ELECTRICAL SYSTEM

SECTION EL

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

NBEL0001

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER” used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. The SRS system composition which is available to INFINITI QX4 is as follows:

- For a frontal collision
  The Supplemental Restraint System consists of driver air bag module (located in the center of the steering wheel), front passenger air bag module (located on the instrument panel on passenger side), seat belt pre-tensioners, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.
- For a side collision
  The Supplemental Restraint System consists of 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 must be performed by an authorized INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the RS section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow harness connector (and by yellow harness protector or yellow insulation tape before the harness connectors).**

Wiring Diagrams and Trouble Diagnosis

NBEL0002

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

NBEL0003

HARNESS CONNECTOR (TAB-LOCKING TYPE)

NBEL0003S01

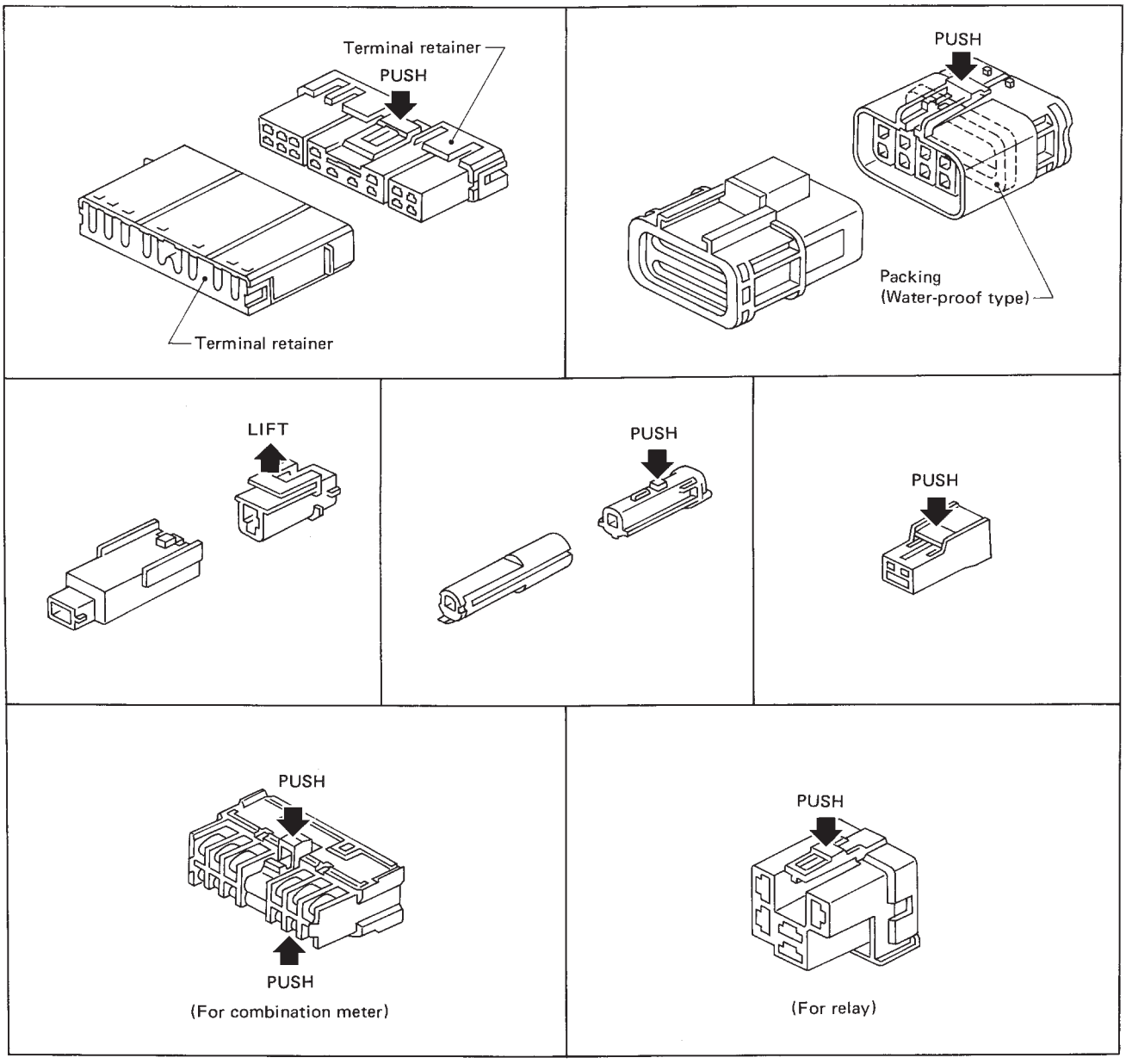
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to the illustration below.

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

CAUTION:

Do not pull the harness when disconnecting the connector.

[Example]



SEL769D

HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

=NBEL0003S02

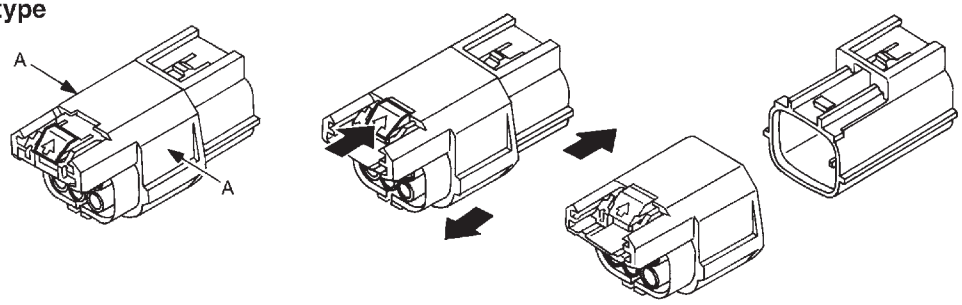
- A new style slide-locking type connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.
- The slide-locking type connectors are disconnected by pushing or pulling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

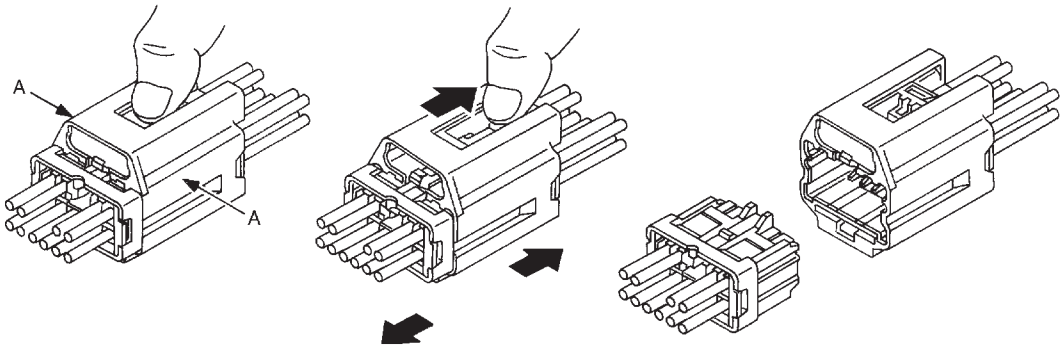


① Firmly grasp shell of connector housing at A.

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

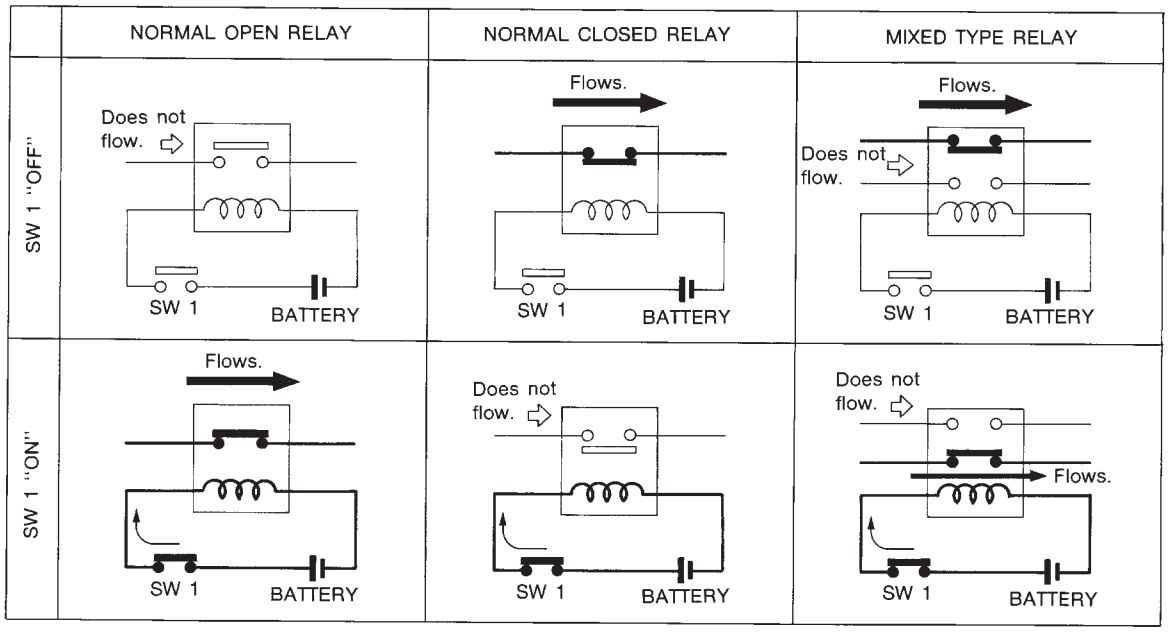
Description

NBEL0004

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

NBEL0004S01

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

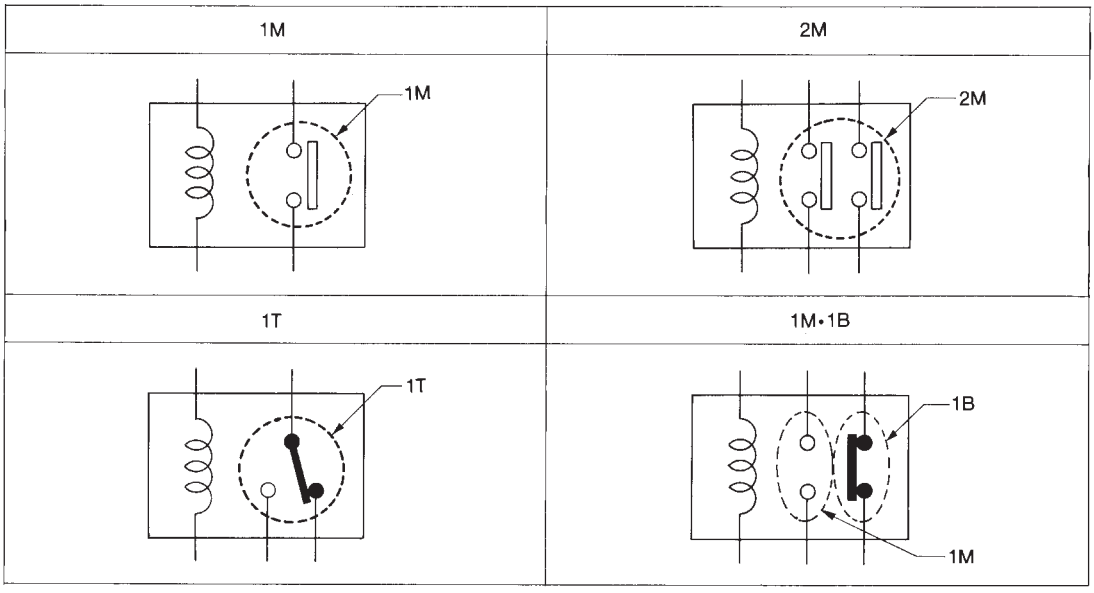


SEL881H

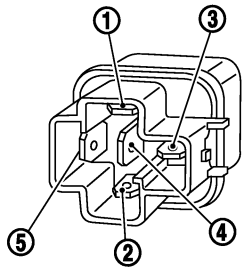
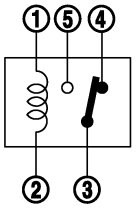
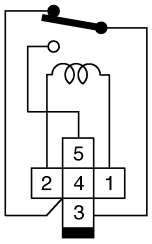
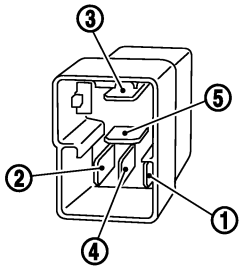
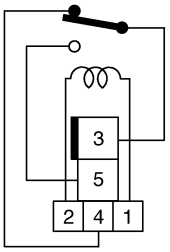
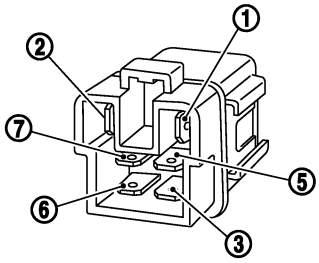
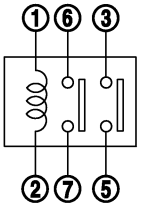
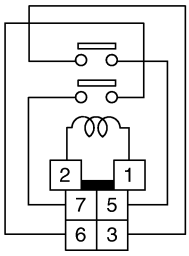
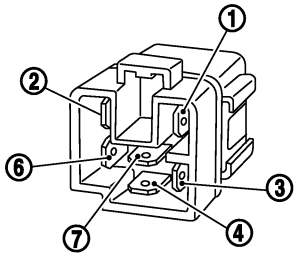
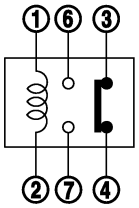
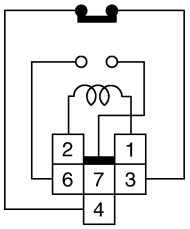
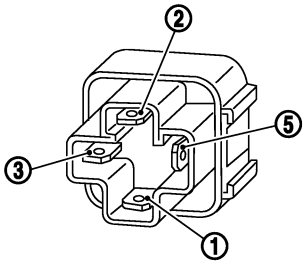
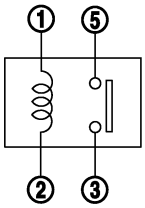
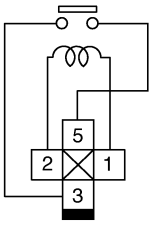
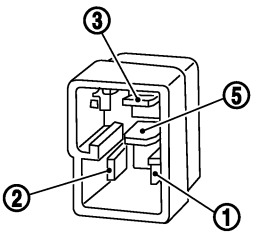
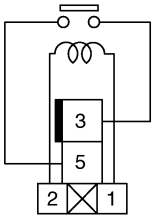
TYPE OF STANDARDIZED RELAYS

NBEL0004S02

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



SEL882H

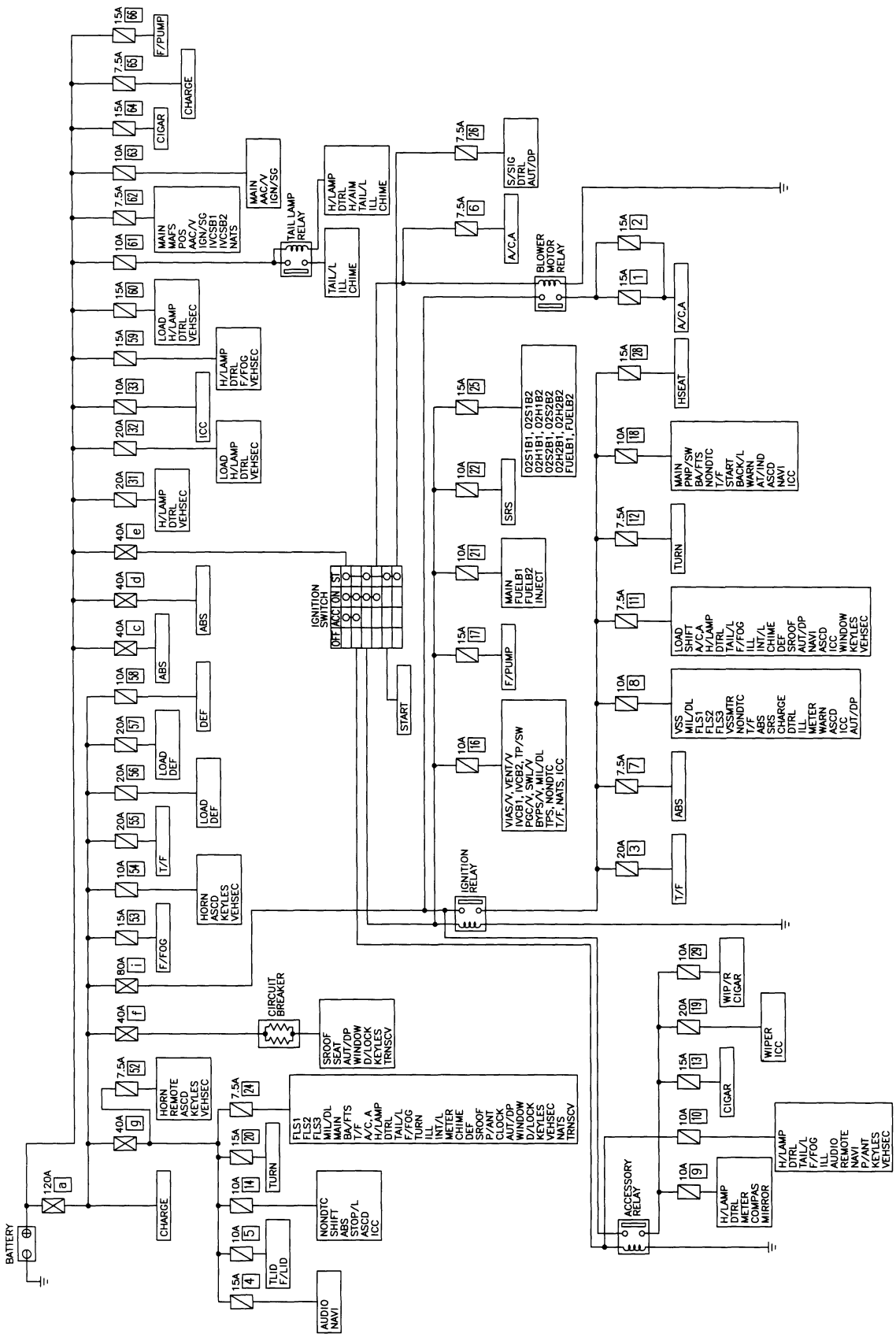
Type	Outer view	Circuit	Connector symbol and connector	Case color
1T				BLACK
				
2M				BROWN
1M•1B				GRAY
1M				BLUE
				

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

GEL264

Schematic

NBEL0247



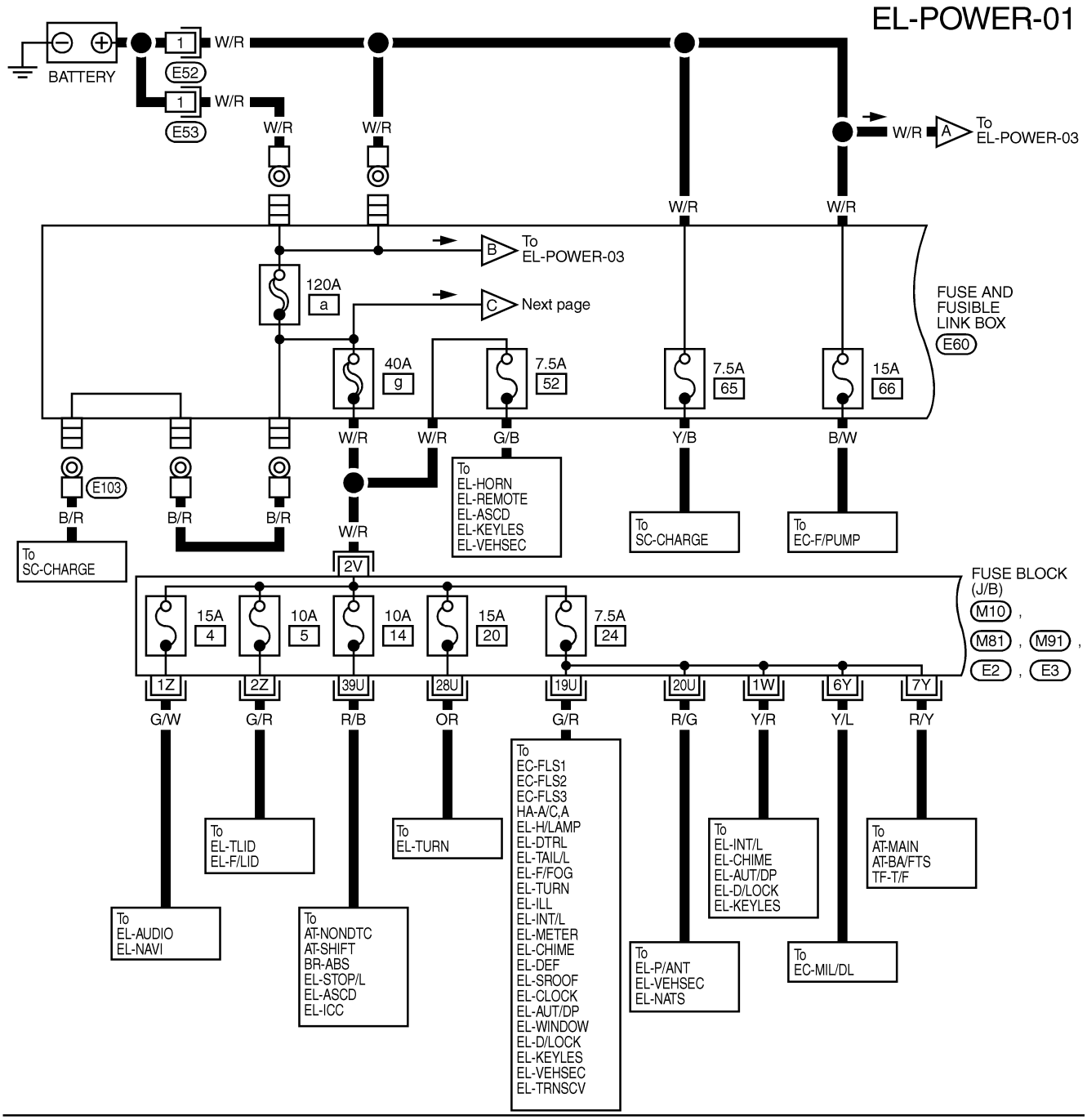
MEL434O

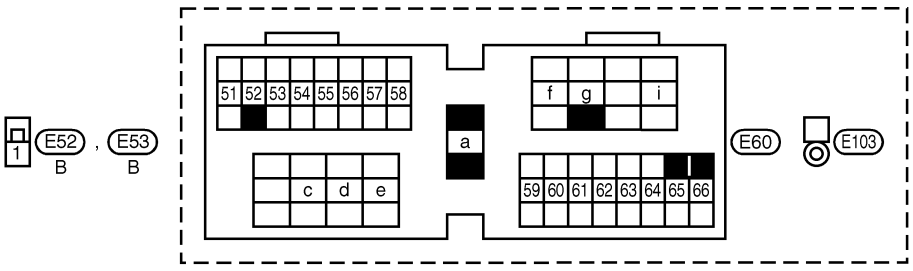
Wiring Diagram — POWER —

NBEL0248

BATTERY POWER SUPPLY — IGNITION SW. IN ANY POSITION

NBEL0248S01





REFER TO THE FOLLOWING.

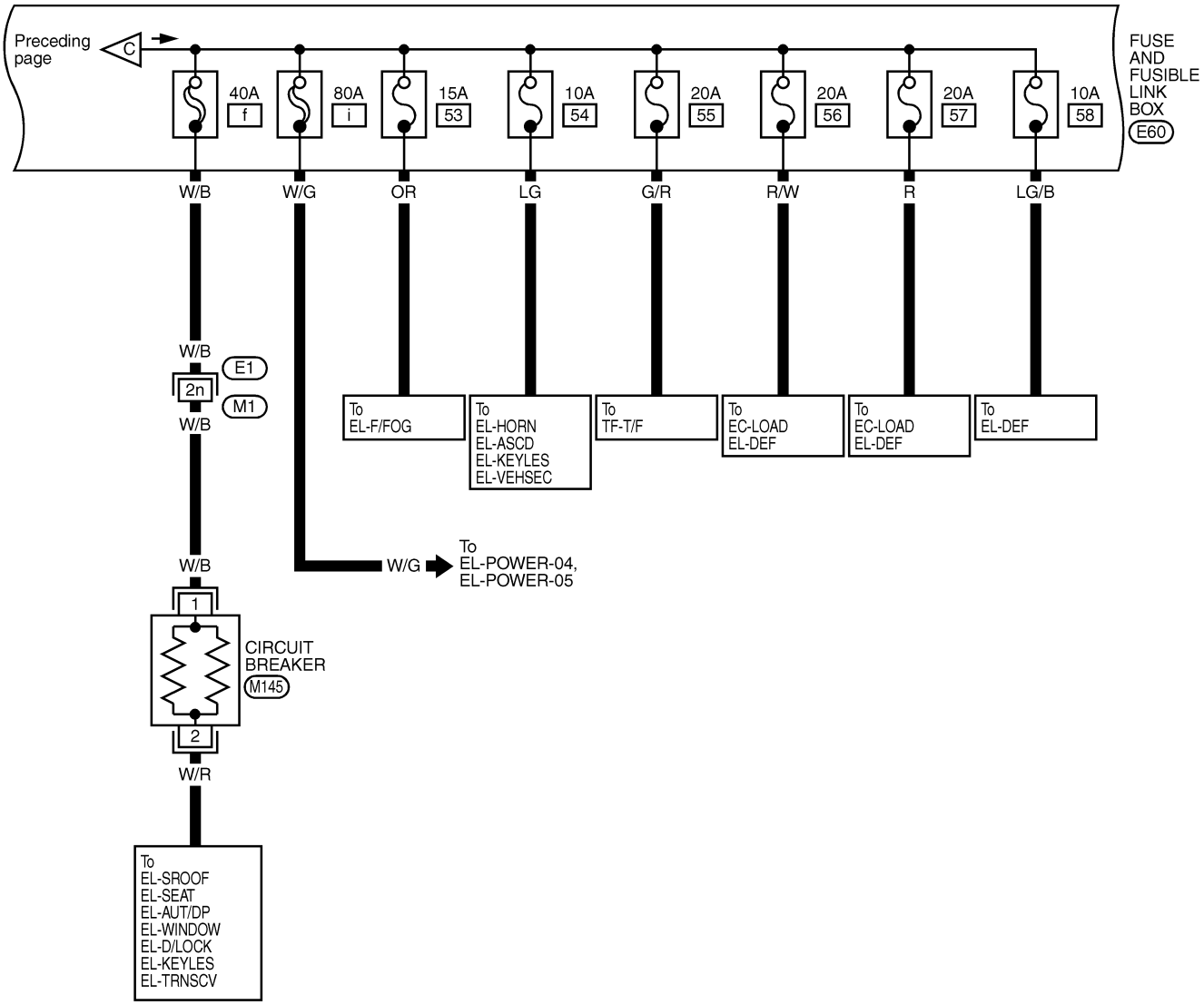
M10 , M81 , M91 , E2 , E3

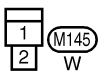
-FUSE BLOCK- JUNCTION BOX (J/B)

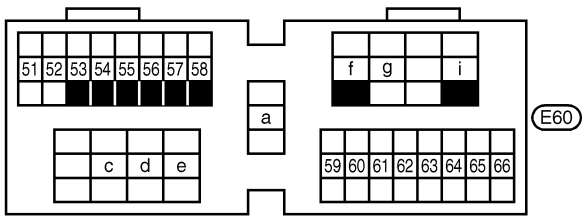
1	2	3	4	5
6	7	8	9	10
11	12	13	14	
16	17	18	19	20
21	22			
24	25	26		
	28	29		

MEL435O

EL-POWER-02



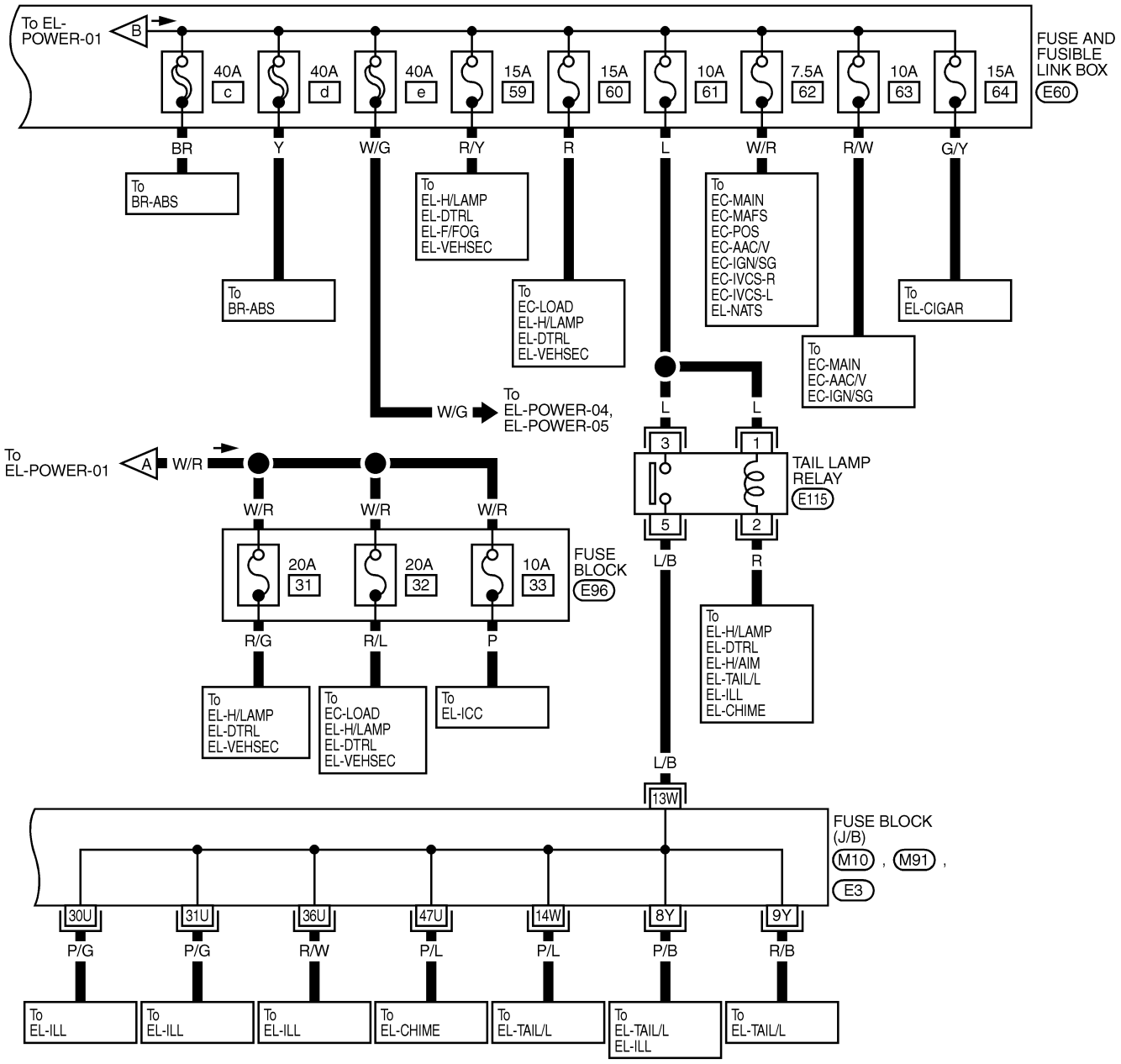


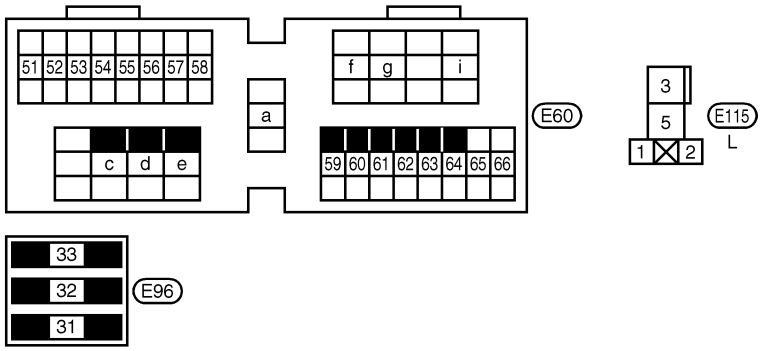


REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL436O

EL-POWER-03





REFER TO THE FOLLOWING.

M10 , M91 , E3

-FUSE BLOCK-
JUNCTION BOX (J/B)

1	2	3	4	5
6	7	8	9	10
11	12	13	14	
16	17	18	19	20
21	22			
24	25	26		
	28	29		

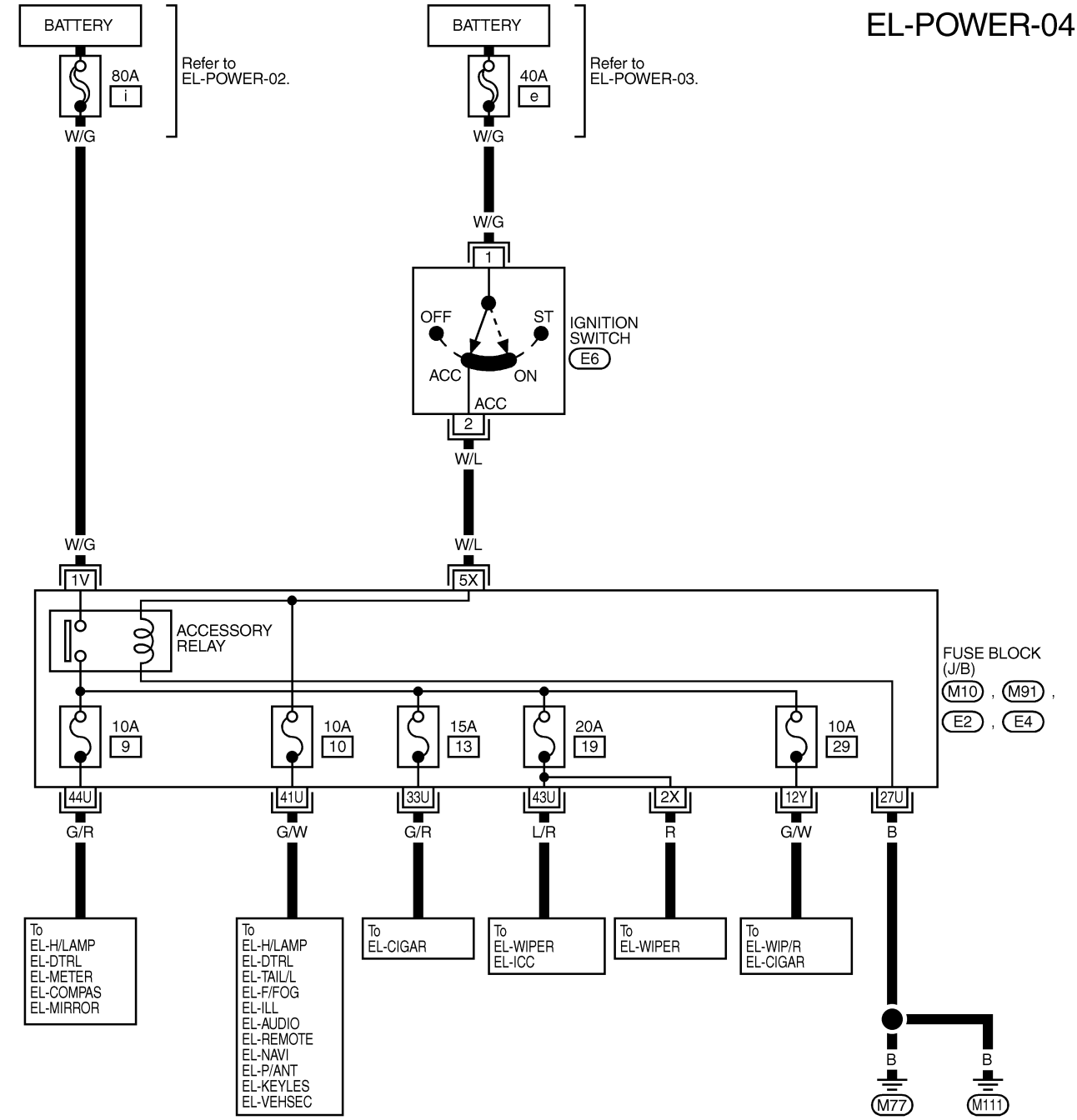
MEL437O

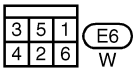
Wiring Diagram — POWER — (Cont'd)

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

NBEL0248S02

EL-POWER-04





REFER TO THE FOLLOWING.

M10 , M91 , E2 , E4

- FUSE BLOCK - JUNCTION BOX (J/B)

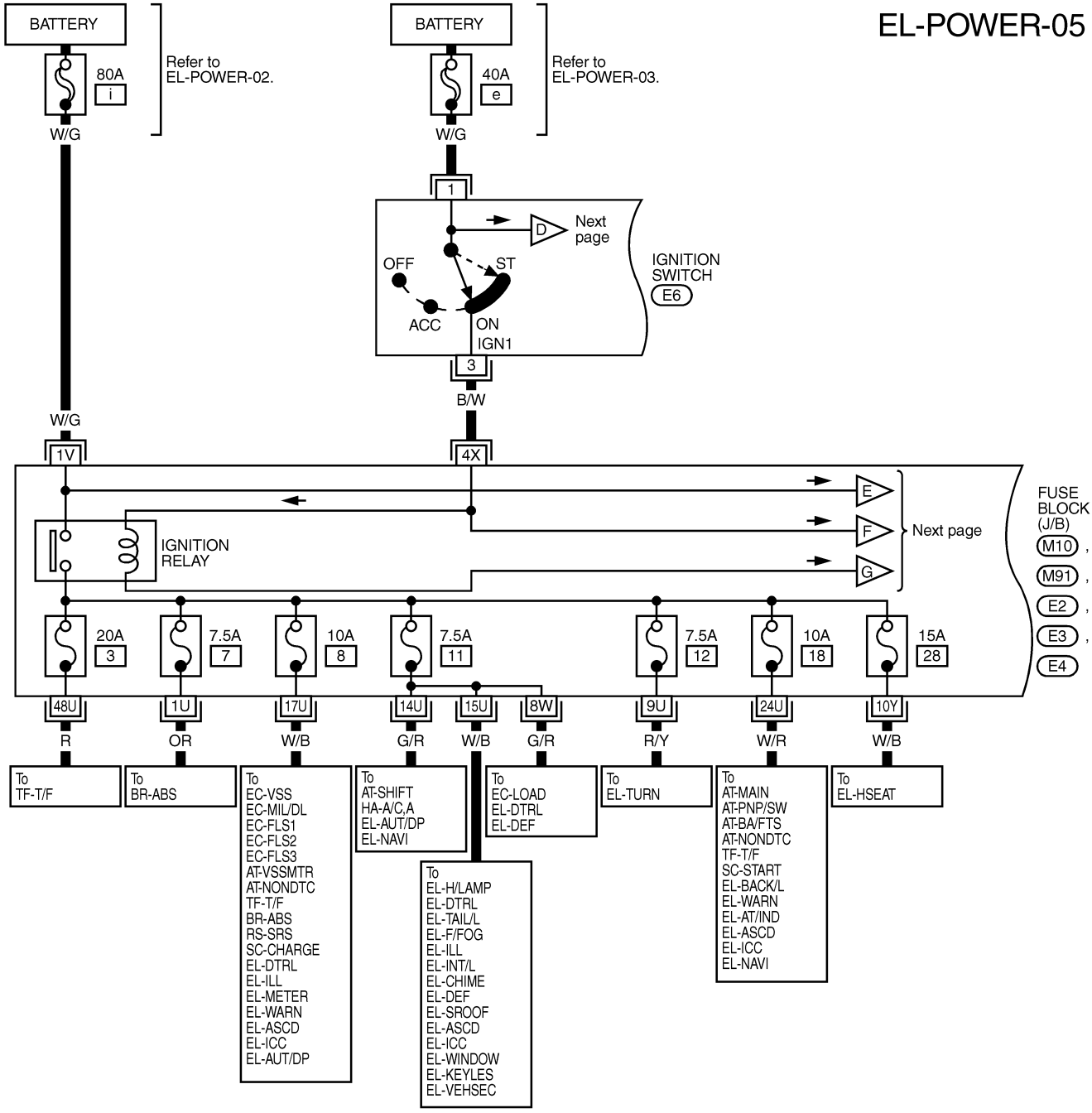
1	2	3	4	5
6	7	8	9	10
11	12	13	14	
16	17	18	19	20
21	22			
24	25	26		
	28	29		

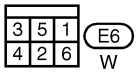
MEL438O

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

NBEL0248S03

EL-POWER-05





REFER TO THE FOLLOWING.

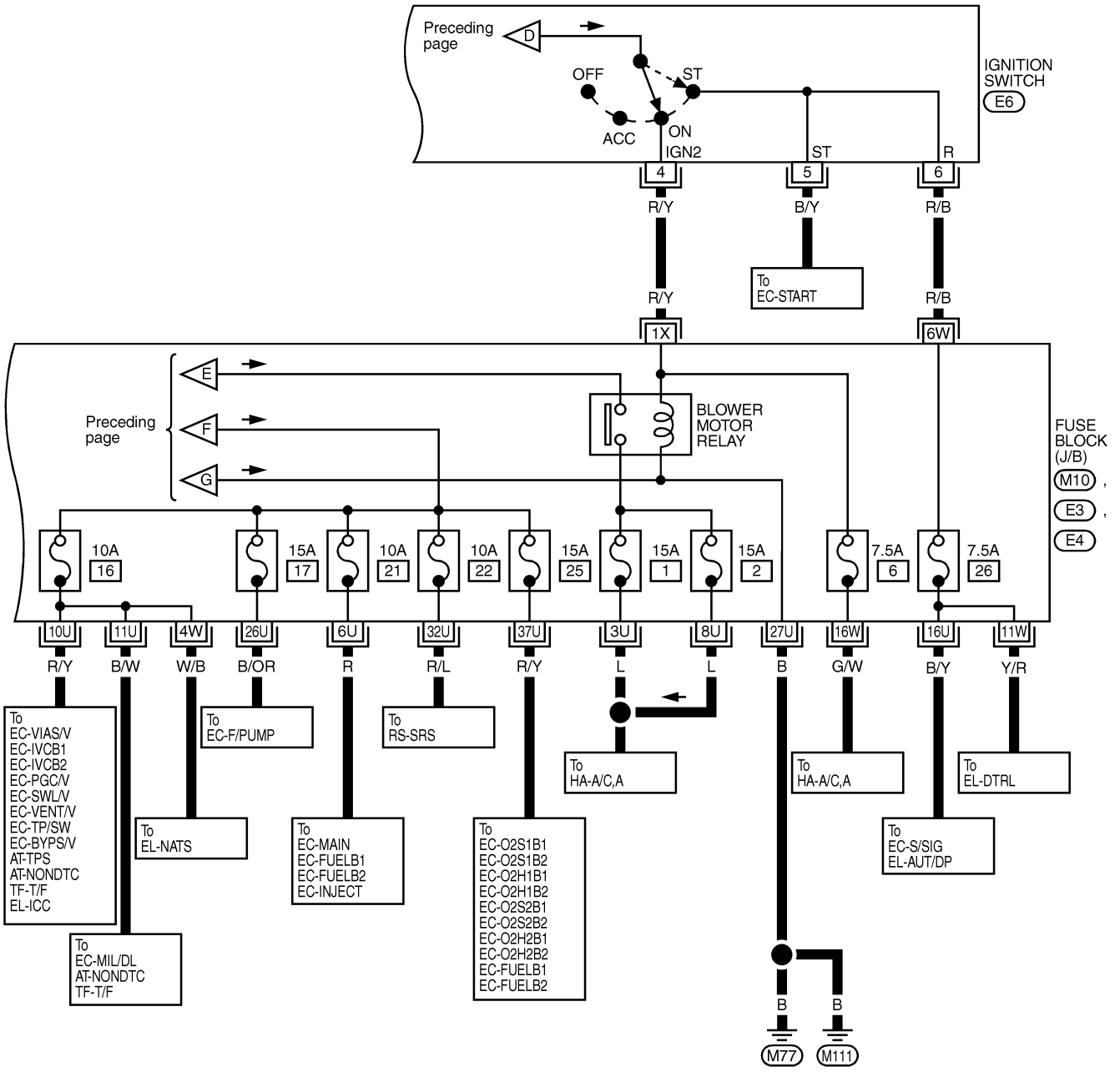
M10 , M91 , E2 , E3 , E4

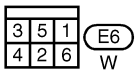
-FUSE BLOCK-
JUNCTION BOX (J/B)

1	2	3	4	5
6	7	8	9	10
11	12	13	14	
16	17	18	19	20
21	22			
24	25	26		
	28	29		

MEL439O

EL-POWER-06





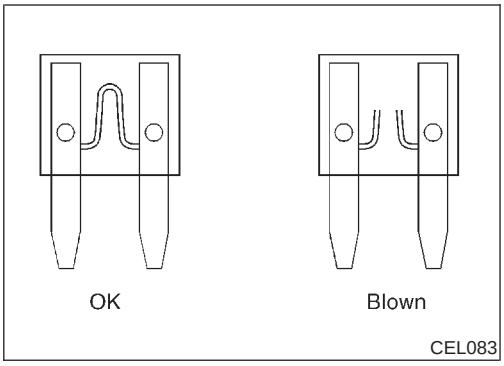
REFER TO THE FOLLOWING.

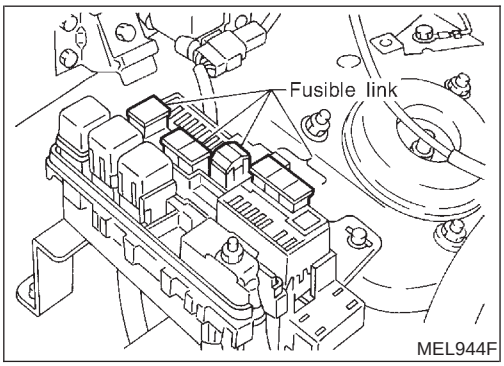
M10 , E3 , E4

-FUSE BLOCK-
JUNCTION BOX (J/B)

1	2	3	4	5
6	7	8	9	10
11	12	13	14	
16	17	18	19	20
21	22			
24	25	26		
	28	29		

MEL440O





Inspection

NBEL0249

FUSE

NBEL0249S01

- **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.**

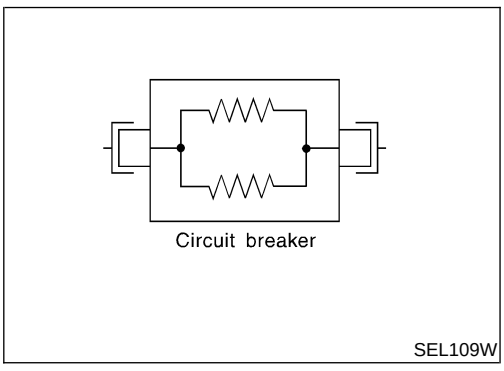
FUSIBLE LINK

NBEL0249S02

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)

NBEL0249S03

The PTC thermister generates heat in response to current flow. The temperature (and resistance) of the thermister 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.

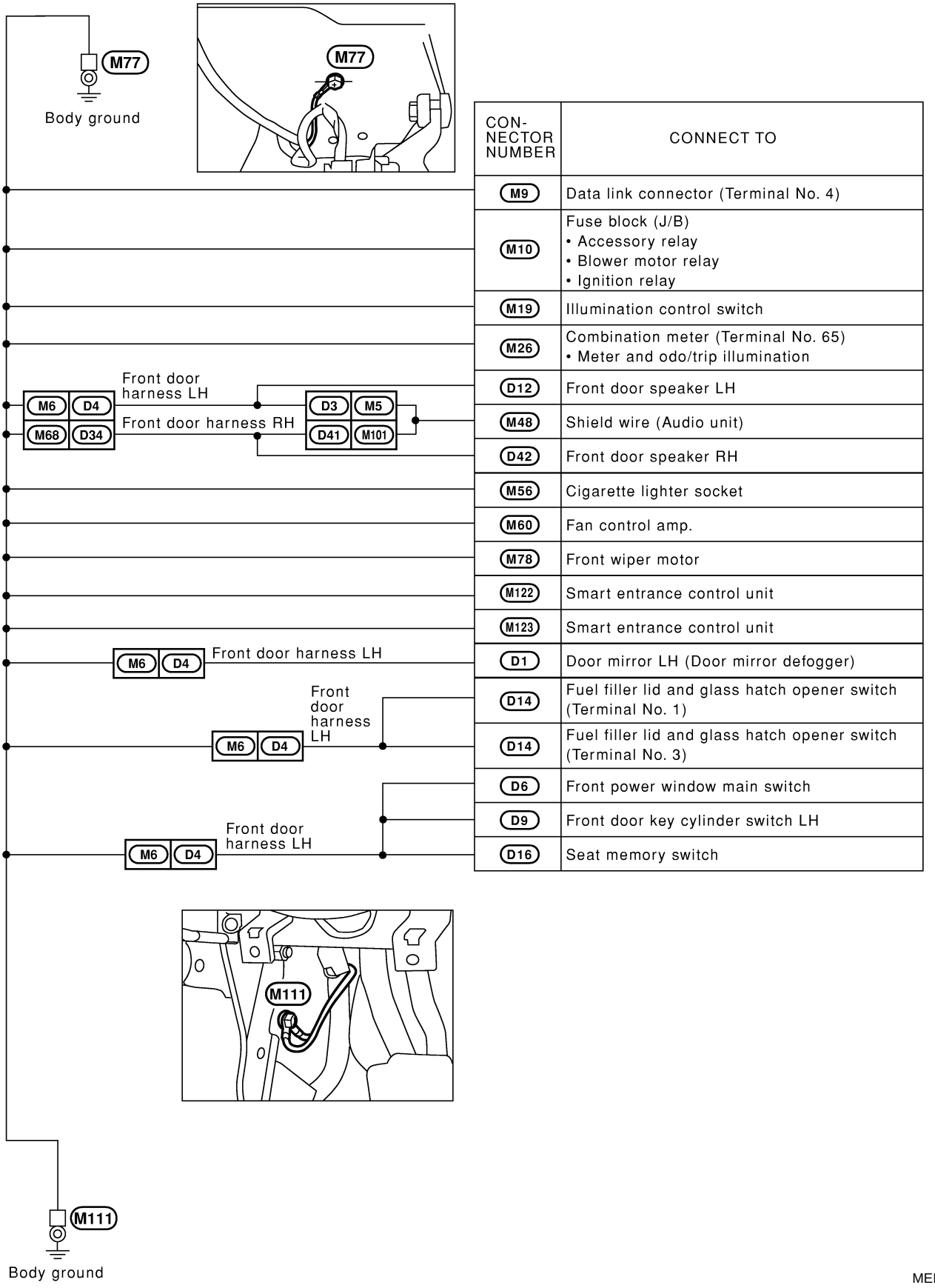
Reduced current flow will cause the element to cool. Resistance falls accordingly and normal circuit current flow is allowed to resume.

Ground Distribution

NBEL0250

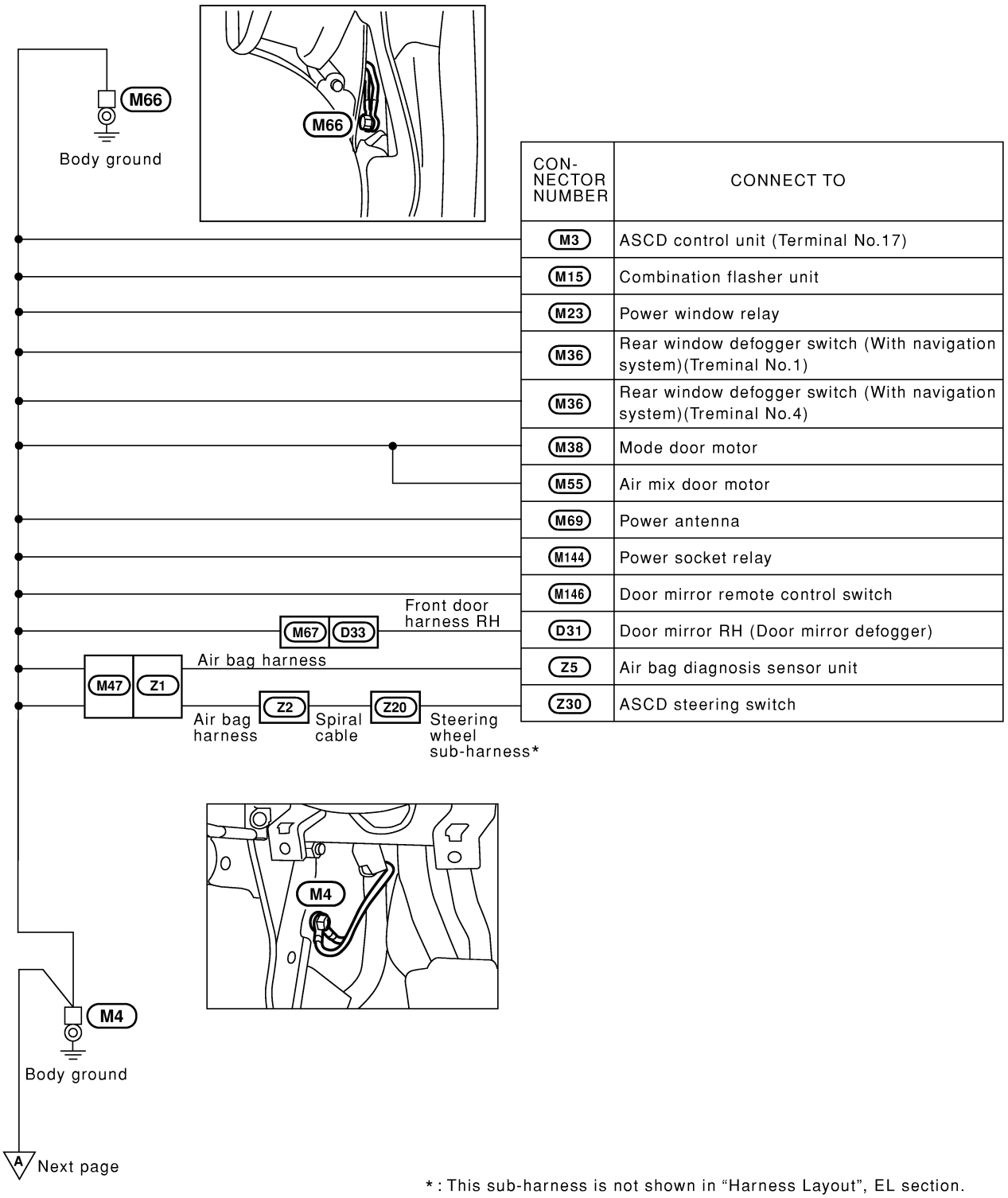
MAIN HARNESS

NBEL0250S01



CONNECTOR NUMBER	CONNECT TO
M9	Data link connector (Terminal No. 4)
M10	Fuse block (J/B) • Accessory relay • Blower motor relay • Ignition relay
M19	Illumination control switch
M26	Combination meter (Terminal No. 65) • Meter and odo/trip illumination
D12	Front door speaker LH
M48	Shield wire (Audio unit)
D42	Front door speaker RH
M56	Cigarette lighter socket
M60	Fan control amp.
M78	Front wiper motor
M122	Smart entrance control unit
M123	Smart entrance control unit
D1	Door mirror LH (Door mirror defogger)
D14	Fuel filler lid and glass hatch opener switch (Terminal No. 1)
D14	Fuel filler lid and glass hatch opener switch (Terminal No. 3)
D6	Front power window main switch
D9	Front door key cylinder switch LH
D16	Seat memory switch

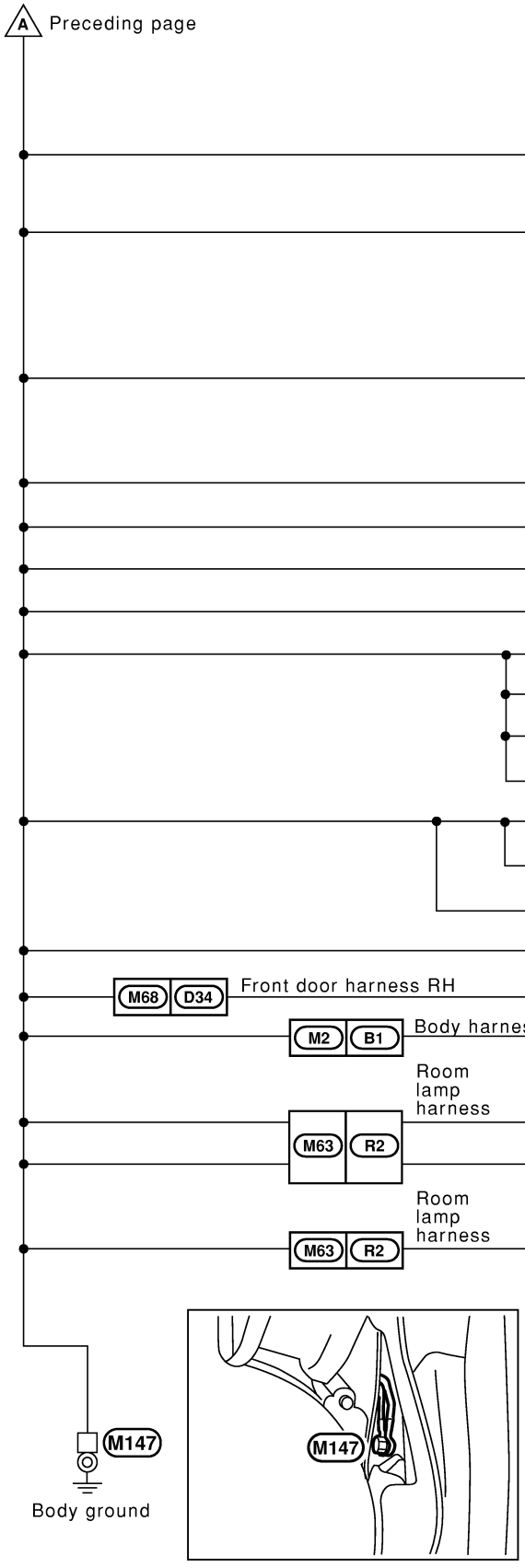
MEL289P



CONNECTOR NUMBER	CONNECT TO
M3	ASCD control unit (Terminal No.17)
M15	Combination flasher unit
M23	Power window relay
M36	Rear window defogger switch (With navigation system)(Treminal No.1)
M36	Rear window defogger switch (With navigation system)(Treminal No.4)
M38	Mode door motor
M55	Air mix door motor
M69	Power antenna
M144	Power socket relay
M146	Door mirror remote control switch
D31	Door mirror RH (Door mirror defogger)
Z5	Air bag diagnosis sensor unit
Z30	ASCD steering switch

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

MEL651P

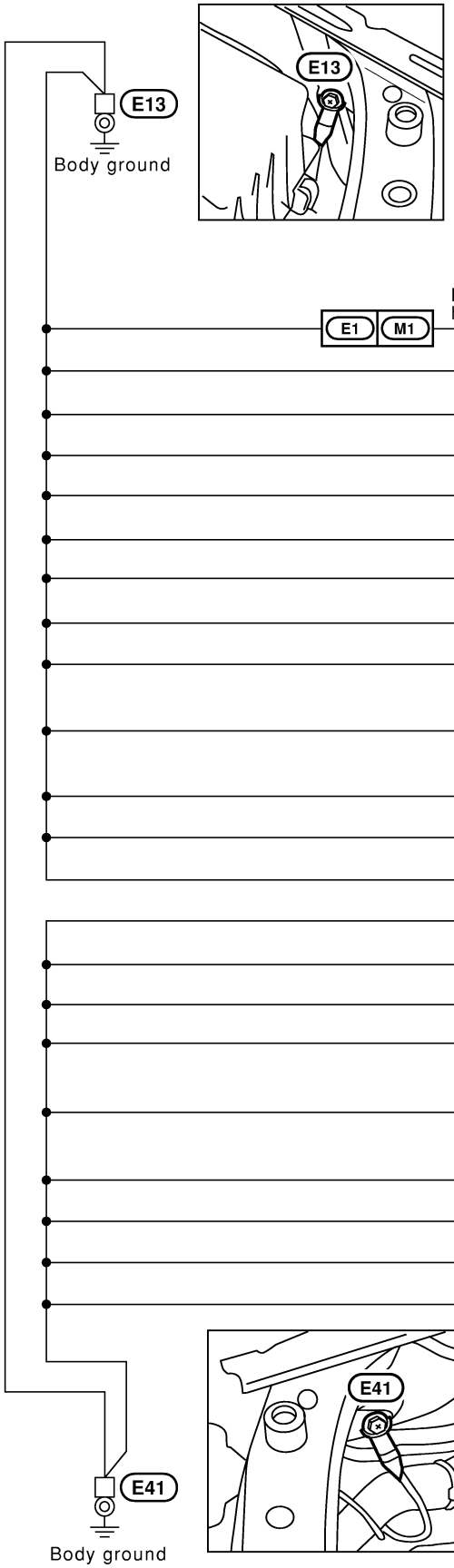


CON-NECTOR NUMBER	CONNECT TO
M17	Memory seat cancel switch
M25	Combination meter (Terminal No. 30) • Turn signal RH • Turn signal LH • ABS warning lamp • A/T indicator
M26	Combination meter (Terminal No. 59) • Water temp. gauge • Fuel gauge • Air bag warning lamp • Unified meter control unit
M30	Glove box lamp
M39	Clock
M41	Steering wheel receiver control switch
M54	Ashtray illumination
M59	Intake door motor
M102	A/C auto amp. (Without navigation)
M103	A/C auto amp. (For Canada) (Without navigation)
M105	A/C auto amp. (With navigation)
M117	Display and NAVI control unit (Terminal No. 3)
M117	Display and NAVI control unit (Terminal No. 4)
M118	Display and NAVI control unit
M142	Transfer control unit (Terminal No. 3)
D43	Front power window switch RH
B47	Audio amp. relay
R3	Vanity mirror RH (illumination)
R4	Compass and thermometer
R5	Homelink universal transceiver
R5	Vanity mirror LH (illumination)
R6	Spot lamp
R11	Sunroof motor

MEL504P

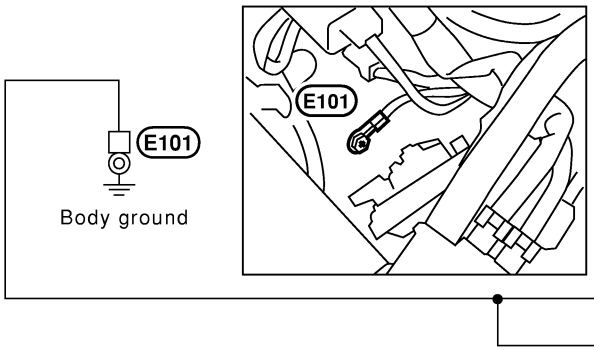
ENGINE ROOM HARNESS

NBEL0250S02

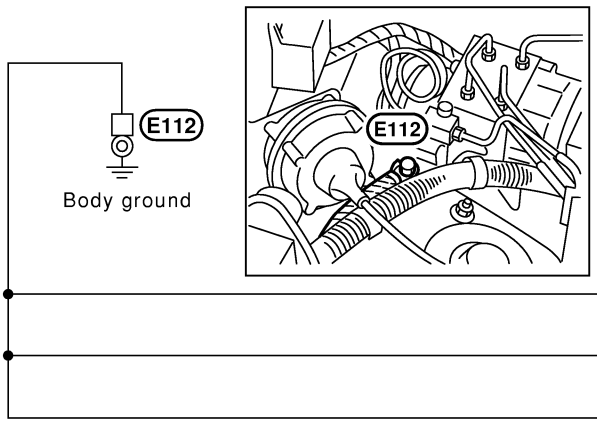


CON-NECTOR NUMBER	CONNECT TO
M16	Headlamp aiming switch
E7	Combination switch
E8	Combination switch
E9	Combination switch (front wiper switch)
E12	Parking lamp LH
E28	Brake fluid level switch
E29	Headlamp LH
E31	Hood switch
E45	Daytime light control unit
E62	Front fog lamp RH • Front fog lamp • Turn signal lamp
E114	Combination switch (rear wiper switch)
E124	Headlamp aiming motor LH
E136	ICC hold unit relay
E38	Headlamp RH
E40	Parking lamp RH
E42	Washer level switch
E54	Fuel pump relay-2
E61	Front fog lamp LH • Front fog lamp • Turn signal lamp
E95	Transfer shift Hi relay
E99	Transfer shift Low relay
E126	Headlamp aiming motor RH
E140	ICC sensor

MEL505P



CONNECTOR NUMBER	CONNECT TO
E105	Alternator
E110	Power steering oil pressure switch

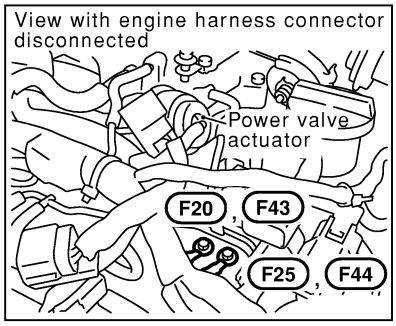


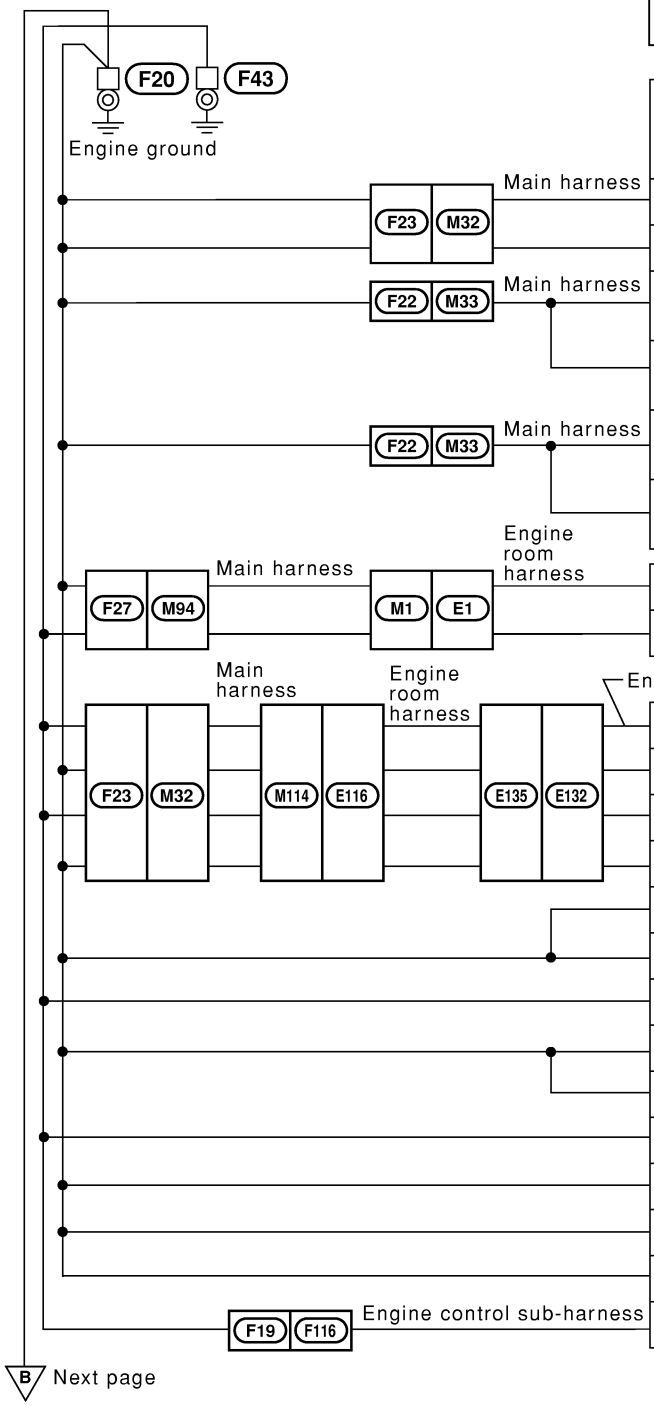
CONNECTOR NUMBER	CONNECT TO
E111	ABS actuator and electric control unit (Terminal No. 16)
E111	ABS actuator and electric control unit (Terminal No. 20)(With 4-wheel drive)
E111	ABS actuator and electric control unit (Terminal No. 30)

MEL759N

ENGINE CONTROL HARNESS

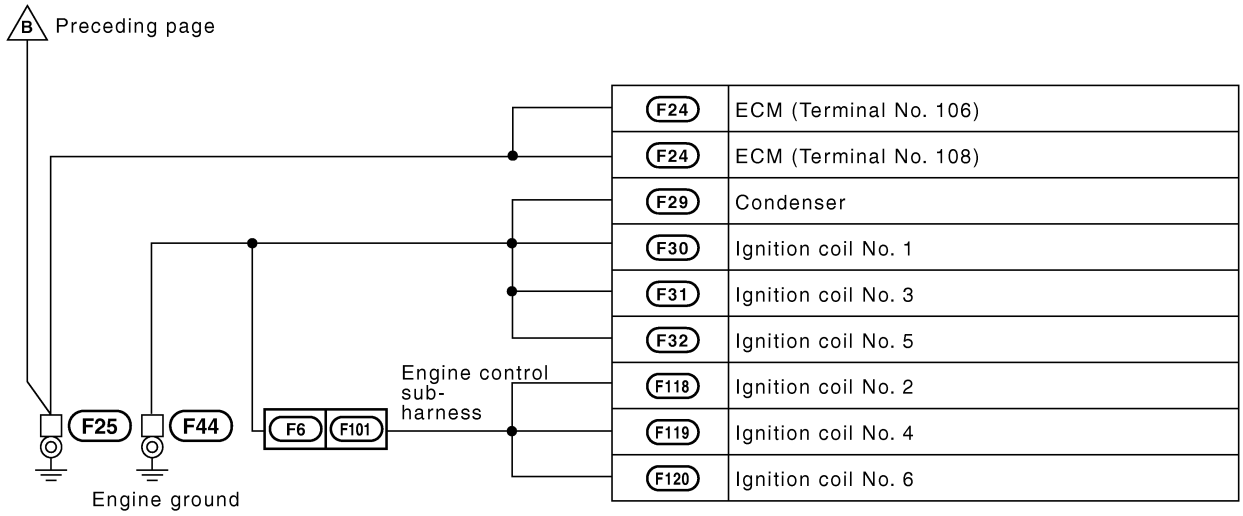
NBEL0250S03





CONNECTOR NUMBER	CONNECT TO
M3	ASCD control unit (Terminal No. 4)
M9	Data link connector (Terminal No. 5)
M120	TCM (Transmission control module)(Terminal No. 25)
M120	TCM (Transmission control module)(Terminal No. 48)
M142	Transfer control unit (Terminal No. 6)(With 4-wheel drive)
M143	Transfer control unit (Terminal No. 45)(With 4-wheel drive)
E113	NATS IMMU
E123	Swirl control valve control vacuum check switch
E130	Shield wire [Crankshaft position sensor (POS)]
E130	Crankshaft position sensor (POS)
E131	Shield wire [Crankshaft position sensor (REF)]
E131	Crankshaft position sensor (REF)
F1	Heated oxygen sensor 2 (Bank 1)
F3	Heated oxygen sensor 2 (Bank 2)
F8	Shield wire (Throttle position sensor)
F24	ECM (Terminal No. 57)
F24	ECM (Terminal No. 48)
F36	Shield wire [Camshaft position sensor (PHASE)]
F36	Camshaft position sensor (PHASE)
F37	Intake valve timing control position sensor (B2)
F38	Intake valve timing control position sensor (B1)
F102	Shield wire (Knock sensor)

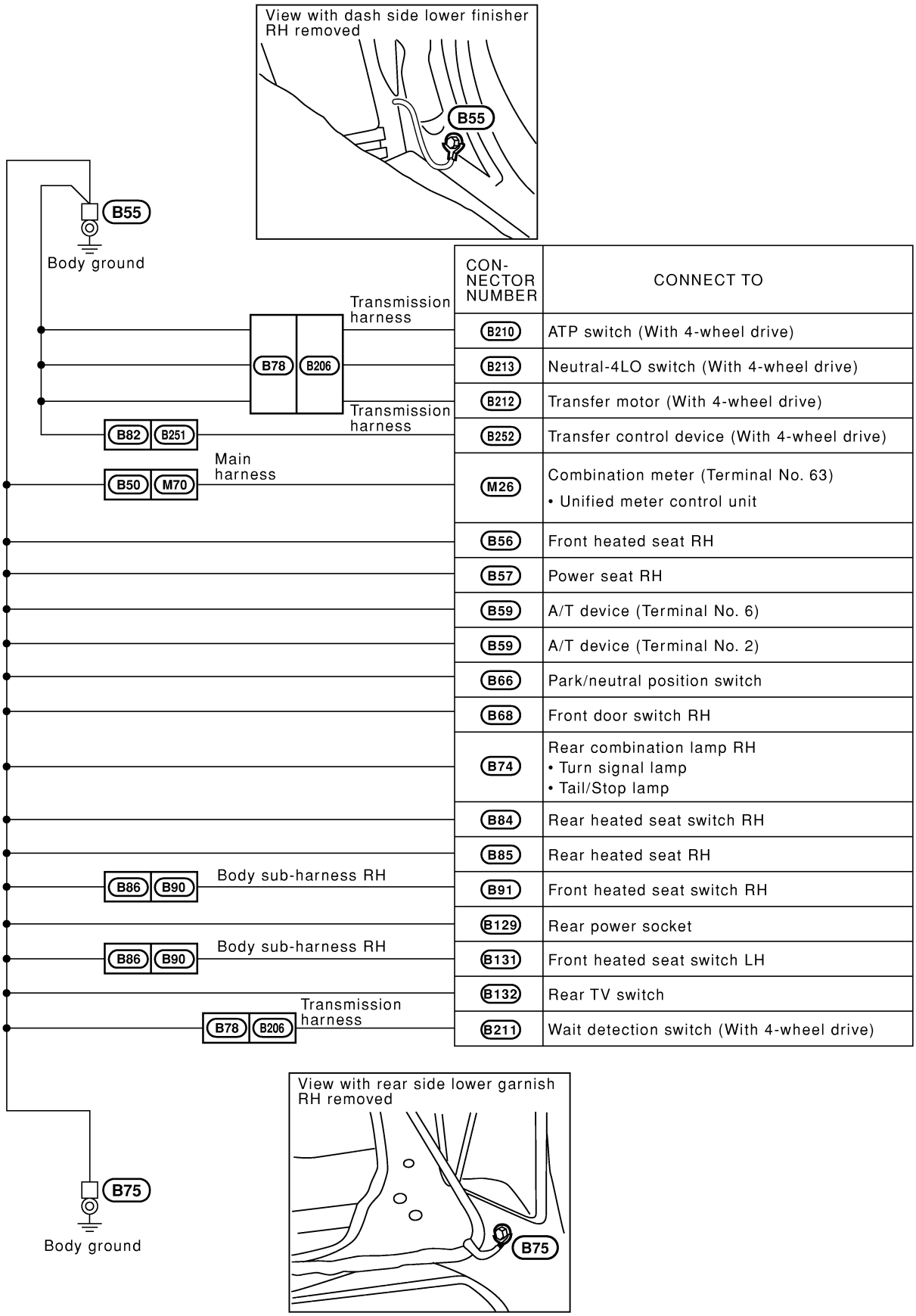
MEL652P


B
Preceding page
F24
ECM (Terminal No. 106)
F24
ECM (Terminal No. 108)
F29
Condenser
F30
Ignition coil No. 1
F31
Ignition coil No. 3
F32
Ignition coil No. 5
F118
Ignition coil No. 2
F119
Ignition coil No. 4
F120
Ignition coil No. 6
Engine control sub-harness
F6
F101
F25
F44
Engine ground

MEL233M

BODY HARNESS RH

NBEL0250S04

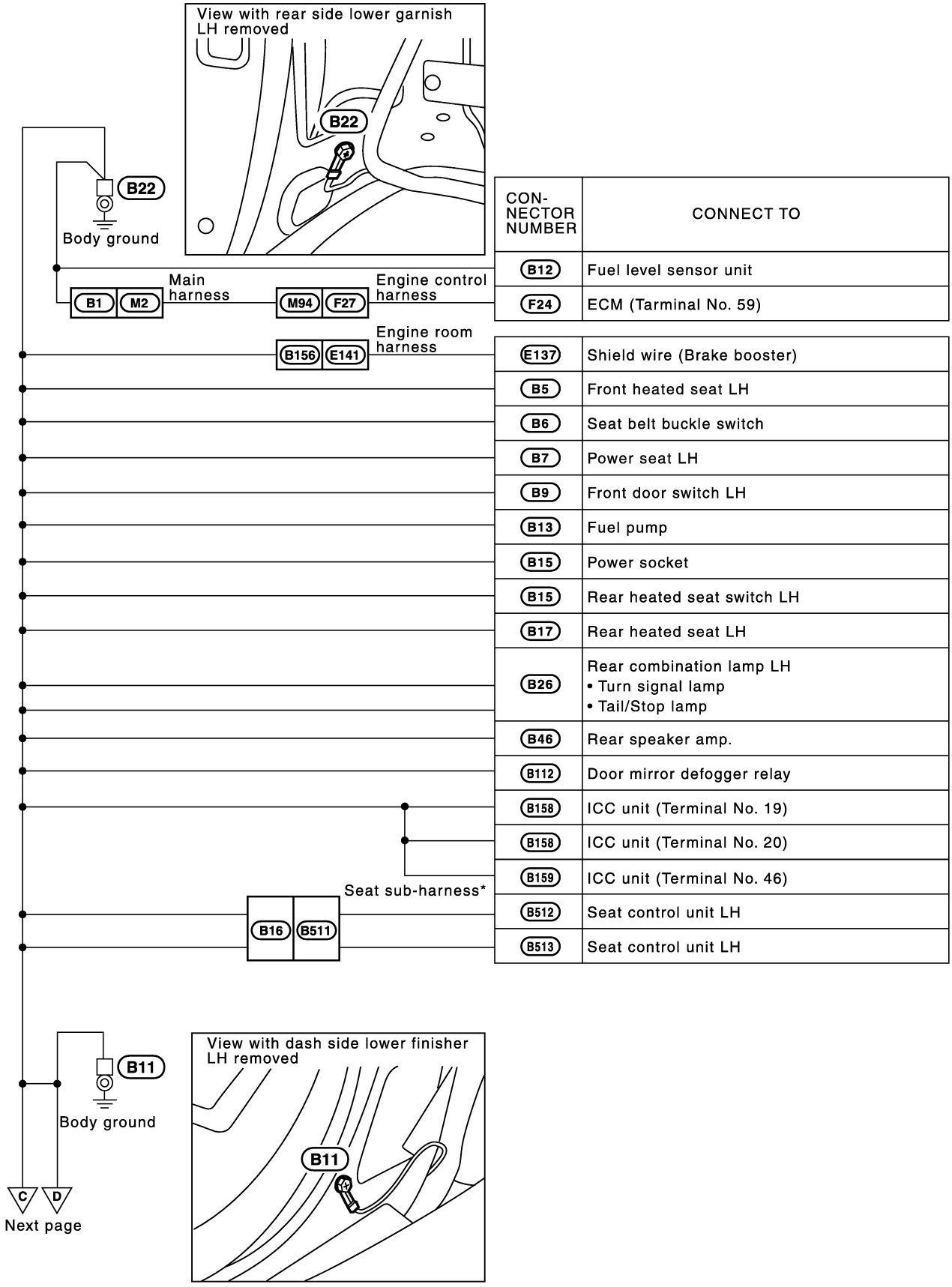


CON-NECTOR NUMBER	CONNECT TO
B210	ATP switch (With 4-wheel drive)
B213	Neutral-4LO switch (With 4-wheel drive)
B212	Transfer motor (With 4-wheel drive)
B252	Transfer control device (With 4-wheel drive)
M26	Combination meter (Terminal No. 63) • Unified meter control unit
B56	Front heated seat RH
B57	Power seat RH
B59	A/T device (Terminal No. 6)
B59	A/T device (Terminal No. 2)
B66	Park/neutral position switch
B68	Front door switch RH
B74	Rear combination lamp RH • Turn signal lamp • Tail/Stop lamp
B84	Rear heated seat switch RH
B85	Rear heated seat RH
B91	Front heated seat switch RH
B129	Rear power socket
B131	Front heated seat switch LH
B132	Rear TV switch
B211	Wait detection switch (With 4-wheel drive)

MEL506P

BODY HARNESS LH

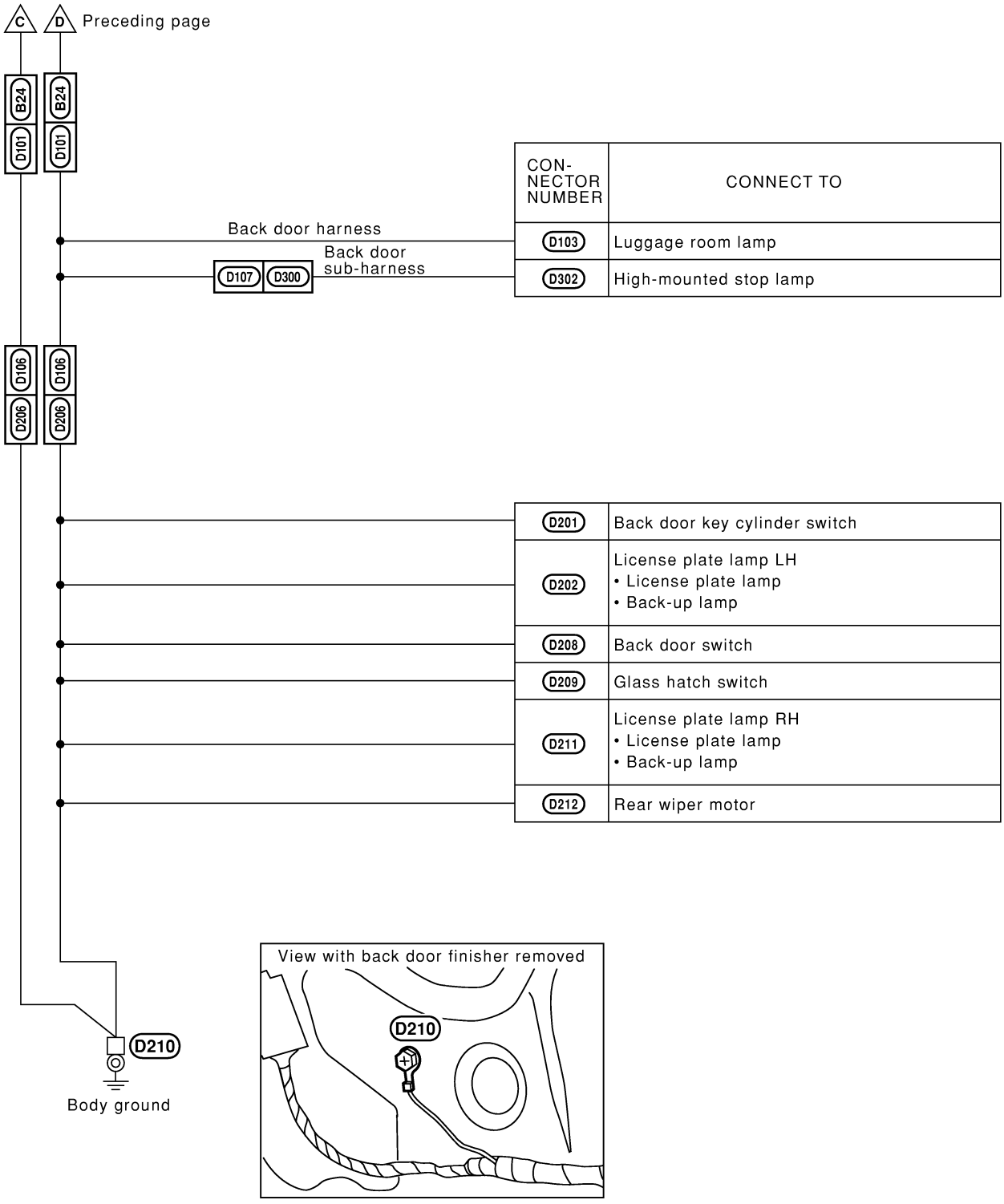
NBEL0250S05



CONNECTOR NUMBER	CONNECT TO
B12	Fuel level sensor unit
F24	ECM (Tarminal No. 59)
E137	Shield wire (Brake booster)
B5	Front heated seat LH
B6	Seat belt buckle switch
B7	Power seat LH
B9	Front door switch LH
B13	Fuel pump
B15	Power socket
B15	Rear heated seat switch LH
B17	Rear heated seat LH
B26	Rear combination lamp LH • Turn signal lamp • Tail/Stop lamp
B46	Rear speaker amp.
B112	Door mirror defogger relay
B158	ICC unit (Terminal No. 19)
B158	ICC unit (Terminal No. 20)
B159	ICC unit (Terminal No. 46)
B512	Seat control unit LH
B513	Seat control unit LH

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

MEL633O



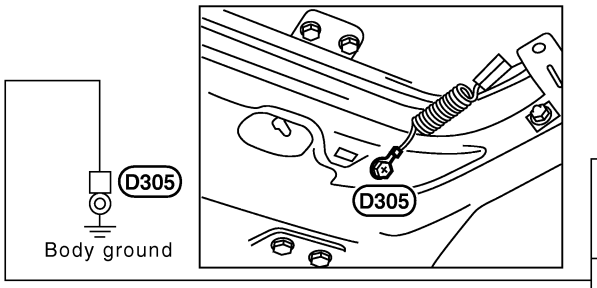
CON-NECTOR NUMBER	CONNECT TO
D103	Luggage room lamp
D302	High-mounted stop lamp
D201	Back door key cylinder switch
D202	License plate lamp LH • License plate lamp • Back-up lamp
D208	Back door switch
D209	Glass hatch switch
D211	License plate lamp RH • License plate lamp • Back-up lamp
D212	Rear wiper motor

MEL844N

Ground Distribution (Cont'd)

BODY HARNESS

NBEL0250S06

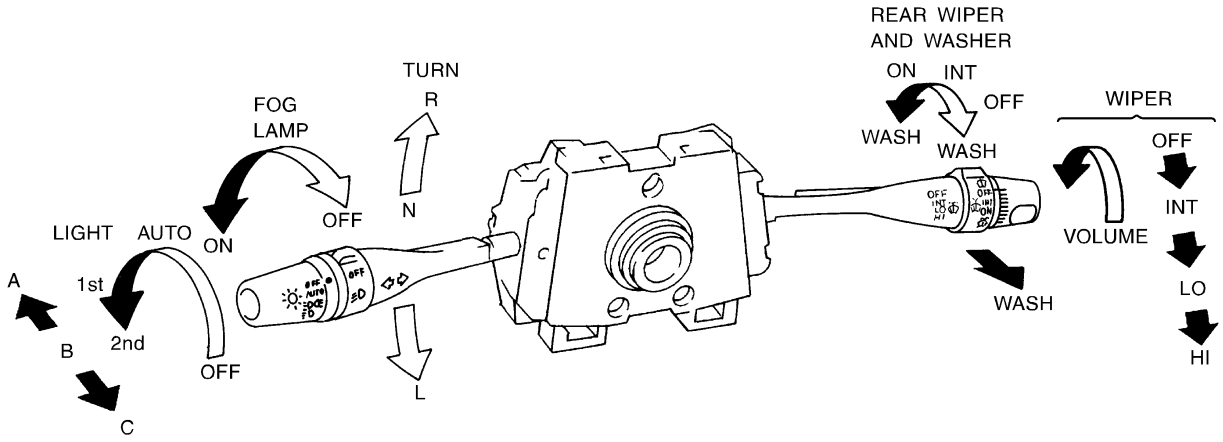


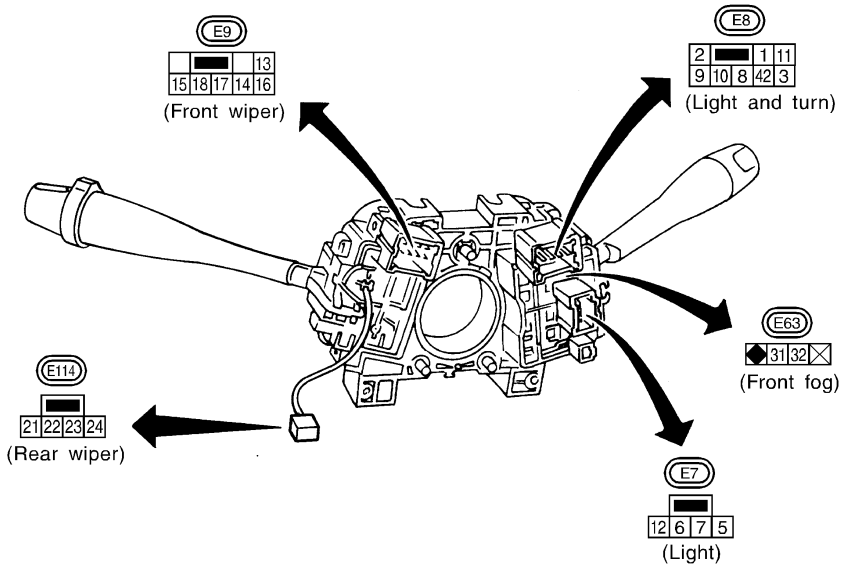
CON-NECTOR NUMBER	CONNECT TO
D304	Rear window defogger

MEL152M

Check

NBEL0251





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

VARIABLE INTERMITTENT WIPER VOLUME

	LO	AUTO STOP	AMP	WASH	HI	EARTH
OFF	○	○				
INT	○	○	○			○
LO	○					○
HI					○	○
WASH				○		○

WIPER AMP.

14 15 13 16 17 18

FOG LAMP SWITCH

	OFF	ON
31		○
32		○

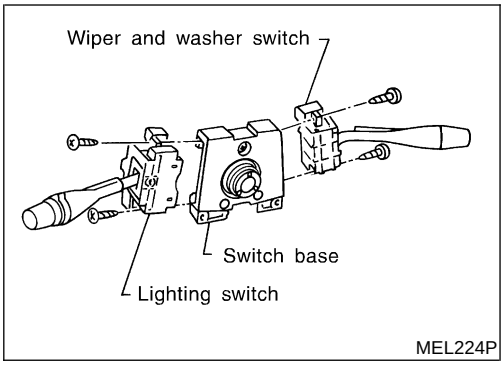
TURN SIGNAL LAMP SWITCH

	L	N	R
1	○		○
2			○
3	○		

REAR WIPER SWITCH

	WASH	OFF	INT	ON	WASH
21			○		
22				○	○
23	○			○	○
24	○		○	○	○

MEL223P

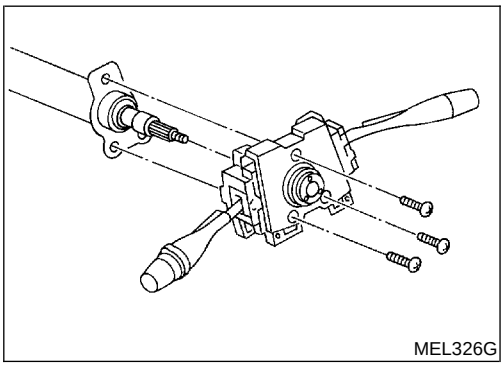


Replacement

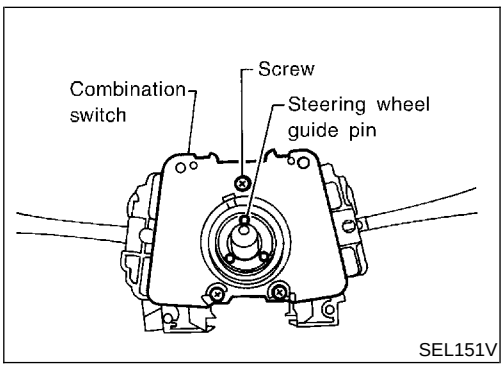
NBEL0252

For removal and installation of spiral cable, refer to RS-18, “Installation — Air Bag Module and Spiral Cable”.

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



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



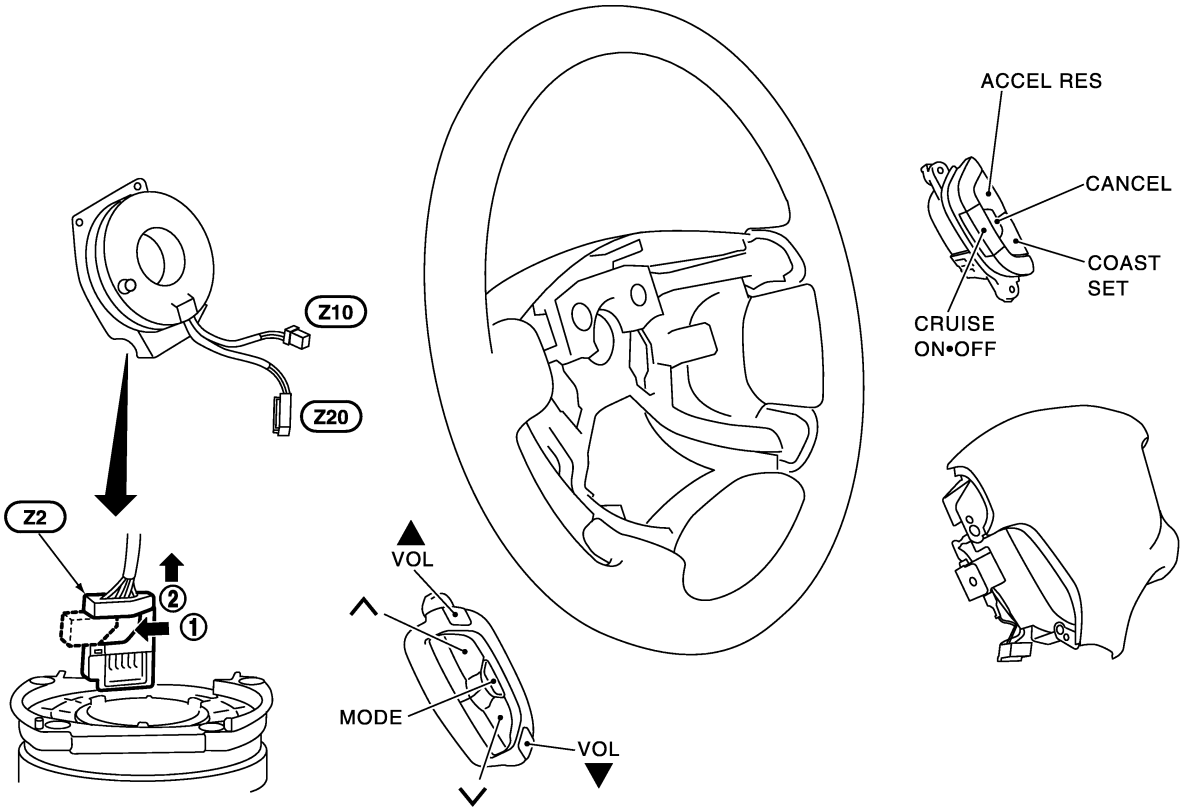
- Before installing the steering wheel, align the steering wheel guide pins with the screws which secure the combination switch as shown in the left figure.

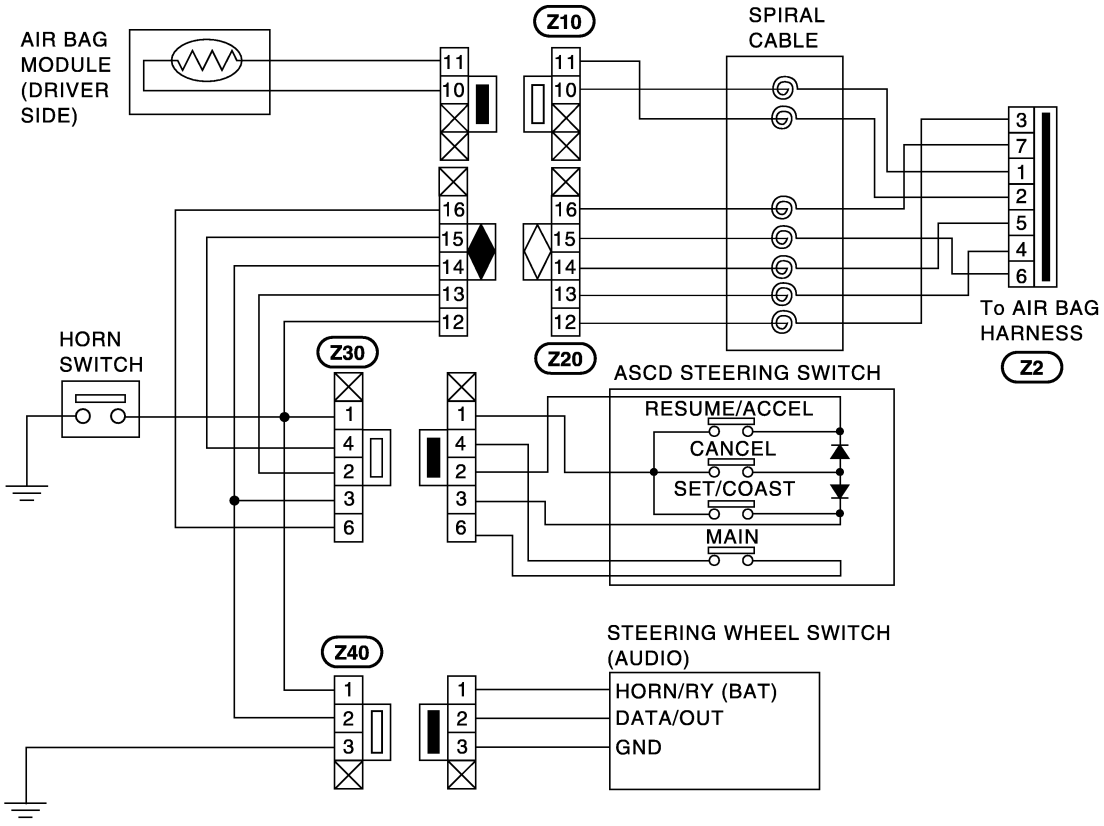
Check

NBEL0253

WITHOUT ICC SYSTEM

NBEL0253S01



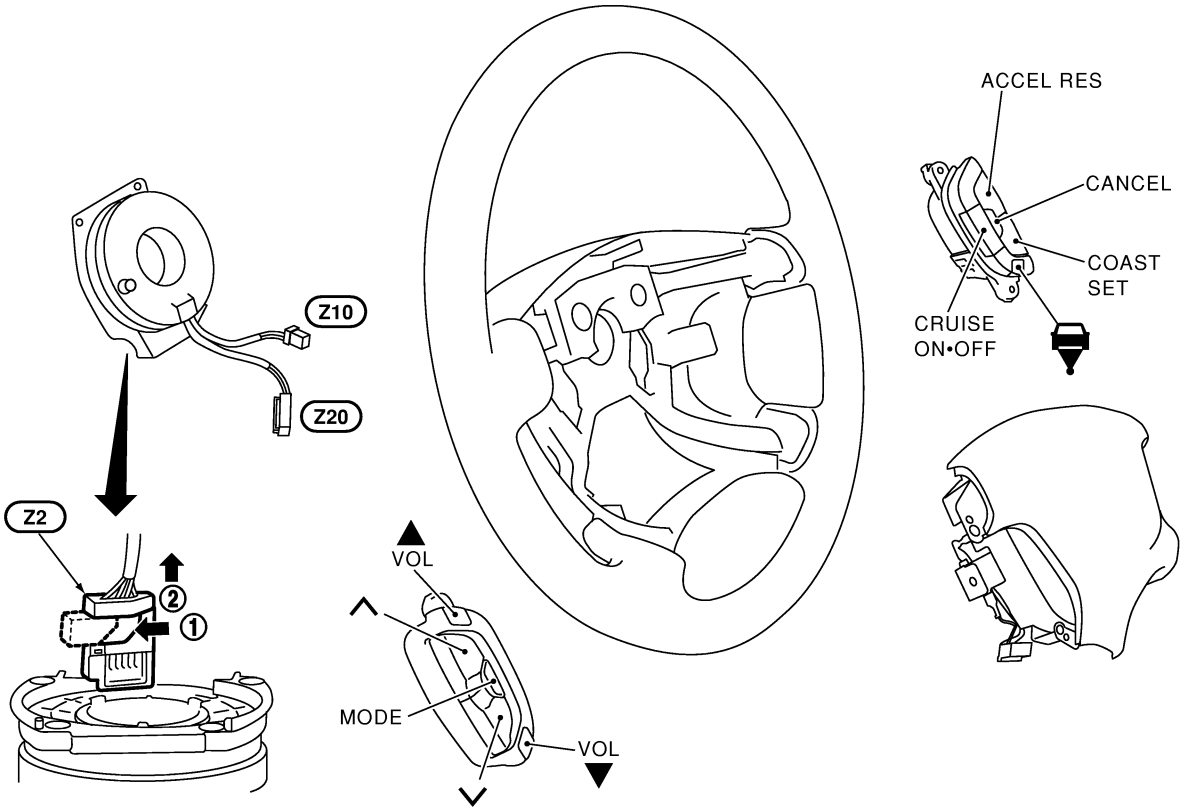


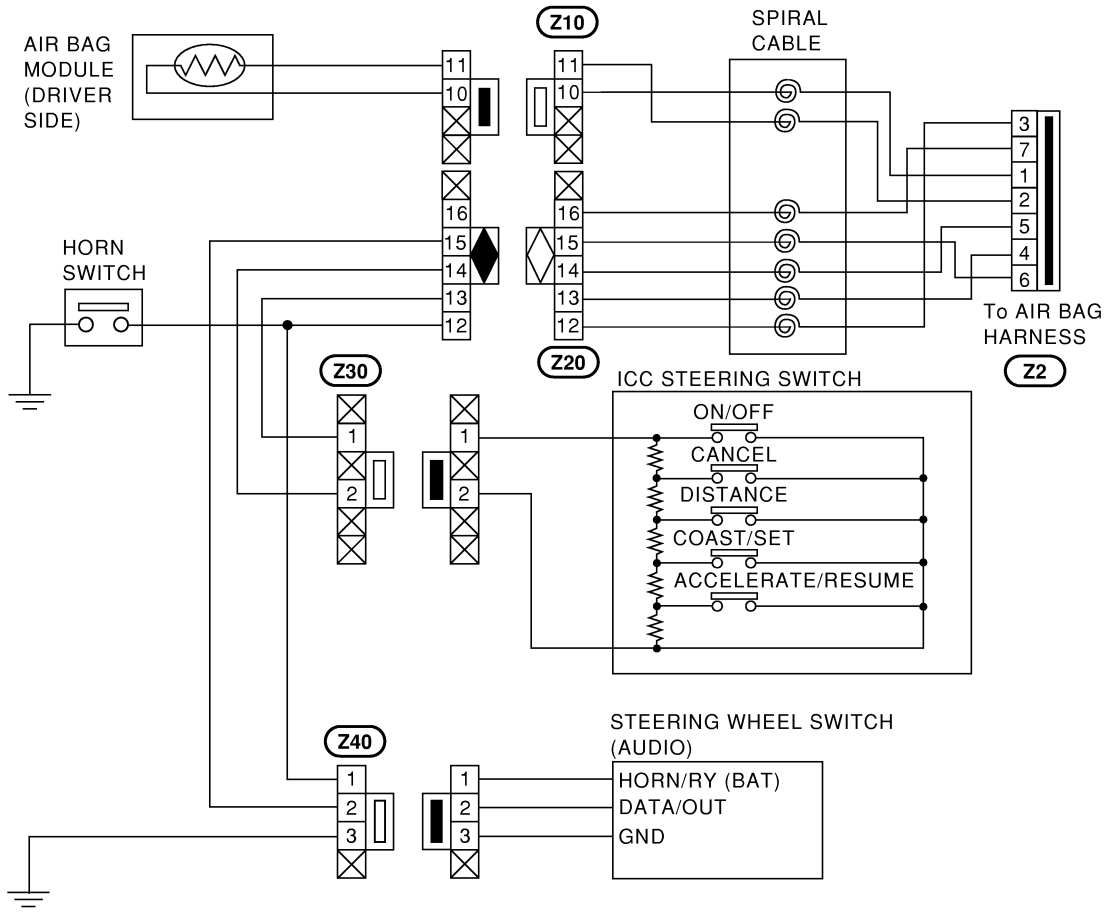
MEL447P

Check (Cont'd)

WITH ICC SYSTEM

NBEL0253S02

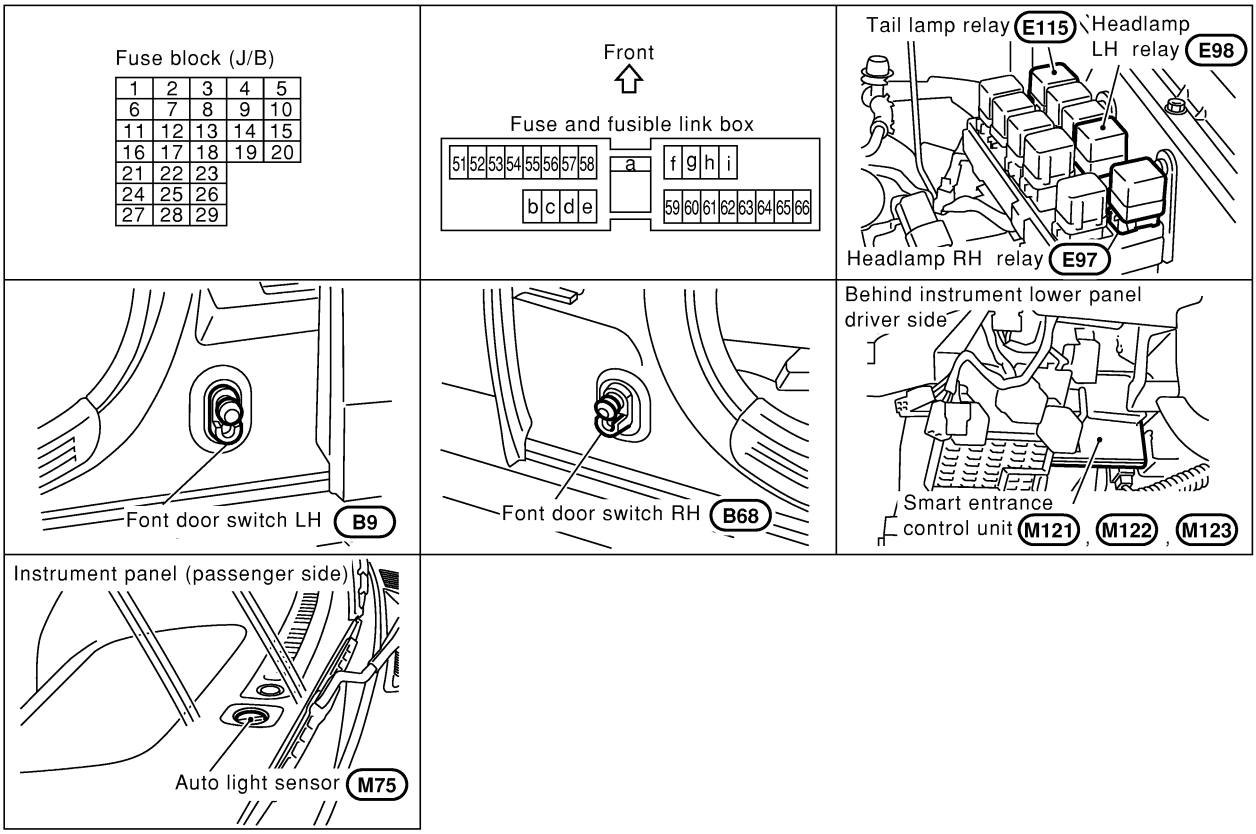




MEL702O

Component Parts and Harness Connector Location

NBEL0254



SEL288Y

System Description

NBEL0255

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

NBEL0255S01

Power is supplied at all times

- to headlamp LH relay terminals 1 and 3
- through 15A fuse (No. 60, located in the fuse and fusible link box), and
- to headlamp LH relay terminal 6
- through 20A fuse (No. 32, located in fuse and fusible link box), and
- to headlamp RH relay terminals 1 and 3
- through 15A fuse (No. 59, located in the fuse and fusible link box), and
- to headlamp RH relay terminal 6
- through 20A fuse (No. 31, located in fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 7.5A fuse [No. 24, 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 7.5A fuse [No. 11, 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. 10, located in the fuse block (J/B)]

Ground is supplied

- to smart entrance control unit terminals 43 and 64
- through body grounds M77 and M111.

POWER SUPPLY TO LOW BEAM AND HIGH BEAM

NBEL0255S02

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

- to headlamp relay (LH and RH) terminal 2 from smart entrance control unit terminals 21 and 59
- through smart entrance control unit terminals 22 and 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

NBEL0255S03

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 3 of each headlamp

Ground is supplied

- to headlamp LH terminal 4
- through body grounds E13 and E41, and
- to headlamp RH terminal 4
- through body grounds E13 and E41.

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

HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

NBEL0255S04

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 1 of each headlamp, and
- to combination meter terminal 26 for the HIGH BEAM indicator.

Ground is supplied

- to headlamp LH terminal 2, and
- to combination meter terminal 27 for the HIGH BEAM indicator
- through lighting switch terminals 6 and 5
- through body grounds E13 and E41, and
- to headlamp RH terminal 2
- through lighting switch terminals 9 and 8
- through body grounds E13 and E41.

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

EXTERIOR LAMP BATTERY SAVER CONTROL

NBEL0255S05

Except for Auto Light Control Operation

NBEL0255S0501

Headlamps will remain on for a short while after the ignition switch is turned from ON (or ACC) to 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.
When the lighting switch is turned from OFF to 2ND after headlamps are turned to off by the exterior lamp 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 control operation

NBEL0255S0502

While the headlamps are turned ON by "AUTO" operation, the exterior lamp battery saver is activated for 5 minutes when the ignition switch is turned from ON (or ACC) to OFF, and either LH or RH front door switch is opened.
The smart entrance control unit controls exterior lamp battery saver activation as follows:

- When the door switch signal changes from ON to OFF while the exterior lamp battery saver is activated, the operation is discontinued, and restarts and lasts for 45 seconds, then the headlamps will be turned off.

- When the door switch signal changes from OFF to ON while the exterior lamp battery saver is activated, the operation discontinued, restarts and lasts for 45 seconds, then the headlamps will be turned off.
- When the one of four door switch signals changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 5 minutes, then the headlamps will be turned off.
- When all the door switch ON signals are input while the exterior lamp battery saver is activated, the saver is discontinued and restarts and lasts for 45 seconds, then the headlamps will be turned off.
  Exterior battery saver control time can be changed using "WORK SUPPORT" mode in "HEADLAMP".

When the lighting switch is turned from OFF to 2ND after headlamps are turned to off by the exterior lamp 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

NBEL0255S06

The auto light control system has an auto light sensor inside instrument mask that detects outside brightness.

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

When ignition switch is turned to ″ON″ or "START" position and

- Outside brightness is darker than prescribed level.

After 3 seconds delay, outside brightness becomes darker than prescribed level.
Ground is supplied

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

Then both headlamp relays and tail lamp relay are energized, headlamps (low or high) and tail lamps are illuminated according to switch position.
Auto light operation allows headlamps and tail lamps to go off when

- Outside brightness is brighter than prescribed level, or
- After 5 seconds delay, outside brightness is brighter than prescribed level.
- Ignition switch is turned to "OFF" position. (Headlamp will be turned OFF by exterior lamp battery saver control system. Refer to EL-34.)

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

NBEL0255S07

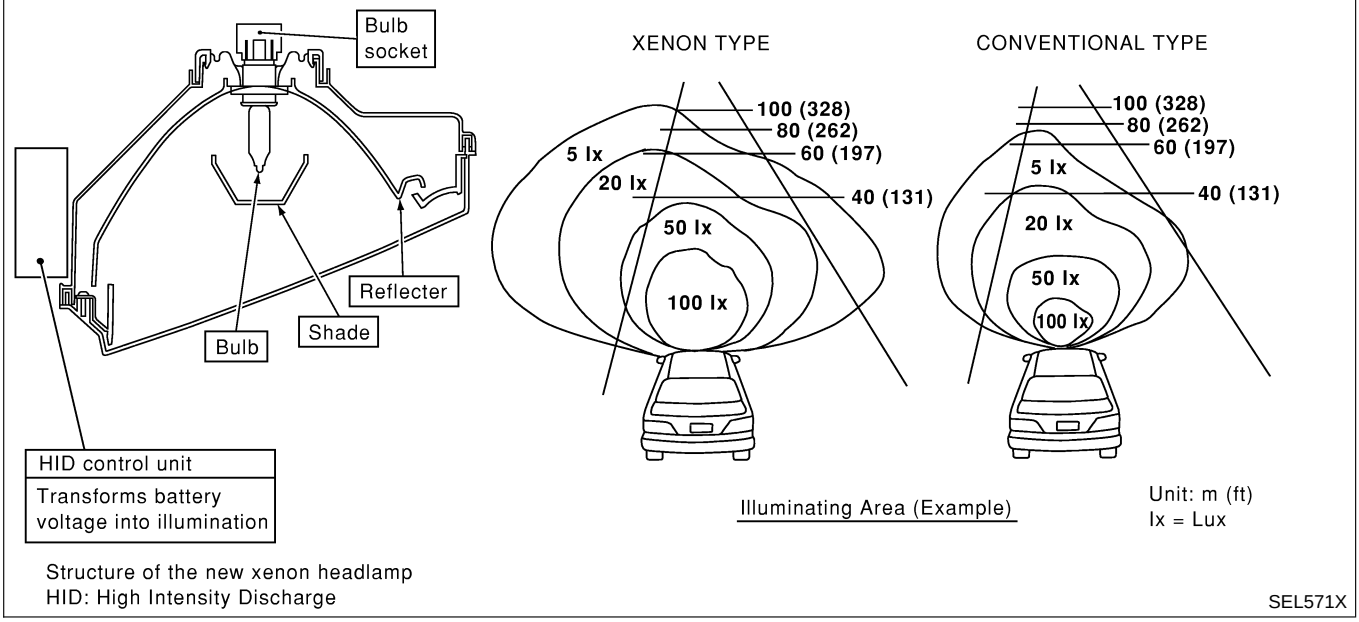
The vehicle security system will flash the high beams if the system is triggered. Refer to "VEHICLE SECURITY (THEFT WARNING) SYSTEM" (EL-449).

XENON HEADLAMP

=NBEL0255S09

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.

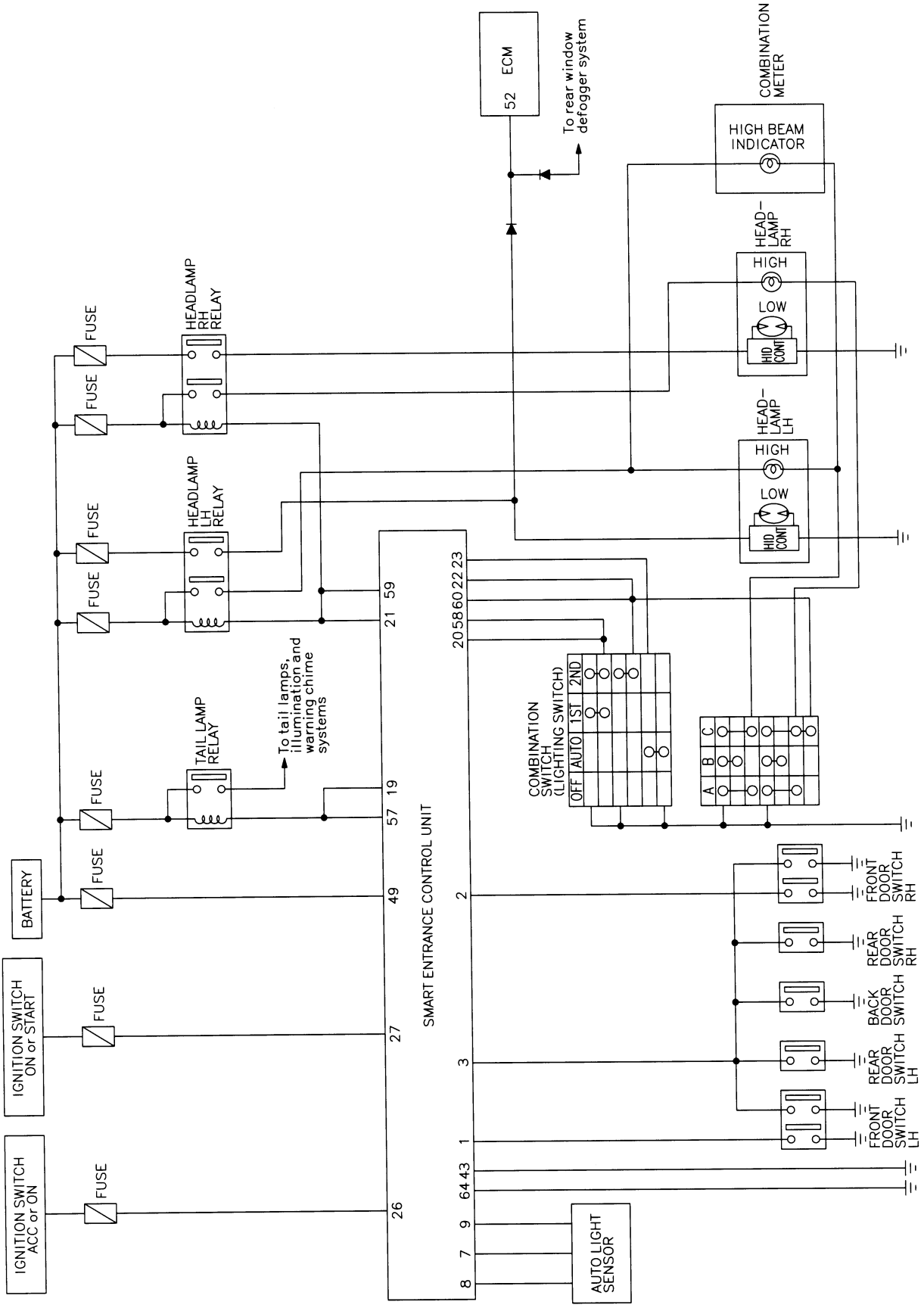


Structure of the new xenon headlamp
HID: High Intensity Discharge

SEL571X

Schematic

NBEL0256

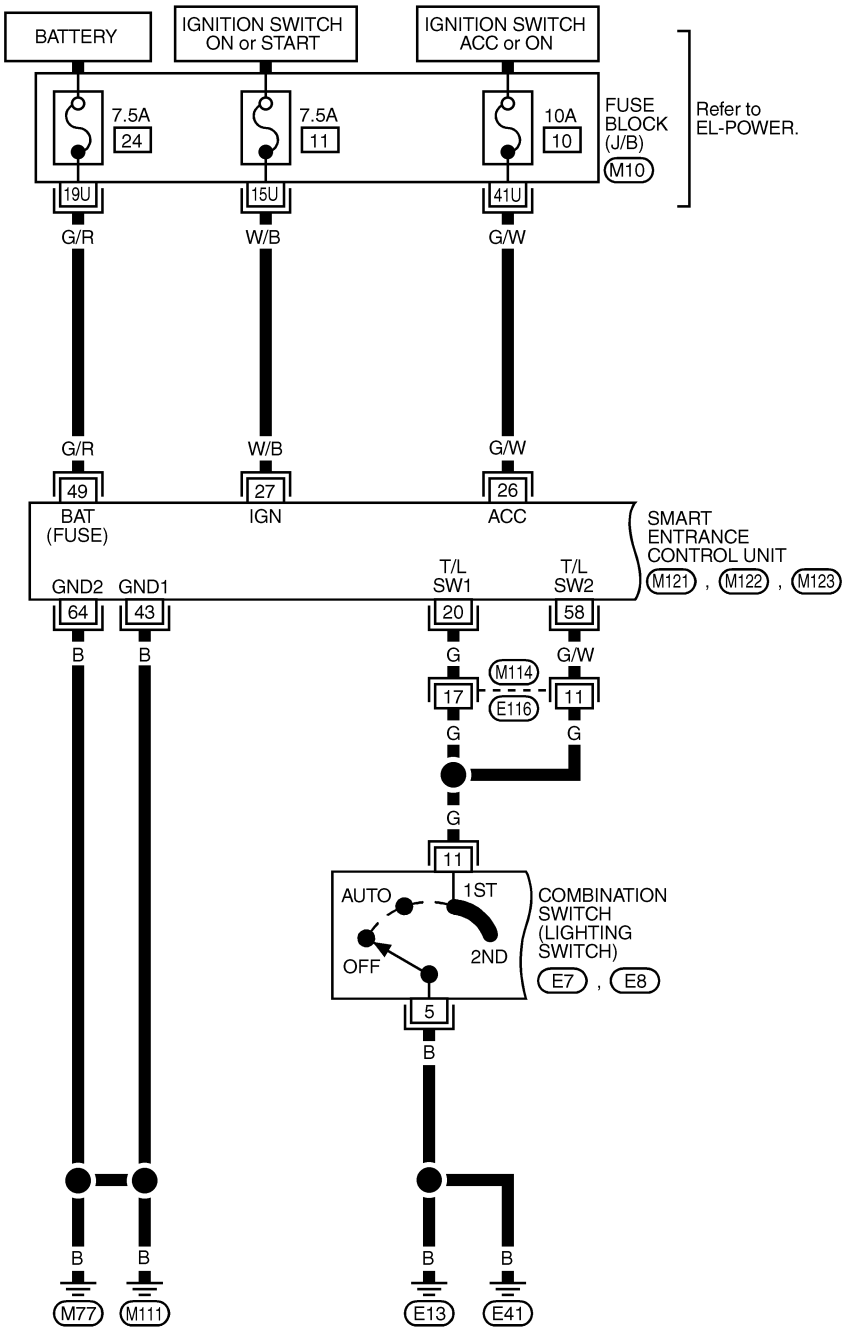


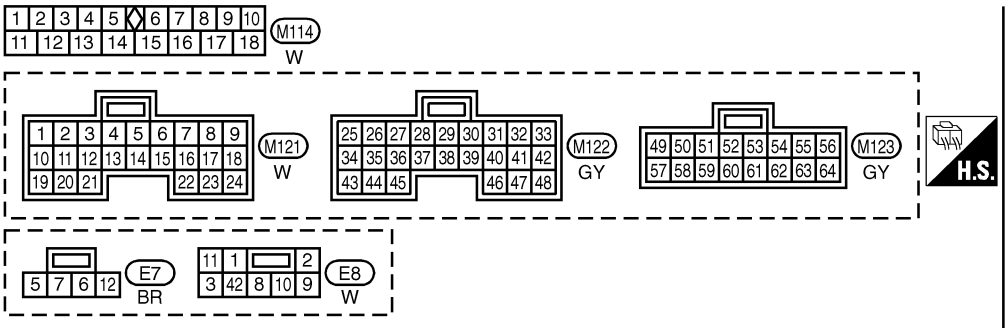
MEL630P

Wiring Diagram — H/LAMP —

NBEL0257

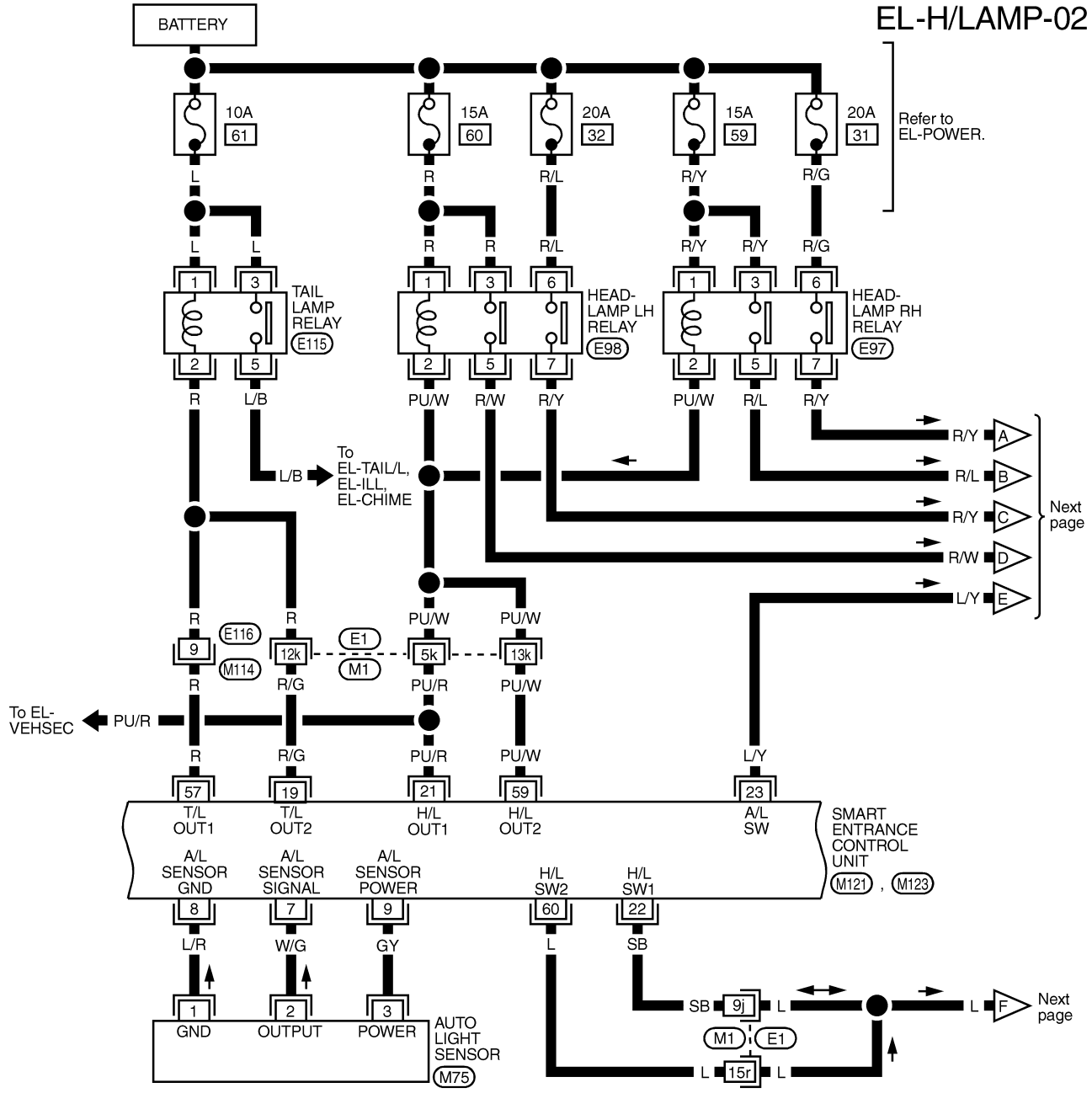
EL-H/LAMP-01

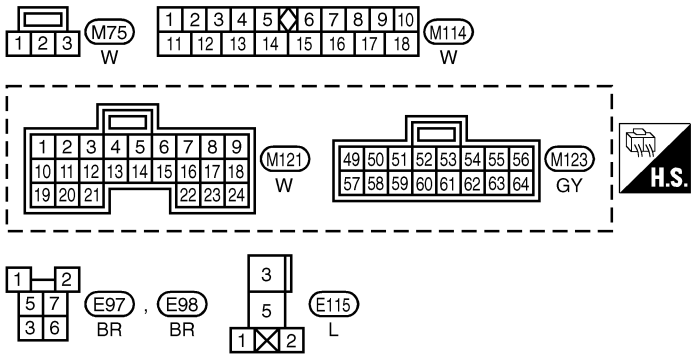




REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL591P

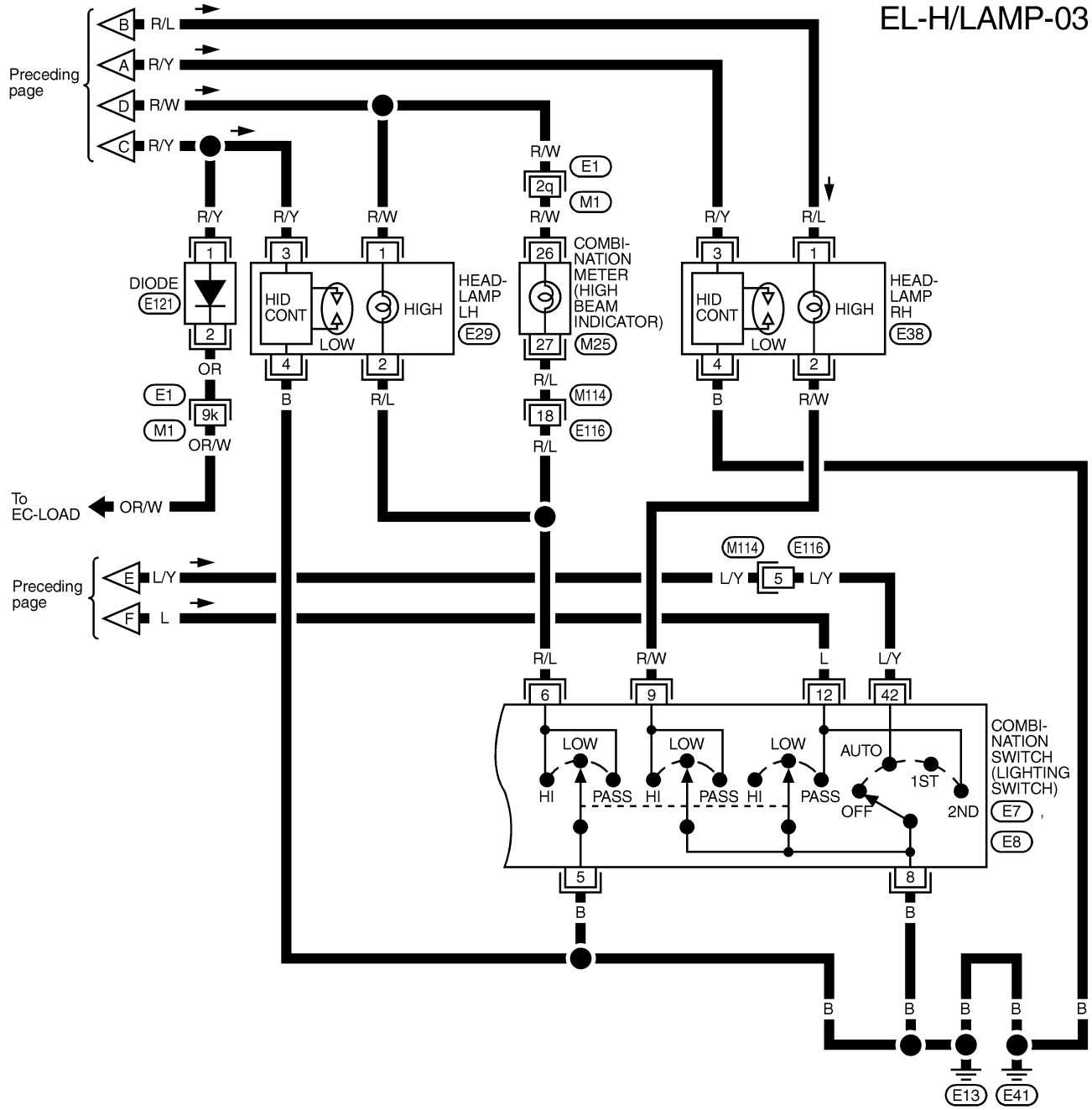


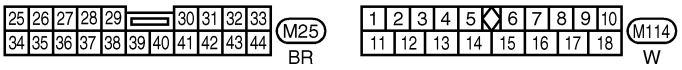


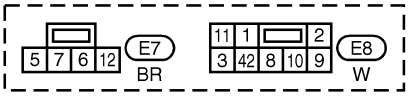
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

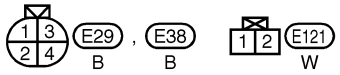
MEL592P

Wiring Diagram — H/LAMP — (Cont'd)





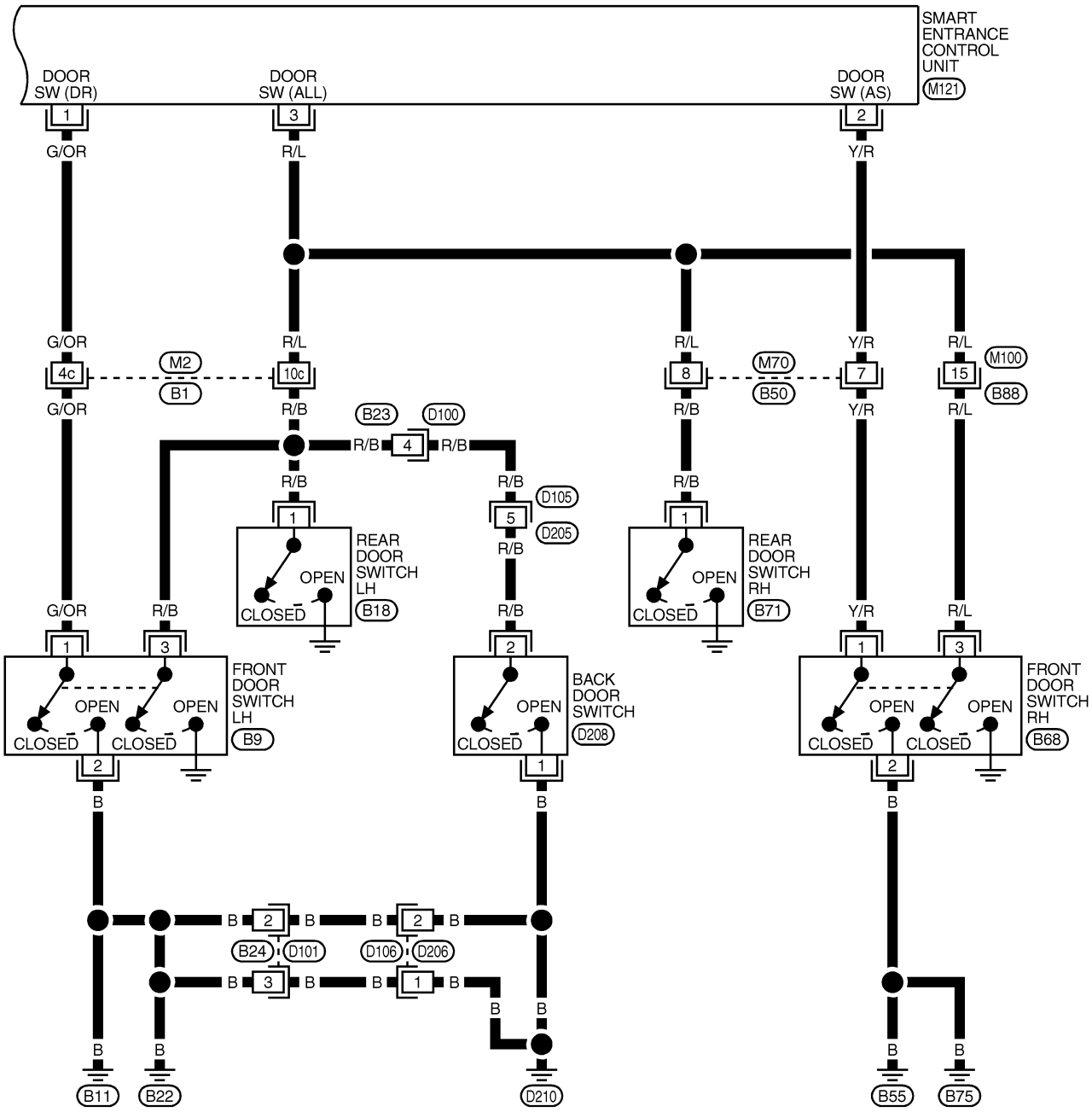


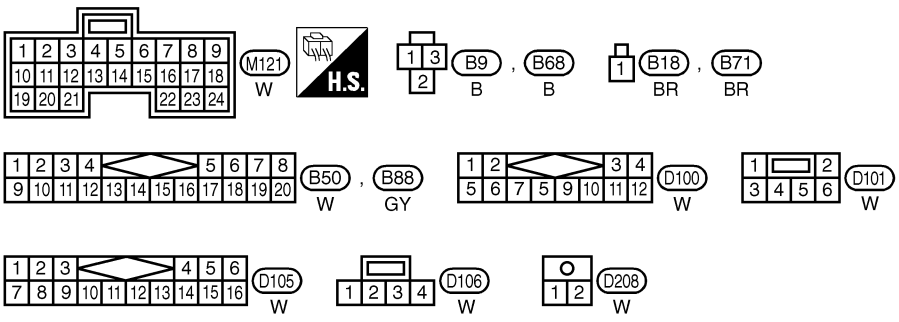


REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL694N

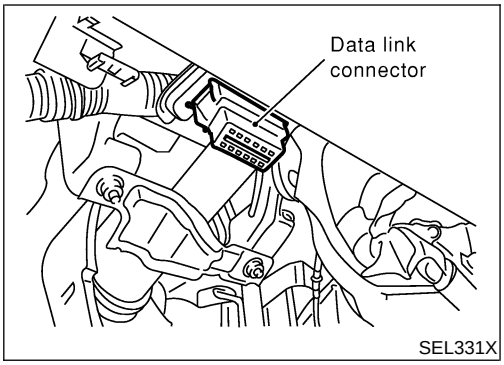
EL-H/LAMP-04





REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL629P



SEL331X

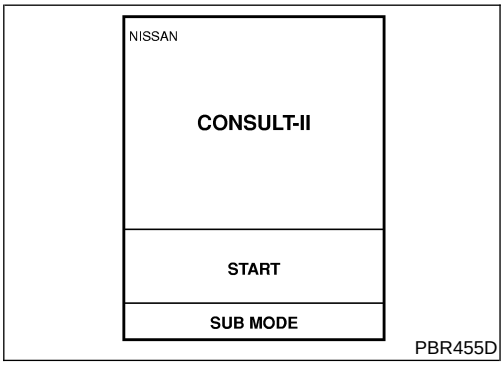
CONSULT-II Inspection Procedure

NBEL0258

“HEADLAMP”

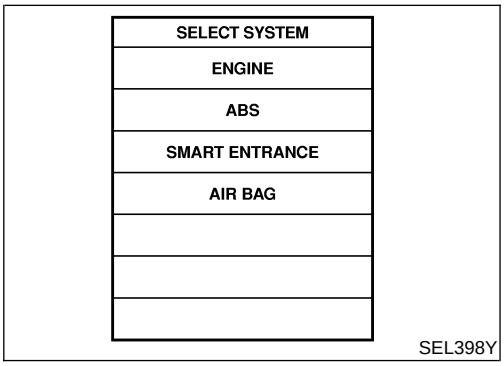
NBEL0258S01

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



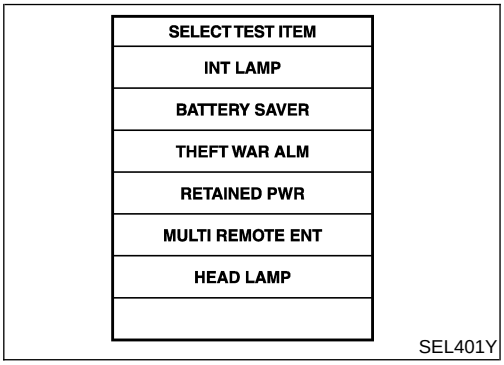
PBR455D

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



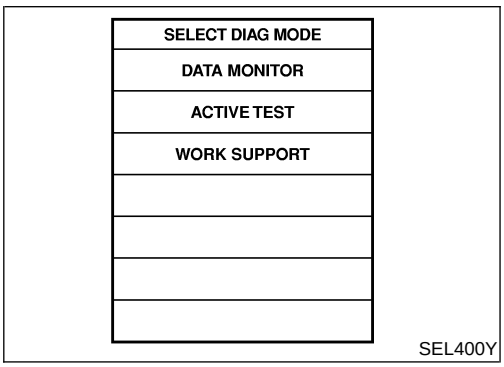
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL401Y

6. Touch “HEADLAMP”.



SEL400Y

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

CONSULT-II Application Items

NBEL0453

"HEAD LAMP"
Data Monitor

NBEL0453S01

NBEL0453S0101

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. (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. (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. (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

NBEL0453S0102

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

NBEL0453S0103

Work Item	Description
AUTO LIGHT SET	Auto light sensitivity can be changed in this mode. Sensitivity can be adjusted in four modes. ● 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. ● MODE 1 (ON)/MODE 2 (OFF)
ILL DELAY SET	Exterior lamp battery saver control time can be changed in this mode. Selects exterior lamp battery saver control time among eight modes. ● 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

NBEL0260

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.)**

Trouble Diagnoses (Cont'd)

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. 7.5A fuse 2. Headlamp relay circuit 3. Lighting switch 4. Lighting switch ground circuit 5. Smart entrance control unit	1. Check 7.5A fuse [No. 24, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 49 of headlamp battery saver control unit. 2. Check between battery saver control unit and headlamp relays (LH and RH). 3. Check Lighting switch. 4. Check harness between lighting switch terminal 8 and ground. 5. Check smart entrance control unit. (EL-486)
Headlamp LH (low and high beam) does not operate, but headlamp RH (low and high beam) does operate.	1. 15A fuse 2. Headlamp LH relay 3. Headlamp LH relay circuit	1. Check 15A fuse (No. 60, located in fusible link and fuse box). Verify battery positive voltage is present at terminals 1 and 3 of headlamp LH relay. 2. Check headlamp LH relay. 3. Check harness between headlamp LH relay and smart entrance control unit.
Headlamp RH (low and high beam) does not operate, but headlamp LH (low and high beam) does operate.	1. 15A fuse 2. Headlamp RH relay 3. Headlamp RH relay circuit	1. Check 15A fuse (No. 59, located in fusible link and fuse box). Verify battery positive voltage is present at terminals 1 and 3 of headlamp RH relay. 2. Check headlamp RH relay. 3. Check harness between headlamp RH relay and smart entrance control unit.
LH high beam does not operate, but LH low beam operates.	1. Bulb 2. Headlamp LH relay 3. Open in the LH high beams circuit 4. Lighting switch 5. Lighting switch ground circuit	1. Check bulb. 2. Check headlamp LH relay. 3. Check the following. a. Harness between headlamp LH relay terminal 5 and headlamp LH for open circuit. b. Harness between headlamp LH and lighting switch for open circuit. 4. Check lighting switch. 5. Check harness between lighting switch and ground.
LH low beam does not operate, but LH high beam operates.	1. 20A fuse 2. Headlamp LH relay 3. Open in the LH low beam circuit 4. LH low beam ground circuit 5. Xenon bulb 6. HID control unit 7. Booster	1. Check 20A fuse (No. 32, located in fusible link and fuse box). Verify battery positive voltage is present at terminal 6 of headlamp LH relay. 2. Check headlamp LH relay 3. Check harness between headlamp LH relay terminal 7 and headlamp LH for open circuit. 4. Check harness between headlamp LH and ground. 5. Replace the xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.) 6. Replace the HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) 7. Replace booster as a headlamp assembly.
RH high beam does not operate, but RH low beam operates.	1. Bulb 2. Headlamp RH relay 3. Open in the RH high beams circuit 4. Lighting switch	1. Check bulb. 2. Check headlamp RH relay. 3. Check the following. a. Harness between headlamp RH relay terminal 5 and headlamp RH for open circuit b. Harness between headlamp RH and lighting switch for open circuit 4. Check lighting switch.

