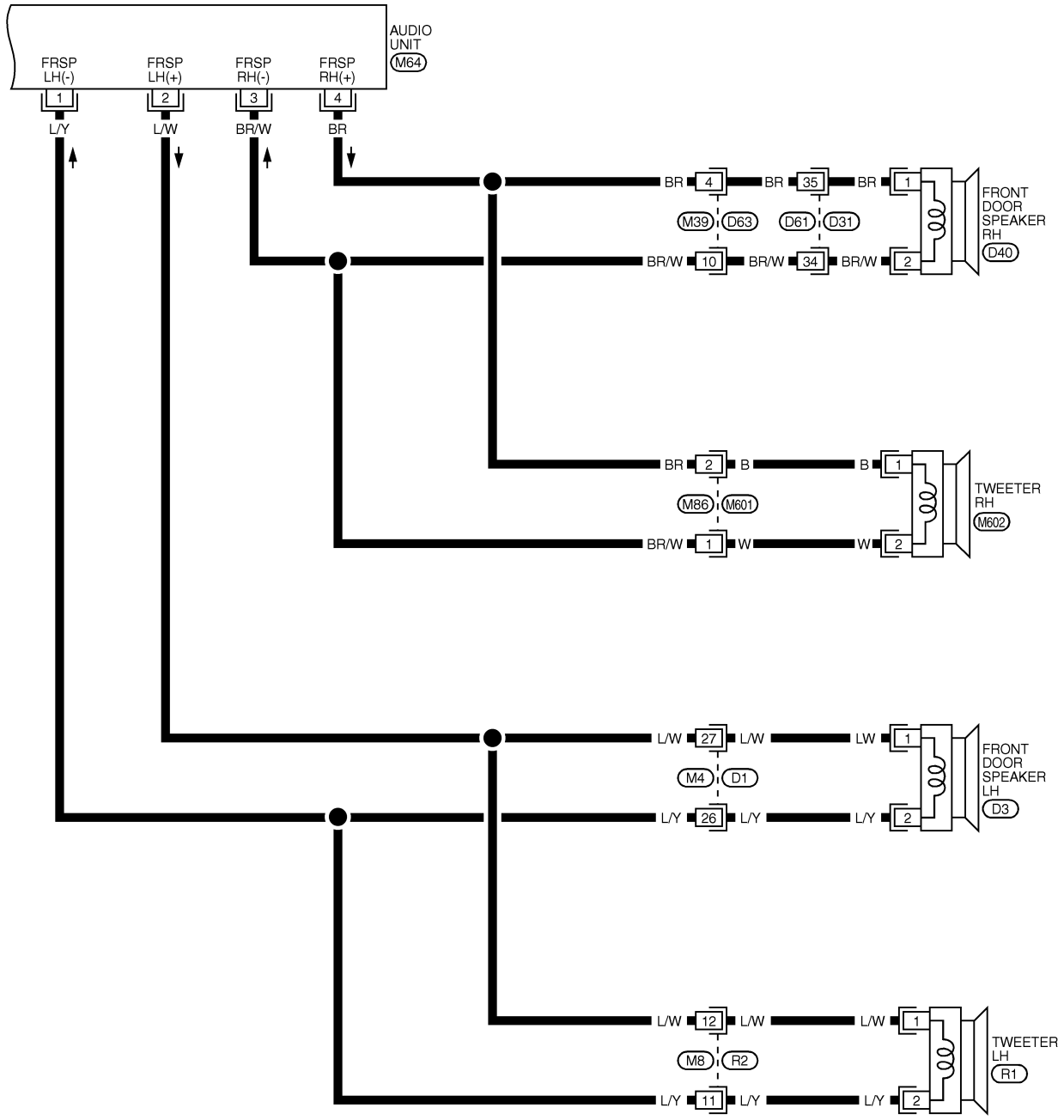



REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL829P

EL-AUDIO-02




M64 W

M601 BR , M602 BR , R1 BR , D3 W , D40 W

R2 W

D63 W

* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT",EL SECTION.

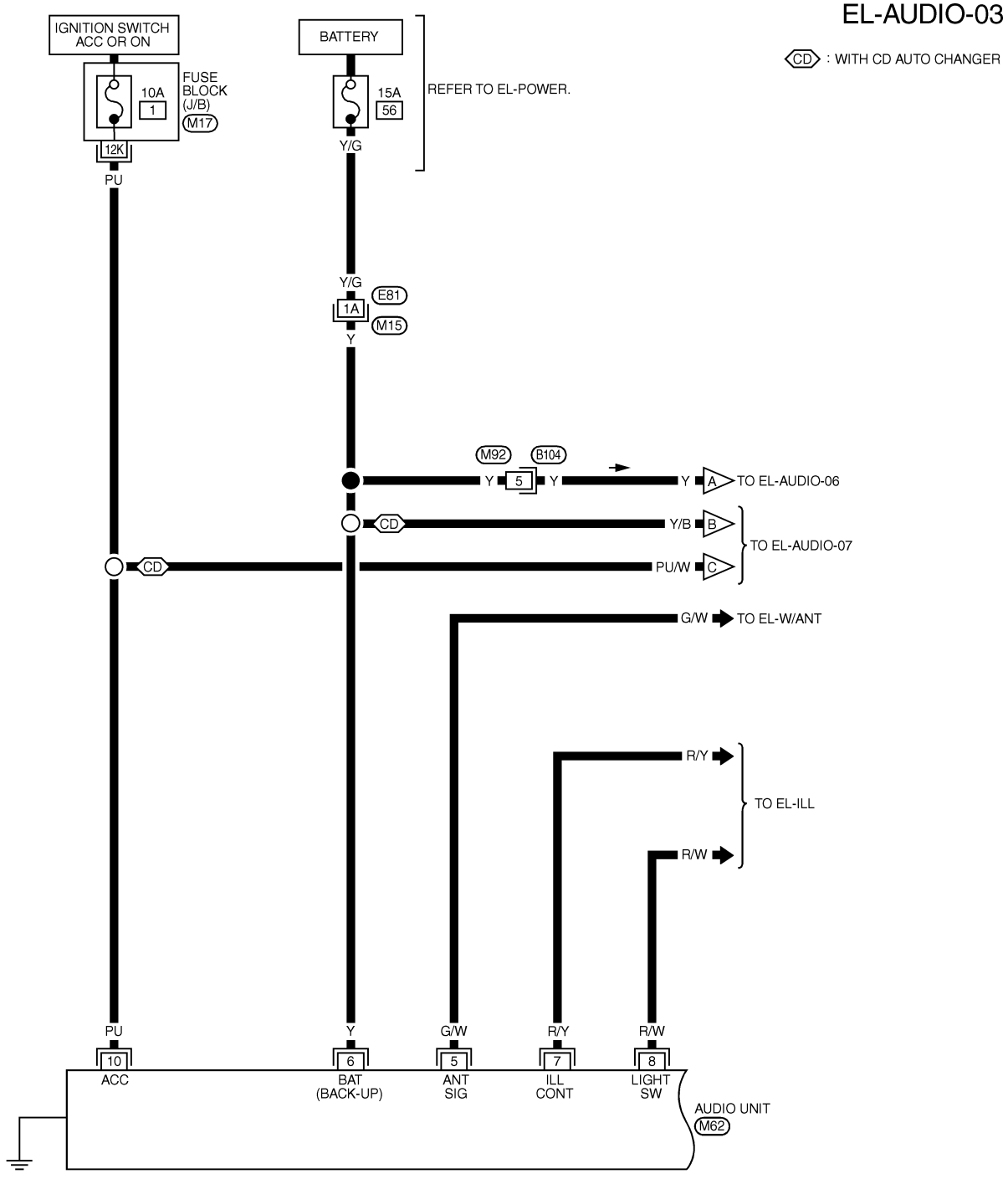
REFER TO THE FOLLOWING.
D1 , D31 - SUPER MULTIPLE JUNCTION (SMJ)

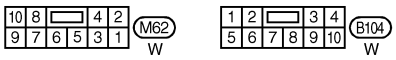
MEL140O

## BOSE SYSTEM

NFEL0081S02

EL-AUDIO-03



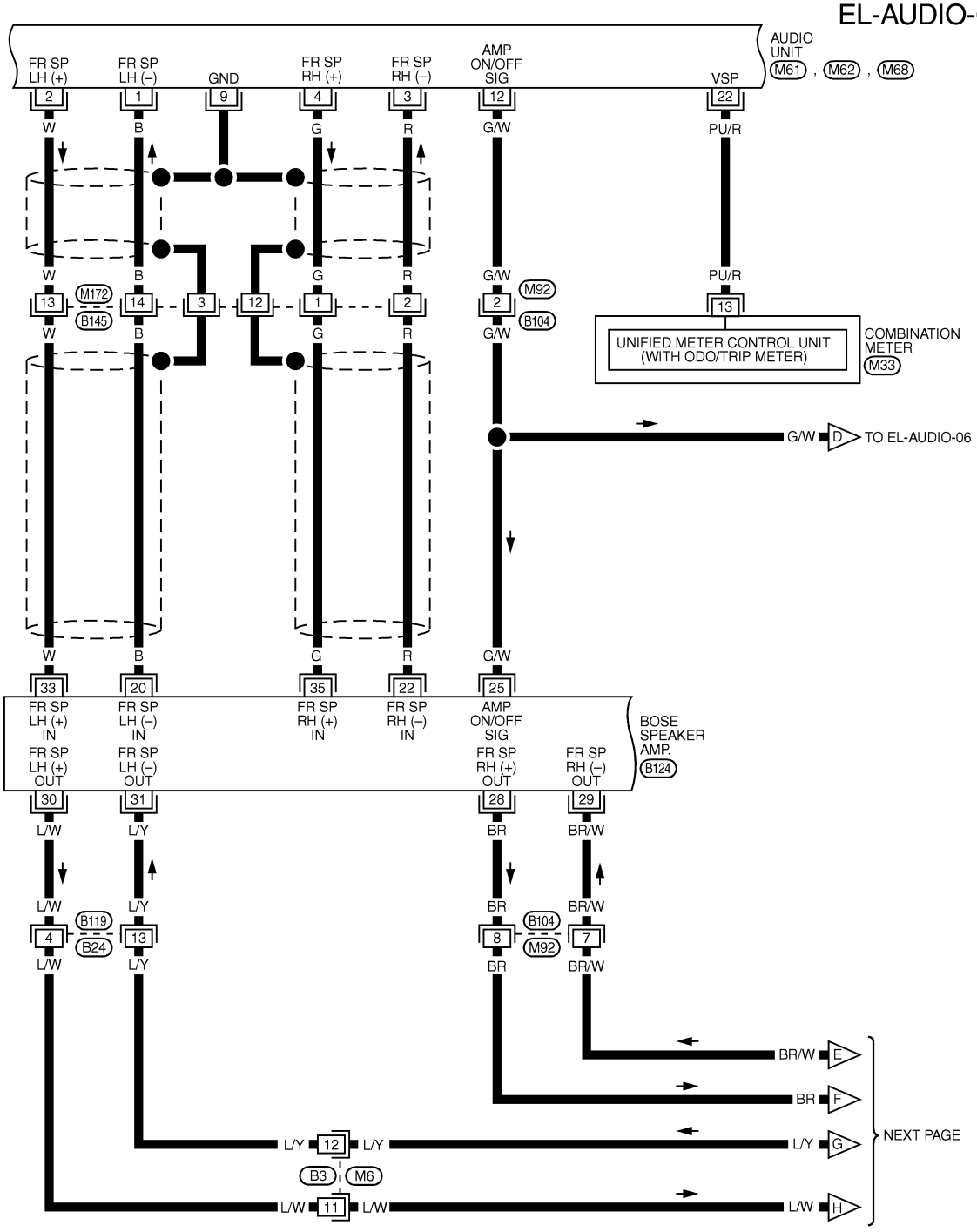


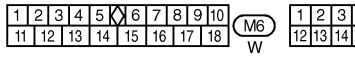


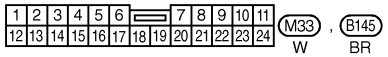
REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 -FUSE BLOCK-JUNCTION BOX (J/B)

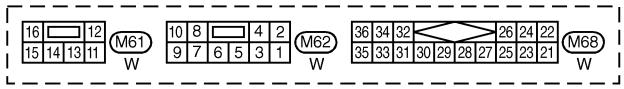
MEL137O

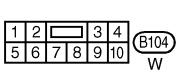
EL-AUDIO-04

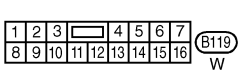


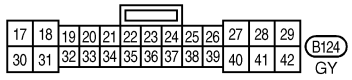



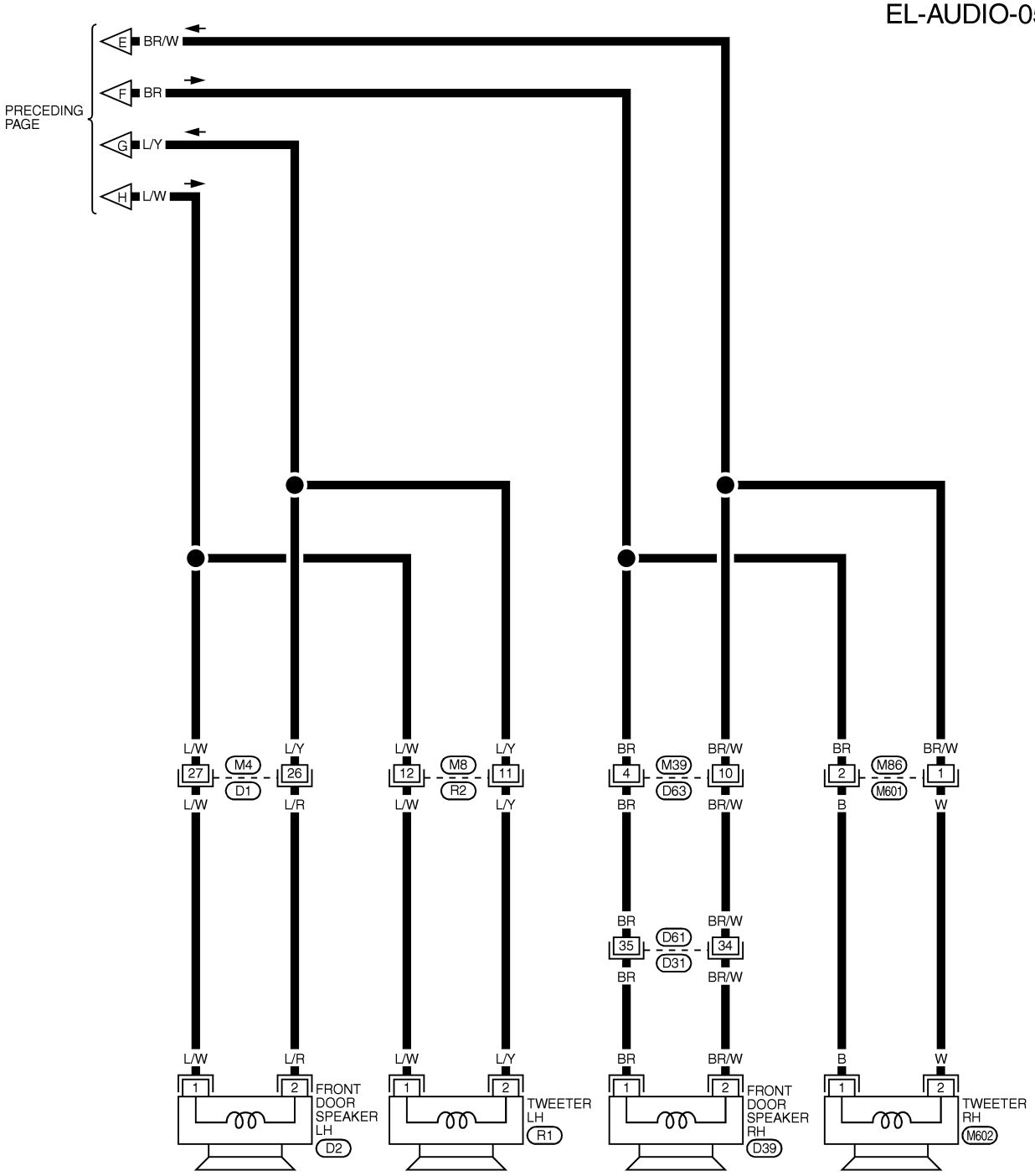




MEL830P

EL-AUDIO-05




M601 BR *, M602 BR *, R1 BR

R2 W

D2 BR, D39 BR

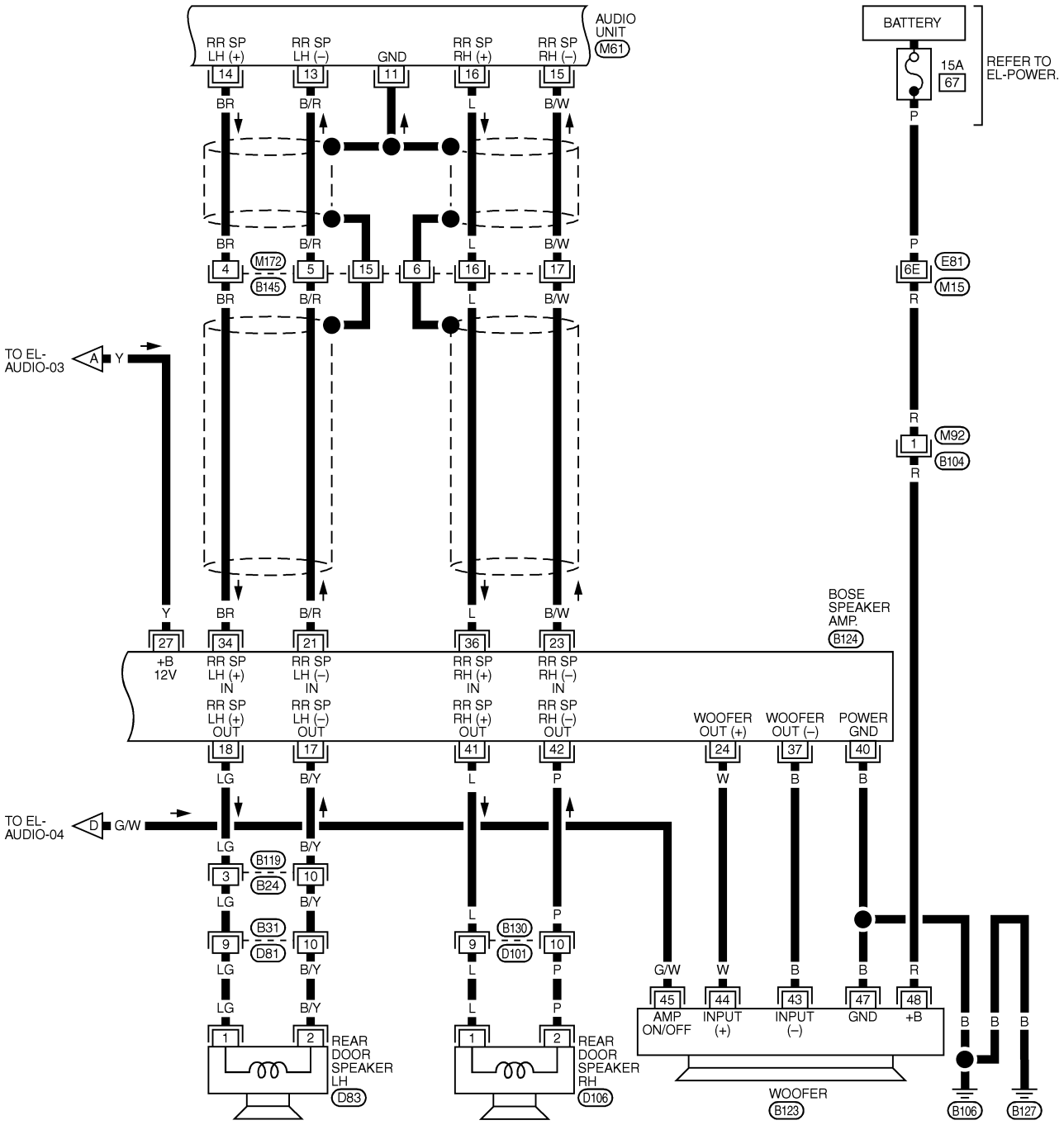
D63 W

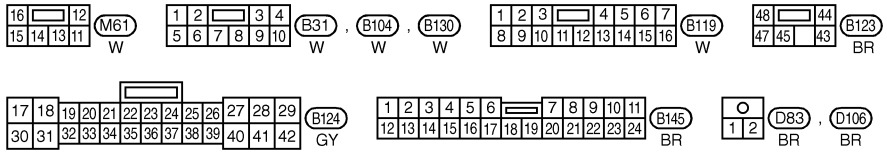
REFER TO THE FOLLOWING.
D1, D31 -SUPER MULTIPLE JUNCTION (SMJ)

* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

MEL141O

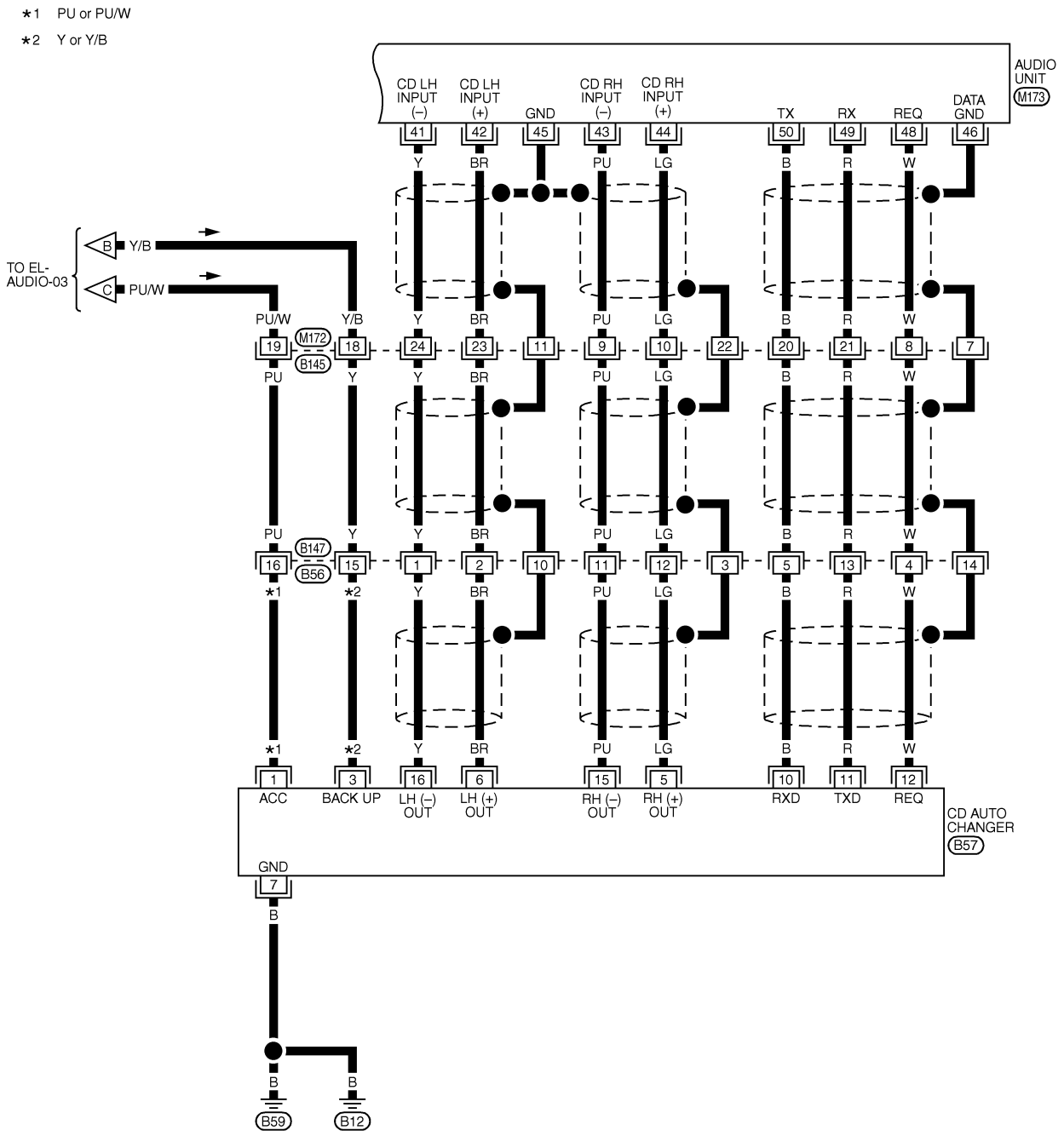
EL-AUDIO-06

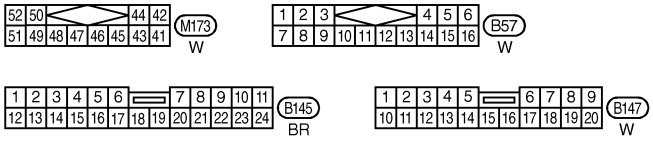



REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL143O


*1 PU or PU/W
*2 Y or Y/B
AUDIO UNIT M173
CD LH INPUT (–)
CD LH INPUT (+)
GND
CD RH INPUT (–)
CD RH INPUT (+)
TX
RX
REQ
DATA GND
TO EL-AUDIO-03
B Y/B
C PU/W
M172
B145
B147
B56
ACC
BACK UP
LH (–) OUT
LH (+) OUT
RH (–) OUT
RH (+) OUT
RXD
TXD
REQ
CD AUTO CHANGER B57
GND
B59
B12


M173
W
B57
W
B145
BR
B147
W

MEL831P

# Trouble Diagnoses

NFEL0220

## AUDIO UNIT

NFEL0220S01

| 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. 1, located in fuse block (J/B)]. Turn ignition switch 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 presets are lost when ignition switch is turned OFF. | 1. 15A fuse<br>2. Audio unit | 1. Check 15A fuse (No. 56, located in fuse and fusible link box) and verify that battery positive voltage is present at terminal 6 of audio unit.<br>2. Remove audio unit for repair. |
| AM/FM stations are weak or noisy. | 1. Window antenna<br>2. Audio unit ground<br>3. Audio unit | 1. Check window antenna.<br>2. Check audio unit ground condition.<br>3. Remove audio unit for repair. |
| Audio unit 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. Ignition coil or secondary wiring<br>5. 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 ignition coil and secondary wiring.<br>5. Remove audio unit for repair. |
| Audio unit 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. |

## BASE SYSTEM

NFEL0220S02

| Symptom | Possible causes | Repair order |
|---|---|---|
| Individual speaker is noisy or inoperative. | 1. Speaker<br>2. Audio unit output<br>3. Speaker circuit<br>4. Audio unit | 1. Check speaker.<br>2. Check audio unit output voltages.<br>3. Check wires for open or short between audio unit and speaker.<br>4. Remove audio unit for repair. |

## BOSE SYSTEM

NFEL0220S03

| Symptom | Possible causes | Repair order |
|---|---|---|
| Audio unit controls are operational, but no sound is heard from any speaker. | 1. 15A fuse<br>2. Amp. ON/OFF signal circuit<br>3. Speaker amp. ground | 1. Check 15A fuse (No. 56, located in fuse and fusible link box). Verify battery positive voltage is present at terminal 27 of speaker amp.<br>2. Check harness continuity between audio unit terminal 12 and speaker amp. terminal 25.<br>3. Check harness continuity between speaker amp. terminal 40 and ground. |
| Individual rear speaker is noisy or inoperative. | 1. Each speaker<br>2. Output circuit to each speaker | 1. Check speaker.<br>2. Check the output circuits to each speaker<br>● between audio unit and speaker amp.<br>● between speaker amp. and each speaker. |
| Woofer does not operate. | 1. Power supply to woofer<br>2. Amp. ON/OFF signal circuit<br>3. Speaker amp. ground<br>4. Output circuit to woofer | 1. Check 15A fuse [No. 67, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 48 of woofer.<br>2. Check harness continuity between audio unit terminal 12 and woofer terminal 45.<br>3. Check harness continuity between woofer terminal 47 and ground.<br>4. Check the output circuits to woofer from speaker amp. |

# Inspection

NFEL0221

## AUDIO UNIT AND AMP.

NFEL0221S01

All voltage inspections are made with:

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

## ANTENNA

NFEL0221S02

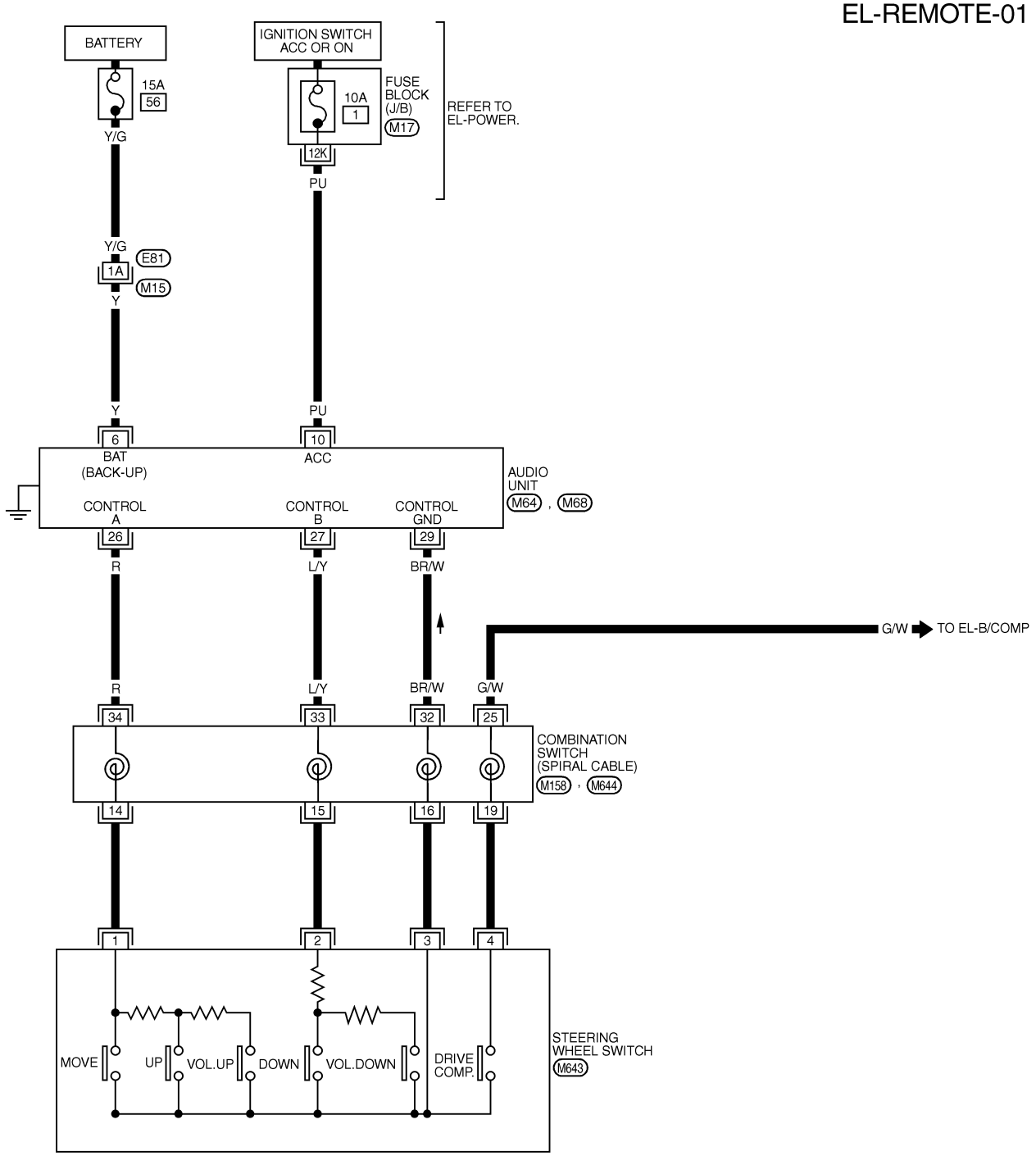
Using a jumper wire, clip an auxiliary ground between antenna and body.

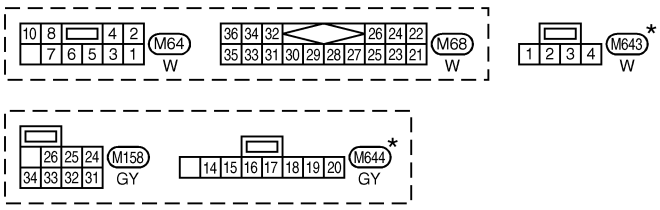
- If reception improves, check antenna ground (at body surface).
- If reception does not improve, check main feeder cable for short circuit or open circuit.

# Wiring Diagram — REMOTE —

NFEL0260

EL-REMOTE-01




*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

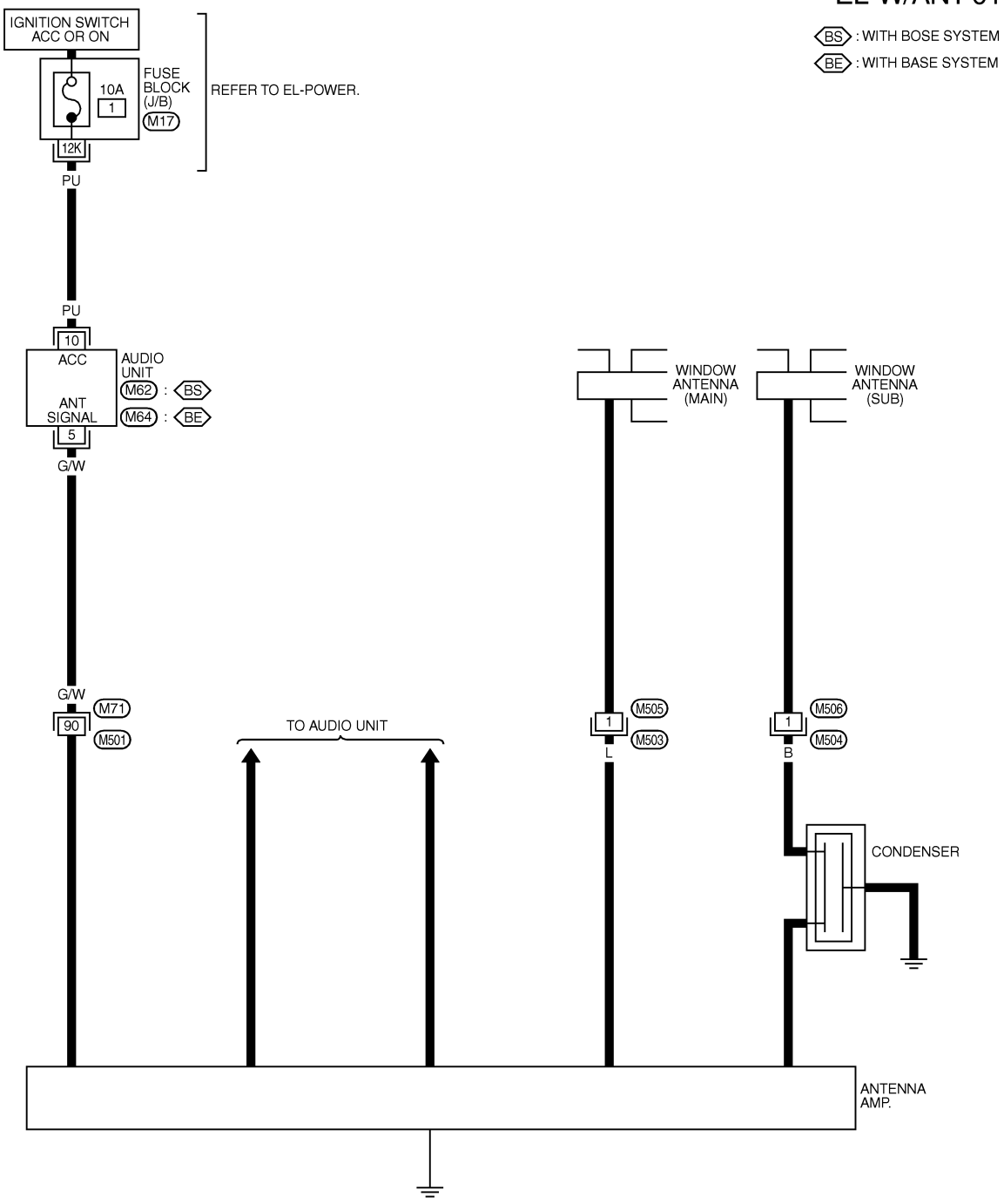
REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 -FUSE BLOCK-JUNCTION BOX (J/B)

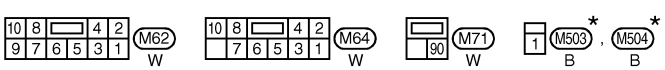
MEL730P

# Wiring Diagram — W/ANT —

NFEL0085

EL-W/ANT-01



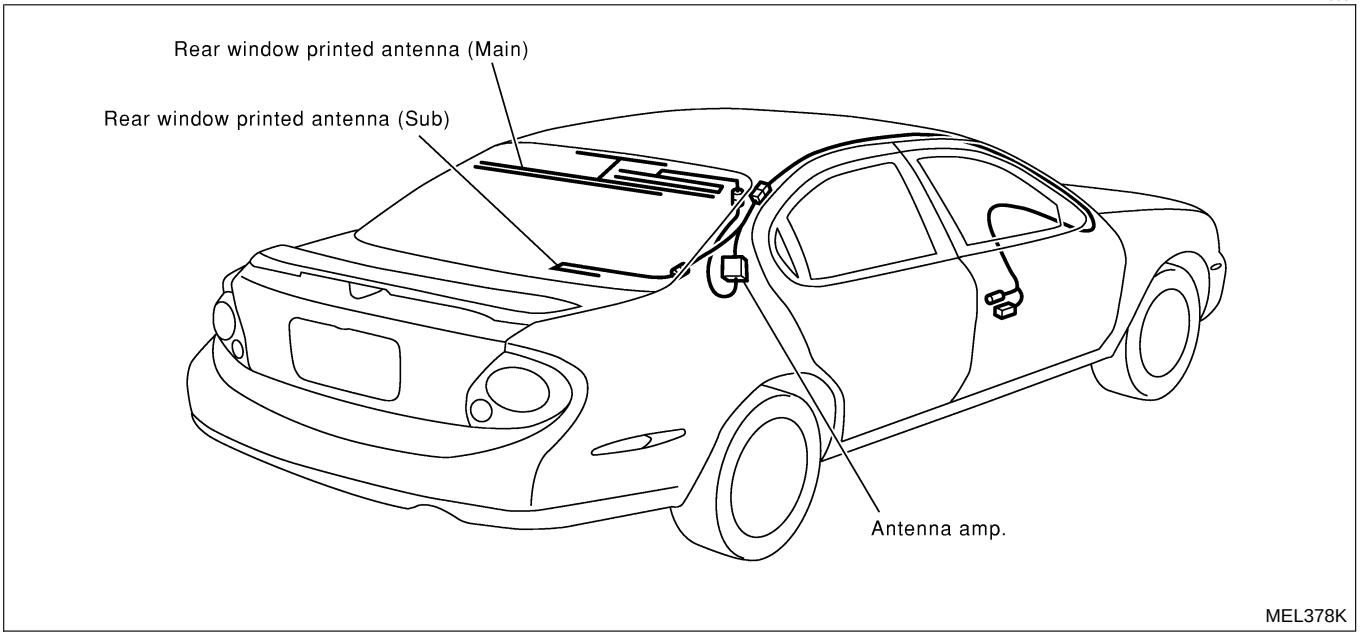

*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL-SECTION.

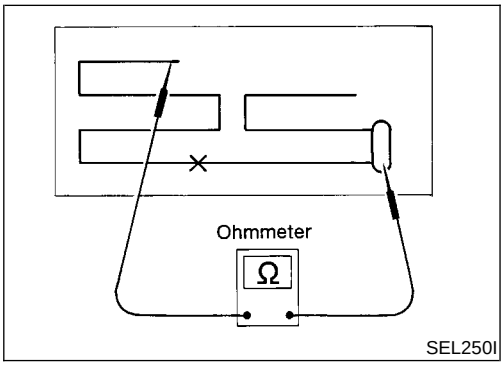
REFER TO THE FOLLOWING.
M17 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL145O

## Location of Antenna

NFEL0087



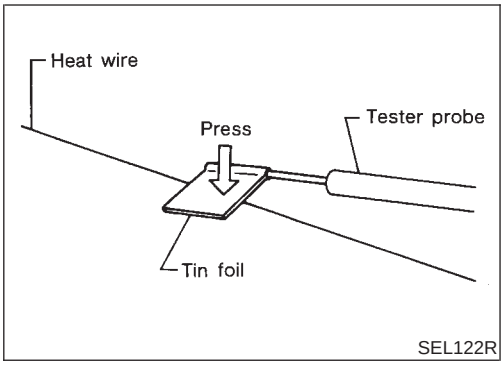

## Window Antenna Repair

NFEL0250

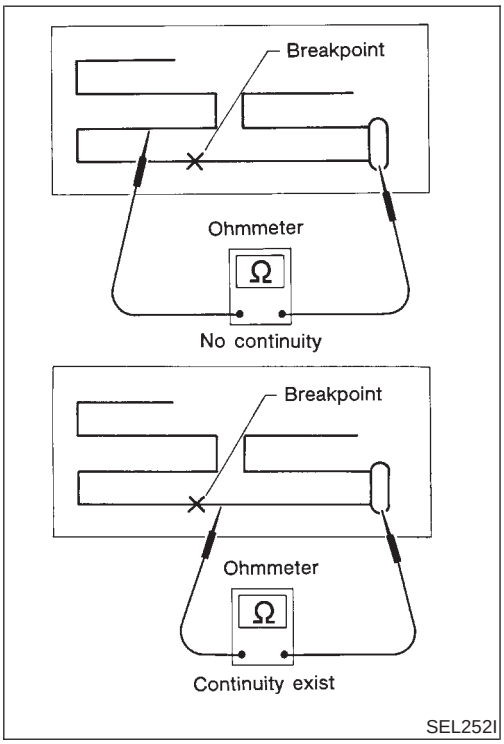
### ELEMENT CHECK

NFEL0250S01

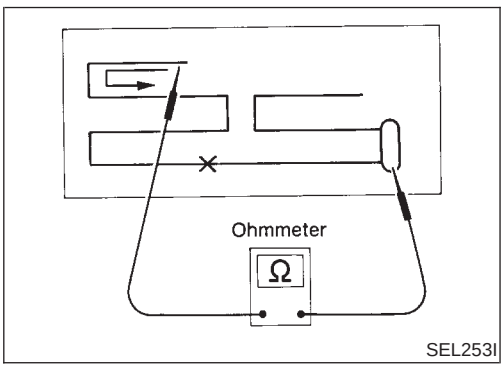
1. Attach probe circuit tester (in ohm range) to antenna terminal on each side.
   If an element is OK, continuity should exist.
   If an element is broken, no continuity should exist. Go to step 2.




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




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




## ELEMENT REPAIR

NFEL0250S02

Refer to "Filament Repair", "REAR WINDOW DEFOGGER" (EL-178).

# System Description

NFEL0222

## OUTLINE

NFEL0222S01

Electric sunroof system consists of

- Sunroof switch
- Sunroof motor
- Smart entrance control unit

Smart entrance control unit controls retained power operation.

## OPERATION

NFEL0222S03

The sunroof can be opened or closed and tilted up or down with the sunroof switch.

## RETAINED POWER OPERATION

NFEL0222S02

When the ignition switch is turned to OFF position from ON or START position, power is supplied for 45 seconds.

- to sunroof motor terminal 6
- from smart entrance control unit terminal 46.

When power is supplied, the electrical sunroof can be operated.
The retained power operation is canceled when the driver or passenger side door is opened.
RAP signal period can be changed by CONSULT-II (EL-199).

## INTERRUPTION DETECTION FUNCTION

NFEL0222S04

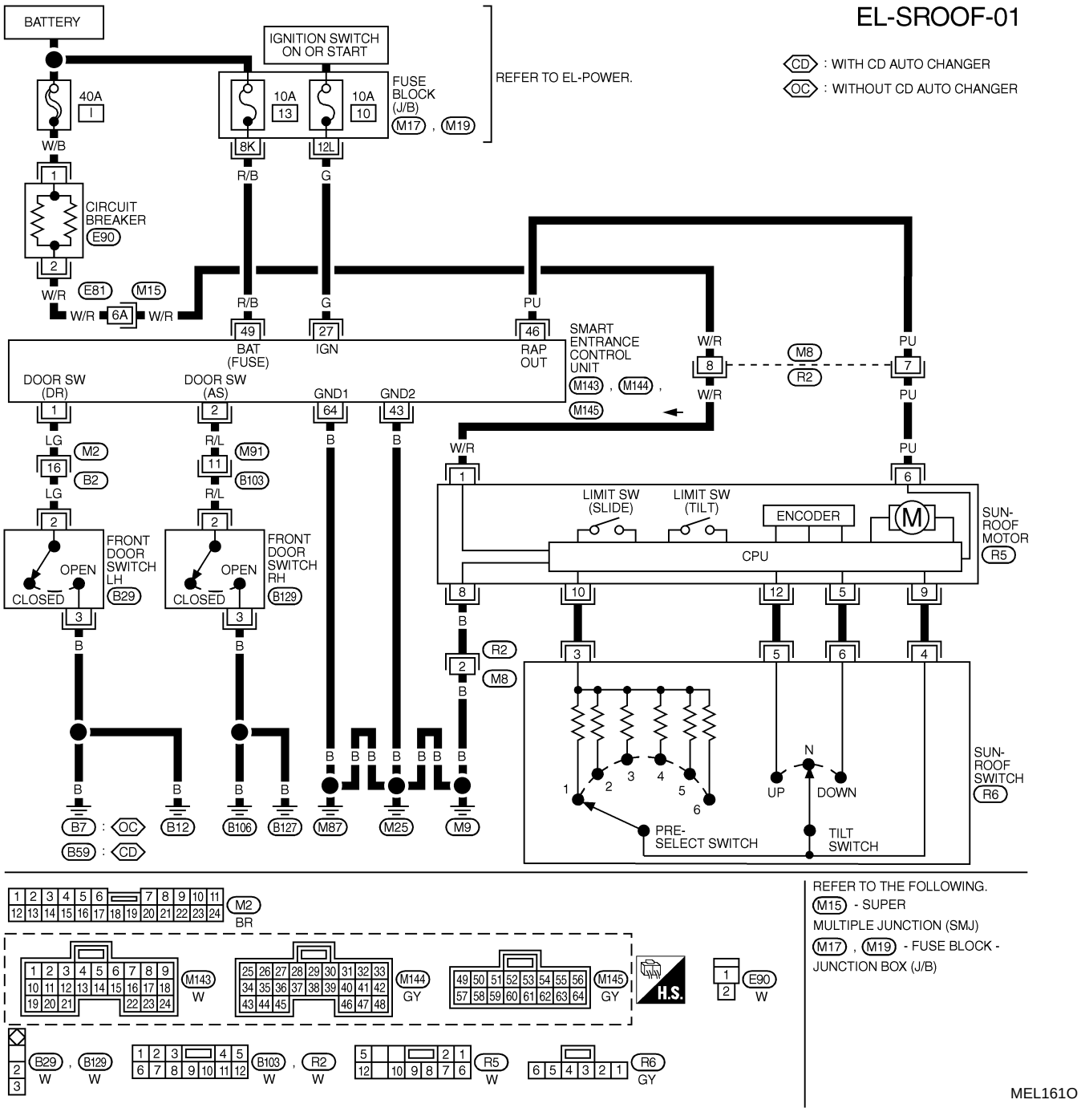
The CPU of sunroof motor monitors the sunroof motor operation and the sunroof position (full closed or other) for sunroof by the signals from encoder and limit switch in sunroof motor.
When sunroof motor detects interruption during the following close operation,

- 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 —

NFEL0089

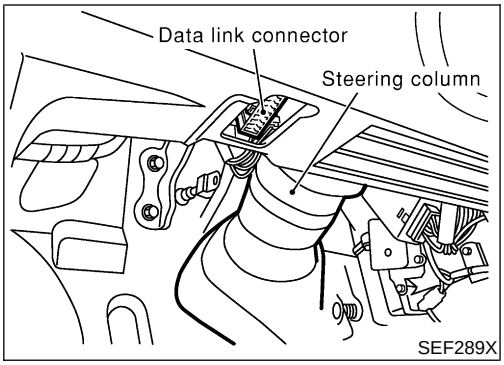



MEL161O

**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 5V → 0V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN “ON” POSITION | 12V |
| 43 | B | GROUND | – | – |
| 46 | PU | SUNROOF MOTOR | RETAIND POWER OPERATION IS OPERATED (ON → OFF) | 12V →0V |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 64 | B | GROUND | – | – |

SEL986XB



SEF289X

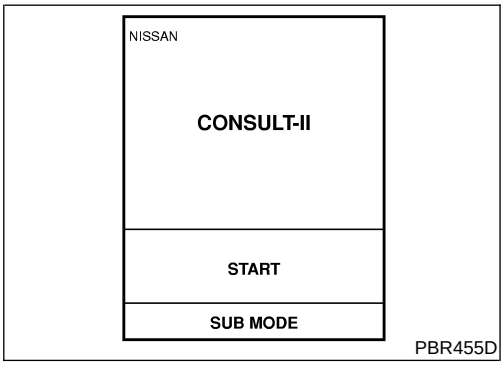
## CONSULT-II Inspection Procedure

=NFEL0223

**“RETAINED PWR”**

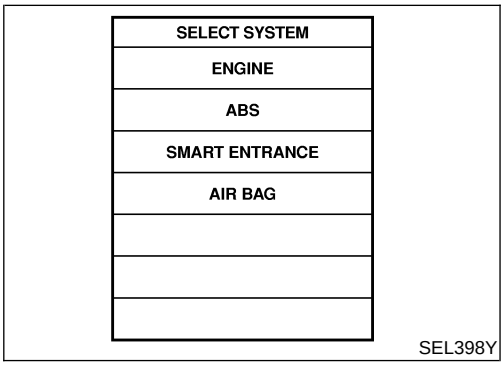
NFEL0223S01

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



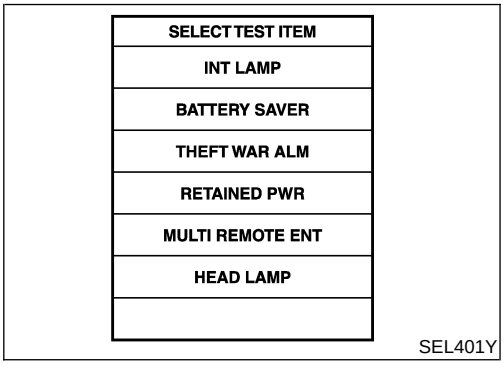
PBR455D

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



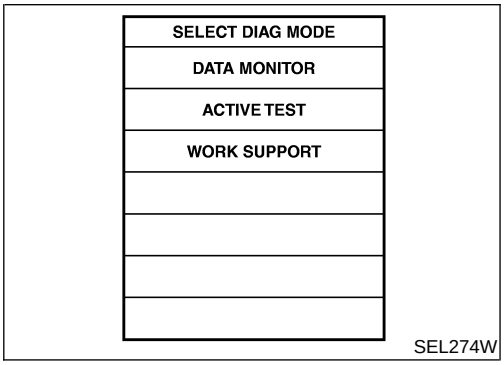
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL401Y

6. Touch “RETAINED PWR”.



SEL274W

7. Select diagnosis mode.
   “DATA MONITOR”, “ACTIVE TEST” and “WORK SUPPORT” are available.

# CONSULT-II Application Items

NFEL0224

## "RETAINED PWR" Data Monitor

NFEL0224S01

NFEL0224S0101

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |
| DOOR SW-AS | Indicates [ON/OFF] condition of front door switch RH. |

## Active Test

NFEL0224S0102

| Test Item | Description |
|---|---|
| RETAINED PWR | This test is able to supply RAP signal (power) from smart entrance control unit to power window system, power sunroof system. Those systems can be operated when turning on "RETAINED PWR" on CONSULT-II screen even if the ignition switch is tuned OFF.<br>**NOTE:**<br>**During this test, CONSULT-II can be operated with ignition switch "OFF" position. "RETAINED PWR" should be turned "ON" or "OFF" on CONSULT-II screen when ignition switch is ON. Then turn ignition switch OFF for checking retained power operation. CONSULT-II might be stuck if "RETAINED PWR" is turned "ON" or "OFF" on CONSULT-II screen when ignition switch is OFF.** |

## Work Support

NFEL0224S0103

| Work Item | Description |
|---|---|
| RETAINED PWR SET | RAP signal's power supply period can be changed by mode setting. Selects RAP signal's power supply period between two steps.<br>● MODE 1 (45 sec.)/MODE 2 (OFF)/MODE 3 (2 min.) |

# Trouble Diagnoses

NFEL0225

| Symptom | Possible cause | Repair order |
|---|---|---|
| Power sunroof cannot be operated using any switch. | 1. 10A fuse, 40A fusible link and E90 circuit breaker<br>2. Grounds M9, M25 and M87<br>3. Sunroof switch<br>4. Sunroof switch circuit<br>5. Sunroof motor | 1. Check 10A fuse [No. 10, located in fuse block (J/B)], 40A fusible link (letter **I**, located in fuse and fusible link box) and E90 circuit breaker. Turn ignition switch "ON" and verify battery positive voltage is present at terminals 1 and 6 of sunroof motor.<br>2. Check grounds M9, M25, M87.<br>3. Check sunroof switch.<br>4. Check harness between sunroof switch and sunroof motor.<br>5. Replace sunroof motor. |
| Power sunroof cannot be operated using one of the sunroof switches. | 1. Sunroof switch<br>2. Sunroof switch circuit | 1. Check sunroof switch.<br>2. Check the harness between sunroof motor and sunroof switch. |

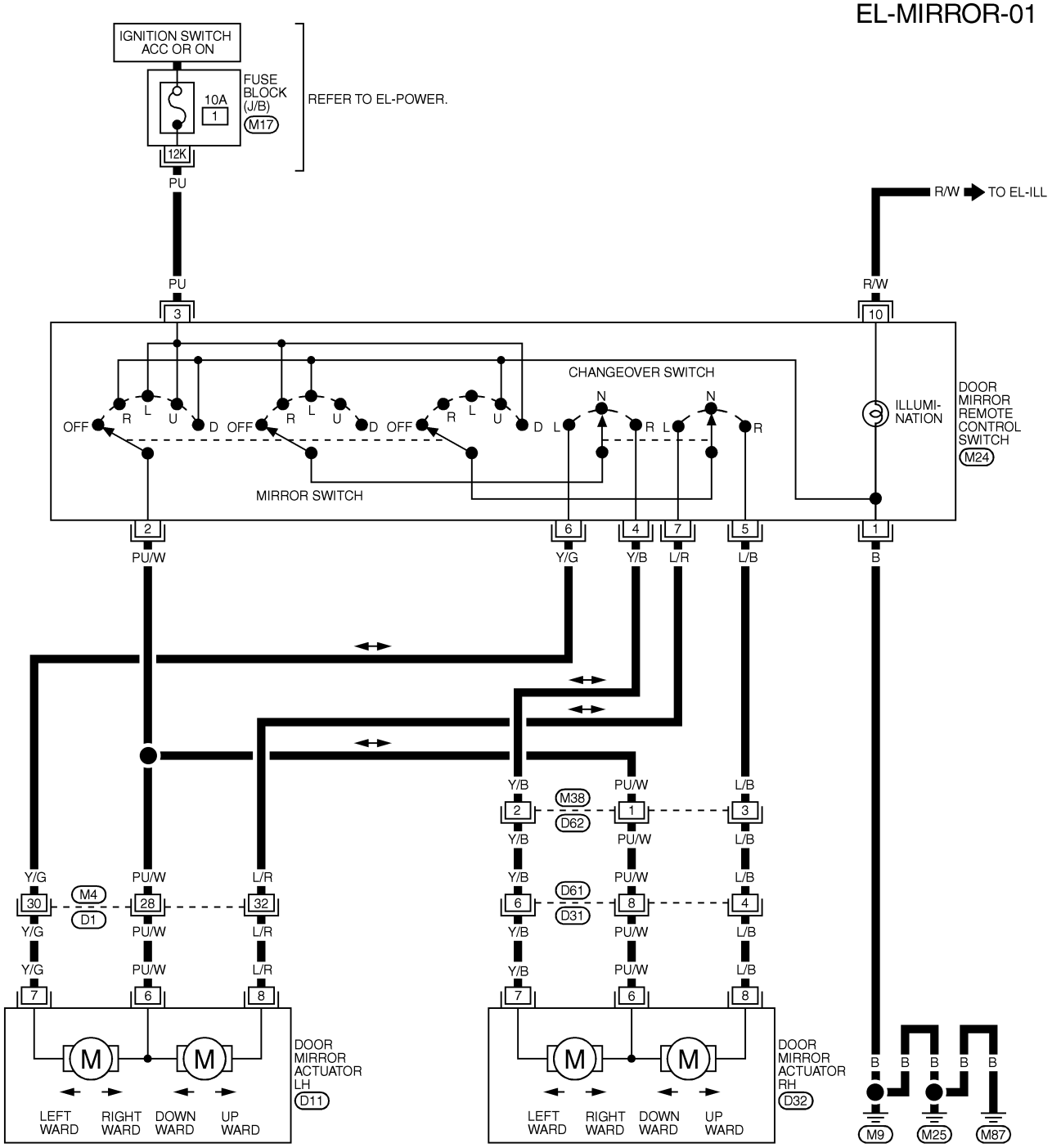
*Trouble Diagnoses (Cont'd)*

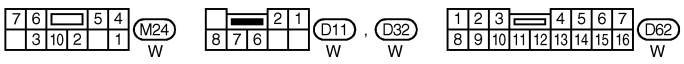
| Symptom | Possible cause | Repair order |
|---|---|---|
| Power sunroof cannot be opened or closed fully. | 1. Full closed position not initialized<br>2. Sunroof slide mechanism<br>3. Sunroof switch<br>4. Sunroof switch circuit<br>5. Sunroof motor | 1. Initialize full closed position.<br>2. Check the following.<br>a. Check obstacles in sunroof, etc.<br>b. Check worn or deformed sunroof.<br>c. Check sunroof sash tilted too far inward or outward.<br>3. Check sunroof switch.<br>4. Check harness between sunroof motor and sunroof switch.<br>5. Replace sunroof motor. |
| Retained power operation does not operate properly. | 1. RAP signal circuit<br>2. Driver or passenger side door switch circuit<br>3. Smart entrance control unit | 1. Check RAP signal.<br>a. (With CONSULT-II)<br>Check RAP signal with CONSULT-II. Use "ACTIVE TEST" mode, "RETAINED PWR" in "SMART ENTRANCE". (Refer to EL-198.)<br>If NG, go to the step b. below.<br>b. Verify 12 positive voltage from smart entrance control unit is present at terminal 6 of sunroof motor:<br>● Within 45 seconds after ignition switch turns off.<br>● When front door LH and RH is closed.<br>2. Check harness between smart entrance control unit and driver or passenger side door switch.<br>Check driver or passenger side door switch.<br>3. Check smart entrance control unit. (EL-350) |

## Wiring Diagram — MIRROR —

NFEL0090

EL-MIRROR-01



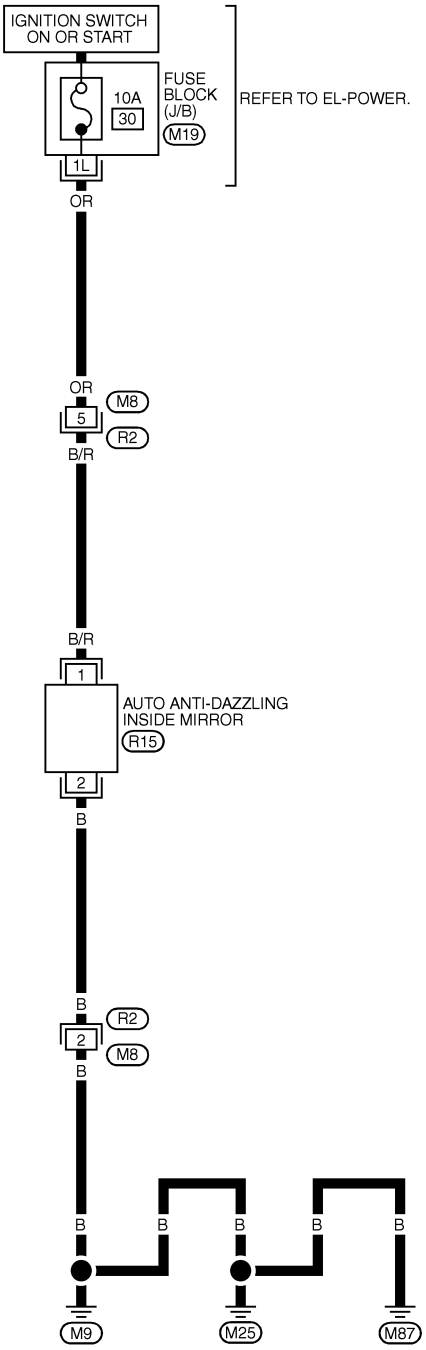

REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M17 -FUSE BLOCK-JUNCTION BOX (J/B)

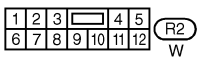
MEL747P

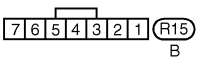
## Wiring Diagram — I/MIRR —

NFEL0264

EL-I/MIRR-01



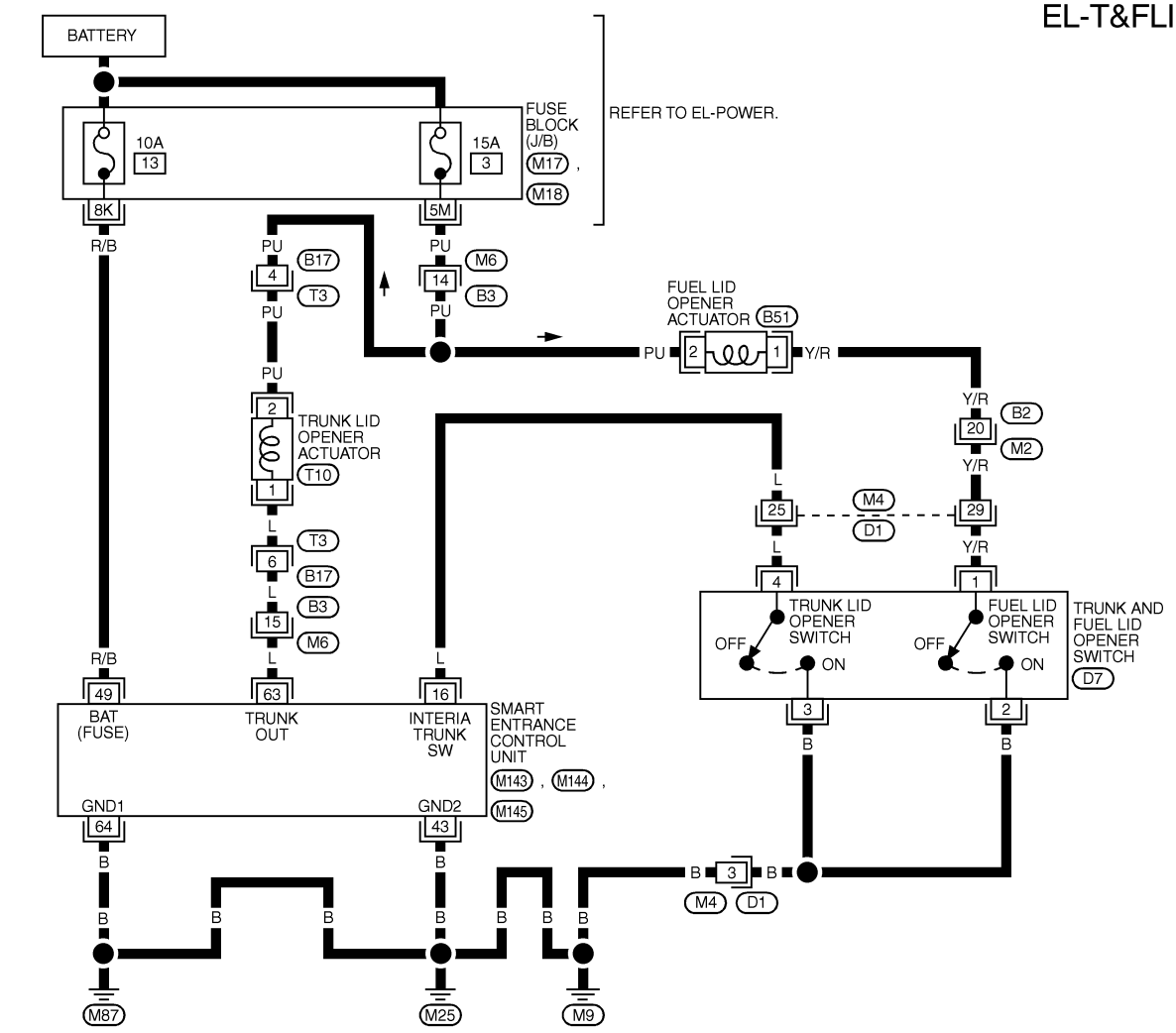



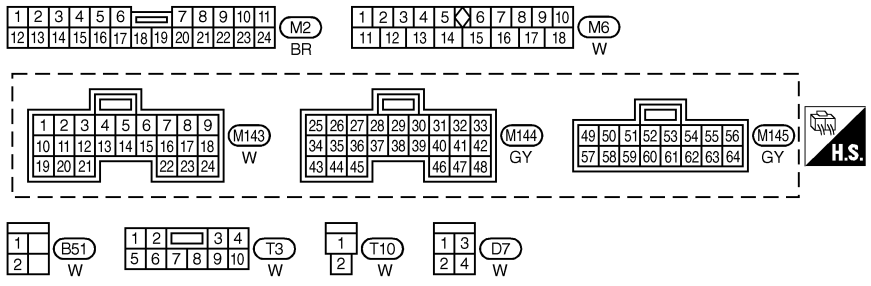

REFER TO THE FOLLOWING.
M19 - FUSE BLOCK -
JUNCTION BOX (J/B)

MEL162O

## Wiring Diagram — T&FLID —

NFEL0168




REFER TO THE FOLLOWING.
D1 -SUPER MULTIPLE JUNCTION (SMJ)
M17, M18 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL163O

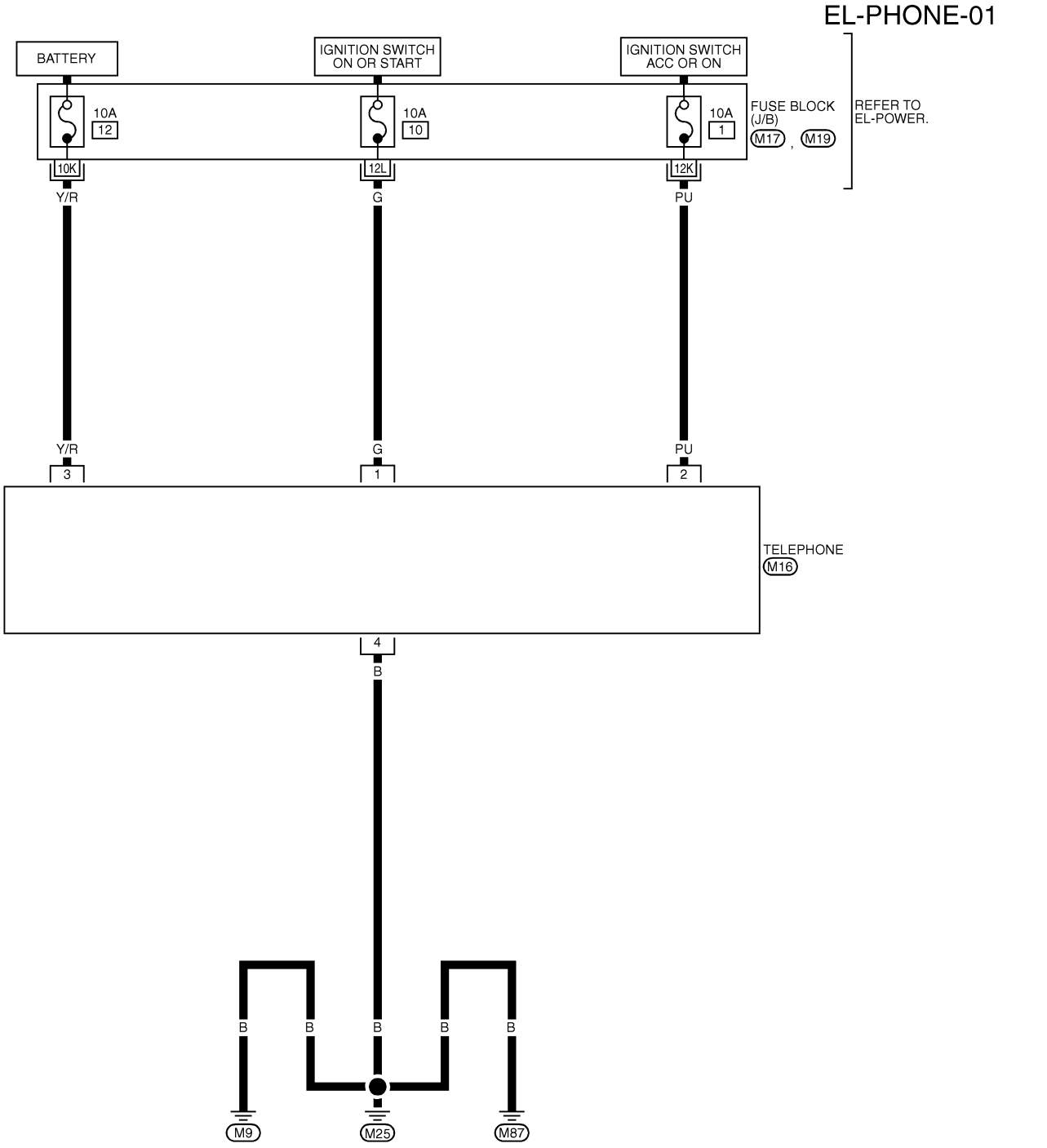
**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 16 | L | TRUNK AND FUEL LID OPENER SWITCH | OFF → ON (when only pulled) | 12V→ 0V |
| 43 | B | GROUND | – | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 63 | L | TRUNK LID OPENER ACTUATOR | WHEN TRUNK LID OPENER ACTUATOR IS OPERATED USING KEYFOB (ON →OFF) | 0V→12V |
| 64 | B | GROUND | – | – |

SEL987XA

## Wiring Diagram — PHONE —

NFEL0170




2 1
4 3 M16
W

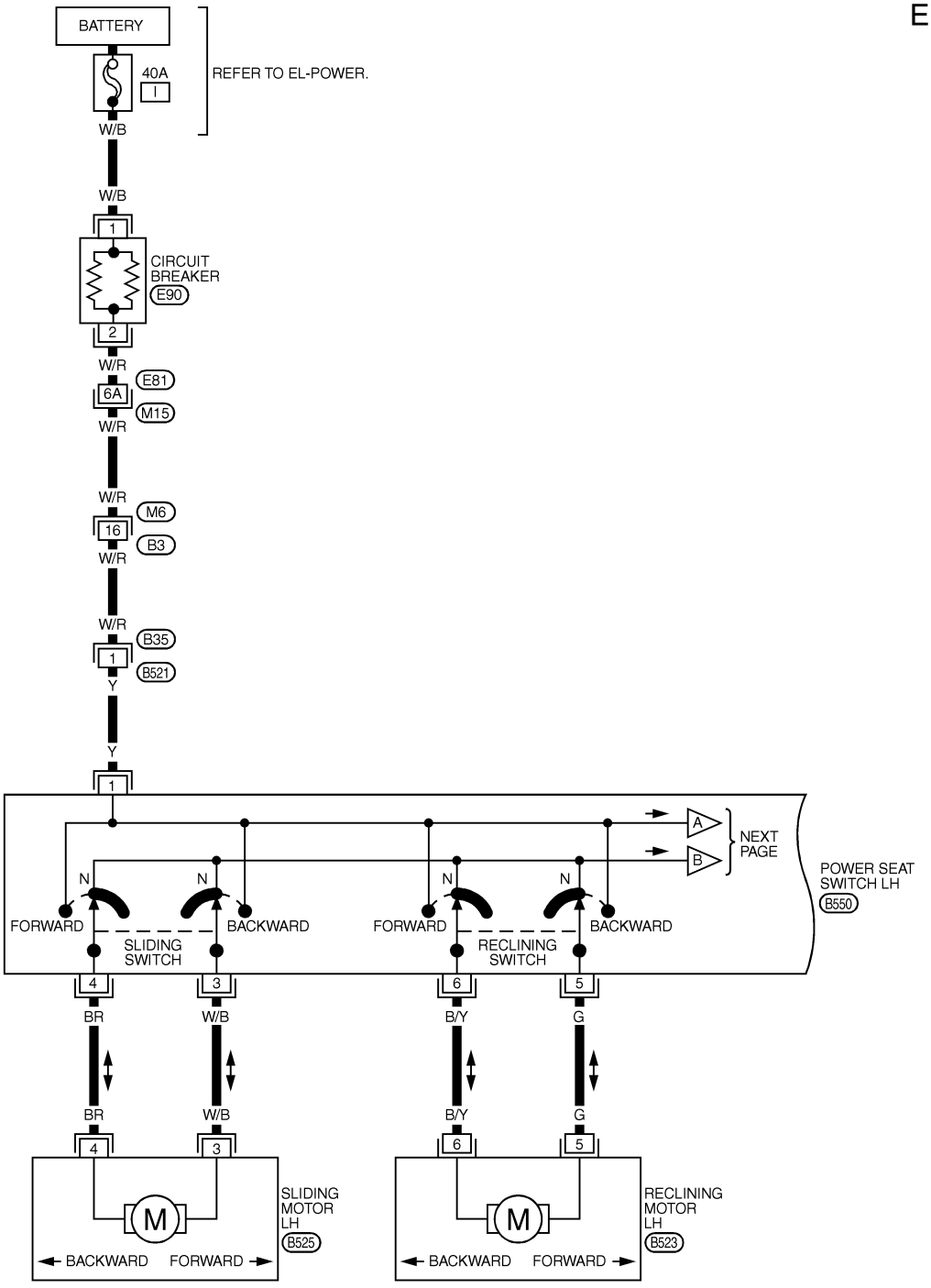
REFER TO THE FOLLOWING.
M17 -FUSE BLOCK-JUNCTION BOX (J/B)
M19 -FUSE BLOCK-JUNCTION BOX (J/B)

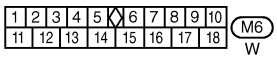
MEL295K

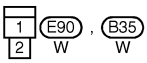
# Wiring Diagram — SEAT —

NFEL0092

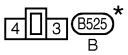
EL-SEAT-01

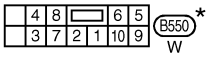






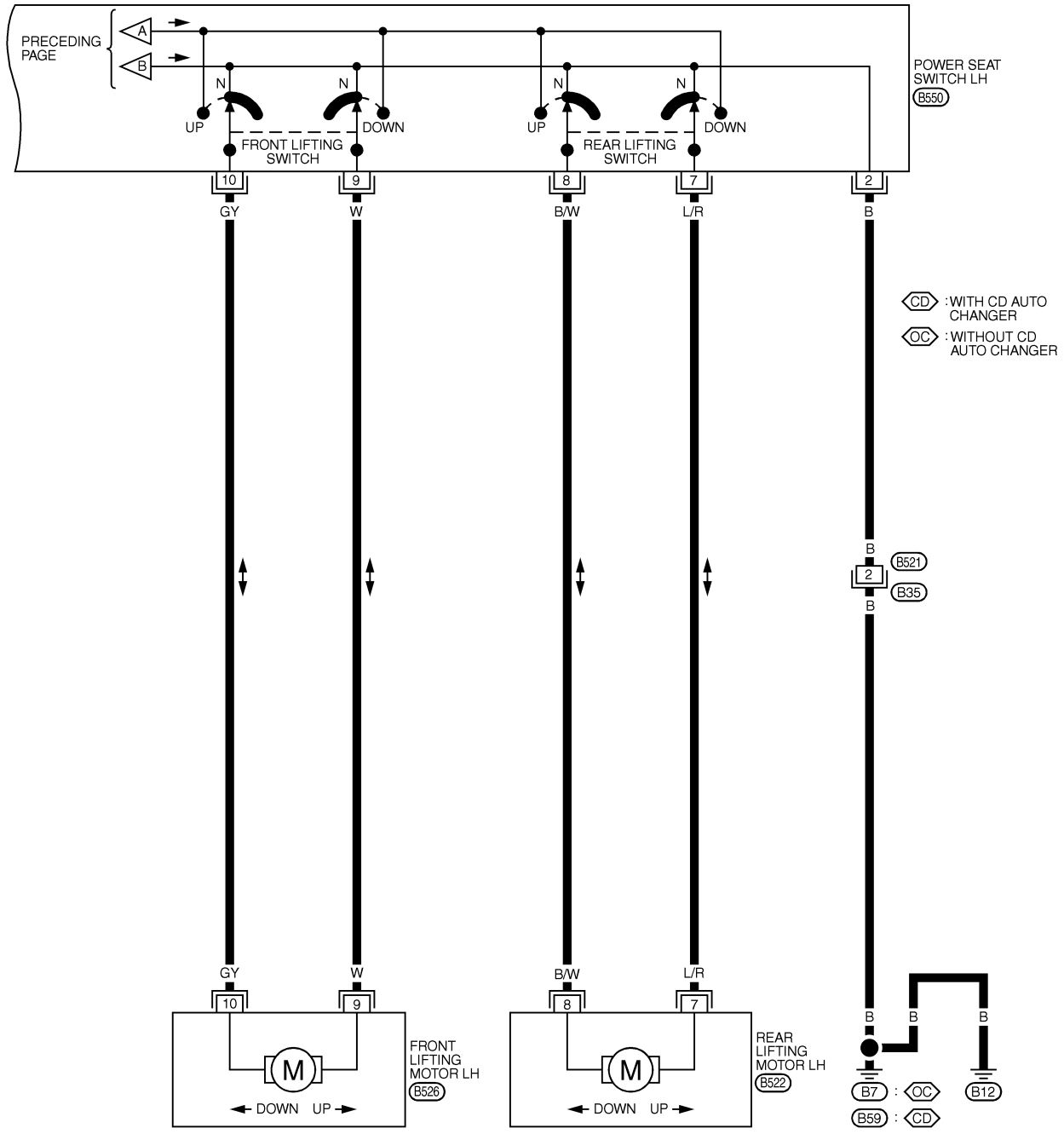



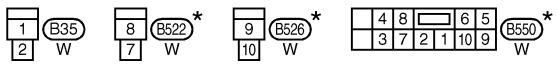

★ : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL-SECTION.

REFER TO THE FOLLOWING.
M15 - SUPER MULTIPLE JUNCTION (SMJ)

MEL154O

EL-SEAT-02

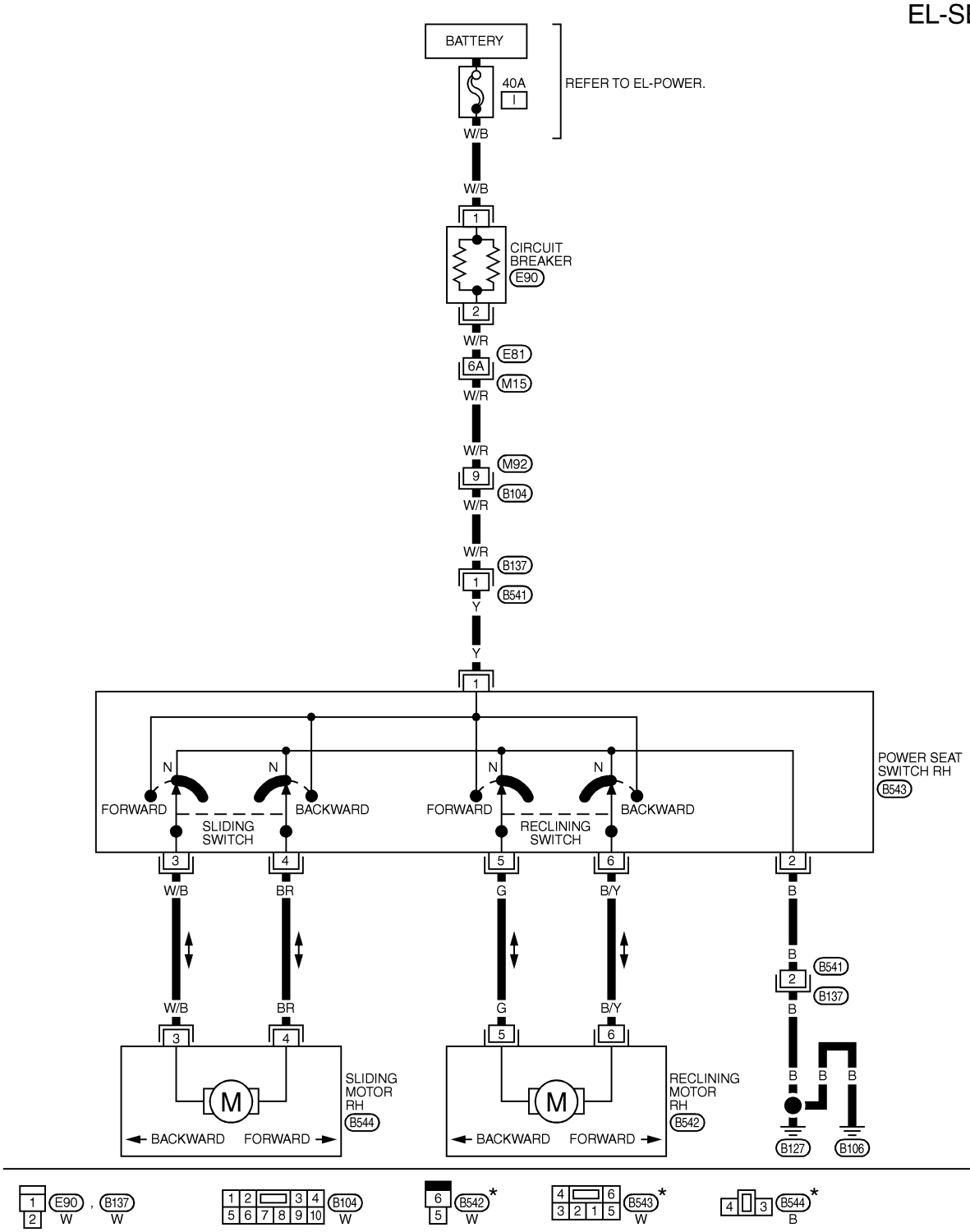



* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

MEL155O

EL-SEAT-03



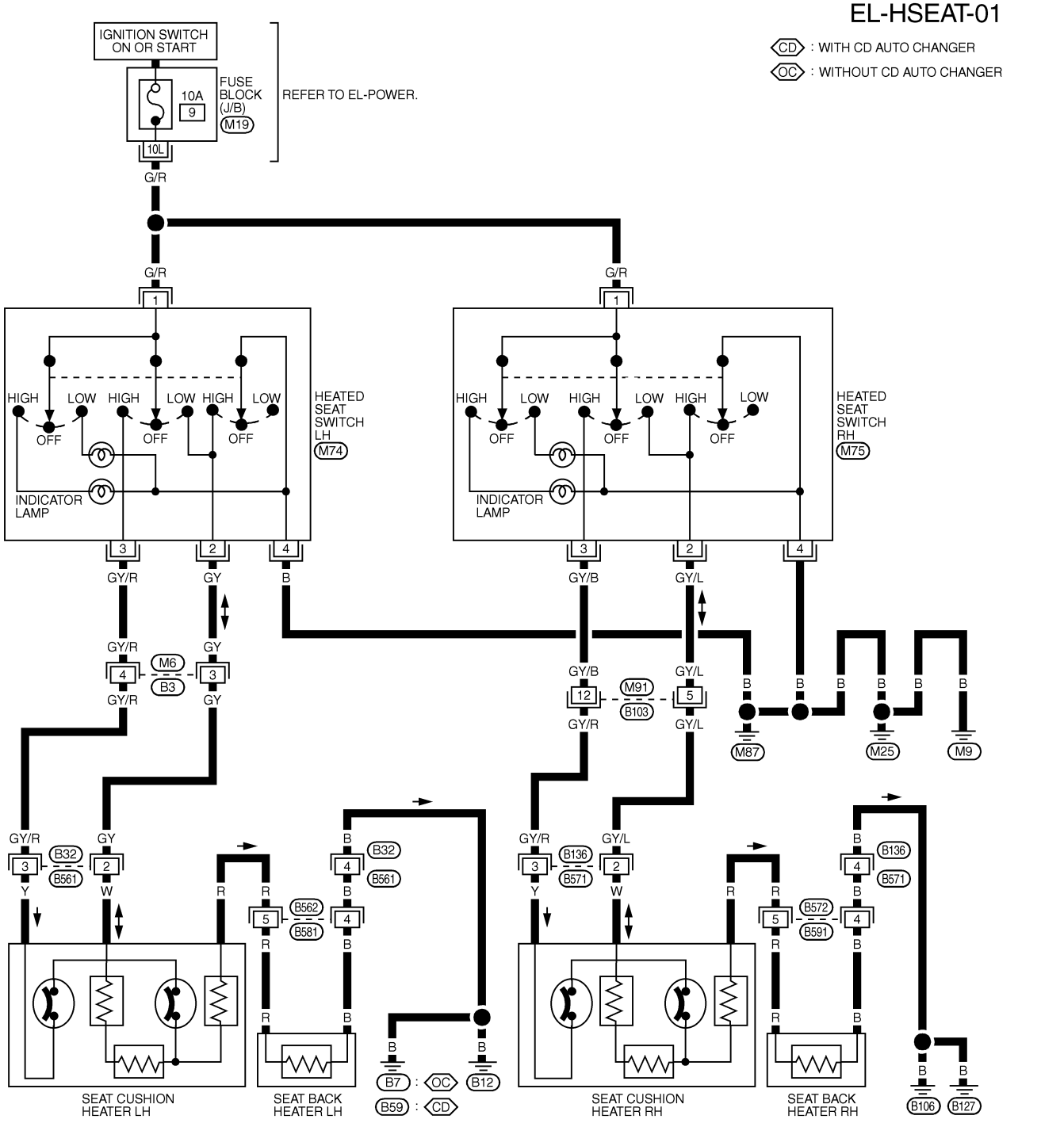

* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

MEL156O

## Wiring Diagram — HSEAT —

NFEL0093

EL-HSEAT-01




M6 W · M74 L, M75 W · B32 W, B136 W · B103 W · B562* L, B572* L

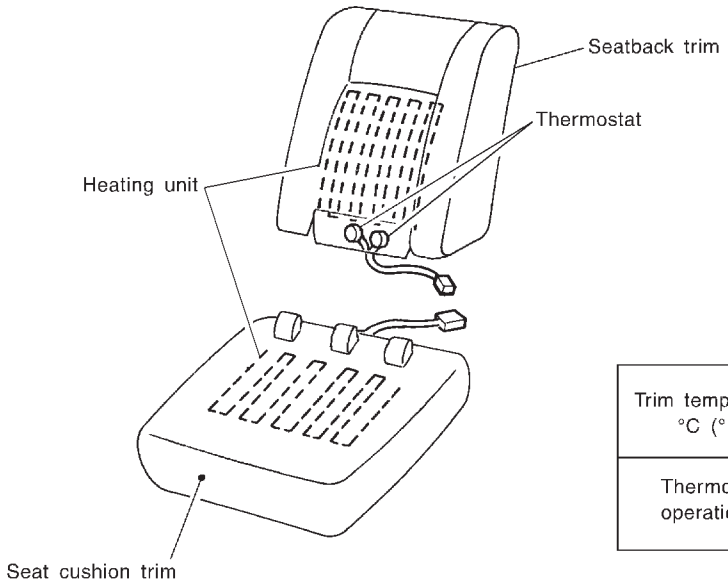
*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

REFER TO THE FOLLOWING.
M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL748P

## Seatback Heating Unit

NFEL0261

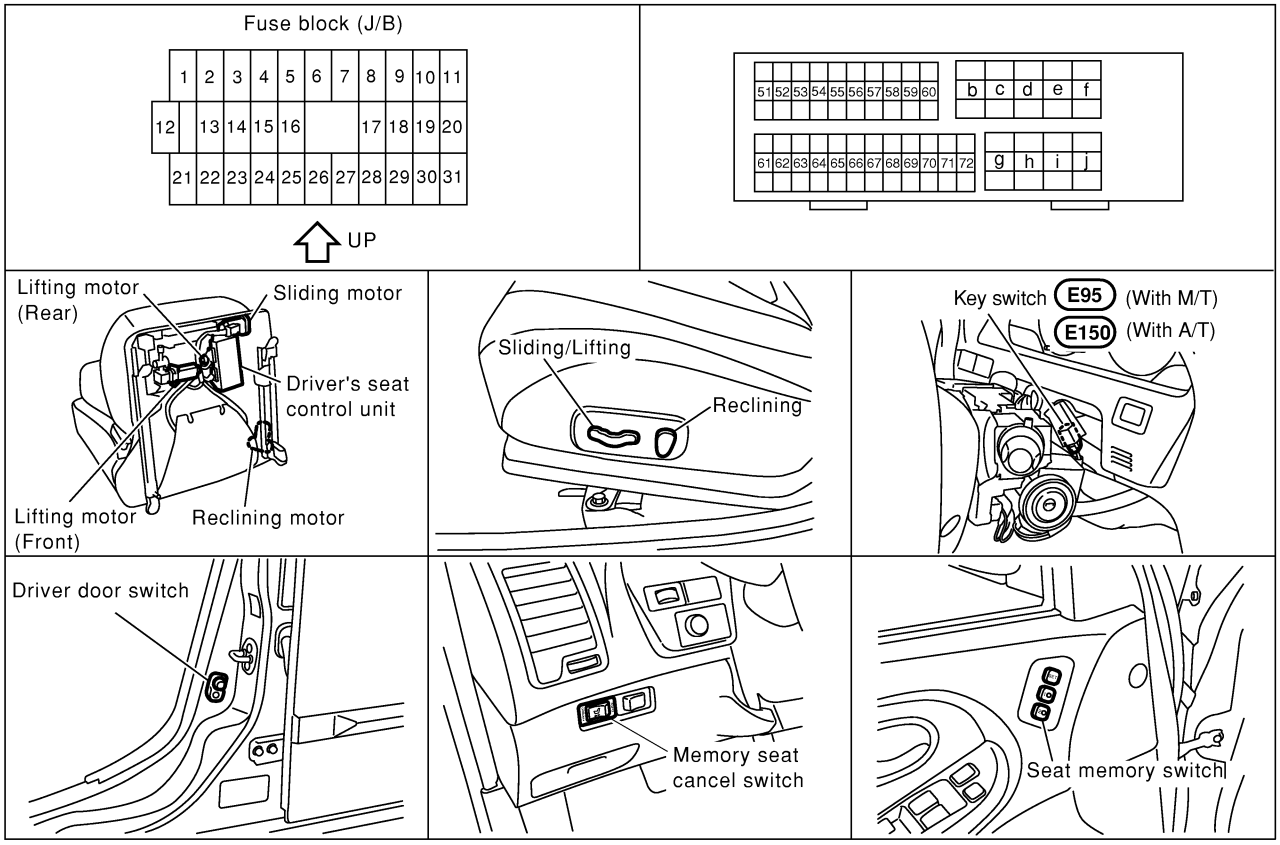



| Trim temperature °C (°F) | Increasing to 35 - 45 (95 - 113) | Decreasing to 25 - 35 (77 - 95) |
|---|---|---|
| Thermostat operation | OFF | ON |

SBT314

# Component Parts and Harness Connector Location

NFEL0287




SEL383Y

# System Description

=NFEL0288

## OPERATIVE CONDITION

NFEL0288S01

The drive position can be set in 2 ways, manually and automatically.

### Manual Operation

NFEL0288S0101

The driver's seat can be adjusted for sliding, reclining, front cushion height and rear cushion height with the LH power seat switches. The manual operation can be adjusted with the IGN key in any position.

### Automatic Operation

NFEL0288S0102

The driver's seat is 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

NFEL0288S02

Automatic memory setting procedures are suspended under any of the following conditions:

1) When vehicle speed is more than 7 km/h (4 MPH).
2) When driver's side power seat switch is turned on.
3) When any two of the switches (set switch and memory switches 1 and 2) are turned ON.
4) When cancel switch is turned on.
5) When selector lever is in any position other than "P" (A/T) or parking brake is released (M/T).
6) When ignition switch is turned to "START" position.
   (Operation resumes when ignition switch is returned to "ON".)
7) When detention switch malfunction is detected:

- 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

NFEL0288S03

### Output Failure

NFEL0288S0301

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° |

### Absolving

NFEL0288S0302

When moving selector lever back to "P" position after having moved it to any position except "P" (A/T) or applying parking brake after having released it (M/T), fail-safe operation will be canceled.

## INITIALIZATION (A/T MODEL ONLY)

NFEL0288S04

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 25 km/h (16 MPH).
2) End

## MEMORY AUTOMATIC SET

=NFEL0288S05

Two drive positions can be retained in the memory. Press memory switch to set driver's seat to preset position.

### PROCEDURE FOR STORING MEMORY

Adjust the position of driver's seat with manual set operations.

↓ Ignition switch "ON".

| | Indicator LEDs |
|---|---|
| Touch set switch. | (1) Indicator LED for which driver's seat positions are already retained in memory illuminates for 5 seconds. |
| | (2) Indicator LED for which driver's seat positions are not entered in memory illuminates for 0.5 seconds. |

↓ Within 5 seconds.

| | Indicator LEDs |
|---|---|
| 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.) | (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. |
| | (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

SEL592W

**NOTE:**

- 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.
- Drive position is erased from the memory when battery cable is disconnected more than 30 seconds. After connecting battery cable, perform initialization procedures.

### SELECTING THE MEMORIZED POSITION

PROCEDURE-A
Turn ignition switch "ON" and press desired memory switch for more than 0.3 seconds. (Indicator LED illuminates.)

PROCEDURE-B (A/T model only)
• Open driver's door and withdraw key from ignition key cylinder. Then press desired memory switch for more than 0.3 seconds. (Indicator LED illuminates.) (See NOTE 2.)

(See NOTE 1.)

↓ Within 1 minute

• Insert key into ignition key cylinder. (Memory indicator illuminates.)

↓

The driver's seat will move to the memorized position. (During adjustments, indicator LED flashes, then illuminates for 5 seconds after adjustment.)

(See NOTE 3.)

SEL425Y

**NOTE:**

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 (see the following Table) operates in the order of priority.

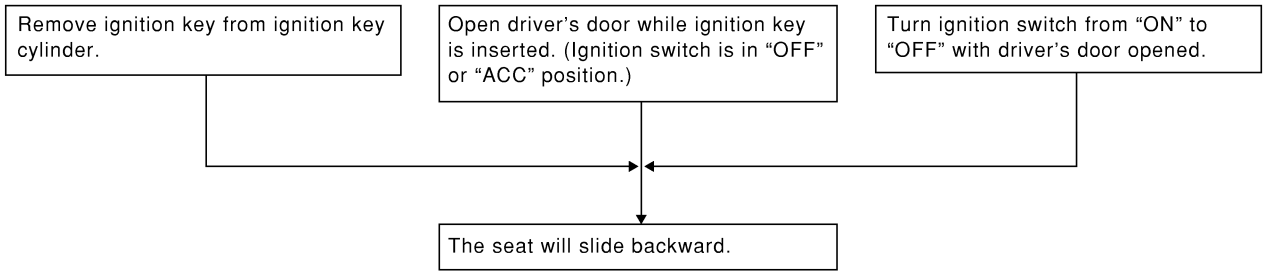
| The order of priority | Operated portion |
|---|---|
| 1 | Seat sliding |
| 2 | Seat reclining |
| 3 | Seat front lifting |
| 4 | Seat rear lifting |

## AUTOMATIC EXITING SETTING (A/T MODEL ONLY)

NFEL0288S06

"Exiting" positions:

Driver's seat ... Slides about 40 mm (1.57 in) rear from normal sitting position.

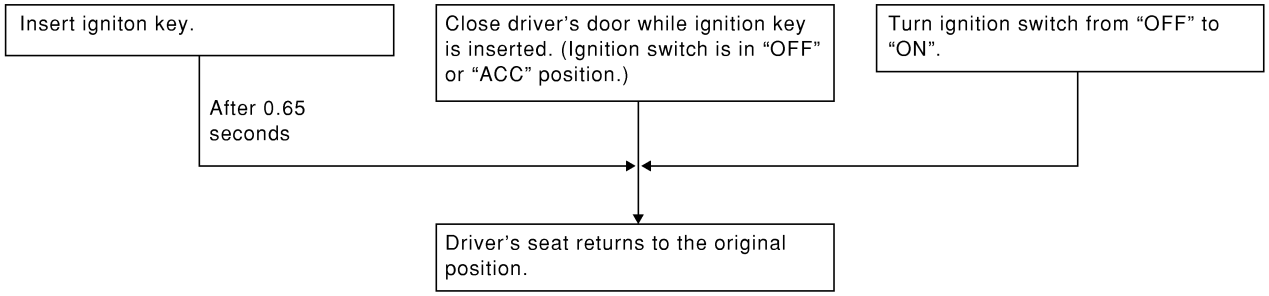



SEL594W

## AUTOMATIC SET RETURN (A/T MODEL ONLY)

NFEL0288S07

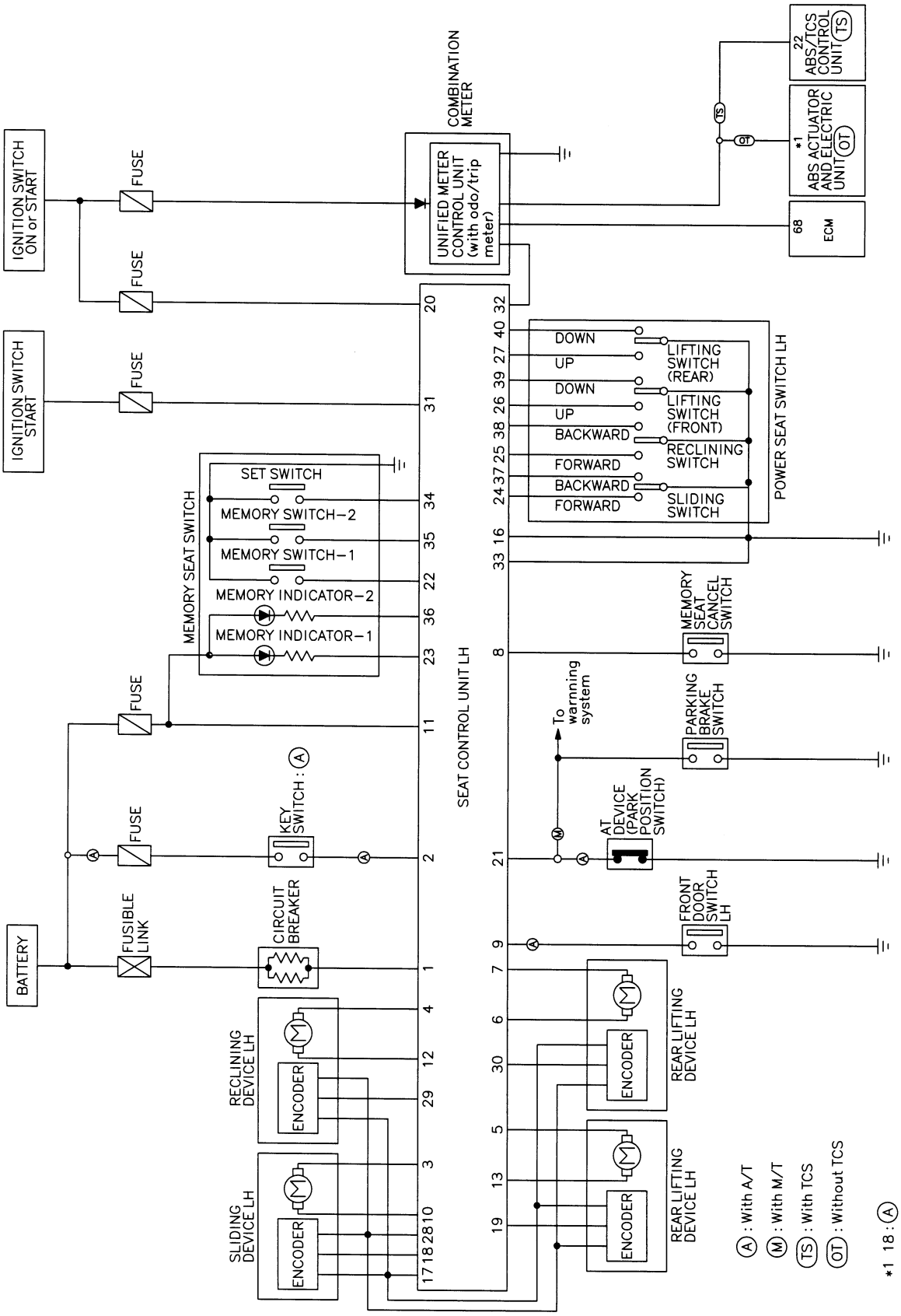
With driver's seat set to the "exiting" position, operating one of the following procedures moves it to the position previously retained in memory.




SEL595W

## Schematic

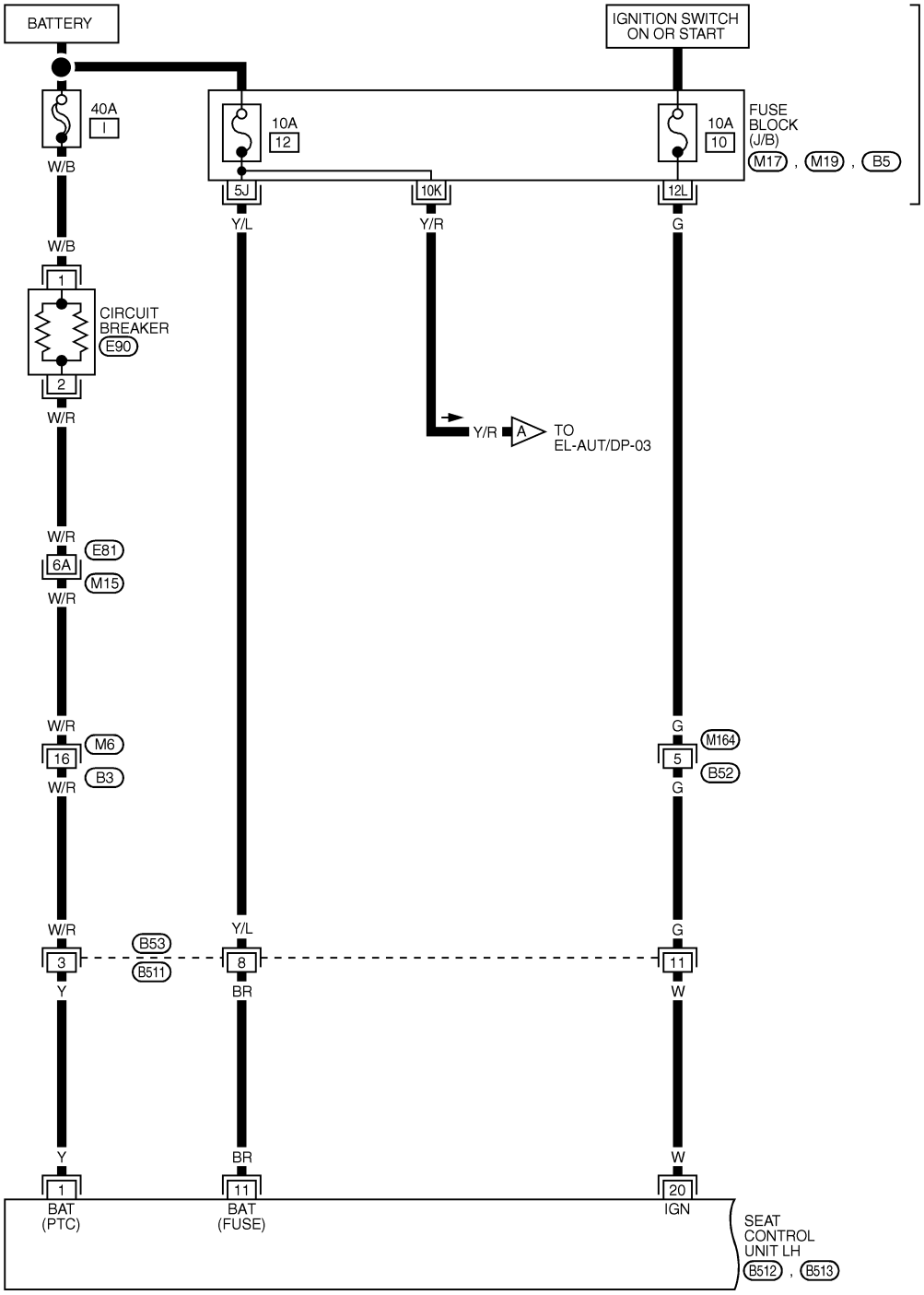
NFEL0289

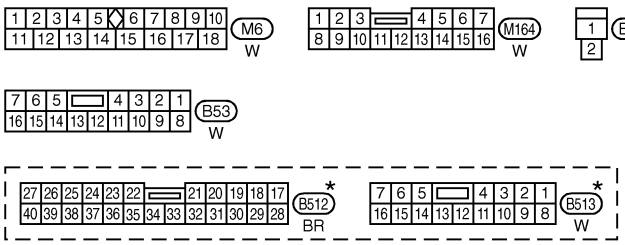



MEL749P

# Wiring Diagram — AUT/DP —

NFEL0290



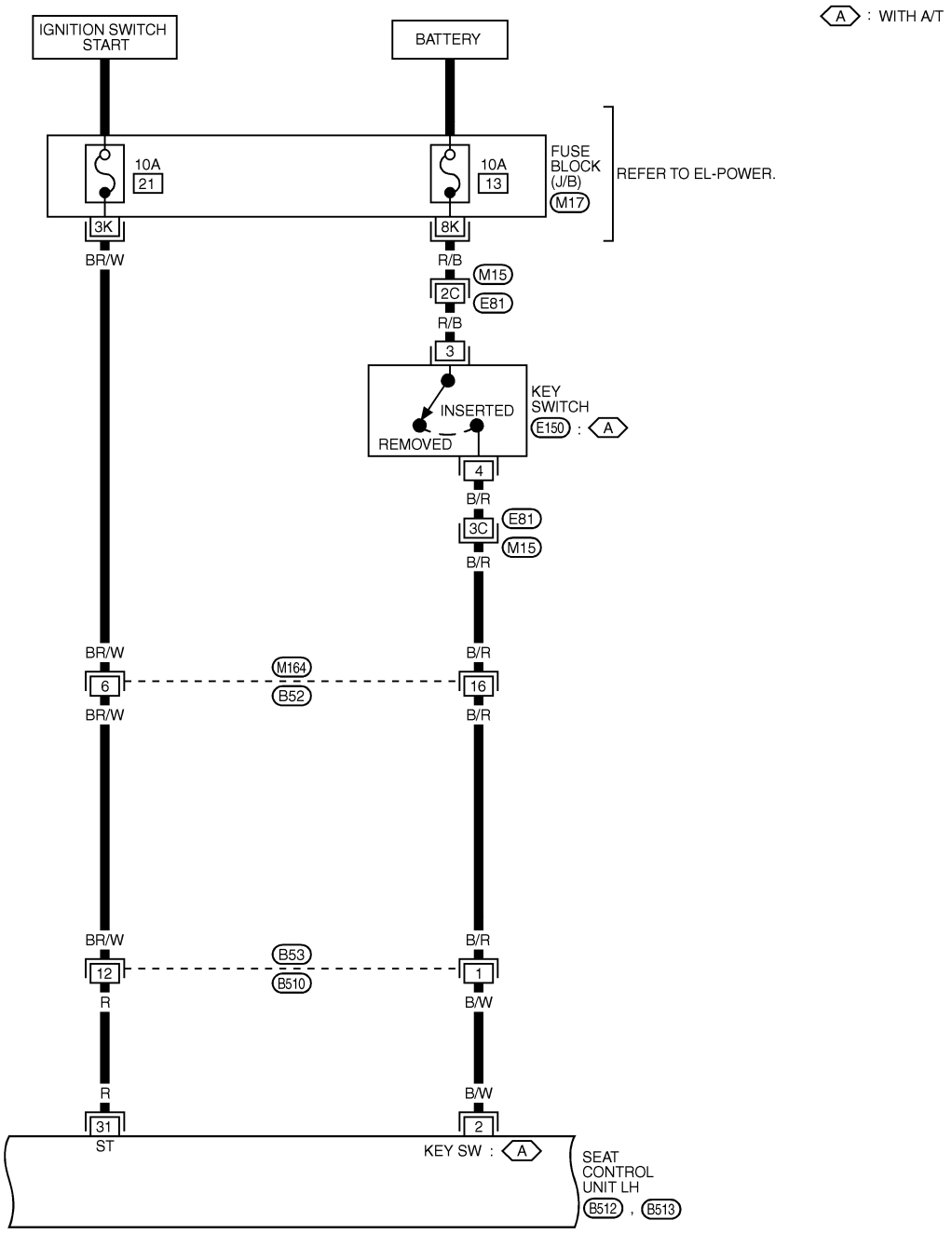



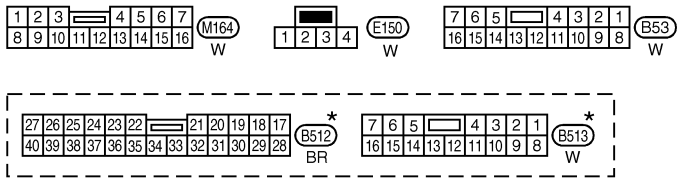

REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 , B5
-FUSE BLOCK- JUNCTION BOX (J/B)

* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION

MEL147O

EL-AUT/DP-02



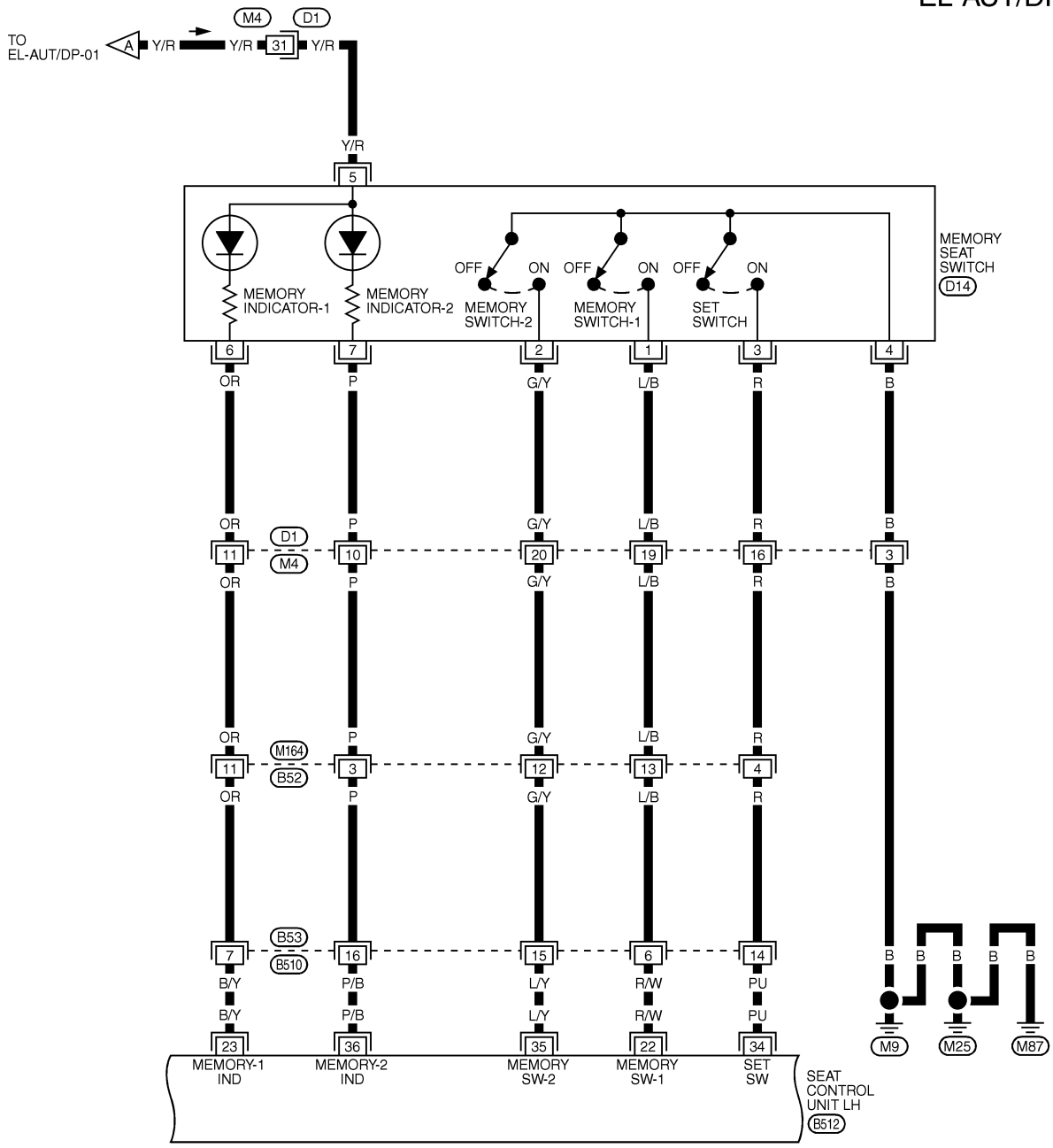



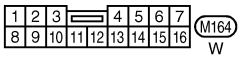

*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

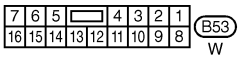
REFER TO THE FOLLOWING.
M15 - SUPER MULTIPLE JUNCTION (SMJ)
M17 - FUSE BLOCK - JUNCTION BOX (J/B)

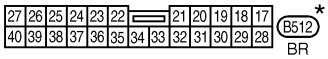
MEL148O

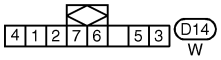
EL-AUT/DP-03



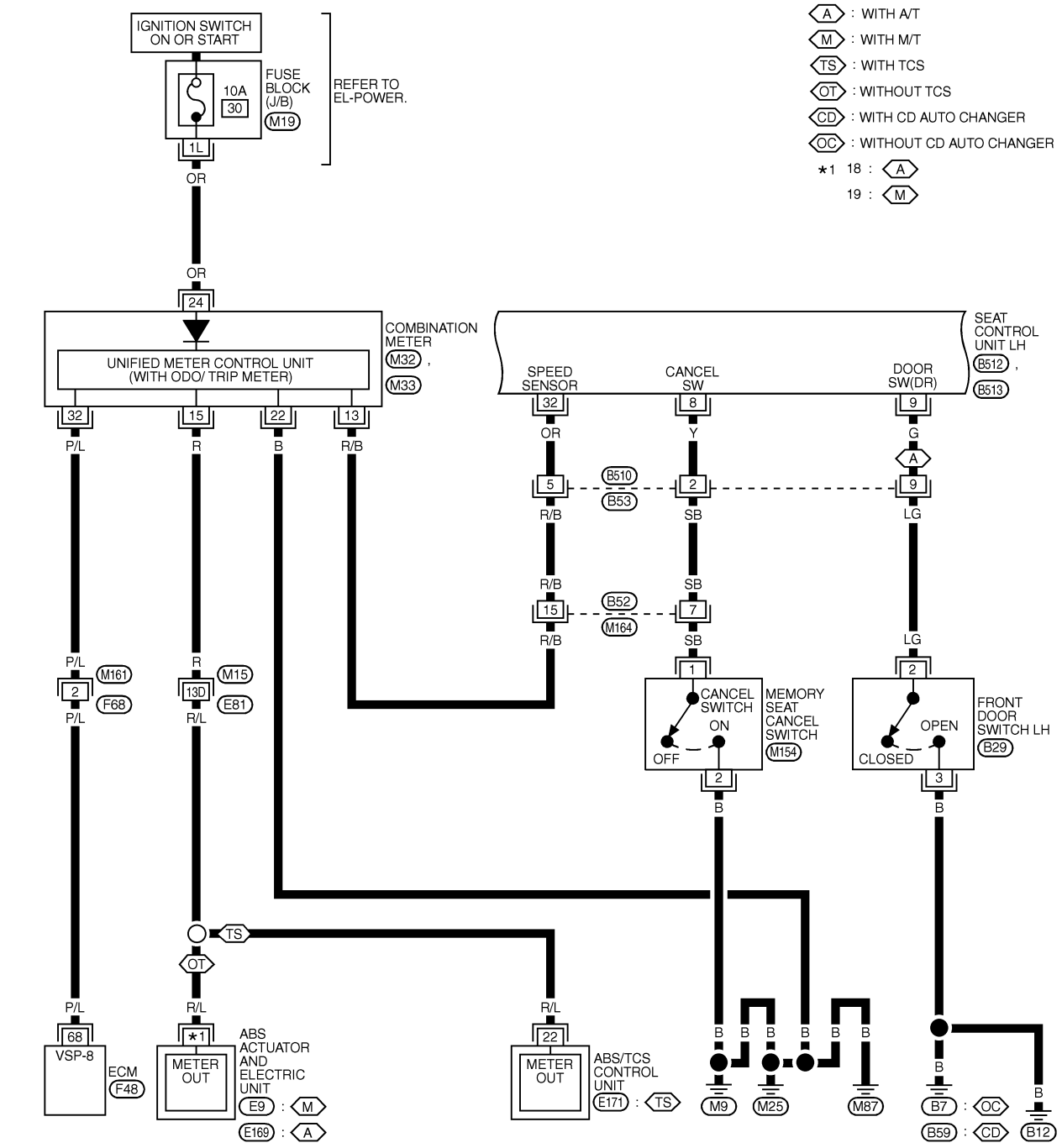




★ : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

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

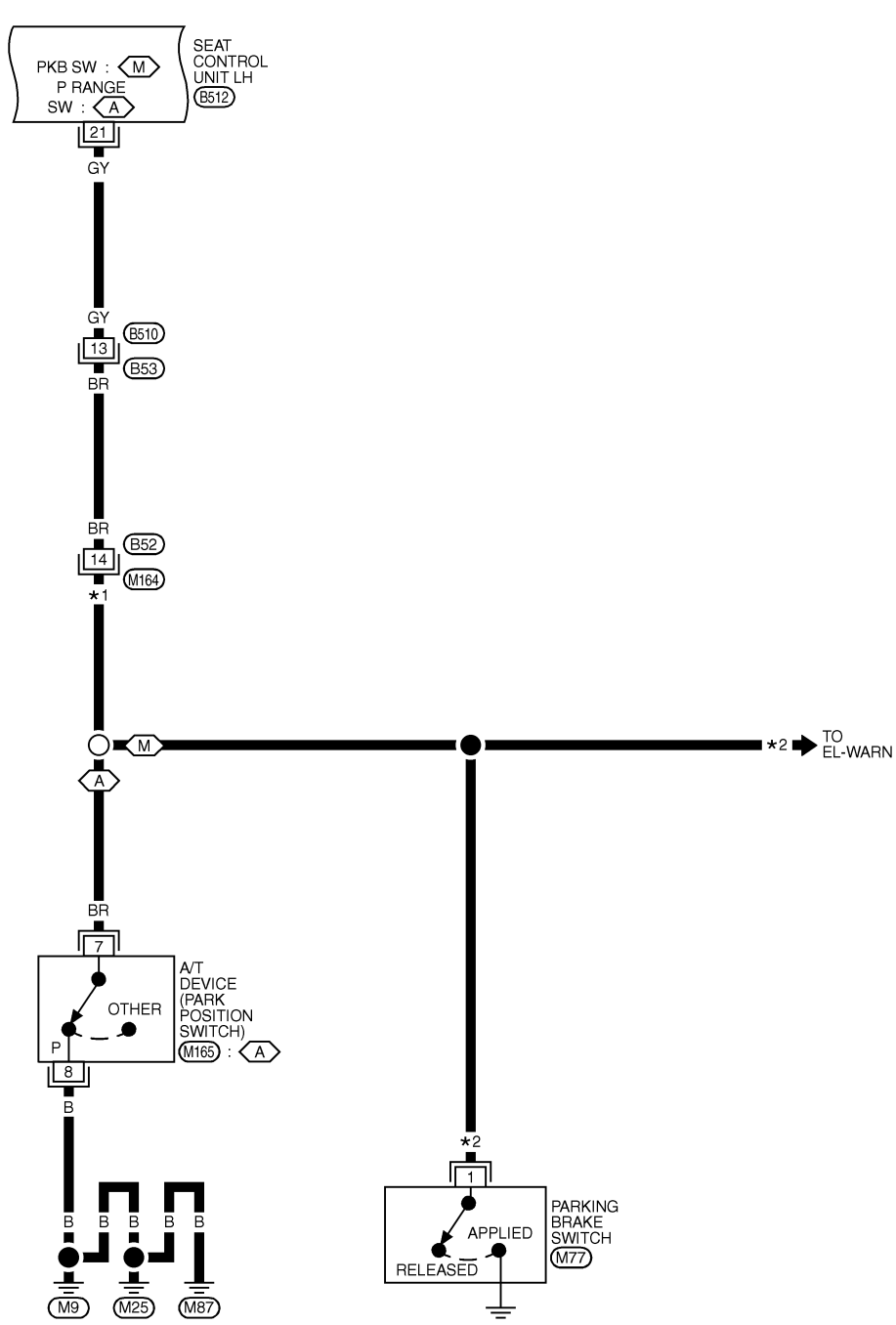
MEL149O

EL-AUT/DP-04




MEL150O

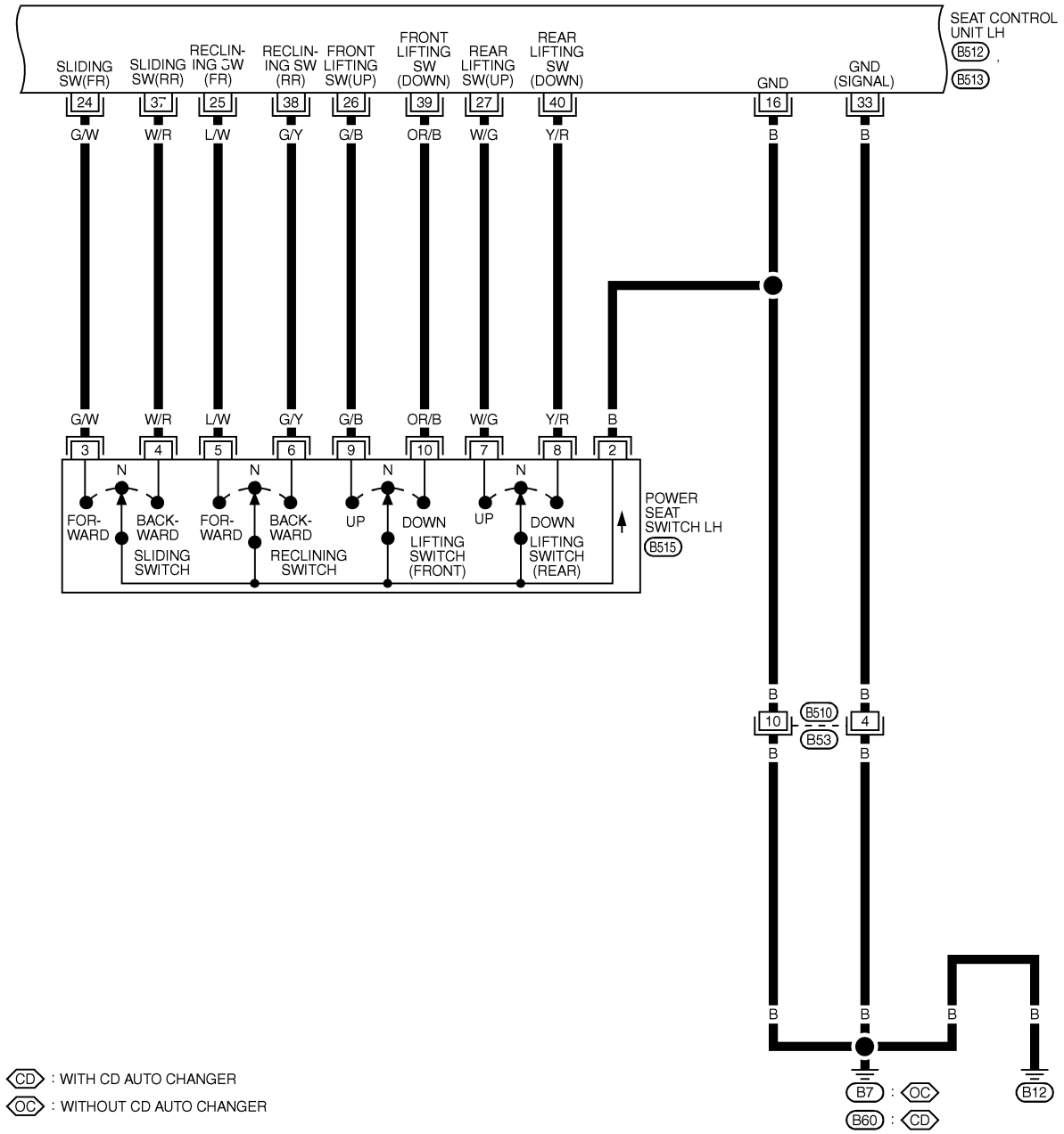
EL-AUT/DP-05

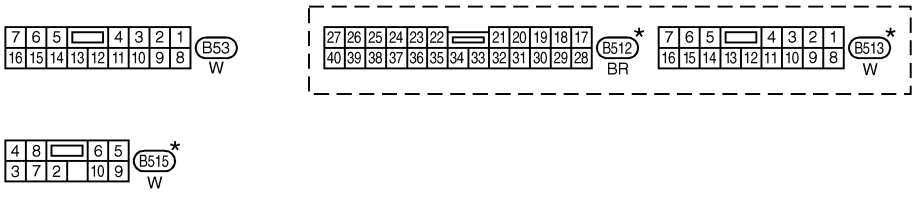



*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

MEL151O

EL-AUT/DP-06

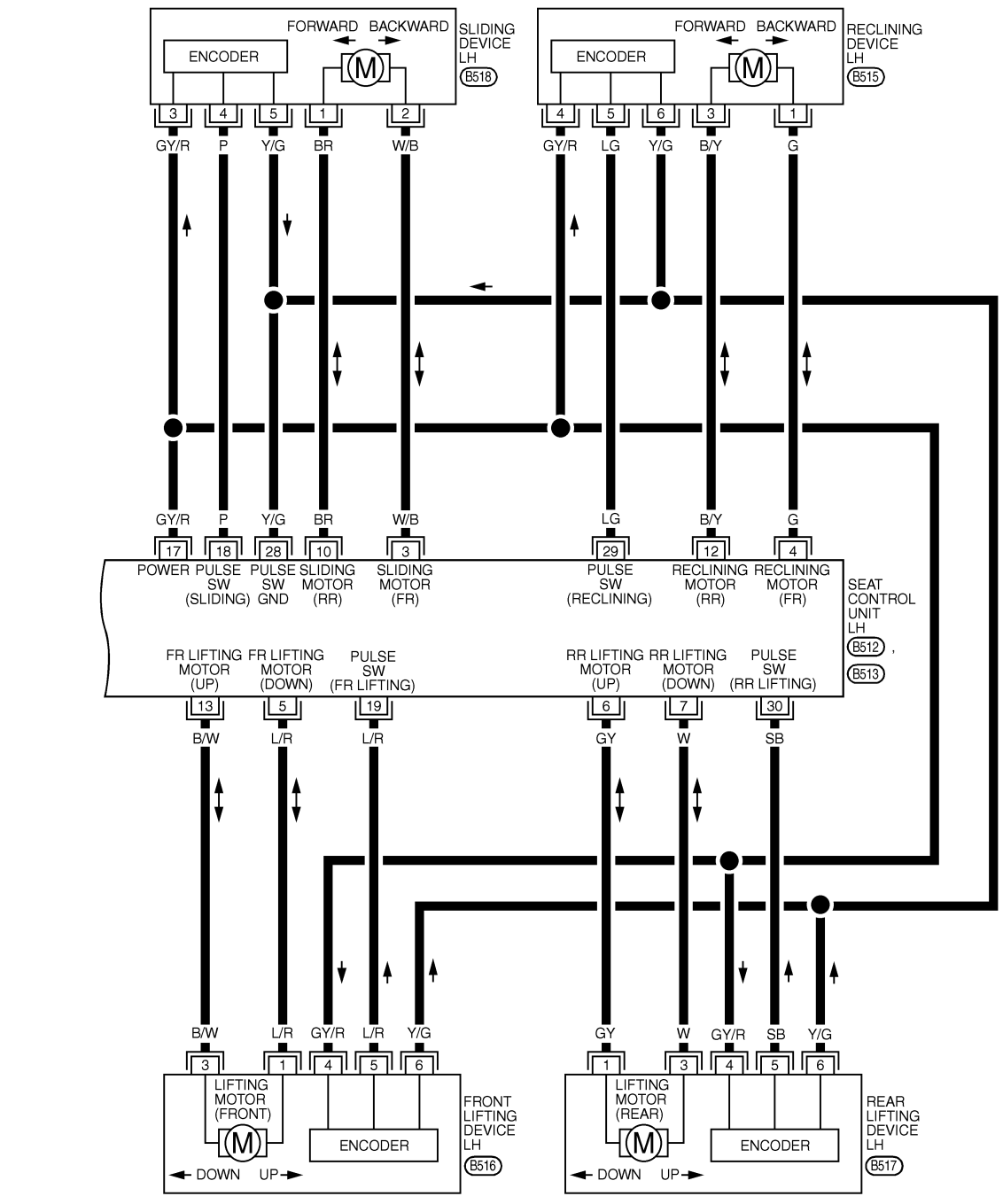


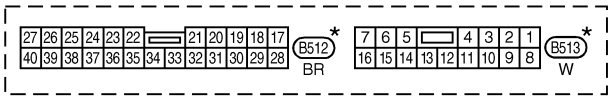



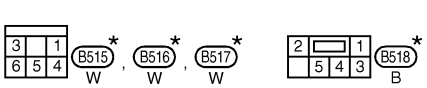

*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

MEL152O

EL-AUT/DP-07



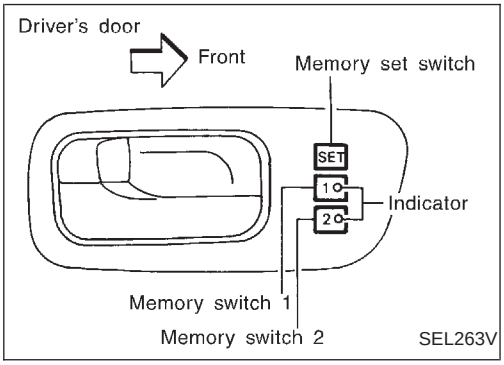




*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

MEL750P

# On Board Diagnosis

NFEL0291




## HOW TO PERFORM SELF-DIAGNOSIS

NFEL0291S01

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.

↓

Self-diagnosis should be performed.
– Two indicator lamps should go on. (At the same time, driver's seat 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.

↓

DIAGNOSIS END*2

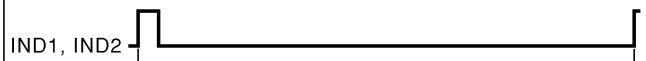
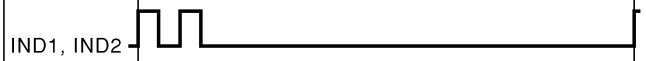
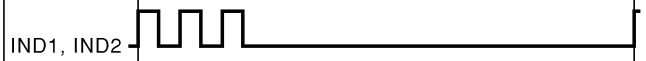
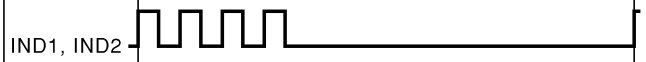
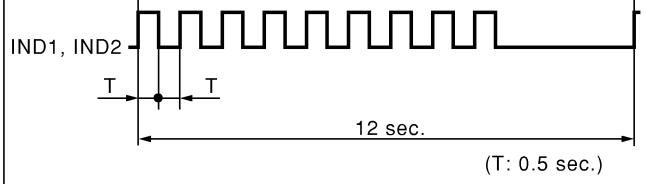
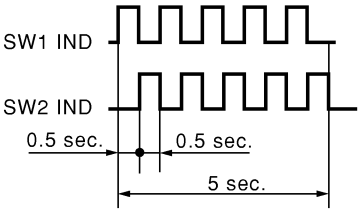
SEL596W

*1: If no malfunction is indicated, self-diagnosis 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.

## MALFUNCTION CODE TABLE

=NFEL0291S02

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 encoder 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 |  | |
| 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 |  | — |

SEL597W

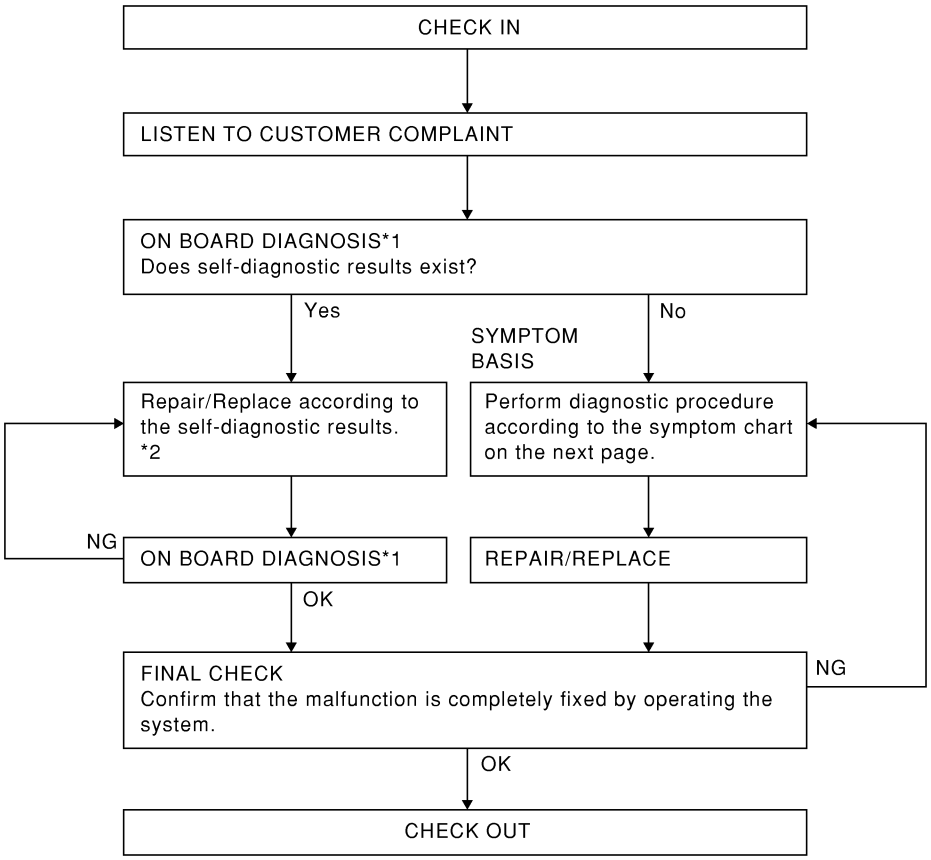
| Code No. | Detected items | Diagnostic procedure | Reference page | Code No. | Detected items | Diagnostic procedure | Reference page |
|---|---|---|---|---|---|---|---|
| 1 | Seat sliding | PROCEDURE 2 (Sliding encoder check)<br>PROCEDURE 6 (Sliding motor check) | EL-229<br>EL-237 | 4 | Seat lifting rear | PROCEDURE 5 [Lifting encoder (rear) check]<br>PROCEDURE 9 [Lifting motor (rear) check] | EL-235<br>EL-240 |
| 2 | Seat reclining | PROCEDURE 3 (Reclining encoder check)<br>PROCEDURE 7 (Reclining motor check) | EL-231<br>EL-238 | 9 | Vehicle speed sensor | PROCEDURE 12 (Vehicle speed sensor check) | EL-242 |
| 3 | Seat lifting front | PROCEDURE 4 [Lifting encoder (front) check]<br>PROCEDURE 8 [Lifting motor (front) check] | EL-233<br>EL-239 | | | | |

# Trouble Diagnoses

NFEL0292

## WORK FLOW

NFEL0292S01

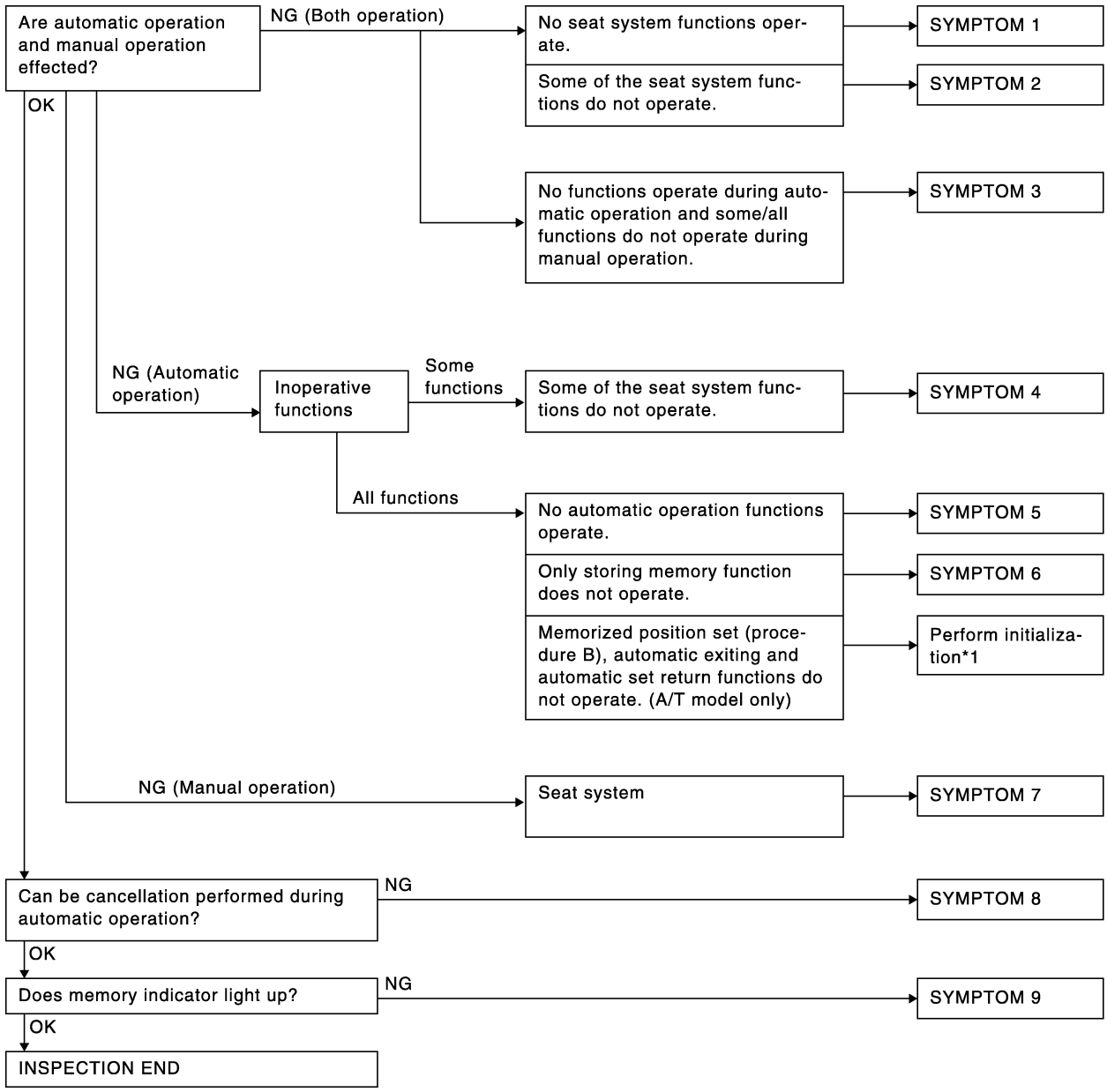



SEL599W

*1 EL-222 *2 EL-223

## PRELIMINARY CHECK

NFEL0292S02




SEL600WA

*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 25 km/h (16 MPH).

2) End

**After performing preliminary check, go to symptom chart below.**

**Before starting trouble diagnoses below, perform preliminary check, EL-225. Symptom numbers in the symptom chart correspond with those of preliminary check.**

## SYMPTOM CHART

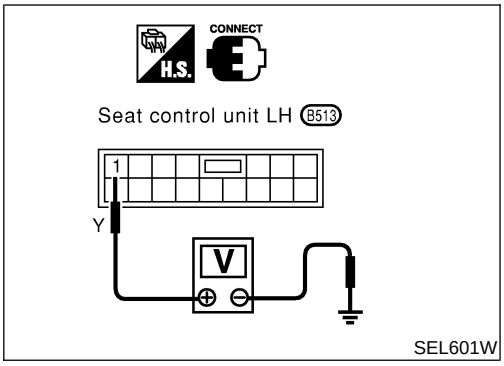
NFEL0292S03

| PROCEDURE | | | Diagnostic procedure | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE (EL- ) | | | 228 | 229 | 231 | 233 | 235 | 237 | 238 |
| SYMPTOM | | | DIAGNOSTIC PROCEDURE 1 (Power supply and ground circuit for Driver's seat control unit) | DIAGNOSTIC PROCEDURE 2 (Sliding encoder check) | DIAGNOSTIC PROCEDURE 3 (Reclining encoder check) | DIAGNOSTIC PROCEDURE 4 [Lifting encoder (front) check] | DIAGNOSTIC PROCEDURE 5 [Lifting encoder (rear) check] | DIAGNOSTIC PROCEDURE 6 (Sliding motor check) | DIAGNOSTIC PROCEDURE 7 (Reclining motor check) |
| 1 | No seat system functions operate. | | X | | | | | | |
| 2 | Some of the seat system functions do not operate during automatic/ manual operation. | Sliding | | | | | | X | |
| | | Reclining | | | | | | | X |
| | | Lifting (Front) | | | | | | | |
| | | Lifting (Rear) | | | | | | | |
| 3 | No functions operate during automatic operation, and some/all functions do not during manual operation. | | | | | | | | |
| 4 | Some of the seat system functions do not operate during automatic operation. | Sliding | | X | | | | | |
| | | Reclining | | | X | | | | |
| | | Lifting (Front) | | | | X | | | |
| | | Lifting (Rear) | | | | | X | | |
| 5 | No automatic operation functions operate. | | | | | | | | |
| 6 | Drive position cannot be retained in the memory. | | | | | | | | |
| 7 | Does not operate during manual operation. (Operates during automatic operation.) | Sliding | | | | | | | |
| | | Reclining | | | | | | | |
| | | Lifting (Front) | | | | | | | |
| | | Lifting (Rear) | | | | | | | |
| 8 | Automatic operation cannot be canceled. | | | | | | | | |
| 9 | Memory indicator does not light up. | | | | | | | | |

X : Applicable

| PROCEDURE | | | Diagnostic procedure | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| REFERENCE PAGE (EL- ) | | | 239 | 240 | 241 | 241 | 242 | 244 | 245 |
| SYMPTOM | | | DIAGNOSTIC PROCEDURE 8 [Lifting motor (front) check] | DIAGNOSTIC PROCEDURE 9 [Lifting motor (rear) check] | DIAGNOSTIC PROCEDURE 10 (Power seat switch check) | DIAGNOSTIC PROCEDURE 11 (Cencel switch check) | DIAGNOSTIC PROCEDURE 12 (Key, park position, parking brake, door switch and vehicle speed sensor check) | DIAGNOSTIC PROCEDURE 13 (Seat memory switch check) | DIAGNOSTIC PROCEDURE 14 (Memory indicator check) |
| 1 | No seat system functions operate. | | | | | | | | |
| 2 | Some of the seat system functions do not operate during automatic/ manual operation. | Sliding | | | | | | | |
| | | Reclining | | | | | | | |
| | | Lifting (Front) | X | | | | | | |
| | | Lifting (Rear) | | X | | | | | |
| 3 | No functions operate during automatic operation, and some/all functions do not during manual operation. | | | | X | | X (ACC, ON START signal) | | |
| 4 | Some of the seat system functions do not operate during automatic operation. | Sliding | | | | | | | |
| | | Reclining | | | | | | | |
| | | Lifting (Front) | | | | | | | |
| | | Lifting (Rear) | | | | | | | |
| 5 | No automatic operation functions operate. | | | | | X | X | | |
| 6 | Drive position cannot be retained in the memory. | | | | | | X (IGN ON signal) | X | |
| 7 | Does not operate during manual operation. (Operates during automatic operation.) | Sliding | | | X | | | | |
| | | Reclining | | | X | | | | |
| | | Lifting (Front) | | | X | | | | |
| | | Lifting (Rear) | | | X | | | | |
| 8 | Automatic operation cannot be canceled. | | | | | X | | | |
| 9 | Memory indicator does not light up. | | | | | | | | X |

X : Applicable




## DIAGNOSTIC PROCEDURE 1

*=NFEL0292S04*

**(Power supply and ground circuit for driver's seat control unit)**

### Power Supply Circuit Check

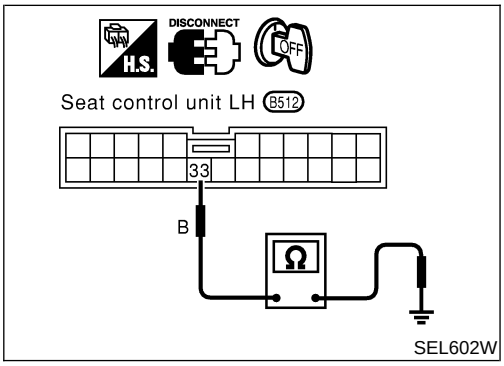
*NFEL0292S0401*

Check voltage between seat control unit LH terminal 1 and ground.
(Refer to wiring diagram in EL-215.)

| Terminals | Ignition switch position | | | |
|---|---|---|---|---|
| | OFF | ACC | ON | START |
| 1 - Ground | Battery voltage | | | |

If NG, check the following.

- Circuit breaker
- Harness for open or short between circuit breaker and seat control unit LH




### Ground Circuit Check

*NFEL0292S0402*

Check continuity between seat control unit LH terminal 33 and ground.
(Refer to wiring diagram in EL-215.)

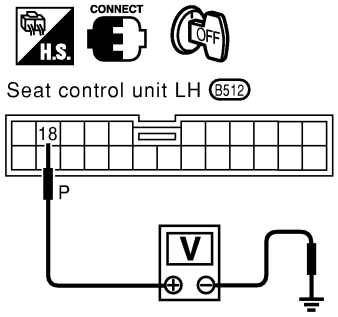
| Terminals | Continuity |
|---|---|
| 33 - Ground | Yes |

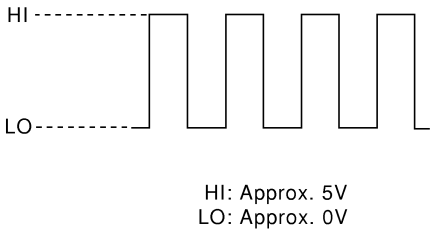
## DIAGNOSTIC PROCEDURE 2
## (Sliding encoder check)

=NFEL0292S05

| 1 | CHECK SLIDING ENCODER OUTPUT SIGNAL |
|---|---|

Measure voltage between seat control unit LH terminal 18 and ground with CONSULT-II or oscilloscope when power seat slide is operated.




HI: Approx. 5V
LO: Approx. 0V

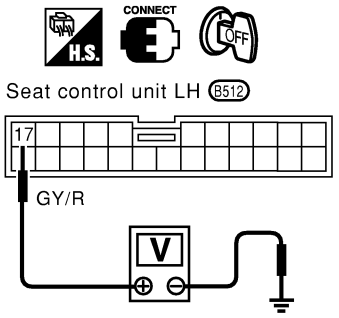
SEL603W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Sliding encoder is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK SLIDING ENCODER INPUT SIGNAL |
|---|---|

Check voltage between seat control unit LH terminal 17 and ground.




**Battery voltage should exist.**

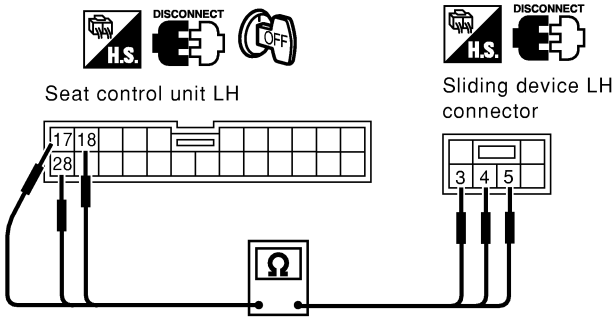
SEL604W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Replace seat control unit LH. |

| 3 | CHECK SLIDING ENCODER OPEN CIRCUIT |
|---|---|

1. Disconnect seat control unit LH connector and sliding device LH connector.
2. Check harness continuity between seat control unit LH connector B512 terminals 17 (GY/R), 18 (P), 28 (Y/G) and sliding device LH connector B518 terminals 3 (GY/R), 4 (P), 5 (Y/G).




| Terminals | | Continuity |
|---|---|---|
| Seat control unit LH | Sliding device LH (Sliding encoder) | |
| 17 | 3 | Yes |
| 18 | 4 | |
| 28 | 5 | |

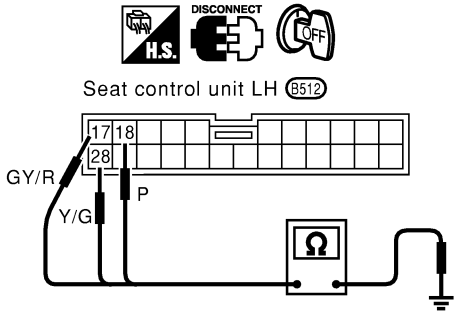
SEL605WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Repair harness. |

| 4 | CHECK SLIDING ENCODER SHORT CIRCUIT |
|---|---|

Check harness continuity between seat control unit LH connector and ground.




| Terminals | Continuity |
|---|---|
| 17 - Ground | No |
| 18 - Ground | |
| 28 - Ground | |

SEL606W

**OK or NG**

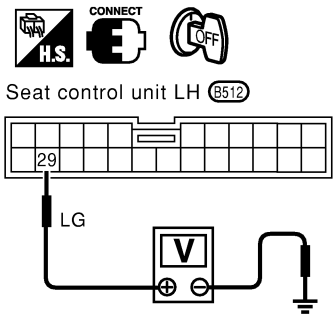
| | | |
|---|---|---|
| OK | ▶ | Replace sliding encoder. |
| NG | ▶ | Repair harness. |

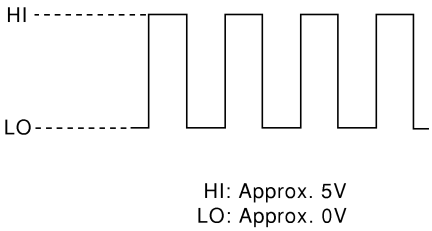
## DIAGNOSTIC PROCEDURE 3
## (Reclining encoder check)

=NFEL0292S06

| 1 | CHECK RECLINING ENCODER OUTPUT SIGNAL |
|---|---|

Measure voltage between seat control unit LH terminal 29 and ground with CONSULT-II or oscilloscope when power seat reclining is operated.




HI: Approx. 5V
LO: Approx. 0V

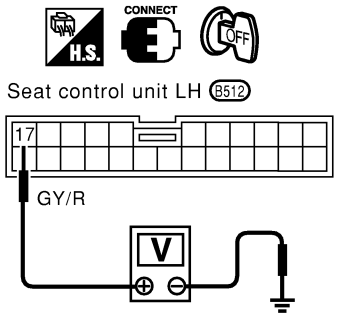
SEL607W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Reclining encoder is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK RECLINING ENCODER INPUT SIGNAL |
|---|---|

Check voltage between seat control unit LH terminal 17 and ground.




**Battery voltage should exist.**

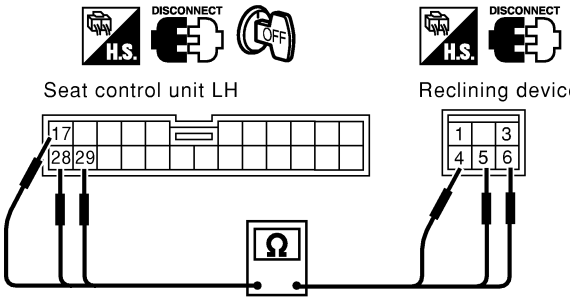
SEL608W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Replace seat control unit LH. |

| 3 | CHECK RECLINING ENCODER OPEN CIRCUIT |
|---|---|

1. Disconnect seat control unit LH connector and reclining device LH connector.
2. Check harness continuity between seat control unit LH connector B512 terminal 17 (GY/R), 28 (Y/G), 29 (LG) and reclining LH connector B515 terminals 4 (GY/R), 6 (Y/G), 5 (LG).




| Terminals | | Continuity |
|---|---|---|
| Seat control unit LH | Reclining device LH (Reclining encoder) | |
| 17 | 4 | Yes |
| 28 | 6 | |
| 29 | 5 | |

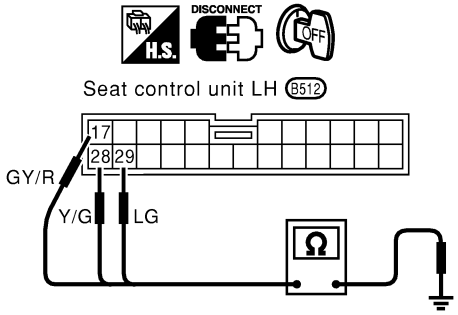
SEL609WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Repair harness. |

| 4 | CHECK RECLINING ENCODER SHORT CIRCUIT |
|---|---|

Check harness continuity between seat control unit LH connector and ground.




| Terminals | Continuity |
|---|---|
| 17 - Ground | No |
| 28 - Ground | |
| 29 - Ground | |

SEL610W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace reclining encoder. |
| NG | ▶ | Repair harness. |

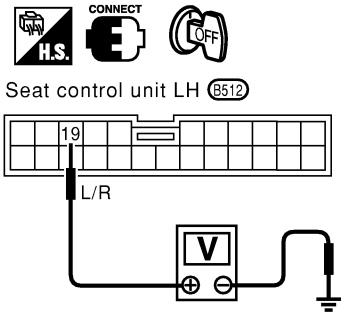
## DIAGNOSTIC PROCEDURE 4

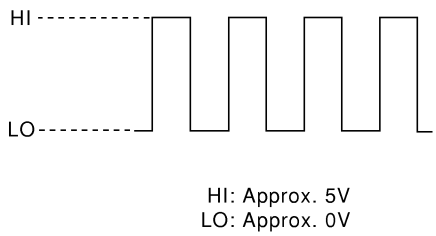
=NFEL0292S07

**[Lifting encoder (front) check]**

| 1 | CHECK LIFTING ENCODER (FRONT) OUTPUT SIGNAL |
|---|---|

Measure voltage between seat control unit LH terminal 19 and ground with CONSULT-II or oscilloscope when power seat lifting (front) is operated.




HI: Approx. 5V
LO: Approx. 0V

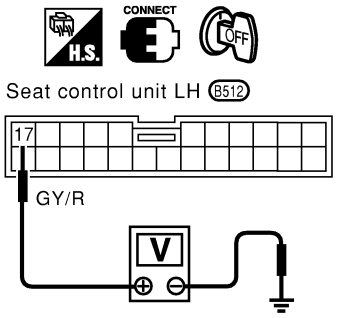
SEL611W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Lifting encoder (front) is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK LIFTING ENCODER (FRONT) INPUT SIGNAL |
|---|---|

Check voltage between seat control unit LH terminal 17 and ground.




**Battery voltage should exist.**

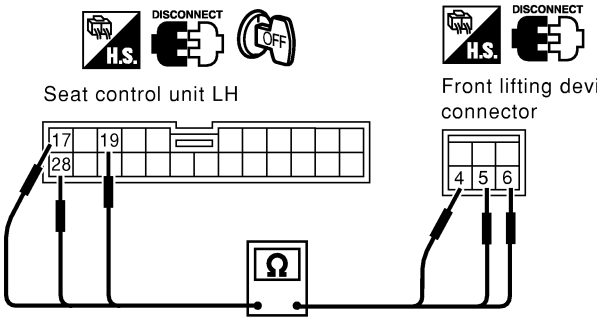
SEL612W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Replace seat control unit LH. |

| 3 | CHECK LIFTING ENCODER (FRONT) OPEN CIRCUIT |
|---|---|

1. Disconnect seat control unit LH connector and front lifting device LH connector.
2. Check harness continuity between seat control unit LH connector B512 terminals 17 (GY/R), 19 (L/R), 28 (Y/G) and front lifting device LH connector B516 terminals 4 (G/Y), 5 (L/R), 6 (Y/G).




| Terminals | | Continuity |
|---|---|---|
| Seat control unit LH | Front lifting device LH Lifing encoder (front) | |
| 17 | 4 | Yes |
| 19 | 5 | |
| 28 | 6 | |

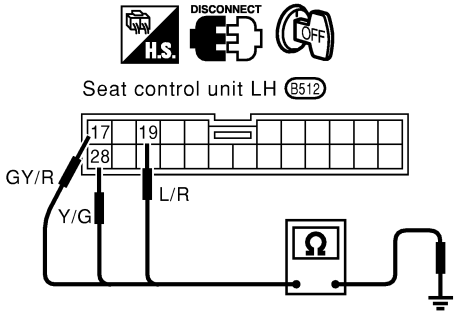
SEL613WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Repair harness. |

| 4 | CHECK LIFTING ENCODER (FRONT) SHORT CIRCUIT |
|---|---|

Check harness continuity between seat control unit LH connector and ground.




| Terminals | Continuity |
|---|---|
| 17 - Ground | No |
| 19 - Ground | |
| 28 - Ground | |

SEL614W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace lifting encoder (front). |
| NG | ▶ | Repair harness. |

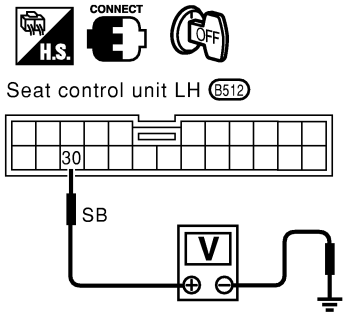
## DIAGNOSTIC PROCEDURE 5

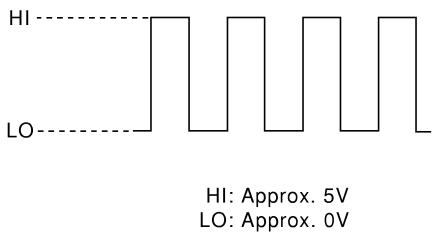
=NFEL0292S08

**[Lifting encoder (rear) check]**

| 1 | CHECK LIFTING ENCODER (REAR) OUTPUT SIGNAL |
|---|---|

Measure voltage between seat control unit LH terminal 30 and ground with CONSULT-II or oscilloscope when power seat lifting (rear) is operated.



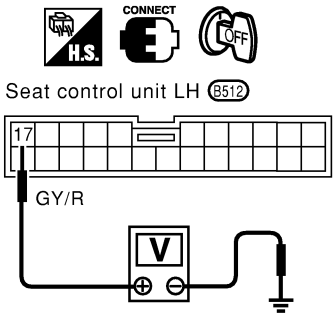

SEL615W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Lifting encoder (rear) is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK LIFTING ENCODER (REAR) INPUT SIGNAL |
|---|---|

Check voltage between seat control unit LH terminal 17 and ground.




**Battery voltage should exist.**

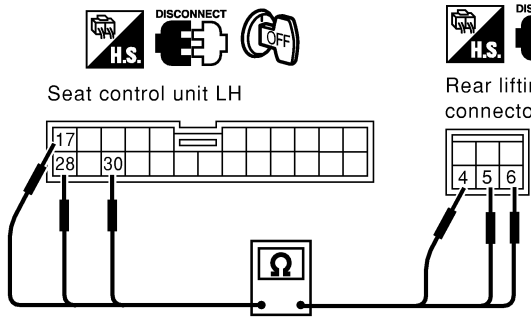
SEL616W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Replace seat control unit LH. |

| 3 | CHECK LIFTING ENCODER (REAR) OPEN CIRCUIT |
|---|---|

1. Disconnect seat control unit LH connector and rear lifting device LH connector.
2. Check harness continuity between seat control unit LH connector B512 terminals 17 (GY/R), 28 (Y/G), 30 (SB) and rear lifting device LH connector B517 terminals 4 (GY/R), 6 (Y/G), 5 (SB).




| Terminals | | Continuity |
|---|---|---|
| Seat control unit LH | Rear lifting device LH Lifing encoder (rear) | |
| 17 | 4 | Yes |
| 28 | 6 | |
| 30 | 5 | |

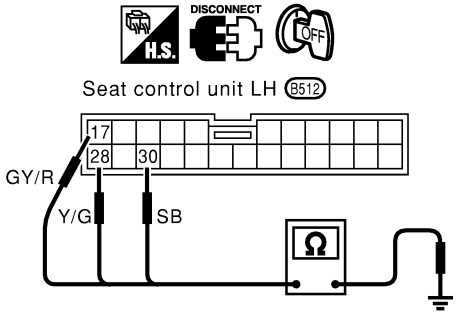
SEL617WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Repair harness. |

| 4 | CHECK LIFTING ENCODER (REAR) SHORT CIRCUIT |
|---|---|

Check harness continuity between seat control unit LH connector and ground.




| Terminals | Continuity |
|---|---|
| 17 - Ground | No |
| 28 - Ground | |
| 30 - Ground | |

SEL618W

**OK or NG**

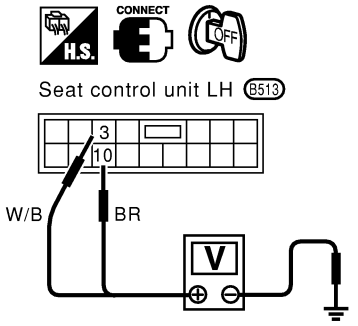
| | | |
|---|---|---|
| OK | ▶ | Replace lifting encoder (rear). |
| NG | ▶ | Repair harness. |

## DIAGNOSTIC PROCEDURE 6
## (Sliding motor check)

=NFEL0292S09

| 1 | CHECK OUTPUT SIGNAL TO SLIDING MOTOR |
|---|---|

Check voltage between seat control unit LH terminals 3 or 10 and ground.




| Condition of sliding switch | Terminals | | Voltage [V] |
|---|---|---|---|
| | + | – | |
| Forward | 3 | Ground | Approx. 12 |
| Backward | 10 | Ground | Approx. 12 |

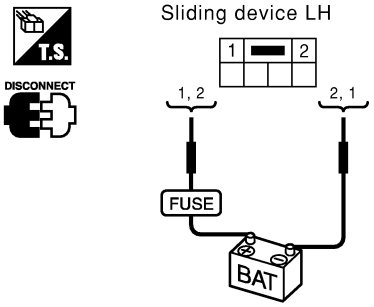
SEL619W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Replace seat control unit LH. |

| 2 | CHECK SLIDING MOTOR |
|---|---|

1. Disconnect sliding device LH connector B518.
2. Apply 12V DC direct current to motor and check operation.




| Terminals | | Operation |
|---|---|---|
| + | – | |
| 2 | 1 | Forward |
| 1 | 2 | Backward |

SEL620WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Check harness for operation between seat control unit LH and sliding motor. |
| NG | ▶ | Replace sliding motor. |

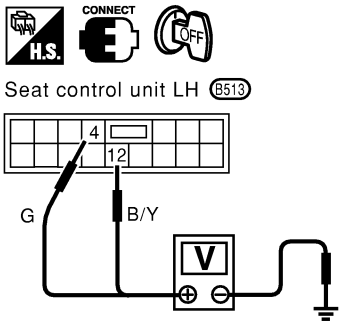
## DIAGNOSTIC PROCEDURE 7

=NFEL0292S10

**(Reclining motor check)**

| 1 | CHECK OUTPUT SIGNAL TO RECLINING MOTOR |
|---|---|

Check voltage between seat control unit LH terminals 4 or 12 and ground.




| Condition of reclining switch | Terminals | | Voltage [V] |
|---|---|---|---|
| | + | – | |
| Forward | 4 | Ground | Approx. 12 |
| Backward | 12 | Ground | Approx. 12 |

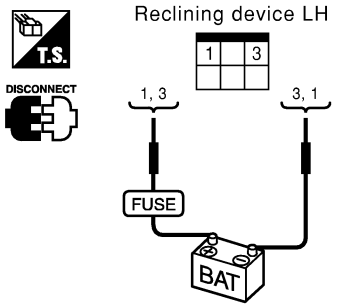
SEL621W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Replace seat control unit LH. |

| 2 | CHECK RECLINING MOTOR |
|---|---|

1. Disconnect reclining device LH connector B515.
2. Apply 12V DC direct current to motor and check operation.




| Terminals | | Operation |
|---|---|---|
| + | – | |
| 1 | 3 | Forward |
| 3 | 1 | Backward |

SEL622WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Check harness for operation between seat control unit LH and reclining motor. |
| NG | ▶ | Replace reclining motor. |

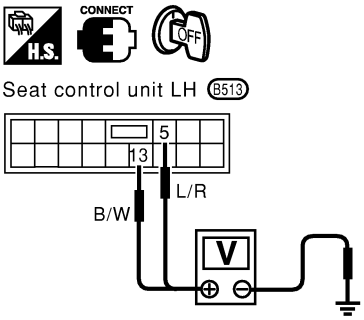
## DIAGNOSTIC PROCEDURE 8

=NFEL0292S11

**[Lifting motor (front) check]**

| 1 | CHECK OUTPUT SIGNAL TO LIFTING MOTOR (FRONT) |
|---|---|

Check voltage between seat control unit LH terminals 5 or 13 and ground.




| Condition of lifting switch (front) | Terminals | | Voltage [V] |
|---|---|---|---|
| | + | – | |
| Up | 13 | Ground | Approx. 12 |
| Down | 5 | Ground | Approx. 12 |

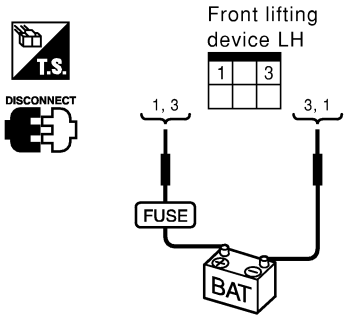
SEL623W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Replace seat control unit LH. |

| 2 | CHECK LIFTING MOTOR (FRONT) |
|---|---|

1. Disconnect front lifting device LH connector B516.
2. Apply 12V DC direct current to motor and check operation.




| Terminals | | Operation |
|---|---|---|
| + | – | |
| 3 | 1 | Up |
| 1 | 3 | Down |

SEL624WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Check harness for operation between seat control unit LH and lifting motor (front). |
| NG | ▶ | Replace lifting motor (front). |

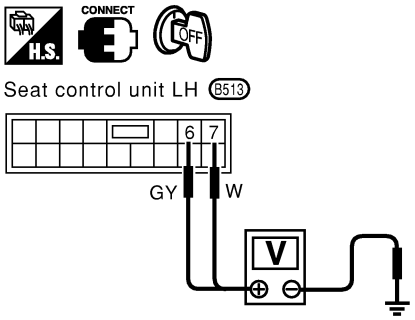
## DIAGNOSTIC PROCEDURE 9

=NFEL0292S12

**[Lifting motor (rear) check]**

| 1 | CHECK OUTPUT SIGNAL TO LIFTING MOTOR (REAR) |
|---|---|

Check voltage between seat control unit LH terminals 6 or 7 and ground.




| Condition of lifting switch (rear) | Terminals | | Voltage [V] |
|---|---|---|---|
| | + | – | |
| Up | 6 | Ground | Approx. 12 |
| Down | 7 | Ground | Approx. 12 |

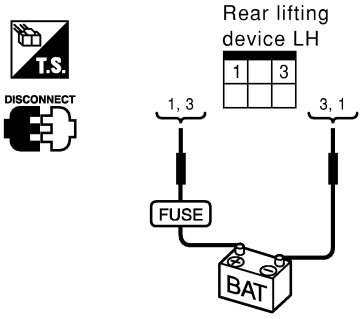
SEL625W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Replace seat control unit LH. |

| 2 | CHECK LIFTING MOTOR (REAR) |
|---|---|

1. Disconnect rear lifting device LH connector B517.
2. Apply 12V DC direct current to motor and check operation.




| Terminals | | Operation |
|---|---|---|
| + | – | |
| 1 | 3 | Up |
| 3 | 1 | Down |

SEL626WB

**OK or NG**

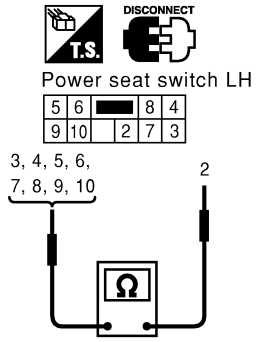
| | | |
|---|---|---|
| OK | ▶ | Check harness for operation between seat control unit LH and lifting motor (rear). |
| NG | ▶ | Replace lifting motor (rear). |

## DIAGNOSTIC PROCEDURE 10
## (Power seat switch check)

=NFEL0292S13

| 1 | CHECK POWER SEAT SWITCH |
|---|---|

1. Disconnect power seat switch LH connector.
2. Check continuity between power seat switch terminals (B515).




| Switch | Condition | Terminals | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 5 | 6 | 8 | 4 | 9 | 10 | 7 | 3 |
| Sliding | Forward | ○ | | | | | | | | ○ |
| | Backward | ○ | | | | ○ | | | | |
| Reclining | Forward | ○ | ○ | | | | | | | |
| | Backward | ○ | | ○ | | | | | | |
| Lifting (Front) | Up | ○ | | | | | ○ | | | |
| | Down | ○ | | | | | | ○ | | |
| Lifting (Rear) | Up | ○ | | | | | | | ○ | |
| | Down | ○ | | | ○ | | | | | |

SEL615Y

**OK or NG**

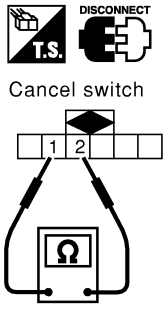
| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Ground circuit for power seat switch<br>● Harness for open or short between seat control unit LH and power seat switch |
| NG | ▶ | Replace power seat switch. |

## DIAGNOSTIC PROCEDURE 11
## (Cancel switch check)

NFEL0292S14

| 1 | CHECK CANCEL SWITCH |
|---|---|

1. Disconnect cancel switch connector.
2. Check continuity between cancel switch terminals (M154).




| Terminals | Cancel switch condition | Continuity |
|---|---|---|
| 1-2 | ON | Yes |
| | OFF | No |

SEL628WB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Ground circuit for cancel switch<br>● Harness for open or short between seat control unit LH and cancel switch |
| NG | ▶ | Replace cancel switch. |

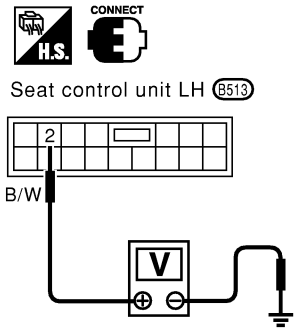
## DIAGNOSTIC PROCEDURE 12

=NFEL0292S15

**(Key, detention, stop lamp, parking brake, door switch and vehicle speed sensor check)**

| 1 | CHECK KEY SWITCH INPUT SIGNAL (A/T MODEL ONLY) |
|---|---|

Check voltage between seat control unit LH terminal 2 (BW) and ground.




| Condition | Voltage [V] |
|---|---|
| Key is inserted | Approx. 12 |
| Key is removed | 0 |

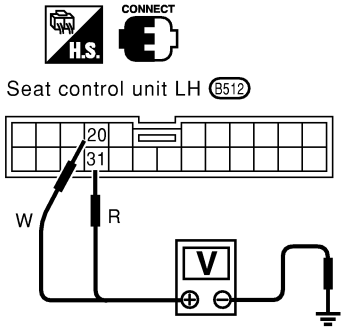
SEL629W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 13, located in fuse block (J/B)]<br>● Key switch<br>● Harness for open or short between key switch and fuse<br>● Harness for open or short between seat control unit LH and key switch |

| 2 | CHECK IGNITION SWITCH INPUT SIGNAL (ON AND START) |
|---|---|

Check voltage between seat control unit LH terminals and ground.




| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| + | – | OFF | ON | START |
| 20 | Ground | Approx. 0V | Battery voltage | |
| 31 | Ground | Approx. 0V | | Battrery voltage |

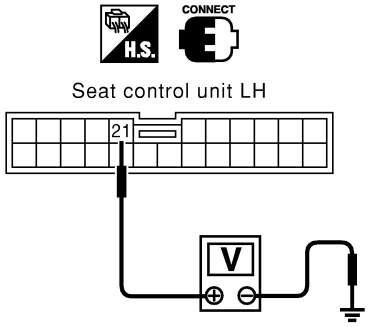
SEL630W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 10, located in fuse block (J/B)]<br>● 10A fuse [No. 21, located in fuse block (J/B)]<br>● Harness for open or short between seat control unit LH and fuse |

| 3 | CHECK PARK POSITION SWITCH (A/T) OR PARKING BRAKE SWITCH (M/T) INPUT SIGNAL |
|---|---|

Check voltage between seat control unit LH harness connector B512 terminal 21 (GY) and ground.




| | Condition | Voltage [V] |
|---|---|---|
| A/T | Selector lever is in "P" position | 0 |
| | Except above | Approx. 12 |
| M/T | Parking brake is applied | 0 |
| | Parking brake is released | Approx. 12 |

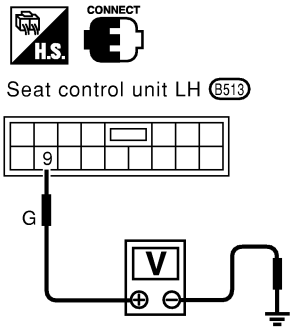
SEL416Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | **Check the following.**<br>● Park position switch (A/T) or parking brake switch (M/T)<br>● Park position switch ground circuit (A/T)<br>● Harness for open or short between seat control unit LH and park position switch (A/T) or parking brake switch (M/T) |

| 4 | CHECK DRIVER DOOR SWITCH INPUT SIGNAL (A/T MODEL ONLY) |
|---|---|

Check voltage between seat control unit LH terminal 9 and ground.




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

SEL632W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 5. |
| NG | ▶ | **Check the following.**<br>● Driver door switch<br>● Driver door switch ground circuit<br>● Harness for open or short between seat control unit LH and driver door switch |

| 5 | CHECK VEHICLE SPEED SENSOR |
|---|---|

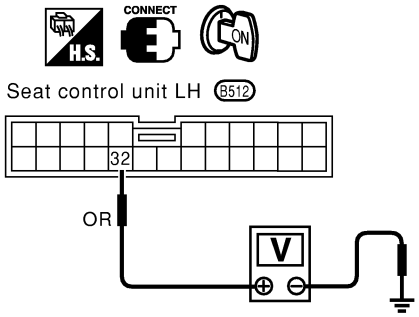
Does speedometer operate normally?

**Yes or No**

| | | |
|---|---|---|
| OK | ▶ | GO TO 6. |
| NG | ▶ | Check speedometer and vehicle speed sensor circuit. Refer to EL-125. |

| 6 | CHECK VEHICLE SPEED SENSOR PULL UP VOLTAGE |
|---|---|

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




**Approx. 5V should exist.**

SEL633W

**OK or NG**

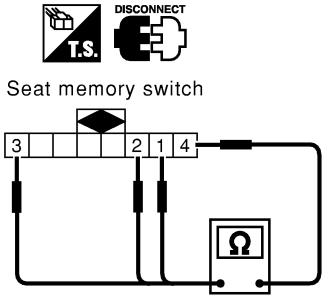
| | | |
|---|---|---|
| OK | ▶ | Harness for open or short between seat control unit LH and combination meter. |
| NG | ▶ | Repair harness. |

## DIAGNOSTIC PROCEDURE 13
## (Seat memory switch check)

NFEL0292S16

| 1 | CHECK SEAT MEMORY SWITCH |
|---|---|

1. Disconnect seat memory switch connector.
2. Check continuity between seat memory switch terminals (D14).




| Switch | Condition | Terminals | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| Memory-1 | ON | ○ | | | ○ |
| Memory-2 | ON | | ○ | | ○ |
| Set | ON | | | ○ | ○ |

SEL634WB

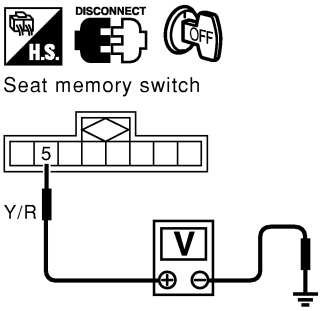
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Ground circuit for seat memory switch<br>● Harness for open or short between seat control unit LH and seat memory switch |
| NG | ▶ | Replace seat memory switch. |

## DIAGNOSTIC PROCEDURE 14
## (Memory indicator check)

=NFEL0292S17

| 1 | CHECK INDICATOR LAMP | |
|---|---|---|
| Check indicator lamp illumination.<br>**OK or NG** | | |
| OK | ▶ | GO TO 2. |
| NG | ▶ | Replace seat memory switch (indicator lamp). |

| 2 | CHECK POWER SUPPLY CIRCUIT FOR INDICATOR LAMP | |
|---|---|---|
| 1. Disconnect seat memory switch connector (D14).<br>2. Check voltage between seat memory switch terminal 5 and ground.<br>  <br><br>**Battery voltage should exist.**<br>SEL635WB<br>**OK or NG** | | |
| OK | ▶ | Check harness for open or short between seat control unit LH and seat memory switch |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 12 located in the fuse block (J/B)]<br>● Harness for open or short between fuse and indicator lamp |

## System Description

NFEL0190

Refer to EC-53, “Automatic Speed Control Device (ASCD) System” in “ENGINE AND EMISSION CONTROL SYSTEM”. BASIC DESCRIPTION

## System Description

NFEL0191

Power is supplied at all times
- from 40A fusible link (letter **I**, located in the fuse and fusible link box)
- to circuit breaker terminal 1
- through circuit breaker terminal 2
- to power window relay terminal 3 and
- to front power window main switch terminal 4
- to front power window switch RH terminal 6.

With ignition switch in ON or START position, power is supplied
- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to rear power window switch LH and RH terminal 6
- to smart entrance control unit terminal 27.

Ground is supplied to power window relay terminal 1
- through body grounds M9, M25 and M87.

Ground is supplied to rear power window switch LH terminal 7
- through body ground B12 and B7 (without CD auto changer), or B59 (with CD auto changer).

Ground is supplied to rear power window switch RH terminal 7
- through body grounds B106 and B127.

The power window relay is energized and power is supplied
- through power window relay terminal 5
- to front power window main switch terminal 11,
- to front power window switch RH terminal 13,
- to rear power window switch LH and RH terminal 5.

### MANUAL OPERATION

NFEL0191S01

#### Front Door LH

NFEL0191S0101

Ground is supplied
- to front power window main switch terminal 5
- through body grounds M9, M25 and M87.

WINDOW UP
When the front LH switch in the front power window main switch is pressed in the up position, power is supplied
- to front power window regulator LH terminal 1
- through front power window main switch terminal 2.

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

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

WINDOW DOWN
When the LH switch in the power window main switch is pressed in the down position, power is supplied
- to front power window regulator LH terminal 3
- through front power window main switch terminal 3.

Ground is supplied
- to front power window regulator LH terminal 1
- through front power window main switch terminal 2.

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

#### Front Door RH

NFEL0191S0102

Ground is supplied
- to front power window switch RH terminal 5
- through body grounds M9, M25 and M87.

WINDOW UP
When the front RH switch in the front power window switch is pressed in the UP position, power is supplied

- to front power window regulator RH terminal 1
- through front power window switch RH terminal 5.

Ground is supplied

- to front power window regulator RH terminal 3
- through front power window switch RH terminal 4.

Then, the motor raises the window until the switch is released.
WINDOW DOWN
When the RH switch in the front power window switch is pressed in the DOWN position, power is supplied

- to front power window regulator RH terminal 3
- through front power window switch RH terminal 4.

Ground is supplied

- to front power window regulator RH terminal 1
- through front power window switch RH terminal 5.

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

### Rear Door

NFEL0191S0103

REAR DOOR
MAIN SWITCH OPERATION
Rear Door LH
Power is supplied

- through front power window main switch terminal (13, 12)
- to rear power window switch LH terminal (3, 4)

The subsequent operation is the same as front power window switch RH operation.
REAR POWER WINDOW SWITCH LH OPERATION
Power is supplied

- through rear power window switch LH terminal (1, 2)
- to rear power window regulator LH terminal (1, 2)

Ground is supplied

- to rear power window regulator LH terminal (2, 1)
- through rear power window switch LH terminal (2, 1)
- to rear power window switch LH terminal (4, 3)
- through front power window main switch terminal (12, 13)

Then, the motor raises or lowers the window until the switch is released.
Rear Door RH
Power is supplied

- through front power window main switch terminal (9, 10)
- to rear power window switch RH terminal (3, 4)
- through rear power window switch RH terminal (1, 2)
- to rear power window regulator RH terminal (1, 2)

Ground is supplied

- to rear power window regulator RH terminal (2, 1)
- through rear power window switch RH terminal (2, 1)
- to rear power window switch RH terminal (4, 3)
- through front power window main switch terminal (10, 9)

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

### Power Window Opened/Closed Operation

NFEL0191S0104

- When ignition key switch is OFF, front power window can be opened or closed by turning the front door key cylinder to UNLOCK/LOCK direction.
- Power window can be opened as the door key cylinder is kept fully turning to the UNLOCK direction.
- Power window can be closed as the door key cylinder is kept fully turning to the LOCK direction.

The power window opening stops when the following operations are carried out:

- While performing open/close the window, power window is stopped at the position as the door key cylinder is placed on Neutral.

- When the ignition switch is turned ON while the power window opening is operated.

## AUTO OPERATION

NFEL0191S02

The power window AUTO feature enables the driver to open or close the driver's and passenger's side windows without holding the window switch in the down or up position.
The AUTO feature only operates on the driver's and passenger's side windows.

## POWER WINDOW LOCK

NFEL0191S03

The power window lock is designed to lock operation of all windows except for driver's door window.
When the lock switch is pressed to lock position, ground of the front and rear power window switches in the power window main switch is disconnected. This prevents the power window motors from operating.

## RETAINED POWER OPERATION

NFEL0191S04

When the ignition switch is turned to OFF position from ON or START position, power is supplied for 45 seconds

- to power window relay terminal 2
- from smart entrance control unit terminal 46.

Ground is always supplied

- to power window relay terminal 1
- through body grounds M9, M25 and M87.

When power and ground are supplied, the power window relay continues to be energized, and the power window can be operated.
The retained power operation is canceled when the driver or passenger side door is opened.
RAP signal's period can be changed by CONSULT-II. (Refer to EL-257.)

## INTERRUPTION DETECTION FUNCTION

NFEL0191S05

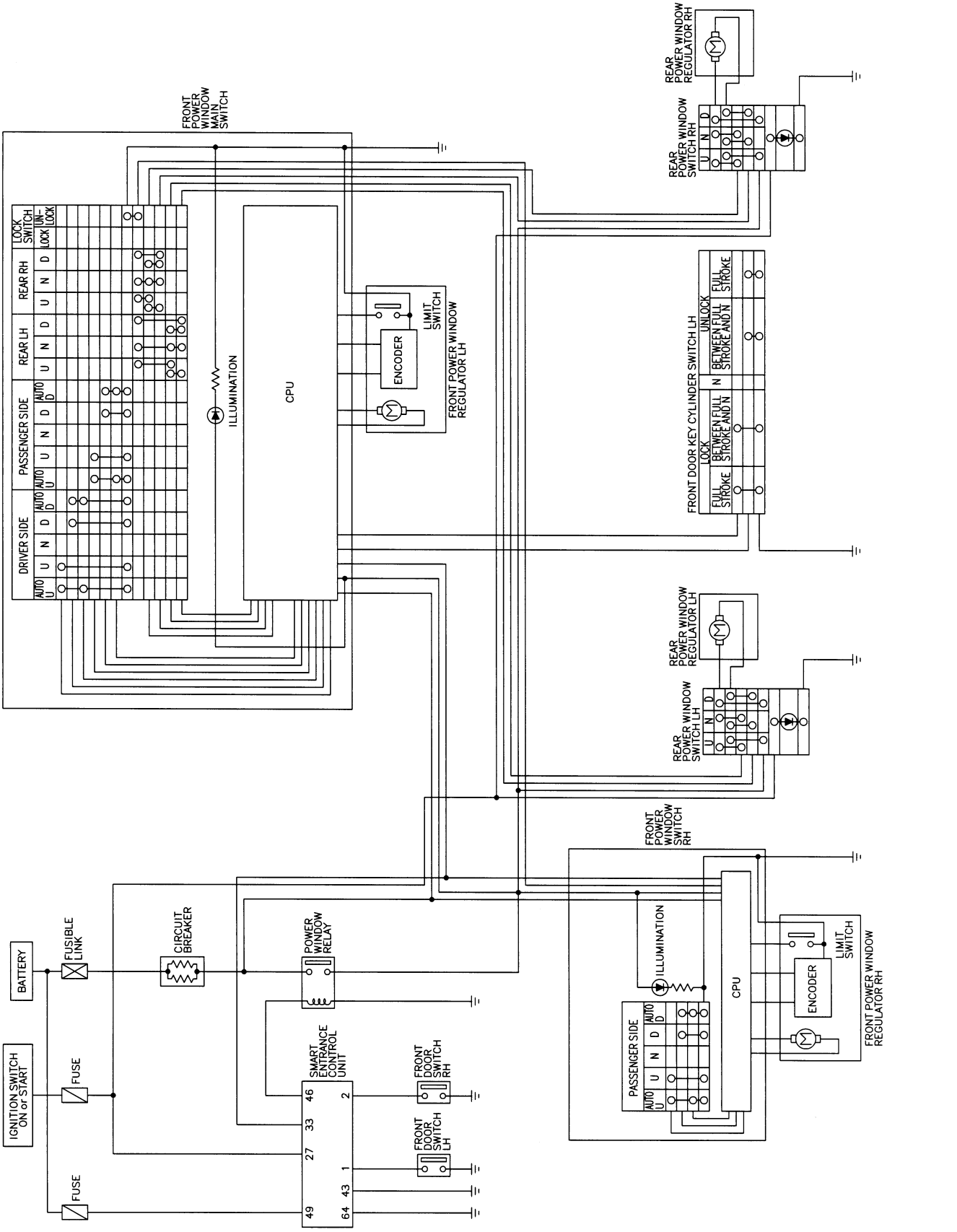
Power window main switch monitors the power window regulator motor operation and the power window position (full closed or other) for driver's and passenger's side power window by the signals from encoder and limit switch in front power window regulator (driver's and passenger's side).
When power window main switch detects interruption during the following close operation in the driver's side door,

- automatic close operation when ignition switch is in the "ON" position
- automatic close operation during retained power operation
- manual close operation during retained power operation

power window main switch controls driver's and passenger's side power window regulator motor for open and the power window will be lowered about 150 mm (5.91 in).