Symptom	Possible cause	Repair order
RH low beam does not operate, but RH high beam operates.	1. 20A fuse 2. Headlamp RH relay 3. Open in the RH low beam circuit 4. RH low beam ground circuit 5. Xenon bulb 6. HID control unit 7. Booster	1. Check 20A fuse (No. 31 located in fusible link and fuse box). Verify battery positive voltage is present at terminal 6 of headlamp RH relay. 2. Check headlamp RH relay 3. Check harness between headlamp RH relay terminal 7 and headlamp RH for open circuit. 4. Check harness between headlamp RH and ground. 5. Replace the xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.) 6. Replace the HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) 7. Replace booster as a headlamp assembly.
High beam indicator does not work.	1. Bulb 2. Open in high beam circuit	1. Check bulb in combination meter. 2. Check the following. a. Harness between headlamp LH relay and combination meter for an open circuit 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 2. Lighting switch circuit 3. Smart entrance control unit	1. Check the following. a. Harness between smart entrance control unit and LH or RH door switch for open or short circuit. b. LH or RH door switch ground circuit. c. LH or RH door switch. 2. Check the following. a. Harness between smart entrance control unit terminals 20 or 58 and lighting switch terminal 11 for open or short circuit. b. Harness between lighting switch terminal 5 and ground. c. Lighting switch. 3. Check smart entrance control unit. (EL-486)

Symptom	Possible cause	Repair order
When outside is dark, neither tail lamp nor headlamp turn on by auto light operation.	1. 7.5A fuse 2. Lighting switch "AUTO" check 3. Lighting switch circuit check 4. Lighting switch ground circuit check 5. Auto light sensor check 6. Auto light sensor circuit check	1. Check 7.5A fuse [NO. 11 located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 27 of smart entrance control unit. 2. Check lighting switch (AUTO) input signal with "CONSULT-II" in "DATA MONITOR" mode. When lighting switch is in AUTO: **AUTO LIGHT SWITCH ON** When lighting switch is in OFF: **AUTO LIGHT SWITCH OFF** 3. Check harness for open or short between smart entrance control unit and lighting switch. 4. Check harness for lighting switch and ground. 5. Check auto light sensor input signal. (With CONSULT-II) See "AUTO LIGHT SENSOR" in DATA MONITOR mode. When auto light sensor in stuck by light: **More than 3V** When auto light sensor is not stuck by light: **Approx. 0.5V** (Without CONSULT-II) Check voltage between smart entrance control unit terminal 7 and ground. Refer to smart entrance control unit. (EL-486) 6. Check the following. a. Harness for open or short between smart entrance control unit terminal 8 and auto light sensor terminal 1 b. Harness for open or short between smart entrance control unit terminal 7 and auto light sensor terminal 2 c. Harness for open or short between smart entrance control unit terminals 9 and 3
When outside is dark, tail lamp turns on but headlamp does not turn on by auto light operation.	Auto light output check	Check auto light output. (With CONSULT-II) See "HEADLAMP" and "TAIL LAMP" in ACTIVE TEST mode, and headlamp switch to AUTO position. **Headlamp and tail lamp should turn on.** (Without CONSULT-II) Check voltage between smart entrance control unit terminals 19, 21, 57, 59 and ground. Refer to smart entrance control unit. (EL-486)
When outside is dark, headlamp turns on but tail lamp does not turn on by auto light operation.	Auto light output check	Check auto light output. (With CONSULT-II) See "HEADLAMP" and "TAIL LAMP" in ACTIVE TEST mode, and headlamp switch to AUTO position. **Headlamp and tail lamp should turn on.** (Without CONSULT-II) Check voltage between smart entrance control unit terminals 19, 21, 57, 59 and ground. Refer to smart entrance control unit. (EL-486)
Light does not turn off when ignition key switch is turned to "OFF" (exterior battery saver control is canceled).	1. 7.5A fuse 2. IGN switch circuit	1. Check 7.5A fuse [NO. 11 located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 27 of smart entrance control unit. 2. Check harness for open or short between smart entrance control unit and fuse.

Symptom	Possible cause	Repair order
When outside is bright, neither tail lamps nor headlamps turn off by auto light operation.	Auto light sensor check	Check auto light sensor input signal. (With CONSULT-II) See "AUTO LIGHT SENSOR" in DATA MONITOR mode. When auto light sensor in stuck by light: **More than 3V** When auto light sensor is not stuck by light: **Approx. 0.5V** (Without CONSULT-II) Check voltage between smart entrance control unit terminal 7 (W/G) and ground. Refer to smart entrance control unit. (EL-486)

Bulb Replacement/Xenon Type

NBEL0472

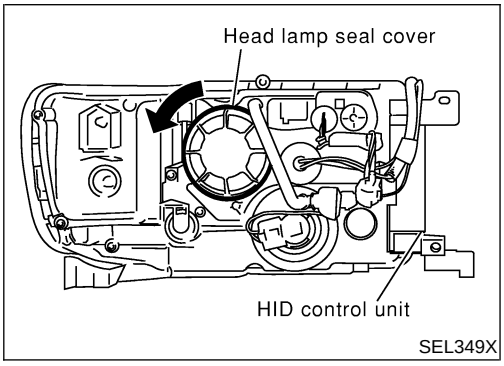
CAUTION:

- **After replacing a new xenon bulb, be sure to make aiming adjustments.**
- **Hold only the plastic base when handling the bulb. Never touch the glass envelope.**
- **Do not leave headlamp reflector without bulb for a long period of time. Dust, moisture, smoke, etc. entering headlamp body may affect the performance of the headlamp. Remove headlamp bulb from the headlamp reflector just before a replacement bulb is installed.**

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

WARNING:

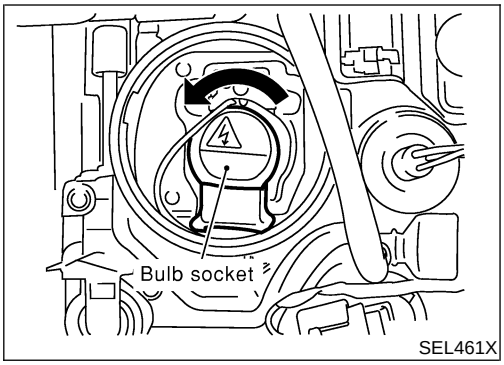
Never service a xenon headlamp without disconnecting negative battery cable and with wet hands.



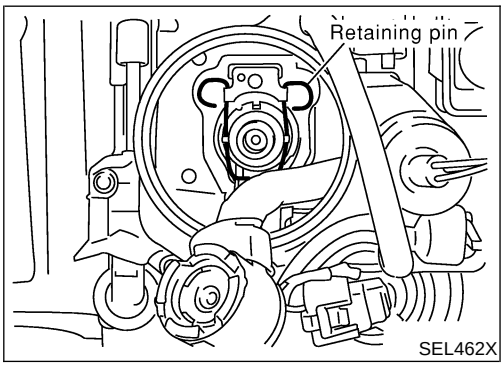
XENON BULB (LOW BEAM)

NBEL0472S01

1. Remove headlamp seal cover.



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



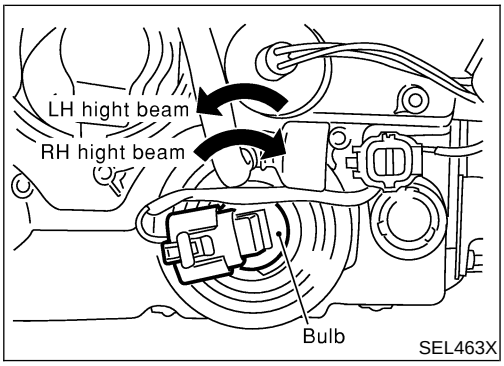
3. Release retaining pin.
4. Remove the xenon bulb.
5. Install in the reverse order of removal.

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

NBEL0472S02



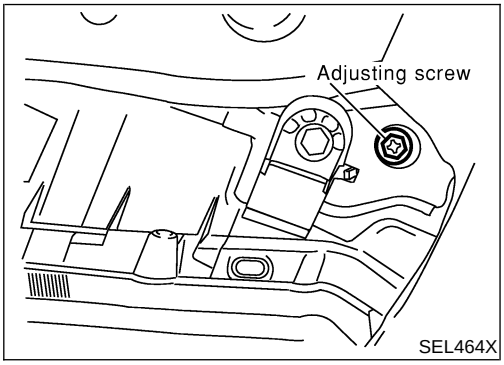
1. Turn the bulb counterclockwise (LH high beam) or clockwise (RH high beam).
2. Remove the bulb.
3. Install in the reverse order of removal.

Aiming Adjustment

NBEL0473

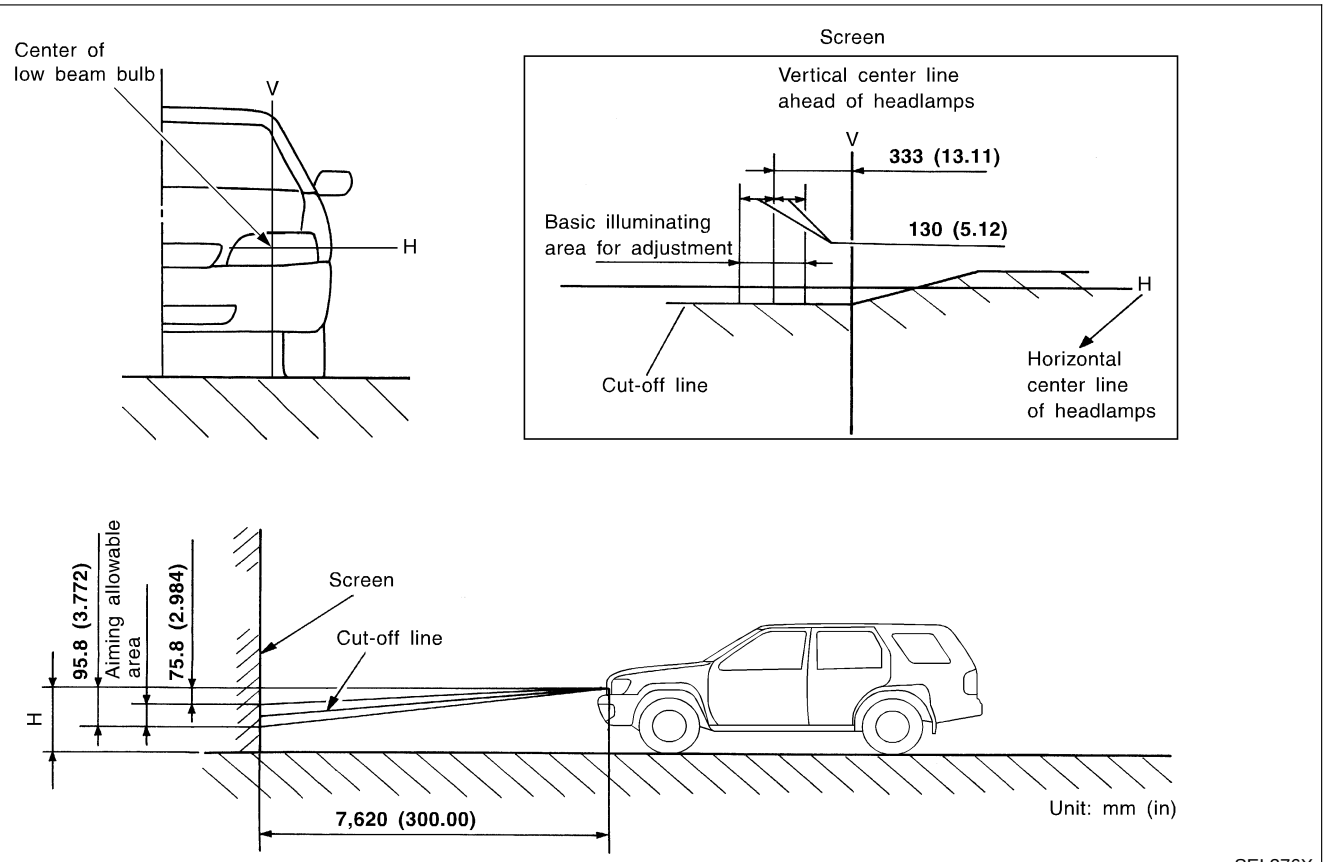
LOW BEAM

NBEL0473S01



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

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

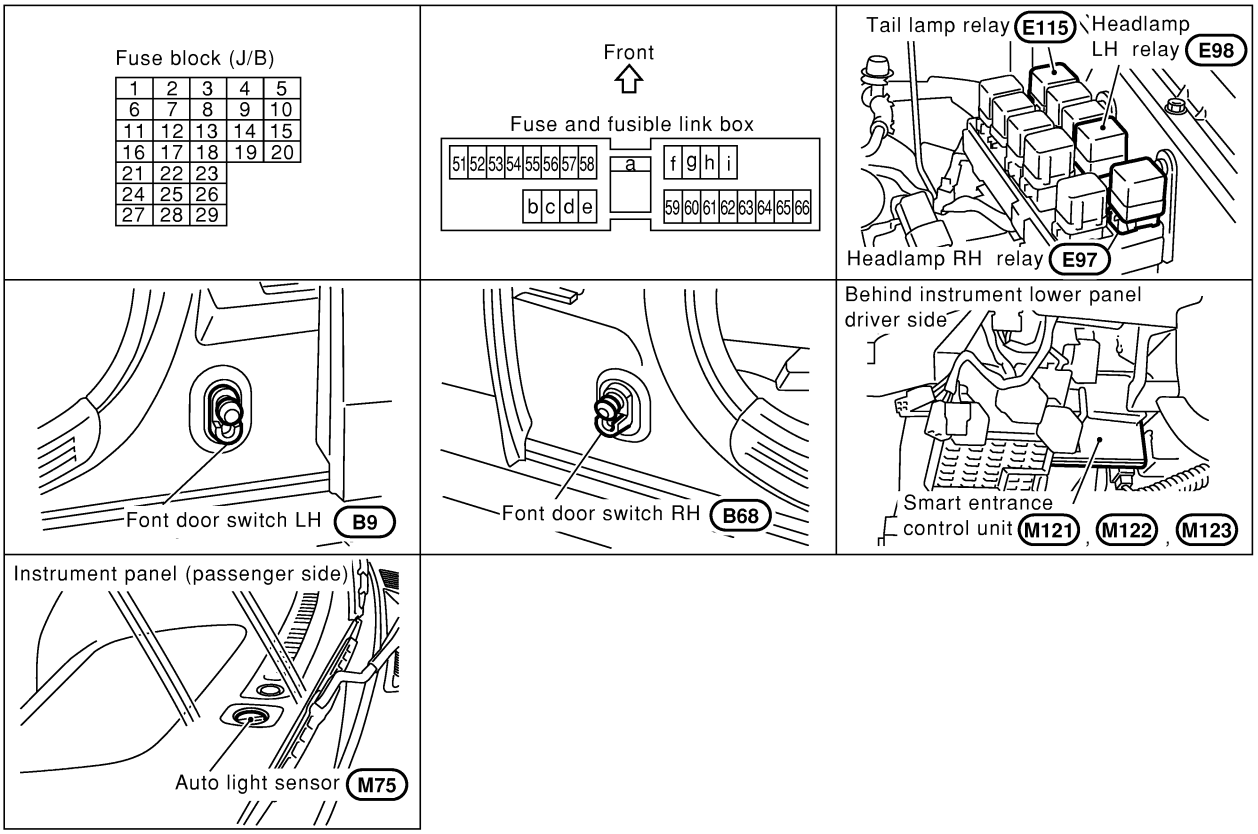


If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

- **Basic illuminating area for adjustment should be within the range shown on the aiming chart. Adjust headlamps accordingly.**

Component Parts and Harness Connector Location

NBEL0263



SEL288Y

System Description

NBEL0264

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 3
- through 15A fuse (No. 60, located in the fuse and fusible link box), and
- to headlamp LH relay terminal 6
- through 20A fuse (No. 32, located in fuse and fusible link box), and
- to headlamp RH relay terminals 1 and 3
- through 15A fuse (No. 59, located in the fuse and fusible link box), and
- to headlamp RH relay terminal 6
- through 20A fuse (No. 31, located in fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 7.5A fuse [No. 24, located in the fuse block (J/B)].

Ground is supplied

- to daytime light control unit terminal 16 and
- to smart entrance control unit terminals 43 and 64

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

- to daytime light control unit terminal 3, and
- to smart entrance control unit terminal 27
- through 7.5A fuse [No. 11, 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. 10, 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 7.5A fuse [No. 26, located in the fuse block (J/B)].

HEADLAMP OPERATION

NBEL0264S01

Power Supply to Low Beam and High Beam

NBEL0264S0101

When lighting switch is in 2ND or PASS position, ground is supplied
- to headlamp relay (LH and RH) terminal 2 from smart entrance control unit terminals 21 and 59
- through smart entrance control unit terminals 22 and 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

NBEL0264S0102

When the lighting switch is turned to 2ND and LOW ("B") positions, ground is supplied
- to terminal 7 of each headlamp relay through terminal 3 of each headlamp
- to terminal 4 of each headlamp
- through body grounds E13 and E41.

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

High Beam Operation/Flash-to-pass Operation

NBEL0264S0103

When the lighting switch is turned to 2ND and HIGH ("A") or PASS ("C") positions, power is supplied
- to terminal 1 of headlamp LH
- through daytime light control unit terminals 6 and 5
- from headlamp LH relay terminal 5, and
- to terminal 1 of headlamp RH
- through daytime light control unit terminals 7 and 4
- from headlamp RH relay terminal 5, and
- to combination meter terminal 26 for HIGH BEAM indicator
- from headlamp LH relay terminal 5.

Ground is supplied
- to terminal 2 of LH headlamp
- through daytime light control unit terminals 10 and 13, and
- to combination meter terminal 27 for the HIGH BEAM indicator
- through lighting switch terminals 6 and 5
- through body grounds E13 and E41, and
- to terminal 2 of RH headlamp
- through daytime light control unit terminals 9 and 14, and
- through lighting switch terminals 9 and 8
- through body grounds E13 and E41.

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

EXTERIOR LAMP BATTERY SAVER CONTROL

NBEL0264S02

Except for Auto Light Control Operation

NBEL0264S0201

Headlamps will remain on for a short while after the ignition switch is turned from ON (or ACC) to 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.
When the lighting switch is turned from OFF to 2ND after headlamps are turned to off by the exterior lamp 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 control operation

NBEL0264S0202

While the headlamps are turned ON by "AUTO" operation, the exterior lamp battery saver is activated for 5 minutes when the ignition switch is turned from ON (or ACC) to OFF, and either LH or RH front door switch is opened.

The smart entrance control unit controls exterior lamp battery saver activation as follows:

- When the door switch signal changes from ON to OFF while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the headlamps will be turned off.
- When the door switch signal changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the headlamps will be turned off.
- When the one of four door switch signals changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 5 minutes, then the headlamps will be turned off.
- When all the door switch ON signals are input while the exterior lamp battery saver is activated, the saver is discontinued and restarts and lasts for 45 seconds, then the headlamps will be turned off.
  Exterior battery saver control time can be changed using "WORK SUPPORT" mode in "HEADLAMP".

When the lighting switch is turned from OFF to 2ND after headlamps are turned to off by the exterior lamp 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

NBEL0264S03

For auto light operation, refer to "HEADLAMP (FOR USA) — XENON TYPE —" (EL-35).

DAYTIME LIGHT OPERATION

NBEL0264S04

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

- through daytime light control unit terminal 7
- to terminal 1 of headlamp RH
- through terminal 2 of headlamp RH
- to daytime light control unit terminal 9
- through daytime light control unit terminal 6
- to terminal 1 of headlamp LH.

Ground is supplied to terminal 2 of headlamp LH.

- through daytime light control unit terminals 10 and 16
- through body grounds E13 and E41.

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

OPERATION

=NBEL0264S05

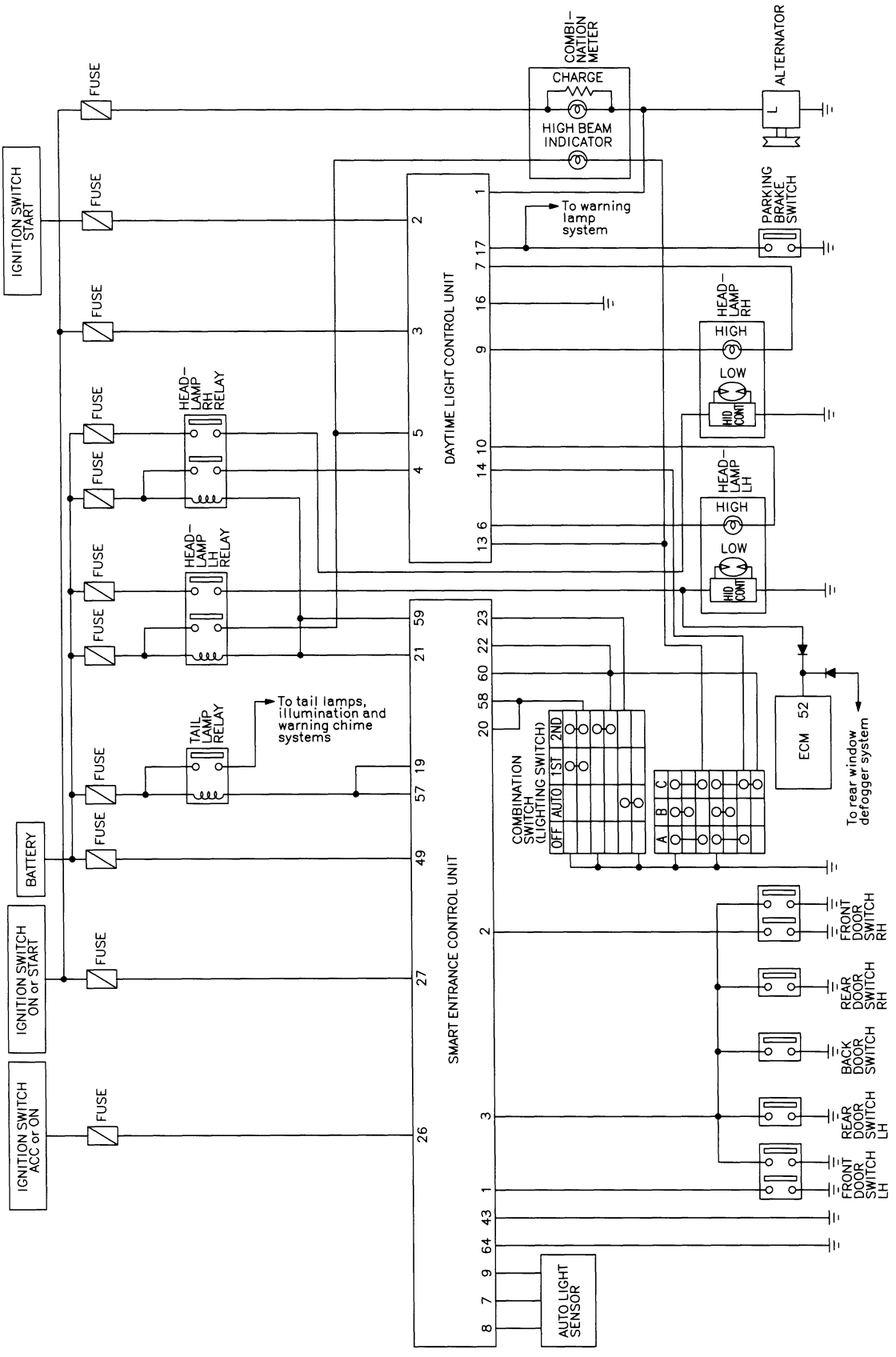
After starting the engine with the lighting switch in the "OFF" or "1ST" position, the headlamp high beam automatically turns on. Lighting switch operations other than the above are the same as conventional light systems.

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

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

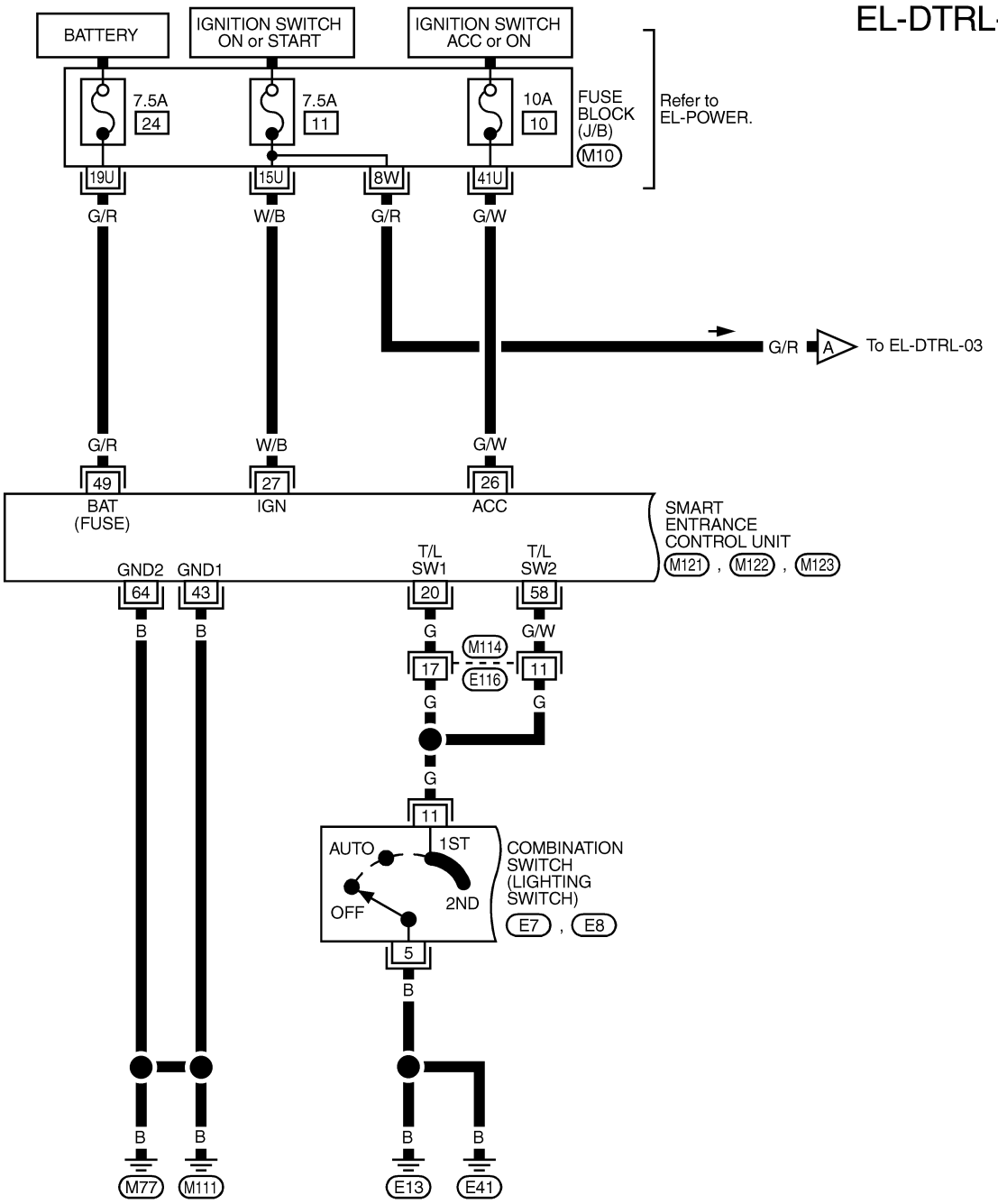
NBEL0265

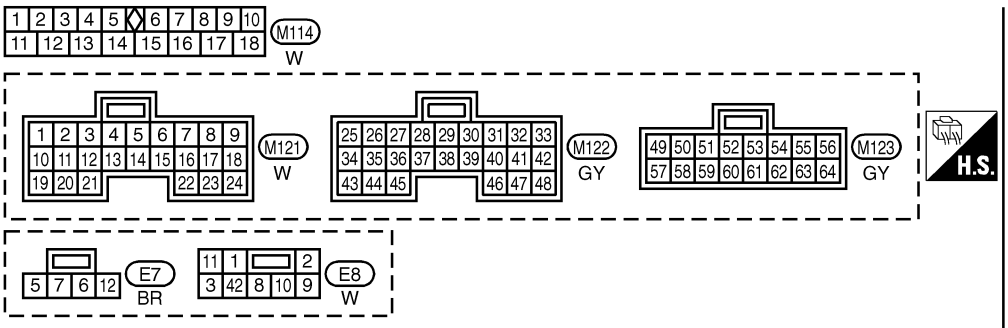


MEL631P

Wiring Diagram — DTRL —

NBEL0266

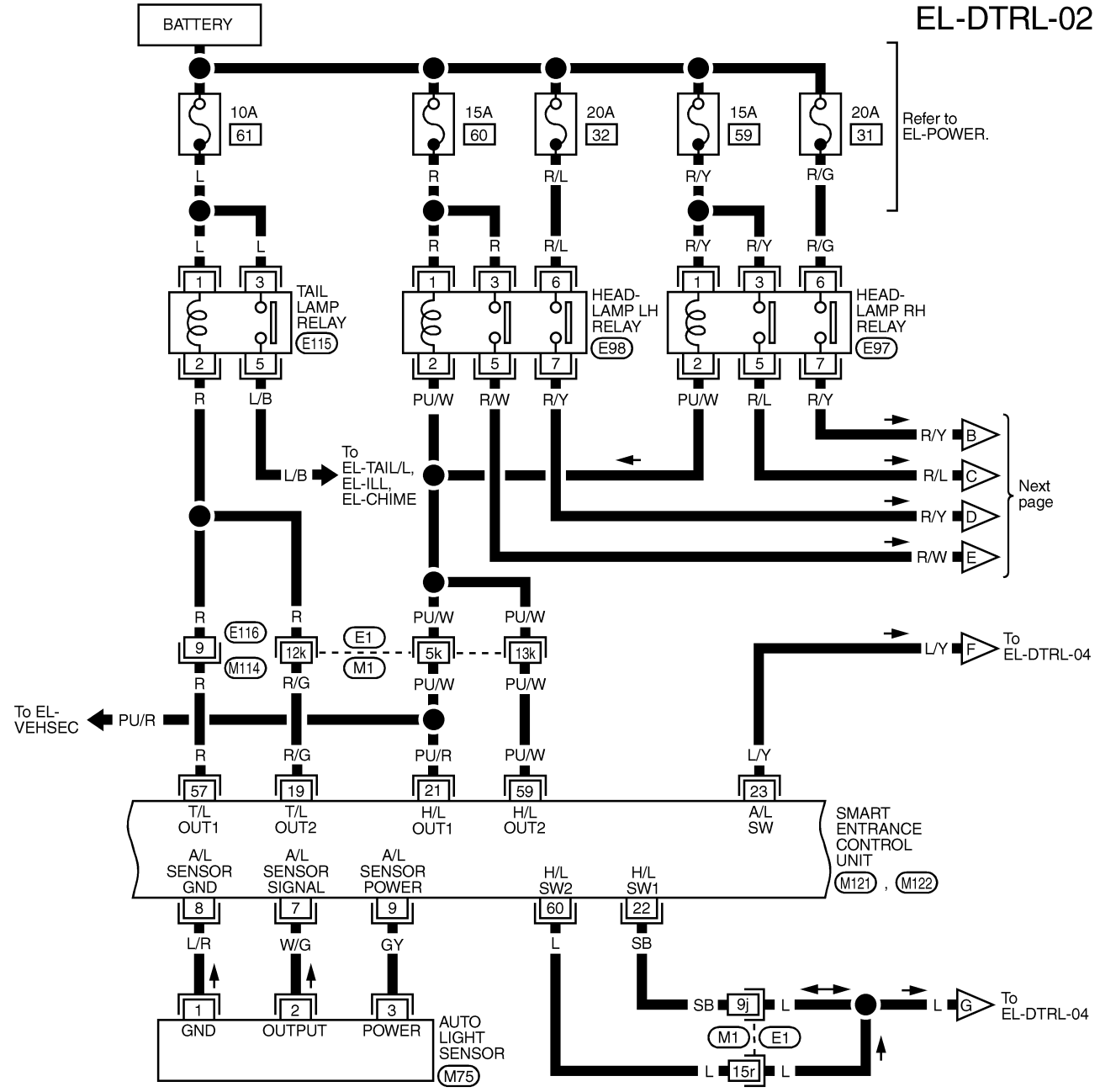


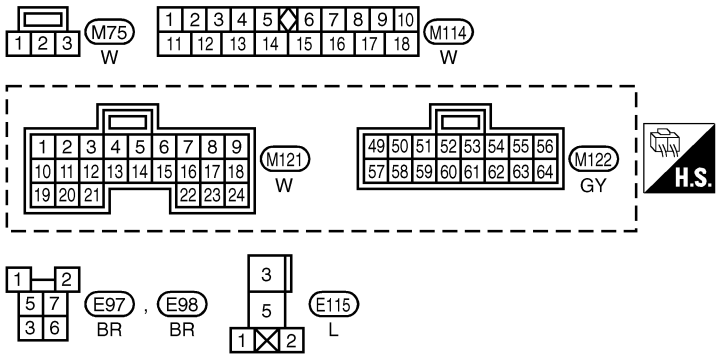


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL593P

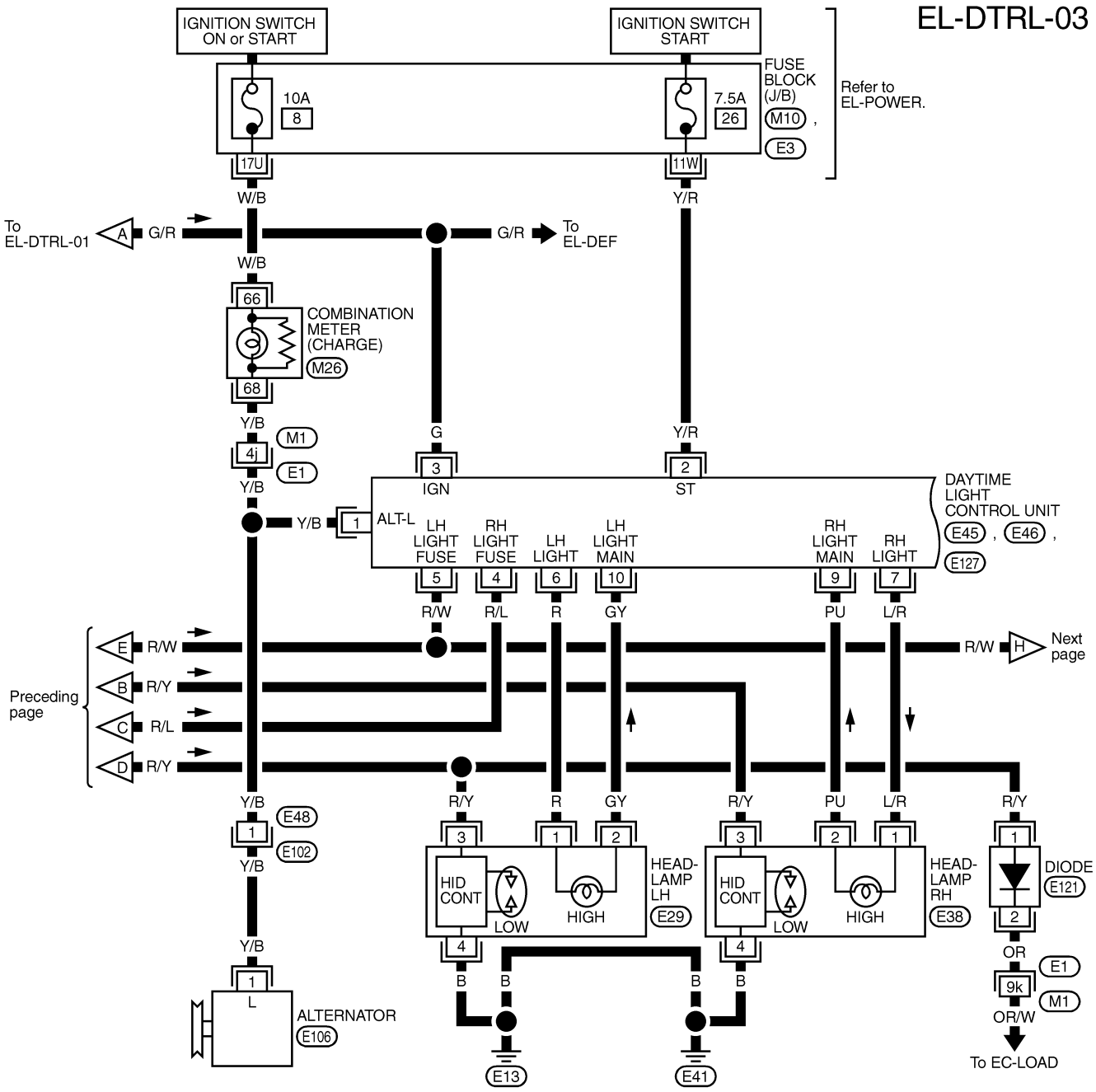
Wiring Diagram — DTRL — (Cont'd)

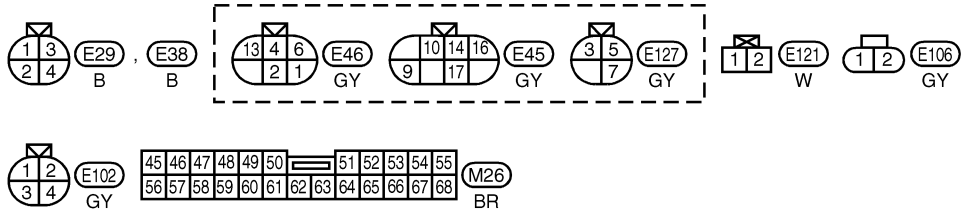




REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL594P



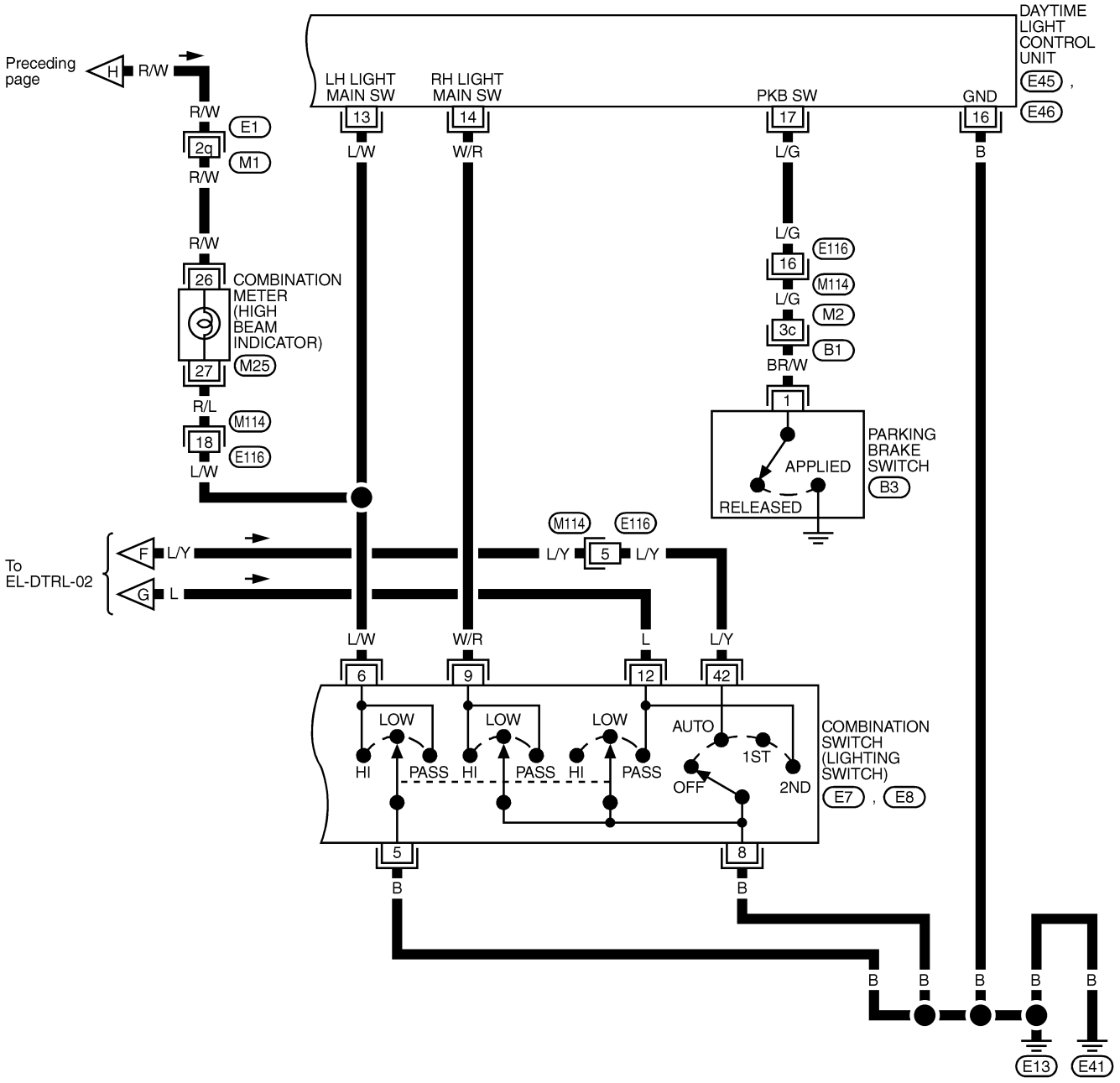


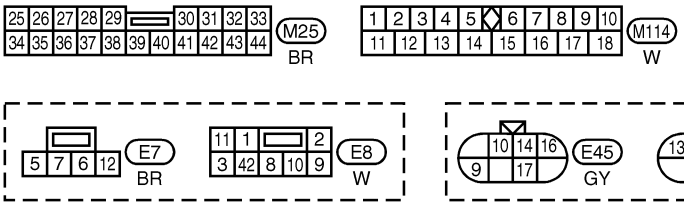
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK- JUNCTION (J/B)

MEL698N

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-04

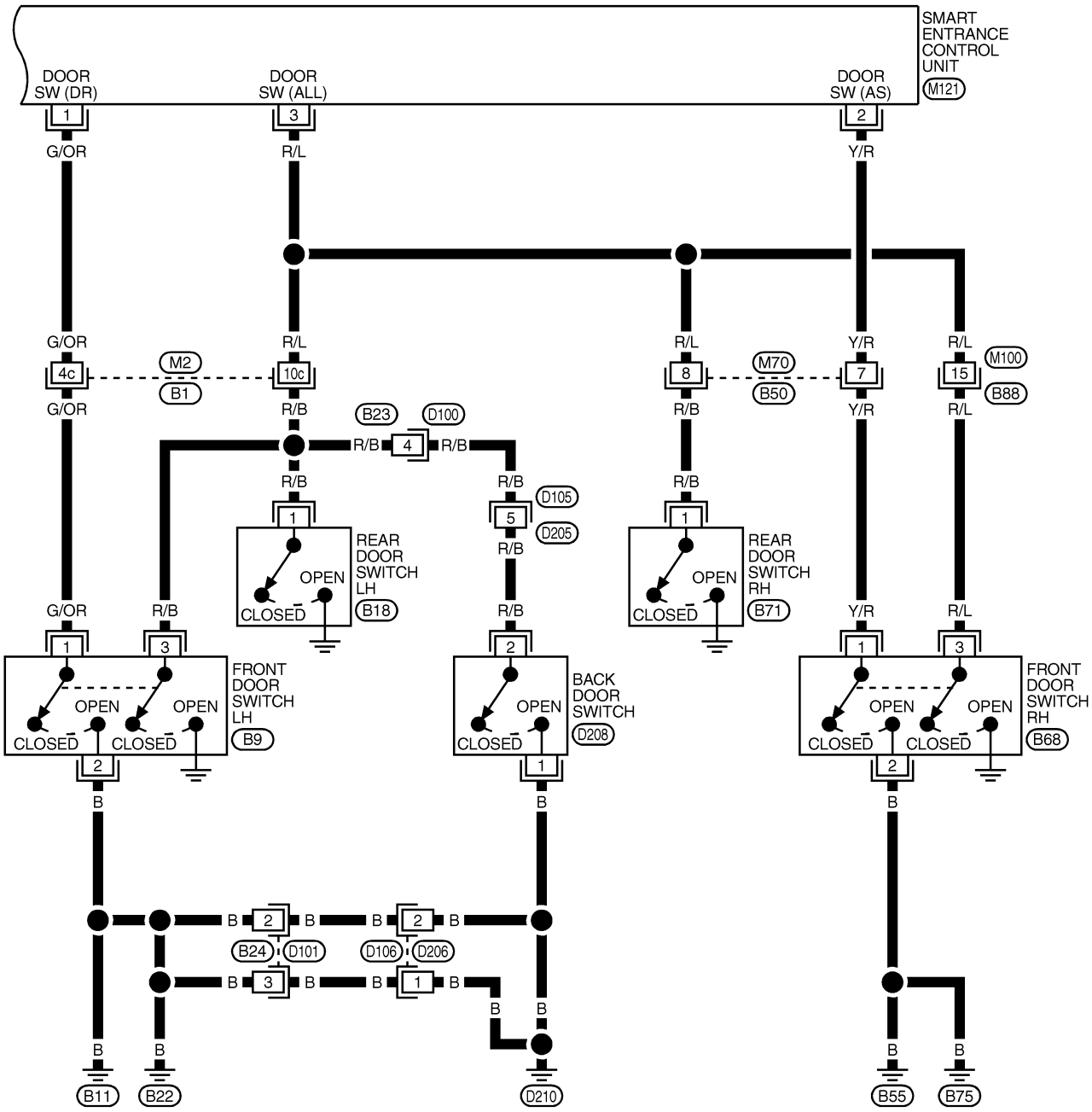


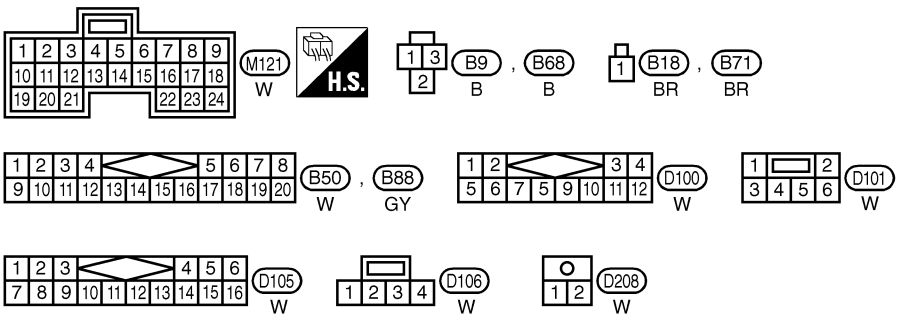


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL699N

EL-DTRL-05





REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL632P

CONSULT-II Inspection Procedure

NBEL0267

“HEADLAMP”

NBEL0267S01

Refer to “HEADLAMP (FOR USA) — XENON TYPE —” (EL-42).

CONSULT-II Application Items

NBEL0268

“HEADLAMP”

NBEL0268S01

Refer to “HEADLAMP (FOR USA) — XENON TYPE —” (EL-43).

Trouble Diagnoses

NBEL0269

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. 7.5A fuse 2. Lighting switch 3. Smart entrance control unit	1. Check 7.5A fuse [No. 24, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 49 of smart entrance control unit. 2. Check Lighting switch. 3. Check smart entrance control unit. (EL-486)
LH headlamp (low and high beam) does not operate, but RH headlamp (low and high beam) does operate.	1. 15A fuse 2. Headlamp LH relay 3. Headlamp LH relay circuit 4. Lighting switch circuit 5. Smart entrance control unit	1. Check 15A fuse (No. 60, located in fusible link and fuse box). Verify battery positive voltage is present at terminal 1 and 3 of headlamp LH relay. 2. Check headlamp LH relay. 3. Check harness between headlamp LH relay and smart entrance control unit. 4. Check harness between smart entrance control unit and lighting switch. 5. Check smart entrance control unit. (EL-486)

Symptom	Possible cause	Repair order
RH headlamp (low and high beam) does not operate, but LH headlamp (low and high beam) does operate.	1. 15A fuse 2. Headlamp RH relay 3. Headlamp RH relay circuit 4. Lighting switch circuit 5. Smart entrance control unit	1. Check 15A fuse (No. 59, located in fusible link and fuse box). Verify battery positive voltage is present at terminals 1 and 3 of headlamp RH relay. 2. Check headlamp RH relay. 3. Check harness between headlamp RH relay and smart entrance control unit. 4. Check harness between smart entrance control unit and lighting switch. 5. Check smart entrance control unit. (EL-486)
LH high beam does not operate, but LH low beam operates.	1. Bulb 2. Headlamp LH relay 3. Headlamp LH relay circuit 4. Headlamp LH high beams circuit 5. Lighting switch 6. Lighting switch circuit 7. Daytime light control unit	1. Check bulb. 2. Check headlamp LH relay. 3. Check the following. a. Harness between headlamp LH relay and daytime light control unit. b. Harness between headlamp LH relay terminal 3 and fuse block. 4. Check harness between LH headlamp and daytime light control unit. 5. Check lighting switch. 6. Check the following. a. Harness between daytime light control unit and lighting switch b. Harness between lighting switch and ground 7. Check daytime light control unit. (EL-64)
LH low beam does not operate, but LH high beam operates.	1. 20A fuse 2. Headlamp relay LH 3. Open in the LH low beam circuit 4. LH low beam ground circuit 5. Xenon bulb 6. HID control unit 7. Booster	1. Check 20A fuse (No. 32, located in fusible link and fuse box). Verify battery positive voltage is present at terminal 6 of headlamp LH relay. 2. Check headlamp relay LH. 3. Check harness between headlamp relay LH terminal 7 and LH headlamp for open circuit. 4. Check harness between LH headlamp and ground. 5. Replace the xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.) 6. Replace the HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) 7. Replace booster as a headlamp assembly.
RH high beam does not operate, but RH low beam operates.	1. Bulb 2. Headlamp RH relay 3. Headlamp RH relay circuit 4. Open in the RH high beams circuit 5. Lighting switch 6. Lighting switch circuit 7. Daytime light control unit	1. Check bulb. 2. Check headlamp RH relay. 3. Check the following. a. Harness between headlamp RH relay and daytime light control unit. b. Harness between headlamp RH relay terminal 3 and fuse block. 4. Check harness between RH headlamp and daytime light control unit. 5. Check lighting switch. 6. Check the following. a. Harness between daytime light control unit and lighting switch b. Harness between lighting switch and ground 7. Check daytime light control unit. (EL-64)

Trouble Diagnoses (Cont'd)

Symptom	Possible cause	Repair order
RH low beam does not operate, but RH high beam operates.	1. 20A fuse 2. Headlamp relay RH 3. Open circuit in the RH low beam wiring. 4. RH low beam ground circuit 5. Xenon bulb 6. HID control unit 7. Booster	1. Check 20A fuse (No. 31, located in fusible link and fuse box). Verify battery positive voltage is present at terminal 6 of headlamp RH relay. 2. Check headlamp relay RH. 3. Check harness between headlamp relay RH terminal 7 and RH headlamp for open circuit. 4. Check harness between RH headlamp and ground. 5. Replace the xenon bulb with other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.) 6. Replace the HID control unit with other side control unit or new one. (If headlamps illuminate correctly, replace the control unit.) 7. Replace booster as a headlamp assembly.
High beam indicator does not work.	1. Bulb 2. Open in high beam circuit	1. Check bulb in combination meter. 2. Check the following. a. Harness between daytime light control unit and combination meter for an open circuit 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 2. Lighting switch circuit 3. Smart entrance control unit	1. Check the following. a. Harness between smart entrance control unit and LH or RH door switch for open or short circuit. b. LH or RH door switch ground circuit. c. LH or RH door switch. 2. Check the following. a. Harness between smart entrance control unit terminals 20 or 58 and lighting switch terminal 11 for open or short circuit. b. Harness between lighting switch terminal 5 and ground. c. Lighting switch. 3. Check smart entrance control unit. (EL-486)
Daytime light control does not operate properly.	1. Bulb 2. Fuse check 3. Parking brake switch 4. Parking brake switch circuit 5. Alternator circuit 6. Daytime light control unit	1. Check bulb. 2. Check the following. a. 7.5A fuse [No. 11, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 3 of daytime light control unit. b. 7.5A fuse [No. 26, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 2 of daytime light control unit. 3. Check parking brake switch. 4. Check harness between parking brake switch and daytime light control unit. 5. Check harness between alternator and daytime light control unit. 6. Check daytime light control unit. (EL-64)

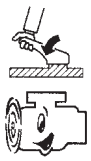
Symptom	Possible cause	Repair order
When outside is dark, neither tail lamp nor headlamp turn on by auto light operation.	1. 7.5A fuse 2. Lighting switch "AUTO" check 3. Lighting switch circuit check 4. Lighting switch ground circuit check 5. Auto light sensor check 6. Auto light sensor circuit check	1. Check 7.5A fuse [NO. 11 located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 27 of smart entrance control unit. 2. Check lighting switch (AUTO) input signal with "CONSULT-II" in "DATA MONITOR" mode. When lighting switch is in AUTO: **AUTO LIGHT SWITCH ON** When lighting switch is in OFF: **AUTO LIGHT SWITCH OFF** 3. Check harness for open or short between smart entrance control unit and lighting switch. 4. Check harness for lighting switch and ground. 5. Check auto light sensor input signal. (With CONSULT-II) See "AUTO LIGHT SENSOR" in DATA MONITOR mode. When auto light sensor in stuck by light: **More than 3V** When auto light sensor is not stuck by light: **Approx. 0.5V** (Without CONSULT-II) Check voltage between smart entrance control unit terminal 7 and ground. Refer to smart entrance control unit. (EL-486) 6. Check the following. a. Harness for open or short between smart entrance control unit terminal 8 and auto light sensor terminal 1 b. Harness for open or short between smart entrance control unit terminal 7 and auto light sensor terminal 2 c. Harness for open or short between smart entrance control unit terminal 9 and 3
When outside is dark, tail lamp turns on but headlamp does not turn on by auto light operation.	Auto light output check	Check auto light output. (With CONSULT-II) See "HEADLAMP" and "TAIL LAMP" in ACTIVE TEST mode, and headlamp switch to AUTO position. **Headlamp and tail lamp should turn on.** (Without CONSULT-II) Check voltage between smart entrance control unit terminals 19, 21, 57, 59 and ground. Refer to smart entrance control unit. (EL-486)
When outside is dark, headlamp turns on but tail lamp does not turn on by auto light operation.	Auto light output check	Check auto light output. (With CONSULT-II) See "HEADLAMP" and "TAIL LAMP" in ACTIVE TEST mode, and headlamp switch to AUTO position. **Headlamp and tail lamp should turn on.** (Without CONSULT-II) Check voltage between smart entrance control unit terminals 19, 21, 57, 59 and ground. Refer to smart entrance control unit. (EL-486)
Light does not turn off when ignition key switch is turned to "OFF" (exterior battery saver control is canceled).	1. 7.5A fuse 2. IGN switch circuit	1. Check 7.5A fuse [NO. 11 located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 27 of smart entrance control unit. 2. Check harness for open or short between smart entrance control unit and fuse.

Symptom	Possible cause	Repair order
When outside is bright, neither tail lamps nor headlamps turn off by auto light operation.	Auto light sensor check	Check auto light sensor input signal. (With CONSULT-II) See "AUTO LIGHT SENSOR" in DATA MONITOR mode. When auto light sensor in stuck by light: **More than 3V** When auto light sensor is not stuck by light: **Approx. 0.5V** (Without CONSULT-II) Check voltage between smart entrance control unit terminal 7 (W/G) and ground. Refer to smart entrance control unit. (EL-486)

DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

NBEL0269S01

Terminal No.	Wire color	Item	Condition		Voltage (Approximate values)
1	Y/B	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	Y/R	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	R/L	Power source		When turning ignition switch to "ON"	Battery voltage
				When turning ignition switch to "OFF"	Battery voltage
5	R/W	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	R	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) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage
7	L/R	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) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Battery voltage
9	PU	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) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Approx. half battery voltage
10	GY	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) **CAUTION:** **Block wheels and ensure selector lever is in N or P position.**	Less than 1V
13 14	L/W W/R	Lighting switch (Hi beam)		When turning lighting switch to "HI BEAM"	Less than 1V
				When turning lighting switch to "FLASH TO PASS"	Less than 1V
16	B	Ground		—	—
17	L/G	Parking brake switch		When parking brake is released	Battery voltage
				When parking brake is set	Less than 1.5V

Bulb Replacement

NBEL0270

Refer to "HEADLAMP (FOR USA) — XENON TYPE —" (EL-47).

Aiming Adjustment

NBEL0271

Refer to “HEADLAMP (FOR USA) — XENON TYPE —” (EL-48).

System Description

NBEL0474

The headlamp aiming operation is controlled by the headlamp aiming switch.
Power is supplied at all times.

- to tail lamp relay terminals 1 and 3
- through 10A fuse (No. 61, located in fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 7.5A fuse [No. 24, located in the fuse block (J/B)].

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 terminals 11 and 5, and
- through body grounds E13 and E41

and then tail lamp relay is energized.
When auto light operation is performed, ground is supplied

- to tail lamp relay terminal 2 from smart entrance control unit terminals 19 and 57.
- through smart entrance control unit terminal 23 and
- through lighting switch terminals 42 and 8, and
- through body grounds E13 and E41.

and then tail lamp relay is energized.
When tail lamp relay is energized, power is supplied

- from tail lamp relay terminal 5
- to terminal 1 of each headlamp aiming motor.

Ground is supplied

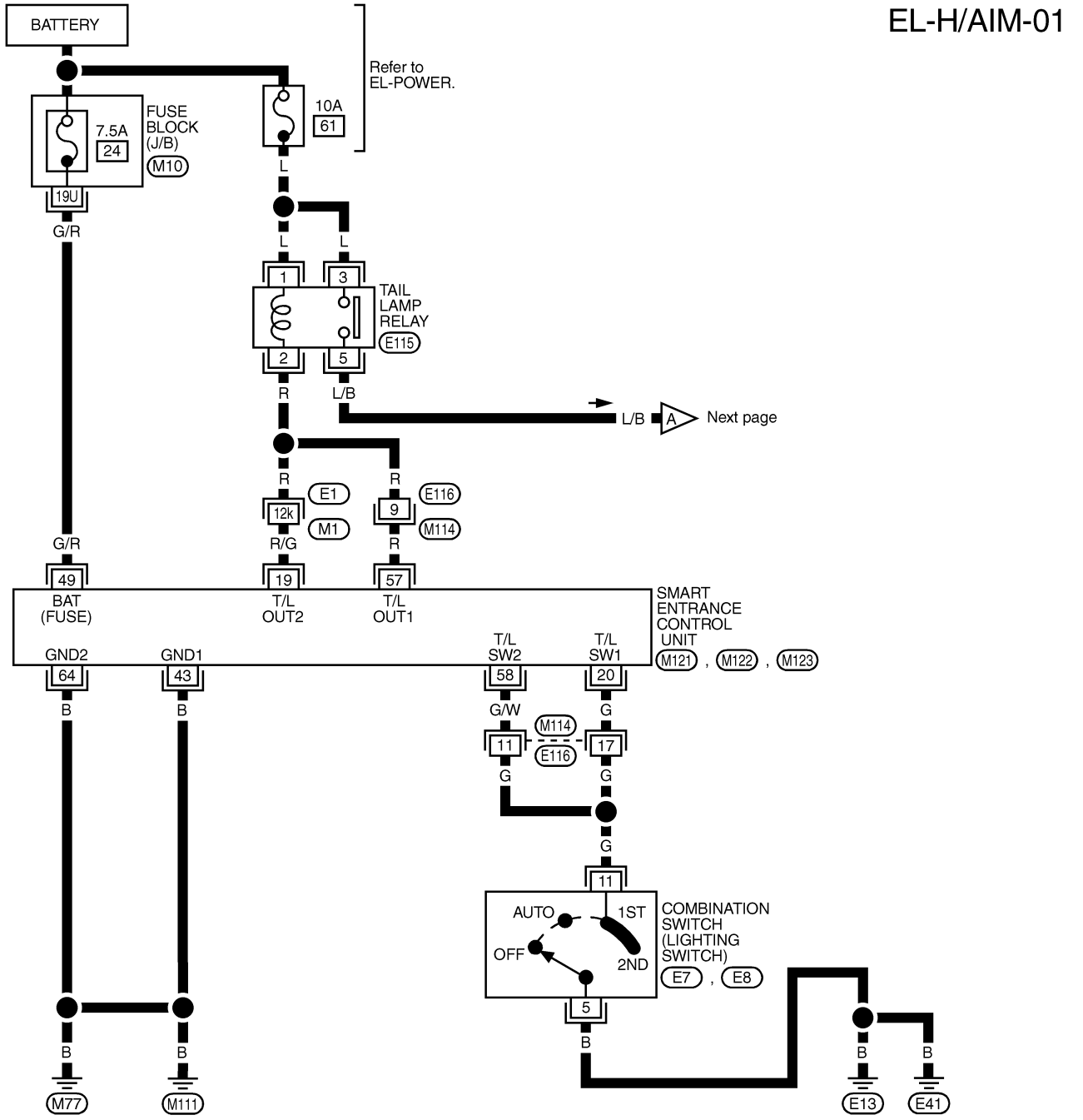
- to terminal 3 of each headlamp aiming motor
- through body grounds E13 and E41,
- to terminal 2 of each headlamp aiming motor
- through headlamp aiming switch and body grounds E13 and E41.

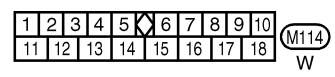
With power and ground supplied, headlamp aiming motors operate according to the aiming switch position.

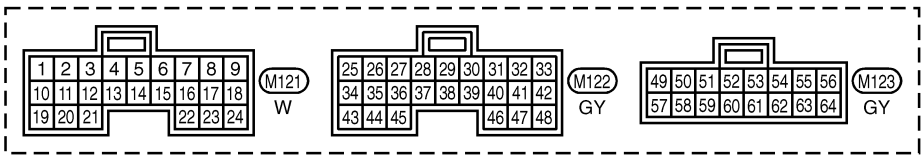
Wiring Diagram — H/AIM —

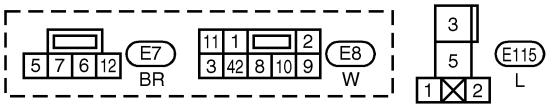
NBEL0475

EL-H/AIM-01





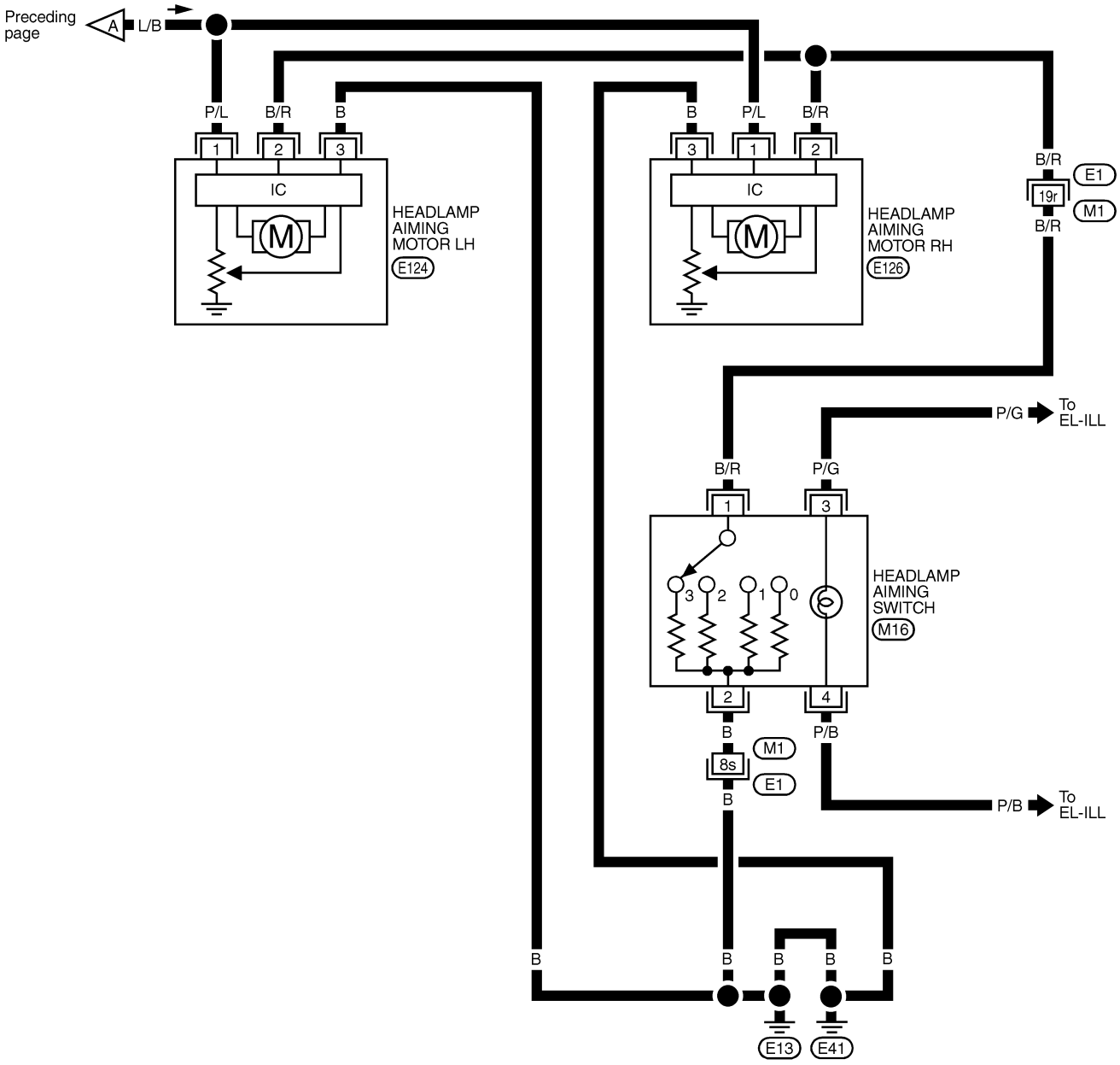


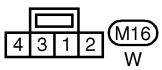


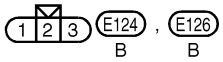
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK- JUNCTION BOX (J/B)

MEL595P

EL-H/AIM-02







REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL701N

System Description

NBEL0272

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. 61, located in the fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 7.5A fuse [No. 24, 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 7.5A fuse [No. 11, 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. 10, located in the fuse block (J/B)].

Ground is supplied

- to smart entrance control unit terminals 43 and 64
- through body grounds M77 and M111.

LIGHTING OPERATION BY LIGHTING SWITCH

NBEL0272S01

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 E13 and E41.

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

LIGHTING OPERATION BY AUTO LIGHT CONTROL SYSTEM

NBEL0272S02

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 M77 and M111.

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

EXTERIOR LAMP BATTERY SAVER CONTROL

NBEL0272S03

Except for Auto Light Control Operation

NBEL0272S0301

Parking, license and tail lamps will remain on for a short while after the ignition switch is turned from ON (or ACC) to 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 parking, license and tail lamps will be turned off.

When the lighting switch is turned from OFF to 2ND after parking, license and tail lamps are turned to off by the exterior lamp battery saver control, ground is supplied

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

Then parking, license and tail lamps illuminate again.

Auto light control operation

NBEL0272S0302

While the parking, license and tail lamps are turned ON by “AUTO” operation, the exterior lamp battery saver is activated for 5 minutes when the ignition switch is turned from ON (or ACC) to OFF, and either LH or RH front door switch is opened.

The smart entrance control unit controls exterior lamp battery saver activation as follows:

- When the door switch signal changes from ON to OFF while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the parking, license and tail lamps will be turned off.
- When the door switch signal changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the parking, license and tail lamps will be turned off.

- When the one of four door switch signals changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 5 minutes seconds, then the parking, license and tail lamps will be turned off.
- When all the door switch ON signals are input while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the parking, license and tail lamps will be turned off.
  Exterior battery saver control time can be changed using "WORK SUPPORT" mode in "HEADLAMP".

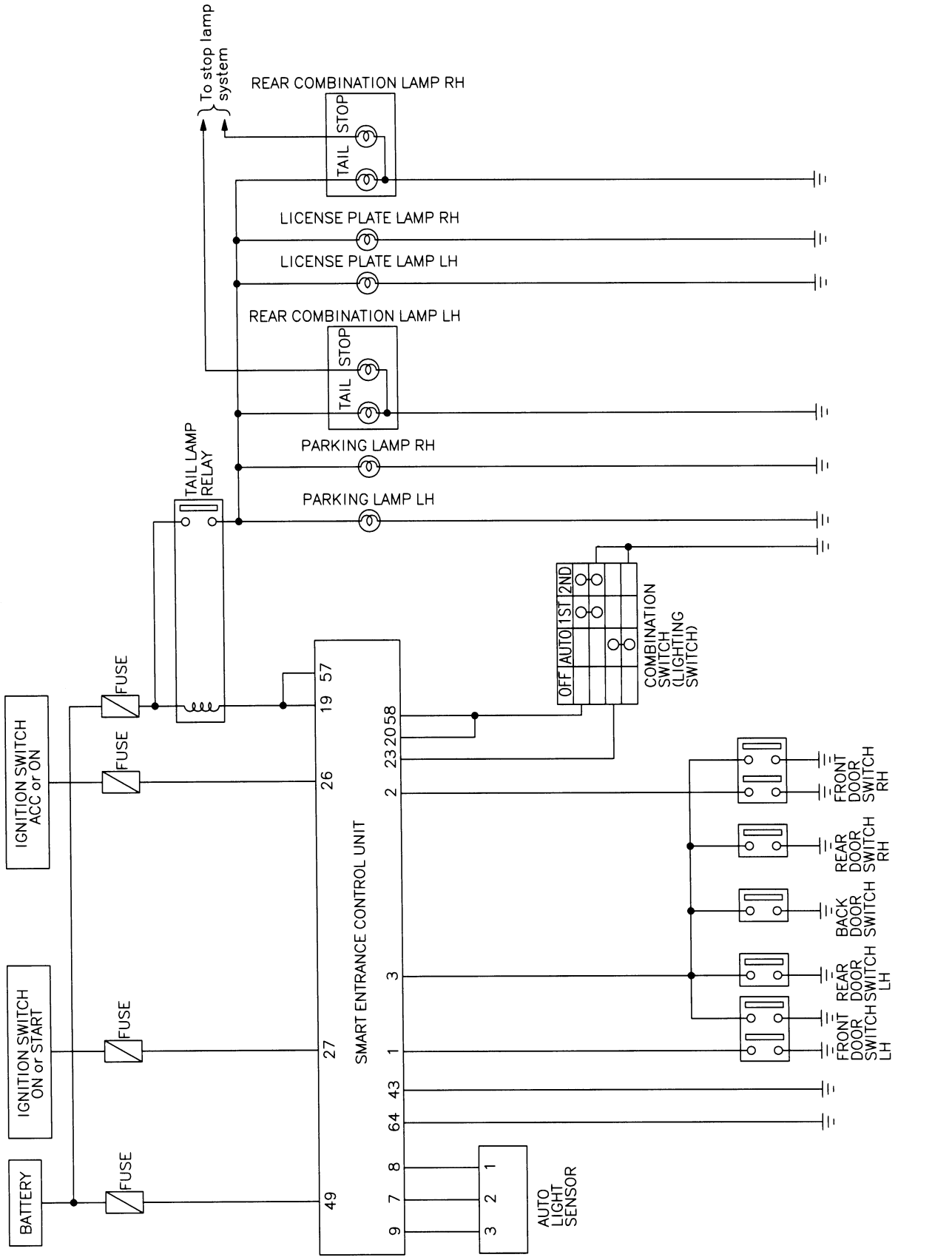
When the lighting switch is turned from OFF to 2ND after parking, license and tail lamps are turned to off by the exterior lamp battery saver control, ground is supplied

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

Then parking, license and tail lamps illuminate again.

Schematic

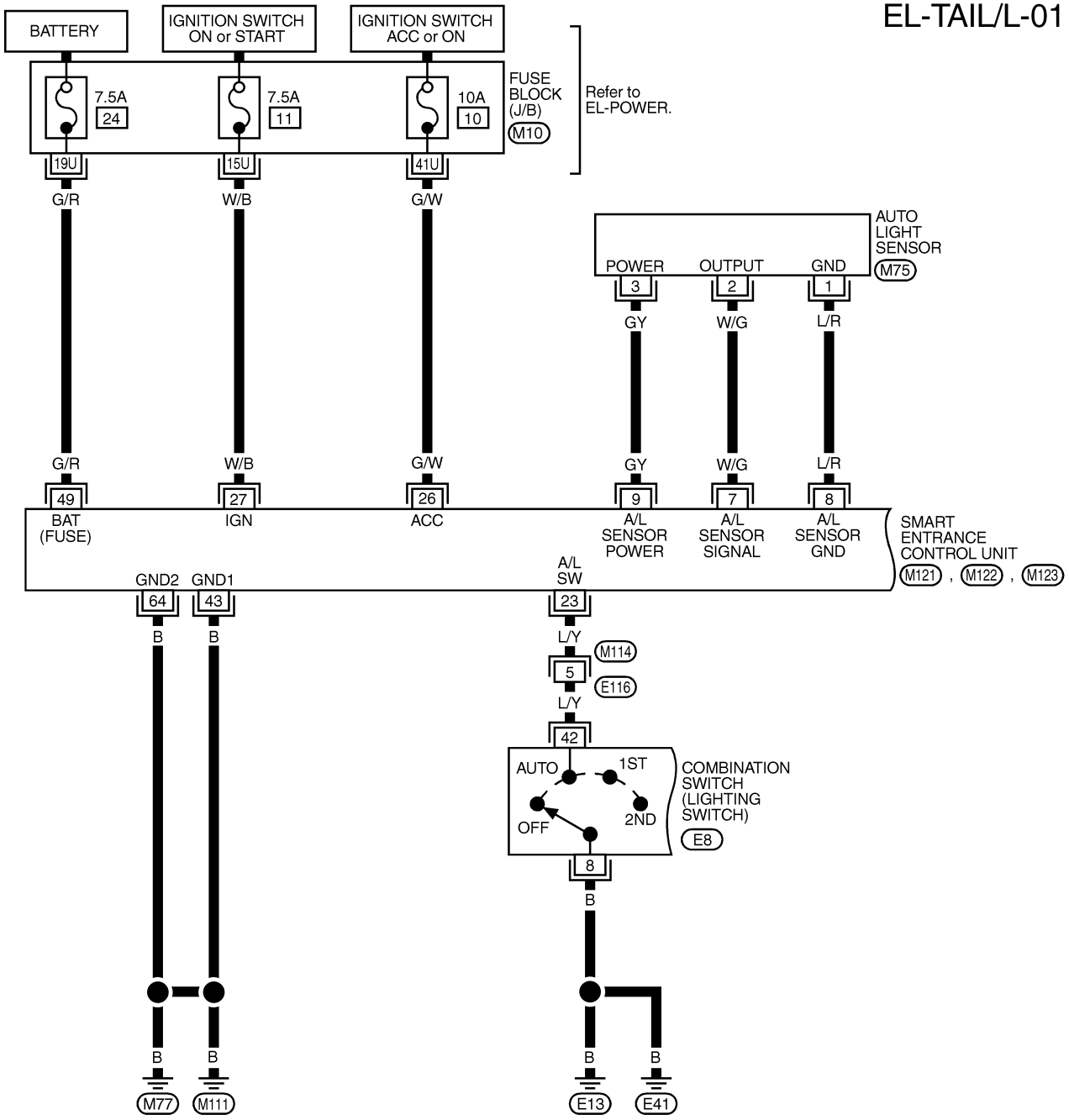
NBEL0273

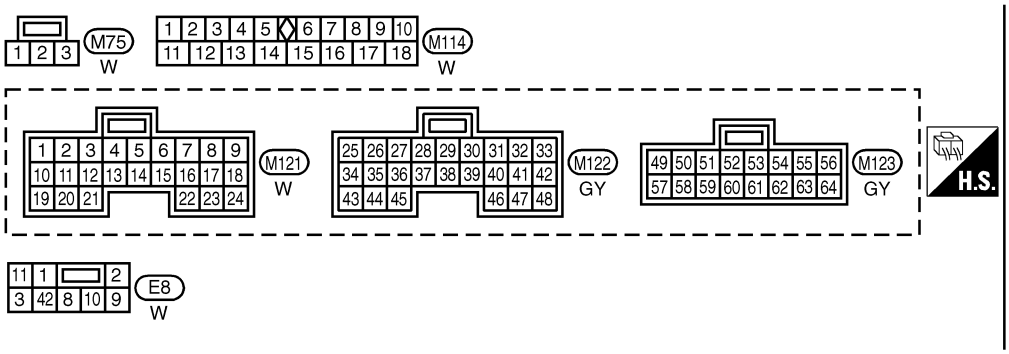


MEL680P

Wiring Diagram — TAIL/L —

NBEL0274



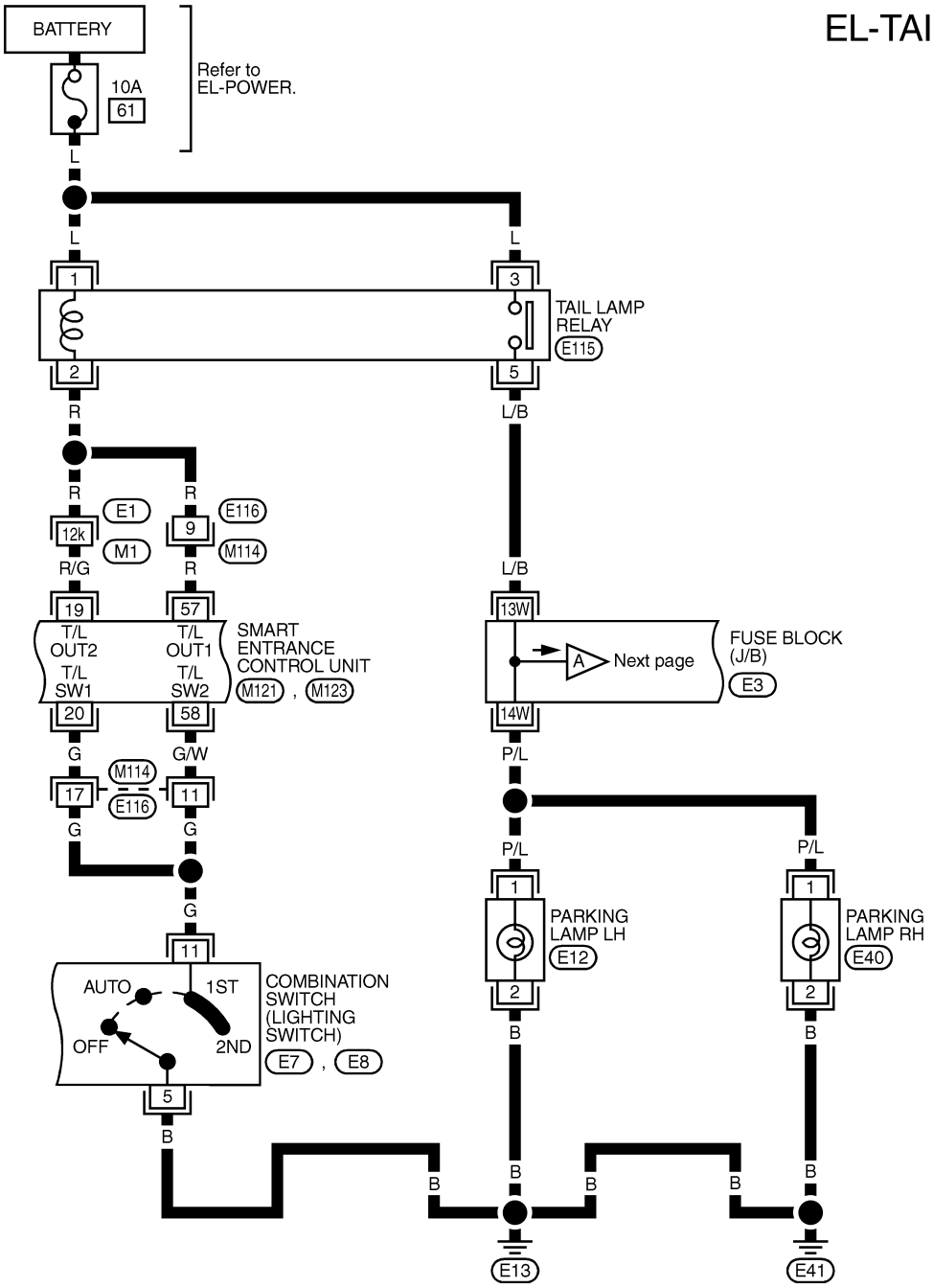


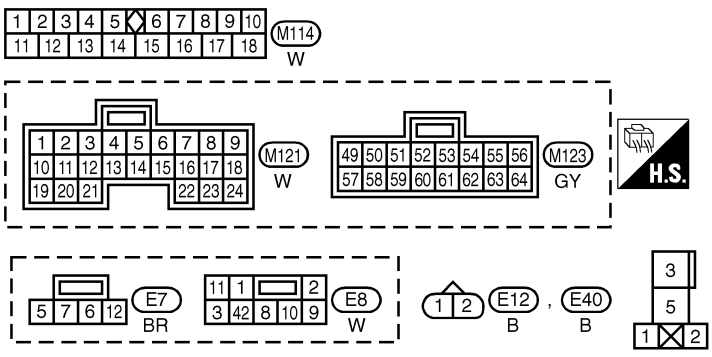
REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL596P

Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-02





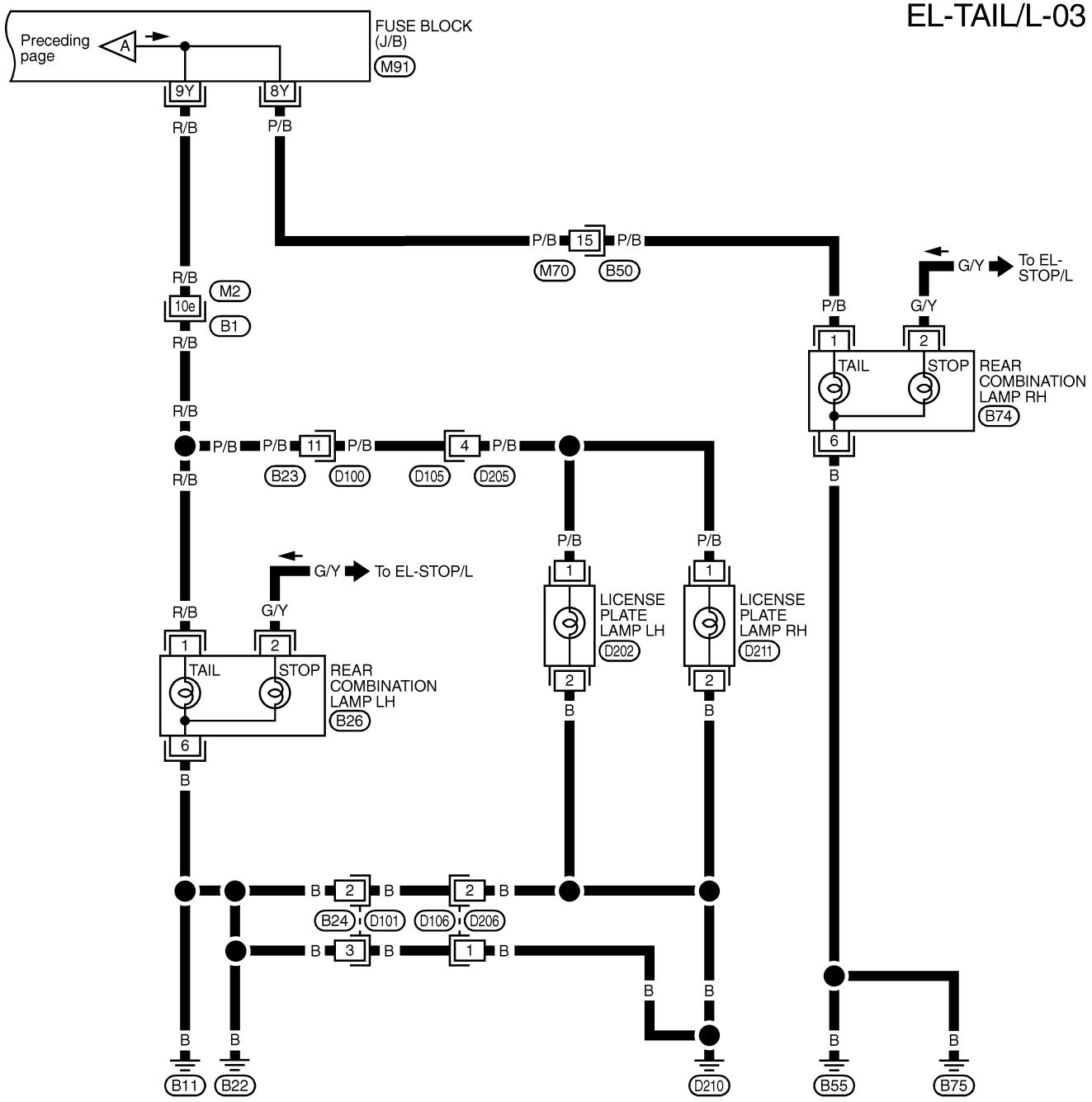
REFER TO THE FOLLOWING.

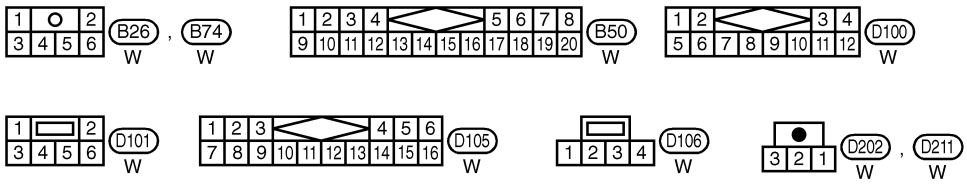
E1 -SUPER MULTIPLE JUNCTION (SMJ)

E3 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL597P

EL-TAIL/L-03

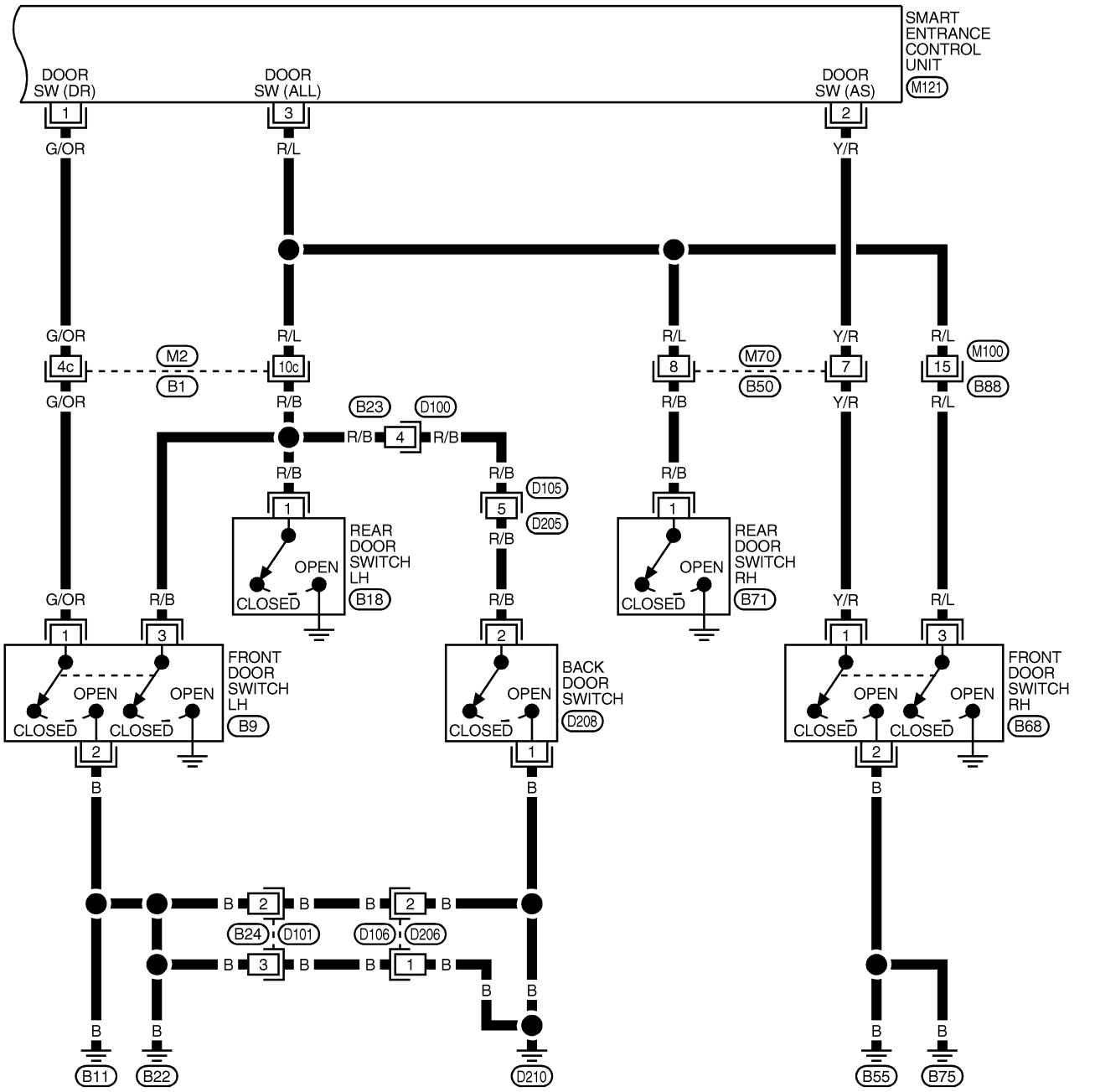


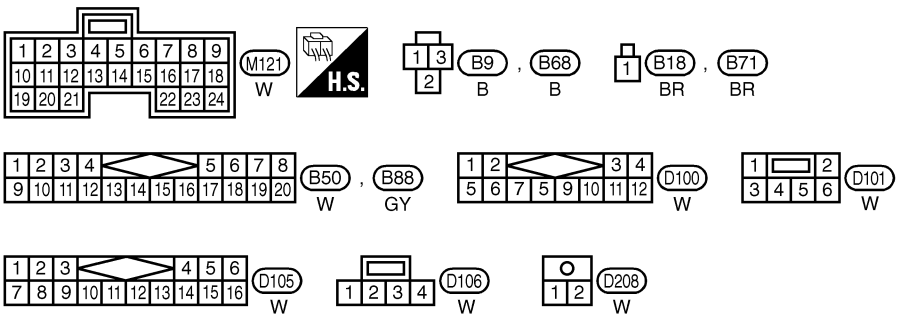


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M91 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL598P

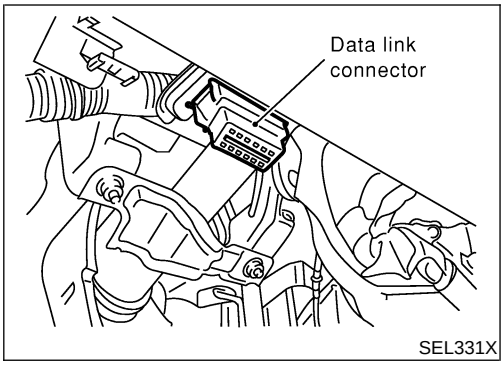
EL-TAIL/L-04





REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL633P



SEL331X

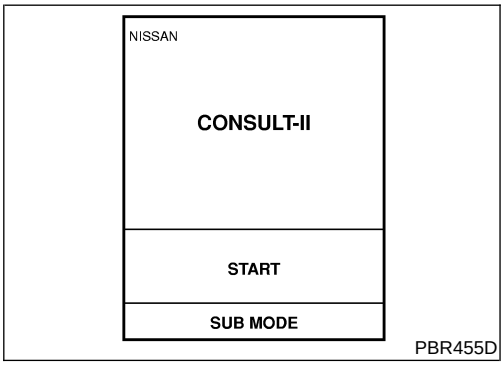
CONSULT-II Inspection Procedure

NBEL0275

“HEADLAMP”

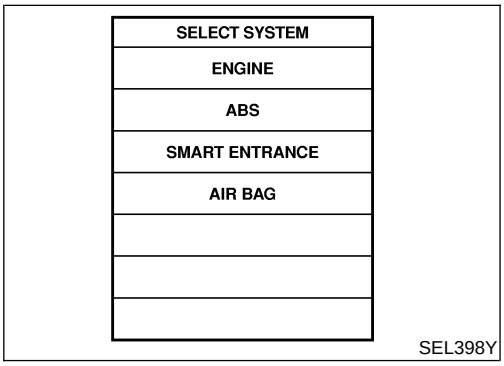
NBEL0275S01

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



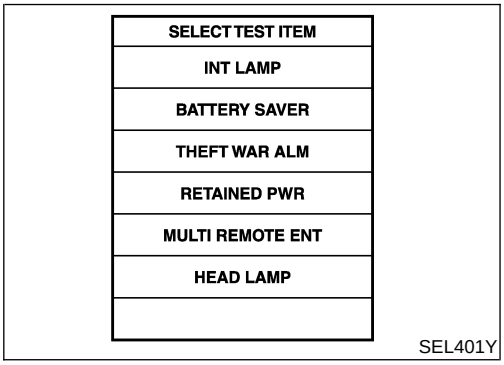
PBR455D

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



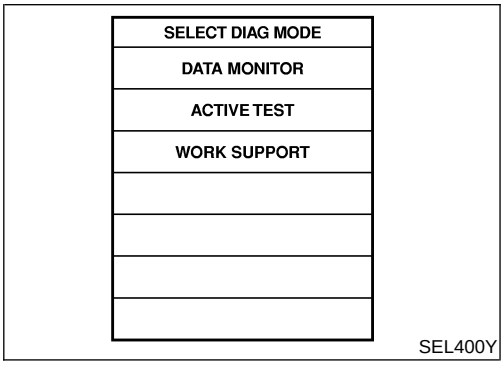
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL401Y

6. Touch “HEADLAMP”.



SEL400Y

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

CONSULT-II Application Items

NBEL0454

"HEADLAMP"

NBEL0454S01

Data Monitor

NBEL0454S0101

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. (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. (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. (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

NBEL0454S0102

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

NBEL0454S0103

Work Item	Description
AUTO LIGHT SET	Auto light sensitivity can be changed in this mode. Sensitivity can be adjusted in four modes. ● 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. ● 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. ● 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

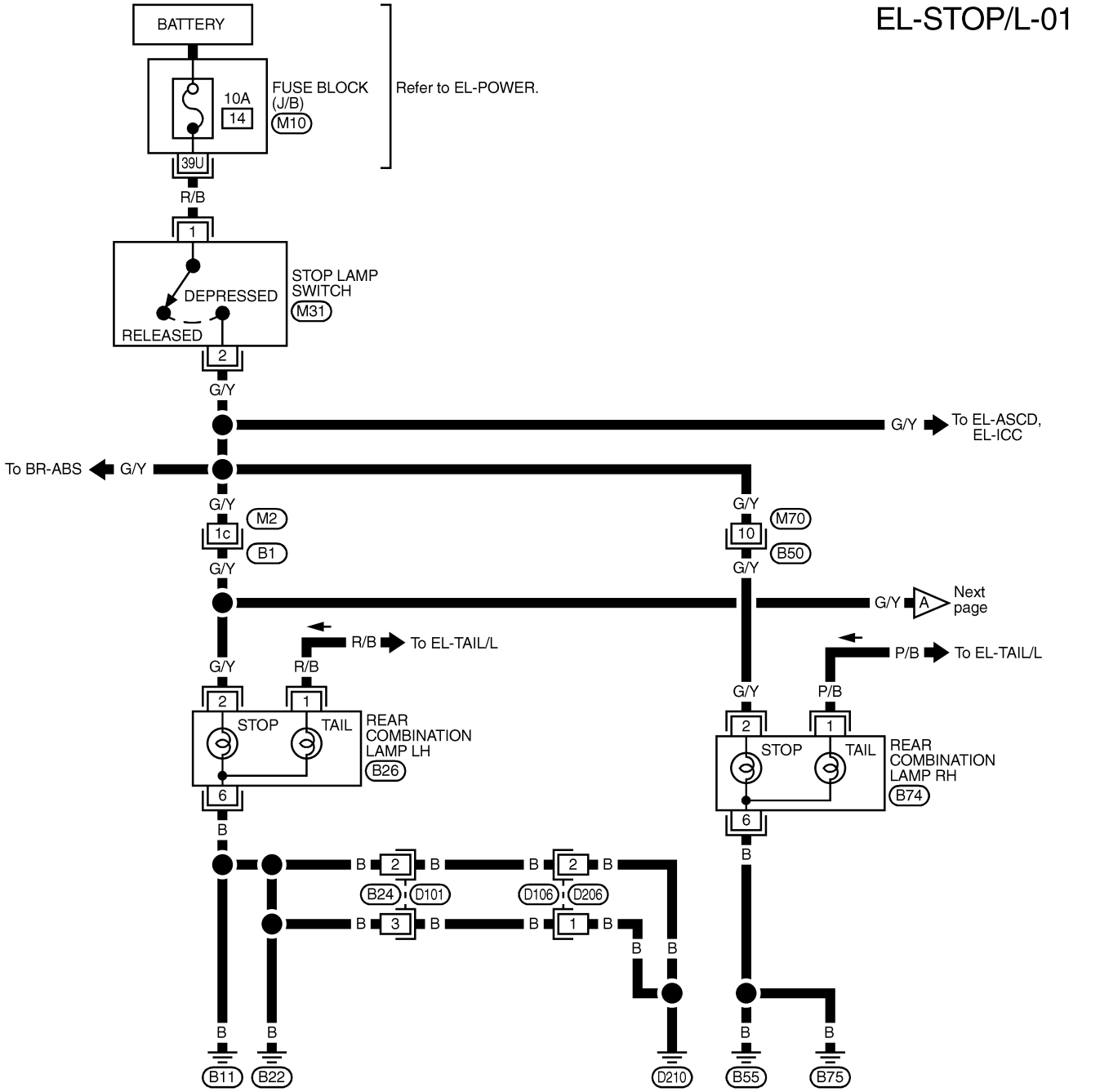
NBEL0277

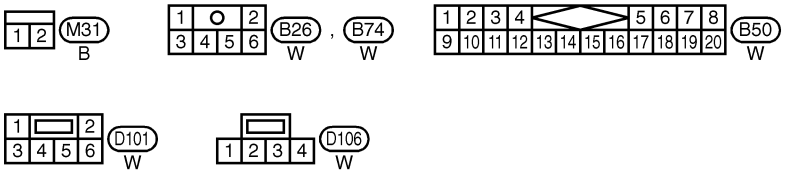
Symptom	Possible cause	Repair order
No lamps operate (including headlamps).	1. 7.5A fuse 2. Lighting switch 3. Smart entrance control unit	1. Check 7.5A fuse [No. 24, lacated in fuse block (J/B)]. Verify battery positive voltage is present at terminal 49 of smart entrance control unit. 2. Check lighting switch. 3. Check smart entrance control unit. (EL-486)

Symptom	Possible cause	Repair order
No parking, license and tail lamps operate, but headlamps do operate.	1. 10A fuse 2. Tail lamp relay 3. Tail lamp relay circuit 4. Lighting switch 5. Lighting switch circuit 6. Smart entrance control unit	1. Check 10A fuse (No. 61, located in fusible and fuse block). Verify battery positive voltage is present at terminals 1 and 3 of tail lamp relay. 2. Check tail lamp relay. 3. Check the following. a. Harness between smart entrance control unit terminals 19 and 57 and tail lamp relay terminal 2 b. Harness between tail lamp relay terminal 5 and fuse block. 4. Check lighting switch. 5. Check the following. a. Harness between lighting switch terminal 11 and smart entrance control unit terminals 20 and 58. b. Harness between lighting switch terminal 5 and ground. 6. Check smart entrance control unit. (EL-486)
Exterior lamp battery saver control does not operate properly.	1. Driver, passenger or rear door switch circuit 2. Smart entrance control unit	1. Check the following. a. Harness between smart entrance control unit and driver, passenger or rear door switch for open or short circuit. b. Driver passenger or rear door switch ground circuit. c. Driver, passenger or rear door switch. 2. Check smart entrance control unit. (EL-486)
Auto light malfunctioning	—	Refer to trouble diagnosis in "HEADLAMP". (EL-43)

Wiring Diagram — STOP/L —

NBEL0278





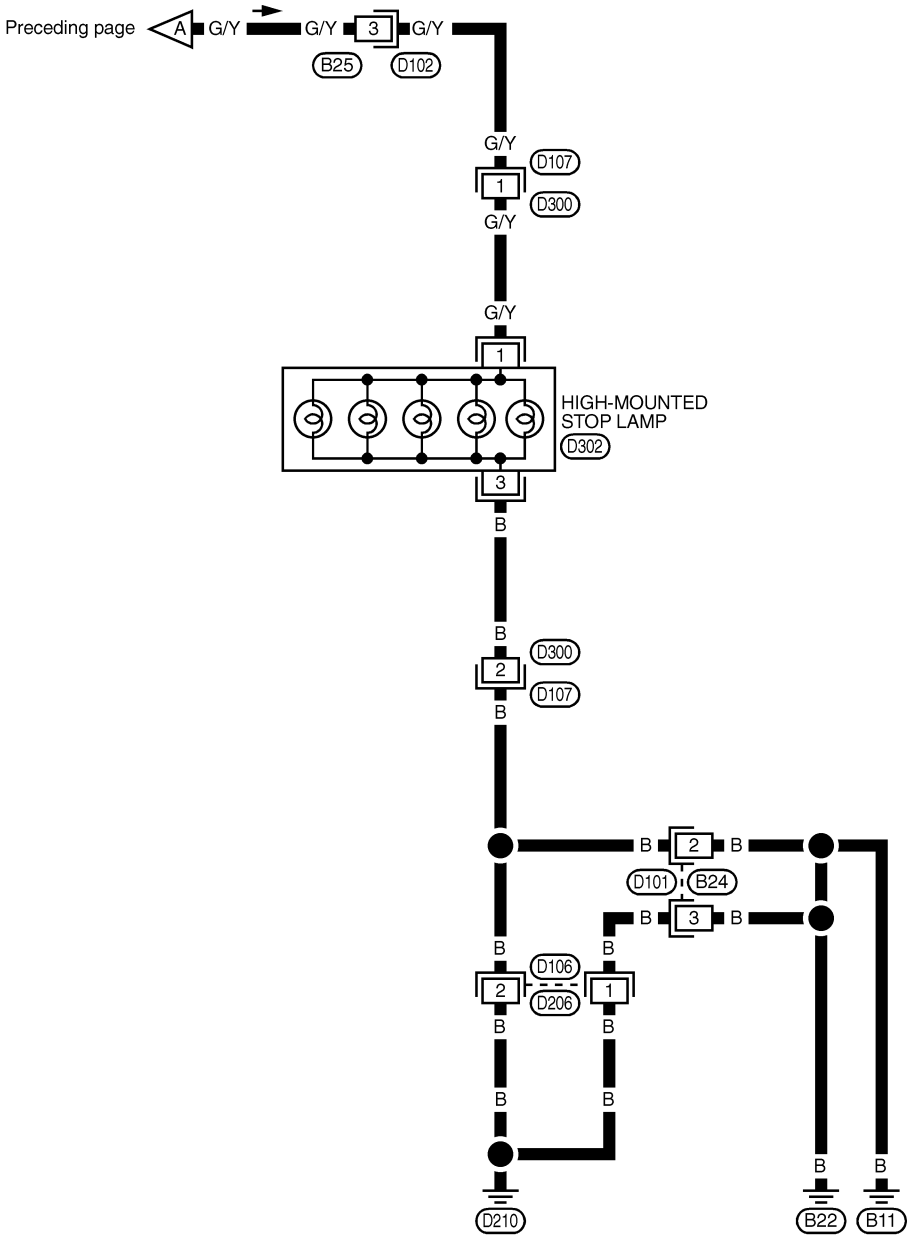
REFER TO THE FOLLOWING.

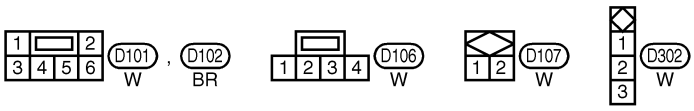
B1 -SUPER MULTIPLE JUNCTION (SMJ)

M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL660P

EL-STOP/L-02



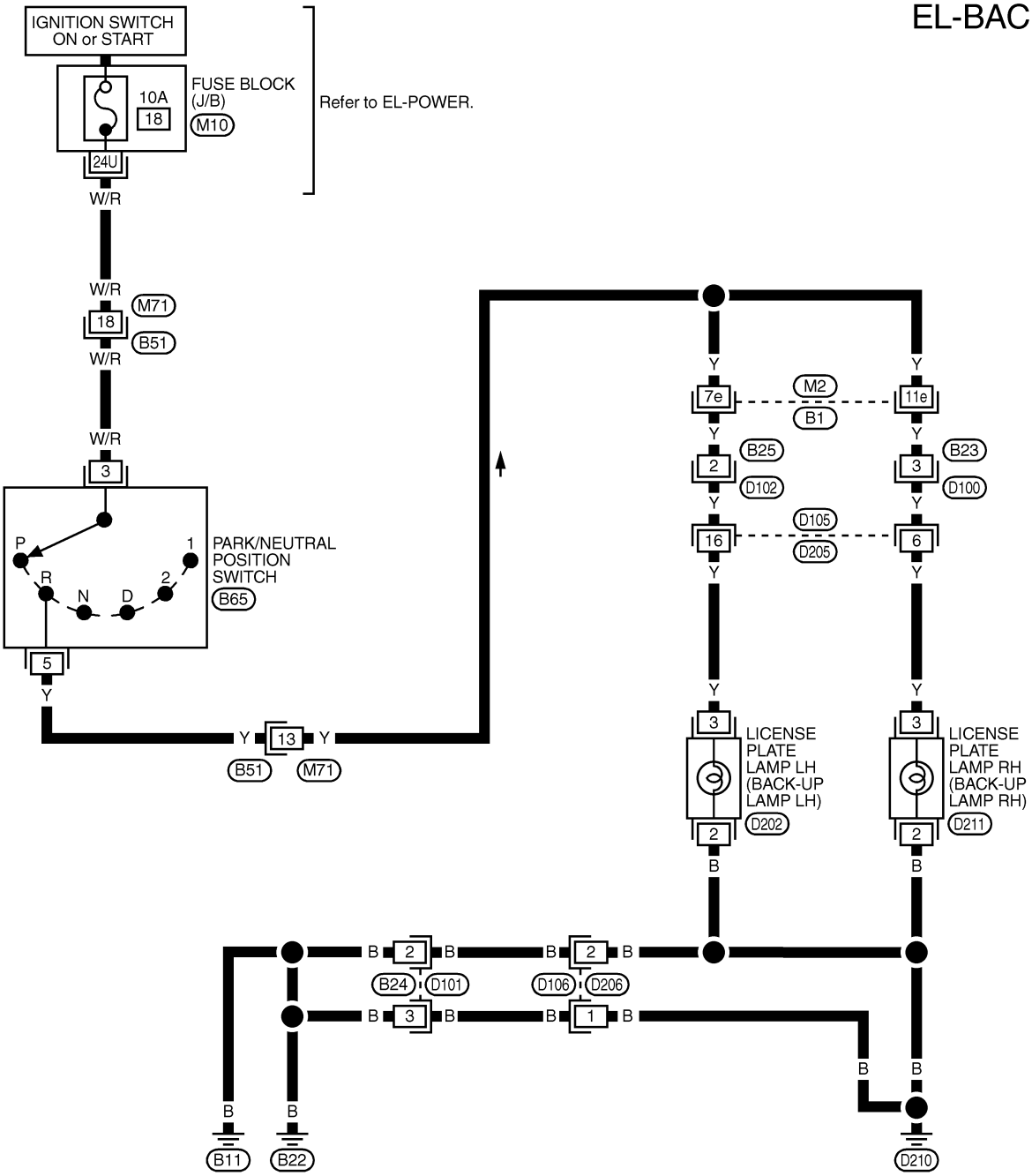


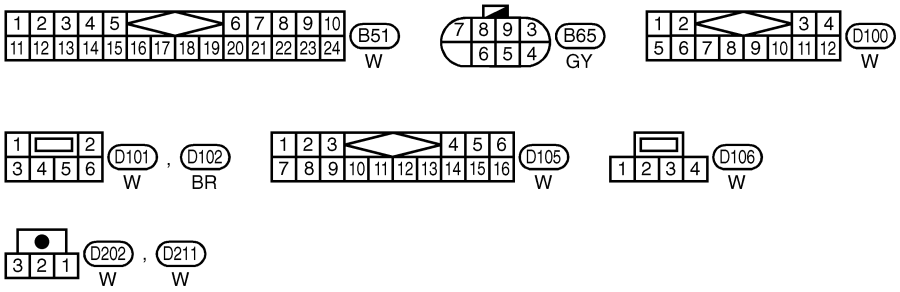
MEL262M

Wiring Diagram — BACK/L —

NBEL0279

EL-BACK/L-01





REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL778L

System Description

NBEL0280

OUTLINE

NBEL0280S01

Power is supplied at all times

- to headlamp RH relay terminals 1 and 3
- through 15A fuse (No. 59, located in the fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 7.5A fuse [No. 24, located in the fuse block (J/B)], and
- to front fog lamp relay terminal 3
- through 15A fuse (No. 53, located in the fuse and fusible link box).

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

- to smart entrance control unit terminal 27
- through 7.5A fuse [No. 11, 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. 10, 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 RH relay terminal 2 from smart entrance control unit terminals 21 and 59.
- through smart entrance control unit terminals 22 and 60,
- through lighting switch terminal 12, and
- through body grounds E13 and E41.

Headlamp RH relay is then energized.

FOG LAMP OPERATION

NBEL0280S02

The front fog lamp switch is built into the combination switch. The lighting switch must be in the 2ND position and LOW (“B”) position for front fog lamp operation.
With the front fog lamp switch in the ON position, ground is supplied

- to front fog lamp relay terminal 1
- through the front fog lamp switch, lighting switch and body grounds E13 and E41.

The front fog lamp relay is energized and power is supplied

- from front fog lamp relay terminal 5
- to terminal 1 of each front fog lamp.

Ground is supplied to terminal 2 of each front fog lamp through body grounds E13 and E41.
With power and ground supplied, the front fog lamps illuminate.

EXTERIOR LAMP BATTERY SAVER CONTROL

NBEL0280S03

Front fog lamps will remain on for a short while after the ignition switch is turned from ON (or ACC) to 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 front fog lamps will be turned off.
When the lighting switch is turned from OFF to 2ND after front fog lamps are turned off by the exterior lamp battery saver control, ground is supplied

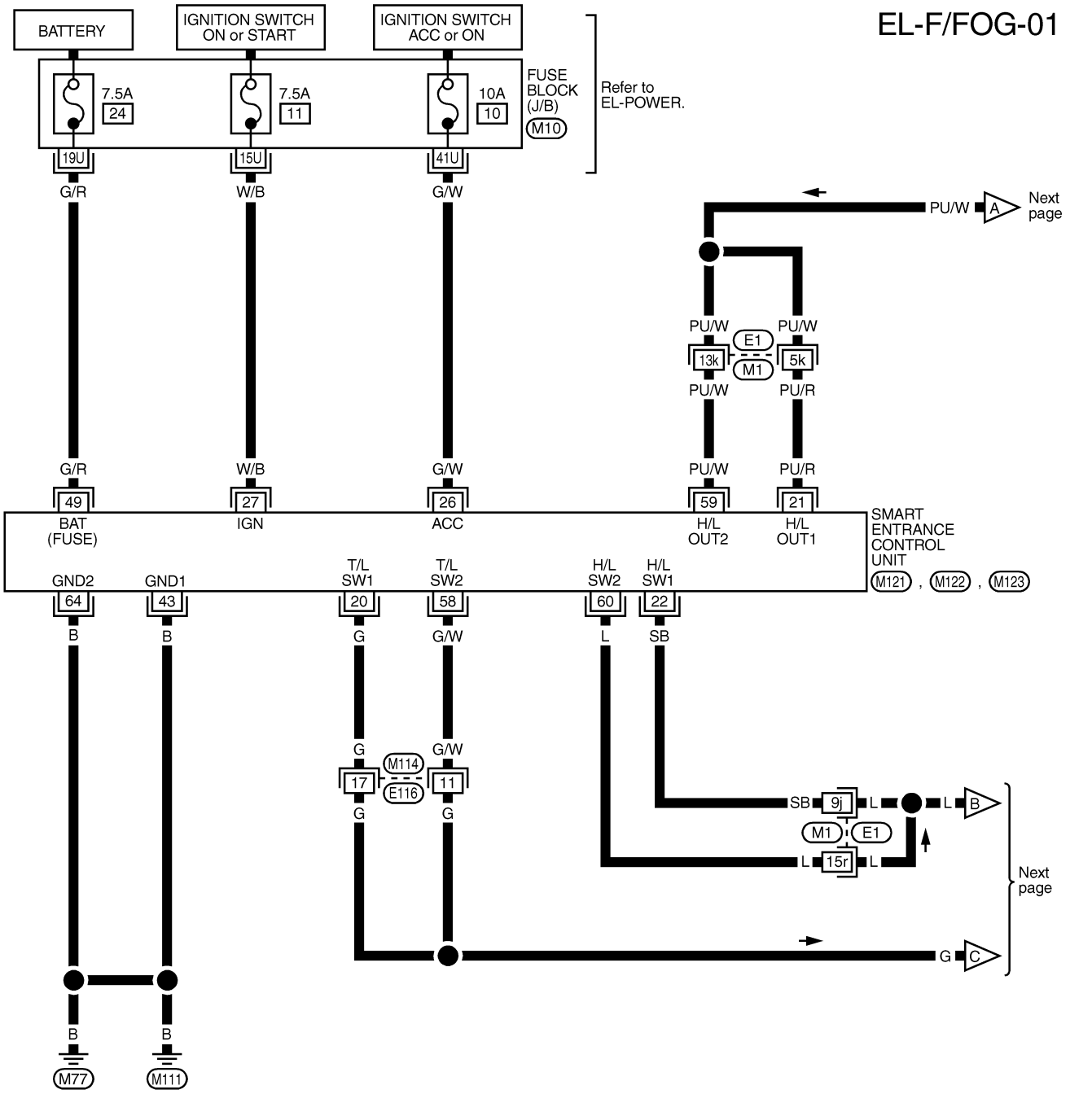
- to smart entrance control unit terminals 20 and 58 from lighting switch terminal 11, and then
- to headlamp RH relay terminal 2 from smart entrance control unit terminal 21
- through smart entrance control unit terminal 22 from lighting switch terminal 12.

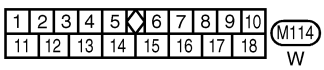
Then the front fog lamps illuminate again.

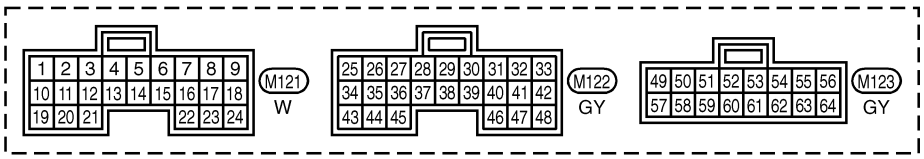
NOTE:
For Trouble Diagnoses for exterior lamp battery saver control, refer to “HEADLAMP (FOR USA) — XENON TYPE —”, EL-43.

Wiring Diagram — F/FOG —

NBEL0281

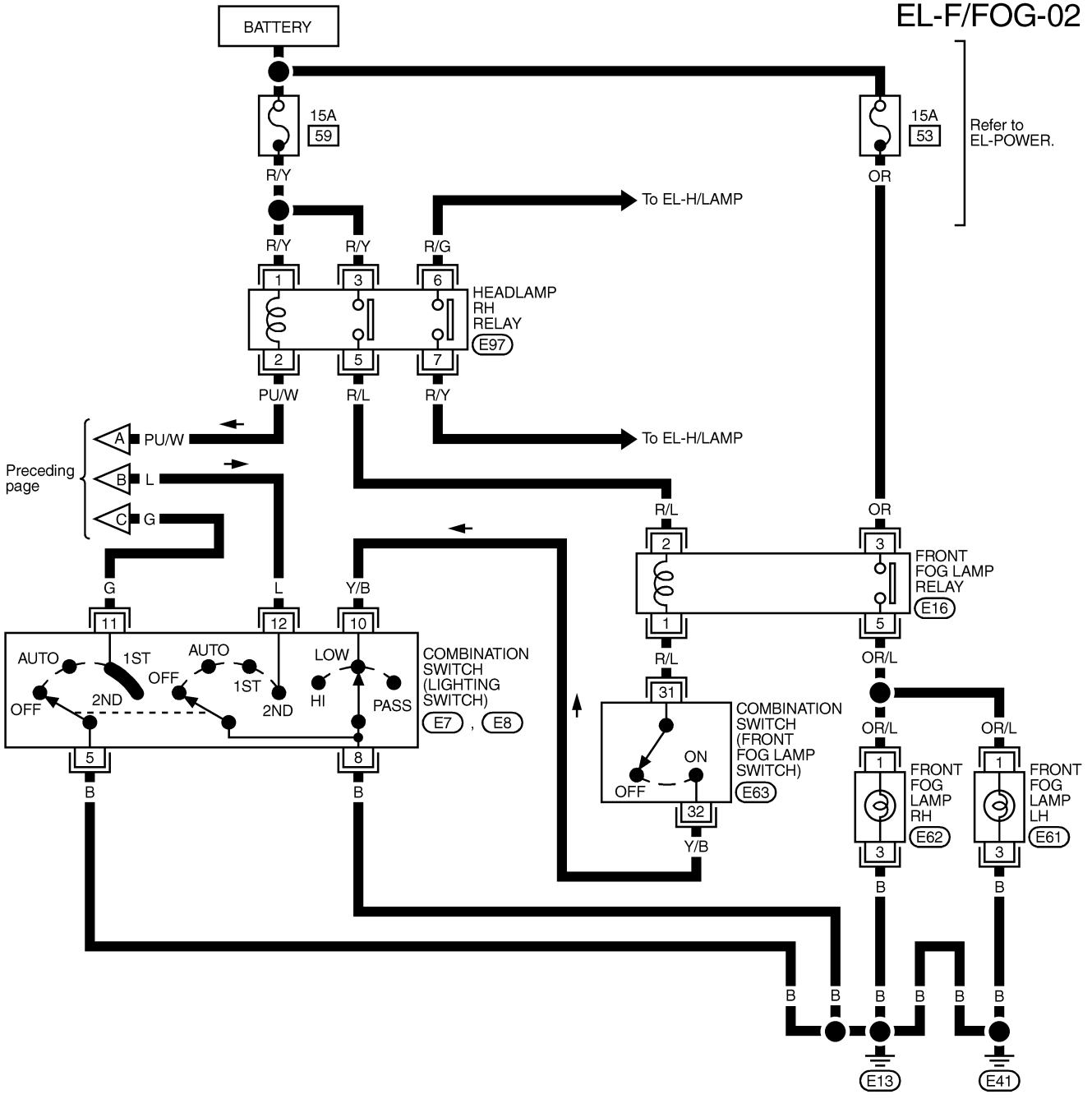


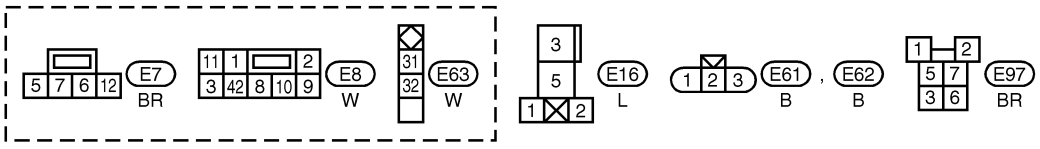




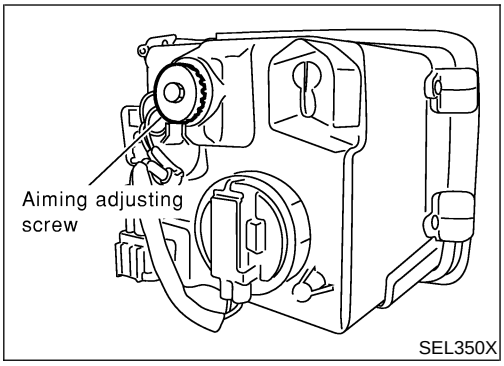
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL527O


EL-F/FOG-02
BATTERY
15A
59
R/Y
15A
53
OR
Refer to
EL-POWER.
To EL-H/LAMP
R/Y
R/Y
R/G
HEADLAMP
RH
RELAY
E97
PU/W
R/L
R/Y
To EL-H/LAMP
Preceding
page
A
PU/W
B
L
C
G
R/L
OR
FRONT
FOG LAMP
RELAY
E16
G
L
Y/B
COMBINATION
SWITCH
(LIGHTING
SWITCH)
E7
,
E8
AUTO
1ST
OFF
2ND
AUTO
OFF
1ST
2ND
LOW
HI
PASS
R/L
OR/L
COMBINATION
SWITCH
(FRONT
FOG LAMP
SWITCH)
E63
ON
OFF
Y/B
OR/L
OR/L
FRONT
FOG
LAMP
RH
E62
FRONT
FOG
LAMP
LH
E61
B
B
B
B
B
B
B
B
E13
E41


E7
BR
E8
W
E63
W
E16
L
E61
B
,
E62
B
E97
BR

MEL190N



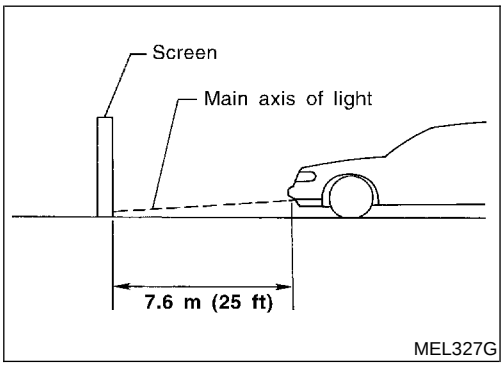
Aiming Adjustment

NBEL0282

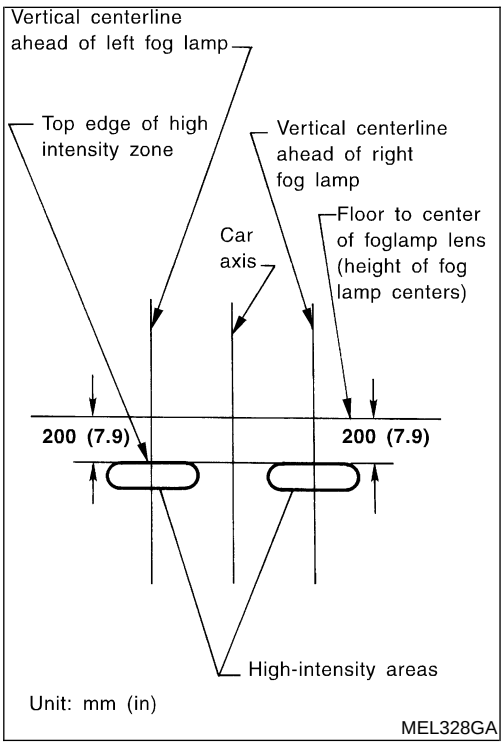
Before performing aiming adjustment, make sure of the following.

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. Turn front fog lamps ON.



3. Adjust front fog lamps so that the top edge of the high intensity zone is 200 mm (7.9 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

NBEL0283

TURN SIGNAL OPERATION

NBEL0283S01

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

- through 7.5A fuse [No. 12, 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 M4, M66 and M147.

LH Turn

NBEL0283S0101

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 2
- combination meter terminal 25
- rear combination lamp LH terminal 5.

Ground is supplied to the front turn signal lamp LH terminal 3 through body grounds E13 and E41.
Ground is supplied to the rear combination lamp LH terminal 6 through body grounds B11, B22 and D210.
Ground is supplied to combination meter terminal 30 through body grounds M4, M66 and M147.
With power and ground supplied, the combination flasher unit controls the flashing of the LH turn signal lamps.

RH Turn

NBEL0283S0102

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 2
- combination meter terminal 29
- rear combination lamp RH terminal 5.

Ground is supplied to the front turn signal lamp RH terminal 3 through body grounds E13 and E41.
Ground is supplied to the rear combination lamp RH terminal 6 through body grounds B55 and B75.
Ground is supplied to combination meter terminal 30 through body grounds M4, M66 and M147.
With power and ground supplied, the combination flasher unit controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

NBEL0283S02

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

- 15A fuse [No. 20, 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 M4, M66 and M147.
Power is supplied through terminal 5 of the hazard switch to

- front turn signal lamp LH terminal 2
- 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 2
- combination meter terminal 29
- rear combination lamp RH terminal 5.

Ground is supplied to terminal 3 of each front turn signal lamp through body grounds E13 and E41.
Ground is supplied to terminal 6 of the rear combination lamp LH through body grounds B11, B22 and D210.
Ground is supplied to terminal 6 of the rear combination lamp RH through body grounds B55 and B75.
Ground is supplied to combination meter terminal 30 through body grounds M4, M66 and M147.
With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

REMOTE KEYLESS ENTRY SYSTEM OPERATION

NBEL0283S03

Power is supplied at all times

- to smart entrance control unit terminal 49
- through 7.5A fuse [No. 24, located in the fuse block (J/B)].

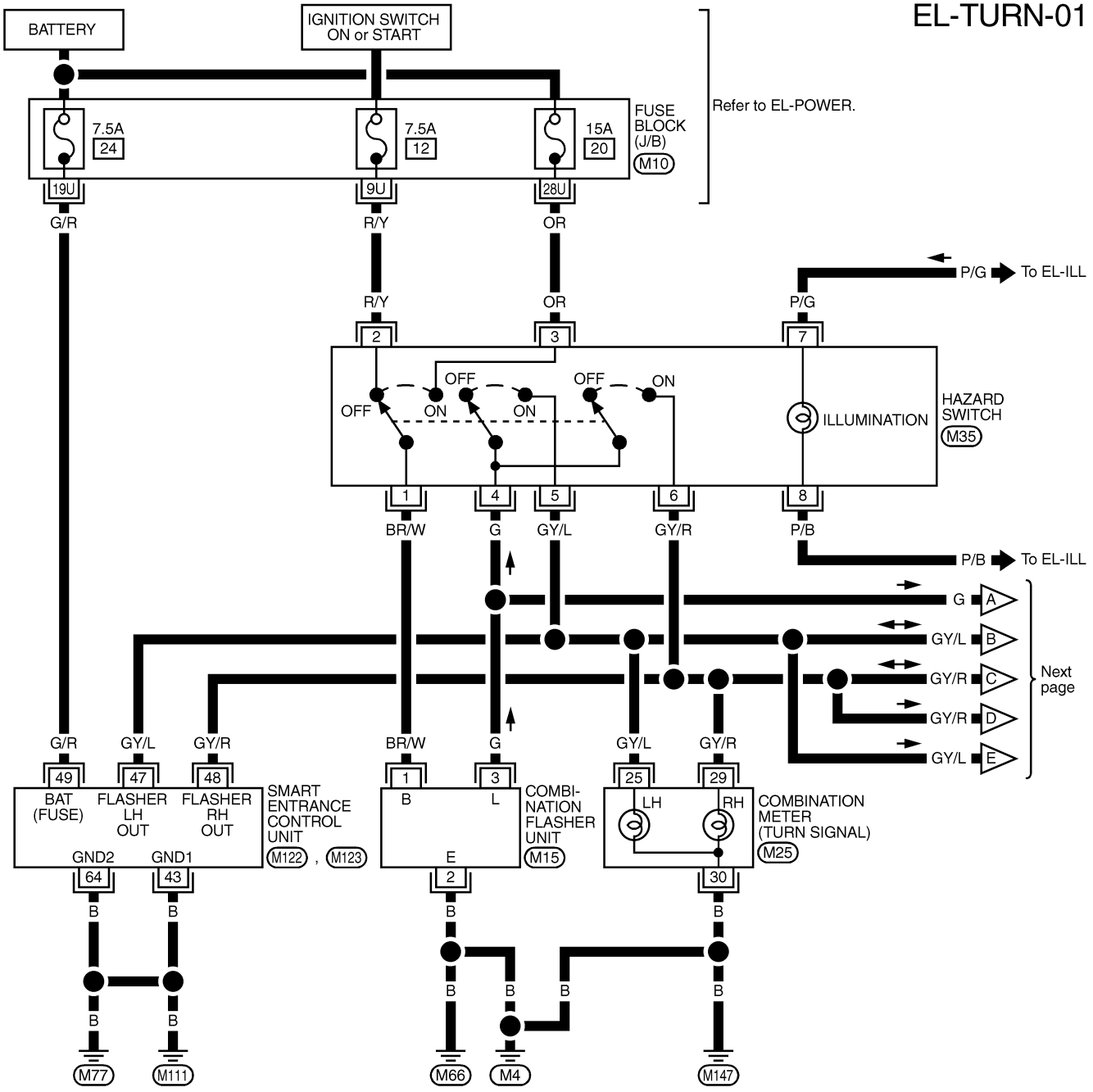
Ground is supplied to smart entrance control unit terminal 43 and 64.
When smart entrance control unit receives LOCK or UNLOCK signal from keyfob with all doors closed (Refer to "REMOTE KEYLESS ENTRY SYSTEM", EL-417.), power is supplied

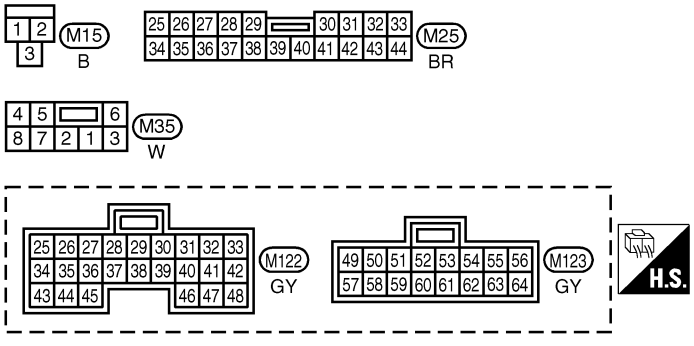
- through terminal 47 of smart entrance control unit
- to front turn signal lamp LH terminal 2
- to combination meter terminal 25
- to rear combination lamp LH terminal 5, and
- through terminal 48 of smart entrance control unit
- to front turn signal lamp RH terminal 2
- to combination meter terminal 29
- to rear combination lamp RH terminal 5.

Ground is supplied to terminal 3 of each front turn signal lamp through body grounds E13 and E41.
Ground is supplied to terminal 6 of the rear combination lamp LH through body grounds B11, B22 and D210.
Ground is supplied to terminal 6 of the rear combination lamp RH through body grounds B55 and B75.
Ground is supplied to combination meter terminal 30 through body grounds M4, M66 and M147.
With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

Wiring Diagram — TURN —

NBEL0284

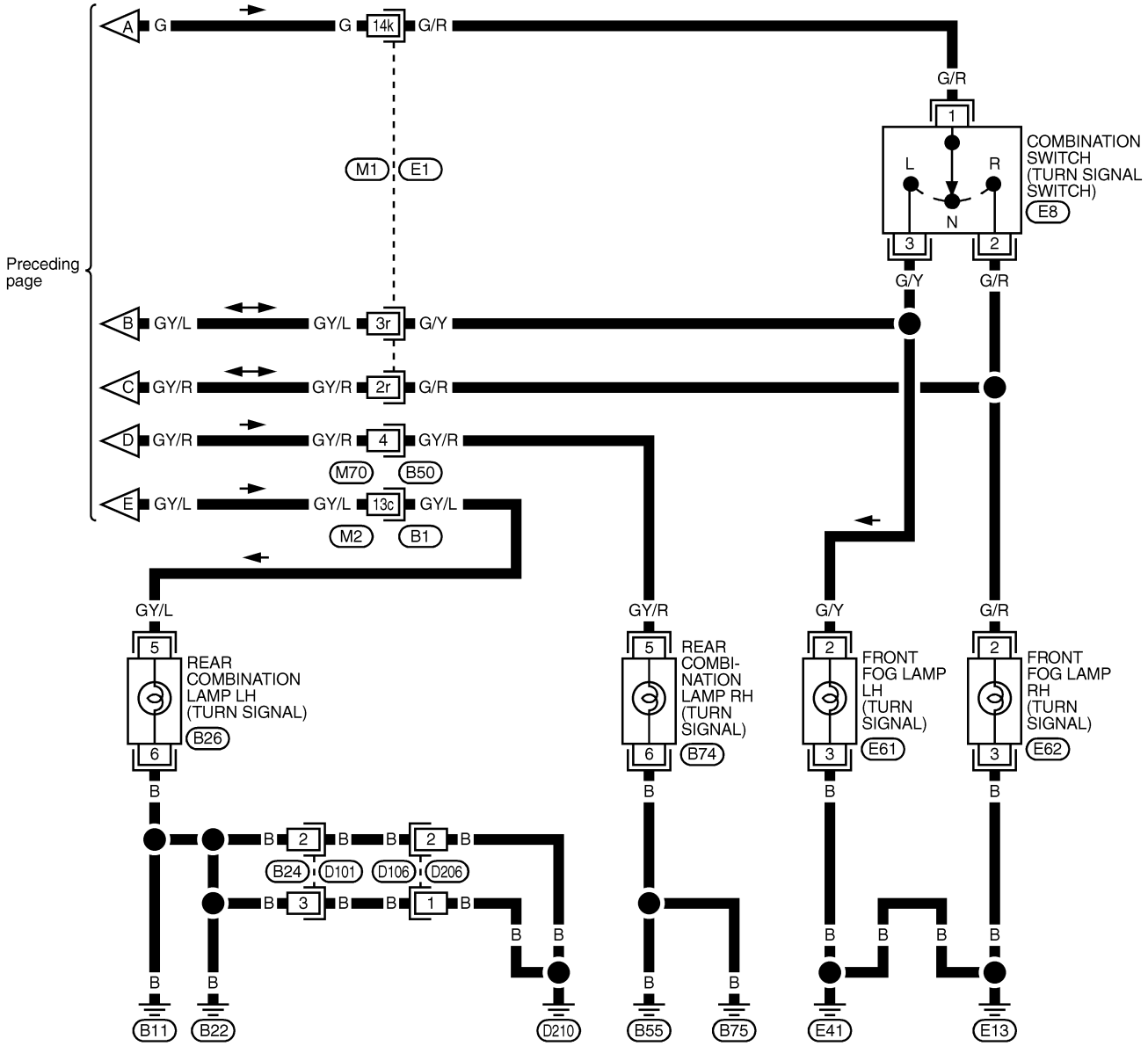


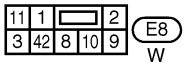


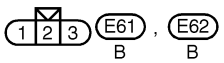
REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

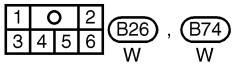
MEL706N

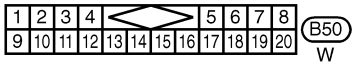
EL-TURN-02

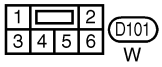


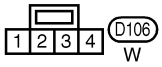












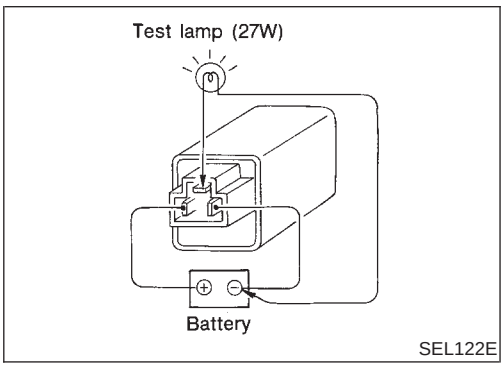
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL707N

Trouble Diagnoses

NBEL0285

Symptom	Possible cause	Repair order
Turn signal and hazard warning lamps do not operate.	1. Hazard switch 2. Combination flasher unit 3. Open in combination flasher unit circuit	1. Check hazard switch. 2. Refer to combination flasher unit check. 3. Check wiring to combination flasher unit for open circuit.
Turn signal lamps do not operate but hazard warning lamps operate.	1. 7.5A fuse 2. Hazard switch 3. Combination switch (turn signal) 4. Open in combination switch (turn signal) circuit	1. Check 7.5A fuse [No. 12, located in fuse block (J/B)]. Turn ignition switch ON and verify battery positive voltage is present at terminal 2 of hazard switch. 2. Check hazard switch. 3. Check combination switch (turn signal). 4. Check the wire between combination flasher unit terminal 3 and combination switch (turn signal) terminal 1 for open circuit.
Hazard warning lamps do not operate but turn signal lamps operate.	1. 15A fuse 2. Hazard switch 3. Open in hazard switch circuit	1. Check 15A fuse [No. 20, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 3 of hazard switch. 2. Check hazard switch. 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 2. Grounds E13 and E41 3. Open in front turn signal lamp circuit	1. Check bulb. 2. Check grounds E13 and E41. 3. Check harness between front turn signal lamp and combination switch.
Rear combination lamp LH does not operate.	1. Bulb 2. Grounds B11, B22 and D210 3. Open in rear combination lamp LH circuit	1. Check bulb. 2. Check grounds B11, B22 and D210. 3. Check harness between rear combination lamp LH and hazard switch.
Rear combination lamp RH does not operate.	1. Bulb 2. Grounds B55 and B75 3. Open in rear combination lamp RH circuit	1. Check bulb. 2. Check grounds B55 and B75. 3. Check harness between rear combination lamp RH and hazard switch.
LH and RH turn indicators do not operate.	1. Ground	1. Check grounds M4, M66 and M147.
LH or RH turn indicator does not operate.	1. Bulb 2. Open in turn indicator circuit	1. Check bulb in combination meter. 2. Check harness between combination meter and hazard switch.



Electrical Components Inspection

NBEL0286

COMBINATION FLASHER UNIT CHECK

NBEL0286S01

- 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

NBEL0287

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. 61, located in the fuse and fusible link box), and
- to smart entrance control unit terminal 49
- through 7.5A fuse [No. 24, 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 7.5A fuse [No. 11, 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. 10, located in the fuse block (J/B)].

Ground is supplied

- to smart entrance control unit terminals 43 and 64
- through body grounds M77 and M111.

LIGHTING OPERATION BY LIGHTING SWITCH

NBEL0287S01

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 E13 and E41.

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 grove box lamp, ashtray and compass and thermometer are controlled through terminals 2 and 3 of the illumination control switch and body grounds M77 and M111.

LIGHTING OPERATION BY AUTO LIGHT CONTROL SYSTEM

NBEL0287S02

When auto light operation is operated, 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 M77 and M111.

Tail lamp relay is then energized and the illumination lamps illuminate.
The illumination control switch that controls the amount of current to the illumination system. As the amount of current increases, the illumination becomes brighter.
The following chart shows the power and ground connector terminals for the components included in the illumination system.