## Schematic

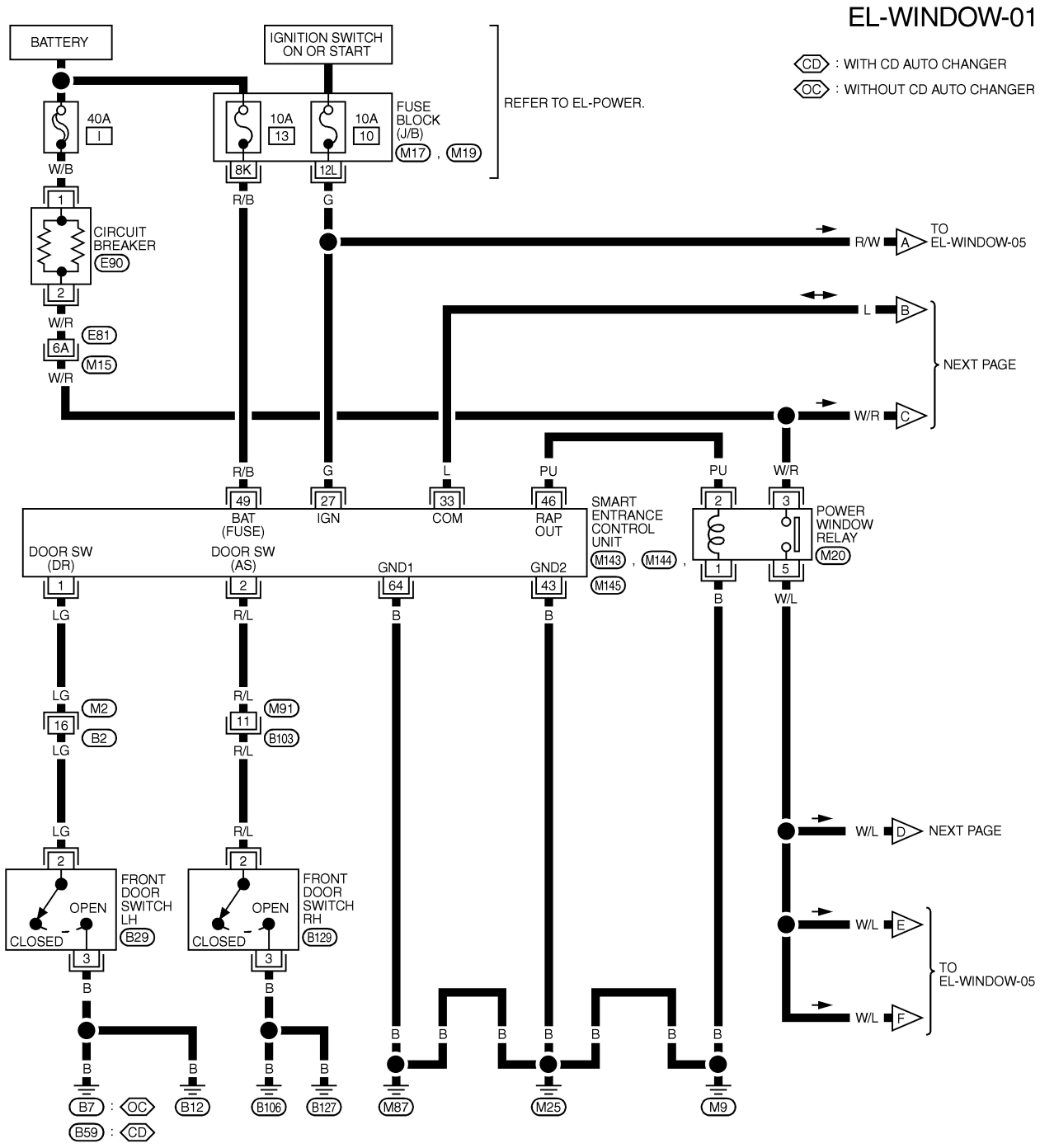
NFEL0103

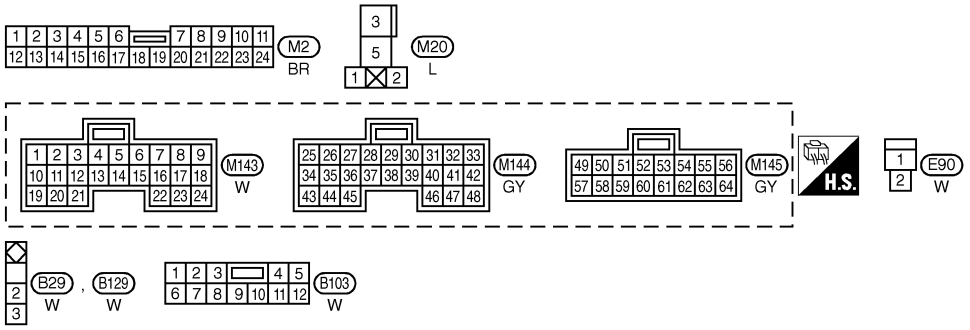



MEL751P

## Wiring Diagram — WINDOW —

NFEL0104

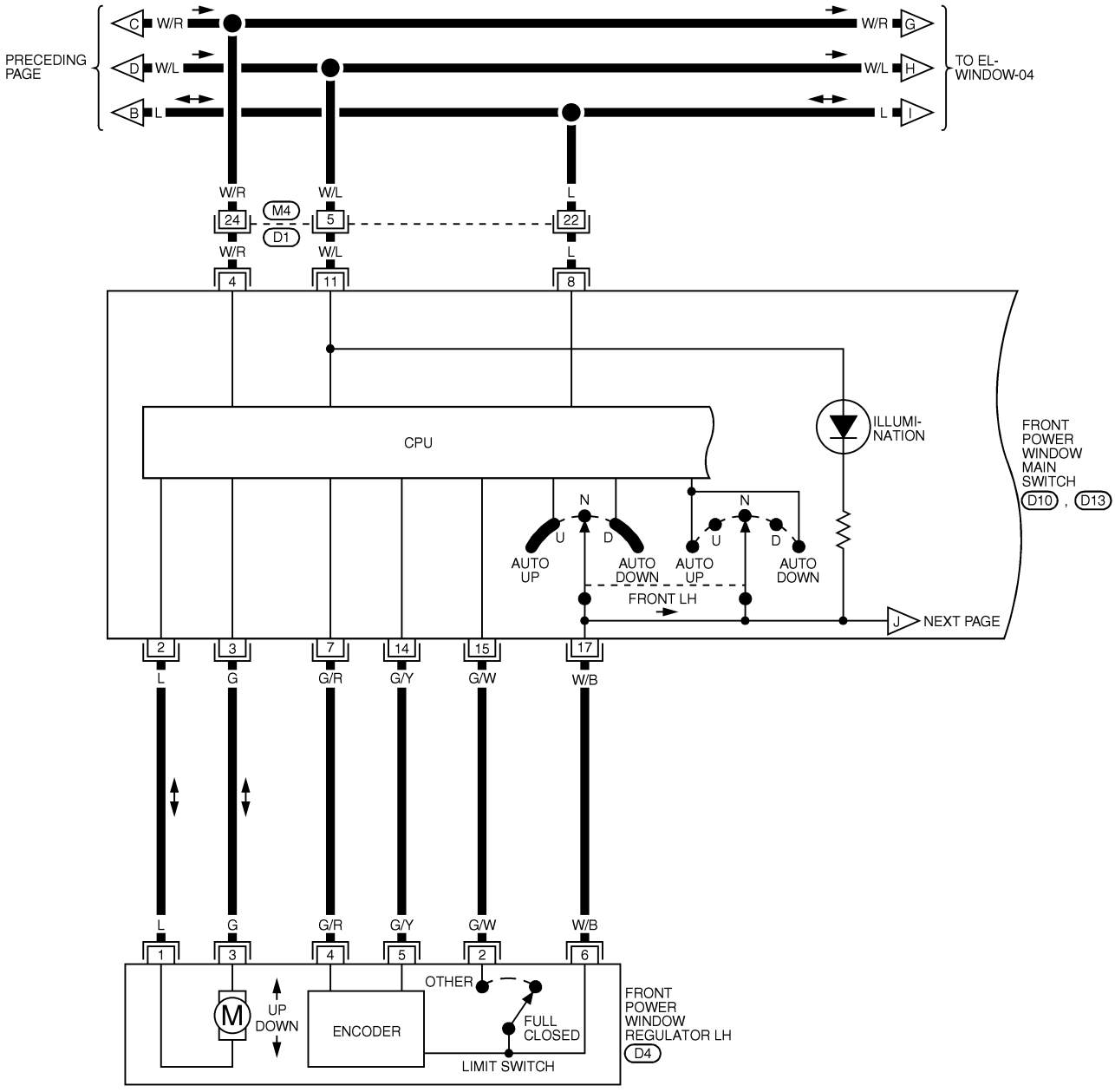


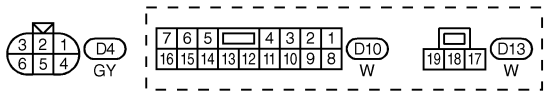




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL170O

EL-WINDOW-02

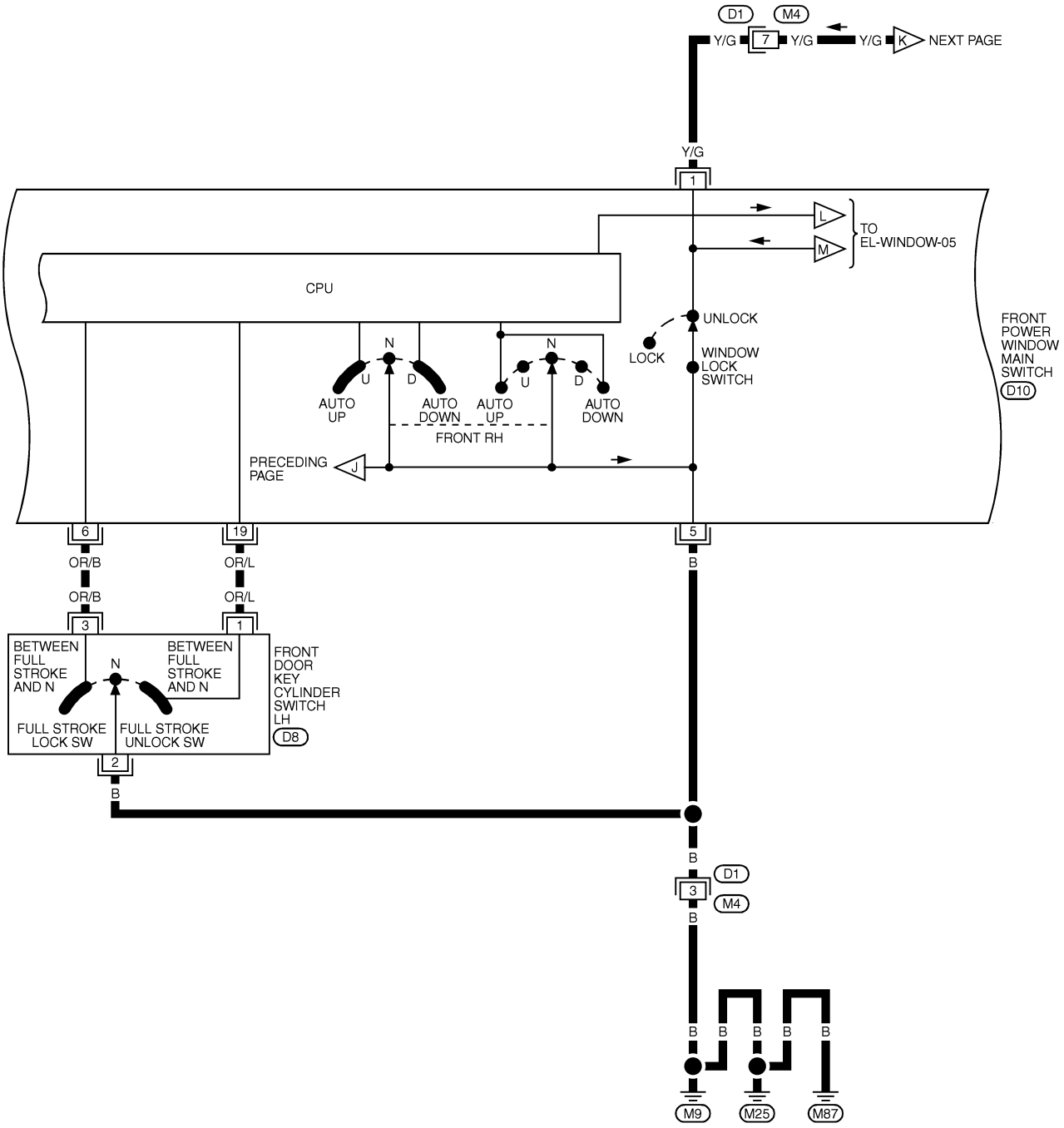


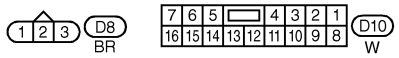




REFER TO THE FOLLOWING.
D1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL731P

EL-WINDOW-03

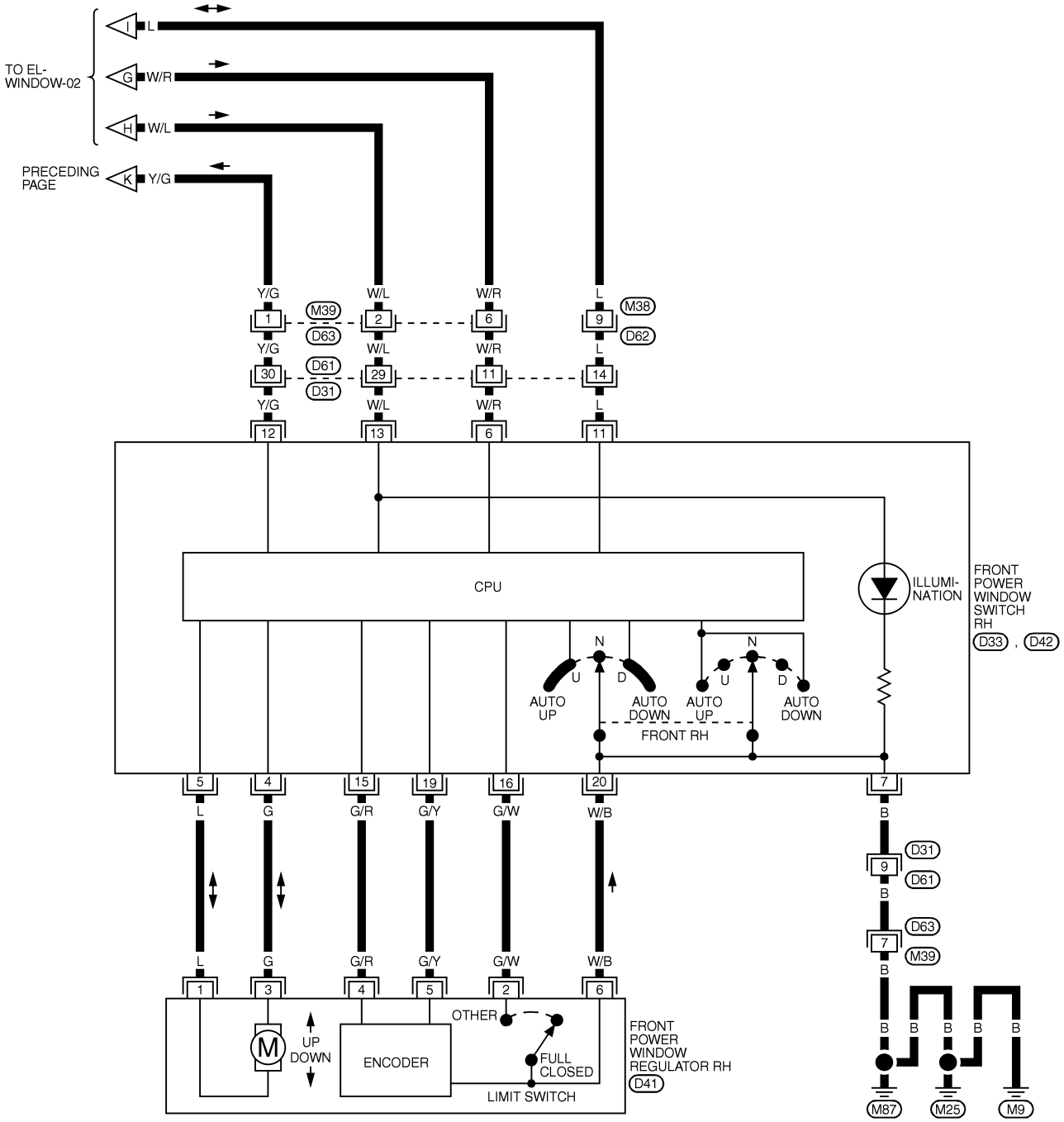


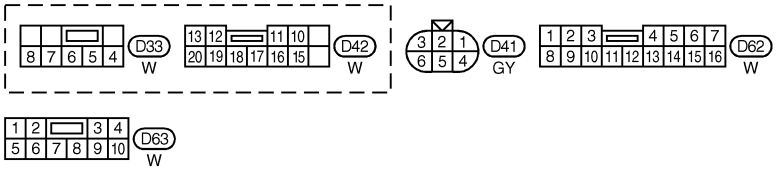




REFER TO THE FOLLOWING.
D1 -SUPER
MULTIPLE JUNCTION (SMJ)

MEL172O

EL-WINDOW-04

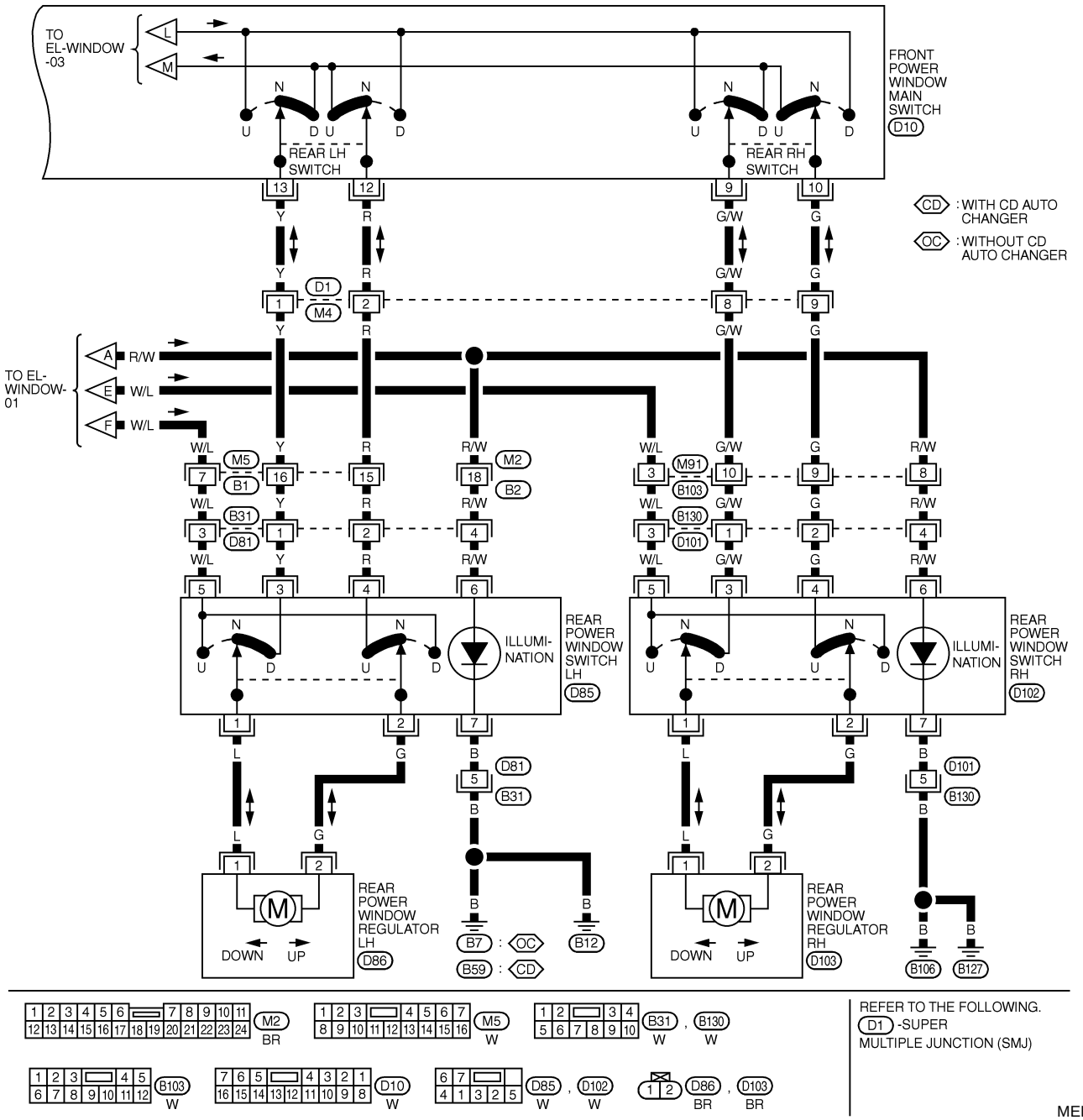



REFER TO THE FOLLOWING.
D31 -SUPER MULTIPLE JUNCTION (SMJ)

MEL732P

EL-WINDOW-05



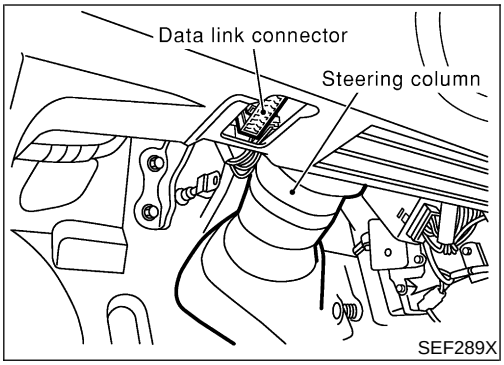

MEL174O

**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 5V → 0V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION KEY IS IN "ON" POSITION | 12V |
| 33 | L | COMMUNICATION INTERFACE | DOOR LOCK & UNLOCK SWITCHES (NEUTRAL → LOCK/UNLOCK)<br>FRONT DOOR KEY CYLINDER SWITCH LH (NEUTRAL → LOCK/UNLOCK) | *1 |
| 43 | B | GROUND | – | – |
| 46 | PU | POWER WINDOW RELAY | RETAIND POWER OPERATION IS OPERATED (ON → OFF) | 12V → 0V |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 64 | B | GROUND | – | – |

*1: REFER TO "SMART ENTRANCE CONTROL UNIT INSPECTION TABLE" IN "SMART ENTRANCE CONTROL UNIT".

SEL480Y



SEF289X

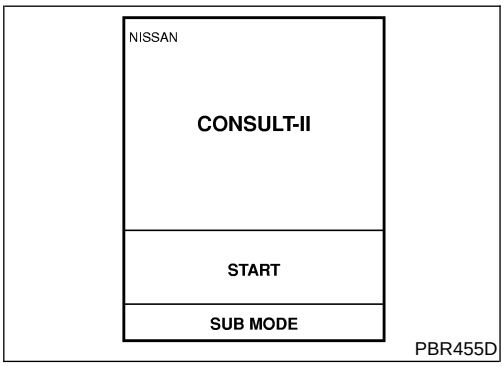
## CONSULT-II Inspection Procedure

NFEL0235

**“RETAINED PWR”**

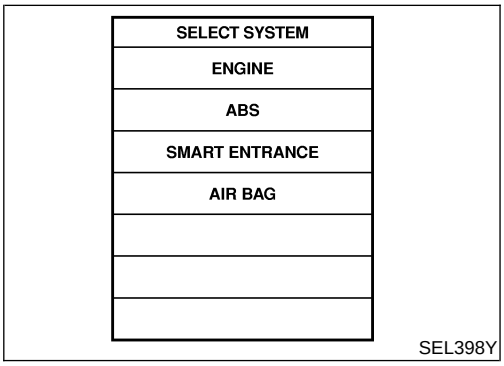
NFEL0235S01

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



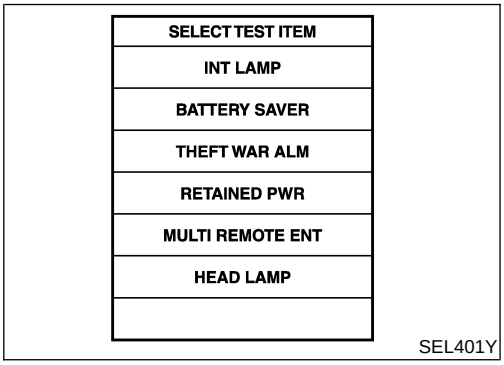
PBR455D

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



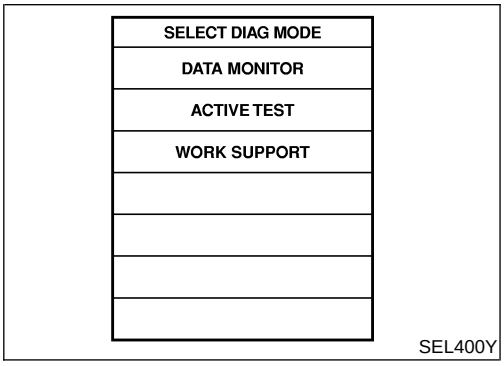
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL401Y

6. Touch “RETAINED PWR”.



SEL400Y

7. Select diagnosis mode.
   “DATA MONITOR”, “ACTIVE TEST” and “WORK SUPPORT” are available.

# CONSULT-II Application Items

NFEL0236

## "RETAINED PWR" Data Monitor

NFEL0236S01

NFEL0236S0101

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |
| DOOR SW-AS | Indicates [ON/OFF] condition of front door switch RH. |

## Active Test

NFEL0236S0102

| Test Item | Description |
|---|---|
| RETAINED PWR | This test is able to supply RAP signal (power) from smart entrance control unit to power window system, power sunroof system and headlamp battery saver control unit. Those systems can be operated when turning on "RETAINED PWR" on CONSULT-II screen even if the ignition switch is tuned OFF.<br>**NOTE:**<br>**During this test, CONSULT-II can be operated with ignition switch in "OFF" position. "RETAINED PWR" should be turned "ON" or "OFF" on CONSULT-II screen when ignition switch is ON. Then turn ignition switch OFF to check retained power operation. CONSULT-II might be stuck if "RETAINED PWR" is turned "ON" or "OFF" on CONSULT-II screen when ignition switch is OFF.** |

## Work Support

NFEL0236S0103

| Work Item | Description |
|---|---|
| RETAINED PWR SET | Rap signal's power supply period can be changed by mode setting. Selects rap signal's power supply period between two steps.<br>● MODE 1 (45 sec.)/MODE 2 (OFF) |

# Trouble Diagnoses

NFEL0105

| Symptom | Possible cause | Repair order |
|---|---|---|
| None of the power windows can be operated using any switch. | 1. 10A fuse, 40A fusible link<br>2. E90 circuit breaker<br>3. Power window relay<br>4. E90 circuit breaker circuit<br>5. Power window relay circuit<br>6. Ground circuit<br>7. Front power window main switch | 1. Check 10A fuse [No. 13 located in fuse block (J/B)], 40A fusible link (letter **I**, located in fuse and fusible link box).<br>2. Check E90 circuit breaker.<br>3. Check power window relay.<br>4. Check the following.<br>a. Check harness between E90 circuit breaker and 40A fusible link (letter **I**, located in fuse and fusible link box).<br>b. Check harness between E90 circuit breaker and power window main switch.<br>5. Check the following.<br>a. Check harness between E90 circuit breaker and power window relay.<br>b. Check harness between fuse and power window relay.<br>6. Check the following.<br>a. Check ground circuit of front power window main switch terminal 5.<br>b. Check power window relay ground circuit.<br>7. Check front power window main switch. |

*Trouble Diagnoses (Cont'd)*

| Symptom | Possible cause | Repair order |
|---|---|---|
| Driver side power window cannot be operated but other windows can be operated. | 1. Driver side power window regulator circuit<br>2. Driver side power window regulator<br>3. Front power window main switch | 1. Check harness between front power window main switch and driver side power window regulator for open or short circuit.<br>2. Check driver side power window regulator.<br>3. Check front power window main switch. |
| One or more power windows except driver's side window cannot be operated. | 1. Power window switches<br>2. Power window regulators<br>3. Power window main switch<br>4. Power window circuit | 1. Check power window switch.<br>2. Check power window regulator.<br>3. Check power window main switch.<br>4. Check the following.<br>a. Check harness between the rear power window switch (LH and RH) terminal 5 and power window relay terminal 5.<br>b. Check harnesses between power window main switch and power window switch for open/short circuit.<br>c. Check harnesses between power window switch and power window regulator for open/short circuit. |
| Power windows except driver's side window cannot be operated using power window main switch but can be operated by power window switch. | 1. Power window main switch | 1. Check front power window main switch. |
| Driver side power window automatic operation does not function properly. | 1. Front power window main switch<br>2. Encoder and limit switch | 1. Check front power window main switch.<br>2. Check encoder and limit switch. (EL-259) |
| Retained power operation does not operate properly. | 1. RAP signal circuit<br>2. Driver or passenger side door switch circuit<br>3. Smart entrance control unit | 1. Check RAP signal.<br>a. (With CONSULT-II)<br>● Check RAP signal with CONSULT-II.<br>Use "WORK SUPPORT" mode, "RETAINED PWR" in "SMART ENTRANCE". (Refer to EL-256.)<br>● Check RAP signal with CONSULT-II.<br>Use "ACTIVE TEST" mode, "RETAINED PWR" in "SMART ENTRANCE".<br>(Refer to EL-256.)<br>If NG, go to the step b. below.<br>b. Verify 12 positive voltage from smart entrance control unit is present at terminal 2 of power window relay:<br>● Within 45 seconds after ignition switch turns off.*1<br>● When front door LH and RH is closed.<br>2. Check harness between smart entrance control unit and driver or passenger side door switch for short circuit.<br>Check driver or passenger side door switch ground circuit.<br>Check driver or passenger side door switch.<br>3. Check smart entrance control unit. (EL-350) |
| Interruption detection function does not operate properly. | 1. Encoder and limit switch | 1. Check encoder and limit switch. (EL-259) |

**NOTE: *1 RAP signal's period can be changed by CONSULT-II. (EL-257)**

## ENCODER AND LIMIT SWITCH CHECK

=NFEL0105S01

| 1 | CHECK DOOR WINDOW SLIDE MECHANISM |
|---|---|

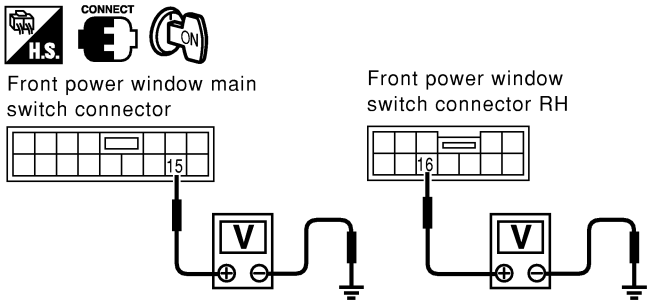
Check the following.
- Obstacles in window, glass molding, etc.
- Worn or deformed glass molding
- Door sash tilted too far inward or outward
- Door window regulator

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Remove obstacles or repair door window slide mechanism. |

| 2 | CHECK POWER SUPPLY TO LIMIT SWITCH |
|---|---|

Check voltage between front power window main switch harness connector D10 terminal 15 (G/W) and ground or front power window switch RH harness connector D42 terminal 16 (G/W) and ground.




**Voltage: 5V**

**NOTE: Check voltage when front power window regulator LH or RH harness connector is disconnected.**

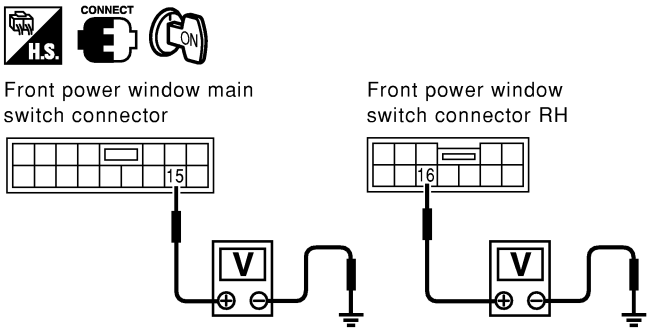
SEL418Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Replace front power window main switch or front power window switch RH. |

| 3 | CHECK LIMIT SWITCH OPERATION |
|---|---|

Check voltage between front power window main switch harness connector D10 terminal 15 (G/W) and ground or front power window switch RH harness connector D42 terminal 16 (G/W) and ground during power window closing operation.




| Terminal No. (+) | Terminal No. (−) | Condition | Voltage (DCV) |
|---|---|---|---|
| 15 or 16 | Ground | Approx. 15 mm (0.59 in)-below the full closed position to full closed position | Approx. 5 |
| | | Other positions | Approx. 0 |

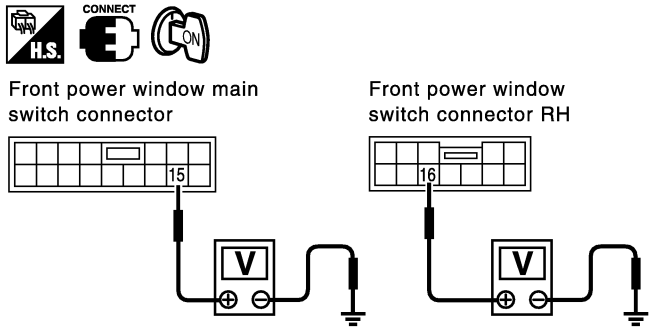
SEL419Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 5. |
| NG | ▶ | GO TO 4. |

| 4 | RESET LIMIT SWITCH |
|---|---|

Reset limit switch. Refer to BT-22, "Front Door Glass Limit Switch Reset". Then check voltage between front power window main switch harness connector D10 terminal 15 (G/W) and ground or front power window switch RH harness connector D42 terminal 16 (G/W) and ground during power window closing operation at least ten times.




| Terminal No. (+) | Terminal No. (–) | Condition | Voltage (DCV) |
|---|---|---|---|
| 15 or 16 | Ground | Approx. 15 mm (0.59 in)-below the full closed position to full closed position | Approx. 5 |
| | | Other positions | Approx. 0 |

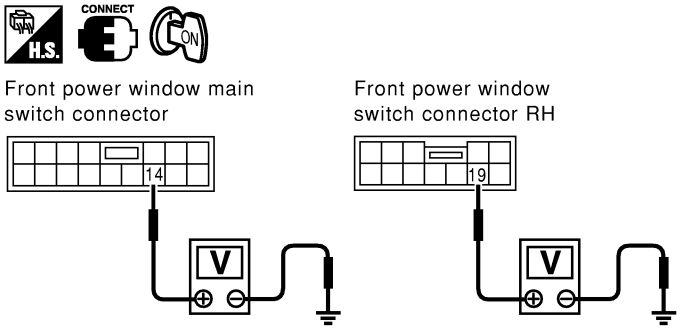
SEL420Y

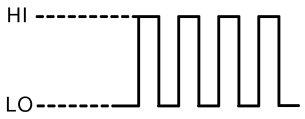
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 5. |
| NG | ▶ | Replace power window regulator motor (front driver side or passenger side). |

| 5 | CHECK ENCODER |
|---|---|

Measure voltage between front power window main switch harness connector D10 terminal 14 (G/Y) and ground or front power window switch RH harness connector D42 terminal 19 (G/Y) and ground with oscilloscope when power window is in automatic closing operation.




**HI: Approx. 5V**
**LO: Approx. 0V**

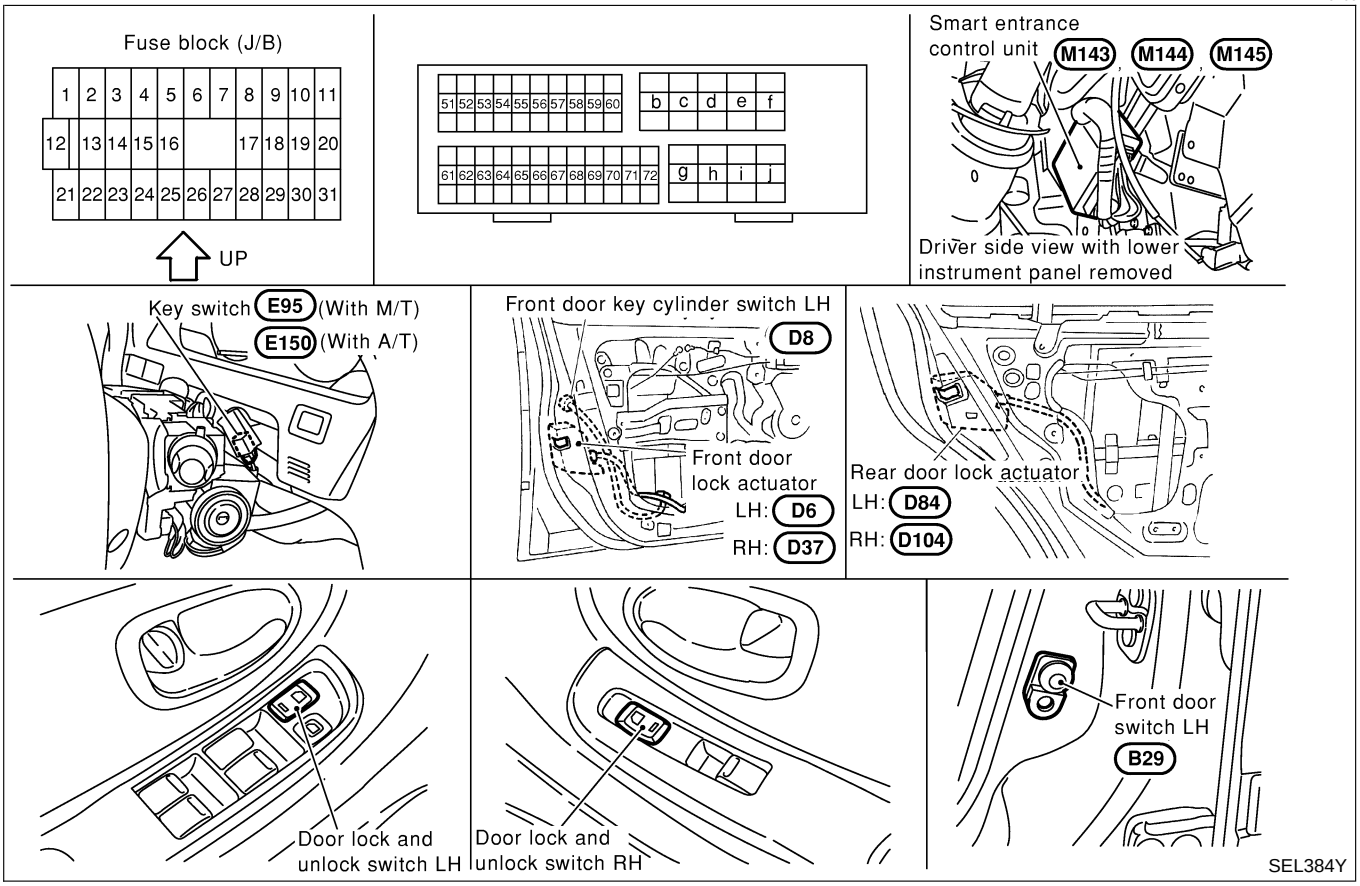
SEL421Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace power window main switch. |
| NG | ▶ | Replace power window regulator motor (front driver side or passenger side). |

## Component Parts and Harness Connector Location

NFEL0106




## System Description

NFEL0107

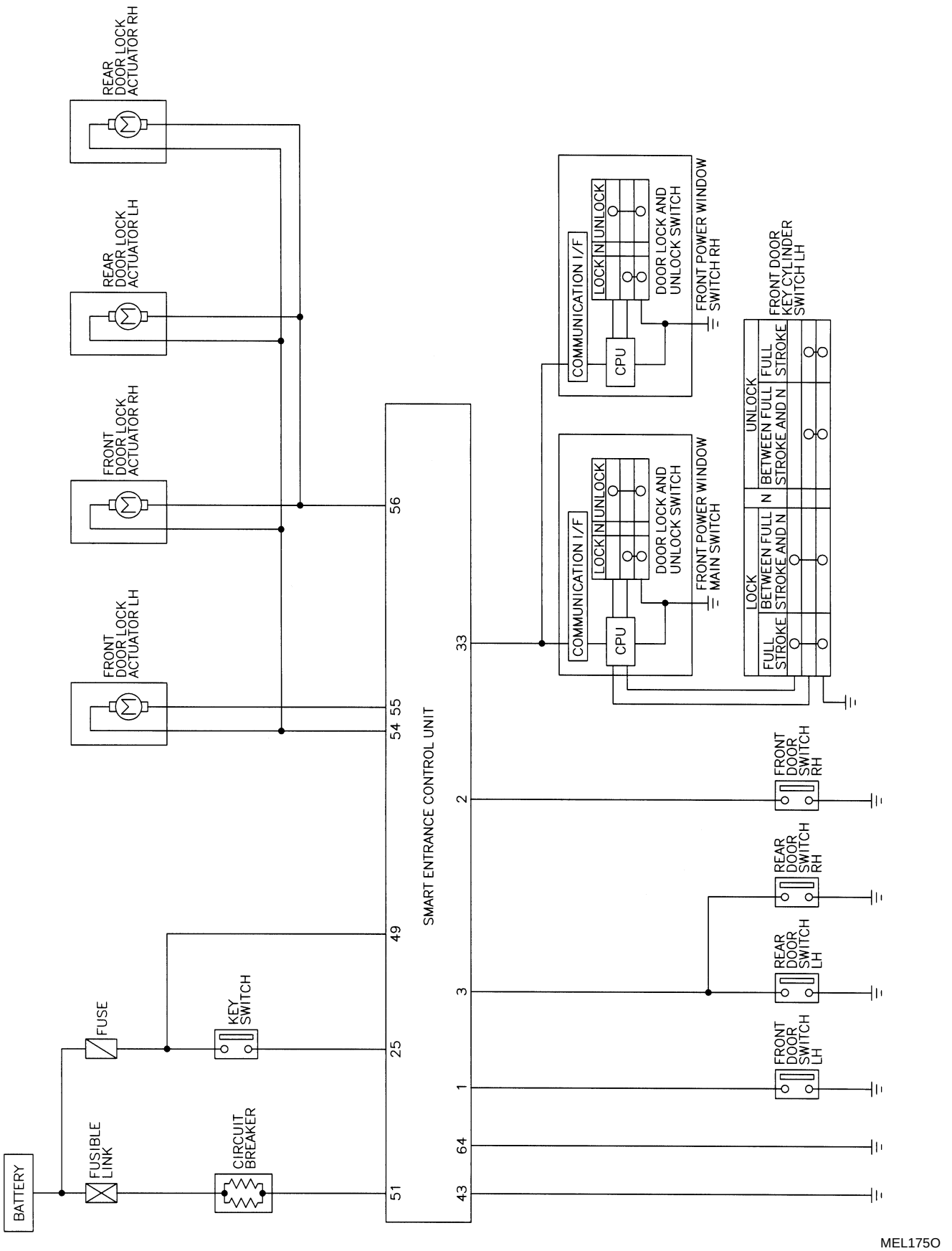
### OPERATION

NFEL0107S04

- The lock/unlock switches (LH and RH) on door trim can lock and unlock all doors.
- With the door key inserted in the key cylinder on front LH, 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 door key cylinder switch)
  Select unlock mode can be changed by CONSULT-II (EL-268).
- If the ignition key is in the ignition key cylinder and one or more of the doors are open, setting the lock/unlock switch to “LOCK” locks the doors once but then immediately unlocks them. Key reminder door mode can be changed by CONSULT-II (EL-268).

## Schematic

NFEL0108



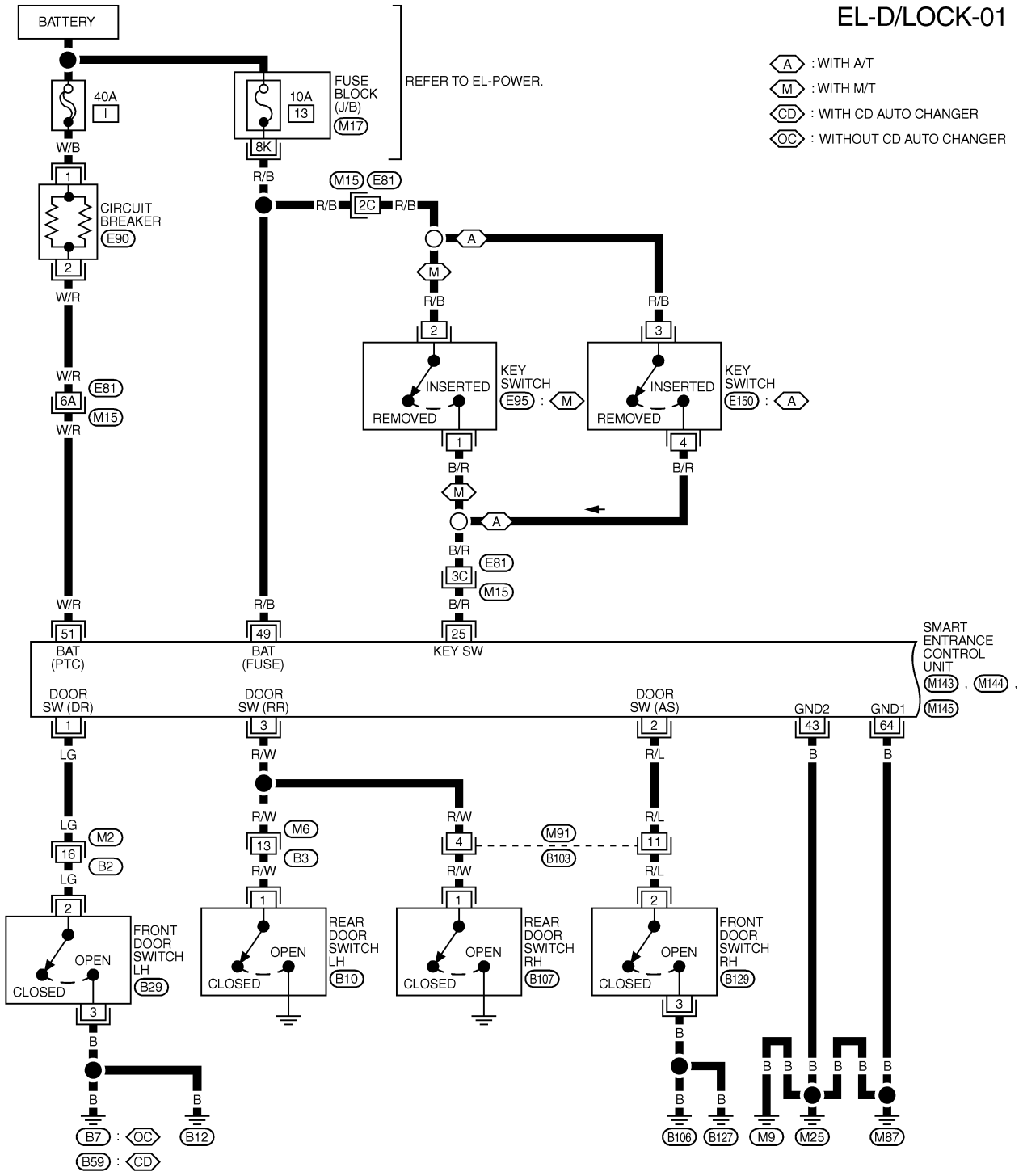

MEL175O

# Wiring Diagram — D/LOCK —

NFEL0109

**FIG. 1**

NFEL0109S01




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 -FUSE BLOCK-JUNCTION BOX (J/B)

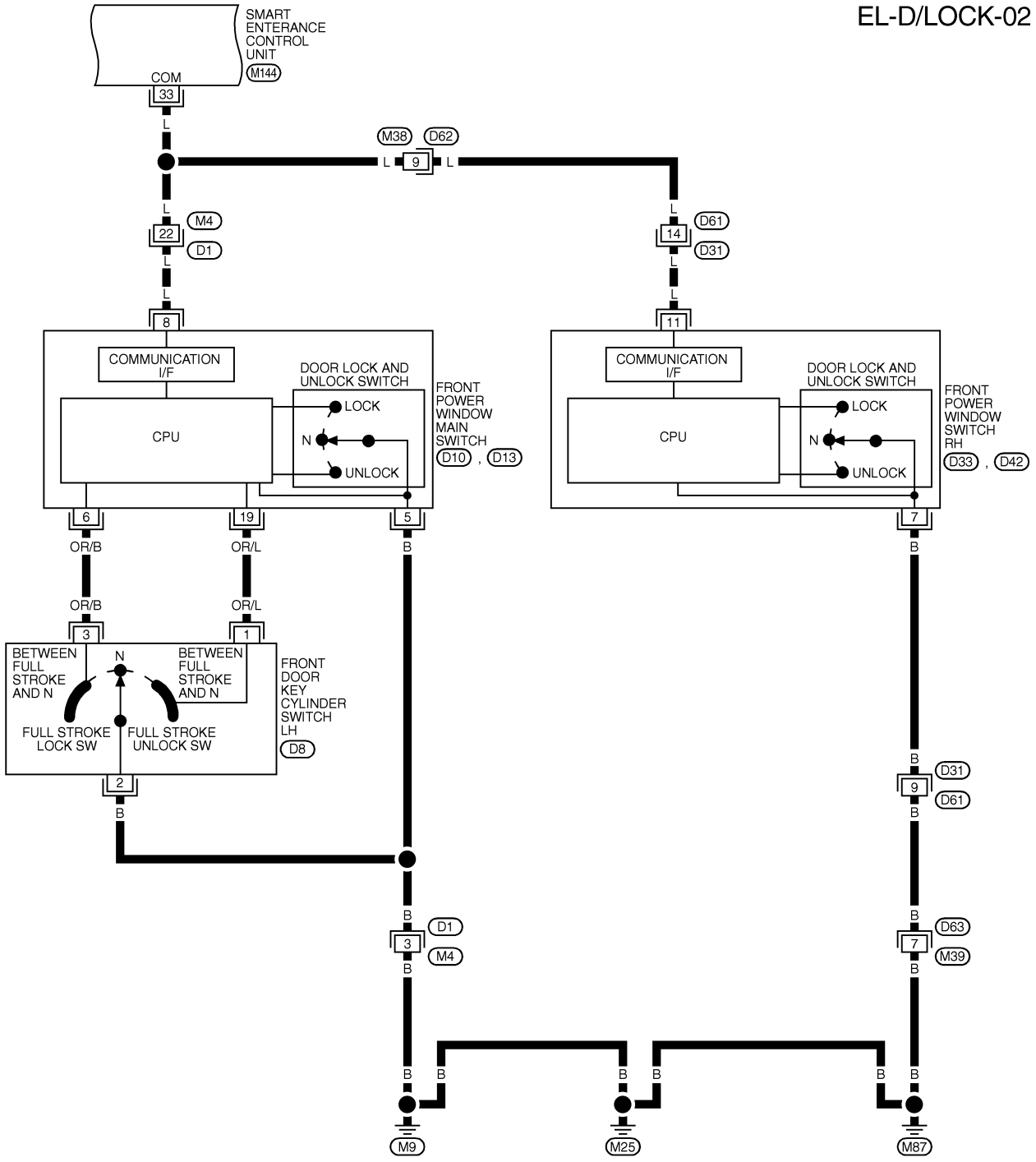
MEL176O

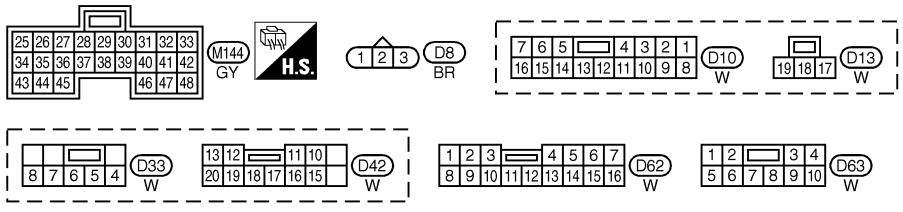
*Wiring Diagram — D/LOCK — (Cont'd)*

**FIG. 2**

NFEL0109S02

EL-D/LOCK-02



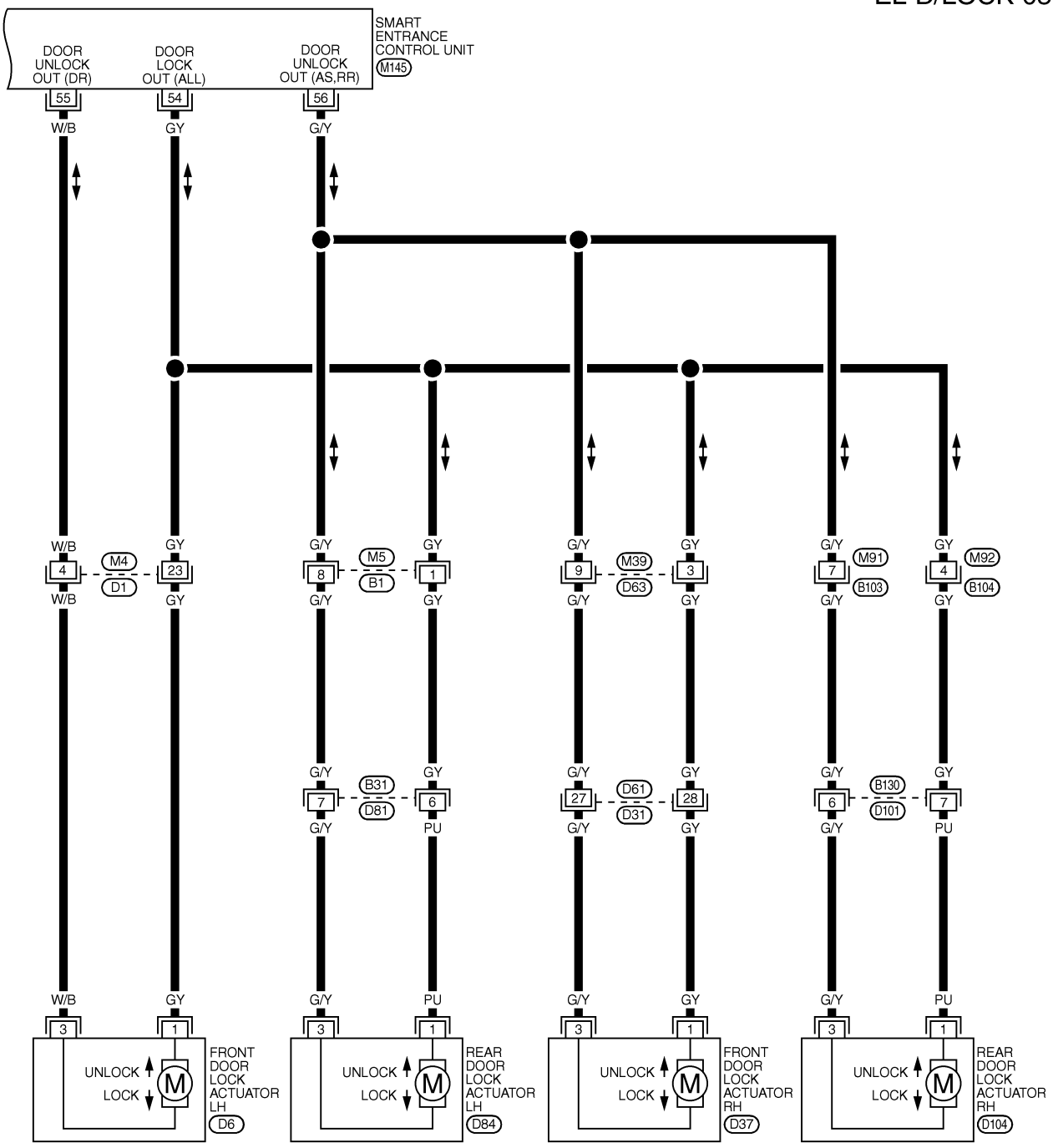

REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

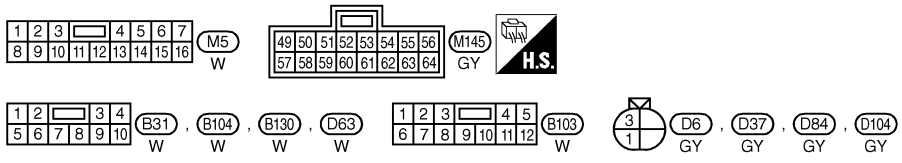
MEL177O

**FIG. 3**

NFEL0109S03

EL-D/LOCK-03

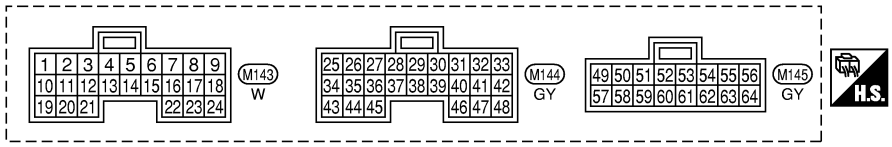



REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

MEL178O

**SMART ENTRANCE CONTROL UNIT CONNECTOR**

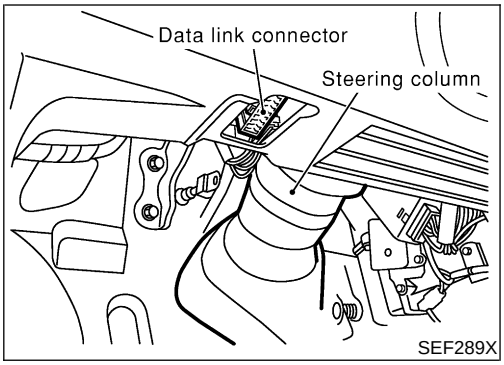



**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 5V → 0V |
| 3 | R/W | REAR DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | 5V → 0V |
| 25 | B/R | IGNITION KEY SWITCH (INSERT) | KEY INSERTED → KEY REMOVED FROM IGN KEY CYLINDER | 12V → 0V |
| 33 | L | COMMUNICATION INTERFACE | DOOR LOCK & UNLOCK SWITCHES (NEUTRAL → LOCK/UNLOCK) | *1 |
| | | | FRONT DOOR KEY CYLINDER SWITCH LH (NEUTRAL → LOCK/UNLOCK) | |
| 43 | B | GROUND | – | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 51 | W/R | POWER SOURCE (PTC) | – | 12V |
| 54 | GY | DOOR LOCK ACTUATORS | DOOR LOCK & UNLOCK SWITCH (FREE → LOCK) | 0V → 12V |
| 55 | W/B | DRIVER DOOR LOCK ACTUATOR | DOOR LOCK & UNLOCK SWITCH (FREE → UNLOCK) | 0V → 12V |
| 56 | GY | PASSENGER AND REAR DOORS LOCK ACTUATOR | DOOR LOCK & UNLOCK SWITCH (FREE → UNLOCK) | 0V → 12V |
| 64 | B | GROUND | – | – |

*1: REFER TO "SMART ENTRANCE CONTROL UNIT INSPECTION TABLE" IN "SMART ENTRANCE CONTROL UNIT".

SEL590Y



SEF289X

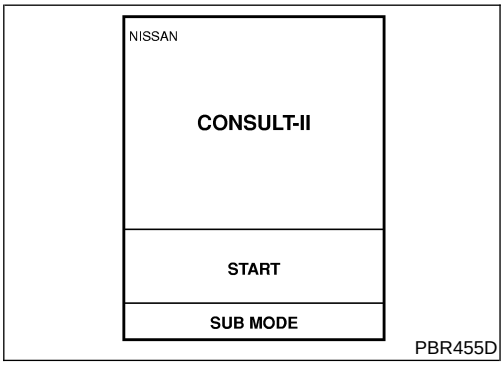
## CONSULT-II Inspection Procedure

=NFEL0238

**“DOOR LOCK”**

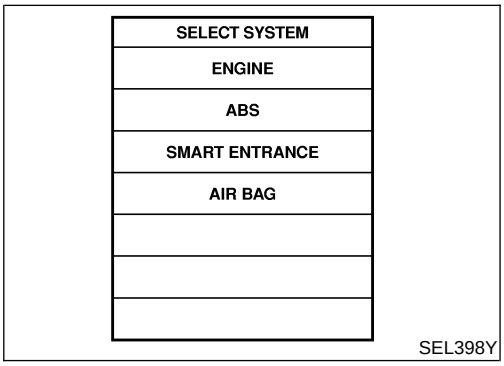
NFEL0238S01

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



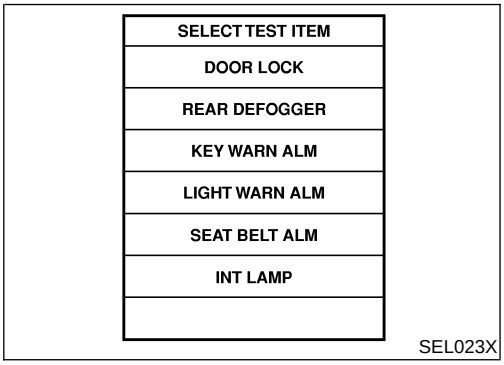
PBR455D

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



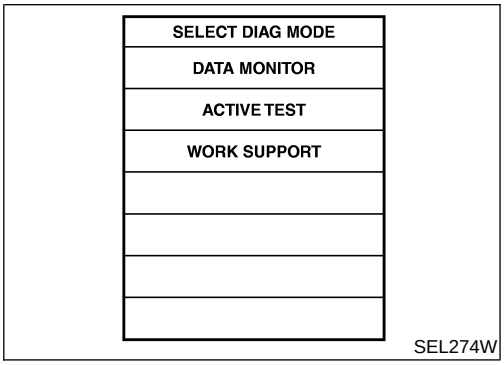
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL023X

6. Touch “DOOR LOCK”.



SEL274W

7. Select diagnosis mode.
   “DATA MONITOR”, “ACTIVE TEST” and “WORK SUPPORT” are available.

# CONSULT-II Application Items

NFEL0239

## "DOOR LOCK"

NFEL0239S01

### Data Monitor

NFEL0239S0101

| Monitored Item | Description |
|---|---|
| KEY ON SW | Indicates [ON/OFF] condition of key switch. |
| LOCK SW DR/AS | Indicates [ON/OFF] condition of lock signal from lock/unlock switch LH and RH. |
| DOOR SW-RR | Indicates [ON/OFF] condition of door switch (Rear). |
| UNLK SW DR/AS | Indicates [ON/OFF] condition of unlock signal from lock/unlock switch LH and RH. |
| KEY CYL LK-SW | Indicates [ON/OFF] condition of lock signal from key cylinder. |
| KEY CYL UN-SW | Indicates [ON/OFF] condition of unlock signal from key cylinder. |
| LK BUTTON/SIG | Indicates [ON/OFF] condition of lock signal from keyfob. |
| UN BUTTON/SIG | Indicates [ON/OFF] condition of unlock signal from keyfob. |
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |
| DOOR SW-AS | Indicates [ON/OFF] condition of front door switch RH. |

### Active Test

NFEL0239S0102

| Test Item | Description |
|---|---|
| ALL D/LK MTR | This test is able to check all door lock actuators lock operation. These actuators lock when "ON" on CONSULT-II screen is touched. |
| DR D/UN MTR | This test is able to check front door lock actuator LH unlock operation. The actuator unlocks when "ON" on CONSULT-II screen is touched. |
| NON DR D/UN | This test is able to check door lock actuators (except front door lock actuator LH) unlock operation. These actuators unlock when "ON" on CONSULT-II screen is touched. |

### Work Support

NFEL0239S0103

| Work Item | Description |
|---|---|
| DOOR LOCK-UNLOCK SET | Select unlock mode can be changed in this mode. Selects ON-OFF of select unlock mode. |
| ANTI-LOCK OUT SET | Key reminder door mode can be changed in this mode. Selects ON-OFF of key reminder door mode. |

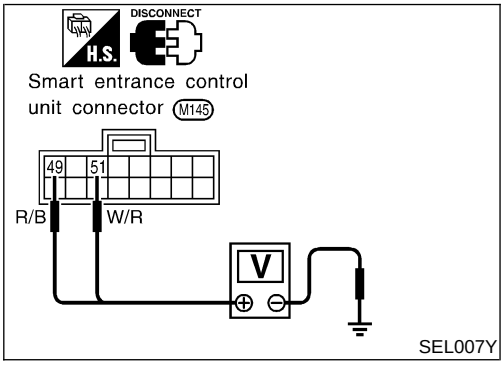
# Trouble Diagnoses

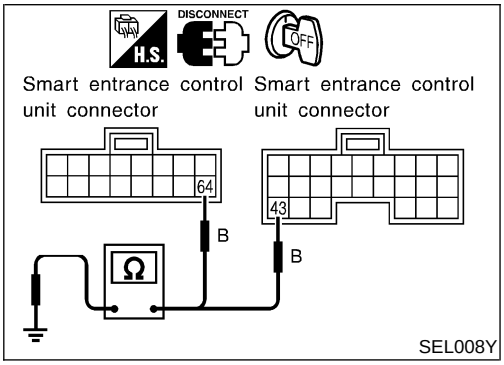
## SYMPTOM CHART

*=NFEL0193*

*NFEL0193S01*

| REFERENCE PAGE (EL- ) | 269 | 270 | 271 | 273 | 274 | 275 |
|---|---|---|---|---|---|---|
| SYMPTOM | MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK | DOOR SWITCH CHECK | KEY SWITCH (INSERT) CHECK | DOOR LOCK/UNLOCK SWITCH CHECK | FRONT DOOR KEY CYLINDER SWITCH CHECK | DOOR LOCK ACTUATOR CHECK |
| Key reminder door system does not operate properly. | X | X | X | | | X |
| Specific door lock actuator does not operate. | X | | | | | X |
| Power door lock does not operate with door lock and unlock switch (LH and RH) on door trim. | X | | | X | | |
| Power door lock does not operate with front door key cylinder operation. | X | | | | X | |




## MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

*NFEL0193S02*

### Main Power Supply Circuit Check

*NFEL0193S0201*

| Terminals | | Ignition switch | | |
|---|---|---|---|---|
| (+) | (–) | OFF | ACC | ON |
| 49 | Ground | Battery voltage | Battery voltage | Battery voltage |
| 51 | | | | |

### Ground Circuit Check

*NFEL0193S0202*

| Terminals | Continuity |
|---|---|
| 43 - Ground | Yes |
| 64 - Ground | Yes |

## DOOR SWITCH CHECK

=NFEL0193S03

### 1 CHECK DOOR SWITCHES INPUT SIGNAL

**With CONSULT-II**

Check door switches ("DOOR SW-DR", "DOOR SW-AS", "DOOR SW-RR") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-RR | OFF |
| DOOR SW-DR | OFF |
| DOOR SW-AS | OFF |

When any doors are open:
**DOOR SW-DR ON**
**DOOR SW-AS ON**
**DOOR SW-RR ON**

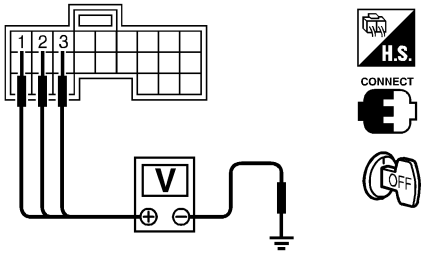
When any doors are closed:
**DOOR SW-DR OFF**
**DOOR SW-AS OFF**
**DOOR SW-RR OFF**

SEL009Y

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminals 1 (LG), 2 (R/L) or 3 (R/W) and ground.

Smart entrance control unit connector




| | Terminals (+) | Terminals (–) | Condition | Voltage [V] |
|---|---|---|---|---|
| Front LH door switch | 1 | Ground | Open | 0 |
| | | | Closed | Approx. 5 |
| Front RH door switch | 2 | Ground | Open | 0 |
| | | | Closed | Approx. 5 |
| Rear door switches | 3 | Ground | Open | 0 |
| | | | Closed | Approx. 5 |

SEL010Y

Refer to wiring diagram in EL-263.

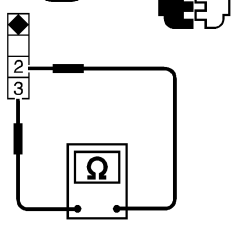
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door switch is OK. |
| NG | ▶ | GO TO 2. |

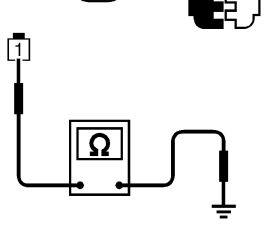
### 2 CHECK DOOR SWITCHES

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

Door switch connector
Front LH : B29
Front RH : B129




Door switch connector
Rear LH : B10
Rear RH : B107




| | Terminals | Condition | Continuity |
|---|---|---|---|
| Front door switches | 2 - 3 | Closed | No |
| | | Open | Yes |
| Rear door switches | 1 - Ground | Closed | No |
| | | Open | Yes |

SEL192W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Door switch ground circuit or door switch ground condition<br>● Harness for open or short between smart entrance control unit and door switch |
| NG | ▶ | Replace door switch. |

## KEY SWITCH (INSERT) CHECK

=NFEL0193S04

**1** **CHECK KEY SWITCH INPUT SIGNAL**

**With CONSULT-II**

Check key switch ("KEY ON SW") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY ON SW | ON |

When key is inserted to ignition key cylinder:

**KEY ON SW ON**

When key is removed from ignition key cylinder:

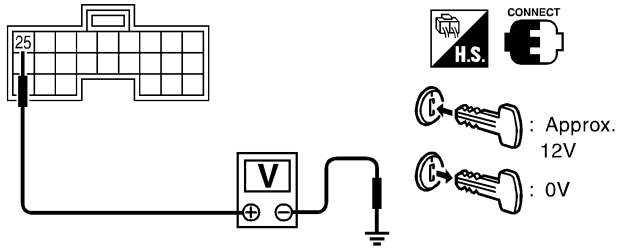
**KEY ON SW OFF**

SEL315W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M144 terminal 25 (B/R) and ground.

Smart entrance control unit connector




**Voltage [V]:**

**Condition of key switch: Key is inserted.**

**Approx. 12**

**Condition of key switch: Key is removed.**

**0**

SEL011Y

Refer to wiring diagram in EL-263.

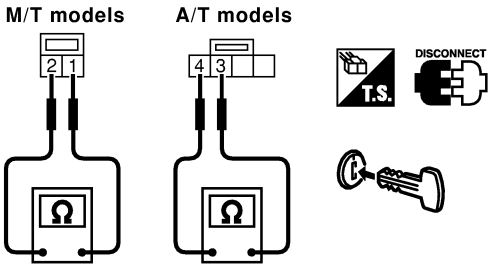
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Key switch is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK KEY SWITCH (INSERT) |
|---|---|

Check the following.
- Continuity between key switch harness connector E95 terminals 1 and 2. (M/T models)
- Continuity between key switch harness connector E150 terminals 3 and 4. (A/T models)

Key switch connector




**Continuity:**
**Condition of key switch: Key is inserted.**
**Yes**
**Condition of key switch: Key is removed.**
**No**

SEL614Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● 10A fuse [No. 13, located in fuse block (J/B)]<br>● Harness for open or short between key switch and fuse<br>● Harness for open or short between smart entrance control unit and key switch |
| NG | ▶ | Replace key switch. |

## DOOR LOCK/UNLOCK SWITCH CHECK

=NFEL0193S05

**1** **CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL**

**With CONSULT-II**

Check door lock/unlock switch ("LOCK SW DR/AS"/"UNLK SW DR/AS") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LOCK SW DR/AS | OFF |
| UNLK SW DR/AS | OFF |

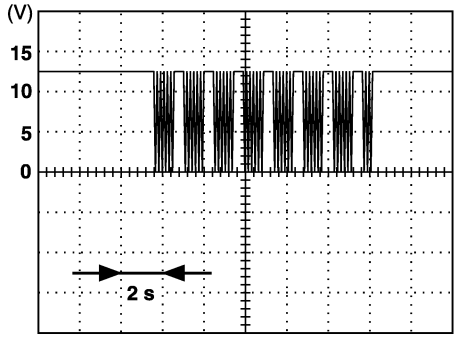
When lock/unlock switch is turned to LOCK:
**LOCK SW DR/AS ON**

When lock/unlock switch is turned to UNLOCK:
**UNLK SW DR/AS ON**

SEL341W

**Without CONSULT-II**

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when door lock/unlock switch is turned "LOCK" or "UNLOCK".
3. Make sure signals which are shown in the figure below can be detected during 10 sec. just after door lock/unlock switch is turned "LOCK" or "UNLOCK".




**Voltage:**
**12V → 9V (10 sec.) measurement by analog circuit tester.**

SEL396Y

Refer to wiring diagram in EL-264.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door lock/unlock switch is OK. |
| NG | ▶ | **Check the following.**<br>● Ground circuit for each front power window switch<br>● Harness for open or short between each front power window switch and smart entrance control unit connector<br>If above systems are normal, replace the front power window switch. |

## FRONT DOOR KEY CYLINDER SWITCH CHECK

=NFEL0193S06

| 1 | CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL) |
|---|---|

**With CONSULT-II**

Check front door key cylinder switch ("KEY CYL LK-SW"/"KEY CYL UN-SW") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY CYL LK-SW | OFF |
| KEY CYL UN-SW | OFF |

When key inserted in front key cylinder is turned to LOCK:

**KEY CYL LK-SW ON**

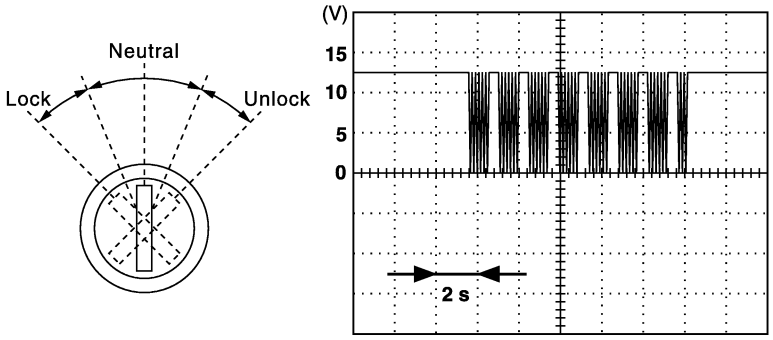
When key inserted in front key cylinder is turned to UNLOCK:

**KEY CYL UN-SW ON**

SEL342W

**Without CONSULT-II**

1. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when key inserted in front key cylinder is turned "LOCK" or "UNLOCK".
2. Make sure signals which are shown in the figure below can be detected during 10 sec. just after key is turned "LOCK" or "UNLOCK".




**Voltage:**

**12V → 9V (10 sec.) measurement by analog circuit tester.**

SEL397Y

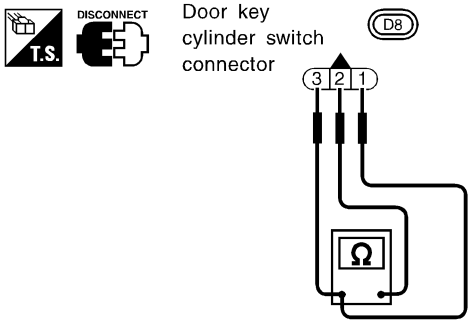
Refer to wiring diagram in EL-264.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door key cylinder switch is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK DOOR KEY CYLINDER SWITCH |
|---|---|

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




① : Door unlock switch terminal
② : Ground terminal
③ : Door lock switch terminal

| Terminals | Key position | Continuity |
|---|---|---|
| ③ - ② | Neutral/Unlock | No |
| | Lock | Yes |
| ① - ② | Neutral/Lock | No |
| | Unlock | Yes |

SEL034X

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Door key cylinder switch ground circuit<br>● Harness for open or short between front power window main switch and door key cylinder switch<br>If above systems are normal, replace the front power window main switch. |
| NG | ▶ | Replace door key cylinder switch. |

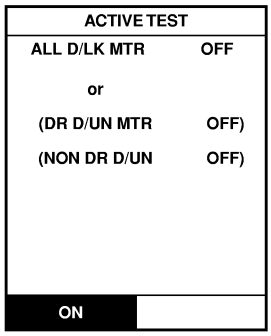
## DOOR LOCK ACTUATOR CHECK

NFEL0193S08

| 1 | CHECK DOOR LOCK ACTUATOR OPERATION |
|---|---|

**With CONSULT-II**

1. Select "ACTIVE TEST" in "DOOR LOCK" with CONSULT-II.
2. Select "ALL D/LK MTR" and touch "ON".
3. Then, select "DR D/UN MTR" and touch "ON".
4. Select "NON DR D/UN" and touch "ON".




**Door lock motor should operate.**

SEL343W

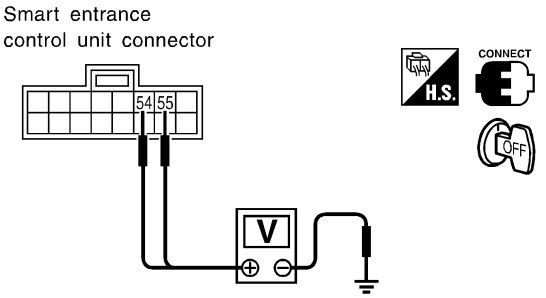
**NOTE:**
**If CONSULT-II is not available, skip this procedure and go to the next step.**

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door lock actuator is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK DOOR LOCK ACTUATOR CIRCUIT |
|---|---|

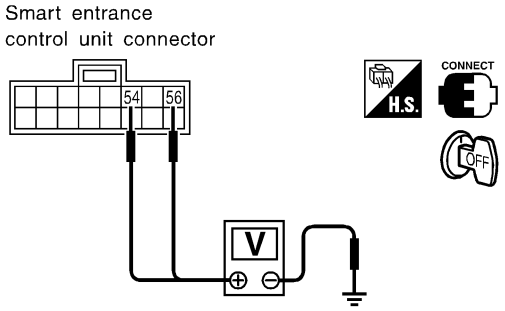
- Door lock actuator front LH
  Check voltage between smart entrance control unit harness connector M145 terminal 54 (GY), 55 (W/B) and ground.




| Door lock/unlock switch condition | Terminal No. (+) | Terminal No. (–) | Voltage V |
|---|---|---|---|
| Lock | 54 | Ground | Approx. 12 |
| Unlock | 55 | Ground | |

SEL014Y

- Door lock actuator front RH and rear
  Check voltage between smart entrance control unit harness connector M145 terminal 54 (GY), 56 (G/Y) and ground.




| Door lock/unlock switch condition | Terminal No. (+) | Terminal No. (–) | Voltage V |
|---|---|---|---|
| Lock | 54 | Ground | Approx. 12 |
| Unlock | 56 | Ground | |

SEL015Y

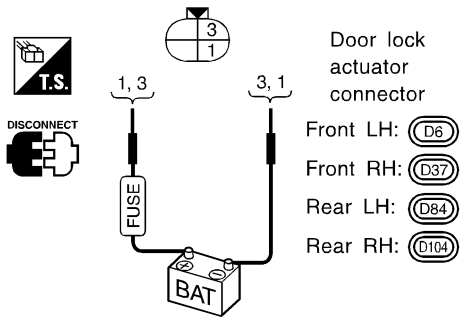
Refer to wiring diagram in EL-265.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Replace smart entrance control unit. (Before replacing the control unit, perform "DOOR LOCK/UNLOCK SWITCH CHECK".) |

| 3 | CHECK DOOR LOCK ACTUATOR |
|---|---|

1. Disconnect door lock actuator harness connector.
2. Apply 12V direct current to door lock actuator and check operation.




**Door lock actuator operation:**
**Terminals between (+): 1 and (–): 3**
**Unlocked → Locked**
**Terminals between (+): 3 and (–): 1**
**Locked → Unlocked**

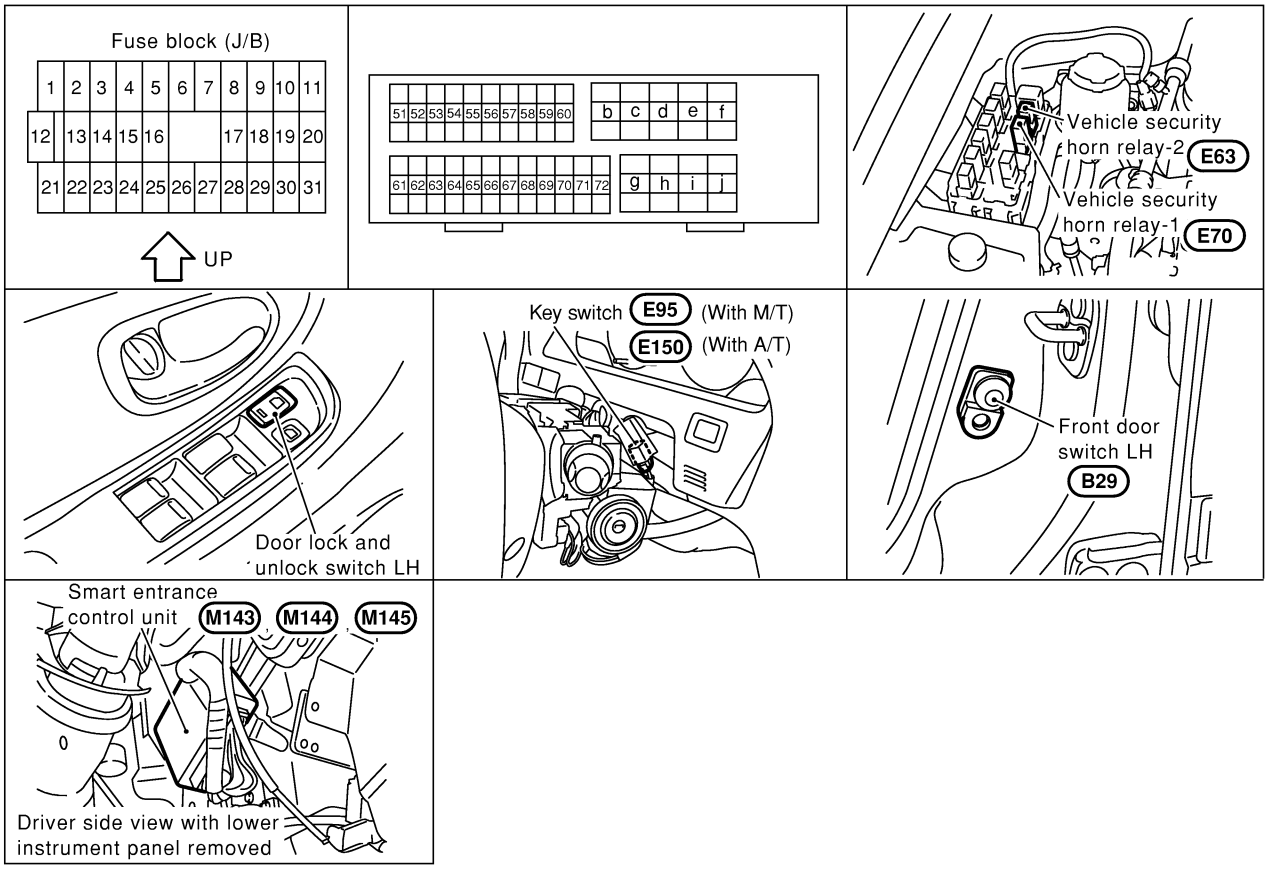
SEL222W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Check harness for open or short between smart entrance control unit connector and door lock actuator. |
| NG | ▶ | Replace door lock actuator. |

## Component Parts and Harness Connector Location

NFEL0111




SEL385Y

## System Description

NFEL0194

NFEL0194S01

### INPUTS

Power is supplied at all times

- from 40A fusible link (letter **I**, located in the fuse and fusible link box)
- to circuit breaker terminal 1
- through circuit breaker terminal 2
- to smart entrance control unit terminal 51
- to smart entrance control unit terminal 49 and
- to key switch terminal 2 (M/T models) or 3 (A/T models)
- through 10A fuse [No. 13, located in the fuse block (J/B)].

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

- through key switch terminal 1 (M/T models) or 4 (A/T models)
- to smart entrance control unit terminal 25.

When the front door switch LH is ON (door is OPEN), ground is supplied

- to smart entrance control unit terminal 1
- through front door switch LH terminal 2
- to front door switch LH terminal 3
- through body grounds B7 (without CD auto changer) or B59 (with CD auto changer) and B12.

When the front door switch RH is ON (door is OPEN), ground is supplied

- to smart entrance control unit terminal 2

- through front door switch RH terminal 2, and
- to front door switch RH terminal 3
- through body grounds B106 and B127.

When the rear door switches are ON (door is OPEN), ground is supplied

- to smart entrance control unit terminal 3
- through rear door switches terminal 1
- to rear door switches case grounds.

When door lock/unlock switch of front power window main switch is LOCK/UNLOCK, ground is supplied

- to smart entrance control unit terminal 33
- through front power window main switch terminals 8 and 5, and
- through body grounds M9, M25 and M87.

Keyfob signal is inputted to smart entrance control unit (The antenna of the system is combined with smart entrance control unit).
The remote keyless entry system controls operation of the

- power door lock
- auto door lock
- trunk lid opener
- interior lamp
- panic alarm
- hazard and horn reminder
- power window opener

## OPERATED PROCEDURE

NFEL0194S02

### Power Door Lock Operation

NFEL0194S0201

Smart entrance control unit receives a LOCK signal from keyfob. Smart entrance control unit locks all doors with input of LOCK signal from keyfob.
When an UNLOCK signal is sent from keyfob once, driver's door will be unlocked.
Then, if an UNLOCK signal is sent from keyfob again within 5 seconds, all other door will be unlocked.
Select unlock mode can be changed by CONSULT-II (EL-288).

### Auto Door Lock Operation

NFEL0194S0206

Auto lock function signal is sent for operation when any of the following signals are not sent within 5 minutes after the unlock signal is sent from the keyfob:

- when door switch is turned ON for open.
- when the ignition switch is turned ON.
- when the lock signal is sent from the keyfob.

Auto door lock mode can be changed by CONSULT-II (EL-288).

### Hazard and Horn Reminder

NFEL0194S0202

Power is supplied at all times

- to vehicle security horn relay-1 terminals 1 and 3, and
- to vehicle security horn relay-2 terminal 1
- through 10A fuse (No. 61, located in the fusible link and fuse box), and
- to horn relay terminal 2
- through 10A fuse (No. 57, located in the fusible link and fuse box)

When smart entrance control unit receives LOCK or UNLOCK signal from keyfob with all doors closed, ground is supplied

- to vehicle security horn relay-2 terminal 2
- through smart entrance control unit terminal 42

Vehicle security horn relay-2 is then energized

- to horn relay terminal 1, and
- to vehicle security horn relay-1 terminal 2
- through vehicle security horn relay-2 terminals 5 and 3, and
- through body ground E11, E22 and E53

- to smart entrance control unit terminals 47 and 48 from hazard warning lamp system.

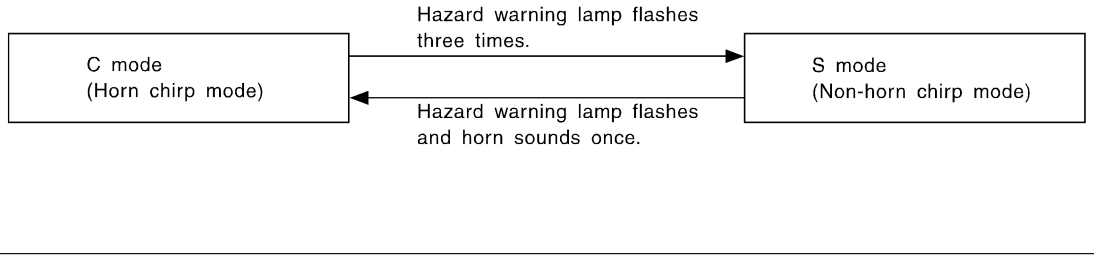
Vehicle security horn relay-1 and horn relay are now energized, and hazard warning lamp flashes and horn sounds as a reminder.
The hazard and horn reminder has six steps.

**Operating function of hazard and horn reminder**

| | Lock | | Unlock | |
|---|---|---|---|---|
| | Hazard warning lamp flash | Horn sound | Hazard warning lamp flash | Horn sound |
| C MODE | Twice | Once | Once | — |
| S MODE | Twice | — | — | — |
| MODE 3 | — | — | — | — |
| MODE 4 | Twice | — | Once | — |
| MODE 5 | Twice | Once | — | — |
| MODE 6 | — | Once | Once | — |

**How to change hazard and horn reminder mode**

With CONSULT-II
Hazard and horn reminder can be changed by CONSULT-II (EL-288).
Without CONSULT-II
When LOCK and UNLOCK signals are sent from the keyfob for more than 2 seconds at the same time, the hazard and horn reminder mode is changed and hazard warning lamp flashes and horn sounds as follows:



SEL153WA

**NOTE:**
Reminder mode setting cannot be changed without CONSULT-II for MODES 3,4, 5, and 6. However, C and S MODES can be changed without CONSULT-II.

## Interior Lamp Operation

NFEL0194S0203

When the following input signals are both supplied:

- door switch CLOSED (when all the doors are closed);
- driver's door LOCKED;

remote keyless entry system turns on interior lamp and key hole illumination (for 30 seconds) with input of UNLOCK signal from keyfob.
For detailed description, refer to "INTERIOR, STEP, SPOT, VANITY MIRROR AND TRUNK ROOM LAMPS" (EL-92).

## Panic Alarm Operation

NFEL0194S0204

When key switch is OFF (when ignition key is not inserted in key cylinder), remote keyless entry system turns on and off horn and headlamp intermittently with input of PANIC ALARM signal from keyfob.
The alarm automatically turns off after 25 seconds or when smart entrance control unit receives any signal from keyfob.
For detailed description, refer to "VEHICLE SECURITY SYSTEM" (EL-312).
The panic alarm button's pressing time on keyfob can be changed by CONSULT-II (EL-288).

## Trunk Lid Opener Operation

NFEL0194S0205

Power is supplied at all times

- through 15A fuse [No. 3, located in the fuse block (J/B)]
- to trunk lid opener actuator terminal 2.

When a TRUNK OPEN signal is sent with key OFF (ignition key removed from key cylinder) from keyfob, ground is supplied

- to trunk lid opener actuator terminal 1
- through smart entrance control unit terminal 63.

Then power and ground are supplied, trunk lid opener actuator opens trunk lid.
The trunk lid opener button's pressing time on keyfob can be changed by CONSULT-II (EL-288).

## Power Window Opener Operation

NFEL0194S0207

The front power windows open when the unlock button on keyfob is activated and kept pressed for more than 3 seconds with the ignition key OFF. The windows keep opening if the unlock button is continuously pressed. The power window opening stops when the following operations are carried out:

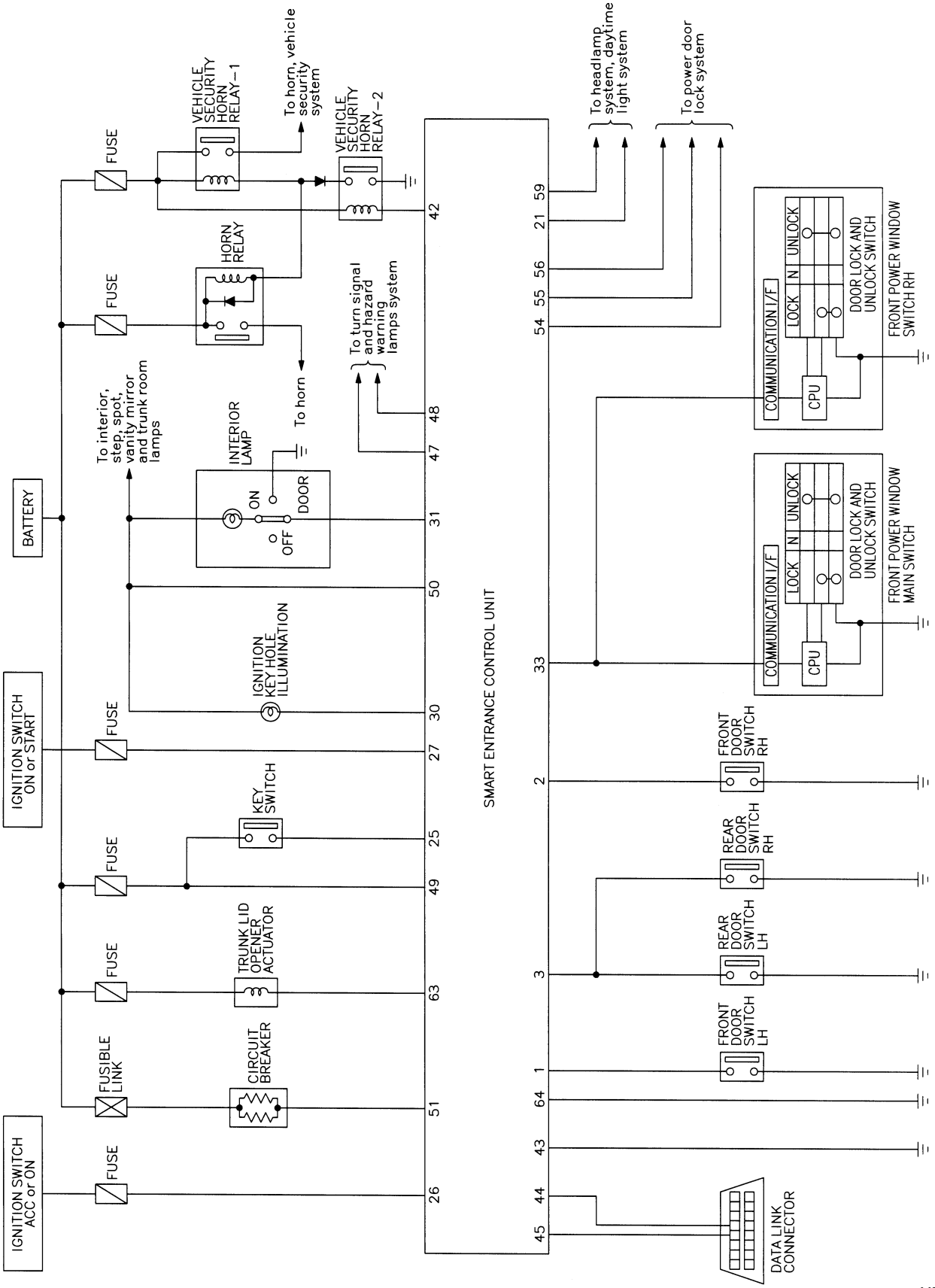
- When the unlock button is kept pressed more than 15 seconds.
- When the ignition switch is turned ON while the power window opening is operated.
- When the unlock button is released.

The unlock button's pressing time can be changed by CONSULT-II (EL-288).
Door Lock/Unlock and front power window down signal is supplied

- through smart entrance control unit terminal 33
- to front power window main switch terminal 8 and
- to front power window switch RH terminal 11.