Component	Connector No.	Power terminal	Ground terminal
Illumination control switch	M19	1	3
4WD shift switch	M141	7	8
Ashtray	B76	1	2
A/T indicator	B59	3	4
Cigarette lighter	M57	3	4
Audio unit	M48	8	7
Compass and thermometer	R4	5	2
Hazard switch	M35	7	8
Rear window defogger switch	M36	5	6

Component	Connector No.	Power terminal	Ground terminal
Headlamp aiming switch	M16	3	4
Display & NAVI control unit	M117, M118	8	24
A/C auto amp.	M102	24	25
Clock	M40	3	4
Globe box lamp	M30	1	2

The ground for all of the components except for compass and thermometer, glove box lamp and ashtray are controlled through terminals 2 and 3 of the illumination control switch and body grounds M77 and M111.

EXTERIOR LAMP BATTERY SAVER CONTROL

NBEL0287S03

Except for Auto Light Control Operation

NBEL0287S0301

Illumination lamps will remain on for a short while after the ignition switch is turned from ON (or ACC) to 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 illumination lamp will be turned off.
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.

Auto light control operation

NBEL0287S0302

While the illumination lamps are turned ON by "AUTO" operation, the exterior lamp battery saver is activated for 5 minutes when the ignition switch is turned from ON (or ACC) to OFF, and either LH or RH front door switch is opened.
The smart entrance control unit controls exterior lamp battery saver activation as follows:

- When the door switch signal changes from ON to OFF while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the illumination lamps will be turned off.
- When the door switch signal changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the illumination lamps will be turned off.
- When the one of four door switch signals changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 5 minutes seconds, then the illumination lamps will be turned off.
- When all the door switch ON signals are input while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the illumination lamps will be turned off. **Exterior battery saver control time can be changed using "WORK SUPPORT" mode in "HEADLAMP".**

When the lighting switch is turned from OFF to 2ND after illumination lamps are turned to off by the exterior lamp battery saver control, ground is supplied

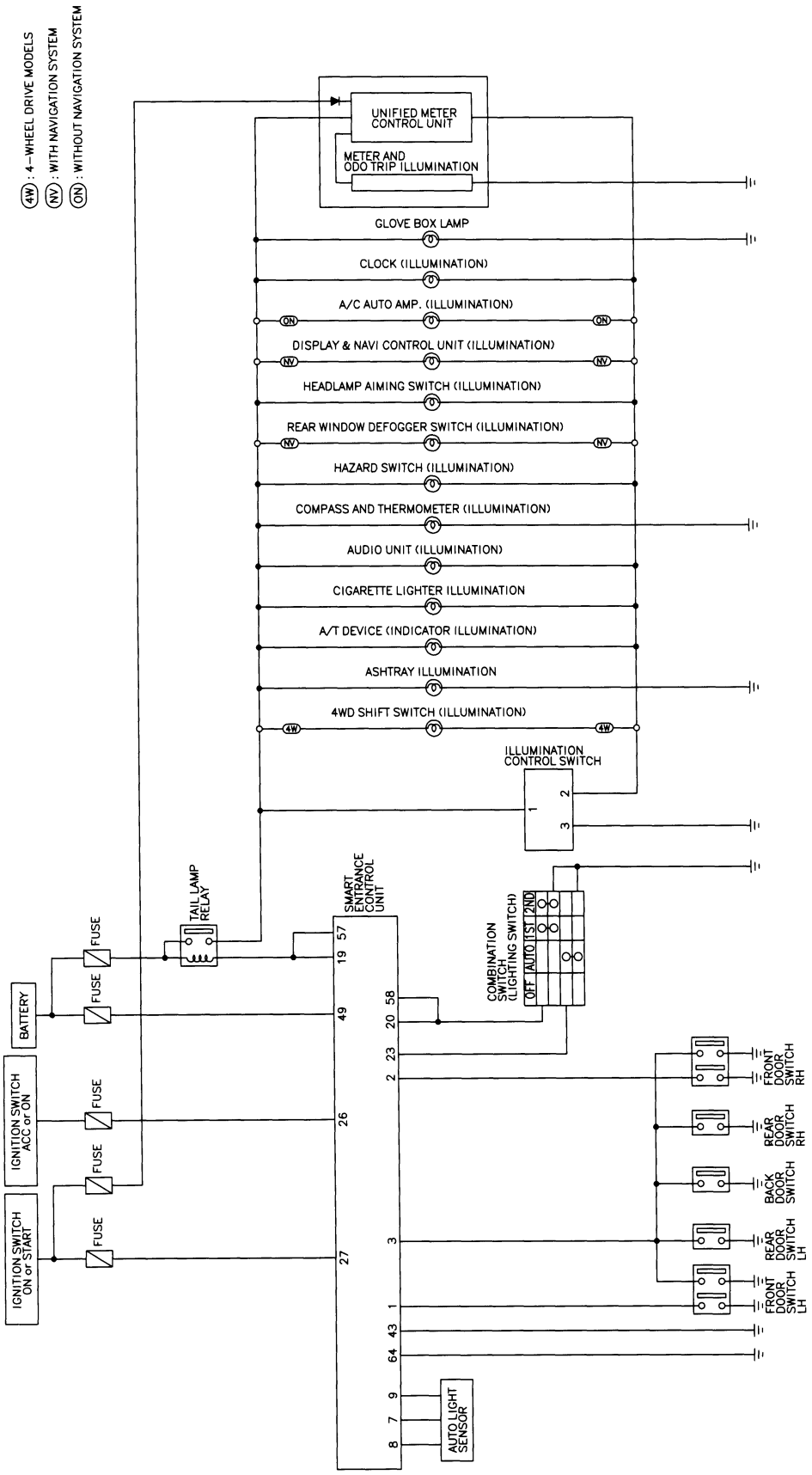
- to smart entrance control unit terminals 20 and 58 from lighting switch terminal 11, and then,
- to tail lamp relays terminal 2 from smart entrance control unit terminals 19 and 57,
- through smart entrance control unit terminals 20 and 58 and
- through lighting switch terminal 11.

Then illumination lamps illuminate again.

NOTE:
For Trouble Diagnoses for exterior lamp battery saver control, refer to "PARKING, LICENSE AND TAIL LAMPS" (EL-78).

Schematic

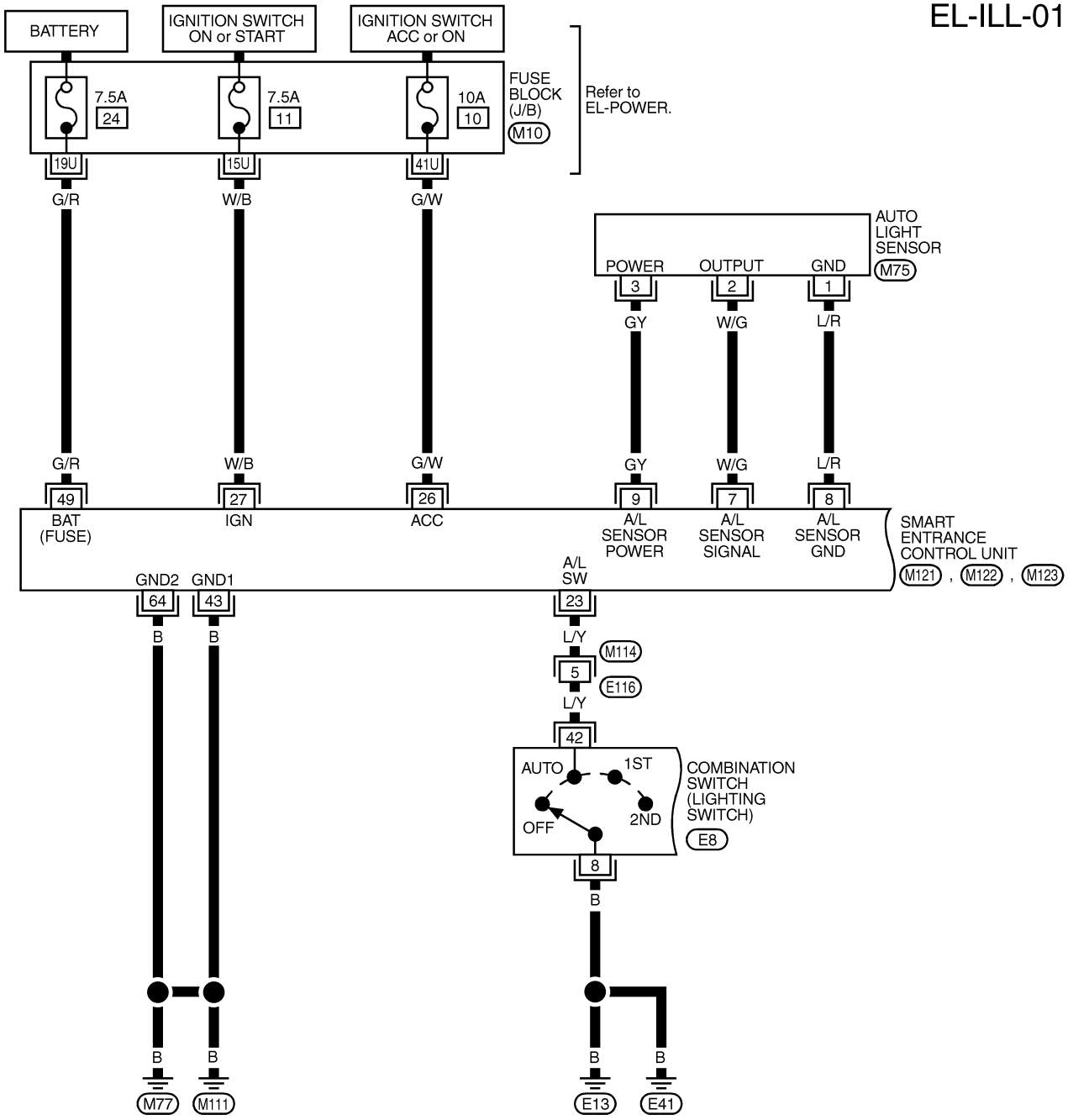
NBEL0288

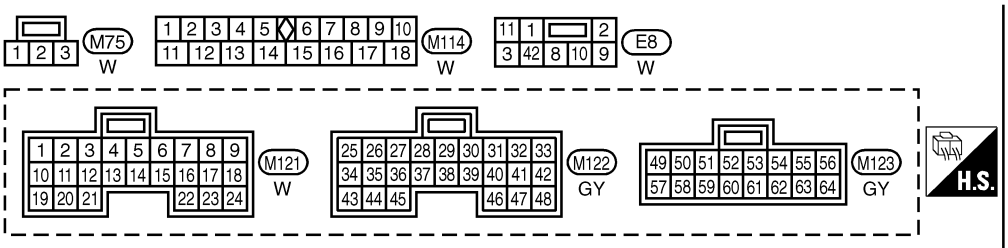


MEL634P

Wiring Diagram — ILL —

NBEL0289

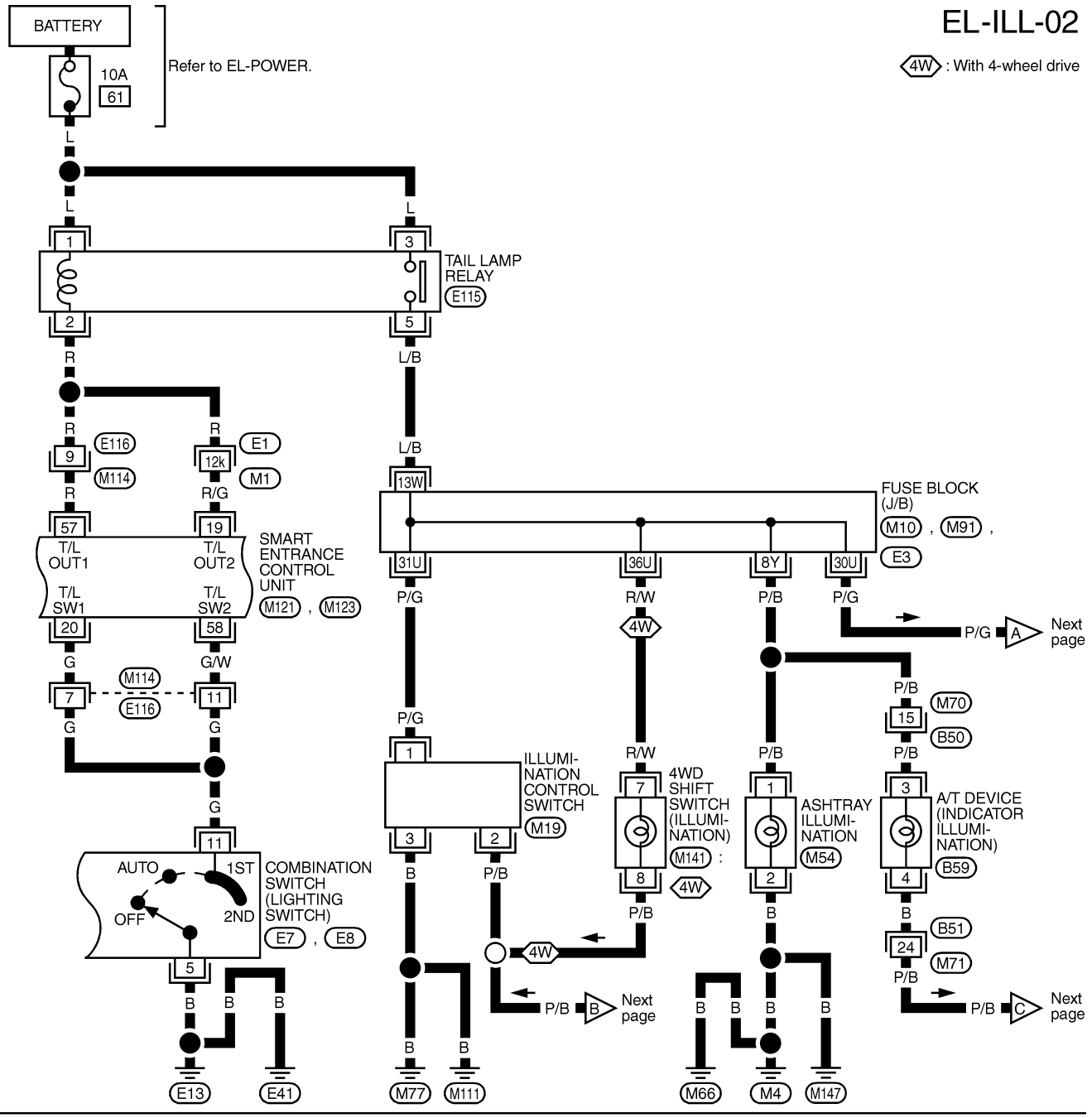


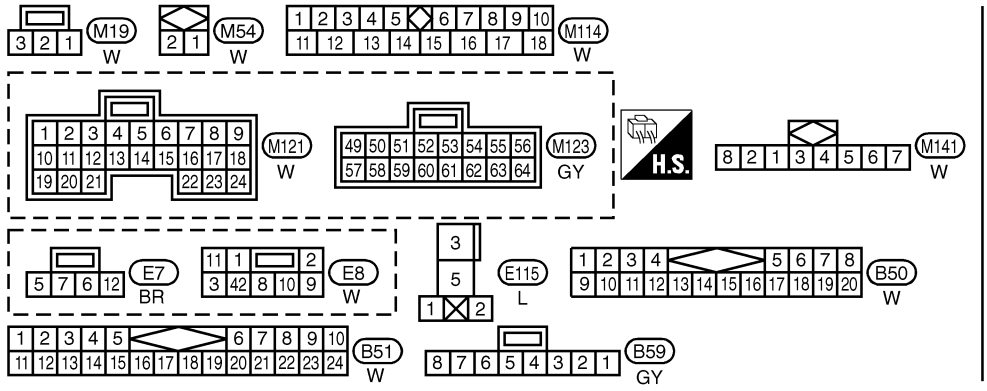


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL599P

Wiring Diagram — ILL — (Cont'd)

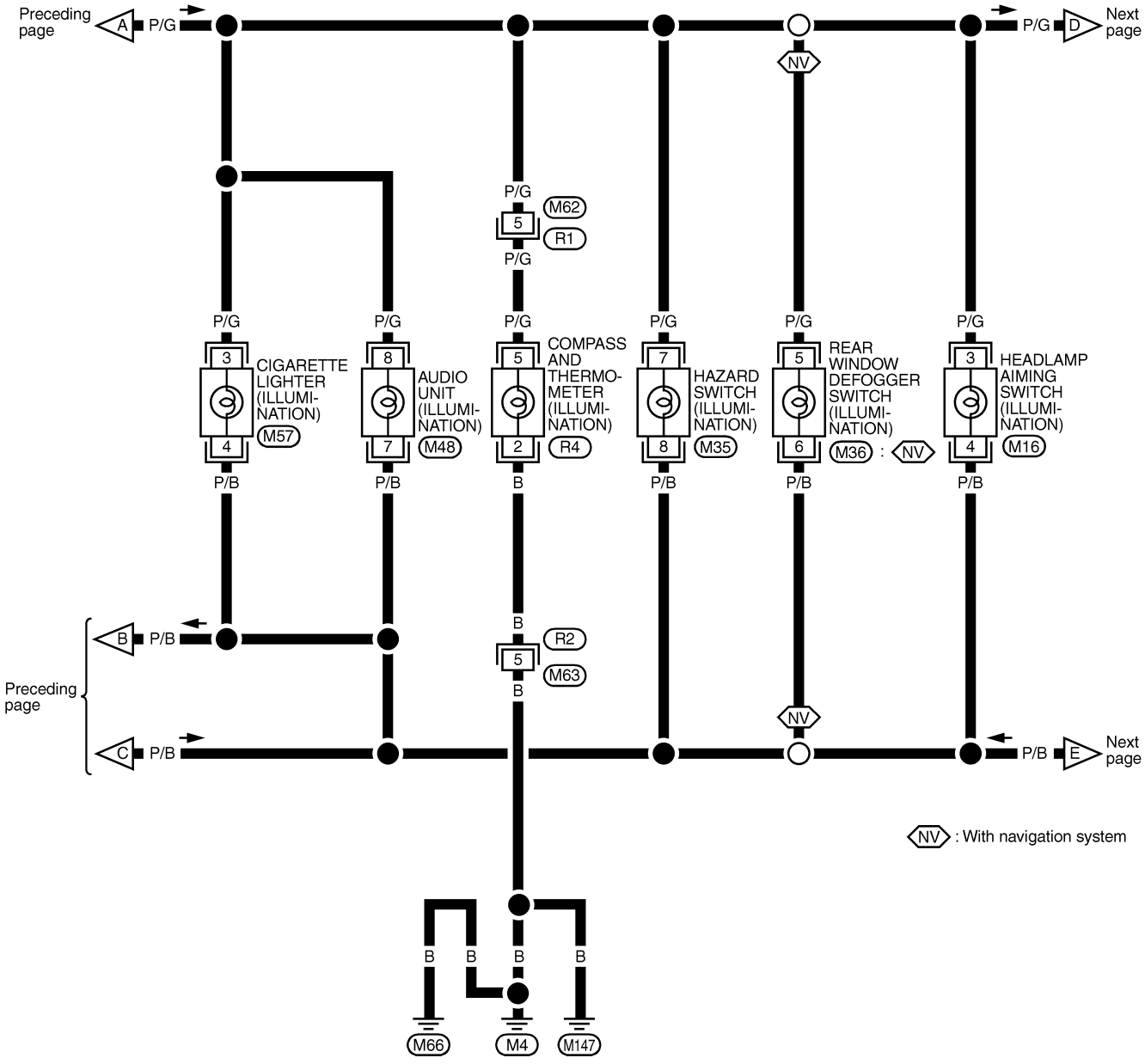


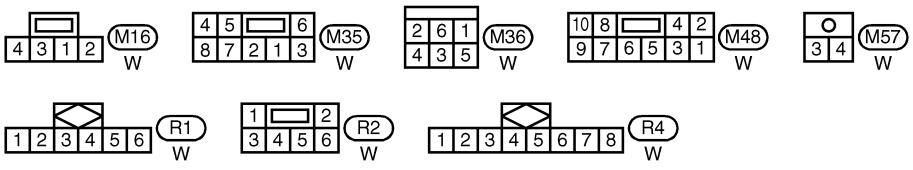


REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , M91 , E3
-FUSE BLOCK-JUNCTION BOX (J/B)

MEL528O

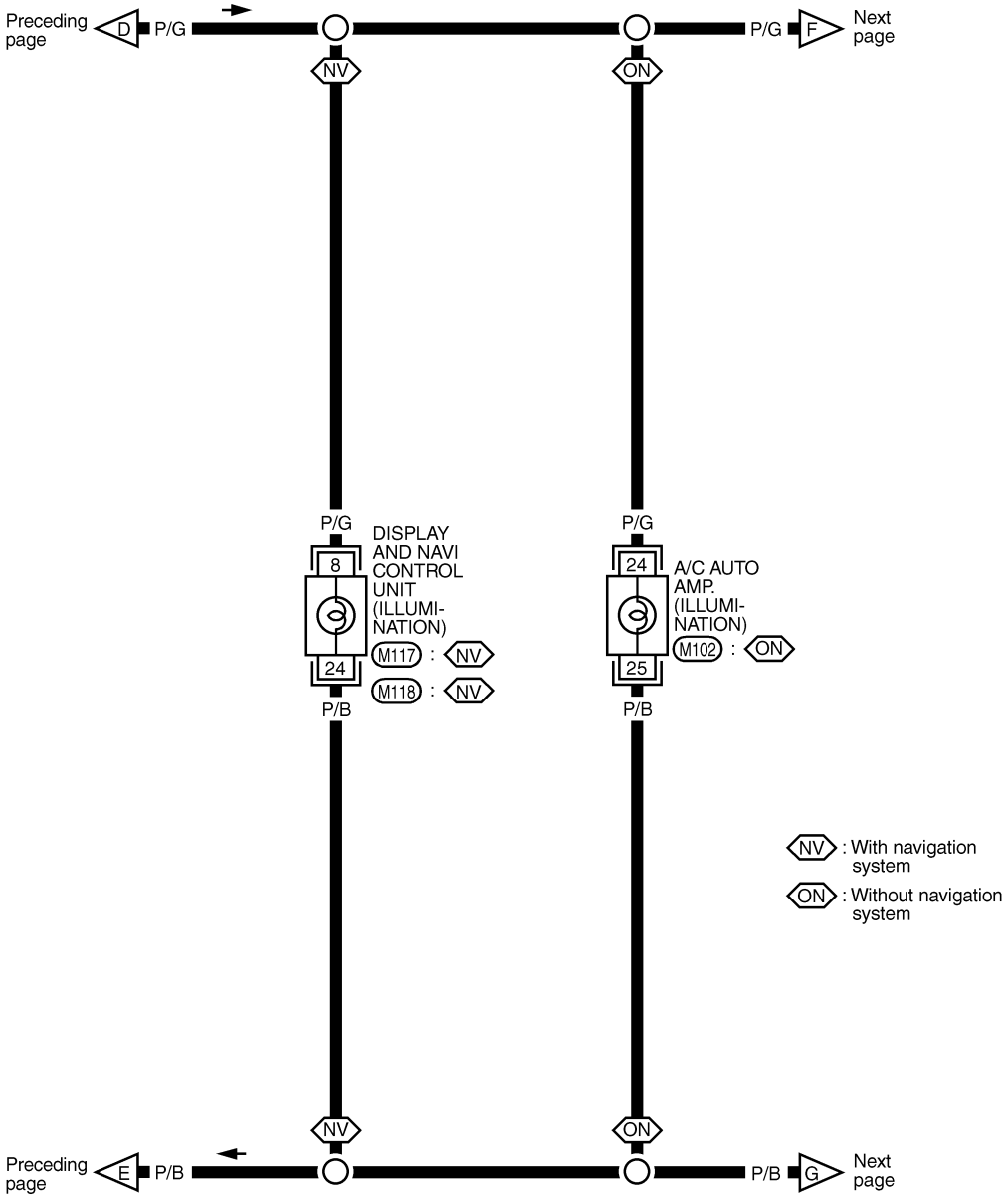
EL-ILL-03

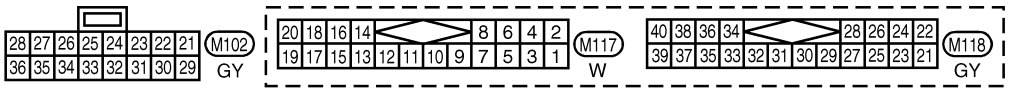




MEL977N

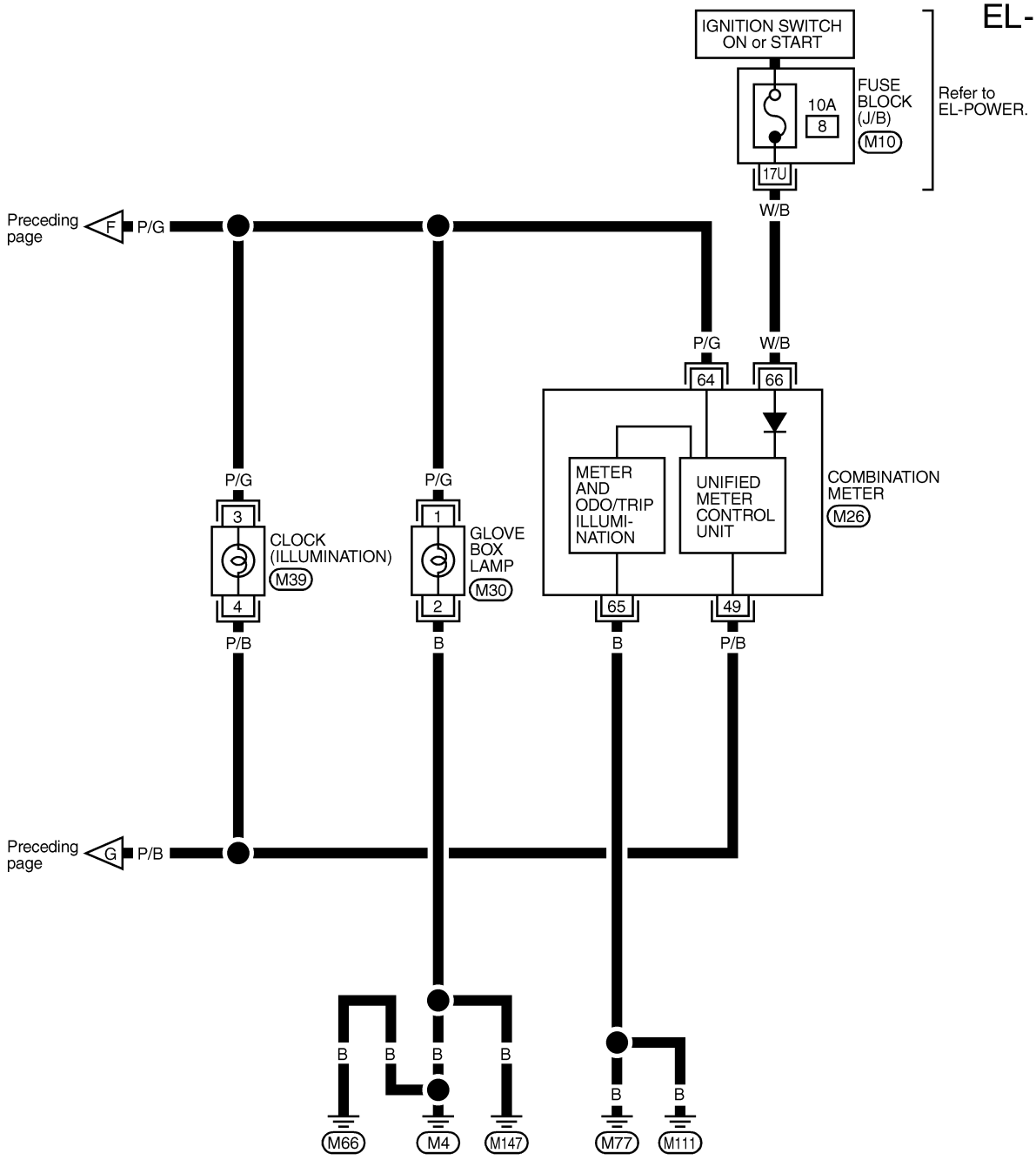
EL-ILL-04

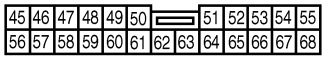


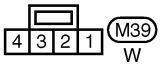


MEL600P

EL-ILL-05



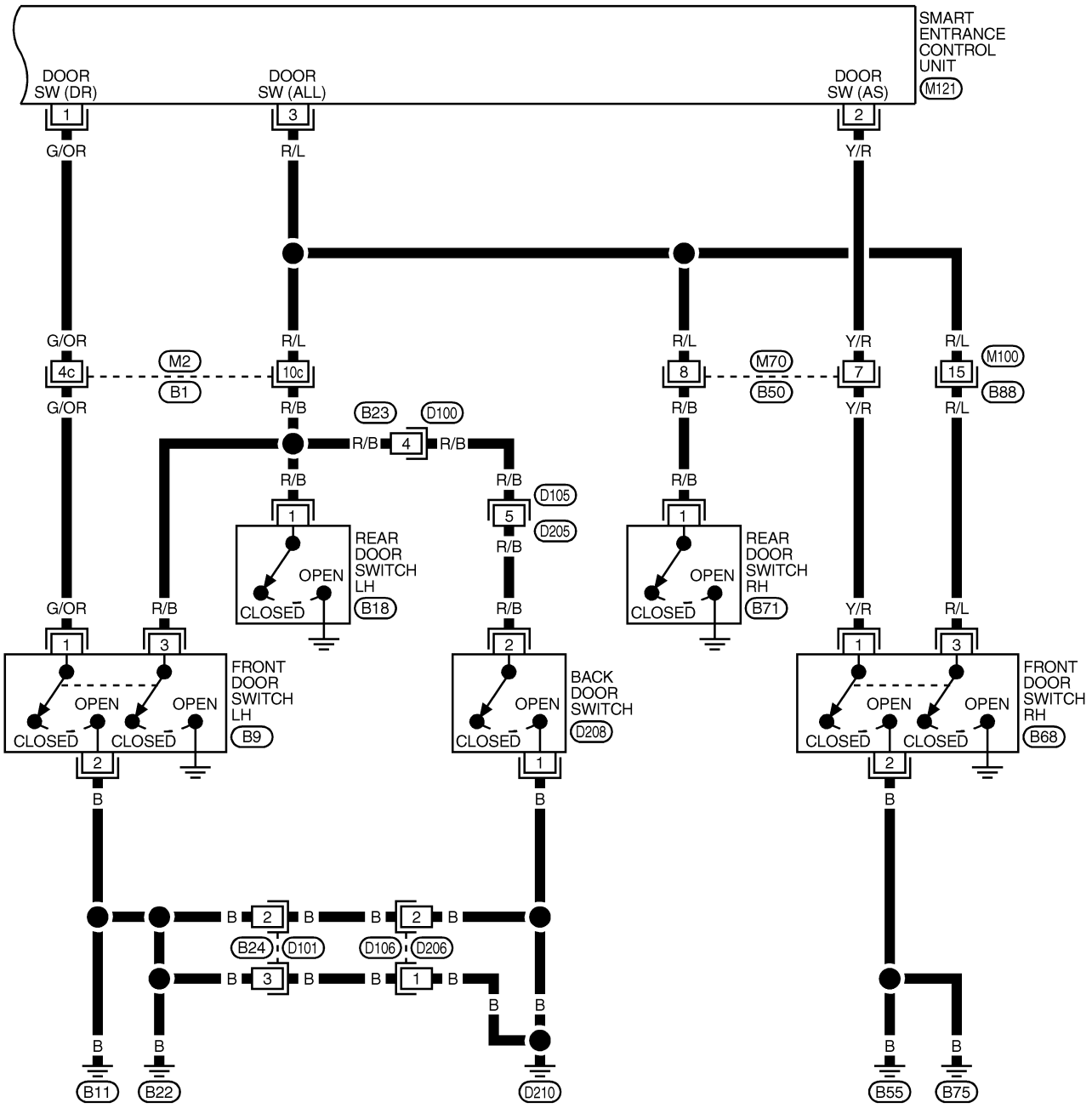


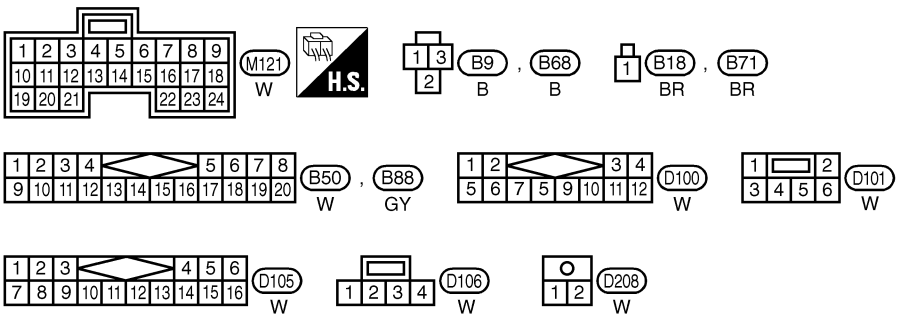


REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL788L

EL-ILL-06





REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL635P

System Description

NBEL0290

POWER SUPPLY AND GROUND

NBEL0290S01

Power is supplied at all times:

- through 7.5A fuse [No. 24, located in the fuse block (J/B)]
- to key switch terminal 2 and
- to smart entrance control unit terminal 49.

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

- through key switch terminal 1
- to smart entrance control unit terminal 25.

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

- through 7.5A fuse [No. 11, 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 terminals M77 and M111.

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

- through body grounds B11, B22 and D210
- to front door switch (LH) terminal 2
- from front door switch (LH) terminal 1
- to smart entrance control unit terminal 1.

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

- through body grounds terminals B55 and B75
- to front door switch (RH) terminal 2
- from front door switch (RH) terminal 1
- 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 power window switch, the smart entrance control unit receives an unlock signal:

- through body grounds terminals M77 and M111 (LH) or M4, M66 and M147 (RH)
- to door lock and unlock switch terminal 5 (LH) or 7 (RH)
- from door lock and unlock switch terminal 8 (LH) or 11 (RH)
- to smart entrance control unit terminal 33.

When the front LH door is unlocked by the front door key cylinder switch, the smart entrance control unit receives an unlock signal:

- to smart entrance control unit terminal 33
- from power window main switch terminal 8
- through power window main switch terminal 19
- to front door key cylinder switch LH terminal 3
- through front door key cylinder switch LH terminal 2 and
- through body grounds terminals M77 and M111.

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

NBEL0290S02

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 M4, M66 and M147
- 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 M4, M66 and M147
- to vanity mirror illuminations (LH and RH) terminals 2.

And power is supplied:

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

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

- through body grounds B11, B22 and D210
- to luggage room lamp terminal 2.

And power is supplied:

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

With power and ground supplied, interior lamps turn ON.

INTERIOR LAMP TIMER OPERATION

NBEL0290S03

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 door lock and unlock switch 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.

ON-OFF CONTROL

NBEL0290S04

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.

INTERIOR LAMP BATTERY SAVER

NBEL0290S05

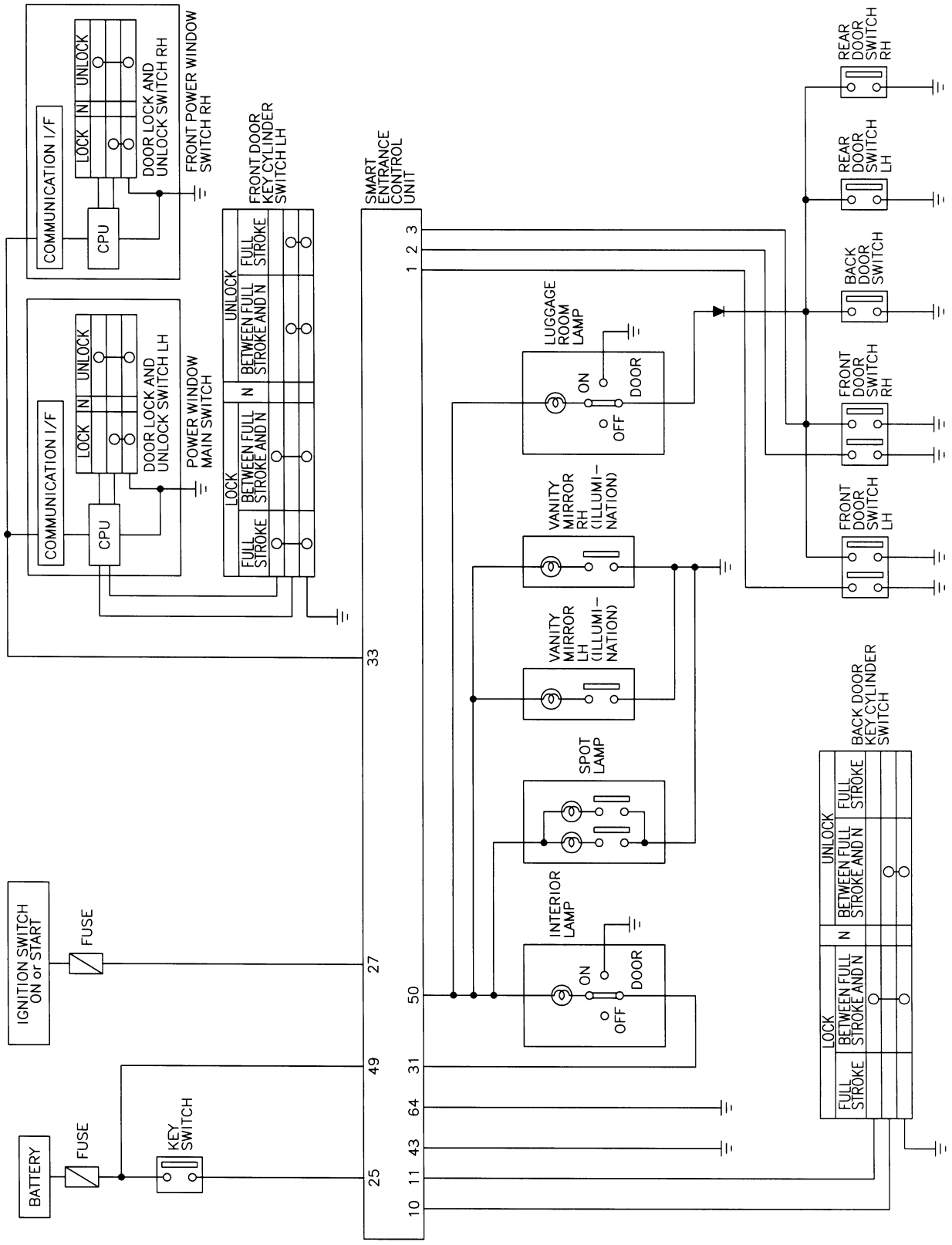
The lamp turns off automatically when interior lamp, luggage room lamp, spot lamp and/or vanity mirror illumination is illuminated with the ignition key is in OFF position, if the lamp remains lit by the door switch open signal or if the lamp switch is in ON position for more than 30 minutes.
After lamps 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-111).

Schematic

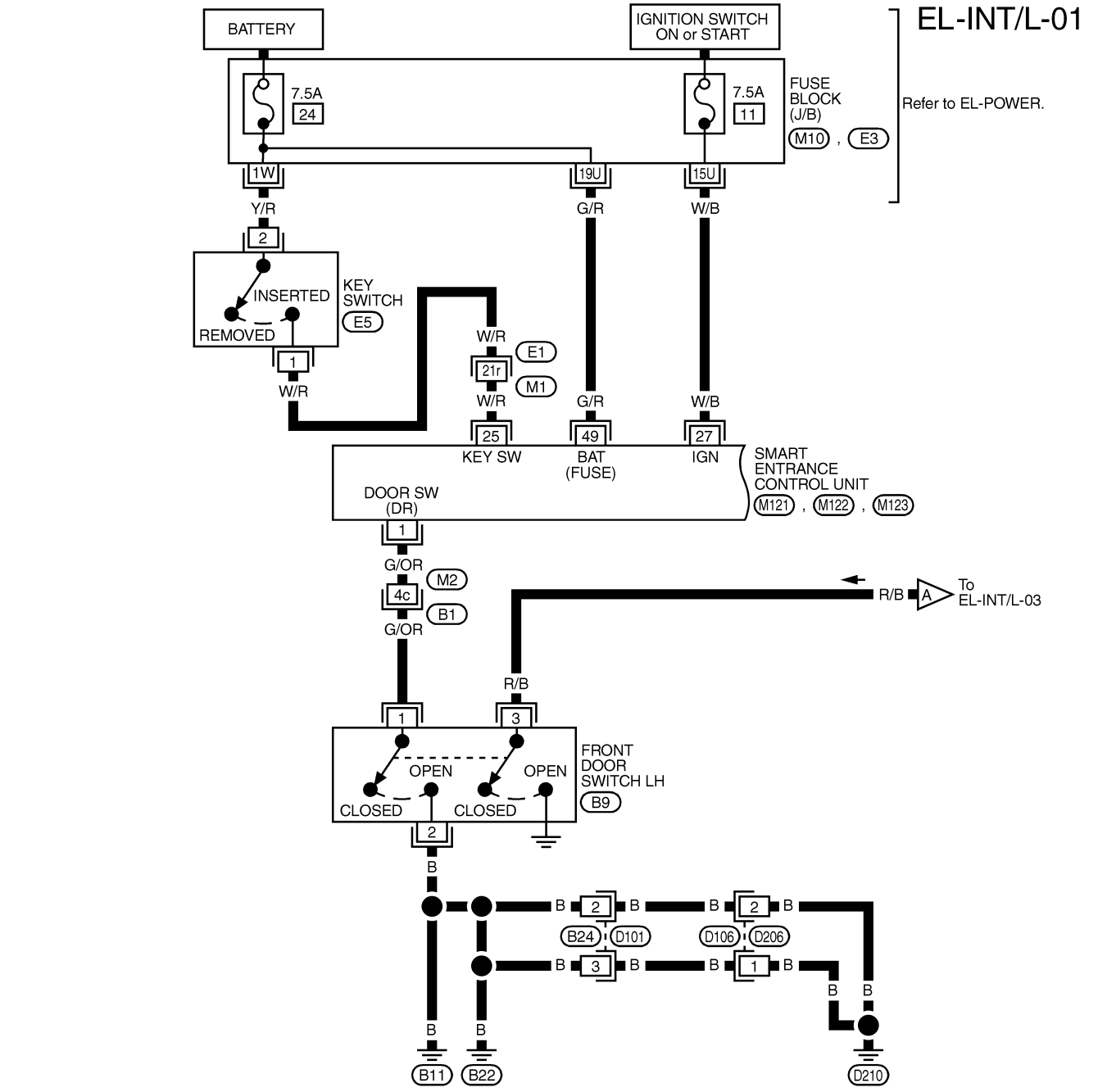
NBEL0291

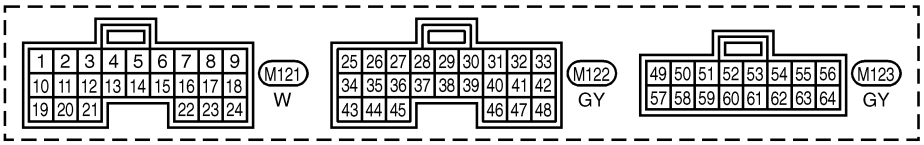


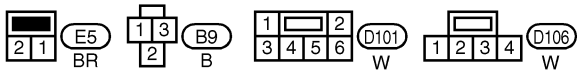
MEL407P

Wiring Diagram — INT/L —

NBEL0292



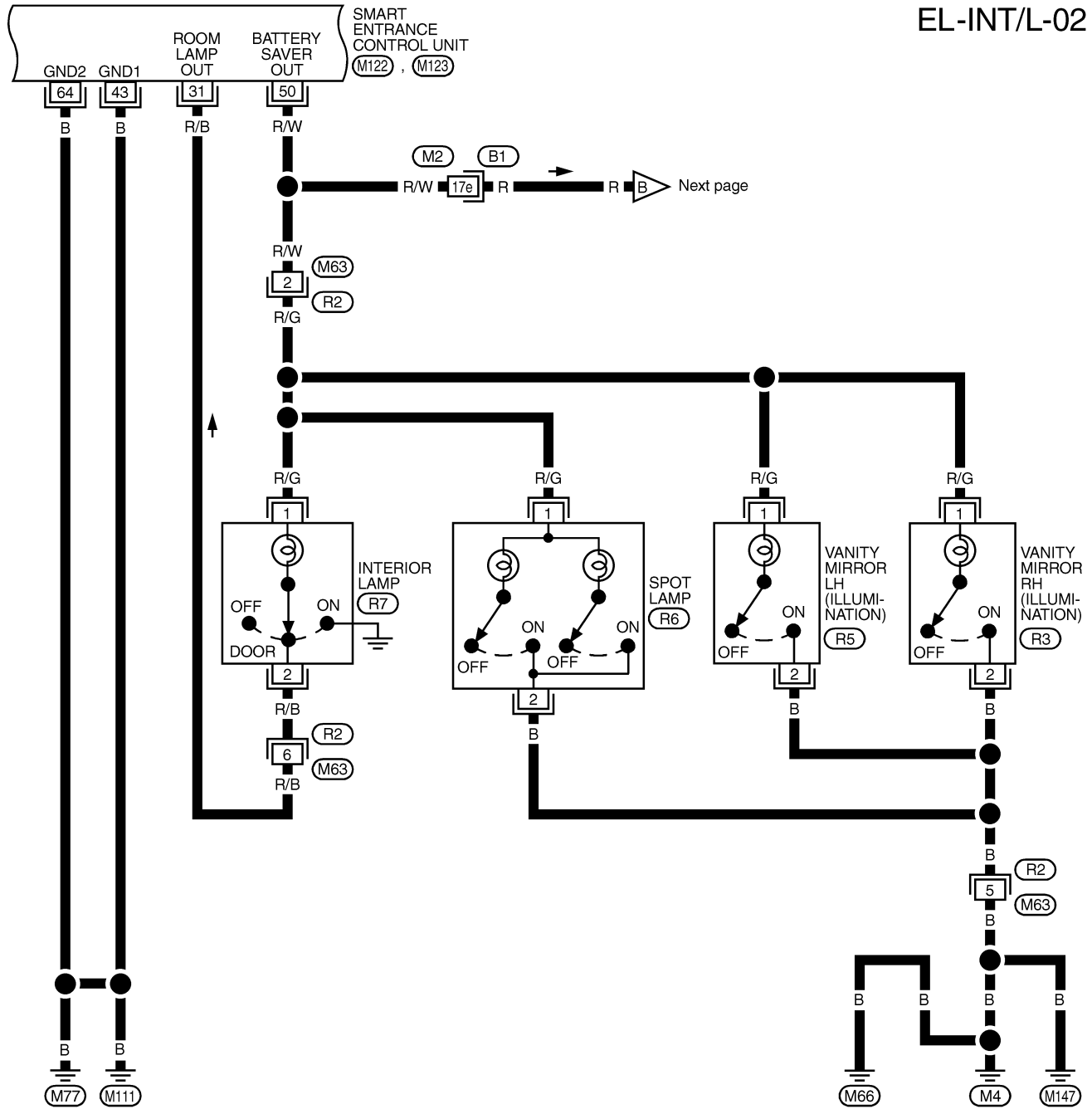


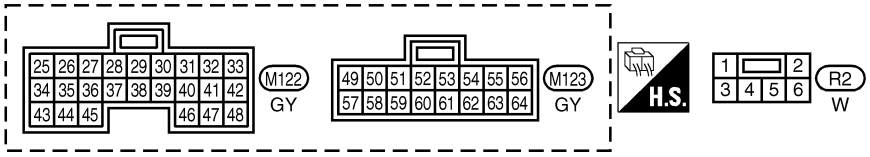


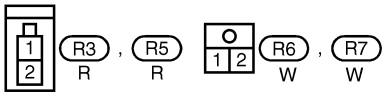
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL601P

EL-INT/L-02



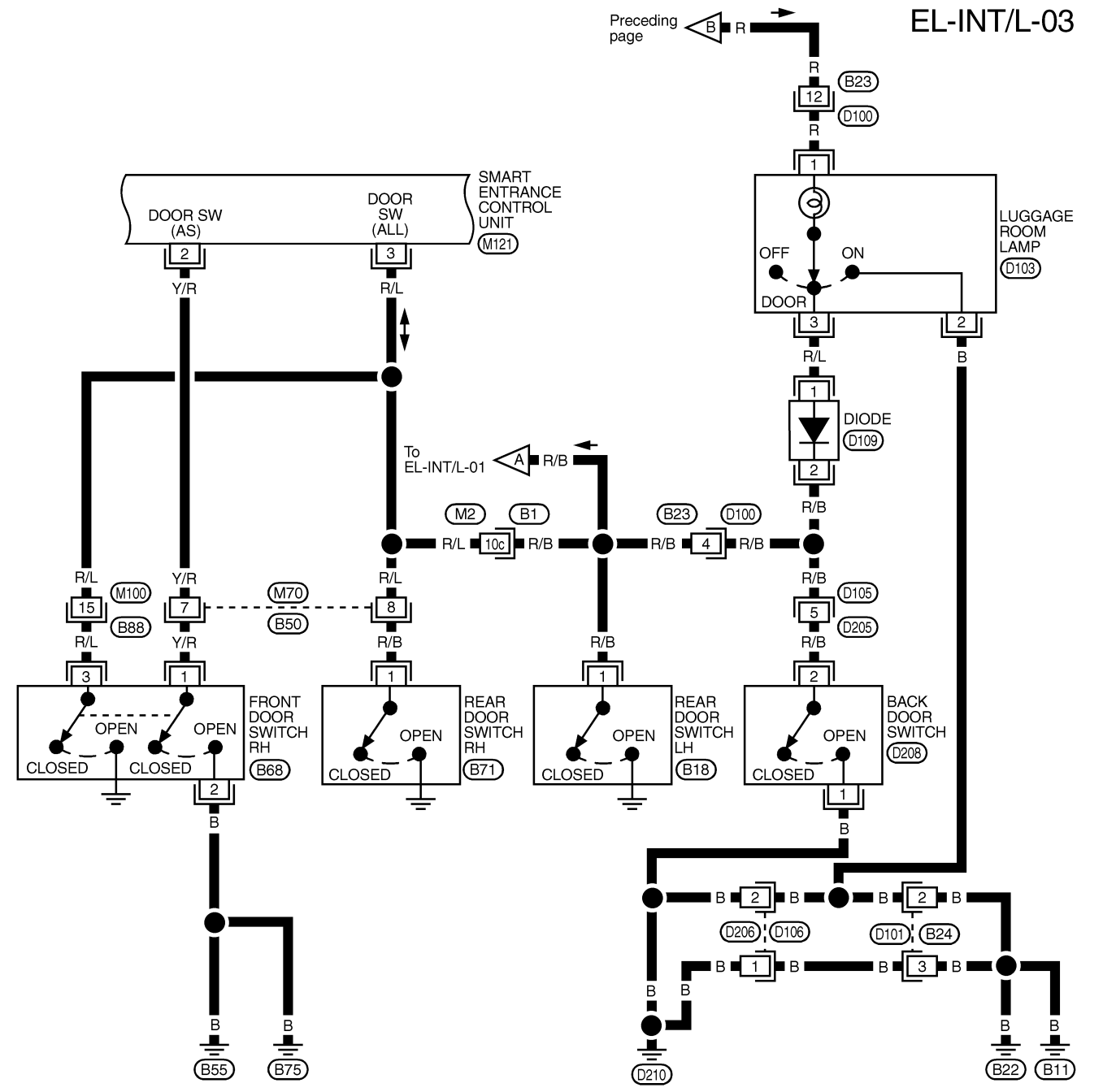


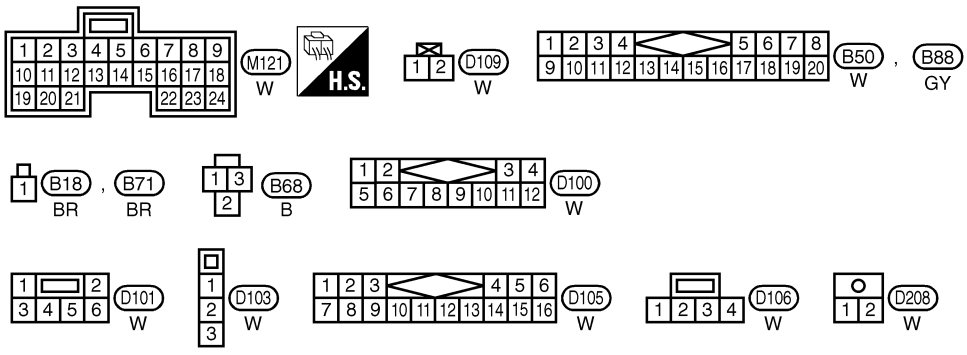


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL713N

Wiring Diagram — INT/L — (Cont'd)



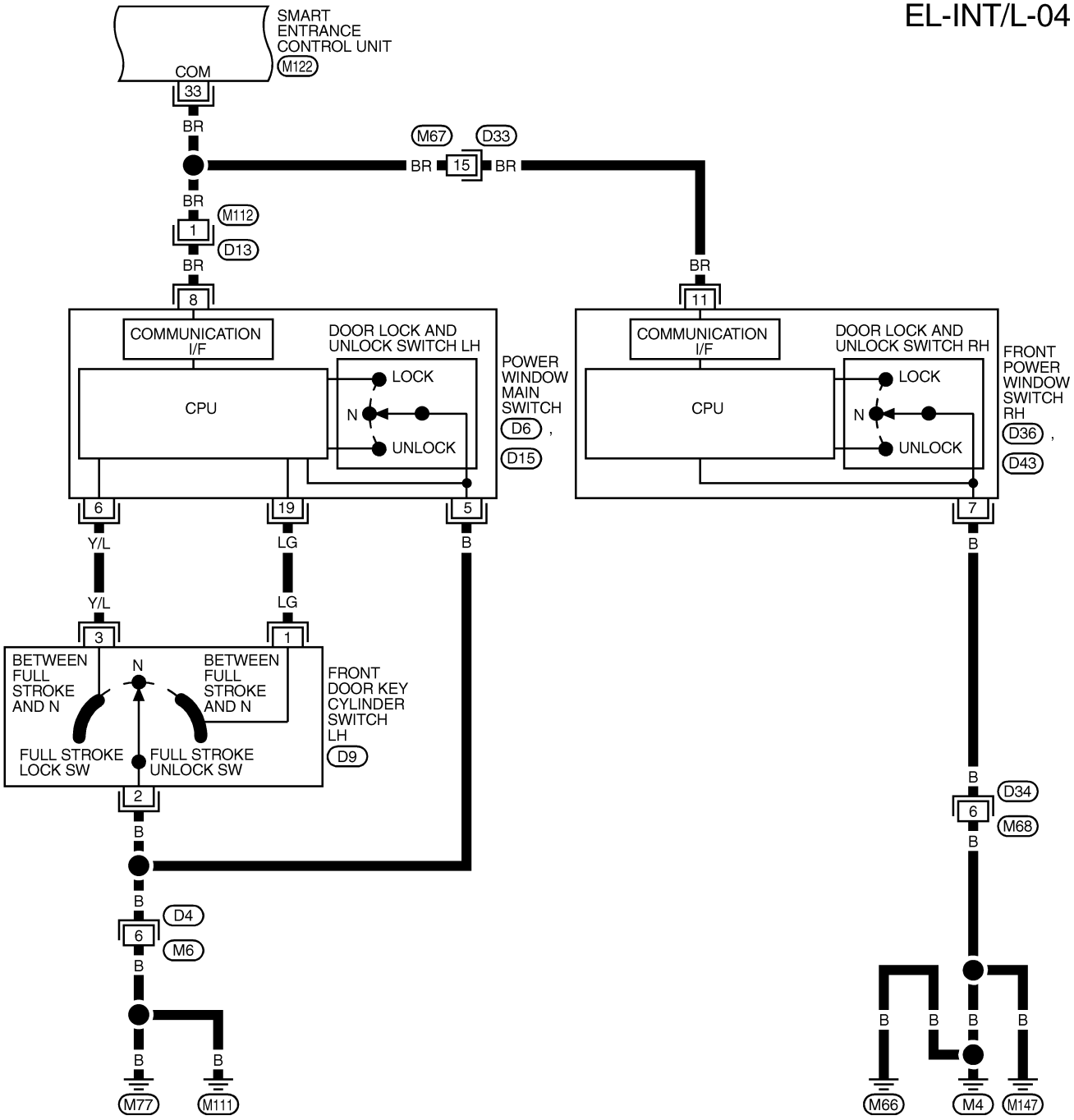


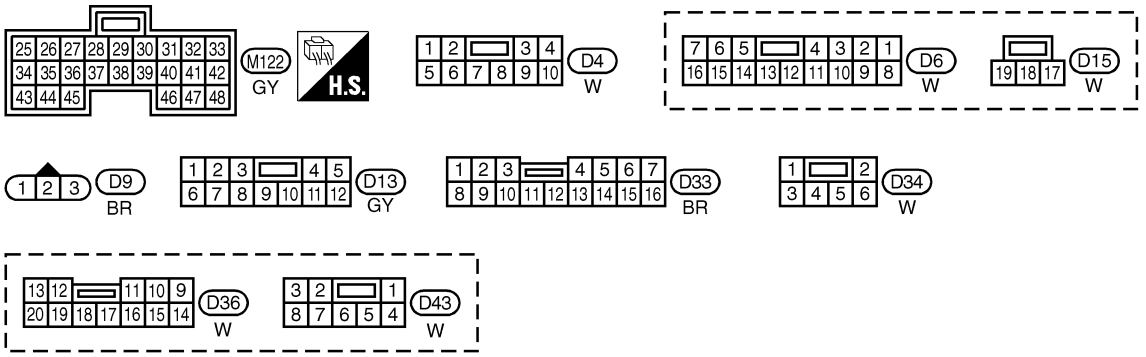
REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL480O

EL-INT/L-04

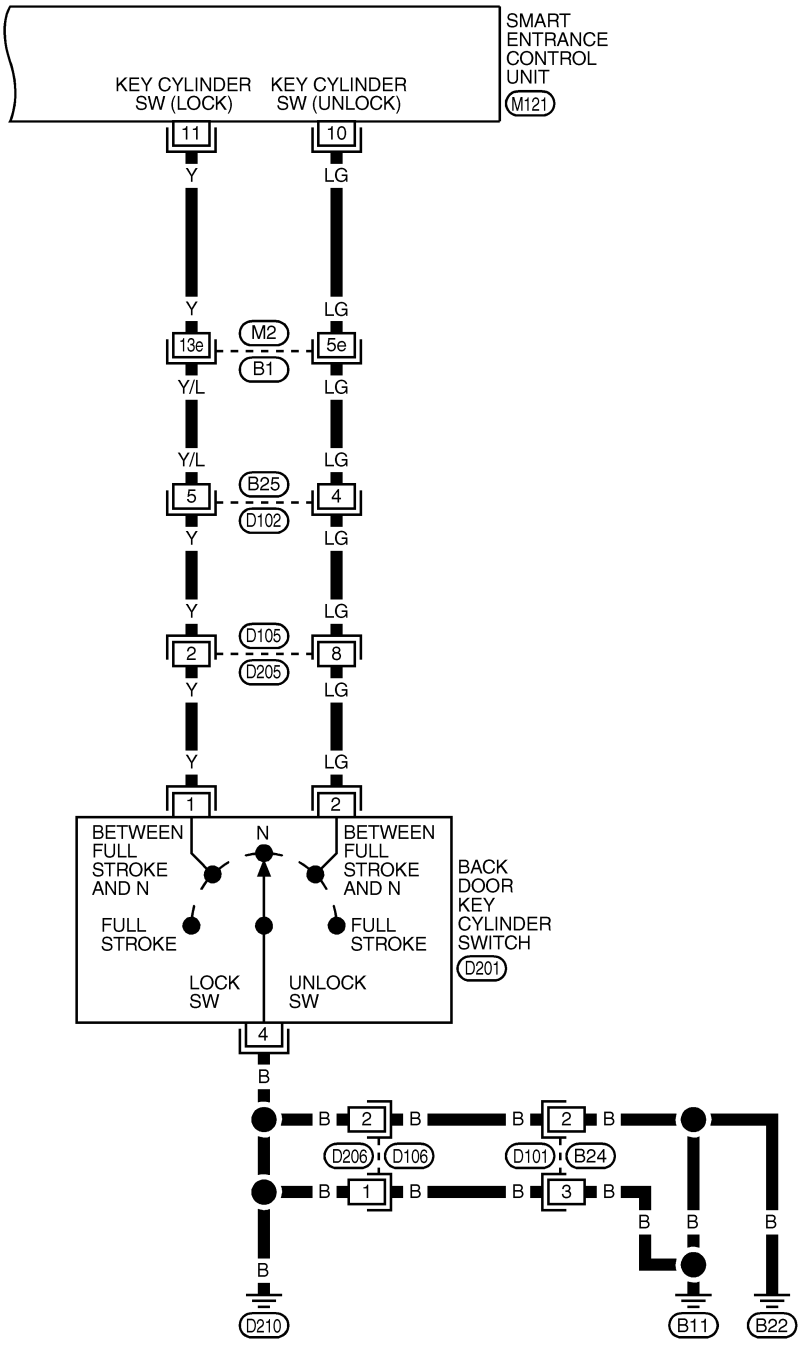


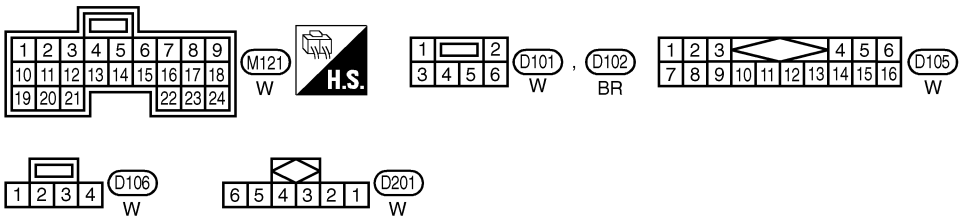


MEL661P

Wiring Diagram — INT/L — (Cont'd)

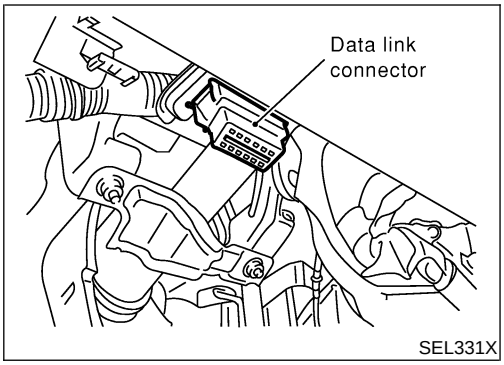
EL-INT/L-05





REFER TO THE FOLLOWING.
B1 - SUPER MULTIPLE JUNCTION (SMJ)

MEL602P



SEL331X

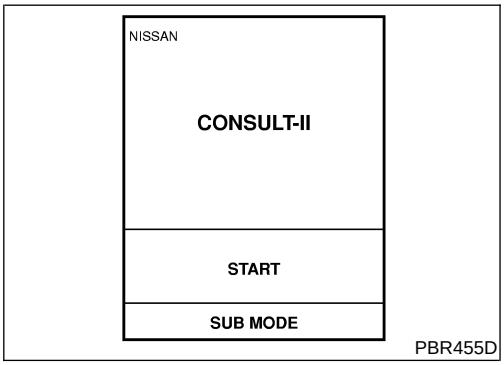
CONSULT-II Inspection Procedure

=NBEL0293

"INT LAMP"/"BATTERY SAVER"

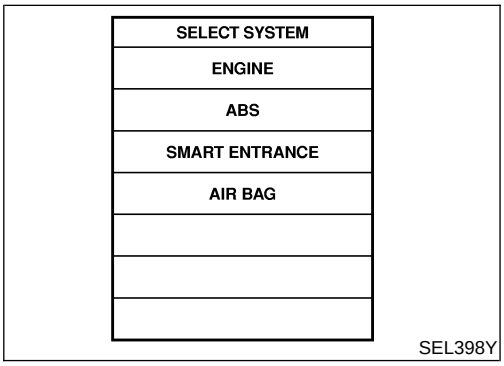
NBEL0293S01

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



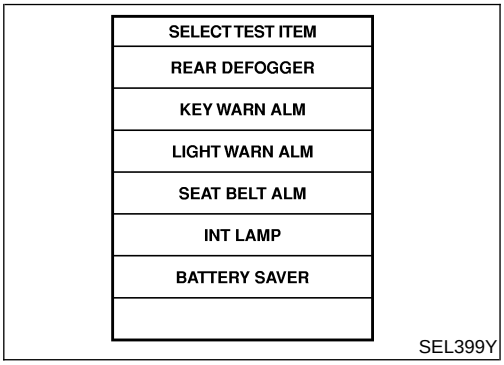
PBR455D

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



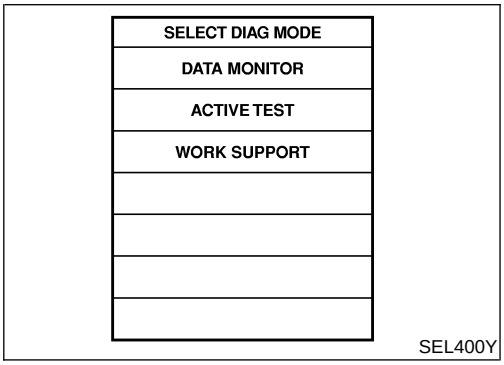
SEL398Y

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

NBEL0294

"INT LAMP"

NBEL0294S01

Data Monitor

NBEL0294S0101

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

NBEL0294S0102

Test Item	Description
INT LAMP	This test enables to check interior lamp operation. When "ON" on CONSULT-II screen is touched: ● Interior lamp turns on when the switch is at DOOR. (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. The illumination turns on when "ON" on CONSULT-II screen is touched.

NOTE:
Even though ignition key hole illumination and step lamp are actually displayed on the CONSULT-II screen, those are not equipped, therefore, they cannot be activated.

Work Support

NBEL0294S0103

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. **NOTE:** Even though ignition keyhole illumination and step lamp are actually displayed on the CONSULT-II screen, those are not equipped, therefore, they cannot be activated.

"BATTERY SAVER"

NBEL0294S02

Data Monitor

NBEL0294S0201

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.

CONSULT-II Application Items (Cont'd)

Monitored Item	Description
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

NBEL0294S0202

Test Item	Description
BATTERY SAVER	This test enables to check interior lamp and spot lamp and vanity mirror illuminations operations. When touch "ON" on CONSULT-II screen. ● Interior lamp turns on when the switch is in ON. (Smart entrance control unit supplies power to interior lamp.) ● Spot lamp and vanity mirror illuminations turn on when the switch is in ON. (Smart entrance control unit supplies power to spot lamp, and vanity mirror illuminations.)

Work Support

NBEL0294S0203

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. ● MODE 1 (30 minutes)/MODE 2 (60 minutes)

Trouble Diagnoses for Interior Lamp Timer

=NBEL0295

DIAGNOSTIC PROCEDURE 1

NBEL0295S01

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

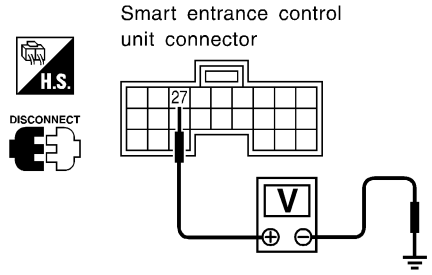
When ignition switch is ON:
IGN ON SW ON

When ignition switch is OFF:
IGN ON SW OFF

SEL318W

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M122 terminal 27 (W/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.** ● 7.5A fuse [No. 11, located in fuse block (J/B)] ● Harness for open or short between smart entrance control unit and fuse

2	CHECK FRONT LH DOOR SWITCH INPUT SIGNAL

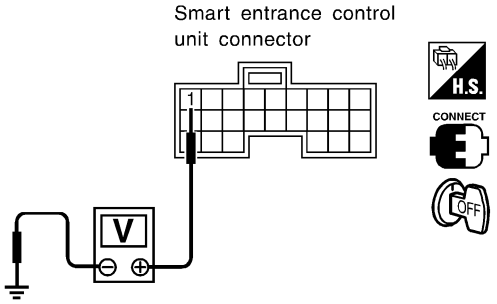
With CONSULT-II
Check driver door switch signal ("DOOR SW-DR") in "DATA MONITOR" mode with CONSULT-II.

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 M121 terminal 1 (G/R) and ground.



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

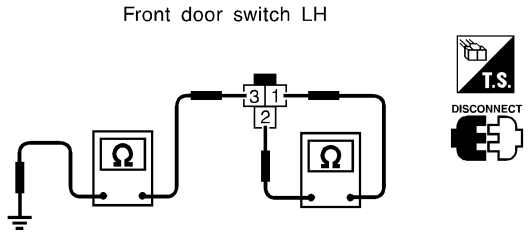
SEL004Y

OK or NG

OK	▶	GO TO 4.
NG	▶	GO TO 3.

3	CHECK FRONT LH DOOR SWITCH

Check the following.
- Continuity between front LH door switch connector B9 terminals 1 and 2
- Continuity between front LH door switch B9 terminal 3 and ground



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

SEL277Y

OK or NG

OK	▶	**Check the following.** • Front LH door switch ground circuit and condition • 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

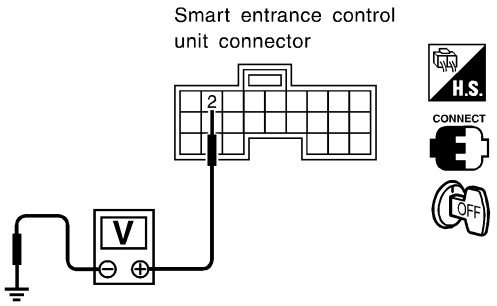
When front RH door is open:
DOOR SW-AS ON

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

SEL153Y

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminal 2 (Y) and ground.



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

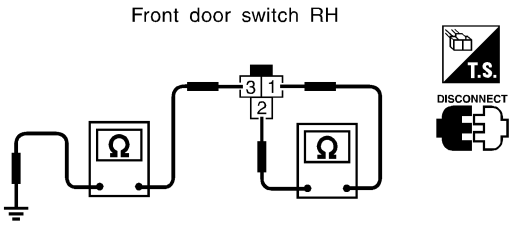
SEL152Y

OK or NG

OK	▶	GO TO 6.
NG	▶	GO TO 5.

5	CHECK FRONT RH DOOR SWITCH

Check the following.
- Continuity between front RH door switch connector B68 terminals 1 and 2
- Continuity between front RH door switch connector B68 terminal 3 and ground



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

SEL278Y

OK or NG

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

6 CHECK REAR AND BACK 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

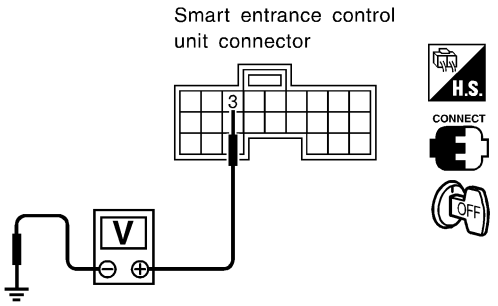
When rear door LH,RH and/or back is open:
DOOR SW-RR ON

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

SEL154YA

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminal 3 (R/L) 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

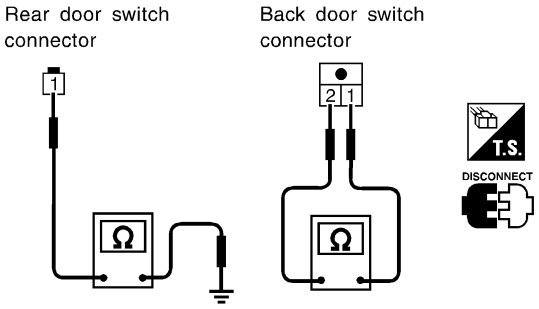
SEL155Y

OK or NG

OK	▶	GO TO 8.
NG	▶	GO TO 7.

7 CHECK REAR AND BACK DOOR SWITCHES

1. Disconnect door switch harness connector.
2. Check the following.
- Continuity between rear door switches connector B18 and B71 terminal 1 and ground
- Continuity between back door switch connector D208 terminals 1 and 2



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

SEL279Y

OK or NG

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

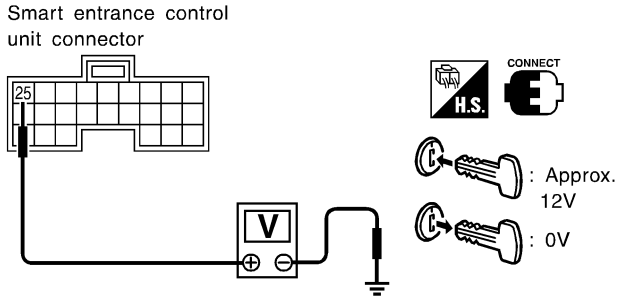
When key is removed from ignition key cylinder:

KEY ON SW OFF

SEL315W

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M122 terminal 25 (W/R) and ground.



Voltage [V]:

Condition of key switch: Key is inserted.

Approx. 12

Condition of key switch: Key is removed.

0

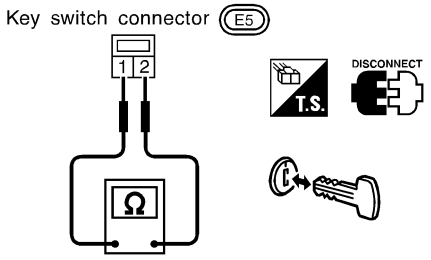
SEL011Y

OK or NG

OK	▶	GO TO 10.
NG	▶	GO TO 9.

9	CHECK KEY SWITCH (INSERT)

Check continuity between terminals 1 and 2.



Continuity:

Condition of key switch: Key is inserted.

Yes

Condition of key switch: Key is removed.

No

SEL308X

OK or NG

OK	▶	**Check the following.** • 7.5A fuse [No. 24, located in fuse block (J/B)] • Harness for open or short between key switch and fuse • 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

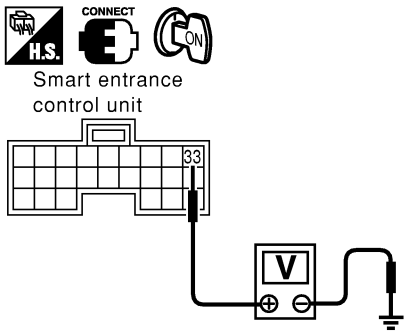
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

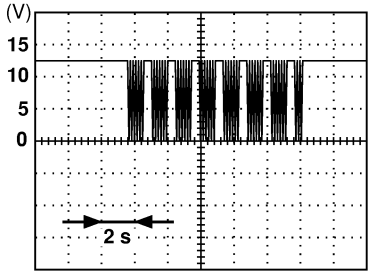
When lock/unlock switch is turned to UNLOCK:
UNLK SW DR/AS ON

SEL341W

Without CONSULT-II

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M122 terminal 33 (BR) 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.

SEL487Y

OK or NG

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

11	CHECK FRONT 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.

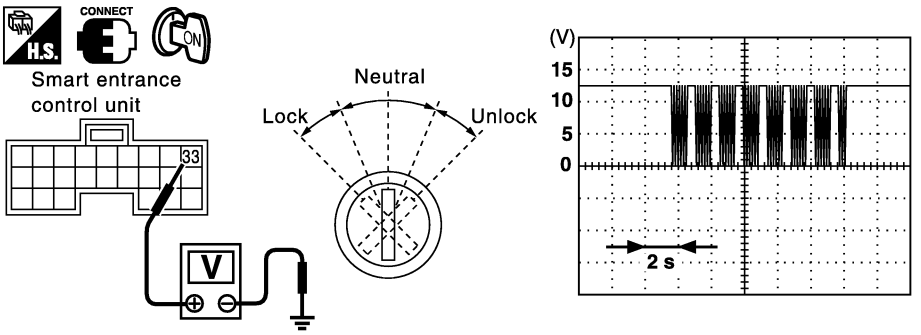
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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 M122 terminal 33 (BR) 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.

SEL488Y

OK or NG

OK	▶	GO TO 12.
NG	▶	GO TO 13.

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

With CONSULT-II

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

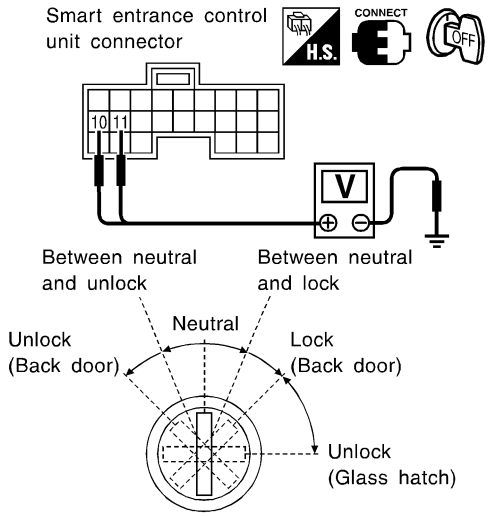
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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

SEL342WB

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminals 10 (LG) or 11 (Y) and ground.



	Terminals (+)	Terminals (−)	Key position	Voltage [V]
Back door	11	Ground	Between neutral and lock	0
			Other positions	Approx. 5
	10	Ground	Between neutral and unlock	0
			Other positions	Approx. 5

SEL286Y

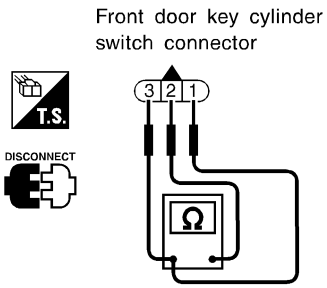
OK or NG

OK	▶	Replace smart entrance control unit.
NG	▶	GO TO 13.

13 CHECK DOOR KEY CYLINDER SWITCH

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

- Front door key cylinder switch harness connector D9

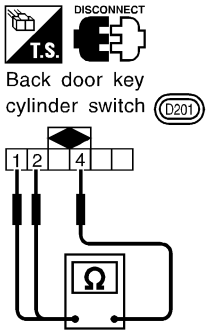


① : Door unlock switch terminal
② : Ground terminal
③ : Door lock switch terminal

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

SEL187YA

- Back door key cylinder switch harness connector D201



Key position	Terminals		
	1	2	4
Between neutral and lock (Back door)	○		○
Between neutral and unlock (Back door)		○	○

SEL315X

OK or NG

OK	▶	**Check the following.** ● Front or back door key cylinder switch ground circuit ● Harness for open or short between front door key cylinder switch and power window switch ● Harness for open or short between front or back door key cylinder switch and smart entrance control unit connector
NG	▶	Replace front or back door key cylinder switch.

DIAGNOSTIC PROCEDURE 2

NBEL0295S02

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

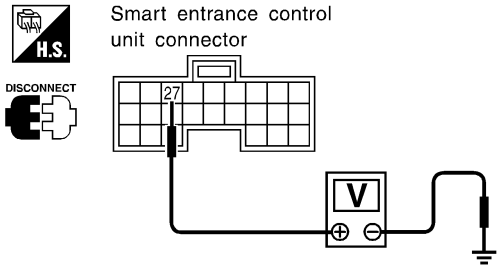
When ignition switch is ON:
IGN ON SW ON

When ignition switch is OFF:
IGN ON SW OFF

SEL318W

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M122 terminal 27 (W/B) 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.** ● 7.5A fuse [No. 11, located in fuse block (J/B)] ● 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

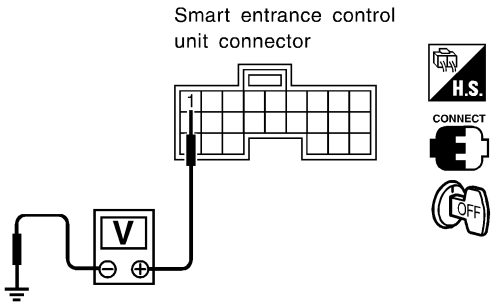
When front LH door is open:
DOOR SW-DR ON

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

SEL319WA

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminal 1 (G/R) and ground.



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

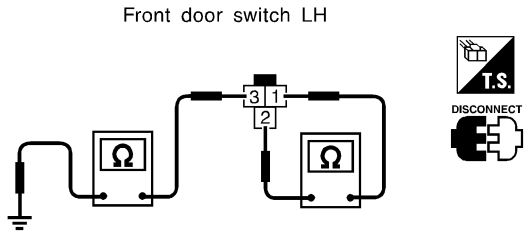
SEL004Y

OK or NG

OK	▶	GO TO 4.
NG	▶	GO TO 3.

3	CHECK FRONT LH DOOR SWITCH

Check continuity between door switch connector B9 terminals 1 and 2.



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

SEL277Y

OK or NG

OK	▶	**Check the following.** • Front LH door switch ground circuit and condition • 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

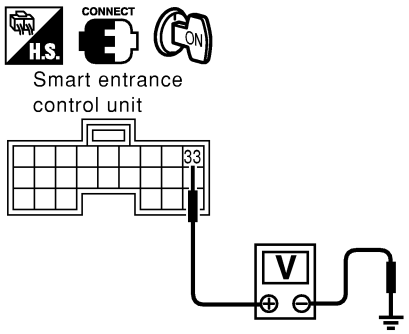
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

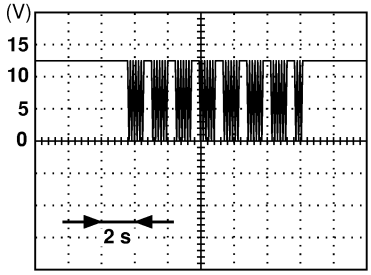
When lock/unlock switch is turned to UNLOCK:
UNLK SW DR/AS ON

SEL341W

Without CONSULT-II

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M122 terminal 33 (BR) 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.

SEL487Y

OK or NG

OK	▶	GO TO 6.
NG	▶	**Check the following.** ● Ground circuit for each front power window switch. ● Harness for open or short between each front power window switch and smart entrance control unit. 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.

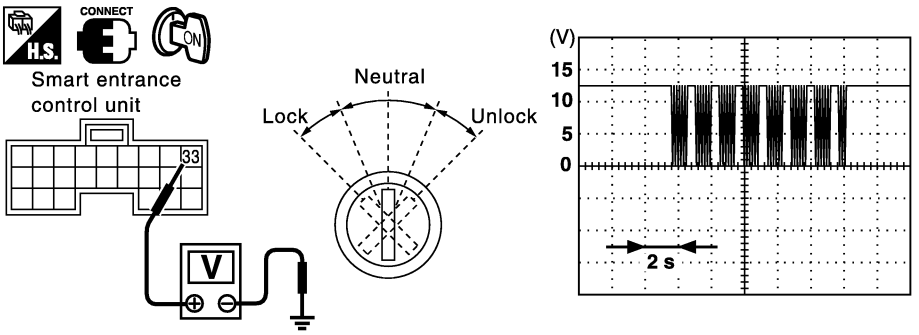
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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 M122 terminals 33 (BR) and ground with osilloscope 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.

SEL488Y

OK or NG

OK	▶	GO TO 6.
NG	▶	GO TO 7.

6	CHECK BACK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL)

With CONSULT-II

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

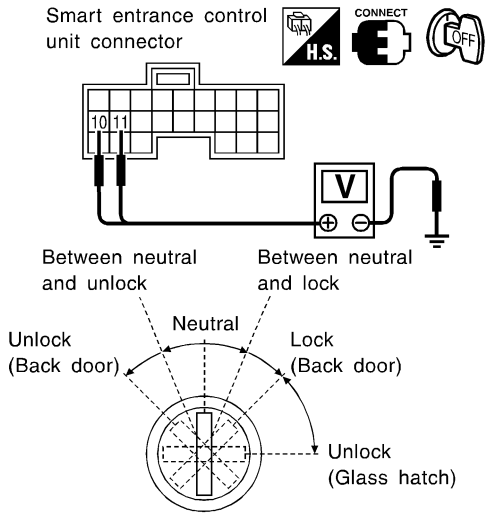
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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

SEL342WB

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminals 10 (LG) or 11 (Y) and ground.



	Terminals (+)	Terminals (−)	Key position	Voltage [V]
Back door	11	Ground	Between neutral and lock	0
			Other positions	Approx. 5
	10	Ground	Between neutral and unlock	0
			Other positions	Approx. 5

SEL286Y

Refer to wiring diagram in EL-398.

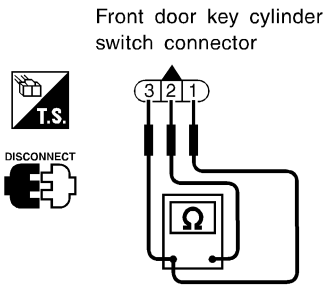
OK or NG

OK	▶	Replace smart entrance control unit.
NG	▶	GO TO 7.

7 CHECK DOOR KEY CYLINDER SWITCH

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

- Front door key cylinder switch harness connector D9

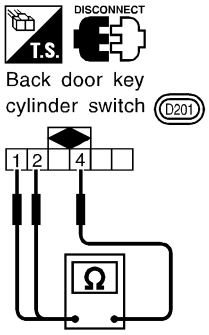


① : Door unlock switch terminal
② : Ground terminal
③ : Door lock switch terminal

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

SEL187YA

- Back door key cylinder switch harness connector D201



Key position	Terminals		
	1	2	4
Between neutral and lock (Back door)	○		○
Between neutral and unlock (Back door)		○	○

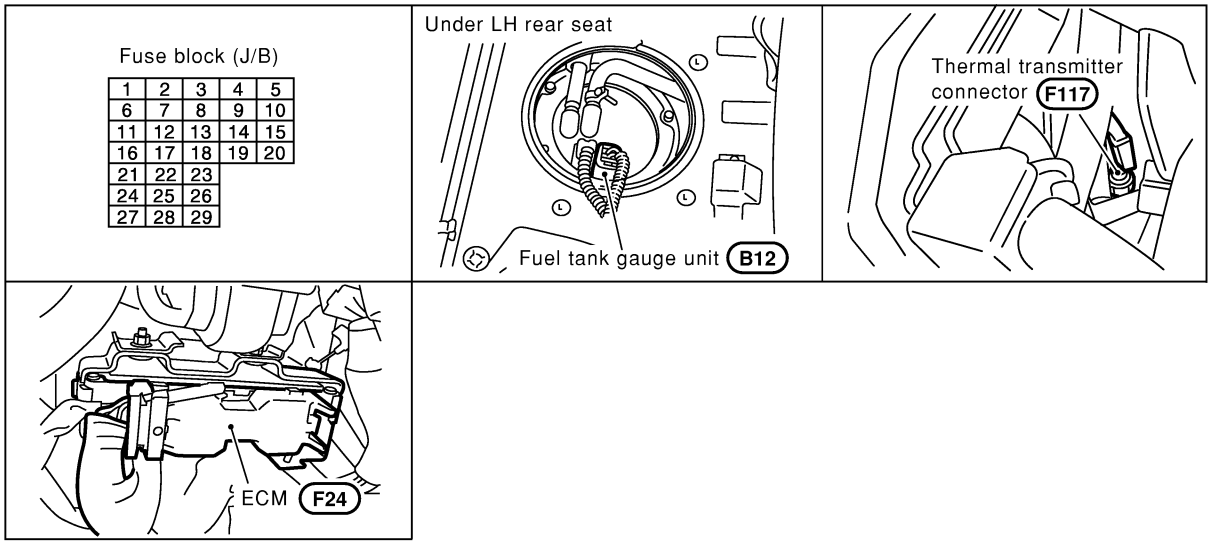
SEL315X

OK or NG

OK	▶	**Check the following.** ● Front or back door key cylinder switch ground circuit ● Harness for open or short between front door key cylinder switch and power window switch ● Harness for open or short between front or back door key cylinder switch and smart entrance control unit connector
NG	▶	Replace front or back door key cylinder switch.

Component Parts and Harness Connector Location

NBEL0296



SEL486Y

System Description

NBEL0297

UNIFIED CONTROL METER

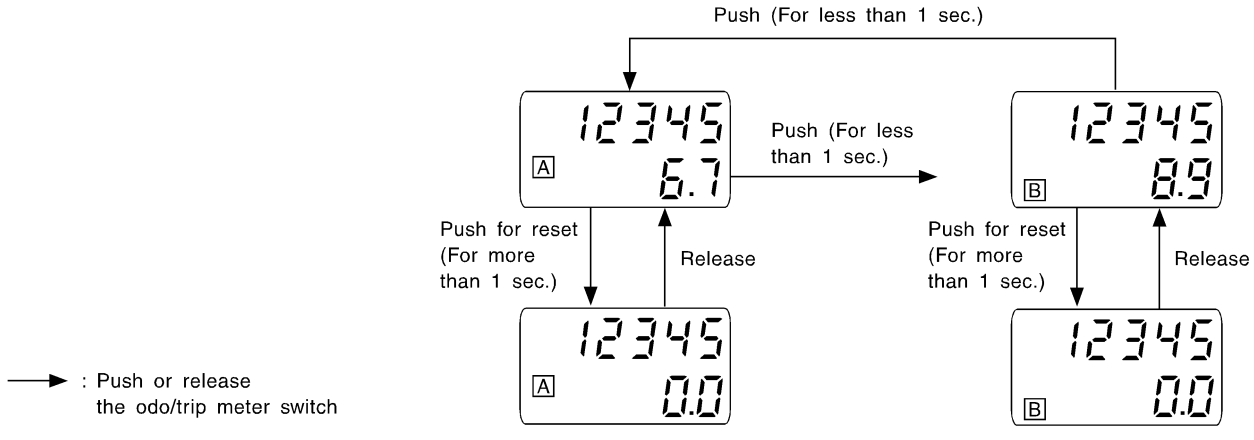
NBEL0297S01

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

NBEL0297S02

The display is changed by pushing the odo/trip meter switch.



SEL175W

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

POWER SUPPLY AND GROUND CIRCUIT

NBEL0297S03

Power is supplied at all times

- through 7.5A fuse [No. 24, located in the fuse block (J/B)]
- to combination meter terminal 62.

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

- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to combination meter terminal 66.

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

- through 10A fuse [No. 9, located in the fuse block (J/B)]
- to combination meter terminal 31.

Ground is supplied

- to combination meter terminal 59
- through body grounds M4, M66 and M147.

WATER TEMPERATURE GAUGE

NBEL0297S04

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

As the temperature of the coolant increases, the resistance of the thermal transmitter decreases. A variable ground is supplied to terminal 18 of the combination meter for the water temperature gauge. The needle on the gauge moves from "C" to "H".

TACHOMETER

NBEL0297S05

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

The tachometer is regulated by a signal

- from terminal 25 of the ECM
- to combination meter terminal 16 for the tachometer.

FUEL GAUGE

NBEL0297S06

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 3 of the fuel level sensor unit
- through terminal 2 of the fuel level sensor unit and
- through body grounds B11, B22 and D210.

SPEEDOMETER

NBEL0297S07

The ABS actuator and electric unit provides a voltage signal to the combination meter for the speedometer.

The voltage is supplied

- from combination meter terminal 15 for the speedometer
- to terminal 19 of the ABS actuator and electric unit.

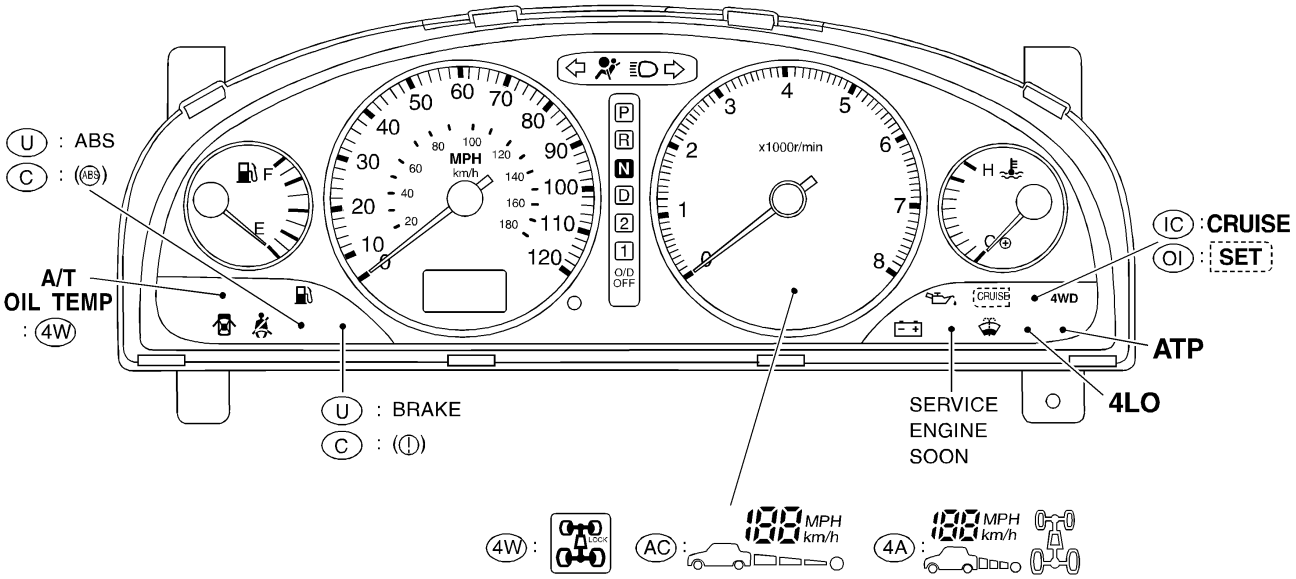
The speedometer converts the voltage into the vehicle speed displayed.

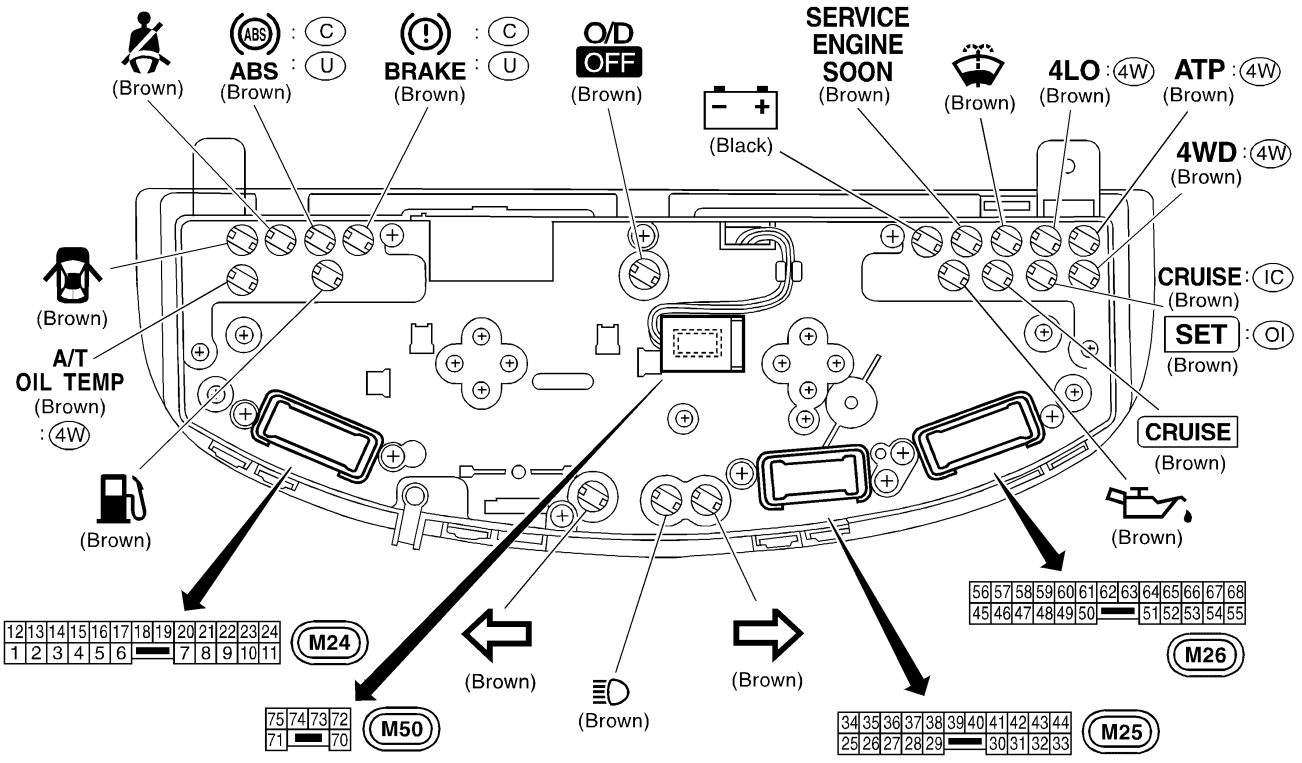
Combination Meter

CHECK

NBEL0298

NBEL0298S01





Bulb socket color	Bulb wattage
Brown	1.4W
Black	3.0W

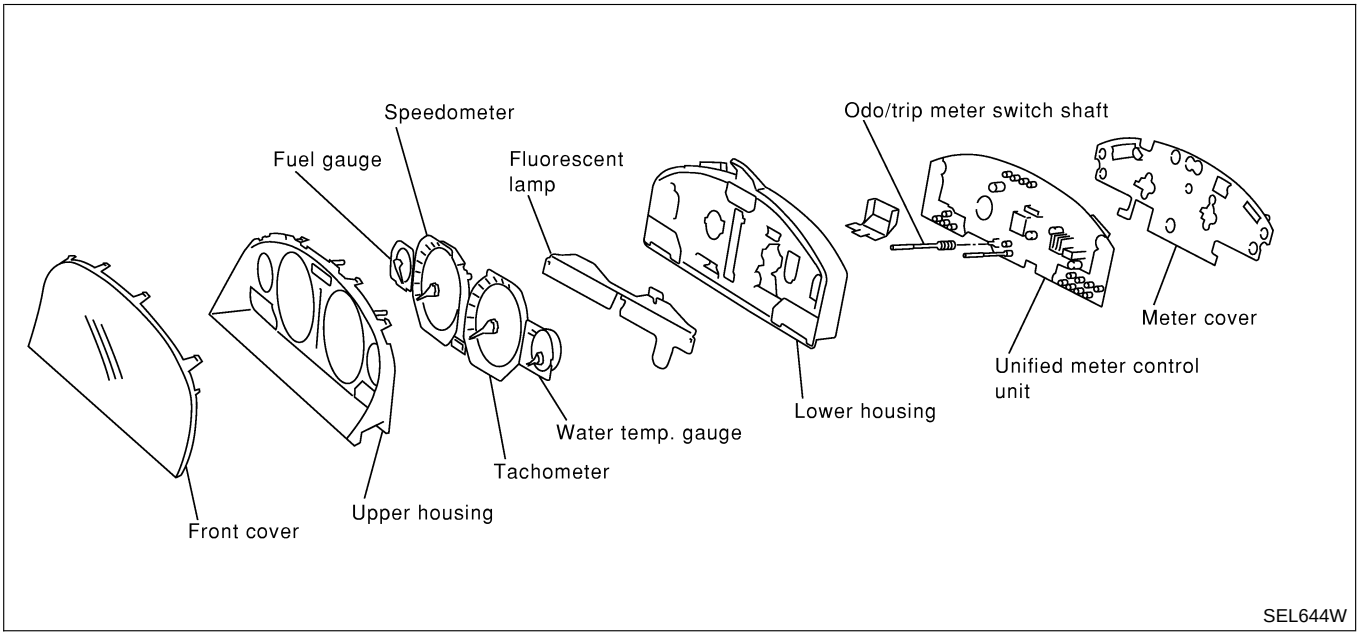
( ): Warning bulb socket color

U : For USA
C : For Canada
IC : With ICC
OI : Without ICC
4W : With 4-wheel drive
4A : With 4-wheel drive and ICC

MEL700O

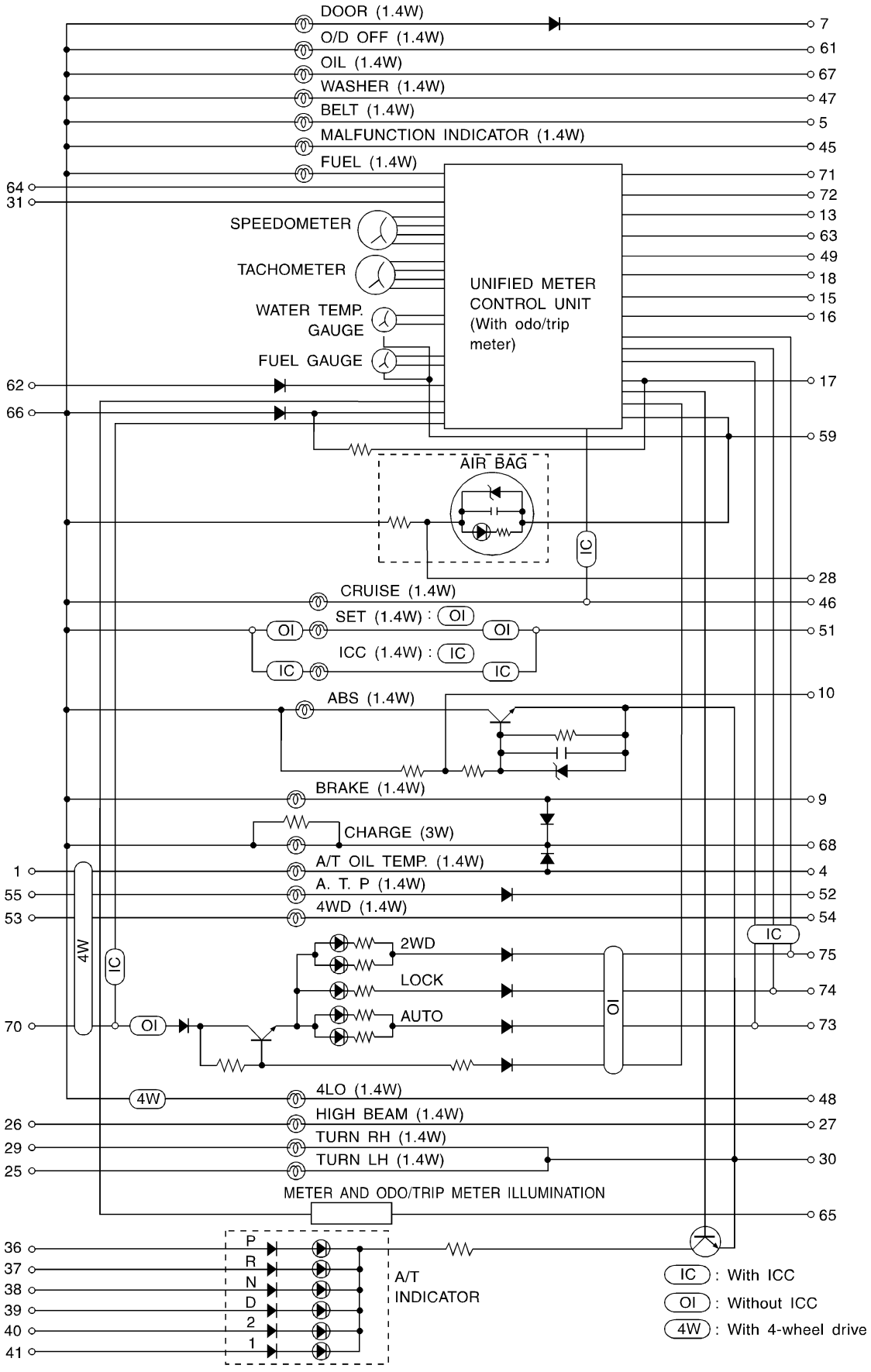
CONSTRUCTION

NBEL0298S02



Schematic

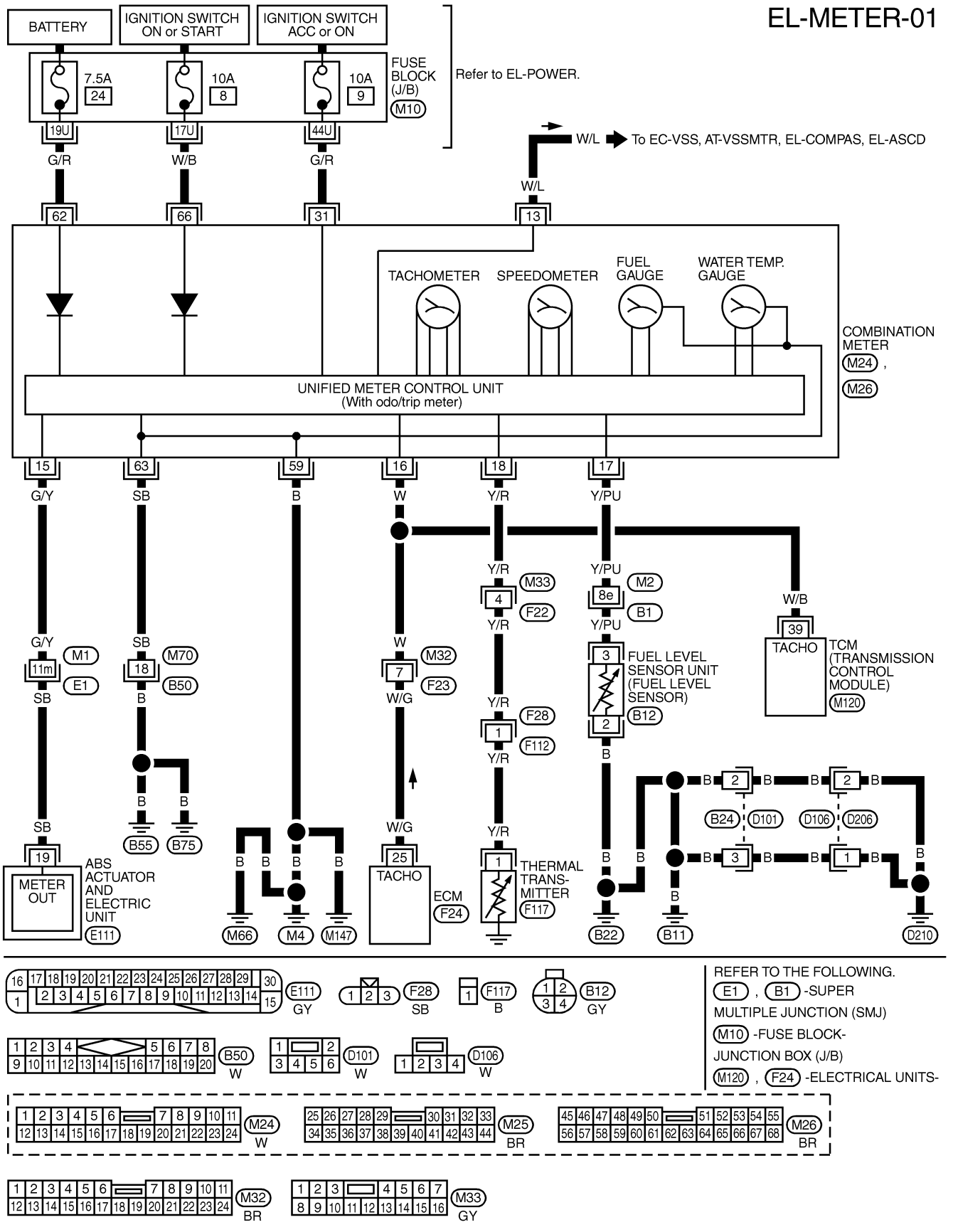
NBEL0299



MEL475O

Wiring Diagram — METER —

NBEL0300



MEL603P

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

NBEL0301

DIAGNOSIS FUNCTION

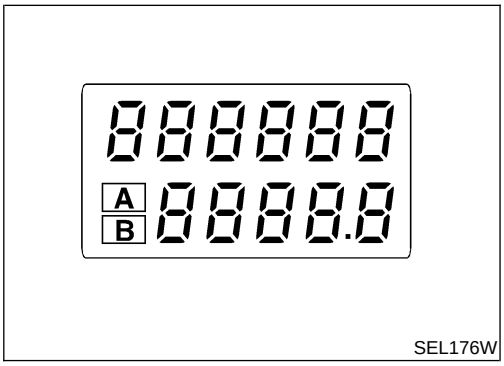
NBEL0301S01

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

HOW TO ALTERNATE DIAGNOSIS MODE

NBEL0301S02

1. Turn ignition switch to ON and change odo/trip meter to "TRIP A" or "TRIP B".
2. Turn ignition switch to OFF.
3. Turn ignition switch to ON when pushing odo/trip meter switch.
4. Push odo/trip meter switch 1 second.
5. Release odo/trip meter switch.
6. Push odo/trip meter switch more than three times within 7 seconds.

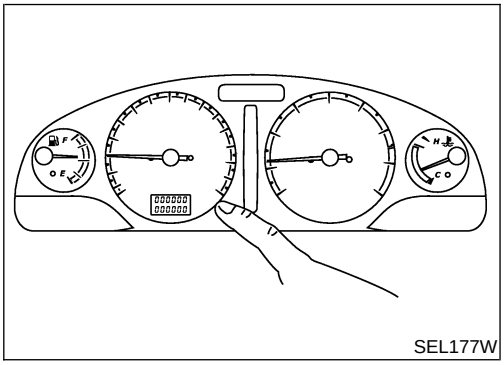


SEL176W

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

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

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


SEL177W

8. 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.

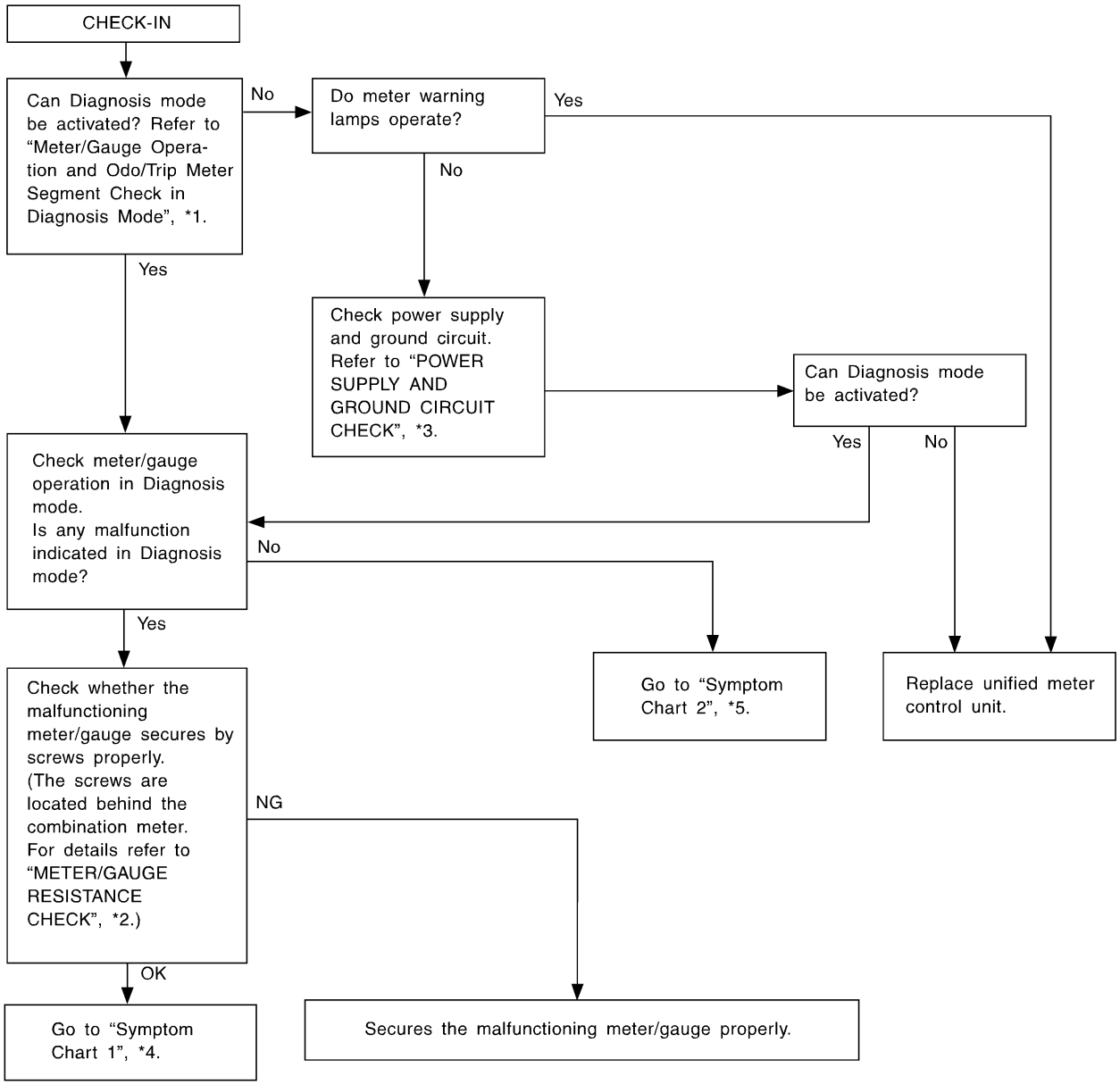
NOTE:
It takes about a few seconds for indication of fuel gauge and water temperature gauge to become stable.

Trouble Diagnoses

NBEL0302

PRELIMINARY CHECK

NBEL0302S01



SEL361W

*1: Meter/Gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode (EL-133)

*2: METER/GAUGE RESISTANCE CHECK (EL-141)

*3: POWER SUPPLY AND GROUND CIRCUIT CHECK (EL-136)

*4: Symptom Chart 1 (EL-135)

*5: Symptom Chart 2 (EL-135)

SYMPTOM CHART

NBEL0302S02

Symptom Chart 1 (Malfunction is Indicated in Diagnosis Mode)

NBEL0302S0203

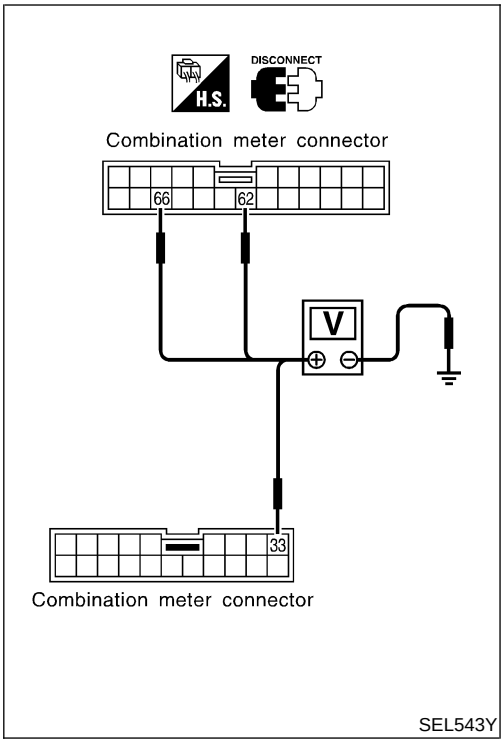
Symptom	Possible causes	Repair order
Odo/trip meter indicate(s) malfunction in Diagnosis mode.	Unified meter control unit	Replace unified meter control unit.
Multiple meter/gauge indicate malfunction in Diagnosis mode.		
One of speedometer/ tachometer/fuel gauge/ water temp. gauge indicates malfunction in Diagnosis mode.	1. Meter/Gauge 2. Unified meter control unit	1. Check resistance of meter/gauge indicating malfunction. If the resistance is NG, replace the meter/ gauge. Refer to "METER/GAUGE RESISTANCE CHECK", EL-141. 2. If the resistance of meter/gauge is OK, replace unified meter control unit.

Symptom Chart 2 (No Malfunction is Indicated in Diagnosis Mode)

NBEL0302S0204

Symptom	Possible causes	Repair order
One of speedometer/ tachometer/fuel gauge/ water temp. gauge is malfunctioning.	1. Sensor signal - Vehicle speed signal - Engine revolution signal - Fuel gauge - Water temp. gauge 2. Unified meter control unit	1. Check the sensor for malfunctioning meter/gauge. INSPECTION/VEHICLE SPEED SIGNAL (Refer to EL-137.) INSPECTION/ENGINE REVOLUTION SIGNAL (Refer to EL-138.) INSPECTION/FUEL LEVEL SENSOR UNIT (Refer to EL-139.) INSPECTION/THERMAL TRANSMITTER (Refer to EL-140.) 2. Replace unified meter control unit.
Multiple meter/gauge are malfunctioning. (except odo/trip meter)		

Before starting trouble diagnoses below, perform PRELIMINARY CHECK, EL-134.



POWER SUPPLY AND GROUND CIRCUIT CHECK

=NBEL0302S03

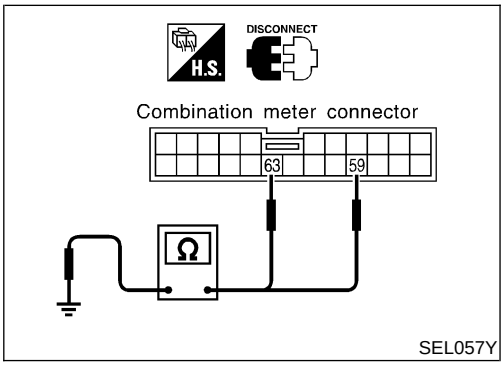
Power Supply Circuit Check

NBEL0302S0301

Terminals			Ignition switch position		
(+)		(−)	OFF	ACC	ON
Connector	Terminal (wire color)				
M25	31 (G/R)	Ground	0V	Battery voltage	Battery voltage
M26	62 (G/R)	Ground	Battery voltage	Battery voltage	Battery voltage
	66 (W/B)	Ground	0V	0V	Battery voltage

If NG, check the following.

- 7.5A fuse [No. 24, located in fuse block (J/B)]
- 10A fuse [No. 8, located in fuse block (J/B)]
- 10A fuse [No. 9, located in fuse block (J/B)]
- Harness for open or short between fuse and combination meter



Ground Circuit Check

NBEL0302S0302

Terminals			Continuity
(+)		(−)	
Connector	Terminal (wire color)		
M26	59 (B)	Ground	Yes
	63 (SB)		

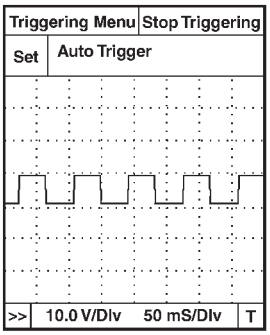
INSPECTION/VEHICLE SPEED SIGNAL

=NBEL0302S04

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 harness connector M24 terminal 15 (G/Y) and ground when rotating wheels with engine at idle. (Use "SIMPLE OSCILLOSCOPE" in "SUB MODE" with CONSULT-II.)



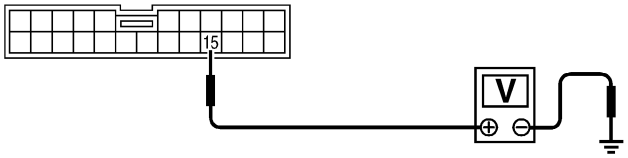
SEL938W

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 harness connector M24 terminal 15 (G/Y) and ground when rotating wheels with engine at idle.

combination meter harness connector

Voltage: Approx. 0 - 5V



SEL939WA

OK or NG

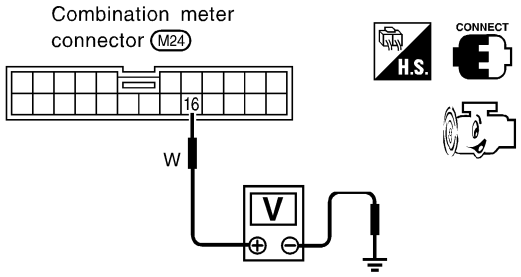
OK	▶	ABS control unit is OK.
NG	▶	**Check the following.** ● Harness for open or short between ABS actuator and electric unit and combination meter. ● ABS actuator and electric unit. Refer to BR-58, "Wheel Sensor or Rotor".

INSPECTION/ENGINE REVOLUTION SIGNAL

NBEL0302S05

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.

SEL364WB

OK or NG

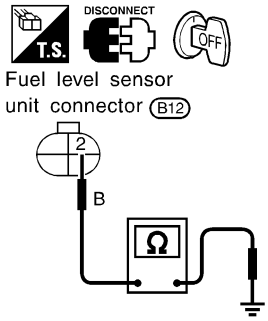
OK	▶	Engine revolution signal is OK.
NG	▶	Harness for open or short between ECM and combination meter

INSPECTION/FUEL LEVEL SENSOR UNIT

=NBEL0302S06

1	CHECK GROUND CIRCUIT FOR FUEL LEVEL SENSOR UNIT

Check harness continuity between fuel level sensor unit terminal 2 and ground.



Continuity should exist.

SEL299X

OK or NG

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

2	CHECK FUEL LEVEL SENSOR UNIT

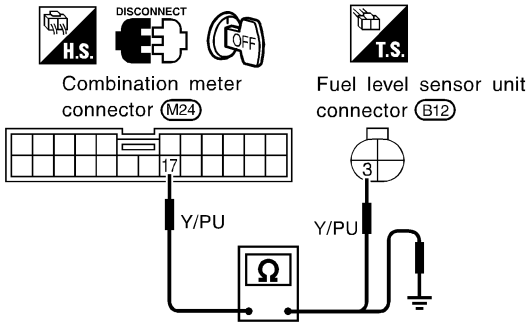
Refer to "FUEL LEVEL SENSOR UNIT CHECK" (EL-141).

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 connector.
2. Check continuity between combination meter terminal 17 and fuel level sensor unit terminal 3.
3. Check continuity between combination meter terminal 17 and ground.



Continuity:
Combination meter terminal 17 and fuel level sensor unit terminal 3
Yes
Combination meter terminal 17 and ground
No

SEL300X

OK or NG

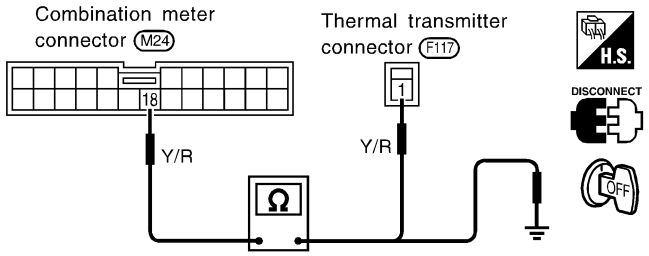
OK	▶	Fuel level sensor unit is OK.
NG	▶	Repair harness or connector.

INSPECTION/THERMAL TRANSMITTER

=NBEL0302S07

1	CHECK THERMAL TRANSMITTER	
Refer to "THERMAL TRANSMITTER CHECK" (EL-141).		
OK or NG		
OK	▶	GO TO 2.
NG	▶	Replace.

2	CHECK HARNESS FOR OPEN OR SHORT	
1. Disconnect combination meter connector and thermal transmitter connector. 2. Check continuity between combination meter terminal 18 and thermal transmitter terminal 1. **Continuity should exist.** 3. Check continuity between combination meter terminal 18 and ground. **Continuity should not exist.**		
OK or NG		
OK	▶	Thermal transmitter is OK.
NG	▶	Repair harness or connector.



SEL184WA

Electrical Components Inspection

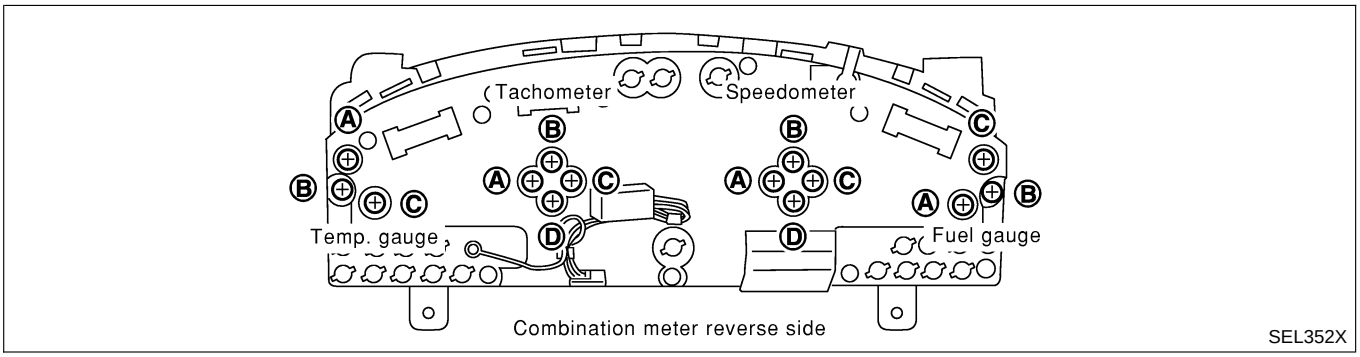
=NBEL0303

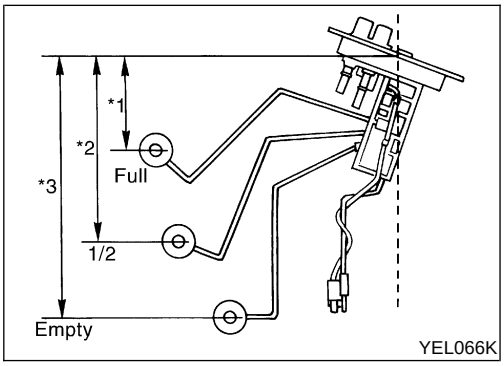
METER/GAUGE RESISTANCE CHECK

NBEL0303S05

Check resistance between installation screws of meter/gauge.

Screws		Resistance Ω
Tacho/Speedometer	Fuel/Temp. gauge	
A - C	A - C	Approx. 190 - Approx. 260
B - D	B - C	Approx. 230 - Approx. 310





FUEL LEVEL SENSOR UNIT CHECK

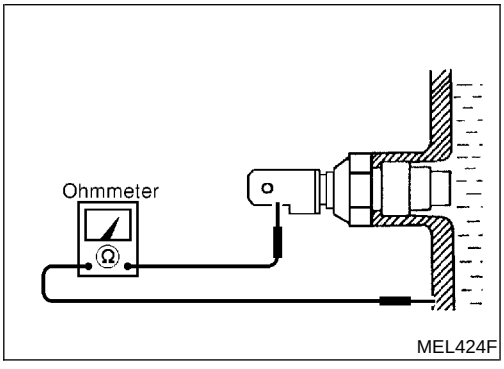
NBEL0303S02

- For removal, refer to FE-4, “FUEL SYSTEM”.

Check the resistance between terminals 3 and 2.

Ohmmeter		Float position mm (in)			Resistance value Ω
(+)	(−)				
3	2	*1	Full	95 (3.74)	Approx. 4 - 6
		*2	1/2	184 (7.24)	31 - 34
		*3	Empty	265 (10.43)	80 - 83

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



THERMAL TRANSMITTER CHECK

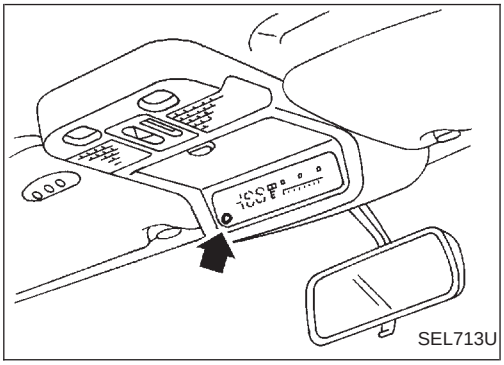
NBEL0303S03

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

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

System Description

NBEL0304



This unit displays following items:

- Earth magnetism and heading direction of vehicle.
- Outside air temperature.
- Caution for frozen road surfaces.

OUTSIDE TEMPERATURE DISPLAY

NBEL0304S01

Push the switch when the ignition key is in the “ACC” or “ON” position. The outside temperature will be displayed in “°F”.

- Selecting the indication range
  Push the switch to change from “°F” to “°C”.
- When the outside temperature drops below freezing point, ICE is displayed on the unit.
- When the outside temperature is between 55°C (130°F) and 70°C (158°F), the display shows 55°C (130°F).
- When the outside temperature is lower than −30°C (−20°F) or higher than 70°C (158°F), the display shows only “---” though it is operating. This is not a problem.
- The indicated temperature on the thermometer is not readily affected by engine heat. It changes only when one of the following conditions is present.

a) The temperature detected by the ambient air temperature sensor is lower than the indicated temperature on the thermometer.

b) The difference in temperature detected during a period of 40 seconds is less than 1°C (1.8°F) when vehicle speed has been greater than 24 km/h (15 MPH) for more than 100 seconds.
(This is to prevent the indicated temperature from being affected by engine heat or cooling fan operation during low-speed driving.)

c) The ignition key has been turned to the “OFF” position for more than 4 hours. (The engine is cold.)

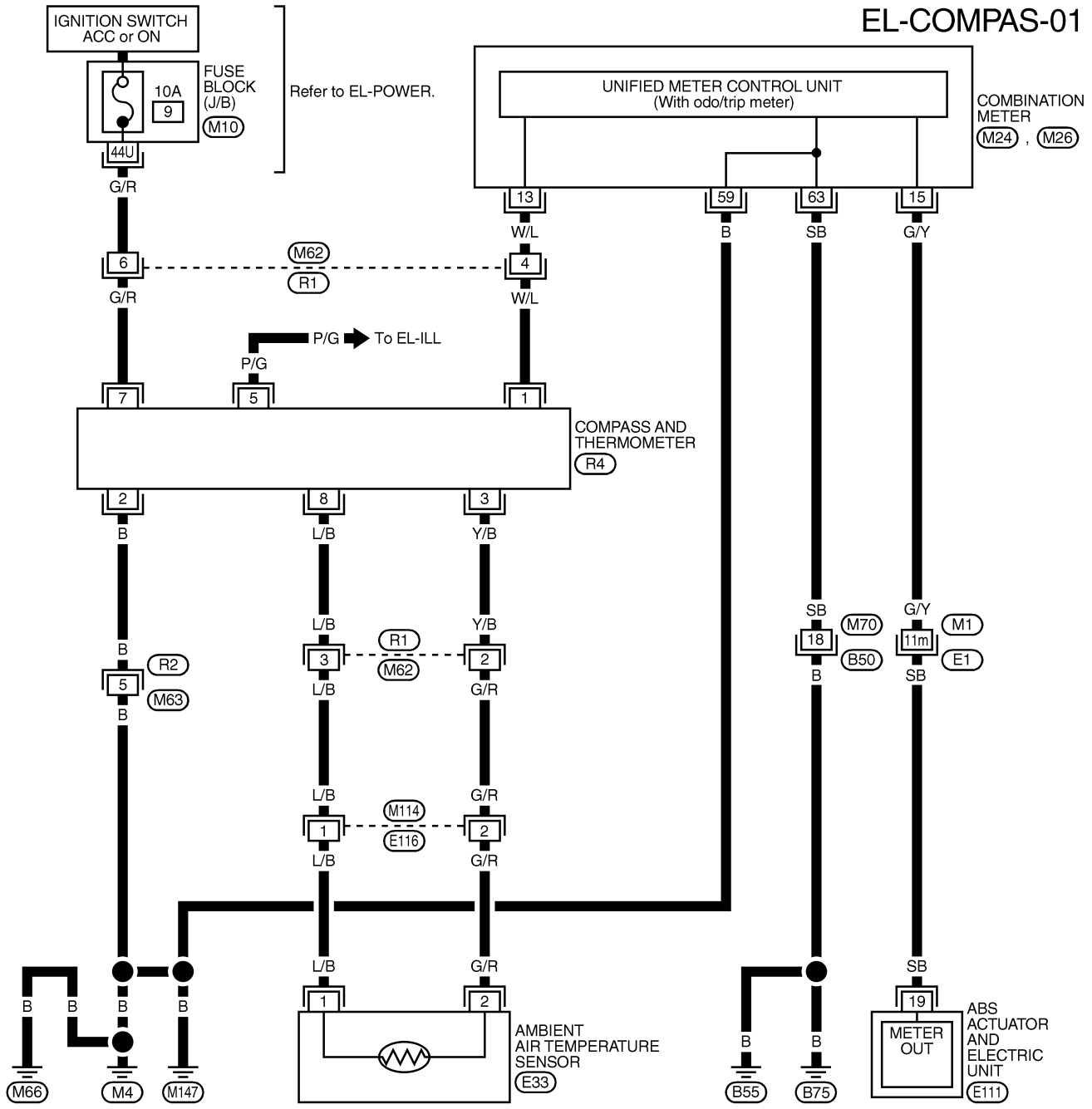
DIRECTION DISPLAY

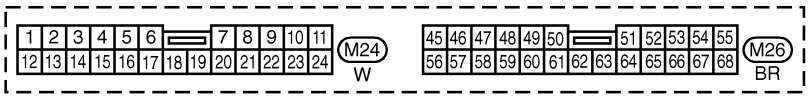
NBEL0304S02

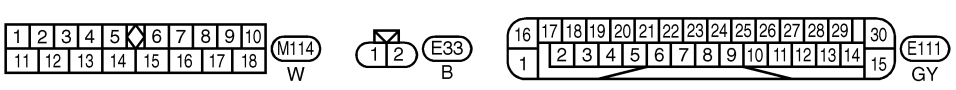
Push the switch when the ignition key is in the “ACC” or “ON” position. The direction will be displayed.

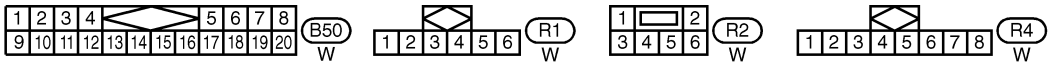
Wiring Diagram — COMPAS —

NBEL0305









REFER TO THE FOLLOWING.

E1 -SUPER MULTIPLE JUNCTION (SMJ)

M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL718N

Trouble Diagnoses

NBEL0306

PRELIMINARY CHECK FOR THERMOMETER

NBEL0306S01

1	COOL DOWN CHECK	
1. Turn the ignition key switch to the “ACC” position. 2. Cool down the ambient air temperature sensor with water or ice, so that the indicated temperature falls. **Does the indicated temperature fall?**		
Yes	▶	GO TO 2.
No	▶	The system is malfunctioning. Check the system following “INSPECTION/COMPASS AND THERMOMETER”.

2	WARM UP CHECK	
1. Leave the vehicle for 10 minutes, so that the indicated temperature rises. 2. With the ignition key in the “ACC” position, disconnect and reconnect the ambient air temperature sensor connector. **Does the indicated temperature rise?**		
Yes	▶	The system is OK.
No	▶	The system is malfunctioning. Check the system following “INSPECTION/COMPASS AND THERMOMETER”.

NOTE:

- When the outside temperature is between 55°C (130°F) and 70°C (158°F), the display shows 55°C (130°F). When the outside temperature is lower than −30°C (−20°F) or higher than 70°C (158°F), the display shows only “---”.
- The indicated temperature on the thermometer is not readily affected by engine heat. It changes only when one of the following conditions is present.

a) The temperature detected by the ambient air temperature sensor is lower than the indicated temperature on the thermometer.

b) The difference in temperature detected during a period of 40 seconds is less than 1°C (1.8°F) when vehicle speed has been greater than 24 km/h (15 MPH) for more than 100 seconds.
(This is to prevent the indicated temperature from being affected by engine heat or cooling fan operation during low-speed driving.)

c) The ignition key has been turned to the “OFF” position for more than 4 hours. (The engine is cold.)

INSPECTION/COMPASS AND THERMOMETER

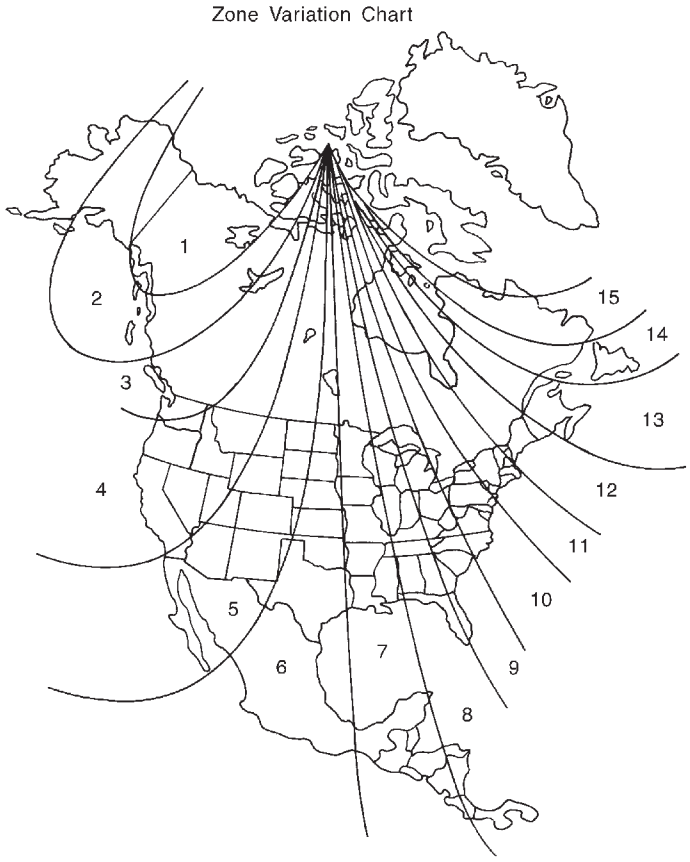
NBEL0306S02

Symptom	Possible causes	Repair order
No display at all	1. 10A fuse 2. Ground circuit 3. Compass and thermometer	1. Check 10A fuse [No. 9, located in fuse block (J/B)]. Turn the ignition switch ON and verify that battery positive voltage is at terminal 7 of compass and thermometer. 2. Check ground circuit for compass and thermometer. 3. Replace compass and thermometer.
Forward direction indication slips off the mark or incorrect.	1. In manual correction mode (Bar and display vanish.) 2. Zone variation change is not done.	1. Drive the vehicle and turn at an angle of 90°. 2. Perform the zone variation change.
Compass reading remains unchanged.	1. Vehicle speed signal is not entered. 2. Compass and thermometer	1. Check harness for open or short between combination meter terminal 13 and compass and thermometer terminal 1. 2. Replace compass and thermometer.
Displays wrong temperature when ambient temperature is between −30°C (−20°F) and 55°C (130°F). (See NOTE above.)	1. Check operation 2. Ambient air temperature sensor circuit 3. Vehicle speed signal is not entered. 4. Ambient air temperature sensor 5. Compass and thermometer	1. Perform preliminary check shown above. 2. Check harness for open or short between ambient air temperature sensor and compass and thermometer. 3. Check harness for open or short between combination meter terminal 13 and compass and thermometer terminal 1. 4. Replace ambient air temperature sensor. 5. Replace compass and thermometer.

Calibration Procedure for Compass

=NBEL0307

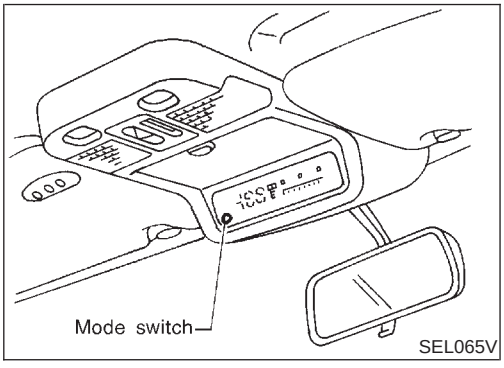
The difference between magnetic North and geographical North can sometimes be great enough to cause false compass readings. In order for the compass to operate accurately in a particular zone, it must be calibrated using the following procedure.



1. Determine your location on the zone map. Record your zone number.
2. Turn the ignition switch to ACC or ON position.
3. Push the "Mode" switch continuously for five seconds until the current zone entry number is displayed.
4. Press the "Mode" switch repeatedly until the desired zone number is displayed.

Once the desired zone number is displayed, stop pressing the "Mode" switch and the display will show compass direction after a few seconds.

SEL738UA



SEL065V

CORRECTION FUNCTIONS OF COMPASS

NBEL0307S01

The direction display is equipped with automatic correction function. If the direction is not shown correctly, carry out initial correction.

INITIAL CORRECTION PROCEDURE FOR COMPASS

NBEL0307S02

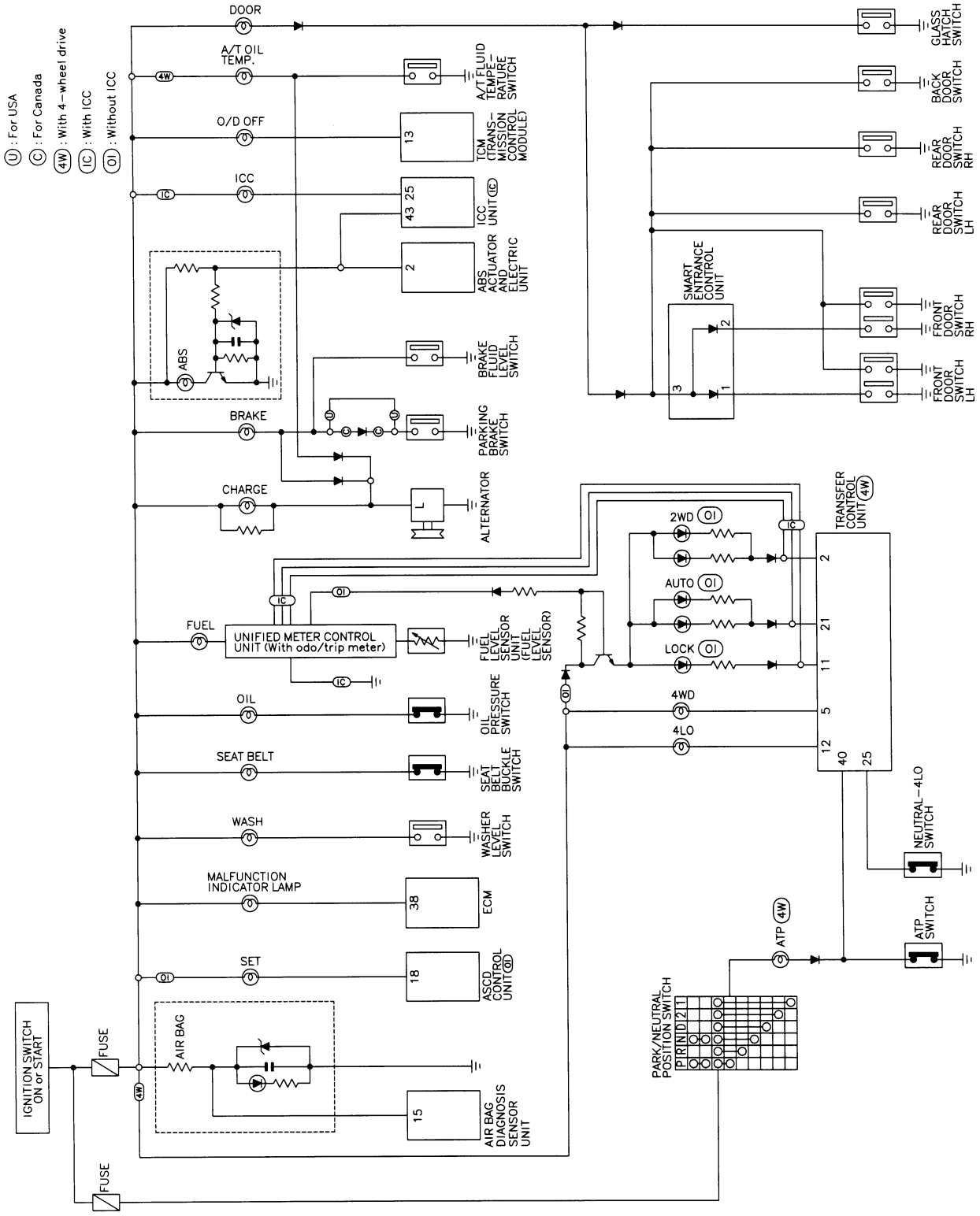
1. Pushing the "Mode" switch for about 10 seconds will enter the initial correction mode. The direction bar starts blinking.
2. Turn the vehicle slowly in an open, safe place. The initial correction is completed in one or two turns.

NOTE:

In places where the terrestrial magnetism is extremely disturbed, the initial correction may start automatically.

Schematic

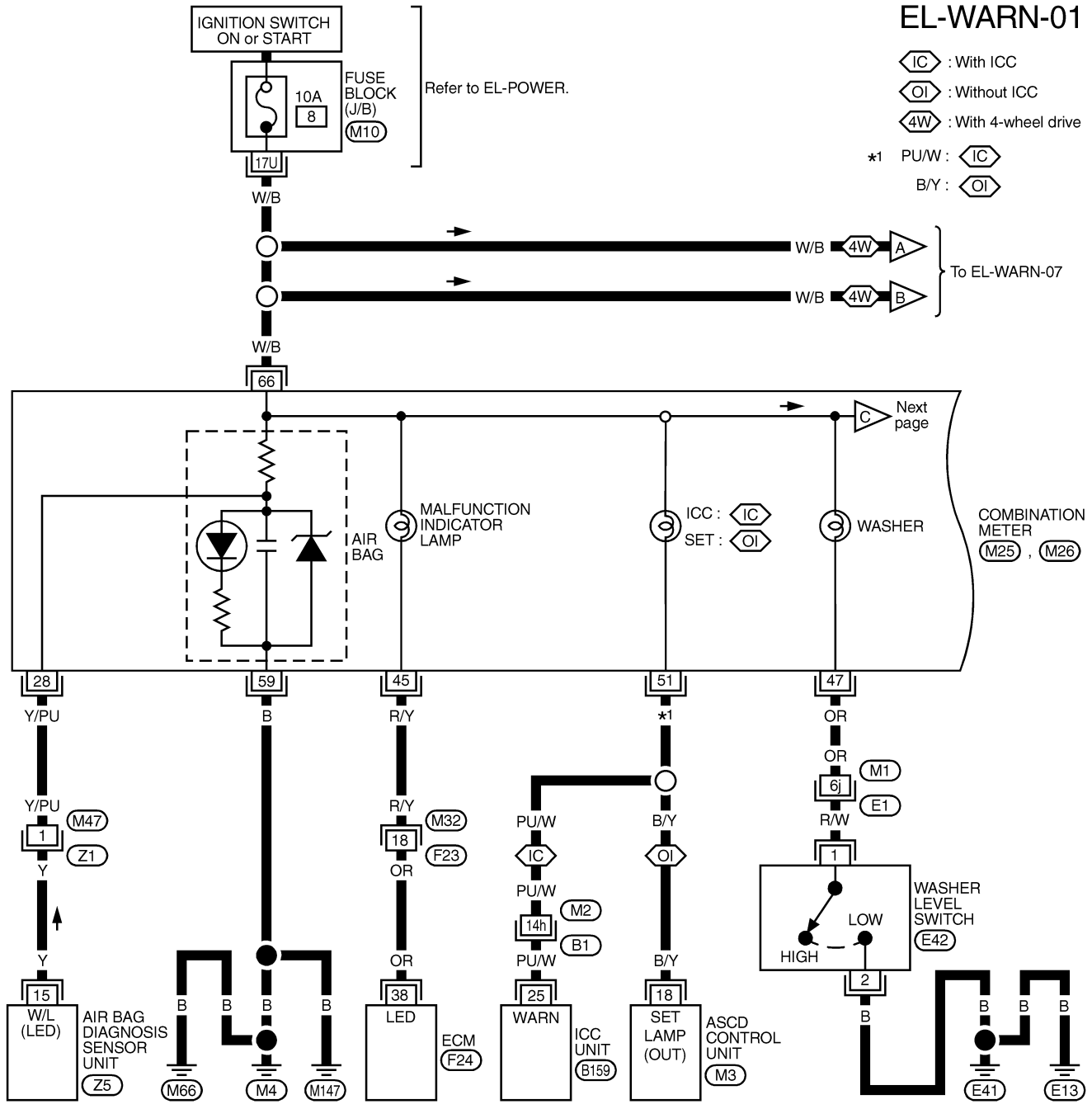
NBEL0308



MEL441O

Wiring Diagram — WARN —

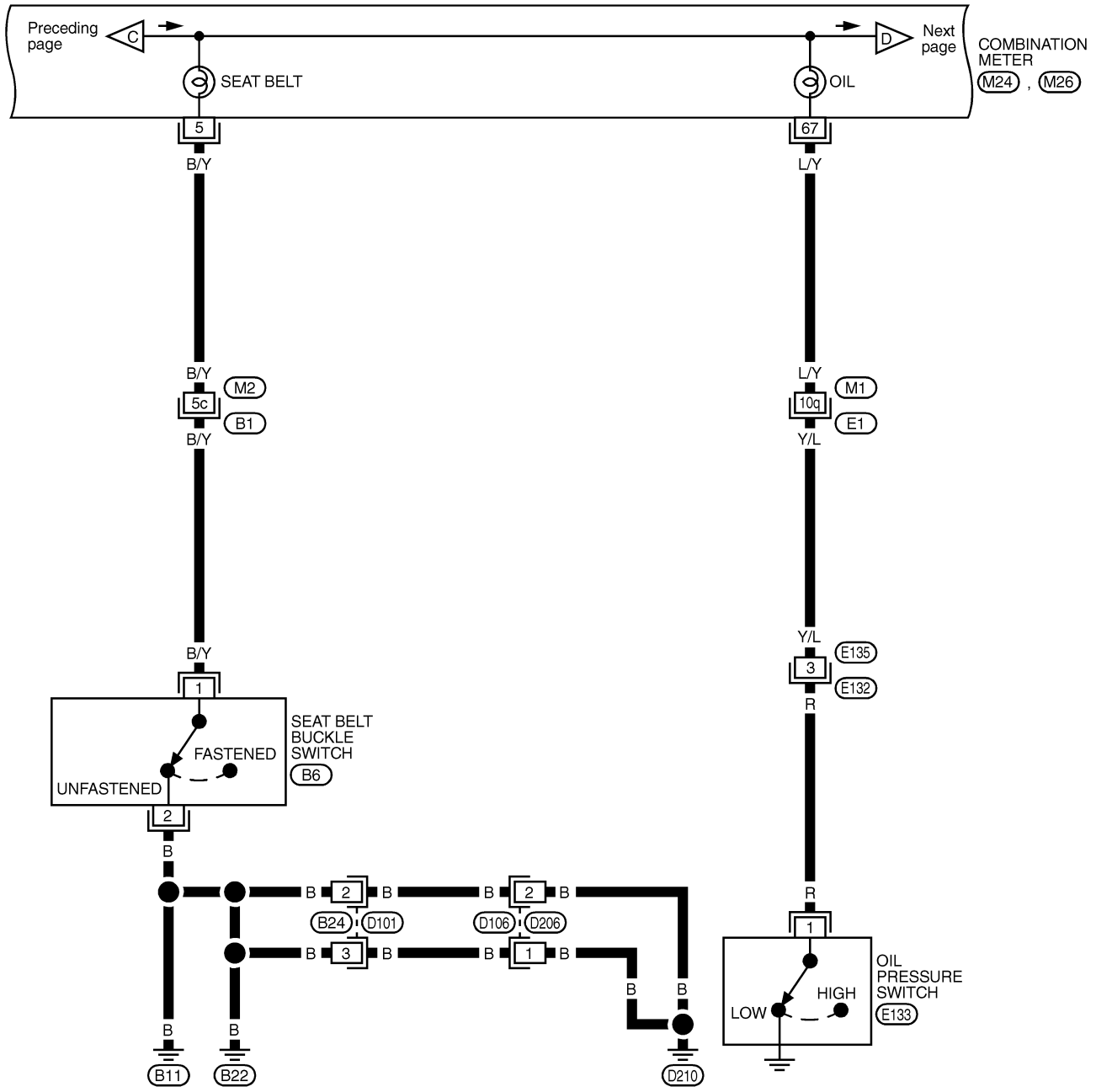
NBEL0309

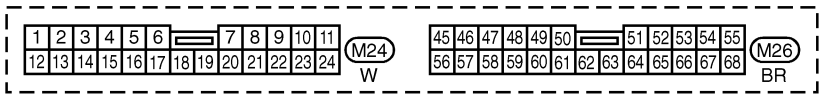


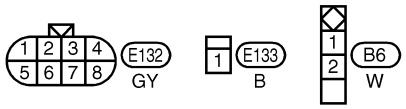
REFER TO THE FOLLOWING.
(E1) , (B1) -SUPER MULTIPLE JUNCTION (SMJ)
(M10) -FUSE BLOCK-JUNCTION BOX (J/B)
(F24) -ELECTRICAL UNITS

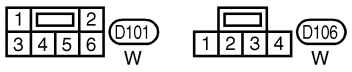
MEL442O

EL-WARN-02





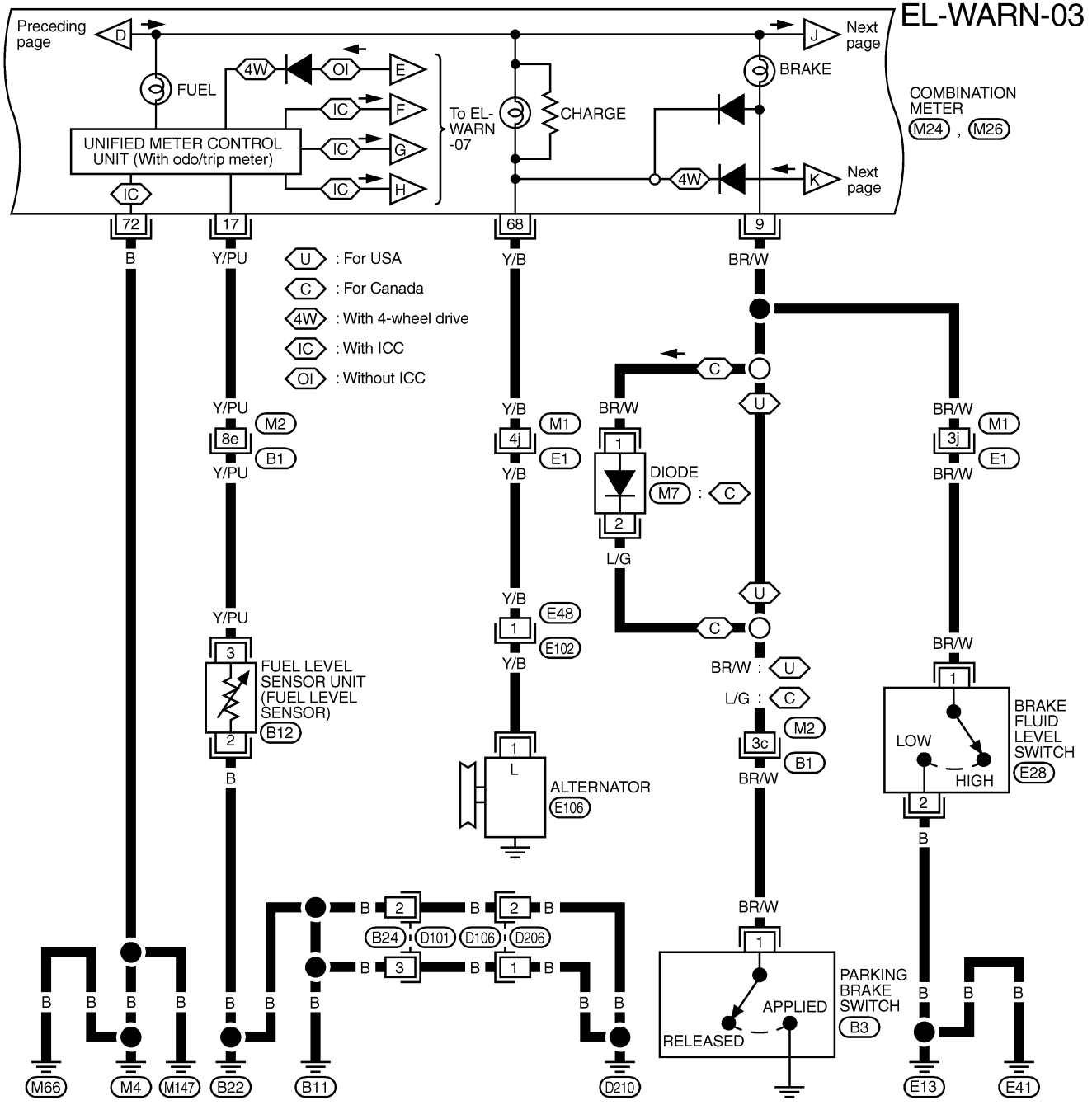


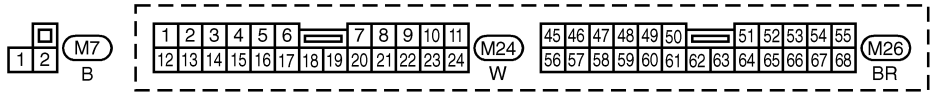


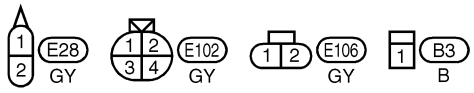
REFER TO THE FOLLOWING.

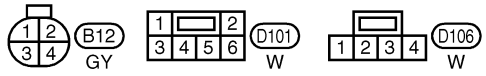
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL604P





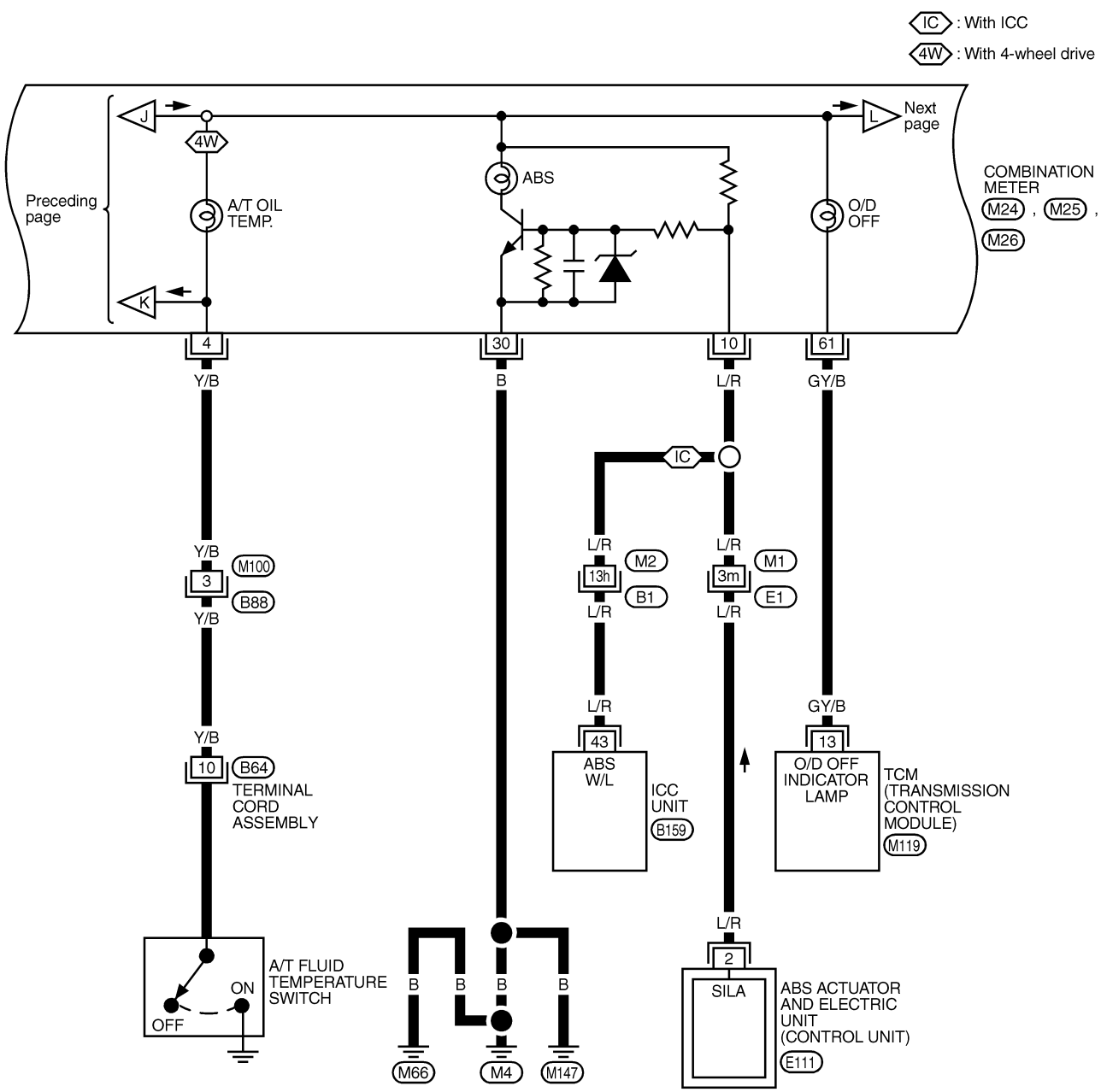


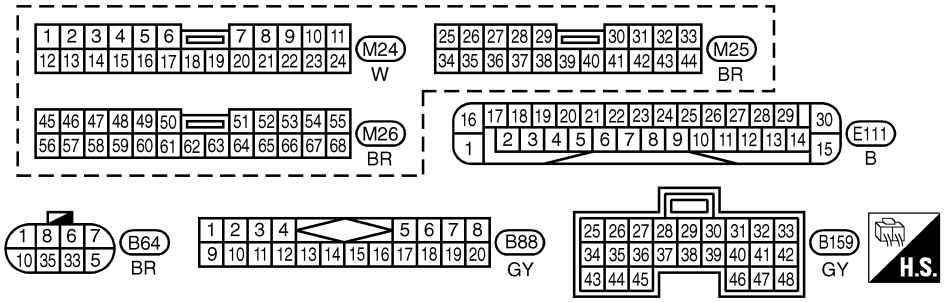


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL443O

EL-WARN-04



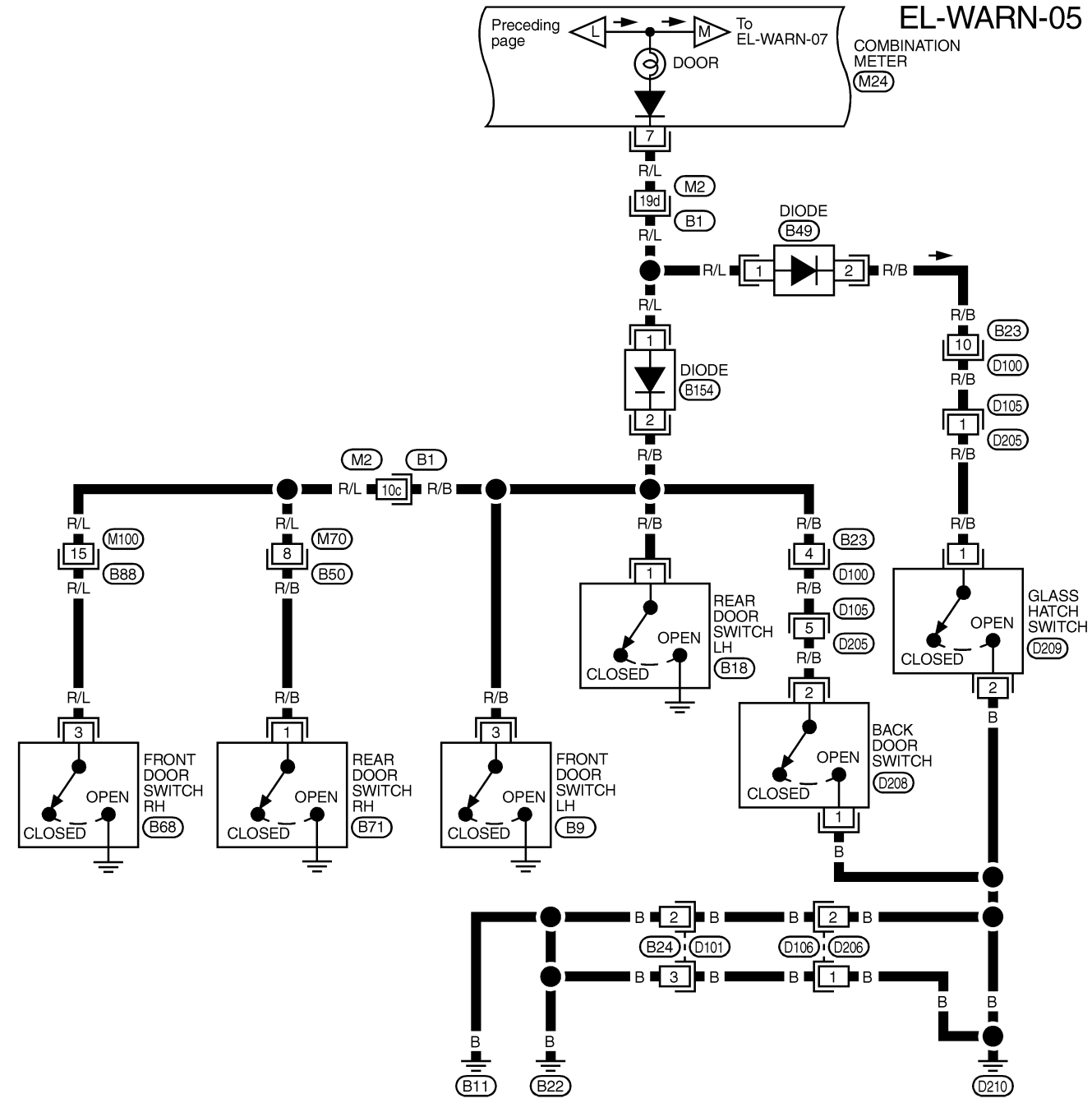


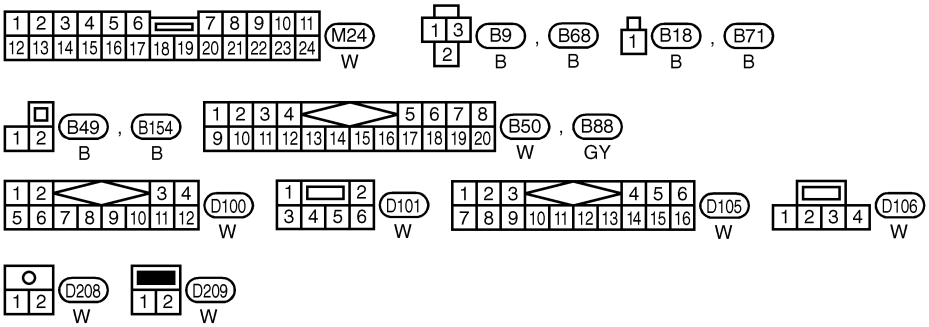
REFER TO THE FOLLOWING.

E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

M119 -ELECTRICAL UNITS

MEL444O

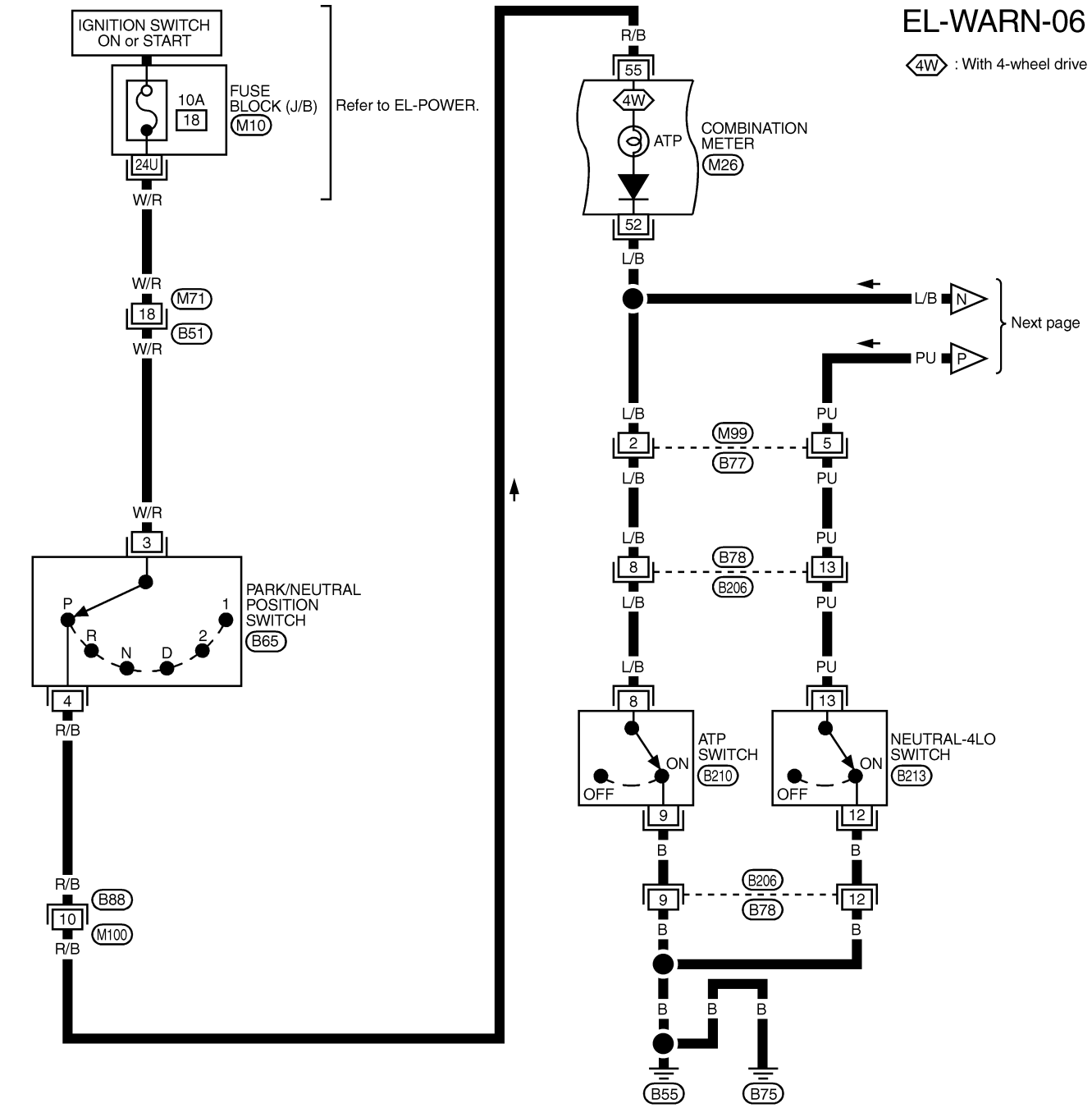


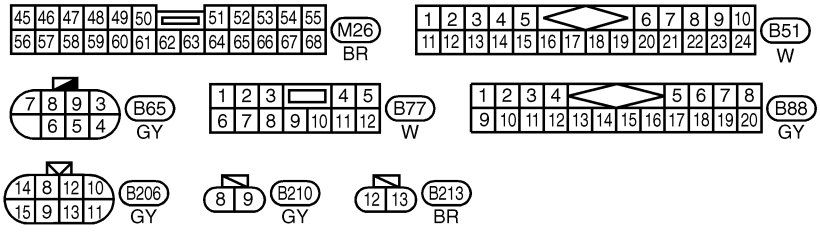


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL445O

Wiring Diagram — WARN — (Cont'd)

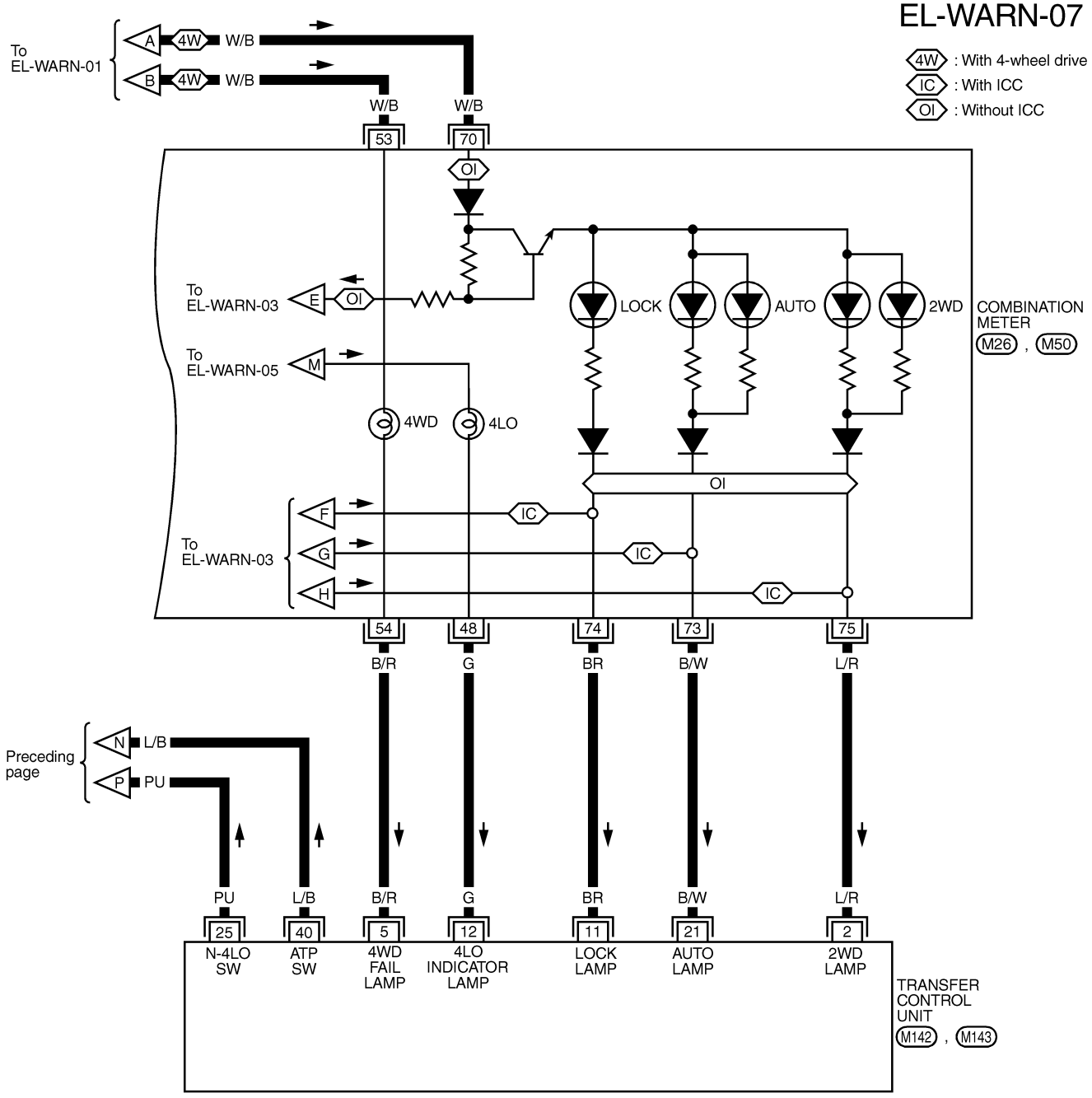


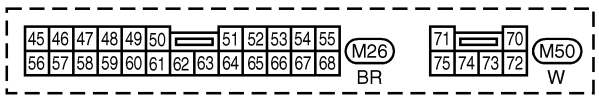


REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL605P

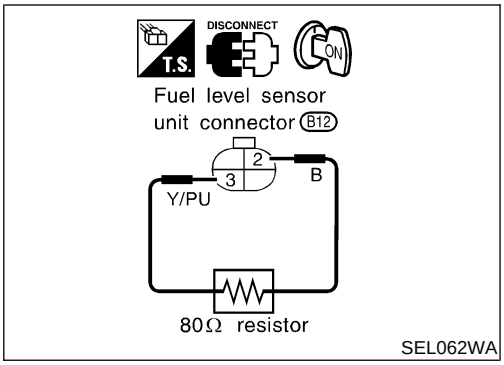
EL-WARN-07





REFER TO THE FOLLOWING.
M142 , M143 -ELECTRICAL UNITS

MEL606P



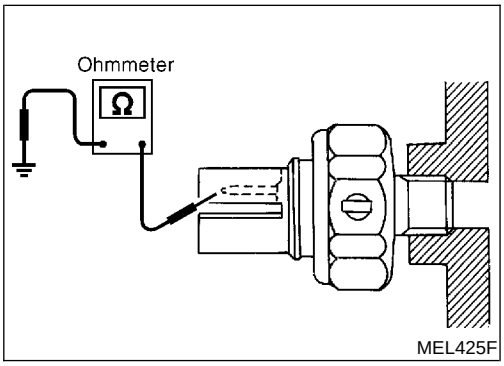
Fuel Warning Lamp Sensor Check

NBEL0310

1. Turn ignition switch “OFF”.
2. Disconnect fuel level sensor unit harness connector B12.
3. Connect a resistor (80Ω) between fuel tank gauge unit harness connector terminals 2 and 3.
4. Turn ignition switch “ON”.

The fuel warning lamp should come on.

NOTE:
ECM might store the 1st trip DTC P0180 during this inspection.
If the DTC is stored in ECM memory, erase the DTC after reconnecting fuel tank gauge unit harness connector.
Refer to EC-72, “HOW TO ERASE EMISSION-RELATED DIAGNOSTIC INFORMATION”.



Electrical Components Inspection

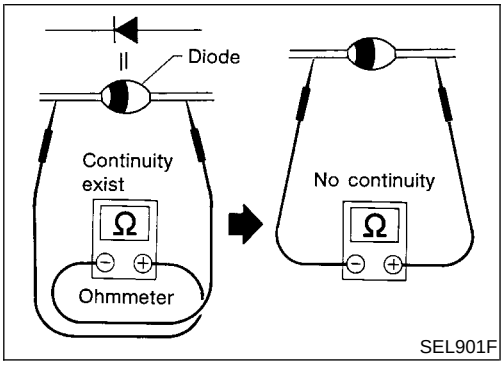
NBEL0311

OIL PRESSURE SWITCH CHECK

NBEL0311S01

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

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



DIODE CHECK

NBEL0311S02

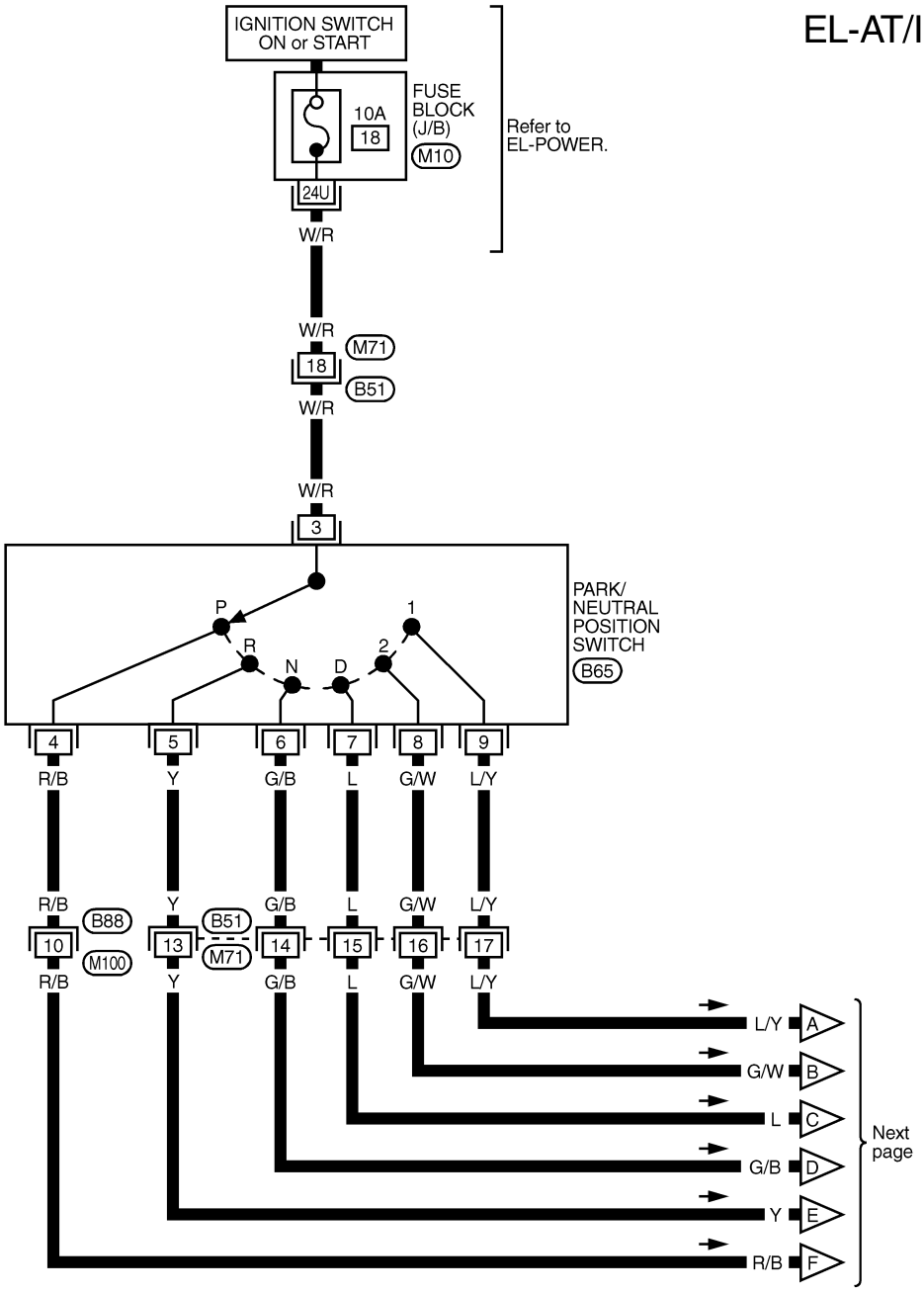
- Check continuity using an ohmmeter.
- Diode is functioning properly if test results are as shown in the figure at left.
- Check diodes at the combination meter harness connector instead of checking them on the combination meter assembly. Refer to EL-147, “WARNING LAMP” wiring diagrams.

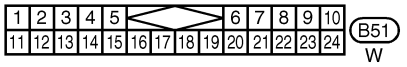
NOTE:
Specification may vary depending on the type of tester. Before performing this inspection, be sure to refer to the instruction manual for the tester to be used.

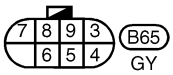
Wiring Diagram — AT/IND —

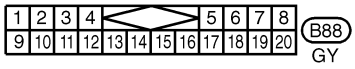
NBEL0477

EL-AT/IND-01





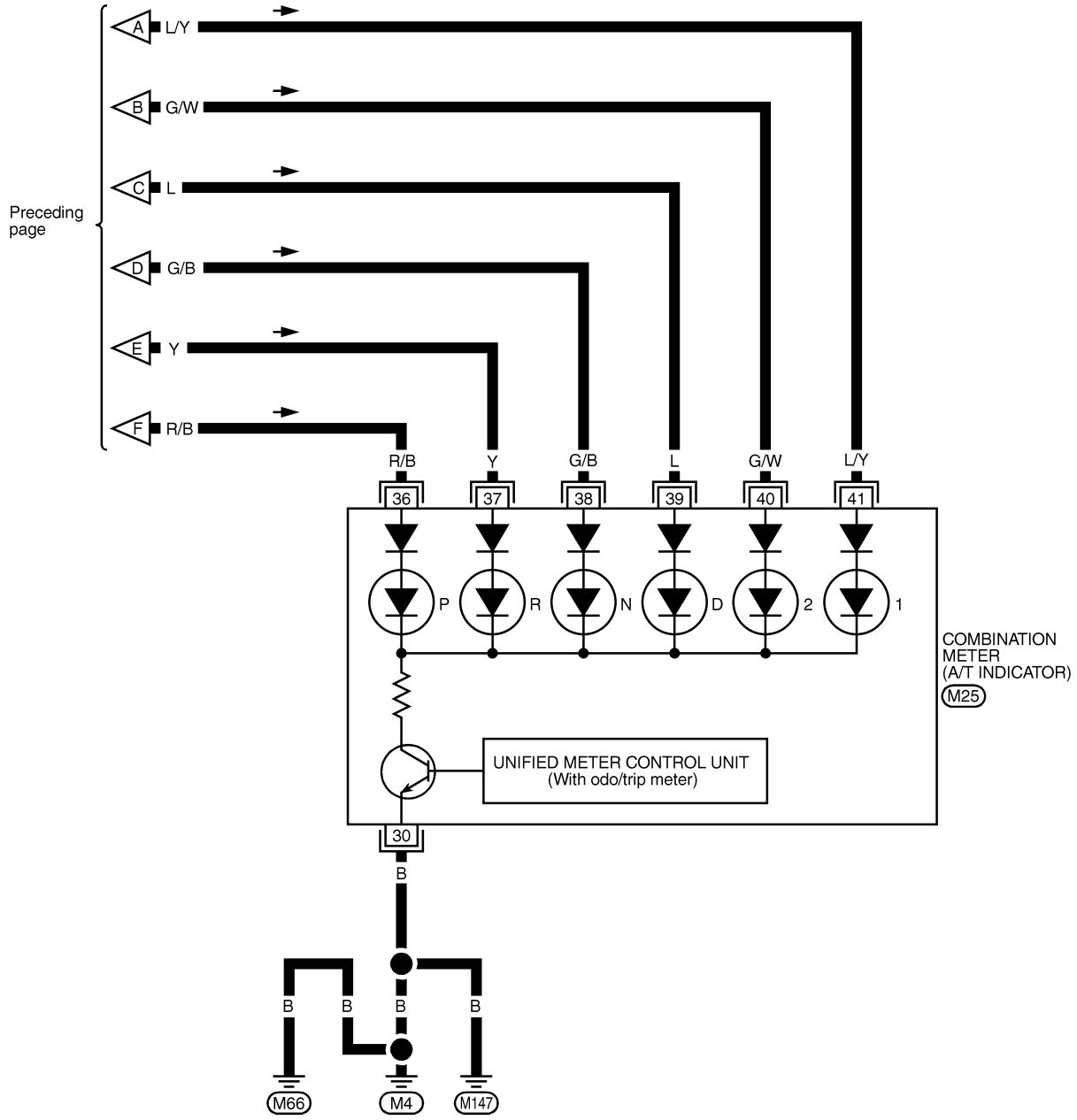


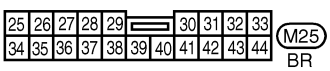


REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL607P

EL-AT/IND-02

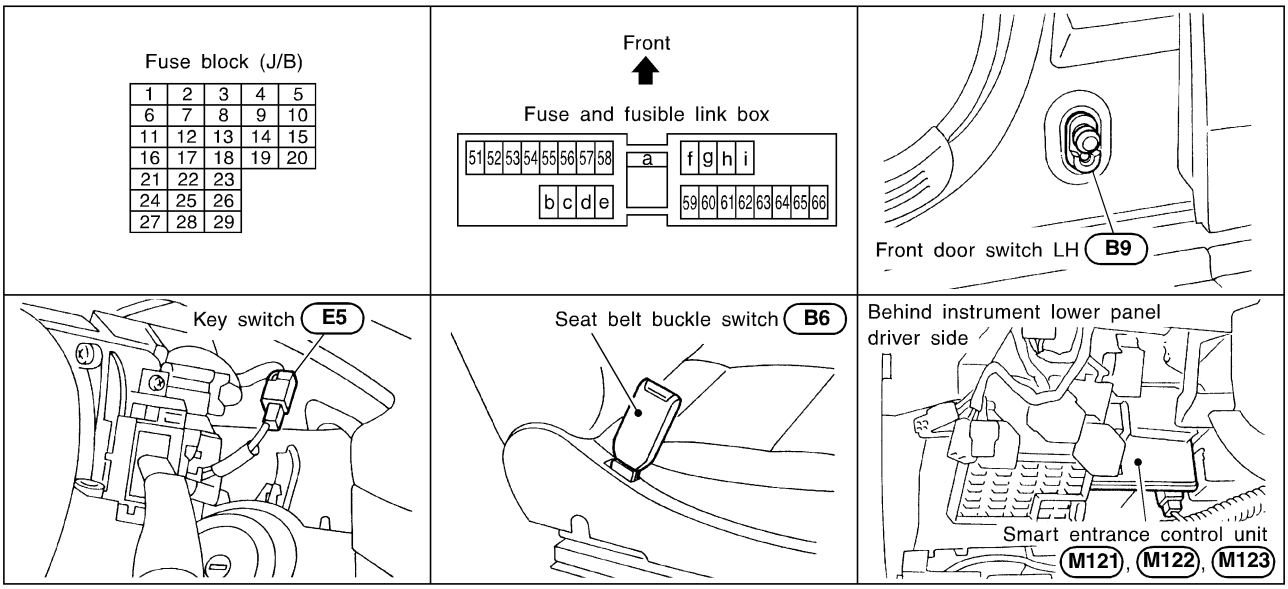




MEL608P

Component Parts and Harness Connector Location

NBEL0312



SEL046WA

System Description

NBEL0313

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 7.5A fuse [No. 24, located in fuse block (J/B)]
- to smart entrance control unit terminal 49 and
- to key switch terminal 2,
- through 10A fuse (No. 61, located in the fuse and fusible link box
- to tail lamp relay terminals 1 and 3.

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

- through 7.5A fuse [No. 11, 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 M77 and M111.

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

IGNITION KEY WARNING CHIME

NBEL0313S01

When 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
- to smart entrance control unit terminal 25.

Ground is supplied

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

Front door switch (driver side) terminal 2 is grounded through body grounds B11, B22 and D210.

LIGHT WARNING CHIME

NBEL0313S02

When 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 terminal 19 and 57.

Ground is supplied

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

Front door switch (driver side) terminal 2 is grounded through body grounds B11, B22 and D210.

SEAT BELT WARNING CHIME

NBEL0313S03

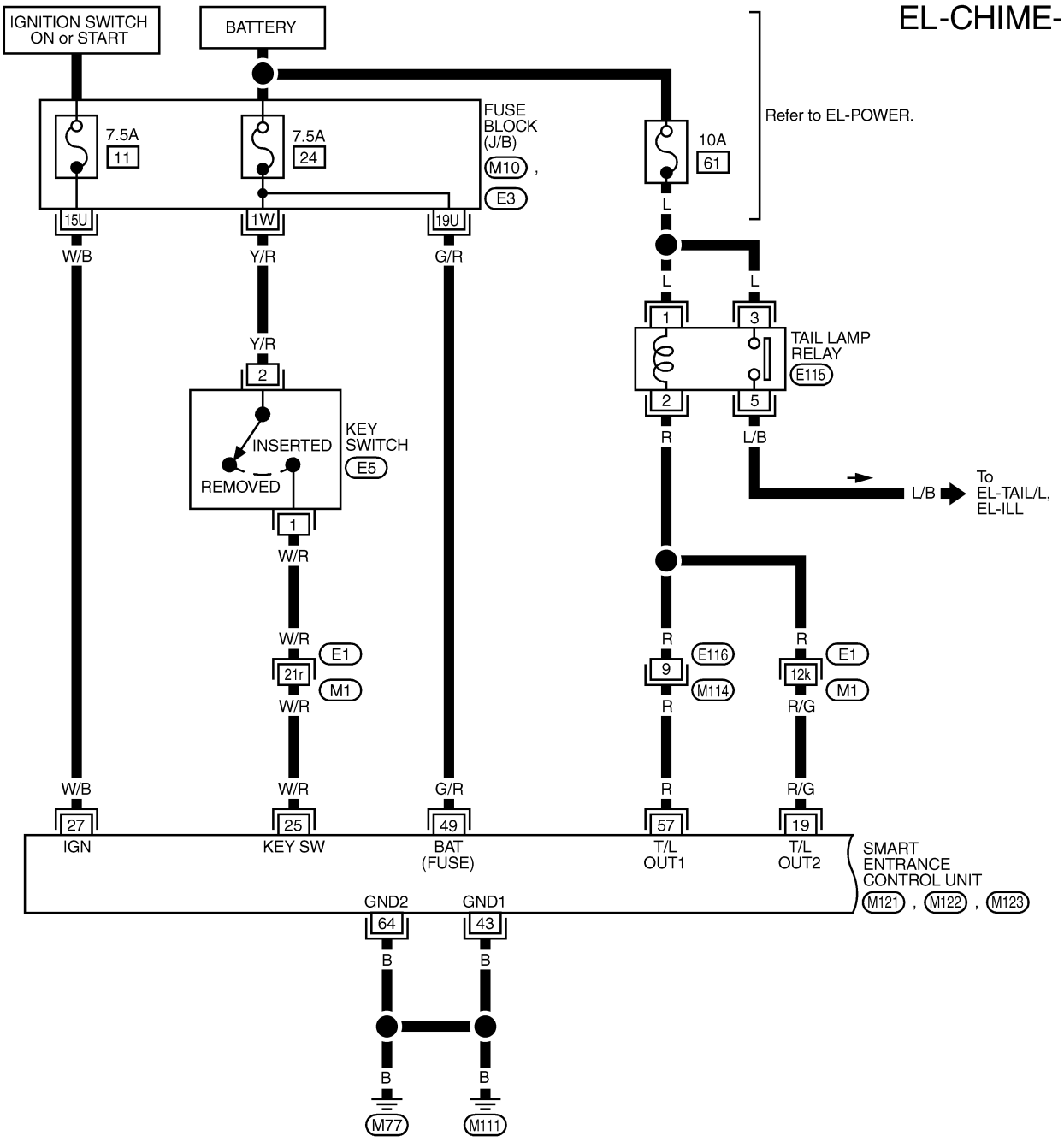
With ignition switch turned ON and seat belt unfastened (seat belt switch ON), warning chime will sound for approximately 6 seconds.
Ground is supplied

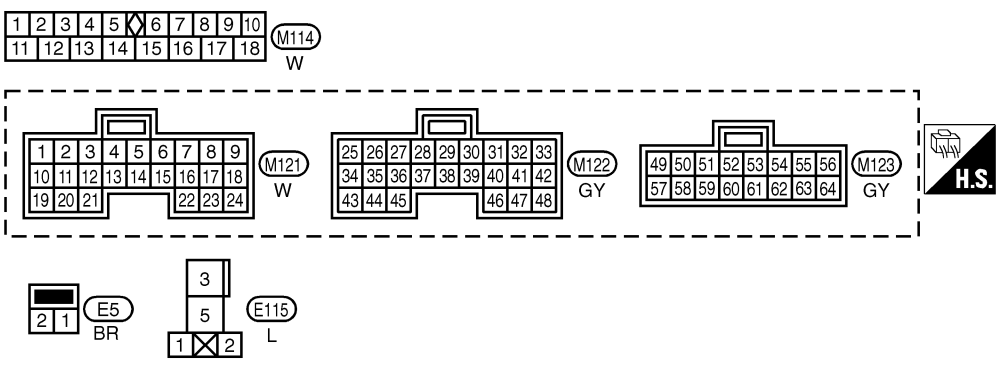
- from seat belt switch terminal 1
- to smart entrance control unit terminal 28.

Seat belt switch terminal 2 is grounded through body grounds B11, B22 and D210.

Wiring Diagram — CHIME —

NBEL0314

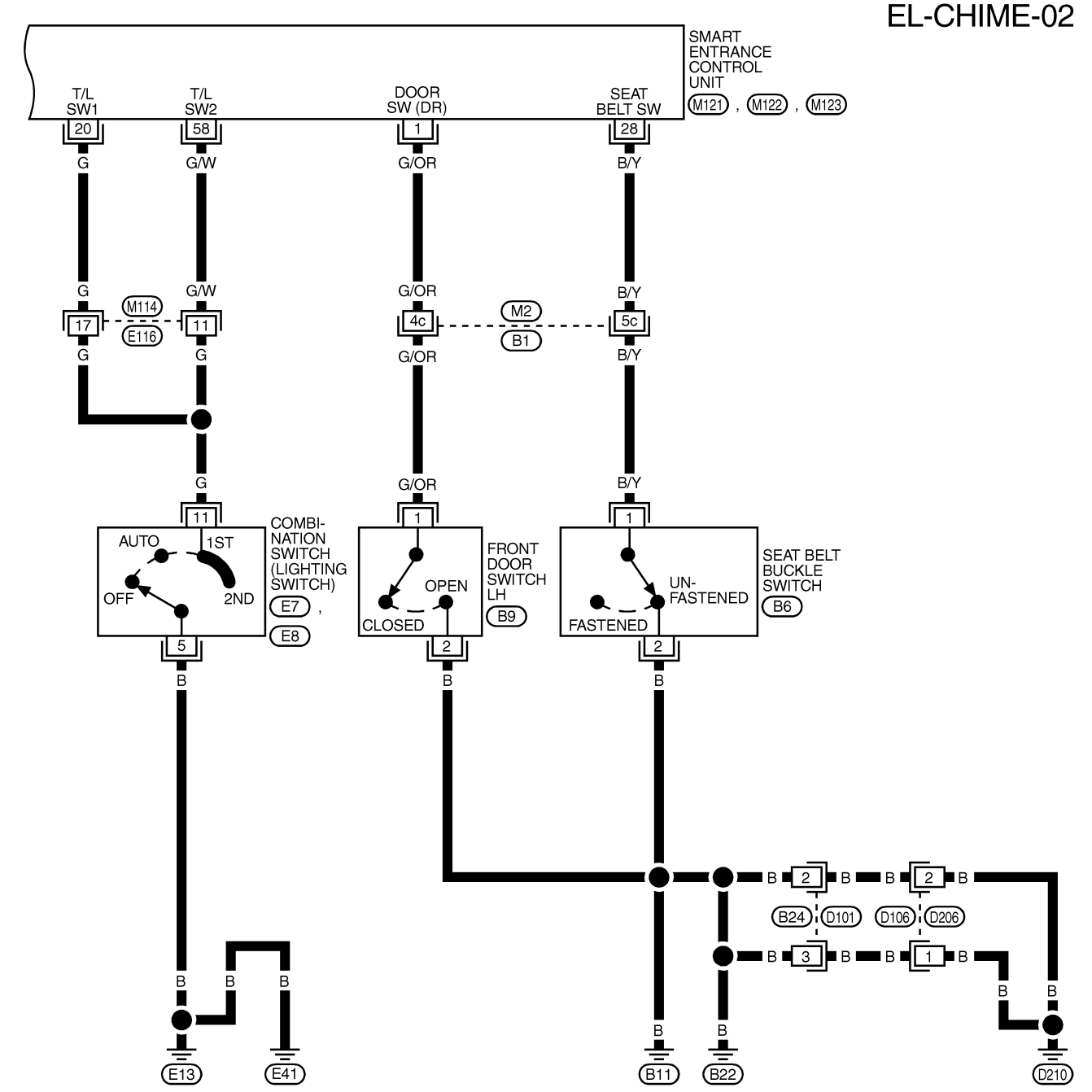


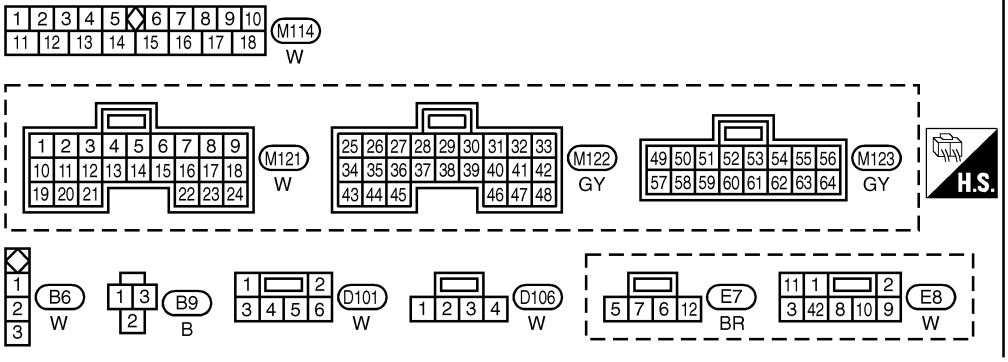


REFER TO THE FOLLOWING.
E1 - SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 - FUSE BLOCK - JUNCTION BOX (J/B)

MEL609P

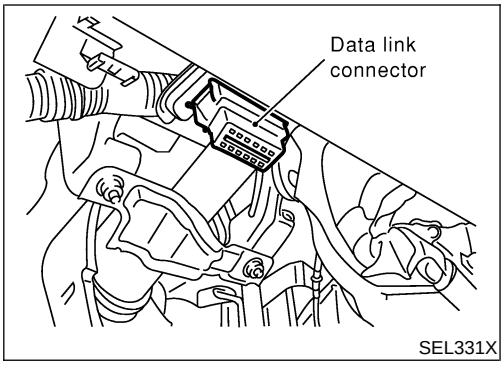
EL-CHIME-02





REFER TO THE FOLLWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL610P



SEL331X

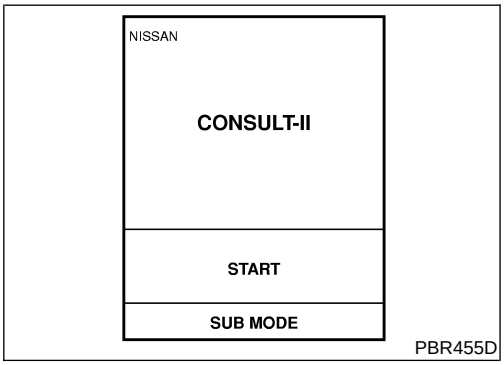
CONSULT-II Inspection Procedure

=NBEL0315

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

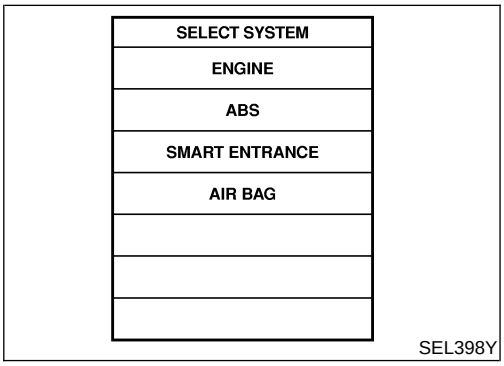
NBEL0315S01

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



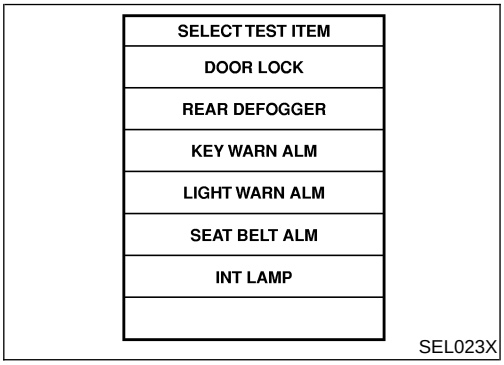
PBR455D

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



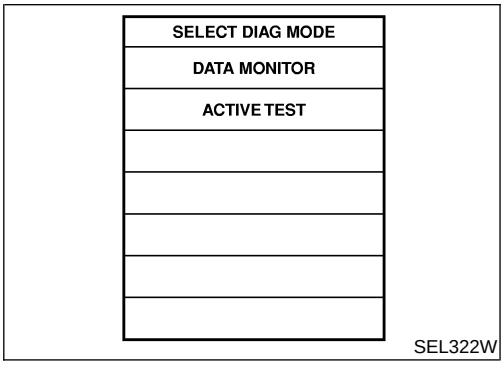
SEL398Y

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

NBEL0316

“KEY WARNING ALARM”
Data Monitor

NBEL0316S01

NBEL0316S0101

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

NBEL0316S0102

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

NBEL0316S02

NBEL0316S0201

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

NBEL0316S0202

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

NBEL0316S03

NBEL0316S0301

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

NBEL0316S0302

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.

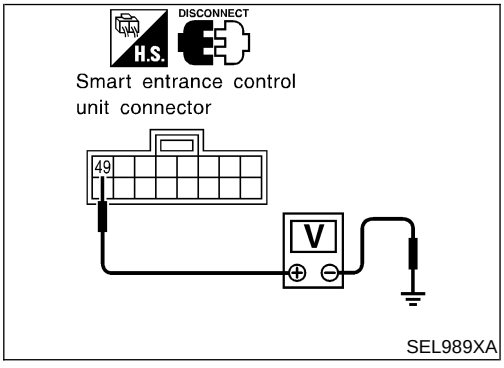
Trouble Diagnoses

SYMPTOM CHART

NBEL0317

NBEL0317S01

REFERENCE PAGE (EL-)	163	165	166	167	168
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

NBEL0317S02

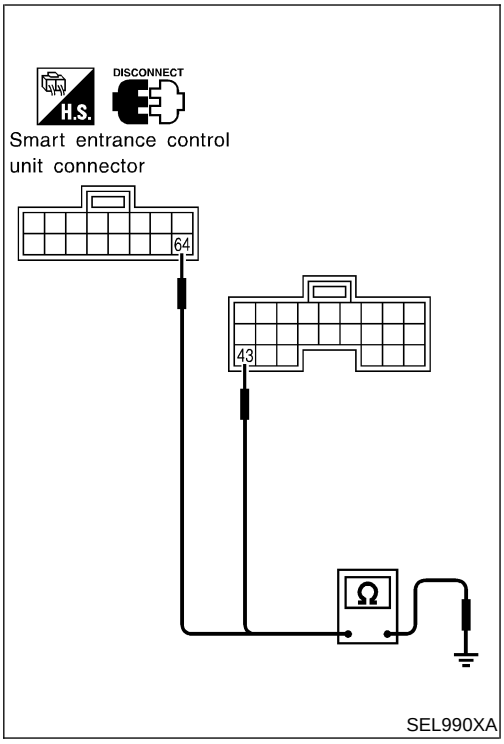
Power Supply Circuit Check

NBEL0317S0201

Terminals			Voltage
(+)		(–)	
Connector	Terminal (Wire color)	Ground	Battery voltage
M122	49 (G/R)		

If NG, check the following.

- 7.5A fuse [No. 24, located in fuse block (J/B)]
- Harness for open or short between smart entrance control unit and fuse



Ground Circuit Check

NBEL0317S0202

Terminals			Continuity
(+)		(–)	Yes
Connector	Terminal (Wire color)		
M122	43 (B)	Ground	
M123	64 (B)		

DIAGNOSTIC PROCEDURE 1 (LIGHTING SWITCH INPUT SIGNAL CHECK)

=NBEL0317S03

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

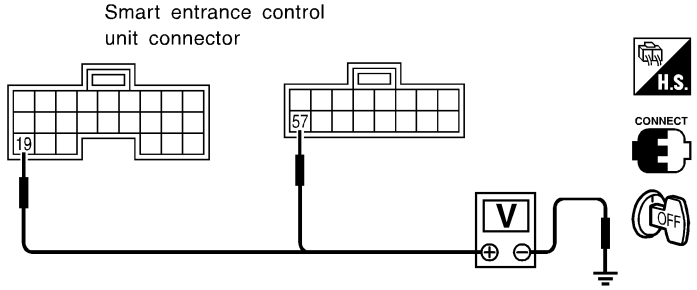
When lighting switch is in 1st or 2nd position:
LIGHT SW 1ST ON

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

SEL991X

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminal 19 (R), connector M123 terminal 57 (R/G) and ground.



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

SEL992XA

OK or NG

OK	▶	Replace smart entrance control unit.
NG	▶	**Check the following.** ● 10A fuse (No. 61, located in the fuse and fusible link box) ● Harness for open or short between smart entrance control unit and tail lamp relay

DIAGNOSTIC PROCEDURE 2 (KEY SWITCH INSERT SIGNAL CHECK)

=NBEL0317S04

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

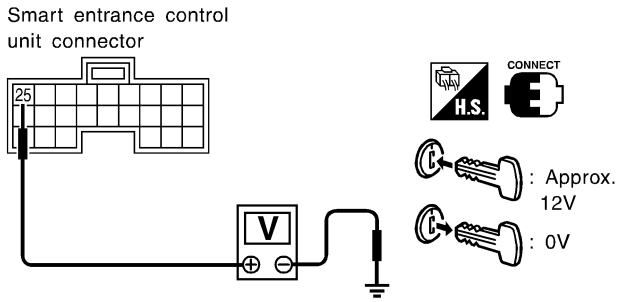
When key is removed from ignition key cylinder:

KEY ON SW OFF

SEL315W

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M122 terminal 25 (W/R) and ground.



Voltage [V]:

Condition of key switch: Key is inserted.

Approx. 12

Condition of key switch: Key is removed.

0

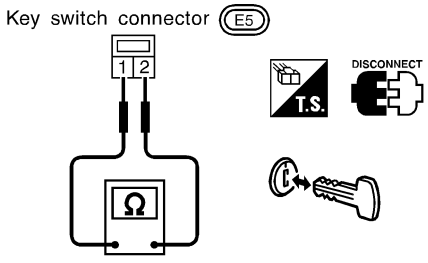
SEL011Y

OK or NG

OK	▶	Replace smart entrance control unit.
NG	▶	GO TO 2.

2	CHECK KEY SWITCH (INSERT)

Check continuity between terminals 1 and 2.



Continuity:

Condition of key switch: Key is inserted.

Yes

Condition of key switch: Key is removed.

No

SEL308X

OK or NG

OK	▶	**Check the following.** ● 10A fuse [No. 13, located in fuse block (J/B)] ● Harness for open or short between key switch and fuse ● 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)

=NBEL0317S05

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

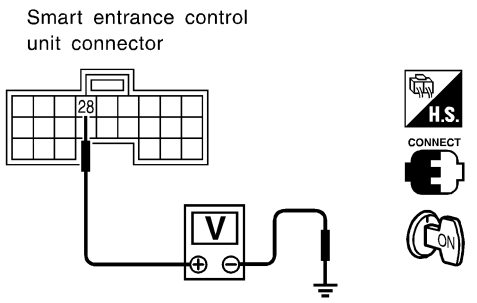
When seat belt is fastened:
SEAT BELT SW ON

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 M122 terminal 28 (B/Y) and ground.



Voltage [V]:
Condition of seat belt buckle switch: Fastened
Approx. 5
Condition of seat belt buckle switch: Unfastened
0

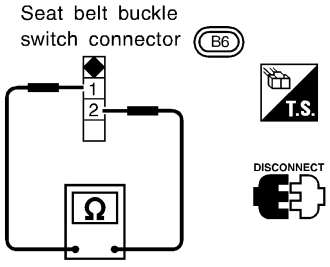
SEL994X

OK or NG

OK	▶	Replace smart entrance control unit.
NG	▶	GO TO 2.

2 CHECK SEAT BELT BUCKLE SWITCH

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



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

SEL381X

OK or NG

OK	▶	**Check the following.** • Seat belt buckle switch ground circuit • Harness for open or short between smart entrance control unit and seat belt buckle switch
NG	▶	Replace seat belt buckle switch.

DIAGNOSTIC PROCEDURE 4

NBEL0317S06

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

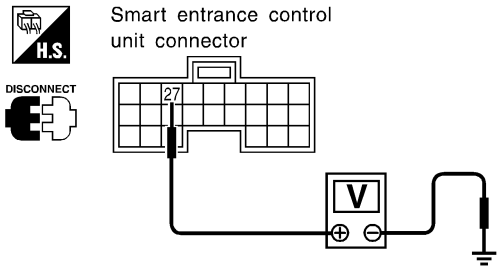
When ignition switch is ON:
IGN ON SW ON

When ignition switch is OFF:
IGN ON SW OFF

SEL318W

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M122 terminal 27 (W/B) 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.** ● 7.5A fuse [No. 11, located in fuse block (J/B)] ● 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

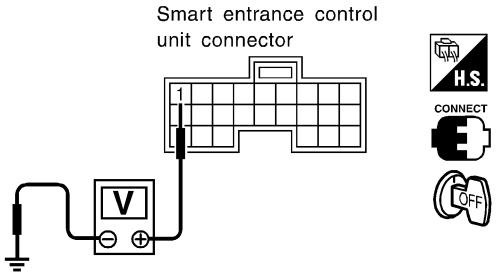
When driver's door is open:
DOOR SW-DR ON

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

SEL319W

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminal 1 (G/OR) and ground.



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

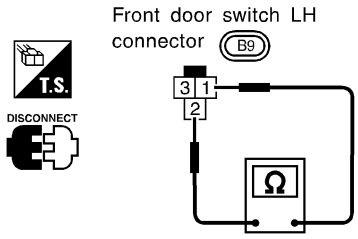
SEL996X

OK or NG

OK	▶	GO TO 4.
NG	▶	GO TO 3.

3	CHECK DRIVER SIDE DOOR SWITCH

Check continuity between terminals 1 and 2.



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

SEL383X

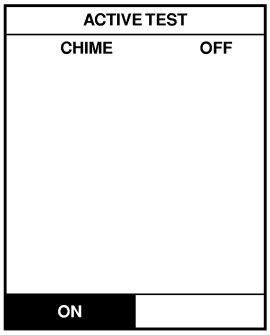
OK or NG

OK	▶	**Check the following.** • Driver side door switch ground circuit and condition • 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

NBEL0318

WIPER OPERATION

NBEL0318S01

The front 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 ACC or ON position, power is supplied

- through 20A fuse [No. 19, located in the fuse block (J/B)]
- to front wiper motor terminal 1, and
- to front wiper switch terminal 15.

Low and High Speed Wiper Operation

NBEL0318S0101

Ground is supplied to front wiper switch terminal 17 through body grounds E13 and E41.
When the wiper switch is placed in the LO position, ground is supplied

- through terminal 14 of the front wiper switch
- to front wiper motor terminal 5.

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

- through terminal 16 of the front wiper switch
- to front wiper motor terminal 3.

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

Auto Stop Operation

NBEL0318S0102

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

- from terminal 14 of the front wiper switch
- to front wiper motor terminal 5, in order to continue front wiper motor operation at low speed.

Ground is also supplied

- to terminal 13 of the front wiper switch
- through front wiper motor terminal 4
- through terminal 6 of the front wiper motor, and
- through body grounds M77 and M111.

When wiper arms reach base of windshield, front wiper motor terminals 1 and 4 are connected instead of terminals 4 and 6. Wiper motor will then stop wiper arms at the PARK position.

Intermittent Operation

NBEL0318S0103

The front wiper motor operates the wiper arms one time at low speed at a set interval of approximately 2 to 13 seconds. This feature is controlled by the wiper amplifier built into the front wiper switch.
The desired interval time is input to wiper amplifier (INT VR) from wiper volume switch built into the front wiper switch.
When the front wiper switch is placed in the INT position, ground is supplied

- to wiper amplifier (INT SW)
- from front wiper switch terminal 17
- through body grounds E13 and E41, and
- to front wiper motor terminal 5
- through the front wiper switch terminal 14
- through wiper amplifier (OUTPUT)

WASHER OPERATION

NBEL0318S02

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

- through 20A fuse [No. 19, located in the fuse block (J/B)]
- to front washer motor terminal 1.

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

System Description (Cont'd)

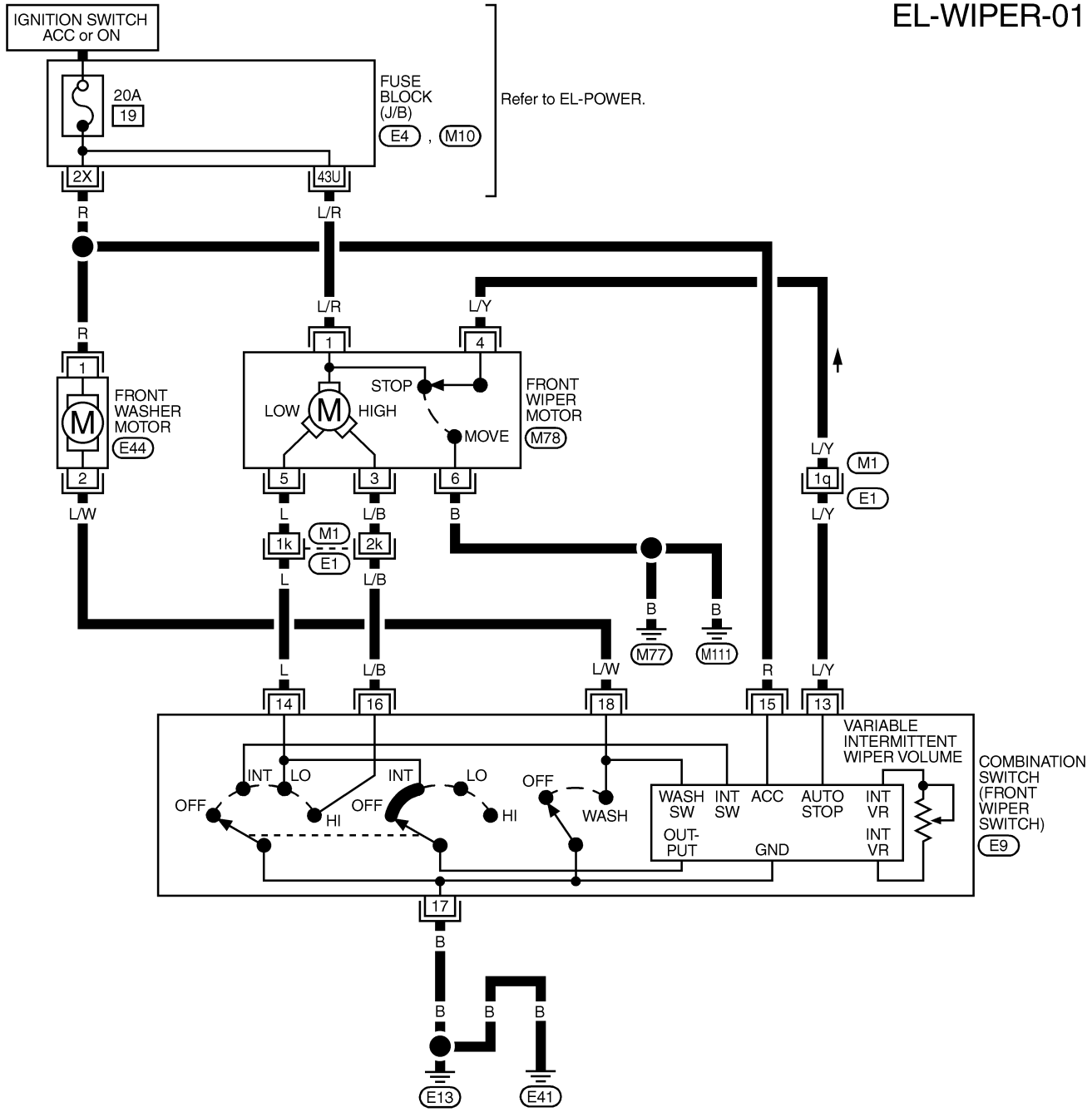
- to front washer motor terminal 2
- through terminal 18 of the front wiper switch
- through terminal 17 of the front wiper switch, and
- through body grounds E13 and E41.

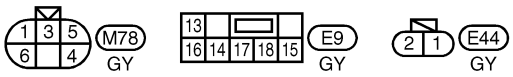
With power and ground supplied, the front washer motor operates.
When the lever is pulled to the WASH position for one second or more, the front wiper motor operates at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the wiper amplifier in the same manner as the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

Wiring Diagram — WIPER —

NBEL0319

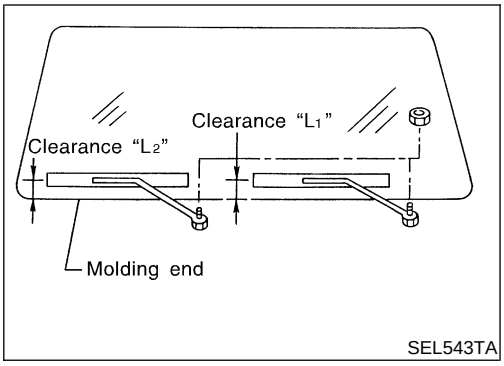
EL-WIPER-01





REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E4 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL197N



Removal and Installation

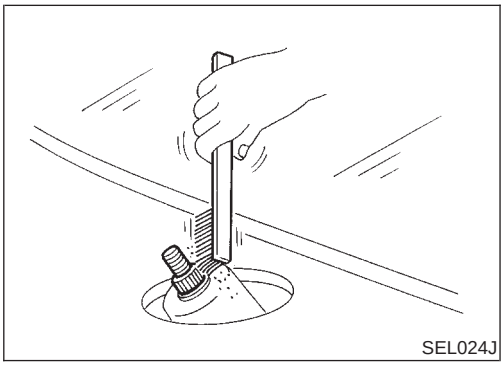
NBEL0320

WIPER ARMS

NBEL0320S01

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": 29 - 39 mm (1.14 - 1.54 in)
   Clearance "L_2": 32 - 42 mm (1.26 - 1.65 in)

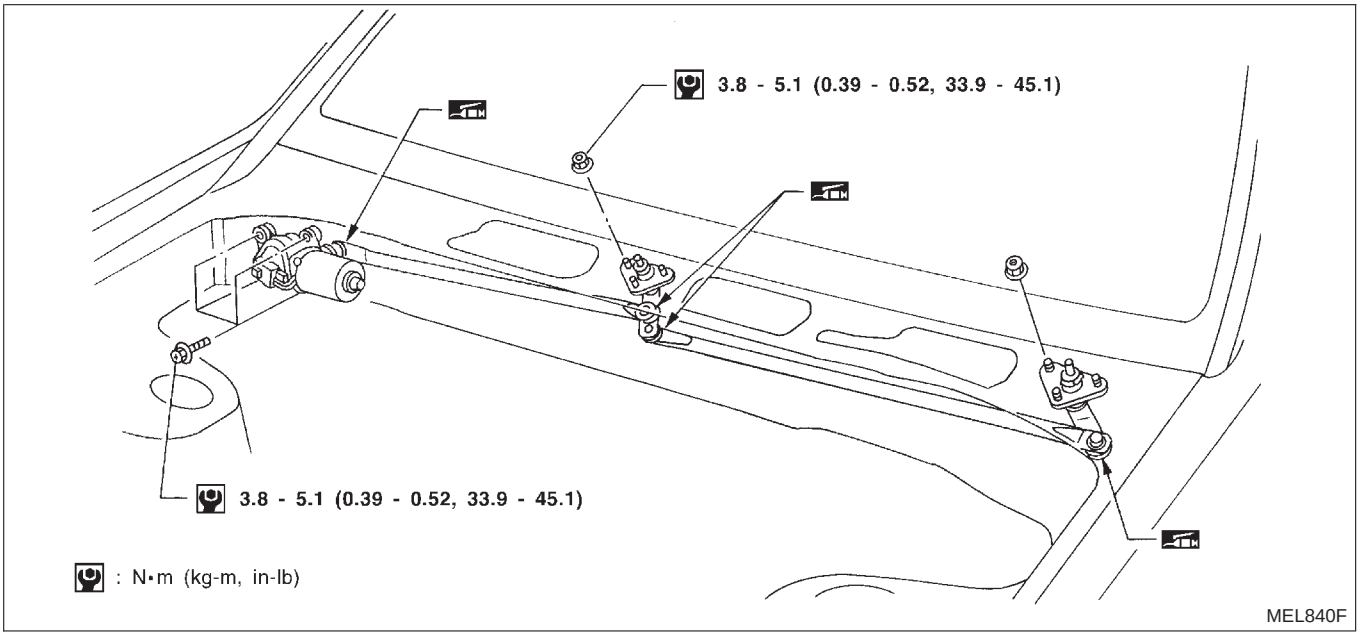
- Tighten wiper arm nuts to specified torque.
  Front wiper: 21 - 26 N·m (2.1 - 2.7 kg-m, 15 - 20 ft-lb)



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

WIPER LINKAGE

NBEL0320S02



Removal

NBEL0320S0201

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

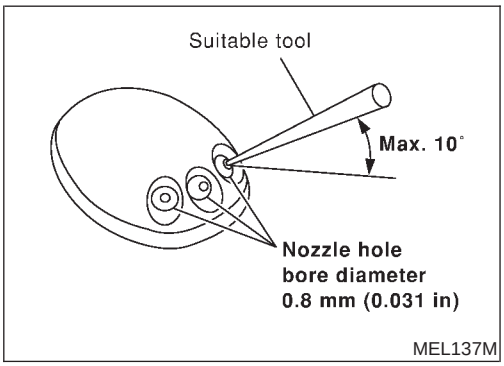
Be careful not to break ball joint rubber boot.

Installation

NBEL0320S0202

- Grease ball joint portion before installation.

1. Installation is the reverse order of removal.



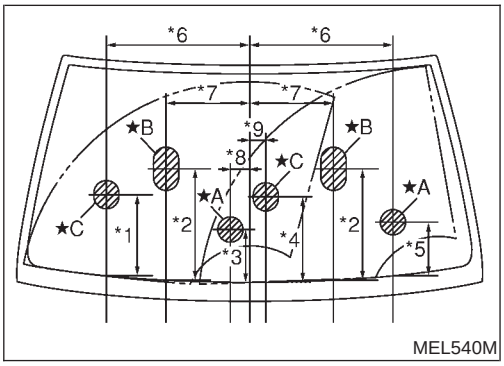
MEL137M

Washer Nozzle Adjustment

NBEL0321

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

Adjustable range: ±10°



MEL540M

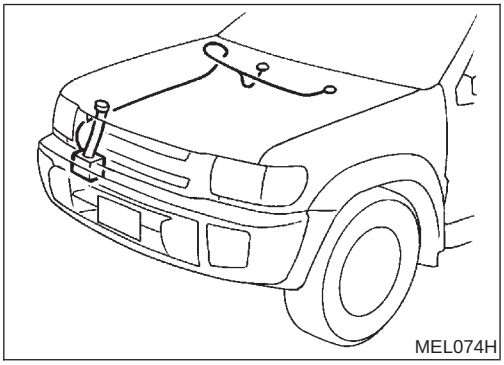
Unit: mm (in)

*1	251 (9.88)	*6	459 (18.07)
*2	315 (12.40)	*7	256 (10.08)
*3	165 (6.50)	*8	67 (2.64)
*4	269 (10.59)	*9	40 (1.57)
*5	167 (6.57)		

*A: The diameters of these circles are less than 80 mm (3.15 in).
*B: The diameters of these circles are less than 138 × 80 mm (5.43 × 3.15 in).
*C: The diameters of these circles are less than 96 × 80 mm (3.78 × 3.15 in).

Washer Tube Layout

NBEL0322


MEL074H

System Description

NBEL0323

WIPER OPERATION

NBEL0323S01

Power Supply and Ground

NBEL0323S0101

With ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 29, located in the fuse block (J/B)]
- to rear wiper motor terminal 4.

When the glass hatch switch is OPEN, ground is supplied
- to rear wiper motor terminal 6
- through glass hatch switch terminal 1 and 2
- through body grounds B11, B22 and D210.

Ground is supplied
- to rear wiper motor terminal 8
- through body grounds B11, B22 and D210.

Wiper Operation

NBEL0323S0102

When the rear wiper switch is turned ON, ground is supplied
- to rear wiper motor terminal 2
- through combination switch terminals 22 and 24
- through body grounds E13 and E41.

Then, power is supplied
- to rear wiper motor terminal 4.

Ground is supplied
- to rear wiper motor terminal 8
- through body grounds B11, B22 and D210.

With power and ground supplied, the wiper motor operates.

Auto Stop Operation

NBEL0323S0103

With rear wiper switch turned OFF, rear wiper motor will continue to operate until wiper arm reaches rear wiper stopper.
Then wiper motor turns the other way and wiper arm moves once until wiper arm reaches stopper.

Intermittent Operation

NBEL0323S0104

The rear wiper motor operates the wiper arms at low speed approximately every 7 seconds.
When the wiper switch is placed in the INT position, ground is supplied
- to wiper motor terminal 3
- through rear wiper switch terminal 21 and 24
- through body grounds E13 and E41.

Then, power is supplied
- to rear wiper motor terminal 4.

Ground is supplied
- to rear wiper motor terminal 8
- through body grounds B11, B22 and D210.

With power and ground supplied, rear wiper operates at intermittent.

WIPER OPERATION PROHIBIT CONTROL

NBEL0323S02

When glass hatch is open with back door key cylinder while rear wiper is operated, wiper operation is stopped. (Wiper operation prohibit control)
When glass hatch is closed and rear wiper switch turns from OFF and then rear wiper switch is turned to ON, wiper operation prohibit control is canceled.

WASHER OPERATION

NBEL0323S03

When the rear wiper switch is turned to WASH position, ground is supplied
- to rear wiper motor terminal 5
- through terminals 23 and 24
- through body grounds E13 and E41.

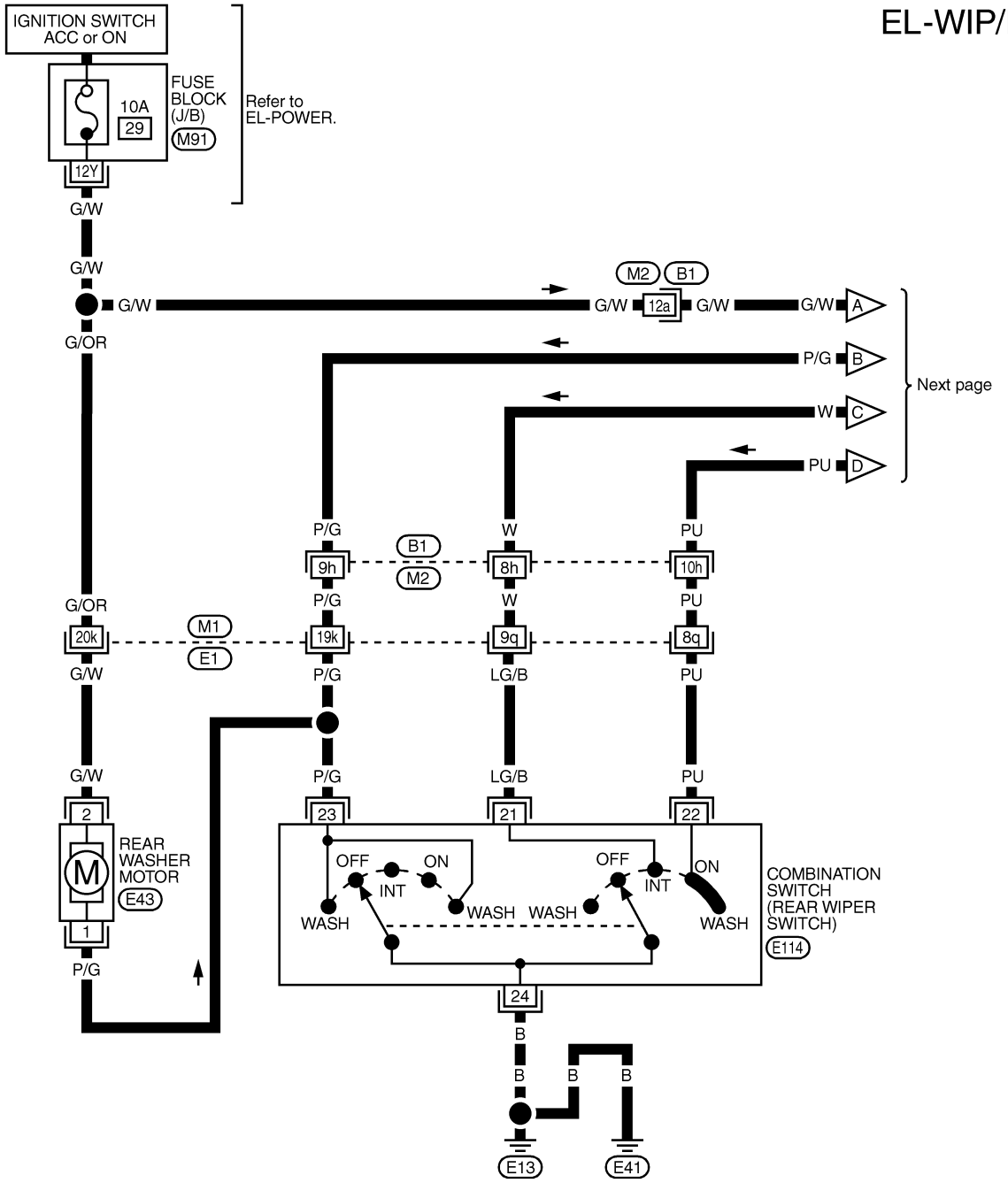
Then, power is supplied
- to rear washer motor terminal 2
- through 10 A fuse [No. 29, located in the fuse block (J/B)].

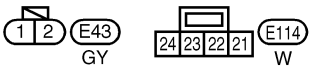
Ground is supplied
- to rear washer motor terminal 1
- through rear wiper switch terminals 23 and 24
- through body grounds E13 and E41.

With power and ground supplied, the rear washer motor operates.
When the rear wiper switch is turned to WASH position for 0.4 seconds or more, the rear wiper motor operates approximately 3 times after the rear wiper switch is released.

Wiring Diagram — WIP/R —

NBEL0324





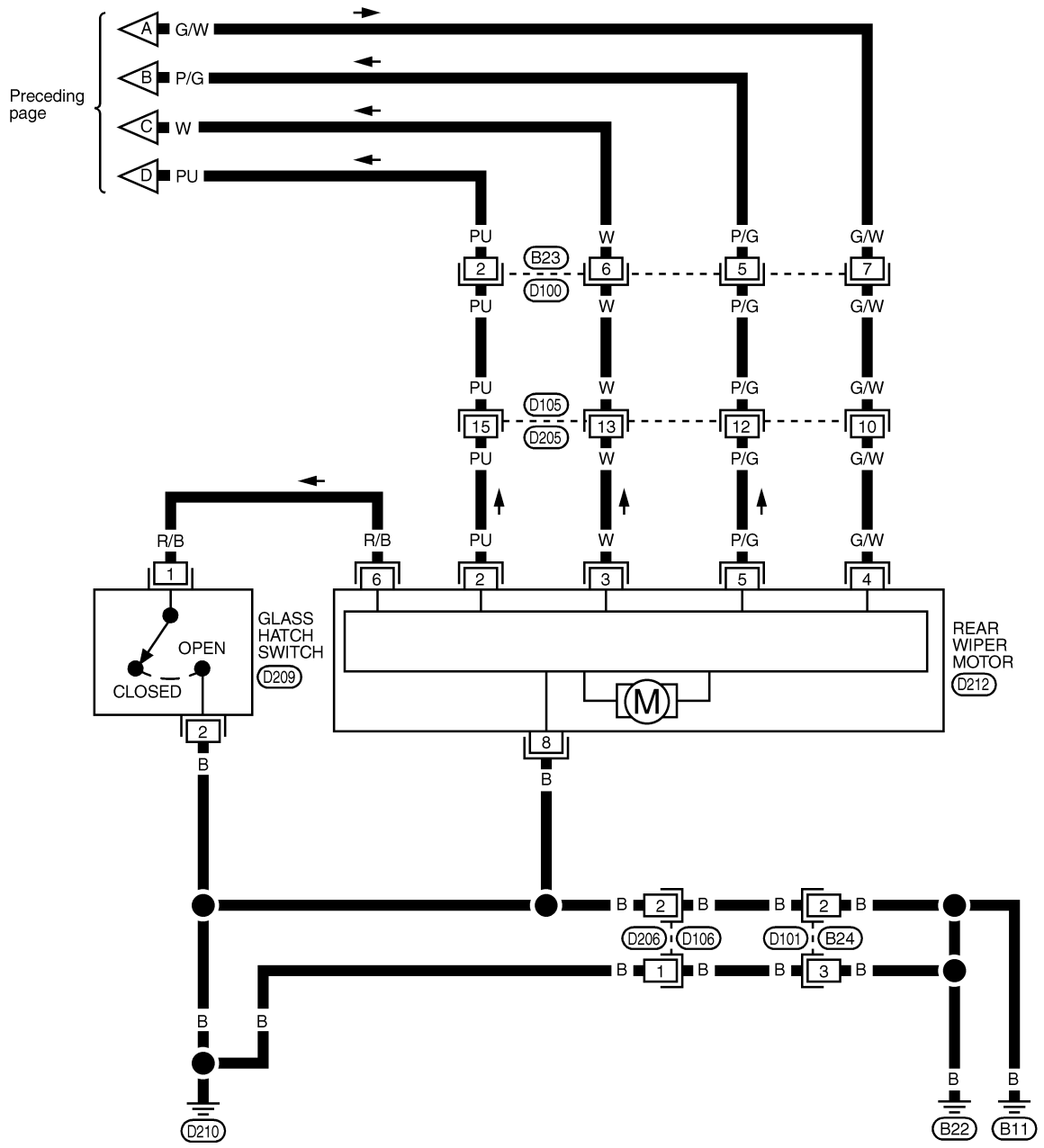
REFER TO THE FOLLOWING.

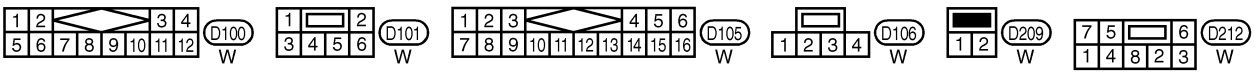
B1 , E1 -SUPER MULTIPLE JUNCTION (SMJ)

M91 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL611P

EL-WIP/R-02





MEL612P

Trouble Diagnoses

NBEL0325

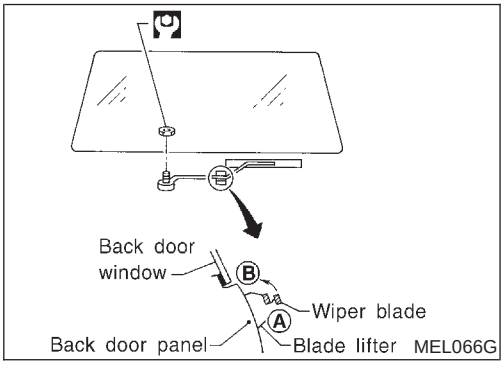
REAR WIPER MOTOR INSPECTION TABLE

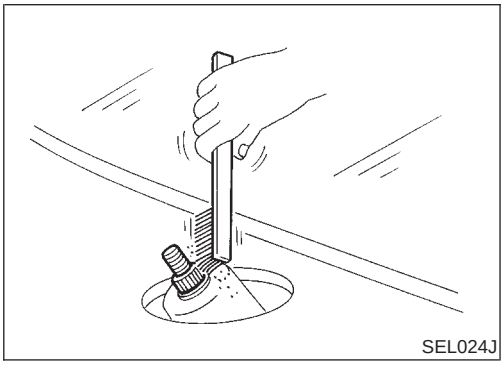
NBEL0325S01

(Data are reference values.)

Terminal No.	Item	Condition			Voltage (Approximate value)
2	ON switch	ACC	Rear wiper switch	ON	Less than 1V
				OFF or INT	Battery voltage
3	Intermittent switch	ACC	Rear wiper switch	INT	Less than 1V
				OFF, ON or WASH	Battery voltage
4	Power supply (ACC)	ACC	—		Battery voltage
5	Washer switch	ACC	Rear wiper switch	WASH	Less than 1V
				OFF, ON or INT	Battery voltage
6	Glass hatch switch	ACC	Glass hatch	Open	Less than 1V
				Closed	Battery voltage
8	Ground	—			—

NOTE:
Power to the rear wiper motor will be interrupted when the rear glass hatch is opened. In that case, conduct the inspection of the rear wiper motor with the rear glass hatch closed, unless otherwise indicated.





Removal and Installation

NBEL0326

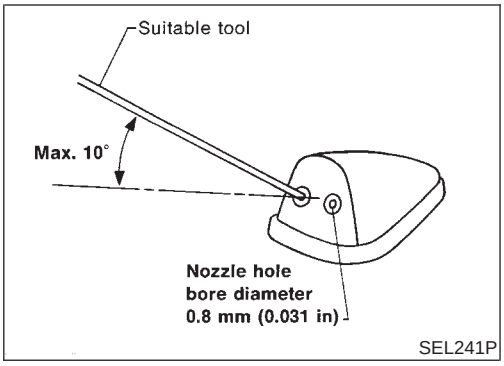
WIPER ARMS

NBEL0326S01

1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it “OFF” (Auto Stop).
2. Install wiper arm to portion A as in figure below and tighten wiper arm nut to specification.
3. Then, set wiper arm to portion B.

: 13 - 18 N·m (1.3 - 1.8 kg-m, 9 - 13 ft-lb)

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



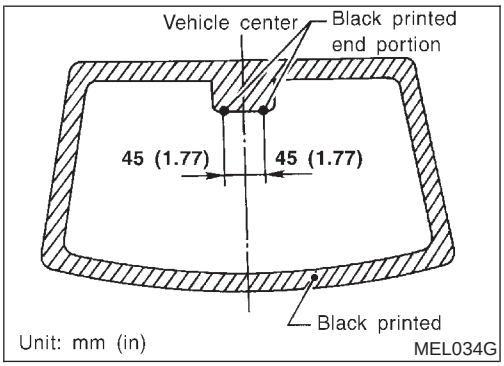
SEL241P

Washer Nozzle Adjustment

NBEL0327

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

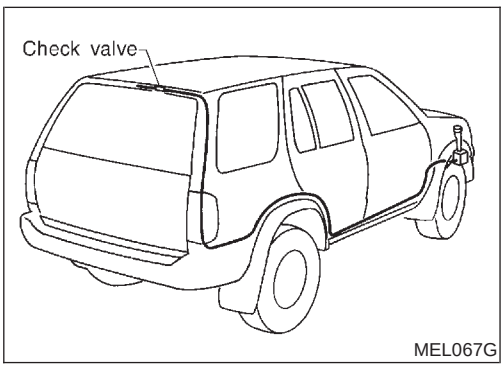
Adjustable range: ±10° (In any direction)



MEL034G

Washer Tube Layout

NBEL0328

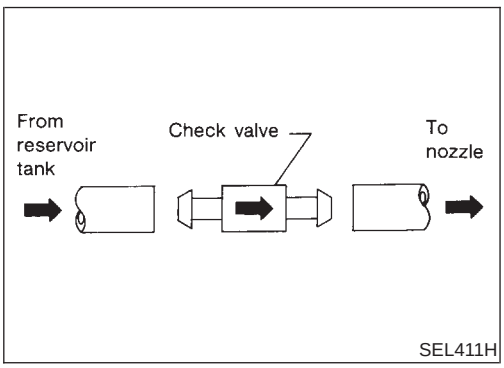


MEL067G

Check Valve

NBEL0329

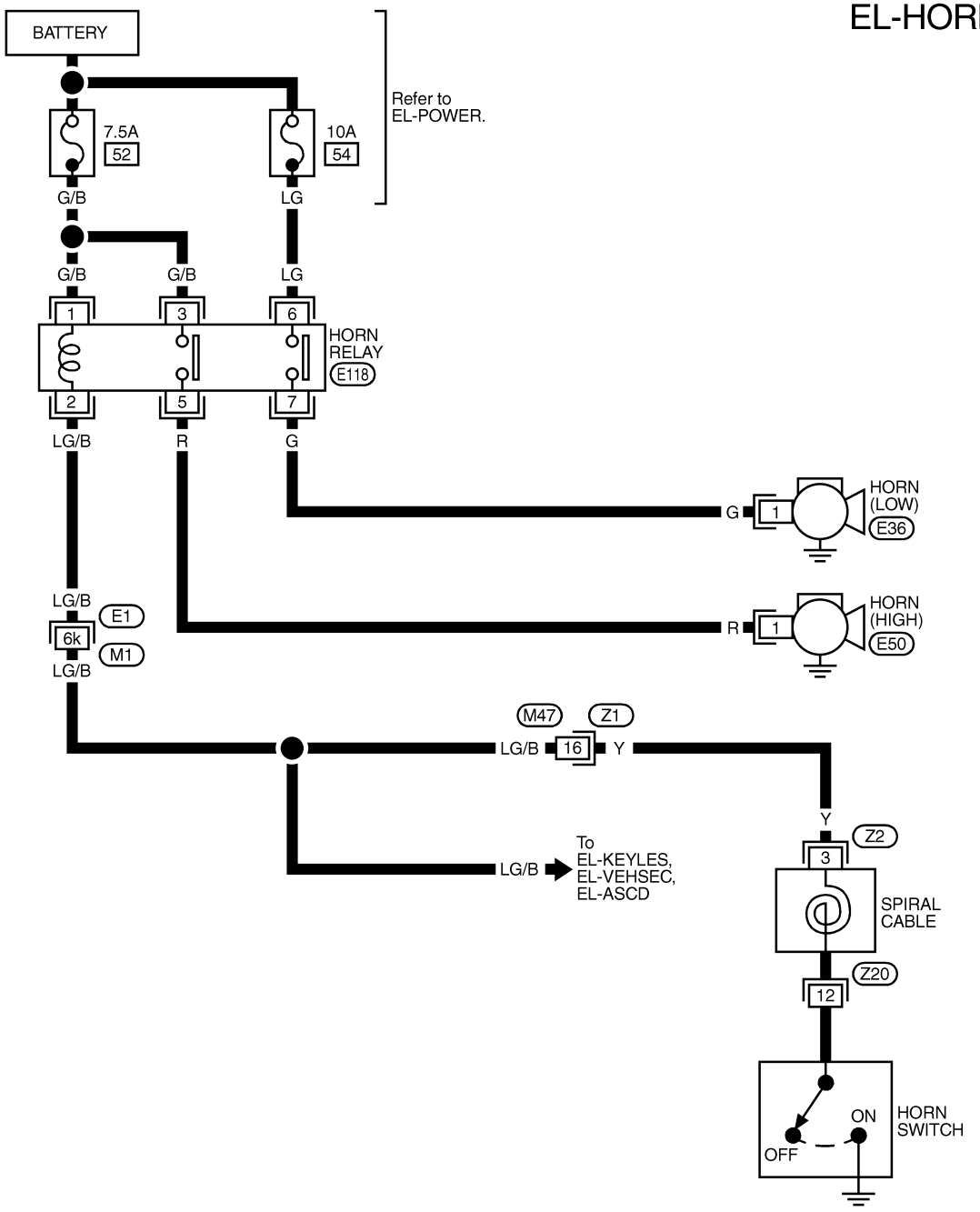
- A check valve is provided in the washer fluid line. Be careful not to connect check valve to washer tube in the wrong direction.

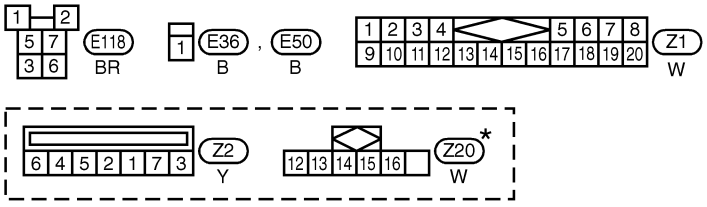


SEL411H

Wiring Diagram — HORN —

NBEL0330





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

REFER TO THE FOLLOWING.

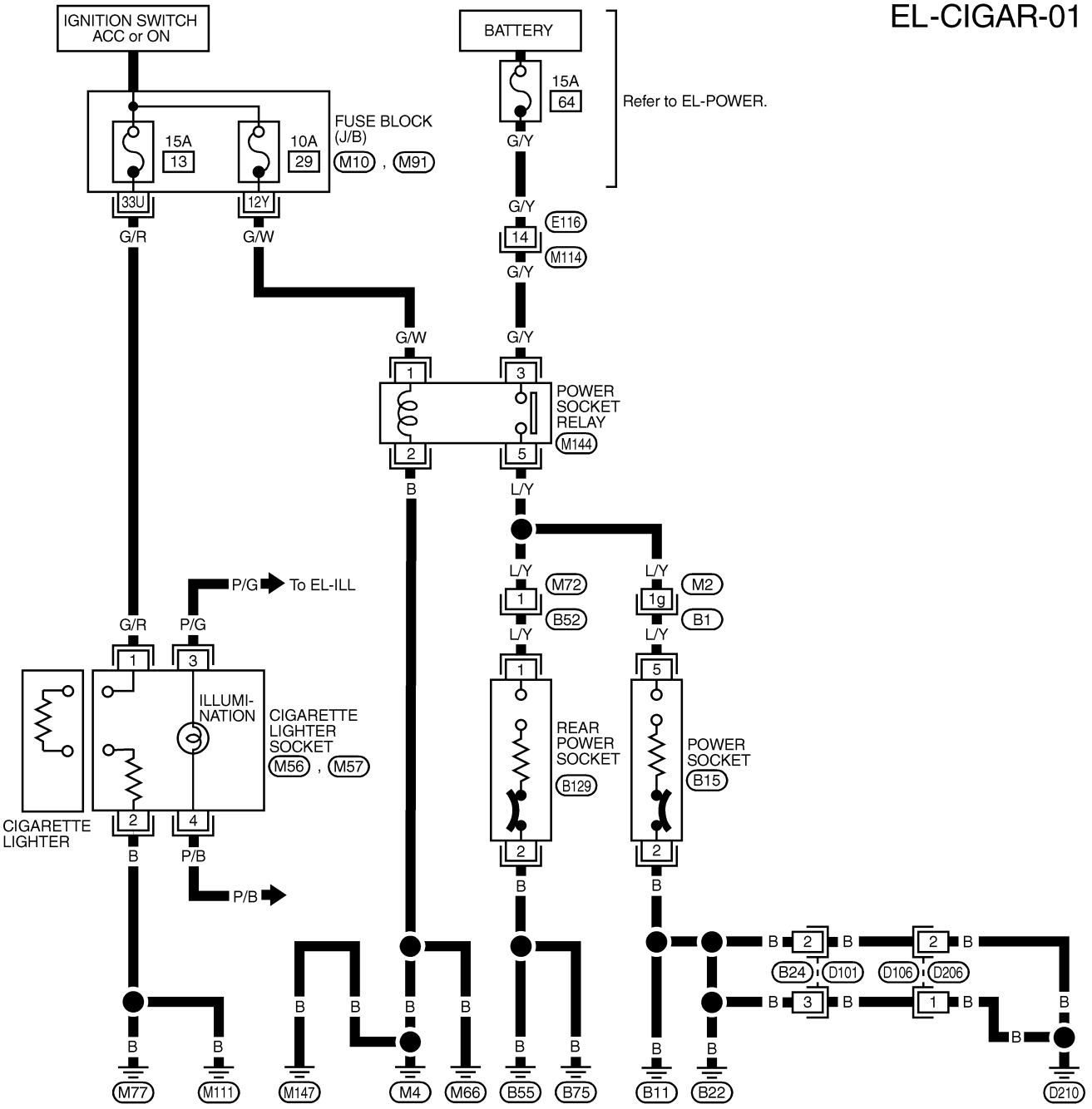
E1 -SUPER MULTIPLE JUNCTION (SMJ)

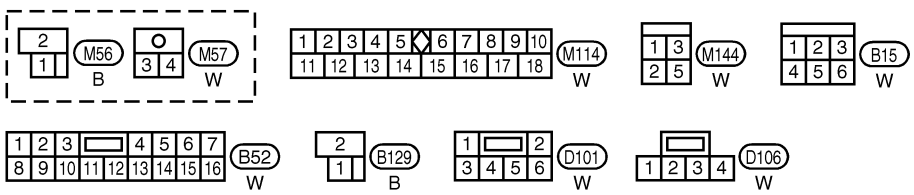
MEL446O

Wiring Diagram — CIGAR —

NBEL0331

EL-CIGAR-01





REFER TO THE FOLLOWING.

B1 - SUPER MULTIPLE JUNCTION (SMJ)

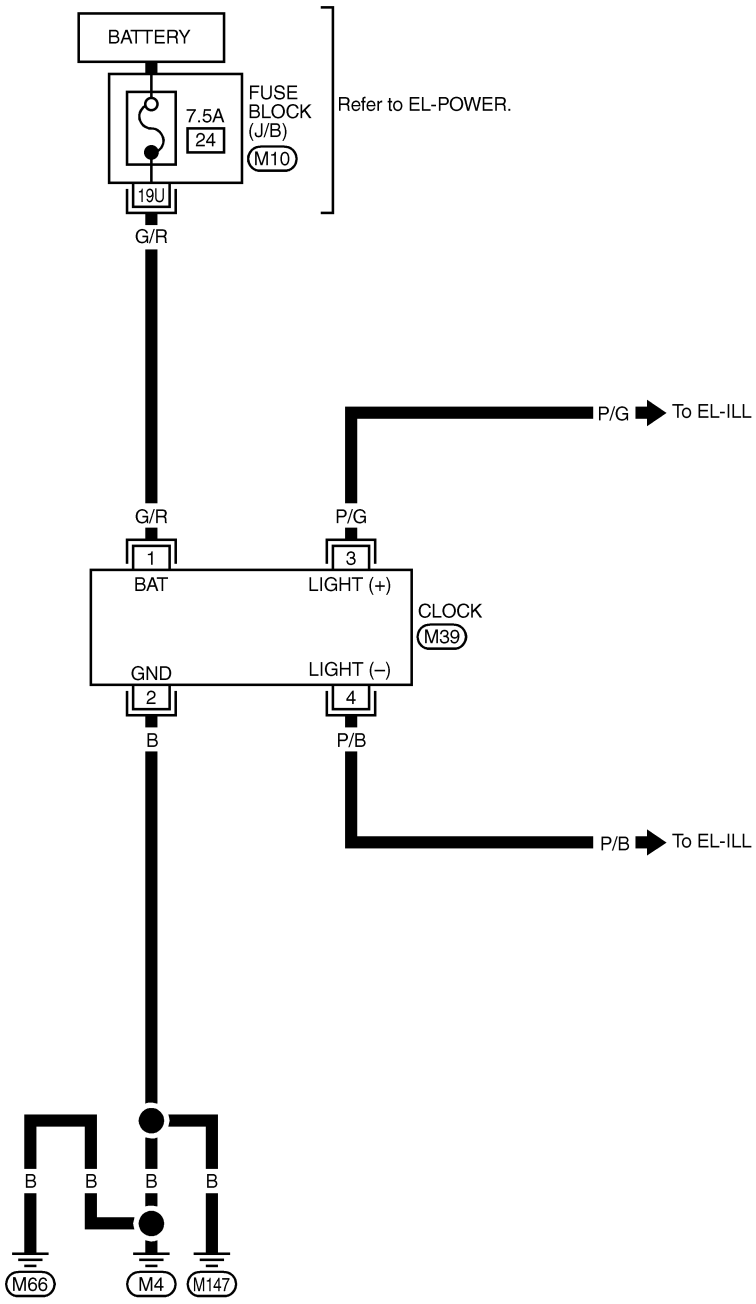
M10 , M91 - FUSE BLOCK - JUNCTION BOX (J/B)

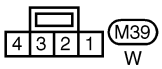
MEL528N

Wiring Diagram — CLOCK —

NBEL0332

EL-CLOCK-01



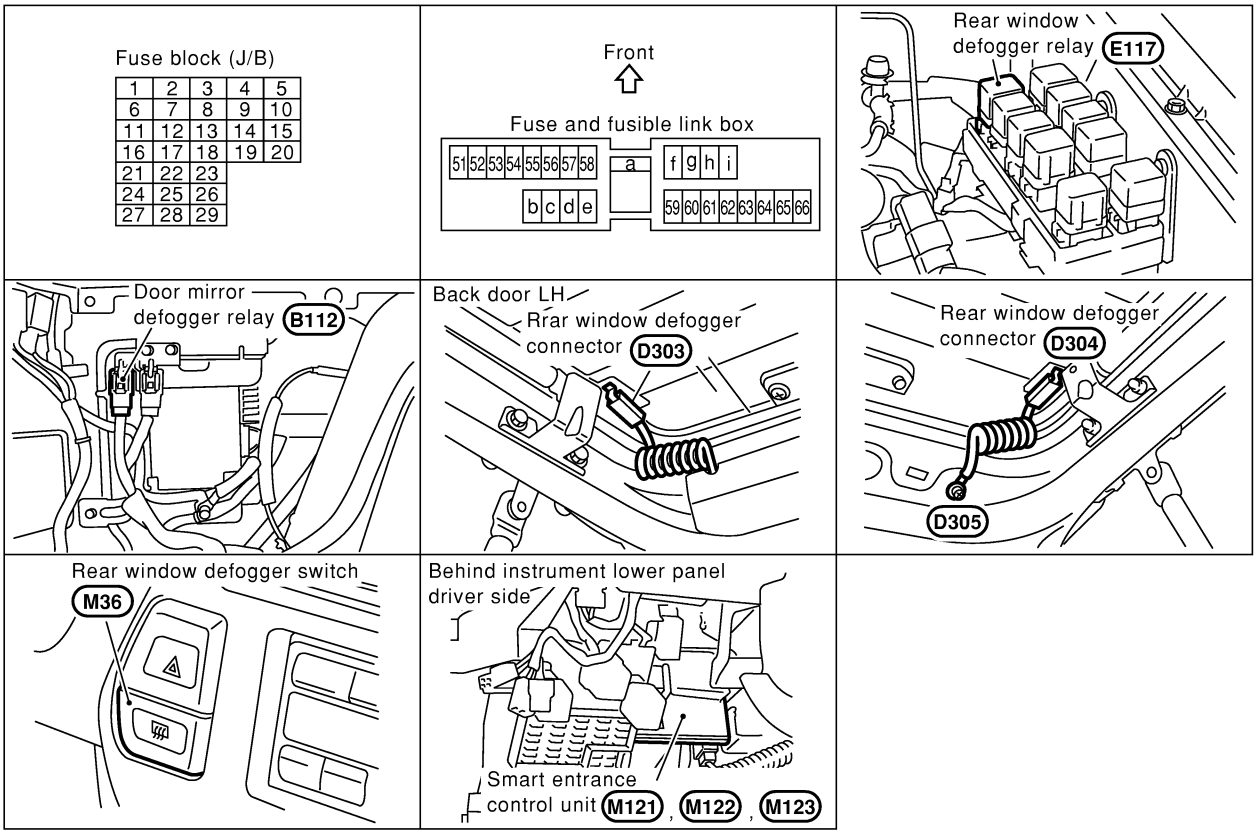


REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL814L

Component Parts and Harness Connector Location

NBEL0333



SEL483Y

System Description

NBEL0334

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. 56, located in the fuse and fusible link box) and
- to rear window defogger relay terminal 6
- through 20A fuse (No. 57, located in the fuse and fusible link box)
- to smart entrance control unit terminal 49
- through 7.5A [No. 24, located in fuse block (J/B)]

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

- through 7.5A fuse [No. 11, 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 terminal 1 of the rear window defogger switch
- through body grounds M4, M66 and M147(with navigation system),
- to terminal 32 of the A/C auto amp.
- through body grounds M4, M66 and M147 (without navigation system), or
- to smart entrance control unit terminals 43 and 64
- through body grounds M77 and M111.

System Description (Cont'd)

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

- through terminal 2 of the rear window defogger switch (with navigation system), or
- through terminal 31 of A/C auto amp. (without navigation system)
- 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.

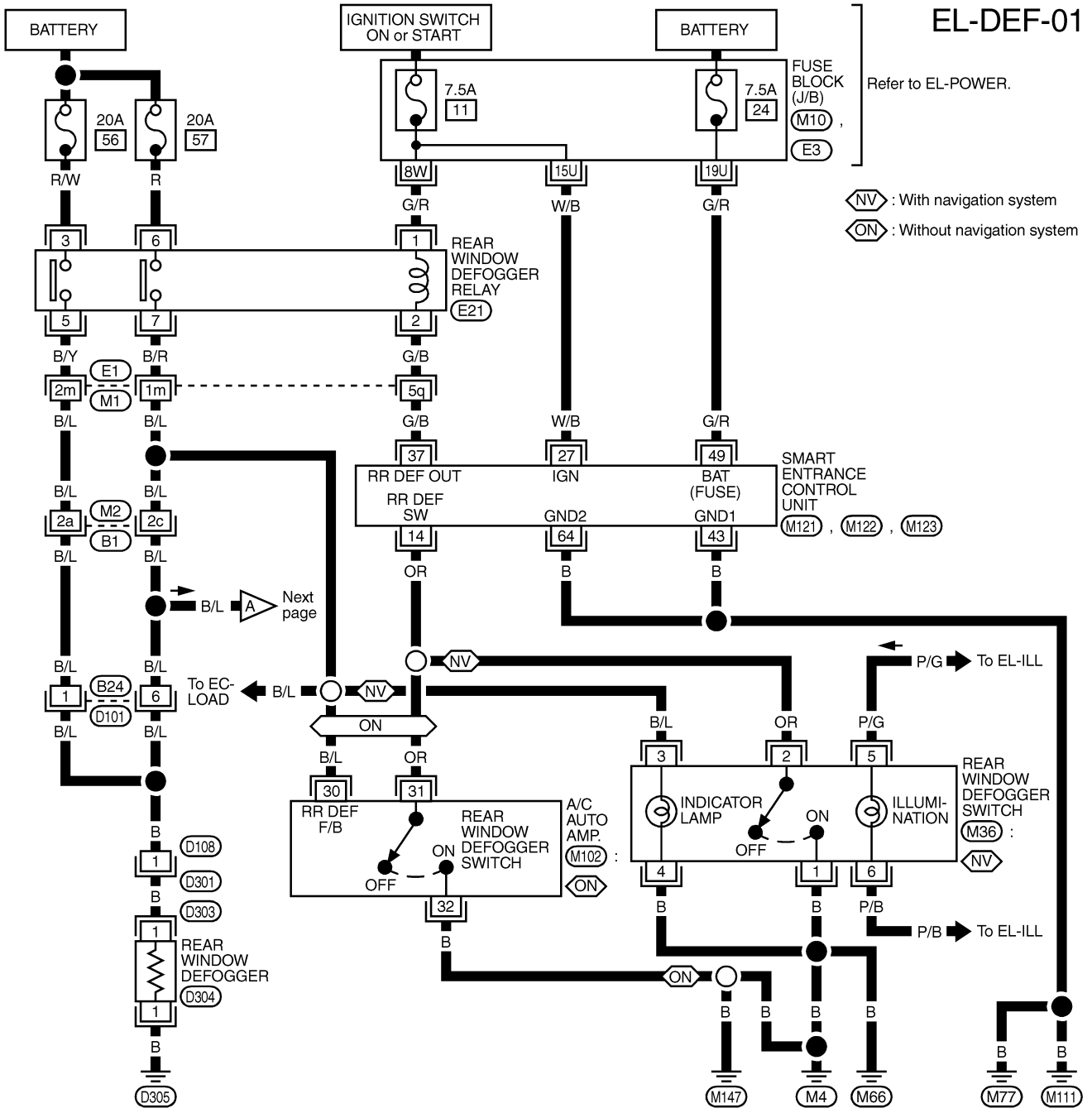
The rear window defogger has an independent ground.
With power and ground supplied, the rear window defogger filaments heat and defog the rear window.
When the system is activated, the rear window defogger indicator illuminates in the rear window defogger switch.
Power is supplied

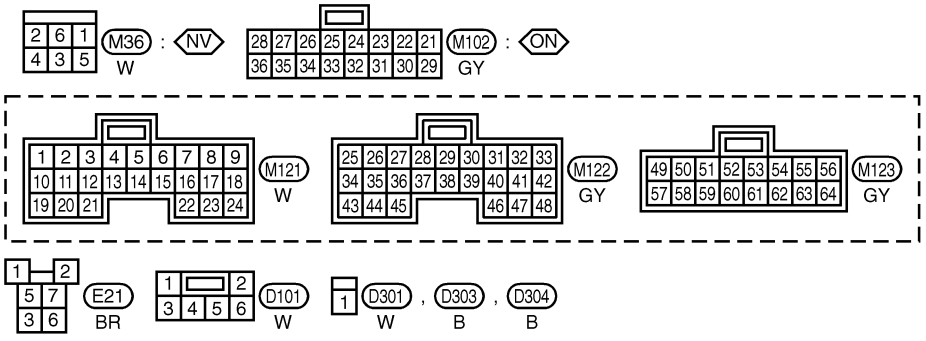
- to terminal 3 of the rear window defogger switch (with navigation system), or
- to terminal 30 of the A/C auto amp. (without navigation system)
- from terminal 7 of the rear window defogger relay.

Terminal 4 of the rear window defogger switch (with navigation system) or terminal 32 of the A/C auto amp. (without navigation system), is grounded through body grounds M4, M66 and M147.

Wiring Diagram — DEF —

NBEL0335

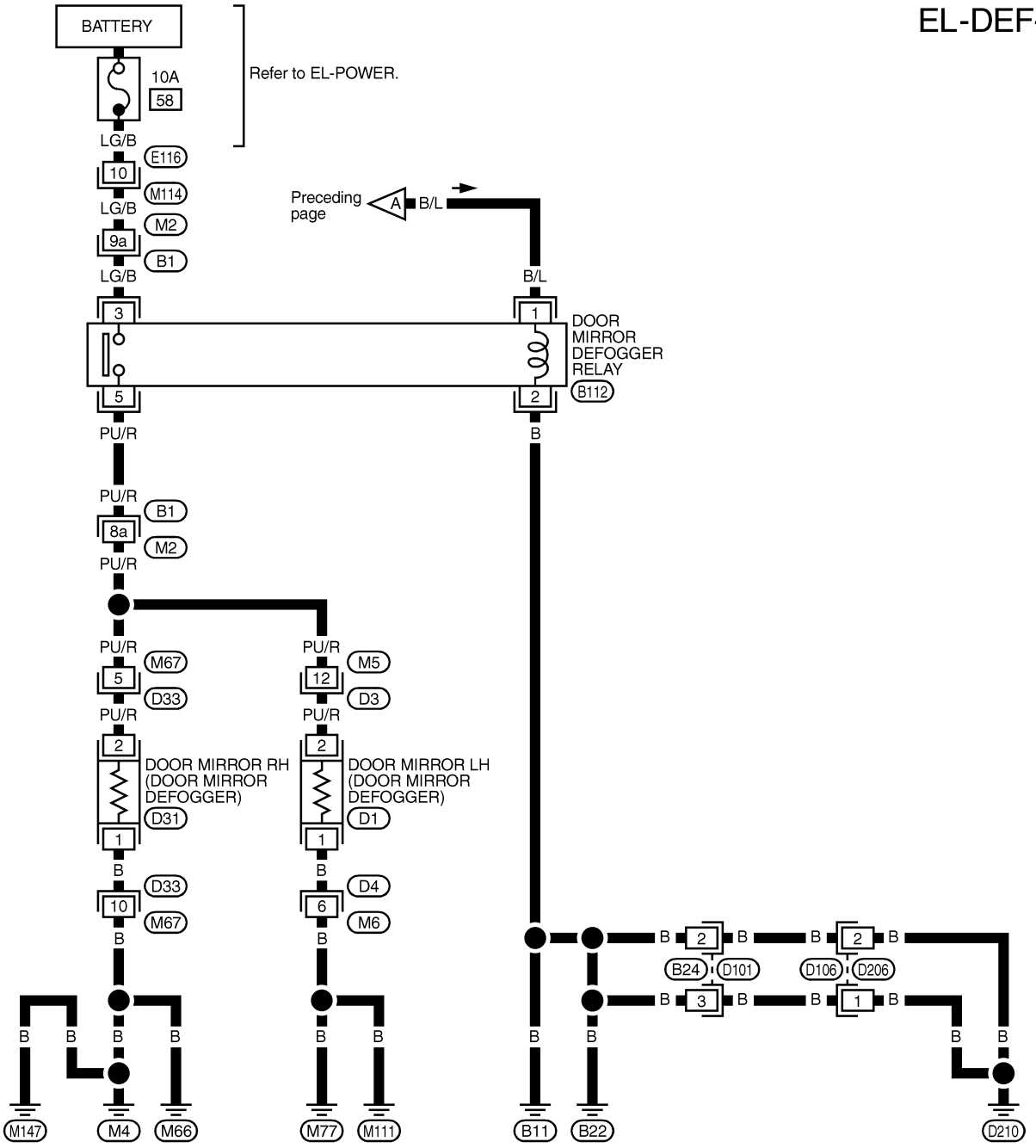


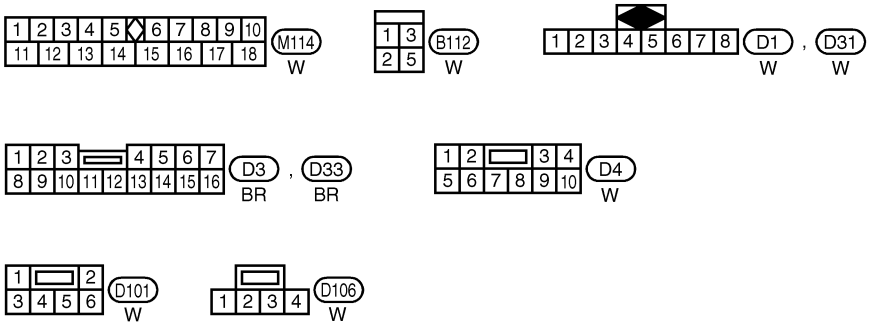


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL725N

EL-DEF-02

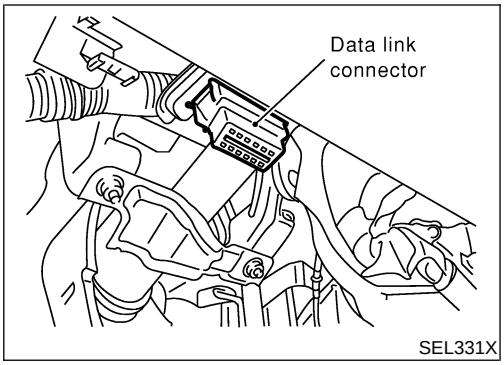




REFER TO THE FOLLOWING.

B1 - SUPER MULTIPLE JUNCTION (SMJ)

MEL613P



SEL331X

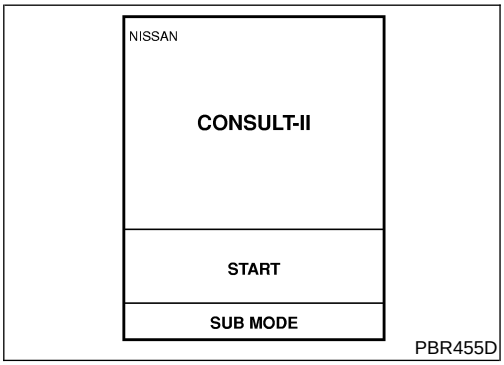
CONSULT-II Inspection Procedure

NBEL0336

“REAR DEFOGGER”

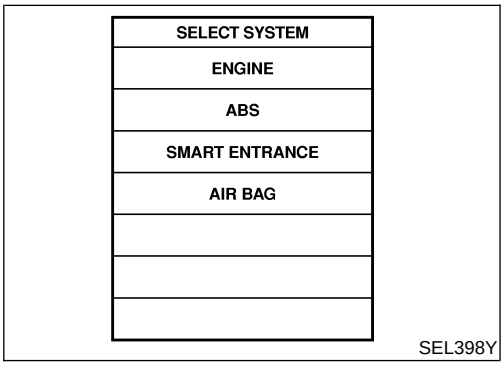
NBEL0336S01

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



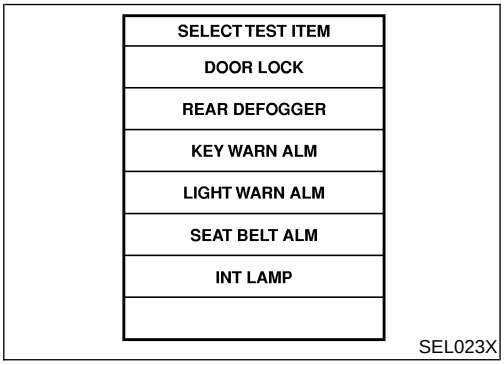
PBR455D

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



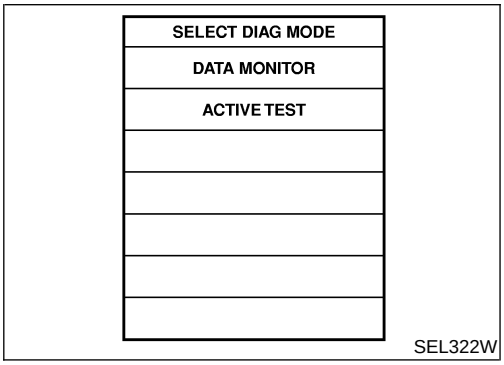
SEL398Y

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

NBEL0337

“REAR DEFOGGER”

NBEL0337S01

Data Monitor

NBEL0337S0101

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

NBEL0337S0102

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

NBEL0338

DIAGNOSTIC PROCEDURE

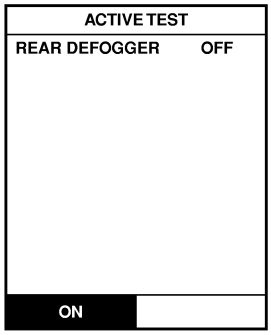
NBEL0338S01

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.

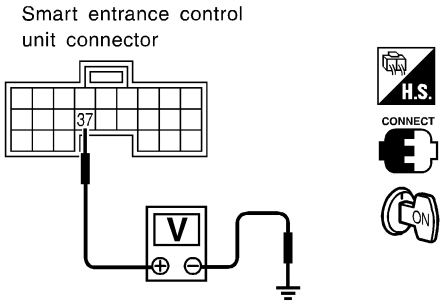


Rear window defogger and rear window defogger switch indicator should operate when the “ON” button on the CONSULT-II screen is touched.

SEL353W

Without CONSULT-II

1. Turn ignition switch to ON position.
2. Check voltage between smart entrance control unit harness connector M122 terminal 37 (G/B) and ground.



Voltage [V]:

Rear window defogger switch is “OFF”.

Approx. 12

Rear window defogger switch is “ON”.

0

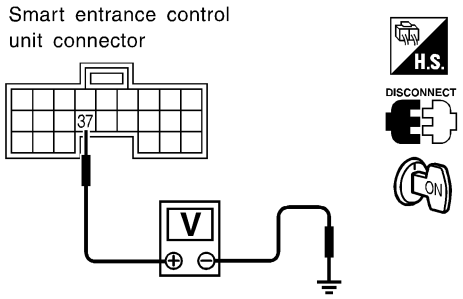
SEL997X

OK or NG

OK	▶	**Check the following.** ● Rear window defogger relay (Refer to EL-194.) ● Rear window defogger circuit ● Rear window defogger filament (Refer to EL-195.)
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 M122 terminal 37 (G/B) and ground.



Battery voltage should exist.

SEL998X

OK or NG

OK	▶	GO TO 3.
NG	▶	**Check the following.** ● 7.5A fuse [No. 11, located in the fuse block (J/B)] ● Rear window defogger relay (Refer to EL-194) ● Harness for open or short between fuse and rear window defogger relay ● 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.

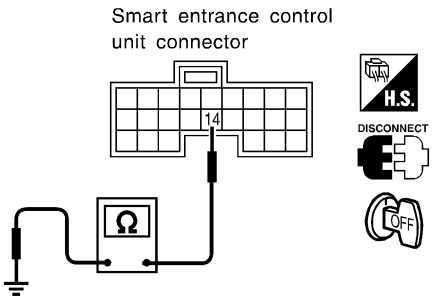
DATA MONITOR	
MONITOR	
REAR DEF SW	ON

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 M121 terminal 14 (OR) and ground.



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

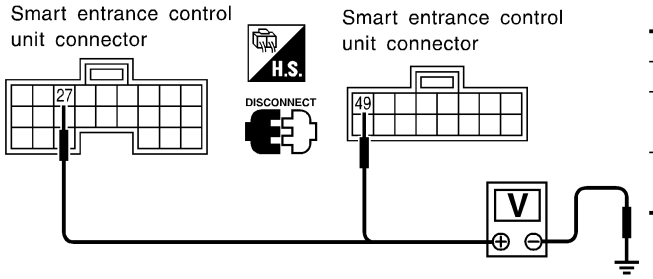
SEL999X

OK or NG

OK	▶	GO TO 4.
NG	▶	**Check the following.** ● Rear window defogger switch (with navigation system) (Refer to EL-195.) A/C auto amp. (without navigation system) (Refer to EL-195) ● Harness for open or short between smart entrance control unit and rear window defogger switch (with navigation system) or A/C auto amp. (without navigation system). ● Rear window defogger switch (with navigation system) or A/C auto amp. (without navigation system) ground circuit

4	CHECK POWER SUPPLY AND IGNITION INPUT SIGNAL

Check voltage between smart entrance control unit harness connector M122 terminal 27 (W/B), M123 terminal 49 (G/R) and ground.



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

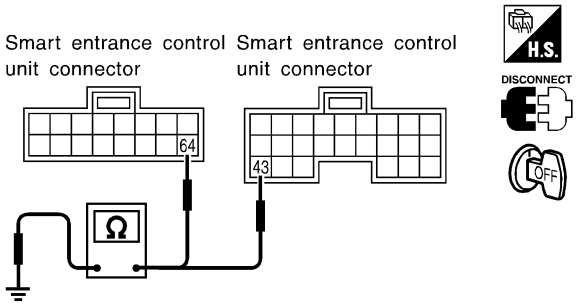
SEL001Y

OK or NG

OK	▶	GO TO 5.
NG	▶	**Check the following.** ● 7.5A fuse [No. 11 or No. 24, located in the fuse block (J/B)] ● Harness for open or short between smart entrance control unit and fuse

5	CHECK CONTROL UNIT GROUND CIRCUIT

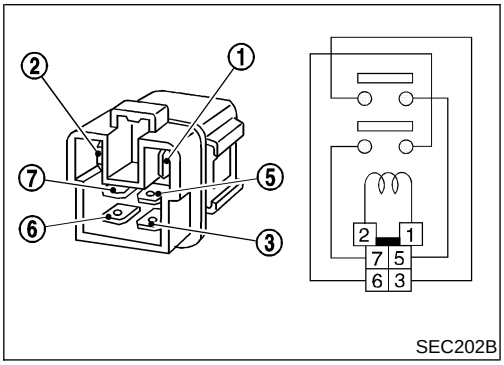
Check continuity between smart entrance control unit harness connector M122 terminal 43 (B), M123 terminal 64 (B) and ground.



Continuity should exist.

SEL002Y

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



SEC202B

Electrical Components Inspection

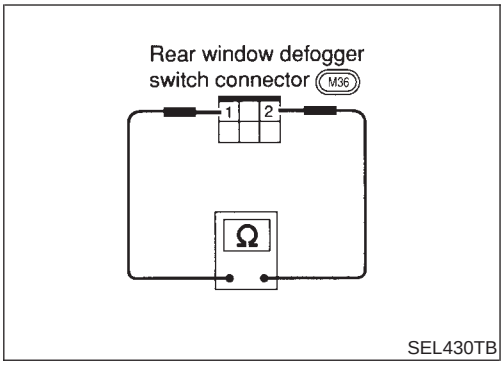
NBEL0339

REAR WINDOW DEFOGGER RELAY

NBEL0339S01

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



SEL430TB

REAR WINDOW DEFOGGER SWITCH

NBEL0339S02

With Navigation System

NBEL0339S0201

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

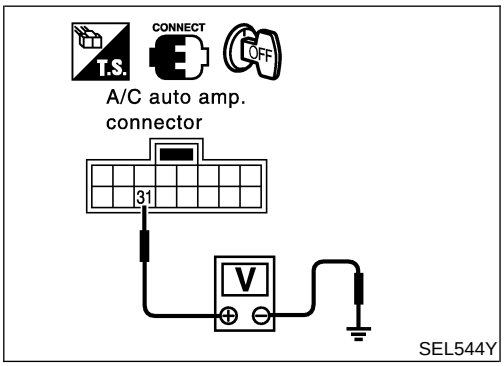
Terminals	Condition	Continuity
1 - 2	Rear window defogger switch is pushed	Yes
	Rear window defogger switch is released	No

Without Navigation System

NBEL0339S0202

Check voltage between A/C auto amp. and ground, when rear window switch is pushed and released.

Terminals			Condition	Voltage (V)
(+)		(−)		
Connector	Terminal (Wire color)			
M102	31 (OR)	Ground	Rear window defogger switch is pushed	0
			Rear window defogger switch is released	Battery voltage

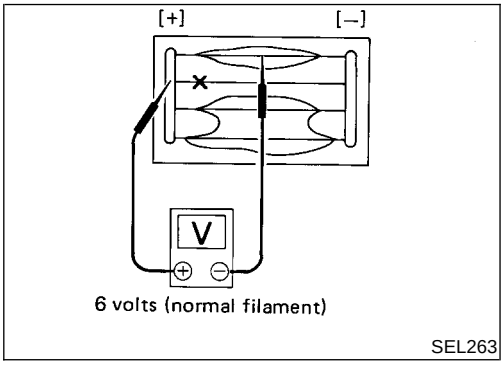


SEL544Y

Filament Check

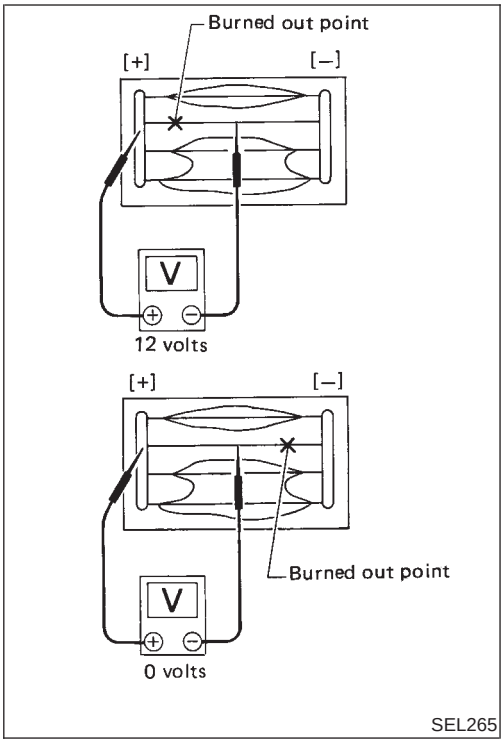
NBEL0340

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

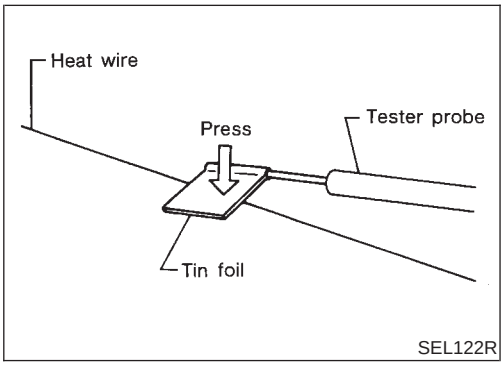


SEL263

Filament Check (Cont'd)



2. If a filament is burned out, circuit tester registers 0 or 12 volts.
3. To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.