## Schematic

NFEL0171



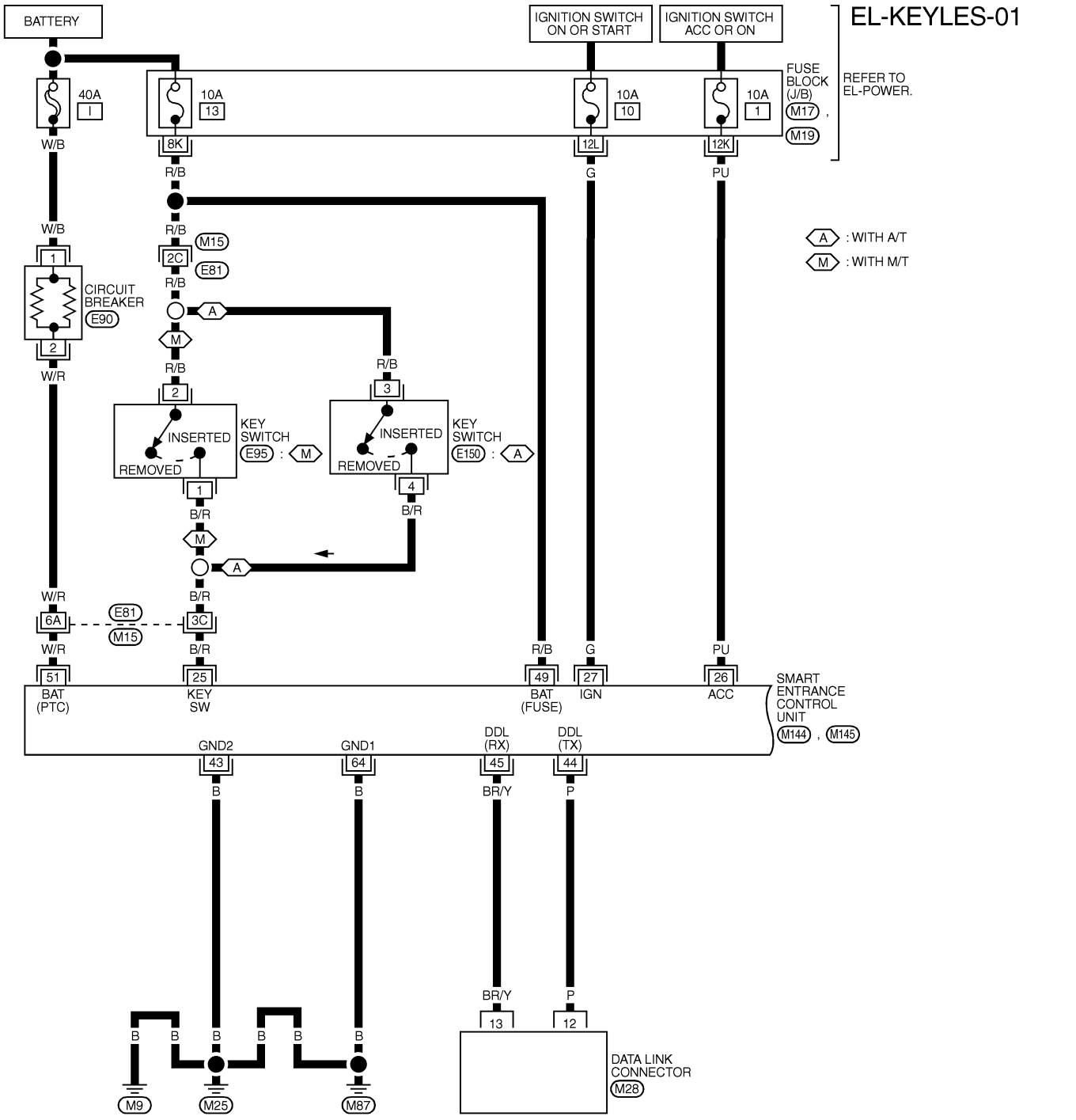

MEL179O

## Wiring Diagram — KEYLES —

NFEL0114

**FIG. 1**

NFEL0114S01

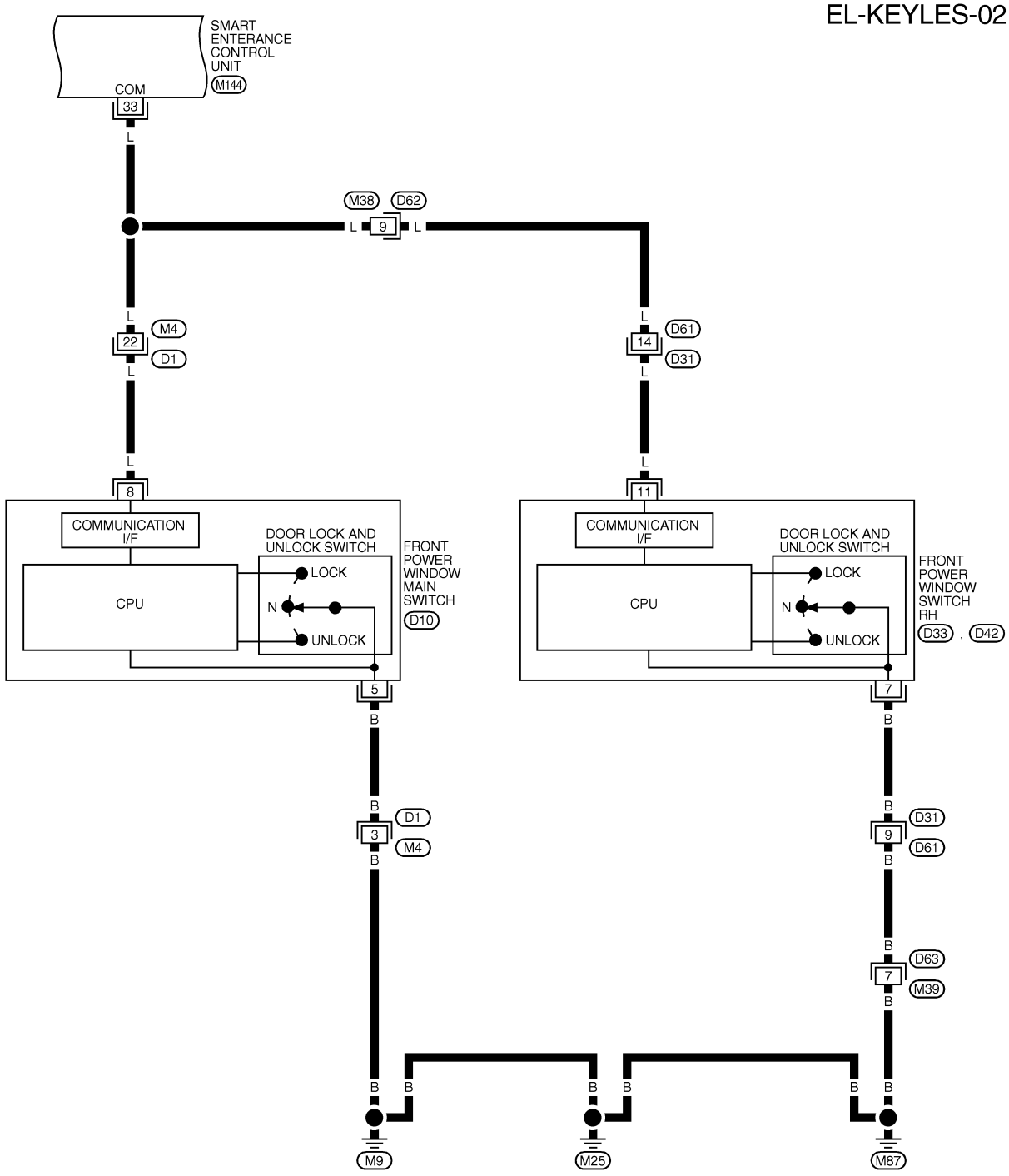


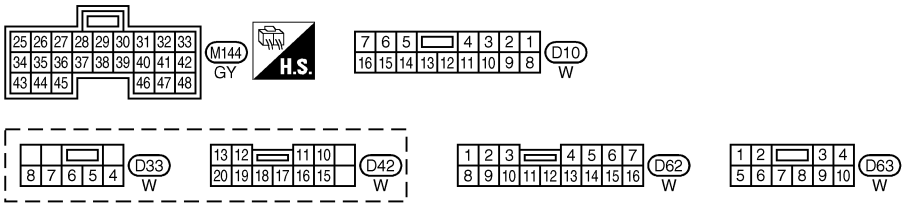

MEL180O

**FIG. 2**

NFEL0114S02

EL-KEYLES-02



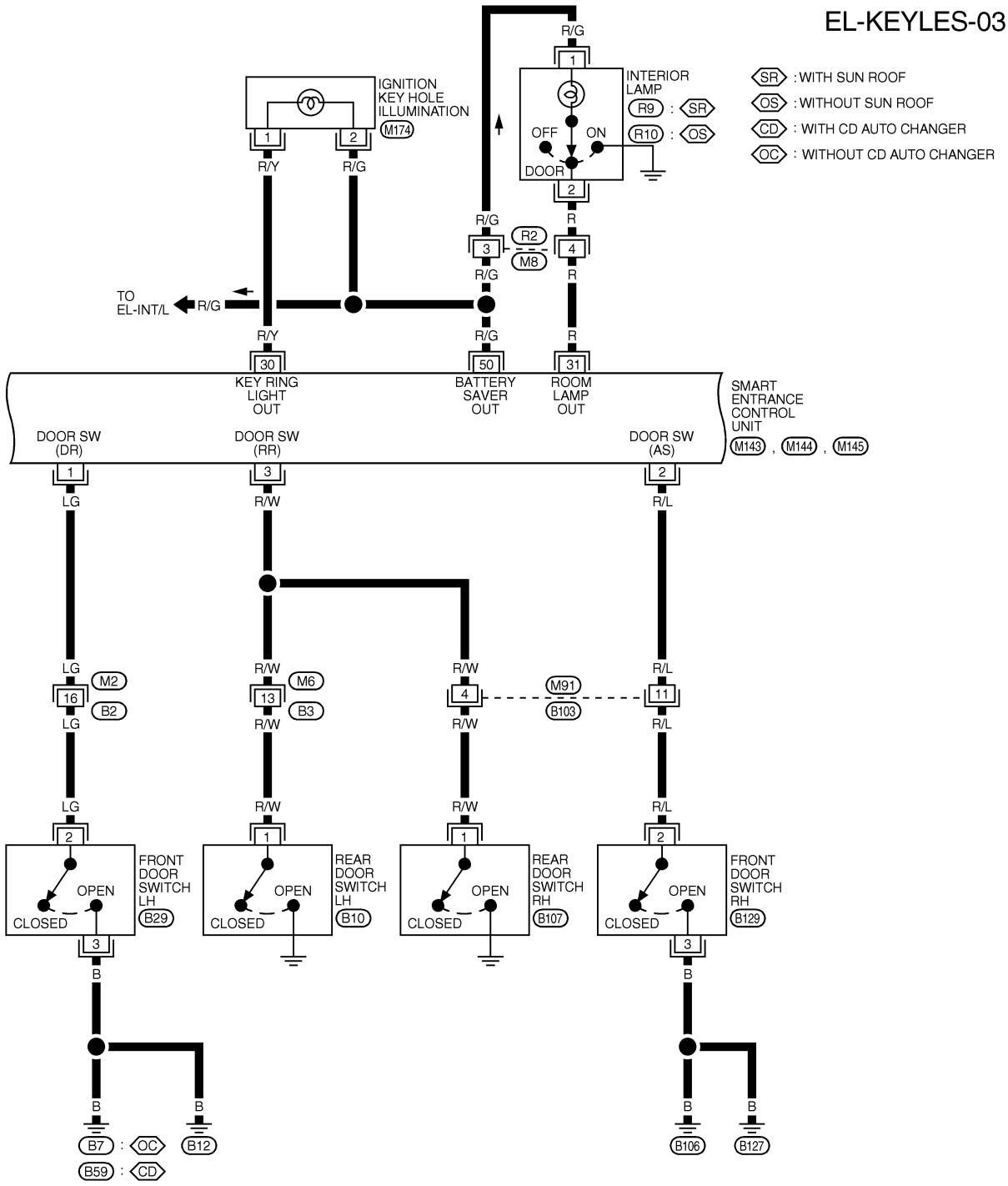



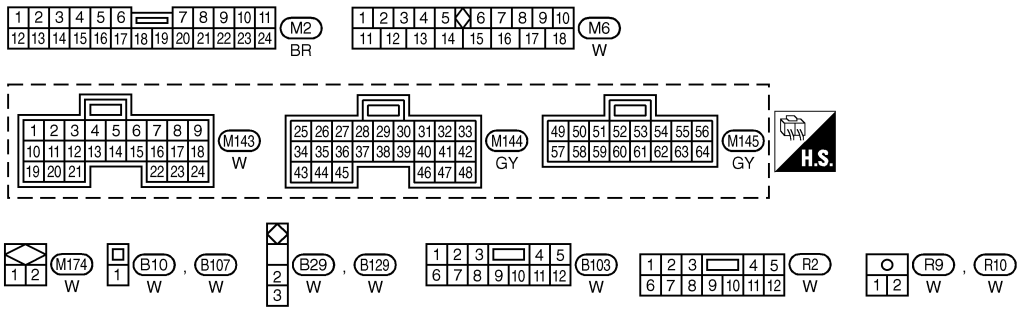

REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

MEL752P

**FIG. 3**

NFEL0114S05

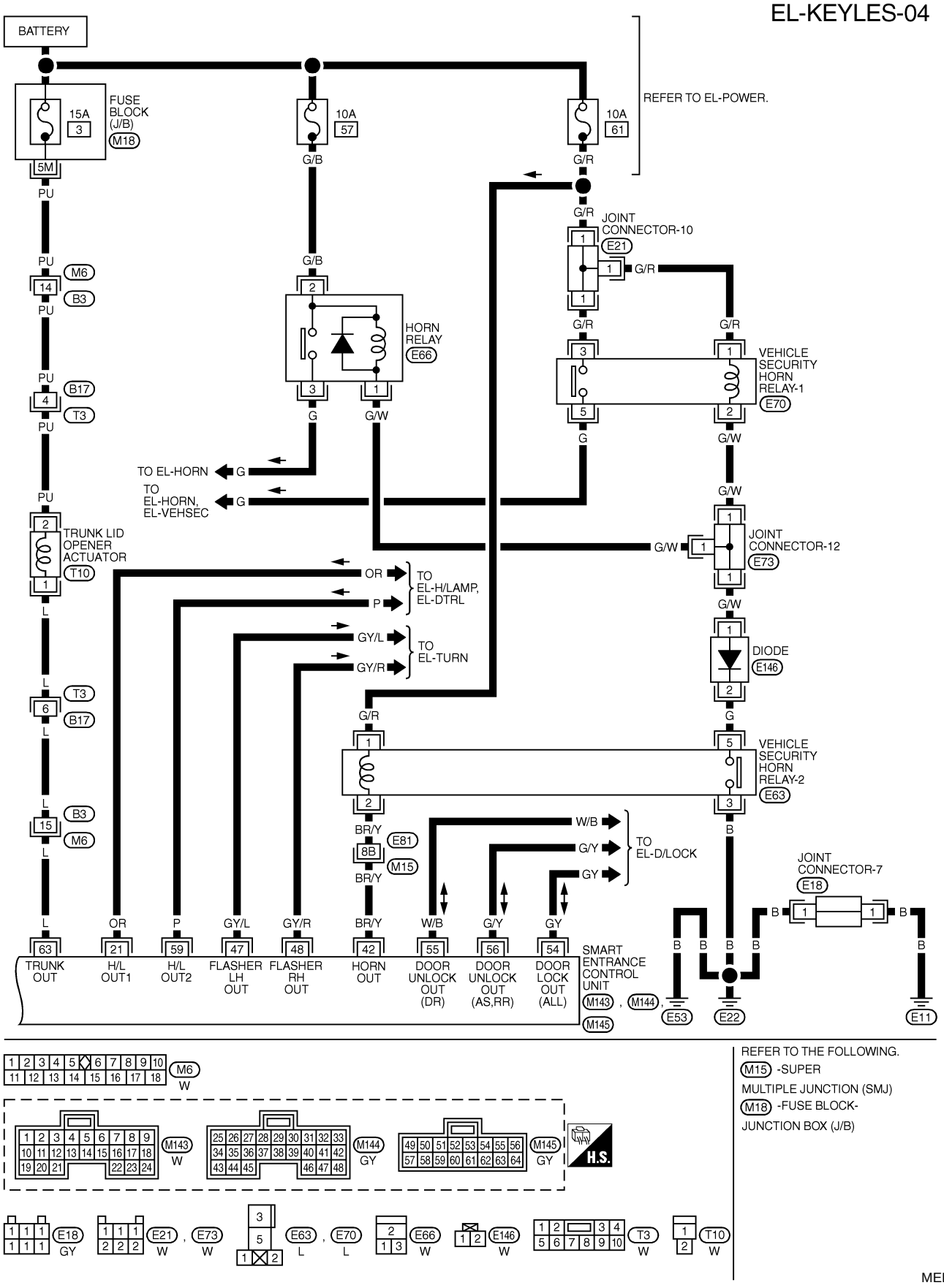


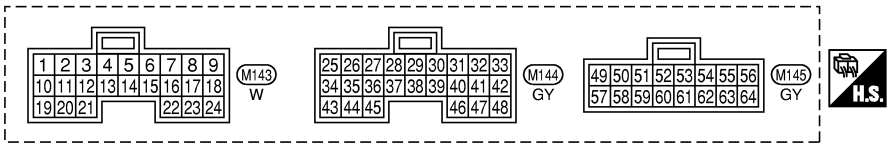

MEL134O

**FIG. 4**

NFEL0114S06



**SMART ENTRANCE CONTROL UNIT CONNECTOR**

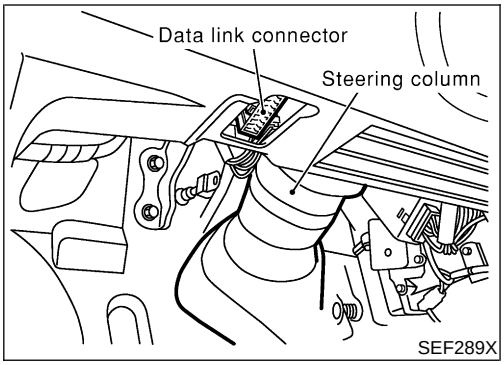



**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | | | DATA (DC) |
|---|---|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 3 | R/W | REAR DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 21 | OR | HEADLAMP LH RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL | | | 0V |
| 25 | B/R | IGNITION KEY SWITCH (INSERT) | KEY INSERTED → KEY REMOVED FROM IGN KEY CYLINDER | | | 12V → 0V |
| 26 | PU | IGNITION SWITCH (ACC) | "ACC" POSITION | | | 12V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION SWITCH IS IN "ON" POSITION | | | 12V |
| 30 | R/Y | IGNITION KEYHOLE ILLUMINATION | WHEN DOORS ARE UNLOCKED USING KEYFOB (OFF → UNLOCK) | | | 12V → 0V |
| 31 | R | INTERIOR LAMP | WHEN DOORS ARE LOCKED USING KEYFOB (UNLOCK → LOCK WITH LAMP SWITCH IN "DOOR" POSITION) | | | 0V → 12V |
| 33 | L | COMMUNICATION INTERFACE | DOOR LOCK & UNLOCK SWITCHES (NEUTRAL → LOCK/UNLOCK) | | | *1 |
| | | | FRONT DOOR KEY CYLINDER SWITCH LH (NEUTRAL → LOCK/UNLOCK) | | | |
| 42 | BR/Y | VEHICLE SECURITY HORN RELAY | WHEN PANIC ALARM IS OPERATED USING KEYFOB (ON → OFF) | | | 12V → 0V |
| 43 | B | GROUND | – | | | – |
| 47 | GY/L | LH TURN SIGNAL LAMP | WHEN DOOR LOCK OR UNLOCK IS OPERATED USING KEYFOB (ON → OFF) | | | 12V → 0V |
| 48 | GY/R | RH TURN SIGNAL LAMP | WHEN DOOR LOCK OR UNLOCK IS OPERATED USING KEYFOB (ON → OFF) | | | 12V → 0V |
| 49 | R/B | POWER SOURCE (FUSE) | – | | | 12V |
| 50 | R/G | BATTERY SAVER (INTERIOR LAMP) | BATTERY SAVER DOSE OPERATE → DOES NOT OPERATE (ON → OFF) | | | 12V → 0V |
| 51 | W/R | POWER SOURCE (PTC) | – | | | 12V |
| 54 | GY | DOOR LOCK ACTUATORS | DOOR LOCK & UNLOCK SWITCH (FREE → LOCK) | | | 0V → 12V |
| 55 | W/B | DRIVER DOOR LOCK ACTUATORS | DOOR LOCK & UNLOCK SWITCH (FREE → UNLOCK) | | | 0V → 12V |
| 56 | GY | PASSENGER AND REAR DOORS LOCK ACTUATOR | DOOR LOCK & UNLOCK SWITCH (FREE → UNLOCK) | | | 0V → 12V |
| 59 | P | HEADLAMP RH RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | LESS THAN 1V → 12V |
| 63 | L | TRUNK LID OPENER ACTUATOR | WHEN TRUNK LID OPENER ACTUATOR IS OPERATED USING KEYFOB (ON → OFF) | | | 0V → 12V |
| 64 | B | GROUND | – | | | – |

*1: REFER TO "SMART ENTRANCE CONTROL UNIT INSPECTION TABLE" IN "SMART ENTRANCE CONTROL UNIT".

SEL591Y



SEF289X

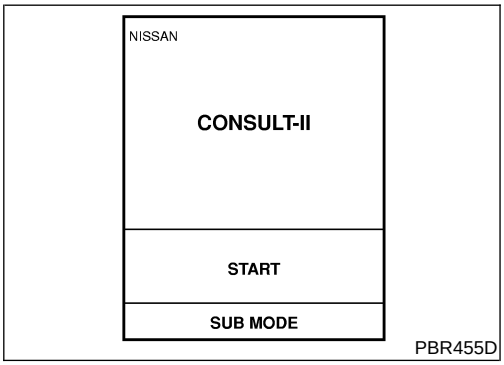
## CONSULT-II Inspection Procedure

NFEL0241

### "MULTI REMOTE ENT"

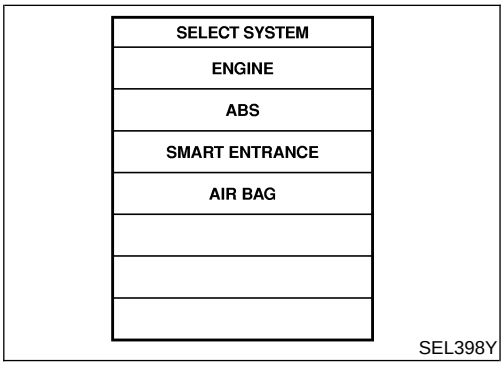
NFEL0241S01

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



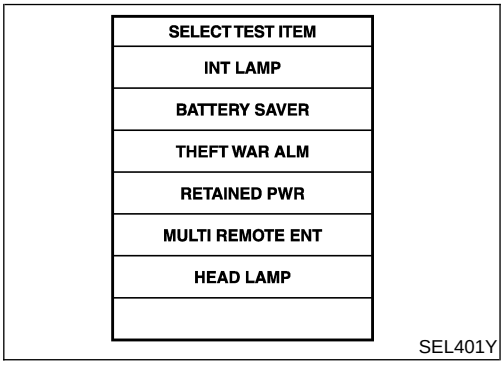
PBR455D

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



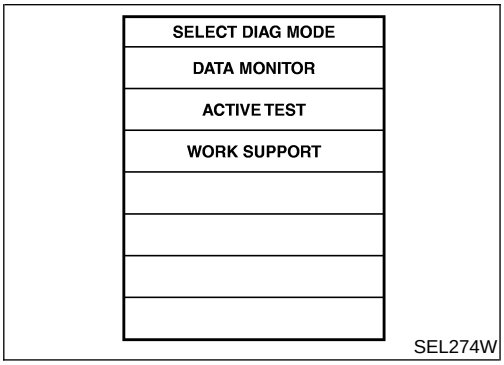
SEL398Y

5. Touch "SMART ENTRANCE".



SEL401Y

6. Touch "MULTI REMOTE ENT".



SEL274W

7. Select diagnosis mode.
   "DATA MONITOR", "ACTIVE TEST" and "WORK SUPPORT" are available.

# CONSULT-II Application Items

NFEL0242

## "MULTI REMOTE ENT"

NFEL0242S01

### Data Monitor

NFEL0242S0101

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch in ON position. |
| ACC ON SW | Indicates [ON/OFF] condition of ignition switch in ACC position. |
| DOOR SW-RR | Indicates [ON/OFF] condition of rear door switch. |
| KEY ON SW | Indicates [ON/OFF] condition of key switch. |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |
| DOOR SW-AS | Indicates [ON/OFF] condition of door switch RH. |
| LOCK SW DR/AS | Indicates [ON/OFF] condition of lock signal from lock/unlock switch LH and RH. |
| UNLK SW DR/AS | Indicates [ON/OFF] condition of unlock signal from lock/unlock switch LH and RH. |
| KEY CYL LK-SW | Indicates [ON/OFF] condition of lock signal from key cylinder switch. |
| LK BUTTON/SIG | Indicates [ON/OFF] condition of lock signal from keyfob. |
| UN BUTTON/SIG | Indicates [ON/OFF] condition of unlock signal from keyfob. |
| TRUNK BTN/SIG | Indicates [ON/OFF] condition of trunk open signal from keyfob. |
| PANIC BTN | Indicates [ON/OFF] condition of panic signal from keyfob. |
| UN BUTTON ON | Indicates [ON/OFF] condition of unlock switch form keyfob. |
| LK/UN BTN ON | Indicates [ON/OFF] condition of lock/unlock signal at the same time from keyfob. |

### Active Test

NFEL0242S0102

| Test Item | Description |
|---|---|
| INT/IGN ILLUM | This test is able to check interior lamp and ignition key hole illumination operation. The interior lamp and ignition key hole illumination are turned on when "ON" on CONSULT-II screen is touched. |
| HAZARD | This test is able to check hazard reminder operation. The hazard lamp turns on when "ON" on CONSULT-II screen is touched. |
| TRUNK OUTPUT | This test is able to check trunk lid opener actuator operation. The trunk is unlocked when "ON" on CONSULT-II screen is touched. |
| HORN | This test is able to check panic alarm and horn reminder operations. The alarm activate for 0.5 seconds after "ON" on CONSULT-II screen is touched. |
| HEAD LAMP | This test is able to check headlamps panic alarm operation. The headlamp illuminates for 0.5 seconds after "ON" on CONSULT-II screen is touched. |
| PW REMOTE DOWN SET | This test is able to check power window open operation. The front power windows activate for 10 seconds after "ON" on CONSULT-II screen is touched. |

### Work Support

NFEL0242S0103

| Test Item | Description |
|---|---|
| REMO CONT ID CONFIR | It can be checked whether keyfob ID code is registered or not in this mode. |
| REMO CONT ID REGIST | Keyfob ID code can be registered. |
| REMO CONT ID ERASUR | Keyfob ID code can be erased. |
| MULTI ANSWER BACK SET | Hazard and horn reminder mode can be changed with this mode. Selects hazard and horn reminder mode among six steps (EL-278). |

*CONSULT-II Application Items (Cont'd)*

| Test Item | Description |
|---|---|
| AUTO LOCK SET | Auto door lock mode can be selected among the following periods:<br>● MODE 1 (5 min.)/MODE 2 (OFF-Mode)/MODE 3 (1 min.) |
| PANIC ALARM SET | The panic alarm button's pressing time on keyfob can be selected among the following periods:<br>● MODE 1 (0.5 sec.)/MODE 2 (OFF-Mode)/MODE 3 (1.5 sec.) |
| TRUNK OPENER | The trunk lid opener button's pressing time on keyfob can be selected among the following periods:<br>● MODE 1 (0.5 sec.)/MODE 2 (OFF-Mode)/MODE 3 (1.5 sec.) |
| PW DOWN SET | The unlock button's pressing time on keyfob can be selected among the following periods:<br>● MODE 1 (3 sec.)/MODE 2 (OFF-Mode)/MODE 3 (5 sec.) |

## Trouble Diagnoses

NFEL0195

### SYMPTOM CHART

NFEL0195S01

**NOTE:**

- Always check keyfob battery before replacing keyfob.
- The panic alarm operation and trunk lid opener operation of keyfob system do not activate with the ignition key inserted in the ignition key cylinder.

| Symptom | Diagnoses/service procedure | Reference page (EL- ) |
|---|---|---|
| All function of remote keyless entry system do not operate. | 1. Keyfob battery and function check | 291 |
| | 2. Power supply and ground circuit for smart entrance control unit check | 292 |
| | 3. Replace keyfob. Refer to ID Code Entry Procedure.<br>NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning. | 303 |
| The new ID of keyfob cannot be entered. | 1. Keyfob battery and function check | 291 |
| | 2. Key switch (insert) check | 295 |
| | 3. Door switch check | 294 |
| | 4. Door lock/unlock switch LH check | 296 |
| | 5. Power supply and ground circuit for smart entrance control unit check | 292 |
| | 6. Replace keyfob. Refer to ID Code Entry Procedure.<br>NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning. | 303 |
| Door lock or unlock does not function.<br>(If the power door lock system does not operate manually, check power door lock system. Refer to EL-269) | 1. Keyfob battery and function check | 291 |
| | 2. Replace keyfob. Refer to ID Code Entry Procedure.<br>NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning. | 303 |

*Trouble Diagnoses (Cont'd)*

| Symptom | Diagnoses/service procedure | Reference page (EL- ) |
|---|---|---|
| Hazard and horn reminder does not activate properly when pressing lock or unlock button of keyfob. | 1. Keyfob battery and function check | 291 |
| | 2. Hazard reminder check | 298 |
| | 3. Horn reminder check*<br>*: Horn chirp can be activated or deactivated.<br>First check the horn chirp setting. Refer to "System Description", EL-277. | 299 |
| | 4. Door switch check | 294 |
| | 5. Replace keyfob. Refer to ID Code Entry Procedure.<br>NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning. | 303 |
| Interior lamp and key hole illumination operation do not activate properly. | 1. Interior lamp operation check | 301 |
| | 2. Key hole illumination operation check | 302 |
| | 3. Door switch check | 294 |
| Panic alarm (horn and headlamp) does not activate when panic alarm button is continuously pressed. | 1. Keyfob battery and function check | 291 |
| | 2. Theft warning operation check. Refer to "PRELIMINARY CHECK" in "VEHICLE SECURITY SYSTEM". | 324 |
| | 3. Key switch (insert) check | 295 |
| | 4. Replace keyfob. Refer to ID Code Entry Procedure.<br>NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning. | 303 |
| Trunk lid does not open when trunk opener button is continuously pressed. | 1. Keyfob battery and function check | 291 |
| | 2. Trunk lid opener actuator check | 297 |
| | 3. Key switch (insert) check | 295 |
| | 4. Replace keyfob. Refer to ID Code Entry Procedure.<br>NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning. | 303 |

## KEYFOB BATTERY AND FUNCTION CHECK

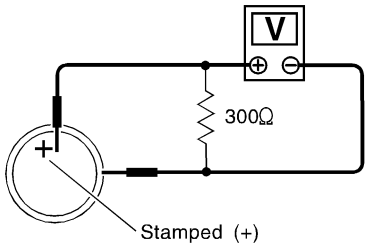
=NFEL0195S02

| 1 | CHECK KEYFOB BATTERY |
|---|---|

Remove battery (refer to EL-307) and measure voltage across battery positive and negative terminals, (+) and (−).

**Voltage [V]:**
**2.5 - 3.0**

**NOTE:**
Keyfob does not function if battery is not set correctly.




SEL237W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Replace battery. |

| 2 | CHECK KEYFOB FUNCTION |
|---|---|

**With CONSULT-II**
Check keyfob function ("LK BUTTON/SIG", "UN BUTTON/SIG", "TRUNK BTN/SIG", "PANIC BTN", "UN BUTTON ON" and "LK/UN BTN ON") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LK BUTTON/SIG | ON |
| UN BUTTON/SIG | ON |
| TRUNK BTN/SIG | ON |
| PANIC BTN | ON |
| UN BUTTON ON | ON |
| LK/UN BTN ON | ON |

**When pushing each button of keyfob, the corresponding monitor item should be turned as follows.**

| Condition | Monitor item | |
|---|---|---|
| Pushing LOCK | LK BUTTON/SIG | ON |
| Pushing UNLOCK | UN BUTTON/SIG | ON |
| Pushing TRUNK | TRUNK BTN/SIG | ON |
| Pushing PANIC | PANIC BTN/SIG | ON |
| Pushing UNLOCK | UN BUTTON ON | ON |
| Pushing LOCK and UNLOCK at the same time | LK/UN BTN ON | ON |

SEL423Y

**OK or NG**

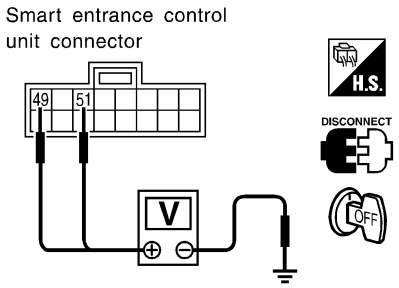
| | | |
|---|---|---|
| OK | ▶ | Keyfob is OK. Further inspection is necessary. Refer to "SYMPTOM CHART", EL-289. |
| NG | ▶ | Replace keyfob. Refer to ID Code Entry Procedure. |

## POWER SUPPLY AND GROUND CIRCUIT CHECK

=NFEL0195S03

| 1 | CHECK MAIN POWER SUPPLY CIRCUIT FOR SMART ENTRANCE CONTROL UNIT |
|---|---|

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector M145 terminal 49 (R/B) or 51 (W/R) and ground.




**Battery voltage should exist.**

SEL018Y

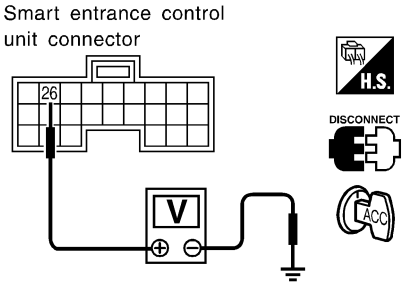
Refer to wiring diagram in EL-282.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | **Check the following.**<br>● 40A fusible link (letter **I**, located in fuse and fusible link box)<br>● 10A fuse [No. 13, located in fuse block (J/B)]<br>● E90 circuit breaker<br>● Harness for open or short between smart entrance control unit and fuse |

| 2 | CHECK IGNITION SWITCH "ACC" CIRCUIT |
|---|---|

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector M144 terminal 26 (PU) and ground while ignition switch is "ACC".




**Battery voltage should exist.**

SEL019Y

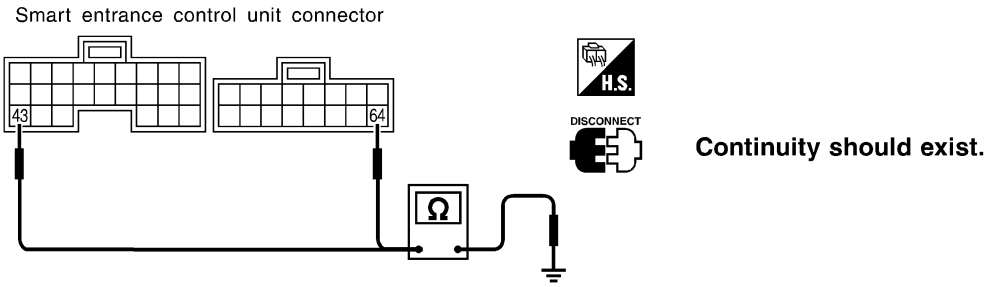
Refer to wiring diagram in EL-282.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | **Check the following.**<br>● 10A fuse [No. 1, located in fuse block (J/B)]<br>● Harness for open or short between smart entrance control unit and fuse |

| 3 | CHECK GROUND CIRCUIT FOR SMART ENTRANCE CONTROL UNIT |
|---|---|

Check continuity between smart entrance control unit harness connector M144 terminal 43 (B) or M145 terminal 64 (B) and ground.




**Continuity should exist.**

SEL020Y

Refer to wiring diagram in EL-282.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Power supply and ground circuits are OK. |
| NG | ▶ | Check ground harness. |

## DOOR SWITCH CHECK

=NFEL0195S04

**1 CHECK DOOR SWITCH INPUT SIGNAL**

**With CONSULT-II**

Check door switches ("DOOR SW-RR", "DOOR SW-DR" and "DOOR SW-AS") in "DATA MONITOR" mode with CONSULT-II.

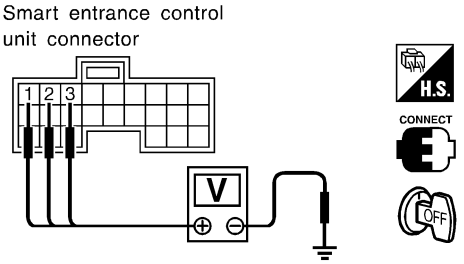
| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-RR | OFF |
| DOOR SW-DR | OFF |
| DOOR SW-AS | OFF |

| | Monitor item | Condition | Condition |
|---|---|---|---|
| DOOR SW-RR | Rear doors switch | Open | ON |
| | | Closed | OFF |
| DOOR SW-DR | Door switch LH | Open | ON |
| | | Closed | OFF |
| DOOR SW-AS | Door switch RH | Open | ON |
| | | Closed | OFF |

SEL024Y

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminals 1 (LG), 2 (R/L) or 3 (R/W) and ground.




| | Terminals (+) | Terminals (–) | Condition | Voltage [V] |
|---|---|---|---|---|
| Front door switch LH | 1 | Ground | Open | 0 |
| | | | Closed | Approx. 12 |
| Front door switch RH | 2 | Ground | Open | 0 |
| | | | Closed | Approx. 5 |
| Rear door switches | 3 | Ground | Open | 0 |
| | | | Closed | Approx. 5 |

SEL021YC

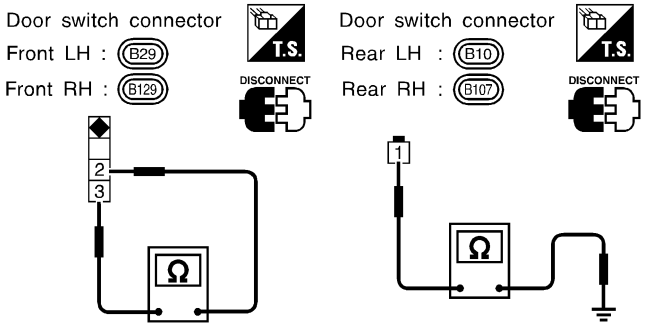
Refer to wiring diagram in EL-284.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door switch is OK. |
| NG | ▶ | GO TO 2. |

**2 CHECK DOOR SWITCH**

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




| | Terminals | Condition | Continuity |
|---|---|---|---|
| Front door switches | 2 - 3 | Closed | No |
| | | Open | Yes |
| Rear door switches | 1 - Ground | Closed | No |
| | | Open | Yes |

SEL192W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>• Door switch ground circuit or door switch ground condition<br>• Harness for open or short between smart entrance control unit and door switch |
| NG | ▶ | Replace door switch. |

## KEY SWITCH (INSERT) CHECK

=NFEL0195S05

| 1 | CHECK KEY SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check key switch ("KEY ON SW") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY ON SW | ON |

When key is inserted to ignition key cylinder:

**KEY ON SW ON**

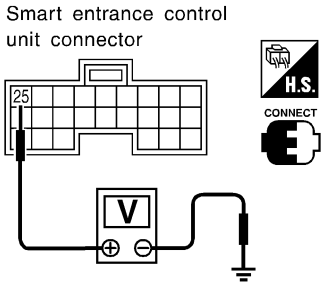
When key is removed from ignition key cylinder:

**KEY ON SW OFF**

SEL315W

**Without CONSULT-II**

Check voltage between control unit harness connector M144 terminal 25 (B/R) and ground.
Refer to wiring diagram in EL-282.




**Voltage [V]:**

**Condition of key switch : Key is inserted.**
**Approx. 12**
**Condition of key switch : Key is removed.**
**0**

SEL022Y

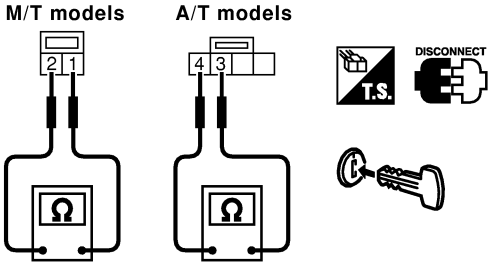
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Key switch is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK KEY SWITCH (INSERT) |
|---|---|

Check continuity between key switch harness connector E95 terminals 1 and 2 (M/T models) or E150 terminals 3 and 4 (A/T models).

Key switch connector




**Continuity:**

**Condition of key switch: Key is inserted.**
**Yes**
**Condition of key switch: Key is removed.**
**No**

SEL614Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>• 10A fuse [No. 13, located in fuse block (J/B)]<br>• Harness for open or short between key switch and fuse<br>• Harness for open or short between smart entrance control unit and key switch |
| NG | ▶ | Replace key switch. |

## DOOR LOCK/UNLOCK SWITCH LH CHECK

=NFEL0195S06

**1 CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL**

**With CONSULT-II**

Check door lock/unlock switch ("LOCK SW DR/AS"/"UNLK SW DR/AS") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LOCK SW DR/AS | OFF |
| UNLK SW DR/AS | OFF |

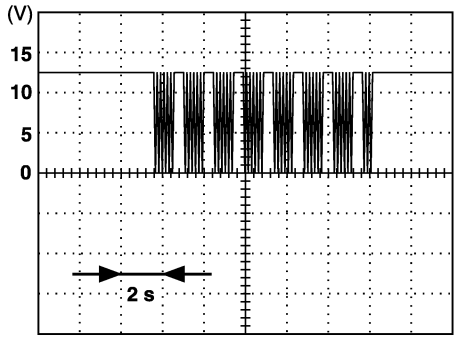
When lock/unlock switch is turned to LOCK:
**LOCK SW DR/AS ON**

When lock/unlock switch is turned to UNLOCK:
**UNLK SW DR/AS ON**

SEL341W

**Without CONSULT-II**

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when door lock/unlock switch is turned "LOCK" or "UNLOCK".
3. Make sure signals which are shown in the figure below can be detected during 10 sec. just after door lock/unlock switch is turned "LOCK" or "UNLOCK".




**Voltage:**
**12V → 9V (10 sec.) measurement by analog circuit tester.**

SEL396Y

Refer to wiring diagram in EL-283.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door lock/unlock switch is OK. |
| NG | ▶ | **Check the following.**<br>• Ground circuit for each front power window switch.<br>• Harness for open or short between each front power window switch and smart entrance control unit connector<br>If above systems are normal, replace the front power window switch. |

## TRUNK LID OPENER ACTUATOR CHECK

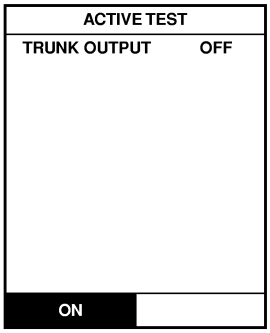
=NFEL0195S12

| 1 | CHECK TRUNK LID OPENER | |
|---|---|---|
| Check trunk lid opener operation with trunk lid opener switch.<br>NOTE: First check trunk lid opener cancel lever position. | | |
| **Does trunk lid open?** | | |
| Yes | ▶ | GO TO 2. |
| No | ▶ | Check trunk lid opener actuator and the circuit. |

| 2 | CHECK TRUNK LID OPENER ACTUATOR OPERATION | |
|---|---|---|

**With CONSULT-II**

1. Select "ACTIVE TEST" in "MULTI REMOTE ENT" with CONSULT-II.
2. Select "TRUNK OUTPUT" and touch "ON".




**Trunk lid opener should operate.**

SEL345W

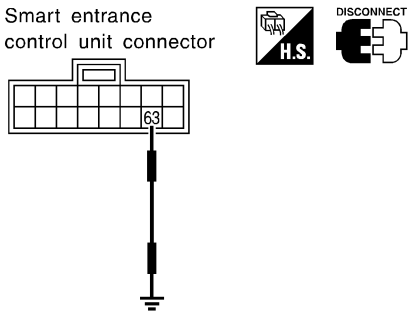
**NOTE: If CONSULT-II is not available, skip this procedure and go to the next step.**

| OK or NG | | |
|---|---|---|
| OK | ▶ | Trunk lid opener actuator circuit is OK. |
| NG | ▶ | Check harness for open or short between smart entrance control unit and trunk lid opener actuator. |

| 3 | CHECK TRUNK LID OPENER ACTUATOR CIRCUIT | |
|---|---|---|

**Without CONSULT-II**

1. Disconnect smart entrance control unit harness connector.
2. Apply ground to smart entrance control unit harness connector M145 terminal 63 (L).




SEL026Y

Refer to wiring diagram in EL-285.

| Does trunk lid open? | | |
|---|---|---|
| Yes | ▶ | Replace smart entrance control unit. |
| No | ▶ | Check harness for open or short between smart entrance control unit and trunk lid opener actuator. |

## HAZARD REMINDER CHECK

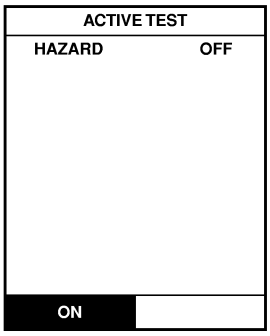
=NFEL0195S08

| 1 | CHECK HAZARD INDICATOR | |
|---|---|---|
| Check if hazard indicator flashes with hazard switch. | | |
| **Does hazard indicator operate?** | | |
| Yes | ▶ | GO TO 2. |
| No | ▶ | Check "hazard indicator" circuit. |

| 2 | CHECK HAZARD REMINDER OPERATION WITH CONSULT-II | |
|---|---|---|

**With CONSULT-II**

1. Select "ACTIVE TEST" in "MULTI REMOTE ENT" with CONSULT-II.
2. Select "HAZARD" and touch "ON".




**Hazard indicator should illuminate.**

SEL347W

**NOTE: If CONSULT-II is not available, skip this procedure and go to the next step.**

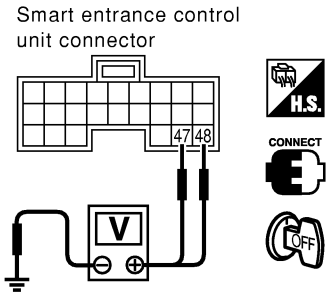
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Hazard reminder operation is OK. |
| NG | ▶ | Replace smart entrance control unit. |

| 3 | CHECK HAZARD REMINDER OPERATION WITHOUT CONSULT-II | |
|---|---|---|

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M144 terminal 47 (GY/L) or 48 (GY/R) and ground.




| Condition of lock or unlock button | Voltage (V) |
|---|---|
| Push. | Approx. 0 - 12 |
| Do not push. | 0 |

SEL592Y

Refer to wiring diagram in EL-285.

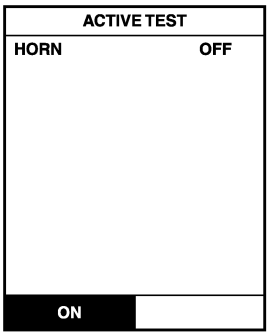
**OK or NG**

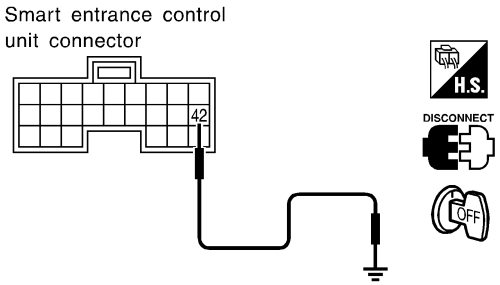
| | | |
|---|---|---|
| OK | ▶ | System is OK. |
| NG | ▶ | Replace smart entrance control unit. |

## HORN REMINDER CHECK

=NFEL0195S09

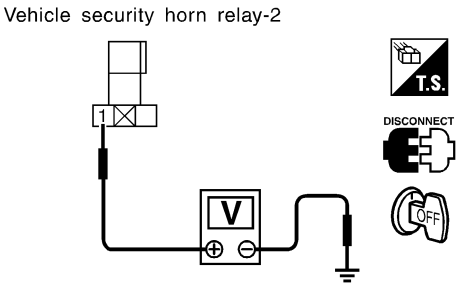
| 1 | CHECK HORN | |
|---|---|---|
| Check if horn sounds with horn switch.<br>**Does horn operate?** | | |
| Yes | ▶ | GO TO 2. |
| No | ▶ | Check horn circuit. |

| 2 | CHECK HORN REMINDER OPERATION WITH CONSULT-II | |
|---|---|---|
| **With CONSULT-II**<br>1. Select "ACTIVE TEST" in "MULTI REMOTE ENT" with CONSULT-II.<br>2. Select "HORN" and touch "ON".<br>  <br>**Horn should sound.**<br>SEL451Y<br>**NOTE: If CONSULT-II is not available, skip this procedure and go to the next step.**<br>**OK or NG** | | |
| OK | ▶ | Horn reminder operation is OK. |
| NG | ▶ | GO TO 4. |

| 3 | CHECK HORN REMINDER OPERATION WITHOUT CONSULT-II | |
|---|---|---|
| **Without CONSULT-II**<br>1. Disconnect smart entrance control unit harness connector.<br>2. Apply ground to smart entrance control unit harness connector M144 terminal 42 (BR/Y).<br>  <br>SEL028Y<br>Refer to wiring diagram in EL-285.<br>**Does horn sound?** | | |
| Yes | ▶ | Replace smart entrance control unit. |
| No | ▶ | GO TO 4. |

| 4 | CHECK VEHICLE SECURITY HORN RELAY-2 | |
|---|---|---|
| Check vehicle security horn relay-2. | | |
| **OK or NG** | | |
| OK | ▶ | GO TO 5. |
| NG | ▶ | Replace vehicle security horn relay-2. |

| 5 | CHECK POWER SUPPLY FOR VEHICLE SECURITY HORN RELAY-2 | |
|---|---|---|
| 1. Disconnect vehicle security horn relay-2 harness connector.<br>2. Check voltage between vehicle security horn relay-2 harness connector E63 terminal 1 (G/R) and ground. | | |

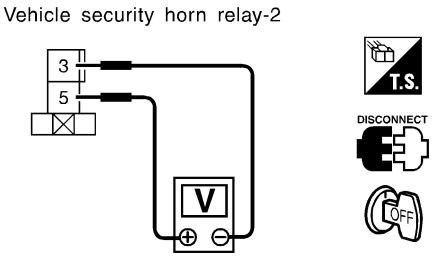



SEL031Y

**Does battery voltage exist?**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 6. |
| No | ▶ | **Check the following.**<br>● 10A fuse (No. 61, located in the fuse and fusible link box)<br>● Harness for open or short between vehicle security horn relay-2 and fuse |

| 6 | CHECK VEHICLE SECURITY HORN RELAY-2 | |
|---|---|---|
| 1. Disconnect vehicle security horn relay-2 harness connector.<br>2. Check voltage between vehicle security horn relay-2 harness connector E63 terminals 5 (G) and 3 (B). | | |




**Battery voltage should exist.**

SEL032Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Check harness for open or short between smart entrance control unit and vehicle security horn relay-2. |
| NG | ▶ | **Check the following.**<br>● Harness for open or short between vehicle security horn relay-2 and fuse<br>● Harness for open or short between horn relay and vehicle security horn relay-2<br>● Harness for open or short between vehicle security horn relay-2 and body grounds |

## INTERIOR LAMP OPERATION CHECK

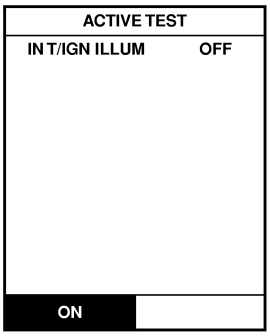
=NFEL0195S10

| 1 | CHECK INTERIOR LAMP | |
|---|---|---|
| Check if the interior lamp switch is in the "ON" position and the lamp illuminates.<br>**Does interior lamp illuminate?** | | |
| Yes | ▶ | GO TO 2. |
| No | ▶ | **Check the following.**<br>● Harness for open or short between smart entrance control unit and interior lamp<br>● Interior lamp |

| 2 | CHECK INTERIOR LAMP OPERATION |
|---|---|

**With CONSULT-II**

1. Select "ACTIVE TEST" in "MULTI REMOTE ENT" with CONSULT-II.
2. Select "INT/IGN ILLUM" and touch "ON".

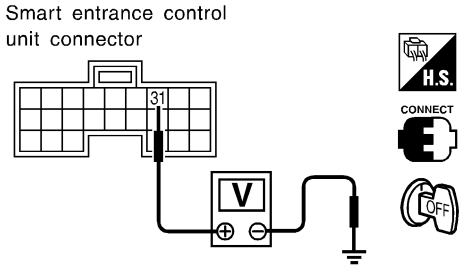



**Interior lamp should illuminate.**

SEL349W

**Without CONSULT-II**

Push unlock button of keyfob with all doors closed and driver's door locked, and check voltage between smart entrance control unit harness connector M144 terminal 31 (R) and ground.




**Voltage [V]:**
**Unlock button is pushed.**
**0 (For approx. 30 seconds.)**
**Unlock button is not pushed.**
**Battery voltage**

SEL029Y

Refer to wiring diagram in EL-284.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | System is OK. |
| NG | ▶ | Check harness open or short between smart entrance control unit and interior lamp. |

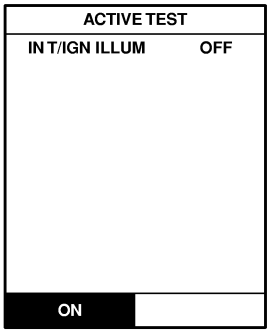
## KEY HOLE ILLUMINATION OPERATION CHECK

NFEL0195S13

| 1 | CHECK KEY HOLE ILLUMINATION OPERATION |
|---|---|

**With CONSULT-II**

1. Select "ACTIVE TEST" IN "MULTI REMOTE ENT" with CONSULT-II.
2. Select "INT/IGN ILLUM" and touch "ON".

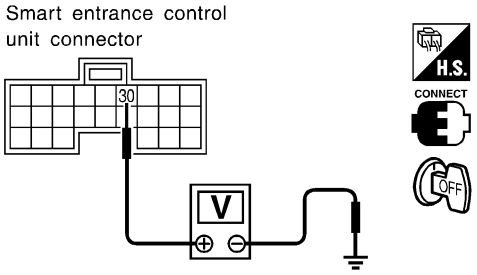



**Key hole illuminate should illuminate.**

SEL350W

**Without CONSULT-II**

Push unlock button of keyfob with all doors closed and driver's door locked, and check voltage between smart entrance control unit harness connector M144 terminal 30 (R/Y) and ground.




**Voltage [V]:**
**Unlock button is pushed.**
**0 (For approx. 30 seconds)**
**Unlock button is not pushed.**
**Battery voltage**

SEL030Y

Refer to wiring diagram in EL-284.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | System is OK. |
| NG | ▶ | **Check the following.**<br>● Harness for open or short between smart entrance control unit and key hole illumination.<br>● Key hole illumination |

## ID Code Entry Procedure

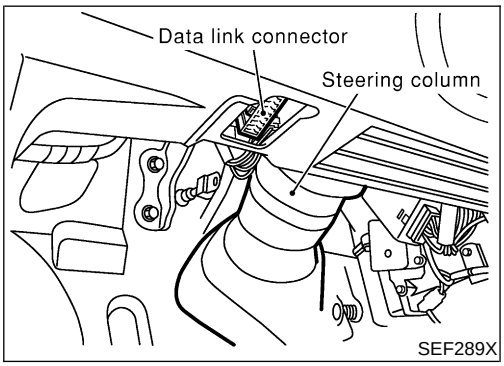
=NFEL0117

### KEYFOB ID SET UP WITH CONSULT-II

NFEL0117S01

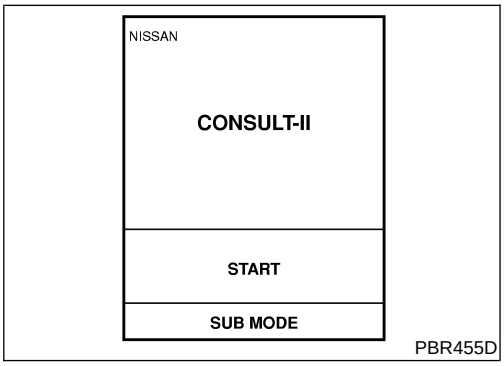
**NOTE:**

**If a keyfob is lost, the ID code of the lost keyfob must be erased to prevent unauthorized use. When the ID code of a lost keyfob is not known, all keyfob ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new keyfob must be re-registered.**



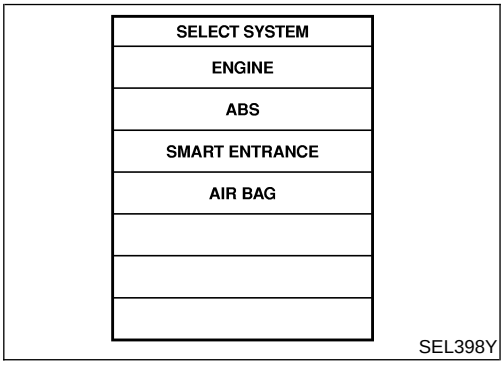
SEF289X

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



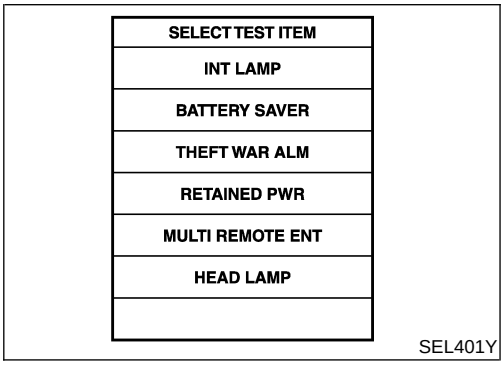
PBR455D

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



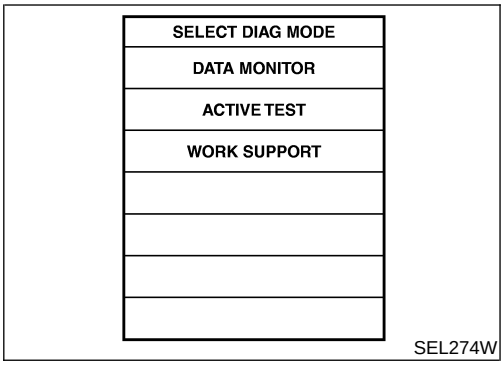
SEL398Y

5. Touch “SMART ENTRANCE”.

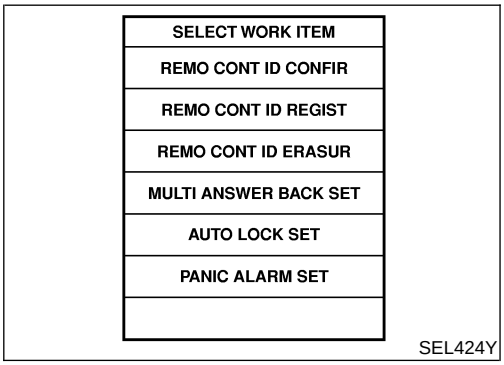


SEL401Y

6. Touch “MULTI REMOTE ENT”.




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 keyfob ID code is registered or not.
- "REMO CONT ID REGIST"
  Use this mode to register a keyfob ID code.

**NOTE:**
**Register the ID code when keyfob or smart entrance control unit is replaced, or when additional keyfob is required.**

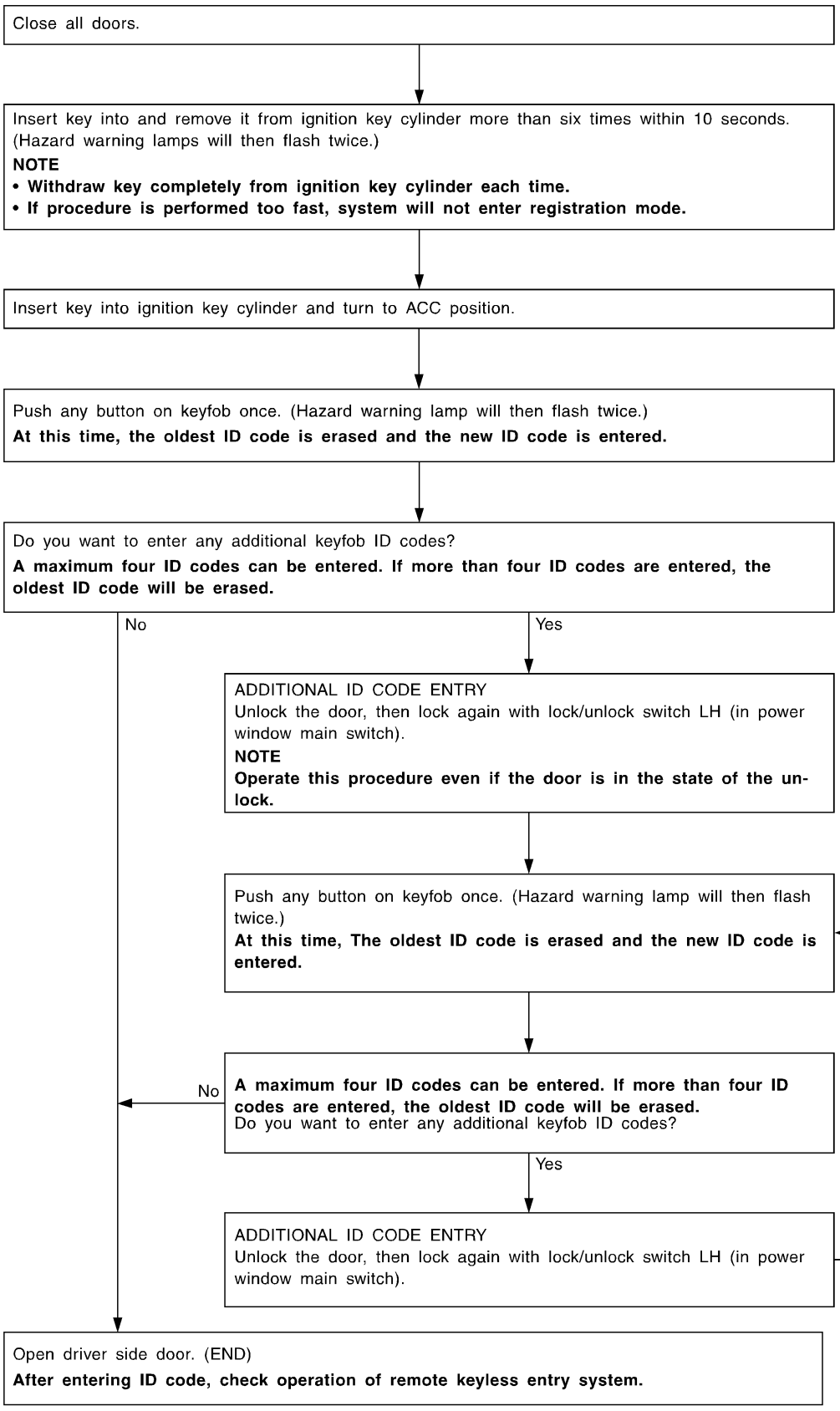
- "REMO CONT ID ERASUR"
  Use this mode to erase a keyfob ID code.

Refer to the EL-288 "Work Support" in "CONSULT-II Application Items" for the following items.

- "MULTI ANSWER BACK SET"
- "AUTO LOCK SET"
- "PANIC ALARM SET"
- "TRUNK OPENER"
- "PW DOWN SET"

## KEYFOB ID SET UP WITHOUT CONSULT-II

NFEL0117S02




SEL170YA

**NOTE:**

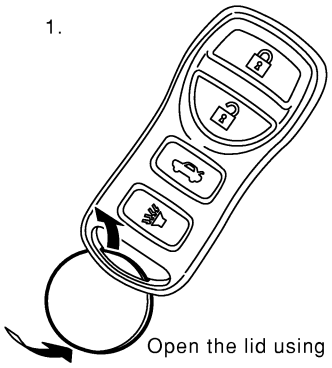
- If a keyfob is lost, the ID code of the lost keyfob must be erased to prevent unauthorized use. A specific ID code can be erased with CONSULT-II. However, when the ID code of a lost keyfob is not known, all keyfob ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new keyfobs must be re-registered.
  To erase all ID codes in memory, register one ID code (keyfob) four times. After all ID codes are erased, the ID codes of all remaining and/or new keyfobs must be re-registered.
- When registering an additional keyfob, 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.
- If you need to activate more than two additional new keyfobs, repeat the procedure "Additional ID code entry" for each new keyfob.
- 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 same 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.

## Keyfob Battery Replacement

NFEL0118

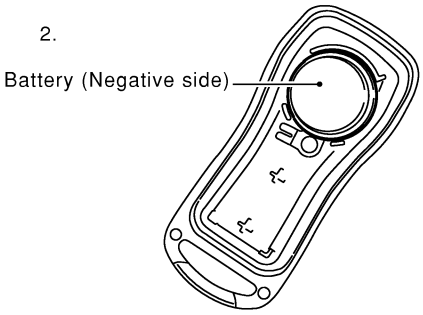
**NOTE:**
• Be careful not to touch the circuit board or battery terminal.
• The keyfob is water-resistant. However, if it does get wet, immediately wipe it dry.

1.



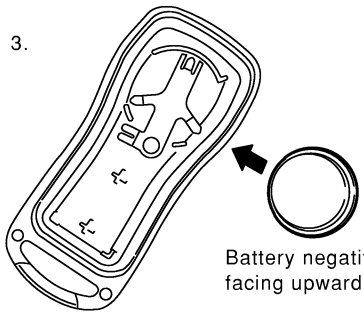
Open the lid using a coin.

2.




Remove the battery.

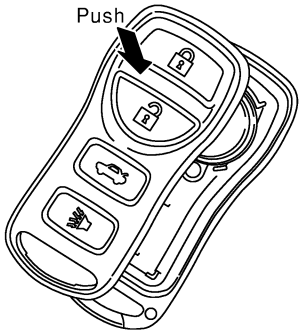
3.



Battery negative side facing upward

Insert the new battery.

4.

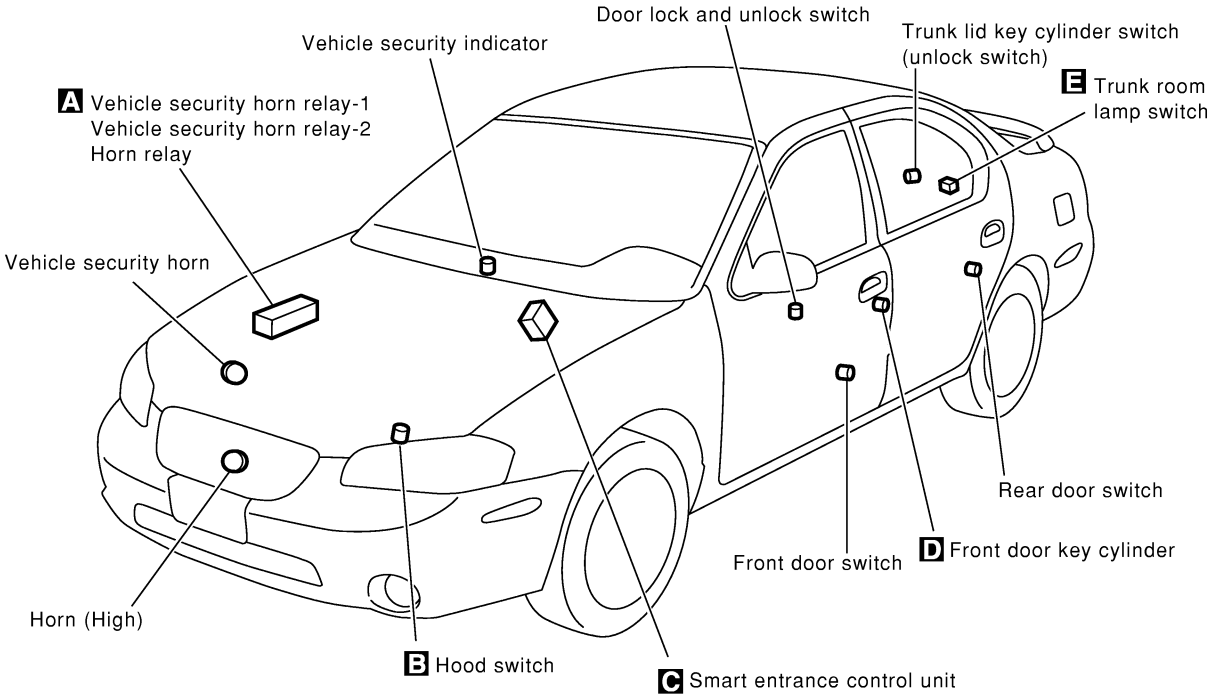


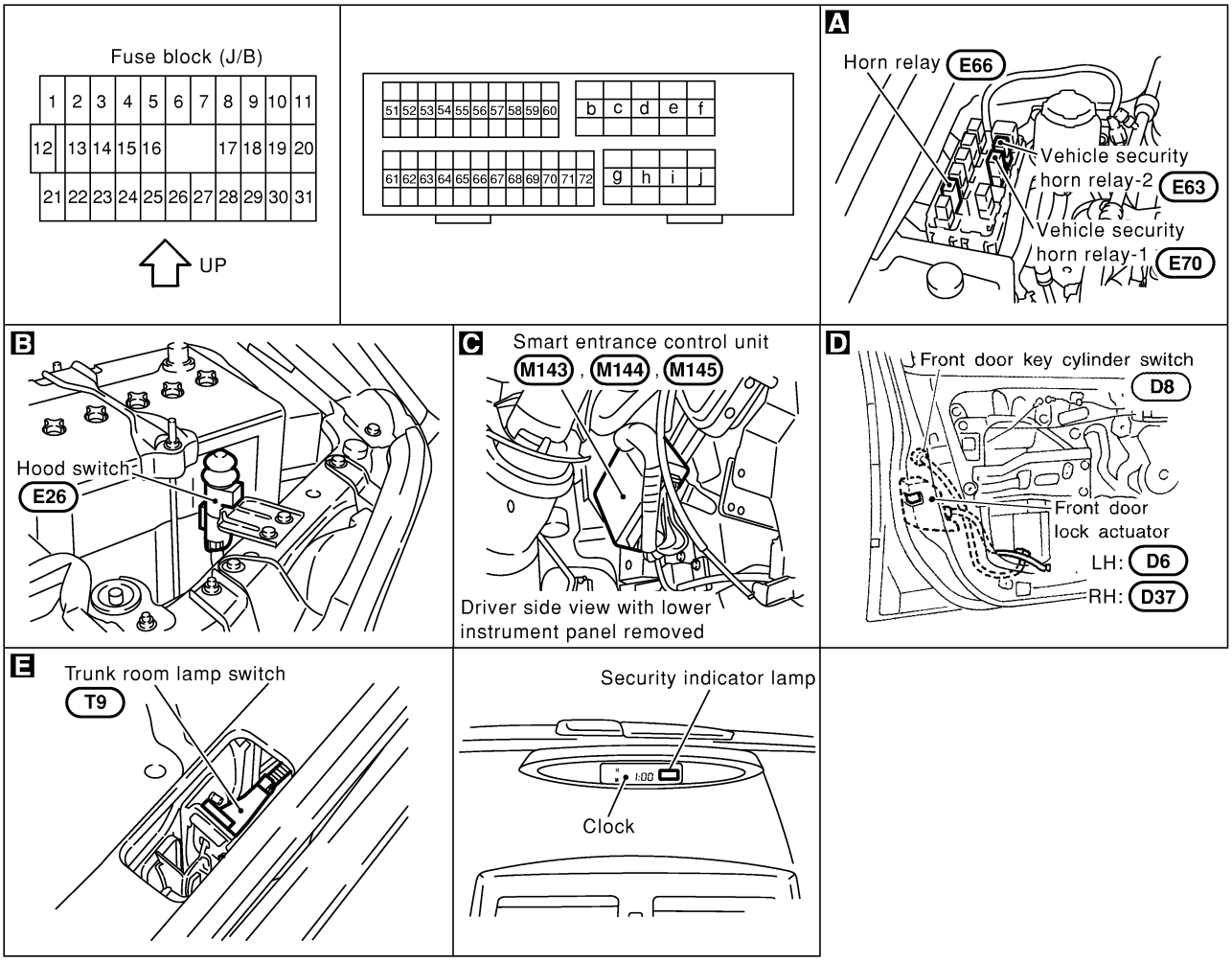

Close the lid securely.
Push the keyfob button two or three times to check its operation.

SEL411Y

## Component Parts and Harness Connector Location

NFEL0119




SEL386Y

# System Description

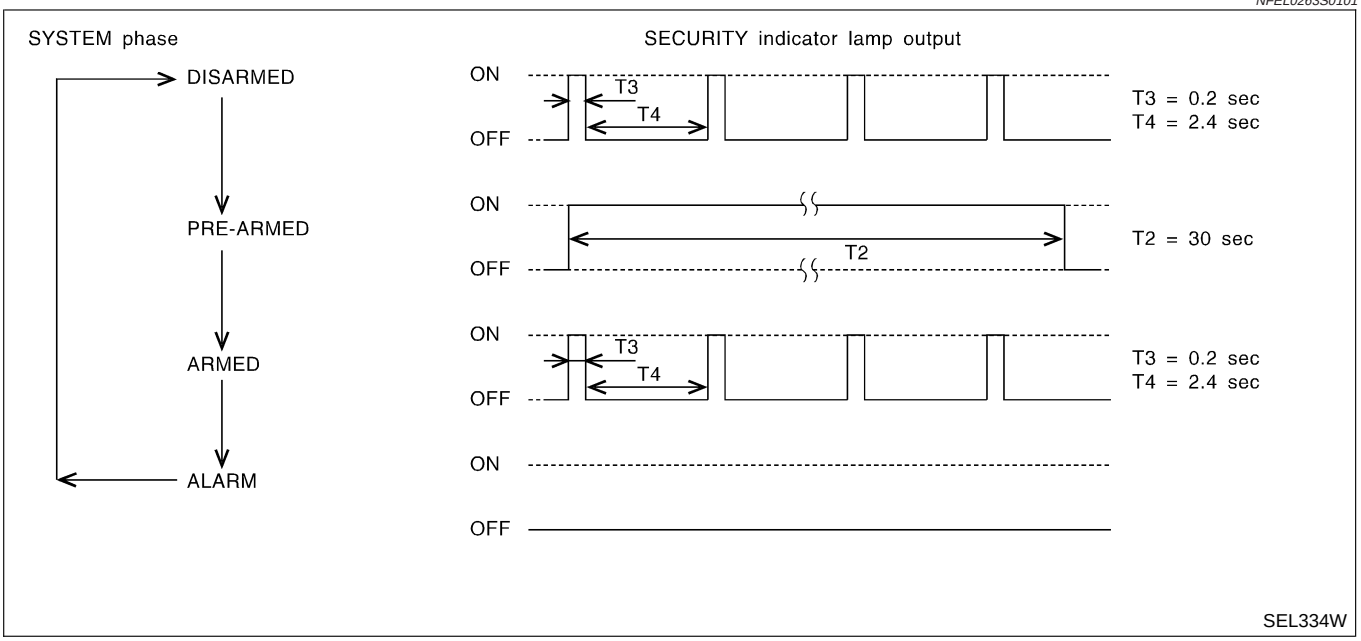
NFEL0263

## DESCRIPTION

NFEL0263S01

### 1. Operation Flow

NFEL0263S0101




### 2. Setting The Vehicle Security System

NFEL0263S0102

**Initial condition**

1) Ignition switch is in OFF position.

**Disarmed phase**

When the vehicle security system is in the disarmed phase, the security indicator lamp blinks every 2.6 seconds.

**Pre-armed phase and armed phase**

When the following operation 1) or 2) is performed, the vehicle security system turns into the “pre-armed” phase. (The security indicator lamp illuminates.)

1) Smart entrance control unit receives LOCK signal from key cylinder switch or keyfob after hood, trunk lid and all doors are closed.
2) Hood, trunk lid and all doors are closed after front doors are locked by key, lock/unlock switch or keyfob.

After about 30 seconds, the system automatically shifts into the “armed” phase (the system is set). (The security indicator lamp blinks every 2.6 seconds.)

### 3. Canceling The Set Vehicle Security System

NFEL0263S0103

When the following 1) or 2) operation is performed, the armed phase is canceled.

1) Unlock the doors with the key or keyfob.
2) Open the trunk lid with the key or keyfob.

### 4. Activating The Alarm Operation of The Vehicle Security System

NFEL0263S0104

Make sure the system is in the armed phase. (The security indicator lamp blinks every 2.6 seconds.)
When the following operation 1) or 2) is performed, the system sounds the horns and flashes the headlamps for about 50 seconds.

1) Engine hood, trunk lid or any door is opened during armed phase.
2) Disconnecting and connecting the battery connector before canceling armed phase.

## POWER SUPPLY AND GROUND

NFEL0263S02

Power is supplied at all times

- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to security indicator lamp terminal 4.

Power is supplied at all times

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

- to smart entrance control unit terminal 49.

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

- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to smart entrance control unit terminal 27.

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

- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to smart entrance control unit terminal 26.

Ground is supplied

- to smart entrance control unit terminals 43 and 64
- through body grounds M9, M25 and M87.

## INITIAL CONDITION TO ACTIVATE THE SYSTEM

NFEL0263S03

The operation of the vehicle security system is controlled by the doors, hood and trunk lid.

### Pattern A

NFEL0263S0301

To activate the vehicle security system, the smart entrance control unit must receive signals indicating the doors, hood and trunk lid are closed.
When a door is open, smart entrance control unit terminal 1, 2 or 3 receives a ground signal from each door switch.
When the hood is open, smart entrance control unit terminal 6 receives a ground signal

- from terminal 1 of the hood switch
- through body grounds E11, E22 and E53.

When the trunk lid is open, smart entrance control unit terminal 13 receives a ground signal

- from terminal 1 of the trunk room lamp switch
- through body grounds T6 and T8.

When smart entrance control unit receives LOCK signal from key cylinder switch or keyfob and none of the described conditions exist, the vehicle security system will automatically shift to armed mode.

### Pattern B

NFEL0263S0302

To activate the vehicle security system, the smart entrance control unit must receive signal indicating any door (including hood and trunk lid) is opened.
When the front doors are locked with key, lock/unlock switch or keyfob and then all doors are closed, the vehicle security system will automatically shift to armed mode.

## VEHICLE SECURITY SYSTEM ACTIVATION

NFEL0263S04

### Pattern A

NFEL0263S0401

With all doors (including hood and trunk lid) closed if the key is used to lock doors, front power window main switch terminal 6 receives a ground signal

- from terminal 3 of the key cylinder switch LH
- through body grounds M9, M25 and M87.

If this signal, or lock signal from keyfob is received by the smart entrance control unit, the vehicle security system will activate automatically.

**NOTE:**
Vehicle security system can be set even though all doors are not locked.

### Pattern B

NFEL0263S0402

With any door (including hood and trunk lid) open if lock/unlock switch is used to lock doors, terminal 33 receives a ground signal

- from terminal 8 of lock/unlock switch LH, or
- from terminal 11 of lock/unlock switch RH
- through body grounds M9, M25 and M87, or

With any door (including hood and trunk lid) open if the key is used to lock doors, front power window main switch terminal 6 receives a ground signal

- from terminal 3 of the key cylinder switch LH
- through body grounds M9, M25 and M87.

If these signals and lock signal from keyfob are received by the smart entrance control unit, ground signals of terminals 1, 2 and 3 are interrupted and all doors are closed, the vehicle security system will activate automatically.

**NOTE:**
Vehicle security system can be set even though the rear door is not locked.

Once the vehicle security system has been activated, smart entrance control unit terminal 38 supplies ground to terminal 5 of the security indicator lamp.
The security lamp will illuminate for approximately 30 seconds and then blinks every 2.6 seconds.
Now the vehicle security system is in armed phase.

## VEHICLE SECURITY SYSTEM ALARM OPERATION

NFEL0263S05

The vehicle security system is triggered by

- opening a door
- opening the hood or the trunk lid
- detection of battery disconnect and connect.

Once the vehicle security system is in armed phase, if the smart entrance control unit receives a ground signal at terminal 1, 2, 3 (door switch), 13 (trunk room lamp switch) or 6 (hood switch), the vehicle security system will be triggered. The headlamps flash and the horn sounds intermittently.
Power is supplied at all times

- through 10A fuse (No, 61 located in fuse and fusible link box)
- to vehicle security horn relay-1 terminals 1 and 3, and
- to vehicle security horn relay-2 terminal 1
- through 10A fuse (No. 57, located in fuse and fusible link box)
- to horn relay terminal 2.

Power is also supplied at all times

- through 15A fuse (No. 68, located in fuse and fusible link box)
- to headlamp relay LH terminal 3,
- through 20A fuse (No. 54, located in fuse and fusible link box)
- to headlamp relay LH terminals 1 and 6,
- through 15A fuse (No. 69, located in fuse and fusible link box)
- to headlamp relay RH terminal 3, and
- through 20A fuse (No. 55, located in fuse and fusible link box)
- to headlamp relay RH terminals 1 and 6.

When the vehicle security system is triggered, ground is supplied intermittently

- to headlamp LH relay terminal 2 from smart entrance control unit terminal 21 and
- to headlamp RH relay terminal 2 from smart entrance control unit terminal 59
- through smart entrance control unit terminals 43 and 64.

When headlamp relays (LH and RH) are energized and then power is supplied to headlamps (LH and RH).
The headlamps flash intermittently.
When the vehicle security system is triggered, ground is supplied intermittently

- from smart entrance control unit terminal 42
- to vehicle security horn relay-2 terminal 2.

When vehicle security horn relay-2 is energized, ground is supplied intermittently

- to vehicle security horn relay-1 terminal 2, and
- to horn relay terminal 1.

When vehicle security horn relay-1 and horn relay are energized, then power is supplied to vehicle security horn and horn.
The horn sounds intermittently.
The alarm automatically turns off after 50 seconds but will reactivate if the vehicle is tampered with again.

## VEHICLE SECURITY SYSTEM DEACTIVATION

NFEL0263S06

To deactivate the vehicle security system, a door or trunk lid must be unlocked with the key or keyfob.
When the key is used to unlock the door, front power window main switch terminal 19 receives a ground signal

- from terminal 1 of the LH key cylinder switch.

When the key is used to open the trunk lid, smart entrance control unit terminal 12 receives a ground signal from terminal 1 of the trunk lid key cylinder switch.
When the smart entrance control unit receives either one of these signals or unlock signal from keyfob, the vehicle security system is deactivated. (Disarmed phase)

## PANIC ALARM OPERATION

NFEL0263S07

Remote keyless entry system may or may not operate vehicle security system (horn and headlamps) as required.
When the remote keyless entry system (panic alarm) is triggered, ground is supplied intermittently

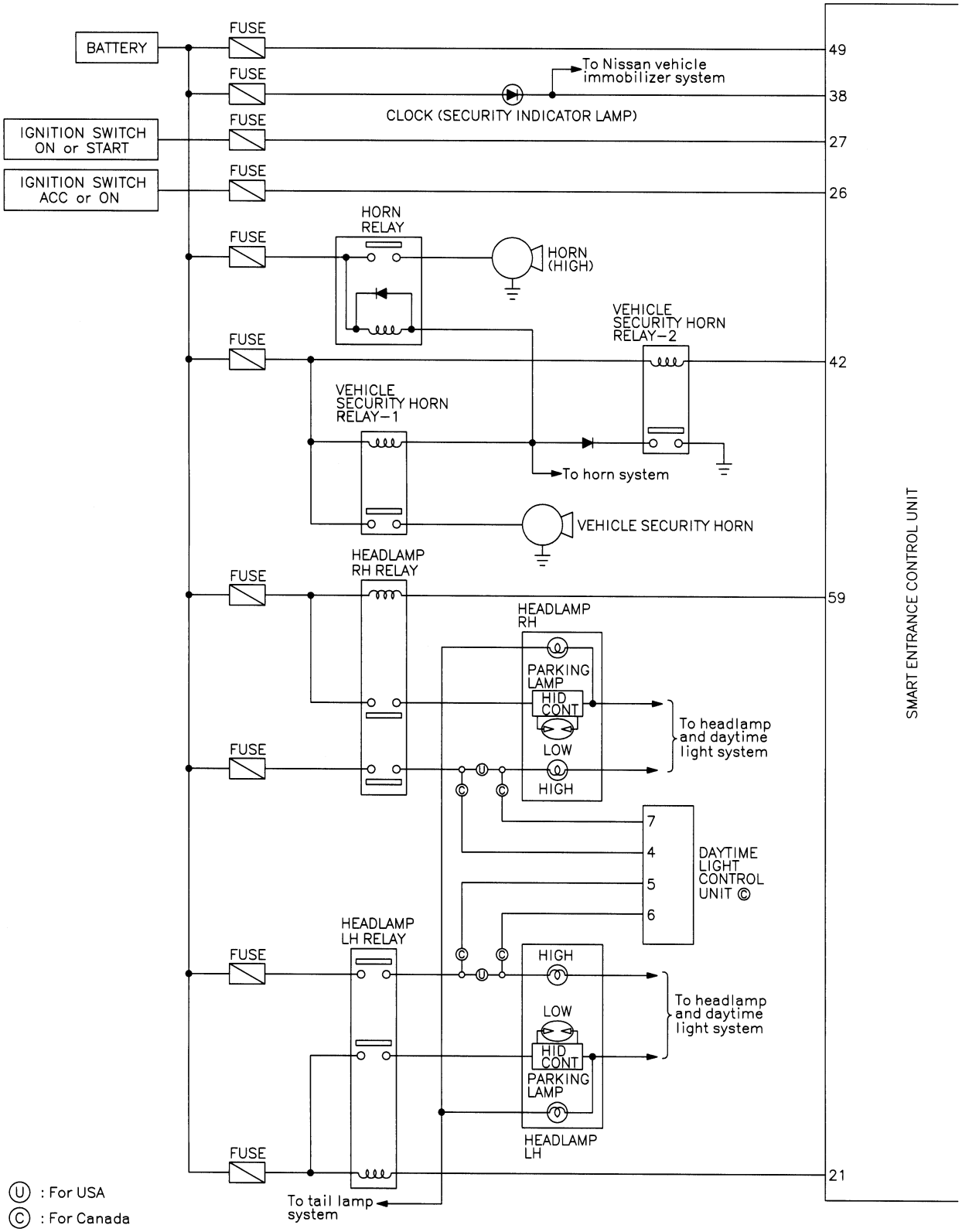
- from smart entrance control unit terminal 42
- to vehicle security horn relay-2 terminal 2,
- from smart entrance control unit terminal 21
- to headlamp LH relay terminal 2 and
- from smart entrance control unit terminal 59
- to headlamp RH relay terminal 2

The headlamp flashes and the horn sounds intermittently.
The alarm automatically turns off after 25 seconds or when smart entrance control unit receives any signal from keyfob.

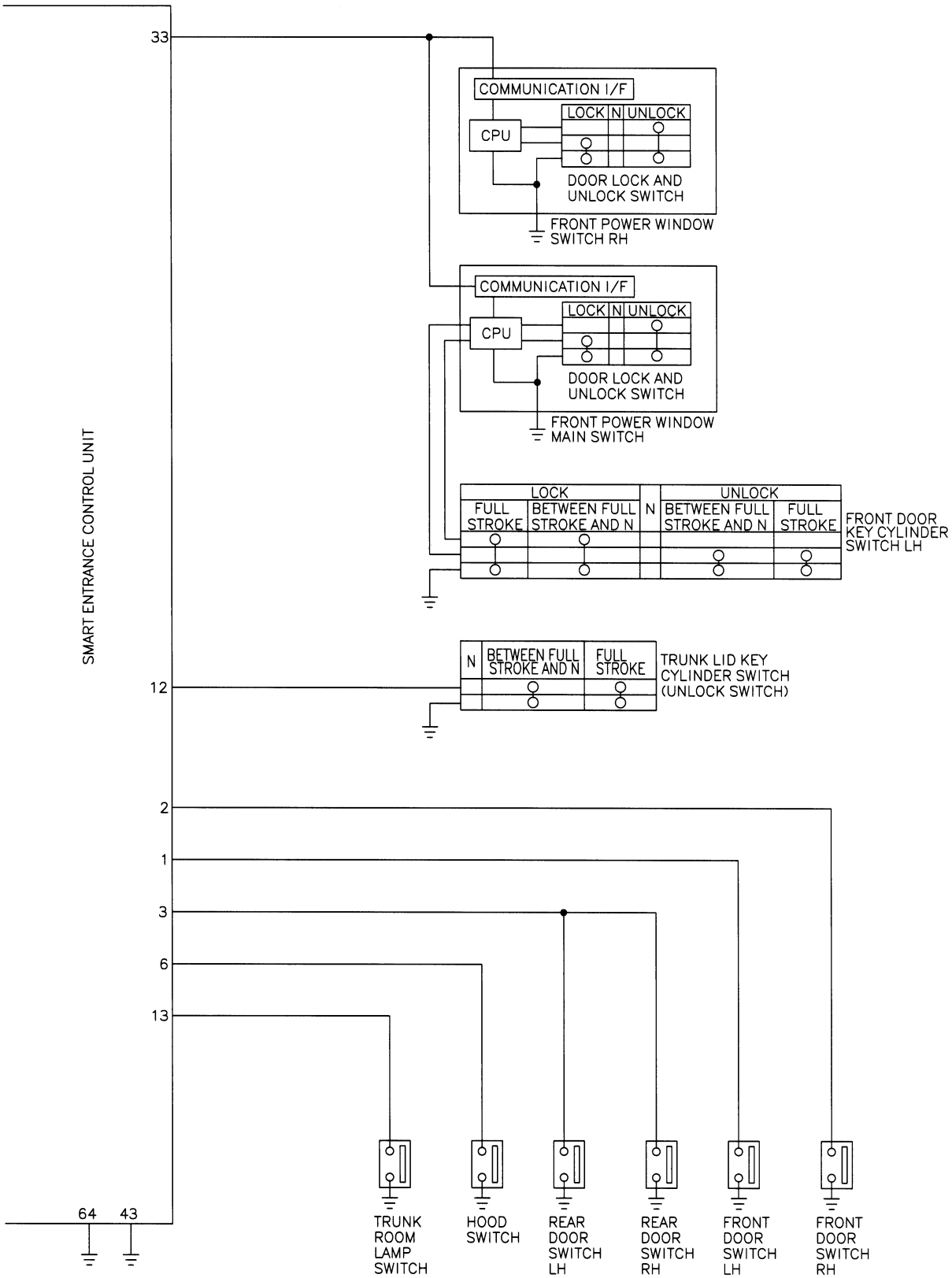
**NOTE:**

## Schematic

NFEL0121




MEL182O


SMART ENTRANCE CONTROL UNIT
33
12
2
1
3
6
13
64
43
COMMUNICATION I/F
CPU
LOCK
N
UNLOCK
DOOR LOCK AND UNLOCK SWITCH
FRONT POWER WINDOW SWITCH RH
COMMUNICATION I/F
CPU
LOCK
N
UNLOCK
DOOR LOCK AND UNLOCK SWITCH
FRONT POWER WINDOW MAIN SWITCH
LOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
UNLOCK
BETWEEN FULL STROKE AND N
FULL STROKE
FRONT DOOR KEY CYLINDER SWITCH LH
N
BETWEEN FULL STROKE AND N
FULL STROKE
TRUNK LID KEY CYLINDER SWITCH (UNLOCK SWITCH)
TRUNK ROOM LAMP SWITCH
HOOD SWITCH
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
FRONT DOOR SWITCH LH
FRONT DOOR SWITCH RH

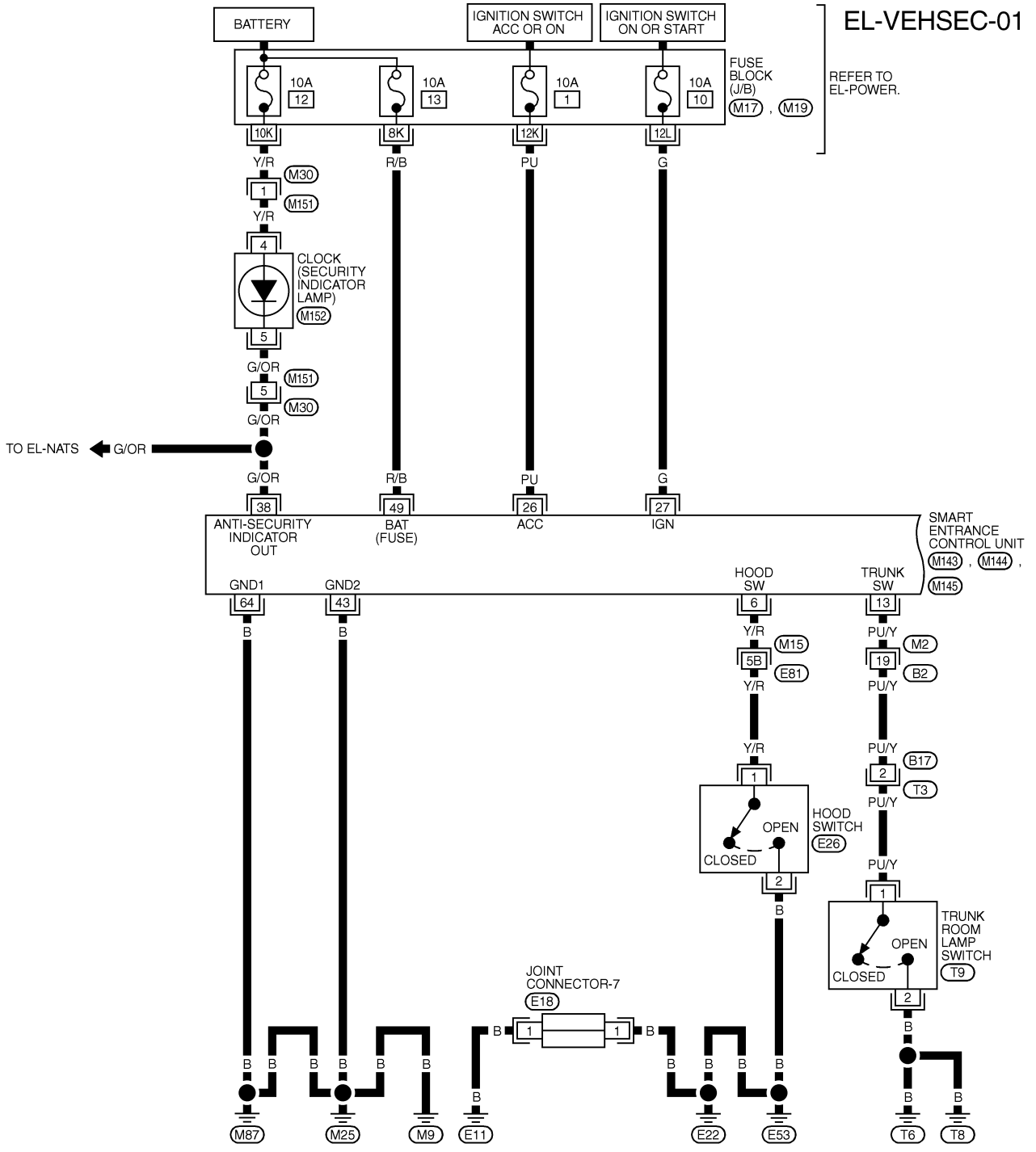
MEL183O

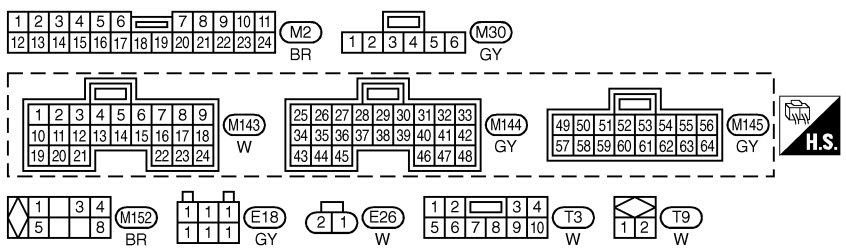
## Wiring Diagram — VEHSEC —

NFEL0122

**FIG. 1**

NFEL0122S01



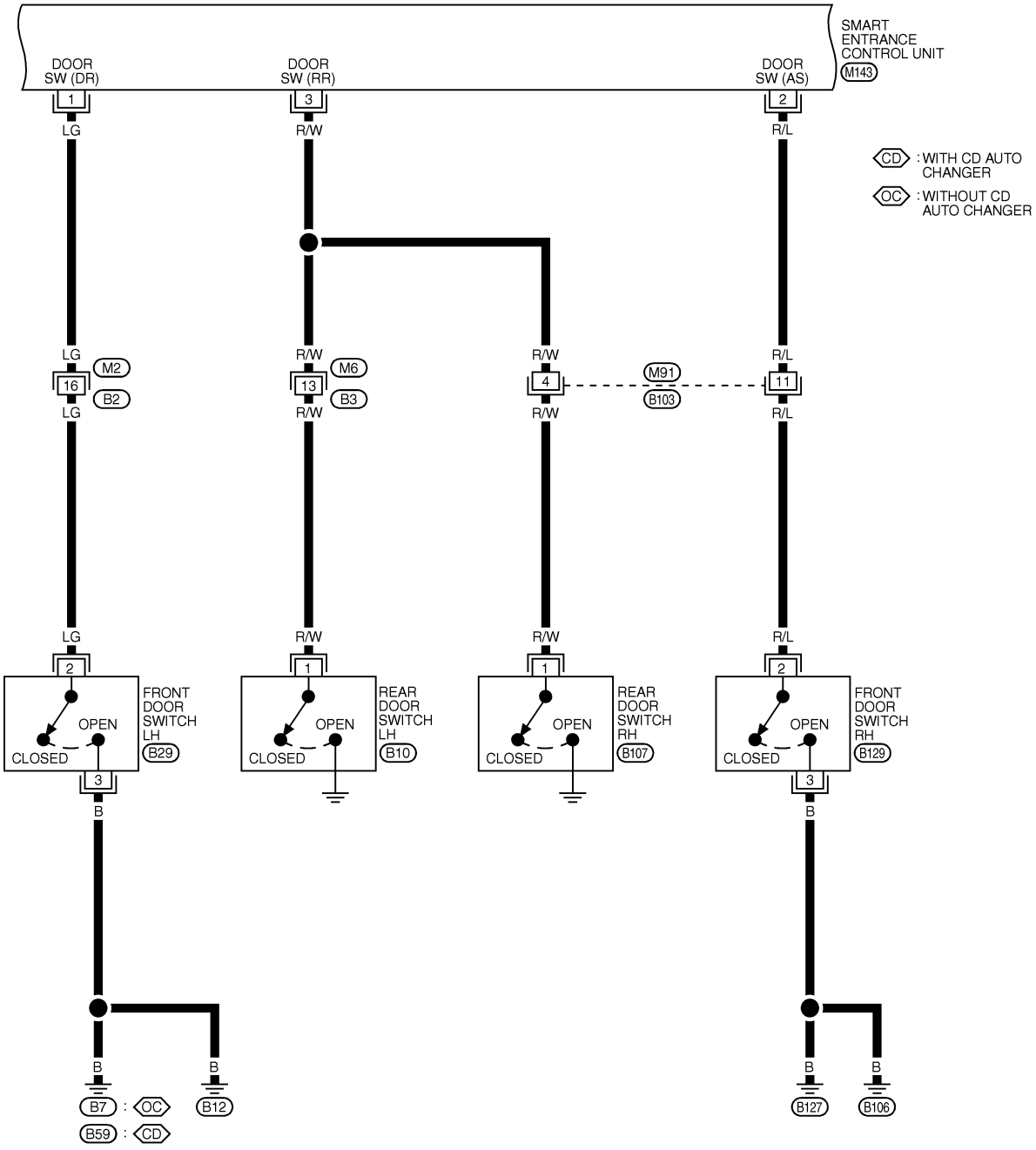

REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 -FUSE BLOCK-JUNCTION BOX (J/B)

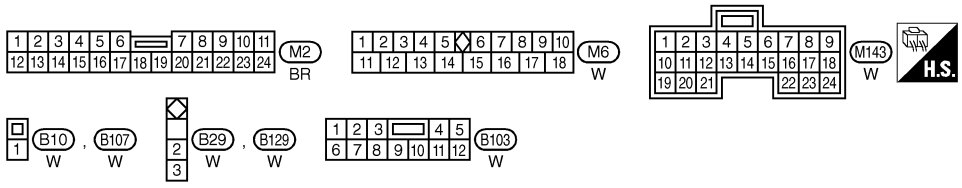
MEL184O

**FIG. 2**

NFEL0122S02

EL-VEHSEC-02




MEL750O

**FIG. 3**

NFEL0122S03

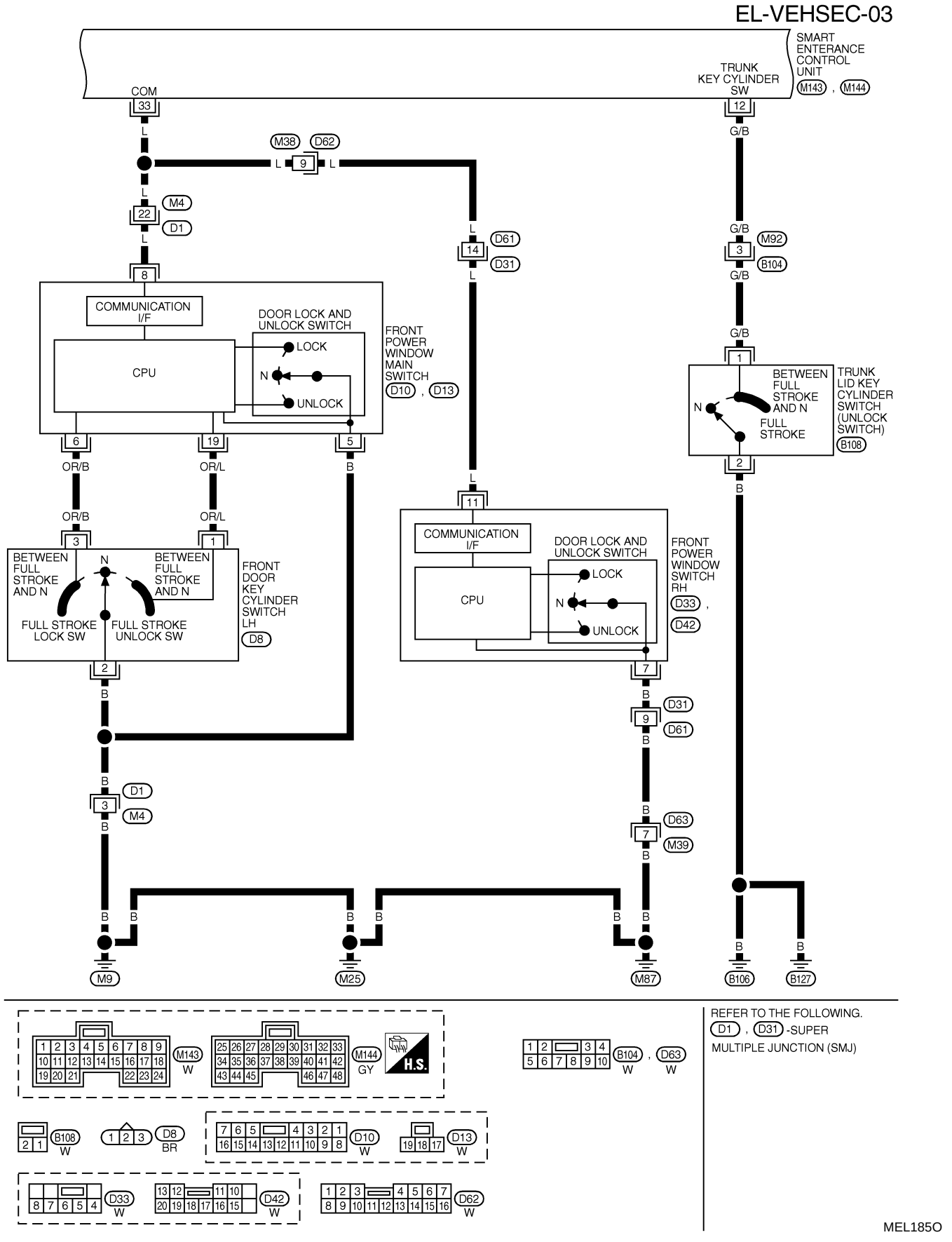
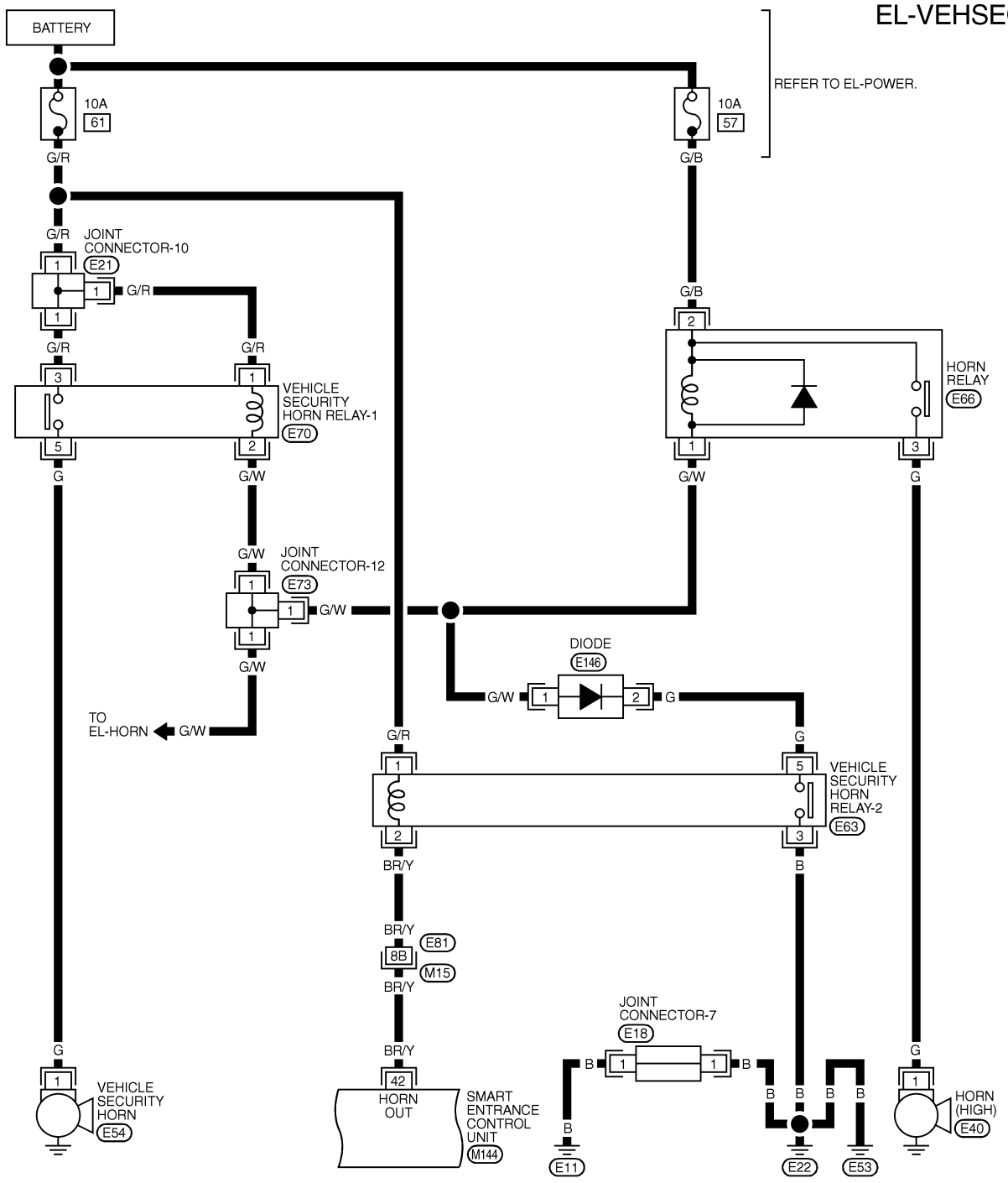
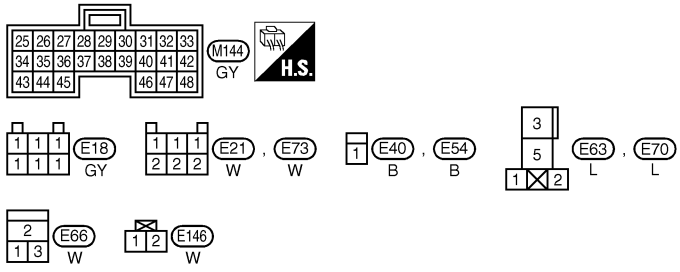


**FIG. 4**

NFEL0122S04



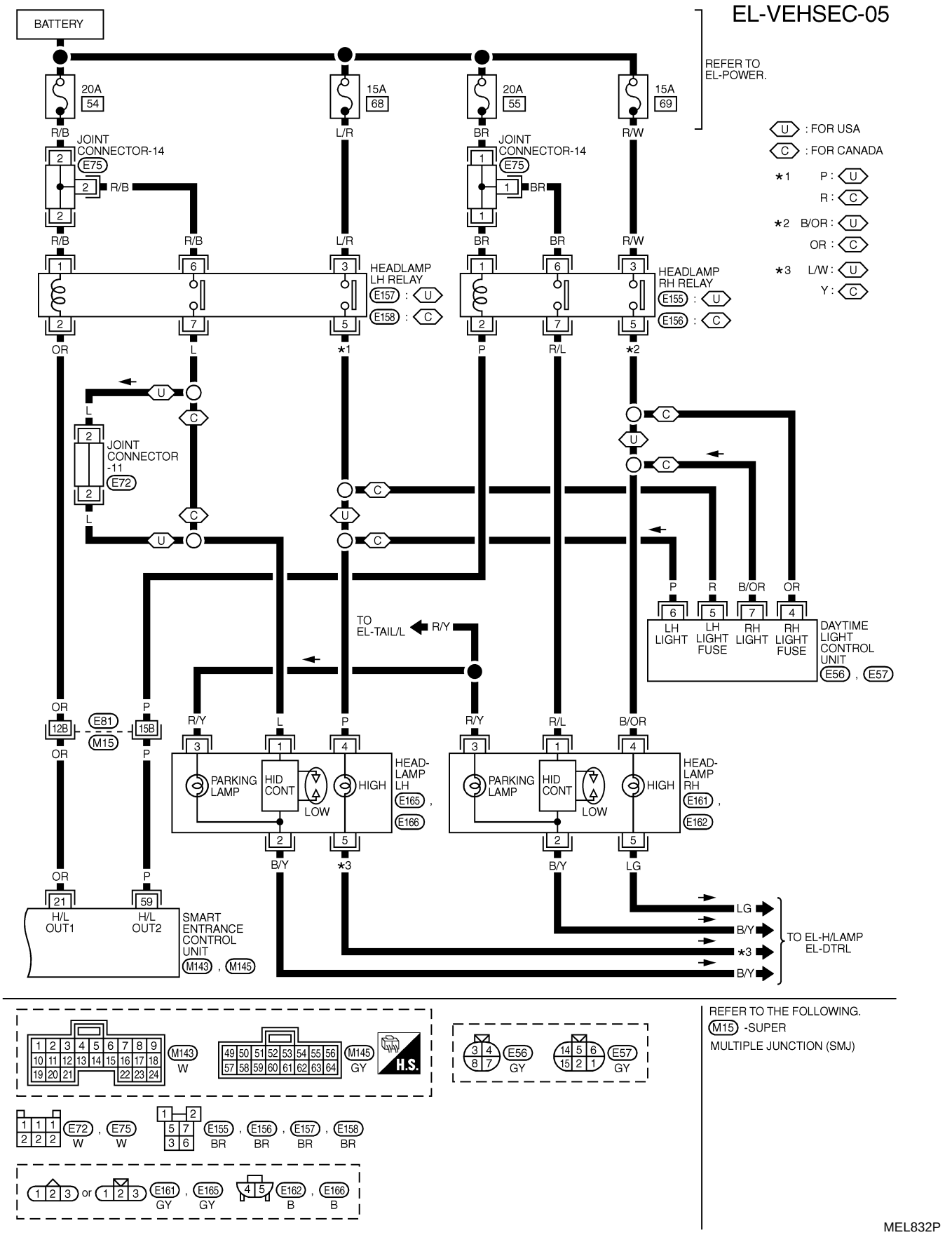




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)

MEL186O

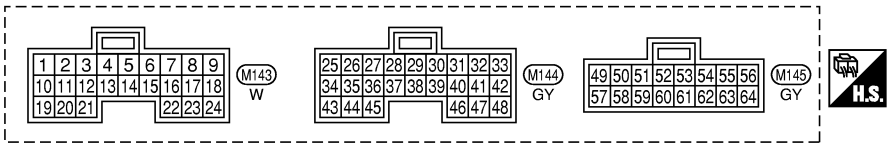
**FIG. 5**

NFEL0122S07




MEL832P

**SMART ENTRANCE CONTROL UNIT CONNECTOR**



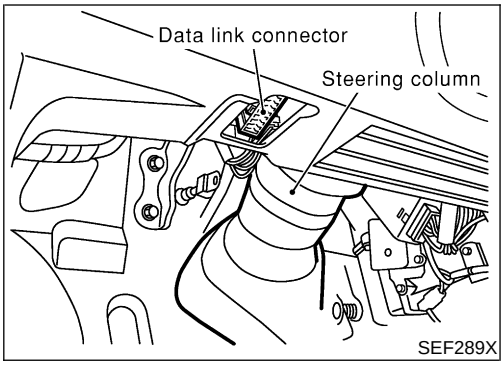

**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | | | DATA (DC) |
|---|---|---|---|---|---|---|
| 1 | LG | DRIVER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 12V → 0V |
| 2 | R/L | PASSENGER DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 3 | R/W | REAR DOOR SWITCH | OFF (CLOSED) → ON (OPEN) | | | 5V → 0V |
| 6 | Y/R | HOOD SWITCH | ON (OPEN) → OFF (CLOSED) | | | 0V → 12V |
| 12 | G/B | TRUNK LID KEY CYLINDER SWITCH | OFF (NEUTRAL) → ON (UNLOCK) | | | 5V → 0V |
| 13 | PU/Y | TRUNK ROOM LAMP SWITCH | ON (OPEN) → OFF (CLOSED) | | | 0V → 12V |
| 21 | OR | HEADLAMP LH RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEADLAMPS ILLUMINATE BY AUTO LIGHT CONTROL | | | 0V |
| 26 | PU | IGNITION SWITCH (ACC) | "ACC" POSITION | | | 12V |
| 27 | G | IGNITION SWITCH (ON) | IGNITION KEY IS IN "ON" POSITION | | | 12V |
| 33 | L | COMMUNICATION INTERFACE | DOOR LOCK & UNLOCK SWITCHES (NEUTRAL → LOCK/UNLOCK) | | | *1 |
| | | | FRONT DOOR KEY CYLINDER SWITCH LH (NEUTRAL → LOCK/UNLOCK) | | | |
| 38 | G/OR | SECURITY INDICATOR | GOES OFF → ILLUMINATES | | | 12V → 0V |
| 42 | BR/Y | VEHICLE SECURITY HORN RELAY | WHEN PANIC ALARM IS OPERATED USING KEYFOB (ON → OFF) | | | 12V → 0V |
| 43 | B | GROUND | – | | | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | | | 12V |
| 59 | P | HEADLAMP RH RELAY | IGNITION SWITCH (WITH LIGHTING SWITCH 2ND) | ON OR START → OFF | MORE THAN 5 MINUTES | 12V |
| | | | | | WITHIN 5 MINUTES | 0V |
| | | | | ON OR START | | 0V |
| | | | HEAD LAMP ILLUMINATE BY AUTO LIGHT CONTROL (OPERATE → NOT OPERATE) | | | LESS THAN 1.5V → 12V |
| 64 | B | GROUND | – | | | – |

*1: REFER TO "SMART ENTRANCE CONTROL UNIT INSPECTION TABLE" IN "SMART ENTRANCE CONTROL UNIT".



SEL593Y



SEF289X

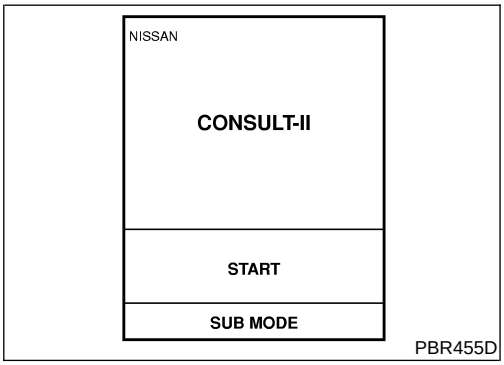
## CONSULT-II Inspection Procedure

=NFEL0244

**“THEFT WAR ALM”**

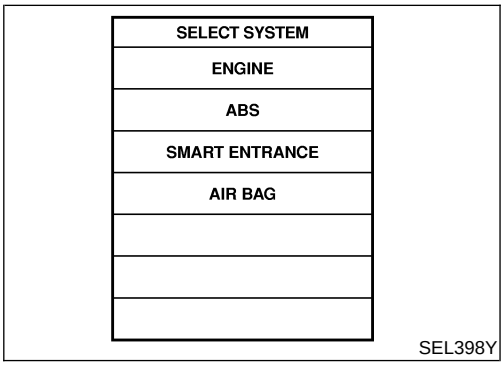
NFEL0244S01

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



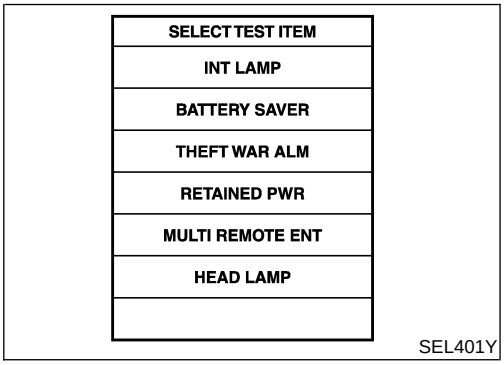
PBR455D

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



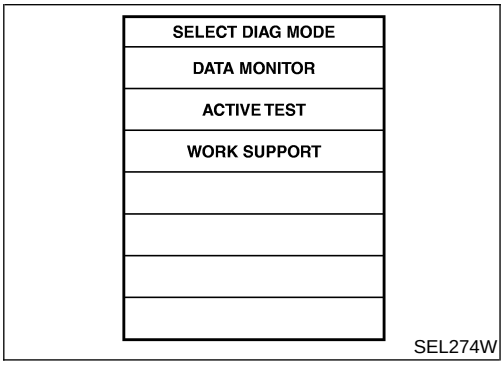
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL401Y

6. Touch “THEFT WAR ALM”.



SEL274W

7. Select diagnosis mode.
   “DATA MONITOR”, “ACTIVE TEST” and “WORK SUPPORT” are available.

# CONSULT-II Application Item

NFEL0245

## "THEFT WAR ALM"

NFEL0245S01

### Data Monitor

NFEL0245S0101

| Monitored Item | Description |
|---|---|
| IGN ON SW | Indicates [ON/OFF] condition of ignition switch. |
| ACC ON SW | Indicates [ON/OFF] condition of ignition switch in ACC position. |
| KEY CYL LK SW | Indicates [ON/OFF] condition of lock signal from key cylinder switch. |
| KEY CYL UN SW | Indicates [ON/OFF] condition of unlock signal from key cylinder switch. |
| DOOR SW-RR | Indicates [ON/OFF] condition of rear door switch. |
| DOOR SW-DR | Indicates [ON/OFF] condition of front door switch LH. |
| DOOR SW-AS | Indicates [ON/OFF] condition of front door switch RH. |
| TRUNK SW | Indicates [ON/OFF] condition of trunk switch. |
| TRUNK KEY SW | Indicates [ON/OFF] condition of trunk key cylinder switch. |
| HOOD SWITCH | Indicates [ON/OFF] condition of hood switch. |
| LOCK SW DR/AS | Indicates [ON/OFF] condition of lock signal from door lock/unlock switch LH and RH. |
| UNLK SW DR/AS | Indicates [ON/OFF] condition of unlock signal from door lock/unlock LH and RH. |
| LK BUTTON/SIG | Indicates [ON/OFF] condition of lock signal from keyfob. |
| UN BUTTON/SIG | Indicates [ON/OFF] condition of unlock signal from keyfob. |
| TRUNK BTN/SIG | Indicates [ON/OFF] condition of trunk open signal from keyfob. |

### Active Test

NFEL0245S0102

| Test Item | Description |
|---|---|
| THEFT IND | This test is able to check security indicator lamp operation. The lamp will be turned on when "ON" on CONSULT-II screen is touched. |
| HORN | This test is able to check vehicle security alarm operation. The alarm will be activated for 0.5 seconds after "ON" on CONSULT-II screen is touched. |
| HEADLAMP | This test is able to check vehicle security alarm headlamp operation. The headlamp illuminates for 0.5 seconds after "ON" on CONSULT-II screen is touched. |

### Work Support

NFEL0245S0103

| Test Item | Description |
|---|---|
| THEFT ALM TRG | The switch which triggered theft warning alarm is recorded. This mode is able to confirm and erase the record of theft waning alarm. The trigger data can be erased by touching "CLEAR" on CONSULT-II screen. |
| SECURITY ALARM SET | This mode is able to confirm and change security alarm ON-OFF setting. |

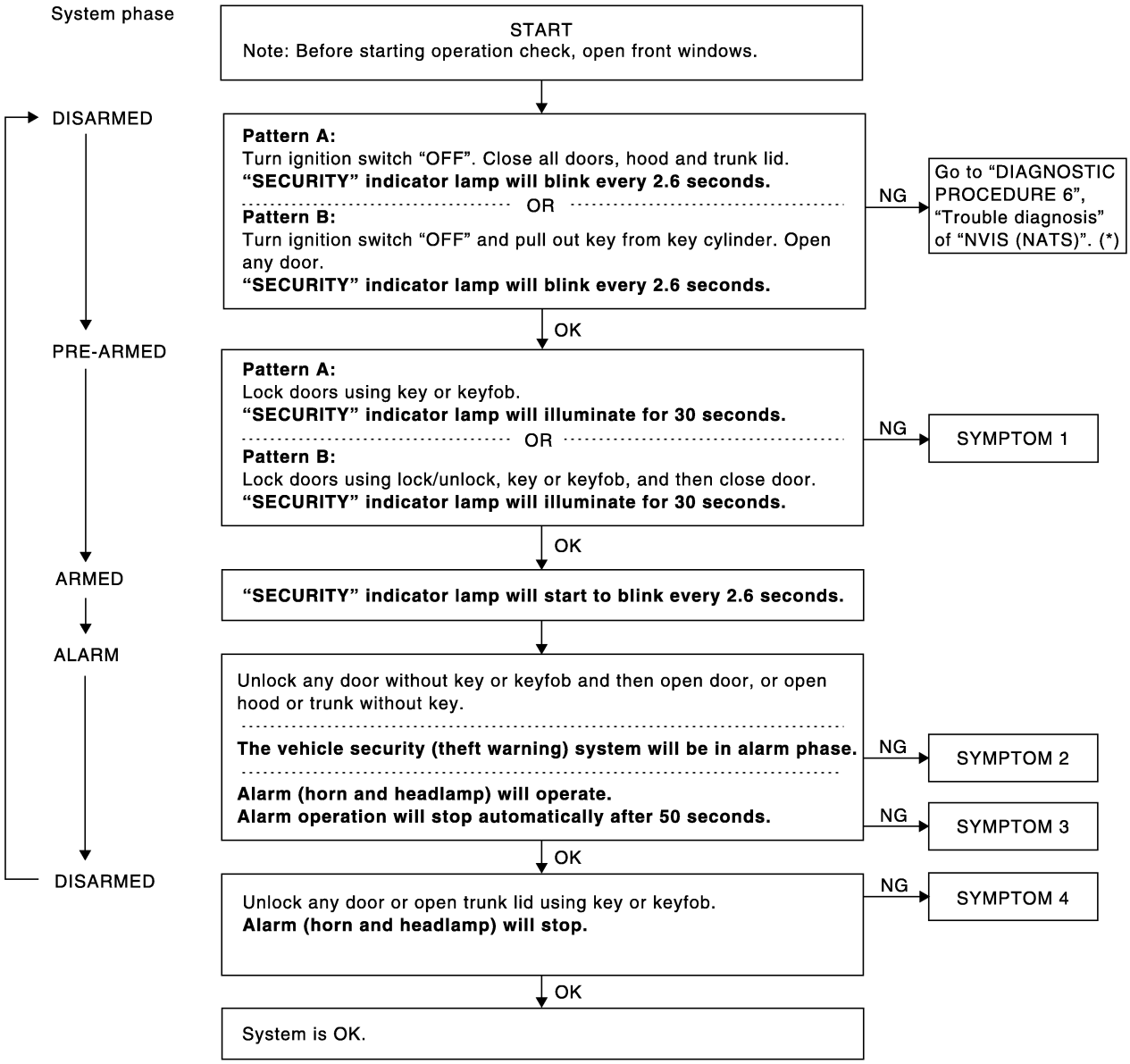
# Trouble Diagnoses

=NFEL0123

## PRELIMINARY CHECK

NFEL0123S01

The system operation is canceled by turning ignition switch to "ACC" at any step between START and ARMED in the following flow chart.




SEL254WC

For details of "Pattern A" and "Pattern B" about vehicle security (theft warning) system setting, refer to EL-309.
*: Refer to EL-372.
**After performing preliminary check, go to symptom chart on next page.**

## SYMPTOM CHART

NFEL0123S02

| REFERENCE PAGE (EL- ) | | | 324 | 326 | 327 | 333 | 335 | 337 | 338 | 339 | 289 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SYMPTOM | | | PRELIMINARY CHECK | POWER SUPPLY AND GROUND CIRCUIT CHECK | DOOR, HOOD AND TRUNK ROOM LAMP SWITCH CHECK | SECURITY INDICATOR LAMP CHECK | DOOR KEY CYLINDER SWITCH CHECK | TRUNK LID KEY CYLINDER SWITCH CHECK | DOOR LOCK/UNLOCK SWITCH CHECK | VEHICLE SECURITY HORN AND HEADLAMP ALARM CHECK | Check "REMOTE KEYLESS ENTRY SYSTEM". |
| | Vehicle security indicator does not illuminate for 30 seconds. | | X | X | | X | | | | | |
| 1 | Vehicle security system cannot be set by .... | All items | X | X | X | | | | | | |
| | | Door outside key | X | | | | X | | | | |
| | | Lock/unlock switch | X | | | | | | X | | |
| | | Keyfob | X | | | | | | | | X |
| 2 | *1 Vehicle security system does not alarm when ... | One of the door is opened | X | | X | | | | | | |
| 3 | Vehicle security alarm does not activate. | Horn or headlamp alarm | X | | X | | | | | X | |
| 4 | Vehicle security system cannot be canceled by .... | Door outside key | X | | | | X | | | | |
| | | Trunk lid key | X | | | | | X | | | |
| | | Keyfob | X | | | | | | | | X |

X : Applicable

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

**Before starting trouble diagnoses above, perform preliminary check, EL-324.**

Symptom numbers in the symptom chart correspond with those of preliminary check.

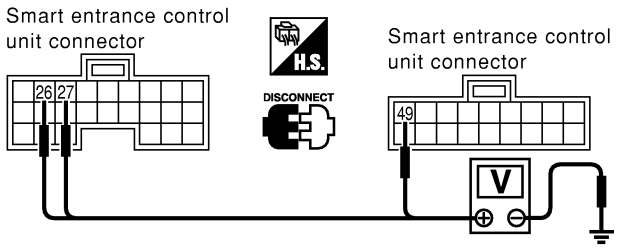
## POWER SUPPLY AND GROUND CIRCUIT CHECK

NFEL0123S03

### Power Supply Circuit Check

NFEL0123S0301

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector M144 terminals 26 (PU), 27 (G), M145 terminal 49 (R/B) and ground.



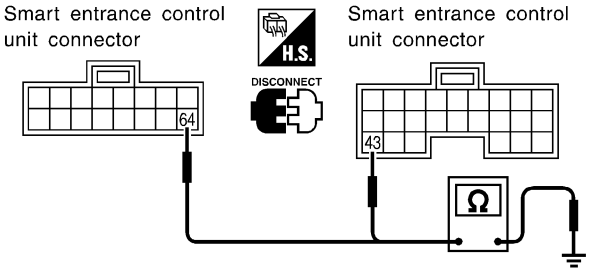

| Terminals | | Ignition switch position | | |
|---|---|---|---|---|
| (+) | (–) | OFF | ACC | ON |
| 49 | Ground | Battery voltage | Battery voltage | Battery voltage |
| 27 | Ground | 0V | 0V | Battery voltage |
| 26 | Ground | 0V | Battery voltage | Battery voltage |

SEL594Y

### Ground Circuit Check

NFEL0123S0302

1. Disconnect smart entrance control unit harness connector.
2. Check continuity between smart entrance control unit harness connector M144 terminal 43 (B), M145 terminal 64 (B) and ground.




| Terminals | Continuity |
|---|---|
| 43 - Ground | Yes |
| 64 - Ground | Yes |

SEL034Y

## DOOR, HOOD AND TRUNK ROOM LAMP SWITCH CHECK

*=NFEL0123S04*

### Door Switch Check

*NFEL0123S0401*

| 1 | PRELIMINARY CHECK |
|---|---|

1. Turn ignition switch OFF and remove key from ignition key cylinder.
   **"SECURITY" indicator lamp should blink every 2.6 seconds.**
2. Close all doors, hood and trunk lid.
3. Lock doors with keyfob from inside the vehicle.
   **"SECURITY" indicator lamp should turn on for 30 seconds.**
4. Unlock any door with the door lock knob and open the door within 30 seconds after door is locked.
   **"SECURITY" indicator lamp should turn off.**

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door switch is OK, and go to hood switch check. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK DOOR SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check door switches ("DOOR SW-RR", "DOOR SW-DR" and "DOOR SW-AS") in "DATA MONITOR" mode with CONSULT-II.

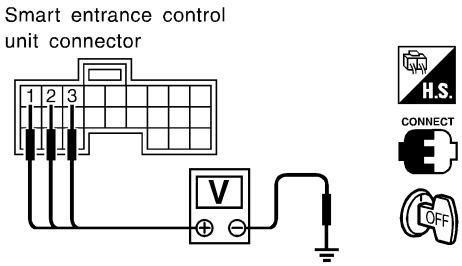
| DATA MONITOR | |
|---|---|
| MONITOR | |
| DOOR SW-RR | OFF |
| DOOR SW-DR | OFF |
| DOOR SW-AS | OFF |

| | Monitor item | Condition | Condition |
|---|---|---|---|
| DOOR SW-RR | Rear doors switch | Open | ON |
| | | Closed | OFF |
| DOOR SW-DR | Door switch LH | Open | ON |
| | | Closed | OFF |
| DOOR SW-AS | Door switch RH | Open | ON |
| | | Closed | OFF |

SEL024Y

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminals 1 (LG), 2 (R/L) or 3 (R/W) and ground.




| | Terminals (+) | Terminals (–) | Condition | Voltage [V] |
|---|---|---|---|---|
| Front door switch LH | 1 | Ground | Open | 0 |
| | | | Closed | Approx. 12 |
| Front door switch RH | 2 | Ground | Open | 0 |
| | | | Closed | Approx. 5 |
| Rear door switches | 3 | Ground | Open | 0 |
| | | | Closed | Approx. 5 |

SEL021YC

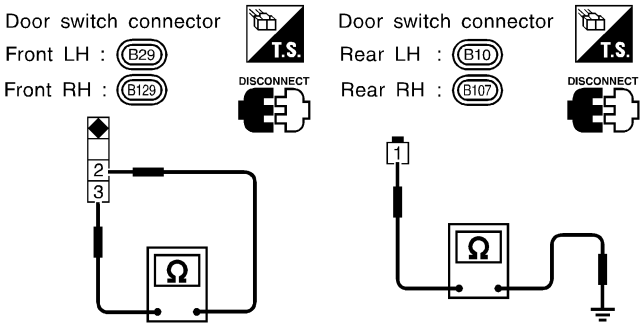
Refer to wiring diagram in EL-317.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door switch is OK, and go to hood switch check. |
| NG | ▶ | GO TO 3. |

**3 CHECK DOOR SWITCH**

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




| | Terminals | Condition | Continuity |
|---|---|---|---|
| Front door switches | 2 - 3 | Closed | No |
| | | Open | Yes |
| Rear door switches | 1 - Ground | Closed | No |
| | | Open | Yes |

SEL192W

**OK or NG**

| | |
|---|---|
| OK ▶ | **Check the following.**<br>● Door switch ground circuit or door switch ground condition<br>● Harness for open or short between smart entrance control unit and door switch |
| NG ▶ | Replace door switch. |

## Hood Switch Check

=NFEL0123S0402

| 1 | PRELIMINARY CHECK |
|---|---|

1. Turn ignition switch OFF and remove key from ignition key cylinder.
   **"SECURITY" indicator lamp should blink every 2.6 seconds.**
2. Close all doors, hood and trunk lid.
3. Lock doors with keyfob from inside the vehicle.
   **"SECURITY" indicator lamp should turn on for 30 seconds.**
4. Unlock hood with hood opener within 30 seconds after door is locked.
   **"SECURITY" indicator lamp should turn off.**

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Hood switch is OK, and go to trunk room lamp switch check. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK HOOD SWITCH FITTING CONDITION |
|---|---|

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Adjust installation of hood switch or hood. |

| 3 | CHECK HOOD SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check hood switch ("HOOD SWITCH") in "DATA MONITOR" mode with CONSULT-II.

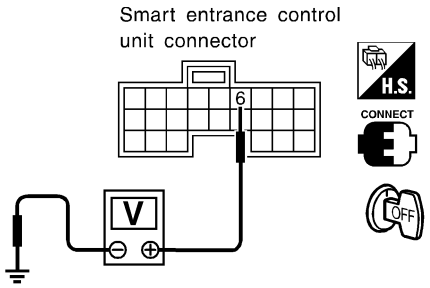
| DATA MONITOR | |
|---|---|
| MONITOR | |
| HOOD SWITCH | OFF |

When hood is open:
**HOOD SWITCH ON**
When hood is closed:
**HOOD SWITCH OFF**

SEL354W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminal 6 (Y/R) and ground.




**Voltage [V]:**
**Engine hood is open.**
**0**
**Engine hood is closed.**
**Approx. 12**

SEL035YA

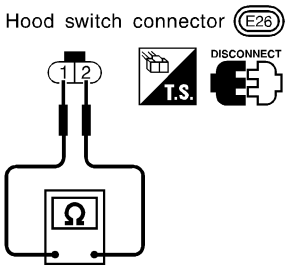
Refer to wiring diagram in EL-316.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Hood switch is OK, and go to trunk room lamp switch check. |
| NG | ▶ | GO TO 4. |

| 4 | CHECK HOOD SWITCH |
|---|---|

1. Disconnect hood switch connector.
2. Check continuity between hood switch terminals 1 and 2.




**Continuity:**
**Condition: Pushed**
**No**
**Condition: Released**
**Yes**

SEL240W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Hood switch ground circuit<br>● Harness for open or short between smart entrance control unit and hood switch |
| NG | ▶ | Replace hood switch. |

## Trunk Room Lamp Switch Check

=NFEL0123S0403

| 1 | PRELIMINARY CHECK |
|---|---|

1. Turn ignition switch OFF and remove key from ignition key cylinder.
   **"SECURITY" indicator lamp should blink every 2.6 seconds.**
2. Close all doors, hood and trunk lid.
3. Lock doors with keyfob from inside the vehicle.
   **"SECURITY" indicator lamp should turn on for 30 seconds.**
4. Open trunk lid with trunk lid opener switch (on driver side door trim) within 30 seconds after door is locked.
   **"SECURITY" indicator lamp should turn off.**

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Trunk room lamp switch is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK TRUNK ROOM LAMP SWITCH INPUT SIGNAL |
|---|---|

**With CONSULT-II**

Check trunk room lamp switch ("TRUNK SW"), in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| TRUNK SW | OFF |

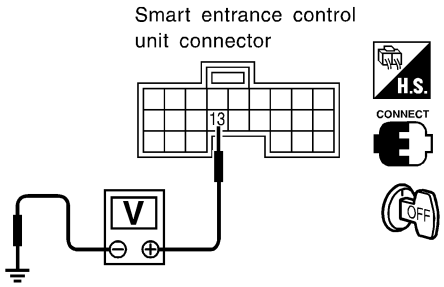
When trunk lid is open:
**TRUNK SW ON**

When trunk lid is closed:
**TRUNK SW OFF**

SEL355W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminal 13 (PU/Y) and ground.




**Voltage [V]:**
**Trunk lid is open.**
**Approx. 0**
**Trunk lid is closed.**
**Approx. 12**

SEL036Y

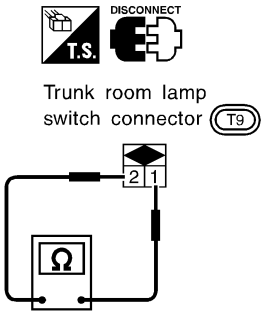
Refer to wiring diagram in EL-316.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Trunk room lamp switch is OK. |
| NG | ▶ | GO TO 3. |

| 3 | CHECK TRUNK ROOM LAMP SWITCH |
|---|---|

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




**Continuity:**
**Condition: Closed**
**No**
**Condition: Open**
**Yes**

SEL242W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Trunk room lamp switch ground circuit<br>● Harness for open or short between smart entrance control unit and trunk room lamp switch |
| NG | ▶ | Replace trunk room lamp switch. |

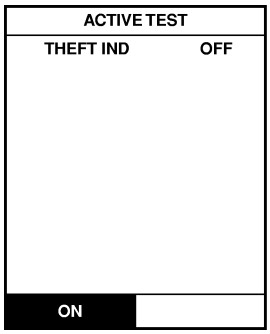
## SECURITY INDICATOR LAMP CHECK

=NFEL0123S05

| 1 | CHECK INDICATOR LAMP OPERATION |
|---|---|

**With CONSULT-II**

1. Select "ACTIVE TEST" in "THEFT WAR ALM" with CONSULT-II.
2. Select "THEFT IND" and touch "ON".

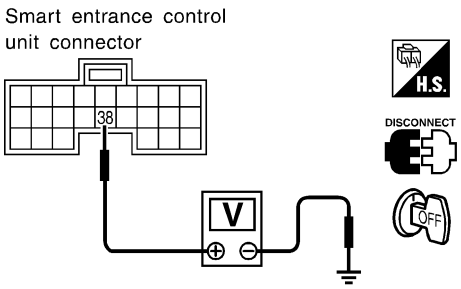



**Security indicator lamp should illuminate.**

SEL356W

**Without CONSULT-II**

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector M144 terminal 38 (G/OR) and ground.




**Battery voltage should exist.**

SEL037Y

Refer to wiring diagram in EL-316.

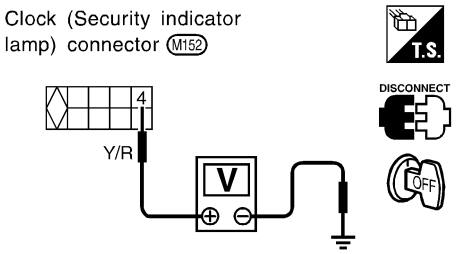
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Security indicator lamp is OK. |
| NG | ▶ | GO TO 2. |

| 2 | CHECK INDICATOR LAMP |
|---|---|

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Replace indicator lamp. |

| 3 | CHECK POWER SUPPLY CIRCUIT FOR INDICATOR LAMP | |
|---|---|---|
| 1. Disconnect security lamp connector.<br>2. Check voltage between indicator lamp terminal 4 and ground.<br>  <br><br>SEL244W<br>**Does battery voltage exist?** | | |
| Yes | ▶ | Check harness for open or short between security indicator lamp and smart entrance control unit. |
| No | ▶ | **Check the following.**<br>● 10A fuse [No. 12, located in fuse block (J/B)]<br>● Harness for open or short between security indicator lamp and fuse |

## DOOR KEY CYLINDER SWITCH CHECK

=NFEL0123S07

| 1 | CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL) |
|---|---|

**With CONSULT-II**

Check front door key cylinder switch ("KEY CYL LK-SW"/"KEY CYL UN-SW") in "DATA MONITOR" mode with CONSULT-II.

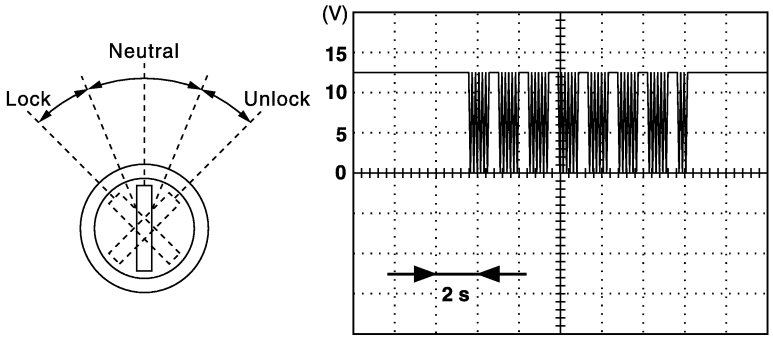
| DATA MONITOR | |
|---|---|
| MONITOR | |
| KEY CYL LK-SW | OFF |
| KEY CYL UN-SW | OFF |

When key inserted in front key cylinder is turned to LOCK:
**KEY CYL LK-SW ON**
When key inserted in front key cylinder is turned to UNLOCK:
**KEY CYL UN-SW ON**

SEL342W

**Without CONSULT-II**

1. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when key inserted in front key cylinder is turned to "LOCK" or "UNLOCK".
2. Make sure signals which are shown in the figure below can be detected during 10 sec. just after key is turned to "LOCK" or "UNLOCK".




**Voltage:**
**12V → 9V (10 sec.) measurement by analog circuit tester.**

SEL397Y

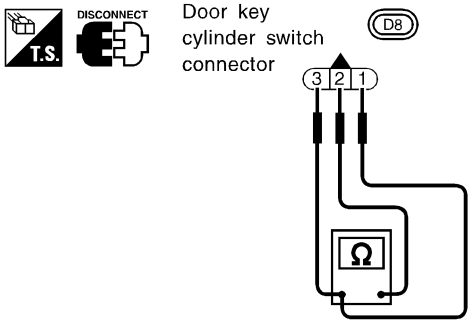
Refer to wiring diagram in EL-318.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door key cylinder switch is OK. |
| NG | ▶ | GO TO 2. |

**2 CHECK DOOR KEY CYLINDER SWITCH**

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




① : Door unlock switch terminal
② : Ground terminal
③ : Door lock switch terminal

| Terminals | Key position | Continuity |
|---|---|---|
| ③ - ② | Neutral/Unlock | No |
| | Lock | Yes |
| ① - ② | Neutral/Lock | No |
| | Unlock | Yes |

SEL034X

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Door key cylinder switch ground circuit<br>● Harness for open or short between smart entrance control unit and door key cylinder switch |
| NG | ▶ | Replace door key cylinder switch. |

## TRUNK LID KEY CYLINDER SWITCH CHECK

=NFEL0123S08

**1** **CHECK TRUNK LID KEY CYLINDER SWITCH INPUT SIGNAL (UNLOCK SIGNAL)**

**With CONSULT-II**

Check trunk lid key cylinder switch ("TRUNK KEY SW") in "DATA MONITOR" mode with CONSULT-II.

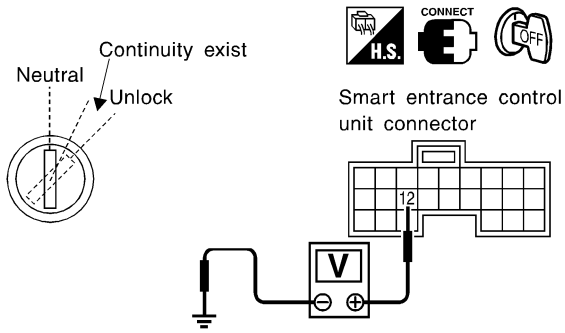
| DATA MONITOR | |
|---|---|
| MONITOR | |
| TRUNK KEY SW | OFF |

When key in key cylinder is at Neutral position:
**TRUNK KEY SW OFF**
When key in key cylinder is at Unlock position:
**TRUNK KEY SW ON**

SEL358W

**Without CONSULT-II**

Check voltage between smart entrance control unit harness connector M143 terminal 12 (G/B) and ground.




| Terminal (+) | Terminal (–) | Key position | Voltage [V] |
|---|---|---|---|
| 12 | Ground | Neutral | Approx. 5 |
| | | Unlock | 0 |

SEL039Y

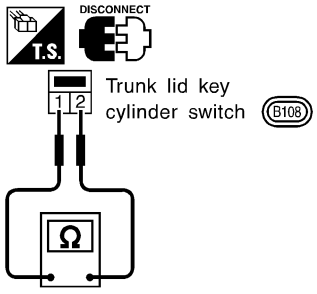
Refer to wiring diagram in EL-318.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Trunk lid key cylinder switch is OK. |
| NG | ▶ | GO TO 2. |

**2** **CHECK TRUNK LID KEY CYLINDER SWITCH**

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




| Key position | Continuity |
|---|---|
| Neutral | No |
| Unlock | Yes |

SEL248W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | **Check the following.**<br>● Trunk lid key cylinder switch ground circuit<br>● Harness for open or short between smart entrance control unit and trunk lid key cylinder switch |
| NG | ▶ | Replace trunk lid key cylinder switch. |

## DOOR LOCK/UNLOCK SWITCH CHECK

NFEL0123S13

**1 CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL**

**With CONSULT-II**

Check door lock/unlock switch ("LOCK SW DR/AS"/"UNLK SW DR/AS") in "DATA MONITOR" mode with CONSULT-II.

| DATA MONITOR | |
|---|---|
| MONITOR | |
| LOCK SW DR/AS | OFF |
| UNLK SW DR/AS | OFF |

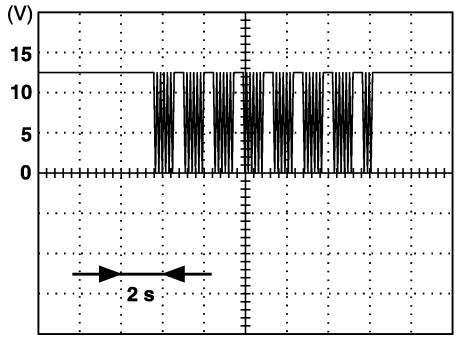
When lock/unlock switch is turned to LOCK:
**LOCK SW DR/AS ON**

When lock/unlock switch is turned to UNLOCK:
**UNLK SW DR/AS ON**

SEL341W

**Without CONSULT-II**

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M144 terminal 33 (L) and ground with oscilloscope when door lock/unlock switch is turned to "LOCK" or "UNLOCK".
3. Make sure signals which are shown in the figure below can be detected during 10 sec. just after door lock/unlock switch is turned to "LOCK" or "UNLOCK".




**Voltage:**
**12V → 9V (10 sec.) measurement by analog circuit tester.**

SEL396Y

Refer to wiring diagram in EL-318.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Door lock/unlock switch is OK. |
| NG | ▶ | **Check the following.**<br>• Ground circuit for front power window switch.<br>• Harness for open or short between front power window switch and smart entrance control unit.<br>If above systems are normal, replace front power window switch. |

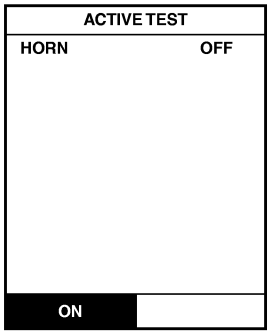
## VEHICLE SECURITY HORN AND HEADLAMP ALARM CHECK

=NFEL0123S09

| 1 | CHECK VEHICLE SECURITY HORN AND HEADLAMP ALARM OPERATION WITH CONSULT-II |
|---|---|

**With CONSULT-II**

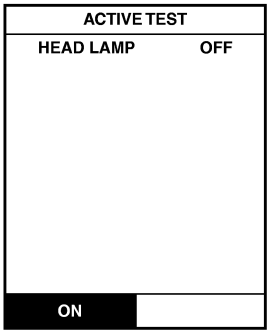
1. Select "ACTIVE TEST" in "THEFT WAR ALM" with CONSULT-II.
2. Select "HORN" and touch "ON".




**Vehicle security horn alarm should operate.**

SEL041Y

3. Select "HEADLAMP" and touch "ON".




**Vehicle security headlamp alarm should operate.**

SEL042Y

**NOTE:**
**If CONSULT-II is not available, skip this procedure and go to the nest step.**

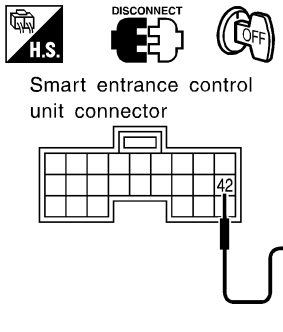
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Vehicle security horn and headlamp alarm operation are OK. |
| NG | ▶ | GO TO 3. |

| 2 | CHECK VEHICLE SECURITY HORN AND HEADLAMP ALARM OPERATION WITHOUT CONSULT-II |
|---|---|

**Without CONSULT-II**

1. Disconnect smart entrance control unit harness connector.
2. Apply ground to smart entrance control unit harness connector M144 terminal 42 (BR/Y).

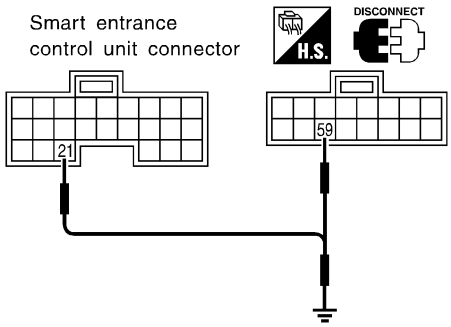



**Vehicle security horn should operate.**

SEL043YA

Refer to wiring diagram in EL-319.

3. Apply ground to smart entrance control unit harness connector M143 and M145 terminal 21 (OR) and 59 (P).




**Vehicle security headlamp alarm should operate.**

SEL198Y

Refer to wiring diagram in EL-320.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Horn and headlamp alarm is OK. |
| NG | ▶ | GO TO 3. |

| 3 | CHECK VEHICLE SECURITY HORN RELAYS |
|---|---|

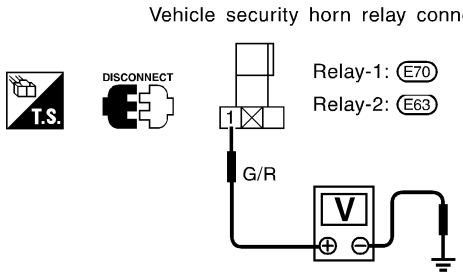
Check vehicle security horn relay-1 and relay-2.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Replace. |

| 4 | CHECK POWER SUPPLY FOR VEHICLE SECURITY HORN RELAYS |
|---|---|

1. Disconnect vehicle security horn relay-1 and relay-2 connectors.
2. Check voltage between terminal 1 and ground.



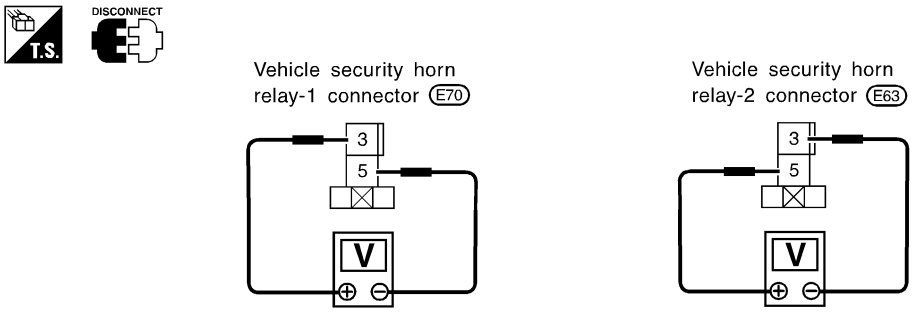

SEL044Y

**Does battery voltage exist?**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 5. |
| No | ▶ | **Check the following.**<br>● 10A fuse (No. 61 located in the fuse and fusible link box)<br>● Harness for open or short between vehicle security horn relays and fuse |

| 5 | CHECK VEHICLE SECURITY HORN RELAYS CIRCUIT |
|---|---|

1. Disconnect vehicle security horn relay-1 and relay-2 connectors.
2. Check voltage between terminals of each relay.
   **Battery voltage should exist.**




SEL045Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Check harness for open or short between vehicle security horn relay-2 and headlamp relays. |
| NG | ▶ | **Check the following.**<br>● Harness for open or short between vehicle security horn relay-1 and fuse<br>● Harness for open or short between vehicle security horn relay-1 and relay-2<br>● Harness for open or short between vehicle security horn relay-1 and vehicle security horn |

# Description

NFEL0124

## OUTLINE

NFEL0124S01

The smart entrance control unit totally controls the following body electrical system operations.

- Heated steering
- Headlamp system
- Warning chime
- Rear defogger and door mirror defogger
- Power door lock
- Remote keyless entry system
- Vehicle security system
- Interior lamp

In addition, the following timer operations are controlled by the smart entrance control unit.

- Battery saver control
- Retained power control

## BATTERY SAVER CONTROL

NFEL0124S02

### Headlamps/Parking Lamps/License Lamps/Tail Lamps/Fog Lamps/Illumination Lamps

NFEL0124S0201

While the headlamp is turned ON by “1st” or “2ND” step of light switch, the 5 minute timer is activated when the ignition switch signal changes from ON (or START) to OFF (ACC OFF). The headlamps (including parking, license, tail, fog and illumination lamps) are turned off after 5 minutes.
While the headlamp is turned ON by “AUTO” of light switch, the 5 minute timer is activated when the ignition switch signal changes from ON (or START) to OFF (ACC OFF), and either one of LH or RH front door switch ON signal is input.
The auto light delay off timer is activated as the following:

- When the door switch signal changes from ON to OFF while the timer is activated, the timer in operation is discontinued and the 45 second timer is reset.
- When the door switch signal changes from OFF to ON while the timer is activated, the timer is discontinued and the 45 second timer is reset.
- When the one of four door switch signals changes from OFF to ON while the timer is activated, the timer is discontinued and the 5 minute timer is reset.
- When all the door switch ON signals are input while the timer is activated, the timer is discontinued and the 45 second timer is reset.

Exterior lamp battery saver control mode and auto light delay off timer period can be changed by the function setting of CONSULT-II.

### Interior Lamp/Spot Lamp/Vanity Mirror Illumination

NFEL0124S0202

The lamps turn off automatically when the interior lamp, spot lamp or/and vanity mirror illumination are illuminated with the ignition key in the OFF position, if the lamp remains lit by the door switch open signal or if the lamp switch is in the ON position for more than 30 minutes.
After lamps are turned off by the battery saver system, the lamps illuminate again when:

- Driver’s door is locked or unlocked with keyfob, door lock/unlock switch or door key cylinder.
- Ignition switch is turned to ON.
- Door is opened or closed,
- Key is inserted into ignition key cylinder.

Interior lamp battery saver control period can be changed by the function setting of CONSULT-II.

### Rear Window Defogger/Door Mirror Defogger

NFEL0124S0203

Rear window defogger and door mirror defogger are turned off in approximately 15 minutes after the rear window defogger switch is turned on.

### Heated Steering

NFEL0124S0204

Heated steering is turned off in approximately 30 minutes after the heated steering switch is turned ON.

## RETAINED POWER CONTROL

NFEL0124S03

When the ignition switch is turned to OFF (or ACC) position from ON or START position, the following systems can be operated for 45 seconds by the RAP signal from the smart entrance control unit terminal 46.

- Electric sunroof

- Power window

The retained power operation is canceled when the driver or passenger side door is opened.
RAP signal period can be changed by CONSULT-II.

## INPUT/OUTPUT

NFEL0124S04

| System | Input | Output |
|---|---|---|
| Power door lock | Door lock and unlock switch LH and RH<br>Key switch (Insert)<br>Door switches<br>Door key cylinder switches | Door lock actuators |
| Remote keyless entry | Key switch (Insert)<br>Ignition switch (ACC)<br>Door switches<br>Keyfob signal<br>Door lock/unlock switch LH | Horn relay<br>Vehicle security horn relay-1<br>Vehicle security horn relay-2<br>Hazard warning lamp<br>Interior lamp<br>Ignition key hole illumination<br>Door lock actuator<br>Trunk lid opener actuator |
| Warning chime | Key switch (Insert)<br>Ignition switch (ON)<br>Lighting switch (1st)<br>Seat belt switch (driver's seat)<br>Front door switch LH | Warning chime (located in smart entrance control unit) |
| Rear window defogger and door mirror defogger | Ignition switch (ON)<br>Rear window defogger switch | Rear window defogger relay |
| Vehicle security | Ignition switch (ACC, ON)<br>Door switches<br>Hood switch<br>Trunk room lamp switch<br>Door lock/unlock switches<br>Door key cylinder switches (lock/unlock)<br>Trunk lid key cylinder switch (unlock) | Vehicle security horn relay-2<br>Headlamp relay<br>Security indicator |
| Interior lamp | Door switches<br>Keyfob signal (lock/unlock)<br>Door lock/unlock switches (lock/unlock)<br>Door key cylinder switch (lock/unlock)<br>Ignition switch (ON)<br>Key switch (Insert) | Interior lamp<br>Key hole illumination<br>Step lamp<br>Door indicator |
| Battery saver control for headlamps/parking lamps/ licence lamps/tail lamps/fog lamps/illumination lamps | Ignition switch (ON)<br>Front door switches<br>Lighting switches | Headlamps<br>Parking lamps<br>Licence lamps<br>Tail lamps<br>Fog lamps<br>Illumination lamps |
| Battery saver control for interior lamp/spot lamp/vanity mirror illumination | Ignition switch (ON)<br>Front door switches<br>Lamp switches | Interior lamp<br>Step lamp<br>Spot lamp<br>Vanity mirror illumination |
| Battery saver control for rear window defogger and door mirror defogger | Ignition switch (ON)<br>Rear window defogger switch | Rear window defogger relay |
| Retained power control for electric sunroof | Ignition switch (ON)<br>Front door switches | Sunroof motor |
| Retained power control for power window | Ignition switch (ON)<br>Front door switches | Power window relay |

*Description (Cont'd)*

| System | Input | Output |
|---|---|---|
| Heated steering | Ingition switch (ON)<br>Heated steering switch (ON) | Heated steering relay |

## CONSULT-II

NFEL0247

### DIAGNOSTIC ITEMS APPLICATION

NFEL0247S01

| Item (CONSULT-II screen terms) | Diagnosed system | DATA MONITOR | ACTIVE TEST | WORK SUPPORT |
|---|---|---|---|---|
| DOOR LOCK | Power door lock | X | X | X |
| REAR DEFOGGER | Rear window defogger | X | X | |
| KEY WARN ALM | Warning chime | X | X | |
| LIGHT WARN ALM | Warning chime | X | X | |
| SEAT BELT ALM | Warning chime | X | X | |
| INT LAMP | Interior lamps | X | X | X |
| BATTERY SAVER | Battery saver control for interior lamp | X | X | X |
| THEFT WAR ALM | Vehicle security system | X | X | X |
| RETAINED PWR | Retained power control | X | X | X |
| MULTI REMOTE ENT | Remote keyless entry system | X | X | X |
| HEAD LAMP | Headlamp | X | X | X |

X: Applicable

For diagnostic item in each control system, refer to the relevant pages for each system.

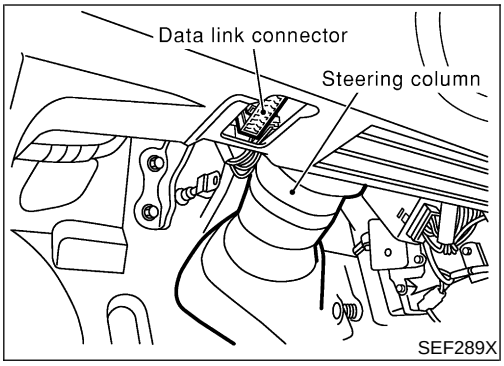
*CONSULT-II (Cont'd)*

## DIAGNOSTIC ITEM DESCRIPTION

=NFEL0247S02

| MODE | Description |
|---|---|
| DATA MONITOR | Input/output data in the smart entrance control unit can be read. |
| ACTIVE TEST | Diagnostic Test Mode in which CONSULT-II drives some systems apart from the smart entrance control unit. |
| WORK SUPPORT for DOOR LOCK | • Select unlock mode ON-OFF setting can be changed.<br>• Key reminder door mode ON-OFF setting can be changed. |
| WORK SUPPORT for INT LAMP | Interior lamp timer mode ON-OFF setting can be changed. |
| WORK SUPPORT for BATTERY SAVER | Interior lamp battery saver period can be changed. |
| WORK SUPPORT for THEFT WAR ALM | • The recorded trigger signal when vehicle security system was activated can be checked.<br>• Security alarm ON-OFF setting can be changed. |
| WORK SUPPORT for RETAINED PWR SET | RAP signal's power supply period can be changed. |
| WORK SUPPORT for MULTI REMOTE ENT | • ID code of keyfob can be registered and erased.<br>• Keyless answer back mode can be changed.<br>• Pressing time of panic alarm, trunk lid opener and door unlock (for power window down operation) buttons on keyfob can be changed.<br>• Auto lock operation starting time can be changed. |
| WORK SUPPORT for HEAD LAMP | • Auto light sensitivity can be changed.<br>• Exterior lamp battery saver control ON-OFF setting can be changed.<br>• Auto light delay off time can be changed. |

*CONSULT-II (Cont'd)*

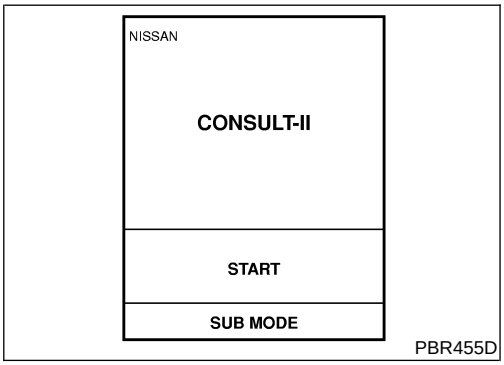


SEF289X

## CONSULT-II INSPECTION PROCEDURE

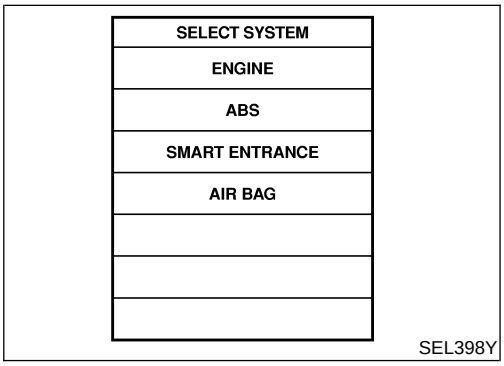
=NFEL0247S03

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



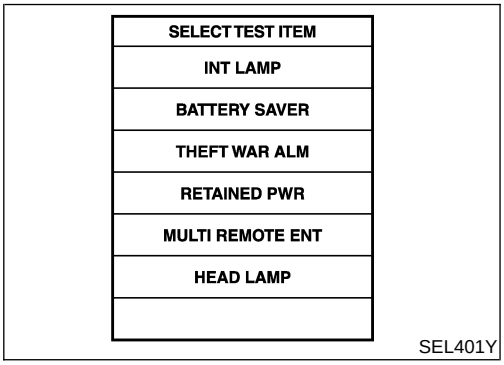
PBR455D

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



SEL398Y

5. Touch "SMART ENTRANCE".



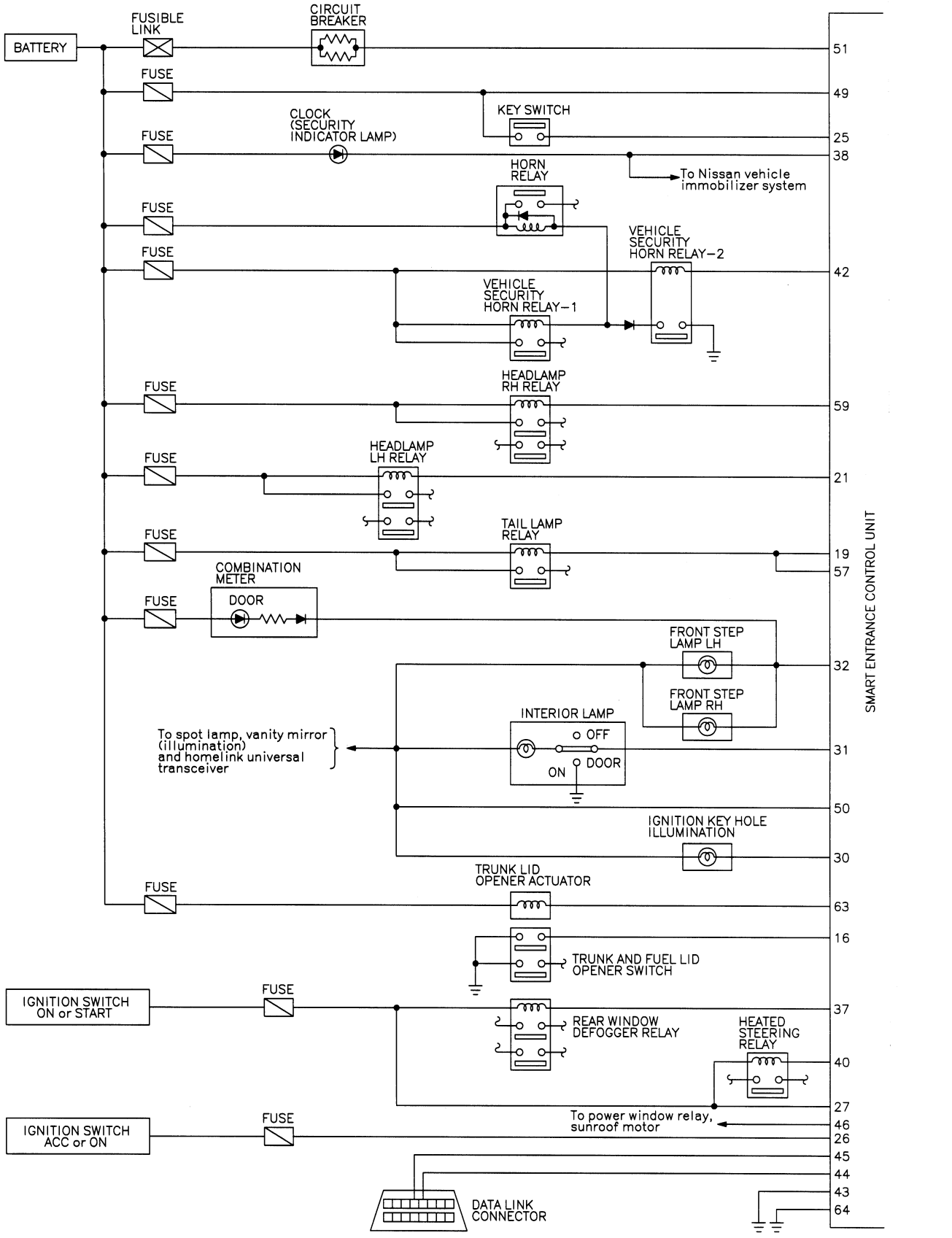
SEL401Y

6. Perform each diagnostic item according to "DIAGNOSTIC ITEMS APPLICATION". Refer to EL-344.

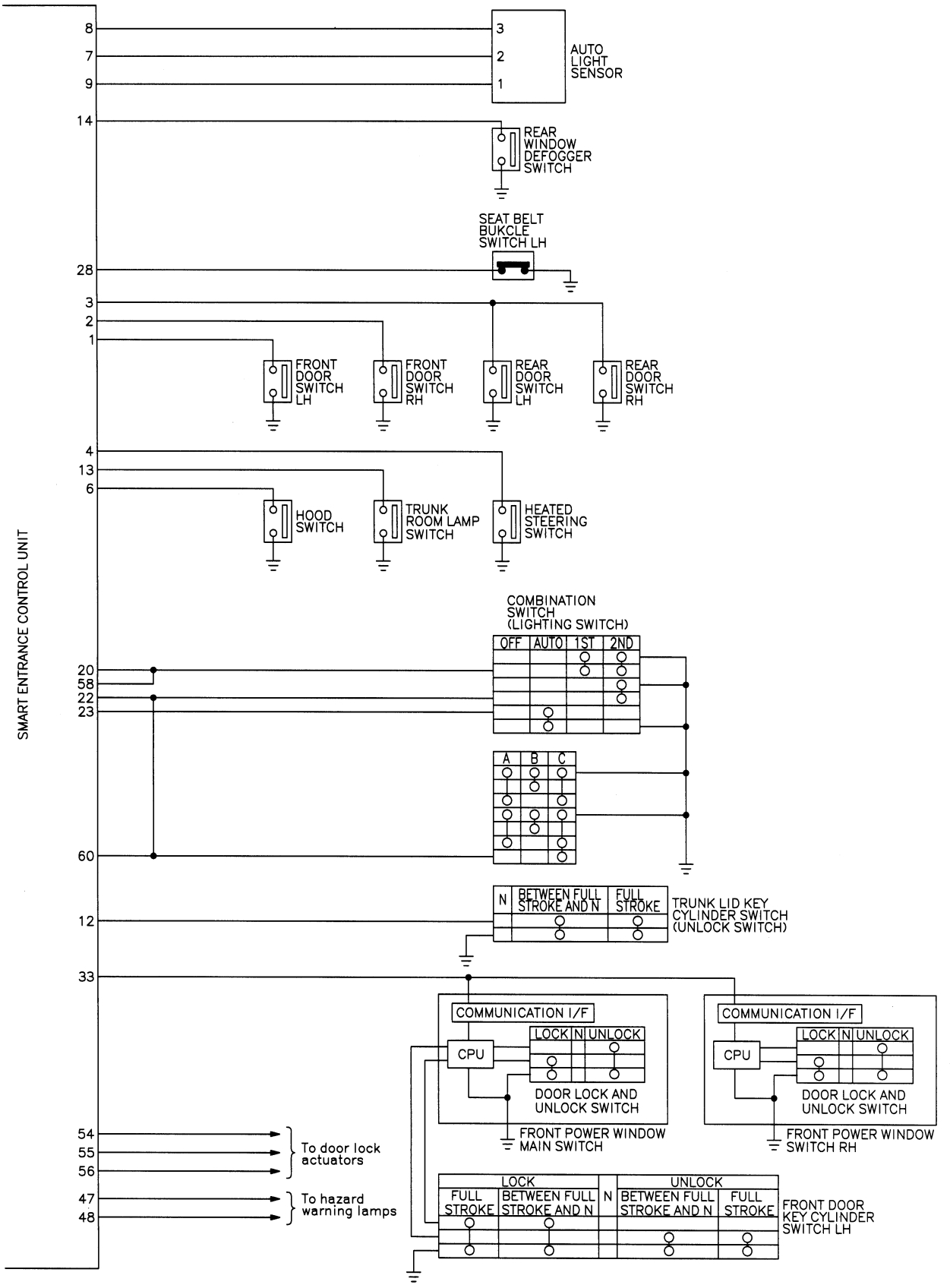
**NOTE:**

## Schematic

NFEL0125




MEL188O


SMART ENTRANCE CONTROL UNIT
8
7
9
3
2
1
AUTO LIGHT SENSOR
14
REAR WINDOW DEFOGGER SWITCH
SEAT BELT BUKCLE SWITCH LH
28
3
2
1
FRONT DOOR SWITCH LH
FRONT DOOR SWITCH RH
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
4
13
6
HOOD SWITCH
TRUNK ROOM LAMP SWITCH
HEATED STEERING SWITCH
COMBINATION SWITCH (LIGHTING SWITCH)
OFF AUTO 1ST 2ND
20
58
22
23
A B C
60
N BETWEEN FULL STROKE AND N FULL STROKE
TRUNK LID KEY CYLINDER SWITCH (UNLOCK SWITCH)
12
33
COMMUNICATION I/F
CPU
LOCK N UNLOCK
DOOR LOCK AND UNLOCK SWITCH
FRONT POWER WINDOW MAIN SWITCH
FRONT POWER WINDOW SWITCH RH
54
55
56
To door lock actuators
47
48
To hazard warning lamps
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
FRONT DOOR KEY CYLINDER SWITCH LH

MEL189O

## Smart Entrance Control Unit Inspection Table

NFEL0262

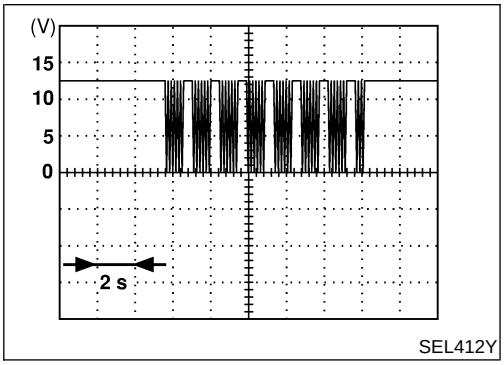
| Terminal No. | Wire color | Connections | Operated condition | | | Voltage (Approximate values) |
|---|---|---|---|---|---|---|
| 1 | LG | Driver door switch | OFF (Closed) → ON (Open) | | | 12V → 0V |
| 2 | R/L | Passenger door switch | OFF (Closed) → ON (Open) | | | 5V → 0V |
| 3 | R/W | Rear door switch | OFF (Closed) → ON (Open) | | | 5V → 0V |
| 4 | G | Heated steering switch | OFF → ON (Only when pushed) | | | 5V → 0V |
| 6 | Y/R | Hood switch | ON (Open) → OFF (Closed) | | | 0V → 12V |
| 7 | W/R | Auto light sensor (Signal) | Ignition switch ON position | Light is applied to auto light sensor. | | 1 to 5V |
| | | | | Light is not applied to auto light sensor. | | Less than 1V |
| 8 | P/B | Auto light sensor (GND) | — | | | — |
| 9 | R | Auto light sensor (Power) | Ignition switch (OFF → ON) | | | 0V → 5V |
| 12 | G/B | Trunk lid key cylinder switch | OFF (Neutral) → ON (Unlock) | | | 5V → 0V |
| 13 | PU/Y | Trunk room lamp switch | ON (Open) → OFF (Closed) | | | 0V → 12V |
| 14 | G/W | Rear window defogger switch | OFF → ON (Only when pushed) | | | 5V → 0V |
| 16 | L | Trunk and fuel lid opener switch | OFF → ON (Only when pulled) | | | 12V → 0V |
| 19 | Y/B | Tail lamp relay (Output) | Ignition switch (with lighting switch 1ST or 2ND) | ON or START → OFF position | More than 5 minutes after ignition switch is turned to OFF position | 12V |
| | | | | | Within 5 minutes after ignition switch is turned to OFF position | 0V |
| | | | | ON or START position | | 0V |
| | | | Headlamps illuminate by auto light control. (Operate → Not operate) | | | Less than 1V → 12V |
| 20 | SB | Tail lamp switch | Light switch (OFF or AUTO → 1ST or 2ND position) | | | 12V → 0V |
| 21 | OR | Headlamp LH relay | Ignition switch (with lighting switch 2ND) | ON or START → OFF position | More than 5 minutes after ignition switch is turned to OFF position | 12V |
| | | | | | Within 5 minutes after ignition switch is turned to OFF position | 0V |
| | | | | ON or START position | | 0V |
| | | | Headlamps illuminate by auto light control. | | | 0V |

*Smart Entrance Control Unit Inspection Table (Cont'd)*

| Terminal No. | Wire color | Connections | Operated condition | | Voltage (Approximate values) |
|---|---|---|---|---|---|
| 22 | L/OR | Headlamp switch | Lighting switch | Except PASS or 2ND position | 12V |
| | | | | PASS or 2ND position | 0V |
| | | | Headlamps illuminate by auto light control. (Operate → Not operate) | | 10V→ 12V |
| 23 | L/Y | Headlamp switch | Ignition switch "ON" position | Lighting switch (Except AUTO → AUTO position) | 12V → 0V |
| 25 | B/R | Ignition key switch (Insert) | Key inserted → Key removed from IGN key cylinder | | 12V → 0V |
| 26 | PU | Ignition switch (ACC) | "ACC" position | | 12V |
| 27 | G | Ignition switch (ON) | Ignition switch is in "ON" position | | 12V |
| 28 | OR | Seat belt buckle switch | Unfastened → Fastened (Ignition key is in "ON" position) | | 0V → 12V |
| 30 | R/Y | Ignition keyhole illumination | When doors are unlocked using keyfob (OFF → Unlock) | | 12V → 0V |
| 31 | R | Interior lamp | When doors are locked using keyfob (Unlock → lock with lamp switch in "DOOR" position) | | 0V → 12V |
| 32 | R/W | Front step lamp | Any door switch | ON (Open) → OFF (Closed) | 0V → 12V |
| 33 | L | Communication interface | Door lock & unlock switches (Neutral → Lock/Unlock) | | EL-352 |
| | | | Front door key cylinder switch LH (Neutral → Lock/Unlock) | | |
| 37 | G/R | Rear window defogger relay | OFF → ON (Ignition key is in "ON" position) | | 12V → 0V |
| 38 | G/OR | Security indicator | Goes off → Illuminates | | 12V → 0V |
| 40 | B/R | Heated steering relay | OFF → ON (Ignition key is in "ON" position) | | 12 → 0V |
| 42 | BR/Y | Vehicle Security horn relay | When panic alarm is operated using keyfob (ON → OFF) | | 12V → 0V |
| 43 | B | Ground | — | | — |
| 46 | PU | Power window relay | Retained power operation is operated (ON → OFF) | | 12V → 0V |
| 47 | GY/L | LH turn signal lamp | When door lock or unlock is operated using keyfob (ON → OFF) | | 12V → 0V |
| 48 | GY/R | RH turn signal lamp | When door lock or unlock is operated using keyfob (ON → OFF) | | 12V → 0V |
| 49 | R/B | Power source (Fuse) | — | | 12V |
| 50 | R/G | Battery saver (Interior lamp) | Battery saver operates → Does not operate (ON →OFF) | | 12V → 0V |
| 51 | W/R | Power source (PTC) | — | | 12V |
| 54 | GY | Door lock actuators | Door lock & unlock switch (Free → Lock) | | 0V → 12V |
| 55 | W/B | Driver door lock actuator | Door lock & unlock switch (Free → Unlock) | | 0V → 12V |
| 56 | GY | Passenger and rear doors lock actuator | Door lock & unlock switch (Free → Unlock) | | 0V → 12V |

*Smart Entrance Control Unit Inspection Table (Cont'd)*

| Terminal No. | Wire color | Connections | Operated condition | | | Voltage (Approximate values) |
|---|---|---|---|---|---|---|
| 57 | Y/B | Tail lamp relay | Ignition switch (with lighting switch 1ST or 2ND) | ON or START → OFF position | More than 5 minutes after ignition switch is turned to OFF position | 12V |
| | | | | | Within 5 minutes after ignition switch is turned to OFF position | 0V |
| | | | | ON or START position | | 0V |
| | | | Headlamps illuminate by auto light control. (Operate → Not operate) | | | Less than 1V → 12V |
| 58 | SB | Tail lamp switch | Lighting switch (OFF or AUTO → 1ST or 2ND) | | | 12V → 0V |
| 59 | P | Headlamp RH relay | Ignition switch (with lighting switch 2ND) | ON or START → OFF position | More than 5 minutes after ignition switch is turned to OFF position | 12V |
| | | | | | Within 5 minutes after ignition switch is turned to OFF position | 0V |
| | | | | ON or START position | | 0V |
| | | | Headlamps illuminate by auto light control. (Operate → Not operate) | | | Less than 1V → 12V |
| 60 | LG/R | Headlamp switch | Lighting switch | Except PASS or 2ND position | | 12V |
| | | | | PASS or 2ND position | | 0V |
| | | | Headlamps illuminate by auto light control. (Operate → Not operate) | | | 10V → 12V |
| 63 | L | Trunk lid opener actuator | When trunk lid opener actuator is operated using keyfob. (ON → OFF) | | | 0V → 12V |
| 64 | B | Ground | — | | | — |




## COMMUNICATION INTERFACE SIGNAL

NFEL0262S01

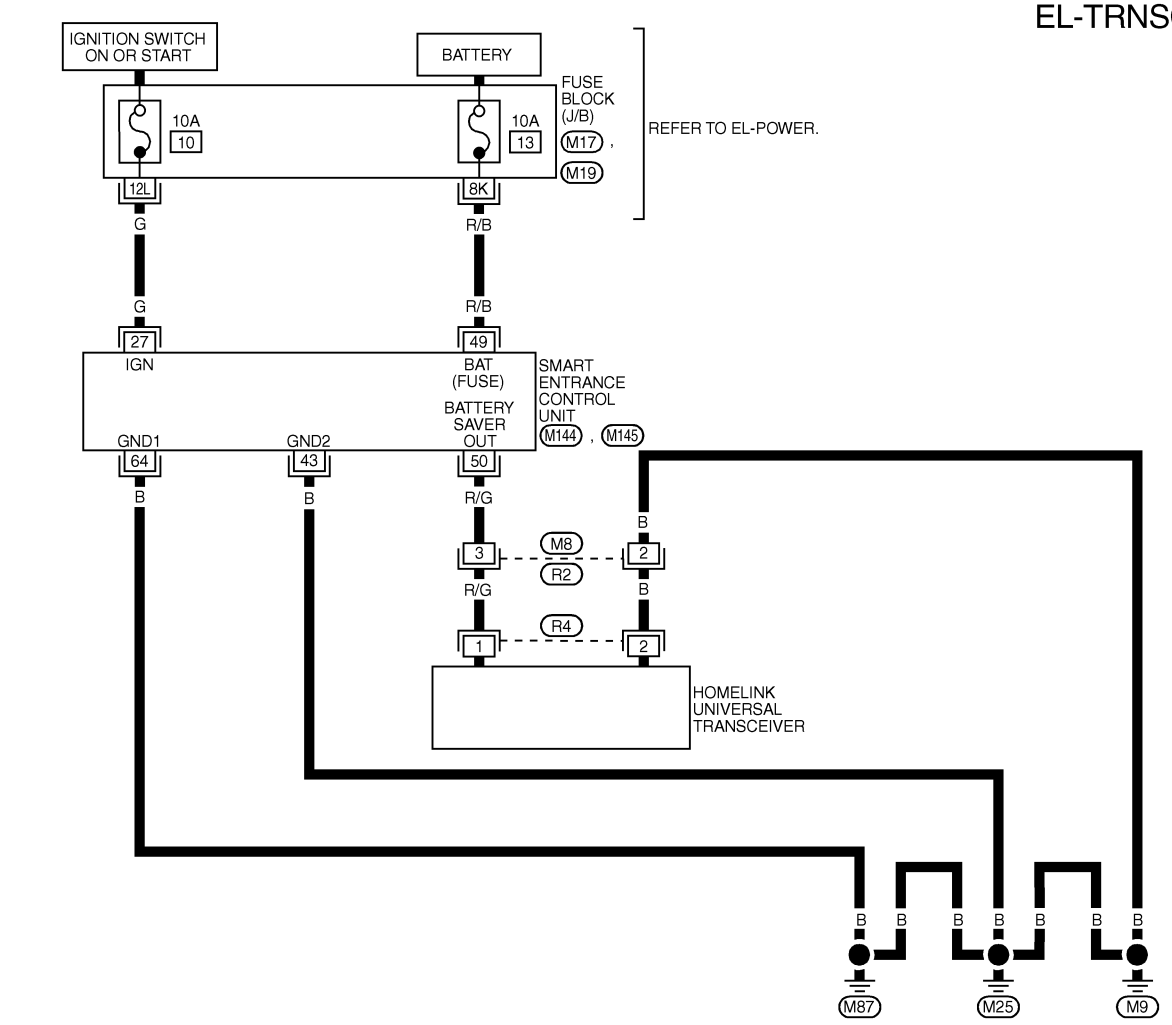
**Voltage:**

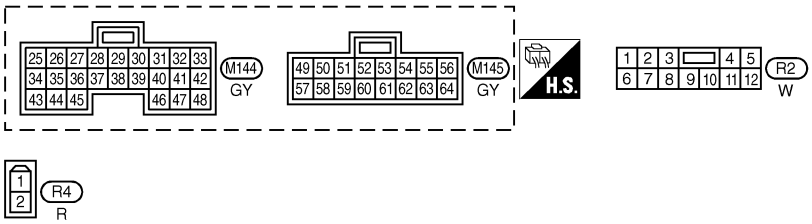
**12 V → 9V (10 sec.) measurement by analog circuit tester.**

## Wiring Diagram — TRNSCV—

NFEL0127

EL-TRNSCV-01




REFER TO THE FOLLOWING.
M17 , M19 – FUSE BLOCK – JUNCTION BOX (J/B)

MEL190O

**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 27 | G | IGNITION SWITCH (ON) | IGNITION KEY IS IN "ON" POSITION | 12V |
| 43 | B | GROUND | – | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 50 | R/G | BATTERY SAVER (INTERIOR LAMP) | BATTERY SAVER DOSE OPERATE → DOES NOT OPERATE (ON → OFF) | 12V → 0V |
| 64 | B | GROUND | – | – |

SEL983X

# Trouble Diagnoses

NFEL0128

## DIAGNOSTIC PROCEDURE

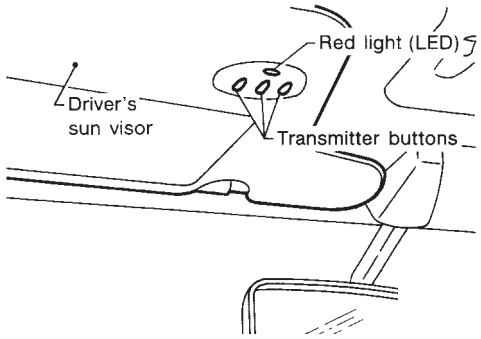
NFEL0128S01

**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 malfunctioning, not vehicle related.

| 1 | PRELIMINARY CHECK |
|---|---|

1. Turn ignition switch “OFF”.
2. Does red light (LED) of transmitter illuminate when any button is pressed?




SEL442U

**Yes or No**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 2. |
| No | ▶ | GO TO 3. |

| 2 | CHECK TRANSMITTER FUNCTION |
|---|---|

Check transmitter with Tool.
For details, refer to Technical Service Bulletin.

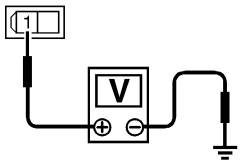
**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Receiver or handheld transmitter is malfunctioning, not vehicle related. |
| NG | ▶ | Replace transmitter with sun visor assembly. |

| 3 | CHECK POWER SUPPLY |
|---|---|

1. Disconnect transmitter connector.
2. Turn ignition switch “OFF”.
3. Check voltage between terminal 1 and body ground. (Within 10 minutes after turn ignition switch “OFF”.)


Integrated homelink transmitter connector




**Battery voltage should exist.**

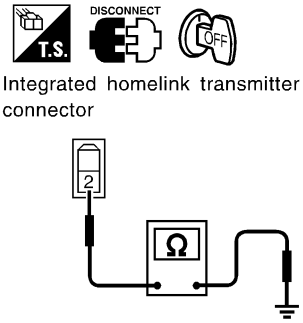
SEL367W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Check fuse (10A) and repair harness. |

| 4 | CHECK GROUND CIRCUIT |
|---|---|

Check continuity between terminal 2 and ground.