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

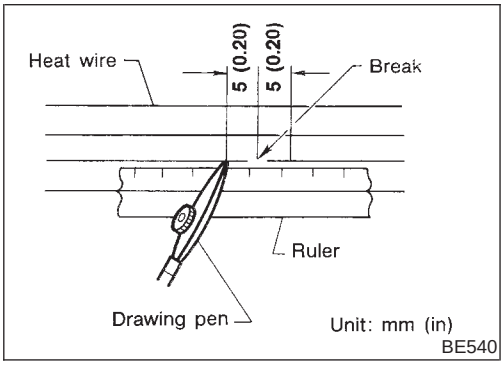
Filament Repair

NBEL0341

REPAIR EQUIPMENT

NBEL0341S01

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



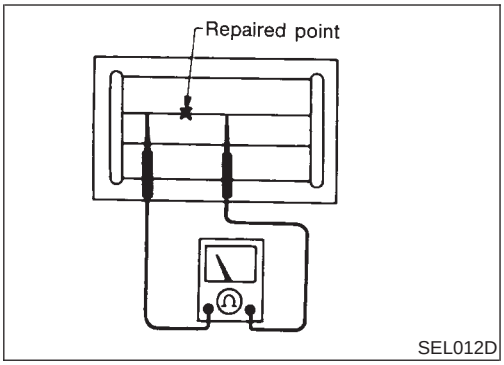
REPAIRING PROCEDURE

NBEL0341S02

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.

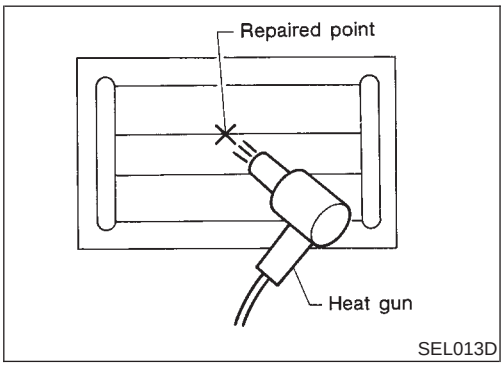
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.



SEL012D

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.



SEL013D

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

NBEL0342

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

- through 15A fuse [No. 4, located in the fuse block (J/B)]
- to audio unit terminal 6,
- to audio amp. relay terminal 3,
- to rear speaker amp. terminal 11 and
- to AUX BOX terminal 7 (with rear TV)

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

- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to audio unit terminal 10 and
- to AUX BOX terminal 6 (with rear TV)

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

- to audio amp. relay terminal 2
- through body grounds M4, M66 and M147
- to front door speaker LH terminal 5 and
- to front door speaker RH terminal 5
- through body grounds M77 and M111
- to rear speaker amp. terminal 24 and
- to AUX BOX terminal 8 (with rear TV)
- through body grounds B11, B22 and D210.

When the audio unit POWER button is pressed, power is supplied

- to rear speaker amp. terminal 9 and
- to audio amp. relay terminal 1
- from audio unit terminal 12.

Then audio amp. relay is energized and power is supplied

- to front door speaker LH terminal 4 and
- to front door speaker RH terminal 4.

Audio signals are supplied

- through audio unit terminals 1, 2, 3, 4, 13, 14, 15 and 16
- to terminals 2 and 6 of the LH and RH front speakers and terminals 5, 7, 18 and 20 of the rear speaker amp.
- to LH and RH tweeters through terminals 1 and 3 of the front speakers
- to rear LH and RH speakers through terminals 1, 2, 25 and 26 of the rear speaker amp.

When the rear TV switch is ON, power is supplied

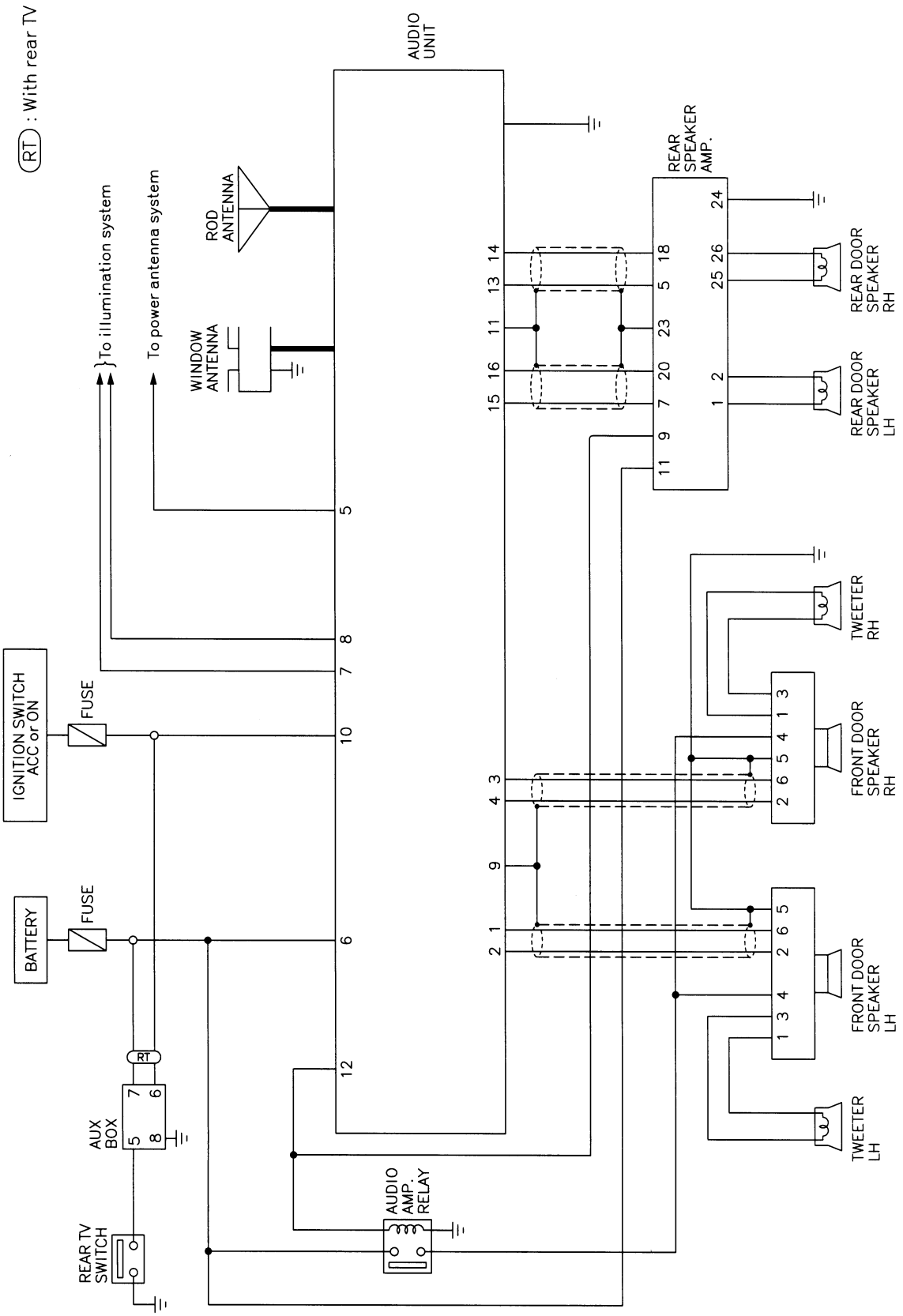
- to rear TV switch terminal 1
- from AUX BOX terminal 5.

Ground is supplied

- to rear TV switch terminal 3
- through body grounds B55 and M75.

Schematic

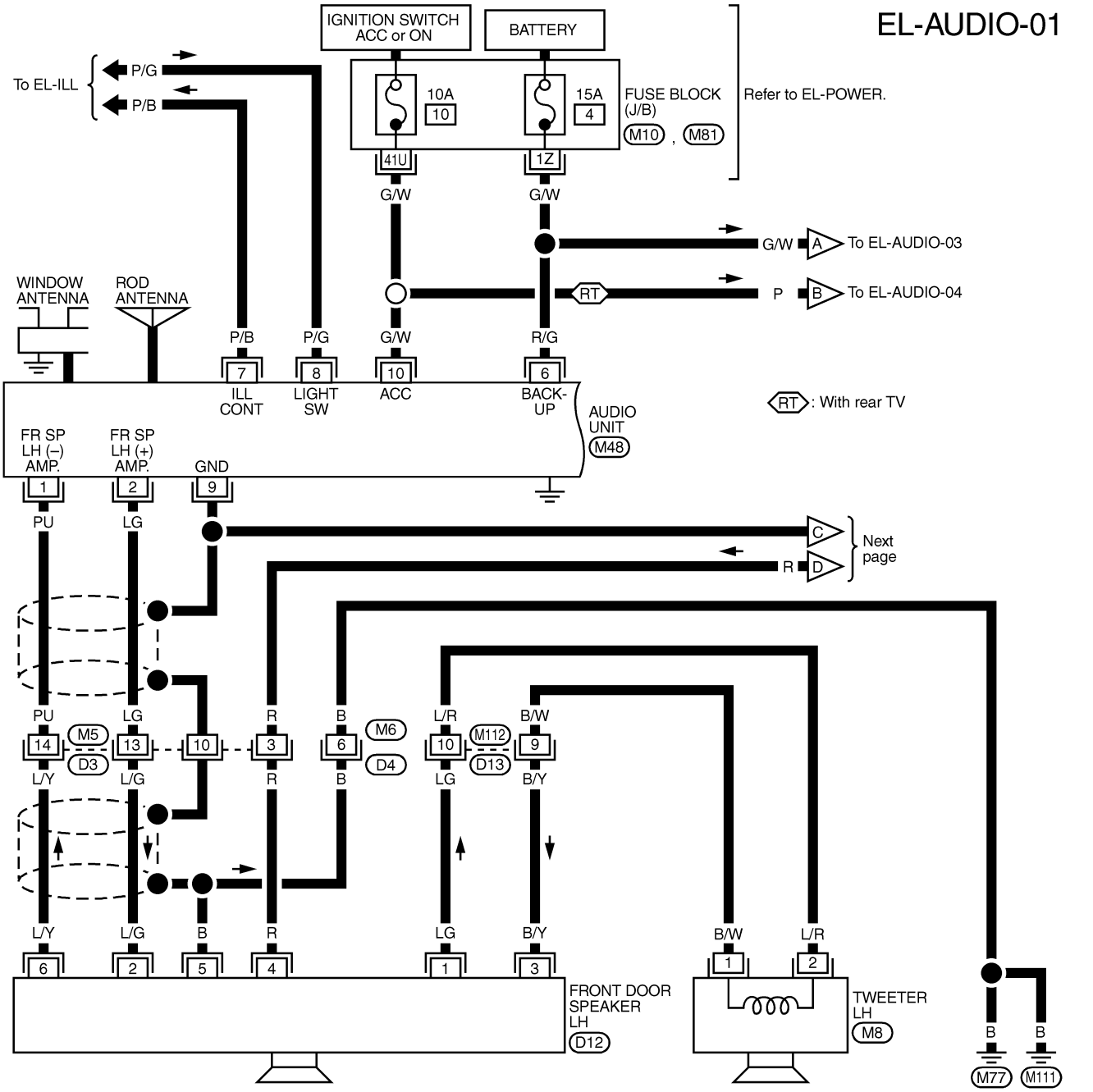
NBEL0344

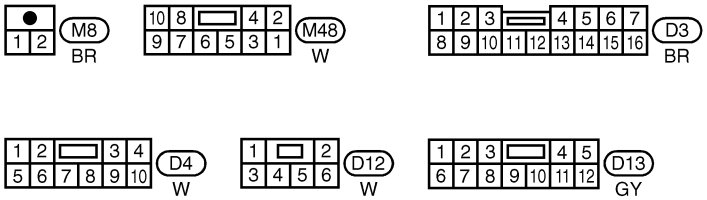


MEL200N

Wiring Diagram — AUDIO —

NBEL0345

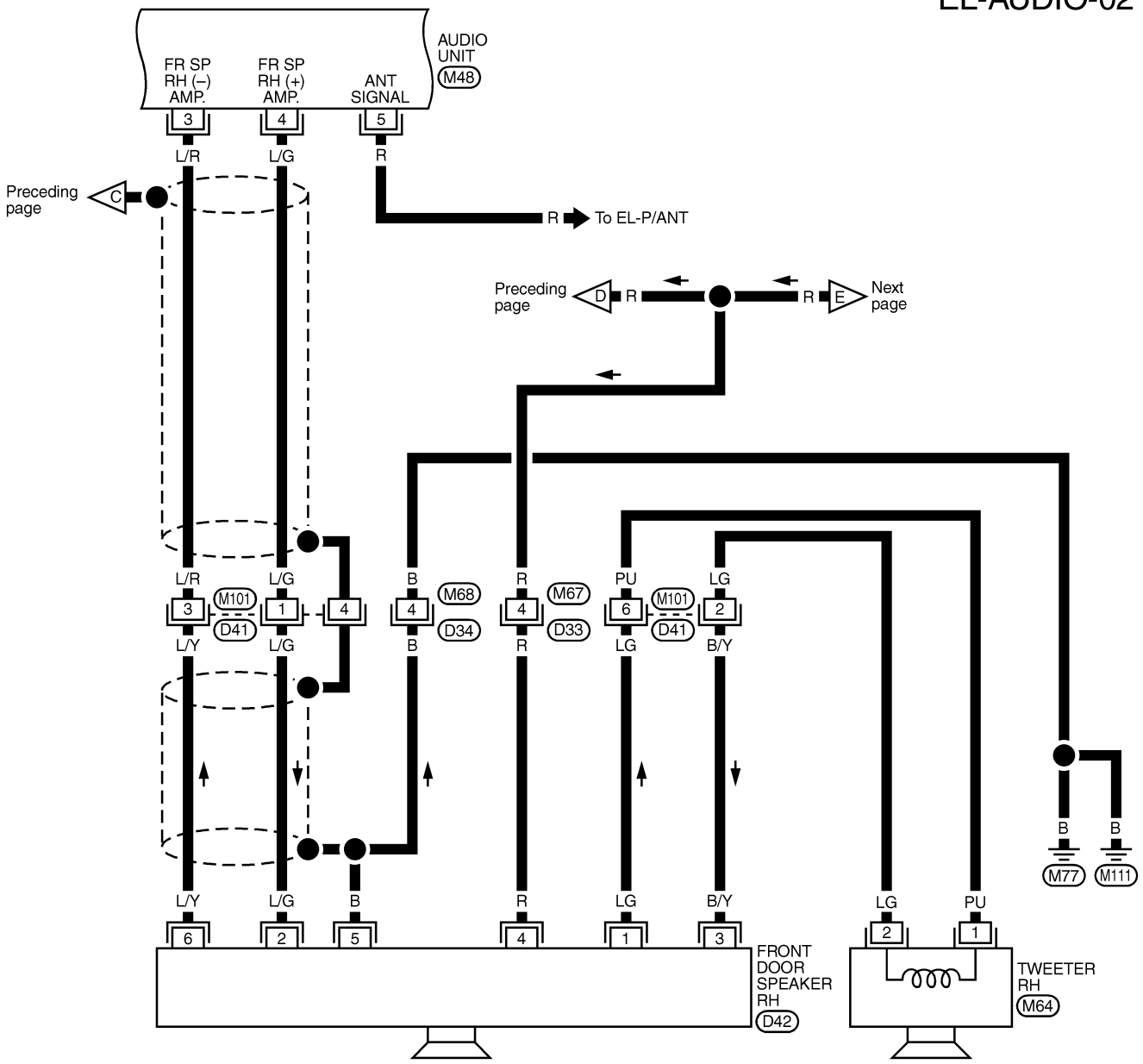


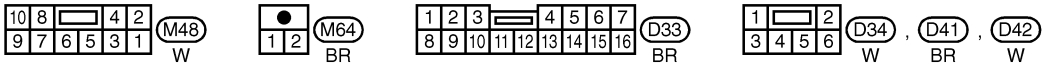


REFER TO THE FOLLOWING.
M10 , M81 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL201N

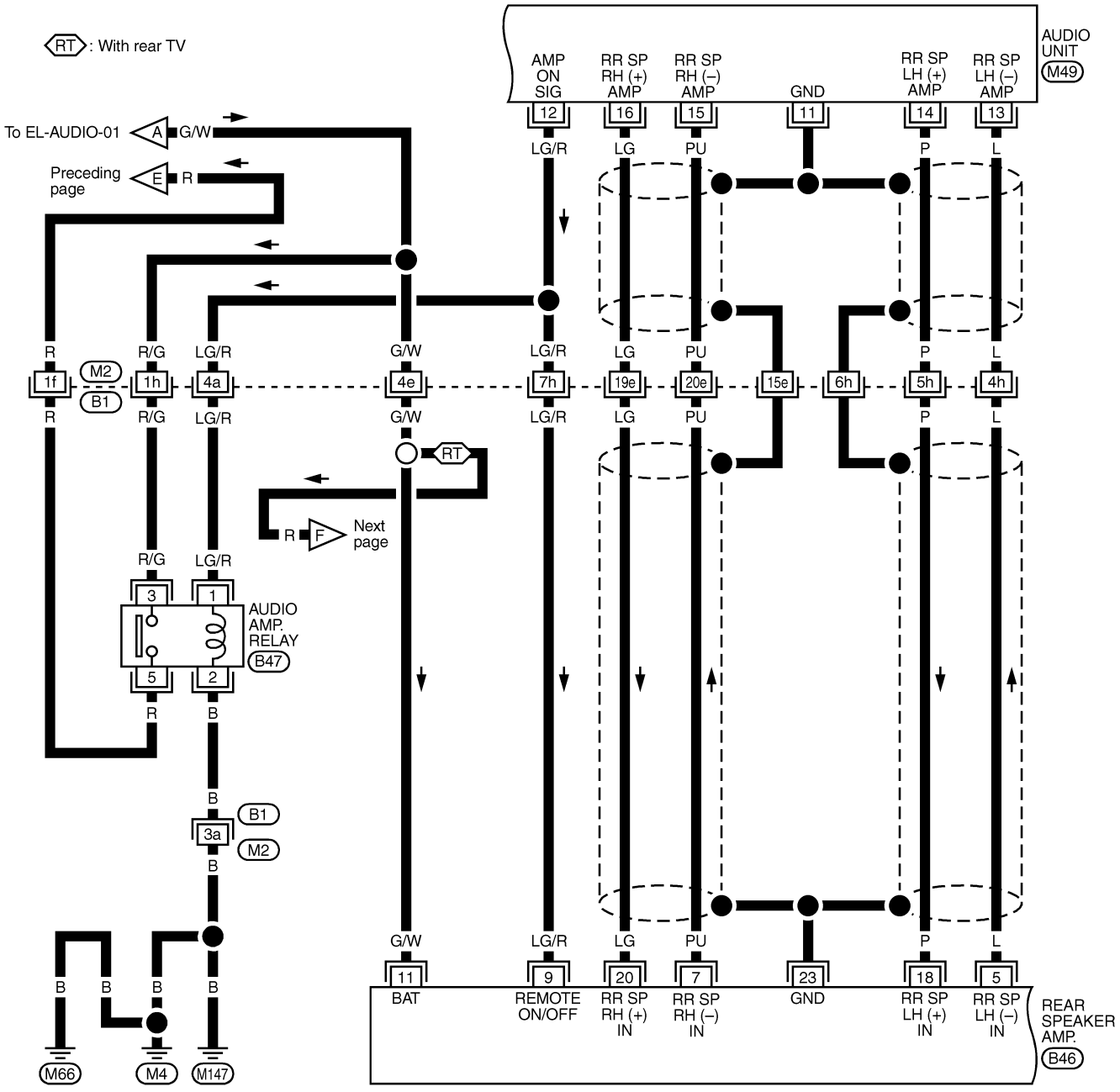
EL-AUDIO-02

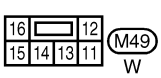


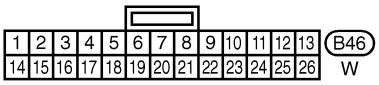


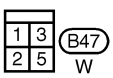
MEL202N

EL-AUDIO-03



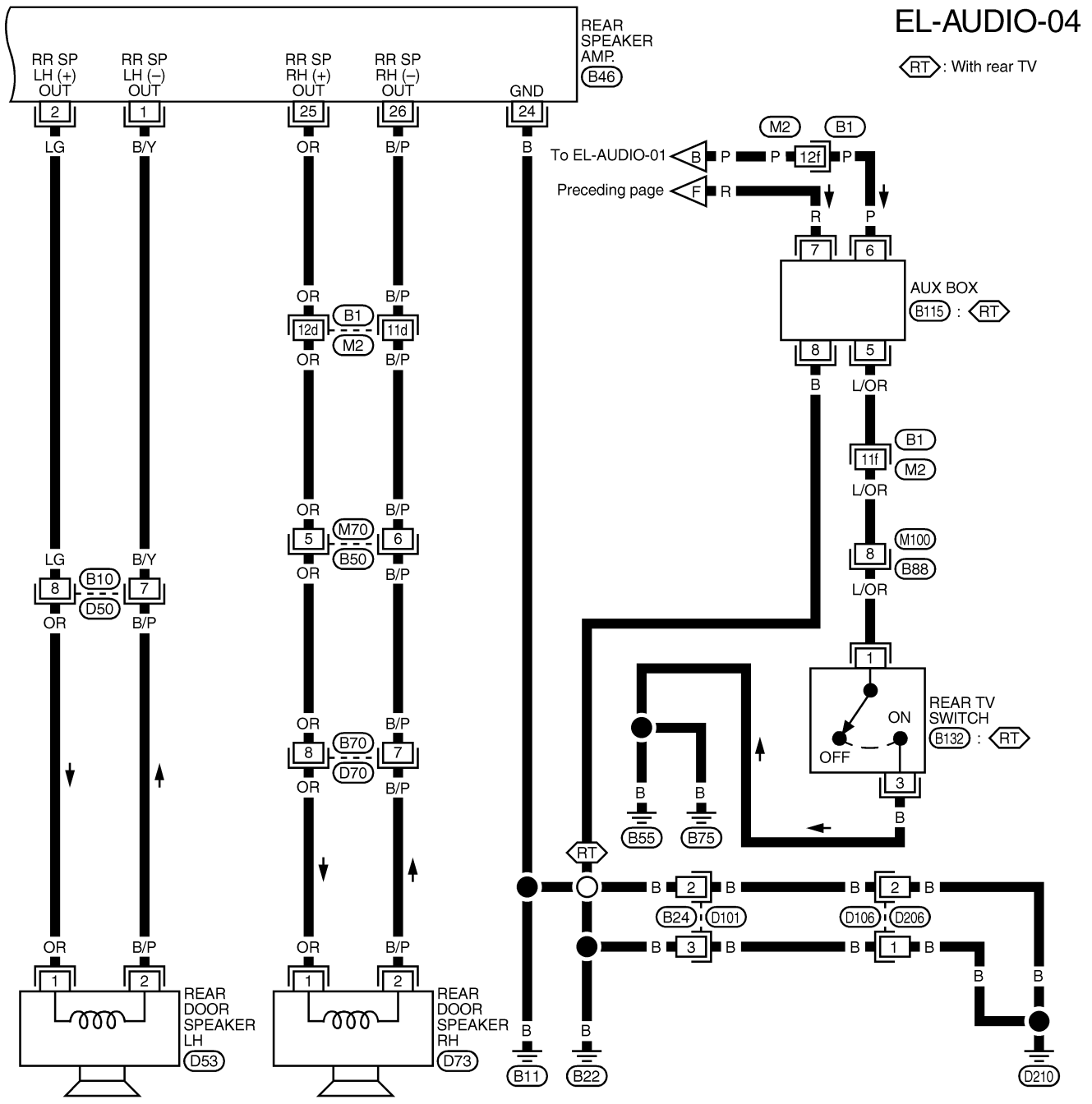


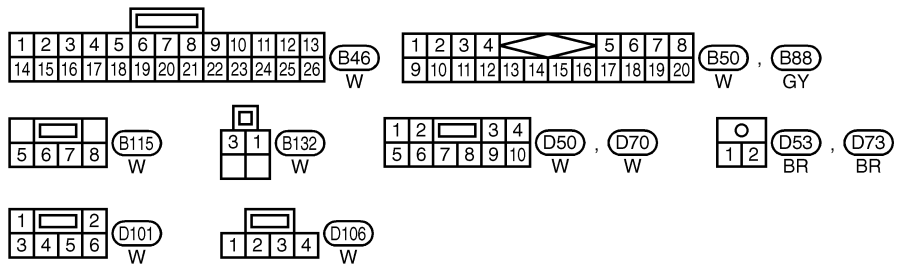




REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL203N





REFER TO THE FOLLOWING.
B1 - SUPER MULTIPLE JUNCTION (SMJ)

MEL972O

Trouble Diagnoses

NBEL0346

AUDIO UNIT

NBEL0346S01

Symptom	Possible causes	Repair order
Audio unit inoperative (no digital display and no sound from speakers).	1. 10A fuse 2. Poor audio unit case ground 3. Audio unit	1. Check 10A fuse [No. 10, located in fuse block (J/B)]. Turn ignition switch ON and verify that battery positive voltage is present at terminal 10 of audio unit. 2. Check audio unit case ground. 3. Remove audio unit for repair.
Audio unit presets are lost when ignition switch is turned OFF.	1. 15A fuse 2. Audio unit	1. Check 15A fuse [No. 4, located in fuse block (J/B)] and verify that battery positive voltage is present at terminal 6 of audio unit. 2. Remove audio unit for repair.
AM stations are weak or noisy (FM stations OK).	1. Antenna 2. Poor audio unit ground 3. Audio unit	1. Check antenna. 2. Check audio unit ground. 3. Remove audio unit for repair.
FM stations are weak or noisy (AM stations OK).	1. Window antenna 2. Audio unit	1. Check window antenna. 2. Remove audio unit for repair.
Audio unit generates noise in AM and FM modes with engine running.	1. Poor audio unit ground 2. Loose or missing ground bonding straps 3. Ignition condenser or rear window defogger noise suppressor condenser 4. Alternator 5. Ignition coil or secondary wiring 6. Audio unit	1. Check audio unit ground. 2. Check ground bonding straps. 3. Replace ignition condenser or rear window defogger noise suppressor condenser. 4. Check alternator. 5. Check ignition coil and secondary wiring. 6. 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 2. Antenna 3. Accessory ground 4. Faulty accessory	1. Check audio unit ground. 2. Check antenna. 3. Check accessory ground. 4. Replace accessory.
Audio unit controls are operational, but no sound is heard from any speaker.	1. 15A fuse 2. Audio unit output 3. Audio unit	1. Check 15A fuse [No. 4, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 3 of audio amp. relay. 2. Check audio unit output voltage (Terminal 12). 3. Remove audio unit for repair.
All front speakers are inoperative.	1. Audio amp. relay 2. Audio amp. relay ground 3. Amp. ON signal	1. Check audio amp. relay. 2. Check audio amp. relay ground (Terminal 2). 3. Turn ignition switch ACC and audio unit ON. Verify battery positive voltage is present at terminal 1 of audio amp. relay.
Individual front speaker is noisy or inoperative.	1. Speaker ground 2. Power supply 3. Audio unit output 4. Speaker	1. Check speaker ground (Terminal 5). 2. Check power supply for speaker (Terminal 4). 3. Check audio unit output voltage for speaker. 4. Replace speaker.
Both rear speakers are inoperative.	1. Poor rear speaker amp. ground 2. Power supply 3. Amp. ON signal 4. Rear speaker amp.	1. Check rear speaker amp. ground circuit. 2. Check power supply for rear speaker amp. (Terminal 11). 3. Turn ignition switch ACC and audio unit ON. Verify battery positive voltage is present at terminal 9 of rear speaker amp. 4. Remove rear speaker amp. for repair.
Individual rear speaker is noisy or inoperative.	1. Speaker 2. Audio unit/amp. output 3. Speaker circuit 4. Audio unit	1. Check speaker. 2. Check audio unit/amp. output. 3. Check wires for open or short between audio unit/amp. and speakers. 4. Remove audio unit for repair.

Inspection

NBEL0347

AUDIO UNIT AND AMP.

NBEL0347S01

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

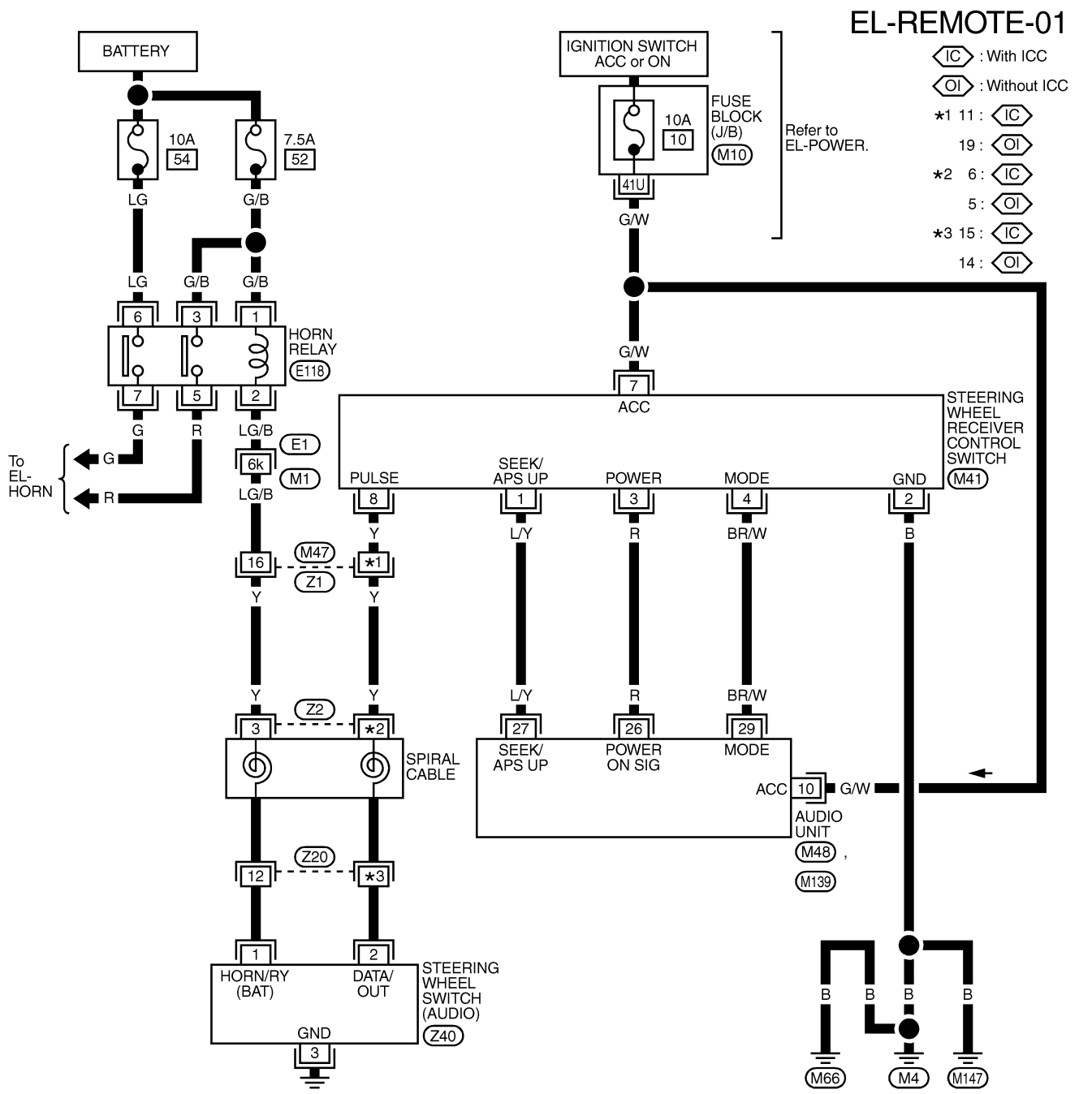
NBEL0347S02

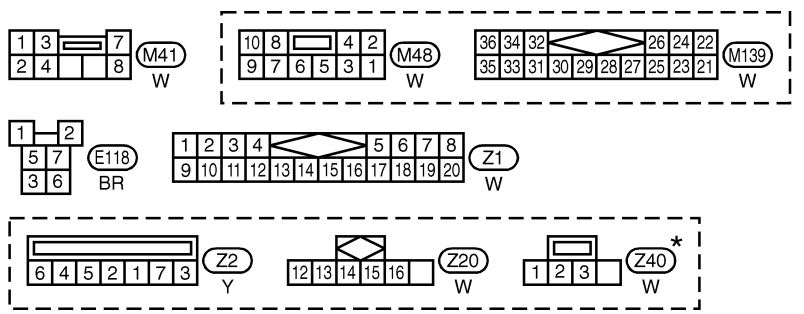
1. Using a jumper wire, clip an auxiliary ground between antenna and body.

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

Wiring Diagram — REMOTE —

NBEL0349





REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK- JUNCTION BOX (J/B)

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

MEL447O

System Description

NBEL0350

Power is supplied at all times

- through 7.5A fuse [No. 24, located in the fuse block (J/B)]
- to power antenna terminal 6.

Ground is supplied to the power antenna terminal 2 through body grounds M4, M66 and M147.
When the ignition switch is in the ACC or ON position, power is supplied

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

When the audio unit is turned to the ON position, battery positive voltage is supplied

- through audio unit terminal 5
- to power antenna terminal 4.

The antenna raises and is held in the extended position.
When the audio unit is turned to the OFF position, battery positive voltage is interrupted

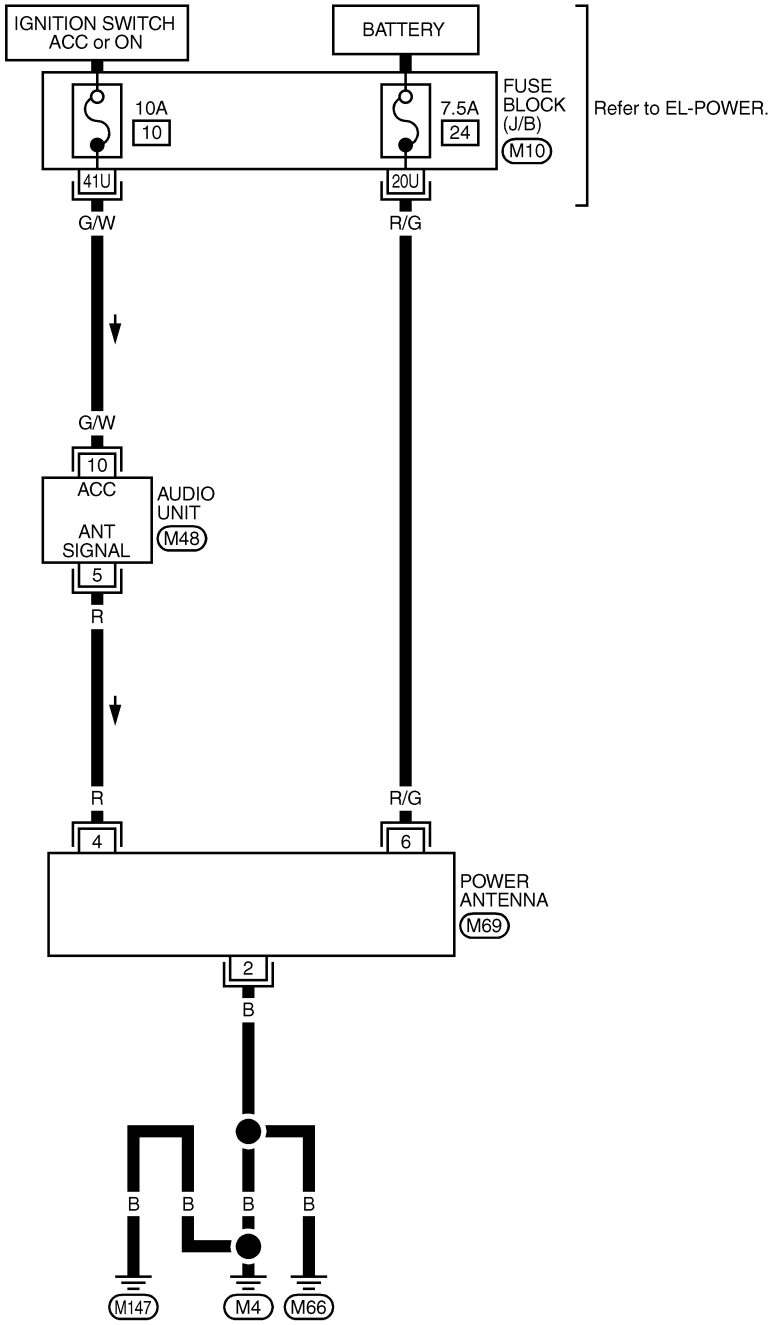
- from audio unit terminal 5
- to power antenna terminal 4.

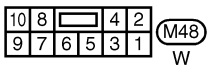
The antenna retracts.

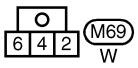
Wiring Diagram — P/ANT —

NBEL0351

EL-P/ANT-01







REFER TO THE FOLLOWING.
M10 - FUSE BLOCK - JUNCTION BOX (J/B)

MEL824L

Trouble Diagnoses

NBEL0352

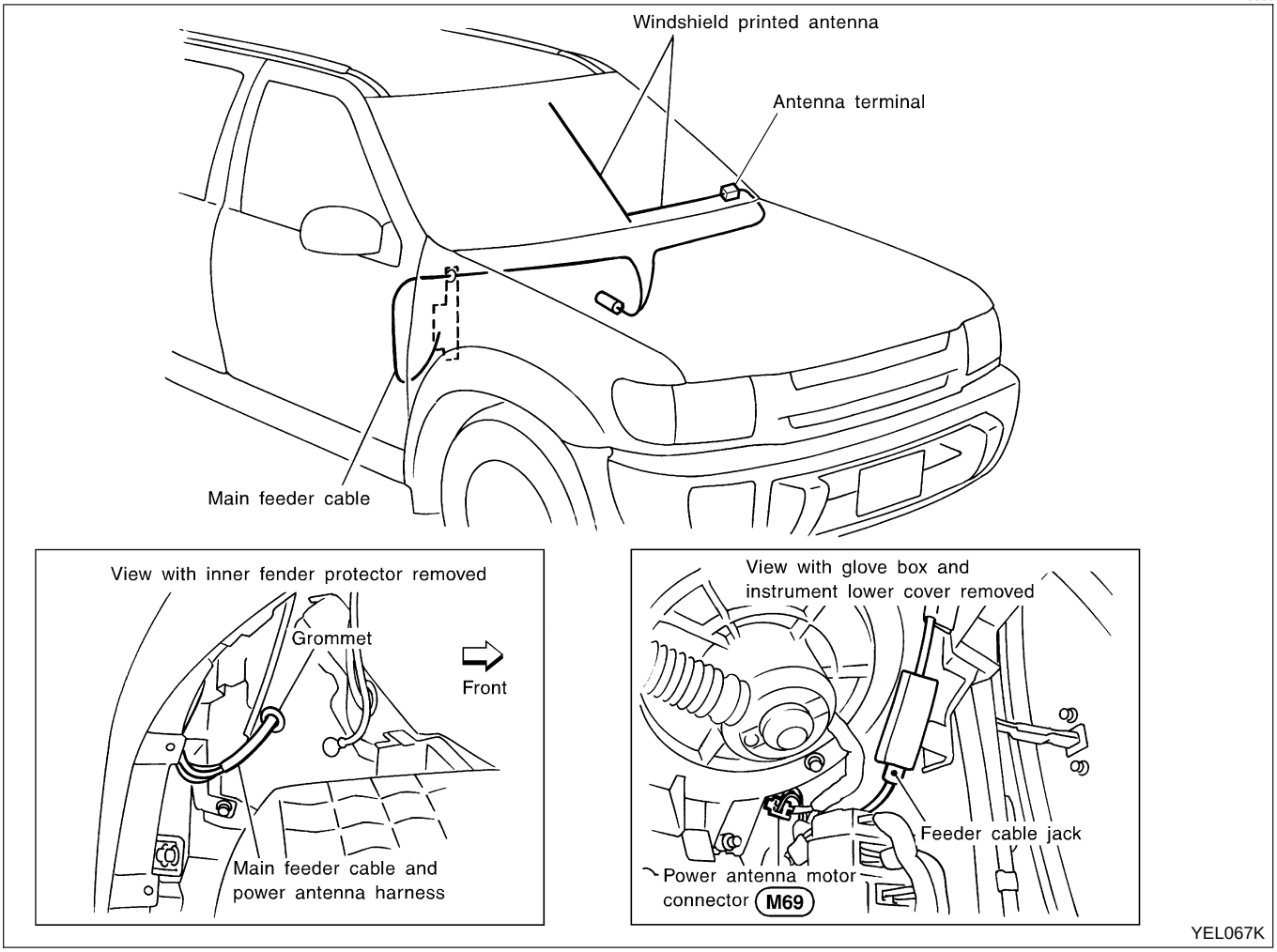
POWER ANTENNA

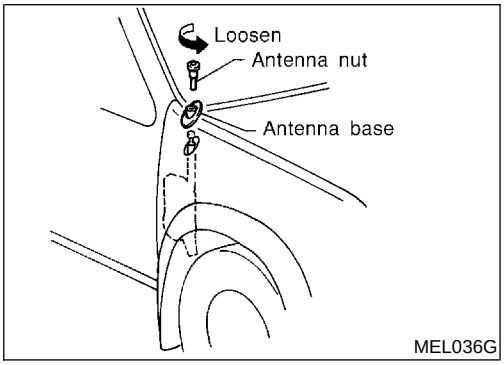
NBEL0352S01

Symptom	Possible causes	Repair order
Power antenna does not operate.	1. 7.5A fuse 2. Audio unit signal 3. Grounds M4, M66 and M147	1. Check 7.5A fuse [No. 24, located in fuse block (J/B)]. Verify that battery positive voltage is present at terminal 6 of power antenna. 2. Turn ignition switch and audio unit ON. Verify that battery positive voltage is present at terminal 4 of power antenna. 3. Check grounds M4, M66 and M147.

Location of Antenna

NBEL0353





Antenna Rod Replacement

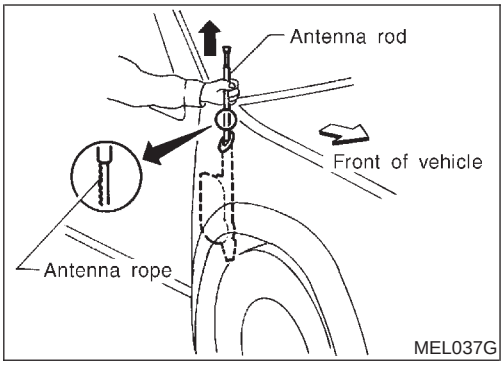
NBEL0354

REMOVAL

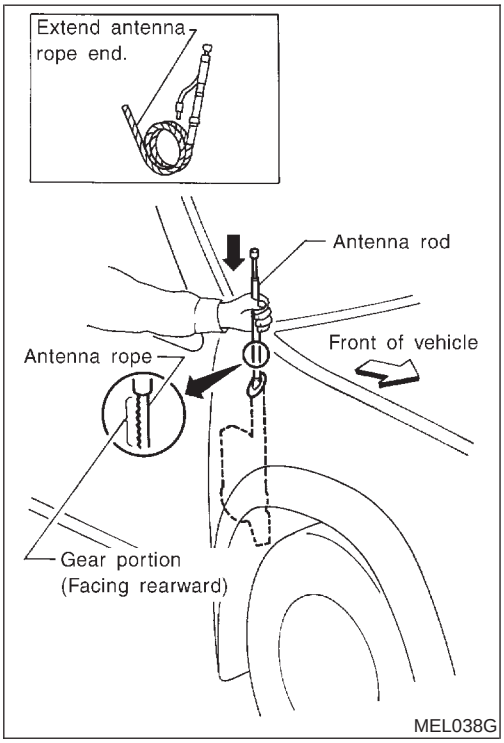
NBEL0354S01

1. Remove antenna nut and antenna base.

Antenna Rod Replacement (Cont'd)



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



INSTALLATION

NBEL0354S02

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

System Description

NBEL0355

OUTLINE

NBEL0355S01

Electric sunroof system consists of

- Sunroof switch
- Sunroof motor
- Smart entrance control unit

Smart entrance control unit controls retained power operation.

OPERATION

NBEL0355S02

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

RETAINED POWER OPERATION

NBEL0355S04

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.

When power and ground are supplied, power window relay continues to be energized, and the electrical sunroof can be operated.
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-215)

INTERRUPTION DETECTION FUNCTION

NBEL0355S05

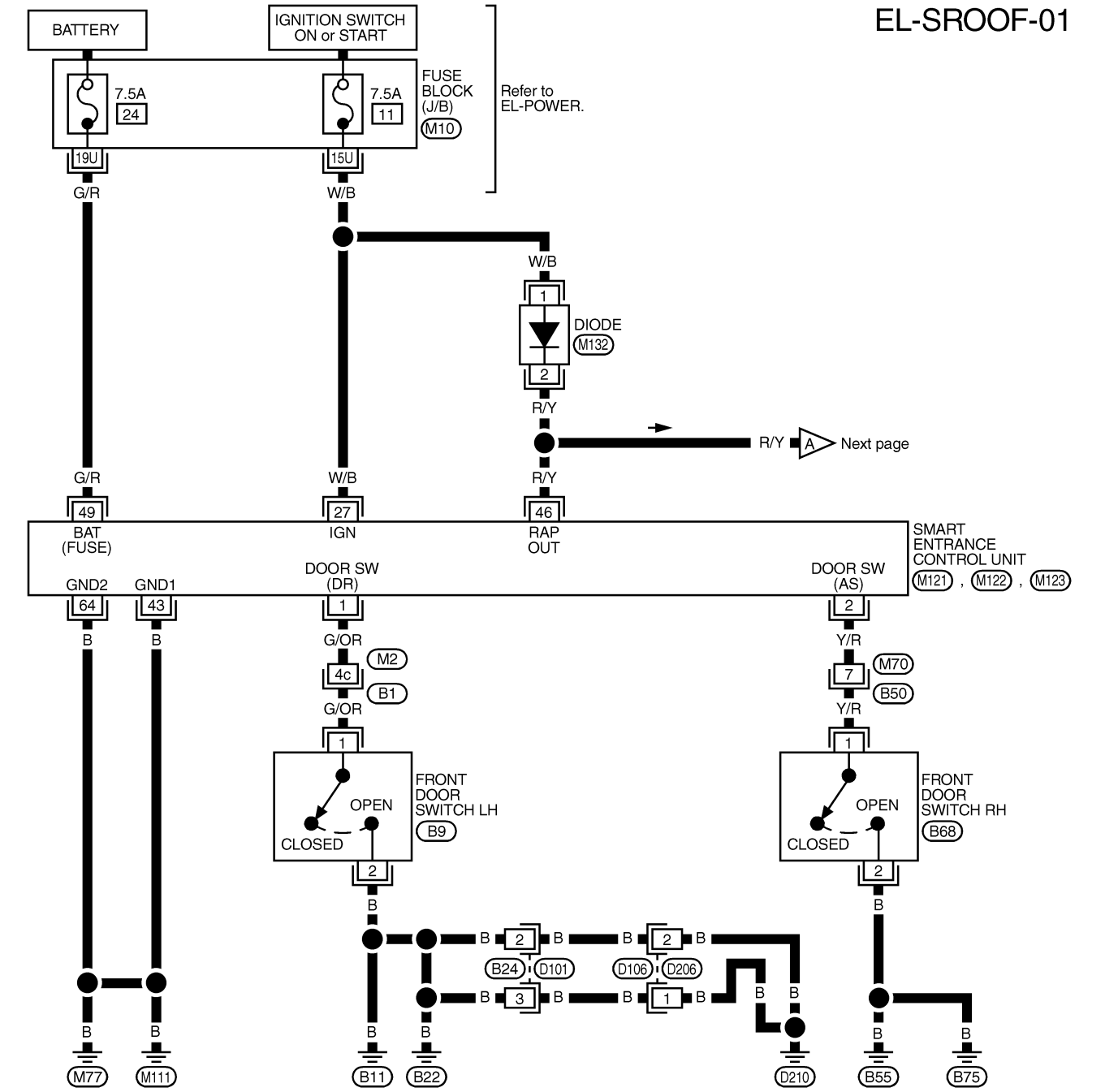
The CPU of sunroof motor monitors the sunroof motor operation and the sunroof position (full closed or other) for sunroof by the signals from encoder and limit switch in sunroof motor.
When sunroof motor detects interruption during the following close operation,

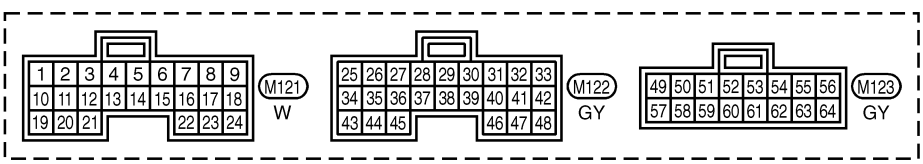
- automatic close operation when ignition switch is in the “ON” position
- automatic close operation during retained power operation

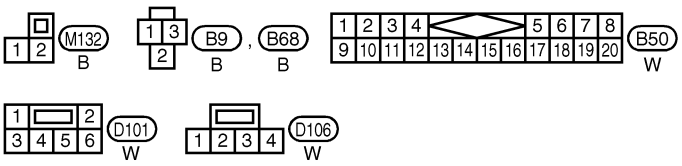
sunroof switch controls the motor for open and the sunroof will operate about 150 mm (5.91 in).

Wiring Diagram — SROOF —

NBEL0356





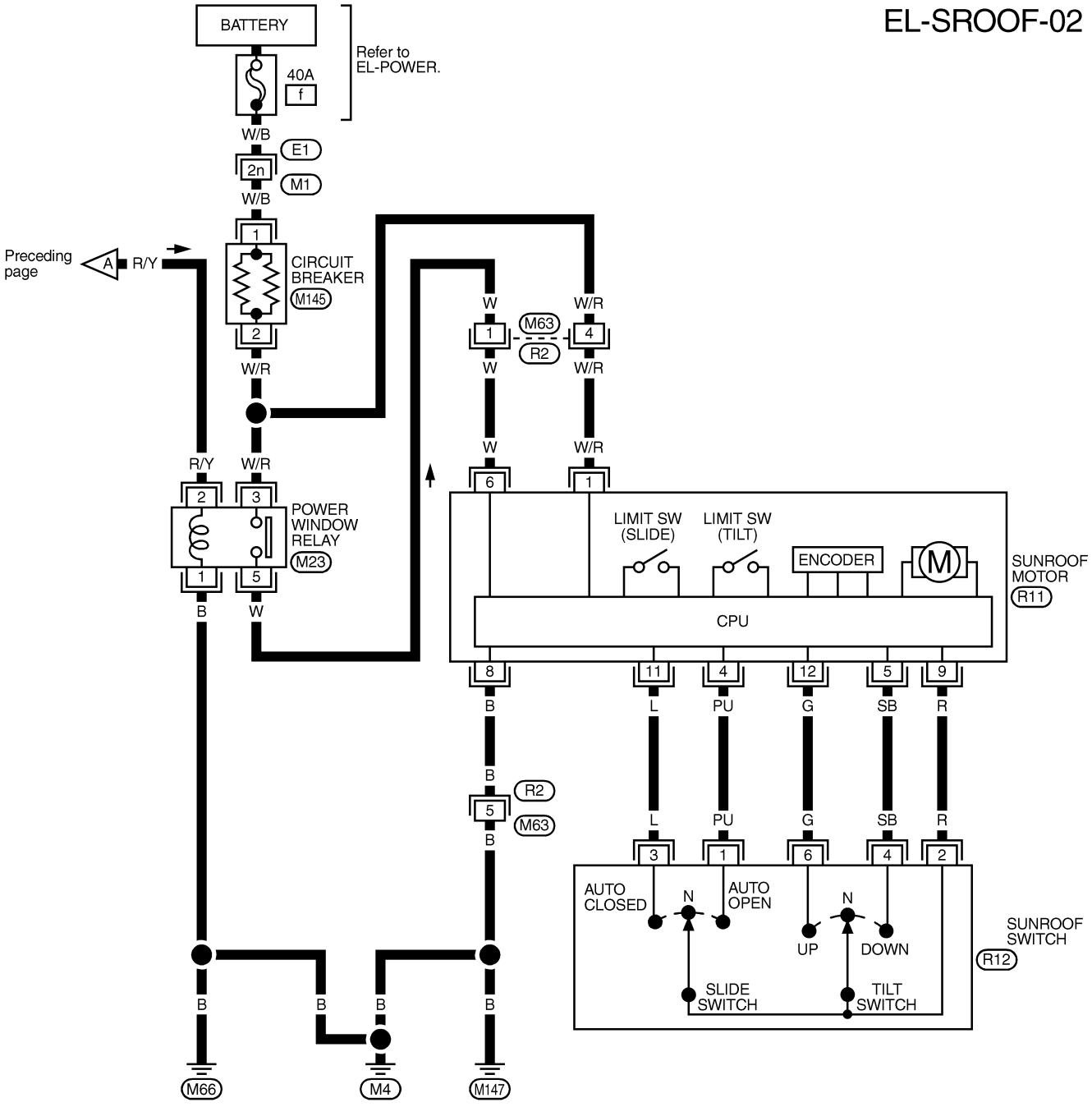


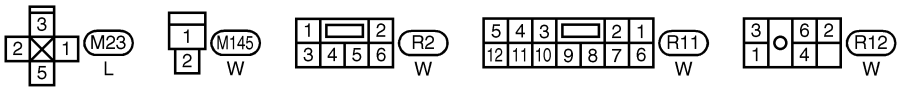
H.S.

REFER TO THE FOLLOWING.
B1 - SUPER MULTIPLE JUNCTION (SMJ)
M10 - FUSE BLOCK - JUNCTION BOX (J/B)

MEL448O

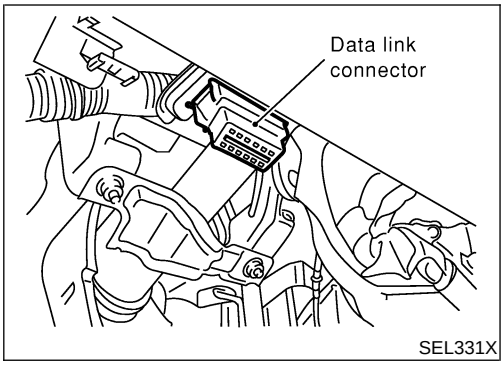
EL-SROOF-02





REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL614P



SEL331X

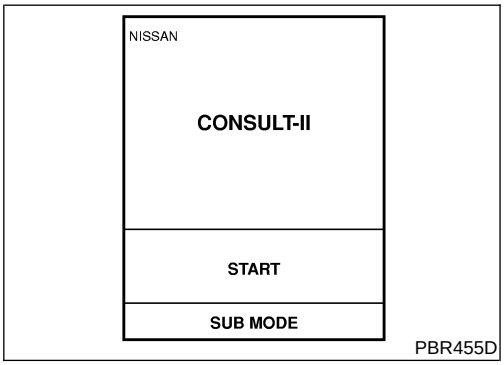
CONSULT-II Inspection Procedure

=NBEL0357

“RETAINED PWR”

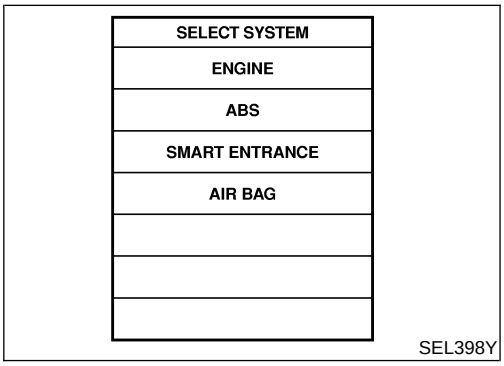
NBEL0357S01

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



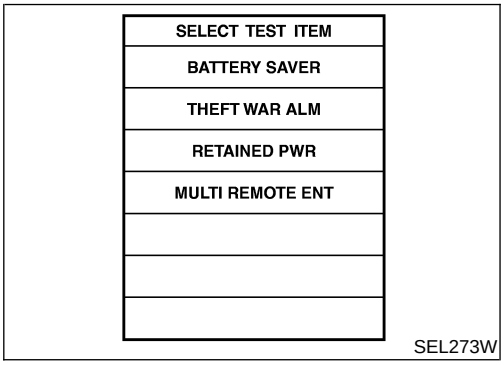
PBR455D

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



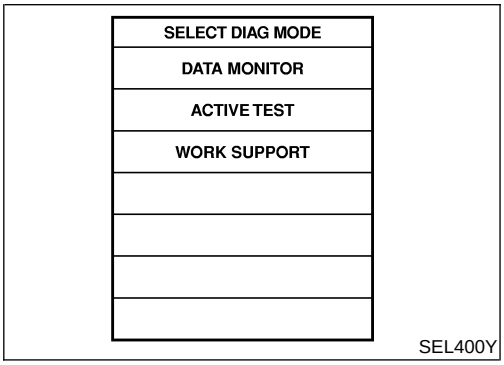
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL273W

6. Touch “RETAINED PWR”.



SEL400Y

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

CONSULT-II Application Items

NBEL0455

"RETAINED PWR" Data Monitor

NBEL0455S01

NBEL0455S0101

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

NBEL0455S0102

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. **NOTE:** **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

NBEL0455S0103

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 three steps. ● MODE 1 (45 sec.)/MODE 2 (OFF)/MODE 3 (2 min.)

Trouble Diagnoses

NBEL0456

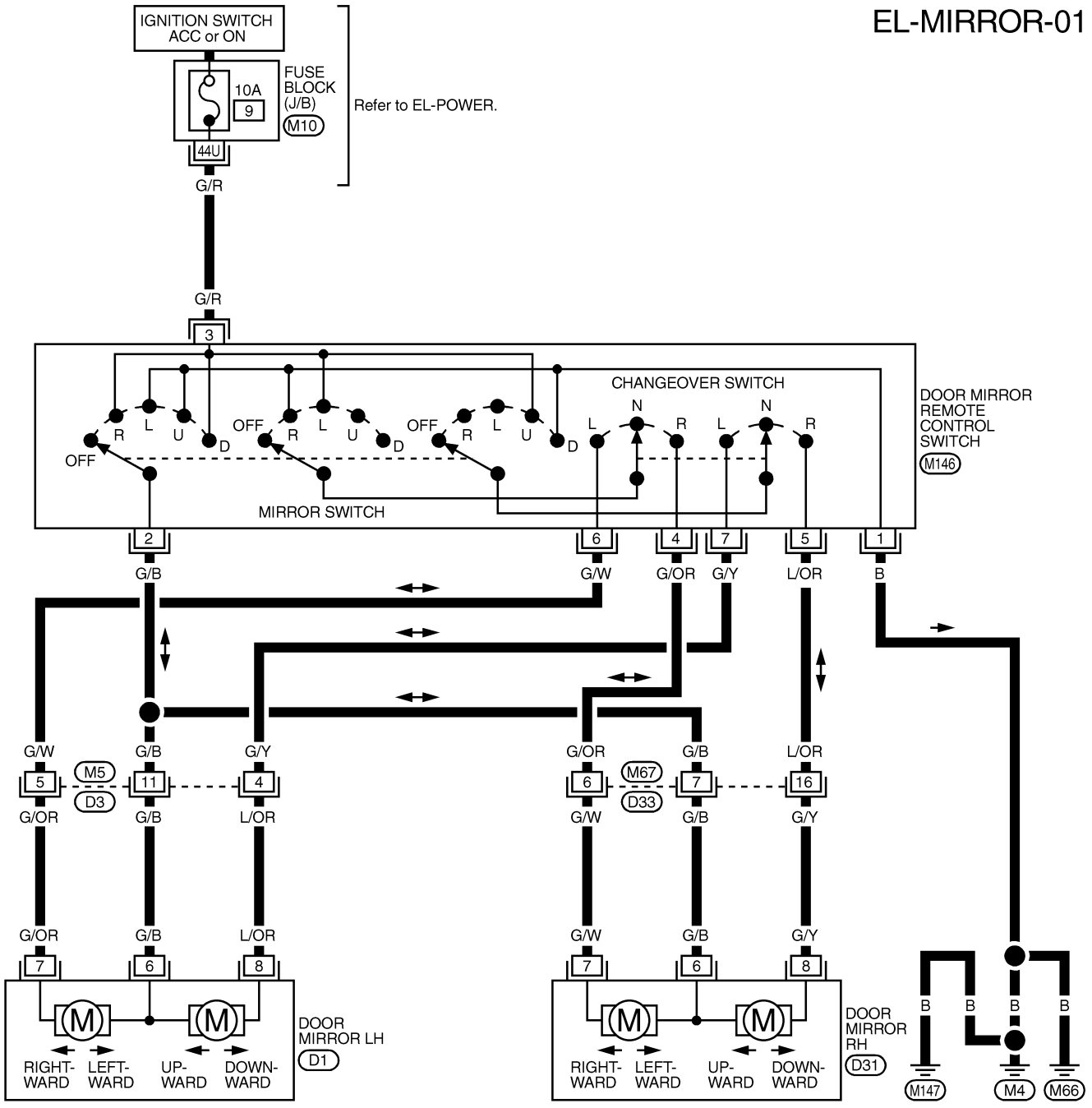
Symptom	Possible cause	Repair order
Power sunroof cannot be operated using any switch.	1. 7.5A fuse, 40A fusible link and M145 circuit breaker 2. Power window relay ground circuit 3. Sunroof motor ground circuit 4. Power window relay 5. Sunroof motor circuit 6. Sunroof switch 7. Sunroof switch circuit 8. Sunroof motor	1. Check 7.5A fuse [No. 11, located in fuse block (J/B)], 40A fusible link (letter **f**, located in fuse and fusible link box) and M145 circuit breaker. Turn ignition switch "ON" and verify battery positive voltage is present at terminals 2 and 3 of power window relay and terminal 1 of sunroof motor. 2. Check power window relay ground circuit. 3. Check sunroof motor ground circuit. 4. Check power window relay. 5. Check the wire between power window relay and sunroof motor. 6. Check sunroof switch. 7. Check harness between sunroof switch and sunroof motor. 8. Check sunroof motor.
Power sunroof cannot be operated using one of the sunroof switches.	1. Sunroof switch 2. Sunroof switch circuit	1. Check sunroof switch. 2. Check the harness between sunroof motor and sunroof switch.

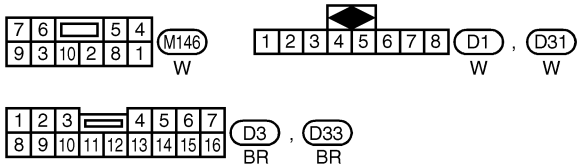
Trouble Diagnoses (Cont'd)

Symptom	Possible cause	Repair order
Power sunroof cannot be opened or closed fully.	1. Full closed position not initialized 2. Sunroof slide mechanism 3. Sunroof switch 4. Sunroof switch circuit 5. Sunroof motor	1. Initialize full closed position. 2. Check the following. a. Check obstacles in sunroof, etc. b. Check worn or deformed sunroof. c. Check sunroof sash tilted too far inward or outward. 3. Check sunroof switch. 4. Check harness between sunroof motor and sunroof switch. 5. Replace sunroof motor.
Retained power operation does not operate properly.	1. RAP signal circuit 2. Driver or passenger side door switch circuit 3. Smart entrance control unit	1. Check RAP signal. a. (With CONSULT-II) Check RAP signal with CONSULT-II. Use "ACTIVE TEST" mode, "RETAINED PWR" in "SMART ENTRANCE". (Refer to EL-215.) If NG, go to the step b. below. b. Verify 12 positive voltage from smart entrance control unit is present at terminal 2 of power window relay: ● Within 45 seconds after ignition switch turns off. ● When front door LH and RH is closed. 2. Check the following. a. Harness between smart entrance control unit and driver or passenger side door switch. b. Driver or passenger side door switch ground circuit. c. Driver or passenger side door switch. 3. Check smart entrance control unit. (EL-486)

Wiring Diagram — MIRROR —

NBEL0360





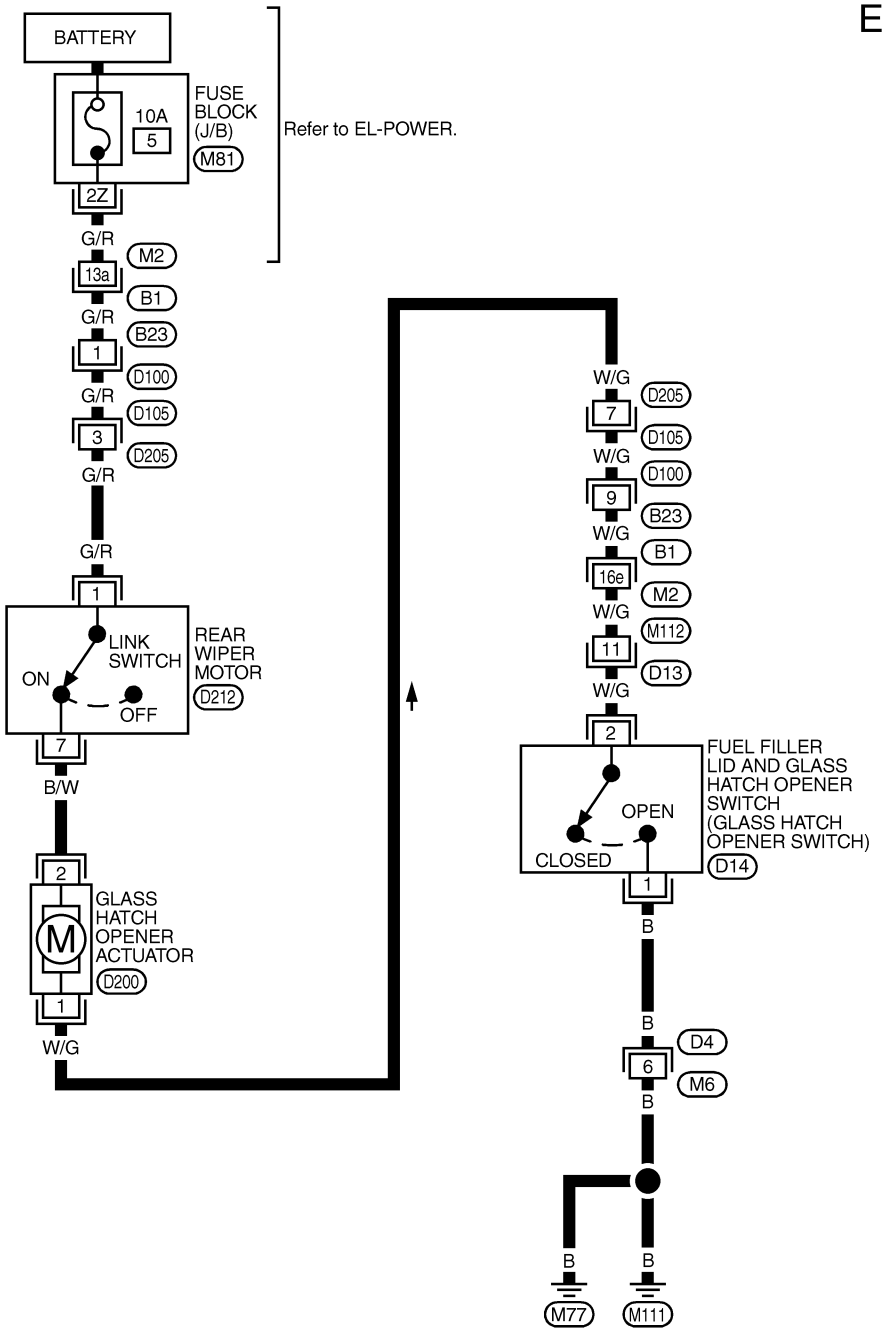
REFER TO THE FOLLOWING.
M10 - FUSE BLOCK - JUNCTION BOX (J/B)

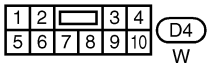
MEL615P

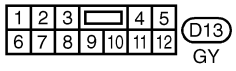
Wiring Diagram — TLID —

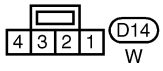
NBEL0479

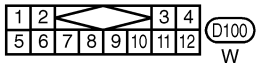
EL-TLID-01

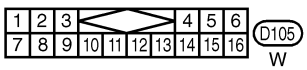


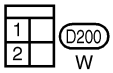


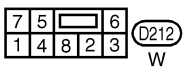












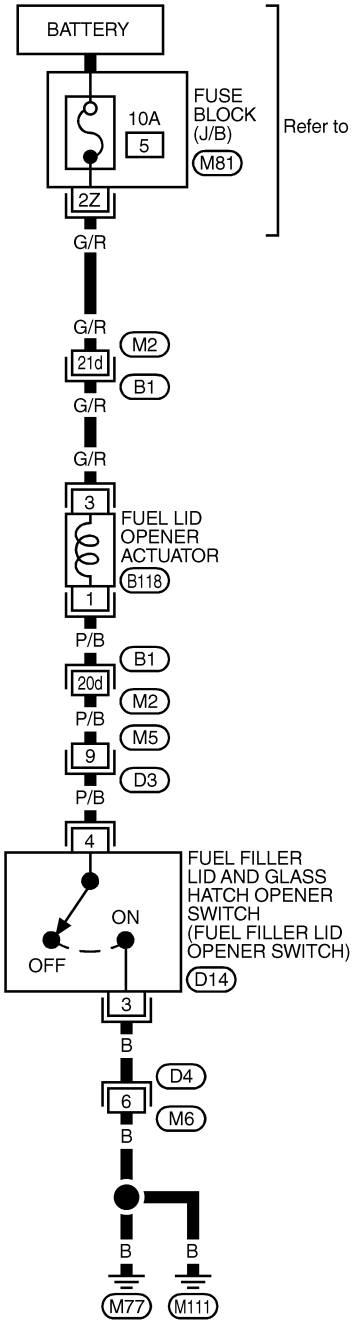
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M81 -FUSE BLOCK-JUNCTION BOX (J/B)

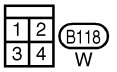
MEL449O

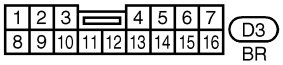
Wiring Diagram — F/LID —

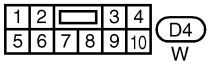
NBEL0480

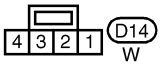
EL-F/LID-01











REFER TO THE FOLLOWING.

B1 - SUPER MULTIPLE JUNCTION (SMJ)

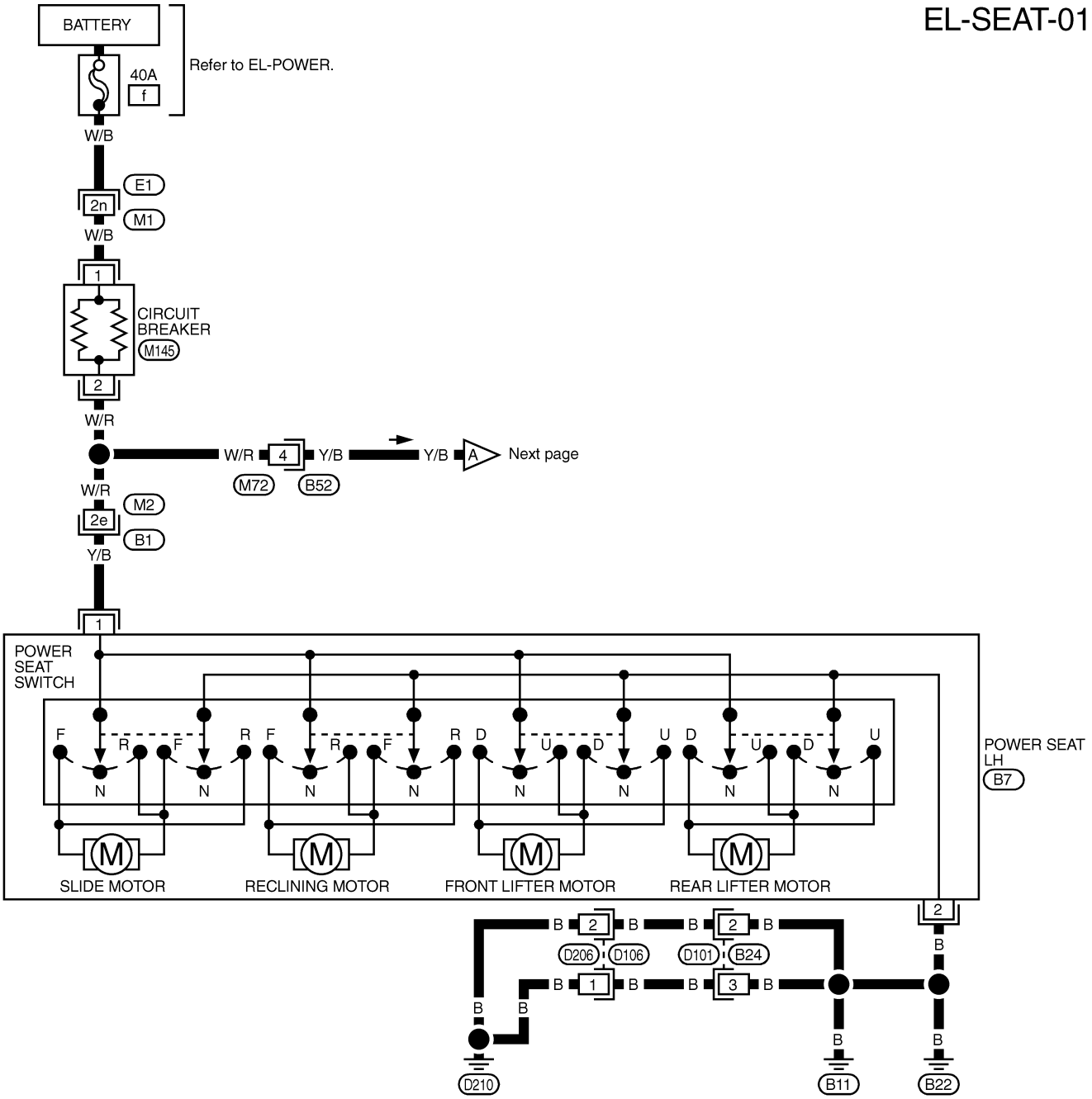
M81 - FUSE BLOCK - JUNCTION BOX (J/B)

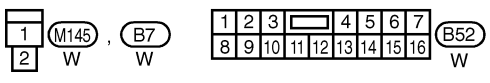
MEL208N

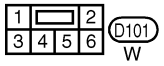
Wiring Diagram — SEAT —

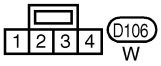
NBEL0361

EL-SEAT-01





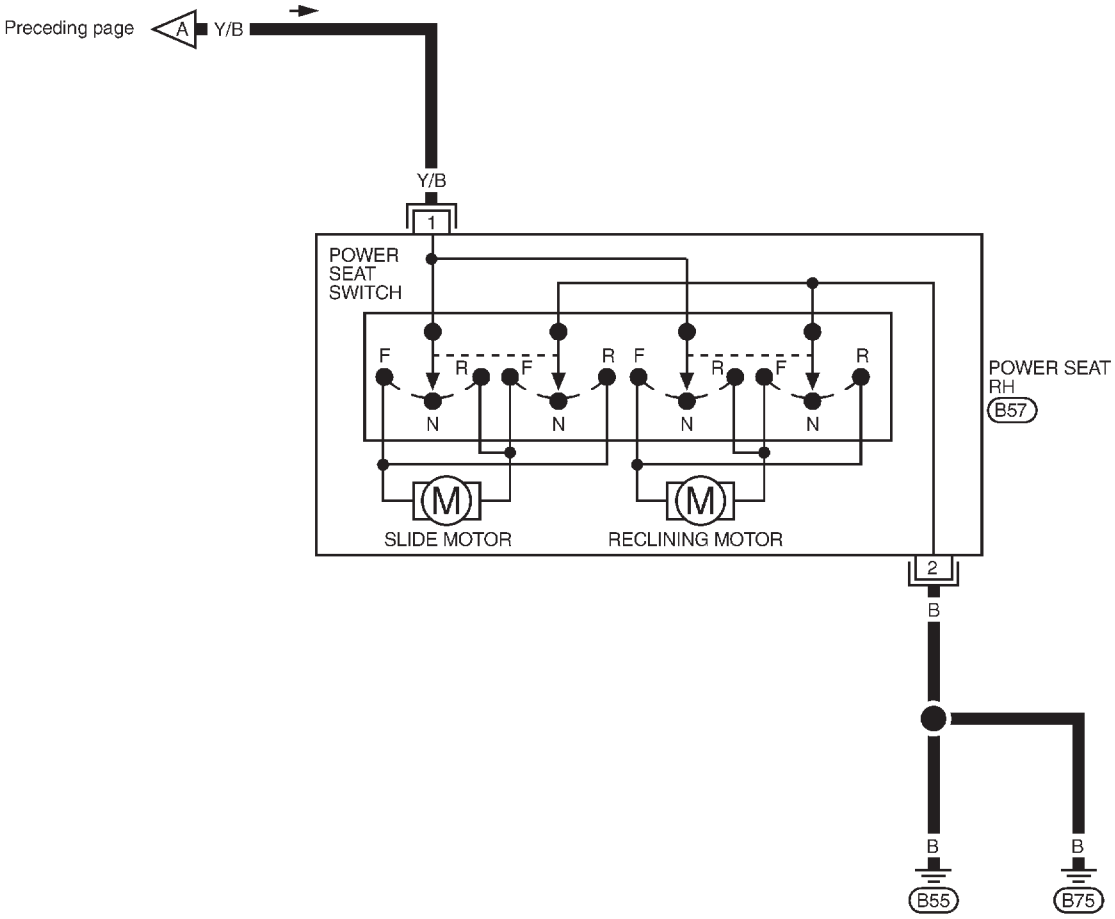


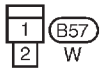


REFER TO THE FOLLOWING.

E1 , B1 - SUPER MULTIPLE JUNCTION (SMJ)

MEL830L

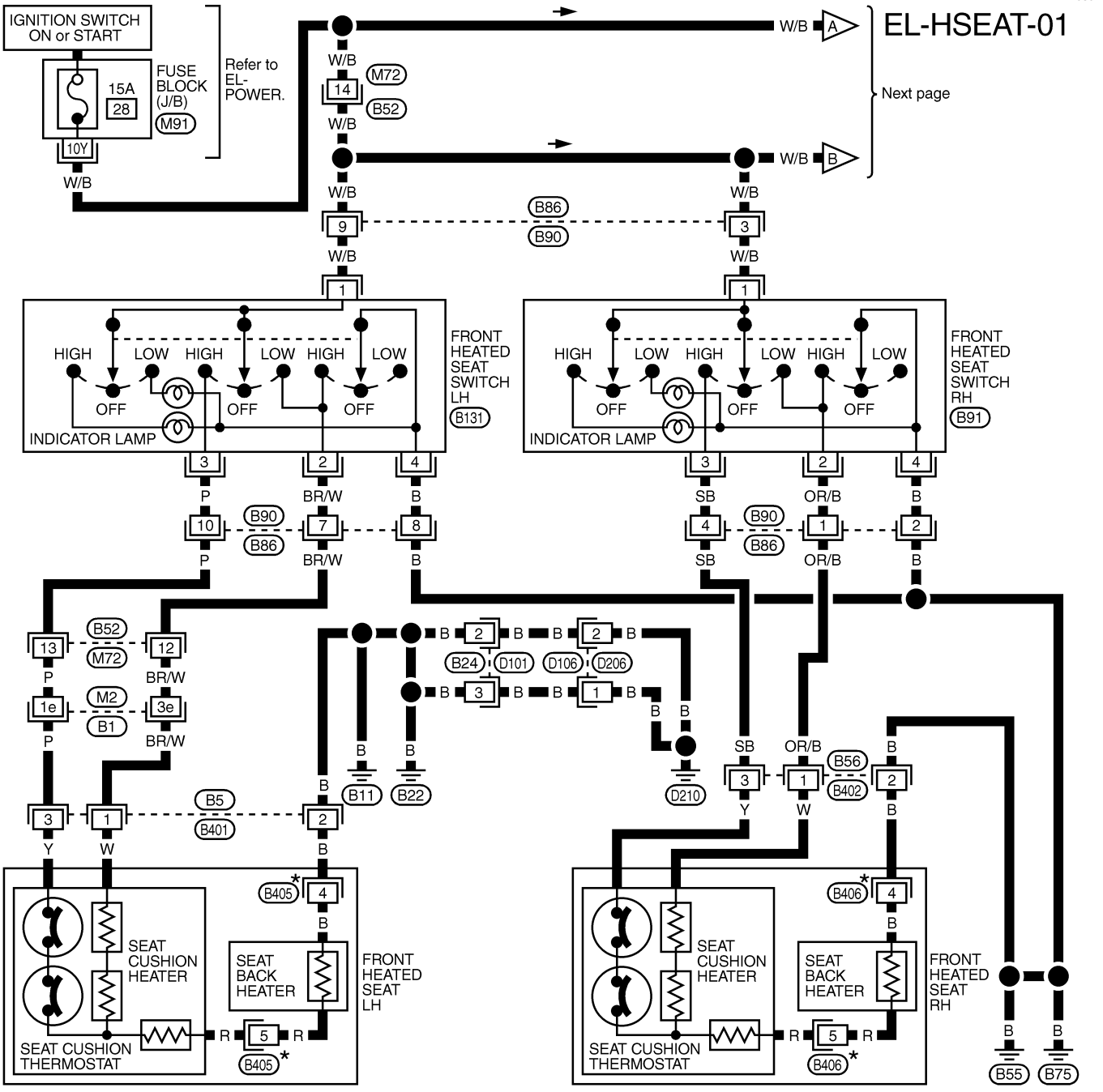

Preceding page
A
Y/B
Y/B
1
POWER SEAT SWITCH
F
R
F
R
F
R
F
R
N
N
N
N
M
M
SLIDE MOTOR
RECLINING MOTOR
POWER SEAT RH
B57
2
B
B
B
B55
B75

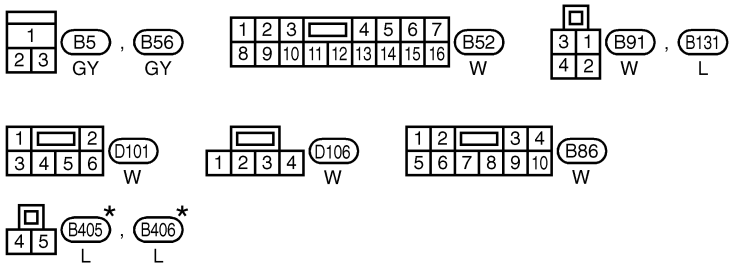

1
2
B57
W

MEL601F

Wiring Diagram — HSEAT —

NBEL0362



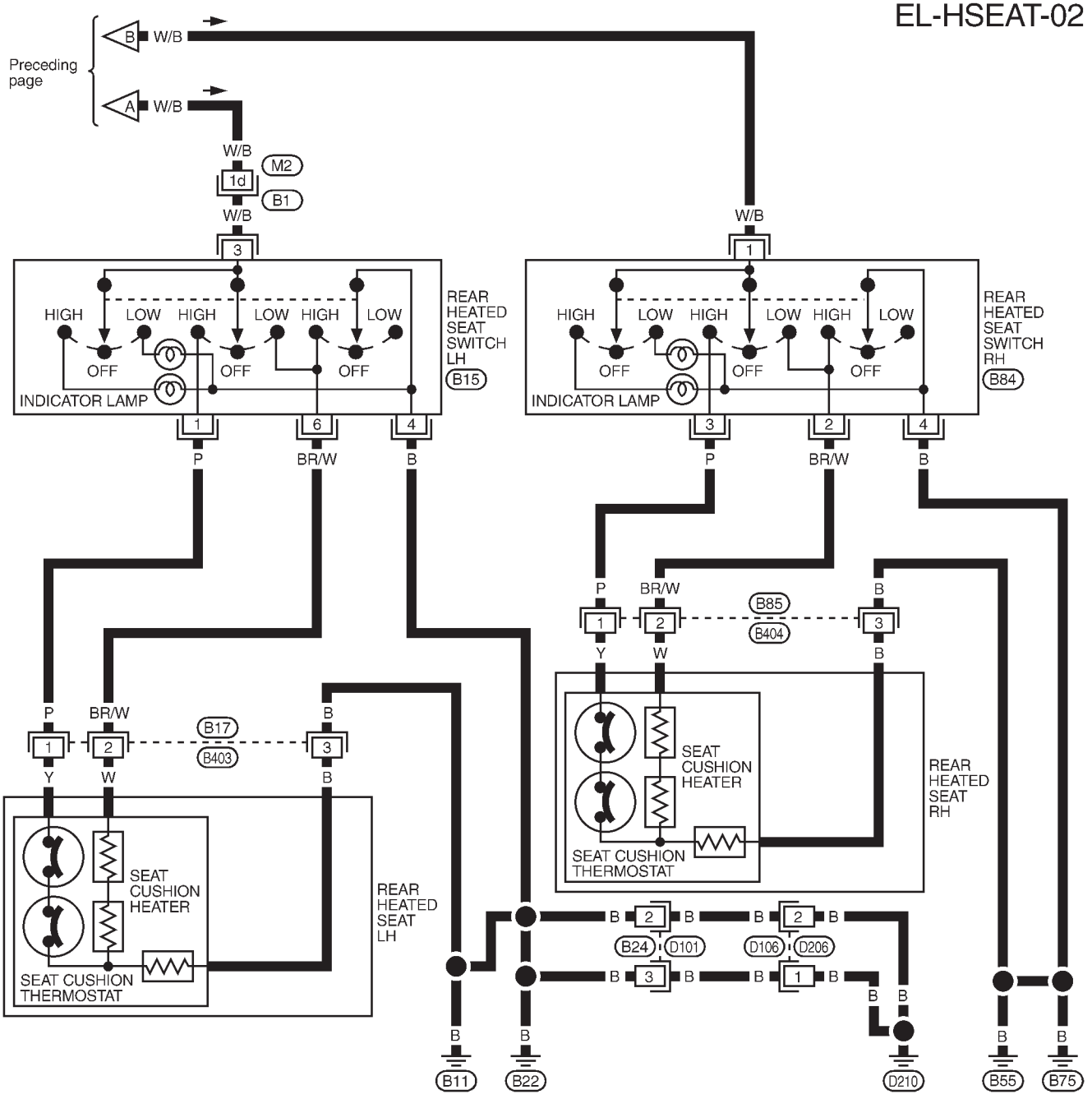


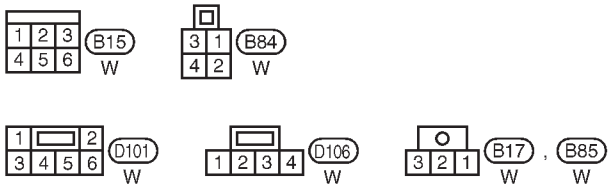
* : This connector is not shown in "HARNESS LAYOUT", EL section.

REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M91 -FUSE BLOCK- JUNCTION BOX (J/B)

MEL973O

EL-HSEAT-02



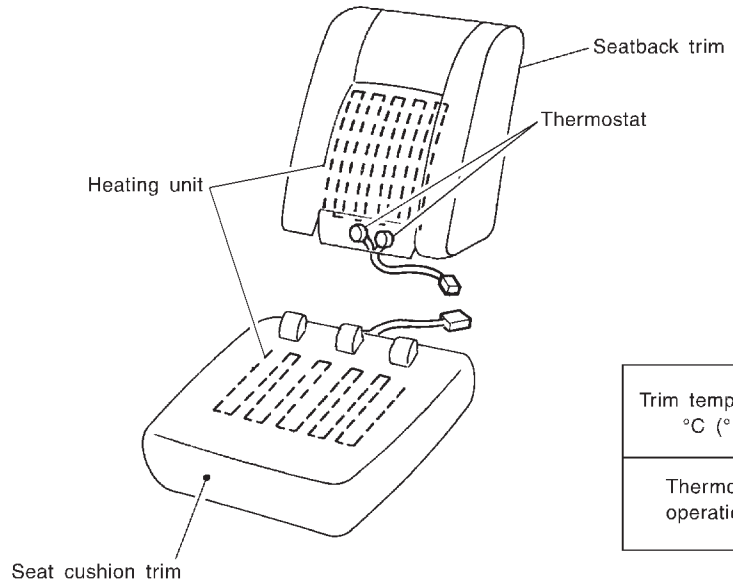


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL832L

Seatback Heating Unit

NBEL0363

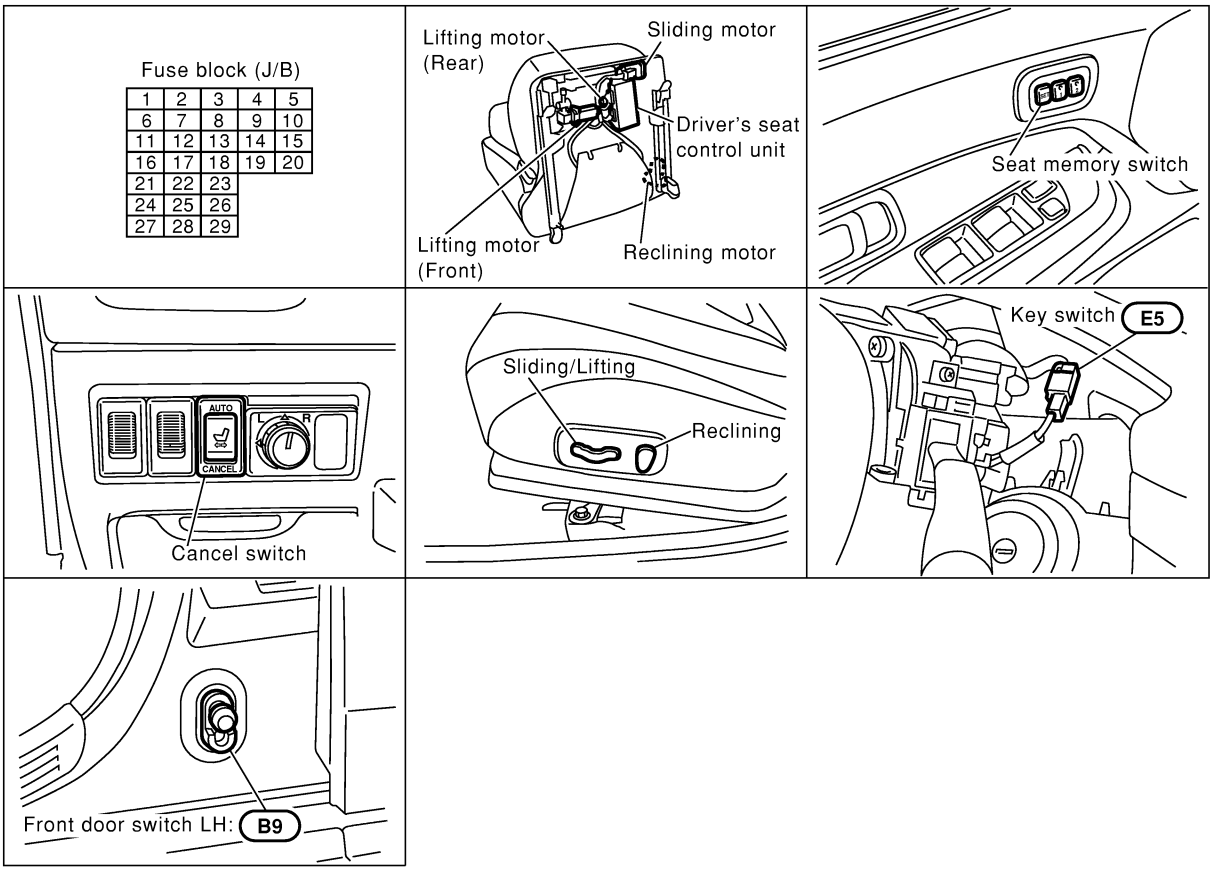


Trim temperature °C (°F)	Increasing to 35 - 45 (95 - 113)	Decreasing to 25 - 35 (77 - 95)
Thermostat operation	OFF	ON

SBT314

Component Parts and Harness Connector Location

NBEL0364



SEL190Y

System Description

=NBEL0365

OPERATIVE CONDITION

NBEL0365S01

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

Manual Operation

NBEL0365S0101

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

NBEL0365S0102

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

NBEL0365S02

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".
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

NBEL0365S03

Output Failure

NBEL0365S0301

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

NBEL0365S0302

When moving selector lever back to "P" position after having moved it to any position except "P", fail-safe operation will be canceled.

INITIALIZATION

NBEL0365S04

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

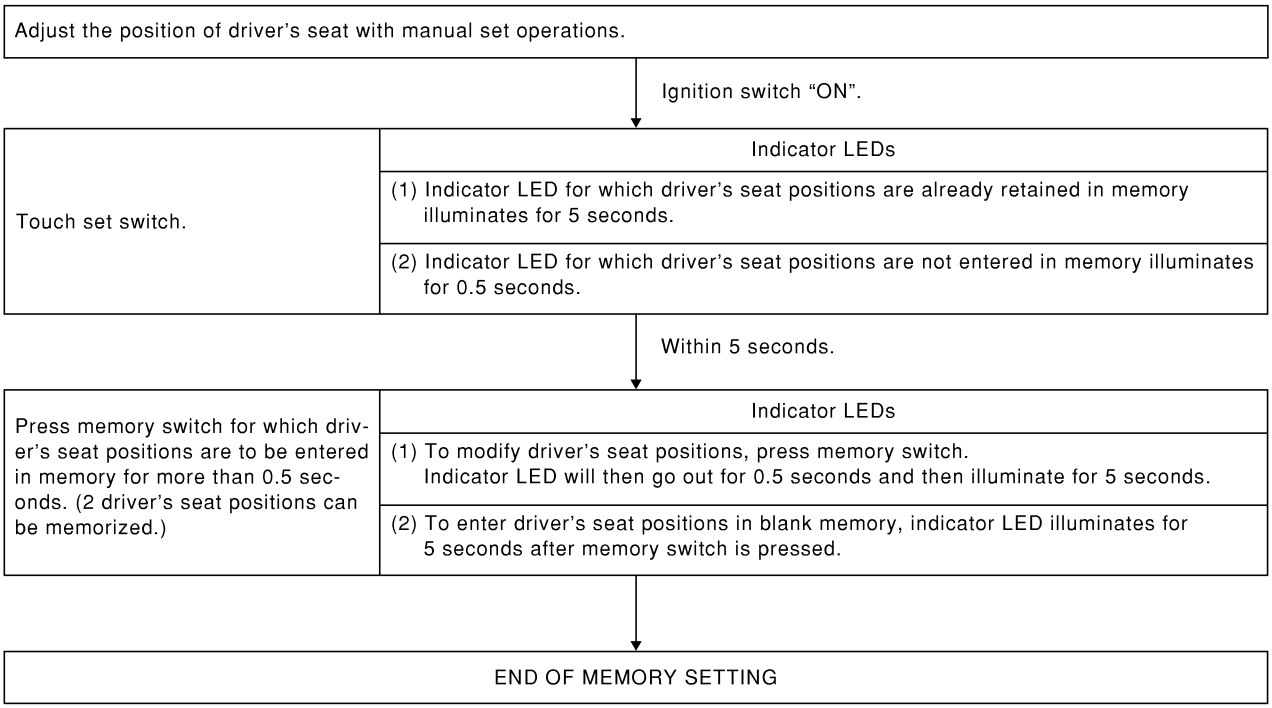
1) Drive the vehicle at more than 25 km/h (16 MPH).
2) End

MEMORY AUTOMATIC SET

=NBEL0365S05

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

PROCEDURE FOR STORING MEMORY

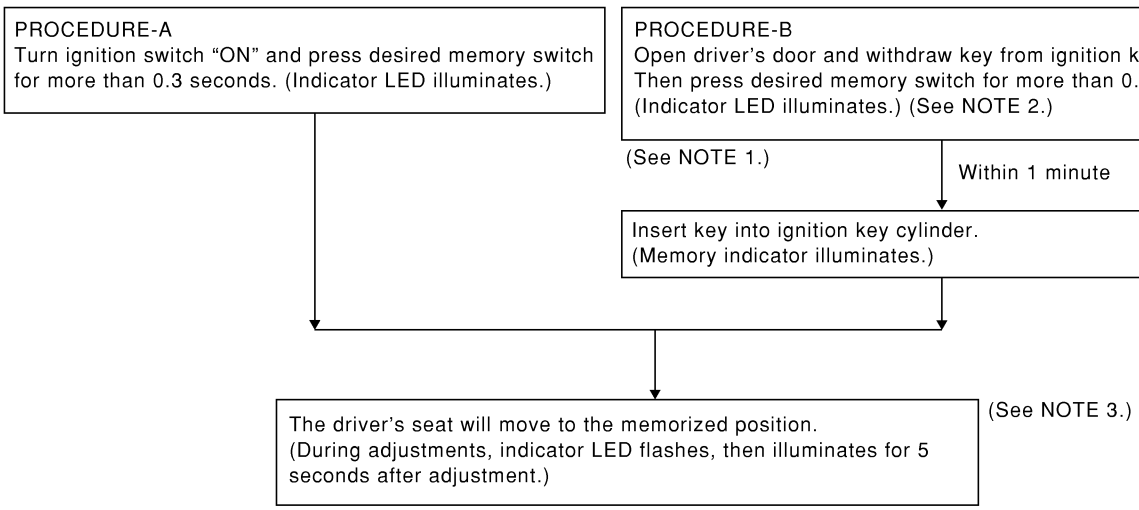


SEL592W

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



SEL593W

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.

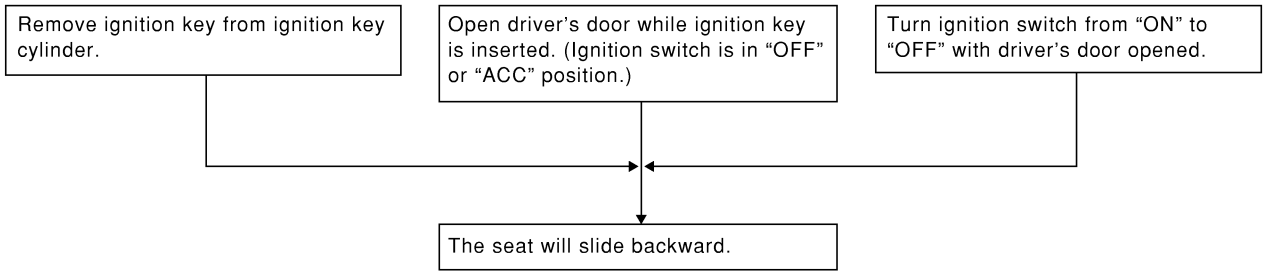
The order of priority	Operated portion
1	Seat sliding
2	Seat reclining
3	Seat front lifting
4	Seat rear lifting

AUTOMATIC EXITING SETTING

NBEL0365S06

"Exiting" positions:

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

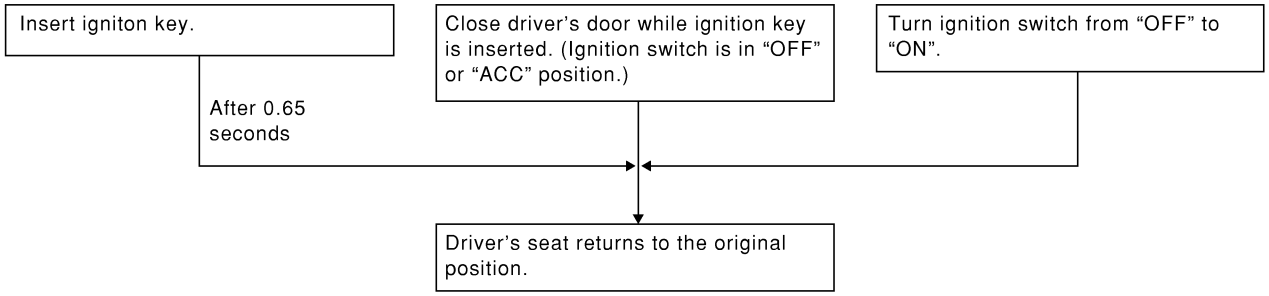


SEL594W

AUTOMATIC SET RETURN

NBEL0365S07

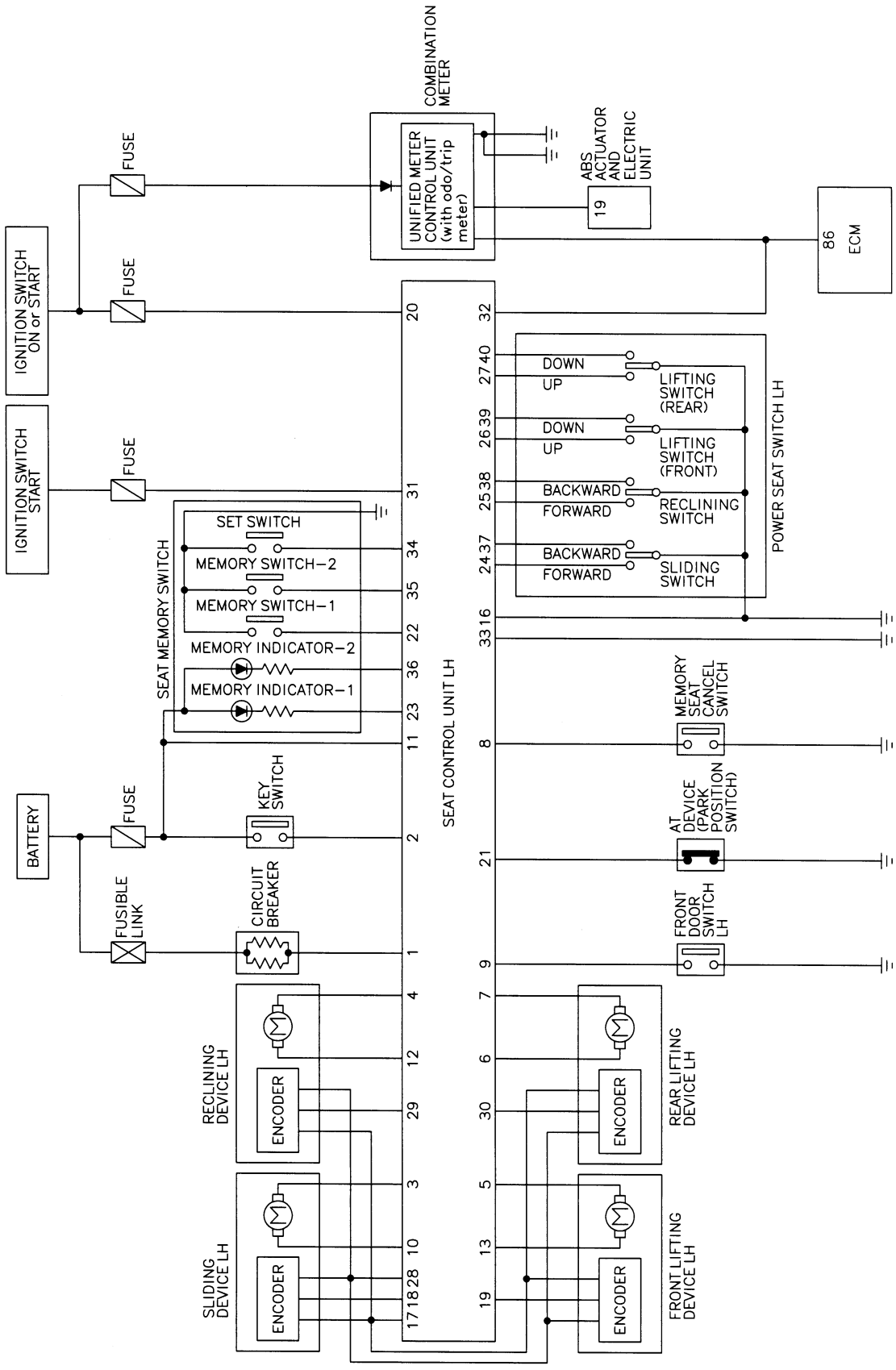
With driver's seat set to the "exiting" position, operating one of the following procedures moves it to the position previously retained in memory.



SEL595W

Schematic

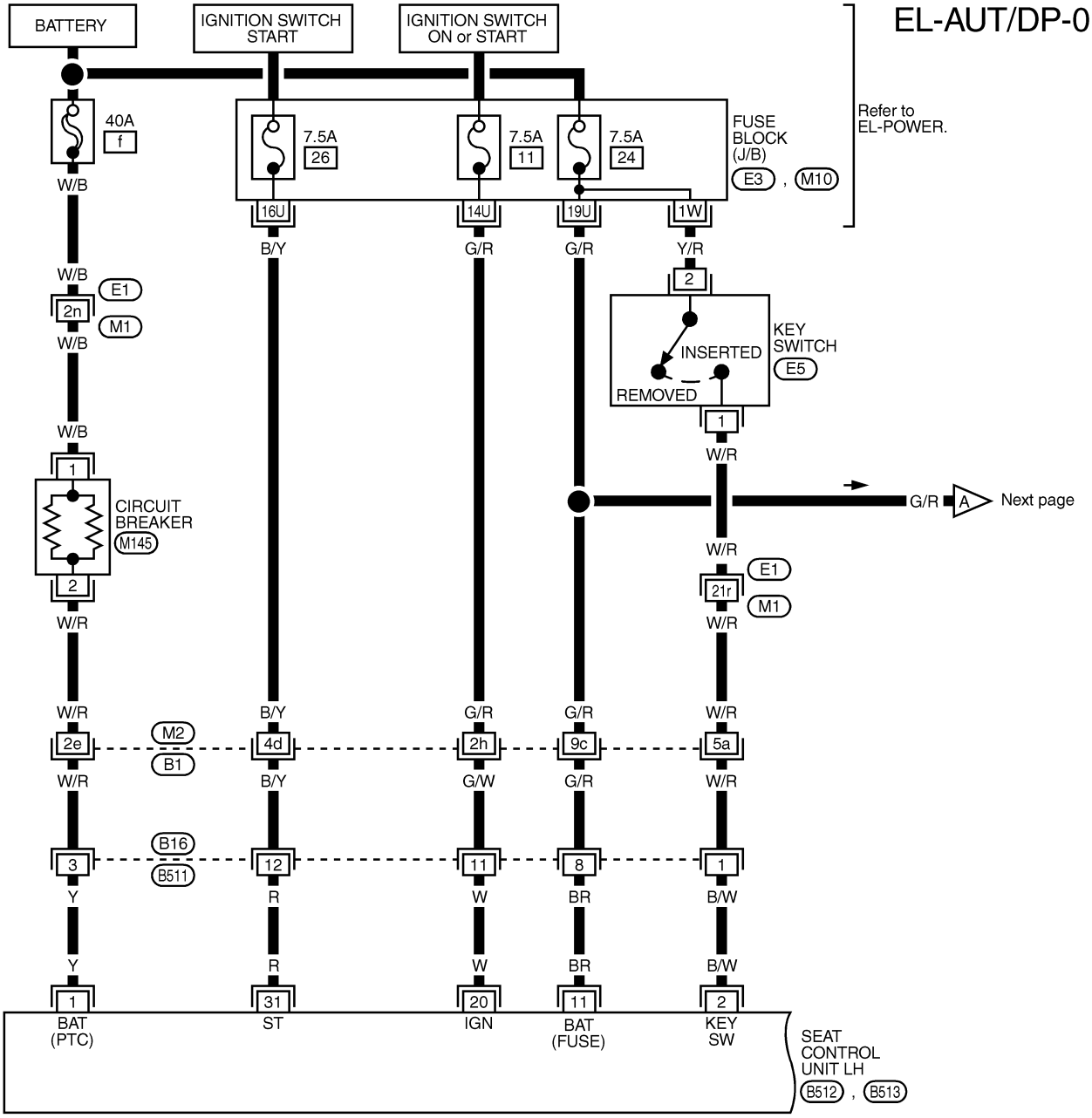
NBEL0366

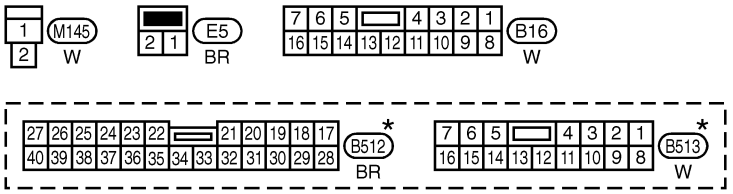


MEL209N

Wiring Diagram — AUT/DP —

NBEL0367



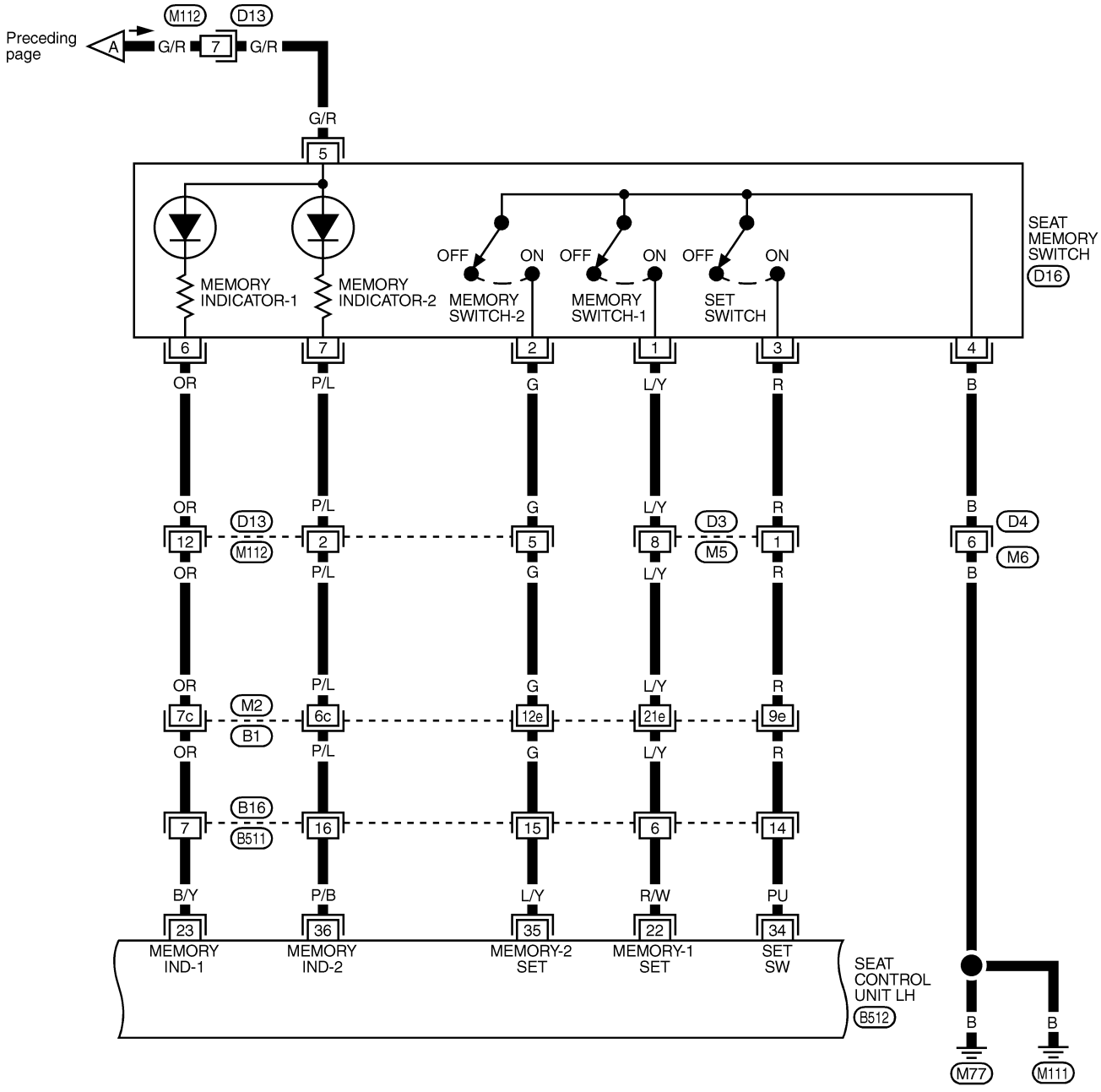


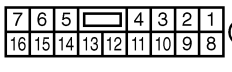
★ : This connector is not shown in "HARNESS LAYOUT", EL section.

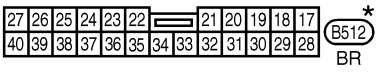
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

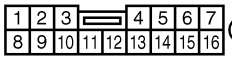
MEL616P

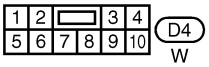
EL-AUT/DP-02

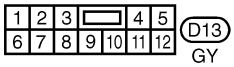


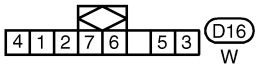










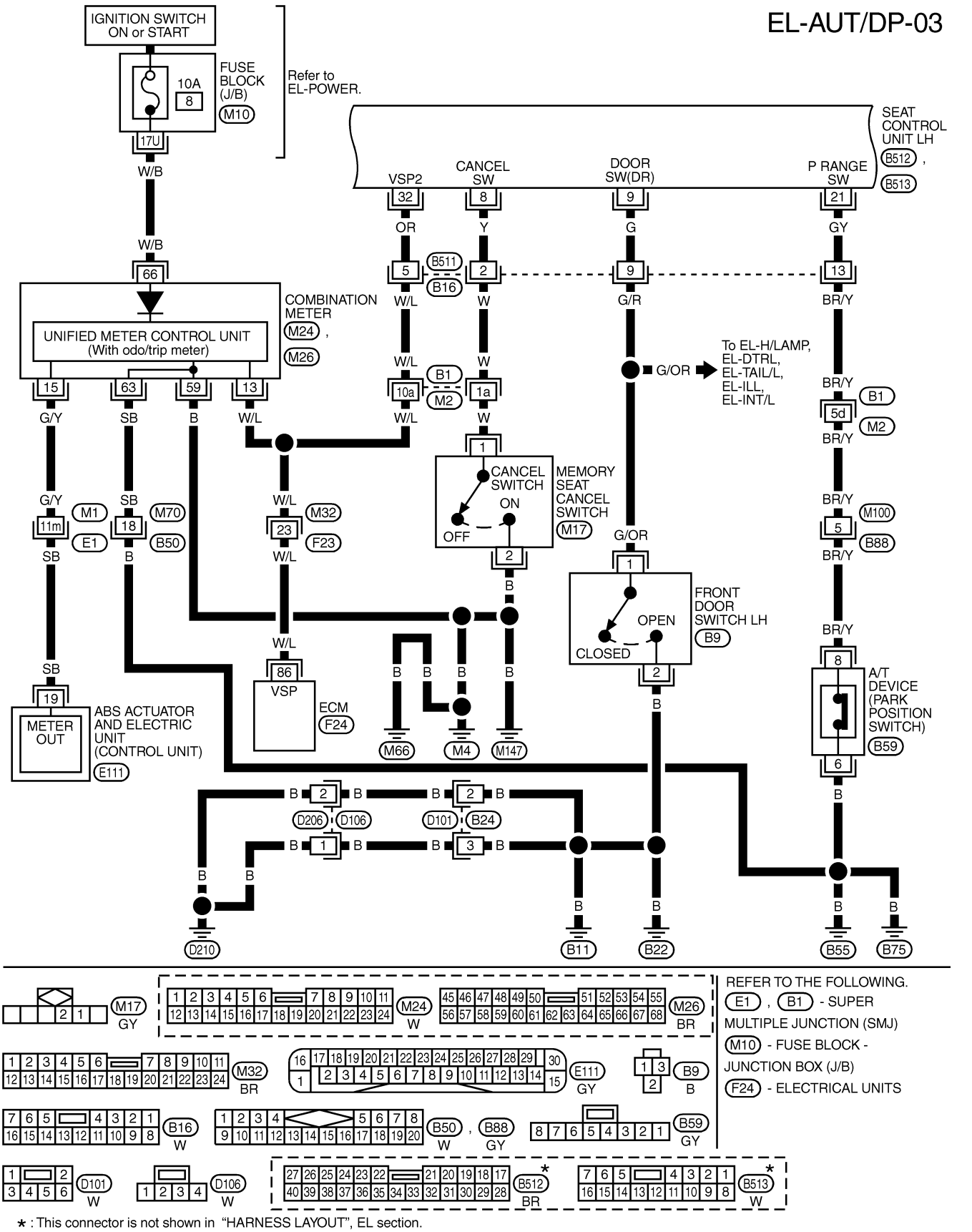


∗ : This connector is not shown in "HARNESS LAYOUT", EL section.

REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

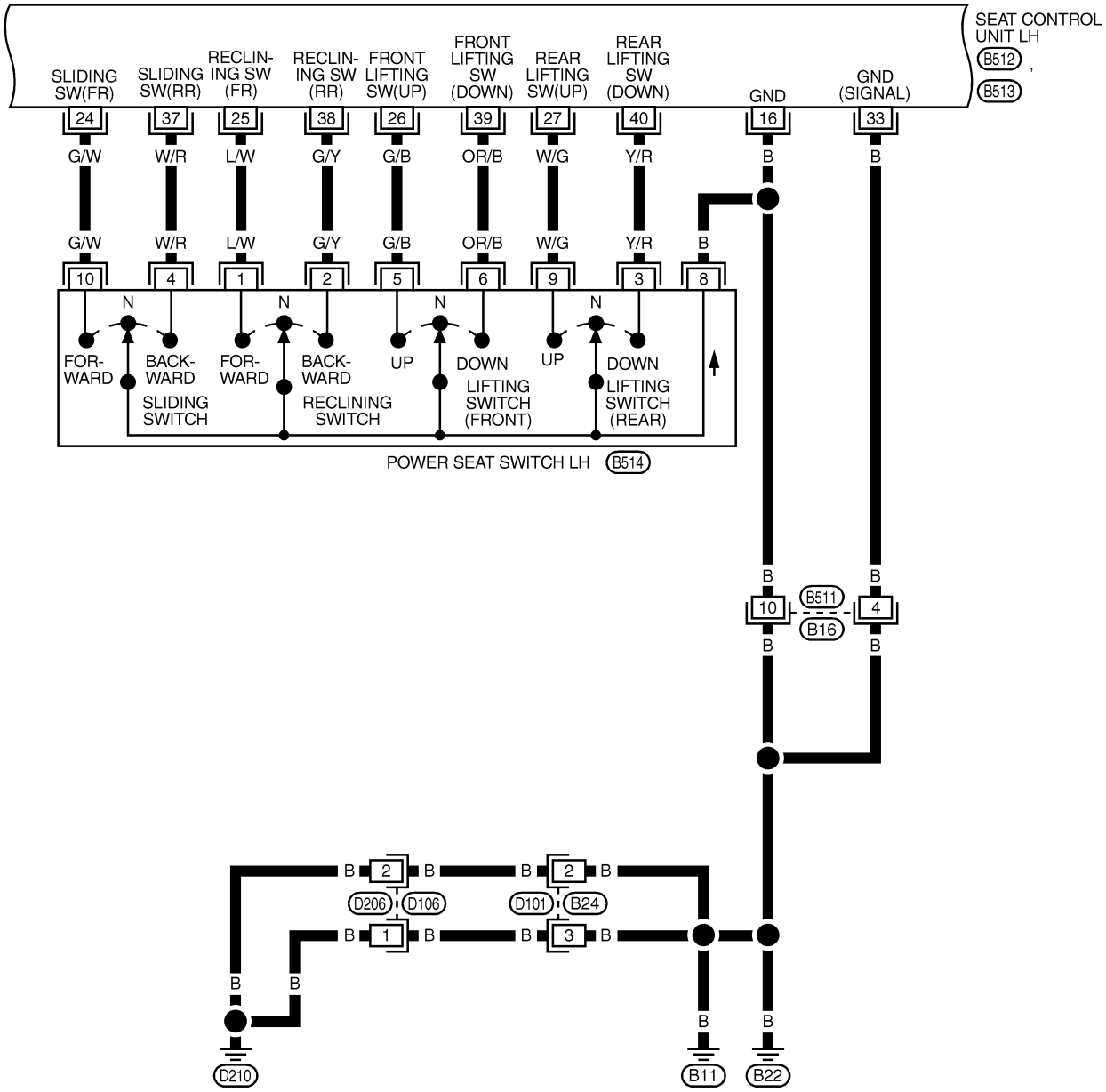
MEL617P

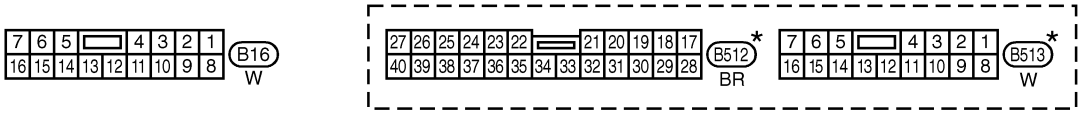
Wiring Diagram — AUT/DP — (Cont'd)

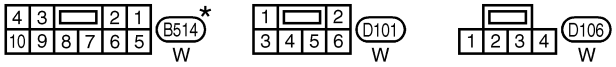


* : This connector is not shown in "HARNESS LAYOUT", EL section.

MEL618P



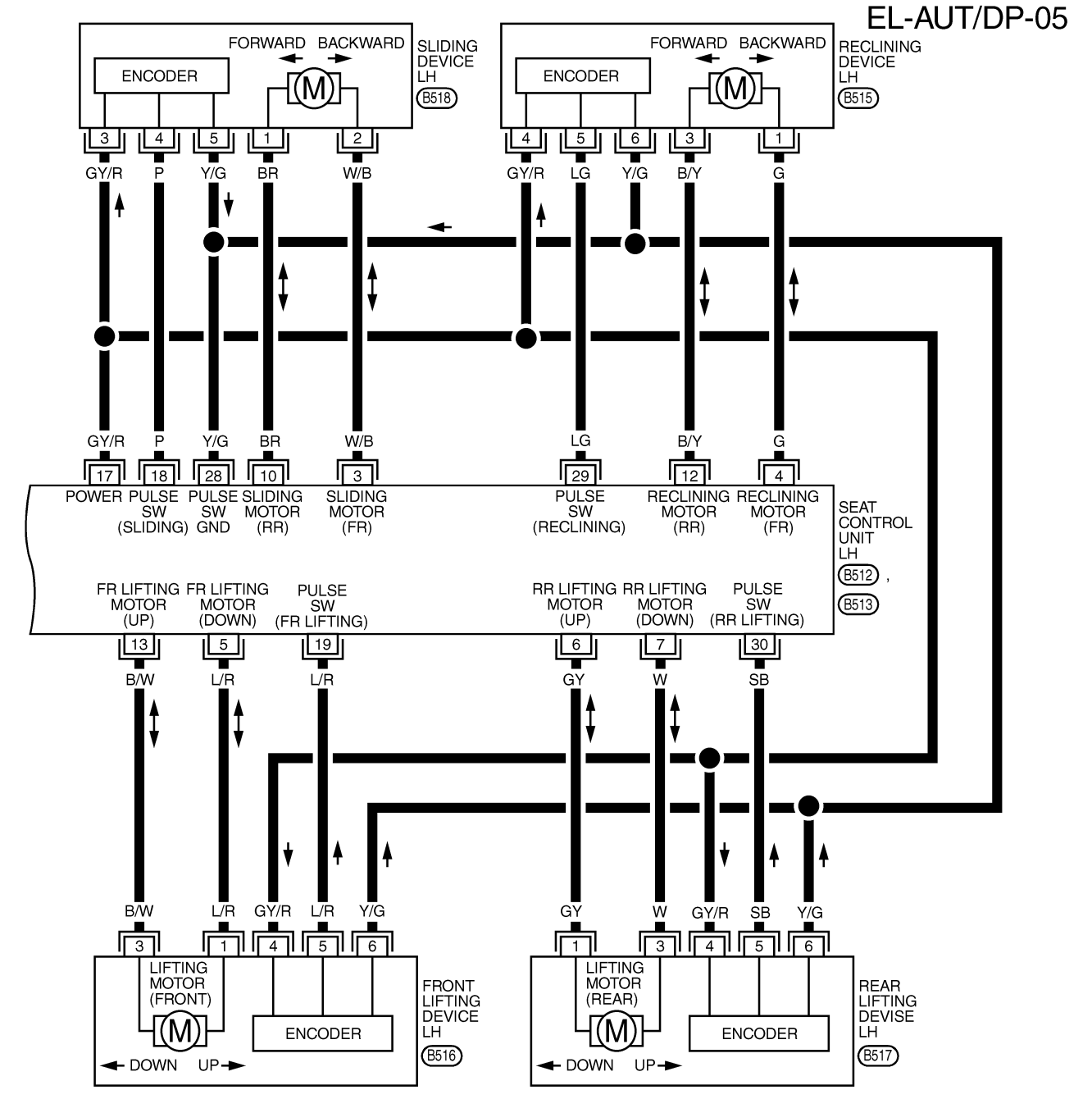


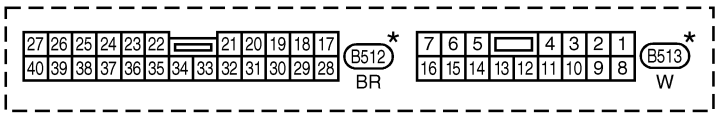


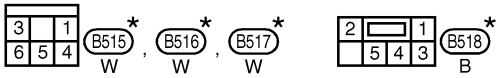
∗ : This connector is not shown in "HARNESS LAYOUT", EL section.

MEL186M

Wiring Diagram — AUT/DP — (Cont'd)





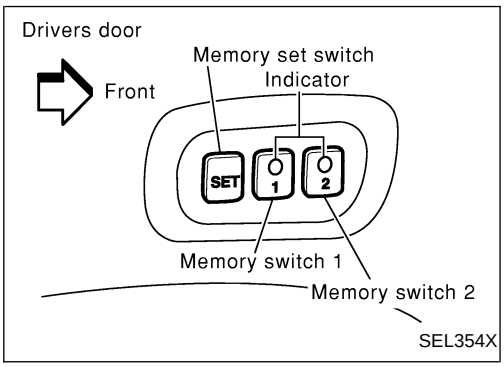


∗ : This connector is not shown in "HARNESS LAYOUT", EL section.

MEL187M

On Board Diagnosis

NBEL0368



HOW TO PERFORM SELF-DIAGNOSIS

NBEL0368S01

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

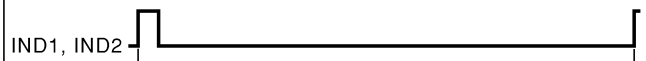
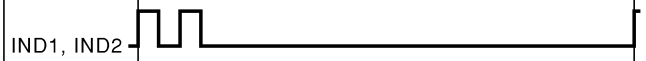
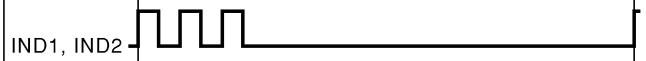
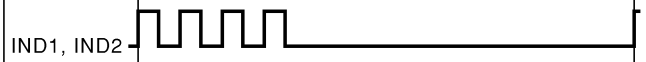
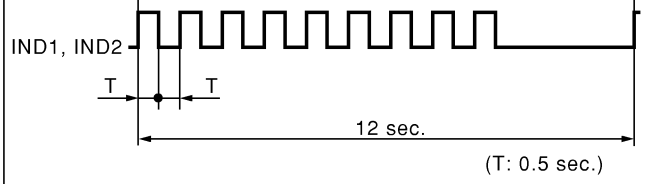
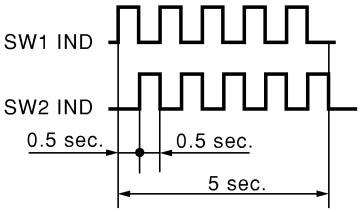
SEL596W

*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

=NBEL0368S02

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 signal circuit		If the vehicle speed signal output of less than 7 km/h (4 MPH) is detected, the ABS actuator and electric unit is determined to be malfunctioning.
–	No malfunction in the above items		—

SEL597WA

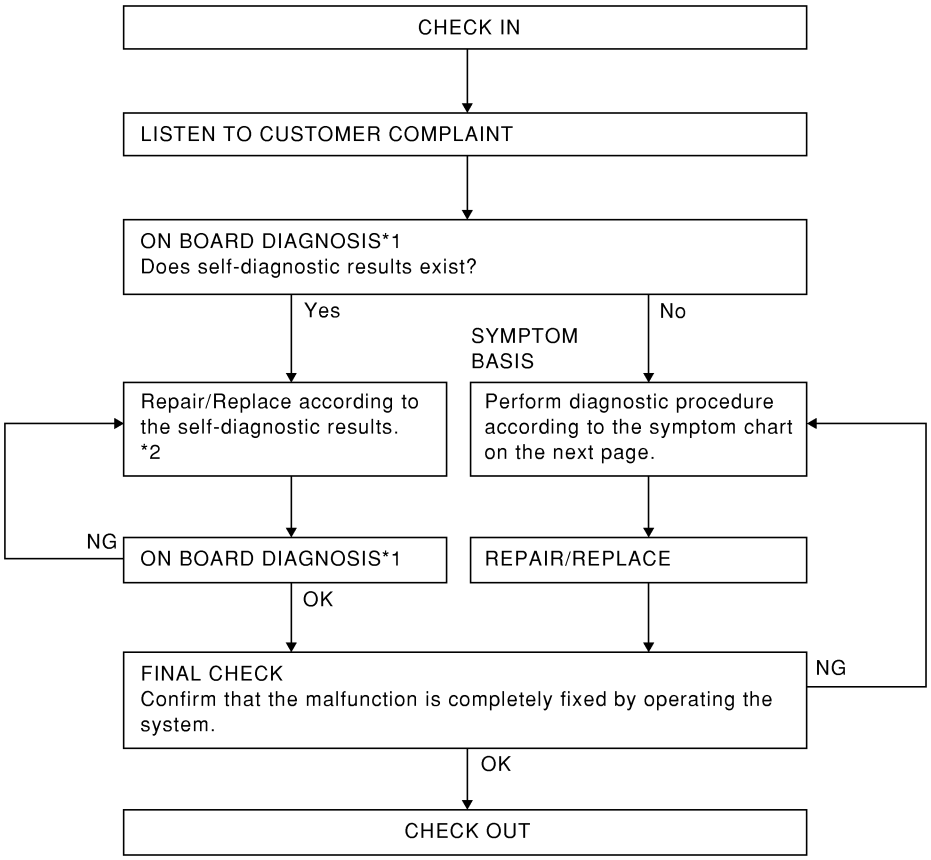
Code No.	Detected items	Diagnostic procedure	Reference page	Code No.	Detected items	Diagnostic procedure	Reference page
1	Seat sliding	PROCEDURE 2 (Sliding encoder check) PROCEDURE 6 (Sliding motor check)	EL-242 EL-250	4	Seat lifting rear	PROCEDURE 5 [Lifting encoder (rear) check] PROCEDURE 9 [Lifting motor (rear) check]	EL-248 EL-253
2	Seat reclining	PROCEDURE 3 (Reclining encoder check) PROCEDURE 7 (Reclining motor check)	EL-244 EL-251	9	Vehicle speed sensor	PROCEDURE 12 (Vehicle speed sensor check)	EL-256
3	Seat lifting front	PROCEDURE 4 [Lifting encoder (front) check] PROCEDURE 8 [Lifting motor (front) check]	EL-246 EL-252				

Trouble Diagnoses

NBEL0369

WORK FLOW

NBEL0369S01

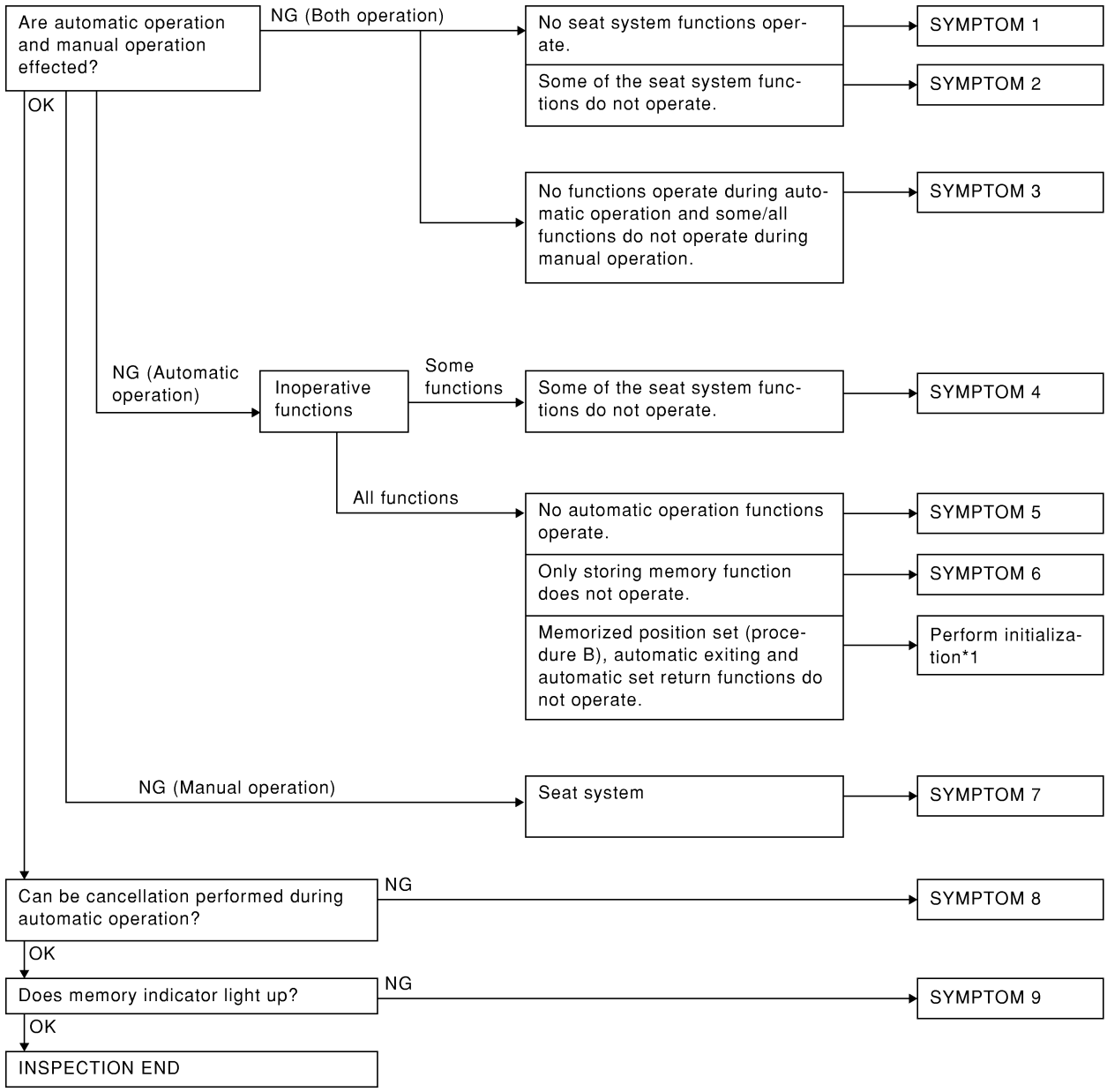


SEL599W

*1 EL-235 *2 EL-236

PRELIMINARY CHECK

NBEL0369S02



SEL600W

*1: After reconnecting battery cable, perform initialization procedure A or B.
If initialization has not been performed, automatic drive positioner will not operate.

PROCEDURE A

1) Insert key in the ignition key cylinder. (Ignition switch is in "OFF" position.)
2) Open → close → open driver side door. (Do not perform with the door switch operation.)
3) End

PROCEDURE B

1) Drive the vehicle at more than 30 km/h (19 MPH).

2) End

After performing preliminary check, go to symptom chart below.

Before starting trouble diagnoses below, perform preliminary check, EL-238. Symptom numbers in the symptom chart correspond with those of preliminary check.

SYMPTOM CHART

NBEL0369S03

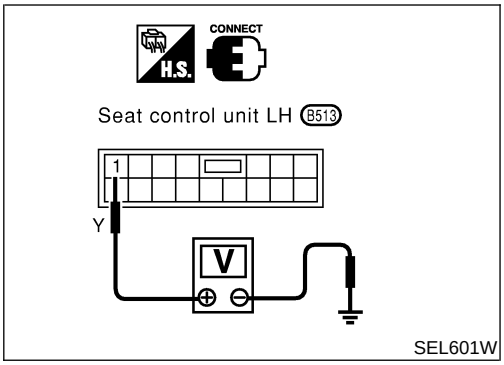
PROCEDURE			Diagnostic procedure						
REFERENCE PAGE (EL-)			241	242	244	246	248	250	251
SYMPTOM			DIAGNOSTIC PROCEDURE 1 (Power supply and ground circuit for Driver's seat control unit)	DIAGNOSTIC PROCEDURE 2 (Sliding encoder check)	DIAGNOSTIC PROCEDURE 3 (Reclining encoder check)	DIAGNOSTIC PROCEDURE 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

Trouble Diagnoses (Cont'd)

PROCEDURE			Diagnostic procedure						
REFERENCE PAGE (EL-)			252	253	254	255	256	259	259
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 (Cancel switch check)	DIAGNOSTIC PROCEDURE 12 (Key, park position, 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

=NBEL0369S04

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

Power Supply Circuit Check

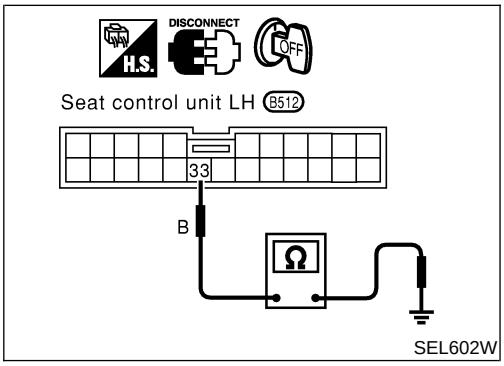
NBEL0369S0401

Check voltage between seat control unit LH terminal 1 and ground.

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

If NG, check the following.

- 40A fusible link (letter **f**, located in the fuse and fusible link box)
- Circuit breaker
- Harness for open or short between circuit breaker and seat control unit LH



Ground Circuit Check

NBEL0369S0402

Check continuity between seat control unit LH terminal 33 and ground.

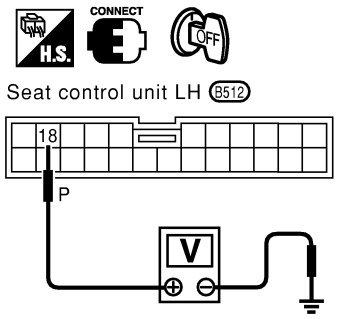
Terminals	Continuity
33 - Ground	Yes

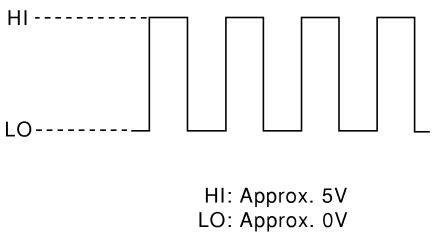
DIAGNOSTIC PROCEDURE 2
(Sliding encoder check)

=NBEL0369S05

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

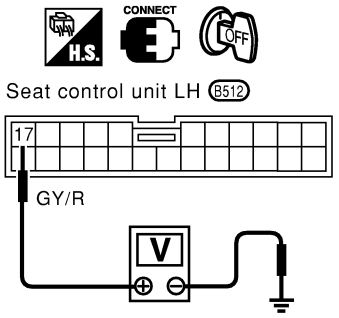
SEL603W

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.

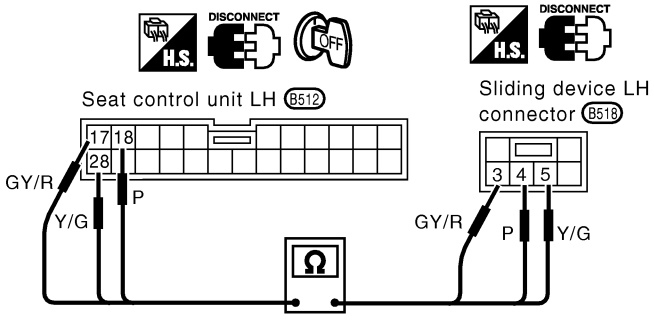
SEL604W

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 and sliding device LH connector.



Terminals		Continuity
Seat control unit LH	Sliding device LH (Sliding encoder)	
17	3	Yes
18	4	
28	5	

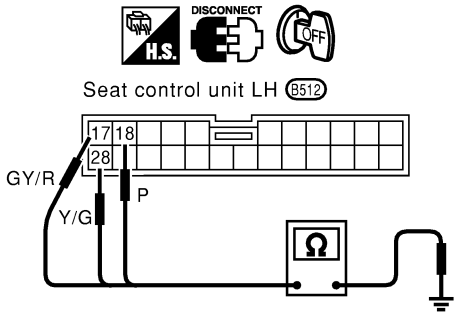
SEL605WA

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

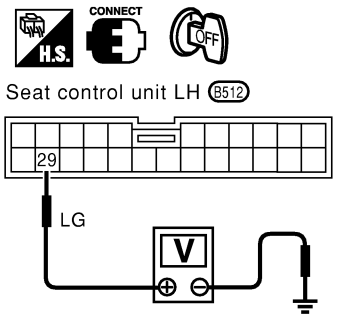
OK	▶	Replace sliding encoder.
NG	▶	Repair harness.