Integrated homelink transmitter connector

**Continuity should exist.**

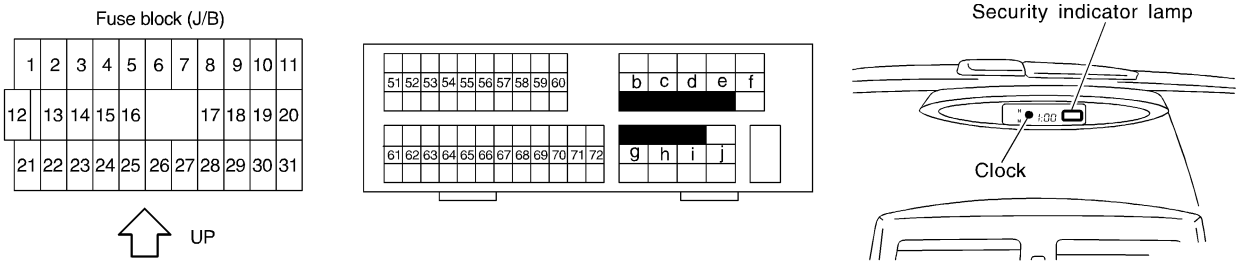
SEL368W

**OK or NG**

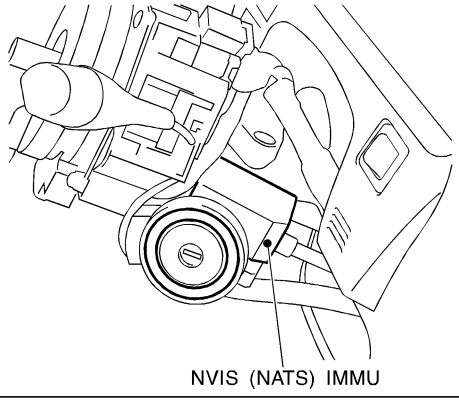
| | | |
|---|---|---|
| OK | ▶ | Replace transmitter with sun visor assembly. |
| NG | ▶ | Repair harness. |

## Component Parts and Harness Connetor Location

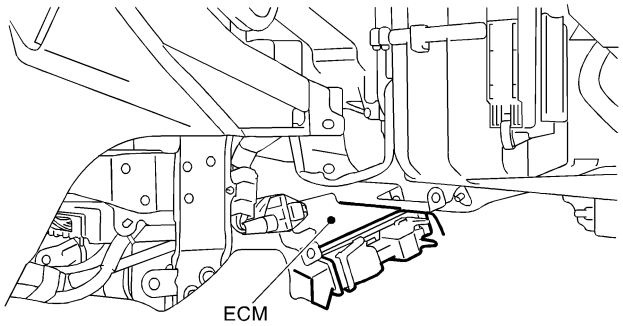
NFEL0172




**View with steering wheel and steering column removed**




**View with glove box removed**




SEL301W

**NOTE:**
**If customer reports a “No Start” condition, request ALL KEYS be brought to a NISSAN dealer to check for an NVIS (NATS) malfunction.**

## System Description

=NFEL0173

NVIS (Nissan Vehicle Immobilizer System-NATS) has the following immobilizer functions:

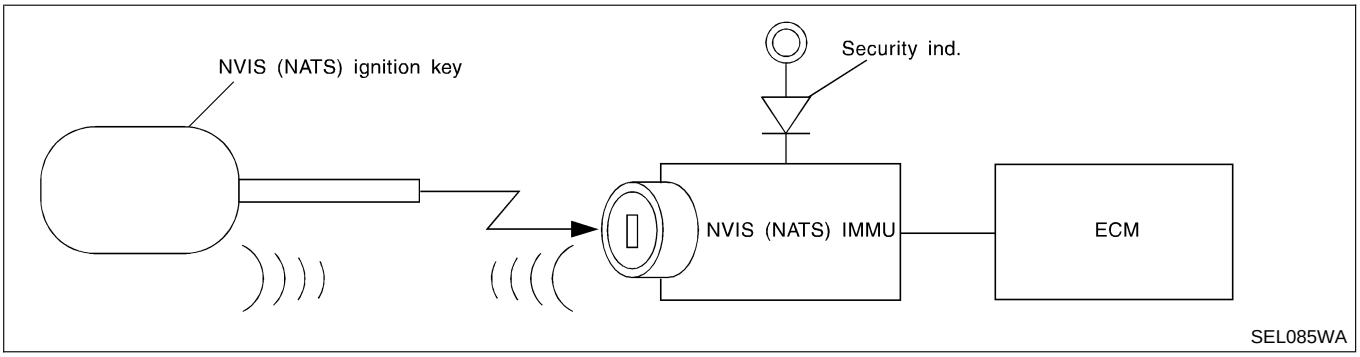
- Since only NVIS (NATS) ignition keys, whose ID nos. have been registered into the ECM and IMMU of NVIS (NATS), allow the engine to run, operation of a stolen vehicle without an NVIS (NATS) registered key is prevented by NVIS (NATS).
  That is to say, NVIS (NATS) will immobilize the engine if someone tries to start it without the registered key of NVIS (NATS).
- All of the originally supplied ignition key IDs have been NVIS (NATS) registered.
  If requested by the vehicle owner, a maximum of five key IDs can be registered into the NVIS (NATS) components.
- The security indicator blinks when the ignition switch is in “OFF” or “ACC” position. Therefore, NVIS (NATS) warns outsiders that the vehicle is equipped with the anti-theft system.
- When NVIS (NATS) detects trouble, the security indicator lamp lights up while ignition key is in the “ON” position.
- NVIS (NATS) trouble diagnoses, system initialization and additional registration of other NVIS (NATS) ignition key IDs must be carried out using CONSULT-II hardware and CONSULT-II NVIS (NATS) software. Regarding the procedures of NVIS (NATS) initialization and NVIS (NATS) ignition key ID registration, refer to CONSULT-II operation manual, IVIS/NVIS.
- **When servicing a malfunction of the NVIS (indicated by lighting up of Security Indicator Lamp) or registering another NVIS 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

NFEL0174

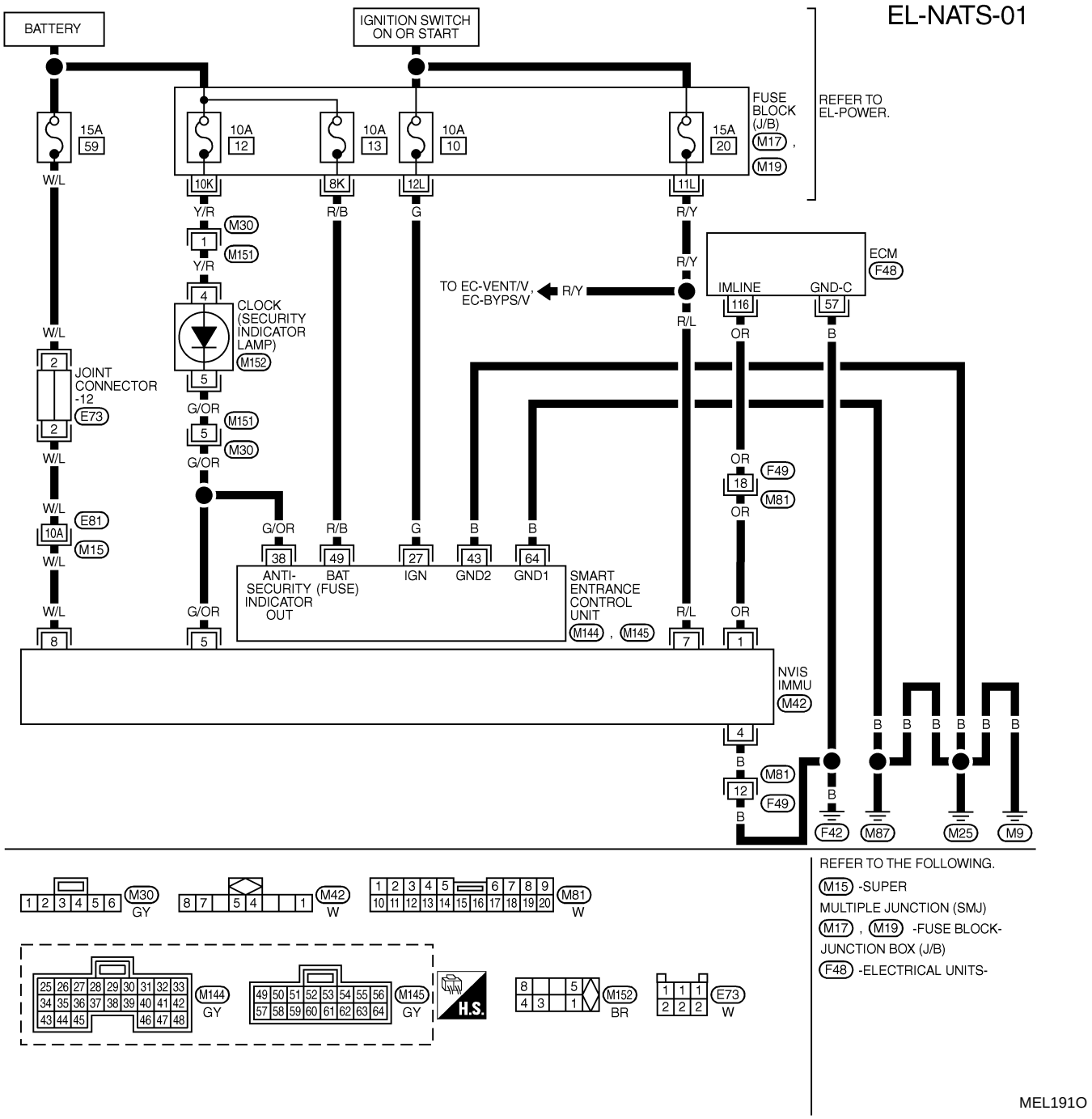
The immobilizer function of the NVIS (NATS) consists of the following:

- NVIS (NATS) ignition key
- NVIS (NATS) immobilizer control unit (IMMU) located in the ignition key cylinder
- Engine control module (ECM)
- Security indicator



## Wiring Diagram — NATS —

NFEL0175







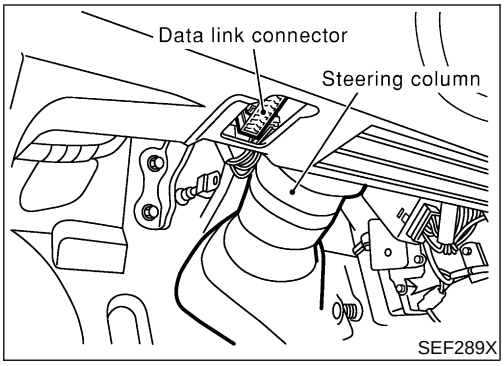
REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17, M19 -FUSE BLOCK- JUNCTION BOX (J/B)
F48 -ELECTRICAL UNITS-

MEL191O

**SMART ENTRANCE CONTROL UNIT TERMINALS AND REFERENCE VALUE BETWEEN EACH TERMINAL AND GROUND**

| TERMINAL | WIRE COLOR | ITEM | CONDITION | DATA (DC) |
|---|---|---|---|---|
| 27 | G | IGNITION SWITCH (ON) | IGNITION KEY IS IN “ON” POSITION | 12V |
| 38 | G/OR | SECURITY INDICATOR | GOES OFF → ILLUMINATES | 12V → 0V |
| 43 | B | GROUND | – | – |
| 49 | R/B | POWER SOURCE (FUSE) | – | 12V |
| 64 | B | GROUND | – | – |

SEL984X



SEF289X

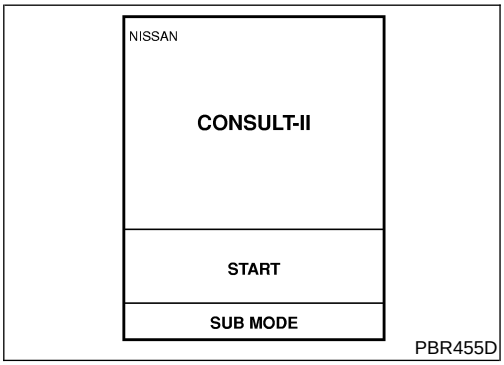
# CONSULT-II

NFEL0176

## CONSULT-II INSPECTION PROCEDURE

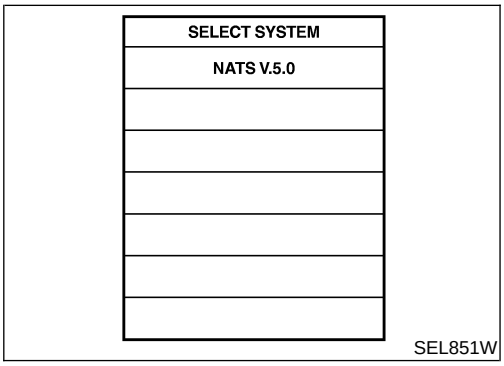
NFEL0176S01

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



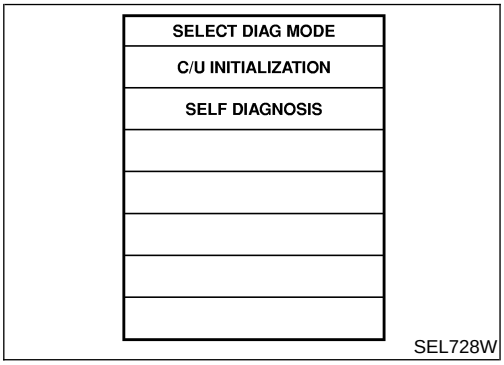
PBR455D

3. Insert NVIS (NATS) program card into CONSULT-II.
   **⬅: Program card**
   **NATS (AEN00A)**
4. Turn ignition switch ON.
5. Touch “START”.



SEL851W

6. Select “NATS” V.5.0”.



SEL728W

7. Perform each diagnostic test mode according to each service procedure.

**For further information, see the CONSULT-II Operation Manual, IVIS/NVIS.**

## CONSULT-II DIAGNOSTIC TEST MODE FUNCTION

NFEL0176S02

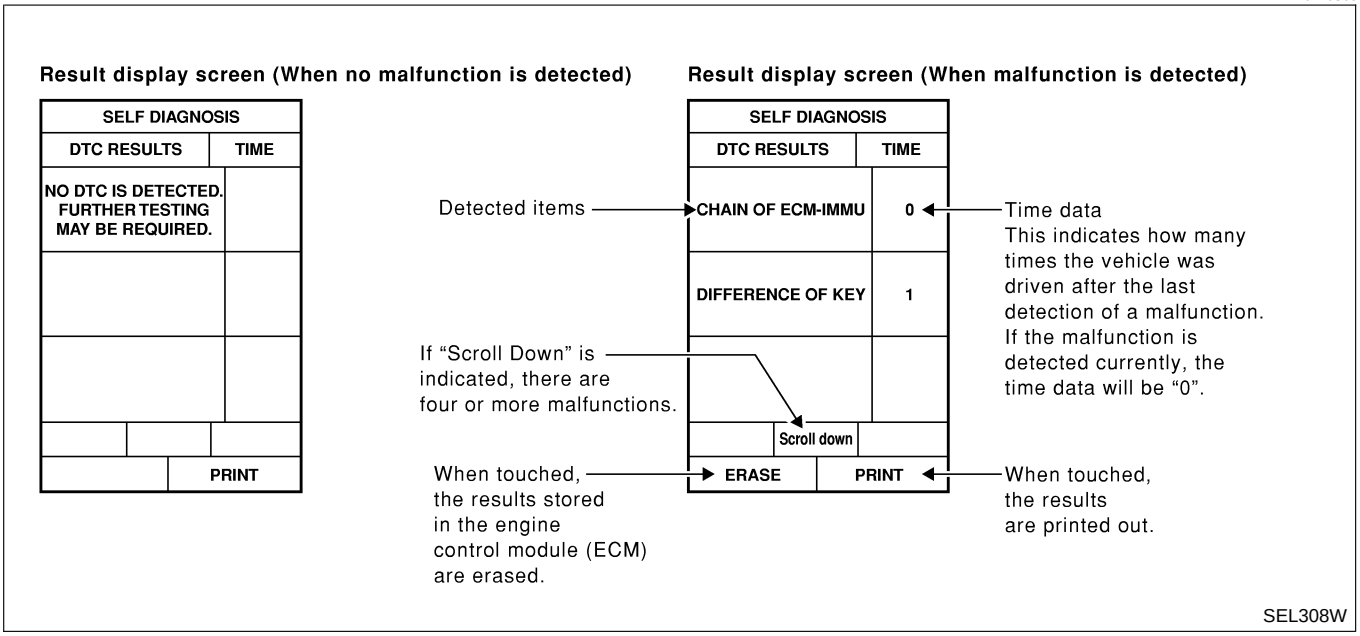
| CONSULT-II DIAGNOSTIC TEST MODE | Description |
|---|---|
| C/U INITIALIZATION | When replacing any of the following three components, C/U initialization is necessary. [NVIS (NATS) ignition key/IMMU/ECM] |
| SELF DIAGNOSIS | Detected items (screen terms) are as shown in the chart EL-360. |

**NOTE:**

- **When any initialization is performed, all ID previously registered will be erased and all NVIS (NATS) ignition keys must be registered again.**
- The engine cannot be started with an unregistered key. In this case, the system will show "DIFFERENCE OF KEY" or "LOCK MODE" as a self-diagnostic result on the CONSULT-II screen.
- In rare case, "CHAIN OF ECM-IMMU" might be stored as a self-diagnostic result during key registration procedure, even if the system is not malfunctioning.

## HOW TO READ SELF-DIAGNOSTIC RESULTS

NFEL0176S03




SEL308W

## NVIS (NATS) SELF-DIAGNOSTIC RESULTS ITEM CHART

NFEL0176S04

| Detected items (NATS program card screen terms) | P No. Code (Self-diagnostic result of "ENGINE" | Malfunction is detected when ..... | Reference page |
|---|---|---|---|
| ECM INT CIRC-IMMU | NATS MALFUNCTION P1613 | The malfunction of ECM internal circuit of IMMU communication line is detected. | EL-364 |
| CHAIN OF ECM-IMMU | NATS MALFUNCTION P1612 | Communication impossible between ECM and IMMU (In rare case, "CHAIN OF ECM-IMMU" might be stored during key registration procedure, even if the system is not malfunctioning.) | EL-365 |
| DIFFERENCE OF KEY | NATS MALFUNCTION P1615 | IMMU can receive the key ID signal but the result of ID verification between key ID and IMMU is NG. | EL-369 |
| CHAIN OF IMMU-KEY | NATS MALFUNCTION P1614 | IMMU cannot receive the key ID signal. | EL-370 |
| ID DISCORD, IMM-ECM | NATS MALFUNCTION P1611 | The result of ID verification between IMMU and ECM is NG. System initialization is required. | EL-371 |

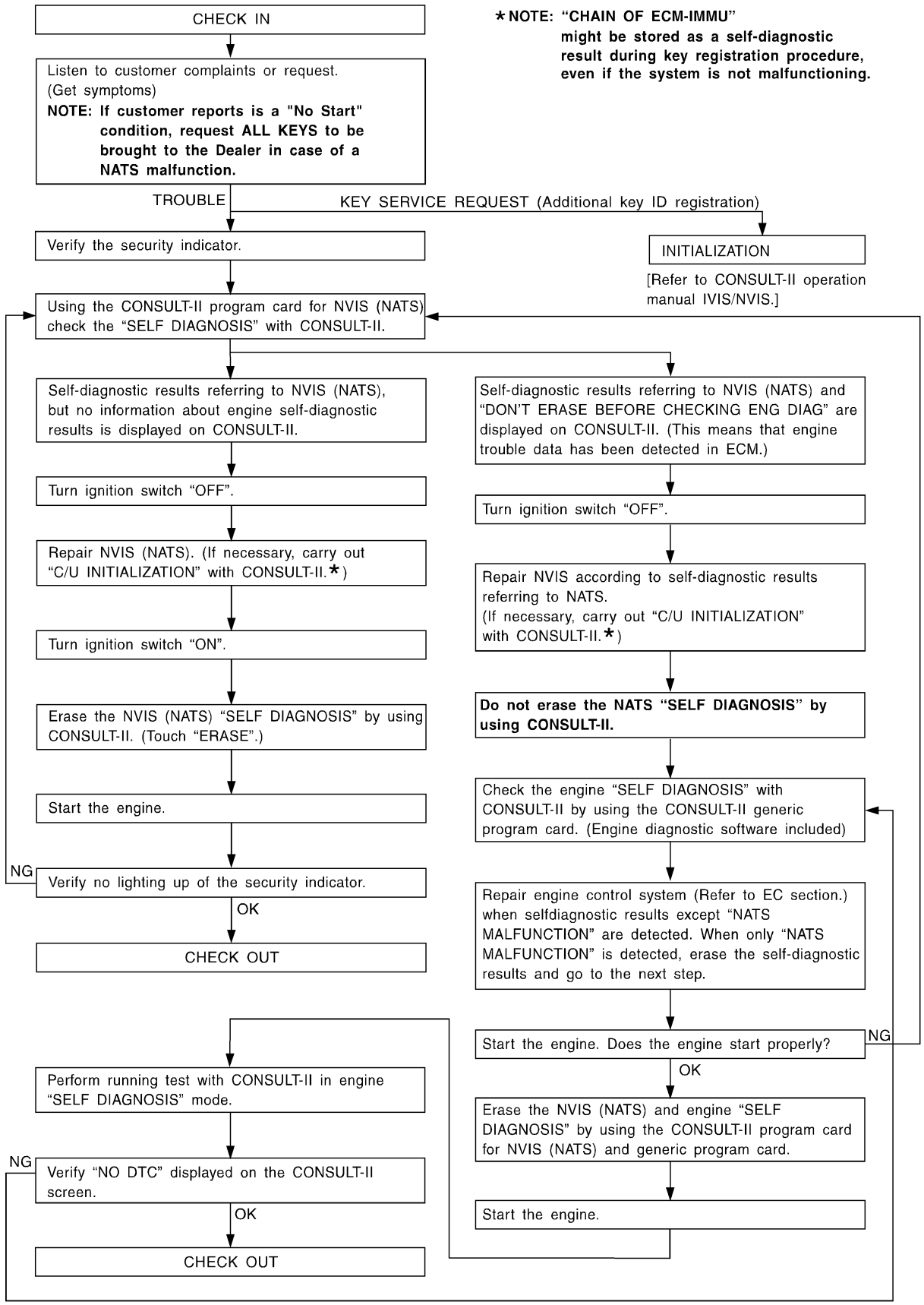
| Detected items (NATS program card screen terms) | P No. Code (Self-diagnostic result of "ENGINE" | Malfunction is detected when ..... | Reference page |
|---|---|---|---|
| LOCK MODE | NATS MALFUNCTION P1610 | When the starting operation is carried out five or more times consecutively under the following conditions, NVIS (NATS) will shift the mode to one which prevents the engine from being started.<br>● Unregistered ignition key is used.<br>● IMMU or ECM's malfunctioning. | EL-374 |
| DON'T ERASE BEFORE CHECKING ENG DIAG | — | All engine trouble codes except NVIS (NATS) trouble code has been detected in ECM. | EL-362 |

# Trouble Diagnoses

NFEL0177

## WORK FLOW

NFEL0177S01




SEL004XA

## SYMPTOM MATRIX CHART 1
**(Self-diagnosis related item)**

NFEL0177S02

| 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 | ECM INT CIRC-IMMU | PROCEDURE 1 (EL-364) | ECM | B |
| | CHAIN OF ECM-IMMU | PROCEDURE 2 (EL-365) | In rare cases, "CHAIN OF ECM-IMMU" might be stored during the key registration procedure, even if the system is not malfunctioning. | — |
| | | | 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 |
| | | | ECM | B |
| | | | IMMU | A |
| | DIFFERENCE OF KEY | PROCEDURE 3 (EL-369) | Unregistered key | D |
| | | | IMMU | A |
| | CHAIN OF IMMU-KEY | PROCEDURE 4 (EL-370) | Malfunction of key ID chip | E |
| | | | IMMU | A |
| | ID DISCORD, IMM-ECM | PROCEDURE 5 (EL-371) | System initialisation has not yet been completed. | F |
| | | | ECM | F |
| | LOCK MODE | PROCEDURE 7 (EL-374) | LOCK MODE | D |
| • MIL staying ON<br>• Security indicator lighting up* | DON'T ERASE BEFORE CHECKING ENG DIAG | WORK FLOW (EL-362) | Engine trouble data and NVIS (NATS) trouble data have been detected in ECM | — |

*: When NVIS (NATS) detects trouble, the security indicator lights up while ignition key is in the "ON" position.

## SYMPTOM MATRIX CHART 2

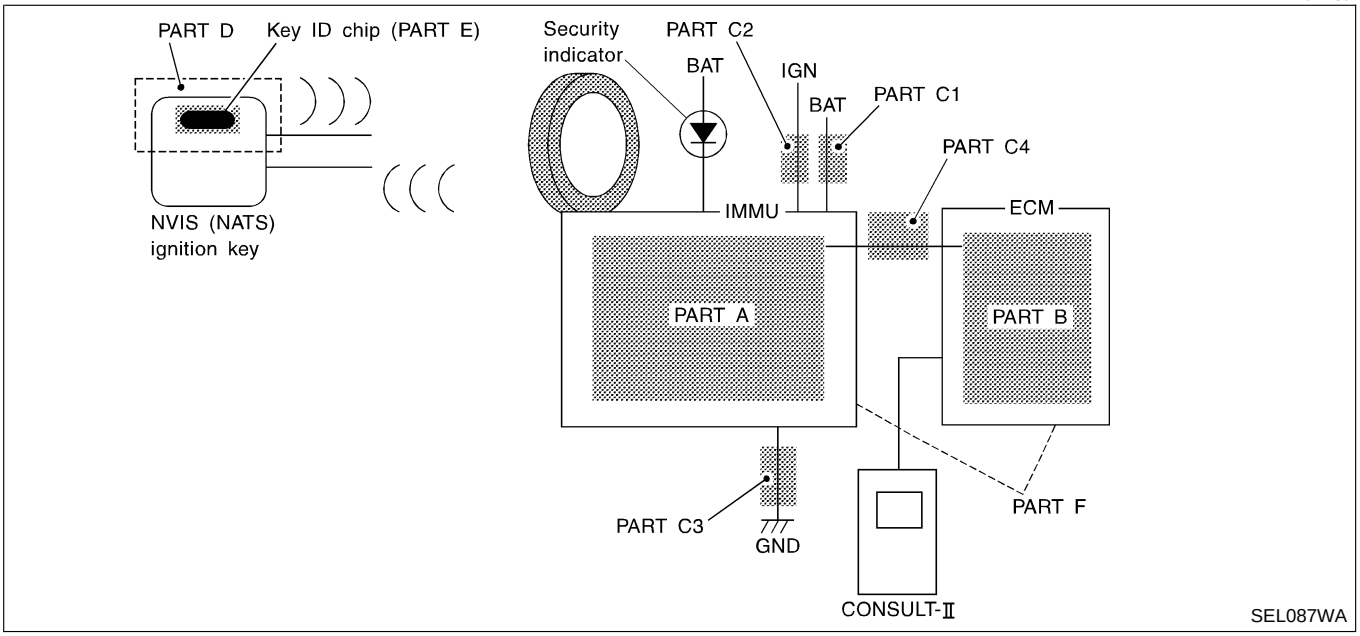
NFEL0177S03

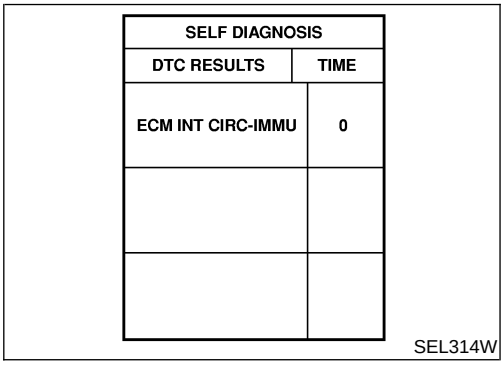
**(Non self-diagnosis related item)**

| SYMPTOM | DIAGNOSTIC PROCEDURE (Reference page) | SYSTEM (Malfunctioning part or mode) |
|---|---|---|
| Security ind. does not light up. | PROCEDURE 6 (EL-372) | Security ind. |
| | | Open circuit between Fuse and IMMU |
| | | Continuation of initialization mode |
| | | IMMU |

## DIAGNOSTIC SYSTEM DIAGRAM

NFEL0177S04




## DIAGNOSTIC PROCEDURE 1

NFEL0177S06

**Self-diagnostic results:**
**"ECM INT CIRC-IMMU" displayed on CONSULT-II screen**

1. Confirm SELF-DIAGNOSTIC RESULTS "ECM INT CIRC-IMMU" displayed on CONSULT-II screen. Ref. part No. B.
2. Replace ECM.
3. Perform initialization with CONSULT-II.
   For initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

## DIAGNOSTIC PROCEDURE 2

=NFEL0177S07

**Self-diagnostic results:**
**"CHAIN OF ECM-IMMU" displayed on CONSULT-II screen**

| 1 | CONFIRM SELF-DIAGNOSTIC RESULTS |
|---|---|

Confirm SELF-DIAGNOSTIC RESULTS "CHAIN OF ECM-IMMU" displayed on CONSULT-II screen.
**NOTE:**
In rare cases "CHAIN OF ECM-IMMU" might be stored during the key registration procedure, even if the system is not malfunctioning.

| SELF DIAGNOSIS | |
|---|---|
| DTC RESULTS | TIME |
| CHAIN OF ECM-IMMU | 0 |
| | |
| | |

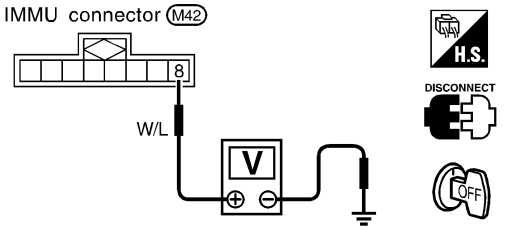
SEL292W

**Is CONSULT-II screen displayed as above?**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 2. |
| No | ▶ | GO TO SYMPTOM MATRIX CHART 1. |

| 2 | CHECK POWER SUPPLY CIRCUIT FOR IMMU |
|---|---|

1. Disconnect IMMU connector.
2. Check voltage between terminal 8 of IMMU and ground with CONSULT-II or tester.




**Battery voltage should exist.**

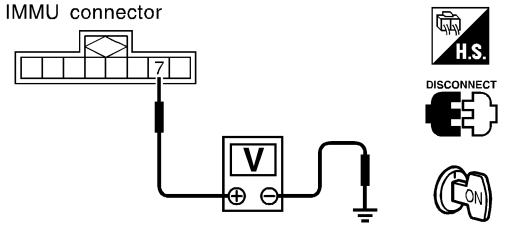
SEL302W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | **Check the following**<br>● 15A fuse (No. 59, located in the fuse and fusible link box)<br>● Harness for open or short between fuse and IMMU connector<br>**Ref. Part No. C1** |

| 3 | CHECK IGN SW. ON SIGNAL |
|---|---|

1. Turn ignition switch ON.
2. Check voltage between terminal 7 (R/L) of IMMU connector (M42) and ground with CONSULT-II or tester.




**Battery voltage should exist.**

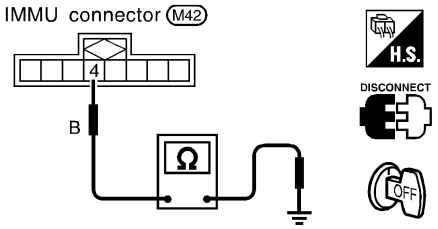
SEL303WK

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | **Check the following**<br>● 15A fuse [No. 20, located in the fuse block (J/B)]<br>● Harness for open or short between fuse and IMMU connector<br>**Ref. part No. C2** |

| 4 | CHECK GROUND CIRCUIT FOR IMMU |
|---|---|

1. Turn ignition OFF.
2. Check harness continuity between IMMU terminal 4 and ground.




**Continuity should exist.**

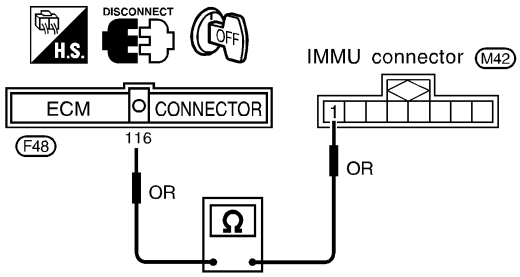
SEL304W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 5. |
| NG | ▶ | Repair harness. **Ref. part No. C3** |

| 5 | CHECK COMMUNICATION LINE OPEN CIRCUIT |
|---|---|

1. Disconnect ECM connector.
2. Check harness continuity between ECM terminal 116 and IMMU terminal 1.




**Continuity should exist.**

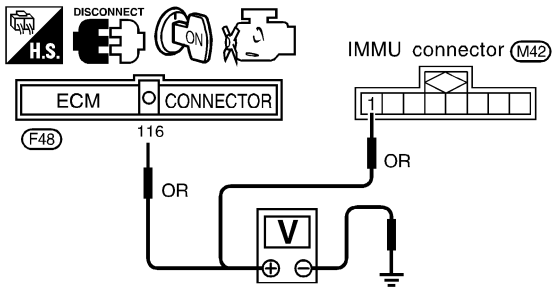
SEL305W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 6. |
| NG | ▶ | Repair harness or connector.<br>**Ref. part No. C4** |

| 6 | CHECK COMMUNICATION LINE BATTERY SHORT CIRCUIT |
|---|---|

1. Turn ignition ON.
2. Check voltage between ECM terminal 116 or IMMU terminal 1 and ground.




**Voltage: 0V**

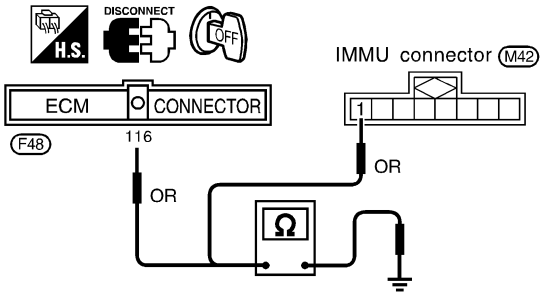
SEL306W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 7. |
| NG | ▶ | Communication line is short-circuited with battery voltage line or ignition switch ON line. Repair harness or connectors.<br>**Ref. part No. C4** |

| 7 | CHECK COMMUNICATION LINE GROUND SHORT CIRCUIT |
|---|---|

1. Turn ignition switch OFF.
2. Check continuity between ECM terminal 116 or IMMU terminal 1 and ground.




**Continuity should not exist.**

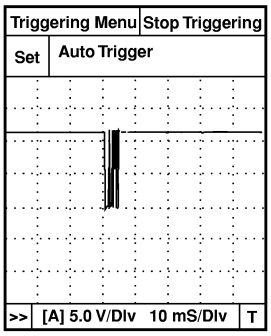
SEL307W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 8. |
| NG | ▶ | Communication line is short-circuited with ground line.<br>Repair harness or connectors.<br>**Ref. part No. C4** |

| 8 | SIGNAL FROM ECM TO IMMU CHECK |
|---|---|

1. Check the signal between ECM terminal 116 and ground with CONSULT-II or oscilloscope when ignition switch is turned "ON".
2. Make sure signals which are shown in the figure below can be detected during 750 msec. just after ignition switch is turned "ON".




SEL730W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | IMMU is malfunctioning.<br>Replace IMMU. **Ref. part No. A**<br>Perform initialization with CONSULT-II.<br>For the operation of initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS". |
| NG | ▶ | ECM is malfunctioning.<br>Replace ECM. **Ref. part No. B**<br>Perform initialization with CONSULT-II.<br>For the operation of initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS". |

## DIAGNOSTIC PROCEDURE 3

=NFEL0177S08

**Self-diagnostic results:**
**"DIFFERENCE OF KEY" displayed on CONSULT-II screen**

| 1 | CONFIRM SELF-DIAGNOSTIC RESULTS |
|---|---|

Confirm SELF-DIAGNOSTIC RESULTS "DIFFERENCE OF KEY" displayed on CONSULT-II screen.

| SELF DIAGNOSIS | |
|---|---|
| DTC RESULTS | TIME |
| DIFFERENCE OF KEY | 0 |
| | |
| | |

SEL293W

**Is CONSULT-II screen displayed as above?**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 2. |
| No | ▶ | GO TO SYMPTOM MATRIX CHART 1. |

| 2 | PERFORM INITIALIZATION WITH CONSULT-II |
|---|---|

Perform initialization with CONSULT-II. Re-register all NVIS (NATS) ignition key IDs.
For initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

| IMMU INITIALIZATION |
|---|
| INITIALIZATION FAIL |
| THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN. |

SEL297W

**NOTE:**
If the initialization is not completed or fails, CONSULT-II shows above message on the screen.

**Can the system be initialized and can the engine be started with re-registered NVIS (NATS) ignition key?**

| | | |
|---|---|---|
| Yes | ▶ | Ignition key ID was unregistered. **Ref. part No. D** |
| No | ▶ | IMMU is malfunctioning.<br>Replace IMMU. **Ref. part No. A**<br>Perform initialization with CONSULT-II.<br>For initialization, refer to "CONSULT-II operation manual IVIS/NVIS". |

## DIAGNOSTIC PROCEDURE 4

=NFEL0177S09

**Self-diagnostic results:**
**"CHAIN OF IMMU-KEY" displayed on CONSULT-II screen**

| 1 | CONFIRM SELF-DIAGNOSTIC RESULTS |
|---|---|

Confirm SELF-DIAGNOSTIC RESULTS "CHAIN OF IMMU-KEY" displayed on CONSULT-II screen.

| SELF DIAGNOSIS | |
|---|---|
| DTC RESULTS | TIME |
| CHAIN OF IMMU-KEY | 0 |
| | |
| | |

SEL294W

**Is CONSULT-II screen displayed as above?**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 2. |
| No | ▶ | GO TO SYMPTOM MATRIX CHART 1. |

| 2 | CHECK NVIS (NATS) IGNITION KEY ID CHIP |
|---|---|

Start engine with another registered NVIS (NATS) ignition key.

**Does the engine start?**

| | | |
|---|---|---|
| Yes | ▶ | Ignition key ID chip is malfunctioning.<br>Replace the ignition key.<br>**Ref. part No. E**<br>Perform initialization with CONSULT-II.<br>For initialization, refer to "CONSULT-II operation manual IVIS/NVIS". |
| No | ▶ | GO TO 3. |

| 3 | CHECK IMMU INSTALLATION |
|---|---|

Check IMMU installation.
Refer to "How to Replace IMMU" in EL-375.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | IMMU is malfunctioning.<br>Replace IMMU. **Ref. part No. A**<br>Perform initialization with CONSULT-II.<br>For initialization, refer to "CONSULT-II operation manual IVIS/NVIS". |
| NG | ▶ | Reinstall IMMU correctly. |

## DIAGNOSTIC PROCEDURE 5

=NFEL0177S10

**Self-diagnostic results:**
**"ID DISCORD, IMM-ECM" displayed on CONSULT-II screen**

| 1 | CONFIRM SELF-DIAGNOSTIC RESULTS |
|---|---|

Confirm SELF-DIAGNOSTIC RESULTS "ID DISCORD, IMM-ECM" displayed on CONSULT-II screen.

| SELF DIAGNOSIS | |
|---|---|
| DTC RESULTS | TIME |
| ID DISCORD, IMM-ECM | 0 |
| | |
| | |

SEL298W

**NOTE:**
"ID DISCORD IMMU-ECM":
Registered ID of IMMU is in discord with that of ECM.

**Is CONSULT-II screen displayed as above?**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 2. |
| No | ▶ | GO TO SYMPTOM MATRIX CHART 1. |

| 2 | PERFORM INITIALIZATION WITH CONSULT-II |
|---|---|

Perform initialization with CONSULT-II. Re-register all NVIS (NATS) ignition key IDs.
For initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

| IMMU INITIALIZATION |
|---|
| INITIALIZATION FAIL |
| THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN. |

SEL297W

**NOTE:**
If the initialization is not completed or fails, CONSULT-II shows above message on the screen.

**Can the system be initialized?**

| | | |
|---|---|---|
| Yes | ▶ | Start engine. (END)<br>(System initialization had not been completed. **Ref. part No. F**) |
| No | ▶ | ECM is malfunctioning.<br>Replace ECM. **Ref. part No. F**<br>Perform initialization with CONSULT-II.<br>For initialization, refer to "CONSULT-II operation manual IVIS/NVIS". |

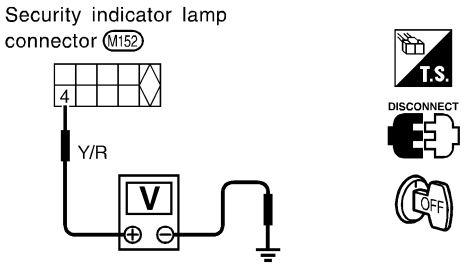
## DIAGNOSTIC PROCEDURE 6

=NFEL0177S12

**"SECURITY INDICATOR LAMP DOES NOT LIGHT UP"**

| 1 | CHECK FUSE | |
|---|---|---|
| Check 10A fuse [No. 12, located in the fuse block (J/B)].<br>**Is 10A fuse OK?** | | |
| Yes | ▶ | GO TO 2. |
| No | ▶ | Replace fuse. |

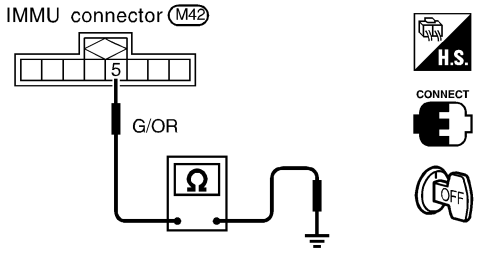
| 2 | CHECK SECURITY INDICATOR LAMP | |
|---|---|---|
| 1. Install 10A fuse.<br>2. Perform initialization with CONSULT-II.<br>For initialization, refer to "CONSULT-II operation manual IVIS/NVIS".<br>3. Turn ignition switch OFF.<br>4. Start engine and turn ignition switch OFF.<br>5. Check the security indicator lamp lighting.<br>**Security indicator lamp should be blinking.**<br>**OK or NG** | | |
| OK | ▶ | INSPECTION END |
| NG | ▶ | GO TO 3. |

| 3 | CHECK SECURITY INDICATOR LAMP POWER SUPPLY CIRCUIT | |
|---|---|---|
| 1. Disconnect security indicator lamp connector.<br>2. Check voltage between security indicator lamp connector terminal 4 and ground.<br>  <br><br>**Battery voltage should exist.**<br>SEL299W<br>**OK or NG** | | |
| OK | ▶ | GO TO 4. |
| NG | ▶ | Check harness for open or short between fuse and security indicator lamp. |

| 4 | CHECK SECURITY INDICATOR LAMP | |
|---|---|---|
| Check security Indicator Lamp.<br>**Is security indicator lamp OK?** | | |
| Yes | ▶ | GO TO 5. |
| No | ▶ | Replace security indicator lamp. |

| 5 | CHECK IMMU FUNCTION |
|---|---|

1. Connect IMMU connector.
2. Disconnect security indicator lamp connector.
3. Check continuity between IMMU terminal 5 and ground.




**Cotinuity should exist intermittently.**

SEL300W

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Check harness for open or short between security indicator lamp and IMMU. |
| NG | ▶ | IMMU is malfunctioning.<br>Replace IMMU.<br>Perform initialization with CONSULT-II.<br>For initialization, refer to "CONSULT-II operation manual IVIS/NVIS". |

## DIAGNOSTIC PROCEDURE 7

=NFEL0177S13

**Self-diagnostic results:**
**"LOCK MODE" displayed on CONSULT-II screen**

| 1 | CONFIRM SELF-DIAGNOSTIC RESULTS |
|---|---|

Confirm SELF-DIAGNOSTIC RESULTS "LOCK MODE" is displayed on CONSULT-II screen.

| SELF DIAGNOSIS | |
|---|---|
| DTC RESULTS | TIME |
| LOCK MODE | 0 |
| | |
| | |

SEL295W

**Is CONSULT-II screen displayed as above?**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 2. |
| No | ▶ | GO TO SYMPTOM MATRIX CHART 1. |

| 2 | ESCAPE FROM LOCK MODE |
|---|---|

1. Turn ignition switch OFF.
2. Turn ignition switch ON with registered key. (Do not start engine.) Wait 5 seconds.
3. Return the key to OFF position.
4. Repeat steps 2 and 3 twice (total of three cycles).
5. Start the engine.

**Does engine start?**

| | | |
|---|---|---|
| Yes | ▶ | System is OK.<br>(Now system is escaped from "LOCK MODE".) |
| No | ▶ | GO TO 3. |

| 3 | CHECK IMMU ILLUSTRATION |
|---|---|

Check IMMU installation. Refer to "How to Replace IMMU" in EL-375.

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Reinstall IMMU correctly. |

| 4 | PERFORM INITIALIZATION WITH CONSULT-II |
|---|---|

Perform initialization with CONSULT-II.
For initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

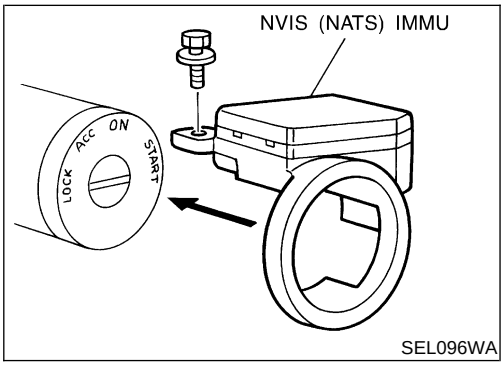
| IMMU INITIALIZATION |
|---|
| INITIALIZATION FAIL |
| THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN. |

SEL297W

**NOTE:**
If the initialization is not completed or fails, CONSULT-II shows the above message on the screen.

**Can the system be initialized?**

| | | |
|---|---|---|
| Yes | ▶ | System is OK. |
| No | ▶ | GO TO DIAGNOSTIC PROCEDURE 5 to check "CHAIN OF IMMU-KEY", refer to EL-370. |



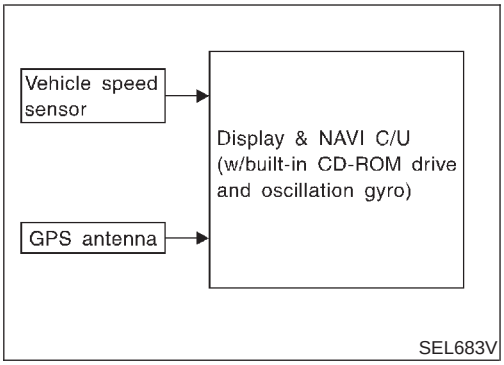
SEL096WA

## How to Replace NVIS (NATS) IMMU

NFEL0178

**NOTE:**

- **If NVIS (NATS) IMMU is not installed correctly, NVIS (NATS) system will not operate properly and SELF-DIAG RESULTS on CONSULT-II screen will show "LOCK MODE" or "CHAIN OF IMMU-KEY".**




# System Description

=NFEL0294

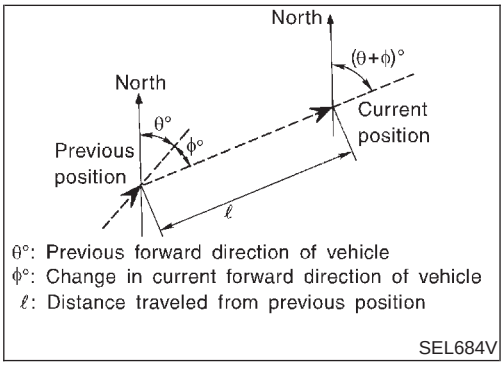
## OUTLINE

NFEL0294S01

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.



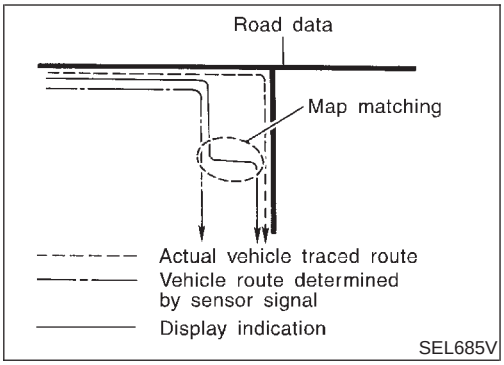

## Position Sensor Operating Principles

NFEL0294S0101

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.

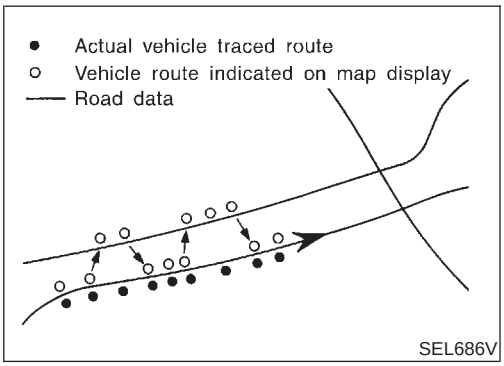
| Function type | Advantage | Disadvantage |
|---|---|---|
| Gyro (Angular velocity sensor) | • Able to accurately detect minute changes in steering angle and direction. | • Calculation errors may accumulate over a long period of continuous vehicle travel. |
| GPS antenna (GPS data) | • Able to sense vehicle travel in four general directions (North, South, East, and West) | • Unable to detect direction of vehicle travel at low vehicle speeds. |



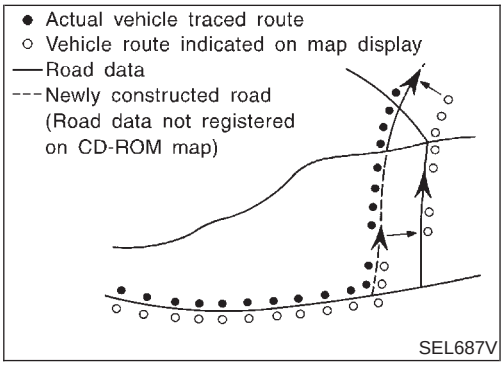

## Map Matching

NFEL0294S0102

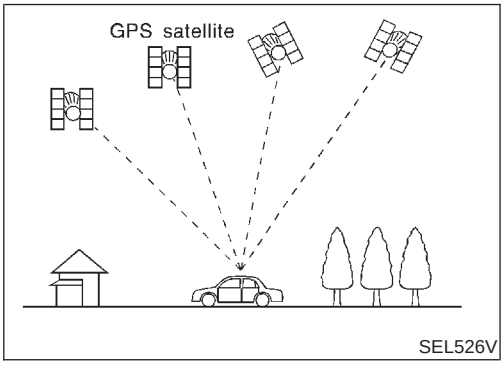
Map matching allows the driver to compare the sensed vehicle location data with the road map contained in the CD-ROM drive. Vehicle position is marked on the CD-ROM map. This permits the driver to accurately determine his/her present position on the highway and to make appropriate course decisions.
When 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.



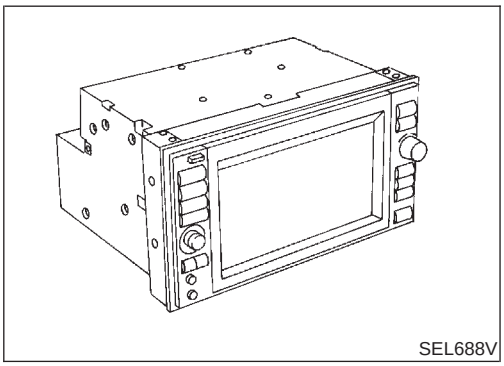

## GPS (Global Positioning System)

NFEL0294S0103

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.


SEL688V

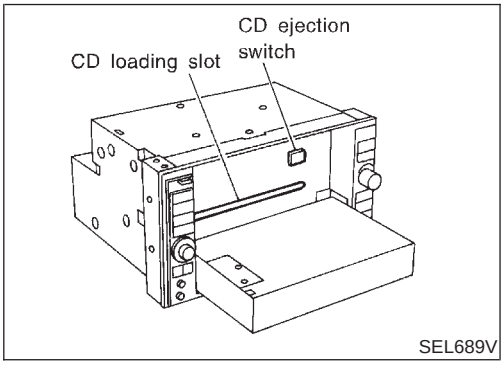
## COMPONENT DESCRIPTION

NFEL0294S02

### Display & NAVI Control Unit

NFEL0294S0201

- 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

NFEL0294S0202

Maps, traffic control regulations, and other pertinent information can be easily red from the CD-ROM disc.

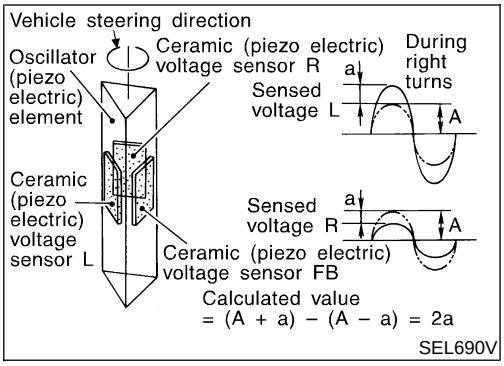
**NOTE:**

- 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

NFEL0294S0203

- 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.




SEL690V

## Gyro (Angular Speed Sensor)

NFEL0294S0204

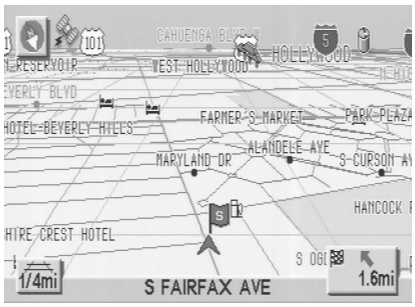
- The oscillator gyro sensor is used to detect changes in vehicle steering angle.
- The oscillator gyro periodically senses oscillatory variation at the oscillation terminals. This variation is caused by changes in the vehicle angular velocity. Voltage variations are sensed by ceramic voltage sensors 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®

NFEL0294S0205

The BIRDVIEW® provides a detailed and easily seen display of road conditions covering the vehicle's immediate to distant area.


MAP DISPLAY



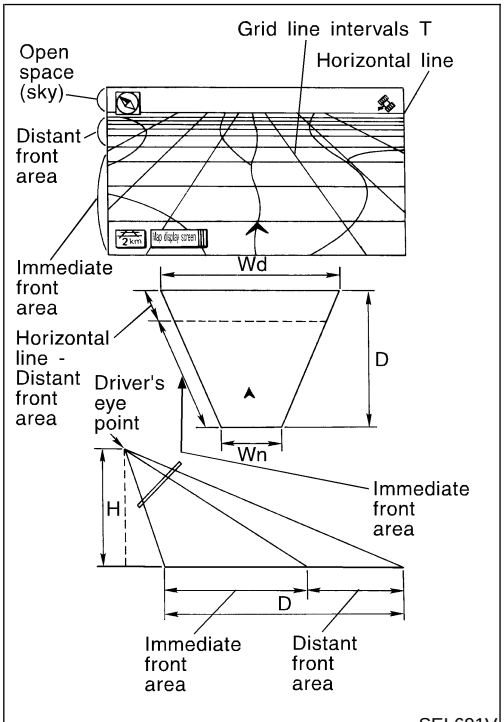

BIRDVIEW®

SEL636X

## Description

NFEL0294S0206

- 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.



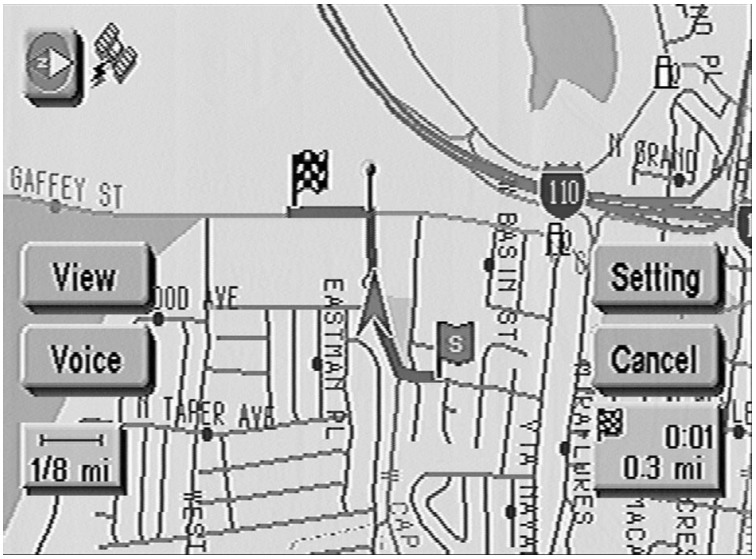

SEL691V

## FUNCTION OF TOUCH SWITCH (SUMMARY)

=NFEL0294S03

### Display with Pushed "MAP" Switch

NFEL0294S0301




SEL475Y

The function of each touch switch is as follows:

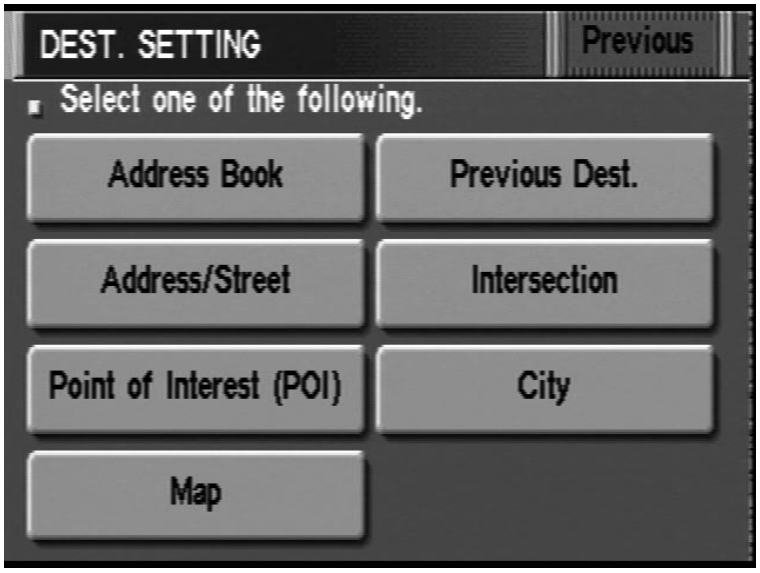
1) Azimuth indication
2) Position marker
   The tip of the arrow shows the current position. The shaft of the arrow indicates the direction in which the vehicle is traveling.
3) GPS reception signal (indicates current reception conditions)
4) Distance display (shows the distance in a reduced scale)
5) 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.

## Display with Pushed "DEST" Switch

=NFEL0294S0302



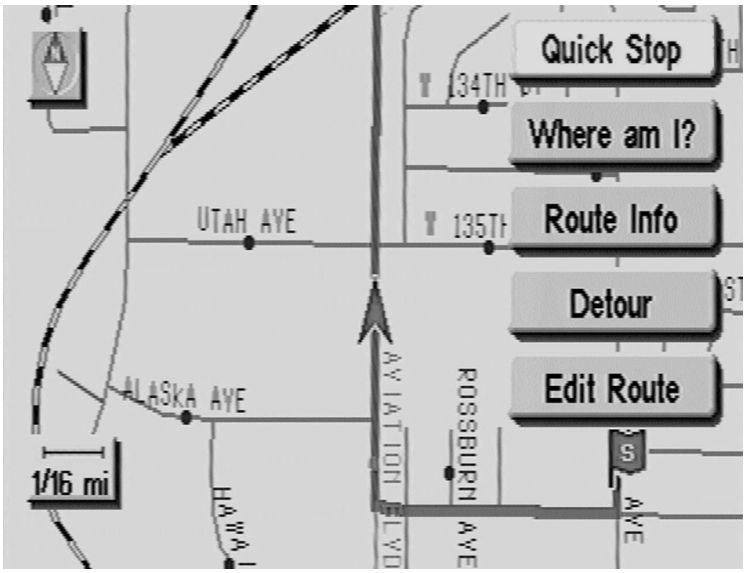

SEL581X

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. |

## Display with Toutch Screen

NFEL0294S0303




SEL476Y

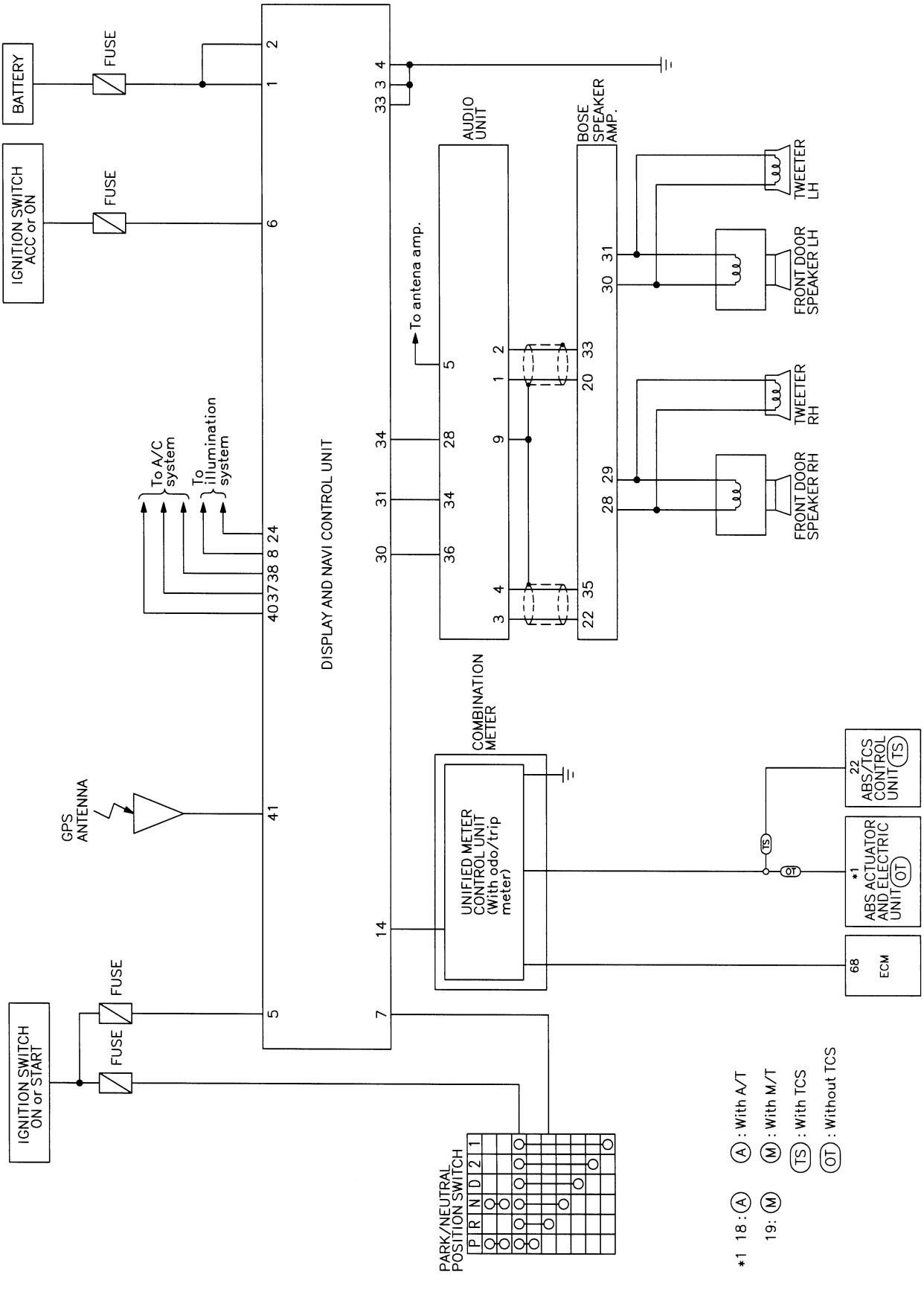
The function of each touch switch is as follows:

| Icon | Description |
|---|---|
| Quick Stop | The selected facility is set as the destination or way-point. (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. [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.) |

*: When destinations have been entered, route guidance has been turned OFF or destination has been reached, "Route Info.", "Detour" and "Edit Route" are not displayed.

## Schematic

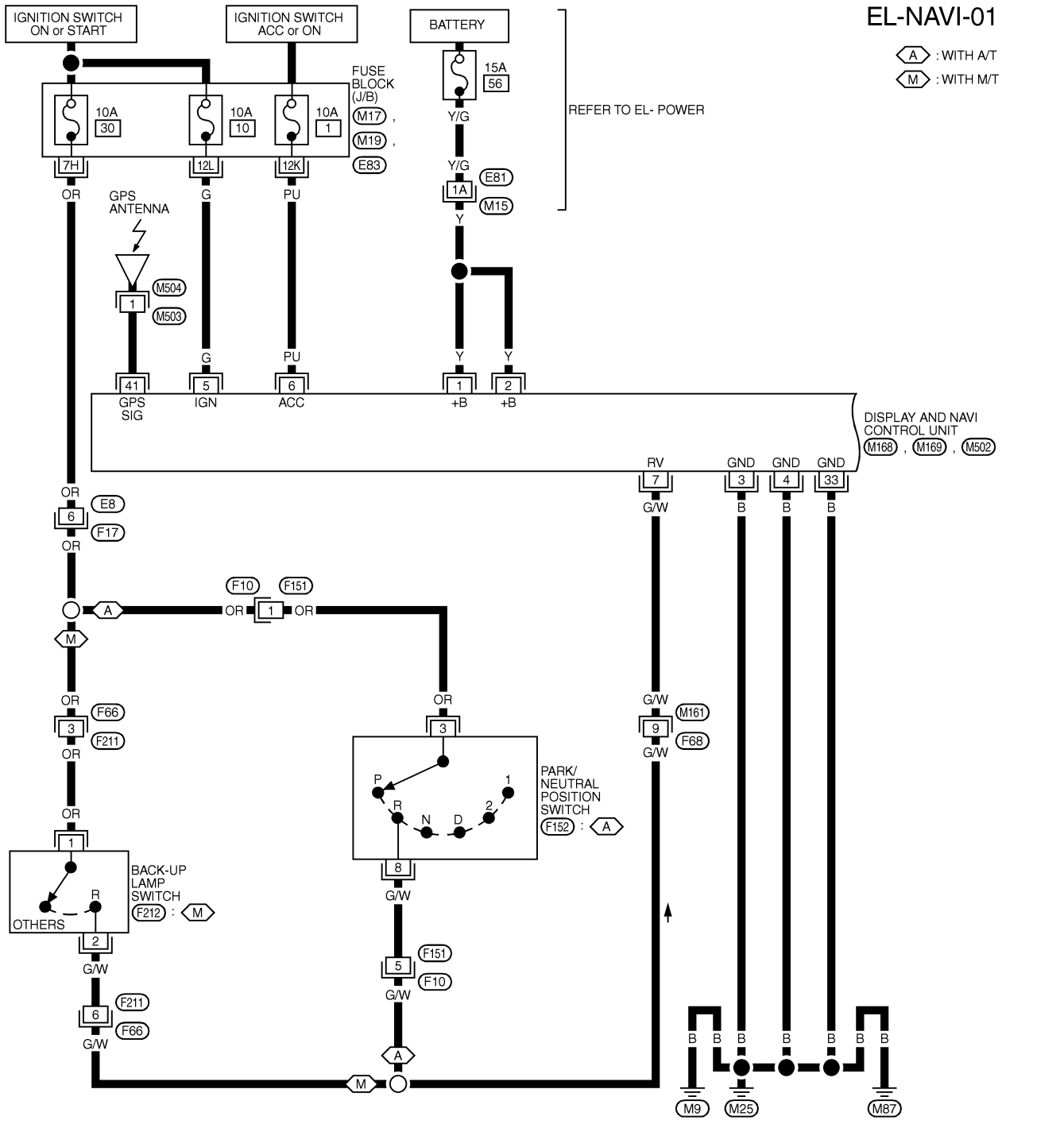
NFEL0295

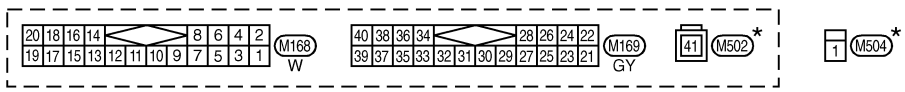



MEL157O

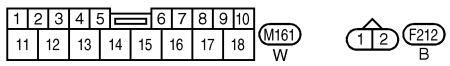
## Wiring Diagram — NAVI —

NFEL0296



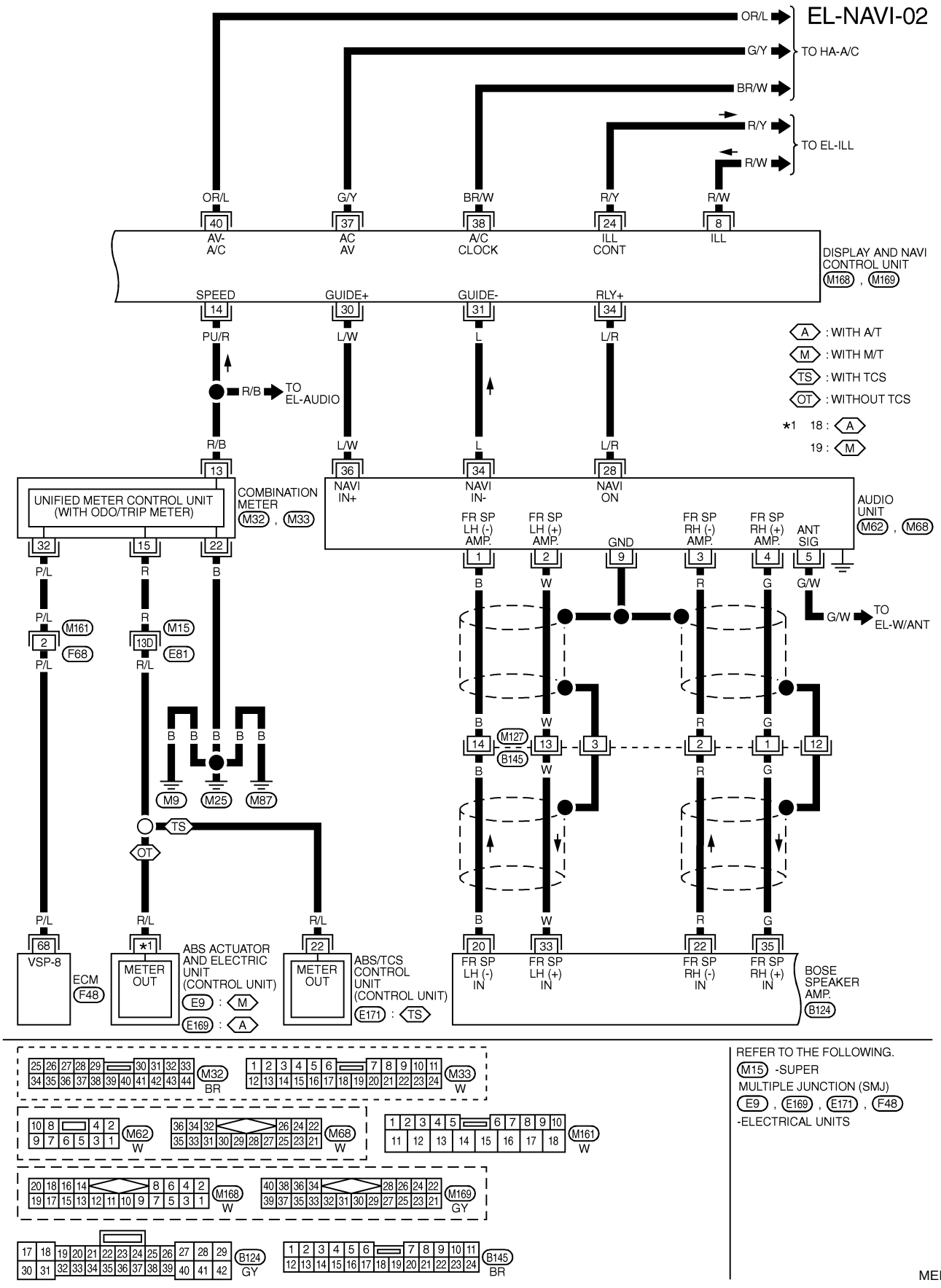




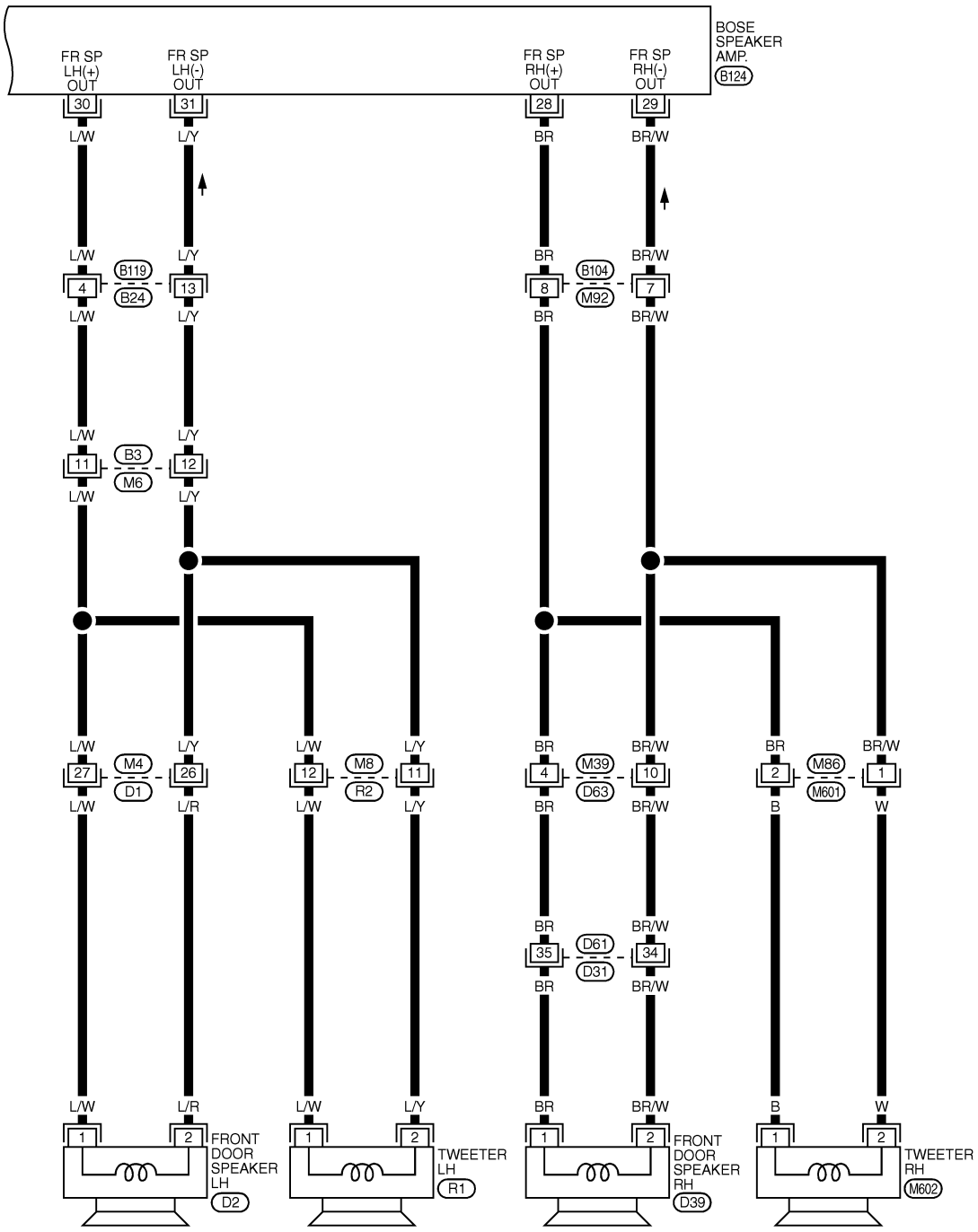

REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
M17 , M19 , E83
-FUSE BLOCK- JUNCTION BOX (J/B)

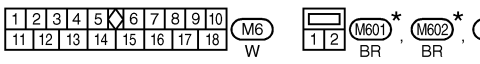
* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT" , EL SECTION.

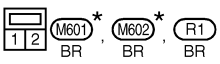
MEL733P

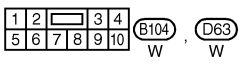

EL-NAVI-02
OR/L
G/Y
BR/W
R/Y
R/W
TO HA-A/C
TO EL-ILL
AV-A/C
AC AV
A/C CLOCK
ILL CONT
ILL
DISPLAY AND NAVI CONTROL UNIT M168 , M169
SPEED
GUIDE+
GUIDE-
RLY+
PU/R
L/W
L
L/R
R/B
TO EL-AUDIO
A : WITH A/T
M : WITH M/T
TS : WITH TCS
OT : WITHOUT TCS
*1 18 : A
19 : M
UNIFIED METER CONTROL UNIT (WITH ODO/TRIP METER)
COMBINATION METER M32 , M33
NAVI IN+
NAVI IN-
NAVI ON
AUDIO UNIT M62 , M68
FR SP LH (-) AMP.
FR SP LH (+) AMP.
GND
FR SP RH (-) AMP.
FR SP RH (+) AMP.
ANT SIG
G/W
TO EL-W/ANT
M161
M15
F68
E81
M9
M25
M87
M127
B145
TS
OT
VSP-8
ECM F48
METER OUT
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
E9 : M
E169 : A
ABS/TCS CONTROL UNIT (CONTROL UNIT)
E171 : TS
BOSE SPEAKER AMP. B124
M32 BR
M33 W
M62 W
M68 W
M161 W
M168 W
M169 GY
B124 GY
B145 BR
REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
E9 , E169 , E171 , F48
-ELECTRICAL UNITS
MEL753P

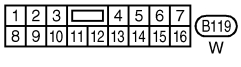
EL-NAVI-03

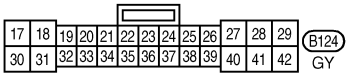


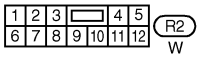



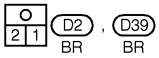




REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", EL SECTION.

MEL160O

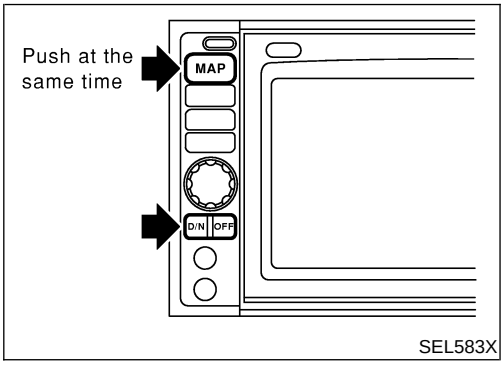
# Self-diagnosis Mode

NFEL0297

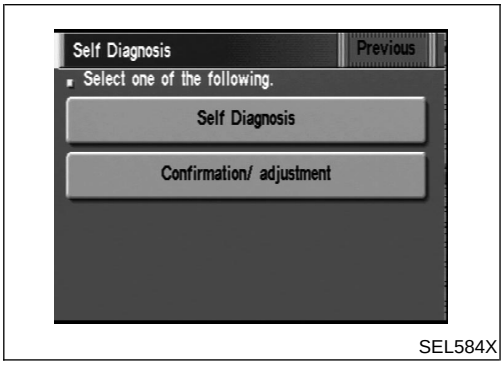
## APPLICATION ITEMS

NFEL0297S01

| Mode | | | Description | Reference page |
|---|---|---|---|---|
| Self Diagnosis | | | Self-diagnosis for display & NAVI control unit, CD-ROM and GPS antenna connection. | EL-388 |
| Confirmation/ adjustment | Display Diagnosis | | Color and gray gradation of display can be checked in this mode. | EL-396 |
| | Diagnostic Signals from the Car | | Several input signals to display & NAVI control unit, can be monitored in this mode. | EL-394 |
| | Navigation | Check the Map CD-ROM Version | The version (parts number) of inserted CD-ROM can be checked in this mode. | EL-395 |
| | | History of Errors | 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-390 |
| | | Display Longitude & Latitude | Display the map. Use the joystick to adjust position. Longitude and latitude will be displayed. | EL-397 |
| | | Angle Adjustment | Turning angle of the vehicle on the display can be adjusted in this mode. | EL-398 |
| | | 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-399 |
| | Initialize Location | | This mode is for initializing the current location. Use when the vehicle is transported a long distance on a trailer, etc. | EL-426 |



SEL583X



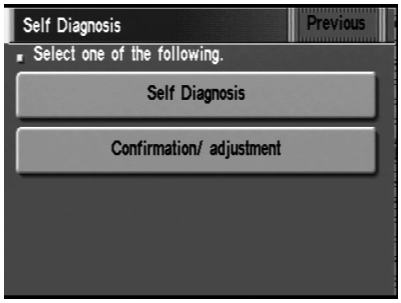
SEL584X

### HOW TO PERFORM SELF-DIAGNOSIS MODE

NFEL0297S02

1. Start the engine.
2. Push both of “MAP” and “D/N” switches at the same time for more than 5 seconds.
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.

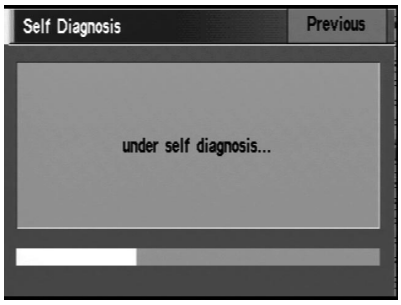



SEL584X

## "Self Diagnosis"

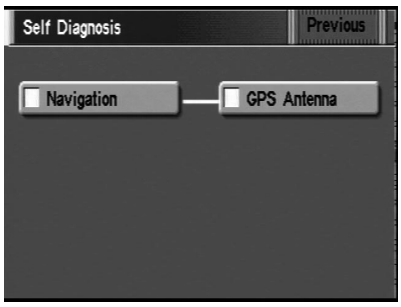
NFEL0297S0201

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".



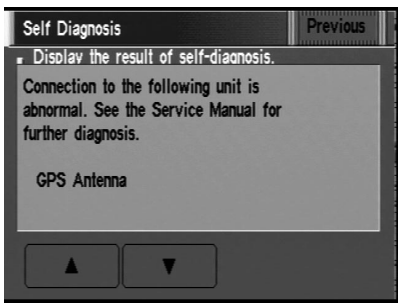

SEL585X

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 RESULTS

=NFEL0297S03

| 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 NAVI was not conducted because no CD-ROM was available. | 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-395 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. |

# Confirmation/Adjustment Mode

=NFEL0298

## "HISTORY OF ERRORS" MODE

NFEL0298S01

### Description

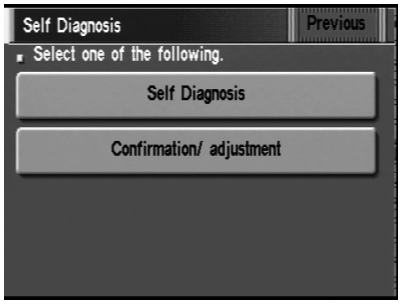
NFEL0298S0101

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.**

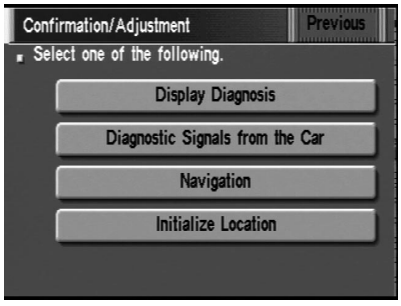



SEL584X

### How to Perform

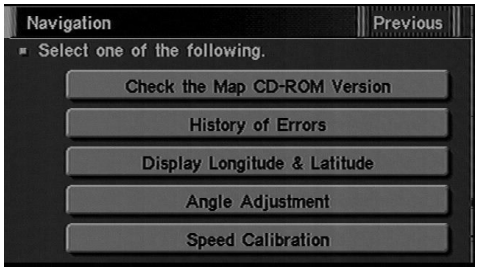
NFEL0298S0102

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".




SEL453Y

5. Touch "History of Errors".

SEL590X

6. If trouble items are displayed with time count, repair/replace the system according to "HISTORY OF ERRORS" TABLE, EL-392.
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 "History of Errors".
f. Touch "Delete".
g. Touch "Yes".

*Confirmation/Adjustment Mode (Cont'd)*

## "HISTORY OF ERRORS" TABLE

=NFEL0298S02

| 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-387 |
| Connection problem of speed sensor | Input malfunction of display & NAVI control unit and speed sensor | Check vehicle speed sensor signal in "DIAGNOSTIC 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-394 |
| 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-387 |
| 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-387 |
| 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-388 |
| 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-411 |
| | | 2. Perform self-diagnosis to confirm GPS antenna connection. | EL-388 |
| | | 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-387 |

| Detected items | Description | Diagnosis/service procedure | Reference page |
|---|---|---|---|
| Loading mechanism malfunction | — | Check that whether the disc can be inserted and ejected correctly. If the loading function does not operate correctly, replace display & NAVI 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-387 |
| 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-387 |

## "DIAGNOSTIC SIGNALS FROM THE CAR" MODE

=NFEL0298S03

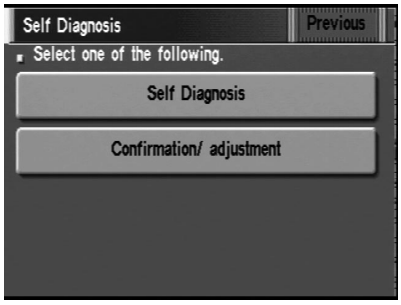
### Description

NFEL0298S0301

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 "—".

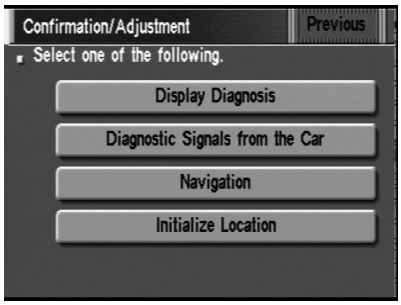



SEL584X

### How to Perform

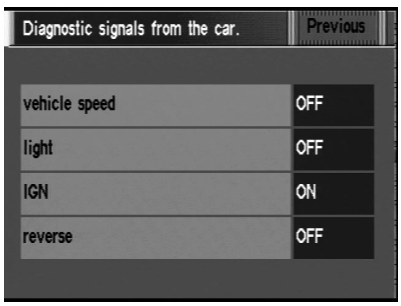
NFEL0298S0302

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".



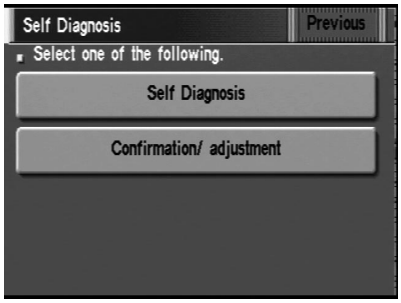

SEL588X

4. Touch "Diagnostic Signals from the Car".




SEL591X

5. Then "Diagnostic Signals from the Car" mode is performed.



SEL584X

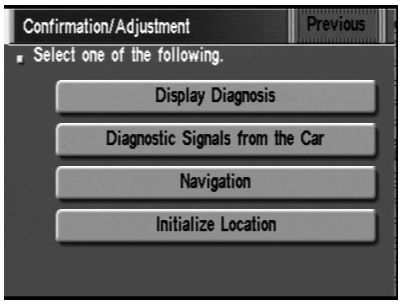
## "CHECK THE MAP CD-ROM VERSION" MODE

=NFEL0298S04

### How to Perform

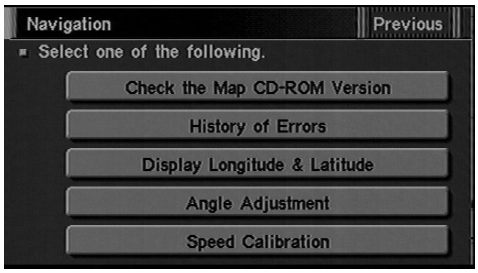
NFEL0298S0401

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".



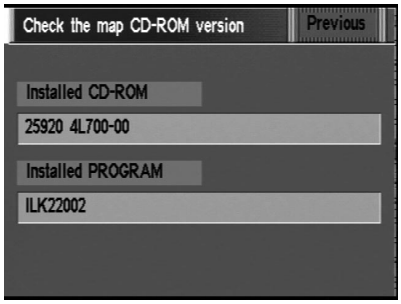
SEL588X

4. Touch "Navigation".



SEL453Y

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.

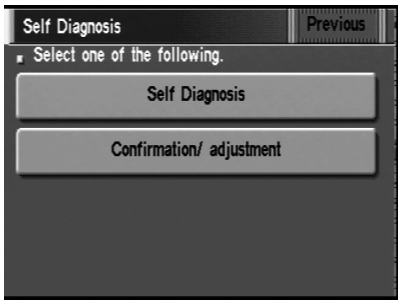
## "DISPLAY DIAGNOSIS" MODE

=NFEL0298S05

### Description

NFEL0298S0501

Use the "Display Diagnosis" 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.

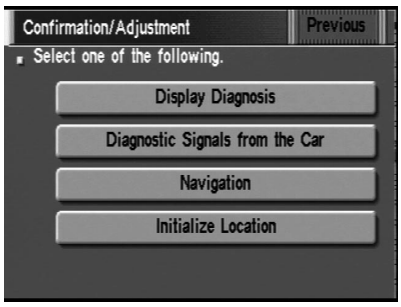



SEL584X

### How to Perform

NFEL0298S0502

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".

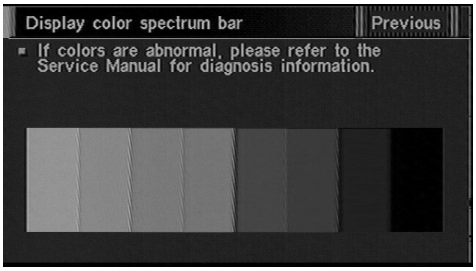


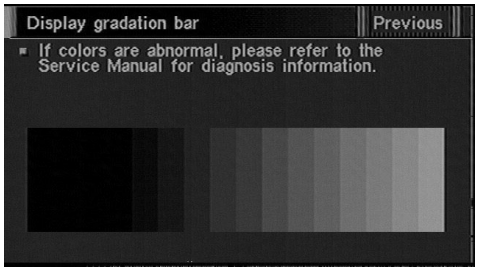

SEL588X

4. Touch "Display Diagnosis".


SEL454Y

5. Touch "Display Color Spectrum Bar" or "Display Gradation Bar".
6. Then color bar/gray scale will be displayed.




SEL455Y

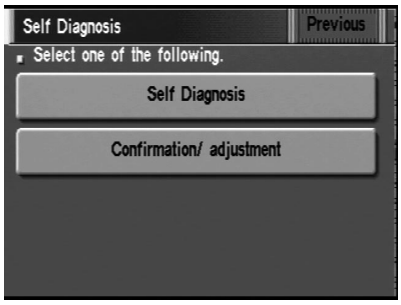
## "DISPLAY LONGITUDE & LATITUDE" MODE

NFEL0298S06

### Description

NFEL0298S0601

The "Display Longitude & Latitude" is used to confirm the longitude and latitude of some optional area point.

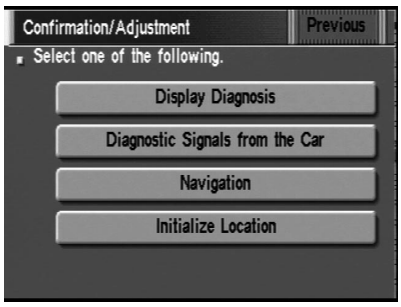



SEL584X

### How to Perform

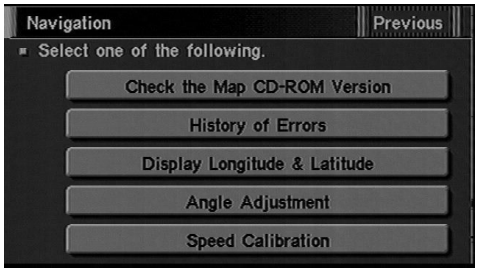
NFEL0298S0602

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".



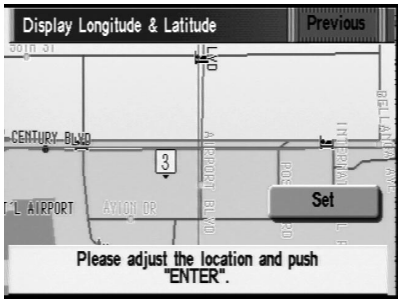

SEL588X

4. Touch "Navigation".




SEL453Y

5. Touch "Display Longitude & Latitude".




SEL595X

6. Adjust the pointer with using the joystick and touch "Set".
7. The display longitude and latitude are displayed.

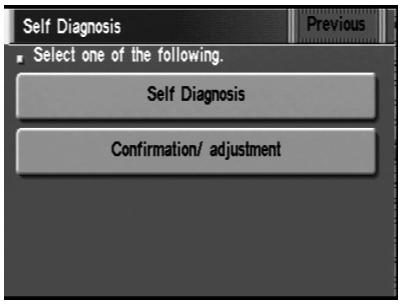
## "ANGLE ADJUSTMENT" MODE

=NFEL0298S07

### Description

NFEL0298S0701

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 "+".

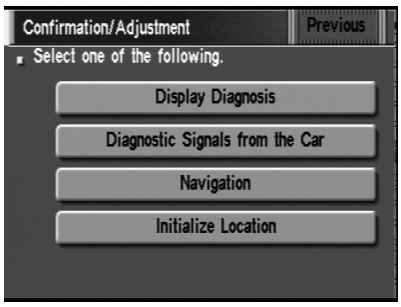


SEL584X

### How to Perform

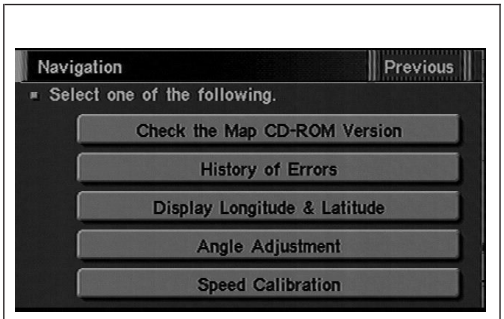
NFEL0298S0702

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".



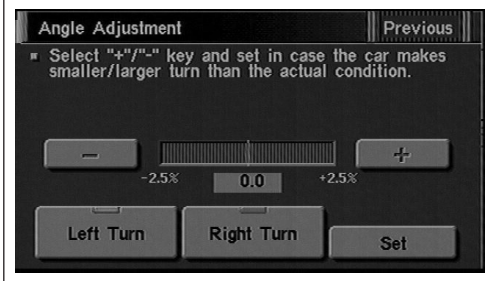
SEL588X

4. Touch "Navigation".



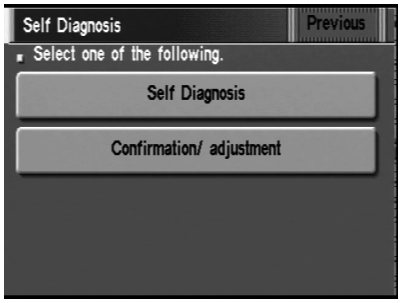
SEL453Y

5. Touch "Angle Adjustment".



SEL456Y

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.

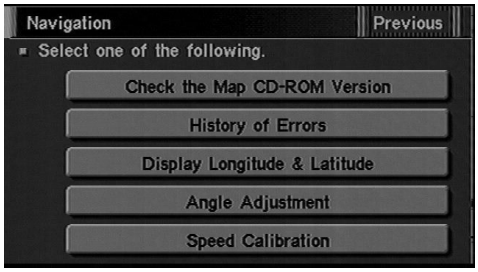



SEL584X

## SPEED CALIBRATION

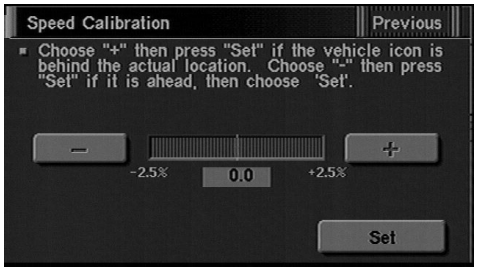
=NFEL0298S08

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".




SEL453Y

5. Touch "Speed Calibration".




SEL457Y

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".

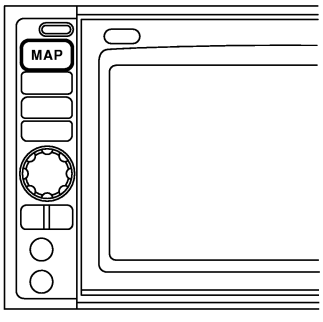
# Setting Mode

=NFEL0299

## APPLICATION ITEMS

NFEL0299S01

| Mode | Description | Reference page |
|---|---|---|
| Display Setting | The following display settings can be customized.<br>● Display color (Day mode or Night mode)<br>● Brightness of display | EL-402 |
| Heading | Heading of the map display can be customized for either north heading or the actual driving direction of the vehicle. | EL-405 |
| Nearby Display Icons | Icons of facilities can be displayed.<br>Facilities to be displayed can be selected from the variety of selections. | EL-406 |
| Adjust Current Location | Current location of position marker can be adjusted. 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-401 |
| Avoid Area Setting | Particular area can be avoided when routing. | — |
| Beep on/off | Beep sounds which correspond to the system operation can be activated/deactivated. | EL-402 |
| Clear Memory | Address book, Previous destination or Avoid area can be deleted. | EL-406 |
| 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-400 |
| Map & A/C | The map and A/C settings can be displayed at the same time. | EL-407 |
| Quick Stop Customer Setting | One facility of your selection can be added to your Quick Stop. | EL-403 |
| Route Priorities | Priorities of search request and automatic re-searching can be set for route search. | EL-404 |
| Tracking | Tracking to the present vehicle position can be displayed. | EL-405 |



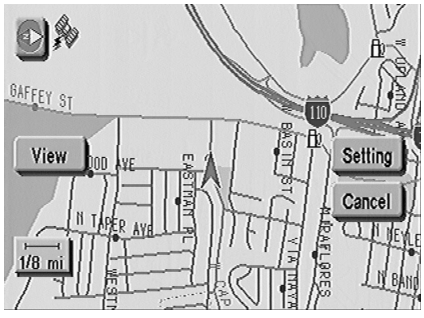

SEL597X

## HOW TO PERFORM CONTROL PANEL MODE

NFEL0299S02

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.

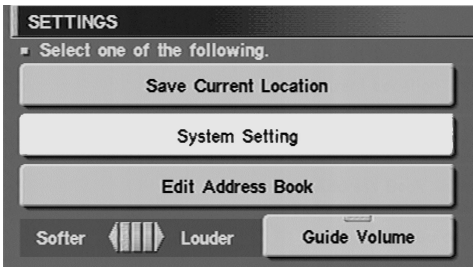



SEL460Y

## “GPS INFORMATION” SETTING

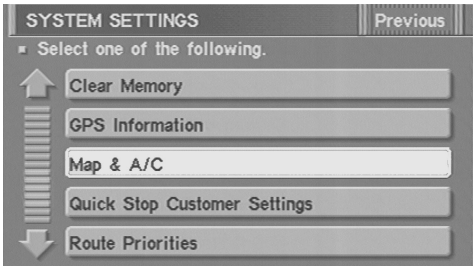
NFEL0299S03

1. Start the engine.
2. Push “MAP” switch.
3. Touch “Setting”.



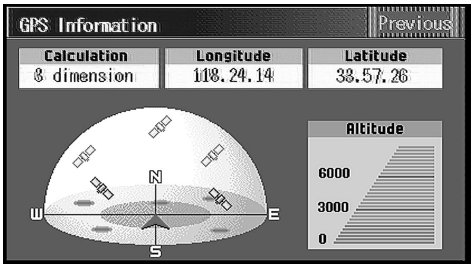

SEL461Y

4. Touch "System Setting".




SEL462Y

5. Touch "GPS Information".



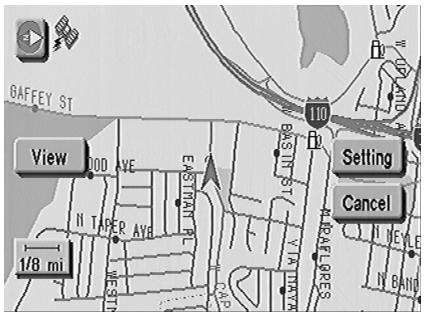

SEL146W

6. Then GPS information will be displayed.

## "ADJUST CURRENT LOCATION" SETTING

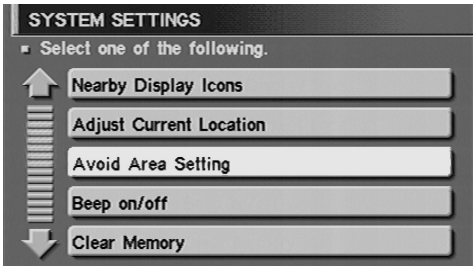
NFEL0299S04

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

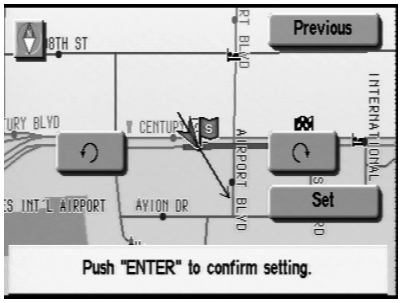



SEL460Y

5. Touch "Adjust Current Location".

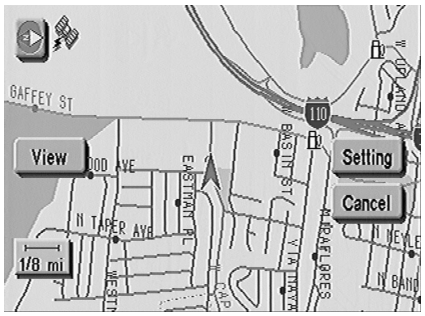



SEL463Y




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.

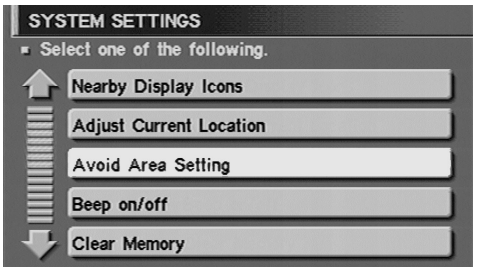



SEL460Y

## BEEP ON/OFF SETTING

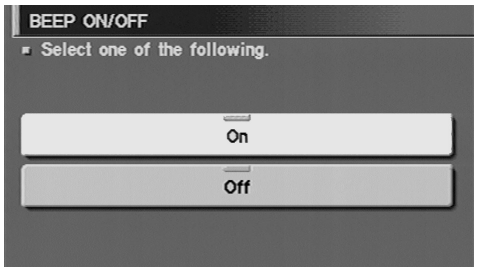
NFEL0299S05

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL463Y

5. Touch "Beep on/off".




SEL464Y

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.

## DISPLAY SETTING

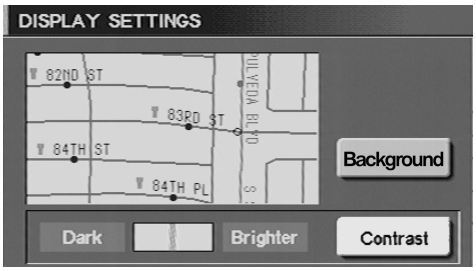
NFEL0299S06

### Description

NFEL0299S0601

The following display setting can be changed in this mode.

- Dimmer operation (when lighting switch is turned on.)
- Display color (Day mode or Night mode)
- Brightness of display




SEL465Y

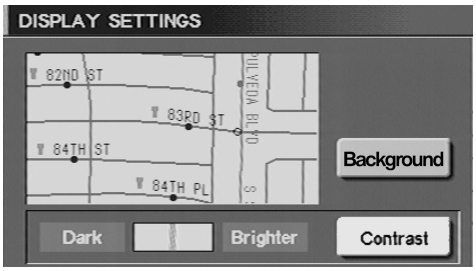
## DISPLAY COLOR SETTING

NFEL0299S07

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".
5. Touch "Display Setting".
6. Touch "Background". 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.**
- **The D/N button is used to change the display color the same way as the "Background" icon.**
- **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**



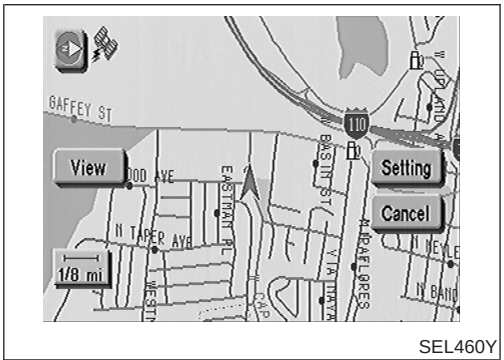

SEL465Y

## BRIGHTNESS SETTING

NFEL0299S08

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".
5. Touch "Display Setting".
6. Touch "Brighter" 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.**

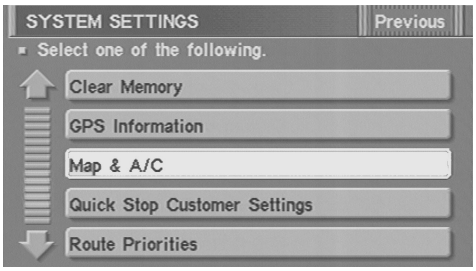



SEL460Y

## "QUICK STOP CUSTOMER SETTING" MODE

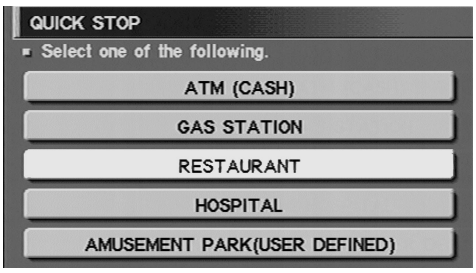
NFEL0299S09

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL462Y

5. Touch "Quick Stop Customer Setting".



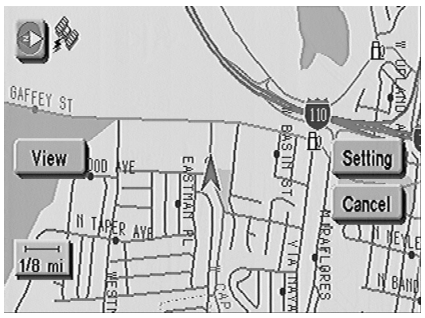

SEL466Y

6. Select from the itemized list.

## "ROUTE PRIORITIES" MODE

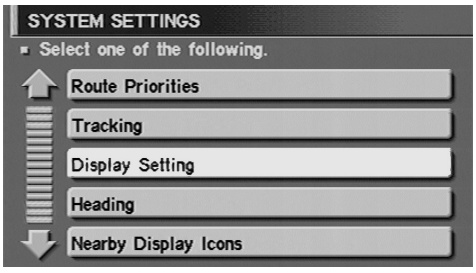
NFEL0299S10

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL460Y

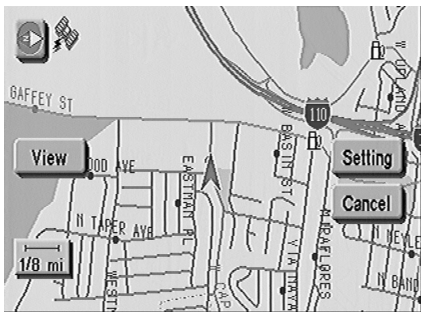
5. Touch "Route Priorities".




SEL467Y

6. Select from the itemized list.


SEL468Y

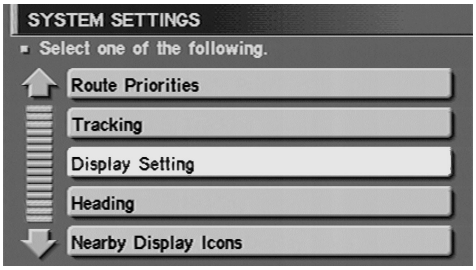



SEL460Y

## "TRACKING" MODE

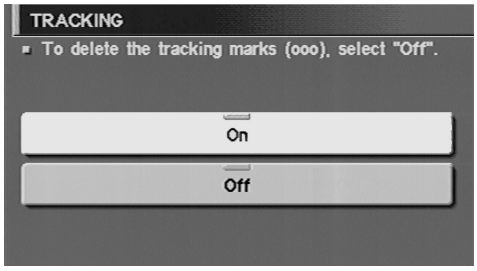
NFEL0299S11

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL467Y

5. Touch "Tracking".

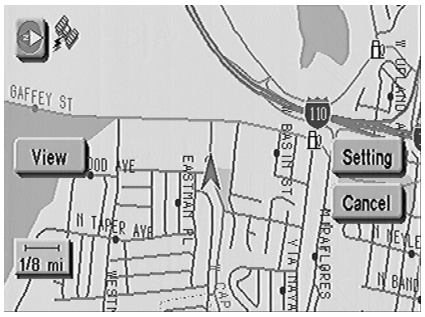



SEL469Y

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.**

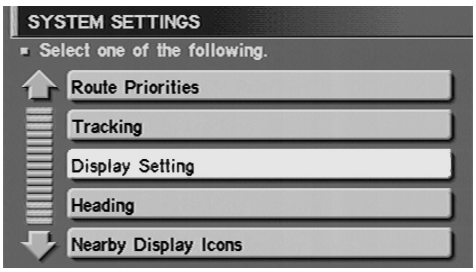



SEL460Y

## "HEADING" MODE

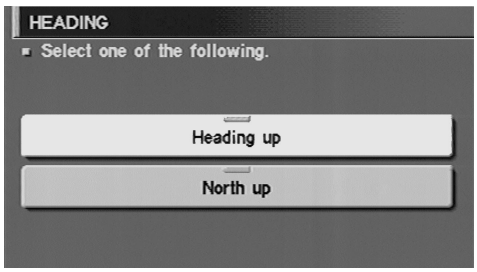
NFEL0299S12

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL467Y

5. Touch "Heading".



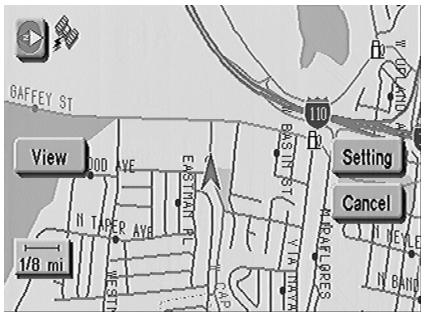

SEL470Y

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.

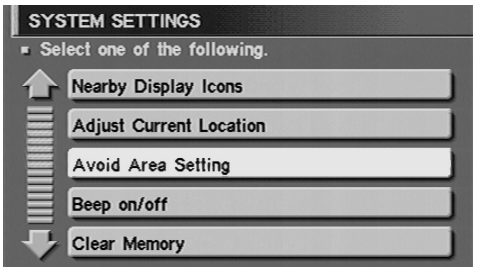
## "NEARBY DISPLAY ICONS" MODE

NFEL0299S13



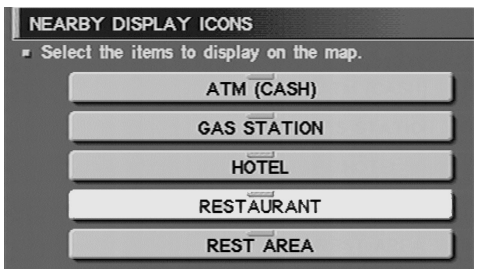

SEL460Y

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".




SEL463Y

5. Touch "Nearby Display Icons".

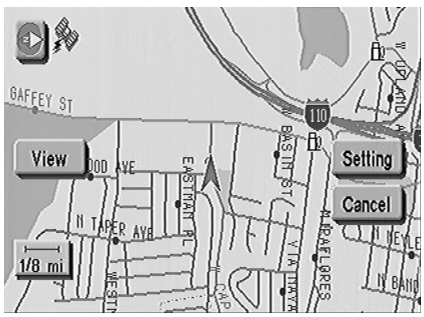



SEL471Y

6. Select and touch the itemized list.
7. Push the "MAP" switch to return the display to the current location map.

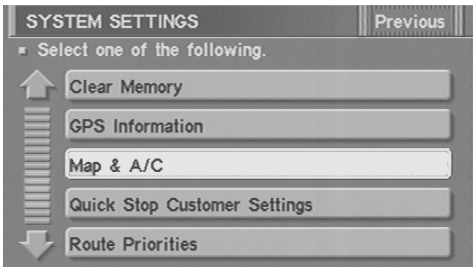
## "CLEAR MEMORY" MODE

NFEL0299S14



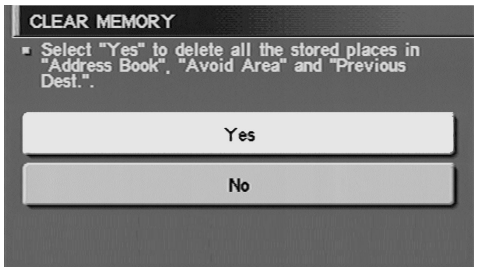

SEL460Y

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



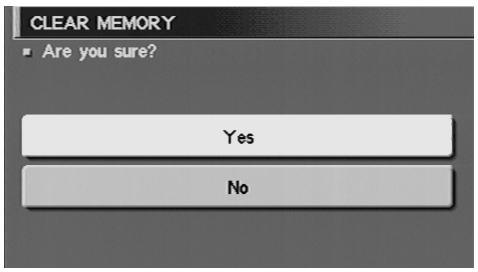

SEL462Y

5. Touch "Clear Memory".




SEL472Y

6. To delete all the stored places in the "Address Book", "Avoid Area" and "Previous Dest.", select "Yes".



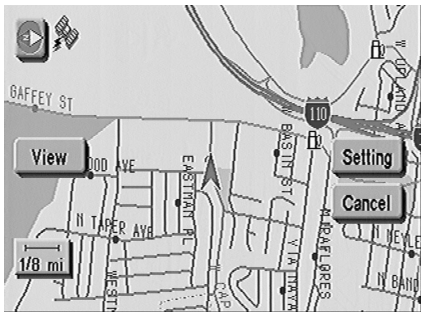

SEL473Y

7. When the "Yes" icon is selected, the stored data will be cleared, and the [SYSTEM SETTINGS] screen will appear.

## "MAP & A/C" MODE

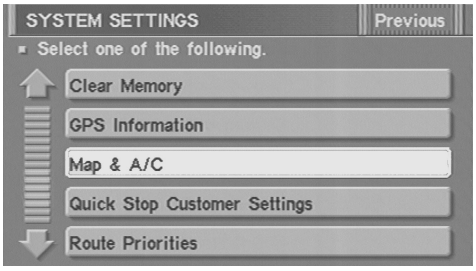
NFEL0299S15

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



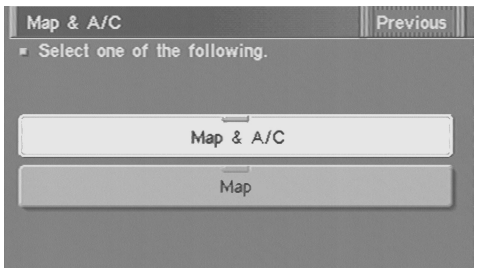

SEL460Y

5. Touch "MAP & A/C".




SEL462Y

*Setting Mode (Cont'd)*




SEL474Y

6. Touch "Map & A/C" or "Map" icon.
- To set the split display with both the map and the air conditioner information as the initial setting of the NAVI system, select "MAP & A/C".
- To set the map only display as the initial setting of the NAVI system, select "MAP".

7. Push "MAP" switch, then the display will go back to the current location map.

**NOTE:**
When the enlarged view is displayed, the air conditioner control screen will not be displayed.

## Trouble diagnoses

NFEL0300

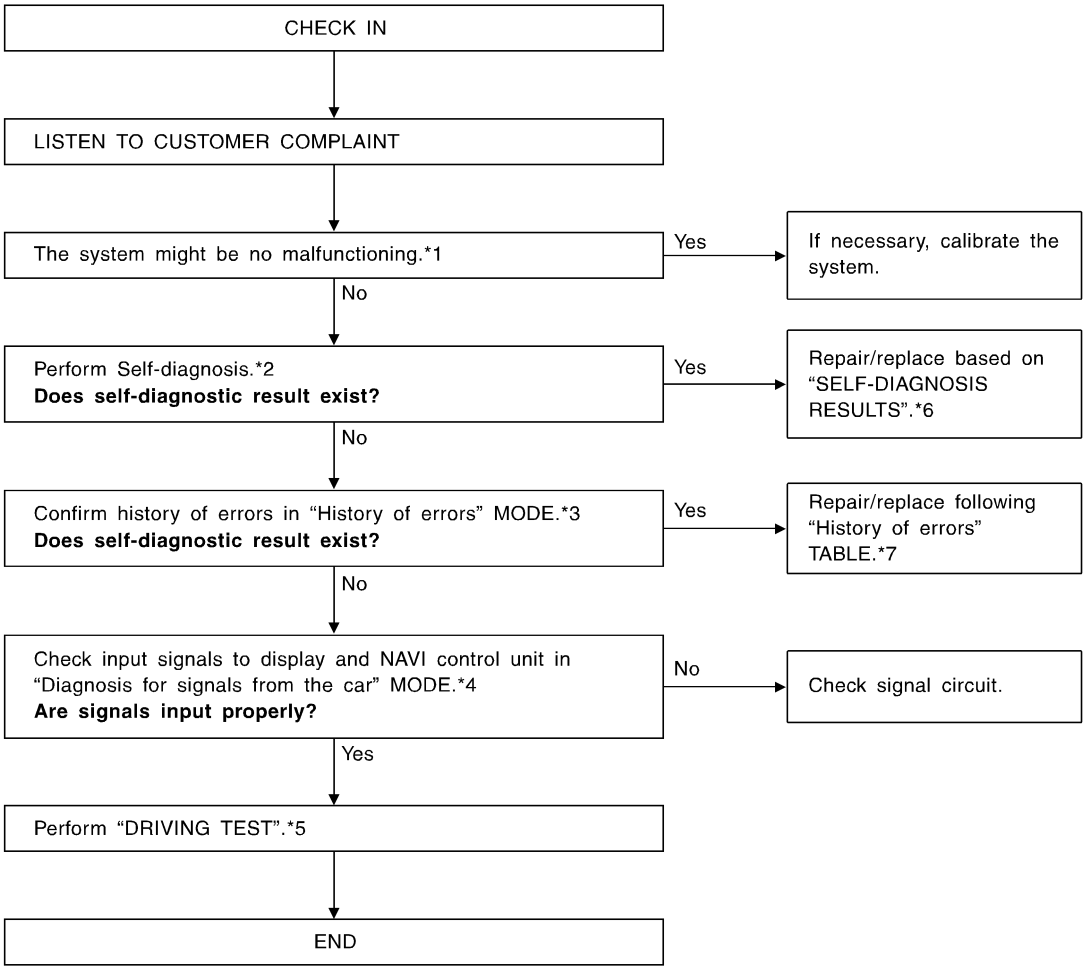
### SYMPTOM CHART

NFEL0300S01

| 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-411 |
| Strange screen color or unusual screen brightness. | 1. Check "DISPLAY SETTING". | EL-402 |
| | 2. Check display in "Diagnosis of Display" MODE. | — |
| The display is not dimmed when turning lighting switch to ON. | 1. Check "DISPLAY SETTING". | EL-402 |
| | 2. Check lighting switch signal input to display & NAVI control unit correctly in "DIAGNOSTIC SIGNAL FROM THE CAR" MODE. | EL-394 |
| No navigation guide voice are heard from both front speakers. | 1. Check "Voice Guidance Setting". | — |
| | 2. Check voice guide operation. | EL-412 |
| Beep does not sound when the system guides route. | Check "BEEP ON/OFF SETTING". | EL-402 |
| Position marker does not trace along the route being traveled. | Go to "WORK FLOW FOR NAVIGATION INSPECTION". | EL-409 |
| Position marker does not indicate forward or backward movement. | Check reverse signal input to display & NAVI control unit correctly by "DIAGNOSTIC SIGNAL FROM THE CAR" MODE. | EL-394 |
| 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-400 |
| | 3. Check GPS antenna in "Self Diagnosis". | EL-387 |
| Heading direction of position marker does not match vehicle direction. | 1. Perform "ADJUST CURRENT LOCATION" SETTING. | EL-401 |
| | 2. Go to "WORK FLOW FOR NAVIGATION INSPECTION". | EL-409 |
| 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-426 |

## WORK FLOW FOR NAVIGATION INSPECTION

NFEL0300S02




SEL629XA

*1: EL-414
*2: EL-387
*3: EL-390
*4: EL-394
*5: EL-410
*6: EL-389
*7: EL-392

## DRIVING TEST

=NFEL0300S03

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-401).

**Test pattern 2**

Test procedure in which map matching is not used.

- Before driving the vehicle, perform "ADJUST CURRENT LOCATION" (EL-401). 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>

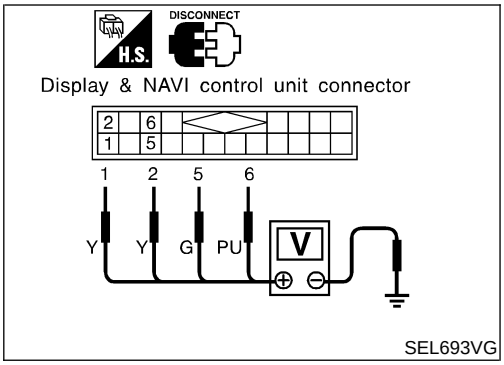
→ Perform test patterns 1 and 2.

- 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 = Screen display distance/Actual distance




## POWER SUPPLY AND GROUND CIRCUIT CHECK FOR DISPLAY & NAVI CONTROL UNIT

### Power Supply Circuit Check

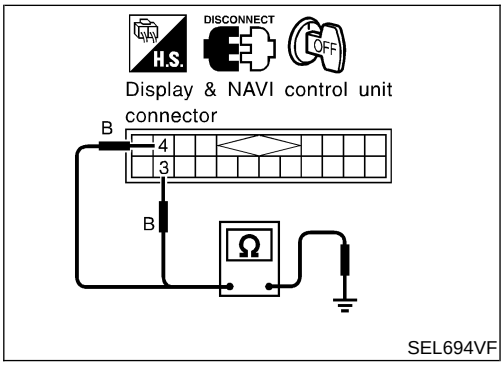
=NFEL0300S04

NFEL0300S0401

| Terminals | | | Ignition switch | | |
|---|---|---|---|---|---|
| (+) | | (−) | OFF | ACC | ON |
| Connector | Terminal (Wire color) | | | | |
| M168 | 1 (Y) | Ground | Battery voltage | Battery voltage | Battery voltage |
| | 2 (Y) | Ground | Battery voltage | Battery voltage | Battery voltage |
| | 5 (G) | Ground | 0V | 0V | Battery voltage |
| | 6 (PU) | Ground | 0V | Battery voltage | Battery voltage |

If NG, check the following.

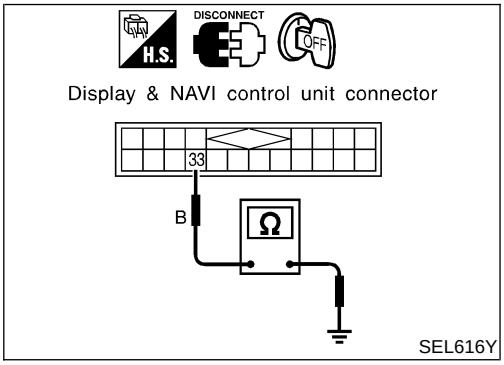
- 10A fuse [No. 1, located in the fuse block (J/B)]
- 10A fuse [No. 10, located in the fuse block (J/B)]
- 15A fuse [No. 56, located in the fuse block (J/B)]
- Harness for open or short between fuse and display & NAVI control unit




### Ground Circuit Check

NFEL0300S0402

| Connector | Terminals | Continuity |
|---|---|---|
| M168 | 3 (B) - Ground | Yes |
| | 4 (B) - Ground | Yes |
| M169 | 33 (B) - Ground | Yes |



## VOICE GUIDE OPERATION CHECK

=NFEL0300S05

| 1 | 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.

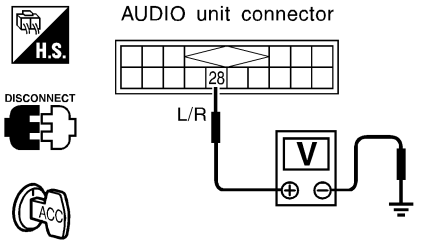
**Is the sound emitted from all speakers?**

**Yes or No**

| | | |
|---|---|---|
| Yes | ▶ | GO TO 2. |
| No | ▶ | Repair or replace audio system.<br>Refer to "AUDIO", EL-180. |

| 2 | CHECK NAVI OPERATION ON SIGNAL |
|---|---|

1. Disconnect audio unit connector.
2. Push "VOICE" button.
3. Check voltage between AUDIO unit harness connector M68 terminal 28 (L/R) and ground.




**Voltage [V]:**
**Condition of VOICE button: Push.**
**Approx. More than 0 - 10**
**Condition of VOICE button: Do not push.**
**0**

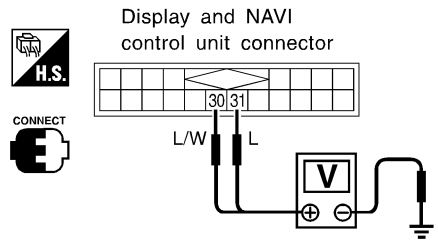
SEL645XB

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Repair or replace harness or display and NAVI control unit. |

| 3 | CHECK VOICE SIGNAL CIRCUIT |
|---|---|

1. Push "VOICE" button.
2. Check voltage between display and NAVI control unit harness connector M169 terminal 30 (L/W) or 31 (L) and ground.




**Voltage [V]:**
**Condition of VOICE button: Push.**
**Approx. 5**
**Condition of VOICE button: Do not push.**
**0**

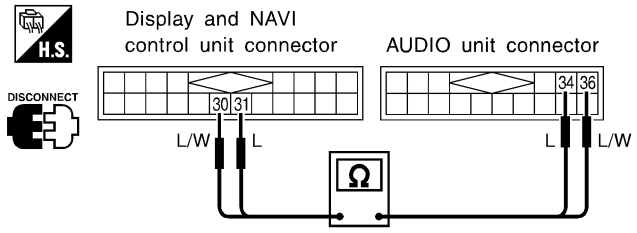
SEL458Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Repair or replace display and NAVI control unit. |

| 4 | CHECK VOICE SIGNAL CIRCUIT |
|---|---|

1. Turn ignition switch OFF.
2. Disconnect display and NAVI control unit connector and AUDIO unit connector.
3. Check continuity between display and NAVI control unit harness connector M169 terminal 30 (L/W) and AUDIO unit harness connector M68 terminal 36 (L/W).
4. Check continuity between display and NAVI control unit harness connector M169 terminal 31 (L) and AUDIO unit harness connector M68 terminal 34 (L).




**Does continuity exist?**

SEL459Y

**Yes or No**

| | | |
|---|---|---|
| Yes | ▶ | Repair or replace audio system.<br>Refer to "AUDIO", EL-180. |
| No | ▶ | Repair or replace harness or connector. |

# This Condition is Not Abnormal

=NFEL0301

## BASIC OPERATIONS

NFEL0301S01

| Symptom | Possible cause | Remedy |
|---|---|---|
| No image comes on. | The brightness adjustment is at the lowest setting. | Adjust it brighter. |
| No map comes on the screen. | No map CD-ROM is inserted, or it is inserted upside down. | Insert the CD-ROM correctly. |
| | The map display mode is switched off. | Press the MAP button. |
| No voice guide is available.<br>or<br>The volume is not high enough. | The volume is not set correctly or turned off. | Adjust the volume correctly. |
| The screen is too dim. The movement is slow. | The temperature in the vehicle is low. | Wait for the temperature to rise. |
| There are darker or brighter dots in the display. | It is inherent to displays. | This is not abnormal. |

- Stored location in the address book and other memory functions may be lost if the car's battery is disconnected or becomes discharged for a long time.
  If this should occur, service the car's battery as necessary and re-enter the address book information.

**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.

## VEHICLE ICONS

NFEL0301S08

| Symptom | Possible cause | Remedy |
|---|---|---|
| The location names differ, between Planview and Birdview™. | This is because the displayed information is reduced so that the screen does not become too crowded. There is also a chance that names of the roads or locations will be repeatedly displayed. The name appearing on the screen may be different because of the processing procedure. | It should not be regarded as abnormal. |
| The vehicle icon is not shown correctly. | The vehicle might have moved with the ignition off, for example on a ferry boat or car transporter. | Drive the vehicle with GPS on for some distance. |
| The screen does not switch to night screen even after turning the headlights on. | The last setting is the daytime screen, when you turned on the lights the last time. | Turn the headlights on again, go to [DISPLAY SETTING] screen and set it to the night screen. |
| The map does not scroll even when the vehicle is traveling. | The display is not switched to the map screen. | Press the MAP button. |
| The vehicle icon does not show up. | The display is not switched to the map screen. | Press the MAP button. |

*This Condition is Not Abnormal (Cont'd)*

| Symptom | Possible cause | Remedy |
|---|---|---|
| GPS indicator on the screen remains gray. | GPS signals are not received because the vehicle is indoors or in the shade of buildings. | Move the vehicle to outdoors with a clear view of the sky. |
| | GPS signals are not received because some objects are placed on the instrumental panel. | Remove the objects from the instrumental panel. |
| | GPS satellites are in poor locations. | Please wait for the satellites to move to better locations. |
| The location of vehicle icon does not match the actual position. | Driving on slippery road surface | If the position marker does not move to the correct position even after the vehicle has been driven approximately 6 miles (10 km), adjust the current location. If necessary, adjust the moving speed of the vehicle. |
| | Driving on slanted area | |
| | Rough or violent driving | If the position marker does not move to the correct position even after the vehicle has been driven approximately 6 miles (10 km), adjust the current location. |
| | GPS indicator remains gray. | Please check the GPS indicator on the screen to see if it remains gray. |
| | Because the vehicle has tire chains on, or the system was transferred to a different vehicle, errors (gain or loss) result in calculating the speed from the speed pulse. | It will move by driving the vehicle for 30 minutes [in case it is running at 18-3/4 miles/hour (30 km/h)]. If you still notice errors, adjust moving speed. |
| | The map data has an error or is incomplete (if the location error happens always in the same area). | Please wait for the update of the Map CD-ROM. |

## MAP CD-ROM

NFEL0301S09

| Symptom | Possible cause | Remedy |
|---|---|---|
| The message "Error" appears after operation. | Map CD-ROM is soiled or partially damaged. | Check the CD-ROM and wipe it clean with a soft cloth. |
| | | In case you see any damage, replace the CD-ROM. |

## DESTINATION, WAY POINTS OR MENU CONTENTS

NFEL0301S10

| Symptom | Possible cause | Remedy |
|---|---|---|
| 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 OFF. | Turn the route guide ON. |
| In rerouting, the waypoints are not included in the calculation. | The system has judged that the vehicle has already passed the point. | If you want to go to that point again, edit the route again. |

*This Condition is Not Abnormal (Cont'd)*

## CANNOT BE CHOSEN OR SET

NFEL0301S11

| Symptom | Possible cause | Remedy |
|---|---|---|
| Route information is not displayed. | Route calculation has not yet been requested. | Set the destination and request route calculation. |
| | The vehicle icon is not on the suggested route. | Please drive the vehicle along the suggested route. |
| | Route guidance is off. | Turn the route guidance on. |
| Route is not calculated automatically. | The vehicle is not running on a route that can be calculated from. | Enter the route that can be calculated from. Alternatively, you can calculate the route manually. In this case, the entire route will be calculated again. |
| It is impossible to request a detour. | Your vehicle is not running on the suggested route. | Restart route calculation or join the suggested route. |
| The detour found is the same as the previous suggestion. | The system took many conditions into consideration, but the same result was obtained. | This is not abnormal. |
| It is impossible to set the waypoints. | The number of waypoints exceeds 5. | It is impossible to set more than 5 waypoints. Please divide them in groups to find them all. |
| Some items in the menu cannot be selected. | The vehicle is moving. | Park the vehicle in a safe place and select the marks relevant to the suggested route. |

## VOICE GUIDANCE

NFEL0301S12

| Symptom | Possible cause | Remedy |
|---|---|---|
| The voice guidance is not available. | Voice guidance is only available at certain intersections marked with . In some cases, the guidance is not available even when the vehicle should make a turn. | This is not abnormal. |
| | The vehicle is off the suggested route. | Go back to the suggested route or request route calculation again. |
| | Voice guidance is set OFF. | Turn the voice guidance ON. |
| | Route guidance is set OFF. | Turn the route guidance ON. |
| The guidance content does not correspond to the actual condition. | The content of the voice guidance may vary, depending on the types of junctions to make turns on. | Follow the actual rules and regulations. |

## ROUTE CALCULATION

NFEL0301S13

| Symptom | Possible cause | Remedy |
|---|---|---|
| Although the system is set with the moving direction as the preference, it does not find the route by matching the preference. | There is no route found in that direction. | This is not abnormal. |
| Route is not indicated. | There is no road that can be found by this system close to the destination. | Reset the destination close to the road displayed with orange, or wider ones. Especially with roads which have separate lanes for opposite directions, be careful in setting the destination or way points on it, because results may differ depending on the lane you choose. |
| | The starting point to the destination is too close. | Set more distant destinations. |

*This Condition is Not Abnormal (Cont'd)*

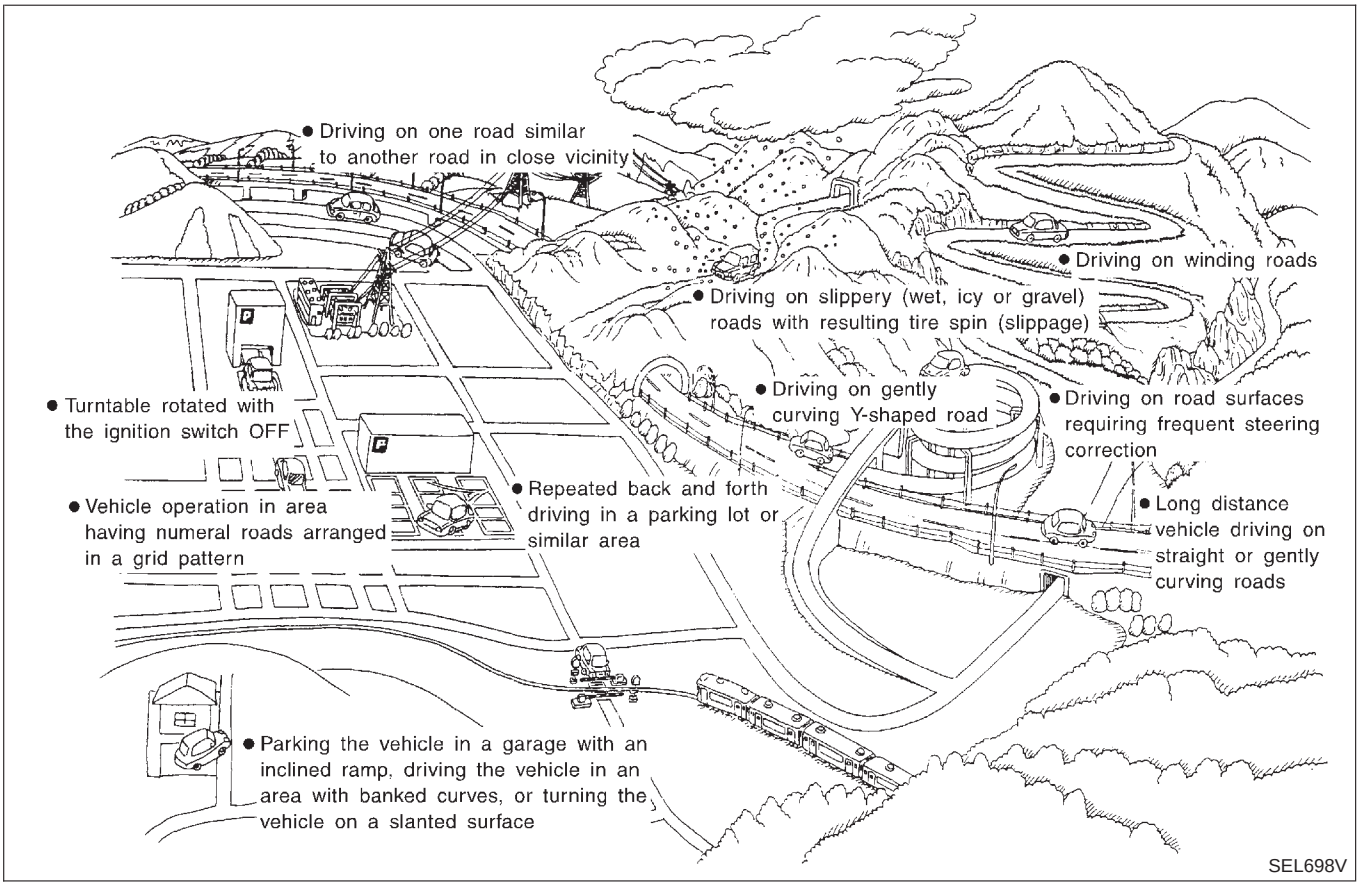
| Symptom | Possible cause | Remedy |
|---|---|---|
| The route is not displayed continuously at way points, for example, that are not calculated route from the vehicle's current position. | Suggested routes may be displayed discontinuously near way points as route calculation is done at each way point. | This is not abnormal. |
| The suggested route the vehicle has traveled is erased. | Suggested routes are stored in memory by the blocks; if the vehicle travels past way point 1, the former data will be erased. | This is not abnormal. |
| A very detoured route is suggested. | If there are restrictions (such as one-way traffic) on roads close to the starting point or destination, the system may suggest a detoured route. | Try slightly moving the starting point or destination. |
| The landmark description does not correspond to the actual one. | It may be caused by insufficient or incorrect data on the CD-ROM. | Exchange the Map CD-ROM. It will be updated. |
| The suggested route does not exactly connect to the starting point, way points, or destination. | There is no data for route calculation closer to these points. | Set these points on the main road displayed in thick orange. Please note that in some cases even main roads lack the data for route calculation. |

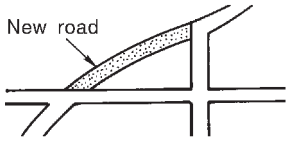
*This Condition is Not Abnormal (Cont'd)*

## EXAMPLE OF CURRENT VEHICLE POSITION MARKER ERROR

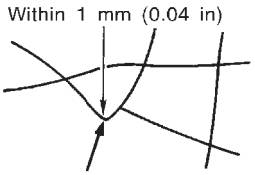
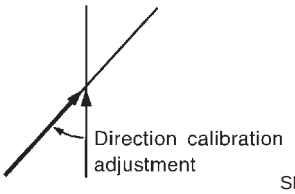
=NFEL0301S02

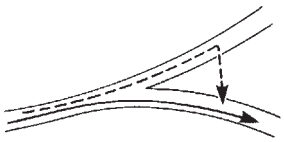
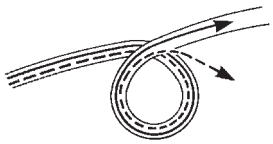
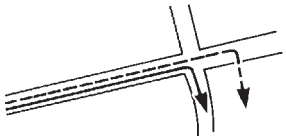
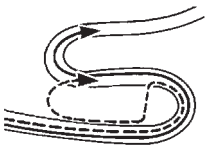
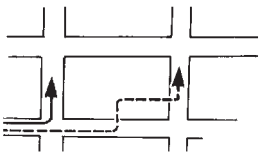
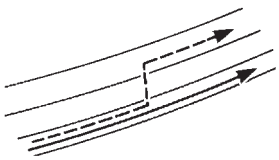
The navigation system reads the vehicle distance and steering angle data. Because the vehicle is moving, there will be an error in the current position indication. After the error appears, drive the vehicle for a short distance. Stop the vehicle. If the position marker does not return to its original position, perform "ADJUST CURRENT LOCATION" (EL-401).



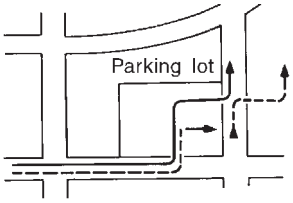
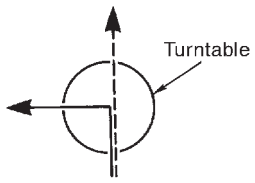
| Possible cause | | Drive condition | Service procedure |
|---|---|---|---|
| Area | Slippery road surface | On wet, icy, or gravel road where frequent wheel slippage occurs, distance calculations may be erroneous. The position marker may show the vehicle to be in inaccurate position. | If the position 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-401). If necessary, perform "SPEED CALIBRATION" (EL-399). |
| | 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-399). After removing the tire chains, sensing accuracy may recover by itself. |

*This Condition is Not Abnormal (Cont'd)*

| Possible cause | | Drive condition | Service procedure |
|---|---|---|---|
| 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-399). |
| | 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-401). |
| Positional calibration procedures | Positional calibration precision<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-401) within a precision standard of 1 mm (0.04 in) on the display.<br>Note: During calibration, use the most detailed map possible. |
| | Position calibration direction<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-401. |

| 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-401). |
| | 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:<br>—: 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-401).

**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.

**GPS signal reception conditions are good. However, the position mark does not return to its proper position.**

- he 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-402.]
**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-399). 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

NFEL0301S03

- 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.
- Street name information displayed on the enlarged intersection map may differ from the information posted on the actual road signs.

*This Condition is Not Abnormal (Cont'd)*

- 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.

## LOCATION OF CAR MARKER

NFEL0301S04

- 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

NFEL0301S05

- 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

NFEL0301S06

- 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.

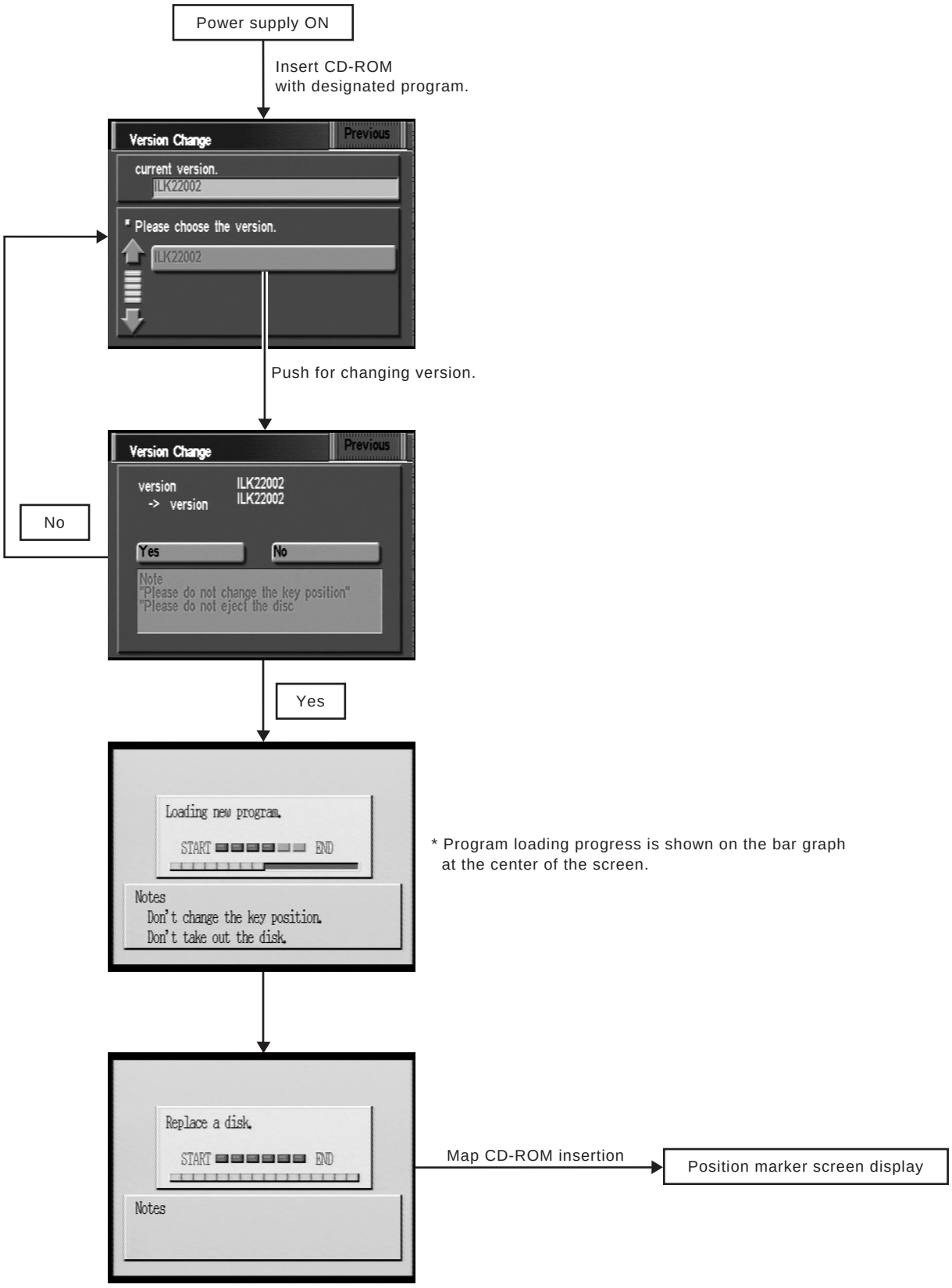
## GPS ANTENNA

NFEL0301S07

- 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

NFEL0302




Note: Load the program only after the engine has been started.

SEL612X

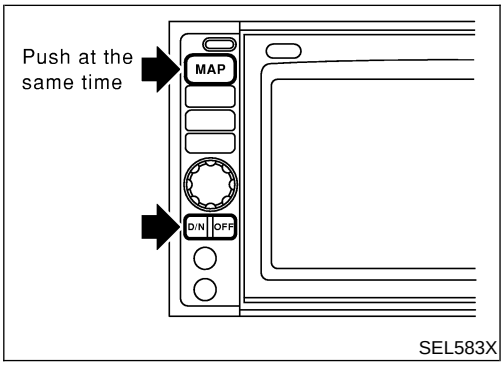
## Initialization

NFEL0303

This procedure is for initializing the current location. Perform "Initialize Location" when the vehicle is transported a long distance by trailer, etc.
Map with grey background appears and the vehicle location cannot be adjusted by scrolling the display when the vehicle location in 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.**

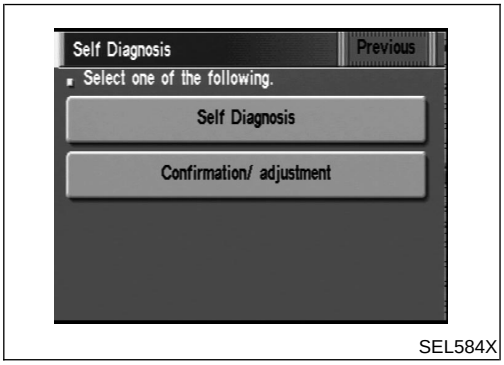


SEL583X

### HOW TO PERFORM

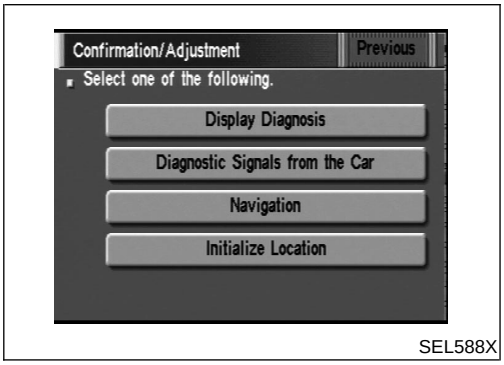
NFEL0303S01

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.



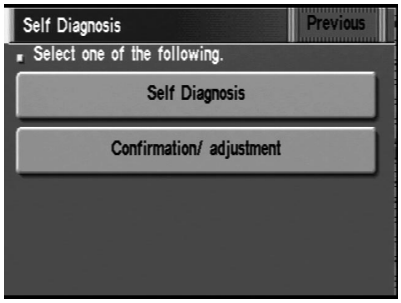
SEL584X

2. Touch "Confirmation/ adjustment".



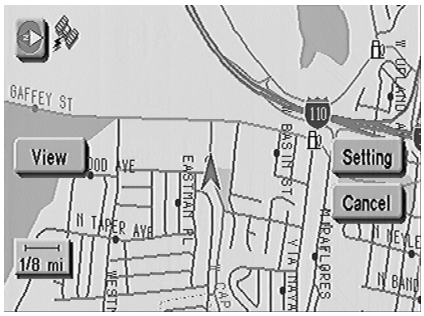
SEL588X

3. Touch "Initialize Location". Then the previous screen is displayed.



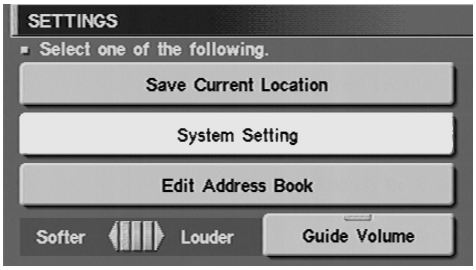

SEL584X

4. Push "Previous" switch.



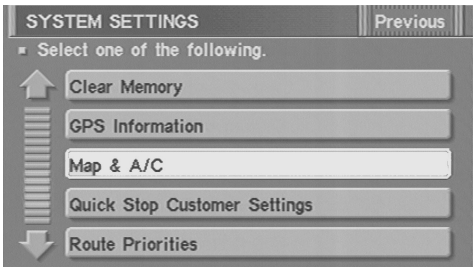

SEL460Y

5. Push the "MAP" switch.
6. Touch "Setting".



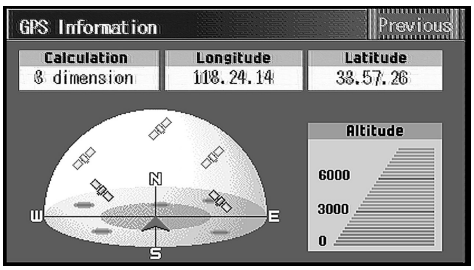

SEL461Y

7. Touch "System Setting".




SEL462Y

8. Touch "GPS Information".

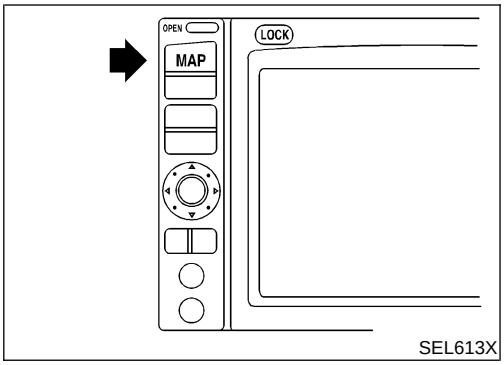



SEL146W

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.**

*Initialization (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.

## System Description

NFEL0304

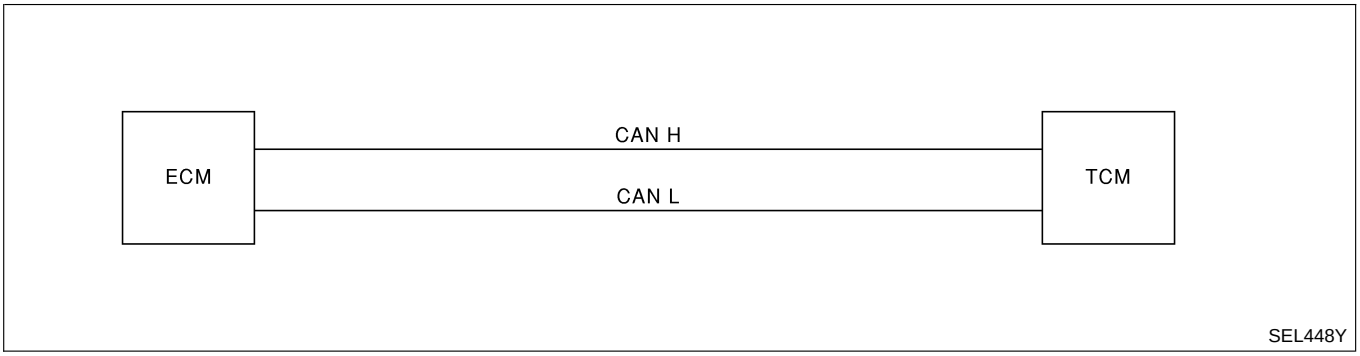
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

### FOR A/T MODELS

NFEL0304S01

#### System Diagram

NFEL0304S0101




#### Input/Output Signal Chart

NFEL0304S0102

**T: Transmit R: Receive**

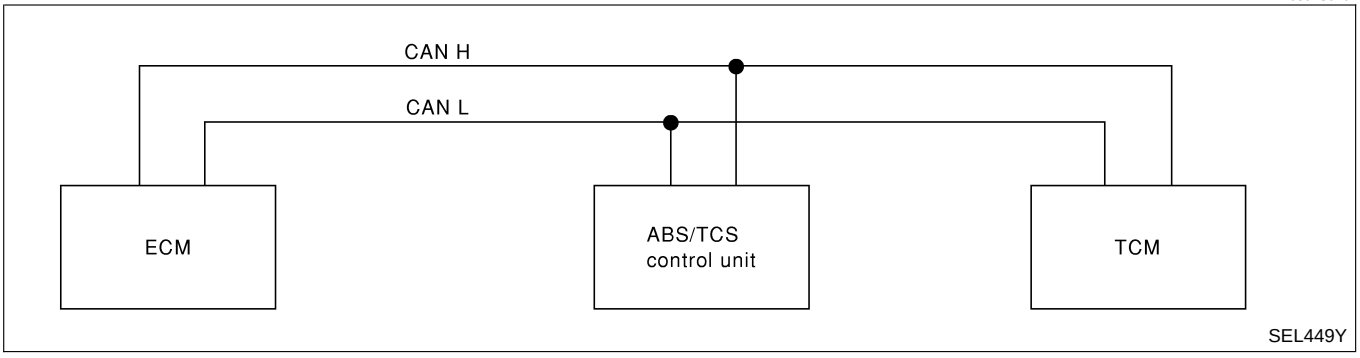
| Signals | ECM | TCM |
|---|---|---|
| Accelerator pedal position signal | T | R |
| Output shaft revolution signal | R | T |

### FOR TCS MODELS

NFEL0304S02

#### System Diagram

NFEL0304S0201




#### Input/Output Signal Chart

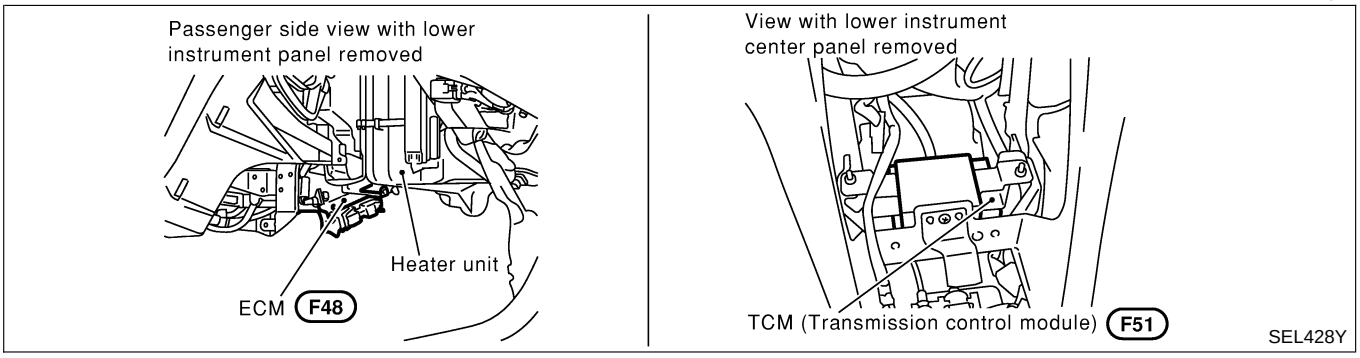
NFEL0304S0202

**T: Transmit R: Receive**

| Signals | ECM | ABS/TCS control unit | TCM |
|---|---|---|---|
| Accelerator pedal position signal | T | R | R |
| Output shaft revolution signal | R | | T |
| TCS self-diagnostic signal | R | T | |
| ABS self-diagnostic signal | R | T | |

## Component Parts and Harness Connector Location

NFEL0271




## System Description

NFEL0272

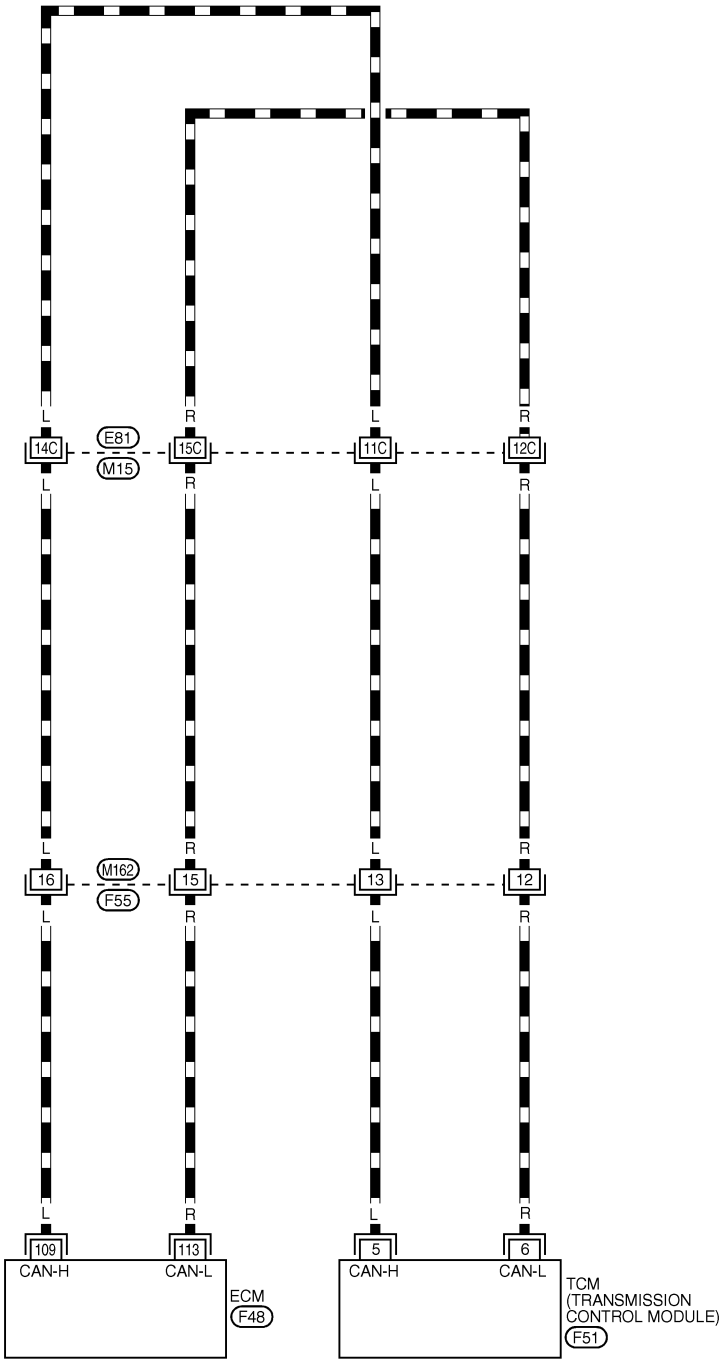
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

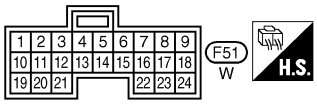
# Wiring Diagram — CAN —

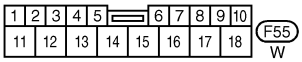
NFEL0273

EL-CAN-01

: DATA LINE




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
F48 -ELECTRICAL UNITS

MEL734P

# Trouble Diagnoses

NFEL0274

## WORK FLOW

NFEL0274S01

1. Print all the data of “SELF-DIAG RESULTS” and “DATA MONITOR” for “ENGINE” and “A/T” displayed on CONSULT-II. Refer to “DTC U1000, U1001 CAN COMMUNICATION LINE” (EC-164) for “ENGINE” and “DTC U1000 CAN COMMUNICATION LINE” (AT-208) for “A/T”.
2. Attach the printed sheet of “SELF-DIAG RESULTS” and “DATA MONITOR” onto the check sheet. Refer to “CHECK SHEET” (EL-433).
3. Based on the data monitor results, put “v” marks onto the items with “UNKWN” or “NG” in the check sheet table. Refer to “CHECK SHEET” (EL-433).

**NOTE:**
**If “NG” is displayed on “CAN COMM” for the diagnosed control unit, replace the control unit.**

4. According to the check sheet results (example), start inspection. Refer to “CHECK SHEET RESULTS (EXAMPLE)” (EL-434).

## CHECK SHEET

NFEL0274S02

Check sheet table

| | | | | |
|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | CAN CIRC 2 |
| A/T | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | — |

Symptoms :

Attach copy of ENGINE SELF-DIAG RESULTS

Attach copy of A/T SELF-DIAG RESULTS

Attach copy of ENGINE DATA MONITOR

Attach copy of A/T DATA MONITOR

SEL429Y

## CHECK SHEET RESULTS (EXAMPLE)

NFEL0274S03

Case 1: Replace ECM

| | | | | |
|---|---|---|---|---|
| ENGINE | CAN COMM ✓ | CAN CIRC 1 | — | CAN CIRC 2 |
| A/T | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | — |

Case 2: Replace TCM

| | | | | |
|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | CAN CIRC 2 ✓ |
| A/T | CAN COMM ✓ | CAN CIRC 1 | CAN CIRC 2 | — |

Case 3

| | | | | |
|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 ✓ | — | CAN CIRC 2 ✓ |
| A/T | CAN COMM | CAN CIRC 1 ✓ | CAN CIRC 2 ✓ | — |

SEL430Y

**NOTE:**
**If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.**

## INSPECTION

NFEL0274S05

Proceed trouble diagnosis according to the check sheet results (example).
Case 1: Replace ECM.
Case 2: Replace TCM.
Case 3: Check CAN communication Circuit. Refer to "CAN COMMUNICATION CIRCUIT CHECK" (EL-434).

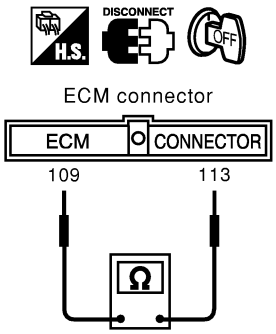
## CAN COMMUNICATION CIRCUIT CHECK

NFEL0274S04

| 1 | CHECK CONNECTOR | |
|---|---|---|
| 1. Turn ignition switch OFF.<br>2. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)<br>● TCM<br>● ECM<br>● Between ECM and TCM | | |
| **OK or NG** | | |
| OK | ▶ | GO TO 2. |
| NG | ▶ | Repair terminal or connector. |

| 2 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

1. Disconnect ECM connector and TCM connector.
2. Check continuity between ECM harness connector F48 terminals 109 (L) and 113 (R).




**Continuity should not exist.**

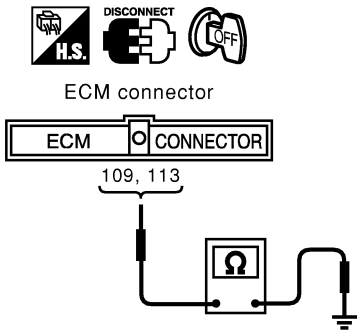
SEL431Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Repair harness between ECM and TCM. |

| 3 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

Check continuity between ECM harness connector F48 terminals 109 (R), 113 (L) and ground.




**Continuity should not exist.**

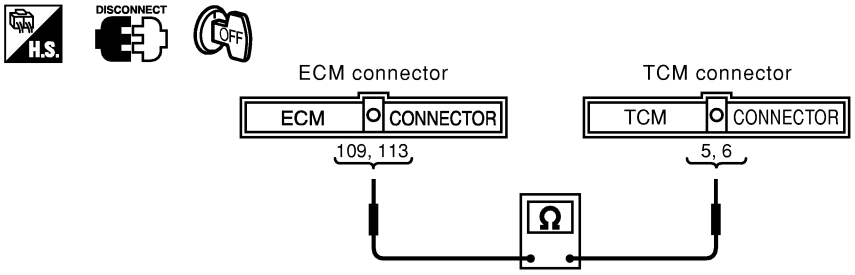
SEL432Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Repair harness between ECM and TCM. |

| 4 | CHECK HARNESS FOR OPEN CIRCUIT |
|---|---|

Check continuity between ECM harness connector F48 terminals 109 (R), 113 (L) and TCM harness connector F51 terminals 5 (R), 6 (L).




**Continuity should exist.**

SEL647Y

**OK or NG**

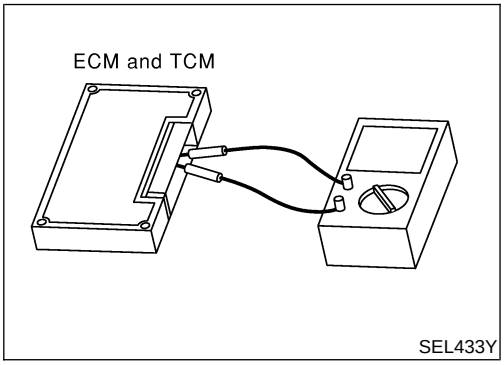
| | | |
|---|---|---|
| OK | ▶ | GO TO 5. |
| NG | ▶ | Repair harness. |

| 5 | ECM/TCM INTERNAL CIRCUIT INSPECTION |
|---|---|

Check components inspection. Refer to "ECM/TCM INTERNAL CIRCUIT INSPECTION" (EL-436).

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE" and "A/T" displayed on CONSULT-II. Refer to "DTC U1000, U1001 CAN COMMUNICATION LINE" (EC-164) for "ENGINE" and refer to "DTC U1000 CAN COMMUNICATION LINE" (AT-208) for "A/T". |
| NG | ▶ | Replace ECM and/or TCM. |




SEL433Y

## Component Inspection

NFEL0275

### ECM/TCM INTERNAL CIRCUIT INSPECTION

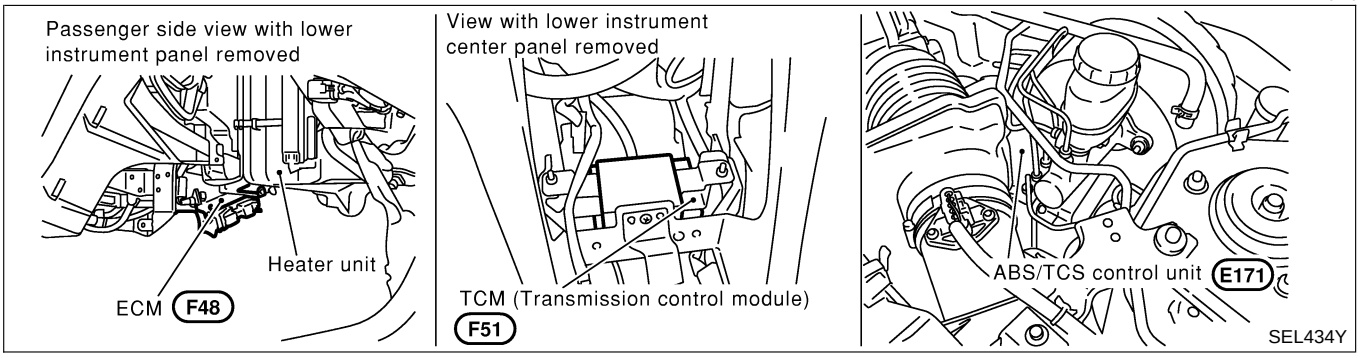
NFEL0275S01

- Remove ECM and TCM from vehicle.
- Check resistance between ECM terminals 109 and 113.
- Check resistance between TCM terminals 5 and 6.

| Unit | Terminal | Resistance value (Ω) |
|---|---|---|
| ECM | 109 - 113 | Approx. 108 - 132 |
| TCM | 5 - 6 | |

## Component Parts and Harness Connector Location

NFEL0276



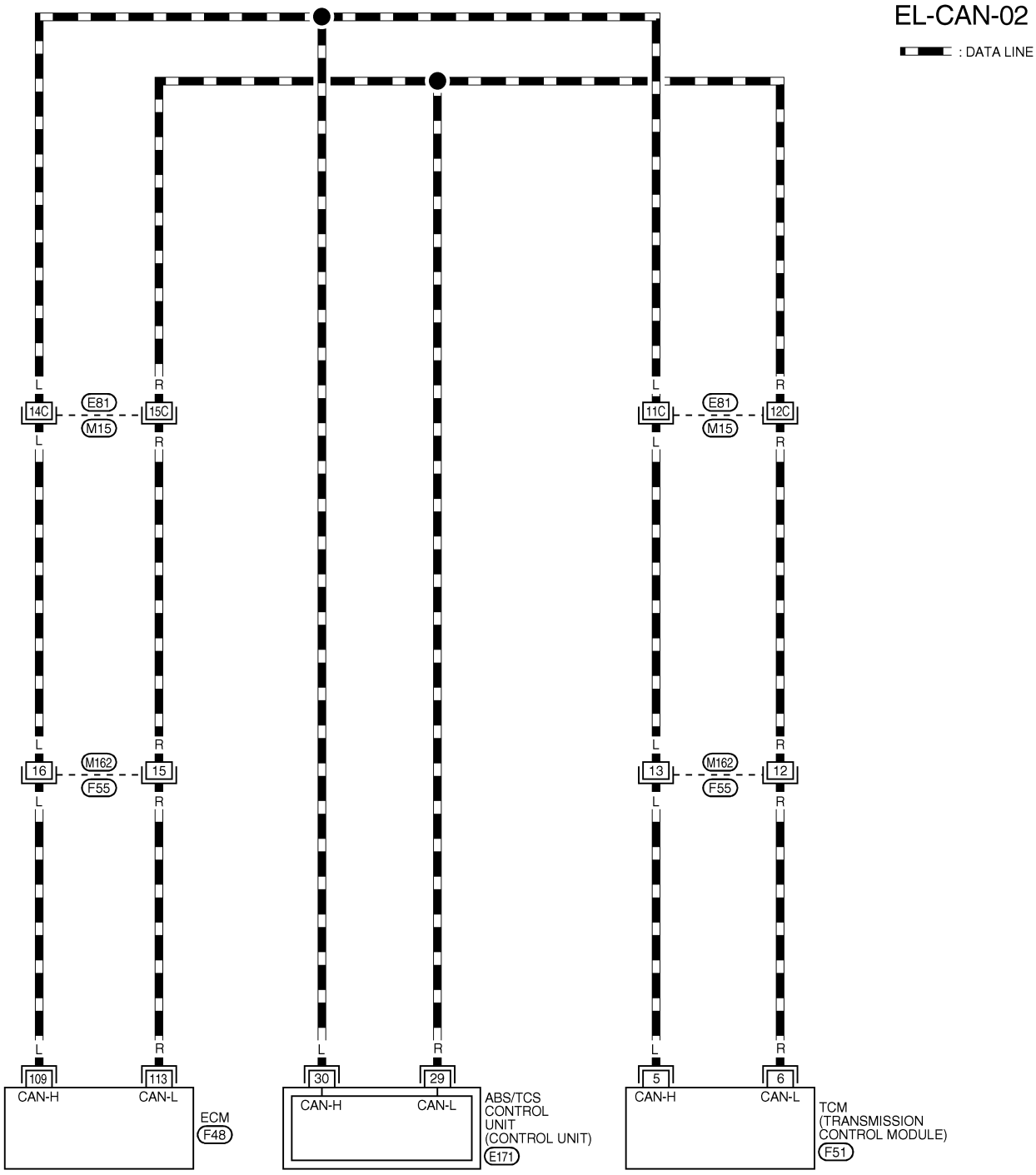

## System Description

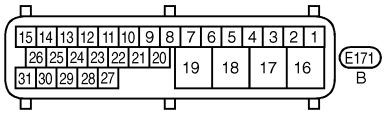
NFEL0277

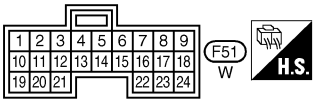
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

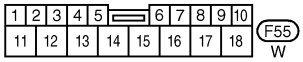
## Wiring Diagram — CAN —

NFEL0278




REFER TO THE FOLLOWING.
M15 -SUPER MULTIPLE JUNCTION (SMJ)
F48 -ELECTRICAL UNITS

MEL735P

# Trouble Diagnoses

NFEL0279

## WORK FLOW

NFEL0279S01

1. Print all the data of “SELF-DIAG RESULTS” and “DATA MONITOR” for “ENGINE”, “ABS” and “A/T” displayed on CONSULT-II. Refer to “DTC U1000, U1001 CAN COMMUNICATION LINE” (EC-164) for “ENGINE”, “CAN COMMUNICATION LINE” (BR-122) for “ABS”, and “DTC U1000 CAN COMMUNICATION LINE” (AT-208) for “A/T”.
2. Attach the printed sheet of “SELF-DIAG RESULTS” and “DATA MONITOR” onto the check sheet. Refer to “CHECK SHEET” (EL-440).
3. Based on the data monitor results, put “v” marks onto the items with “UNKWN” or “NG” in the check sheet table. Refer to “CHECK SHEET” (EL-440).

**NOTE:**
**If “NG” is displayed on “CAN COMM” for the diagnosed control unit, replace the control unit.**

4. According to the check sheet results (example), start inspection. Refer to “CHECK SHEET RESULTS (EXAMPLE)” (EL-441).

## CHECK SHEET

NFEL0279S02

Check sheet table

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | CAN CIRC 3 | CAN CIRC 2 |
| ABS | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | — | CAN CIRC 3 |
| A/T | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | CAN CIRC 3 | — |

Symptoms :

Attach copy of
ENGINE SELF-DIAG RESULTS

Attach copy of
ABS SELF-DIAG RESULTS

Attach copy of
A/T SELF-DIAG RESULTS

Attach copy of
ENGINE DATA MONITOR

Attach copy of
ABS DATA MONITOR

Attach copy of
A/T DATA MONITOR

SEL435Y

## CHECK SHEET RESULTS (EXAMPLE)

NFEL0279S03

Case 1 : Replace ECM

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | CAN CIRC 3 | CAN CIRC 2 |
| ABS | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | — | CAN CIRC 3 |
| A/T | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | CAN CIRC 3 | — |

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | ✓ | ✓ |
| ABS | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | — | CAN CIRC 3 |
| A/T | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | CAN CIRC 3 | — |

Case 2 : Replace ABS/TCS control unit

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | ✓ | CAN CIRC 2 |
| ABS | ✓ | CAN CIRC 1 | CAN CIRC 2 | — | CAN CIRC 3 |
| A/T | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | ✓ | — |

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | CAN CIRC 3 | CAN CIRC 2 |
| ABS | CAN COMM | CAN CIRC 1 | ✓ | — | ✓ |
| A/T | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | CAN CIRC 3 | — |

Case 3 : Replace TCM

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | CAN CIRC 3 | ✓ |
| ABS | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | — | ✓ |
| A/T | ✓ | CAN CIRC 1 | CAN CIRC 2 | CAN CIRC 3 | — |

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | CAN CIRC 3 | CAN CIRC 2 |
| ABS | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | — | CAN CIRC 3 |
| A/T | CAN COMM | CAN CIRC 1 | ✓ | ✓ | — |

Case 4

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | ✓ | — | ✓ | ✓ |
| ABS | CAN COMM | CAN CIRC 1 | ✓ | — | CAN CIRC 3 |
| A/T | CAN COMM | CAN CIRC 1 | ✓ | CAN CIRC 3 | — |

Case 5

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | ✓ | CAN CIRC 2 |
| ABS | CAN COMM | ✓ | CAN CIRC 2 | — | CAN CIRC 3 |
| A/T | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | ✓ | — |

Case 6

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | CAN CIRC 1 | — | CAN CIRC 3 | ✓ |
| ABS | CAN COMM | CAN CIRC 1 | CAN CIRC 2 | — | ✓ |
| A/T | CAN COMM | ✓ | ✓ | ✓ | — |

Case 7

| | | | | | |
|---|---|---|---|---|---|
| ENGINE | CAN COMM | ✓ | — | ✓ | ✓ |
| ABS | CAN COMM | ✓ | CAN CIRC 2 | — | CAN CIRC 3 |
| A/T | CAN COMM | ✓ | ✓ | ✓ | — |

SEL574Y

**NOTE:**
**If "NG" is displayed on "CAN COMM" for the diagnosed control unit, replace the control unit.**

## INSPECTION

NFEL0279S05

Proceed trouble diagnosis according to the check sheet results (example).
Case 1: Replace ECM.
Case 2: Replace ABS/TCS control unit.
Case 3: Replace TCM.
Case 4: Check ECM Circuit. Refer to "ECM CIRCUIT CHECK" (EL-442).
Case 5: Check ABS/TCS control unit Circuit. Refer to "ABS/TCS CONTROL UNIT CIRCUIT CHECK" (EL-442).
Case 6: Check TCM Circuit. Refer to "TCM CIRCUIT CHECK" (EL-443).
Case 7: Check CAN communication Circuit. Refer to "CAN COMMUNICATION CIRCUIT CHECK" (EL-444).

## ECM CIRCUIT CHECK

NFEL0279S06

| 1 | CHECK CONNECTOR |
|---|---|

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)

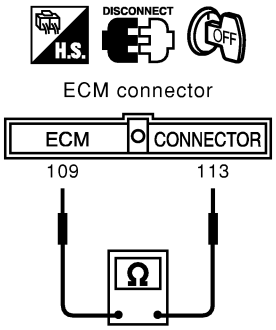
- ECM
- Harness connector F55
- Harness connector M162
- Harness connector M15
- Harness connector E81

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Repair terminal or connector. |

| 2 | CHECK HARNESS FOR OPEN CIRCUIT |
|---|---|

1. Disconnect ECM connector.
2. Check resistance between ECM harness connector F48 terminals 109 (L) and 113 (R).




**Approx. 108 - 132 Ω**

SEL437Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace ECM. |
| NG | ▶ | Repair harness between ABS/TCS control unit and ECM. |

## ABS/TCS CONTROL UNIT CIRCUIT CHECK

NFEL0279S07

| 1 | CHECK CONNECTOR |
|---|---|

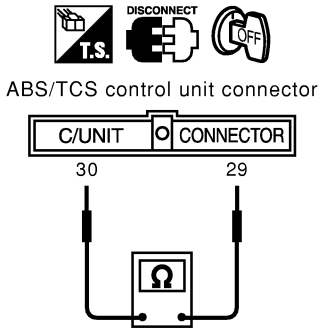
1. Turn ignition switch OFF.
2. Check the terminals and connector of ABS/TCS control unit for damage, bend and loose connection. (control unit-side and harness-side)

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Repair terminal or connector. |

| 2 | CHECK HARNESS FOR OPEN CIRCUIT |
|---|---|

1. Disconnect ABS/TCS control unit connector.
2. Check resistance between ABS/TCS control unit harness connector E171 terminals 30 (L) and 29 (R).




**Approx. 54 - 66 Ω**

SEL438Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace ABS/TCS control unit. |
| NG | ▶ | Repair harness between ABS/TCS control unit and harness connector E81. |

## TCM CIRCUIT CHECK

NFEL0279S08

| 1 | CHECK CONNECTOR |
|---|---|

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection. (control module-side and harness-side)

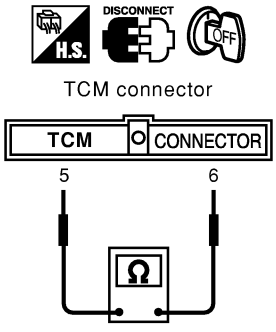
- TCM
- Harness connector F55
- Harness connector M162
- Harness connector M15
- Harness connector E81

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Repair terminal or connector. |

| 2 | CHECK HARNESS FOR OPEN CIRCUIT |
|---|---|

1. Disconnect TCM connector.
2. Check resistance between TCM harness connector F51 terminals 5 (L) and 6 (R).




**Approx. 108 - 132 Ω**

SEL439Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | Replace TCM. |
| NG | ▶ | Repair harness ABS/TCS control unit and TCM. |

## CAN COMMUNICATION CIRCUIT CHECK

NFEL0279S04

| 1 | CHECK CONNECTOR |
|---|---|

1. Turn ignition switch OFF.
2. Check following terminals and connector for damage, bend and loose connection. (control module-side, control unit-side and harness-side)

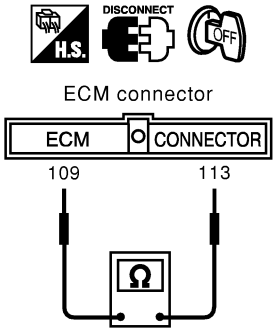
- TCM
- ECM
- ABS/TCS control unit
- Between ECM and TCM

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 2. |
| NG | ▶ | Repair terminal or connector. |

| 2 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

1. Disconnect ECM connector and harness connector F55.
2. Check continuity between ECM harness connector F48 terminals 109 (L) and 113 (R).




**Continuity should not exist.**

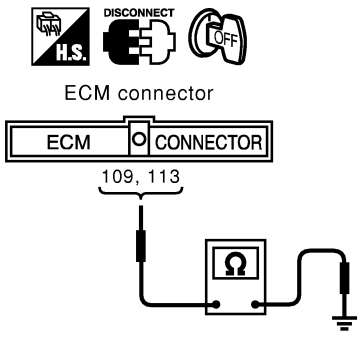
SEL431Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 3. |
| NG | ▶ | Repair harness between ECM and harness connector F55. |

| 3 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

Check continuity between ECM harness connector F48 terminals 109 (L), 113 (R) and ground.




**Continuity should not exist.**

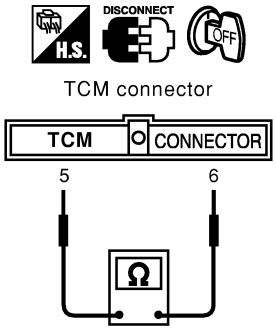
SEL432Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 4. |
| NG | ▶ | Repair harness between ECM and harness connector F55. |

| 4 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

1. Disconnect TCM connector.
2. Check continuity between TCM harness connector F51 terminals 5 (L) and 6 (R).




**Continuity should not exist.**

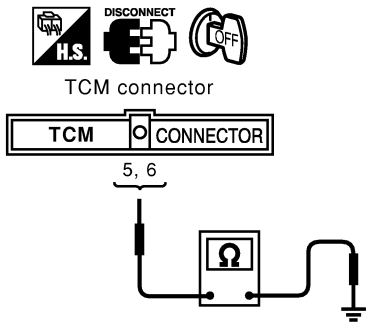
SEL440Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 5. |
| NG | ▶ | Repair harness between TCM and harness connector F55. |

| 5 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

Check continuity between TCM harness connector F51 terminals 5 (L), 6 (R) and ground.




**Continuity should not exist.**

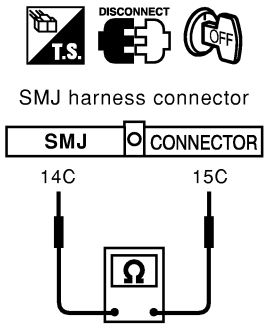
SEL441Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 6. |
| NG | ▶ | Repair harness between TCM and harness connector F55. |

| 6 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

1. Disconnect harness connector M15.
2. Check continuity between harness connector M15 terminals 14C (L) and 15C (R).




**Continuity should not exist.**

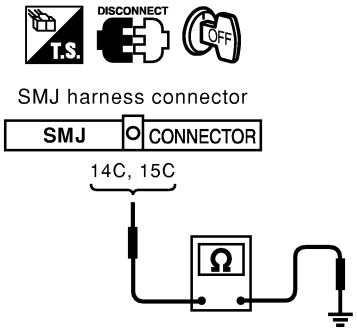
SEL442Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 7. |
| NG | ▶ | Repair harness between harness connector M162 and harness connector M15. |

| 7 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

Check continuity between harness connector M15 terminals 14C (L), 15C (R) and ground.




**Continuity should not exist.**

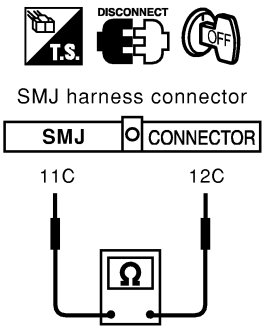
SEL443Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 8. |
| NG | ▶ | Repair harness between harness connector M162 and harness connector M15. |

| 8 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

Check continuity between harness connector M15 terminals 11C (L) and 12C (R).




**Continuity should not exist.**

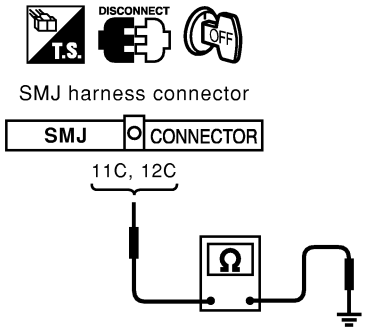
SEL444Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 9. |
| NG | ▶ | Repair harness between harness connector M162 and harness connector M15. |

| 9 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

Check continuity between harness connector M15 terminals 11C (L), 12C (R) and ground.




**Continuity should not exist.**

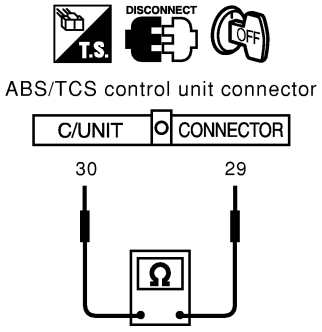
SEL445Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 10. |
| NG | ▶ | Repair harness between harness connector M162 and harness connector M15. |

| 10 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

1. Disconnect ABS/TCS control unit connector.
2. Check continuity between ABS/TCS control unit harness connector E171 terminals 30 (L) and 29 (R).




**Continuity should not exist.**

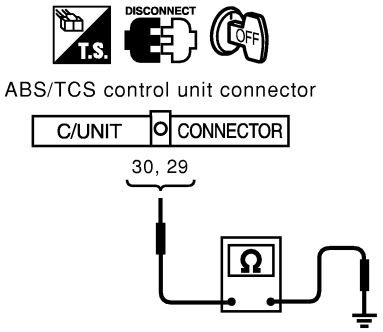
SEL446Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 11. |
| NG | ▶ | Repair harness between ABS/TCS control unit and harness connector E81. |

| 11 | CHECK HARNESS FOR SHORT CIRCUIT |
|---|---|

Check continuity between ABS/TCS control unit harness connector E171 terminals 30 (L), 29 (R) and ground.