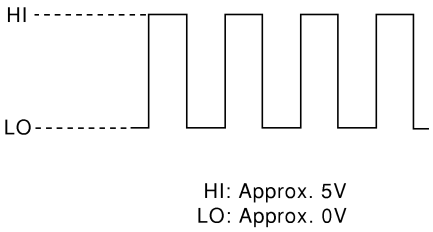
DIAGNOSTIC PROCEDURE 3
(Reclining encoder check)

=NBEL0369S06

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

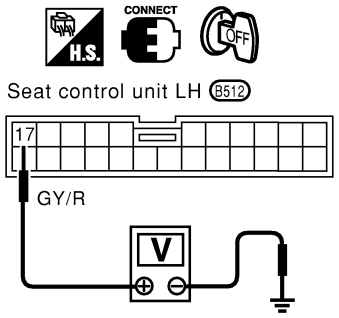
SEL607W

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.

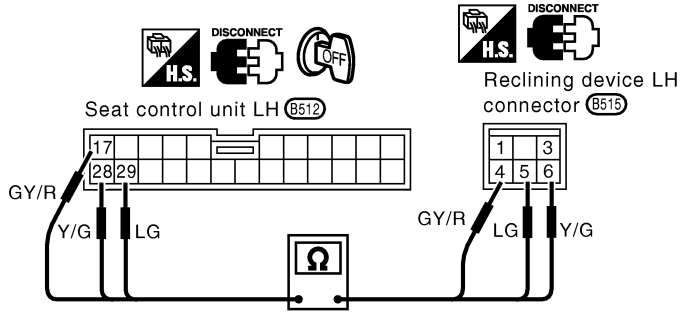
SEL608W

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 and reclining LH connector.



Terminals		Continuity
Seat control unit LH	Reclining device LH (Reclining encoder)	
17	4	Yes
28	6	
29	5	

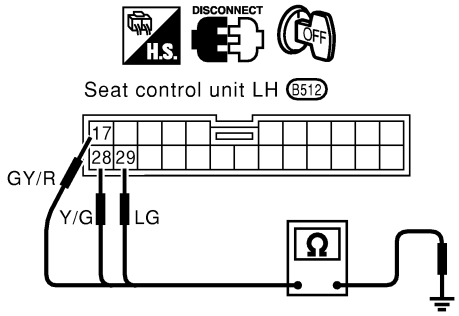
SEL609WA

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.

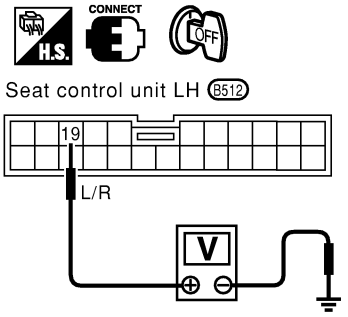
DIAGNOSTIC PROCEDURE 4

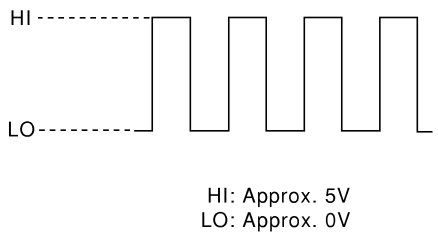
=NBEL0369S07

[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

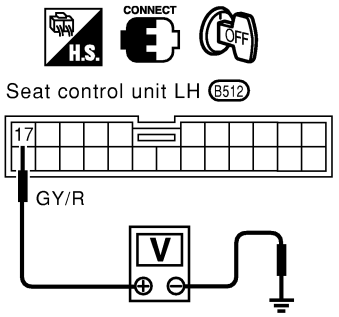
SEL611W

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.

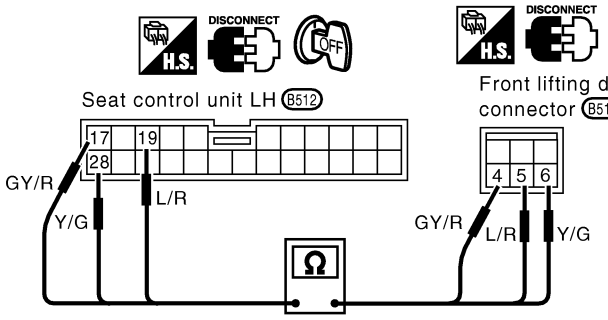
SEL612W

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 and front lifting device LH connector.



Terminals		Continuity
Seat control unit LH	Front lifting device LH Lifing encoder (front)	
17	4	Yes
19	5	
28	6	

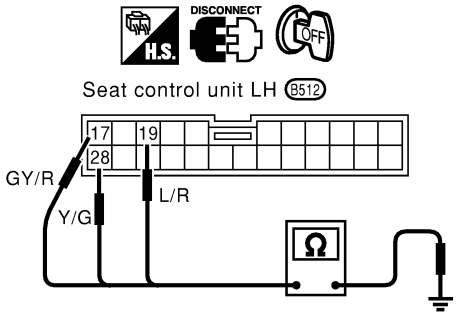
SEL613WA

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.

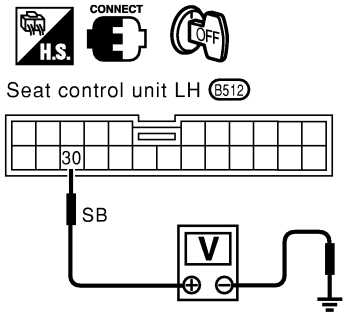
DIAGNOSTIC PROCEDURE 5

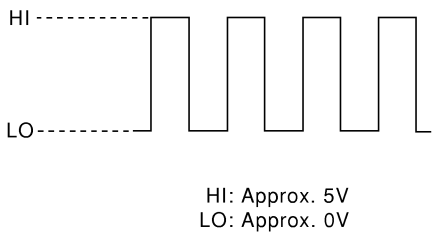
=NBEL0369S08

[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.





HI: Approx. 5V
LO: Approx. 0V

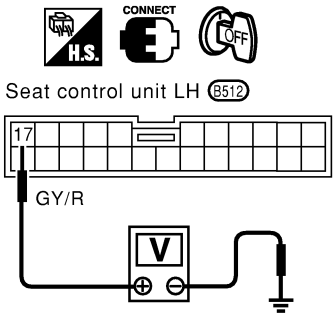
SEL615W

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.

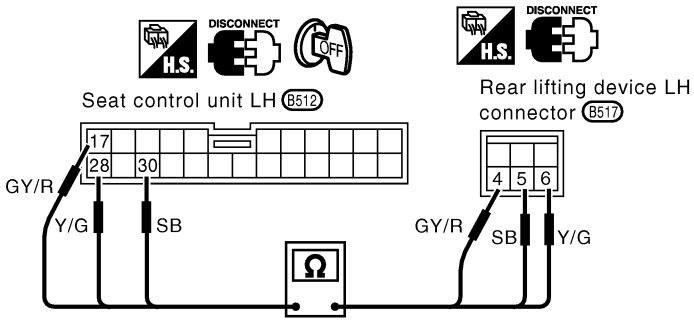
SEL616W

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 and rear lifting device LH connector.



Terminals		Continuity
Seat control unit LH	Rear lifting device LH Lifing encoder (rear)	
17	4	Yes
28	6	
30	5	

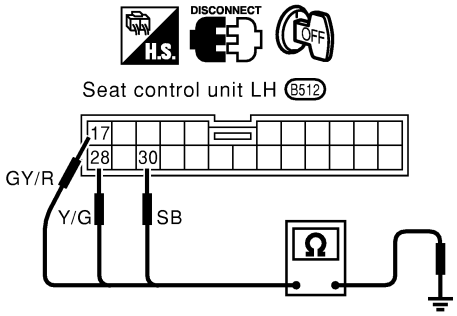
SEL617WA

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

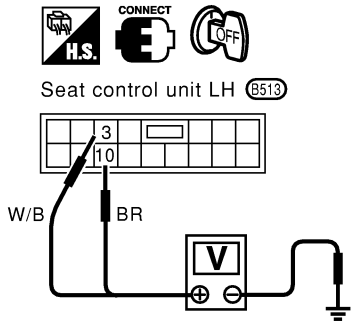
OK	▶	Replace lifting encoder (rear).
NG	▶	Repair harness.

DIAGNOSTIC PROCEDURE 6
(Sliding motor check)

=NBEL0369S09

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

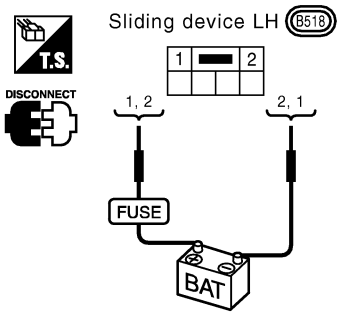
SEL619W

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace seat control unit LH.

2	CHECK SLIDING MOTOR

1. Disconnect sliding device LH connector.
2. Apply 12V DC direct current to motor and check operation.



Terminals		Operation
+	–	
2	1	Forward
1	2	Backward

SEL620WA

OK or NG

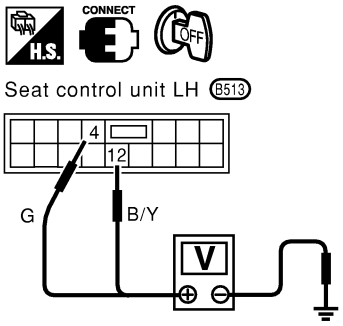
OK	▶	Check harness for operation between seat control unit LH and sliding motor.
NG	▶	Replace sliding motor.

DIAGNOSTIC PROCEDURE 7
(Reclining motor check)

=NBEL0369S10

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

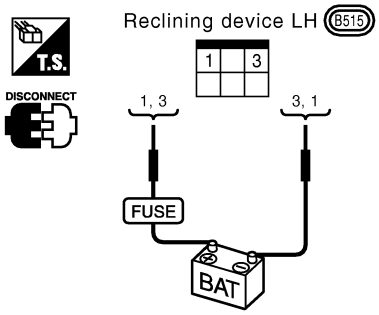
SEL621W

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace seat control unit LH.

2	CHECK RECLINING MOTOR

1. Disconnect reclining device LH connector.
2. Apply 12V DC direct current to motor and check operation.



Terminals		Operation
+	–	
1	3	Forward
3	1	Backward

SEL622WA

OK or NG

OK	▶	Check harness for operation between seat control unit LH and reclining motor.
NG	▶	Replace reclining motor.

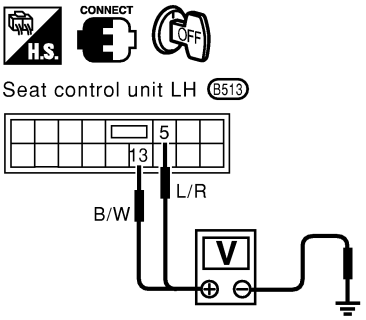
DIAGNOSTIC PROCEDURE 8

=NBEL0369S11

[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

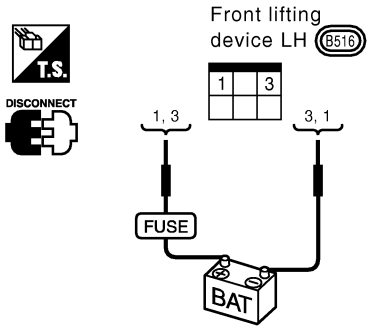
SEL623W

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.
2. Apply 12V DC direct current to motor and check operation.



Terminals		Operation
+	–	
3	1	Up
1	3	Down

SEL624WA

OK or NG

OK	▶	Check harness for operation between seat control unit LH and lifting motor (front).
NG	▶	Replace lifting motor (front).

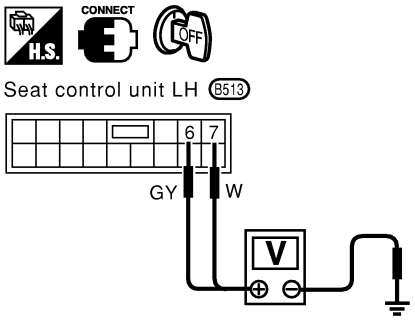
DIAGNOSTIC PROCEDURE 9

=NBEL0369S12

[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

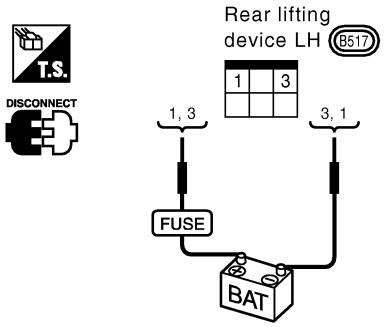
SEL625W

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.
2. Apply 12V DC direct current to motor and check operation.



Terminals		Operation
+	–	
1	3	Up
3	1	Down

SEL626WA

OK or NG

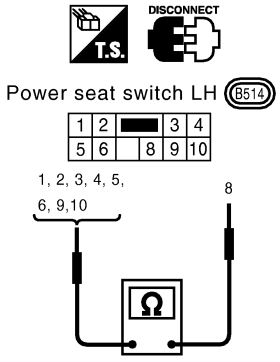
OK	▶	Check harness for operation between seat control unit LH and lifting motor (rear).
NG	▶	Replace lifting motor (rear).

DIAGNOSTIC PROCEDURE 10
(Power seat switch check)

=NBEL0369S13

1	CHECK POWER SEAT SWITCH

1. Disconnect power seat switch LH connector.
2. Check continuity between power seat switch terminals.



Switch	Condition	Terminals								
		8	1	2	3	4	5	6	9	10
Sliding	Forward	○								○
	Backward	○					○			
Reclining	Forward	○	○							
	Backward	○		○						
Lifting (Front)	Up	○					○			
	Down	○						○		
Lifting (Rear)	Up	○							○	
	Down	○			○					

SEL569X

OK or NG

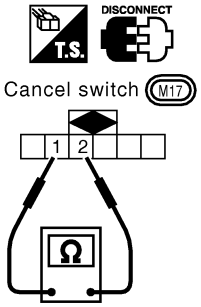
OK	▶	**Check the following.** ● Ground circuit for power seat switch ● Harness for open or short between seat control unit LH and power seat switch
NG	▶	Replace power seat switch.

DIAGNOSTIC PROCEDURE 11
(Cancel switch check)

=NBEL0369S14

1	CHECK CANCEL SWITCH

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



Terminals	Cancel switch condition	Continuity
1-2	ON	Yes
	OFF	No

SEL628WA

OK or NG

OK	▶	**Check the following.** ● Ground circuit for cancel switch ● Harness for open or short between seat control unit LH and cancel switch
NG	▶	Replace cancel switch.

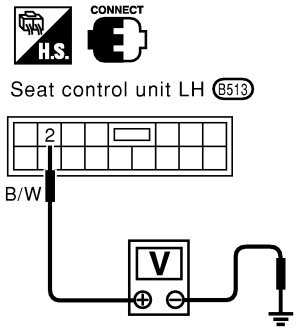
DIAGNOSTIC PROCEDURE 12

=NBEL0369S15

(Key, detention, door switch and vehicle speed signal check)

1	CHECK KEY SWITCH INPUT SIGNAL

Check voltage between seat control unit LH terminal 2 and ground.



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

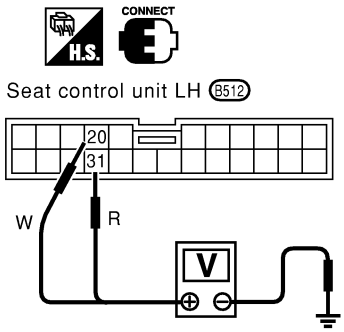
SEL629W

OK or NG

OK	▶	GO TO 2.
NG	▶	**Check the following.** ● 7.5A fuse [No. 24, located in fuse block (J/B)] ● Key switch ● Harness for open or short between key switch and fuse ● 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

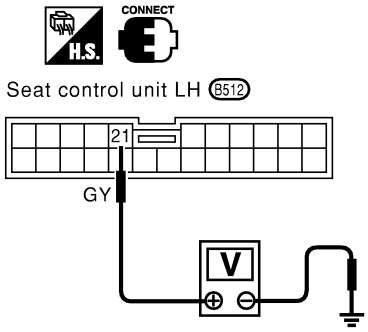
SEL630W

OK or NG

OK	▶	GO TO 3.
NG	▶	**Check the following.** ● 7.5A fuse [No. 11, located in fuse block (J/B)] ● 7.5A fuse [No. 26, located in fuse block (J/B)] ● Harness for open or short between seat control unit LH and fuse

3	CHECK PARK POSITION SWITCH INPUT SIGNAL

Check voltage between seat control unit LH terminal 21 and ground.



Condition	Voltage [V]
Selector lever is in "P" position	0
Except above	Approx. 12

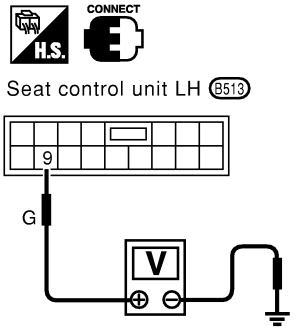
SEL631W

OK or NG

OK	▶	GO TO 4.
NG	▶	**Check the following.** ● Park position switch ● Park position switch ground circuit ● Harness for open or short between seat control unit LH and park position switch

4	CHECK DRIVER DOOR SWITCH INPUT SIGNAL

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.** ● Driver door switch ● Driver door switch ground circuit ● Harness for open or short between seat control unit LH and driver door switch

5	CHECK VEHICLE SPEED SIGNAL

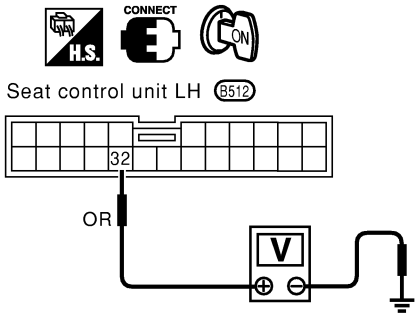
Does speedometer operate normally?

Yes or No

OK	▶	GO TO 6.
NG	▶	Check speedometer and ABS actuator and electric unit circuit. Refer to EL-137.

6	CHECK VEHICLE SPEED SIGNAL 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

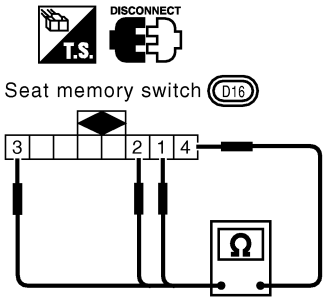
OK	▶	Harness for open or short between seat control unit LH and combination meter.
NG	▶	Repair harness.

DIAGNOSTIC PROCEDURE 13
(Seat memory switch check)

=NBEL0369S16

1	CHECK SEAT MEMORY SWITCH

1. Disconnect seat memory switch connector.
2. Check continuity between seat memory switch terminals.



Switch	Condition	Terminals			
		1	2	3	4
Memory-1	ON	○			○
Memory-2	ON		○		○
Set	ON			○	○

SEL634WA

OK or NG

OK	▶	**Check the following.** ● Ground circuit for seat memory switch ● 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)

NBEL0369S17

1	CHECK INDICATOR LAMP

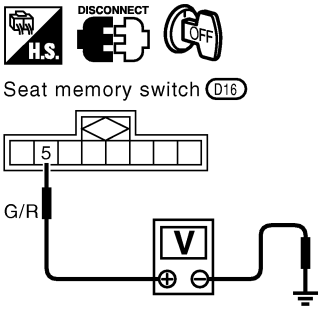
Check indicator lamp illumination.

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.
2. Check voltage between seat memory switch terminal and ground.



Battery voltage should exist.

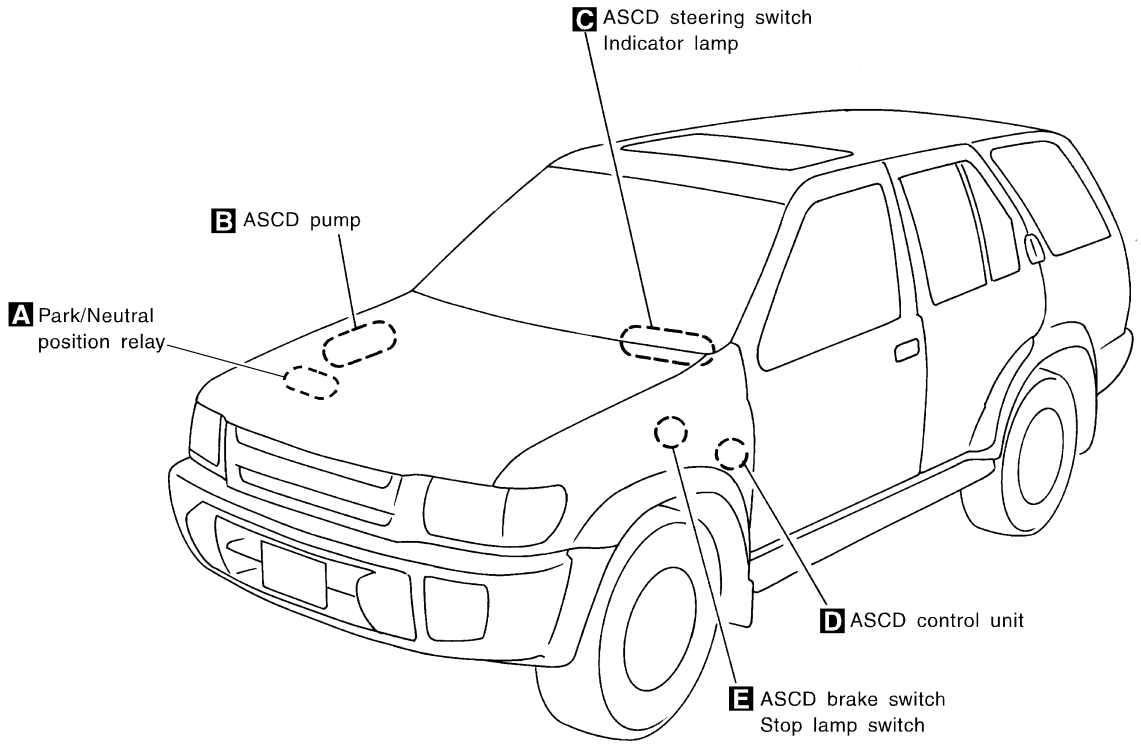
SEL635WA

OK or NG

OK	▶	Check harness for open or short between seat control unit LH and seat memory switch
NG	▶	**Check the following.** ● 7.5A fuse [No. 24 located in the fuse block (J/B)] ● Harness for open or short between fuse and indicator lamp

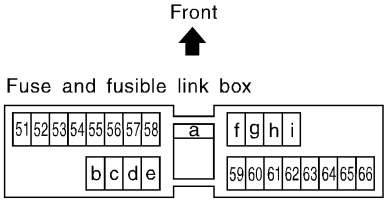
Component Parts and Harness Connector Location

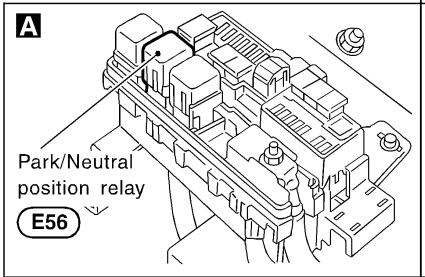
NBEL0370

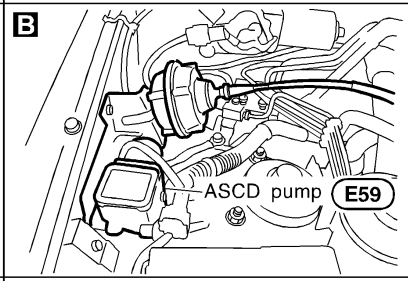


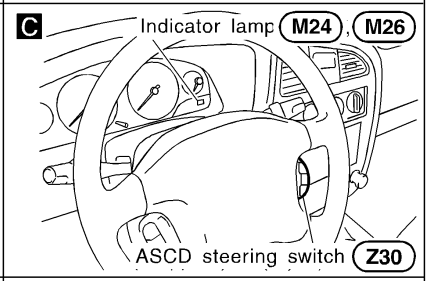
Fuse block (J/B)

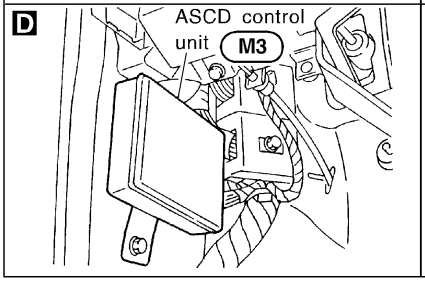
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23		
24	25	26		
27	28	29		

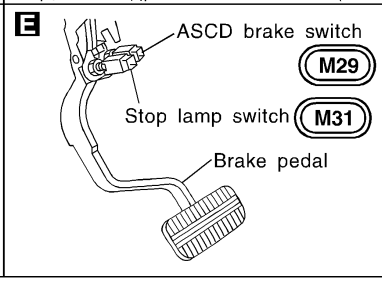












SEL191Y

System Description

NBEL0371

Refer to Owner's Manual for ASCD operating instructions.

POWER SUPPLY AND GROUND

NBEL0371S01

Power is supplied at all times:

- through 10A fuse [No. 14, located in the fuse block (J/B)]
- to the stop lamp switch terminal 1, and
- through 7.5A fuse (No. 52, located in fuse and fusible link box)
- to the horn relay terminals 1 and 3.

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

- through 7.5A fuse [No. 11, located in the fuse block (J/B)]
- to ASCD brake switch terminal 1 and
- to ASCD control unit terminal 5,
- through 10A fuse [No. 18, located in the fuse block (J/B)]
- to park/neutral position relay terminal 1,
- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to combination meter terminal 66, and

When park/neutral position switch is in the P or N position, ground is supplied:

- to park/neutral position relay terminal 2
- through park/neutral position switch and body grounds B55 and B75.

When ASCD main switch is depressed (ON), ground is supplied:

- to ASCD control unit terminal 9
- from ASCD steering switch terminal 4
- to ASCD steering switch terminal 5
- through body grounds M4, M66 and M147

then ASCD control unit holds CRUISE condition and illuminates CRUISE indicator.
Ground is supplied:

- from ASCD control unit terminal 15
- to combination meter terminal 46.

OPERATION

NBEL0371S02

Set Operation

NBEL0371S0201

To activate the ASCD, all following conditions must exist.

- Ground is supplied to ASCD control unit terminal 9 (Main switch is in ON position.)
- Power is supplied to ASCD control unit terminal 8 (Brake pedal is released and A/T selector lever is in other than P and N position.)
- Vehicle speed is between 40 km/h (25 MPH) and 144 km/h (89 MPH). (Signal from combination meter)

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

- from ASCD steering switch terminal 2
- to ASCD control unit terminal 11.

And then ASCD pump is activated to control throttle wire and ASCD control unit supply ground

- to combination meter terminals 51 to illuminate SET indicator.

A/T Overdrive Control during Cruise Control Driving

NBEL0371S0202

When the vehicle speed is approximately 3 km/h (2 MPH) below set speed, a signal is sent

- from ASCD control unit terminal 10
- to TCM (transmission control module) terminal 24.

When this occurs, the TCM (transmission control module) cancels overdrive.
After vehicle speed is approximately 1 km/h (1 MPH) below set speed, overdrive is reactivated.

ASCD Shifting Control

NBEL0371S0203

During ASCD cruise, ASCD control unit controls A/T shifting to avoid uncomfortable shifting.
This is used to control the signals below.

- Throttle position sensor from ECM

- A/T shift solenoid valve A

Coast Operation

NBEL0371S0204

When the SET/COAST switch is depressed during cruise control driving, ASCD actuator returns the throttle cable to decrease vehicle set speed until the switch is released. And then ASCD will keep the new set speed.

Accel Operation

NBEL0371S0205

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

- from ASCD steering switch terminal 3
- to ASCD control unit terminal 24.

If the RESUME/ACCEL switch is depressed during cruise control driving, ASCD actuator pulls the throttle cable to increase the vehicle speed until the switch is released or vehicle speed is reached to maximum controlled speed by the system. And then ASCD will keep the new set speed.

Cancel Operation

NBEL0371S0206

When any of following condition exists, cruise operation will be canceled.

- CANCEL switch is depressed. (Power supply to ASCD control unit terminals 11 and 24)
- Brake pedal is depressed. (Power supply to ASCD control unit terminal 23 from stop lamp switch)
- Brake pedal is depressed or A/T selector lever is shifted to P or N position. (Power supply to ASCD control unit terminal 8 is interrupted.)

If MAIN switch is turned to OFF during ASCD is activated, all of ASCD operation will be canceled and vehicle speed memory will be erased.

Resume Operation

NBEL0371S0207

When the RESUME/ACCEL switch is depressed after cancel operation other than depressing MAIN switch is performed, vehicle speed will return to last set speed. To resume vehicle set speed, vehicle condition must meet following conditions.

- Brake pedal is released.
- A/T selector lever is in other than P and N position.
- Vehicle speed is between 40 km/h (25 MPH) and 144 km/h (89 MPH).

ASCD PUMP OPERATION

NBEL0371S03

The ASCD pump consists of a vacuum motor, an air valve and a release valve. When the ASCD activates, power is supplied

- from terminal 12 of ASCD control unit
- to ASCD pump terminal 1.

Ground is supplied to vacuum motor, air valve and release valve from ASCD control unit depending on the operated condition as shown in the below table.
The pump is connected to ASCD actuator by vacuum hose. When the ASCD pump is activated, the ASCD pump vacuum the diaphragm of ASCD actuator to control throttle cable.

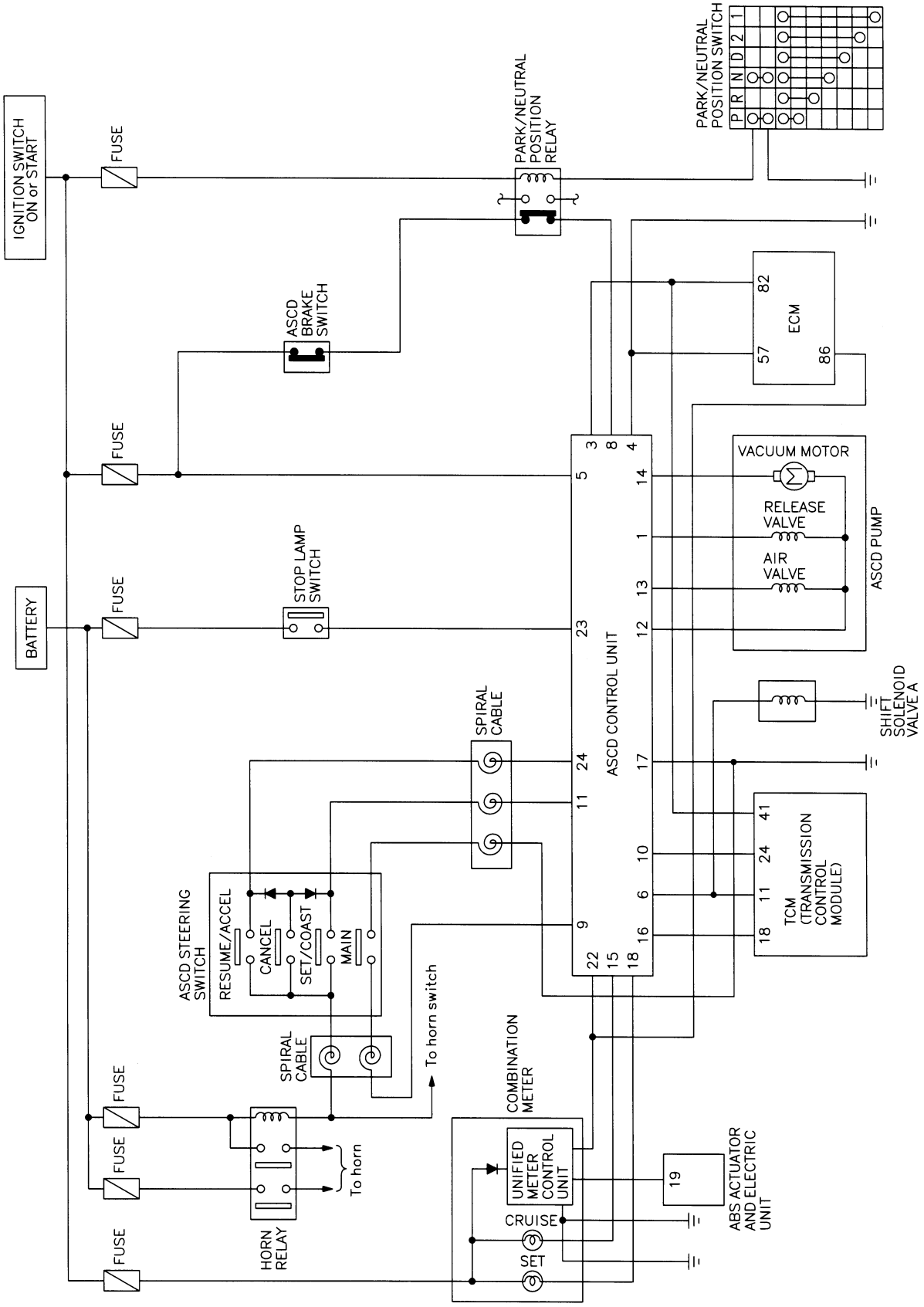
		Air valve (*1)	Release valve (*1)	Vacuum motor	Actuator inner pressure
ASCD not operating		Open	Open	Stopped	Atmosphere
ASCD operating	Releasing throttle cable	Open	Closed	Stopped	Vacuum
	Holding throttle position	Closed	Closed	Stopped	Vacuum (*2)
	Pulling throttle cable	Closed	Closed	Operated	Vacuum

*1: When power and ground is supplied, valve is closed.

*2: Set position held.

Schematic

NBEL0372



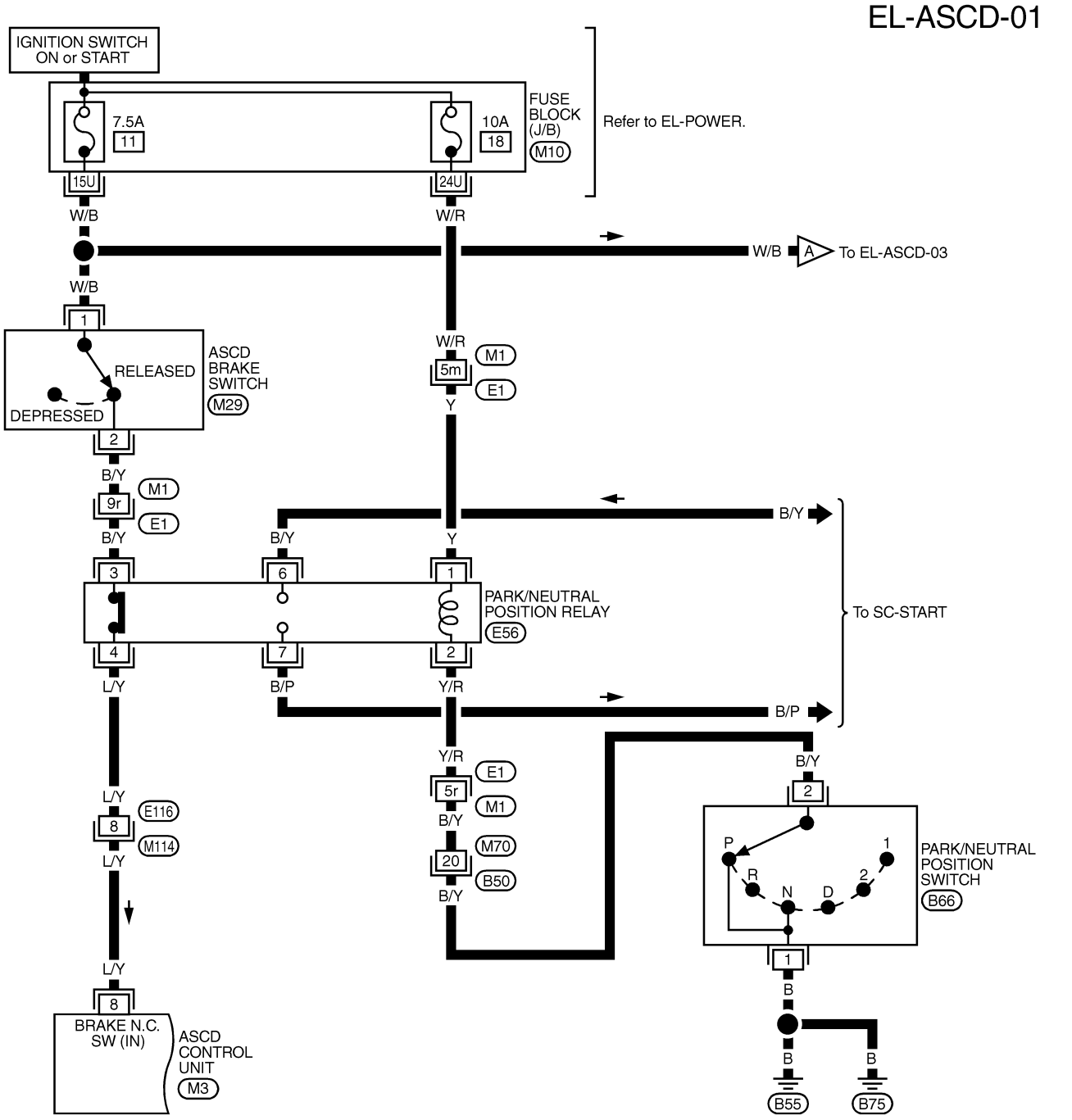
MEL619P

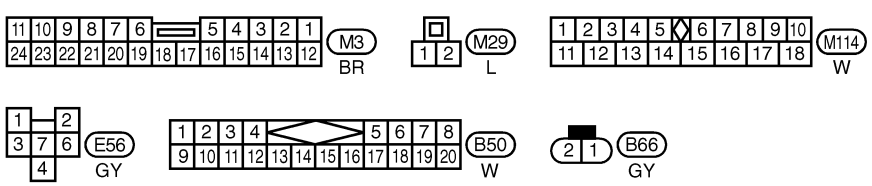
Wiring Diagram — ASCD —

NBEL0373

FIG. 1

NBEL0373S01





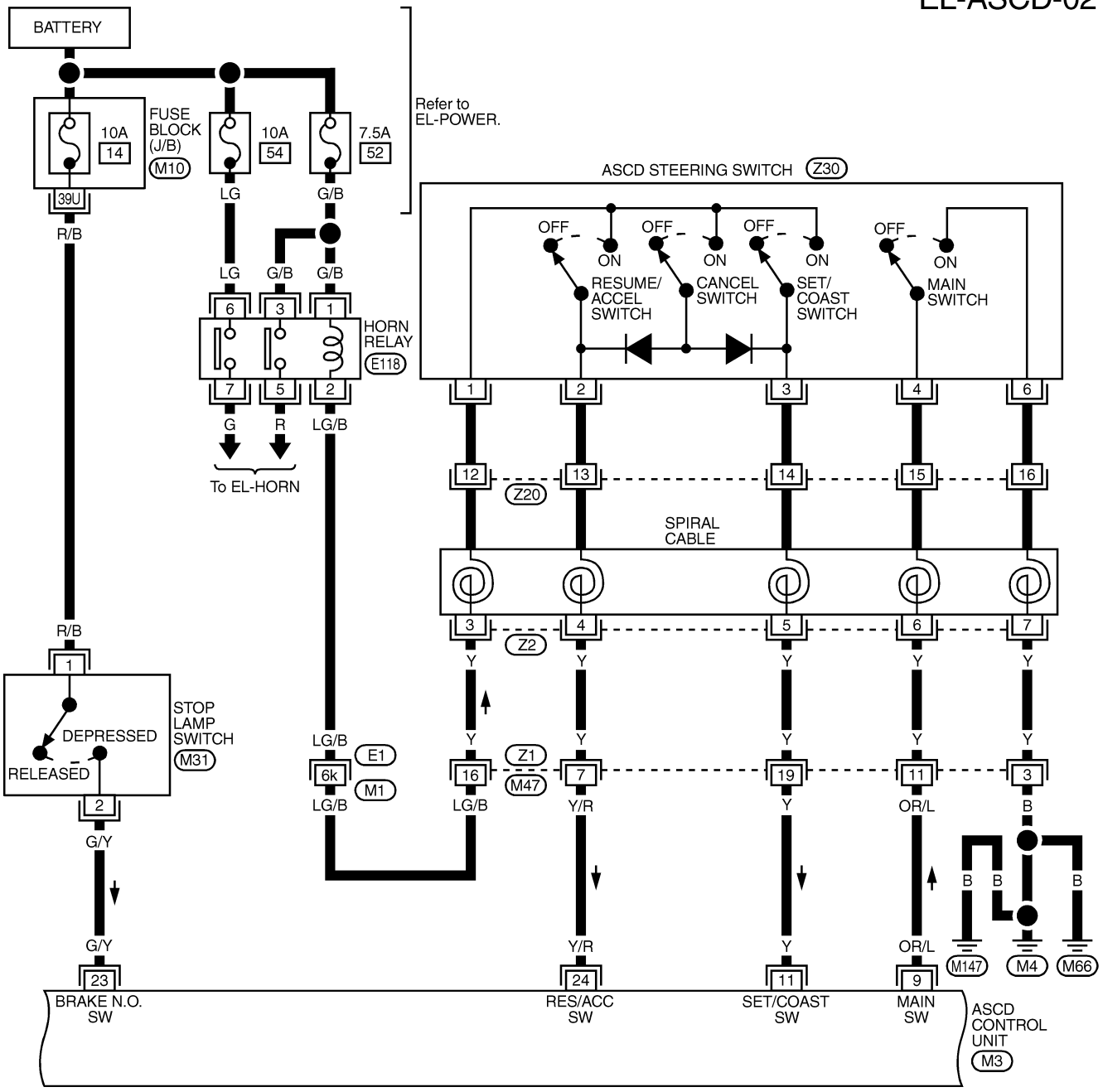
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

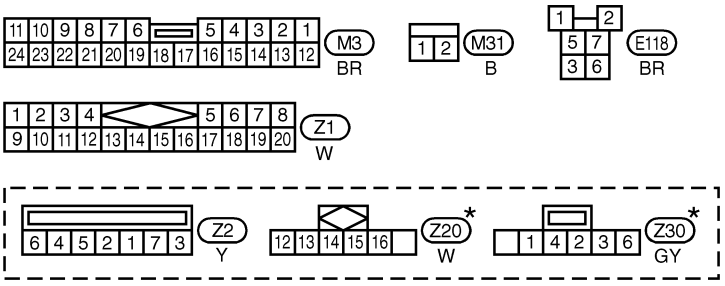
MEL450O

FIG. 2

NBEL0373S02

EL-ASCD-02





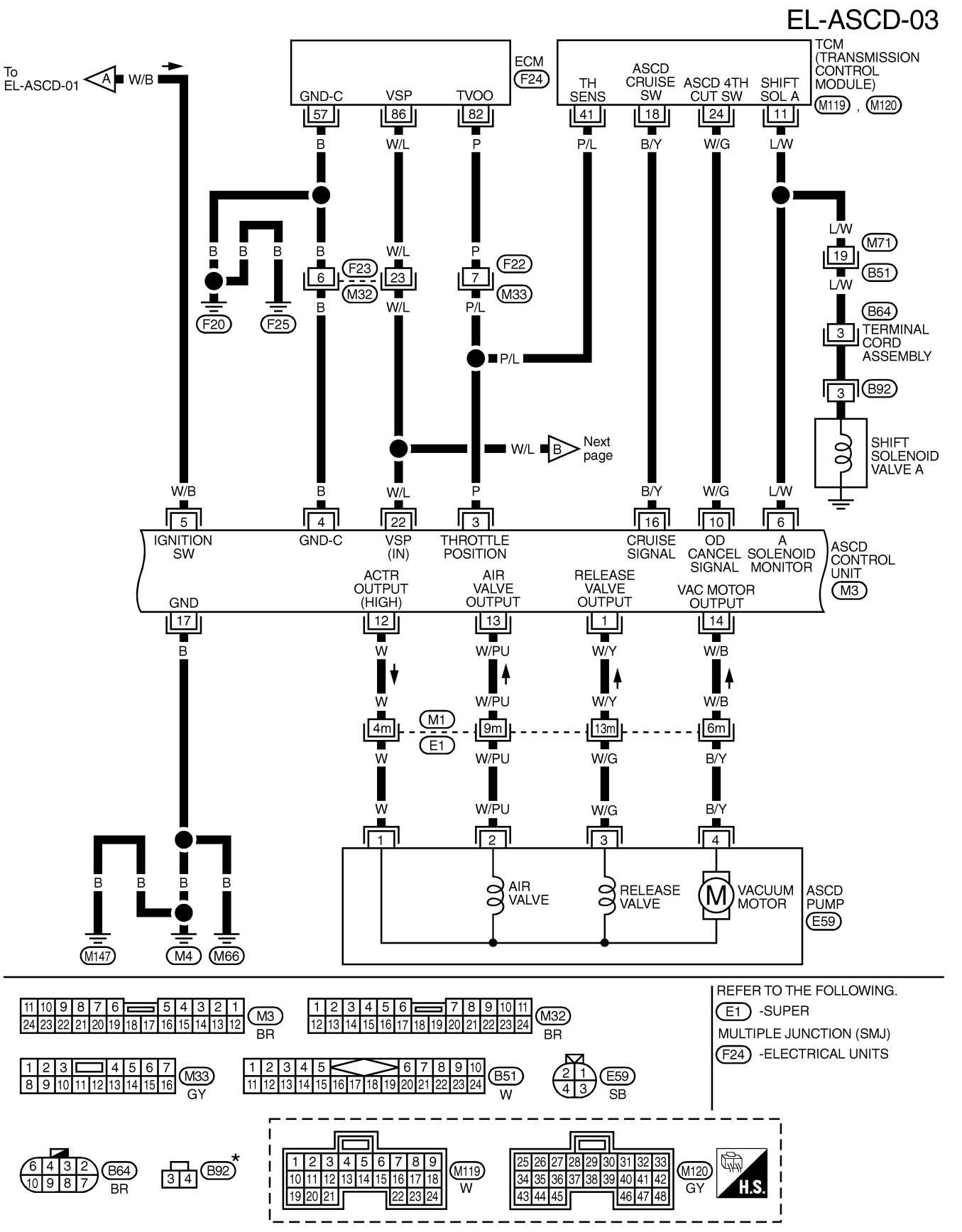
∗ : This connector is not shown in "HARNESS LAYOUT", EL section.

REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK- JUNCTION BOX (J/B)

MEL703O

FIG. 3

NBEL0373S03



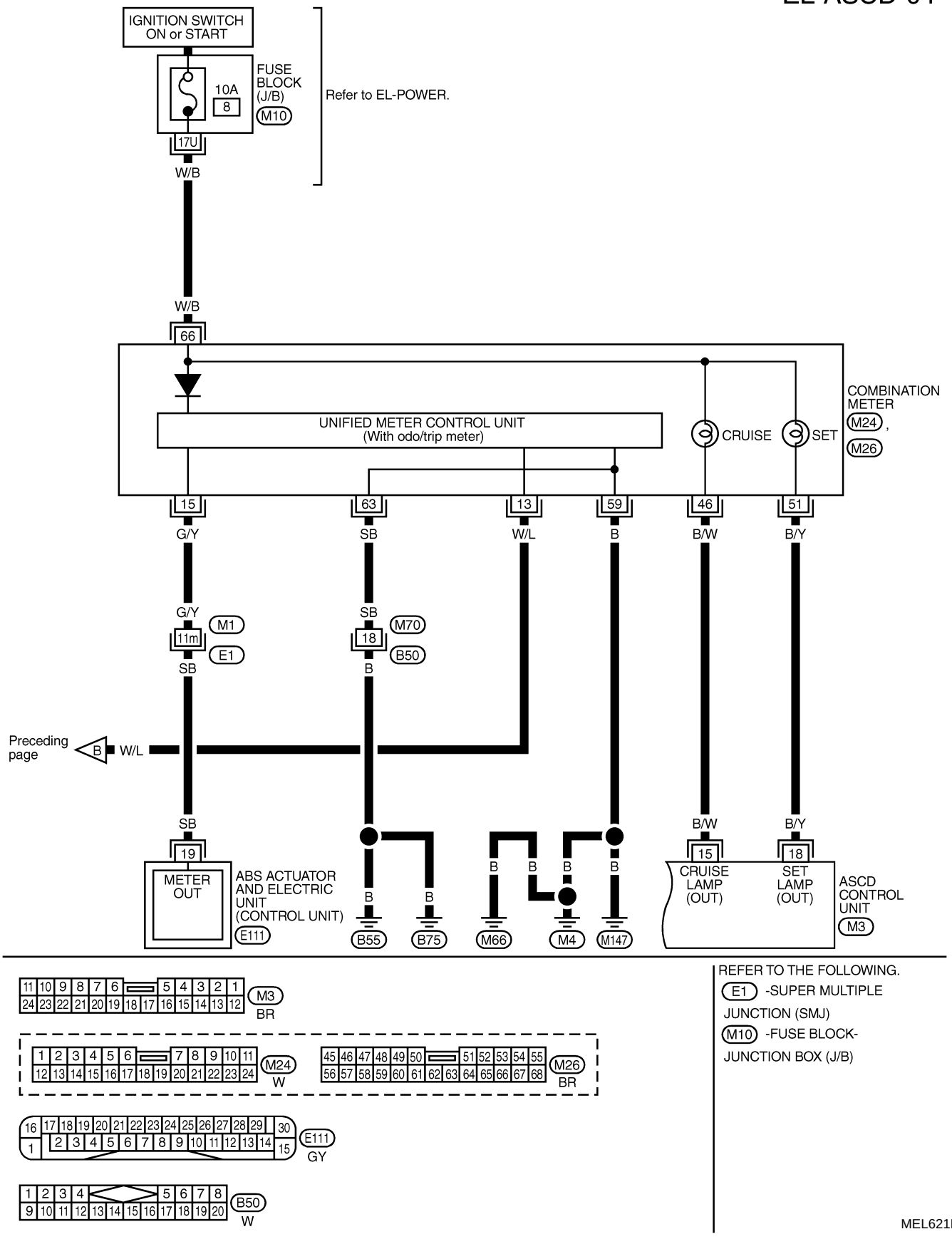
* : This connector is not shown in "HARNESS LAYOUT", EL section.

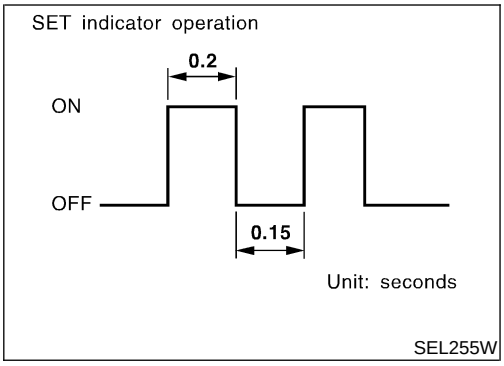
MEL620P

FIG. 4

NBEL0373S04

EL-ASCD-04





Fail-safe System

NBEL0374

DESCRIPTION

NBEL0374S01

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

MALFUNCTION DETECTION CONDITIONS

NBEL0374S02

Detection conditions	ASCD operation during malfunction detection
• ASCD steering (RESUME/ACCEL, CANCEL, SET/COAST) switch is stuck. • Vacuum motor ground circuit or power circuit is open or shorted. • Air valve ground circuit or power circuit is open or shorted. • Release valve ground circuit or power circuit is open or shorted. • Vehicle speed sensor is malfunctioning. • ASCD control unit internal circuit is malfunctioning.	• ASCD is deactivated. • Vehicle speed memory is canceled.
• ASCD brake switch or stop lamp switch is malfunctioning.	• ASCD is deactivated. • Vehicle speed memory is not canceled.

Trouble Diagnoses

SYMPTOM CHART

NBEL0375

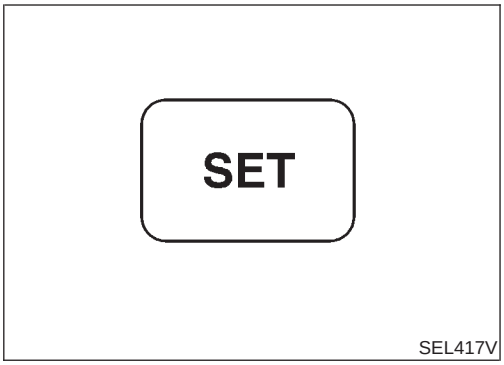
NBEL0375S01

PROCEDURE	Diagnostic procedure						
REFERENCE PAGE (EL-)	270	271	272	273	274	274	276
SYMPTOM	FAIL-SAFE SYSTEM CHECK	POWER SUPPLY AND GROUND CIRCUIT CHECK	ASCD BRAKE/STOP LAMP SWITCH CHECK	ASCD STEERING SWITCH CHECK	VEHICLE SPEED SENSOR CHECK	ASCD PUMP CIRCUIT CHECK	ASCD ACTUATOR/PUMP CHECK
ASCD cannot be set. (“CRUISE” indicator lamp does not ON.)		X		X★3			
ASCD cannot be set. (“SET” indicator lamp does not blink.)			X	X	X		
ASCD cannot be set. (“SET” indicator lamp blinks.★1)	X		X	X	X	X	
Vehicle speed does not decrease after SET/COAST switch has been pressed.				X			X
Vehicle speed does not return to the set speed after RESUME/ACCEL switch has been pressed.★2				X			X
Vehicle speed does not increase after RESUME/ACCEL switch has been pressed.				X			X
System is not released after CANCEL switch (steering) has been pressed.				X			X
Large difference between set speed and actual vehicle speed.					X	X	X
Deceleration is greatest immediately after ASCD has been set.					X	X	X

★1: It indicates that system is in fail-safe. After completing diagnostic procedures, perform “FAIL-SAFE SYSTEM CHECK” (EL-270) to verify repairs.

★2: If vehicle speed is greater than 40 km/h (25 MPH) after system has been released, pressing RESUME/ACCEL switch returns vehicle speed to the set speed previously achieved. However, doing so when the ASCD main switch is turned to “OFF”, vehicle speed will not return to the set speed since the memory is canceled.

★3: Check only main switch built-in steering switch.

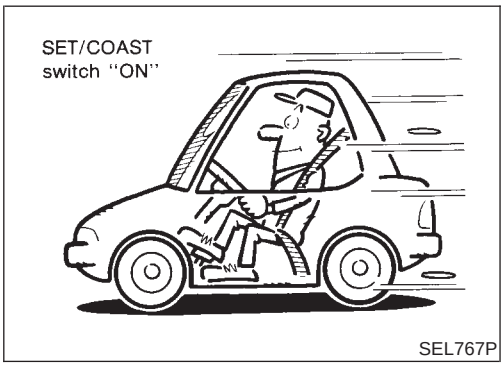


SEL417V

FAIL-SAFE SYSTEM CHECK

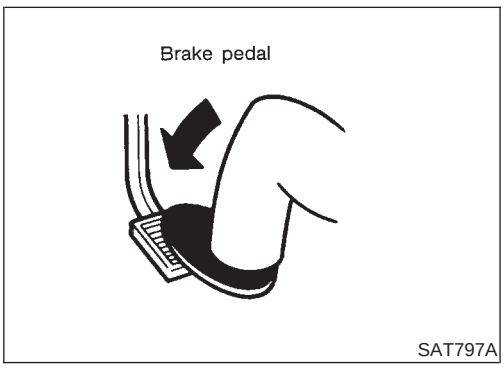
=NBEL0375S02

1. Turn ignition switch to ON position.
2. Turn ASCD main switch to ON and check if the SET indicator blinks.
   If the indicator lamp blinks, check the following.
- ASCD steering switch. Refer to EL-273.



SEL767P

3. Drive the vehicle at more than 40 km/h (25 MPH) and push SET/COAST switch.
   If the indicator lamp blinks, check the following.
- Vehicle speed signal. Refer to EL-274.
- ASCD pump circuit. Refer to EL-274.
- Replace control unit.



SAT797A

4. Depress brake pedal slowly (brake pedal should be depressed more than 5 seconds).
   If the indicator lamp blinks, check the following.
- ASCD brake/stop lamp switch. Refer to EL-272.

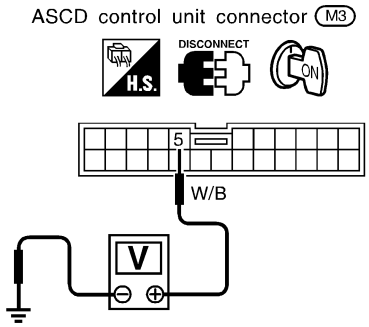
5. END. (System is OK.)

POWER SUPPLY AND GROUND CIRCUIT CHECK

=NBEL0375S03

1	CHECK POWER SUPPLY CIRCUIT FOR ASCD CONTROL UNIT

1. Disconnect ASCD control unit harness connector.
2. Turn ignition switch ON.
3. Check voltage between ASCD control unit harness connector terminal 5 and ground.



Does battery voltage exist?

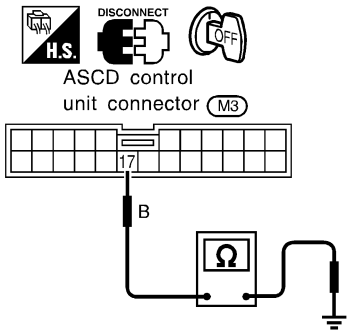
SEL256WB

Refer to wiring diagram in EL-266.

Yes	▶	GO TO 2.
No	▶	**Check the following.** ● 7.5A fuse [No. 11, located in the fuse block (J/B)] ● Harness for open or short between ASCD control unit and fuse

2	CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT

Check continuity between ASCD control unit harness connector terminal 17 and body ground.



Does continuity exist?

SEL257WB

Refer to wiring diagram in EL-266.

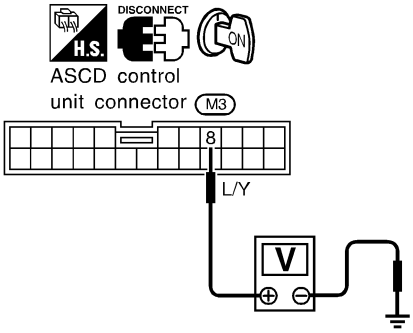
Yes	▶	Power supply and ground circuit is OK.
No	▶	Repair harness.

ASCD BRAKE/STOP LAMP SWITCH CHECK

=NBEL0375S04

1	CHECK ASCD BRAKE SWITCH CIRCUIT

1. Disconnect ASCD control unit harness connector.
2. Turn ignition switch ON.
3. Check voltage between ASCD control unit harness connector M3 terminal 8 and ground.



When brake pedal is depressed or A/T selector lever is in "N" or "P" range:
Apporox. 0V
When both brake pedal is released and A/T selector lever is not in "N" or "P" range:
Battery voltage should exist.

SEL258WD

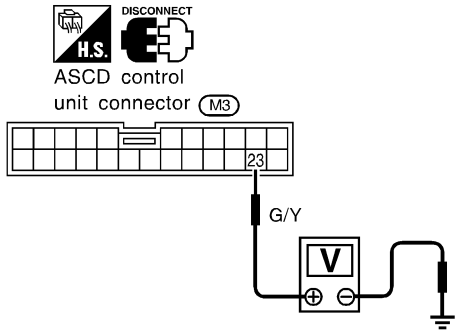
Refer to wiring diagram in EL-264.

OK or NG

OK	▶	GO TO 2.
NG	▶	**Check the following.** ● ASCD brake switch Refer to "Electrical Component Inspection" (EL-278). ● Park/neutral position switch Refer to "Electrical Component Inspection" (EL-278). ● Park/neutral position relay ● Harness for open or short

2	CHECK STOP LAMP SWITCH CIRCUIT

1. Disconnect ASCD control unit harness connector.
2. Check voltage between ASCD control unit harness connector terminal 23 and ground.



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

SEL259WB

Refer to wiring diagram in EL-265.

OK or NG

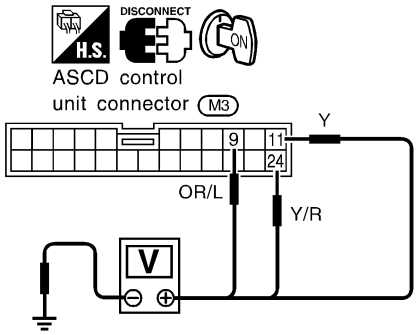
OK	▶	ASCD brake/stop lamp switch is OK.
NG	▶	**Check the following.** ● 10A fuse [No. 14, located in the fuse block (J/B)] ● Harness for open or short between ASCD control unit and stop lamp switch ● Harness for open or short between fuse and stop lamp switch ● Stop lamp switch Refer to "Electrical Component Inspection" (EL-278).

ASCD STEERING SWITCH CHECK

=NBEL0375S05

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

Check voltage between ASCD control unit harness connector terminals and ground.



	Terminal No.		Switch condition	
	(+)	(–)	Pressed	Released
MAIN SW	9	Ground	0V	Approx. 9V
SET/COAST SW	11	Ground	12V	0V
RESUME/ACC SW	24	Ground	12V	0V
CANCEL SW	11	Ground	12V	0V
	24	Ground	12V	0V

SEL260WC

Refer to wiring diagram in EL-265.

OK or NG

OK	▶	ASCD steering switch is OK.
NG	▶	GO TO 2.

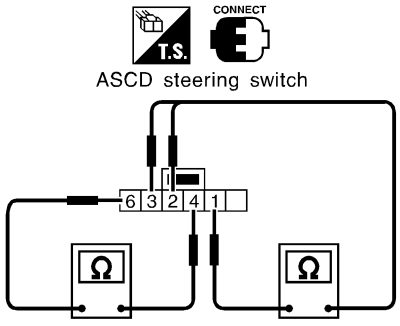
2 **CHECK POWER SUPPLY FOR ASCD STEERING SWITCH**

Does horn work?

Yes	▶	GO TO 3.
No	▶	**Check the following.** ● 7.5A fuse (No. 52, located in fuse and fusible link box) ● Horn relay ● Horn circuit

3 **CHECK ASCD STEERING SWITCH**

1. Disconnect ASCD steering switch.
2. Check continuity between ASCD steering switch harness connector Z30 terminals by pushing each switch.



Switch	Condition	Terminal				
		1	2	3	4	6
MAIN	ON				○	○
RESUME/ACCEL	ON	○		○		
SET/COAST	ON	○	○			
CANCEL	ON	○	▶	○		
		○	▶	○		

SEL495Y

Refer to wiring diagram in EL-265.

OK or NG

OK	▶	Check harness for open or short between ASCD steering switch and ASCD control unit.
NG	▶	Replace ASCD steering switch.

VEHICLE SPEED SIGNAL CHECK

=NBEL0375S06

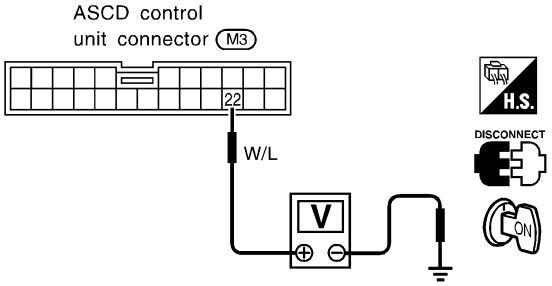
1	CHECK SPEEDOMETER OPERATION

Does speedometer operate normally?

Yes	▶	GO TO 2.
No	▶	Check speedometer and ABS actuator and electric unit circuit. Refer to wiring diagram in EL-267.

2	CHECK VEHICLE SPEED INPUT

1. Apply wheel chocks and jack up drive wheel.
2. Disconnect ASCD control unit harness connector.
3. Check voltage between control unit terminal 22 and ground with turning drive wheel slowly by hand.



Does voltage pointer deflect?

SEL263WB

Refer to wiring diagram in EL-266.

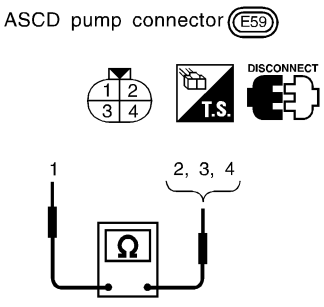
Yes	▶	Vehicle speed signal is OK.
No	▶	Check harness for open or short between ASCD control unit terminal 22 and combination meter terminal 13.

ASCD PUMP CIRCUIT CHECK

NBEL0375S07

1	CHECK ASCD PUMP

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



Terminals		Resistance Ω
1	2	Approx. 65
	3	Approx. 65
	4	Approx. 3

SEL262WB

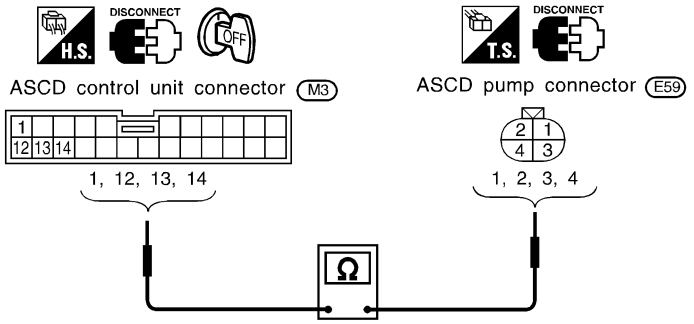
Refer to wiring diagram in EL-266.

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace ASCD pump.

2 CHECK ASCD PUMP CIRCUIT

1. Disconnect ASCD control unit harness connector.
2. Check harness for open or short between ASCD control unit and ASCD pump.



Circuit	Terminal	
	ASCD control unit	ASCD pump
ASCD pump power supply	12	1
Air valve	13	2
Release valve	1	3
Vacuum motor	14	4

Continuity should exist.

SEL269WB

Refer to wiring diagram in EL-266.

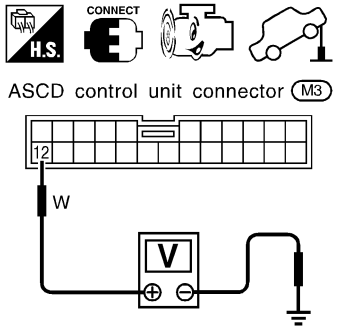
OK or NG

OK	▶	GO TO 3.
NG	▶	Repair harness.

3 CHECK ASCD PUMP POWER SUPPLY

1. Jack-up the drive wheels.
2. Maintain the conditions below.
- Vehicle speed is more than 40 km/h (25 MPH).
- Main switch (CRUISE lamp) is ON.
- Set/coast switch (SET lamp) is ON.

Check voltage between ASCD control unit harness connector terminal 12 and ground.



Battery voltage should exist.

SEL381WB

Refer to wiring diagram in EL-266.

OK or NG

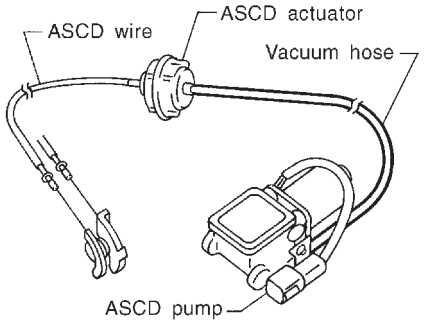
OK	▶	ASCD pump power supply is OK.
NG	▶	Replace ASCD control unit.

ASCD ACTUATOR/PUMP CHECK

=NBEL0375S08

1	CHECK VACUUM HOSE

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



MEL402G

OK or NG

OK	▶	GO TO 2.
NG	▶	Repair or replace hose.

2	CHECK ASCD WIRE

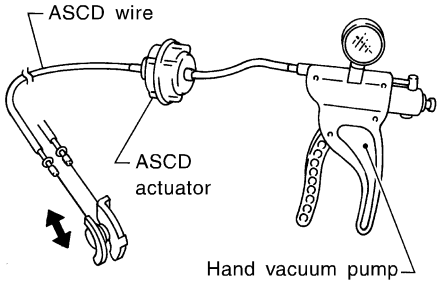
Check wire for improper installation, rust formation or breaks.

OK or NG

OK	▶	GO TO 3.
NG	▶	Repair or replace wire. Refer to "ASCD Wire Adjustment" (EL-279).

3	CHECK ASCD ACTUATOR

1. Disconnect vacuum hose from ASCD actuator.
2. Connect the hose of hand vacuum pump to ASCD actuator.



Apply –40 kPa (–0.41 kg/cm^2, –5.8 psi) vacuum to ASCD actuator with hand vacuum pump.
ASCD wire should move to pull throttle drum.
Wait 10 seconds and check for decrease in vacuum pressure.

Vacuum pressure decrease:
Less than 2.7 kPa (0.028 kg/cm^2, 0.39 psi)

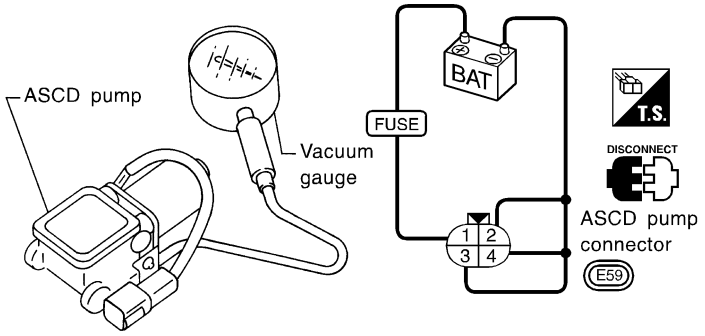
SEL264W

OK or NG

OK	▶	GO TO 4.
NG	▶	Replace ASCD actuator.

4	CHECK ASCD PUMP

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



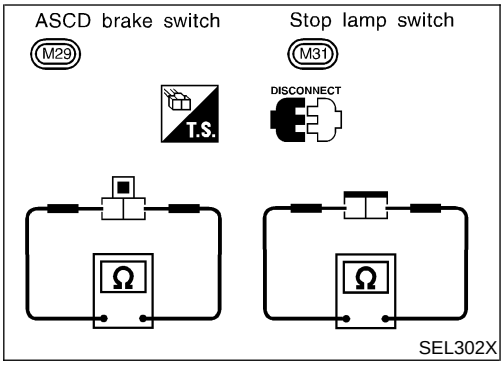
	12V direct current supply terminals		Operation
	(+)	(−)	
Air valve	1	2	Close
Release valve		3	Close
Vacuum motor		4	Operate

A vacuum pressure of at least –40 kPa (–0.41 kg/cm², –5.8 psi) should be generated.

SEL265WB

OK or NG

OK	▶	INSPECTION END
NG	▶	Replace ASCD pump.



Electrical Component Inspection

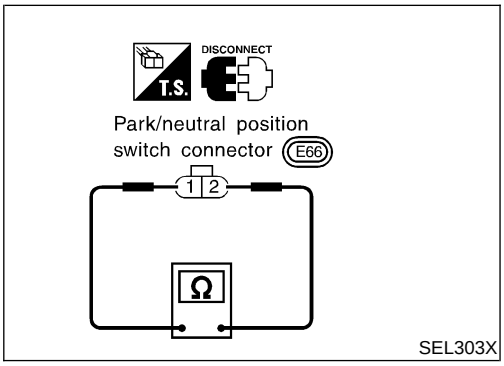
=NBEL0376

ASCD BRAKE SWITCH AND STOP LAMP SWITCH

NBEL0376S01

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

Check each switch after adjusting brake pedal — refer to BR-12, “BRAKE PEDAL AND BRACKET”.



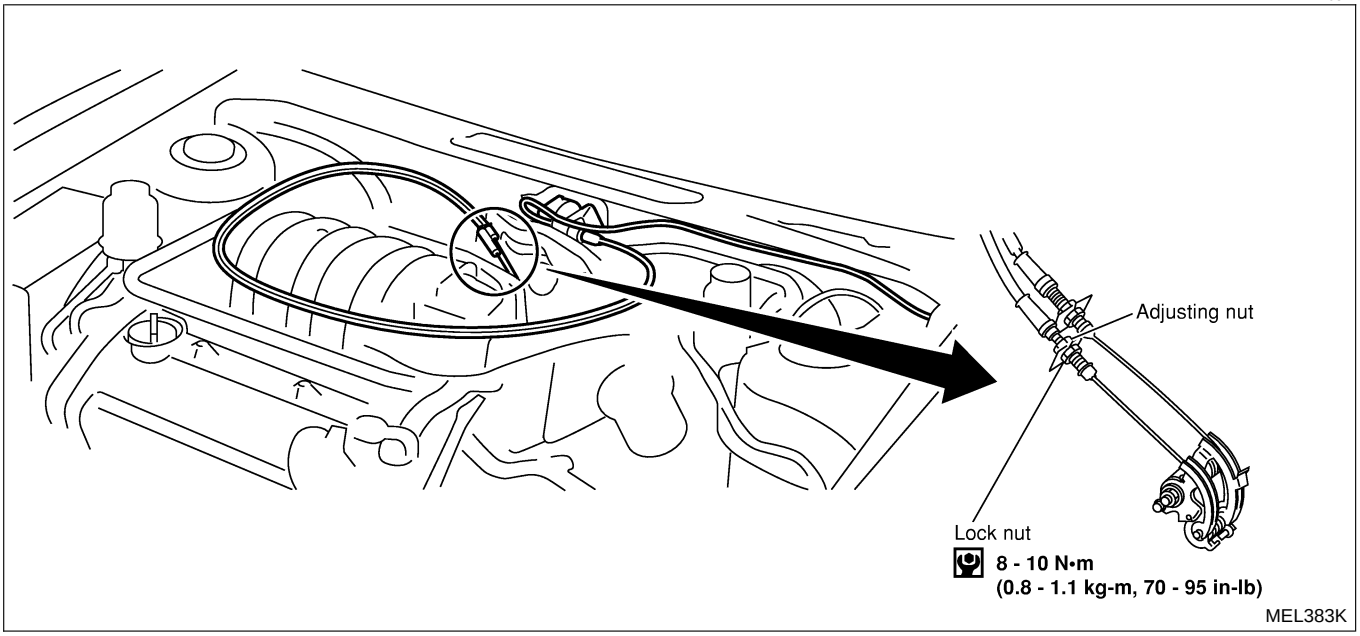
PARK/NEUTRAL POSITION SWITCH

NBEL0376S02

A/T selector lever position	Continuity
	Between terminals 1 and 2
“P”	Yes
“N”	Yes
Except “P” and “N”	No

ASCD Wire Adjustment

=NBEL0377



CAUTION:

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

Adjust the tension of ASCD wire in the following manner.

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

Precautions

NBEL0458

PRECAUTIONS FOR ICC SYSTEM SERVICE

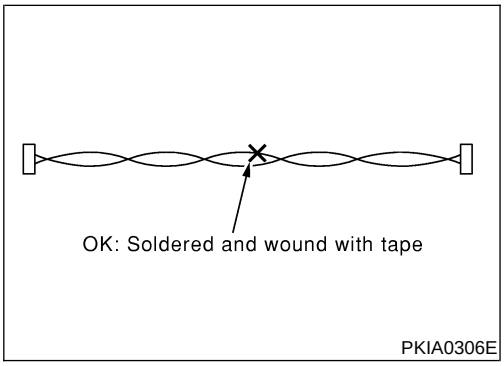
NBEL0458S02

- Do not look straight into the laser beam discharger when adjusting laser beam aiming.
- Turn the ON/OFF switch OFF in conditions similar to driving, suchlike Free rollers or a chassis dynamometer.
- Do not use the ICC sensor removing from vehicle, disassemble, or remodel the sensor.
- Erase DTCs when replacing parts of ICC system, then check the operation of ICC system after adjusting laser beam aiming if necessary.

PRECAUTIONS FOR CAN SYSTEM SERVICE

NBEL0458S04

- 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.



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

Preparation

NBEL0459

SPECIAL SERVICE TOOL

NBEL0459S01

The actual shapes of Kent-Moore tools may differ from those of special service tools illusttated here.

Tool number (Kent-Moore No.) Tool name	Description
KV99110100 (J-45718) ICC target board	Laser beam aiming adjustment  PKIA0358J

Description

NBEL0460

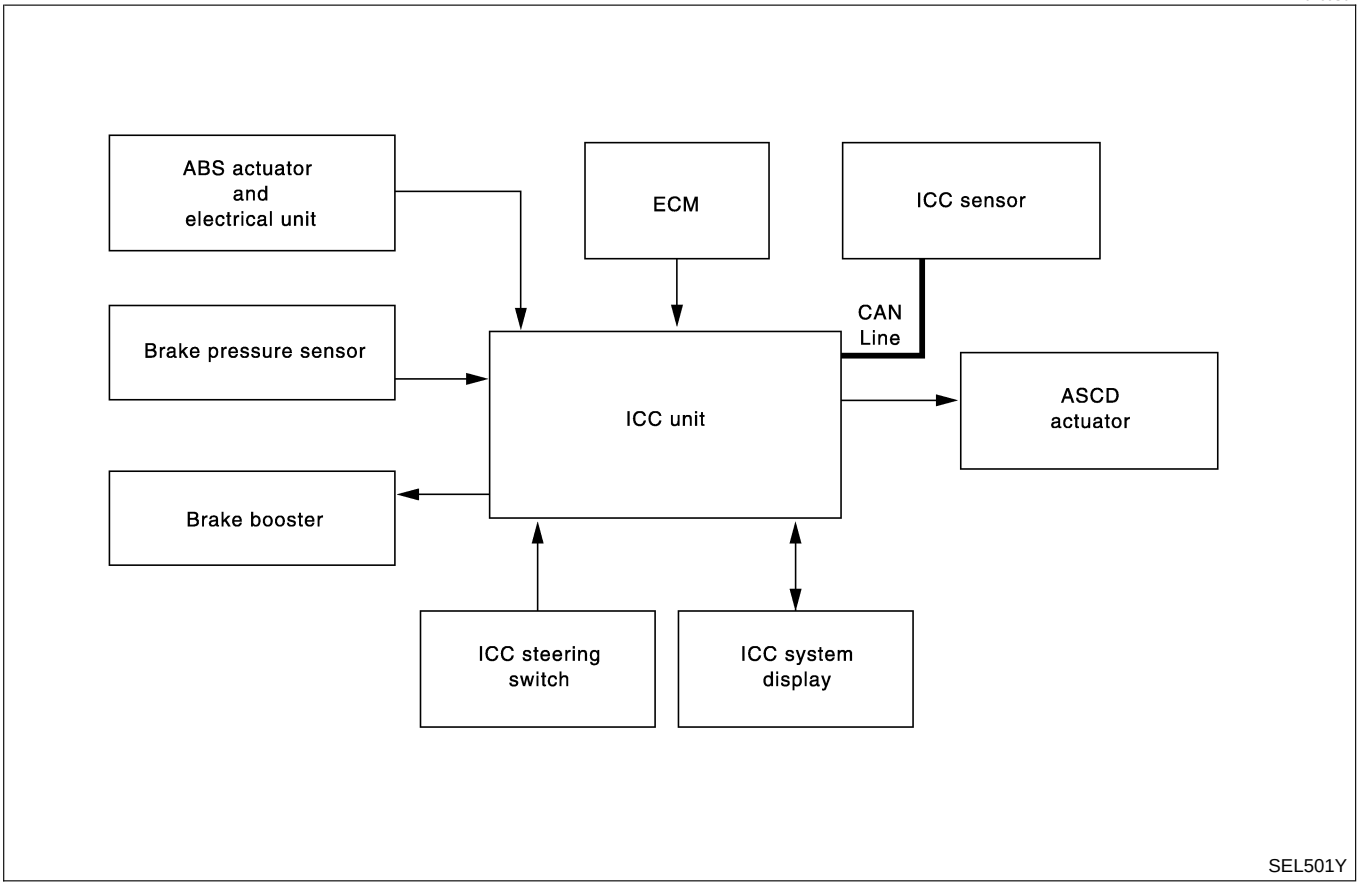
OUTLINE

NBEL0460S01

The Intelligent Cruise Control (ICC) system automatically maintains a selected distance from the vehicle ahead according to that vehicle's speed, or at the set speed, if the road ahead is clear.
With ICC, the same speed as other vehicles can be maintained without the constant need to adjust the operating speed as with a normal cruise control system.
The system is intended to enhance the operation of the vehicle when following another vehicle in the same lane and direction.
If the distance sensor detects a slower moving vehicle ahead, the system will reduce speed so that the vehicle ahead can be followed at the selected distance.
The system automatically controls the throttle and applies the brakes (up to 25% of vehicle braking power) if necessary.
The detection range of the sensor is approximately 390 ft (120 m) ahead.
Refer to Owner's Manual for Intelligent Cruise Control System operating instructions.

SYSTEM DIAGRAM

NBEL0460S02



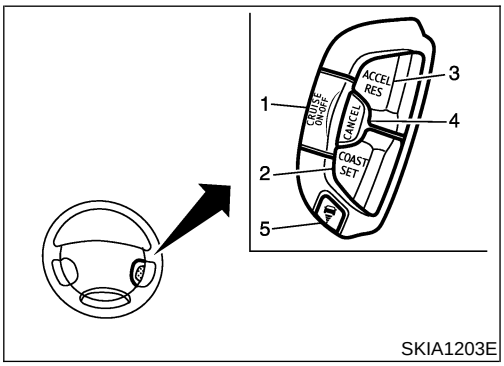
COMPONENTS DESCRIPTION

NBEL0460S03

Component	Description
ICC unit	Operates ASCD actuator and brake booster based on that sensor signals and CAN communication data, then controls vehicle distance.
ICC sensor	Irradiate laser beam, and receives reflected laser beam to measure distance from preceding vehicle.
ECM	Transmits throttle angle signal to ICC unit.

Description (Cont'd)

Component	Description
Brake pressure sensor	Detects fluid pressure in master cylinder.
ASCD actuator	Based on command from ICC unit, adjust throttle valve angle with ASCD actuator, using vacuum emerged from vacuum pump.
Brake booster	Adjusts brake fluid pressure, based on command from ICC unit.
ABS actuator and electrical unit	ABS operation signal to ICC unit.

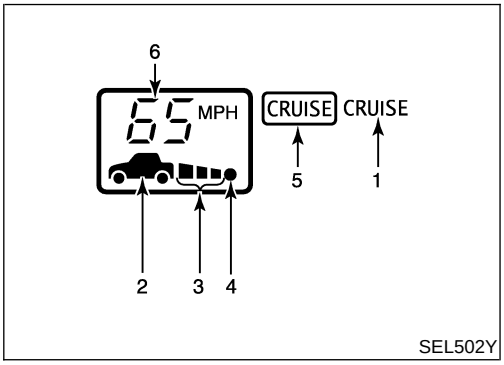


SWITCH OPERATION

NBEL0460S05

The system is operated by a master ON/OFF switch and four control switches, all mounted on the steering wheel

No.	Switch name	Description
1	ON/OFF switch	Master switch to activate the system
2	COAST/SET switch	Sets desired cruise speed, reduces speed incrementally
3	ACCELERATE/RESUME switch	Resumes set speed or increases speed incrementally
4	CANCEL switch	Deactivates system without erasing set speed
5	DISTANCE switch	Changes the following distance from: Maximum, Intermediate, Minimum



ICC SYSTEM DISPLAY

NBEL0460S06

No.	Component	Description
1	Intelligent cruise control system warning lamp (Orange)	The light comes on if there is a malfunction in the ICC system.
2	Vehicle ahead detection indicator	Indicates whether it detects a vehicle ahead.
3	Set distance indicator	Display the selected distance between vehicles set with the DISTANCE switch.
4	Own vehicle indicator	Indicates the base vehicle.
5	ON/OFF switch indicater lamp (White)	Indicates that the ON/OFF switch is ON.

No.	Component	Description
6	Set vehicle speed indicator	Indicates the set vehicle speed.

Action Test

NBEL0461

ICC SYSTEM RUNNING TEST

NBEL0461S01

ICC System Set Checking

NBEL0461S0101

1. Turn on the ON/OFF switch.
2. Drive the vehicle at 25 MPH (40 km/h) to 90 MPH (144 km/h).
3. Push the COAST/SET switch.
4. Confirm that the desired speed is set as hand is released from the COAST/SET switch.

NOTE:

- When there is no vehicle ahead, drive at the set speed steadily.
- When there is a vehicle ahead, control to maintain distance from the vehicle ahead, watching its speed.
- The set vehicle speed is displayed on the ICC system indicator in the combination meters.

Check for Increase of The Cruising Speed

NBEL0461S0102

1. Set the ICC at desired speed.
2. Check if the set speed increases by 1 MPH (1.6 km) as COAST/SET switch is pushed.

NOTE:

The maximum set speed of the ICC system is 90 MPH (144 km/h).

Check for Decrease of The Cruising Speed

NBEL0461S0103

1. Set the ICC at desired speed.
2. Check if the set speed decreases by 1 MPH (1.6 km/h) as COAST/SET switch is pushed.

NOTE:

- ICC system is automatically turned off when the driving speed lowers to 20 MPH (32 km/h) due to the deceleration of the vehicle ahead.
- The lowest set speed is 25 MPH (40 km/h).

Check for The Cancellation of ICC System (Normal Driving Condition) in The Following Cases:

NBEL0461S0104

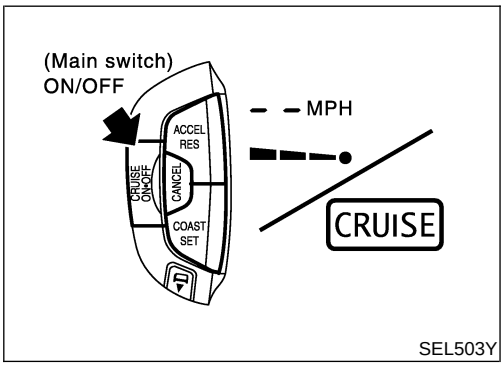
1. When the brake pedal is depressed after the system is turned on.
2. When the select lever is shifted into other than "D" including manual shift.
3. When the ON/OFF switch is turned off.
4. When CANCEL switch is operated.

Check for Restoring The Speed That is Set by ICC System Before ICC Cancellation

NBEL0461S0105

1. Cancel the system by depressing the foot brake.Then, check that the speed before cancellation is restored when pressing ACCEL/RES switch with 25 MPH (40 km/h) or above.

2. Cancel the system by shifting the select lever into other than "D", Then, check if the speed set before the cancellation is restored when ACCEL/ RES switch is pressed.
3. Check if the speed previously set is restored when ACCEL/ RES switch is operated with driving 25 MPH (40 km/h), after canceling the ICC by operating the CANCEL switch.



SEL503Y

Check for ON/OFF Switch

NBEL0461S0106

1. Start the engine.Then, check the following operations are carried correctly.
2. Intelligent Cruise Control (ICC) system is displayed in between the tachometer and speedometer illuminates when ON/OFFswitch is ON and ready for operation.The illumination goes off when ON/OFF switch is turned to OFF.
3. "CRUISE" illumination and "ICC" system illumination go off when the key switch is turned to OFF while ON/OFFswitch is ON ("CRUISE" illumination is ON and ICC system is ready for operation).

Check for ACCEL/RES, COAST/SET, CANCEL Switches

NBEL0461S0107

1. Check if ACCEL/ RES, COAST/SET, CANCEL switches are operated smoothly.
2. Check if buttons come up as hand is released from the buttons.

Check for Distance Switch

NBEL0461S0108

1. Start the engine.
2. Turn on the ON/OFF switch.
3. Press the DISTANCE switch.
4. Check if the set distance indicator changes display in order of: (long)→(medium)→(short).

NOTE:
The set distance indicator shows 'long' immediately after the engine starts.

Distance	Display	Approximate distance at 60 MPH (96 km/h) [ft (m)]
Long	60 MPH CRUISE	195 (60)
Middle	60 MPH CRUISE	150 (45)
Short	60 MPH CRUISE	105 (32)

SEL504Y

Laser Beam Aiming Adjustment

NBEL0462

OUTLINE

NBEL0462S01

Adjust the laser beam aiming every time the ICC sensor is removed or installed.

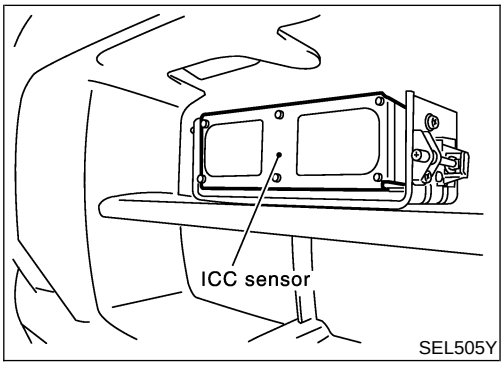
CAUTION:

- **Place the vehicle on the level ground when the laser beam aiming adjustment is operated.**
- **Follow the CONSULT-II when adjusting the Laser beam aiming (Laser beam aiming adjustment cannot be operated without CONSULT-II).**

PREPARATION

NBEL0462S02

- Keep all tires inflated to correct pressures. Adjust the tire pressure to the specified pressure value.
- See that there is no-load in vehicle other than the driver (or equivalent weight placed in driver's position). Coolant, engine oil filled up to correct level and full fuel tank.
- Shift the gear into "P" position and release the parking brake.



- Clean the sensor with a soft cloth.

OUTLINE OF ADJUSTMENT PROCEDURE

NBEL0462S03

1. Set up the ICC target board [KV99110100 (J-45718)].
2. Adjust the sensor following the procedure on CONSULT-II (Turn manually the screw for up-down position adjustment. ICC sensor automatically adjust the right-left position).

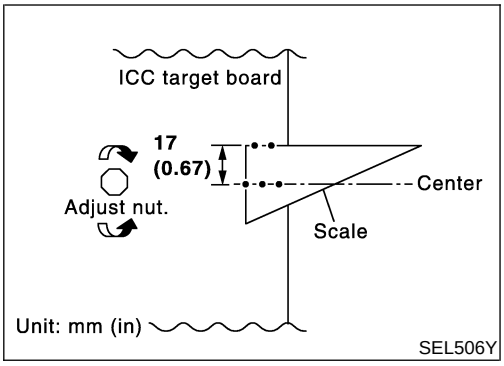
SETTING THE ICC TARGET BOARD

NBEL0462S04

Accurate ICC target board setting is required for the laser beam aiming adjustment.

CAUTION:

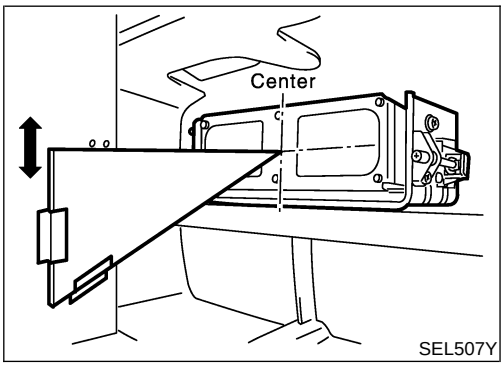
ICC system does not function normally if laser beam aiming is not accurate.



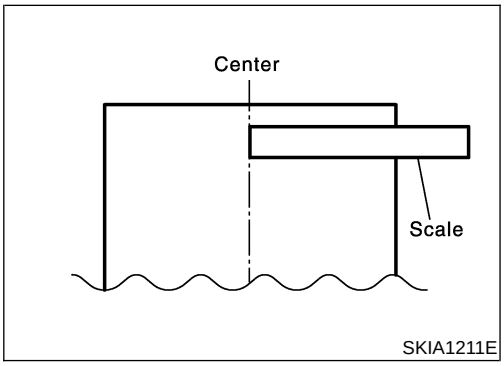
Adjusting Height of The Target

NBEL0462S0401

1. Attach a triangle scale as shown in the figure.



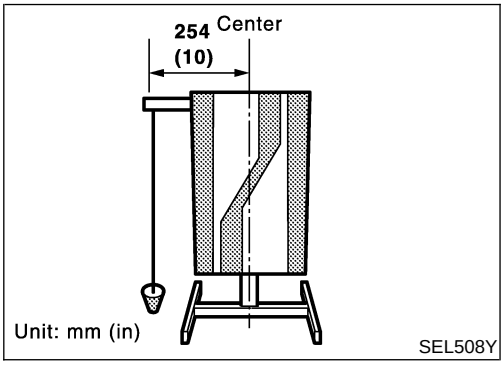
2. Adjust the height of the target stand so that the point of the triangle aims the center of the ICC sensor.



Adjusting The Right-left Position of The Target

NBEL0462S0402

1. Attach a scale (at least 300 mm [12 in] or longer) or stick as shown in the figure.

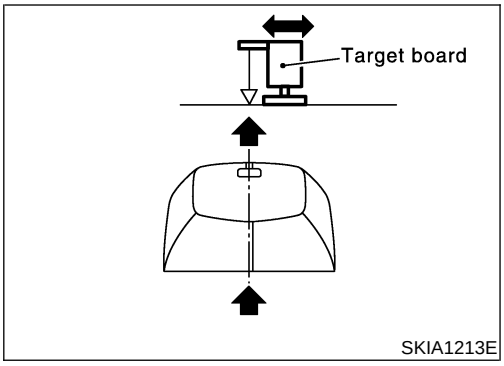


2. Suspend a thread with weight on the tip of the thread to 254 mm (10 in) left side of the target board from the center of the target board on top.

Setting The Target

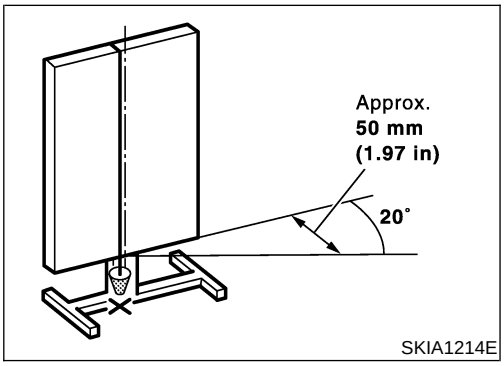
NBEL0462S0403

1. Suspend a thread with weight on tip to splice the center of the front and back bumpers. Then, mark the center point on the ground as each weight points.
2. Link the front and back bumpers' center points marked on the ground, and mark a point 5 m ahead of the vehicle, on the extended line of the previous link line of the bumper center points.Then, adjust the position of the target board so that the weight come on the top of the marked point (5 m ahead of the vehicle) and face to the vehicle.



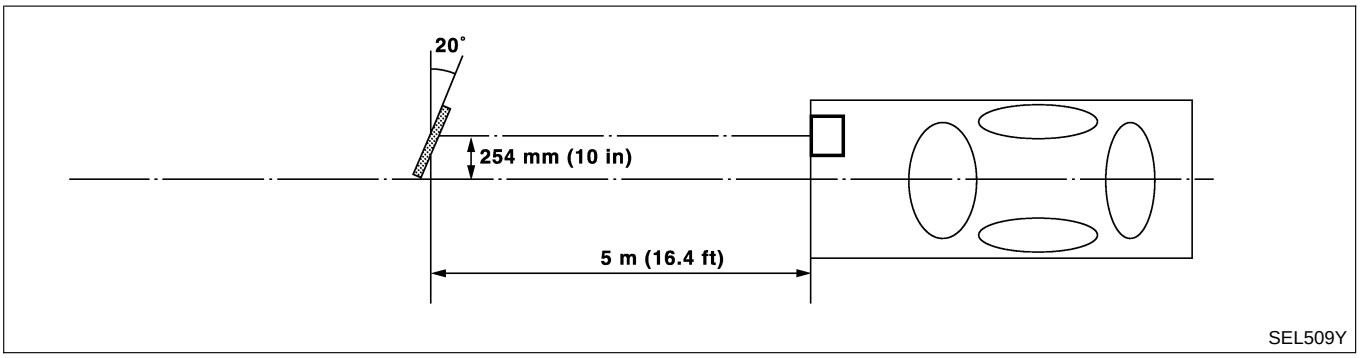
3. Adjust the position of the target board so that the extended line that links the center of the rear windshield and the center of the front windshield align with the weight suspended from the board.

4. Remove the thread suspended to the left side of board and suspend a thread with weight on tip on the center of the target board. Then mark the point of weight on the ground.

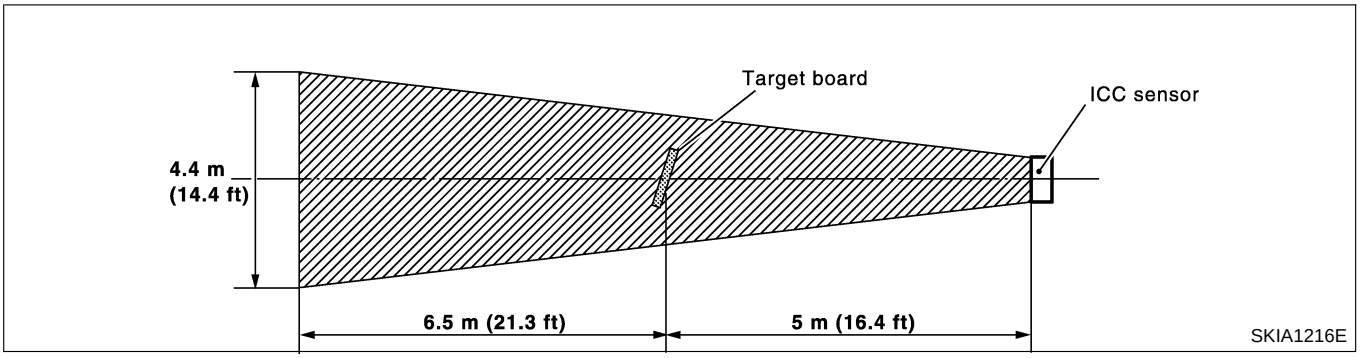


5. Pivot the edge of the target board 20-degree to either side.

NOTE:
50 mm (1.97 in) shift rates the 20-degree movement.



6. Do not place anything in the space shown in the figure (view from top).



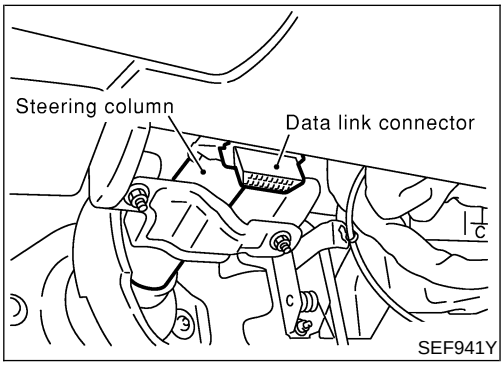
NOTE:
In case the space shown in the illustration is not available, make space by covering the side of the target board with a 400 mm (15.75 in)-size frosted black board or black cloth.

AIMING ADJUSTMENT

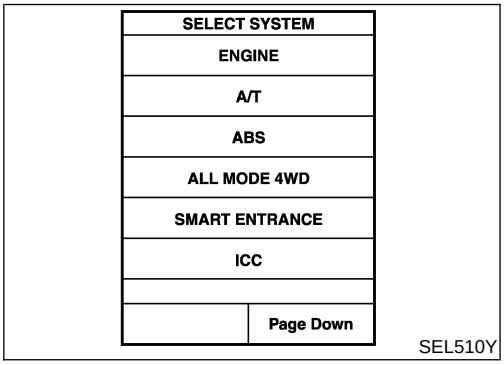
NBEL0462S05

CAUTION:
Complete all necessary work for laser beam adjustment until the adjustment completes as shown in the procedure. If the procedure does not complete, the ICC system is inoperative.

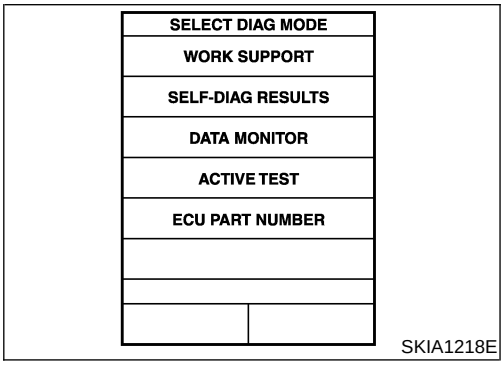
1. Turn ignition switch OFF.



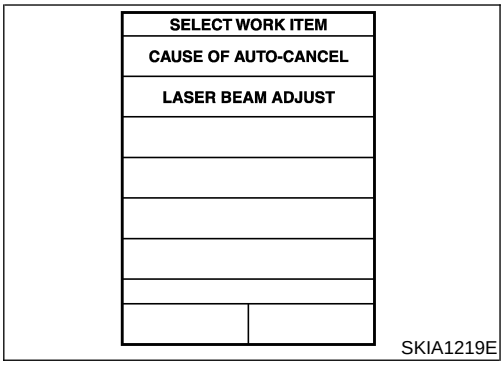
2. Connect CONSULT-II on the data link connector. Then, start the engine, wait for at least 10 sec., and touch "START".



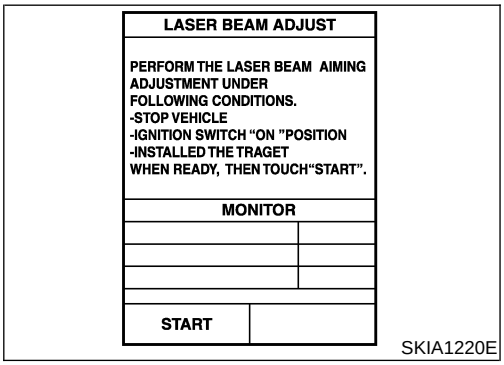
3. Touch "ICC".



4. Touch "WORK SUPPORT".



5. Touch "LASER BEAM ADJUST".

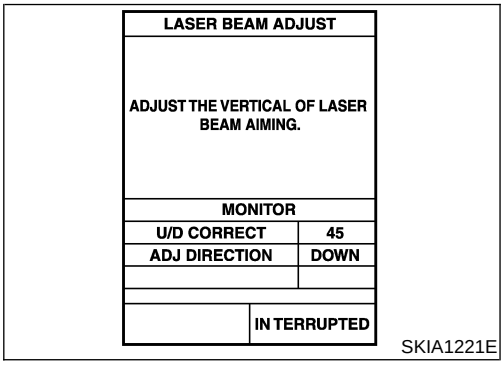


6. Touch "START".

CAUTION:

If the adjustment screen does not appear on CONSULT-II 10 sec. after touching "LASER BEAM ADJUST" screen, the following causes may be considered:

- **Target is not set accurately.**
- **There is not enough space beside the target.**
- **Deformation of vehicle or the surrounding equipment unit, bracket, or the surrounding equipment is causing inappropriate installation of sensor and aiming may be set out of the adjustable range.**
- **The area is not suitable for the adjustment work.**
- **ICC sensor is not clean.**
- **Laser beam adjustment may not be processed if something interrupts the laser beam.**



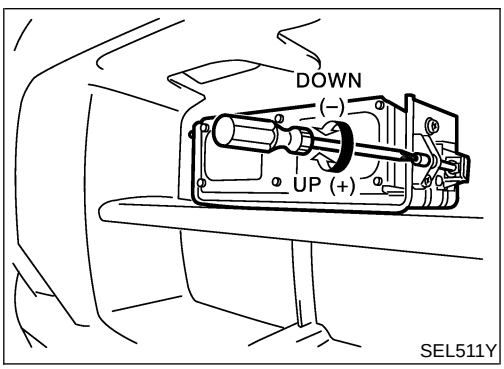
7. After the CONSULT-II displays "ADJUST THE VERTICAL OF LASER" turn the up-down direction adjustment screw until "U/D CORRECT" value is set in the range of ±4.

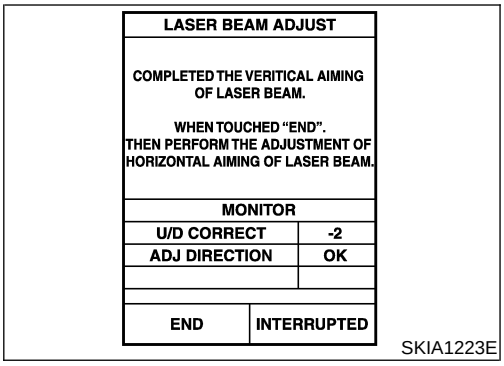
CAUTION:

Turn the screw slowly. The value change on display is slower than actual movement of the ICC sensor. Wait for 2 seconds every time the screw is turned half a rotation.

NOTE:

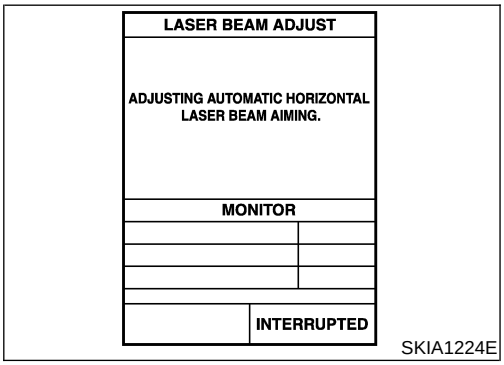
Turning the screw to the right lifts the aiming and to the left lowers the aiming.



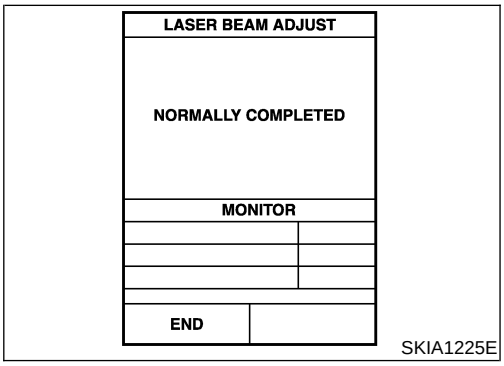


8. When "U/D CORRECT" value indicates ±4, confirm that the margin of value remains within ±4 at least for 2 seconds with no equipment or hand touching the ICC sensor.
   When "COMPLETED THE VERTICAL AIMING OF LASER BEAM" appears on screen, touch "END".

CAUTION:
Be sure that the margin of "U/D CORRECT" is within ±4 with ICC sensor unit is untouched.



9. Confirm that "ADJUSTING AUTOMATIC HORIZONTAL LASER BEAM AIMING" is on screen and wait for a while (maximum: 10 sec.).



10. Confirm that "NORMALLY COMPLETED" is displayed on CONSULT-II and close the aiming adjustment procedure by touching "END".

CAUTION:
Complete all the procedures once "LASER BEAM ADJUST" mode is entered in CONSULT-II. When the procedure is discontinued, the ICC system is inoperable.

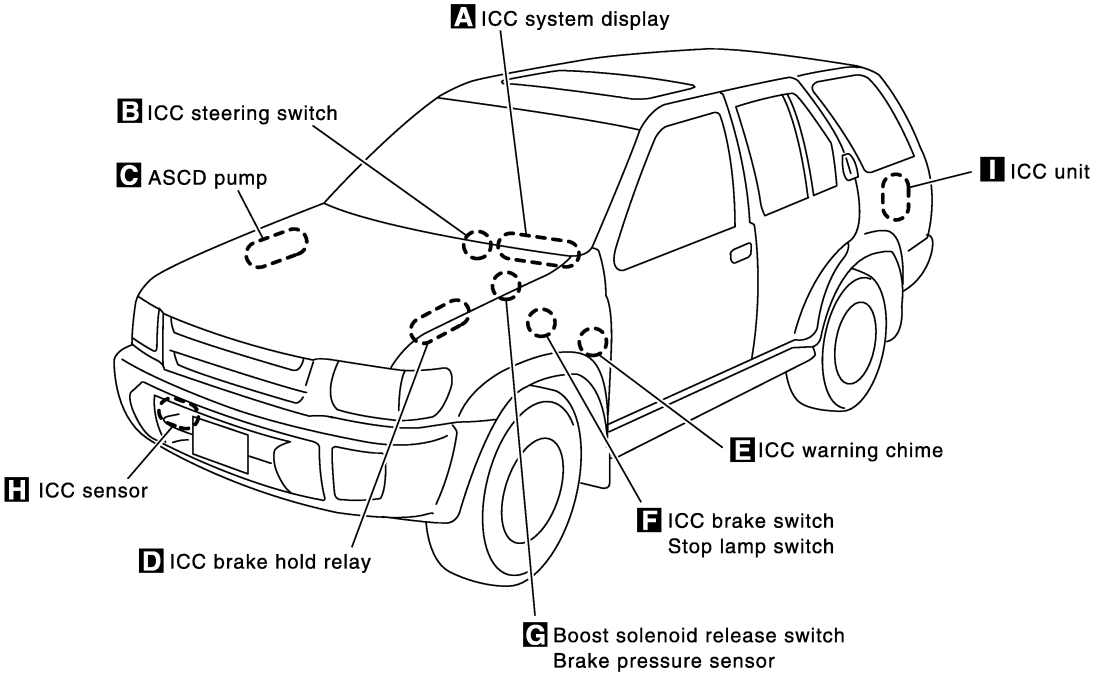
Check After The Adjustment

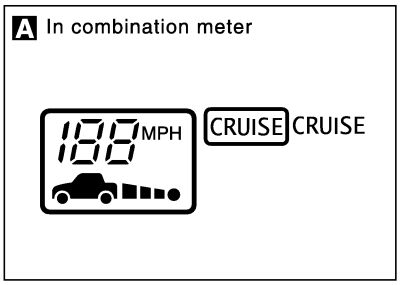
NBEL0462S0501

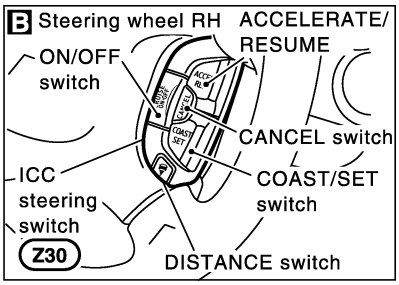
Test the ICC system operation by running test. Refer to "ICC system running test" EL-283.

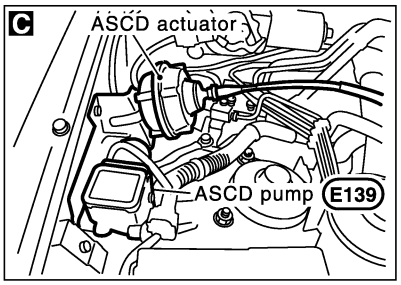
Component Parts and Harness Connector Location

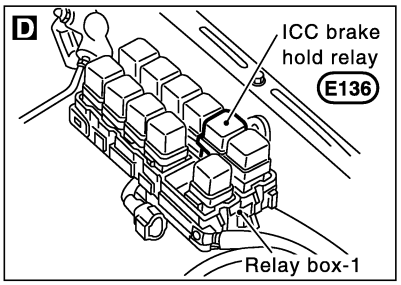
NBEL0463

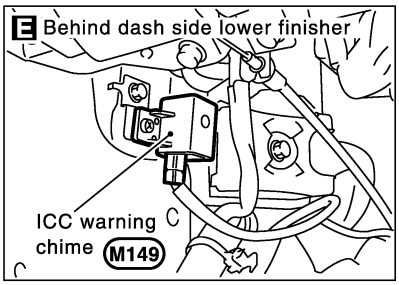


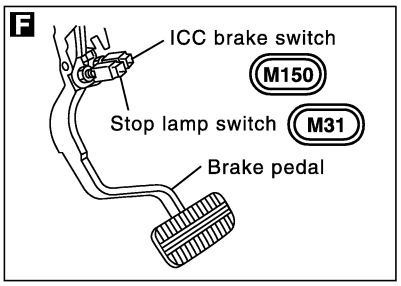


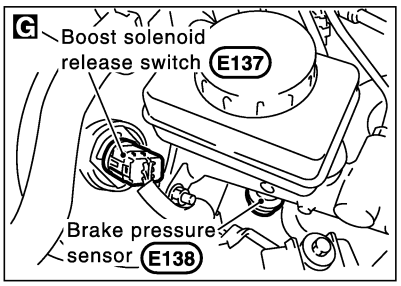


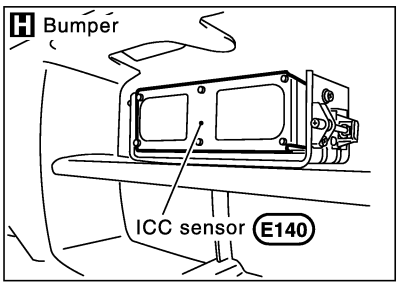


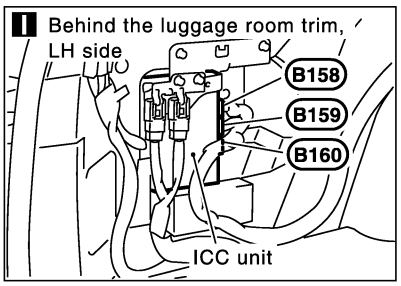








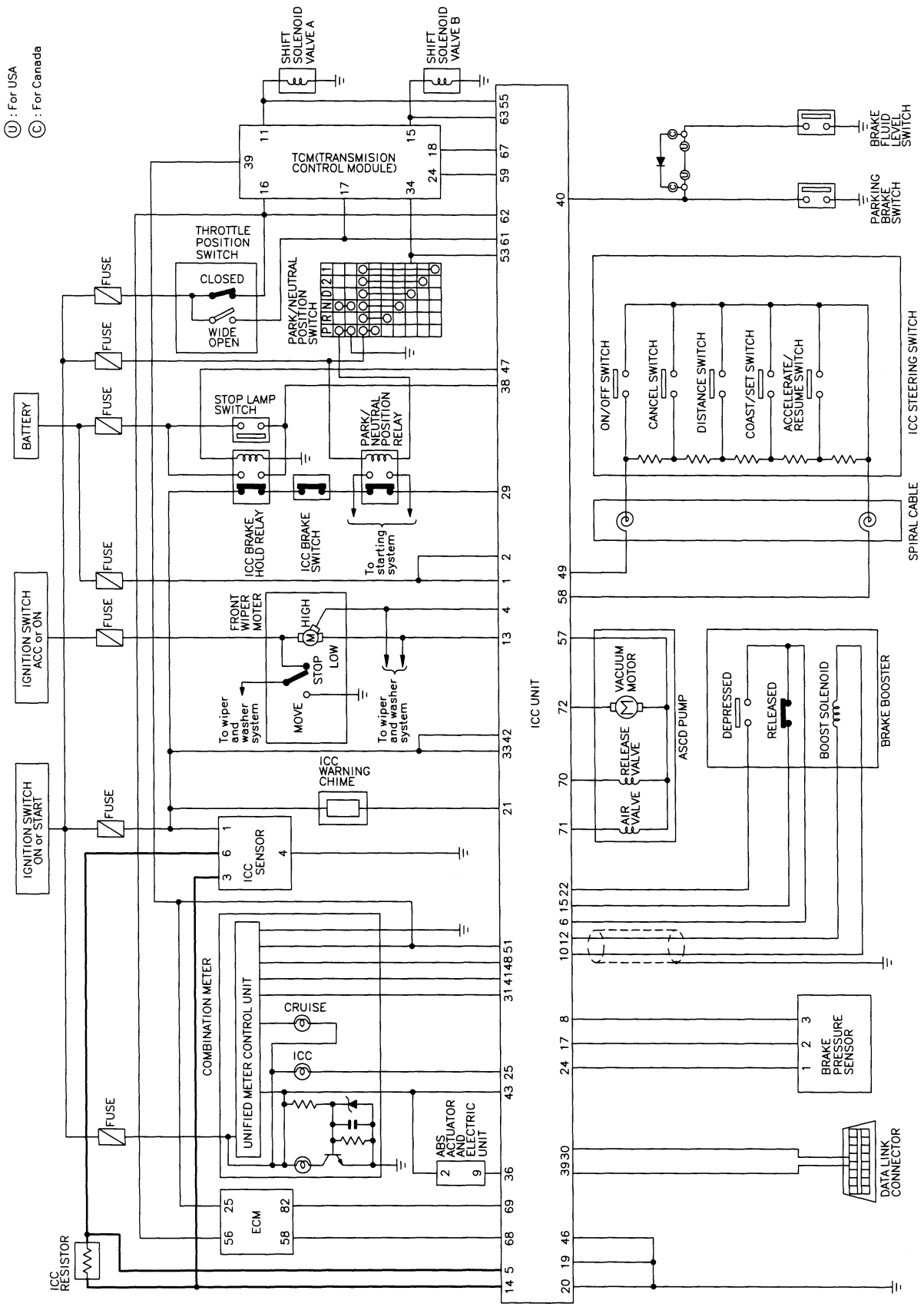




SEL512Y

Schematic

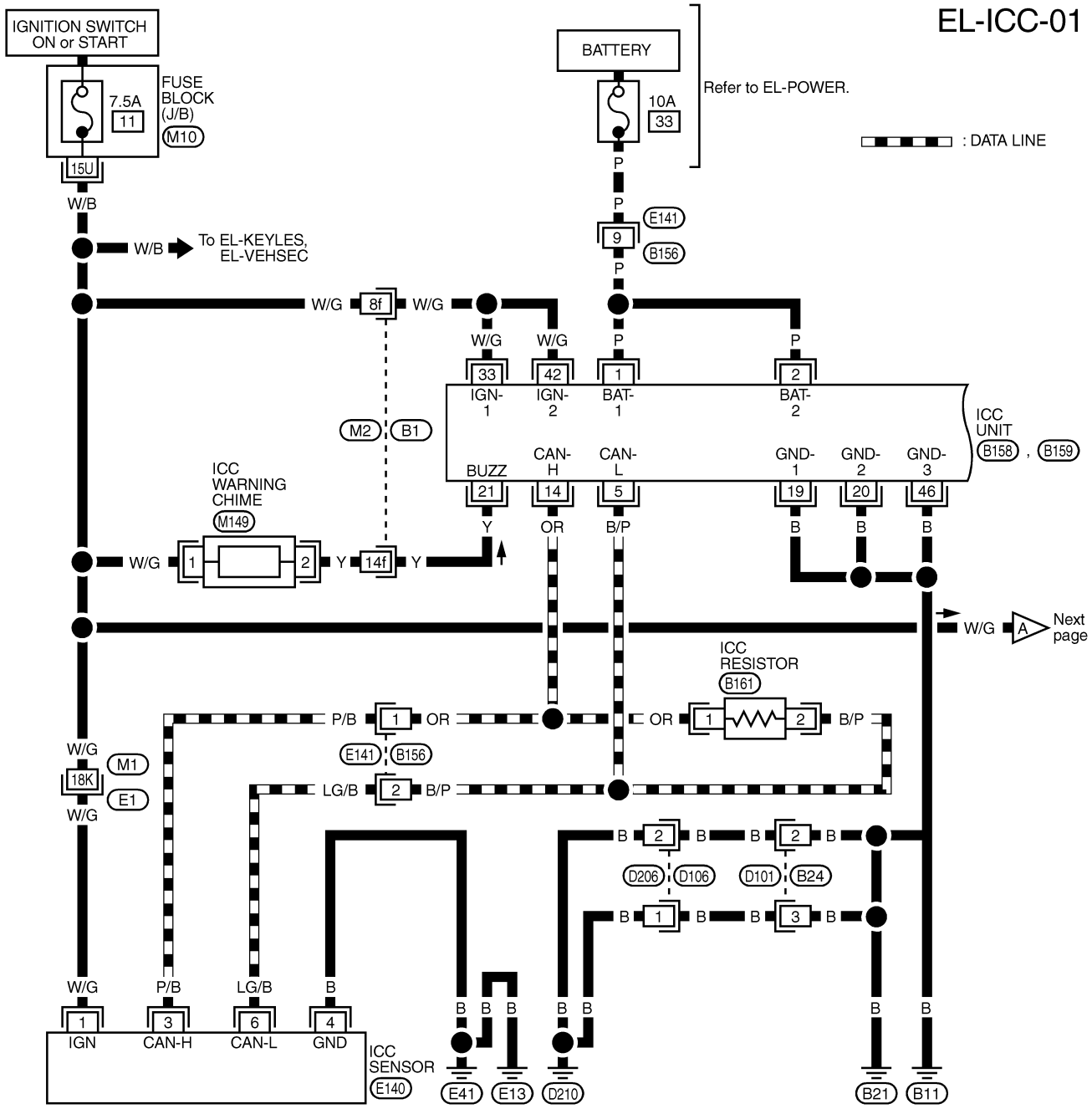
NBEL0464

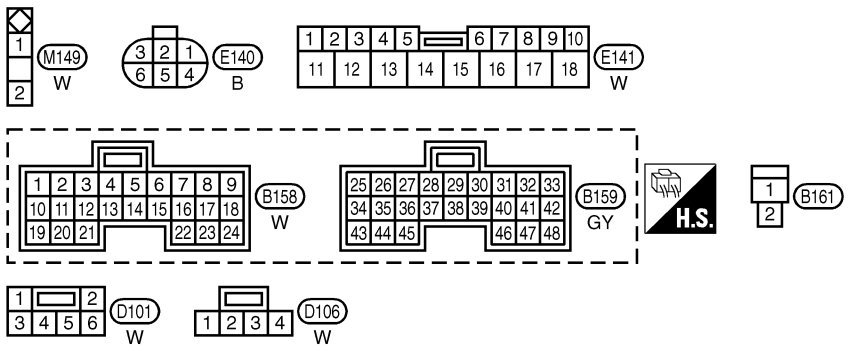


MEL459O

Wiring Diagram — ICC —

NBEL0465

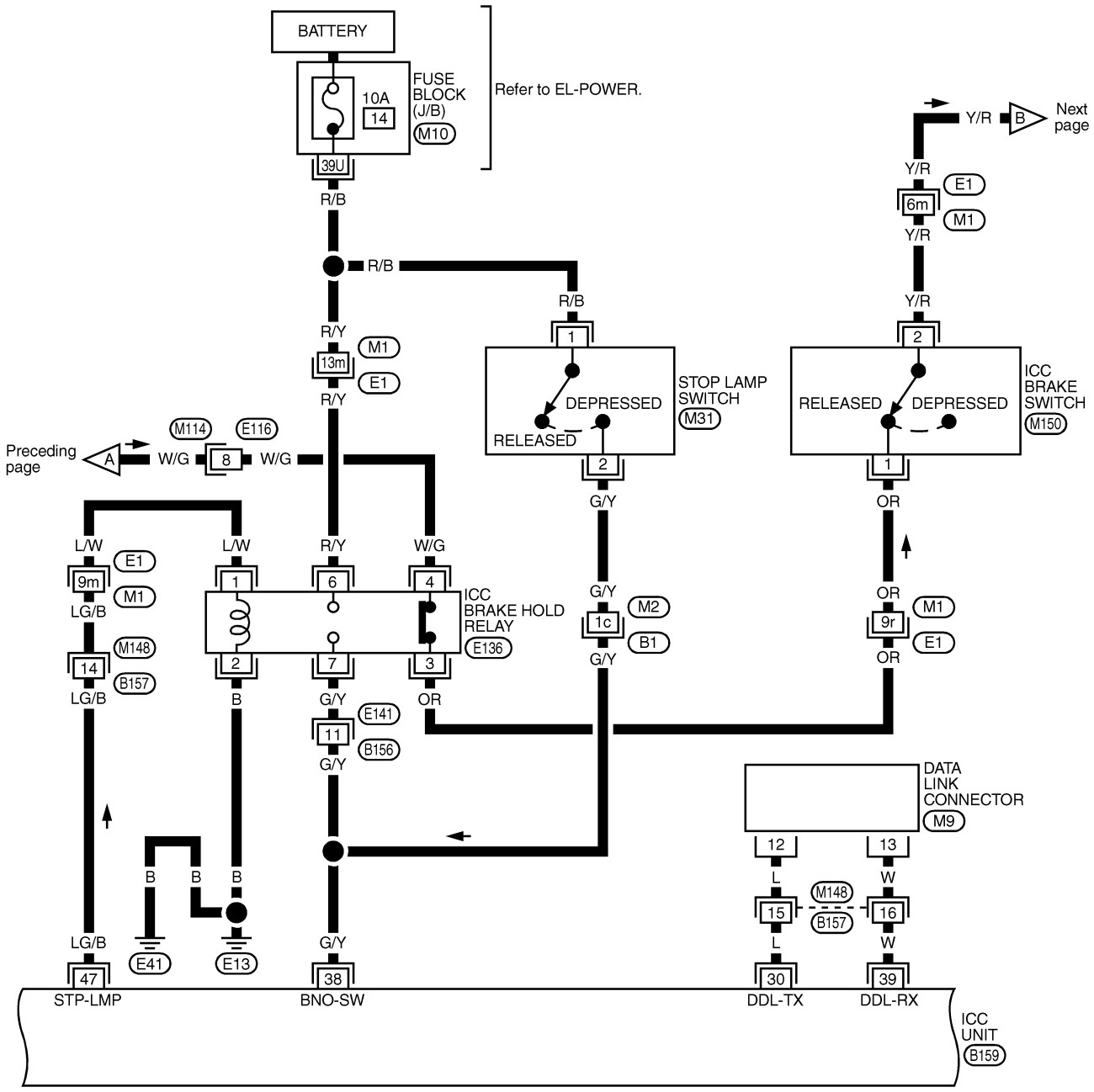


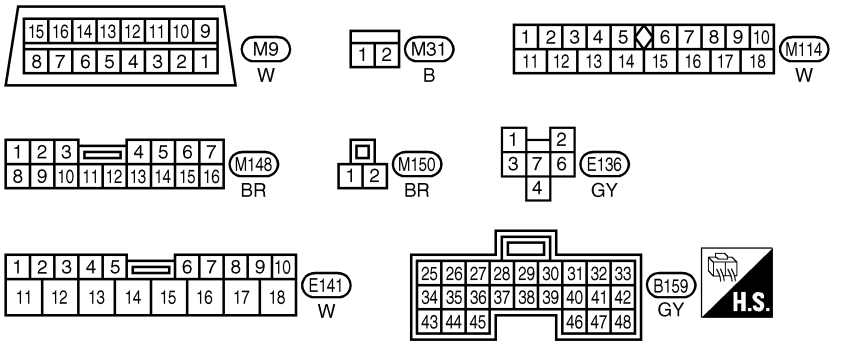


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL460O

EL-ICC-02

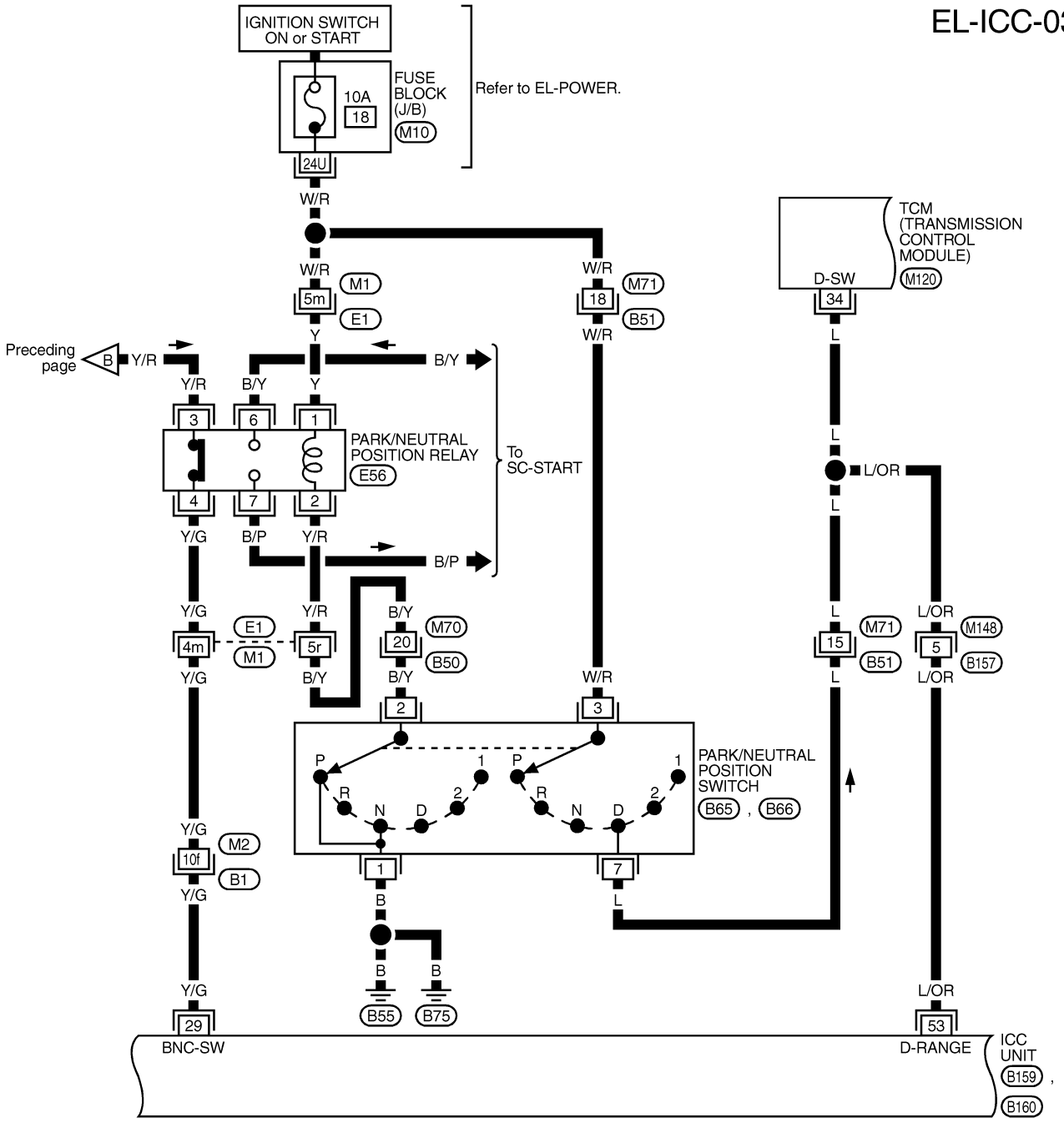


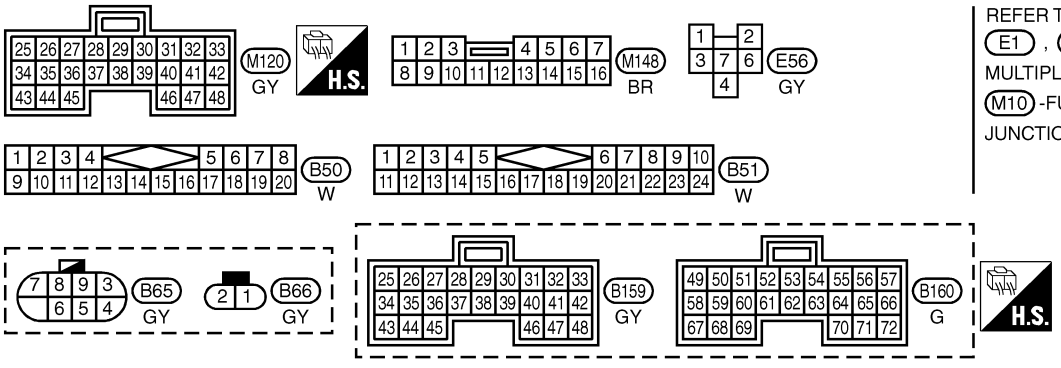


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL461O

EL-ICC-03

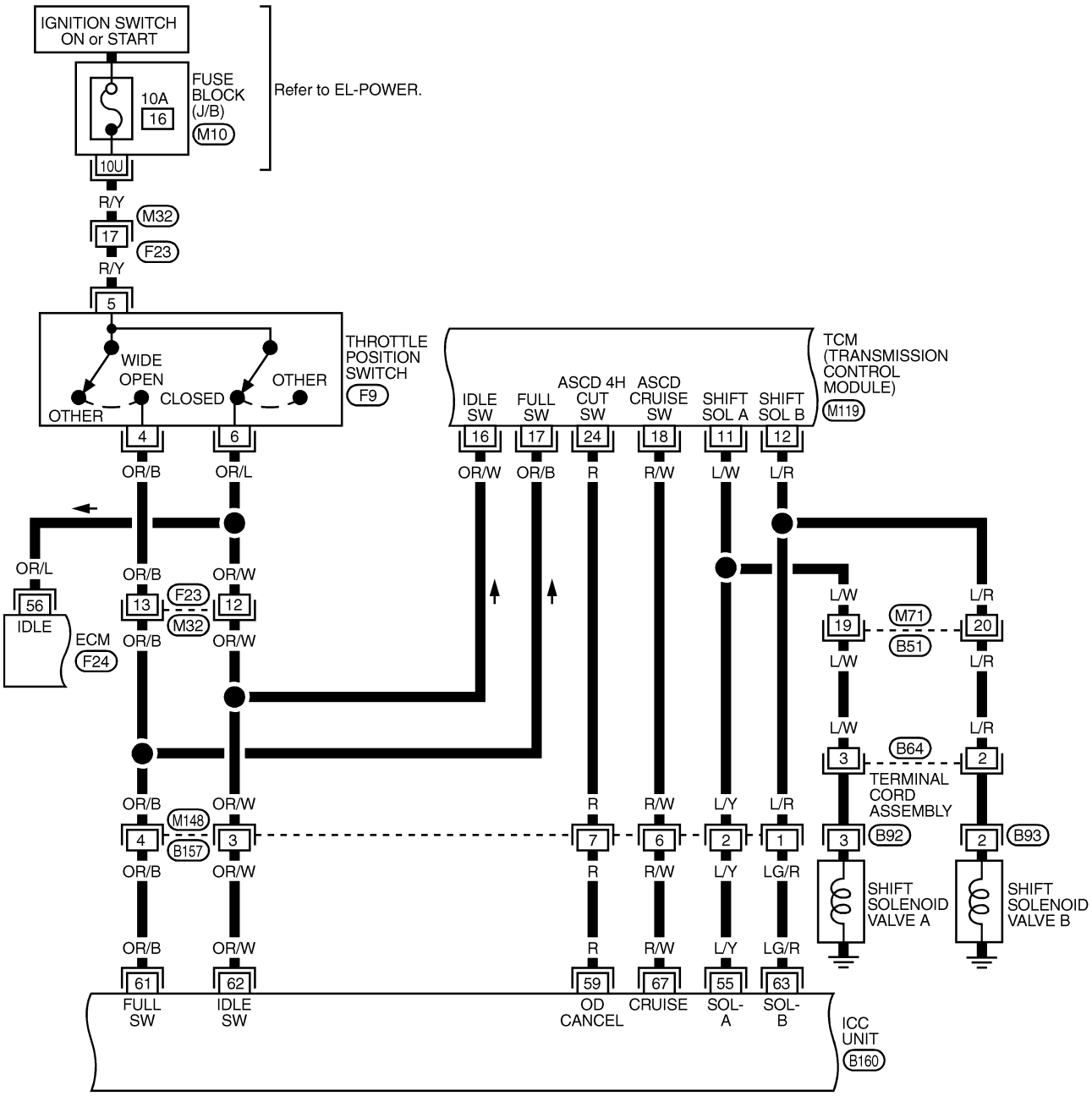


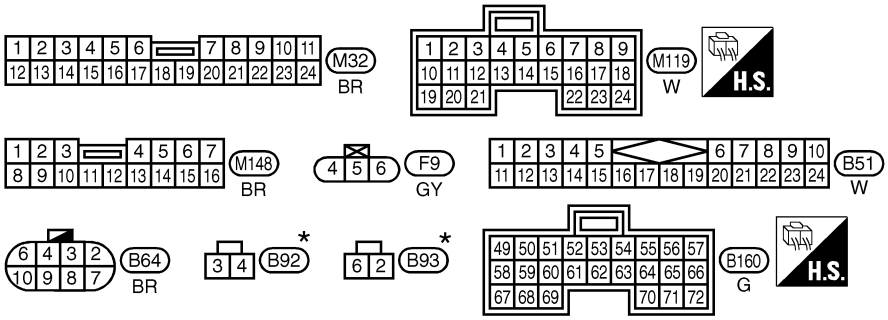


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL462O

EL-ICC-04



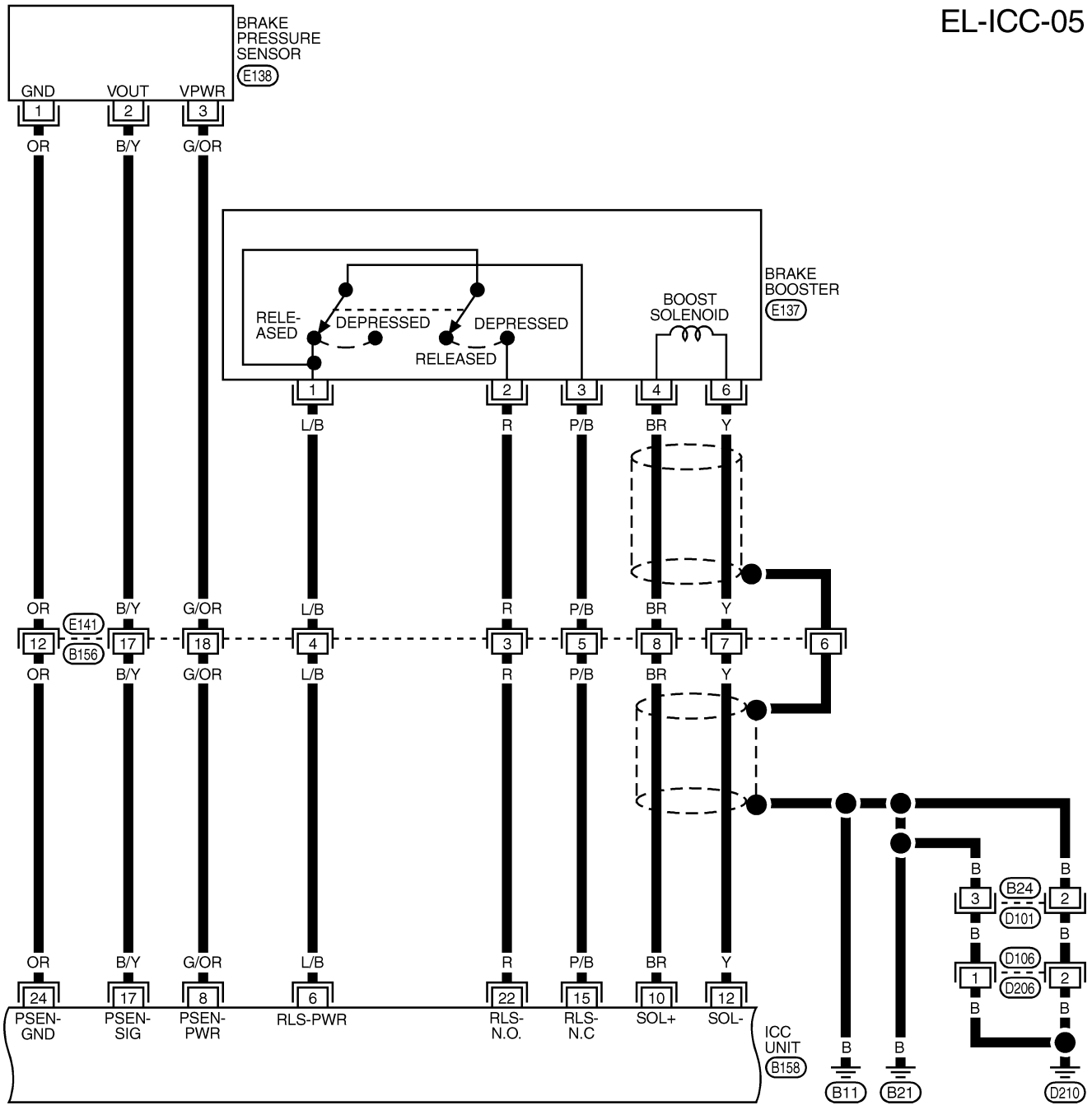


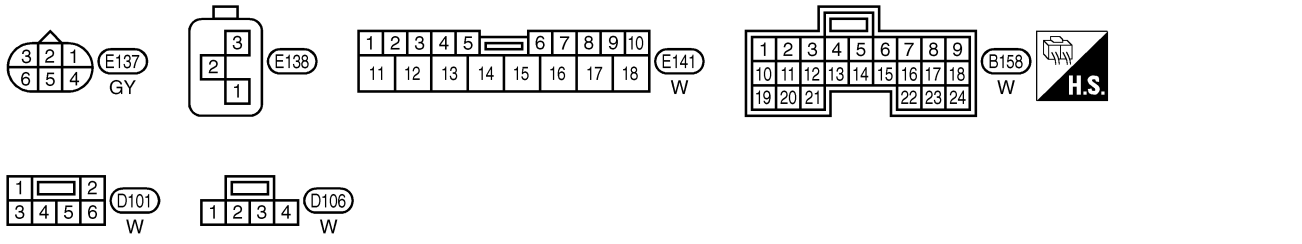
REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-
JUNCTION BOX (J/B)
F24 -ELECTRICAL UNITS

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

MEL463O

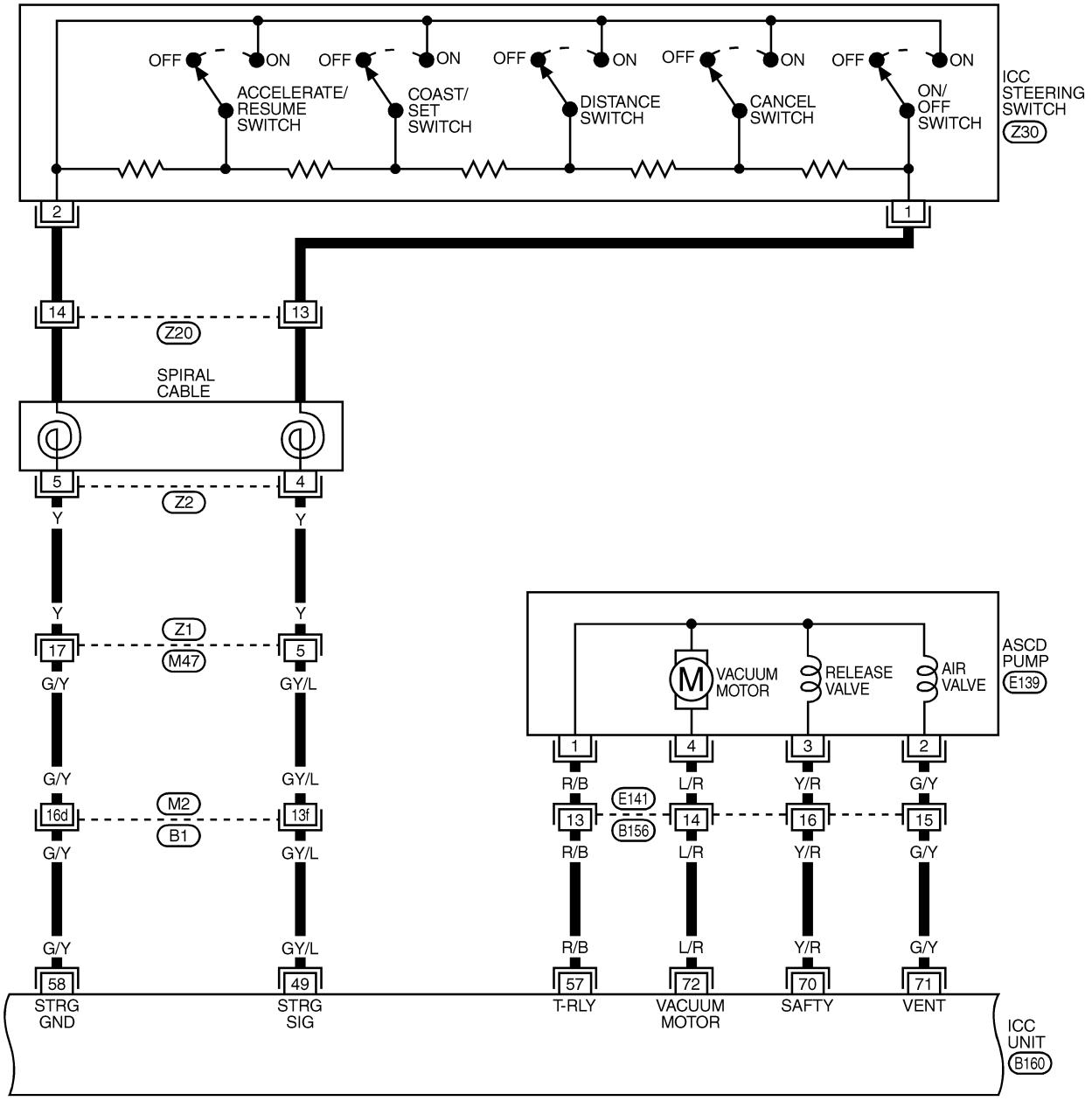
EL-ICC-05

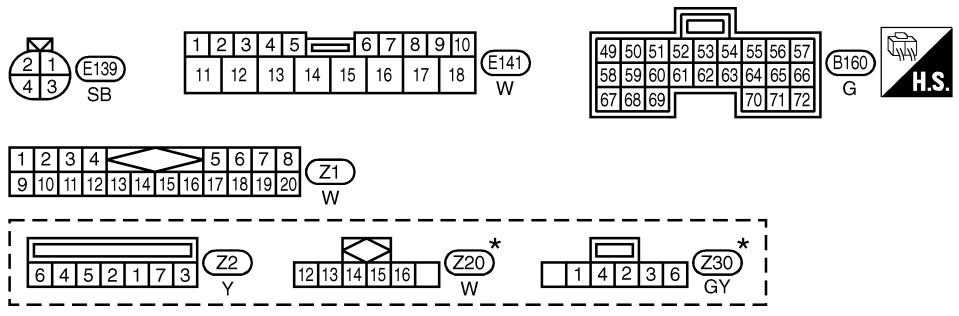




MEL464O

EL-ICC-06



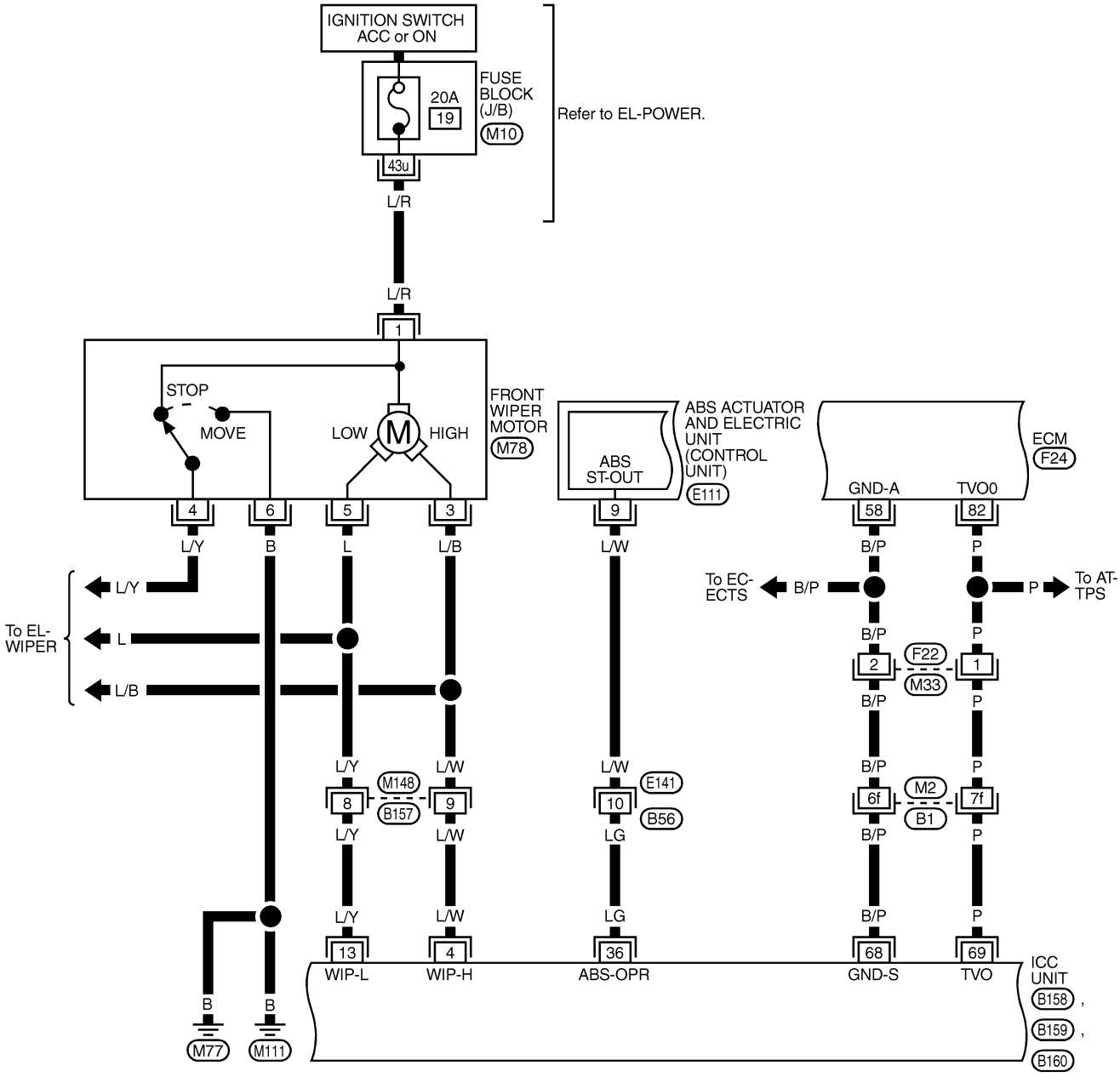


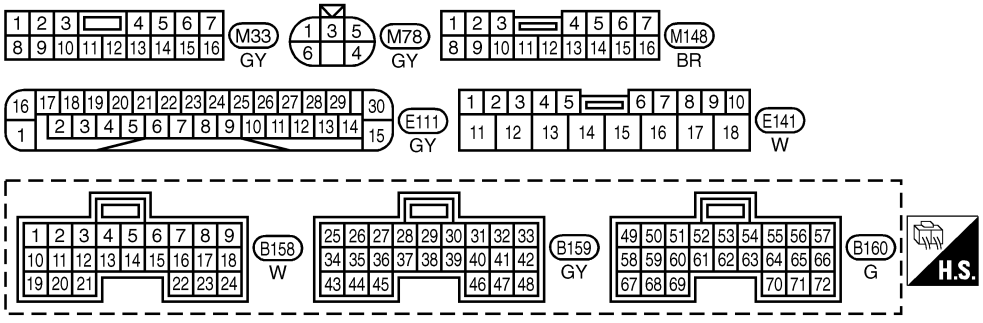
REFER TO THE FOLLOWING.
(B1) -SUPER MULTIPLE JUNCTION (SMJ)

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

MEL465O

EL-ICC-07

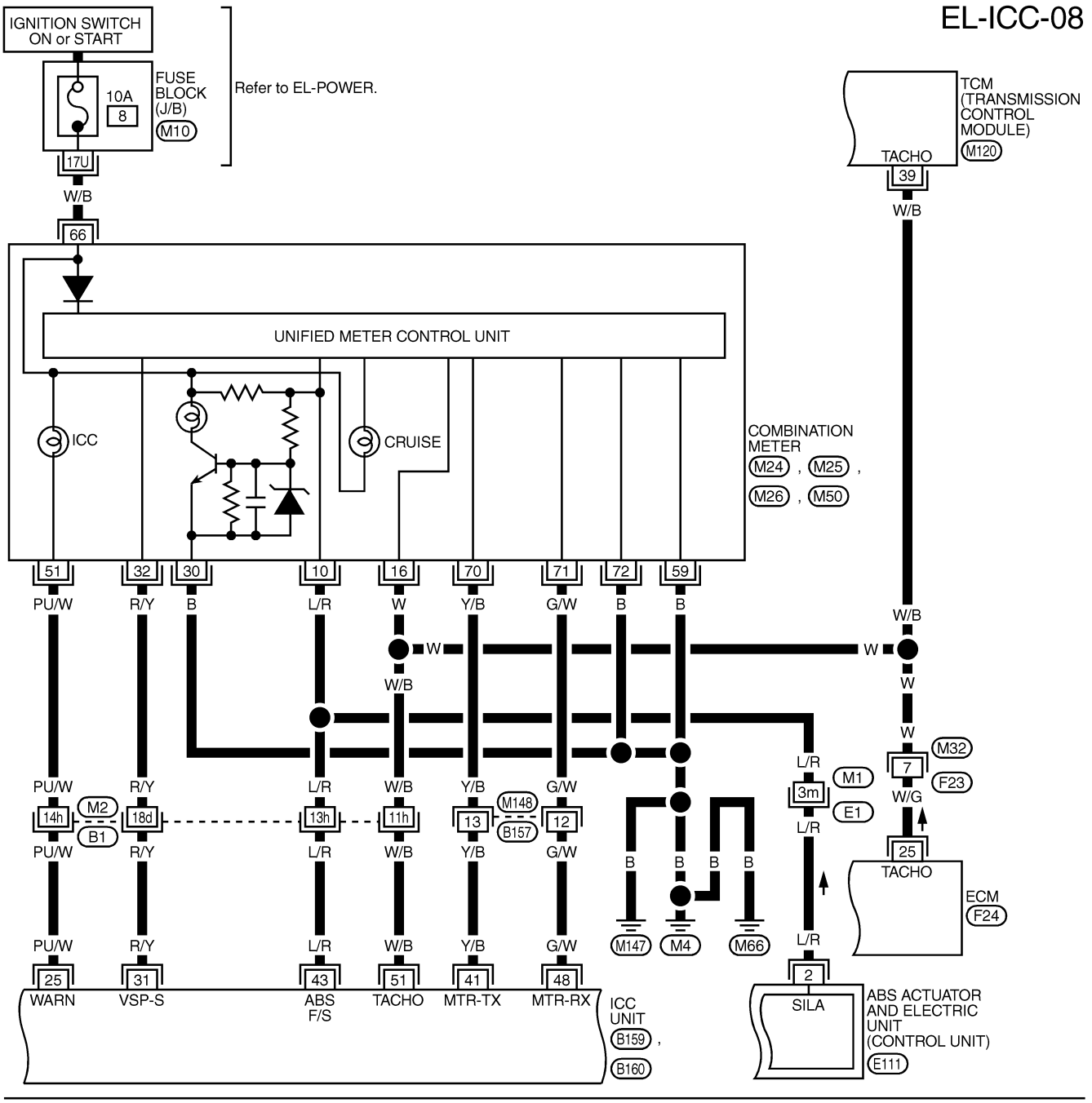


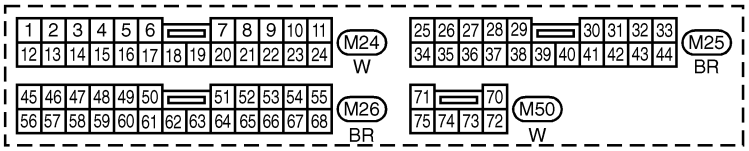


REFER TO THE FOLLOWING.
(B1) -SUPER MULTIPLE JUNCTION (SMJ)
(M10) -FUSE BLOCK-JUNCTION BOX (J/B)
(F24) -ELECTRICAL UNITS

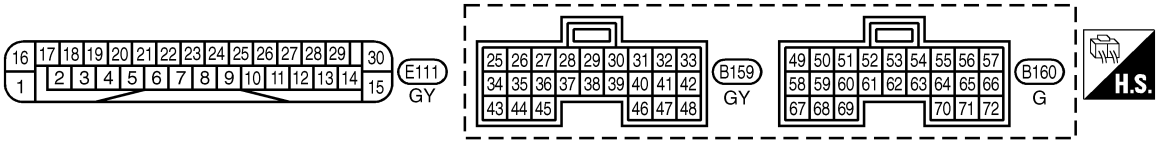
MEL466O

EL-ICC-08



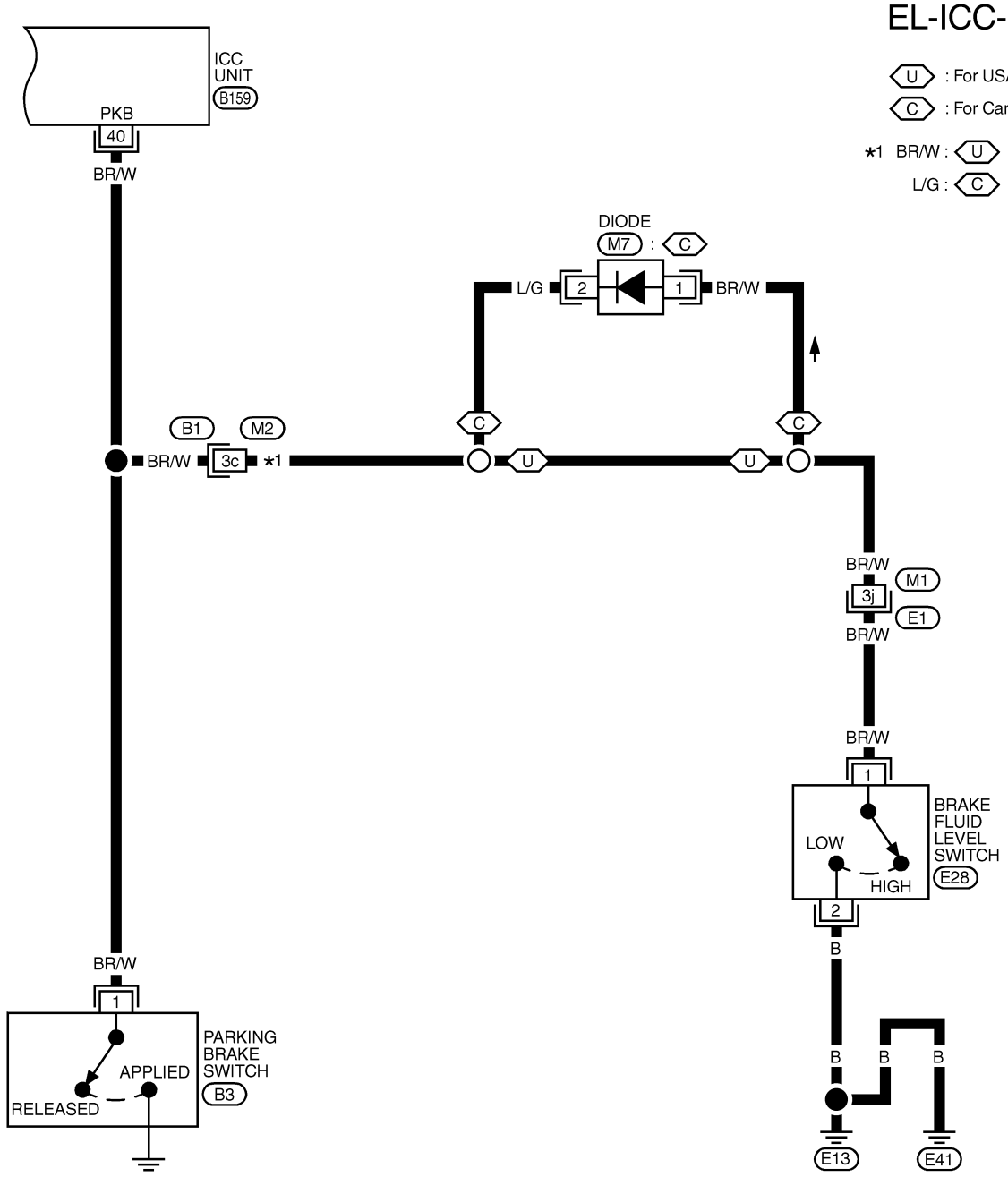


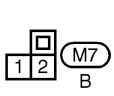
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)
M120 , F24 -ELECTRICAL UNITS-

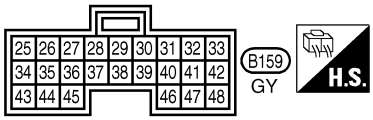


MEL467O

EL-ICC-09







REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

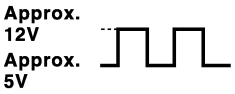
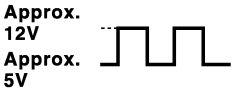
MEL665P

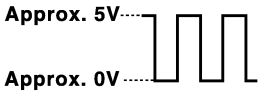
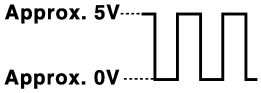
Terminals and Reference Value

NBEL0466

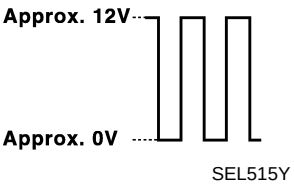
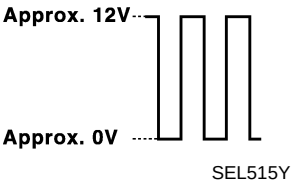
TERMINALS AND REFERENCE VALUE FOR ICC UNIT

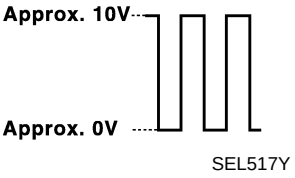
NBEL0466S01

TERMINALS (WIRE COLOR)		ITEM	CONDITION		VOLTAGE (V)
+	–		IGNITION SWITCH	OPERATION	
1(P) 2(P)	Body ground	Battery power supply	OFF	—	Power supply voltage (Approx. 12)
4 (L/W)		Wiper motor HI signal	ON	Wiper HI operating	Approx. 0
				Wiper HI not operating	Power supply voltage (Approx. 12)
5 (B/P)		CAN L	ON	—	 SKIA1242E
6 (L/B)		Release switch power supply	ON	—	Approx. 10
8 (G/OR)	24 (OR)	Brake pressure sensor power supply	ON	—	Approx. 5
10 (BR)	Body ground	Brake booster solenoid (+) side	ON	—	 SKIA1243E
12 (Y)		Brake booster solenoid (–) side	ON	—	 SKIA1243E
13 (L/Y)		Wiper motor LO signal	ON	Wiper LO operating	Approx. 0
				Wiper LO not operating	Power supply voltage (Approx. 12)
14 (OR)		CAN H	ON	—	 SKIA1244E
15 (P/B)		Brake release switch (normal closed)	ON	Depress the brake pedal.	Approx. 0
				Release the brake pedal.	Approx. 10

TERMINALS (WIRE COLOR) +	TERMINALS (WIRE COLOR) –	ITEM	CONDITION: IGNITION SWITCH	CONDITION: OPERATION		VOLTAGE (V)
17 (B/Y)	24 (OR)	Brake pressure sensor signal	ON	Release the brake pedal.		Approx. 0.5
				Depress the brake pedal.		Approx. 0.5 - 5 (Note) Voltage becomes higher depending on effectiveness of depressing brakes.
19(B) 20(B) 46(B)	Body ground	Ground	ON	—		Approx. 0
21(Y)		ICC warning chime	ON	Activated		Approx. 0 - 12
				Not activated		Approx. 12
22 (R)		Brake release switch (normally open)	ON	Depress the brake pedal.		Approx. 10
				Release the brake pedal.		Approx. 0
25 (PU/W)		ICC system warning lamp signal	ON	When warning lamp is ON		Approx. 0
				When warning lamp is OFF		Power supply voltage (Approx. 12)
29(Y/G)		ICC brake switch (normal closed)	ON	Selector lever: Not in "N" or "P" position	Depress the brake pedal.	Approx. 0
					Release the brake pedal.	Power supply voltage (Approx. 12)
31 (R/Y)		Vehicle speed signal	ON	Speedometer operated		Approx. 5V / Approx. 0V  SEL513Y
33(W/G) 42(W/G)		Ignition switch ON or START	ON	—		Battery voltage (Approx. 12)
36 (LG)		ABS operation signal	ON	—		Approx. 5V / Approx. 0V  SEL513Y
38 (G/Y)		Stop lamp switch (normally open)	ON	Depress the brake pedal.		Battery voltage (Approx. 12)
				Release the brake pedal.		Approx. 0
40 (Y/R)		Parking brake signal	ON	Parking brake is ON		Power supply voltage (Approx. 12)
				Parking brake is OFF		Approx. 0

Terminals and Reference Value (Cont'd)

TERMINALS (WIRE COLOR)		ITEM	CONDITION		VOLTAGE (V)
+	–		IGNITION SWITCH	OPERATION	
41 (Y/B)	Body ground	Meter communication signal (TX)	ON	—	 SEL515Y
43 (L/R)		ABS fail-safe signal	ON	ABS system normal	Battery voltage (Approx. 12)
				ABS system malfunction	Approx. 0
47 (LG/B)		Stop lamp drive output signal	ON	Brake operating with ICC system	Battery voltage (Approx. 12)
				Brake not operating with ICC system	Approx. 0
48 (G/W)		Meter communication signal (RX)	ON	—	 SEL515Y
49 (GY/L)	58 (GY)	ICC steering switch signal	ON	When ON/OFF switch is pressed	Approx. 0
				When CANCEL switch is pressed	Approx. 1.1
				When DISTANCE adjusting switch is pressed	Approx. 2.1
				When COAST/SET switch is pressed	Approx. 2.9
				When ACCELERATE/RESUME switch is pressed	Approx. 3.6
				When no switch is pressed	Approx. 4.2

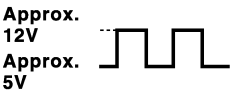
TERMINALS (WIRE COLOR)		ITEM	CONDITION		VOLTAGE (V)
+	–		IGNITION SWITCH	OPERATION	
51 (W/B)	Body ground	Engine speed signal	ON	Engine speed is at idle.	 SEL517Y
53 (L/OR)		D-range signal	ON	When selector lever position is "D"	Battery voltage (Approx. 12)
				When selector lever position is not "D"	Approx. 0
55 (L/Y)		Shift solenoid valve A	ON	When shift solenoid valve A operates. (When driving in "D_1" or "D_4")	Battery voltage (Approx. 12)
				When shift solenoid valve A does not operate. (When driving in "D_2" or "D_3")	Approx. 0
57 (R/B)		Vacuum motor/air valve/ release valve output signal	ON	Being controlled	Power supply voltage (Approx. 12)
59 (R)		A/T OD cancel signal	ON	When O/D is canceled	Approx. 2 or less
				O/D	Approx. 5 - 10
61 (OR/B)		Throttle position switch signal (Full)	ON	Accelerator pedal more than half depressed	Battery voltage (Approx. 12)
				Accelerator pedal released	Approx. 0
62 (OR/W)		Throttle position switch signal (Idle)	ON	Accelerator pedal depressed	Approx. 0
				Accelerator pedal released	Battery voltage (Approx. 12)
63 (LG/R)		Shift solenoid valve B	ON	When shift solenoid valve B operates. (When driving in "D_1" or "D_2")	Battery voltage (Approx. 12)
				When shift solenoid valve B does not operate. (When driving in "D_3" or "D_4")	Approx. 0
67 (R/W)		Cruise output signal	ON	Being controlled	Approx. 8
				Not controlled	Approx. 0
69 (P)	68 (B/P)	Throttle opening angle signal	ON	When accelerator pedal is fully released	Approx. 0.5
				When accelerator pedal is fully depressed	Approx. more than 3.7

Terminals and Reference Value (Cont'd)

TERMINALS (WIRE COLOR)		ITEM	CONDITION		VOLTAGE (V)
+	–		IGNITION SWITCH	OPERATION	
70 (Y/R)	Body Ground	Release valve signal	ON	When motor is not driving	Power supply voltage (Approx. 12)
				When motor is driving	Approx. 0
71 (G/Y)		Air valve signal	ON	When motor is not driving	Power supply voltage (Approx. 12)
				When motor is driving	Approx. 0
72 (L/R)		Vacuum motor signal	ON	When motor is not driving	Power supply voltage (Approx. 12)
				When motor is driving	Approx. 0

TERMINALS AND REFERENCE VALUE FOR ICC SENSOR

NBEL0466S02

TERMINALS (WIRE COLOR)		ITEM	CONDITION		VOLTAGE (V)
+	–		IGNITION SWITCH	OPERATION	
1 (W/G)	Body ground	ICC sensor power	ON	—	Battery voltage (Approx. 12)
3 (P/B)		CAN H	ON	—	 SKIA1244E
6 (LG/B)		CAN L	ON	—	 SKIA1243E
4(B)		Ground	ON	—	Approx. 0

TERMINALS AND REFERENCE VALUE FOR ICC WARNING CHIME

NBEL0466S03

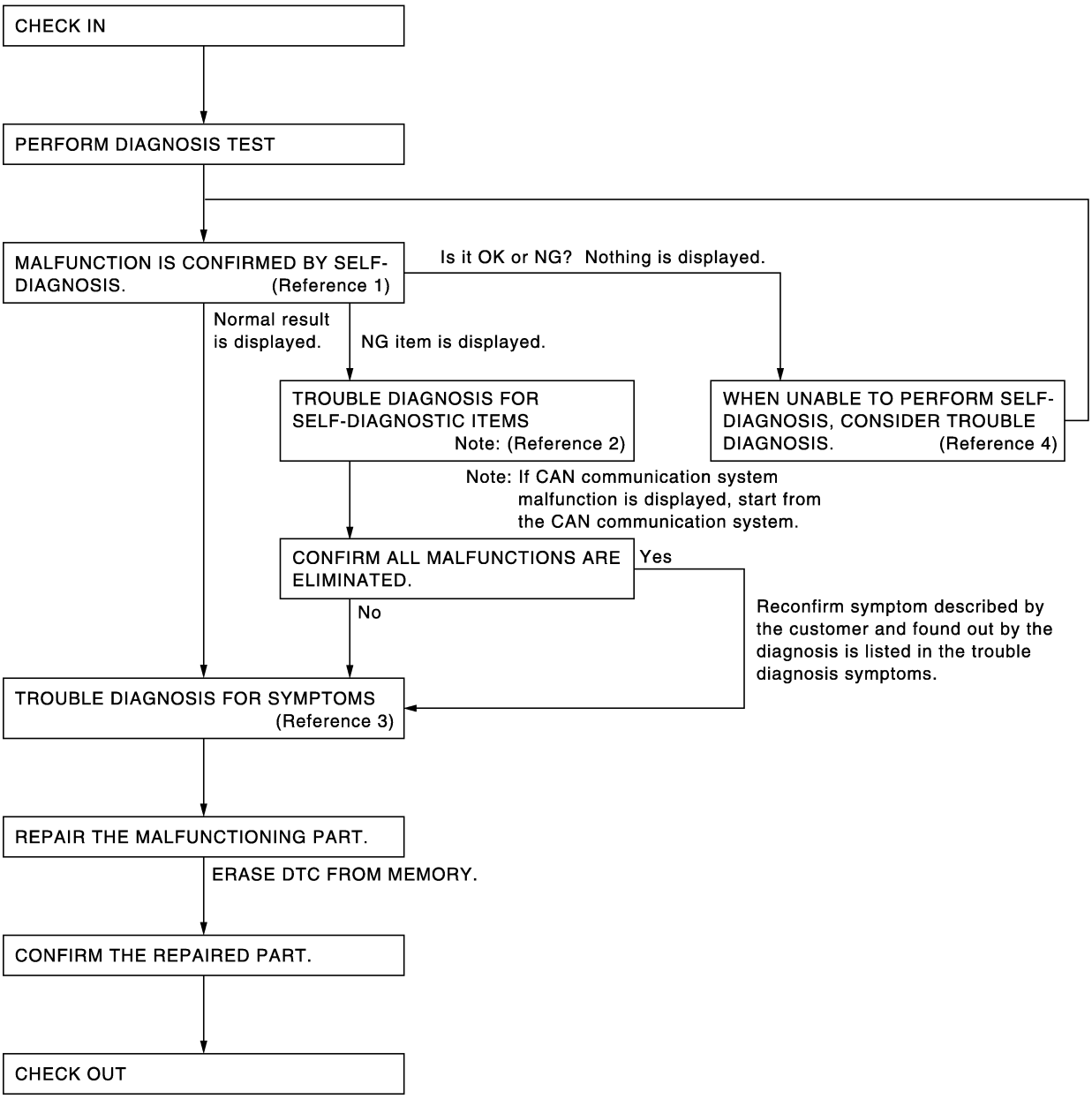
TERMINALS (WIRE COLOR)	ITEM	CONDITION		VOLTAGE(V)
		IGNITION SWITCH	OPERATION	
1 (W/G)	Ignition switch ON or START	ON	—	Power supply voltage (Approx. 12)
2 (Y)	ICC warning signal	ON	Chime output OFF	Approx. 12
			Chime output ON	Approx. 0 - 12

Trouble Diagnosis - General Description

NBEL0467

WORK FLOW

NBEL0467S01



SKIA1227E

- Reference 1··· Refer to “Self-Diagnostic Function” EL-313.
- Reference 2··· Refer to “Diagnostic Trouble Code (DTC) Chart” EL-318.
- Reference 3··· Refer to “Symptom Chart” EL-356.
- Reference 4··· Refer to “SELF-DIAGNOSIS BY CONSULT-II WILL NOT RUN” EL-315/“SELF-DIAGNOSIS BY ICC SYSTEM DISPLAY WILL NOT RUN” EL-316.

CONSULT-II FUNCTION

NBEL0467S02

Description

NBEL0467S0201

CONSULT-II executes following functions by combining data reception and command transmission via communication line from ICC unit.

Test mode	Function
WORK SUPPORT	● Monitors aiming direction to facilitate laser beam aiming operation. ● Indicates causes of automatic cancellation of the ICC system.
SELF-DIAGNOSTIC RESULTS	Displays malfunctioning system memorized in ICC unit.
DATA MONITOR	Displays real-time input/output data of ICC unit.
ACTIVE TEST	Enables operation check of electrical loads by sending driving signal to them.
ECU PART NUMBER	Displays part number of ICC unit.

Work Support

NBEL0467S0202

Work Item

Operation	Function
LASER BEAM ADJUST	Outputs laser beam, calculates dislocation of the beam, and indicates adjustment direction.
CAUSE OF AUTO-CANSEL	Indicates causes of automatic cancellation of the ICC system.

LASER BEAM ADJUST

For details, refer to "LASER BEAM AIMING ADJUSTMENT" EL-285.

CAUSE OF AUTO-CANCEL

1. Turn ignition switch OFF.
2. Connect CONSULT-II to data link connector.
3. Turn ignition switch ON.
4. Touch "START" on the display.
5. Touch "ICC" on the selection screen.
6. Touch "WORK SUPPORT" on the selection screen.
7. Touch "CAUSE OF AUTO-CANCEL" on the selection screen.
8. Cause of automatic cancellation screen will be shown.

CAUTION:

Last five cancel (system cancel) causes are displayed.

Display Item List

Cause of cancellation	Description
OPERATING WIPER	Windshield wipers were operated at HI or LO speed and the fastest position of intermittent operation.
OPERATING ABS	ABS was operated.
OPE SW VOLT CIRC	Outside the standard control switch input voltage was detected.
LASER SUN BEAM	Intense light such as sunlight entered ICC sensor light sensing part.
LASER TEMP	Temperature around ICC sensor became low.
OP SW DOUBLE TOUCH	Multiple control switches were pressed at the same time.
TIRE SLIP	Wheel slipped.
PKB SW ON	Parking brake is applied.
IGN LOW VOLT	Power supply voltage became low.
NO RECORD	—

Self-diagnostic Results

NBEL0467S0205

For details, refer to "Diagnostic Trouble Code (DTC) Chart" EL-318.

Data Monitor

NBEL0467S0206

1. Turn ignition switch OFF.
2. Connect CONSULT-II to data link connector.
3. Turn ignition switch ON.
4. Touch "START" on the display.
5. Touch "ICC" on the selection screen.
6. Touch "DATA MONITOR" on the selection screen.
7. Touch any of "ECU INPUT SIGNALS", "MAIN SIGNALS", "CAN DIAG SUPPORT MNTR", and "SELECTION FROM MENU" on selection screen.
8. Touch "SETTING".
9. Display the data monitor.
10. If necessary, touch "PRINT" in turn, and print data.

Monitored Item

× : Applicable

Monitored Item [unit]	MAIN SIGNALS	ECU INPUT SIGNALS	CAN DIAG SUPPORT MNTR	SELECTION FROM MENU	Description
VHCL SPEED SE [km/h] or [mph]	×	×		×	Indicates vehicle speed calculated from wheel speed sensor signal.
SET VHCL SPD [km/h] or [mph]	×			×	Indicates set vehicle speed memorized in ICC unit.
ENGINE RPM [rpm]		×		×	Indicates engine speed calculated from tachometer signal.
DISTANCE ADJ [SHOR/MID/LONG]	×	×		×	Indicates set distance memorized in ICC unit.
WIPERSW [OFF/LOW/HIGH]		×		×	Indicates wiper [OFF/LOW/HIGH] status.
MAIN SW [ON/OFF]	×	×		×	Indicates [ON/OFF] status as judged from control switch signal.
CANSEL SW [ON/OFF]	×	×		×	Indicates [ON/OFF] status as judged from control switch signal.
SET/COAST SW [ON/OFF]	×	×		×	Indicates [ON/OFF] status as judged from control switch signal.
RESUME/ACC SW [ON/OFF]	×	×		×	Indicates [ON/OFF] status as judged from control switch signal.
CRUISE OPE [ON/OFF]	×			×	Indicates whether controlling or not (ON means "controlling").
BRAKE SW [ON/OFF]	×	×		×	Indicates [ON/OFF] status as judged from ICC brake switch signal.
STOP LAMP SW [ON/OFF]	×	×		×	Indicates [ON/OFF] status as judged from stop lamp switch signal.
RELEASE SW NO [ON/OFF]		×		×	Indicates [ON/OFF] status as judged from release switch signal. ON when brake is depressed. OFF when brake is not depressed.

Monitored Item [unit]	MAIN SIGNALS	ECU INPUT SIGNALS	CAN DIAG SUPPORT MNTR	SELECTION FROM MENU	Description
RELEASE SW NC [ON/OFF]		×		×	Indicates [ON/OFF] status as judged from release switch signal. OFF when brake is depressed. ON when brake is not depressed.
IDLE SW [ON/OFF]		×		×	Indicates [ON/OFF] status of idle switch.
FULL SW [ON/OFF]		×		×	Indicates [ON/OFF] status of Full switch.
BUZZER O/P [ON/OFF]				×	Indicates [ON/OFF] status of ICC war output.
ICC WARNING [ON/OFF]				×	Indicates [ON/OFF] status of ICC system warning lamp.
PRESS SENS [bar]	×	×		×	Indicates brake fluid pressure value calculated from signal voltage of pressure sensor.
THRTL SENSOR [deg]	×	×		×	Indicates throttle angle calculated from signal voltage of throttle position sensor.
VACUUM PUMP [msec]	×			×	Indicates vacuum pump driving pulse width
AIR VALVE [msec]	×			×	Indicates air valve driving pulse width
STP LMP DRIVE [ON/OFF]	×			×	Indicates [ON/OFF] status of brake hold relay drive output.
GEAR [1, 2, 3, 4, 5, 6]		×		×	Indicates AT gear position read shift solenoid A and shift solenoid B.
AT OD OFF [ON/OFF]				×	Indicates [ON/OFF] status of OD cancel output under control.
PWR SUP-VALVE [ON/OFF]	×			×	Indicates [ON/OFF] status of power supply relay to vacuum pump, air valve, and release valve.
CRUISE SIGNAL [ON/OFF]				×	Indicates whether controlling or not (ON means "controlling").
A SOL/V		×		×	Indicates [ON/OFF] status of shift solenoid A signal
B SOL/V		×		×	Indicates [ON/OFF] status of shift solenoid B signal
D RANGE SW [ON/OFF]		×		×	Indicates [ON/OFF] status of "D" position read by ICC unit.
CAN CIRC 1 [OK/UNKWN]			×		Indicates [OK/UNKWN] status of CAN communication signal.
CAN CIRC 2 [OK/UNKWN]			×		UNKWN fixed display
CAN CIRC 3 [OK/UNKWN]			×		UNKWN fixed display
CAN CIRC 4 [OK/UNKWN]			×		UNKWN fixed display

Monitored Item [unit]	MAIN SIGNALS	ECU INPUT SIGNALS	CAN DIAG SUPPORT MNTR	SELECTION FROM MENU	Description
CAN CIRC 5 [OK/UNKWN]			×		UNKWN fixed display
CAN CIRC 6 [OK/UNKWN]			×		UNKWN fixed display
CAN CIRC 7 [OK/UNKWN]			×		Indicates [OK/UNKWN] status of CAN communication signal.
CAN CIRC 8 [OK/UNKWN]			×		Indicates [OK/UNKWN] status of CAN communication signal.
CAN CIRC 9 [OK/UNKWN]			×		UNKWN fixed display
CAN CIRC 10 [OK/UNKWN]			×		Indicates [OK/UNKWN] status of CAN communication signal.
CAN CIRC 11 [OK/UNKWN]			×		Indicates [OK/UNKWN] status of CAN communication signal.
CAN CIRC 12 [OK/UNKWN]			×		UNKWN fixed display
CAN CIRC 13 [OK/UNKWN]			×		UNKWN fixed display
CAN CIRC 14 [OK/UNKWN]			×		UNKWN fixed display
CAN CIRC 15 [OK/UNKWN]			×		UNKWN fixed display
CAN COMM[OK/NG]			×		Indicates [OK/UNKWN] status of CAN communication signal.

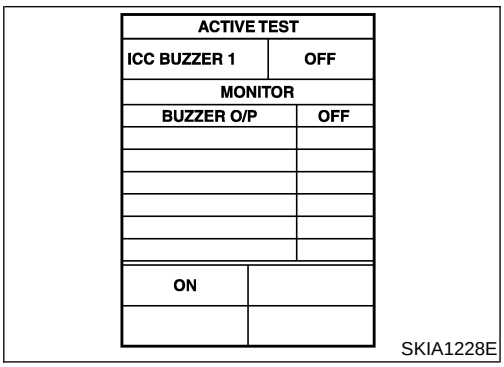
Active Test

NBEL0467S0207

CAUTION:

- **Do not perform the active test while driving.**
- **Active test cannot be started while ICC system warning indicator illuminates.**

1. Turn ignition switch OFF.
2. Connect CONSULT-II to data link connector and start engine.
3. Touch "START", "ICC", and "ACTIVE TEST" on CONSULT-II display in turn.
4. Touch necessary test item.
5. Touch "START".
6. Active test screen will be shown.

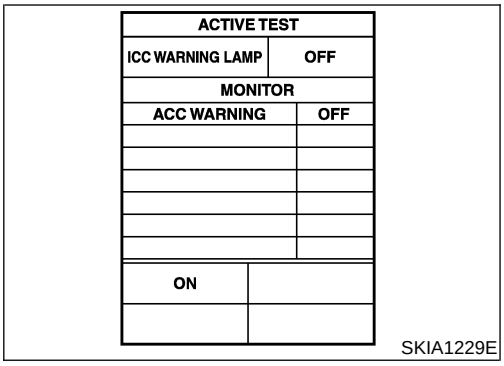


SKIA1228E

ICC BUZZER 1

- Touch "ON" and "OFF" to check that ICC warning chime operates as in the following chart.

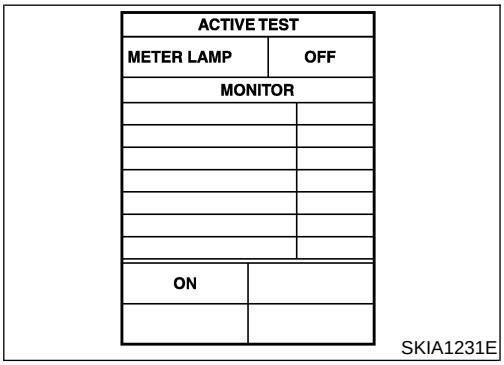
BUZZER O/P	ON	OFF
Buzzer sound	Beep	Not activated



ICC WARNING LAMP

- Touch "ON" and "OFF" to check that ICC warning lamp operates as in the following chart.

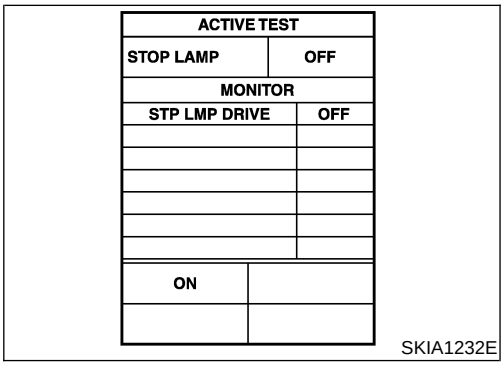
ICC WARNING LAMP	ON	OFF
ICC system warning lamp (Orange)	Lamp ON	Lamp OFF



METER LAMP

- Start engine.
- Touch "ON" and "OFF" to check that ICC system display operates as in the following chart.

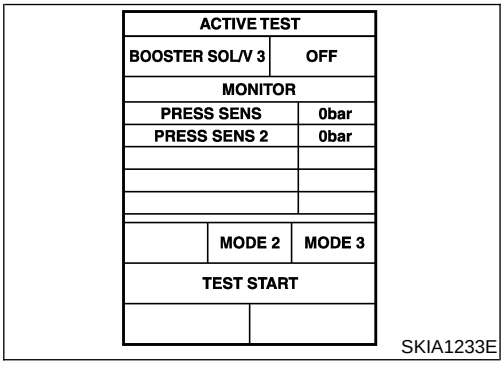
Operation	ON	OFF
ICC system display	Full illumination	OFF



STOP LAMP

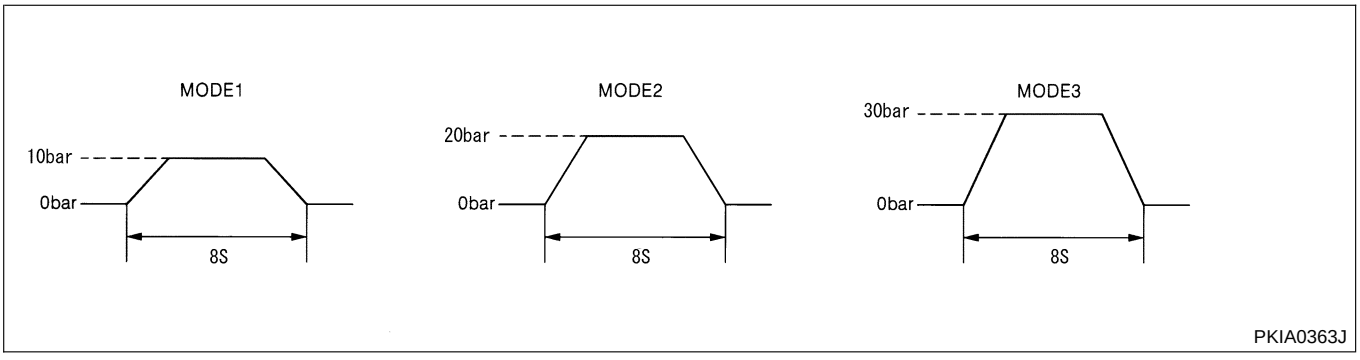
- Touch "ON" and "OFF" to check that stop lamp operates as in the following chart.

STP LMP DRIVE	ON	OFF
Stop lamp	Lamp ON	Lamp OFF



BOOSTER SOL/V 3

- Touch any of "MODE 1", "MODE 2", "MODE 3" to check that following operation condition is caused by operating monitor and brake pedal.
- "START" is displayed 10 seconds after operation start. (Active test is completed.)



SELF-DIAGNOSTIC FUNCTION

NBEL0467S03

With CONSULT-II

NBEL0467S0301

1. Go to operation check after asking the customer for symptom information. Refer to "ACTION TEST" EL-283.
2. Stop vehicle, turn ignition switch OFF, then connect CONSULT-II connector to data link connector.
3. With engine started, touch "START", "ICC", "SELF-DIAG RESULTS" on CONSULT-II screen in this order.

CAUTION:

If "ICC" cannot be shown after several attempts, the ICC unit may have had malfunction. Repair or replace it. Refer to "SELF-DIAGNOSIS BY CONSULT-II WILL NOT RUN" EL-315.

4. Self-diagnostic result appears on screen. If "NO DTC ···" is shown, check ICC warning lamp. If any malfunction is indicated, GO TO step 5.
5. According to "Diagnostic Trouble Code (DTC) Chart" EL-318, perform appropriate check, and repair or replace malfunctioning part as necessary.
6. Turn ignition switch OFF.
7. Start engine and touch "START", "ICC", "SELF-DIAG RESULT", and "ERASE" on CONSULT-II display in turn to erase the memory.

CAUTION:

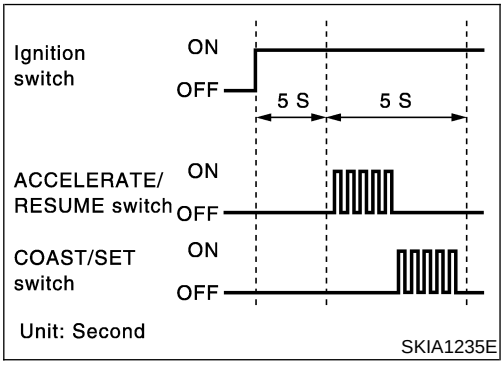
If the memory does not erase, go to 5.

8. Perform ICC system running test (drive vehicle with ICC system ON), and make sure that ICC warning lamp does not illuminate.

Without CONSULT-II

NBEL0467S0302

1. Go to operation check after asking the customer for symptom information. Refer to "ACTION TEST" EL-283.
2. Stop the vehicle to start the self-diagnosis.
3. Turn ignition switch OFF.

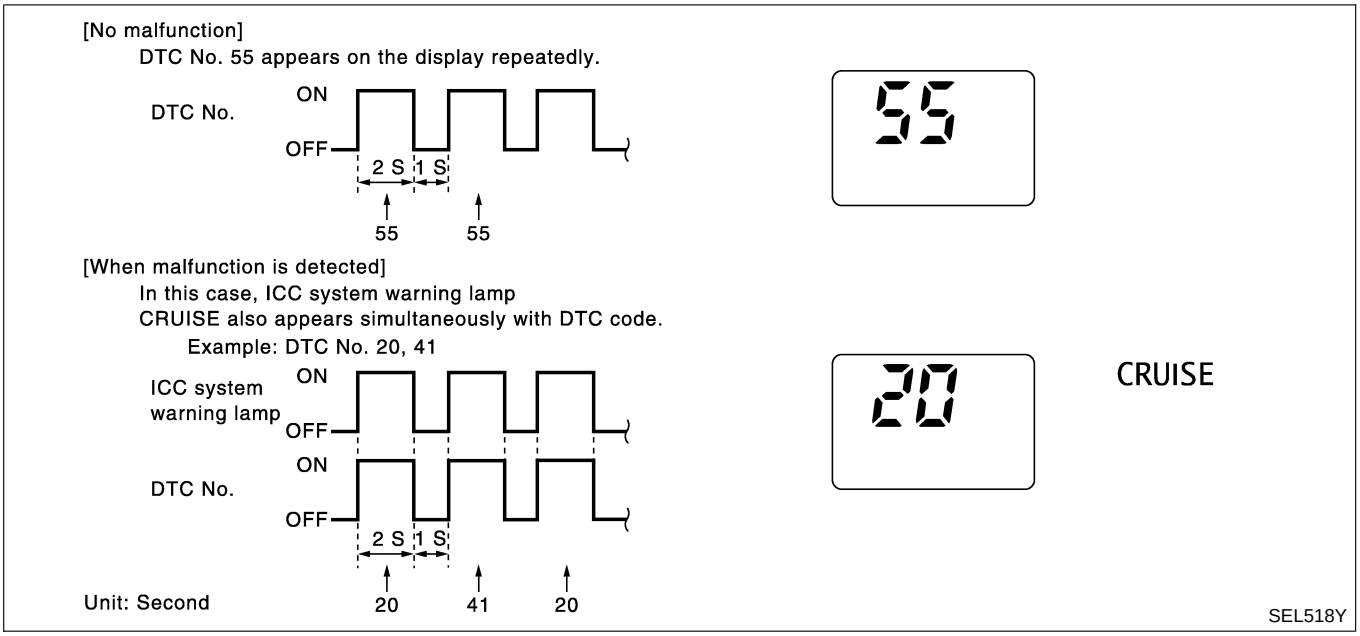


4. Turn ignition switch ON, and within 5 to 10 seconds, press ACCELERATE/RESUME switch 5 times. Then press COAST/SET switch 5 times to start self-diagnosis.

CAUTION:

- **Do not start the engine.**
- **Do not turn the ON/OFF switch ON.**
- **When operation above is not completed within 5 to 10 seconds, start again from above go to 3.**
- **If self-diagnosis mode cannot be start after several attempts, the ICC unit may have had malfunction. Repair or replace it. Refer to "SELF-DIAGNOSIS BY ICC SYSTEM DISPLAY WILL NOT RUN" EL-316.**

5. When self-diagnosis mode is started, DTCs are shown on set vehicle speed indicator.



CAUTION:

- **DTCs will disappear after 5 minutes.**
- **When more than one malfunctions are detected, a maximum of 3 code numbers can be stored; the latest malfunction will be displayed first.**

6. Check "Diagnostic Trouble Code (DTC) Chart" EL-318, and repair or replace if necessary.
7. After repair, erase DTCs stored in the ICC unit.
8. DTC 55 will be shown.
9. Turn ignition switch OFF to exit the diagnosis.
10. Perform ICC system running test (drive vehicle with ICC system ON), and make sure that ICC warning lamp does not illuminate.

Self-Diagnostic Erasing Method

11. Stop the vehicle and turn the ignition switch OFF.
12. Turn ignition switch ON and start self-diagnosis.
13. During self-diagnosis mode, press CANSEL switch 5 times, and DISTANCE switch 5 times in this order.

CAUTION:

- **Press them within 10 seconds after pressing CANSEL switch at first.**
- **When operation is not completed within 10 seconds, start again.**

14. DTC 55 will be shown.

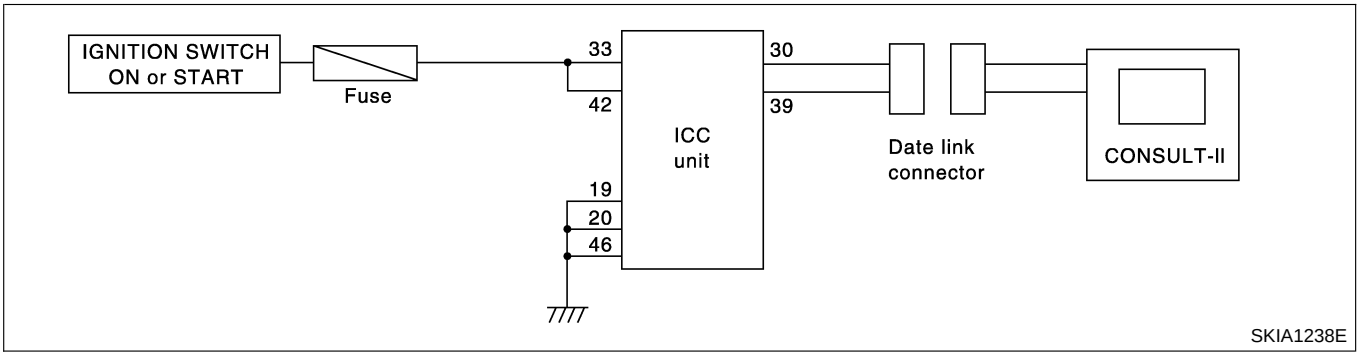
CAUTION:

DTCs of an existing malfunction will not be erased.

15. Turn ignition switch OFF to exit the diagnosis.
16. Perform ICC system running test (drive vehicle with ICC system ON), and make sure that ICC system warning lamp (orange) does not illuminate.

Self-diagnosis by CONSULT-II Will Not Run

NBEL0467S0303



Possible Irregular Condition

Open or short lines	Trouble phenomenon	Malfunction causes
ICC unit power supply malfunction	No voltage supply from ignition switch	Ignition relay malfunctioned
		Fuse blown
		Harness open
		Harness shorted
	Ground cable not connected	Harness open
		Harness shorted
CONSULT-II malfunction	Signal not transmitted to data link connector	Harness open
		Harness shorted
	CONSULT-II malfunction	
ICC unit malfunction		

1	CHECK CONSULT-II SYSTEM	
• Can CONSULT-II call other systems?		
Yes or No		
Yes	▶	GO TO 2.
No	▶	• Check CONSULT-II body. • Check battery and harness.

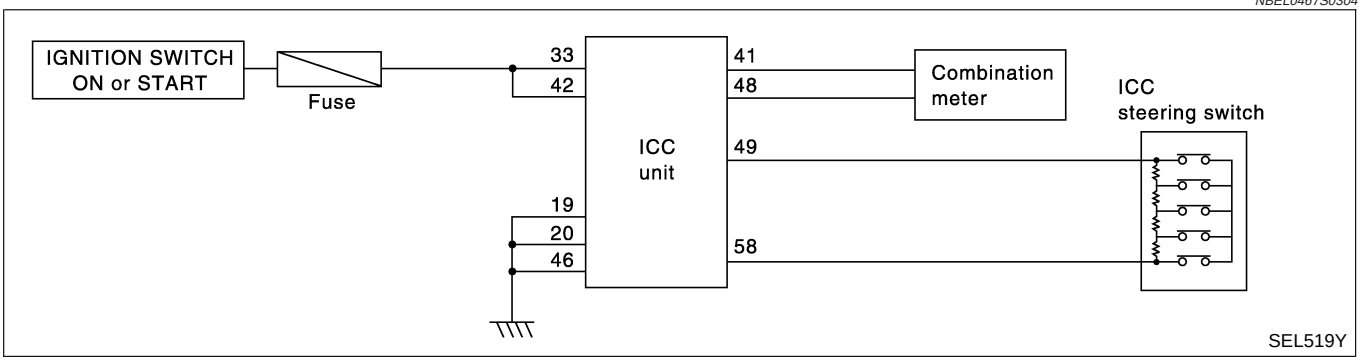
2	CHECK POWER SUPPLY FOR ICC UNIT	
• Is ICC unit turned ON?		
Yes or No		
Yes	▶	GO TO 3.
No	▶	Check power supply system, and repair if necessary.

3	CHECK HARNESS FOR DATA LINK CONNECTOR
● Is continuity between ICC unit and data link connector normal?	
Yes or No	
Yes ▶	GO TO 4.
No ▶	Harness repair

4	SELF-DIAGNOSIS CHECK
● Disconnect ICC unit connector, and check terminals for bend and looseness. Securely connect it again. ● Enter self-diagnosis mode?	
Yes or No	
Yes ▶	Inspection is completed.
No ▶	ICC unit replacement

Self-diagnosis by ICC System Display Will Not Run.

NBEL0467S0304



Possible Irregular Condition

Open or short lines	Trouble phenomenon	Malfunction causes
ICC unit power supply malfunction	No voltage supply from ignition switch	Fuse blown
		Harness open
		Harness shorted
	Ground cable not connected	Harness open
		Harness shorted
ICC steering switch malfunction	No signal transmitted	Harness open
		Harness shorted
		Spiral cable open
		Spiral cable shorted
		Switch malfunction
Meter communication system malfunction	Signal not transmitted	Harness open
		Harness shorted
Combination meter system malfunction	Indication not possible	Indicator malfunction
		Indicator segments disappear.
ICC unit malfunction		

1	CHECK ICC SYSTEM DISPLAY	
● When ignition switch is ON, do all displays illuminate?		
Yes or No		
Yes	▶	GO TO 2.
No	▶	GO TO 5.

2	CHECK ICC STEERING SWITCH	
● Check ICC steering switch. EL-372, "Refer to ICC Steering Switch".		
OK or NG		
OK	▶	GO TO 3.
NG	▶	Replace ICC steering.

3	CHECK HARNESS BETWEEN ICC UNIT AND ICC STEERING SWITCH	
● Check harness and spiral cable between ICC unit and ICC steering switch for open or short circuit.		
OK or NG		
OK	▶	GO TO 4.
NG	▶	Replace ICC steering.

4	CHECK SELF-DIAGNOSIS	
● Disconnect connector of ICC unit, and check terminals for bend and looseness. Securely connect it again. ● Enter self-diagnosis mode?		
Yes or No		
Yes	▶	Inspection is completed.
No	▶	GO TO 5.

5	CHECK POWER SUPPLY FOR ICC UNIT	
● Check ICC unit power supply, and repair if necessary. ● When ignition switch is ON, do all displays illuminate?		
Yes or No		
Yes	▶	Perform self-diagnosis again.
No	▶	GO TO 6.

6	CHECK CONNECTOR FOR ICC UNIT	
● Disconnect connector of ICC unit, and check terminals for bend and looseness. Securely connect it again. ● When ignition switch is ON, do all displays illuminate?		
Yes or No		
Yes	▶	Perform self-diagnosis again.
No	▶	GO TO 7.

7	CHECK METER COMMUNICATION	
● Perform self-diagnosis with CONSULT-II, and check meter communication system for malfunction.		
OK or NG		
OK	▶	Replace combination meter.
NG	▶	Meter communication inspection. Refer to "DTC 48 METER CIRCUIT" EL-334.

Trouble Diagnosis For Self-diagnostic Items

NBEL0468

DIAGNOSTIC TROUBLE CODE (DTC) CHART

NBEL0468S01

×:Applicable

DTC No.	CONSULT-II screen terms	ICC system warning lamp	Fail-safe	Malfunctions detected where...	Reference page
11	CONTROL UNIT	×	×	• ICC unit internal malfunction	EL-320
20	CAN COMM CIRCUIT	×	×	• ICC unit detected CAN communication malfunction.	EL-320
31	POWER SUPPLY CIR1	×	×	• ICC unit power supply voltage is excessively low.	EL-322
34	POWER SUPPLY CIR2	×	×	• ICC unit power supply voltage is excessively high.	EL-322
41	VHCL SPEED SE CIRC	×	×	• Vehicle speed sensor signal harness is open or shorted • Combination meter malfunction	EL-323
42	THRTL POS SEN CIRC	×	×	• Throttle position sensor and throttle position switch harness is open or shorted. • Throttle position sensor input is HI or fixed to LO. • Throttle position switch is ON or stuck to OFF.	EL-325
43	ABS/TCS/VDC CIRC	×	×	• ABS system malfunction • ABS operation signal harness is opened.	EL-329
45	BRAKE SW/ STOP L SW	×	×	• Brake and stop lamp switch harness is open or shorted. • Brake and stop lamp switch is ON or stuck to OFF. • Brake and stop lamp switch is stuck to ON.	EL-331
46	OPERATION SW CIRC	×	×	• ICC steering switch harness or spiral cable is open or shorted. • ICC steering switch malfunction	EL-333
48	METER CIRCUIT	×	×	• Combination meter communication harness is open or shorted. • Combination meter malfunction • ICC unit malfunction	EL-334
61	PRESS SEN CIRCUIT	×	×	• Brake pressure sensor harness is open or shorted. • Brake pressure sensor malfunction • Brake pressure sensor input circuit malfunction	EL-336
62	BOOSTER SOL/V CIRCUIT	×	×	• Solenoid harness is open or shorted. • Solenoid is open. • Solenoid drive circuit malfunction	EL-338
63	RELEASE SW CIRCUIT	×	×	• Release switch harness is open or shorted. • Release switch malfunction • Release switch input circuit malfunction	EL-339

DTC No.	CONSULT-II screen terms	ICC system warning lamp	Fail-safe	Malfunctions detected where...	Reference page
65	PRESSURE CONTROL	×	×	• Booster malfunction	EL-340
74	LASER BEAM OFF CNTR	×	×	Laser beam of ICC sensor is off the aiming point.	EL-341
81	POWER SUPPLY VALVE [HI VOLTAGE]	×	×	• Power supply relay to vacuum pump, air valve, and release valve in ICC unit is stuck closed. • Power supply wire to release valve is shorted to power supply.	EL-342
82	POWER SUPPLY VALVE [HI VOLTAGE]	×	×	• Vacuum pump drive circuit in ICC unit.	ICC unit malfunction
83	POWER SUPPLY VALVE [LOW VOLTAGE]	×	×	• Vacuum pump drive circuit in ICC unit is irregular condition. • Vacuum pump control line is shorted to ground.	EL-343
84	AIR VALVE [HI VOLTAGE]	×	×	• Air valve drive circuit in ICC unit is irregular condition.	ICC unit malfunction
85	AIR VALVE [LOW VOLTAGE]	×	×	• Air valve drive circuit in ICC unit is irregular condition. • Air valve control line is shorted to ground.	EL-344
86	RELEASE VALVE [HI VOLTAGE]	×	×	• Release valve drive circuit in ICC unit is irregular condition.	ICC unit malfunction
87	RELEASE VALVE [LOW VOLTAGE]	×	×	• Release valve drive circuit in ICC unit is irregular condition. • Power supply relay to vacuum pump, air valve, and release valve in ICC unit is stuck to OFF. • Release valve control line is shorted. • Power supply line to vacuum pump, air valve, and release valve is open.	EL-345
90	STOP LAMP RLY FIX	×	×	• Normally open terminal of stop lamp relay is stuck.	EL-346
102	RADAR STAIN	×	×	• ICC sensor body window has contamination.	EL-354
103	LASER SENSOR FAIL	×	×	• ICC sensor internal malfunction	EL-355
104	LASER AIMING INCMP	×	×	• Laser beam aiming of ICC sensor is not adjusted.	EL-355
107	LASER COMM FAIL	×	×	• CAN data received by ICC sensor is strange (from ICC unit).	EL-355
109	LASER HIGH TEMP	×	×	• Temperature around ICC sensor is excessively high.	EL-356

DTC 11 CONTROL UNIT

NBEL0468S02

1	DIAGNOSTIC CHECK	
1. Are any items other than "DTC 11 CONTROL UNIT" indicated on self-diagnosis display?		
Yes or No		
Yes	▶	Repair or replace applicable item. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
No	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 20 CAN COMM CIRCUIT

NBEL0468S03

1 CHECK CAN COMMUNICATION

With CONSULT-II
1. Perform self-diagnosis.
2. Print self-diagnostic result.
3. Check "CAN DIAG SUPPORT MNTR" on data monitor.

CAN DIAG SUPPORT MNTR

Normal	Outside the standard (example)
CAN COMM: OK	CAN COMM: OK
CAN CIRC1: OK	CAN CIRC1: UNKWN
CAN CIRC2: UNKWN	CAN CIRC2: UNKWN
CAN CIRC3: UNKWN	CAN CIRC3: UNKWN
CAN CIRC4: UNKWN	CAN CIRC4: UNKWN
CAN CIRC5: UNKWN	CAN CIRC5: UNKWN
CAN CIRC6: UNKWN	CAN CIRC6: UNKWN
CAN CIRC7: OK	CAN CIRC7: UNKWN
CAN CIRC8: OK	CAN CIRC8: UNKWN
CAN CIRC9: UNKWN	CAN CIRC9: UNKWN
CAN CIRC10: OK	CAN CIRC10: UNKWN
CAN CIRC11: OK	CAN CIRC11: UNKWN
CAN CIRC12: UNKWN	CAN CIRC12: UNKWN
CAN CIRC13: UNKWN	CAN CIRC13: UNKWN
CAN CIRC14: UNKWN	CAN CIRC14: UNKWN
CAN CIRC15: UNKWN	CAN CIRC15: UNKWN

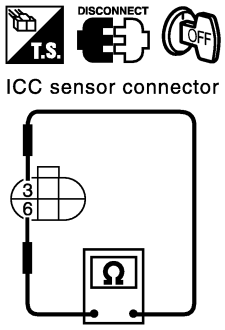
MTBL1226

OK or NG

OK	▶	Disconnect ICC unit and ICC sensor connector, and connect it securely again. Then, erase DTC. After that, perform self-diagnosis of ICC system again.
NG	▶	CAN COMM: NG Replace ICC unit CAN CIRC1: UNKWN Replace ICC unit CAN CIRC7: UNKWN Replace ICC unit or ICC sensor CAN CIRC8: UNKWN Replace ICC unit or ICC sensor CAN CIRC10: UNKWN Replace ICC unit or ICC sensor CAN CIRC11: UNKWN Replace ICC sensor When indicated CAN COMM: NG and CAN CIRC7 to 11 UNKWN (All) GO TO 2.

2	CHECK HARNESS FOR OPEN CIRCUIT 1

1. Disconnect ICC sensor connector.
2. Check resistance between ICC sensor harness connector E140 terminals 3 (P/B) and 6 (LG/B).



SEL541Y

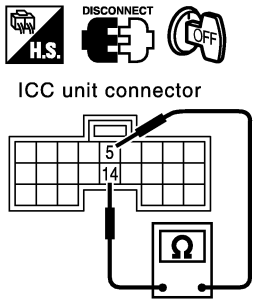
Approx. 54 - 66Ω

OK or NG

OK	▶	• Replace ICC sensor. • After replacing ICC sensor, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
NG	▶	GO TO 3.

3	CHECK HARNESS FOR OPEN CIRCUIT 2

1. Connect ICC sensor connector.
2. Disconnect ICC unit connector.
3. Check resistance between ICC unit harness connector B158 terminals 5 (B/P) and 14 (OR).



SEL542Y

Approx. 108 - 132Ω

OK or NG

OK	▶	• Replace ICC unit. • After replacing ICC unit, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
NG	▶	• Check ICC resistor harness and connector between ICC unit and ICC sensor. • After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

DTC 31 POWER SUPPLY CIR 1, DTC 34 POWER SUPPLY CIR 2

NBEL0468S04

1	CHECK CONNECTOR ICC UNIT

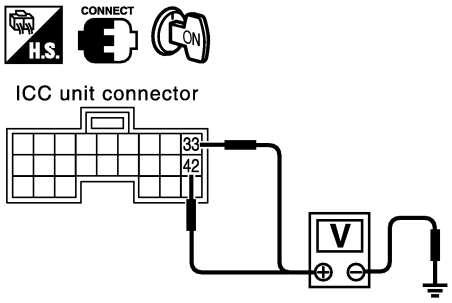
1. Turn ignition switch OFF.
2. Disconnect ICC unit connector, and connect it securely again. Then erase DTC. After that perform self-diagnosis of ICC system again.

OK or NG

NG	▶	GO TO 2.
OK	▶	• Poor connector connection • Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC running test. Then perform self-diagnosis of ICC system again.

2	CHECK POWER SUPPLY CIRCUIT FOR ICC UNIT

1. Turn ignition switch ON.
2. Check voltage between ICC unit harness connector B159 terminal 33 (W/G), 42 (W/G) and ground.



SKIA1173E

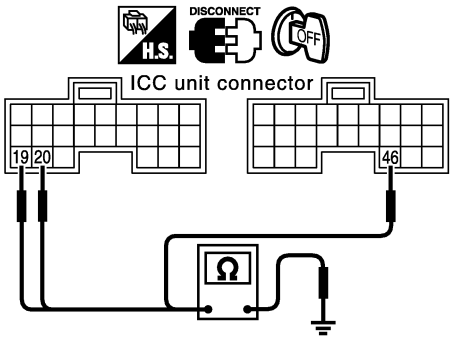
Battery voltage should exist.

OK or NG

OK	▶	GO TO 3.
NG	▶	• Repair ICC unit power supply harness. • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

3	CHECK GROUND CIRCUIT FOR ICC UNIT

1. Turn ignition switch OFF.
2. Disconnect ICC unit connector.
3. Check continuity between ICC unit harness connector B158 terminal 19 (B), 20 (B), B159 terminal 46 (B) and ground.



SKIA1174E

Continuity should exist.

OK or NG

OK	▶	After replacing ICC unit, erase DTC, and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	• Repair ICC unit ground harness. • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

DTC 41 VHCL SPEED SE CIRC

NBEL0468S05

1	CHECK CONNECTOR FOR ICC UNIT

1. Turn ignition switch OFF.
2. Disconnect ICC unit connector, and connect it securely again. Then erase DTC. After that, perform self-diagnosis of ICC system again.

OK or NG

NG	▶	GO TO 2.
OK	▶	• Poor connection • Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC running test. Then perform self-diagnosis of ICC system again.

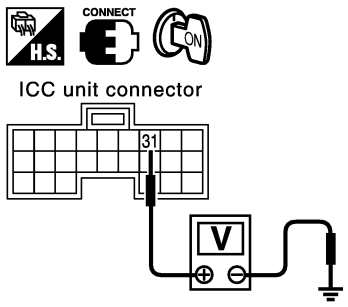
2	CHECK SPEEDOMETER OPERATION

Does speedometer operate normally?

Yes	▶	GO TO 3.
No	▶	Check speedometer and ABS actuator and electric unit.

3	CHECK VEHICLE SPEED SIGNAL INPUT

1. Apply wheel blocks and jack up drive wheels.
2. Check voltage between ICC unit harness connector B159 terminal 31 (R/Y) and ground.



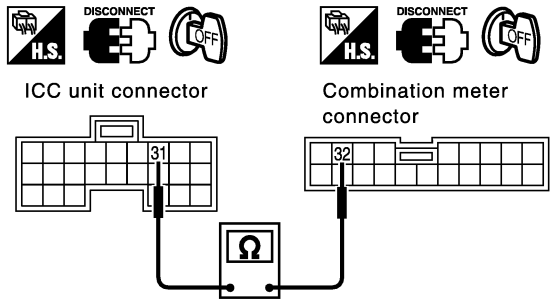
SEL520Y

Does voltage pointer deflect?

Yes	▶	Erase DTC, and perform ICC running test. Then perform self-diagnosis of ICC system again.
No	▶	GO TO 4.

4	CHECK VEHICLE SPEED SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ICC unit and combination meter.
3. Check continuity between ICC unit harness connector B159 terminal 31 (R/Y) and combination meter harness connector M25 terminal 32 (R/Y).



SEL521Y

Continuity should exist.

OK or NG

OK	▶	• Check combination meter. • After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
NG	▶	• Repair harness between ICC unit and combination meter. • After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

DTC 42 THRTL POS SEN CIRC

NBEL0468S06

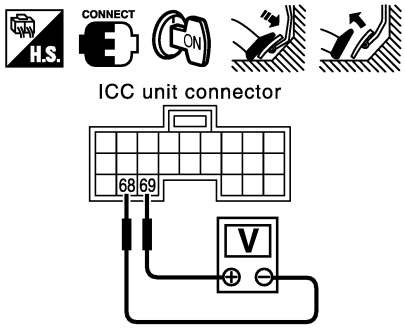
1	CHECK CONNECTOR FOR ICC UNIT	
1. Turn ignition switch OFF. 2. Disconnect ICC unit connector, and connect it securely again. Then erase DTC. After that perform self-diagnosis of ICC system again. **OK or NG**		
NG	▶	GO TO 2.
OK	▶	• Poor connector connection • Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

2	CHECK THROTTLE POSITION SENSOR AND IDLE SWITCH	
With CONSULT-II • With data monitor, check that "THRTL SENSOR" and "IDLE SW" switches operate normally. Refer to EL-309. **OK or NG**		
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	GO TO 3.

3	CHECK THROTTLE POSITION SIGNAL FOR ICC UNIT

Throttle position sensor

- Check voltage between ICC unit harness connector B160 terminal 69 (P) and 68 (B/P).

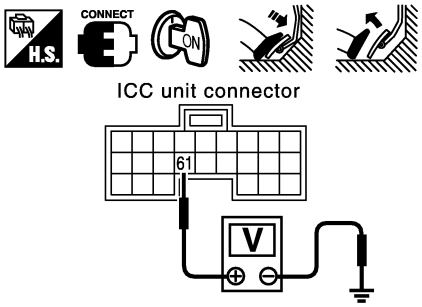


Approx 0.5V (Throttle full open)
Approx 4.0V (Throttle full closed)

SEL522Y

Throttle position switch (Full)

- Check voltage between ICC unit harness connector B160 terminal 61 (OR/B) and ground.



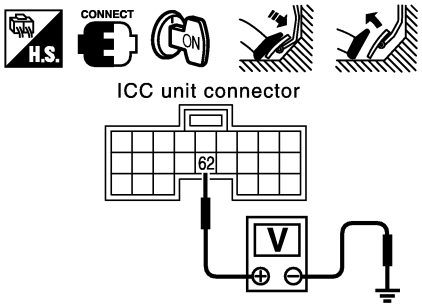
Accelerator pedal more than half depressed
Battery voltage (Approx. 12V)

Accelerator pedal released
Approx. 0V

SEL523Y

Throttle position switch (Idle)

- Check voltage between ICC unit harness connector B160 terminal 62 (OR/W) and ground.



Accelerator pedal depressed
Approx. 0V

Accelerator pedal released
Battery voltage (Approx. 12V)

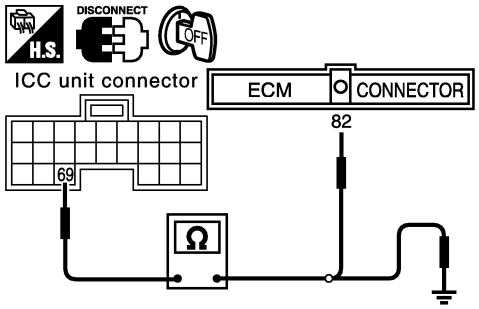
SEL524Y

OK or NG

OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	Throttle position sensor GO TO 4. Throttle position switch (Full) GO TO 5. Throttle position switch (Idle) GO TO 5.

4 CHECK HARNESS BETWEEN ICC UNIT AND ECM

1. Turn ignition switch OFF.
2. Disconnect harness connectors of ICC unit and ECM.
3. Check continuity between ICC unit harness connector B160 terminal 69 (P) and ECM harness connector terminal 82 (P).
4. Check continuity between ICC unit harness connector B160 terminal 69 (P) and ground.



SEL525Y

Terminals		Continuity
ICC unit	ECM	
69	82	Yes

MTBL1219

Terminals	Continuity
69 - ground	No

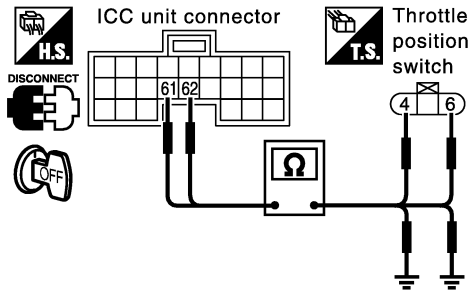
MTBL1220

OK or NG

OK ▶	• Check ECM. • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
NG ▶	• Repair harness between ICC unit and ECM • After repair, erase DTC, and perform ICC system running test. Then perform self-diagnosis of ICC system again.

5	CHECK HARNESS BETWEEN ICC UNIT AND THROTTLE POSITION SWITCH

1. Turn ignition switch OFF.
2. Disconnect harness connectors of ICC unit and throttle position switch.
3. Check continuity between ICC unit harness connector B160 terminal 61 (OR/B), 62 (OR/W) and throttle position switch harness connector F9 terminal 4 (OR/B), 6 (OR/L).



SEL526Y

Terminals		Continuity
ICC unit	Throttle position switch	
61	4	Yes
62	6	

MTBL1221

Terminals	Continuity
61 - ground	No
62 - ground	

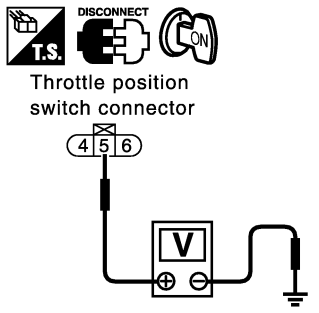
MTBL1222

OK or NG

OK	▶	GO TO 6.
NG	▶	• Repair harness between ICC unit and throttle position switch. • After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

6	CHECK THROTTLE POSITION SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between throttle position switch harness connector F9 terminal 5 (R/Y) and ground.



SEL527Y

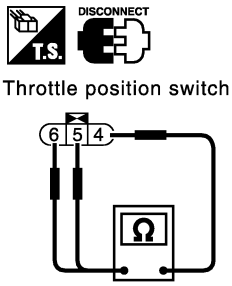
Battery voltage should exist.

OK or NG

OK	▶	• Replace fuse, or repair throttle position switch power supply circuit harness. • After repair or replace, erase DTC, and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	GO TO 7.

7	CHECK THROTTLE POSITION SWITCH

1. Check continuity at throttle position switch terminal 4 and 5, 5 and 6.



SEL528Y

Accelerrator pedal depressed

Terminals	Continuity
6 - 5	No
4 - 5	Yes

MTBL1223

Accelerrator pedal released

Terminals	Continuity
6 - 5	Yes
4 - 5	No

MTBL1224

OK or NG

OK	▶	Replace throttle position switch. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

DTC 43 ABS/TCS/VDC CIRC

NBEL0468S07

1	DIAGNOSIS CHECK

- Perform self-diagnosis of ABS. Is malfunction indicated?

Yes or No

Yes	▶	Repair or replace applicable item. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
No	▶	GO TO 2.

2	CHECK CONNECTOR FOR ICC UNIT

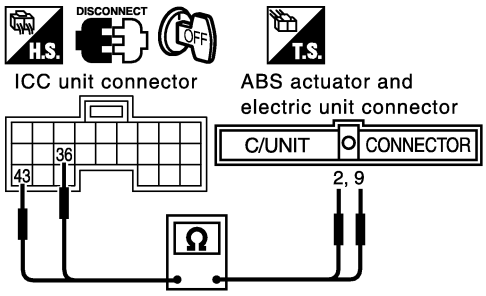
1. Turn ignition switch OFF.
2. Disconnect ICC unit connector, and connect it securely again. Then erase DTC. After that, perform self-diagnosis of ICC system again.

OK or NG

NG	▶	GO TO 3.
OK	▶	• Poor connector connection • Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

3 **CHECK HARNESS BETWEEN ICC UNIT AND ABS ACTUATOR AND ELECTRIC UNIT**

1. Turn ignition switch OFF.
2. Disconnect harness connectors of ICC unit and ABS actuator and electric unit.
3. Check continuity between ICC unit harness connector B159 terminals 36 (LG), 43 (L/R) and ABS actuator and electric unit harness connector E111 terminals 9 (L/W), 2 (L/R).



SEL529Y

Terminals		Continuity
ICC unit	ABS	
36	9	Yes
43	2	

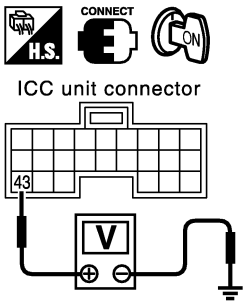
MTBL1225

OK or NG

OK	▶	GO TO 4.
NG	▶	• Repair harness between ICC unit and ABS actuator and electric unit. • After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

4 **CHECK ABS FAIL-SAFE SIGNAL**

1. Connect harness connectors of ICC unit and ABS actuator and electric unit.
2. Check voltage between ICC unit harness connector B159 terminal 43 (L/R) and body ground.



SEL530Y

When ABS warning lamp illuminates:
Approx. 0V

OK or NG

OK	▶	Replace ICC unit, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
NG	▶	• Check ABS actuator and electric unit. • After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

DTC 45 BRAKE SW/STOP L SW

NBEL0468S08

1	CHECK CONNECTOR FOR ICC UNIT	
1. Turn ignition switch OFF. 2. Disconnect ICC unit connector, and connect it securely again. Then erase DTC. After that, perform self-diagnosis of ICC system again. **OK or NG**		
OK	▶	• Poor connector connection • Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	GO TO 2.

2	CHECK STOP LAMP SWITCH AND ICC BRAKE SWITCH	
With CONSULT-II • With data monitor, check if "STOP LAMP SW" and "BRAKE SW" are operated normally. Refer to "DATA MONITOR" EL-309. **OK or NG**		
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	• BRAKE SW: GO TO 3. • STOP LAMP SW: GO TO 5.

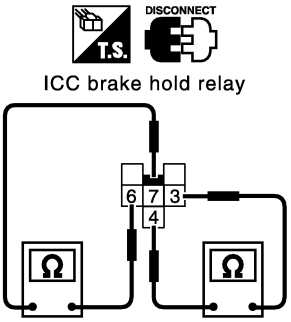
3	BRAKE SWITCH INSTALLATION AND ADJUSTMENT INSPECTION	
• Check brake switch for proper installation and adjust if necessary. Refer to "BRAKE PEDAL" in BR-12. **OK or NG**		
NG	▶	After adjustment, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 4.

4	CHECK ICC BRAKE SWITCH	
• Check ICC brake switch. Refer to "ICC Brake Switch and Stop Lamp Switch" EL-369. **OK or NG**		
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	Replace ICC brake switch. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

5	CHECK STOP LAMP ILLUMINATION	
• Check stop lamp illumination. **OK or NG**		
NG	▶	• Check stop lamp circuit. • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 6.

6	CHECK ICC BRAKE HOLD RELAY

1. Turn ignition switch OFF.
2. Check continuity between ICC brake hold relay.



SKIA1180E

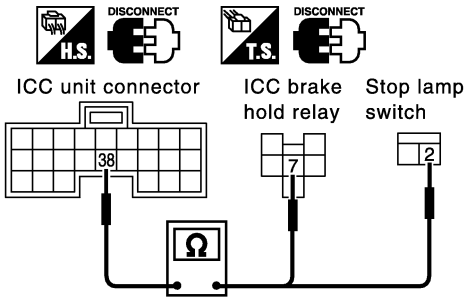
6 - 7
Continuity should not exist.
3 - 4
Continuity should exist.

OK or NG

NG	▶	Replace brake hold relay. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 7.

7	CHECK ICC BRAKE HOLD RELAY CIRCUIT

1. Disconnect connectors of ICC unit and ICC brake hold relay.
2. Check continuity between ICC unit harness connector B159 terminal 38 (G/Y) and ICC brake hold relay terminal 7 (G/Y).



SEL554Y

Continuity should exist.

3. Check continuity between ICC unit harness connector B159 terminal 38 (G/Y) and stop lamp switch terminal 2 (G/Y).
Continuity should exist.

OK or NG

NG	▶	• Repair harness between ICC unit and ICC brake hold relay. • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

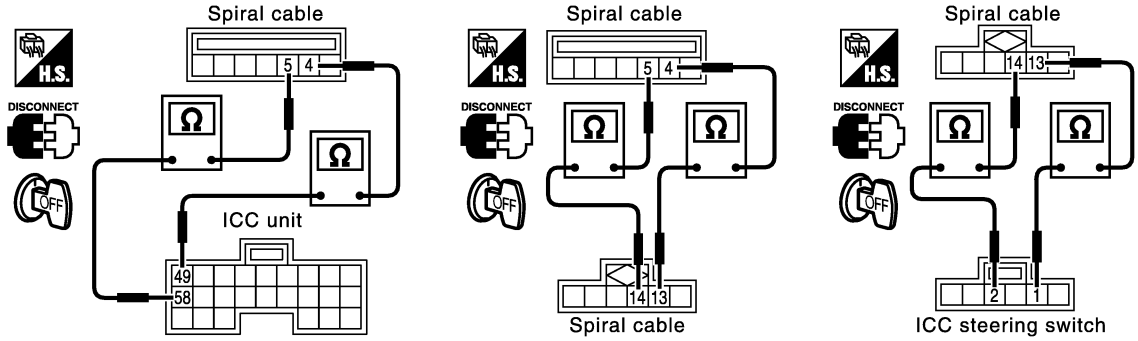
DTC 46 OPERATION SW CIRC

NBEL0468S09

1	CHECK CONNECTORS ICC UNIT, COMBINATION SWITCH AND ICC STEERING SWITCH	
● Check ICC unit, combination switch and ICC steering switch terminals (ICC unit side, combination switch side, switch side, and harness side) for looseness and bend.		
OK or NG		
NG	▶	Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 2.

2	CHECK ICC STEERING SWITCH SIGNAL CIRCUIT	

1. Turn ignition switch OFF.
2. Disconnect connectors of ICC unit and spiral cable.
3. Check continuity between ICC unit harness connector B160 terminal 49 (GY/L), 58 (G/Y) and spiral cable (on vehicle) terminal 4 (Y), 5 (Y).
4. Check continuity between spiral cable (on vehicle) terminal 4, 5 and spiral cable (on switch) terminal 13, 14.
5. Check continuity between spiral cable terminal 13, 14 and ICC steering switch terminal 1, 2.



SEL531Y

Terminals		Continuity
ICC unit	Spiral cable	
49	4	Yes
58	5	

MTBL1227

Terminals		Continuity
Spiral cable		
4	13	Yes
5	14	

MTBL1228

Terminals		Continuity
Spiral cable	ICC steering switch	
13	1	Yes
14	2	

MTBL1255

OK or NG

NG	▶	● Repair harness between ICC unit and spiral cable or spiral cable. ● After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 3.

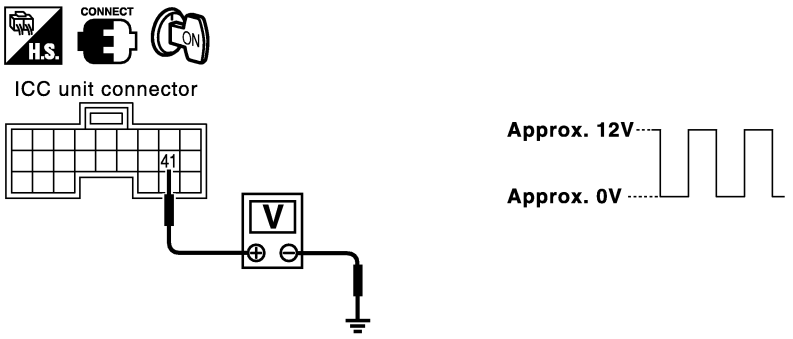
3	CHECK ICC STEERING SWITCH	
● Check ICC steering switch, refer to "ICC Steering Switch" EL-372.		
OK or NG		
NG	▶	Replace ICC steering switch. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 48 METER CIRCUIT

NBEL0468S29

1	CHECK CONNECTOR FOR ICC UNIT	
1. Turn ignition switch OFF. 2. Disconnect ICC unit connector, and connect it securely again. Then, erase DTC. After that, perform self-diagnosis of ICC system again.		
OK or NG		
NG	▶	GO TO 2.
OK	▶	● Poor connection. ● Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC system running test. Then, perform self-diagnosis of ICC system again.

2	CHECK METER COMMUNICATION SIGNAL (TX)	
1. Connect ICC unit connector. 2. Turn ignition switch ON. 3. Check voltage between ICC unit harness connector B159 terminal 41 (Y/B) and body ground.		

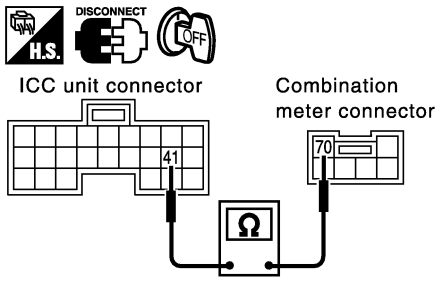


SEL532Y

OK or NG		
NG	▶	GO TO 3.
OK	▶	GO TO 4.

3	CHECK HARNESS BETWEEN ICC UNIT AND COMBINATION METER

1. Turn ignition switch OFF.
2. Disconnect harness connectors of ICC unit and combination meter.
3. Check continuity between ICC unit harness connector B159 terminal 41 (Y/B) and combination meter harness connector M50 terminal 70 (Y/B).



SEL533Y

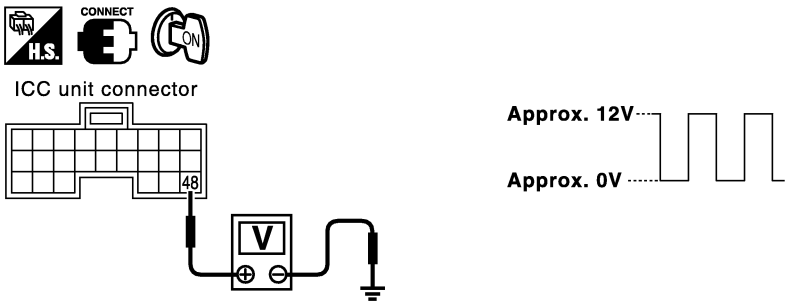
Continuity should exist.

OK or NG

OK	▶	• Check combination meter. • After repair, erase DTC and perform ICC running test. Then, perform self-diagnosis of ICC system again.
NG	▶	• Repair harness between ICC unit and combination meter. • After repair, erase DTC and perform ICC running test. Then, perform self-diagnosis of ICC system again.

4	CHECK METER COMMUNICATION SIGNAL (RX)

1. Connect ICC unit connector.
2. Turn ignition switch ON.
3. Check voltage between ICC unit harness connector B159 terminal 48 (G/W) and body ground.



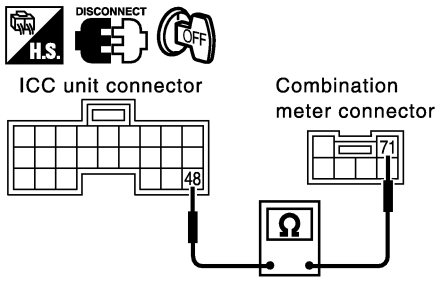
SEL534Y

OK or NG

OK	▶	GO TO 5.
NG	▶	Replace ICC unit, erase DTC and perform ICC running test. Then, perform self-diagnosis of ICC system again.

5	CHECK HARNESS BETWEEN ICC UNIT AND COMBINATION METER

1. Turn ignition switch OFF.
2. Disconnect harness connectors of ICC unit and combination meter.
3. Check continuity between ICC unit harness connector B159 terminal 48 (G/W) and combination meter harness connector M50 terminal 71 (G/W).



SEL535Y

Continuity should exist.

OK or NG

OK	▶	• Check combination meter. • After repair, erase DTC and perform ICC running test. Then, perform self-diagnosis of ICC system again.
NG	▶	• Repair harness between ICC unit and combination meter. • After repair, erase DTC and perform ICC running test. Then, perform self-diagnosis of ICC system again.

DTC 61 PRESS SEN CIRCUIT

NBEL0468S11

1	CHECK CONNECTOR BRAKE PRESSURE SENSOR AND ICC UNIT

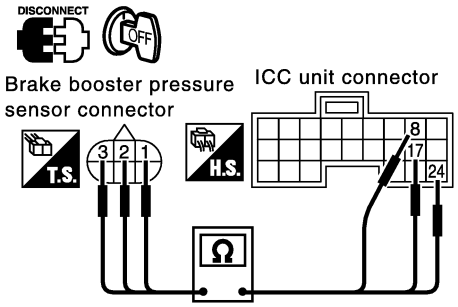
1. Turn ignition switch OFF.
2. Disconnect connectors of brake pressure sensor and ICC unit, and connect them securely again. Then erase DTC. After that, perform self-diagnosis of ICC system again.

OK or NG

OK	▶	• Poor connector connection • Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, Erase DTC, and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	GO TO 2.

2 CHECK HARNESS BETWEEN BRAKE PRESSURE SENSOR AND ICC UNIT

1. Turn ignition switch OFF.
2. Disconnect connectors of ICC unit and brake pressure sensor.
3. Check continuity between ICC unit harness connector B158 terminal 8 (G/OR), 17 (B/Y), 24 (OR) and brake pressure sensor harness connector E138 terminal 3 (G/OR), 2 (B/Y), 1 (OR).



SKIA1267E

Terminals		Continuity
ICC unit	Brake pressure sensor	
8	3	Yes
17	2	
24	1	

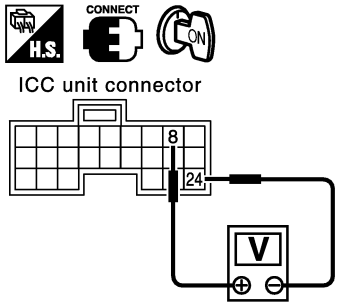
MTBL1230

OK or NG

NG	▶	• Repair harness between brake pressure sensor and ICC unit • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 3.

3 CHECK POWER SUPPLY CIRCUIT FOR BRAKE PRESSURE SENSOR

1. Connect ICC unit.
2. Turn ignition switch ON.
3. Check voltage between ICC unit harness connector B158 terminal 8 (G/OR) and 24 (OR).



SKIA1268E

Approx. 5V

OK or NG

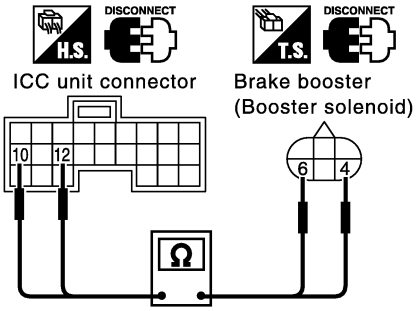
NG	▶	Replace ICC unit. Clear DTC and perform driving check. Then perform self-diagnosis of ICC system again.
OK	▶	• Brake pressure sensor malfunction • Replace master cylinder assembly. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 62 BOOSTER SOL/V CIRCUIT

NBEL0468S12

1	CHECK SOLENOID/RELEASE SWITCH AND ICC UNIT CHECK CONNECTOR	
1. Turn ignition switch OFF. 2. Disconnect connectors of brake booster solenoid/release and ICC unit, and connect them securely again. Then erase DTC. After that perform self-diagnosis of ICC system again. **OK or NG**		
OK	▶	• Poor connector connection • Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	GO TO 2.

2	CHECK HARNESS BETWEEN SOLENOID/RELEASE SWITCH AND ICC UNIT	
1. Turn ignition switch OFF. 2. Disconnect ICC unit connector and brake booster solenoid release switch connector. 3. Check continuity between ICC unit harness connector B158 terminal 10 (BR), 12 (Y) and brake booster harness connector E137 terminal 4 (BR), 6 (Y).		
OK or NG		
NG	▶	• Repair harness between brake booster solenoid/release switch and ICC unit • After repair, Erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 3.



SKIA1269E

Terminals		Continuity
ICC unit	Brake booster	
10	4	Yes
12	6	

MTBL1231

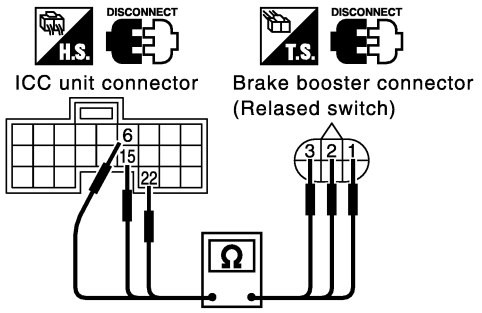
3	CHECK BOOSTER SOLENOID	
• Check booster solenoid. Refer to "Booster Solenoid" EL-369. **OK or NG**		
NG	▶	• Replace Booster solenoid • Replace booster solenoid. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 63 RELEASE SW CIRCUIT

NBEL0468S13

1	CHECK SOLENOID/RELEASE SWITCH AND ICC UNIT CHECK CONNECTOR	
1. Turn ignition switch OFF. 2. Disconnect brake booster solenoid/release switch connector and ICC unit connector, and connect them securely again. Then erase DTC. After that, perform self-diagnosis of ICC system again.		
OK or NG		
OK	▶	• Poor connector connection • Check connector. (Check connector housing for disconnected, loose, bent, and collapsed terminals. If any malfunction is detected, repair applicable part.) After repair, erase DTC, and perform ICC system running test. Then perform self-diagnosis of ICC system again.
NG	▶	GO TO 2.

2	CHECK HARNESS SOLENOID/RELEASE SWITCH AND ICC UNIT	
1. Turn ignition switch OFF. 2. Disconnect brake booster solenoid/release switch connector and ICC unit connector. 3. Check continuity between ICC unit harness connector B158 terminal 6 (L/B), 15 (P/B), 22 (R) and Brake booster harness connector E137 terminal 1 (L/B), 3 (P/B), 2 (R).		
OK or NG		
NG	▶	• Repair harness between brake booster solenoid/release switch and ICC unit • After repair, Erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 3.



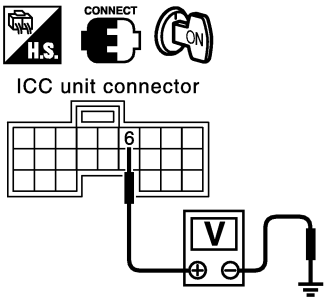
SKIA1183E

Terminals		Continuity
ICC unit	Brake booster	
6	1	Yes
15	3	
22	2	

MTBL1232

3	CHECK RELEASE SWITCH POWER SUPPLY CIRCUIT

- Check voltage between ICC unit harness connector B158 terminal 6 (L/B) and ground.



SKIA1184E

Approx. 10V

OK or NG

NG	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 4.

4	CHECK RELEASE SWITCH

- Check release switch. Refer to "Release Switch" EL-369.

OK or NG

NG	▶	• Release switch malfunction • Replace booster. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 65 PRESSURE CONTROL

NBEL0468S14

1	OPERATION CHECK

- Check foot brake pedal operates normally.

OK or NG

NG	▶	• Check brake circuit. • After repair, Erase DTC, and perform active test (BOOSTER SOL/V3) with CONSULT-II. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 2.

2	CHECK BOOSTER SOLENOID

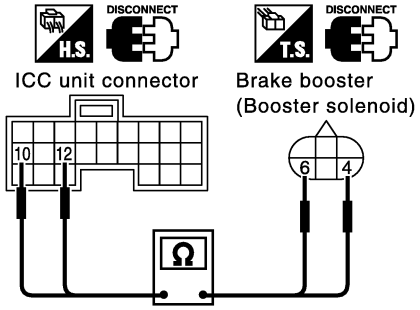
- Check booster solenoid. Refer to "Booster Solenoid" EL-369.

OK or NG

NG	▶	• Solenoid malfunction • Replace booster. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 3.

3	CHECK HARNESS BETWEEN SOLENOID/RELEASE SWITCH AND ICC UNIT

1. Turn ignition switch OFF.
2. Disconnect ICC unit connector and brake booster solenoid/release switch connector.
3. Check continuity between ICC unit harness connector B158 terminal 10 (BR), 12 (Y) and brake booster solenoid/release harness connector E137 terminal 4 (BR), 6 (Y).



SKIA1269E

Terminals		Continuity
ICC unit	Brake booster	
10	4	Yes
12	6	

MTBL1231

OK or NG

NG	▶	• Repair harness between brake booster solenoid/release switch and ICC unit • After repair, Erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 74 LASER BEAM OFF CNTR

NBEL0468S15

1	DIAGNOSTIC CHECK

1. Adjust laser beam aiming. Then erase DTC, and perform ICC system ICC system running test.
2. After that, perform self-diagnosis of ICC system. Is DTC 74 LASER BEAM OFFCNTR indicated?

Yes or No

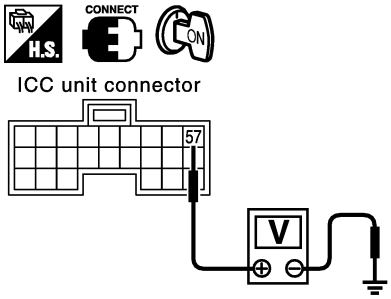
Yes	▶	• Replace ICC sensor, and adjust laser beam aiming. • After that, Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
No	▶	Inspection is completed.

DTC 81 POWER SUPPLY VALVE

NBEL0468S16

1	CHECK ICC UNIT REFERENCE SIGNAL

1. Start the engine.
2. Turn ON/OFF switch ON.
3. Check voltage between ICC unit harness connector B160 terminal 57 (R/B) and ground.



SKIA1186E

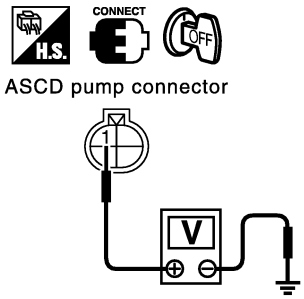
Approx. 0V

OK or NG

NG	▶	GO TO 2.
OK	▶	GO TO 3.

2	CHECK HARNESS BETWEEN ICC UNIT AND ASCD PUMP

1. Turn ignition switch OFF.
2. Disconnect ASCD pump connector.
3. Check voltage between ASCD pump harness connector E139 terminal 1 (R/B) and ground.



SKIA1188E

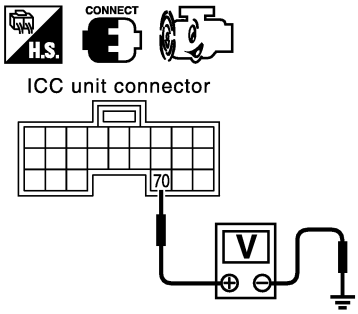
Approx. 0V

OK or NG

NG	▶	• Repair harness between ICC unit and ASCD pump • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

3	CHECK ICC UNIT REFERENCE SIGNAL

1. Start engine.
2. Turn ON/OFF switch ON.
3. Check voltage between ICC unit harness connector B160 terminal 70 (Y/R) and ground.



SKIA1187E

Approx. 0V

OK or NG

NG	▶	• Repair harness between ICC unit and ASCD actuator • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 83 POWER SUPPLY VALVE

NBEL0468S17

1	CHECK ASCD ACTUATOR

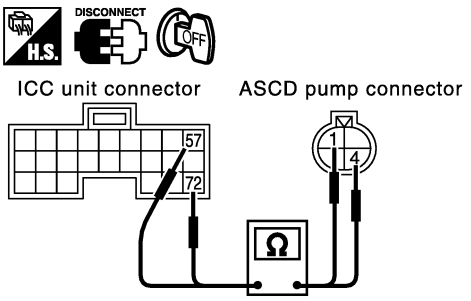
- Check ASCD actuator. Refer to, "ASCD Actuator" EL-369.

OK or NG

NG	▶	Replace ASCD actuator. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 2.

2	CHECK HARNESS BETWEEN ICC UNIT AND ASCD PUMP

1. Turn ignition switch OFF.
2. Check continuity between ICC unit harness connector B160 terminal 57 (R/B), 72 (L/R) and ASCD pump harness connector E139 terminal 1 (R/B), 4 (L/R).



SKIA1189E

Terminals		Continuity
ICC unit	ASCD pump	
57	1	Yes
72	4	

MTBL1234

OK or NG

NG	▶	• Repair harness between ICC unit and ASCD pump • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 3.

3	CHECK CONNECTOR ASCD PUMP AND ICC UNIT

• Check ASCD pump and ICC unit terminal for looseness and bend.

OK or NG

NG	▶	Repair terminal or connector. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC, and perform self-diagnosis of ICC system again.

DTC 85 AIR VALVE [LOW VOLTAGE]

NBEL0468S18

1	CHECK ASCD PUMP

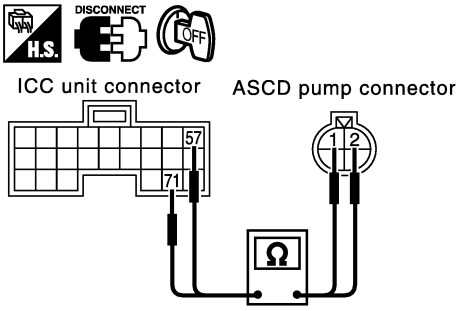
• Check ASCD pump. Refer to "ASCD Pump" EL-370.

OK or NG

NG	▶	Replace ASCD pump. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 2.

2	CHECK HARNESS BETWEEN ICC UNIT AND ASCD PUMP

1. Turn ignition switch OFF.
2. Check continuity between ICC unit harness connector B160 terminal 57 (R/B), 71 (G/Y) and ASCD pump harness connector E139 terminal 1 (R/B), 2 (G/Y).



SKIA1190E

Terminals		Continuity
ICC unit	ASCD pump	
57	1	Yes
71	2	

MTBL1235

OK or NG

NG	▶	• Repair harness between ICC unit and ASCD pump • After repair, erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 3.

3	CHECK CONNECTOR PUMP ASCD AND ICC UNIT

• Check ASCD pump and ICC unit terminal for looseness and bend.

OK or NG

NG	▶	Repair terminal or connector. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC, and perform self-diagnosis of ICC system again.

DTC 87 RELEASE VALVE [LOW VOLTAGE]

NBEL0468S19

1	CHECK ASCD PUMP

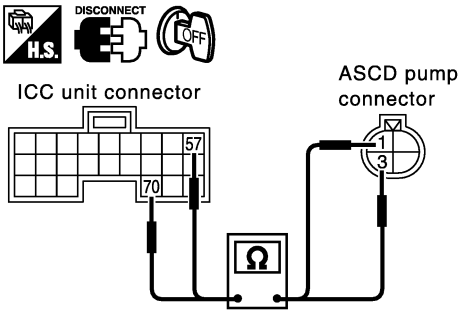
• Check ASCD pump. Refer to "ASCD Pump" EL-370.

OK or NG

NG	▶	Replace ASCD pump. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 2.

2	CHECK HARNESS BETWEEN ICC UNIT AND PUMP

1. Turn ignition switch OFF.
2. Check continuity between ICC unit harness connector B160 terminal 57 (R/B), 70 (Y/R) and ASCD pump harness connector E139 terminal 1 (R/B), 3 (Y/R).



SKIA1191E

Terminals		Continuity
ICC unit	ASCD pump	
57	1	Yes
70	3	

MTBL1236

OK or NG

NG	▶	• Repair harness between ICC unit and ASCD pump • After repair, erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 3.

3	CHECK CONNECTOR ASCD PUMP AND ICC UNIT

- Check ASCD pump and ICC unit terminal for looseness or bend.

OK or NG

NG	▶	Repair terminal or connector. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC, and perform self-diagnosis of ICC system again.

DTC 90 STOP LAMP RLY FIX

NBEL0468S20

1	CHECK CONNECTOR ICC UNIT

1. Turn ignition switch OFF.
2. Disconnect and check ICC unit connector.

OK or NG

NG	▶	• Connector malfunction • After repair, erase DTC, and perform ICC system running test. Then perform self-diagnosis of system.
OK	▶	GO TO 2.

2	CHECK STOP LAMP SWITCH, AND ICC BRAKE SWITCH ITCH

With CONSULT-II

- With data monitor, check that "STOP LAMP SW" and "BRAKE SW" operate normally. Refer to "DATA MONITOR" EL-309.

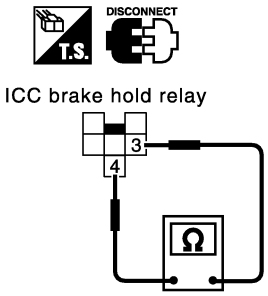
OK or NG

NG	▶	• BRAKE SW: GO TO 3. • STOP LAMP SW: GO TO 8.
OK	▶	GO TO 11.

3	BRAKE SWITCH INSTALLATION AND ADJUSTMENT INSPECTION	
● Check brake switch for proper installation and adjust if necessary.Refer to "BRAKE PEDAL" in "BR" BR-12.		
OK or NG		
NG	▶	After adjustment, erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 4.

4	CHECK ICC BRAKE SWITCH AND STOP LAMP SWITCH	
● Check ICC brake switch and stop lamp switch. Refer to "ICC Brake Switch and Stop Lamp Switch" EL-369.		
OK or NG		
NG	▶	Replace ICC brake switch. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 5.

5	CHECK ICC BRAKE HOLD RELAY	
● Disconnect ICC brake hold relay E136, and check continuity between ICC brake hold relay harness connector terminal 3 and terminal 4.		



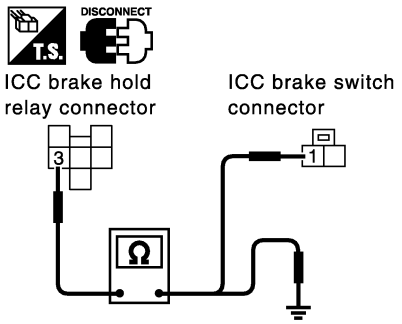
SKIA1192E

Continuity should exist.

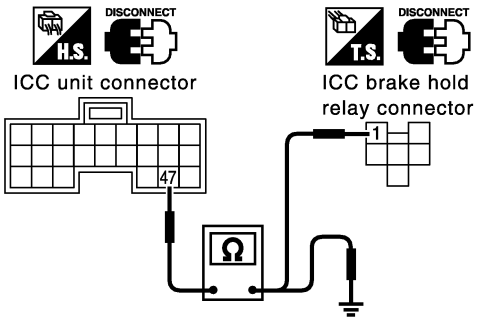
OK or NG		
NG	▶	Replace ICC brake hold relay. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 6.

6	CHECK HARNESS THROUGH ICC BRAKE HOLD RELAY, ICC BRAKE SWITCH, ICC UNIT

1. Disconnect ICC brake hold relay E136, ICC brake switch M150, ICC unit harness connector B159.
2. Check continuity between ICC brake hold relay E136 terminal 3 (OR) and ICC brake switch M150 terminal 1 (OR).
3. Check continuity between ICC brake hold relay E38 terminal 3 (Y/R) and ground.
4. Check continuity between ICC brake hold relay E136 terminal 1 (L/W) and ICC unit harness connector B159 terminal 47(LG/B).
5. Check continuity between ICC unit harness connector B159 terminal 47 (LG/B) and ground.



SEL536Y



SKIA1272E

Terminals		Continuity
ICC brake hold relay	ICC brake switch	
3	1	Yes

MTBL1237

Terminals	Continuity
3 - ground	No

MTBL1238

Terminals		Continuity
ICC unit	ICC brake hold relay	
47	1	Yes

MTBL1239

Terminals	Continuity
47 - ground	No

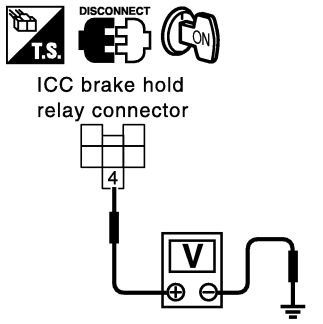
MTBL1240

OK or NG

NG	▶	• Repair harness between ICC brake hold relay and ICC brake switch • Repair harness between ICC brake switch and ICC unit • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 7.

7	CHECK ICC BRAKE HOLD RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between ICC brake hold relay E136 terminal 4 (W/G) and ground.



SKIA1194E

Approx. 12V

OK or NG

NG	▶	• Malfunction of fuse, or ICC brake hold relay power supply system harness • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

8	CHECK BRAKE LAMP ILLUMINATION

1. Disconnect ICC brake hold relay connector.
2. Check stop lamp circuit.

OK or NG

NG	▶	After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 9.

9	CHECK ICC BRAKE HOLD RELAY CIRCUIT

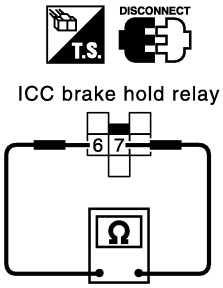
1. Connect ICC brake hold relay connector.
2. Disconnect stop lamp switch connector.
3. When brake pedal is not depressed, make sure that stop lamp does not illuminate.

OK or NG

NG	▶	GO TO 10.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

10	CHECK ICC BRAKE HOLD RELAY

1. Disconnect ICC brake hold relay.
2. Check continuity between ICC brake hold relay terminal 6 and terminal 7.



SKIA1195E

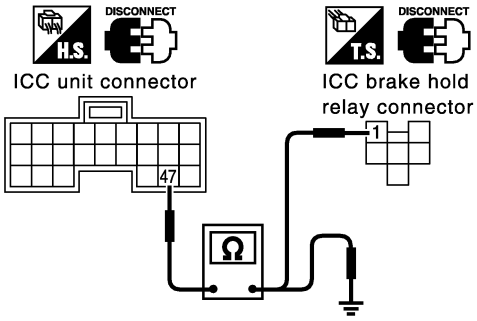
Continuity should not exist.

OK or NG

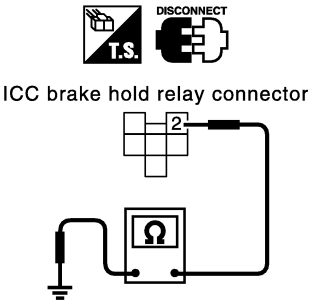
NG	▶	Replace ICC brake hold relay. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

11 **CHECK HARNESS THROUGH ICC UNIT, ICC BRAKE HOLD RELAY, AND GROUND**

1. Disconnect connectors of ICC unit and ICC brake hold relay.
2. Check continuity between ICC unit harness connector B159 terminal 47 (LG/B) and ICC brake hold relay E136 terminal 1 (L/W).
3. Check continuity between ICC unit harness connector B159 terminal 47 (LG/B) and ground.
4. Check continuity between ICC brake hold relay harness connector E136 terminal 2 (B) and ground.



SKIA1272E



SKIA1271E

Terminals		Continuity
ICC unit	ICC brake hold relay	
47	1	Yes

MTBL1239

ICC unit terminals	Continuity
47 - ground	No

MTBL1253

ICC brake hold relay terminal	Continuity
2 - ground	Yes

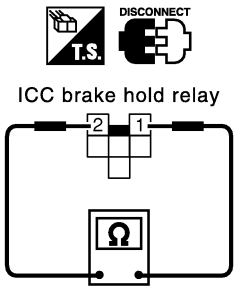
MTBL1254

OK or NG

NG	▶	● Repair harness through ICC unit, ICC brake hold relay, and ground ● After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 12.

12	CHECK ICC BRAKE HOLD RELAY

- Check continuity between ICC brake hold relay terminal 1 and terminal 2.



SKIA1197E

Continuity should exist.

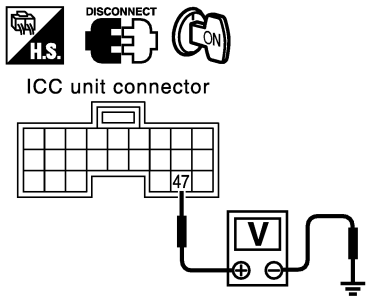
OK or NG

NG	▶	Replace ICC brake hold relay. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 13.

13	CHECK ICC UNIT STANDARD VOLTAGE

With CONSULT-II

1. Connect connectors of ICC unit and stop lamp switch.
2. Active test (STOP LAMP:STP LMP DRIVE ON) with CONSULT-II, check voltage between ICC unit harness connector B159 terminal 47 (LG/B) and ground.



SKIA1273E

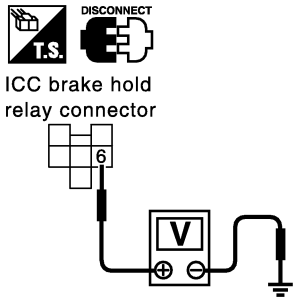
Approx. 12V (during active test)

OK or NG

NG	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 14.

14	CHECK ICC BRAKE HOLD RELAY POWER SUPPLY CIRCUIT

1. Check voltage between ICC brake hold relay E136 terminal 6 (R/Y) and ground.



SKIA1198E

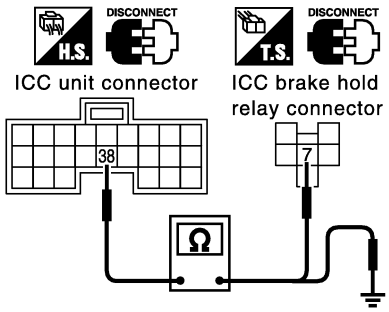
Approx. 12V

OK or NG

NG	▶	• Malfunctions of fuse or ICC brake hold relay power supply harness • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 15.

15	CHECK HARNESS BETWEEN ICC BRAKE HOLD RELAY AND ICC UNIT

1. Disconnect connectors of ICC brake hold relay and ICC unit.
2. Check continuity between ICC brake hold relay E136 terminal 7 (G/Y) and ICC unit harness connector B159 terminal 38 (G/Y).
3. Check continuity between ICC brake hold relay E136 terminal 7 (G/Y) and ground.



SKIA1199E

Terminals		Continuity
ICC unit	ICC brake hold relay	
38	7	Yes

MTBL1243

Terminals	Continuity
38 - ground	No

MTBL1244

OK or NG

NG	▶	• Repair harness between ICC brake hold relay and ICC unit • After repair, erase DTC and perform ICC system running test. Then, perform self-diagnosis of ICC system again.
OK	▶	GO TO 16.

16	CHECK ICC BRAKE HOLD RELAY

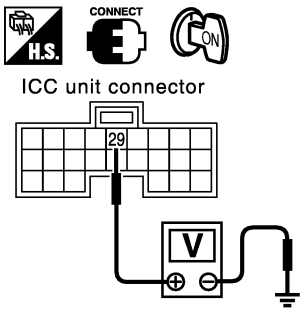
With CONSULT-II
1. Connect connectors of ICC unit and ICC brake hold relay.
2. Disconnect stop lamp switch connector.
3. Perform active test (STOP LAMP) with CONSULT-II, and make sure that stop lamp is illuminated.

OK or NG

NG	▶	Replace ICC brake hold relay. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	GO TO 17.

17	CHECK ICC UNIT STANDARD VOLTAGE

1. Connect stop lamp switch connector.
2. Perform active test (STOP LAMP:STP LMP DRIVE ON) with CONSULT-II, check voltage between ICC unit harness connector B159 terminal 29 (Y/G) and ground.



SKIA1200E

Approx. 0V (during active test)

OK or NG

NG	▶	Replace stop lamp switch.Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
OK	▶	Replace ICC unit. Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 102 RADAR STAIN

NBEL0468S21

1	VISUAL INSPECTION (1)

- Check that there is no contamination and foreign material on ICC sensor body window.

Yes or No

Yes	▶	• If any, remove them. • After that, Erase DTC, Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
No	▶	GO TO 3.

2	VISUAL INSPECTION (2)

- Check ICC sensor body window for cracks.

Yes or No

Yes	▶	• Replace ICC sensor, and adjust laser beam. • After that, Erase DTC, Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
No	▶	GO TO 3.

3	ASKING COMPLAINTS	
1. Is there any trace of contamination or foreign material on ICC sensor? 2. Is there any possibility that vehicle was driven in snow or ICC sensor was frosted? 3. Is there any possibility that ICC sensor was fogged temporarily? (Front window glass may have also tended to be fogged.)		
Yes or No		
Yes	▶	Explain difference in displays between contamination detection result and current indication to customer, and tell them "This is not malfunction".
No	▶	• Replace ICC sensor, and adjust laser beam aiming. • After that, Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 103 LASER SENSOR FAIL

NBEL0468S22

1	DIAGNOSTIC CHECK	
• Are "DTC 11 CONTROL UNIT" or "DTC 20 CAN COMM CIRCUIT" item indicated in self-diagnosis display item?		
Yes or No		
Yes	▶	GO TO APPLICABLE ITEM INSPECTION. Refer to "DTC 11 CONTROL UNIT" EL-320, and "DTC 20 CAN COMM CIRCUIT" EL-320.
No	▶	• Replace ICC sensor, and adjust laser beam aiming. • After that, Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 104 LASER AIMING INCMP

NBEL0468S23

1	DIAGNOSTIC CHECK	
1. Adjust laser beam aiming. Erase DTC, and perform. 2. After that, perform self-diagnosis of ICC system. Is "DTC 104 LASER AIMING INCMP" indicated?		
Yes or No		
Yes	▶	• Replace ICC sensor, and adjust laser beam aiming. • After that, Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
No	▶	Inspection is completed.

DTC 107 LASER COMM FAIL

NBEL0468S24

1	DIAGNOSTIC CHECK	
• Is "DTC 11 CONTROL UNIT" or "DTC 20 CAN COMM CIRCUIT" items other than "DTC 107 LASER COMM FAIL" indicated in the self-diagnosis display item?		
Yes or No		
Yes	▶	GO TO APPLICABLE ITEM INSPECTION. Refer to "DTC 11 CONTROL UNIT" EL-320, and "DTC 20 CAN COMM CIRCUIT" EL-320.
No	▶	• Replace ICC sensor. Adjust laser beam aiming. • After that, Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.

DTC 109 LASER HIGH TEMP

NBEL0468S25

1	CHECK SYMPTOM	
● Is cooling system malfunctioning?		
Yes or No		
Yes	▶	● Repair cooling system. ● After that, Erase DTC and perform ICC system running test. Then perform self-diagnosis of ICC system again.
No	▶	● Replace ICC sensor, and adjust laser beam aiming. ● After repair, Erase DTC. Then perform ICC system running test, and perform self-diagnosis of ICC unit.

Trouble Diagnosis for Symptoms

NBEL0469

SYMPTOM CHART

NBEL0469S01

Symptoms		Reference page
Operation	Cruise ON/OFF does not switch ON.	Symptom 1 EL-357
	Cruise ON/OFF does not switch OFF.	Symptom 1 EL-357
	Cruise does not function for setting (powering functions).	Symptom 2 EL-357
	CANCEL switch does not function.	Symptom 3 EL-361
	Resume does not function.	Symptom 3 EL-362
	The set speed does not increase.	Symptom 3 EL-362
	The set distance to the vehicle ahead cannot be changed.	Symptom 3 EL-362
	The ICC is not cancelled when the gear is in other than D.	Symptom 4 EL-363
Display/Chime	The ICC system display does not appear.	Check combination meter. Refer to EL-129.
	Chime does not function.	Symptom 5 EL-363
	Chime does not stop.	Symptom 6 EL-366
Control	Driving force is hunting.	Symptom 7 EL-366

Symptoms		Reference page
Function to detect the vehicle ahead	The system frequently cannot detect the vehicle ahead.	Symptom 8 EL-367
	The distance to detect the vehicle ahead is short.	Symptom 8 EL-367
	The system misidentifies a vehicle even though there is no vehicle ahead.	• Refer to EL-285, "LASER BEAM AIMING ADJUSTMENT" • Refer to EL-283, "ICC system running test"
	The system misidentifies a vehicle in the next lane.	• Refer to EL-285, "LASER BEAM AIMING ADJUSTMENT" • Refer to EL-283, "ICC system running test"
	The system does not detect a vehicle at all.	Symptom 9 EL-367

SYMPTOM 1: CRUISE ON/OFF DOES NOT SWITCH ON. (THE ICC SYSTEM DISPLAY IN THE COMBINATION METER DOES NOT ILLUMINATE.) CRUISE ON/OFF DOES NOT SWITCH OFF. (THE ICC SYSTEM DISPLAY IN THE COMBINATION METER REMAINS POWERED.)

NBEL0469S02

1	CHECK ON/OFF SWITCH	
With CONSULT-II • With data monitor, check that ON/OFF switch operates normally. **OK or NG**		
OK	▶	GO TO 2.
NG	▶	GO TO 4.

2	CHECK COMBINATION METER	
• Check combination meter. **OK or NG**		
OK	▶	GO TO 5.
NG	▶	After repair or replacement, erase DTC, and perform self-diagnosis of ICC system again.

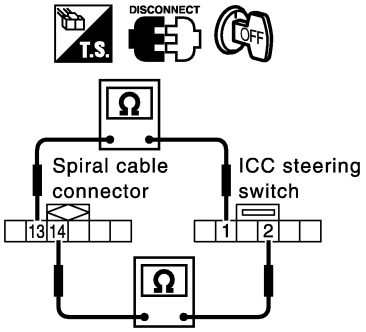
3	CHECK METER COMMUNICATION	
• Are "DTC 48 METER CIRCUIT" item indicated in self-diagnosis? **Yes or No**		
No	▶	Replace ICC unit. Erase DTC, and perform self-diagnosis of ICC system again.
Yes	▶	Repair or replace malfunctioning part. Erase DTC, and perform self-diagnosis of ICC system again.

4	CHECK ICC UNIT REFERENCE SIGNAL	
● Check voltage between ICC unit harness connector B160 terminal 49 (GY/L) and terminal 58 (G/Y). Refer to "Terminals and Reference Value for ICC Unit" EL-302.		
OK or NG		
OK	▶	GO TO 9.
NG	▶	GO TO 5.

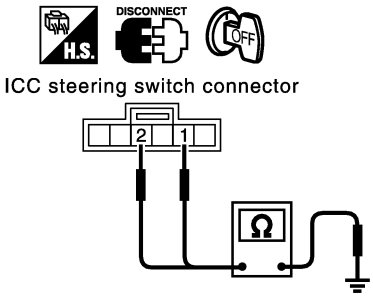
5	CHECK ICC STEERING SWITCH	
● Check ICC steering switch. Refer to "ICC Steering Switch" EL-368.		
OK or NG		
NG	▶	Replace ICC steering switch. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 6.

6 CHECK SWITCH HARNESS

1. Turn ignition switch OFF.
2. Disconnect switch harness connector.
3. Check continuity between switch harness (on spiral cable) terminal 13, 14 and switch harness (on switch) terminal 1, 2.
4. Check continuity between switch harness (on switch) terminal 1, 2 and ground.



SEL555Y



SKIA1276E

Terminals		Continuity
Spiral cable	ICC steering switch	
13	1	Yes
14	2	

MTBL1245

Terminals	Continuity
1 - ground 2 - ground	No

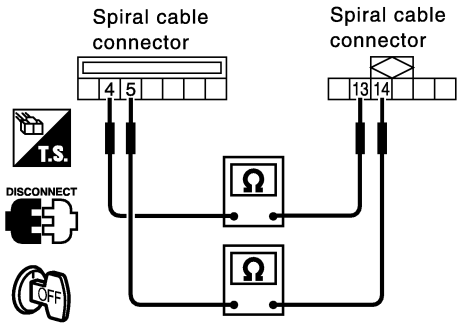
MTBL1246

OK or NG

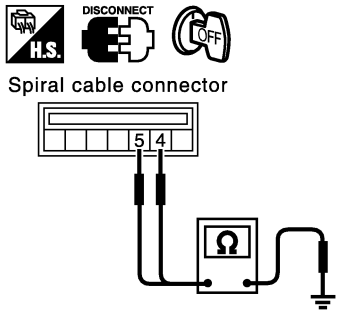
NG	▶	Replace switch harness. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 7.

7 CHECK SPIRAL CABLE

1. Turn ignition switch OFF.
2. Disconnect spiral cable connector and ICC unit connector.
3. Check continuity between spiral cable (on vehicle) terminals 4, 5 and spiral cable (on switch) terminals 13, 14.
4. Check continuity between spiral cable (on vehicle) terminals 4, 5 and ground.



SEL556Y



SEL557Y

Terminals		Continuity
Spiral cable		
13	4	Yes
14	5	

MTBL1247

Terminals	Continuity
4 - ground 5 - ground	No

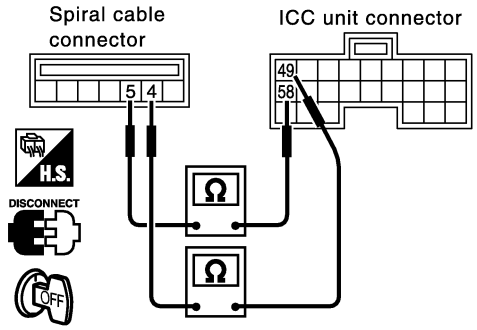
MTBL1248

OK or NG

NG	▶	Replace spiral cable. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 8.

8	CHECK HARNESS BETWEEN SPIRAL CABLE AND ICC UNIT

1. Disconnect ICC unit connector.
2. Check continuity between spiral cable terminal 4 (Y), 5 (Y) and ICC unit harness connector B160 terminal 58 (G/Y), 49 (GL/Y).



SEL558Y

Terminals		Continuity
Spiral cable	ICC unit	
4	49	Yes
5	58	

MTBL1249

OK or NG

NG	▶	Repair harness Erase between spiral cable switch and ICC unit. Erase DTC, and perform self-diagnosis of ICC system again.
OK	▶	GO TO 10.

9	CHECK CONNECTOR FOR ICC UNIT

- Check ICC unit (on ICC unit and harness) for disconnected and bent terminals.

OK or NG

OK	▶	Replace ICC unit. Erase DTC, and perform self-diagnosis of ICC system again.
NG	▶	Repair terminal or connector. Erase DTC, and perform self-diagnosis of ICC system again.

10	CHECK CONNECTOR ICC STEERING SWITCH, SWITCH HARNESS AND SPIRAL CABLE

- Check ICC steering switch and combination switch terminals (on switch, on cable, on harness) for disconnection and bend.

OK or NG

OK	▶	GO TO 9.
NG	▶	Repair terminal or connector. Erase DTC and perform self-diagnosis of ICC system again.

SYMPTOM 2: THE ICC SYSTEM CANNOT BE SET (ON/OFF SWITCH TURNS ON/OFF).

NBEL0469S03

The ICC cannot be set in the following cases.

- When the vehicle speed is not in range of approx. 25 MPH (40 km/h) to 90 MPH (144 km/h).
- When the A/T shift lever is in gears other than "D".
- While the brake is in operation.

1	CHECK CAUSE OF AUTOMATIC CANCELLATION	
With CONSULT-II 1. With "CAUSE OF AUTO-CANCEL" in work support, check if any cause of cancellation exists. **OK or NG**		
OK	▶	• Cancel with appropriate cause. • For causes A or B, go to specified diagnosis. A: "OPE SW VOLT CIRC" : Refer to "DTC 46 OPERATION SW CIRC" EL-333. B: "IGN LOW VOLT" : Refer to "DTC 31 POWER SUPPLY CIR1, DTC34 POWER SUPPLY CIR2" EL-322.
NG	▶	GO TO 2.

2	SELF-DIAGNOSIS CHECK	
With CONSULT-II 1. Perform CONSULT-II self-diagnosis to check for malfunctioning items. **OK or NG**		
OK	▶	After repairing or replacing malfunctioning part, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
NG	▶	GO TO 3.

3	SWITCHES AND VEHICLE SPEED SIGNAL CHECK	
With CONSULT-II 1. With data monitor, check that switches and vehicle speed signal operate normally. Refer to "DATA MONITOR" EL-309. A: VHCL SPEED SE B: D RANGE SW C: BRAKE SW D: SET/COAST SW **OK or NG**		
OK	▶	After replacing ICC unit, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
NG	▶	• A: Refer to "DTC 41 VHCL SPEED SE CIRC" EL-323. • B: Refer to "Symptom 4: The ICC System Is Not Cancelled When the Gear Is in OtherThan "D" EL-363. • C: Refer to "DTC 45 BRAKE SW /STOP L SW" EL-331. • D: Refer to "DTC 46 OPERATION SW CIRC" EL-333.

SYMPTOM 3: THE ICC SYSTEM CANNOT BE CANCELLED BY THE CANCEL SWITCH, RESUME OR INCREASE THE SET VEHICLE SPEED, OR CHANGE THE DISTANCE SETTING.

NBEL0469S04

RESUME does not function in the following cases:

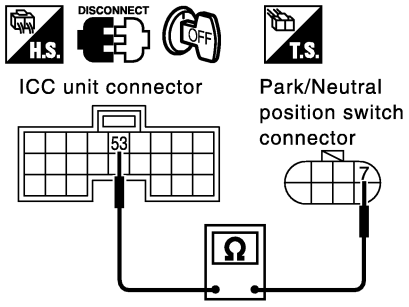
- When ON/OFF switch is turned off once.
- When the vehicle speed is less than 25 MPH (40 km/h).

1	SWITCH CHECK	
With CONSULT-II 1. With data monitor, check that switches operate normally. "RESUME/ACC SW", "CANCEL SW", "DISTANCE ADJ". Refer to "DATA MONITOR" EL-309. **OK or NG**		
NG	▶	Refer to "DTC 46 OPERATION SW CIRC" EL-333.
OK	▶	After replacing ICC unit, erase DTC. Perform driving check, and then perform self-diagnosis of ICC system again.

SYMPTOM 4: THE ICC SYSTEM IS NOT CANCELLED WHEN THE GEAR IS IN OTHER THAN "D".

NBEL0469S05

1	D RANGE SWITCH CHECK	
With CONSULT-II 1. With data monitor, check that "D RANGE SW" operates normally. Refer to "DATA MONITOR" EL-309 **NG or OK**		
NG	▶	GO TO 2.
OK	▶	After replacing ICC unit, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.

2	CHECK PARK/NEUTRAL POSITION SWITCH	
1. Turn ignition switch OFF. 2. Disconnect harness connector of ICC unit and park/neutral position switch. 3. Check continuity between ICC unit harness connector B160 terminal 53 (L/OR) and park/neutral position switch harness connector B65 terminal 7 (L).  SEL537Y **Continuity should exist.** **OK or NG**		
OK	▶	Refer to "PARK/NEUTRAL POSITION SWITCH" EL-369.
NG	▶	• Repair harness between ICC unit and park/neutral position switch. • After repair, erase DTC, and perform ICC running test. Then, perform self-diagnosis of ICC system again.

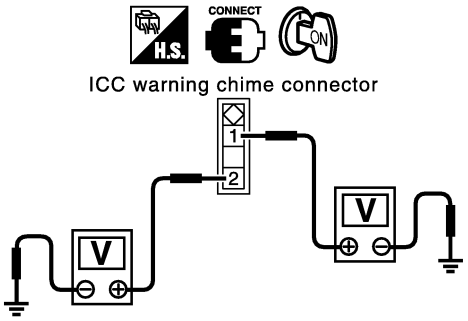
SYMPTOM 5: CHIME DOES NOT SOUND.

NBEL0469S06

The chime may not sound occasionally in the following cases even if the distance from the vehicle ahead is short:

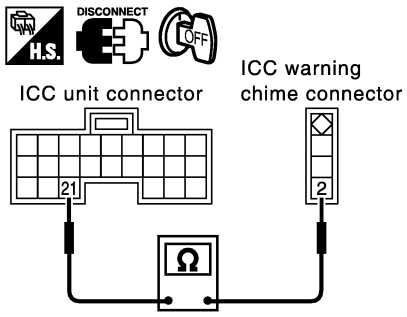
- When the speed difference from that of the vehicle ahead is small (both vehicles driving at similar speed).
- When the vehicle ahead drives at faster speed (the actual distance is increasing).
- When depressing the accelerator.
- Chime does not sound when the vehicle is not driving.
- Chime does not sound when the system does not detect any vehicle ahead. (Diagnose the conditions under which the system is detecting the vehicle ahead and when the system is malfunctioning. If there is any malfunction in detecting the vehicle ahead, check the system following the EL-367, "Symptom 8: The ICC System Frequently Cannot Detect the Vehicle Ahead/TheDetection Zone Is Short".

1	CHECK ICC WARNING CHIME
1. With active test, check that ICC warning chime operates normally. **OK or NG**	
OK ▶	Determine preceding vehicle detection status when malfunction occurred. If chime should have sounded: after replacing ICC unit, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
NG ▶	GO TO 2.

2	CHECK ICC WARNING CHIME SIGNAL
1. Check the voltage between the ICC warning chime harness connector M49 terminals 1 (W/G), 2 (Y) and body ground.  SKIA1281E **1 - Body ground** **: Battery voltage (Approx. 12V) (Ignition switch ON)** **: Approx. 0V (Ignition switch OFF)** **2 - Body ground** **: Battery voltage (Approx. 12V) (Chime output OFF)** **: Approx. 0V (Chime output ON)** **OK or NG**	
OK ▶	GO TO 4.
NG ▶	• If terminal 1 is NG : Check corresponding harness, connector, and fuse. After repairing, erase DTC. Perform. After that, perform self-diagnosis of ICC system. • If terminal 2 is NG : GO TO 3.

3	CHECK HARNESS BETWEEN ICC UNIT AND CHIME

1. Turn ignition switch OFF.



SKIA1282E

2. Disconnect connectors of ICC unit and ICC warning chime.
3. Check for continuity between ICC unit harness connector B158 terminal 21 (Y) and ICC warning chime harness connector M149 terminal 2(Y).

Terminals		Continuity
ICC unit	ICC warning chime	
21	2	Yes

MTBL1250

OK or NG

NG	▶	Check harness between ICC unit and ICC warning chime. After repairing, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
OK	▶	GO TO 5.

4	CHECK CONNECTOR ICC WARNING CHIME

1. Check chime terminals (chime side and harness side) for disconnection, bend, and other irregular conditions.

OK or NG

OK	▶	After replacing chime, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
NG	▶	After repairing terminal and connector, erase DTC. Perform driving check, and then perform self-diagnosis of ICC system again.

5	CHECK CONNECTOR FOR ICC UNIT

1. Check ICC unit terminals (ICC unit side and harness side) for disconnection, bend, and other irregular conditions.

OK or NG

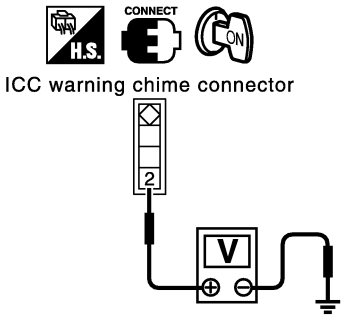
OK	▶	GO TO 4.
NG	▶	After repairing terminal and connector, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.

SYMPTOM 6: CHIME DOES NOT STOP.

NBEL0469S07

1	CHECK ICC WARNING CHIME SIGNAL

1. Check voltage between ICC warning chime harness connector M149 terminal 2 (Y) and body ground.



SKIA1283E

Battery voltage (Approx. 12V) (Chime output OFF: Approx. 0V)

NOTE:

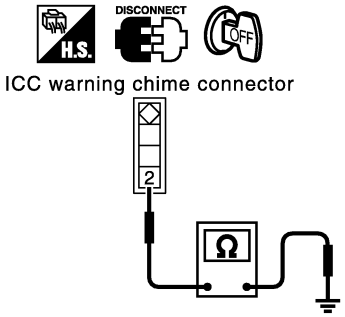
With active test, turn ON and OFF chime output.

OK or NG

OK	▶	After replacing chime, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
NG	▶	GO TO 2.

2	CHECK GROUND CIRCUIT FOR ICC WARNING CHIME

1. Turn ignition switch OFF.
2. Disconnect ICC warning chime and ICC unit connector.
3. Check for continuity between ICC warning chime harness connector M149 terminal 2 (Y) and body ground.



SKIA1284E

Continuity should not exist.

OK or NG

OK	▶	After replacing chime, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
NG	▶	Repair harness between ICC unit and chime. After repairing, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.

SYMPTOM 7: DRIVING FORCE IS HUNTING.

NBEL0469S08

1	CHECK ASCD ACTUATOR

1. Check ASCD actuator. Refer to "ASCD Actuator" EL-369.

OK or NG

NG	▶	After repairing applicable parts, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
OK	▶	"Symptom 8: The ICC system frequently cannot detect the vehicle ahead/The detection zone is short" EL-367.

SYMPTOM 8: THE ICC SYSTEM FREQUENTLY CANNOT DETECT THE VEHICLE AHEAD/THE DETECTION ZONE IS SHORT.

NBEL0469S09

The detection function may become unstable in the following cases:

- When the reflector of the vehicle ahead is deficient/ not clean enough to reflect the radar.
- When driving a road with extremely sharp corners.
- When the radar cannot detect the reflector of the vehicle ahead as the vehicle ahead is passing a hill or passing the peak.

1	VISUAL CHECK	
1. Check ICC sensor body window for contamination and foreign materials. **OK or NG**		
OK	▶	If any contamination or foreign materials are found, remove them. Then perform ICC system running test.
NG	▶	GO TO 2.

2	OPERATION CHECK	
1. After adjusting ICC sensor beam aiming, perform ICC system running test. Check that preceding vehicle detection performance has been improved. **OK or NG**		
OK	▶	Inspection is completed.
NG	▶	• Replace ICC sensor, and perform laser ICC system running test beam aiming adjustment. • After performing above, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.

SYMPTOM 9: THE SYSTEM DOES NOT DETECT THE VEHICLE AHEAD AT ALL.

NBEL0469S10

1	VISUAL CHECK	
1. With ignition switch turned ON (engine not started), check that all indicator lamps in ICC system display are continuously lit. (Check for a missing segment in preceding vehicle detection display.) **OK or NG**		
OK	▶	GO TO 2.
NG	▶	Check for combination meter.

2	VISUAL CHECK	
• Check ICC sensor body window for contamination and foreign materials. **OK or NG**		
OK	▶	If any contamination or foreign materials are found, remove them. Perform ICC system running test.
NG	▶	GO TO 4.

3	VISUAL CHECK
● Check ICC sensor body window for cracks and scratches.	
OK or NG	
OK ▶	● Replace ICC sensor, and perform laser beam aiming adjustment. ● After performing above, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.
NG ▶	GO TO 4.