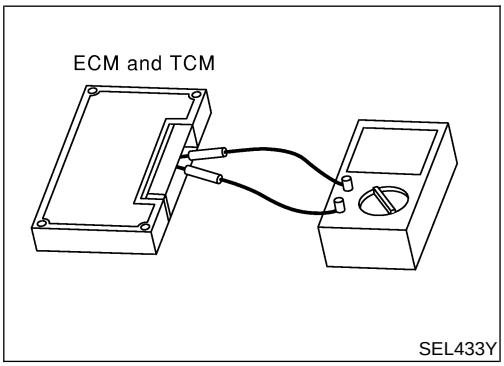

**Continuity should not exist.**

SEL447Y

**OK or NG**

| | | |
|---|---|---|
| OK | ▶ | GO TO 12. |
| NG | ▶ | Repair harness between ABS/TCS control unit and harness connector E81. |

| 12 | ECM/TCM INTERNAL CIRCUIT INSPECTION | |
|---|---|---|
| Check components inspection. Refer to "ECM/TCM INTERNAL CIRCUIT INSPECTION" (EL-448). | | |
| **OK or NG** | | |
| OK | ▶ | Reconnect all connectors to perform "SELF-DIAG RESULTS" and "DATA MONITOR" for "ENGINE", "ABS" and "A/T" displayed on CONSULT-II. Refer to "DTC U1000, U1001 CAN COMMUNICATION LINE" (EC-164) for "ENGINE", "CAN COMMUNICATION LINE" BR-122) for "ABS", and "U1000 CAN COMMUNICATION LINE" (AT-208) for "A/T". |
| NG | ▶ | Replace ECM and/or TCM. |




## Component Inspection

NFEL0280

### ECM/TCM INTERNAL CIRCUIT INSPECTION

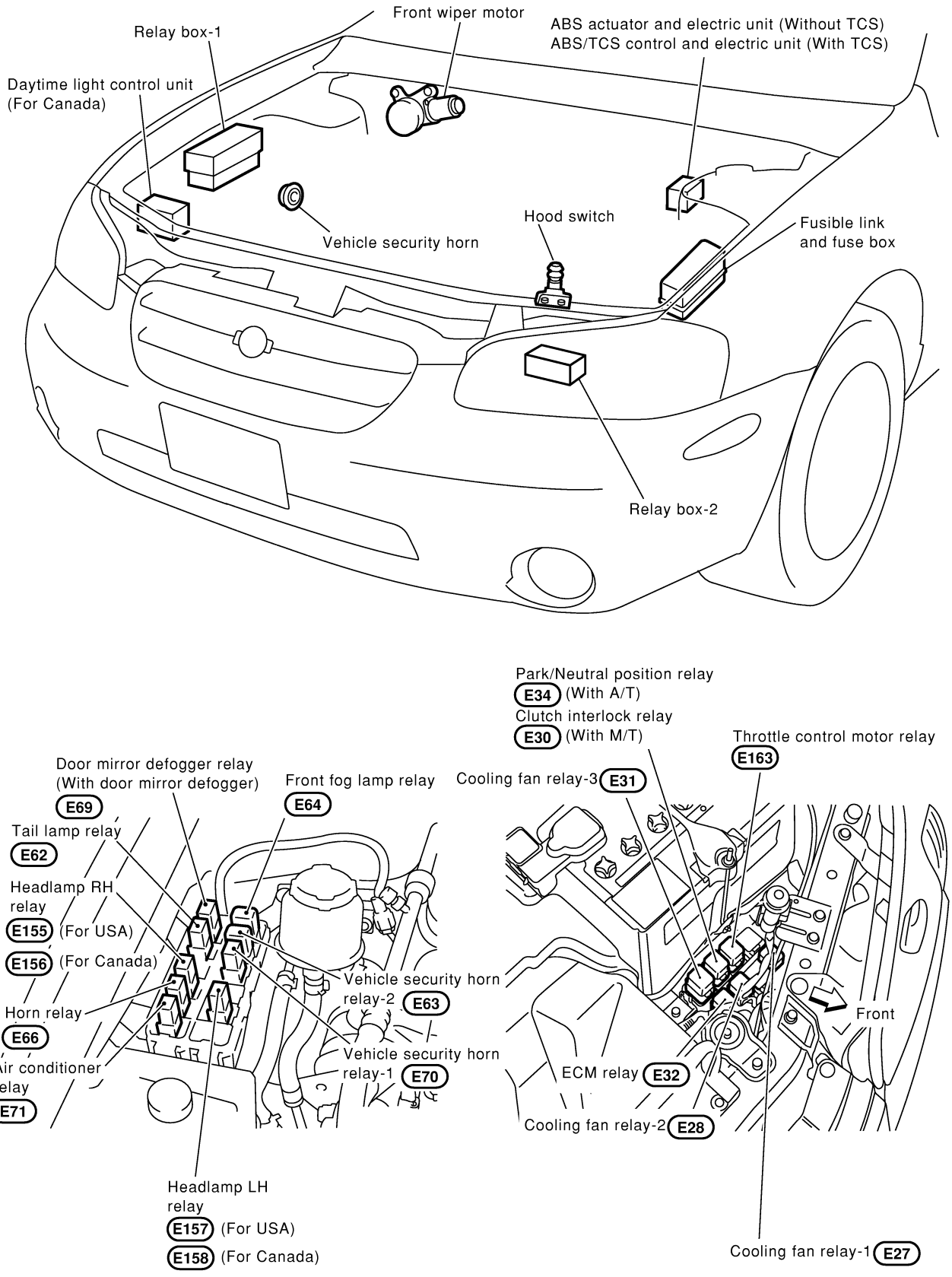
NFEL0280S01

- Remove ECM and TCM from vehicle.
- Check resistance between ECM terminals 109 and 113.
- Check resistance between TCM terminals 5 and 6.

| Unit | Terminal | Resistance value (Ω) |
|---|---|---|
| ECM | 109 - 113 | Approx. 108 - 132 |
| TCM | 5 - 6 | |

## Engine Compartment

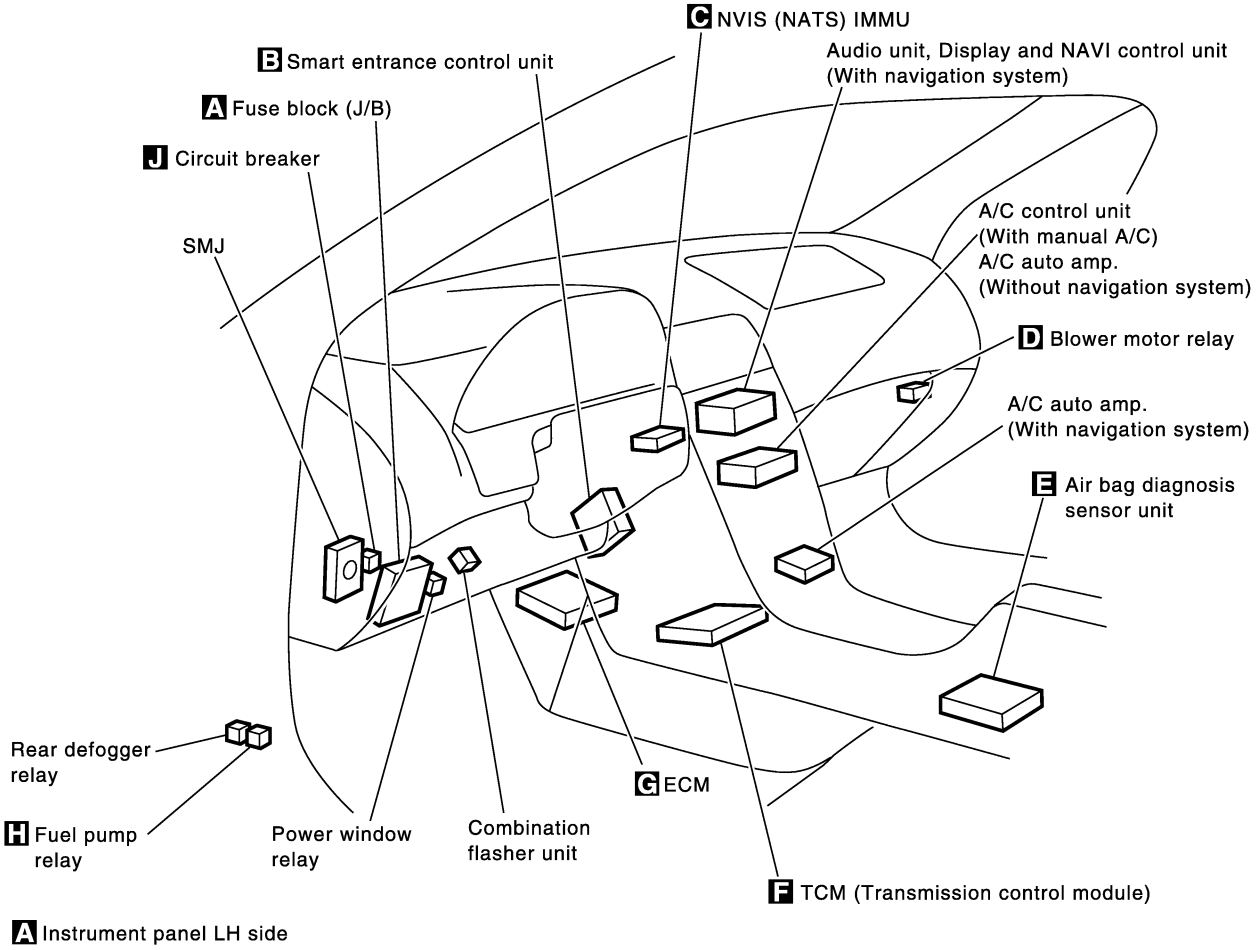
NFEL0129



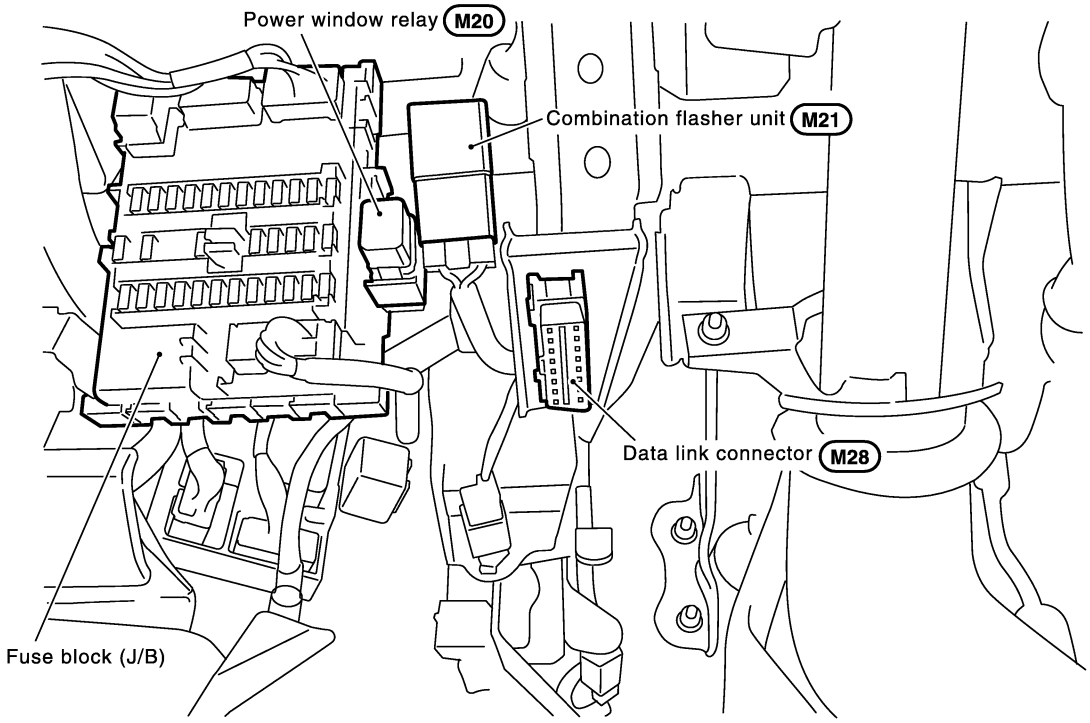

MEL071O

## Passenger Compartment

NFEL0130

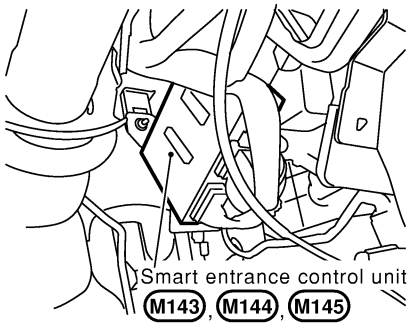



A Instrument panel LH side

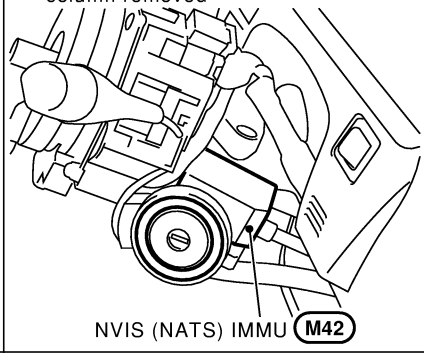



MEL072O

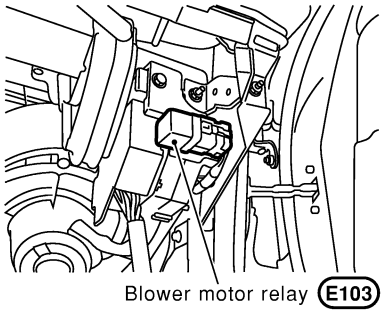
**B** Driver side view with lower instrument panel removed



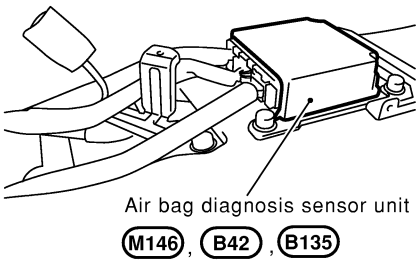

**C** View with steering wheel and steering column removed



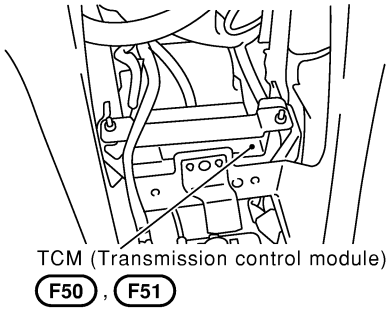

**D** Passenger side view with dash side lower finisher removed



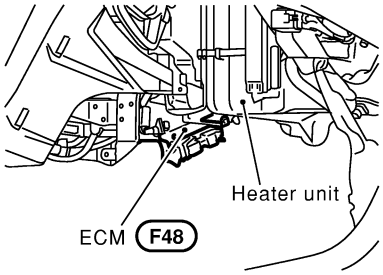

**E** Rear of parking brake



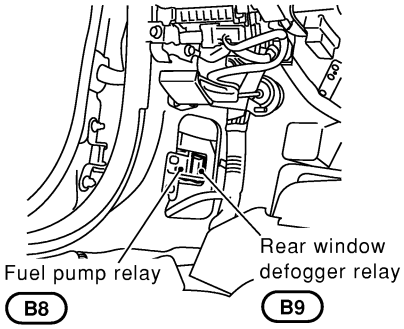

**F** View with lower instrument center panel removed



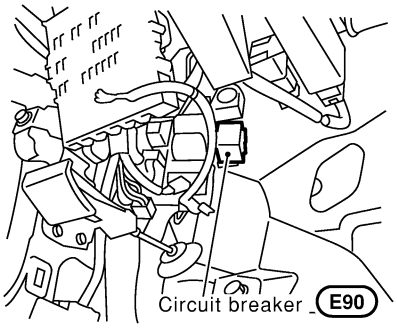

**G** Passenger side view with lower instrument panel removed




**H** Driver side view with dash side lower finisher removed

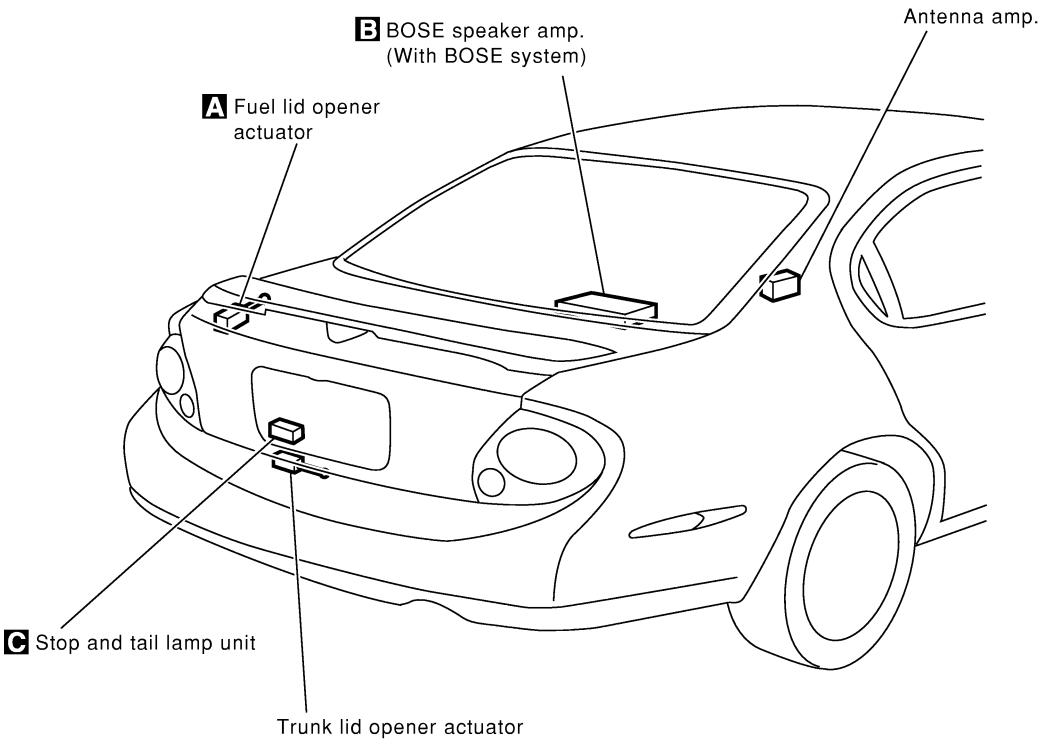


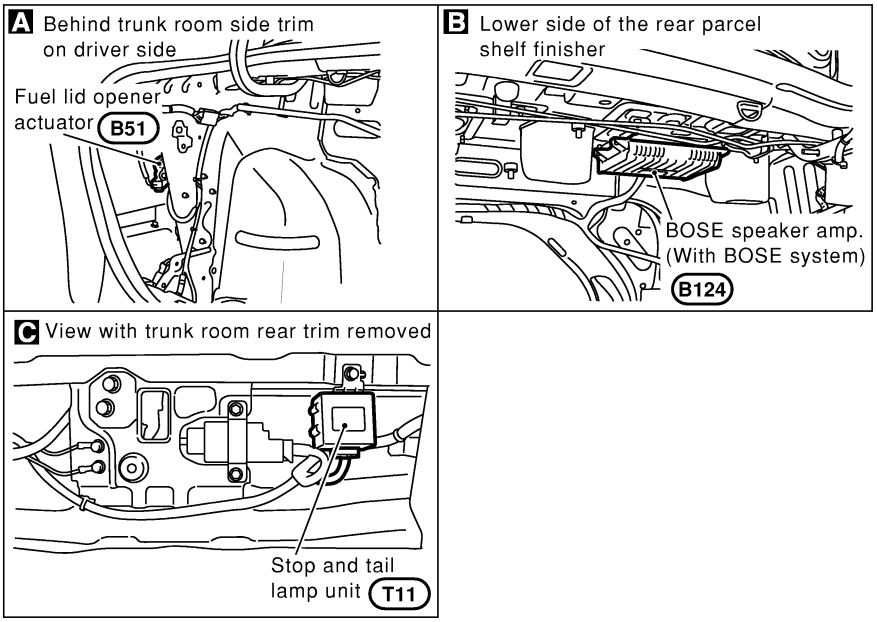

**J** Driver side view with lower instrument panel removed






MEL073O

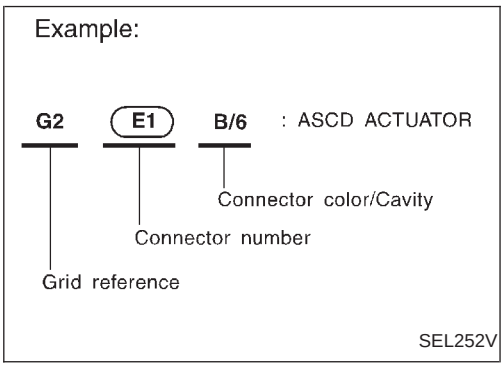

B BOSE speaker amp.
(With BOSE system)
Antenna amp.
A Fuel lid opener
actuator
C Stop and tail lamp unit
Trunk lid opener actuator


A Behind trunk room side trim
on driver side
Fuel lid opener
actuator
B51
B Lower side of the rear parcel
shelf finisher
BOSE speaker amp.
(With BOSE system)
B124
C View with trunk room rear trim removed
Stop and tail
lamp unit
T11

MEL074O

## How to Read Harness Layout

NFEL0131




The following Harness Layouts use a map style grid to help locate connectors on the drawings:

- Main Harness
- Engine Room Harness (Engine Compartment)

### TO USE THE GRID REFERENCE

NFEL0131S01

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

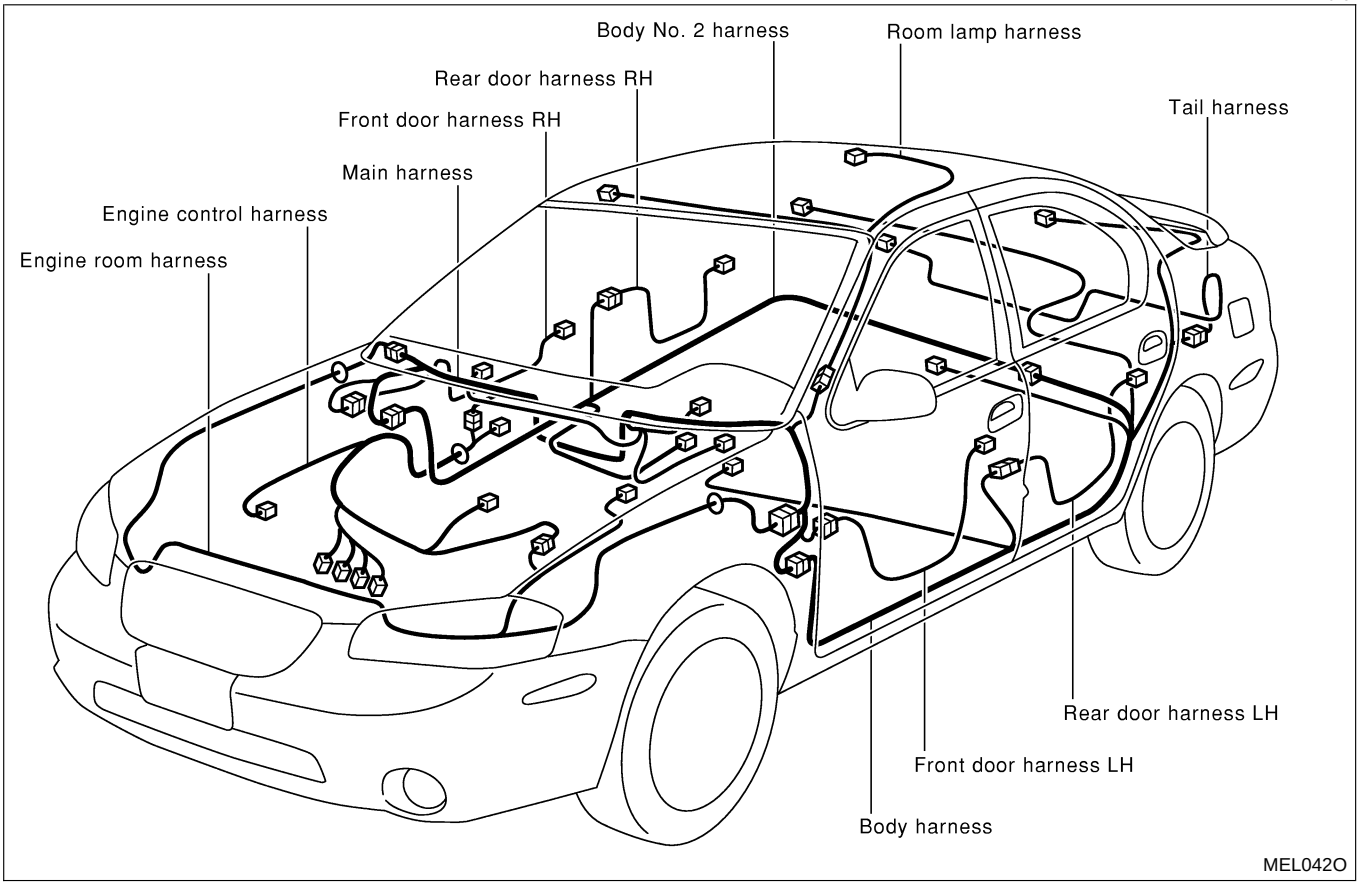
NFEL0131S02

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. | — | |  | |

## Outline

NFEL0132

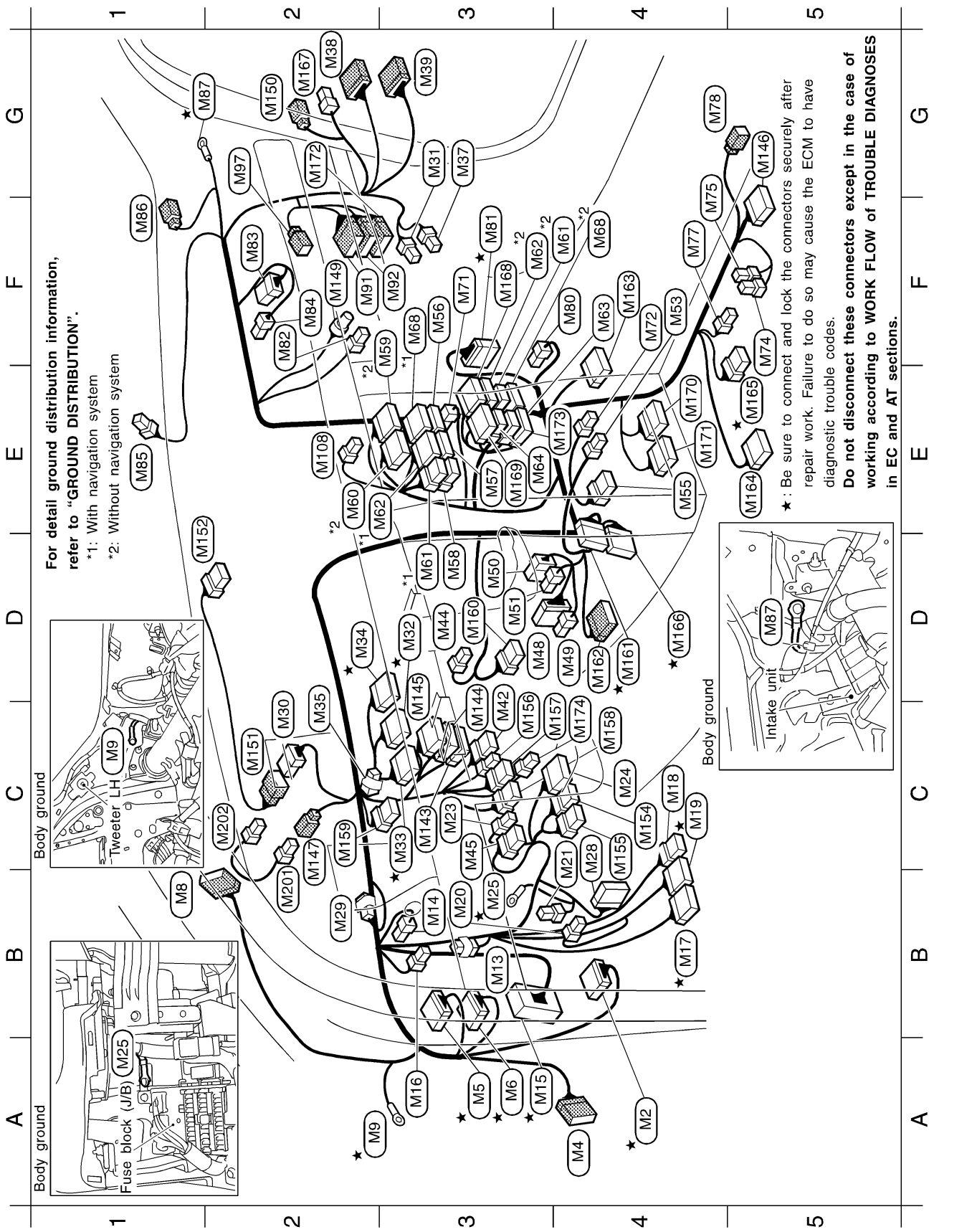



**NOTE:**
For detailed ground distribution information, refer to “Ground Distribution”, “GROUND”, EL-19.

**NOTE:**

## Main Harness

NFEL0133




MEL043O

**Main harness**

A4★ (M2) BR/24 : To (B2)
A4 (M4) SMJ : To (D1)
A3★ (M5) W/16 : To (B1)
A3★ (M6) W/18 : To (B3)
B1 (M8) W/12 : To (R2)
A2★ (M9) – : Body ground
B3 (M13) L/4 : Diode (For Canada)
B3 (M14) L/2 : ASCD clutch switch (With M/T)
A3★ (M15) SMJ : To (E81)
A3 (M16) W/4 : Telephone
B4★ (M17) W/12 : Fuse block (J/B)
C4 (M18) W/6 : Fuse block (J/B)
C4★ (M19) W/16 : Fuse block (J/B)
B3 (M20) L/4 : Power window relay
C4 (M21) B/3 : Combination flasher unit
C3 (M23) W/3 : Illumination control switch
C4 (M24) W/10 : Door mirror remote control switch
B3★ (M25) – : Body ground
C4 (M28) W/16 : Data link connector
B2 (M29) GY/3 : Joint connector-3 (Diode) (With A/T)
C2 (M30) GY/6 : To (M151)
G3 (M31) W/4 : Fan control amp. (With auto A/C)
D3★ (M32) BR/20 : Combination meter
C3★ (M33) W/24 : Combination meter
D2★ (M34) BR/24 : Combination meter
C2 (M35) B/2 : Diode
G3 (M37) BR/4 : Fan resistor (With manual A/C)
G2 (M38) W/16 : To (D62)
G3 (M39) W/10 : To (D63)
C3 (M42) W/8 : NVIS (NATS) IMMU
D3 (M44) W/2 : In-vehicle sensor (With auto A/C)
C3 (M45) L/6 : TCS ON/OFF switch (With TCS)
D3 (M48) BR/10 : Mode door motor (With manual A/C)
D4 (M49) W/3 : Mode door motor (With auto A/C)
D3 (M50) B/6 : Air mix door motor (With manual A/C)
D3 (M51) W/3 : Air mix door motor (With auto A/C)
F4 (M53) B/2 : Cigarette lighter
E4 (M55) W/8 : Hazard switch
F3 (M56) GY/16 : A/C control unit (With manual A/C)
E3 (M57) GY/20 : A/C control unit (With manual A/C)
D3 (M58) W/6 : Fan switch (With manual A/C)
F3 (M59) GY/20 : A/C auto amp. (With auto A/C) (Without navigation system)
E2 (M60) GY/16 : A/C auto amp. (With auto A/C) (Without navigation 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.**

(M13) : Diode
Combination meter — Parking brake switch

(M29) : Joint connector-3 (Diode)
Park/Neutral position switch — TCM (Transmission control module)
Park/Neutral position switch

(M35) : Diode
Rear window defogger relay — ECM

MEL044O

**Main harness**

| | | | | |
|---|---|---|---|---|
| F4,D3 | M61 | W/6 | : | Audio unit (With BOSE system) |
| E2,F3 | M62 | W/10 | : | Audio unit (With BOSE system) |
| F4, | M63 | W/6 | : | Audio unit (With BASE system) |
| E3 | M64 | W/10 | : | Audio unit (With BASE system) |
| F3,F4 | M68 | W/16 | : | Audio unit |
| F3 | M71 | W/2 | : | Antenna amp. (Via sub-harness) |
| F4 | M72 | W/2 | : | Ashtray illumination |
| F5 | M74 | L/4 | : | Heated seat switch LH |
| F4 | M75 | W/4 | : | Heated seat switch RH |
| F4 | M77 | B/1 | : | Parking brake switch |
| G4 | M78 | B/2 | : | Power socket |
| F4 | M80 | W/3 | : | Intake sensor (With auto A/C) |
| F3★ | M81 | W/20 | : | To F49 |
| F2 | M82 | W/2 | : | Glove box lamp |
| F2 | M83 | W/8 | : | Intake door motor (With manual A/C) |
| F2 | M84 | W/3 | : | Intake door motor (With auto A/C) |
| E1 | M85 | B/2 | : | Sunload sensor (With auto A/C) |
| F1 | M86 | BR/2 | : | Tweeter RH (Via sub-harness) |
| G1★ | M87 | – | : | Body ground |
| F2 | M91 | W/12 | : | To B103 |
| F3 | M92 | W/10 | : | To B104 |
| G2 | M97 | G/2 | : | To E105 |
| E2 | M108 | BR/2 | : | Indirect lamp (Without navigation system) |
| C3 | M143 | W/24 | : | Smart entrance control unit |
| C3 | M144 | GY/24 | : | Smart entrance control unit |
| D3 | M145 | GY/16 | : | Smart entrance control unit |
| G5 | M146 | Y/28 | : | Air bag diagnosis sensor unit |
| C2 | M147 | W/3 | : | To M201 |
| F2 | M149 | Y/4 | : | Passenger air bag module |
| G2 | M150 | Y/4 | : | To E147 |
| C4 | M154 | GY/6 | : | Memory seat cancel switch (With memory seat) |
| C4 | M155 | W/8 | : | Heated steering switch (With heated steering) |
| C3 | M156 | W/2 | : | Combination switch (With heated steering) |
| C3 | M157 | Y/6 | : | Combination switch (Air bag module) (Via spiral cable) |
| C4 | M158 | GY/8 | : | Combination switch (Steering switch and horn switch) (Via spiral cable) |
| C2 | M159 | GY/6 | : | Accelerator pedal position sensor |
| C4 | M160 | W/8 | : | Rear window defogger switch (With navigation system) |
| D4 | M161 | W/18 | : | To F68 |
| D4 | M162 | W/18 | : | To F55 |
| E4 | M163 | GY/10 | : | Shift lock control unit (With A/T) |
| E5 | M164 | W/16 | : | To B52 (With memory seat) |
| E5 | M165 | W/12 | : | A/T device (with A/T) |
| D4 | M166 | W/20 | : | To F69 |
| G2 | M167 | L/4 | : | Heated steering relay (With heated steering) |
| F3 | M168 | W/20 | : | Display and NAVI control unit |
| E3 | M169 | GY/20 | : | Display and NAVI control unit |
| E4 | M170 | GY/20 | : | A/C auto amp. (With auto A/C) (With navigation system) |
| E4 | M171 | GY/16 | : | A/C auto amp. (With auto A/C) (With navigation system) |
| E4 | M172 | BR/24 | : | To B145 |
| E3 | M173 | W/12 | : | Audio unit (With CD auto changer) |
| C3 | M174 | W/2 | : | Ignition keyhole illumination |

**Main sub-harness-1**

| | | | | |
|---|---|---|---|---|
| C2 | M151 | GY/6 | : | To M30 |
| D1 | M152 | BR/8 | : | Clock |

**Main sub-harness-2**

| | | | | |
|---|---|---|---|---|
| B2 | M201 | W/3 | : | To M147 |
| C2 | M202 | W/3 | : | Auto light sensor |

★ : 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.**

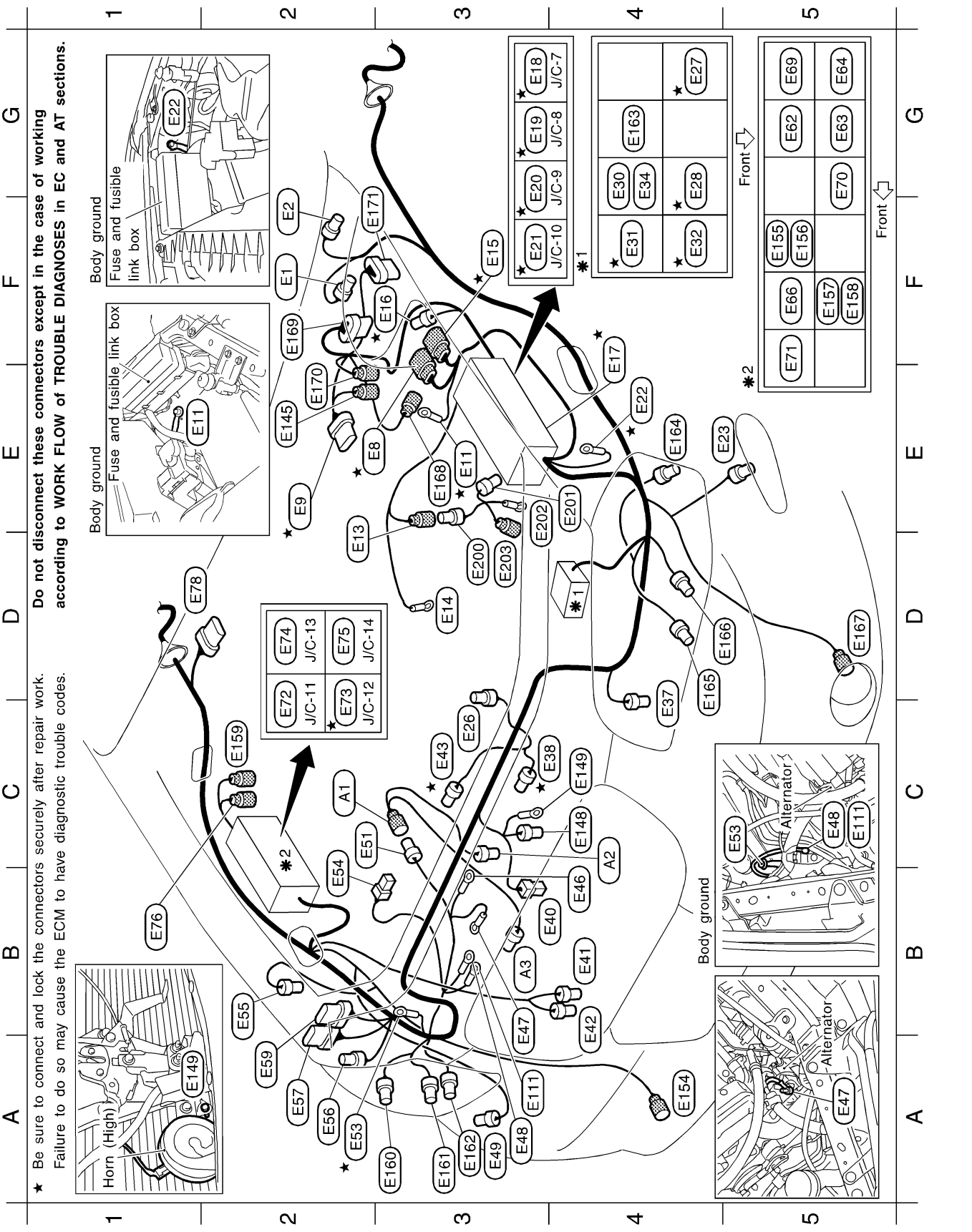


MEL754P

**NOTE:**

## Engine Room Harness

NFEL0134




MEL046O

**Engine room harness**

F2 (E1) GY/2 : Brake fluid level switch
E2★ (E8) GY/8 : To (F17)
E2★ (E9) SMJ : ABS actuator and electric unit (With M/T)
E3★ (E11) – : Body ground
D2 (E13) GY/1 : To (E200)
D3 (E14) – : Battery (Fusible link 120A)
F3★ (E15) B/8 : To (F18)
F3★ (E16) GY/2 : Dropping resistor (With A/T)
F4★ (E17) – : Fuse and fusible link box
G3★ (E18) GY/6 : Joint connector-7
G3★ (E19) GY/6 : Joint connector-8
G3★ (E20) W/6 : Joint connector-9
F3★ (E21) W/6 : Joint connector-10
E4★ (E22) – : Body ground
E5 (E23) GY/2 : Front side marker lamp LH
C3 (E26) W/2 : Hood switch
G4★ (E27) BR/6 : Cooling fan relay-1
G4★ (E28) BR/6 : Cooling fan relay-2
G4 (E30) L/4 : Clutch interlock relay (With M/T)
F4★ (E31) BR/6 : Cooling fan relay-3
F4★ (E32) BR/6 : ECM relay
G4 (E34) GY/6 : Park/Neutral position relay (With A/T)
C4 (E37) B/3 : Refrigerant pressure sensor
C4★ (E38) GY/4 : Cooling fan motor-1
B4 (E40) B/1 : Horn (High)
B4 (E41) GY/2 : Front washer motor
B4 (E42) BR/2 : Washer level switch (With washer level switch)
C3★ (E43) GY/4 : Cooling fan motor-2
B4 (E46) – : Alternator
B3 (E47) – : Alternator
A3 (E48) – : Body ground
A3 (E49) GY/2 : Front side marker lamp RH
C2 (E51) GY/3 : To (A1)
A2★ (E53) – : Body ground
B2 (E54) B/1 : Vehicle security horn
B2 (E55) B/2 : Ambient sensor
A2 (E56) GY/4 : Daytime light control unit (For Canada)
A2 (E57) GY/6 : Daytime light control unit (For Canada)
A2 (E59) GY/8 : Daytime light control unit (For Canada)
G5 (E62) L/4 : Tail lamp relay
G5 (E63) L/4 : Vehicle security horn relay-2
G5 (E64) L/4 : Front fog lamp relay
F5 (E66) W/3 : Horn relay
G5 (E69) L/4 : Door mirror defogger relay (With door mirror defogger)
G5 (E70) L/4 : Vehicle security horn relay-1
F5 (E71) L/4 : Air conditioner relay
C2 (E72) W/6 : Joint connector-11
C2★ (E73) W/6 : Joint connector-12
D2 (E74) W/6 : Joint connector-13
D2 (E75) W/6 : Joint connector-14
B1 (E76) GY/2 : Front wheel sensor RH (With M/T)
D1 (E78) GY/6 : Front wiper motor
A3 (E111) – : Body ground
E2 (E145) BR/2 : Front wheel sensor LH (With M/T)
C4 (E148) Y/2 : Crash zone sensor
C4 (E149) – : Body ground
A4 (E154) GY/2 : Front fog lamp RH
F5 (E155) BR/6 : Headlamp RH relay (For USA)
F5 (E156) BR/6 : Headlamp RH relay (For Canada)
F5 (E157) BR/6 : Headlamp LH relay (For USA)
F5 (E158) BR/6 : Headlamp LH relay (For Canada)
C2 (E159) GY/2 : Front wheel sensor RH (With A/T)
A3 (E160) BR/2 : Front turn signal lamp RH
A3 (E161) GY/3 : Headlamp RH (Low and parking lamp)
A3 (E162) B/2 : Headlamp RH (High)
G4 (E163) L/4 : Throttle control motor relay
E4 (E164) BR/2 : Front turn signal lamp LH
D5 (E165) GY/3 : Headlamp LH (Low and parking lamp)
D4 (E166) B/2 : Headlamp LH (High)
D5 (E167) GY/2 : Front fog lamp LH
E3 (E168) L/2 : Front wheel sensor LH (With TCS)
F2 (E169) SMJ : ABS actuator and electric unit (Without TCS for A/T models)
E2 (E170) L/2 : Front wheel sensor LH (With A/T, ABS)
G2 (E171) SMJ : ABS/TCS control unit (With TCS)

**Engine room sub-harness**

D3 (E200) GY/1 : To (E13)
E4 (E201) GY/1 : Starter motor (With A/T)
E3 (E202) – : Starter motor
D3 (E203) GY/1 : Starter motor (With M/T)

**Alternator harness**

C2 (A1) GY/3 : To (E51)
C4 (A2) GY/4 : Alternator
B3 (A3) B/1 : Compressor

(E79) : Diode

Daytime light control unit (C) — ECM
Headlamp RH relay (U) — (U) : For USA, (C) : For Canada

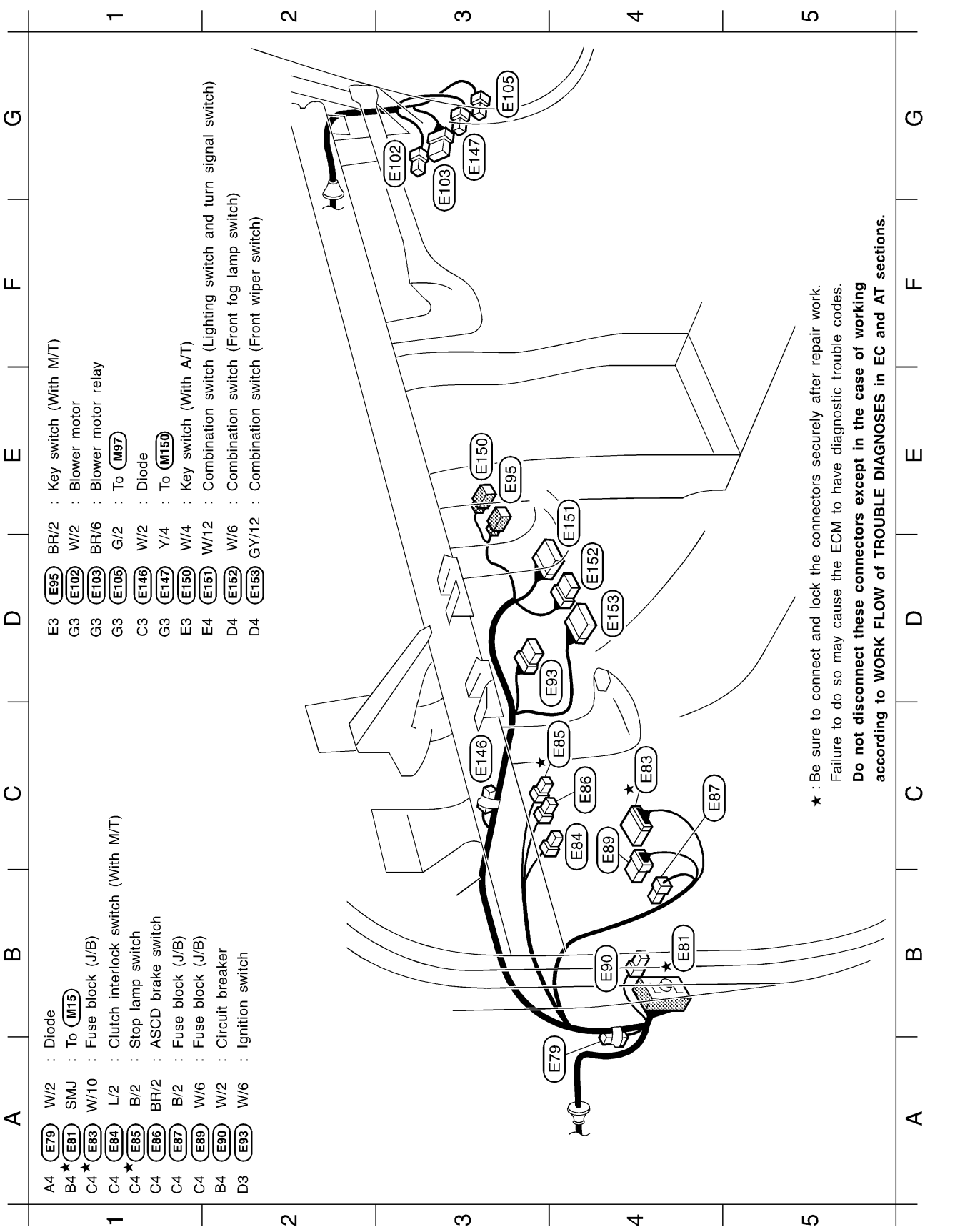
(E146) : Diode

Vehicle security horn relay-1 — Vehicle security horn relay-2
Horn relay

★ : 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.**

MEL047O

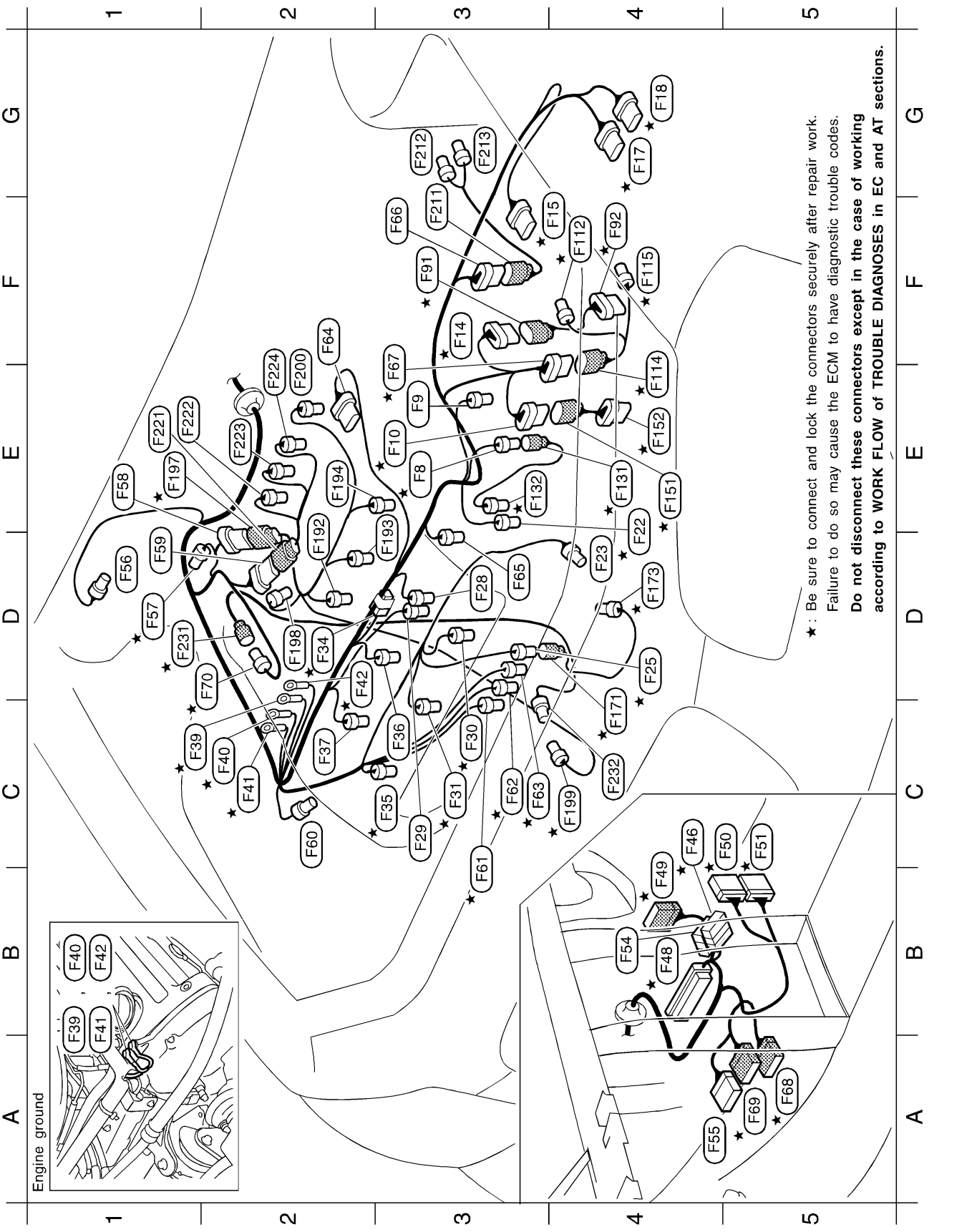

A4 E79 W/2 : Diode
B4 ★ E81 SMJ : To M15
C4 ★ E83 W/10 : Fuse block (J/B)
C4 E84 L/2 : Clutch interlock switch (With M/T)
C4 ★ E85 B/2 : Stop lamp switch
C4 E86 BR/2 : ASCD brake switch
C4 E87 B/2 : Fuse block (J/B)
C4 E89 W/6 : Fuse block (J/B)
B4 E90 W/2 : Circuit breaker
D3 E93 W/6 : Ignition switch
E3 E95 BR/2 : Key switch (With M/T)
G3 E102 W/2 : Blower motor
G3 E103 BR/6 : Blower motor relay
G3 E105 G/2 : To M97
C3 E146 W/2 : Diode
G3 E147 Y/4 : To M150
E3 E150 W/4 : Key switch (With A/T)
E4 E151 W/12 : Combination switch (Lighting switch and turn signal switch)
D4 E152 W/6 : Combination switch (Front fog lamp switch)
D4 E153 GY/12 : Combination switch (Front wiper 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.**
A
B
C
D
E
F
G
1
2
3
4
5

MEL048O

**NOTE:**

## Engine Control Harness

NFEL0135




MEL049O

**Engine control harness**

E3★(F8) B/2 : To (F131)
E3 (F9) BR/3 : Rear electronic controlled engine mount (With A/T)
E3★(F10) GY/10 : To (F151) (With A/T)
F3★(F14) BR/8 : To (F91) (With A/T)
F4★(F15) GY/5 : Mass air flow sensor
G4★(F17) GY/8 : To (E8)
G4★(F18) B/8 : To (E15)
E4★(F22) GY/2 : Engine coolant temperature sensor
D4 (F23) BR/3 : Front electronic controlled engine mount (With A/T)
D4★(F25) G/4 : To (F171)
D3 (F28) GY/2 : Injector No. 6
C3 (F29) B/2 : VIAS control solenoid valve
C3★(F30) GY/3 : Ignition coil No. 6
C3★(F31) GY/3 : Ignition coil No. 4
D2★(F34) W/2 : Condenser
C3★(F35) GY/3 : Ignition coil No. 2
C3 (F36) GY/2 : Injector No. 4
C2 (F37) GY/2 : Injector No. 2
C1★(F39) – : Engine ground
C2★(F40) – : Engine ground
C2★(F41) – : Engine ground
D2★(F42) – : Engine ground
C4★(F46) L/12 : Joint connector-18
B4 (F48) SMJ : ECM
B4★(F49) W/20 : To (M81)
C5★(F50) GY/24 : TCM (Transmission control module) (With A/T)
C5★(F51) W/24 : TCM (Transmission control module) (With A/T)
B4 (F54) L/12 : Joint connector-19
A4 (F55) W/18 : To (M162)
D1 (F56) B/3 : Power steering oil pressure sensor
D1 (F57) SB/3 : Heated oxygen sensor 1 (Bank 1)
E1 (F58) G/8 : To (F197)
D1 (F59) G/6 : To (F221)
C2 (F60) G/2 : Intake valve timing control solenoid valve (Bank 2)
B3 (F61) SB/3 : Heated oxygen sensor 1 (Bank 2)
C3 (F62) G/4 : Heated oxygen sensor 2 (Bank 2)
C3 (F63) L/4 : Heated oxygen sensor 2 (Bank 1)
E3 (F64) G/6 : Electric throttle control actuator
D3 (F65) B/3 : Camshaft position sensor (PHASE) (Bank 2)
F3 (F66) GY/6 : To (F211) (With M/T)
E3 (F67) GY/8 : To (F114) (With A/T)
A5 (F68) W/18 : To (M161)
A5 (F69) W/20 : To (M166)
D2 (F70) L/4 : To (F231)

**Engine control sub-harness-1**

F3★(F91) BR/8 : To (F14) (With A/T)
F4★(F92) B/8 : Terminal cord assembly (With A/T)

**Engine control sub-harness-2**

F4★(F112) B/3 : Revolution sensor (With A/T)
E4★(F114) GY/8 : To (F67) (With A/T)
F4★(F115) B/3 : Power train revolution sensor

**Engine control sub-harness-3**

E4★(F131) B/2 : To (F8)
E4★(F132) GY/2 : Knock sensor

**Engine control sub-harness-4**

E4★(F151) GY/10 : To (F10) (With A/T)
E4★(F152) B/10 : Park/Neutral position switch (With A/T)

**Engine control sub-harness-5**

C4★(F171) G/4 : To (F25)
D4★(F173) B/3 : Crankshaft position sensor (POS)

**Engine control sub-harness-6**

D1★(F231) L/4 : To (F70)
C4★(F232) G/3 : Camshaft position sensor (PHASE) (Bank 1)

**Engine control sub-harness-7**

F3 (F211) GY/6 : To (F66) (With M/T)
G3 (F212) B/2 : Back-up lamp switch (With M/T)
G3 (F213) B/2 : Park/Neutral position switch (With M/T)

**Engine control sub-harness-8**

D2 (F221) G/6 : To (F59)
E1 (F222) GY/3 : Ignition coil No. 1
E2 (F223) GY/3 : Ignition coil No. 3
E2 (F224) GY/3 : Ignition coil No. 5

**Engine control sub-harness-9**

D2 (F192) GY/2 : Injector No. 1
D3 (F193) GY/2 : Injector No. 3
E2 (F194) GY/2 : Injector No. 5
E1 (F197) G/8 : To (F58)
D2 (F198) G/2 : Intake valve timing control solenoid valve (Bank 1)
C4 (F199) B/1 : Oil pressure switch
E2 (F200) L/2 : EVAP canister purge volume control solenoid valve

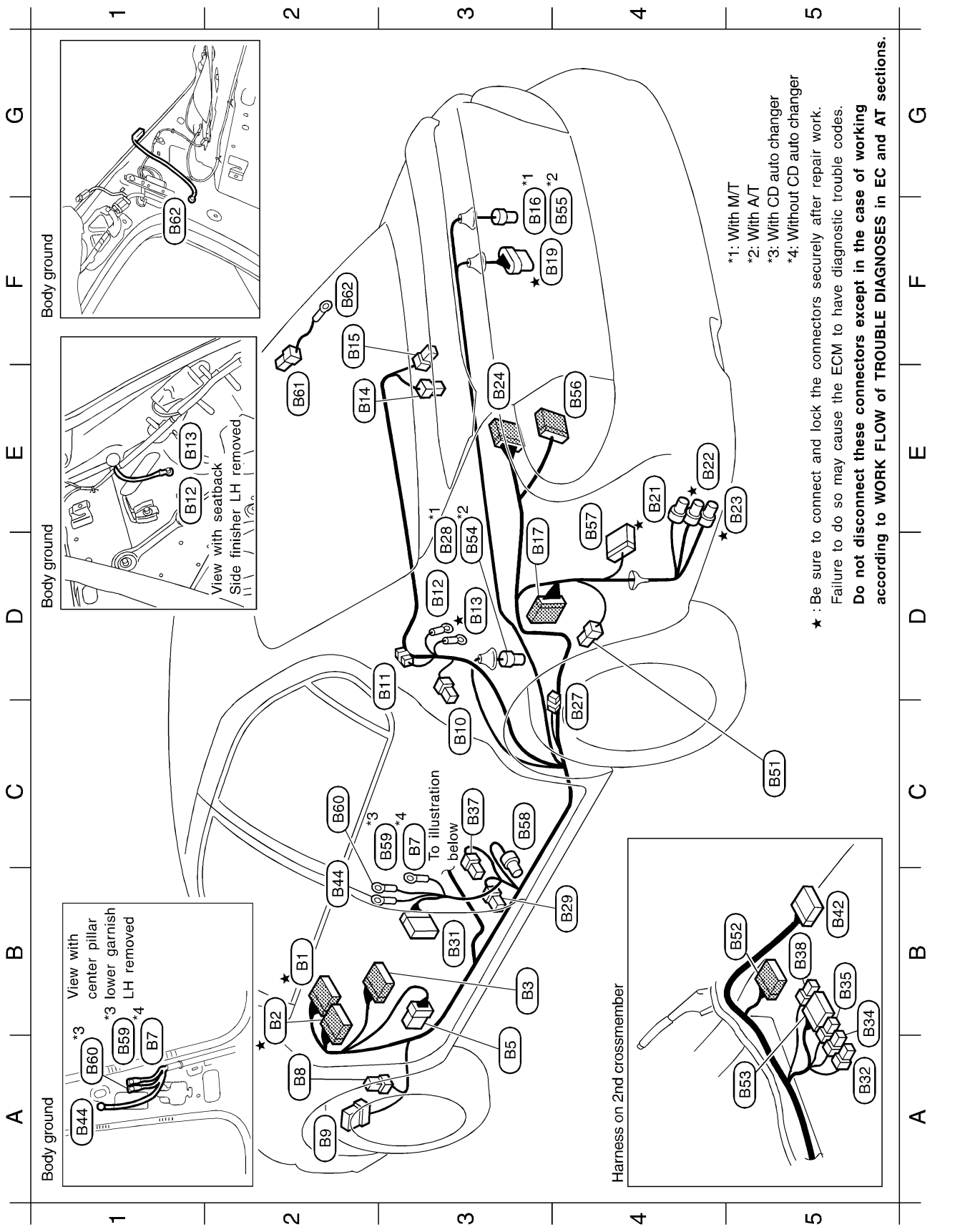
★: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.

**Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

MEL755P

## Body Harness

NFEL0136




MEL051O

**Body harness**

B2★ (B1) W/16 : To (M5)
B2★ (B2) BR/24 : To (M2)
B3★ (B3) W/18 : To (M6)
A3 (B5) W/8 : Fuse block (J/B)
C3 (B7) – : Body ground (Without CD auto changer)
A2 (B8) L/4 : Fuel pump relay
A2 (B9) BR/6 : Rear window defogger relay
C3 (B10) W/1 : Rear door switch LH
D3 (B11) W/1 : Condenser (Rear window defogger)
D3 (B12) – : Body ground
D3★ (B13) – : Body ground
E2 (B14) BR/2 : High-mounted stop lamp (Without rear air spoiler)
F2 (B15) W/2 : Trunk room lamp
F3 (B16) GY/2 : Rear wheel sensor RH (With M/T)
E4 (B17) W/10 : To (T3)
F3★ (B19) GY/5 : Fuel level sensor unit and fuel pump
E4★ (B21) G/2 : Vacuum cut valve bypass valve
E4★ (B22) B/2 : EVAP canister vent control valve
E5★ (B23) GY/3 : EVAP control system pressure sensor
E3 (B24) W/16 : To (B119)
C4 (B27) W/2 : Condenser
D3 (B28) BR/2 : Rear wheel sensor LH (With M/T)
B4 (B29) W/3 : Front door switch LH
B3 (B31) W/10 : To (D81)
A5 (B32) W/3 : Heated seat LH (Via sub-harness)
B5 (B34) W/3 : Seat belt buckle switch LH
B5 (B35) W/2 : Power seat LH (Via sub-harness)
C3 (B37) Y/2 : Seat belt pre-tensioner LH
B5 (B38) Y/2 : Side air bag module LH (With side air bag system) (Via sub-harness)
B5 (B42) Y/12 : Air bag diagnosis sensor unit (With side air bag system)
B2 (B44) – : Body ground (With side air bag system)
C5 (B51) W/4 : Fuel lid opener actuator
B5 (B52) W/16 : To (M164) (With memory seat)
A5 (B53) W/16 : Seat control unit LH (With memory seat) (Via sub-harness)
D3 (B54) L/2 : Rear wheel sensor LH (With A/T)
F4 (B55) GY/2 : Rear wheel sensor RH (With A/T)
E4 (B56) W/20 : To (B147)
E4 (B57) W/16 : CD auto changer
C3 (B58) Y/2 : Satellite sensor LH (With side air bag system)
C3 (B59) – : Body ground (With CD auto changer)
C2 (B60) – : Body ground (With CD auto changer)

**Defogger harness**

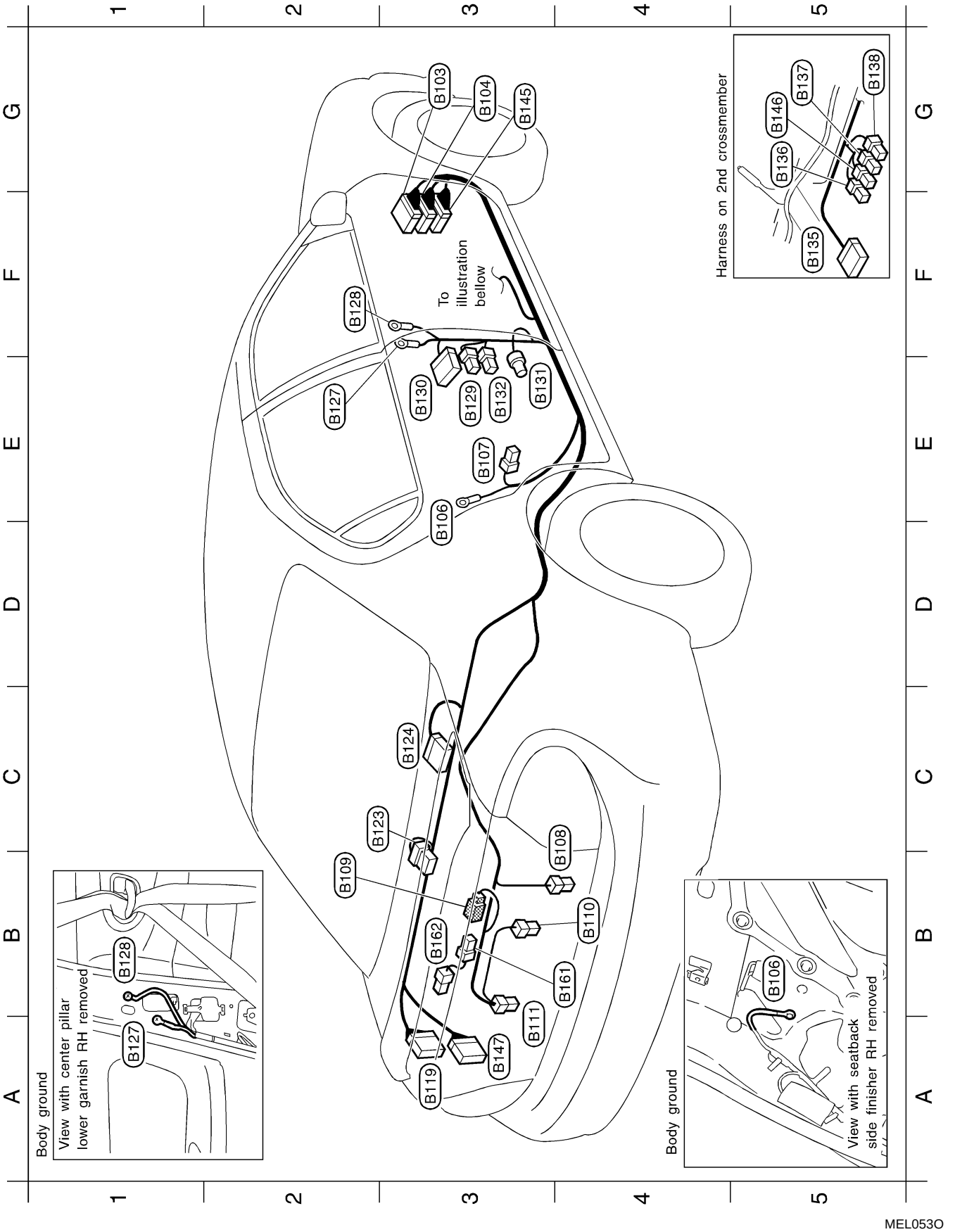
E2 (B61) B/1 : Rear window defogger
F2 (B62) – : Body ground

★ : 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.**

MEL834P

## Body No. 2 Harness

NFEL0137




MEL053O

**Body No. 2 harness**

| | | | |
|---|---|---|---|
| G3 | B103 | W/12 | : To M91 |
| G3 | B104 | W/10 | : To M92 |
| E3 | B106 | – | : Body ground |
| E3 | B107 | W/1 | : Rear door switch RH |
| C4 | B108 | W/2 | : Trunk lid key cylinder switch |
| B2 | B109 | BR/2 | : To B161 |
| B4 | B110 | W/2 | : License lamp RH |
| A3 | B111 | W/2 | : License lamp LH |
| A3 | B119 | W/16 | : To B24 |
| C2 | B123 | BR/6 | : Woofer (With BOSE system) |
| C3 | B124 | GY/26 | : BOSE speaker amp. (With BOSE system) |
| E2 | B127 | – | : Body ground |
| F2 | B128 | – | : Body ground (With side air bag system) |
| E3 | B129 | W/3 | : Front door switch RH |
| E3 | B130 | W/10 | : To D101 |
| E3 | B131 | Y/2 | : Satellite sensor RH (With side air bag system) |
| E3 | B132 | Y/2 | : Seat belt pre-tensioner RH |
| F5 | B135 | Y/12 | : Air bag diagnosis sensor unit |
| G5 | B136 | W/3 | : Heated seat RH (Via sub-harness) |
| G5 | B137 | W/2 | : Power seat RH (Via sub-harness) |
| G5 | B138 | Y/2 | : Side air bag module RH (With side air bag system) (Via sub-harness) |
| G3 | B145 | BR/24 | : To M172 (With BOSE system) |
| G5 | B146 | W/3 | : Seat belt buckle switch RH |
| A3 | B147 | W/20 | : To B56 |

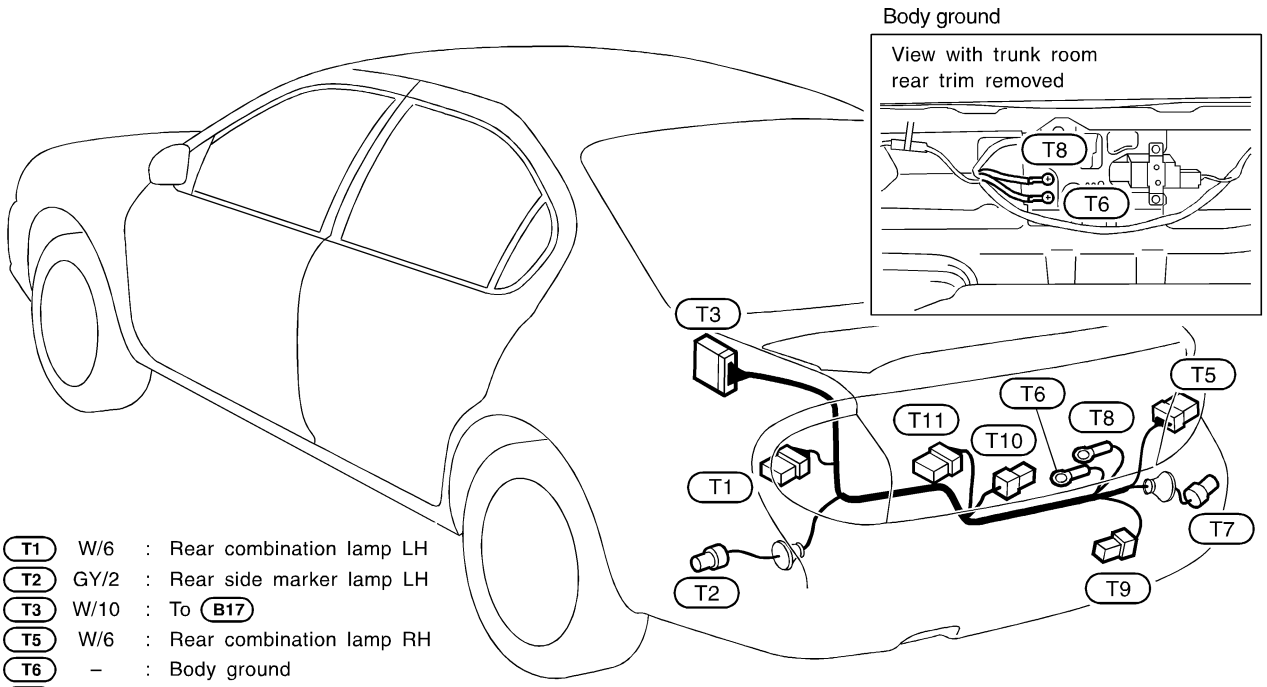
**Body No. 2 sub-harness**

| | | | |
|---|---|---|---|
| B4 | B161 | BR/2 | : To B109 |
| B3 | B162 | B/2 | : High-mounted stop lamp (With rear air spoiler) |

MEL054O

## Tail Harness

NFEL0138




| | | | |
|---|---|---|---|
| T1 | W/6 | : | Rear combination lamp LH |
| T2 | GY/2 | : | Rear side marker lamp LH |
| T3 | W/10 | : | To B17 |
| T5 | W/6 | : | Rear combination lamp RH |
| T6 | – | : | Body ground |
| T7 | GY/2 | : | Rear side marker lamp RH |
| T8 | – | : | Body ground |
| T9 | W/2 | : | Trunk room lamp switch |
| T10 | W/2 | : | Trunk lid opener actuator |
| T11 | W/8 | : | Stop and tail lamp unit |

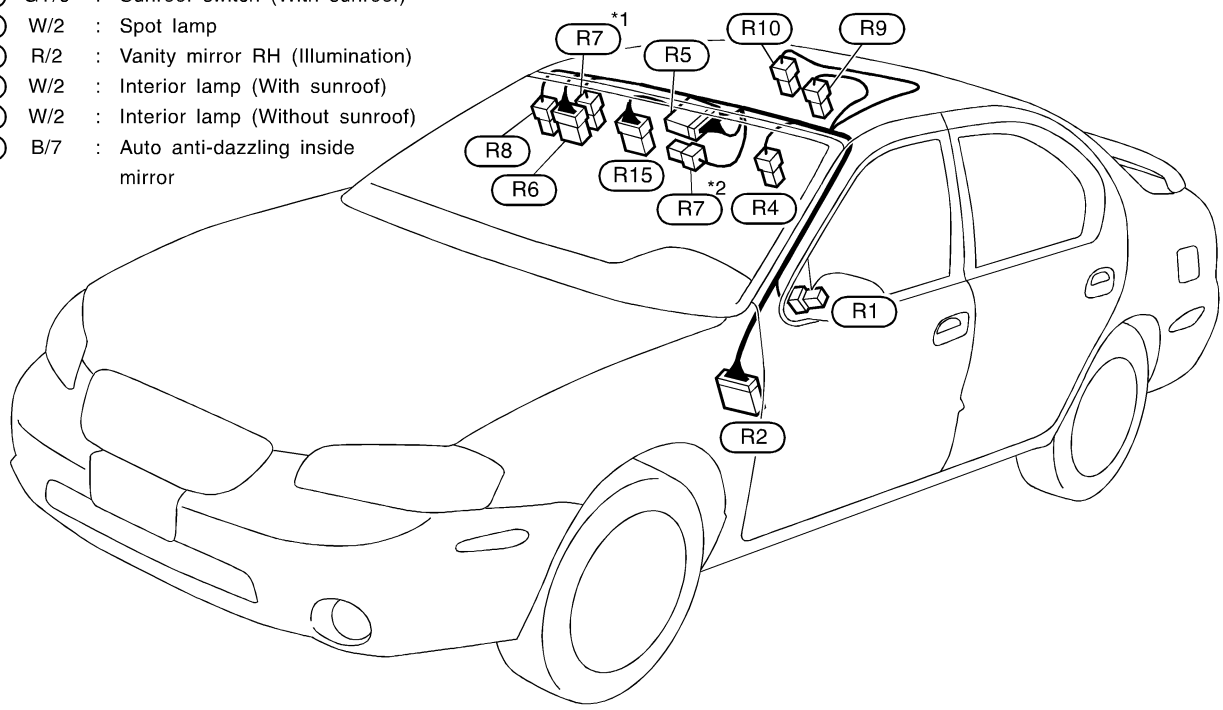
MEL055O

## Room Lamp Harness

NFEL0140

(R1) BR/2 : Tweeter LH
(R2) W/12 : To (M8)
(R4) R/2 : Vanity mirror LH (Illumination)
(R5) W/12 : Sunroof motor (With sunroof)
(R6) GY/6 : Sunroof switch (With sunroof)
(R7) W/2 : Spot lamp
(R8) R/2 : Vanity mirror RH (Illumination)
(R9) W/2 : Interior lamp (With sunroof)
(R10) W/2 : Interior lamp (Without sunroof)
(R15) B/7 : Auto anti-dazzling inside mirror

*1: With sunroof
*2: Without sunroof




MEL056O

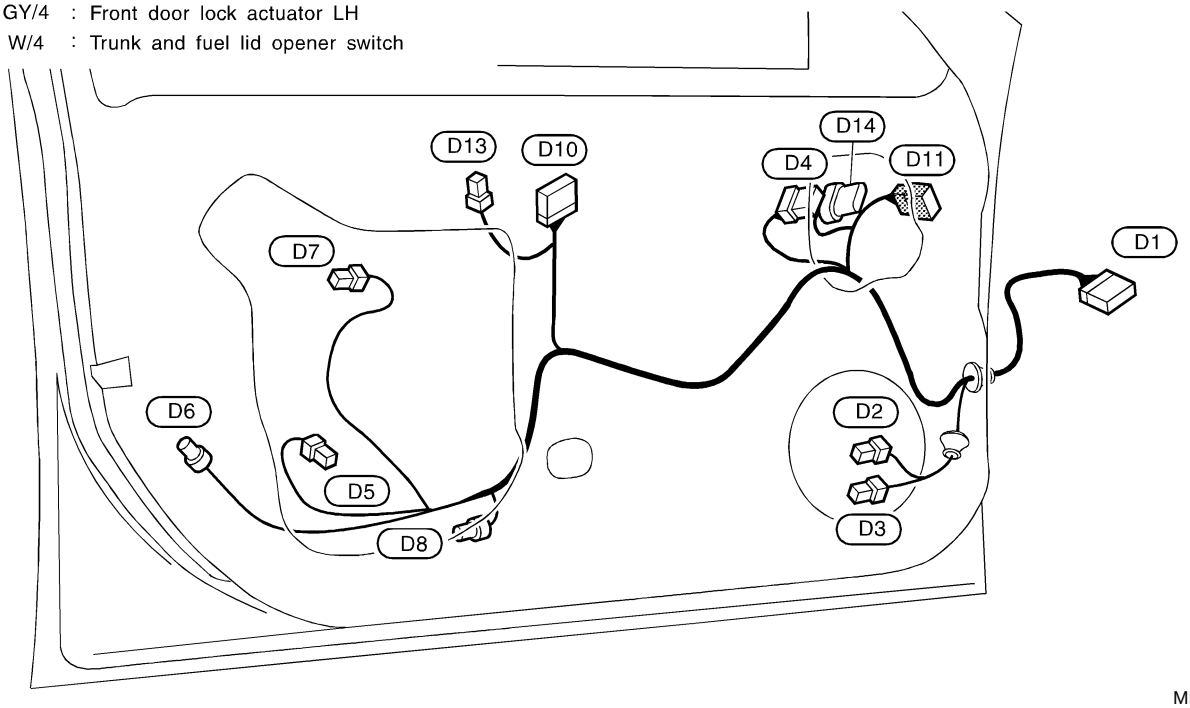
# Front Door Harness

NFEL0142

## LH SIDE

NFEL0142S03

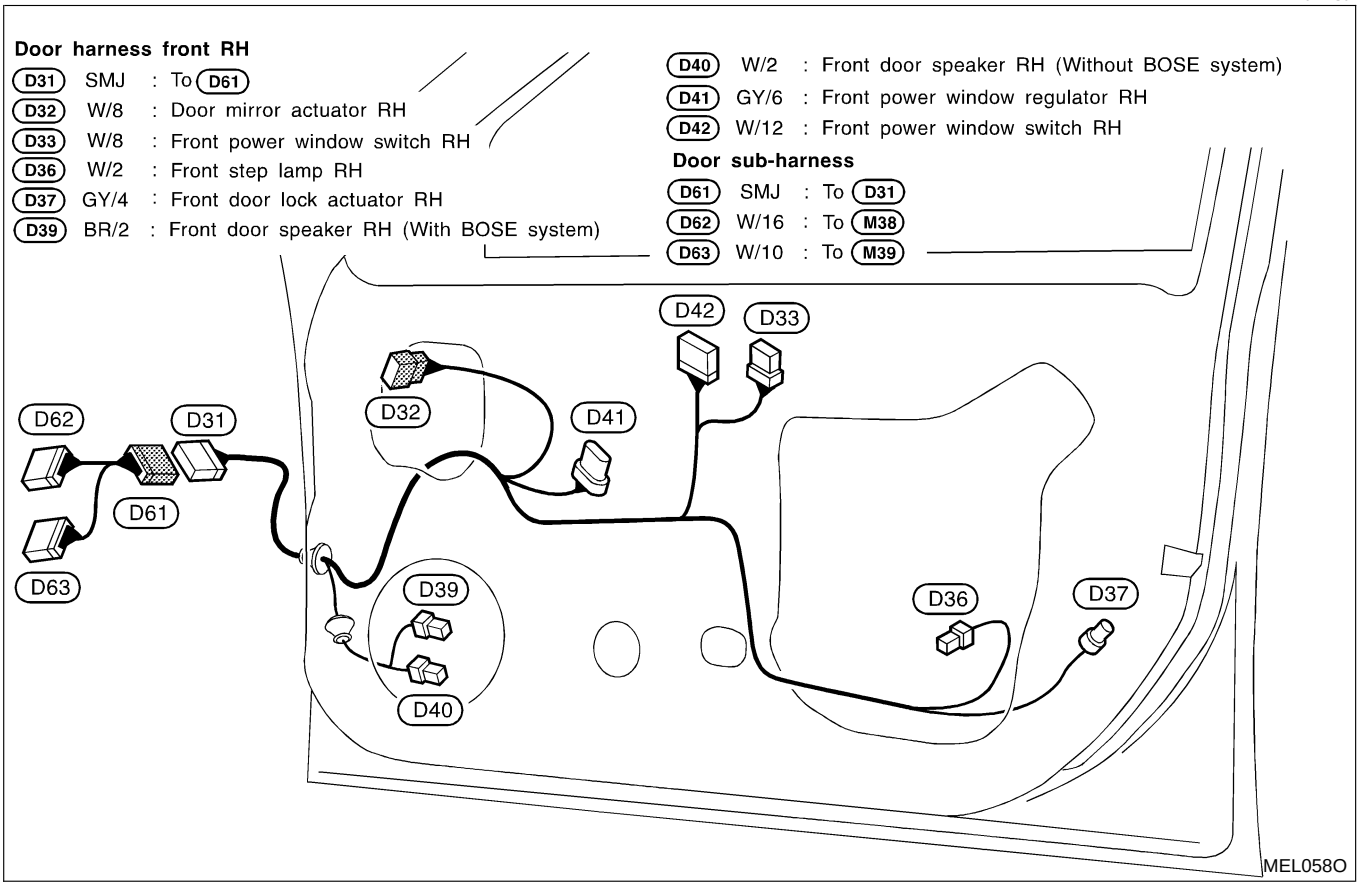
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| D1 | SMJ | : To M4 | | D8 | BR/3 | : | Front door key cylinder switch LH |
| D2 | BR/2 | : | Front door speaker LH (With BOSE system) | D10 | W/16 | : | Front power window main switch |
| D3 | W/2 | : | Front door speaker LH (Without BOSE system) | D11 | W/8 | : | Door mirror actuator LH |
| D4 | GY/6 | : | Front power window regulator LH | D13 | W/3 | : | Front power window main switch |
| D5 | W/2 | : | Front step lamp LH | D14 | W/8 | : | Memory seat switch |
| D6 | GY/4 | : | Front door lock actuator LH | | | | |
| D7 | W/4 | : | Trunk and fuel lid opener switch | | | | |




MEL057O

## RH SIDE

NFEL0142S04

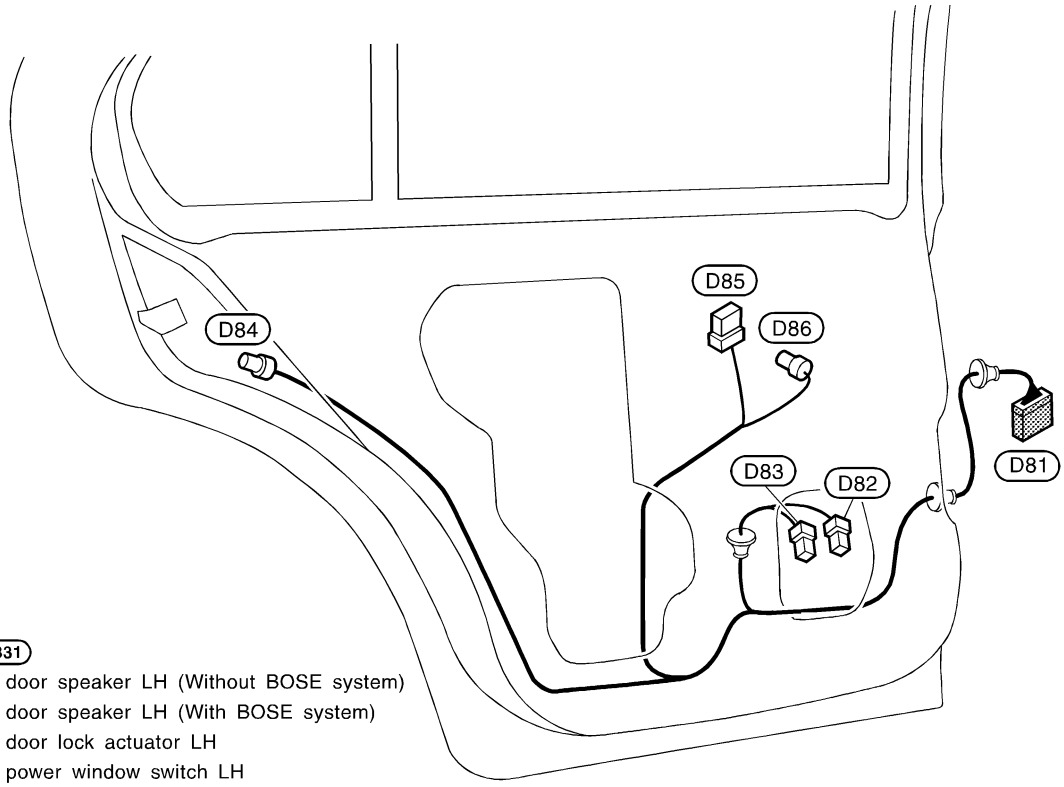


# Rear Door Harness

NFEL0143

## LH SIDE

NFEL0143S03

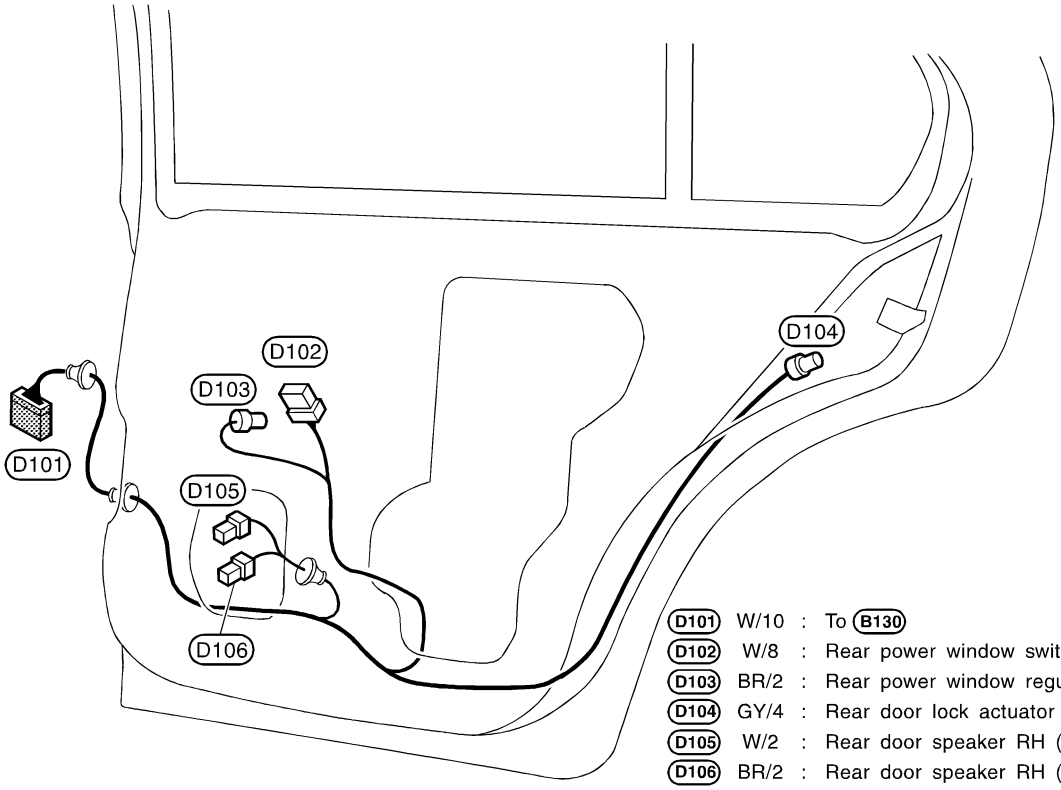



| | | | |
|---|---|---|---|
| D81 | W/10 | : | To B31 |
| D82 | W/2 | : | Rear door speaker LH (Without BOSE system) |
| D83 | BR/2 | : | Rear door speaker LH (With BOSE system) |
| D84 | GY/4 | : | Rear door lock actuator LH |
| D85 | W/8 | : | Rear power window switch LH |
| D86 | BR/2 | : | Rear power window regulator LH |

MEL368K

## RH SIDE

NFEL0143S04




| | | | |
|---|---|---|---|
| D101 | W/10 | : | To B130 |
| D102 | W/8 | : | Rear power window switch RH |
| D103 | BR/2 | : | Rear power window regulator RH |
| D104 | GY/4 | : | Rear door lock actuator RH |
| D105 | W/2 | : | Rear door speaker RH (Without BOSE system) |
| D106 | BR/2 | : | Rear door speaker RH (With BOSE system) |

MEL370K

# BULB SPECIFICATIONS

*Headlamp*

## Headlamp

NFEL0144S03

| Item | Wattage (W) |
|---|---|
| High/Low | 60/35 (HB3) |

## Exterior Lamp

NFEL0144S01

| Item | | Wattage (W) |
|---|---|---|
| Front fog lamp | | 55 (H3) |
| Front turn signal lamp | | 21 |
| Parking lamp | | 5 |
| Front side marker lamp | | 3.8 |
| Rear combination lamp | Turn signal | 21 |
| | Stop/Tail | 21/5 |
| | Back-up | 13 |
| Rear side marker lamp | | 3.8 |
| License lamp | | 5 |
| High-mounted stop lamp (without rear spoiler) | | 21 |

## Interior Lamp

NFEL0144S02

| Item | Wattage (W) |
|---|---|
| Interior room lamp | 10 |
| Map lamp | 8 |
| Vanity mirror lamp | 1.4 |
| Trunk room lamp | 3.4 |
| Step lamp | 2.7 |

# WIRING DIAGRAM CODES (CELL CODES)

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

| Code | Section | Wiring Diagram Name |
|---|---|---|
| 1STSIG | AT | A/T 1ST Signal |
| 2NDSIG | AT | A/T 2ND Signal |
| 3RDSIG | AT | A/T 3RD Signal |
| 4THSIG | AT | A/T 4TH Signal |
| ABS | BR | Anti-lock Brake System |
| A/C, A | HA | Auto Air Conditioner |
| A/C, M | HA | Manual Air Conditioner |
| APPS1 | EC | Accelerator Pedal Position Sensor (Sensor 1) |
| APPS2 | EC | Accelerator Pedal Position Sensor (Sensor 2) |
| APPS3 | EC | Accelerator Pedal Position Sensor |
| ASC/BS | EC | Automatic Speed Control Device (ASCD) Brake Switch |
| ASC/SW | EC | Automatic Speed Control Device (ASCD) Steering Switch |
| ASC/VS | EC | Automatic Speed Control Device (ASCD) Vehicle Speed Sensor |
| ASCBOF | EC | Automatic Speed Control Device (ASCD) Brake Switch (Off) |
| ASCIND | EC | Automatic Speed Control Device (ASCD) Indicator |
| AT/IND | EL | A/T Indicator Lamp |
| AUDIO | EL | Audio |
| AUT/DP | EL | Automatic Drive Positioner |
| BACK/L | EL | Back-up Lamp |
| BA/FTS | AT | A/T Fluid Temperature Sensor and TCM Power Supply |
| B/COMP | EL | Board Computer |
| BRK/SW | EC | Brake Switch |
| BYPS/V | EC | Vacuum Cut Valve Bypass Valve |
| CAN | AT | CAN System |
| CAN | EC | CAN System |
| CAN | EL | CAN System |
| CHARGE | SC | Charging System |
| CHIME | EL | Warning Chime |
| CIGAR | EL | Cigarette Lighter |
| CLOCK | EL | Clock |
| COOL/F | EC | Cooling Fan Control |
| DEF | EL | Rear Window Defogger |
| D/LOCK | EL | Power Door Lock |
| DLC | EC | Data Link Connector |
| DTRL | EL | Headlamp - With Daytime Light System |
| ECM/PW | EC | ECM Power Supply |
| ECTS | EC | Engine Coolant Temperature Sensor |
| EMNT | EC | Electronic Controlled Engine Mount |
| ENGSS | AT | Engine Speed Signal |
| ETC1 | EC | Electrical Throttle Function |
| ETC2 | EC | Electrical Throttle Control Motor Relay |
| ETC3 | EC | Electrical Throttle Control Motor |
| F/FOG | EL | Front Fog Lamp |
| FLS1 | EC | Fuel Level Sensor |
| FLS2 | EC | Fuel Level Sensor |
| FLS3 | EC | Fuel Level Sensor |
| F/PUMP | EC | Fuel Pump Control |
| FTS | AT | A/T Fluid Temperature Sensor |
| FTTS | EC | Fuel Tank Temperature Sensor |
| FUELB1 | EC | Fuel Injection System Function (Bank 1) |
| FUELB2 | EC | Fuel Injection System Function (Bank 2) |
| H/LAMP | EL | Headlamp |
| HORN | EL | Horn |
| HSEAT | EL | Heated Seat |
| H/STRG | EL | Heated Steering |
| I/MIRR | EL | Inside Mirror (Auto Anti-dazzling Mirror) |
| IATS | EC | Intake Air Temperature Sensor |
| IGNSYS | EC | Ignition System |
| ILL | EL | Illumination |
| INJECT | EC | Injector |
| INT/L | EL | Interior, Step, Spot, Vanity Mirror and Trunk Room Lamps |
| IVCB1 | EC | Intake Valve Timing Control Solenoid Valve RH |

| Code | Section | Wiring Diagram Name |
|---|---|---|
| IVCB2 | EC | Intake Valve Timing Control Solenoid Valve LH |
| KEYLES | EL | Remote Keyless Entry System |
| KS | EC | Knock Sensor |
| LOAD | EC | Electrical Load Signal |
| LPSV | AT | Line Pressure Solenoid Valve |
| MAFS | EC | Mass Air Flow Sensor |
| MAIN | AT | Main Power Supply and Ground Circuit |
| MAIN | EC | Main Power Supply and Ground Circuit |
| METER | EL | Speedometer, Tachometer, Temp. and Fuel Gauges |
| MIL | EC | Malfunction Indicator Lamp |
| MIRROR | EL | Power Door Mirror |
| NATS | EL | NVIS (Nissan Vehicle Immobilizer System — NATS) |
| NAVI | EL | Navigation System |
| NONDTC | AT | Non-detectable Items |
| O2H1B1 | EC | Heated Oxygen Sensor 1 Heater (Bank 1) |
| O2H1B2 | EC | Heated Oxygen Sensor 1 Heater (Bank 2) |
| O2H2B1 | EC | Heated Oxygen Sensor 2 Heater (Bank 1) |
| O2H2B2 | EC | Heated Oxygen Sensor 2 Heater (Bank 2) |
| O2S1B1 | EC | Heated Oxygen Sensor 1 (Bank 1) |
| O2S1B2 | EC | Heated Oxygen Sensor 1 (Bank 2) |
| O2S2B1 | EC | Heated Oxygen Sensor 2 (Bank 1) |
| O2S2B2 | EC | Heated Oxygen Sensor 2 (Bank 2) |
| OVRCSV | AT | Overrun Clutch Solenoid Valve |
| PHASE | EC | Camshaft Position Sensor (PHASE) (Bank 1) |
| PHASE | EC | Camshaft Position Sensor (PHASE) (Bank 2) |
| PHONE | EL | Telephone (Pre-wire) |
| PGC/V | EC | EVAP Canister Purge Volume Control Solenoid Valve |
| PNP/SW | AT | Park/Neutral Position Switch |
| PNP/SW | EC | Park/Neutral Position Switch |
| POS | EC | Crankshaft Position Sensor (CKPS) (POS) |
| POWER | EL | Power Supply Routing |
| PRE/SE | EC | EVAP Control System Pressure Sensor |
| PS/SEN | EC | Power Steering Oil Pressure Sensor |
| REF | EC | Crankshaft Position Sensor (CKPS) (REF) |
| REMOTE | EL | Audio (Remote Control Switch) |
| RP/SEN | EC | Refrigerant Pressure Sensor |
| SEN/PW | EC | Sensor Power Supply |
| SEAT | EL | Power Seat |
| SHIFT | AT | A/T Shift Lock System |
| SROOF | EL | Sunroof |
| SRS | RS | Supplemental Restraint System |
| S/SIG | EC | Start Signal |
| SSV/A | AT | Shift Solenoid Valve A |
| SSV/B | AT | Shift Solenoid Valve B |
| START | SC | Starting System |
| STOP/L | EL | Stop Lamp |
| TAIL/L | EL | Parking, License and Tail Lamps |
| TCCSIG | AT | A/T TCC Signal (Lock Up) |
| TCS | EC | ABS/TCS Communication Line |
| TCS | BR | Traction Control System |
| TCV | AT | Torque Converter Clutch Solenoid Valve |
| T&FLID | EL | Trunk Lid and Fuel Filler Lid Opener |
| TPS | AT | Throttle Position Sensor |
| TPS1 | EC | Throttle Position Sensor (Sensor 1) |
| TPS2 | EC | Throttle Position Sensor (Sensor 2) |
| TPS3 | EC | Throttle Position Sensor |
| TRNSCV | EL | Homelink Universal Transceiver |
| TURN | EL | Turn Signal and Hazard Warning Lamps |
| VEHSEC | EL | Vehicle Security (Theft Warning) System |

| Code | Section | Wiring Diagram Name |
|---|---|---|
| VENT/V | EC | EVAP Canister Vent Control Valve |
| VIAS | EC | Variable Induction Air Control System |
| VIAS/V | EC | Variable Induction Air Control System |
| VSS | EC | Vehicle Speed Sensor |
| VSSA/T | AT | Vehicle Speed Sensor A/T (Revolution Sensor) |
| VSSMTR | AT | Vehicle Speed Sensor MTR |
| W/ANT | EL | Audio Antenna |
| WARN | EL | Warning Lamps |
| WINDOW | EL | Power Window |
| WIPER | EL | Front Wiper and Washer |

NOTES