4	
1. After adjusting ICC sensor beam aiming, perform ICC system running test. Check that preceding vehicle detection performance has been improved.	
OK or NG	
OK ▶	Inspection is completed.
NG ▶	● Replace ICC sensor, and perform laser ICC system running test beam aiming adjustment. ● After performing above, erase DTC. Perform ICC system running test, and then perform self-diagnosis of ICC system again.

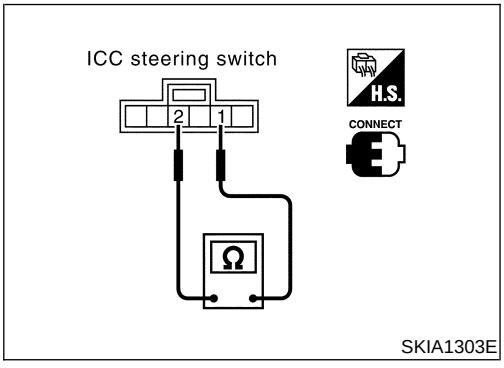
Electrical Component Inspection

NBEL0470

ICC STEERING SWITCH

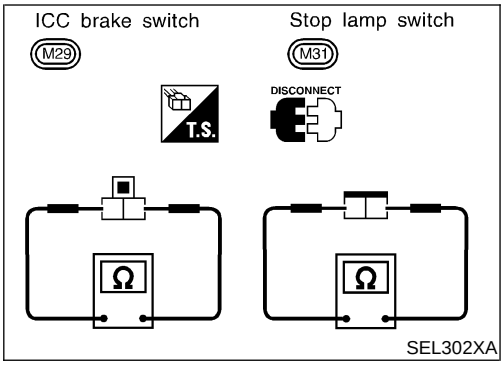
NBEL0470S01

1) Disconnect ICC steering switch.



2) Check resistance between M443 terminals 1 and 2 by depressing each switch.

Switch	Condition	Resistance [Ω]
ON/OFF	Depressed	Approx. 0
	Released	Approx. 5,456
DISTANCE	Depressed	Approx. 741
	Released	Approx. 5,456
ACCELERATE/ RESUME	Depressed	Approx. 2,586
	Released	Approx. 5,456
COAST/SET	Depressed	Approx. 1,406
	Released	Approx. 5,456
CANCEL	Depressed	Approx. 309
	Released	Approx. 5,456



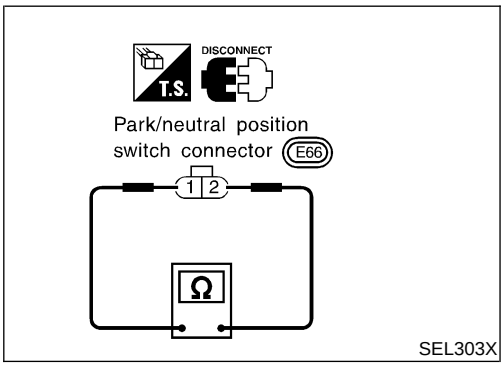
SEL302XA

ICC BRAKE SWITCH AND STOP LAMP SWITCH

NBEL0470S02

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

Check each switch after adjusting brake pedal, refer to "BRAKE PEDAL" BR-12.

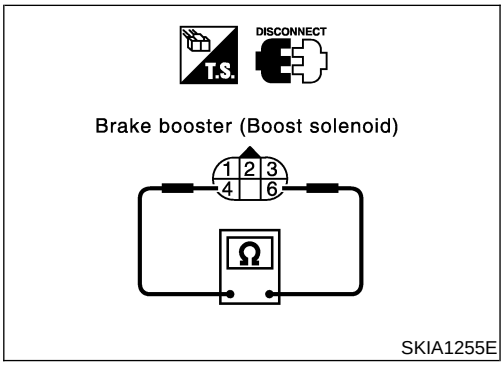


SEL303X

PARK/NEUTRAL POSITION SWITCH

NBEL0470S03

A/T selector lever position	Continuity
	Between terminals 1 and 2
"P"	Yes
"N"	Yes
Except "P" and "N"	No



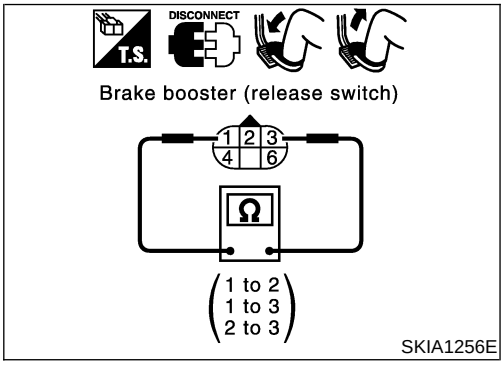
SKIA1255E

BOOSTER SOLENOID

NBEL0470S04

Disconnect booster solenoid/release switch connector, and check resistance value between terminals 4 and 6.

4 - 6: Approx. 1.4Ω



SKIA1256E

RELEASE SWITCH

NBEL0470S05

Disconnect booster solenoid/release switch connector and check resistance between the terminals.

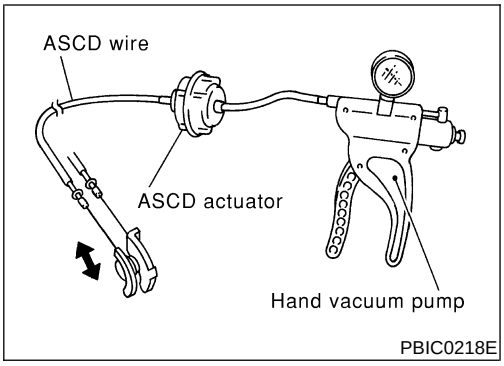
Condition	1 - 3	1 - 2	2 - 3
Release the brake pedal.	Continuity should exist.	Continuity should not exist.	Continuity should not exist.
Depress the brake pedal.	Continuity should not exist. (Note)	Continuity should exist. (Note)	Continuity should not exist.

(Note): However, if pedal is depressed insufficiently, resistance value may remain unchanged.

ASCD ACTUATOR

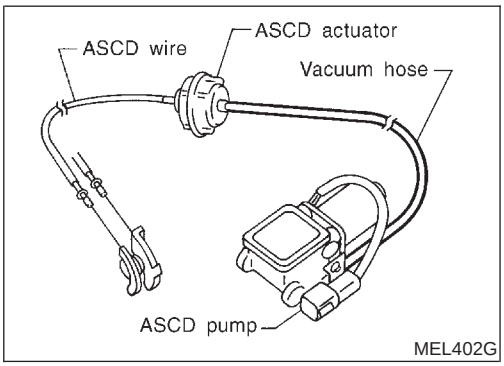
NBEL0470S06

1. Disconnect vacuum hose from ASCD actuator.



2. Connect the hose of hand vacuum pump to ASCD actuator.
Apply –40 kPa (–0.41 kg/cm^2, –5.8 psi) vacuum to ASCD actuator with hand vacuum pump.
ASCD wire should move to pull throttle drum.
Wait 10 seconds and check for decrease in vacuum pressure.

Vacuum pressure decrease:
Less than 2.7 kPa (0.028 kg/cm^2, 0.39 psi)



VACUUM HOSE

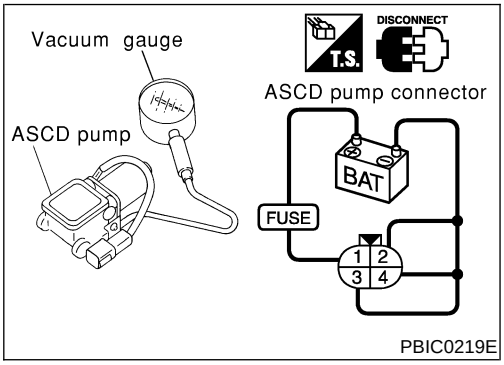
NBEL0470S07

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

ASCD PUMP

NBEL0470S08

1. Disconnect vacuum hose from ASCD pump and ASCD pump harness connector.
2. If necessary remove ASCD pump.
3. Connect vacuum gauge to ASCD pump.



4. Apply 12V direct current to ASCD pump and check operation.

	12V direct current supply terminals		Operation
	(+)	(–)	
Air valve	1	2	Close
Release valve		3	Close
Vacuum motor		4	Operate

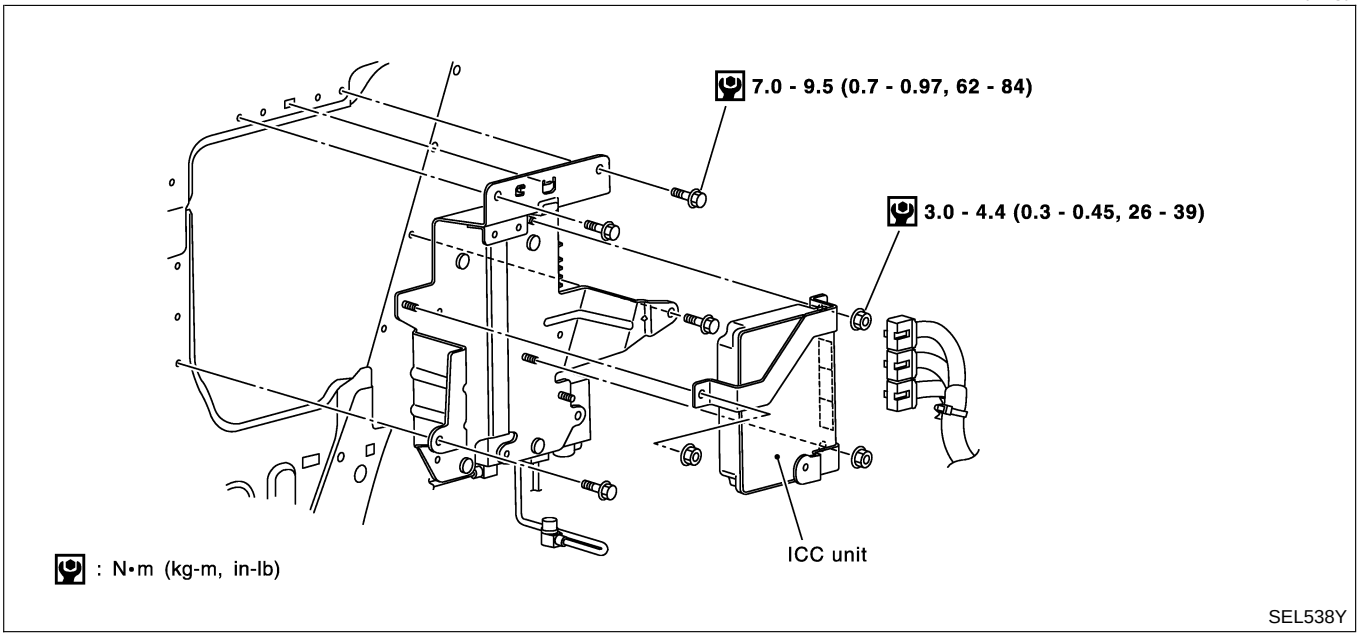
A vacuum pressure of at least −40 kPa (−0.41 kg/cm^2, −5.8 psi) should be generated.

Removal And Installation

NBEL0471

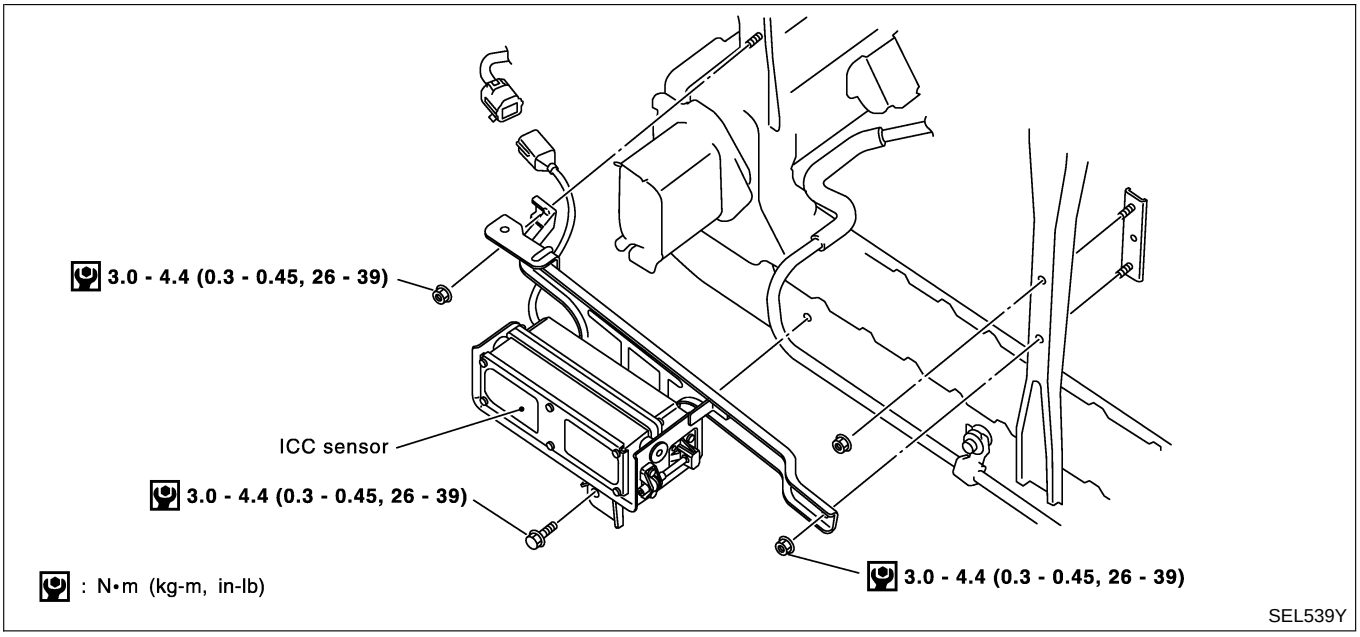
ICC UNIT

NBEL0471S01



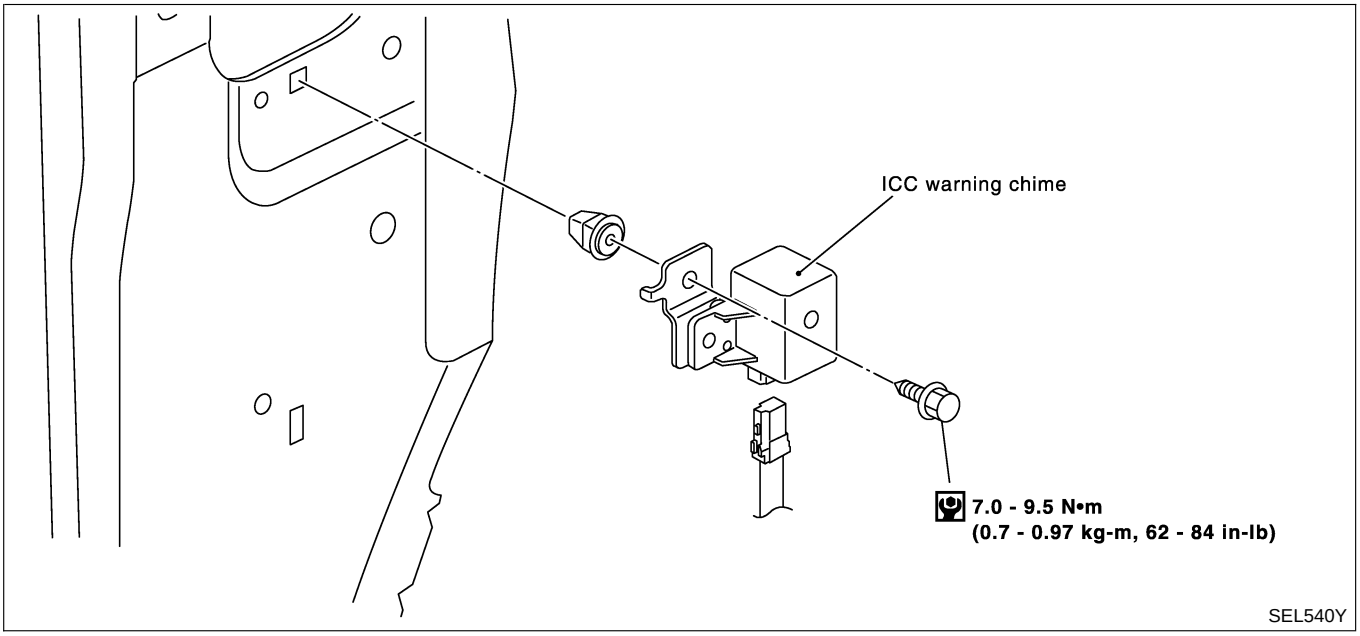
ICC SENSOR

NBEL0471S02



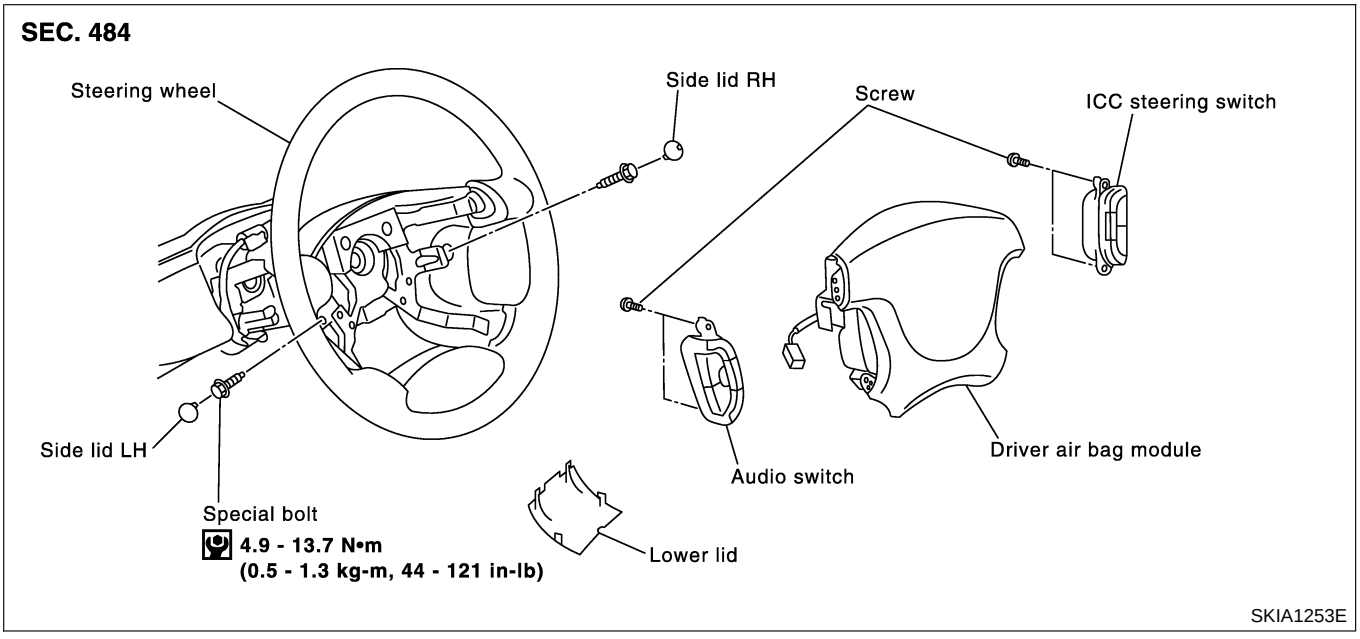
ICC WARNING CHIME

NBEL0471S03



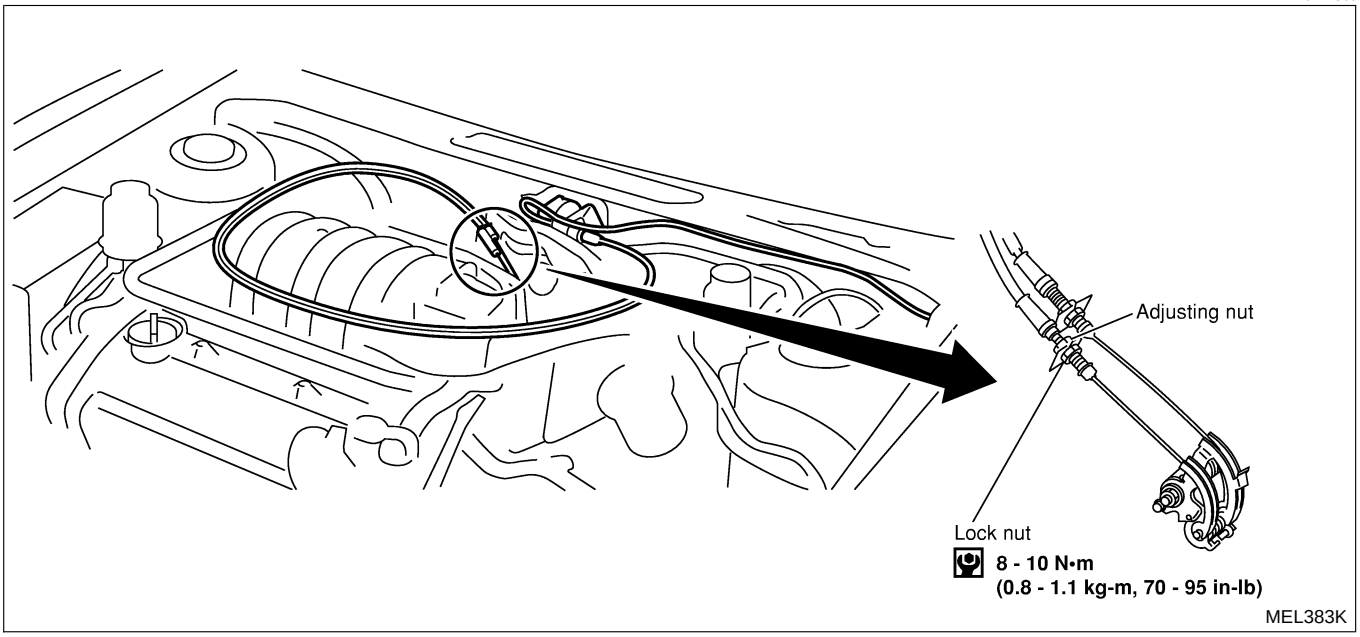
ICC STEERING SWITCH

NBEL0471S04



ASCD WIRE ADJUSTMENT

NBEL0471S05



CAUTION:

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

Adjust the tension of ASCD wire in the following manner.

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

System Description

NBEL0378

Power is supplied at all times
- from 40A fusible link (letter **f**, located in the fuse and fusible link box)
- to circuit breaker terminal 1
- through circuit breaker terminal 2
- to power window relay terminal 3,
- to front power window main switch terminal 4, and
- to front power window switch RH terminal 6.

With ignition switch in ON or START position, power is supplied
- through 7.5A fuse [No. 11, located in the fuse block (J/B)]
- to smart entrance control unit terminal 27
- to smart entrance control unit terminal 46 and
- to power window relay terminal 2.

Ground is supplied to power window relay terminal 1
- through body grounds M4, M66 and M147.

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 and
- to rear power window switch LH and RH terminals 5.

MANUAL OPERATION

NBEL0378S01

Front Door LH

NBEL0378S0101

Ground is supplied
- to front power window main switch terminal 5
- through body grounds M77 and M111.

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 front 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

NBEL0378S0102

Ground is supplied
- to front power window main switch terminal 5
- through body grounds M77 and M111.

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

FRONT POWER WINDOW MAIN SWITCH OPERATION
When front RH switch in the front power window main switch is pressed UP or DOWN, a signal is supplied

- through front power window main switch terminal 8
- to front power window switch RH terminal 11.

The subsequent operation is the same as the front power window switch RH operation.
FRONT POWER WINDOW SWITCH RH OPERATION
Power is supplied

- through front power window switch RH (5, 4)
- to front power window regulator RH (1, 3).

Ground is supplied

- to front power window regulator RH (3, 1)
- through front power window switch RH (4, 5)
- to front power window switch RH terminal 12
- through front power window main switch terminal 1.

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

Rear Door LH

NBEL0378S0103

Ground is supplied

- to front power window main switch terminal 5
- through body grounds the M77 and M111.

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

FRONT POWER WINDOW MAIN SWITCH OPERATION
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 the rear power window switch LH operation.
REAR POWER WINDOW SWITCH LH
Power is supplied

- through rear power window switch LH (1, 2)
- to rear power window regulator LH (1, 2)

Ground is supplied

- to rear power window regulator LH (2, 1)
- through rear power window switch LH (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

NBEL0378S0104

Rear door RH windows will rise and lower in the same manner as the rear door LH window.

AUTO OPERATION

NBEL0378S02

The power window AUTO feature enables the driver or front passenger to open or close the driver's and front passenger's window without holding the window switch in the up or down position.
The AUTO feature only operates on the driver's and front passenger's window upward and downward movement.

POWER WINDOW LOCK

NBEL0378S03

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, the 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

NBEL0378S04

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 M4, M66 and M147.

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. (EL-384)

INTERRUPTION DETECTION FUNCTION

NBEL0378S05

Front power window main switch and front power window switch RH monitor the power window regulator motor operation and the power window position (full closed or other) for driver's and passenger's power window by the signals from encoder and limit switch in front power window regulator LH or RH.
When front power window main switch or front power window switch RH detects interruption during the following close operation in the driver's or front passenger's side door,

- automatic close operation when ignition switch is in the "ON" position
- automatic close operation during retained power operation

front power window main switch or front power window switch RH controls driver's or front passenger's power window regulator motor for open and the power window will be lowered about 150 mm (5.91 in).

POWER WINDOW OPENED/CLOSED OPERATION WITH KEY CYLINDER

NBEL0378S06

When ignition key switch is OFF, front power window can be opened or closed by turning the front door key cylinder LH to UNLOCK/LOCK position.

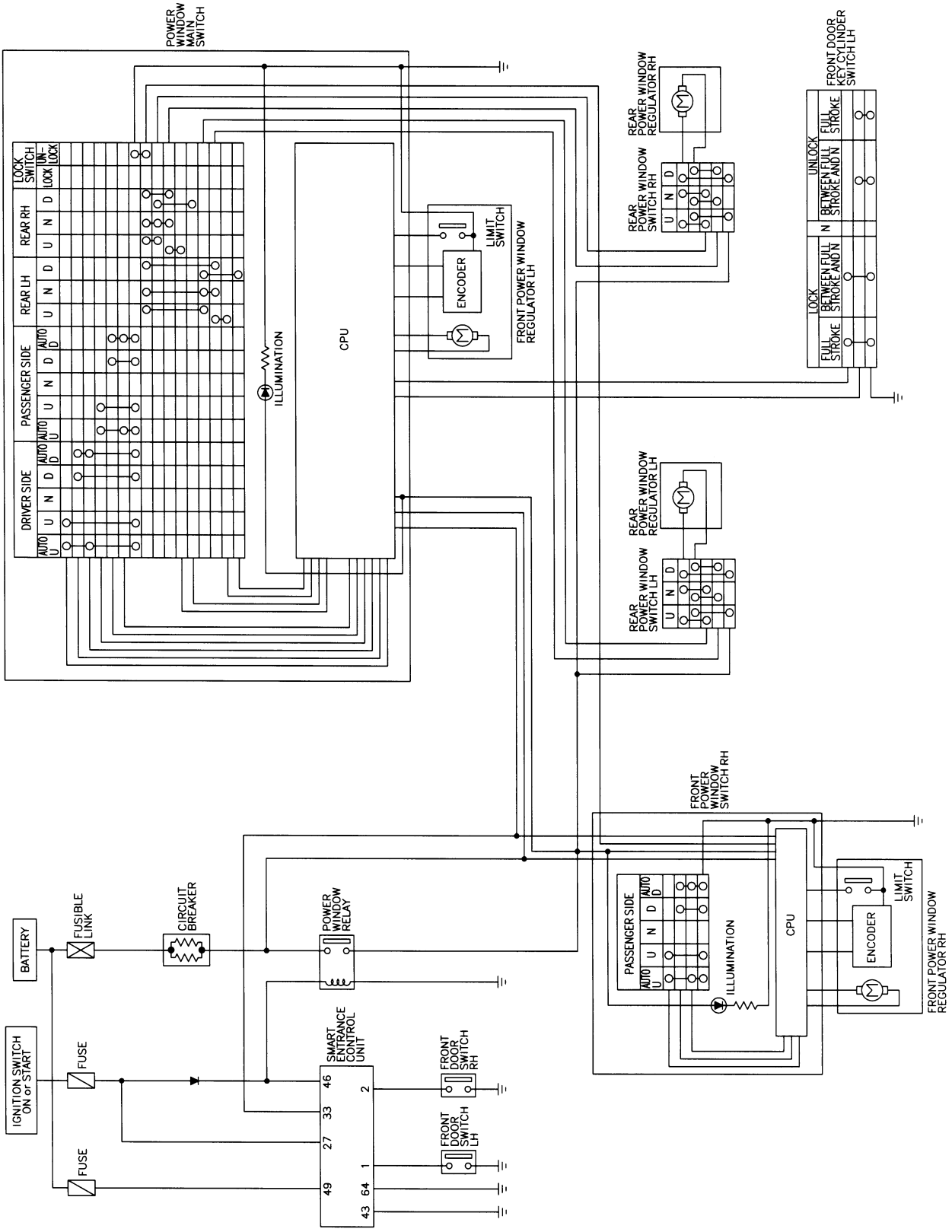
- Power window can be opened as the door key cylinder is kept fully turning to the UNLOCK position.
- Power window can be closed as the door key cylinder is kept fully turning to the LOCK position.

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.

Schematic

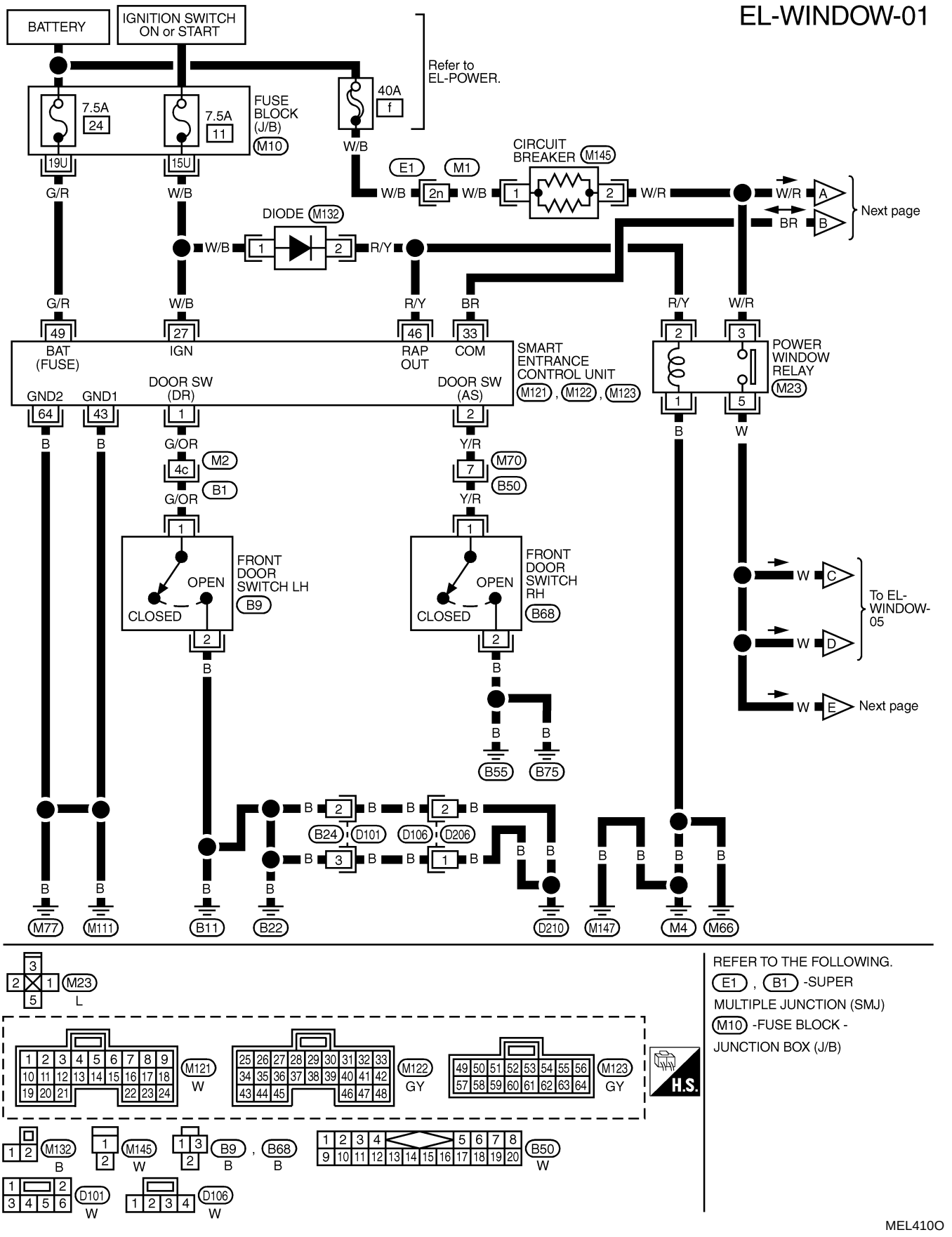
NBEL0379



MEL427P

Wiring Diagram — WINDOW —

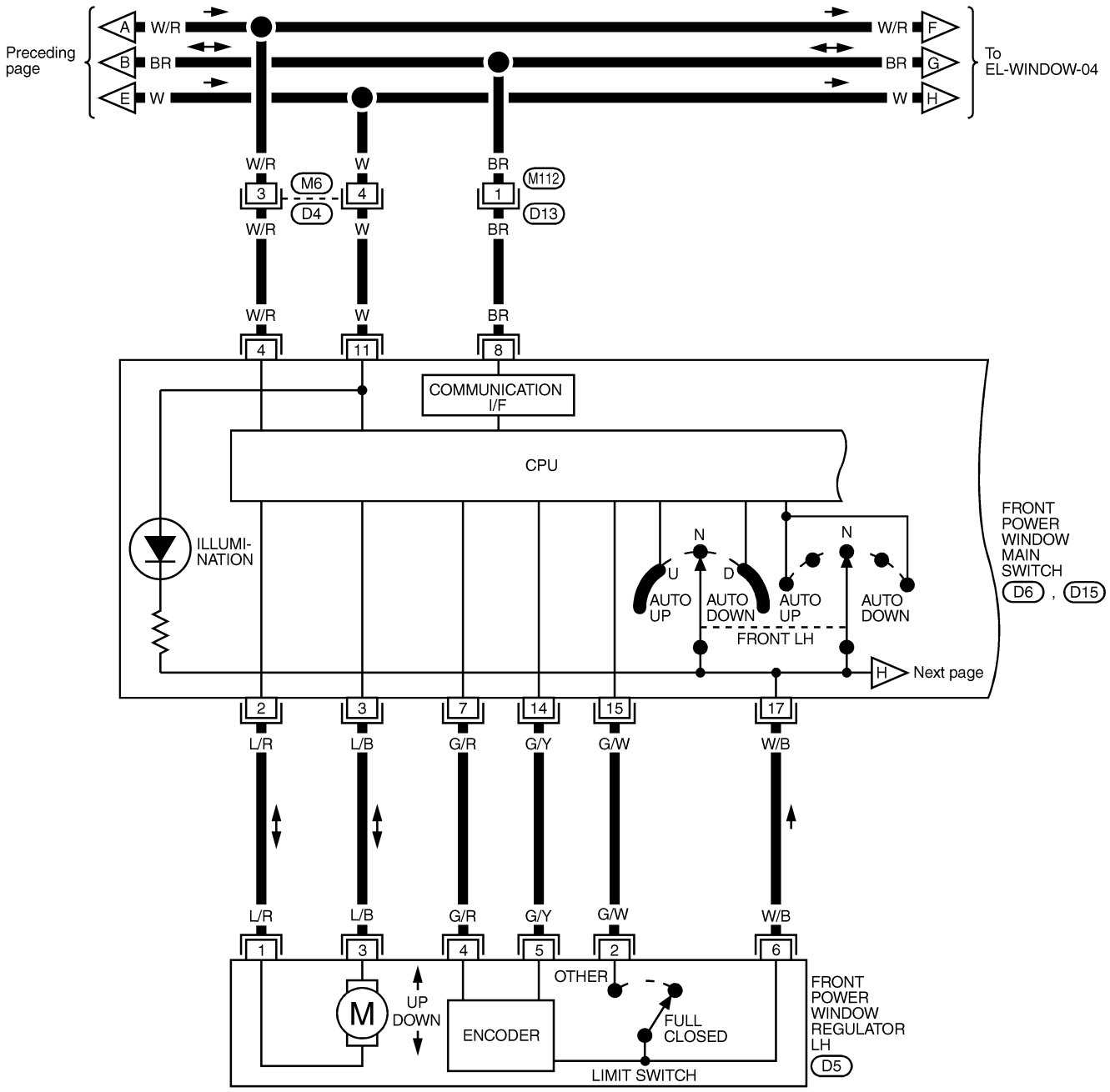
NBEL0380

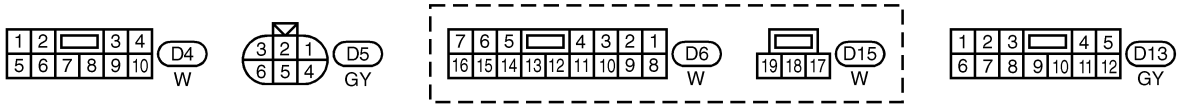


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK - JUNCTION BOX (J/B)

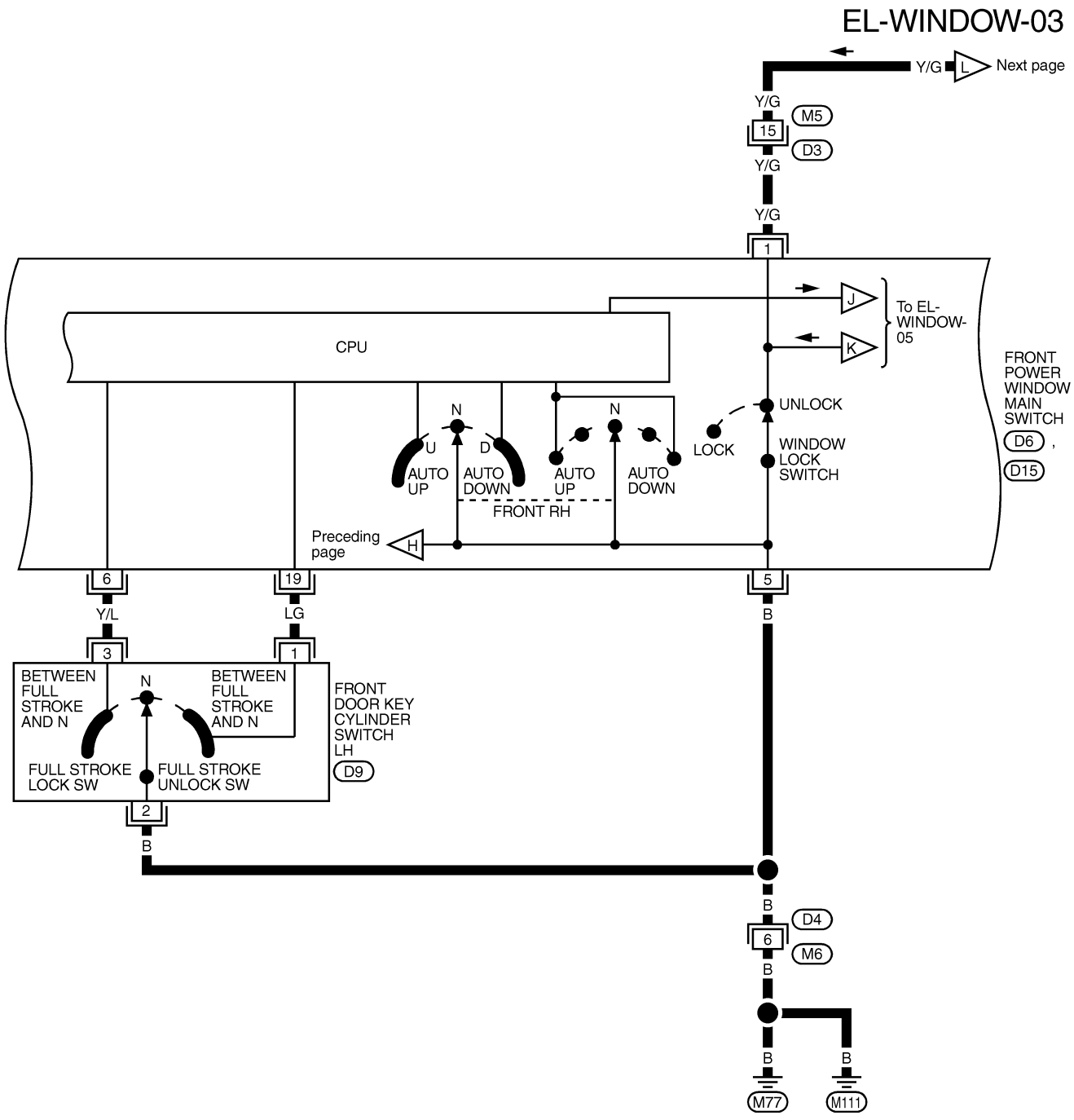
MEL410O

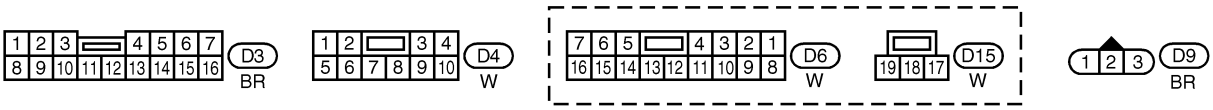
EL-WINDOW-02





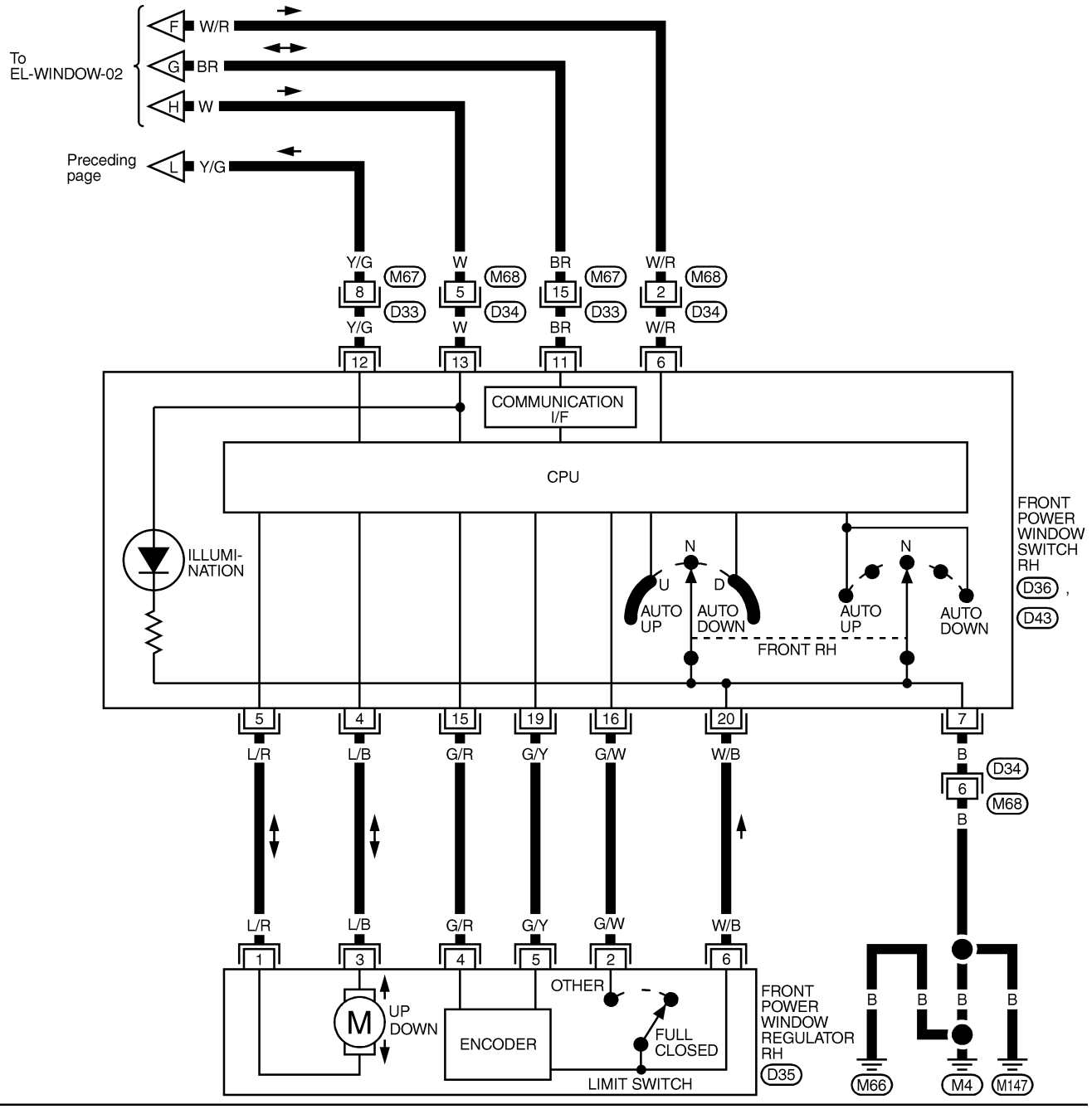
MEL428P

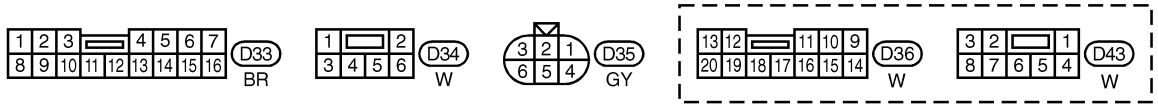

EL-WINDOW-03
Y/G
L
Next page
Y/G
15
M5
D3
Y/G
Y/G
1
J
K
To EL-WINDOW-05
CPU
FRONT POWER WINDOW MAIN SWITCH
D6
D15
N
U
D
AUTO UP
AUTO DOWN
FRONT RH
N
AUTO UP
AUTO DOWN
LOCK
UNLOCK
WINDOW LOCK SWITCH
Preceding page
H
6
19
5
Y/L
LG
B
3
1
BETWEEN FULL STROKE AND N
N
BETWEEN FULL STROKE AND N
FULL STROKE LOCK SW
FULL STROKE UNLOCK SW
FRONT DOOR KEY CYLINDER SWITCH LH
D9
2
B
B
D4
6
M6
B
B
B
M77
M111


D3
BR
D4
W
D6
W
D15
W
D9
BR

MEL516P

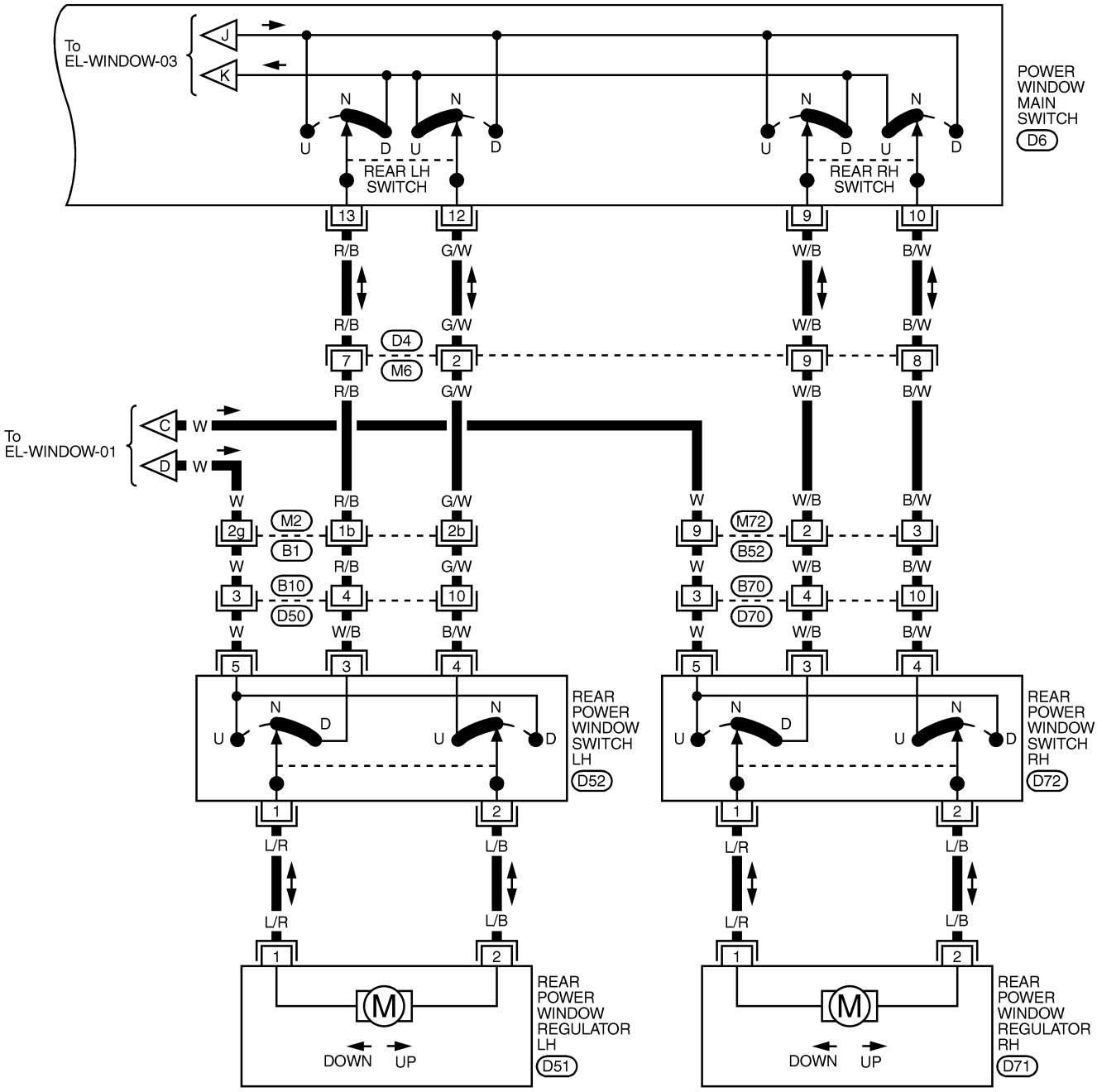
EL-WINDOW-04

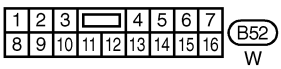


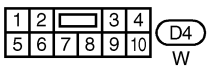


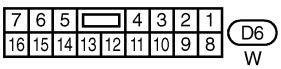
MEL429P

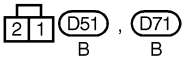
EL-WINDOW-05

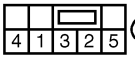



B52 W


D4 W , D50 W , D70 W


D6 W

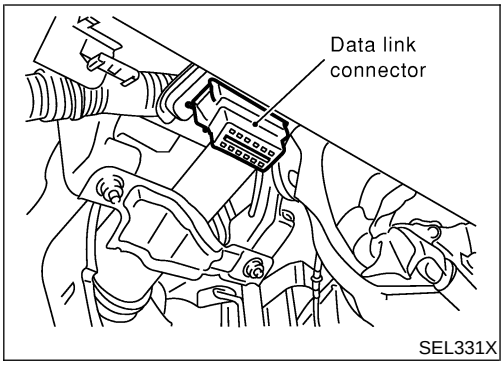

D51 B , D71 B


D52 W , D72 W

REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL517P



SEL331X

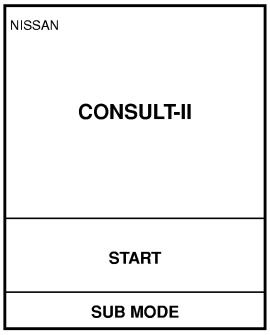
CONSULT-II Inspection Procedure

NBEL0381

“RETAINED PWR”

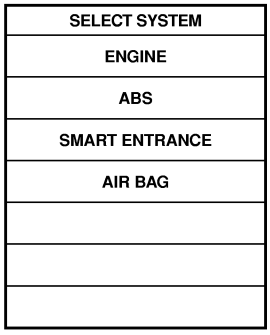
NBEL0381S01

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



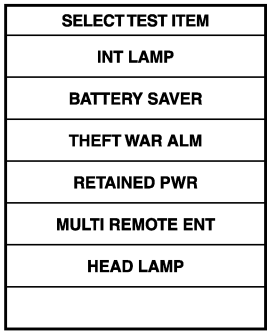
PBR455D

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



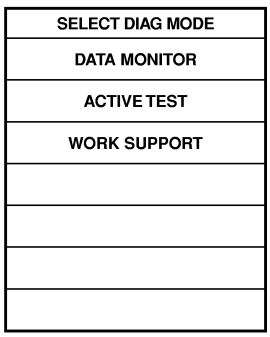
SEL398Y

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

NBEL0382

“RETAINED PWR” Data Monitor

NBEL0382S01

NBEL0382S0101

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

NBEL0382S0102

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. **NOTE:** **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

NBEL0382S0103

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 three steps. ● MODE 1 (45 sec.)/MODE 2 (OFF)/MODE 3 (2 min.)

Trouble Diagnoses

NBEL0383

Symptom	Possible cause	Repair order
None of the power windows can be operated using any switch.	1. 7.5A fuse, 40A fusible link 2. M145 circuit breaker 3. Power window relay 4. M145 circuit breaker circuit 5. Power window relay circuit 6. Ground circuit 7. Power window main switch	1. Check 7.5A fuse [No. 11, located in fuse block (J/B)], 40A fusible link (letter **f**, located in fuse and fusible link box). 2. Check M145 circuit breaker. 3. Check power window relay. 4. Check the following. a. Harness between M145 circuit breaker and 40A fusible link b. Harness between M145 circuit breaker and front power window main switch 5. Check the following. a. Harness between 7.5A fuse and power window relay b. Harness between M145 circuit breaker and power window relay 6. Check the following. a. Ground circuit of power window main switch terminal 5 b. Power window relay ground circuit 7. Check power window main switch.

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 2. Driver side power window regulator 3. Power window main switch	1. Check harness between power window main switch and driver side power window regulator for open or short circuit. 2. Check driver side power window regulator. 3. Check power window main switch.
Passenger side power window cannot be operated but other window can be operated.	1. Power supply for front power window switch RH 2. Front power window switch RH ground circuit 3. Front power window switch RH circuit 4. Front power window regulator RH circuit 5. Front power window regulator RH 6. Front power window main switch 7. Front power window switch RH	1. Check power supply for front power window switch RH terminals 6 and 13. 2. Check front power window switch RH ground circuit. 3. Check harness between front power window switch RH and power window main switch. 4. Check harness between front power window switch RH and front power window regulator RH for open or short circuit. 5. Check front power window regulator RH. 6. Check front power window main switch. 7. Check front power window switch RH.
One or more rear power windows except front window cannot be operated.	1. Rear power window switches 2. Rear power window regulators 3. Power window main switch 4. Rear power window circuit	1. Check rear power window switches. 2. Check rear power window regulator. 3. Check power window main switch. 4. Check the following. a. Harness between the rear power window switches (LH and RH) terminal 5 and power window relay terminal 5 b. Harnesses between power window main switch and rear power window switches for open/short circuit c. Harnesses between rear power window switches and rear 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 switches.	1. Power window main switch	1. Check power window main switch.
Driver side power window automatic operation does not function properly.	1. Power window main switch 2. Encoder and limit switch	1. Check power window main switch. 2. Check encoder and limit switch. (EL-387)
Front passenger side power window automatic operation does not function properly.	1. Front power window switch RH 2. Encoder and limit switch	1. Check front power window switch RH. 2. Check encoder and limit switch. (EL-387)

Trouble Diagnoses (Cont'd)

Symptom	Possible cause	Repair order
Retained power operation does not operate properly.	1. RAP signal circuit 2. Driver or passenger side door switch circuit 3. Smart entrance control unit	1. Check RAP signal. a. (With CONSULT-II) ● Check RAP signal with CONSULT-II. Use "WORK SUPPORT" mode, "RETAINED PWR" in "SMART ENTRANCE". (Refer to EL-384.) ● Check RAP signal with CONSULT-II. Use "ACTIVE TEST" mode, "RETAINED PWR" in "SMART ENTRANCE". (Refer to EL-384.) If NG, go to the step b. below. b. Verify 12 positive voltage from smart entrance control unit terminal 46 is present at terminal 2 of power window relay: ● Within 45 seconds after ignition switch turns off.*1 ● When front door LH and RH is closed. 2. Check the following. a. Harness between smart entrance control unit and driver or passenger side door switch for short circuit b. Driver or passenger side door switch ground circuit c. Driver or passenger side door switch 3. Check smart entrance control unit. (EL-486)
Passenger side power window cannot be operated using power window main switch but can be operated by passenger side power window switch.	1. Front power window main switch	1. Check power window main switch. (EL-389)
Rear LH power window cannot be operated using power window main switch but can be operated by rear LH power window switch.	1. Front power window main switch	1. Check power window main switch. (EL-391)
Rear RH power window cannot be operated using power window main switch but can be operated by rear RH power window switch.	1. Front power window main switch	1. Check power window main switch. (EL-392)

*1: RAP signal's period can be changed by CONSULT-II. (EL-392)

ENCODER AND LIMIT SWITCH CHECK

=NBEL0383S01

1	CHECK DOOR WINDOW SLIDE MECHANISM

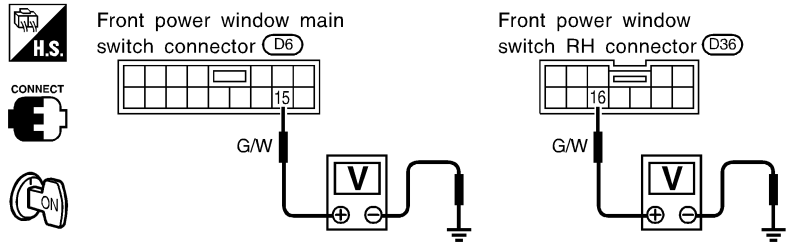
Check the following.
- Obstacles in window, glass molding, etc.
- Worn or deformed glass molding
- Door sash tilted too far inward or outward
- Door window regulator

OK or NG

OK	▶	GO TO 2.
NG	▶	Remove obstacles or repair door window slide mechanism.

2	CHECK POWER SUPPLY TO LIMIT SWITCH

1. Disconnect front power window regulator LH or RH harness connector.
2. Check voltage between front power window main switch terminal 15 or front power window switch RH terminal 16 and ground.



Voltage: 5V

NOTE: Check voltage when front power window regulator LH or RH harness connector is disconnected.

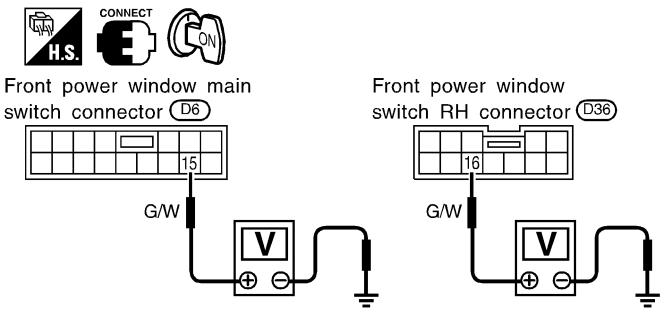
SEL725WA

OK or NG

OK	▶	GO TO 3.
NG	▶	Replace power window main switch or front power window switch RH.

3	CHECK LIMIT SWITCH OPERATION

1. Connect front power window regulator LH or RH harness connector.
2. Check voltage between front power window main switch terminal 15 or front power window switch RH terminal 16 and ground during power window closing operation.



Terminal No.	Condition	Voltage (DCV)
Front power window main switch: 15 Front power window switch RH: 16	Approx.15 mm (0.59 in) below the full closed position to full closed position	Approx. 5
	Other positions	Approx. 0

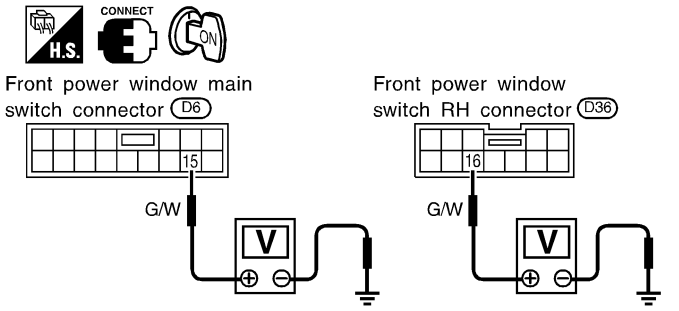
SEL726WA

OK or NG

OK	▶	GO TO 5.
NG	▶	GO TO 4.

4	RESET LIMIT SWITCH

Reset limit switch. Refer to BT-47, "Front Door Glass Limit Switch Reset". Then check voltage between front power window main switch terminal 15 or front power window switch RH terminal 16 and ground during power window closing operation at least ten times.



Terminal No.	Condition	Voltage (DCV)
Front power window main switch: 15 Front power window switch RH: 16	Approx.15 mm (0.59 in) below the full closed position to full closed position	Approx. 5
	Other positions	Approx. 0

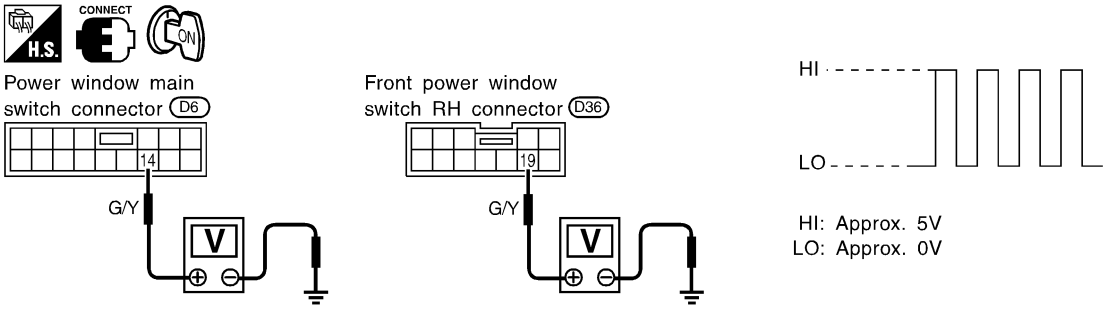
SEL726WA

OK or NG

OK	▶	GO TO 5.
NG	▶	Replace power window regulator motor.

5	CHECK ENCODER

Measure voltage between front power window main switch terminal 14 or front power window switch RH terminal 19 and ground with oscilloscope when power window is in automatic closing operation.



SEL727WA

OK or NG

OK	▶	Replace power window main switch.
NG	▶	Replace power window regulator motor.

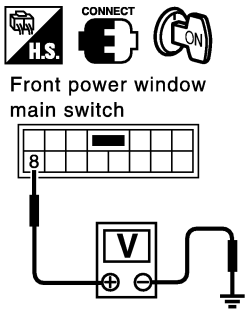
MAIN SWITCH OPERATION CHECK
NBEL0383S02

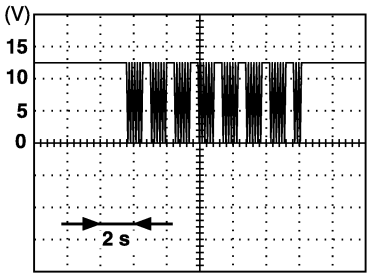
Passenger Side Operation
NBEL0383S0201

1	CHECK POWER WINDOW MAIN SWITCH OUTPUT SIGNAL

With CONSULT-II

1. Turn ignition switch to ON position.
2. Turn front power window main switch to ON (UP or DOWN).
3. Check signal between front power window main switch harness connector D6 terminal 8 (Y) and ground when power window is in open or close operation. (Use "SIMPLE OSCILLOSCOPE" in "SUB MODE" with CONSULT-II.)



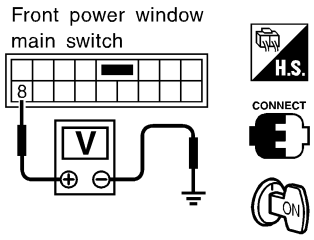


Voltage:
12V → 9V (10 sec.) measurement by analog circuit tester.

SEL496Y

Without CONSULT-II

1. Turn ignition switch to ON position.
2. Turn front power window main switch to ON (UP or DOWN).
3. Check signal between front power window main switch harness connector D6 terminal 8 (Y) and ground when power window is in open or close operation.



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

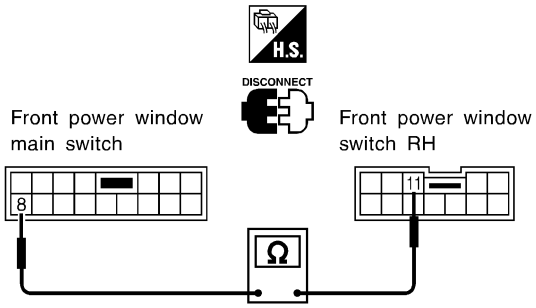
SEL497Y

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace front power window main switch.

2	CHECK SIGNAL CIRCUIT

1. Check continuity between front power window switch harness connector D6 terminal 8 (Y) and front power window switch harness connector D36 RH terminal 11 (Y).



Continuity should exist.

SEL163Y

Yes or No

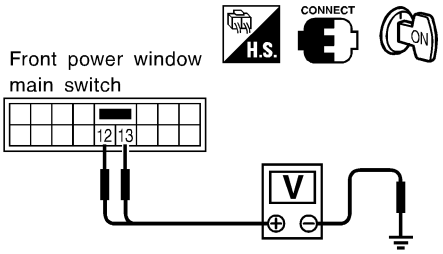
Yes	▶	INSPECTION END
No	▶	Repair harness or connectors.

Rear LH Side Window Operation

=NBEL0383S0202

1 **CHECK POWER WINDOW MAIN SWITCH OUTPUT SIGNAL**

1. Turn ignition switch to ON position.
2. Check voltage between front power window main switch harness connector D6 terminal 12 or 13 and ground when rear power window LH side is in open or close operation.



Terminals		Main switch condition	
(+)	(–)	Open	Close
12	Ground	0V	12V
13	Ground	0V	12V

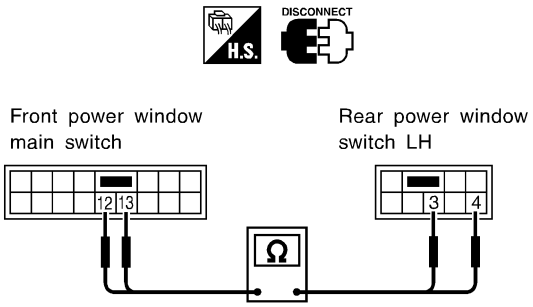
SEL164Y

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace front power window main switch.

2 **CHECK SIGNAL CIRCUIT**

1. Check continuity between front power window main switch harness connector D6 terminal 12 and rear power window switch LH harness connector D52 terminal 4.
2. Check continuity between front power window main switch harness connector D6 terminal 13 and rear power window switch LH harness connector D52 terminal 3.



Continuity should exist.

SEL165Y

Yes or No

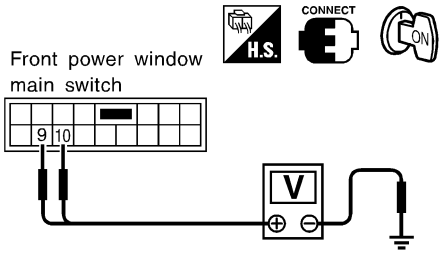
Yes	▶	INSPECTION END
No	▶	Repair harness or connectors.

Rear RH Side Window Operation

=NBEL0383S0203

1 CHECK POWER WINDOW MAIN SWITCH OUTPUT

1. Turn ignition switch to ON position.
2. Check voltage between front power window main switch harness connector D6 terminal 9 or 10 and ground when rear power window RH side is in open or close operation.



Terminals		Main switch condition	
(+)	(–)	Open	Close
9	Ground	0V	12V
10	Ground	0V	12V

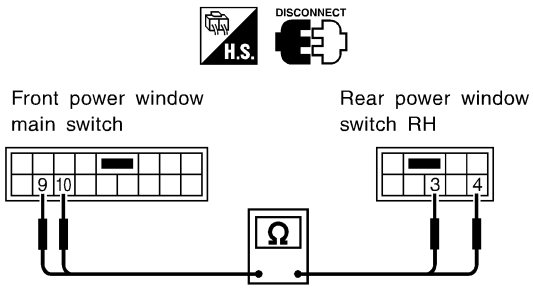
SEL166Y

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace front power window main switch.

2 CHECK SIGNAL CIRCUIT

1. Check continuity between front power window main switch harness connector D6 terminal 9 and rear power window switch RH harness connector D72 terminal 3.
2. Check continuity between front power window main switch harness connector D6 terminal 10 and rear power window switch RH harness connector D72 terminal 4.



Continuity should exist.

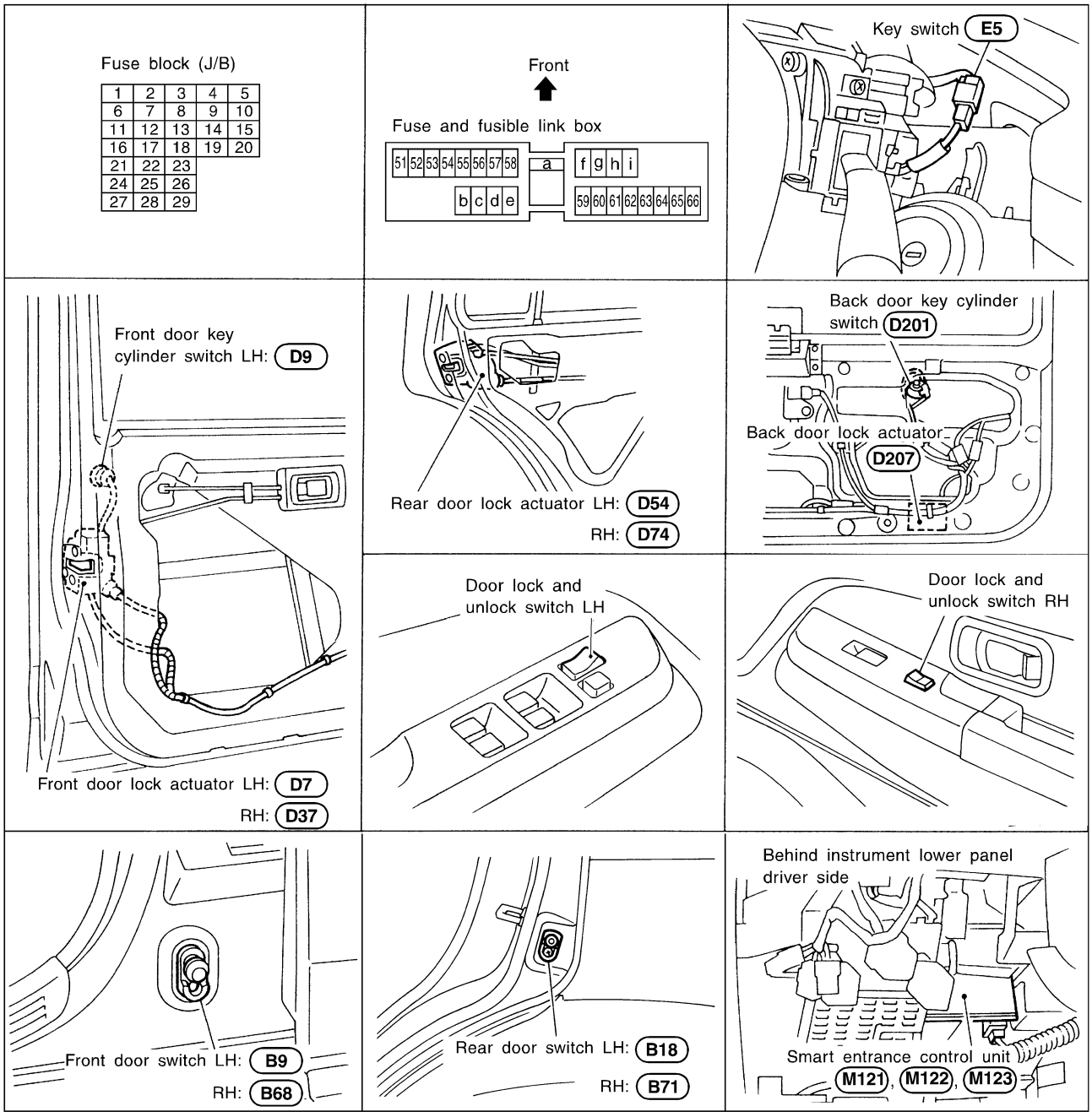
SEL167Y

Yes or No

Yes	▶	INSPECTION END
No	▶	Repair harness or connectors.

Component Parts and Harness Connector Location

NBEL0384



SEL065WB

System Description

NBEL0385

POWER DOOR LOCK OPERATION

NBEL0385S01

- The lock/unlock switch (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. (Refer to EL-403)

KEY REMINDER DOOR SYSTEM

NBEL0385S05

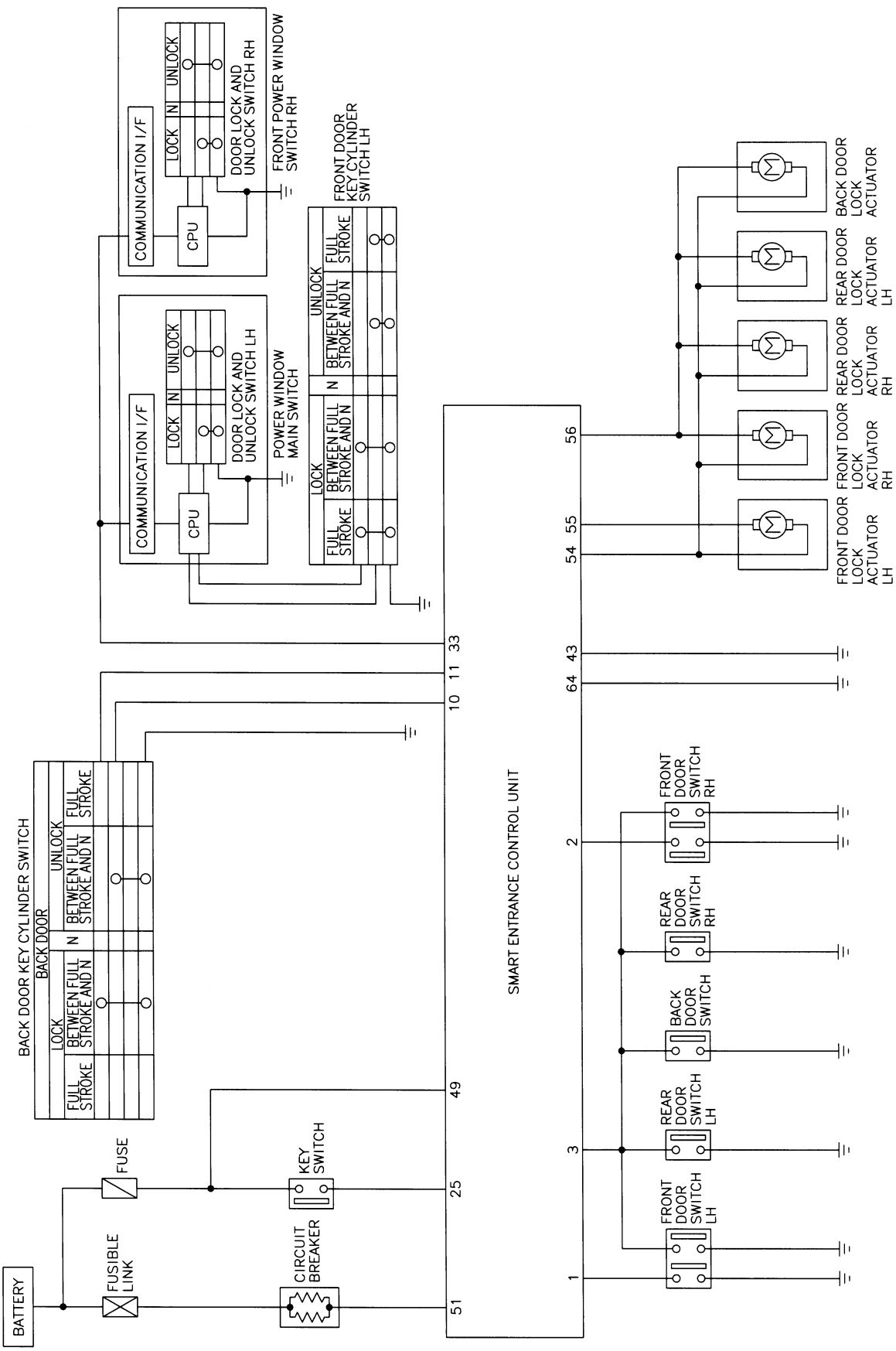
- If the ignition key is in the ignition key cylinder and one or more of doors are open, setting the lock/unlock switch to “LOCK” locks the doors once but then immediately unlock them. (Combination signals from key

switch and door switches)

Key reminder door system can be changed by CONSULT-II (Refer to EL-403).

Schematic

NBEL0386



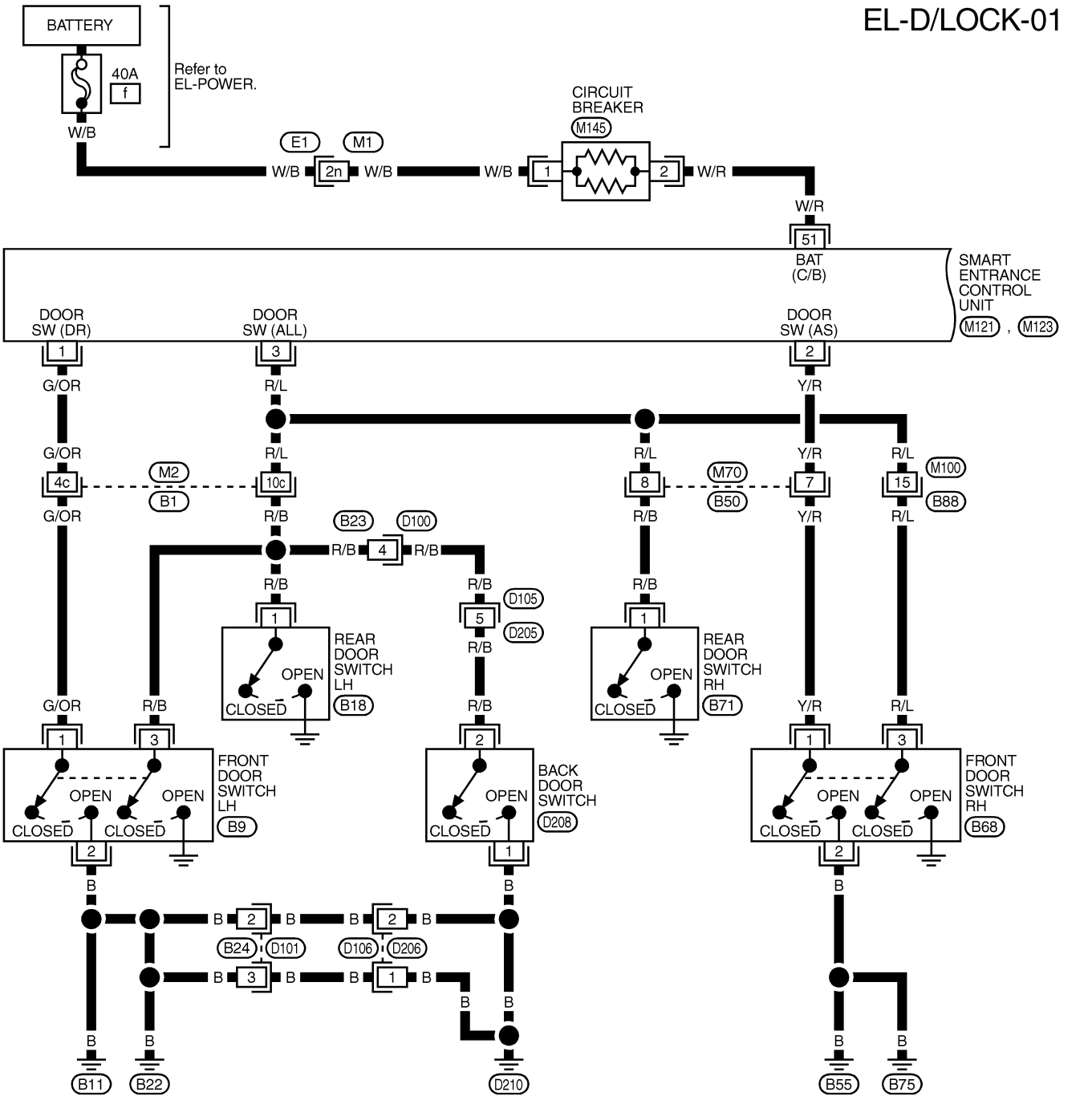
MEL431P

Wiring Diagram — D/LOCK —

NBEL0387

FIG. 1

NBEL0387S01



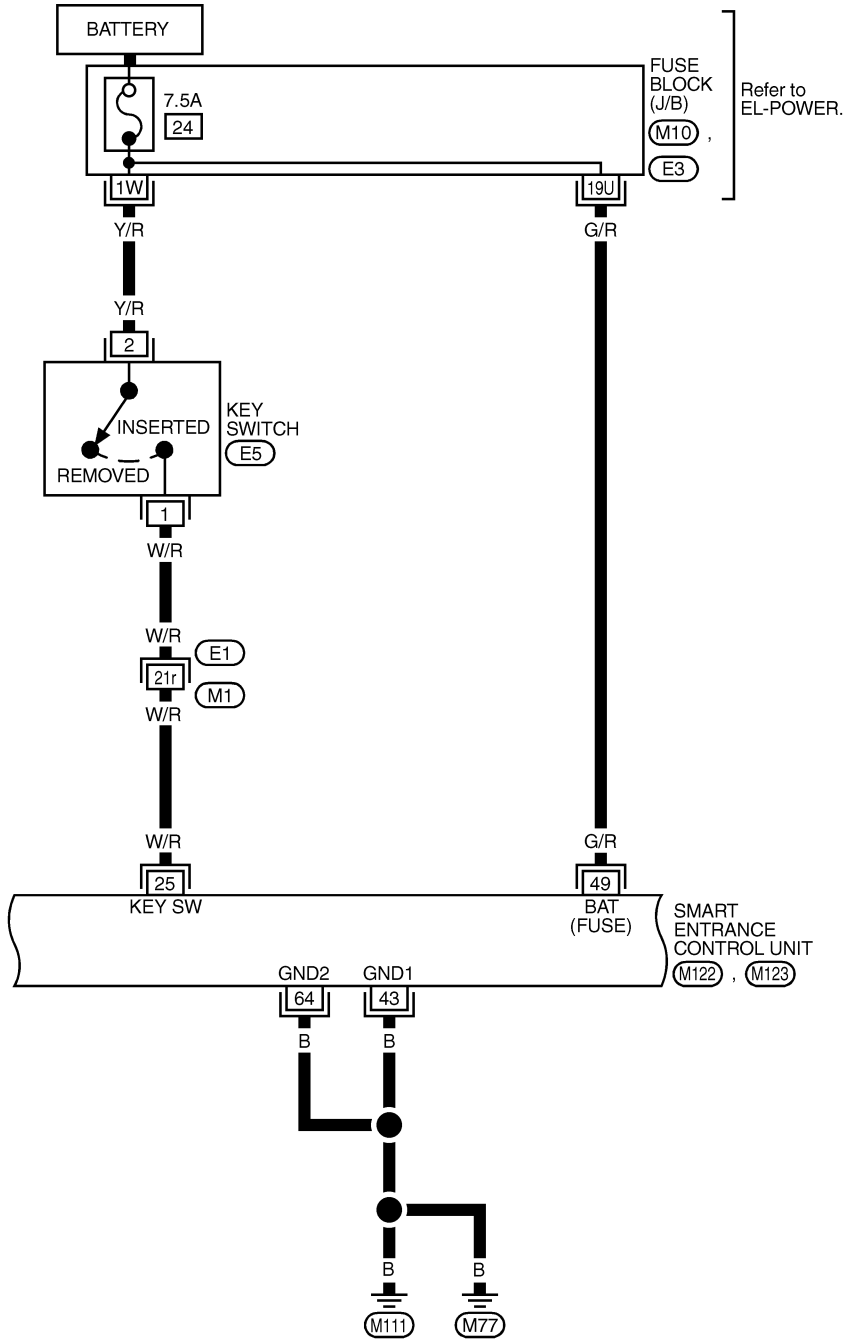
REFER TO THE FOLLOWING.

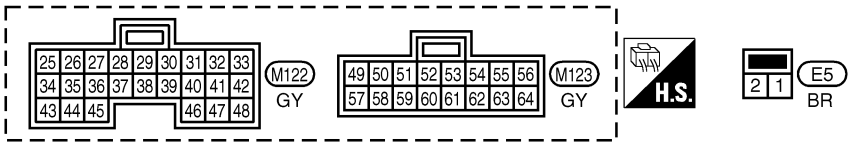
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL388P

FIG. 2

NBEL0387S02





REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

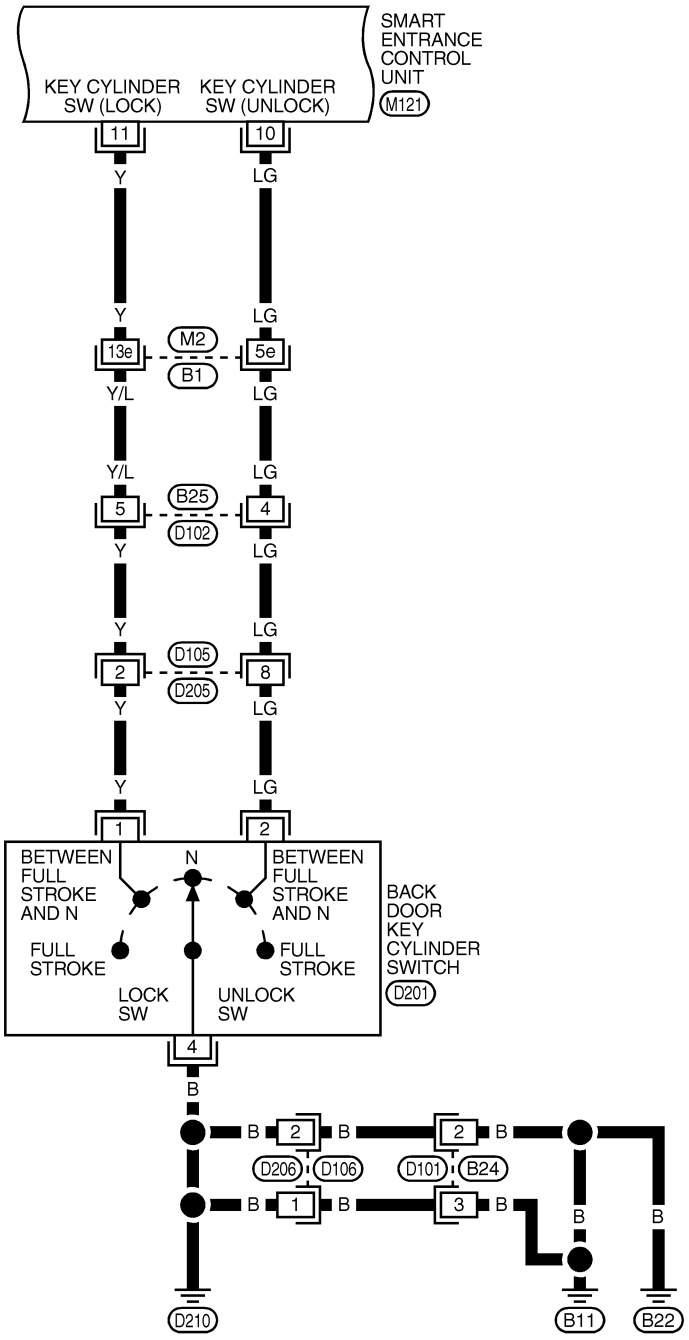
MEL432P

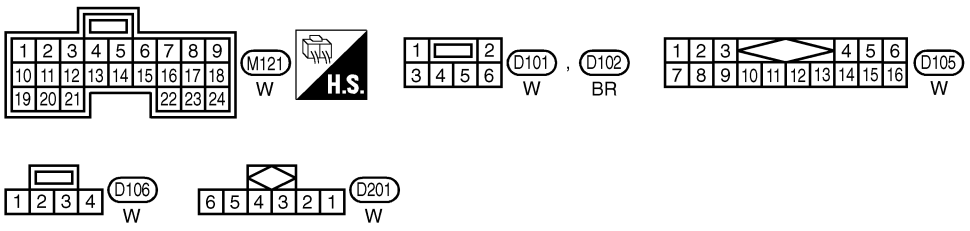
Wiring Diagram — D/LOCK — (Cont'd)

FIG. 3

NBEL0387S03

EL-D/LOCK-03





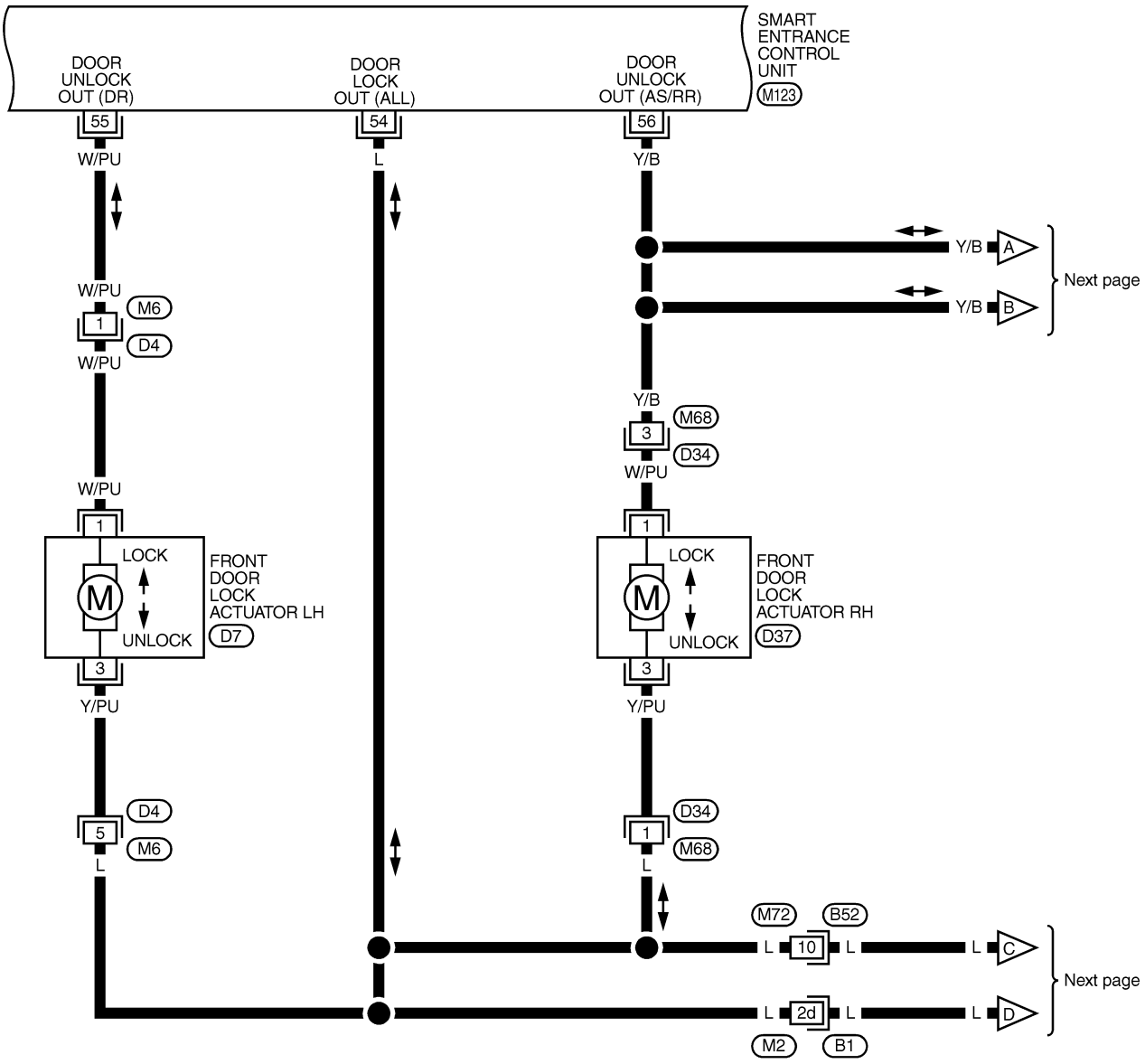
REFER TO THE FOLLOWING.
B1 - SUPER MULTIPLE JUNCTION (SMJ)

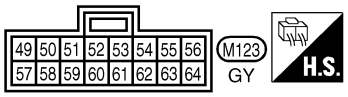
MEL433P

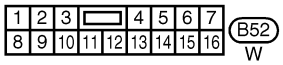
FIG. 4

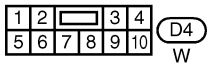
NBEL0387S04

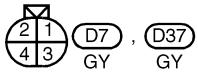
EL-D/LOCK-04

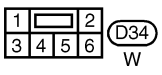












REFER TO THE FOLLOWING.
(B1) - SUPER MULTIPLE JUNCTION (SMJ)

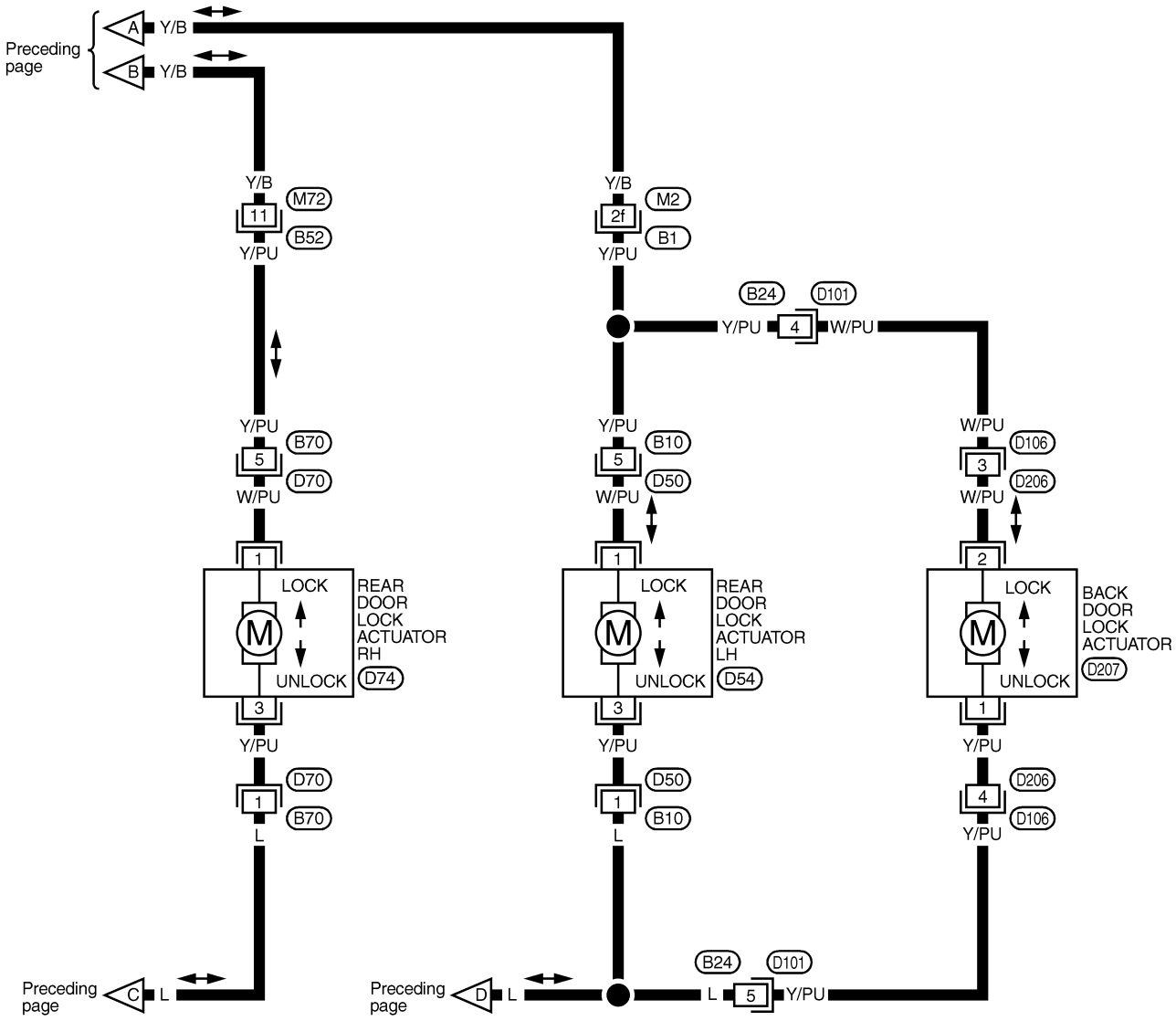
MEL434P

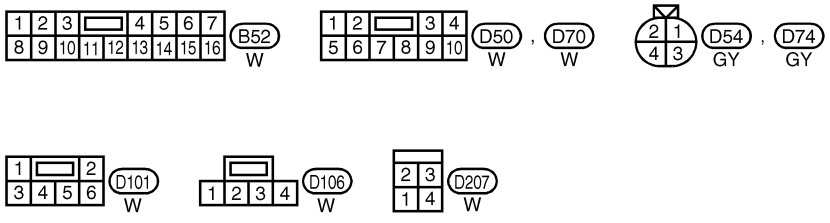
Wiring Diagram — D/LOCK — (Cont'd)

FIG. 5

NBEL0387S05

EL-D/LOCK-05



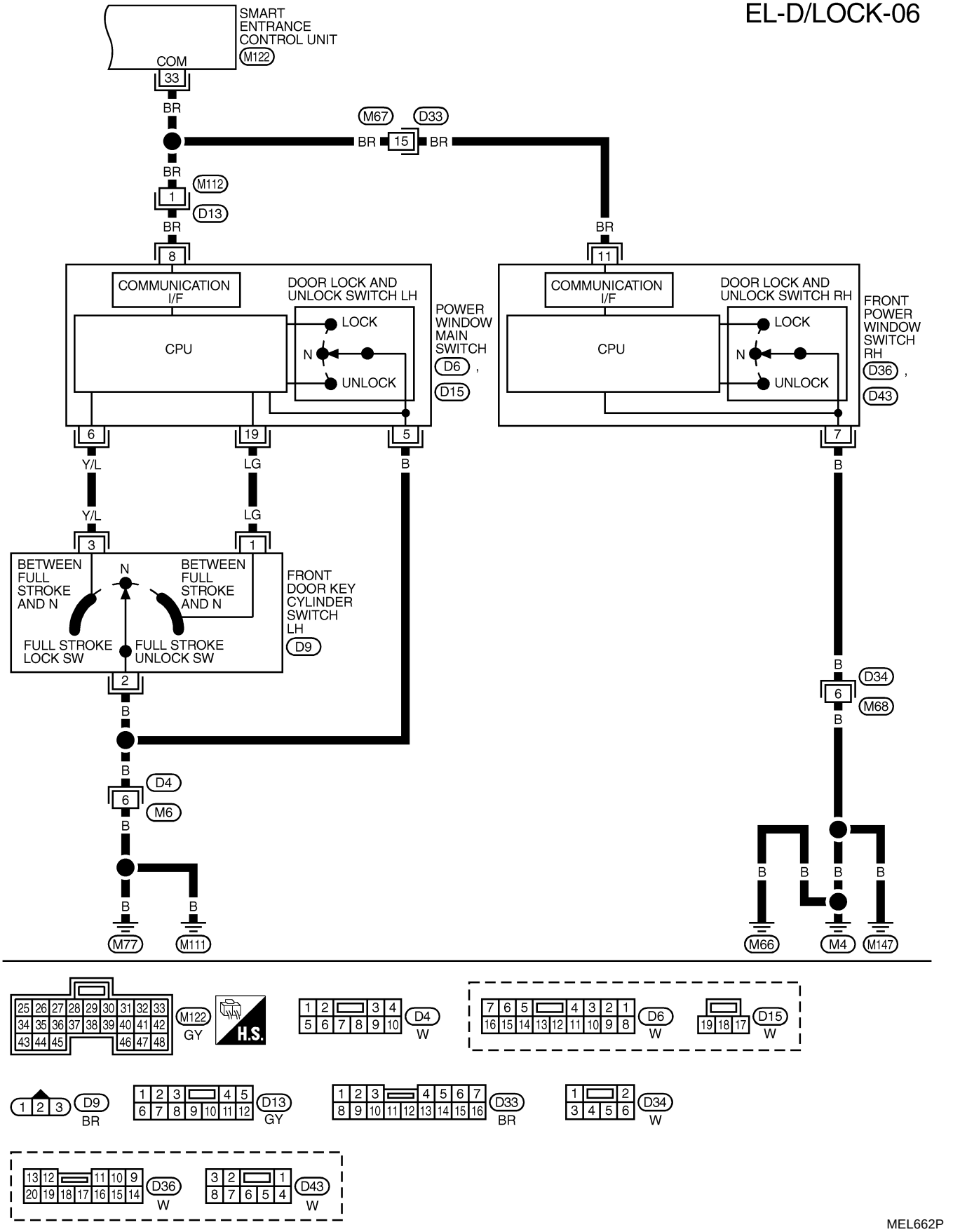


REFER TO THE FOLLOWING.
(B1) - SUPER MULTIPLE JUNCTION (SMJ)

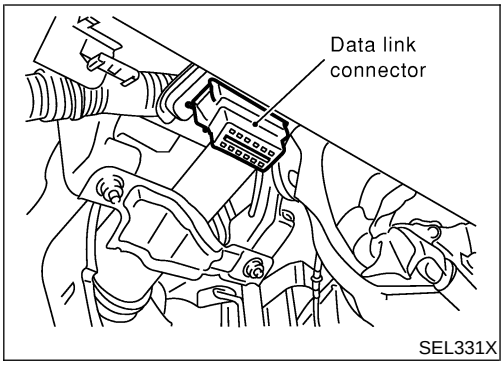
MEL852L

FIG. 6

NBEL0387S06



MEL662P



SEL331X

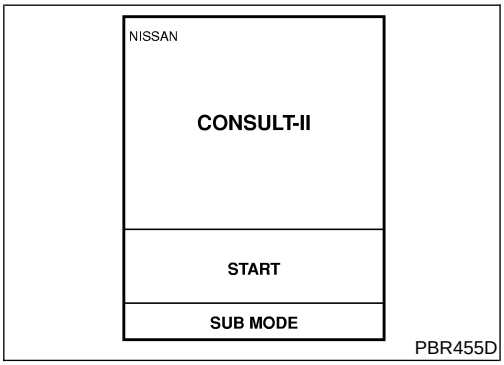
CONSULT-II Inspection Procedure

=NBEL0388

“DOOR LOCK”

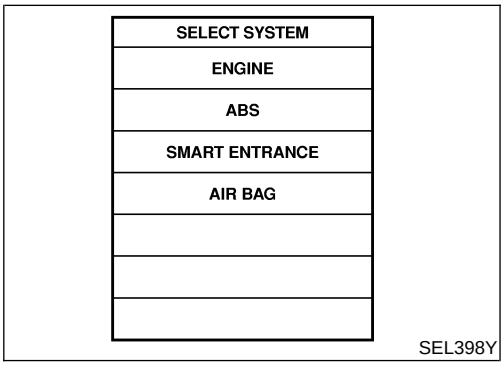
NBEL0388S01

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



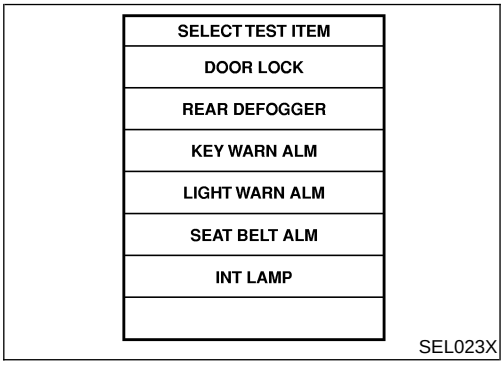
PBR455D

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



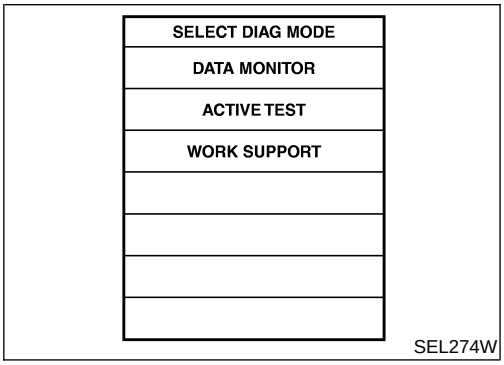
SEL398Y

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

NBEL0389

"DOOR LOCK"

NBEL0389S01

Data Monitor

NBEL0389S0101

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

NBEL0389S0102

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

NBEL0389S0103

Work Item	Description
DOOR LOCK-UNLOCK SET	Door unlock mode can be selected among the following periods: ● ON (When an UNLOCK signal is sent from front key cylinder LH once, driver's door will be unlocked. Then, if an UNLOCK signal is sent from front key cylinder LH again within 5 seconds, all other door will be unlocked.)/OFF (When an unlock signal sent from door key cylinder LH, all door will be unlocked.)
ANTI-LOCK OUT SET	Key reminder door mode can be changed in this mode. Selects ON-OFF of key reminder door mode.

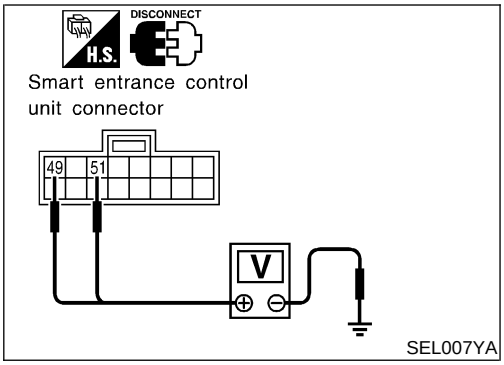
Trouble Diagnoses

NBEL0390

SYMPTOM CHART

NBEL0390S01

REFERENCE PAGE (EL-)	405	406	408	409	410	412	414
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	BACK 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		
Power door lock does not operate with back door key cylinder operation.	X					X	



MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

=NBEL0390S02

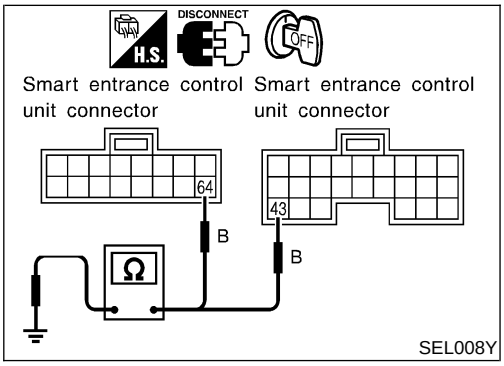
Main Power Supply Circuit Check

NBEL0390S0201

Terminals			Ignition switch		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M123	49 (G/R)	Ground	Battery voltage	Battery voltage	Battery voltage
	51 (W/R)				

If NG, check the following.

- 40A fuseible link (letter f, located in fuse and fusible link box).
- M145 circuit breaker.
- 7.5A fuse [No. 24, located in fuse block (J/B)].
- Harness for open or short between smart entrance control unit and circuit breaker.
- Harness for open or short between circuit breaker and fusible link.
- Harness for open or short between smart entrance control unit and fuse



Ground Circuit Check

NBEL0390S0202

Terminals			Continuity
(+)		(–)	
Connector	Terminal (Wire color)		
M122	43 (B)	Ground	Yes
M123	64 (B)		

DOOR SWITCH CHECK

=NBEL0390S03

1 CHECK DOOR SWITCH 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

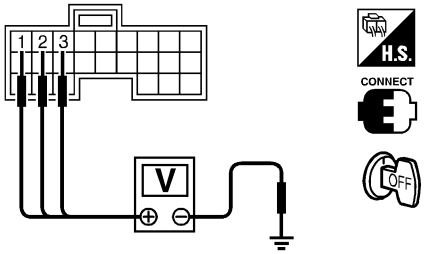
When any doors are closed:
DOOR SW-DR OFF
DOOR SW-AS OFF
DOOR SW-RR OFF

SEL009Y

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminals 1 (G/OR), 2 (Y) or 3 (R/L) 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-396.

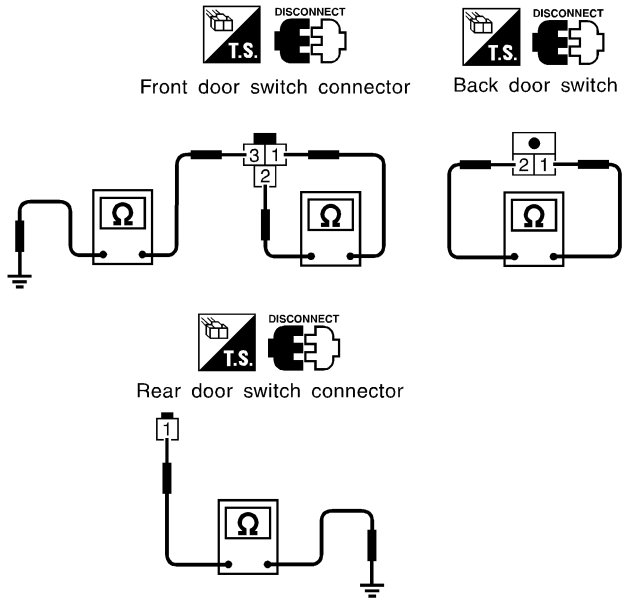
OK or NG

OK	▶	Door switch is OK.
NG	▶	GO TO 2.

2 CHECK DOOR SWITCH

1. Disconnect door switch connector.
2. Check the following.

- Continuity between front door switch harness connector B9 (LH) or B68 (RH) terminals 1 and 2
- Continuity between front door switch harness connector B9 (LH) or B68 (RH) terminal and ground
- Continuity between back door switch harness connector D208 terminals 1 and 2
- Continuity between rear door switch harness connector B18 (LH) or B71 (RH) terminal 1 and ground



	Terminals	Condition	Continuity
Front door switches	1 - 2	Closed	No
	3 - Ground	Open	Yes
Back door switch	1 - 2	Closed	No
		Open	Yes
Rear door switches	1 - Ground	Closed	No
		Open	Yes

SEL287Y

OK or NG

OK	▶	**Check the following.** ● Door switches ground circuit (Front or back door) or rear door switches ground condition ● Harness for open or short between smart entrance control unit and door switch
NG	▶	Replace door switch.

KEY SWITCH (INSERT) CHECK

=NBEL0390S04

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

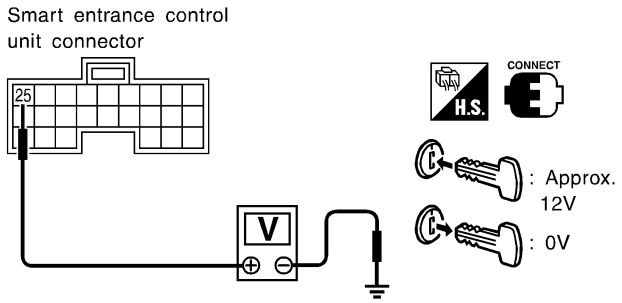
When key is removed from ignition key cylinder:

KEY ON SW OFF

SEL315W

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M122 terminal 25 (W/R) and ground.



Voltage [V]:

Condition of key switch: Key is inserted.

Approx. 12

Condition of key switch: Key is removed.

0

SEL011Y

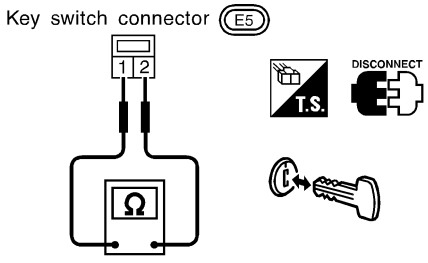
Refer to wiring diagram in EL-397.

OK or NG

OK	▶	Key switch is OK.
NG	▶	GO TO 2.

2 **CHECK KEY SWITCH (INSERT)**

Check continuity between terminals 1 and 2.



Continuity:

Condition of key switch: Key is inserted.

Yes

Condition of key switch: Key is removed.

No

SEL308X

OK or NG

OK	▶	**Check the following.** ● 7.5A fuse [No. 24, located in fuse block (J/B)] ● Harness for open or short between key switch and fuse ● Harness for open or short between smart entrance control unit and key switch
NG	▶	Replace key switch.

DOOR LOCK/UNLOCK SWITCH CHECK

=NBEL0390S05

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

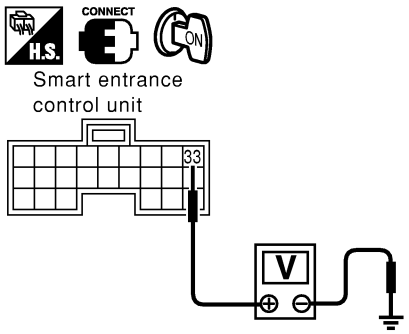
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

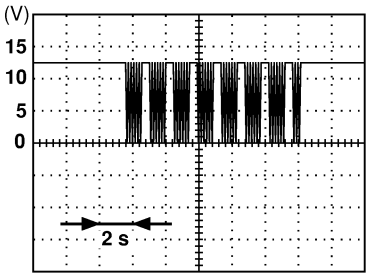
When lock/unlock switch is turned to UNLOCK:
UNLK SW DR/AS ON

SEL341W

Without CONSULT-II

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M122 terminal 33 (BR) 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.

SEL487Y

Refer to wiring diagram in EL-401.

OK or NG

OK	▶	Door lock/unlock switch is OK.
NG	▶	**Check the following.** ● Ground circuit for each front power window switch ● Harness for open or short between each front power window switch and smart entrance control unit connector If above systems are normal, replace the front power window switch.

FRONT DOOR KEY CYLINDER SWITCH CHECK

=NBEL0390S06

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

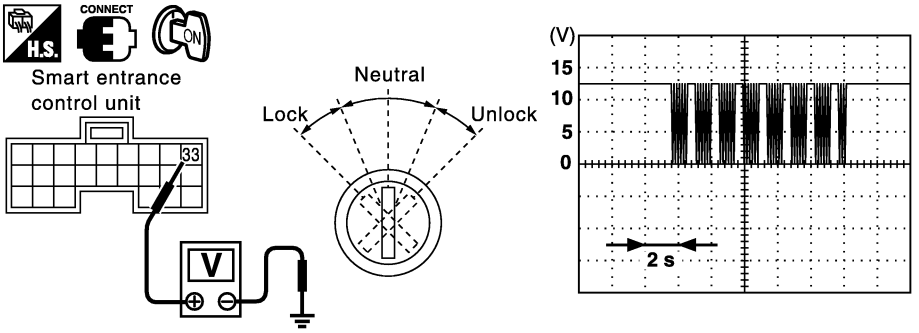
When key inserted in front key cylinder is turned to UNLOCK:

KEY CYL UN-SW ON

SEL342W

Without CONSULT-II

1. Check the signal between smart entrance control unit harness connector M122 terminal 33 (BR) 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.

SEL488Y

Refer to wiring diagram in EL-401.

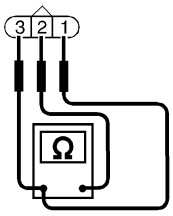
OK or NG

OK	▶	Door key cylinder switch LH 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 terminals.

Door key cylinder switch LH connector (D9)



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

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

SEL313X

OK or NG

OK	▶	**Check the following.** ● Door key cylinder switch LH ground circuit ● Harness for open or short between smart entrance control unit and front power window main switch ● Harness for open or short between front power window main switch and door key cylinder switch LH
NG	▶	Replace door key cylinder switch LH.

BACK DOOR KEY CYLINDER SWITCH CHECK

=NBEL0390S07

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

With CONSULT-II

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

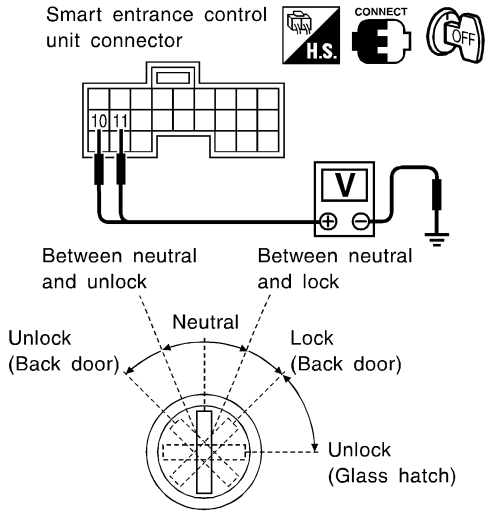
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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

SEL342WB

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminals 10 (LG) or 11 (Y) and ground.



	Terminals (+)	Terminals (−)	Key position	Voltage [V]
Back door	11	Ground	Between neutral and lock	0
			Other positions	Approx. 5
	10	Ground	Between neutral and unlock	0
			Other positions	Approx. 5

SEL286Y

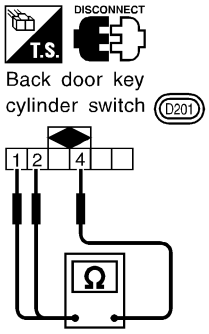
Refer to wiring diagram in EL-398.

OK or NG

OK	▶	Back door key cylinder switch is OK.
NG	▶	GO TO 2.

2	CHECK BACK DOOR KEY CYLINDER SWITCH

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



Key position	Terminals		
	1	2	4
Between neutral and lock (Back door)	○		○
Between neutral and unlock (Back door)		○	○

SEL315X

OK or NG

OK	▶	**Check the following.** ● Back door key cylinder switch ground circuit ● Harness for open or short between smart entrance control unit and back door key cylinder switch
NG	▶	Replace back door key cylinder switch.

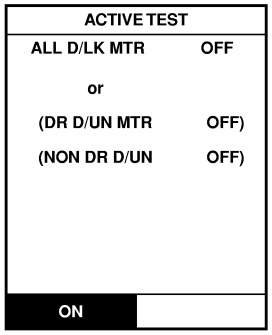
DOOR LOCK ACTUATOR CHECK

=NBEL0390S08

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.

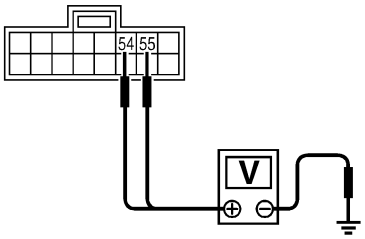
OK or NG

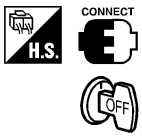
OK	▶	Door lock actuator is OK.
NG	▶	GO TO 2.

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.

Smart entrance
control unit connector



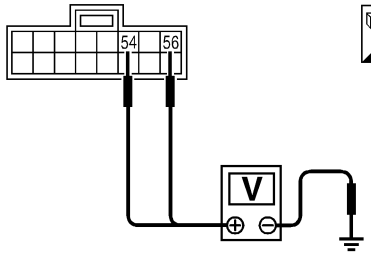


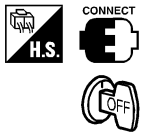
Door lock/unlock switch condition	Terminal No. (+)	Terminal No. (–)	Voltage V
Lock	54	Ground	Approx. 12
Unlock	55	Ground	

SEL014Y

- Door lock actuator front RH and rear
  Chcek voltage between smart entrance control unit harness connector M145 terminal 54 (GY), 56 (G/Y) and ground.

Smart entrance
control unit connector





Door lock/unlock switch condition	Terminal No. (+)	Terminal No. (–)	Voltage V
Lock	54	Ground	Approx. 12
Unlock	56	Ground	

SEL015Y

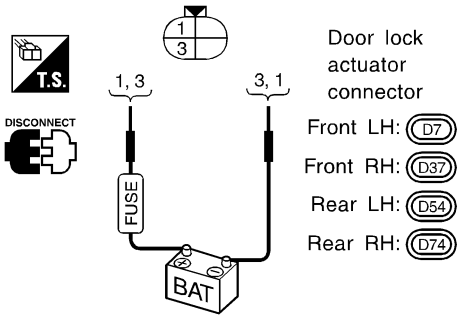
Refer to wiring diagram in EL-399.

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace smart entrance control unit. (Before replacing smart entrance control unit, perform "DOOR LOCK/UNLOCK SWITCH CHECK".)

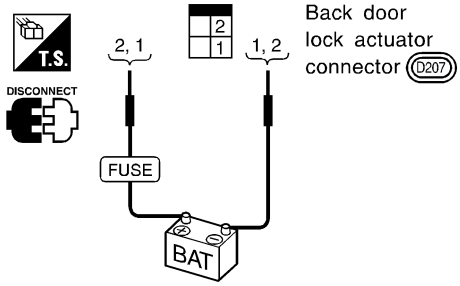
3	CHECK DOOR LOCK ACTUATOR

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



- **Door lock actuator operation:**
  Terminals between (+): 3 and (–): 1
  Unlocked → Locked
  Terminals between (+): 1 and (–): 3
  Locked → Unlocked

SEL318X



- **Back door lock actuator operation:**
  Terminals between (+): 1 and (–): 2
  Unlocked → Locked
  Terminals between (+): 2 and (–): 1
  Locked → Unlocked

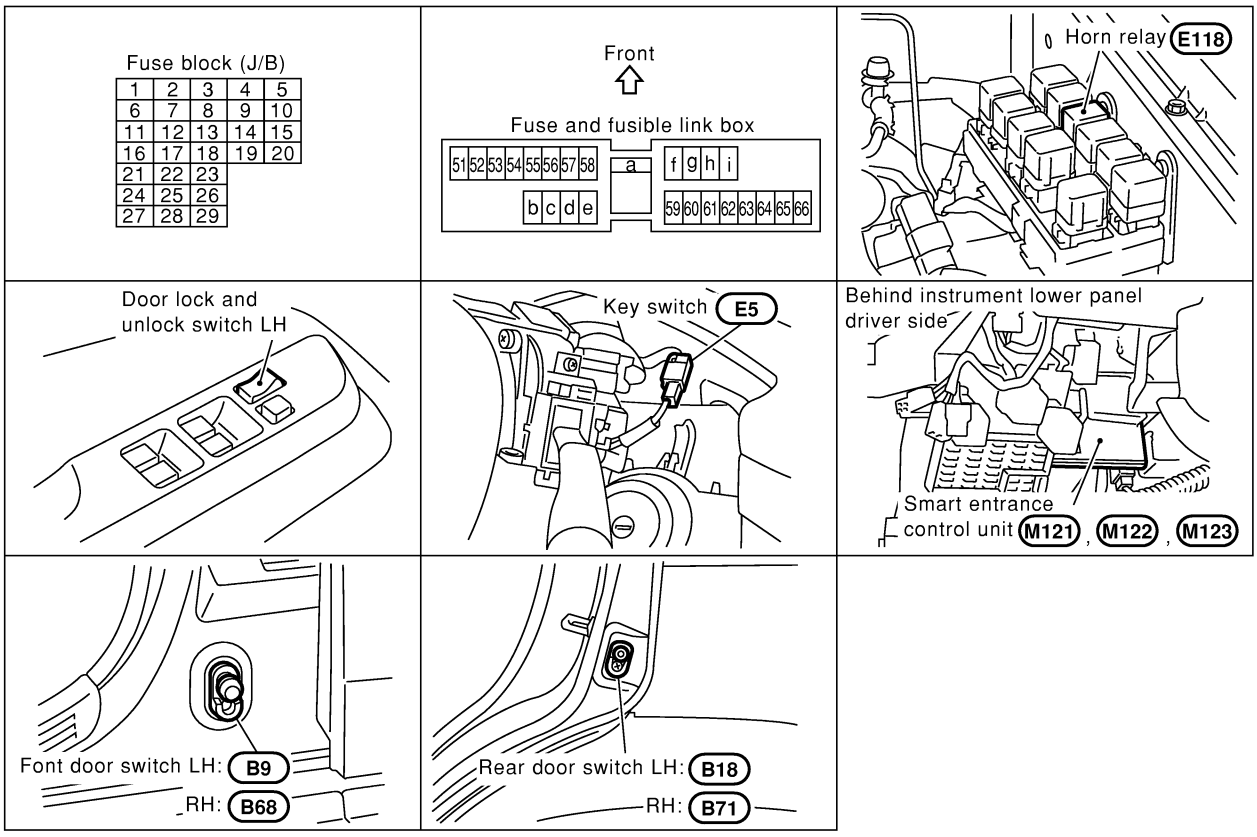
SEL319X

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

NBEL0391



SEL290Y

System Description

NBEL0392

NBEL0392S01

INPUTS

Power is supplied at all times

- to smart entrance control unit terminal 49 and
- to key switch terminal 2
- through 7.5A fuse [No. 24, 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
- 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 1
- to front door switch LH terminal 2
- through body grounds B11, B22 and D210.

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 1
- to front door switch RH terminal 2
- through body grounds B55 and B75.

When the all doors switches are ON (door is OPEN), ground is supplied

- to smart entrance control unit terminal 3
- through front door switches terminal 3
- to front door switches case grounds, and
- through rear door switches terminal 1
- to rear door switchs case grounds, and
- through back door switch terminal 2
- to back door switch terminal 1
- through body grounds B11, B22 and D210.

When lock/unlock switch LH is LOCK, ground is supplied

- to smart entrance control unit terminal 5
- through lock/unlock switch LH terminal 6, and
- through body grounds M77 and M111.

When lock/unlock switch LH is UNLOCK, ground is supplied

- to smart entrance control unit terminal 4
- through lock/unlock switch LH terminal 19, and
- through body grounds M77 and M111.

Remote controller signal is inputted to smart entrance control unit (The antenna of the system is combined with smart entrance control unit).

OPERATION

NBEL0392S02

The remote keyless entry system controls operation of the

- power door lock
- auto door lock
- interior lamp
- panic alarm
- hazard and horn reminder
- power window opener

OPERATED PROCEDURE

NBEL0392S03

Power Door Lock Operation

NBEL0392S0301

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-427).

Auto Door Lock Operation

NBEL0392S0308

Smart entrance control unit will lock all the doors 5 minutes after receiving unlock signal from keyfob.
When any of the following operations is performed within 5 minutes, the auto lock operation is cancelled.

- Ignition switch is ON position.
- Open the doors.
- Received lock signal from keyfob.

Auto door lock mode can be changed by CONSULT-II (EL-427).

Hazard and Horn Reminder

NBEL0392S0302

Power is supplied at all times

- to horn relay terminals 1 and 3
- through 7.5A fuse (No. 52, located in the fusible link and fuse box), and
- to horn relay terminal 6
- through 10A fuse (No. 54, located in the fusible link and fuse box)

When smart entrance control unit receives LOCK or UNLOCK signal from remote controller with all doors closed, ground is supplied

- to horn relay terminal 2
- through smart entrance control unit terminal 42, and
- to smart entrance control unit terminals 47 and 48 from hazard warning lamp system.

Horn relay are now energized, and hazard warning lamp flashes and horn sounds as a reminder.
The hazard and horn reminder has C mode (horn chirp mode) and S mode (non-horn chirp mode).

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	—

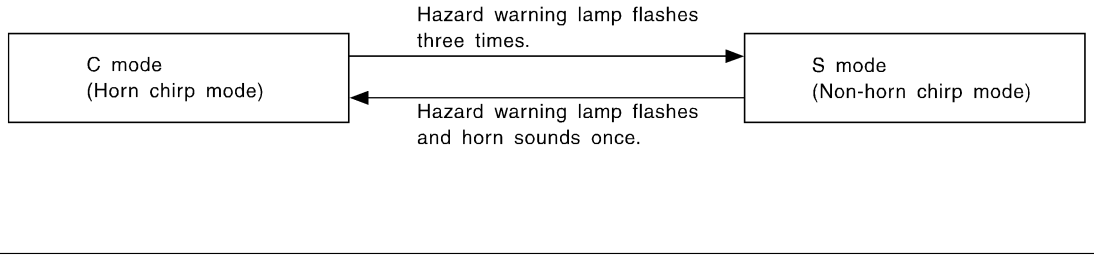
How to change hazard and horn reminder mode

Ⓐ With CONSULT-II

Hazard and horn reminder can be changed by CONSULT-II (EL-427).

Ⓑ 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

NBEL0392S0303

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 (for 30 seconds) with input of UNLOCK signal from keyfob.
For detailed description, refer to "INTERIOR, SPOT, VANITY MIRROR AND LUGGAGE ROOM LAMPS" (EL-101).

Panic Alarm Operation

NBEL0392S0304

When key switch is OFF (when ignition key is not inserted in key cylinder), remote keyless entry system turns horn and headlamp on and off 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-450).
The panic alarm button's pressing time on keyfob can be changed with CONSULT-II (EL-427).

Power Window Opener Operation

NBEL0392S0307

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.

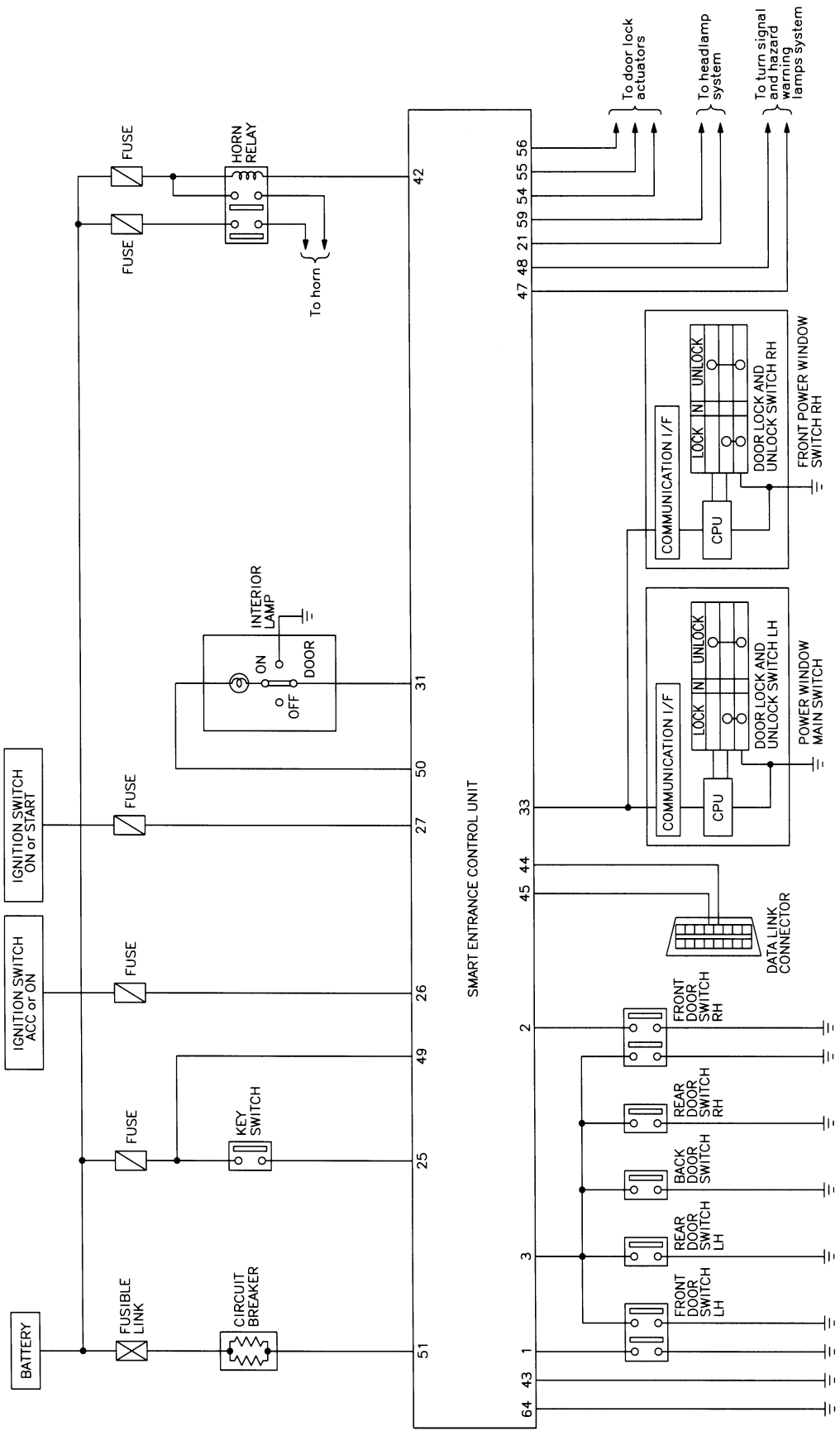
The unlock button's pressing time can be changed with CONSULT-II (EL-427).

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

NBEL0393



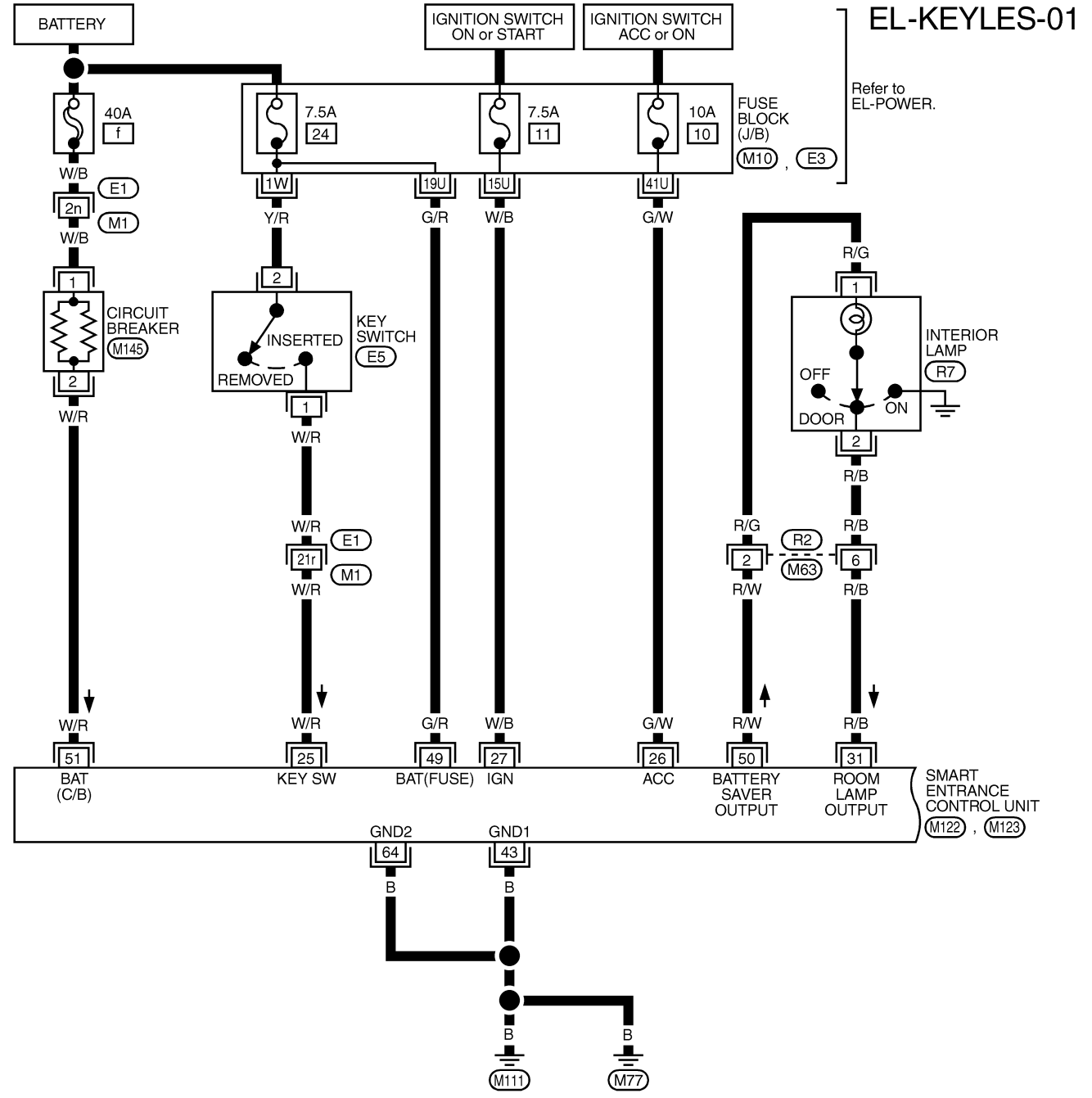
MEL433O

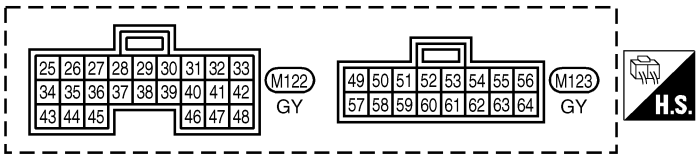
Wiring Diagram — KEYLESS —

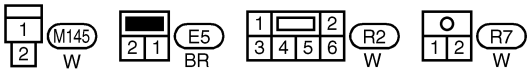
NBEL0394

FIG. 1

NBEL0394S01







REFER TO THE FOLLOWING.

E1 - SUPER MULTIPLE JUNCTION (SMJ)

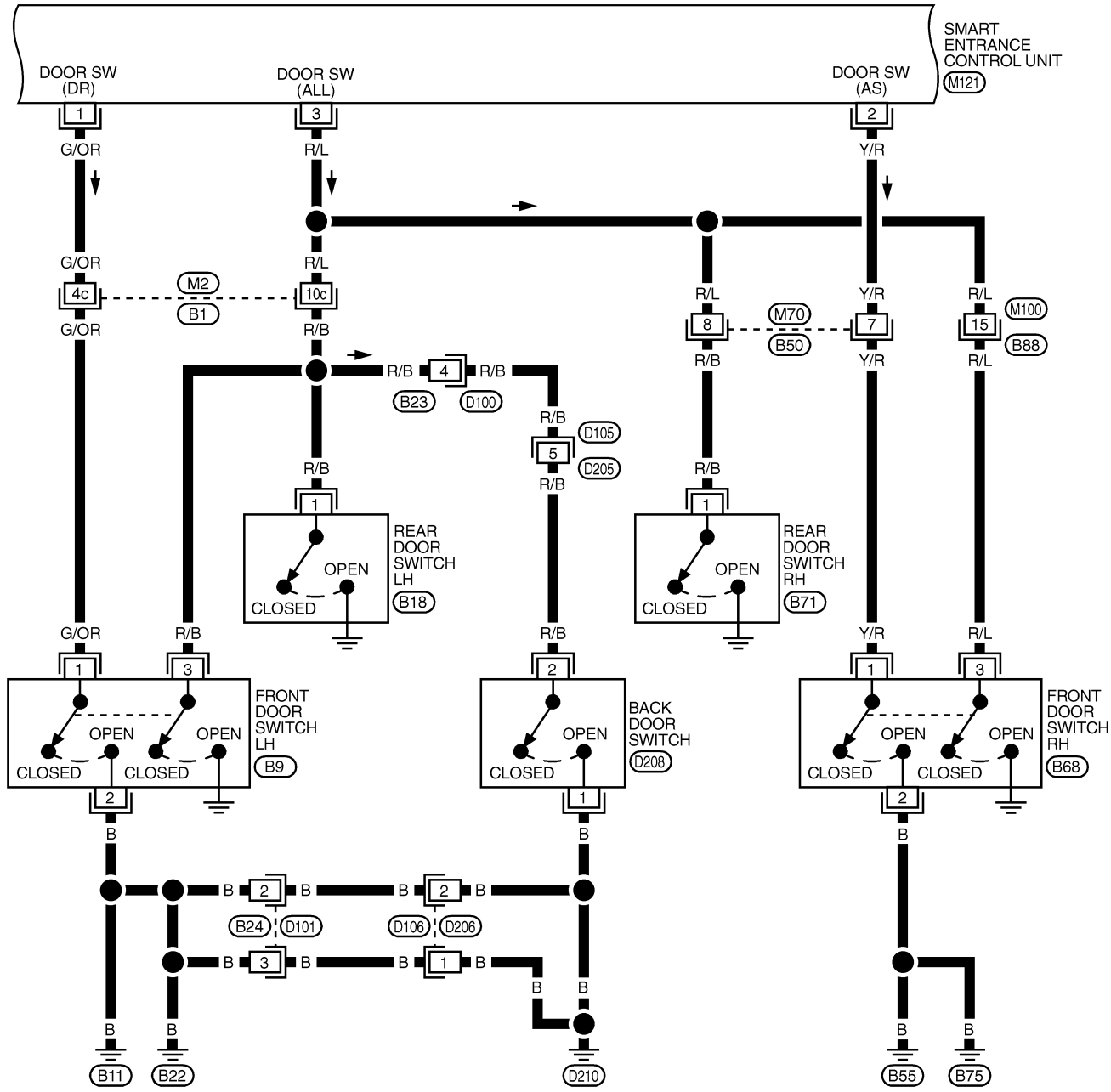
M10 , E3 - FUSE BLOCK - JUNCTION BOX (J/B)

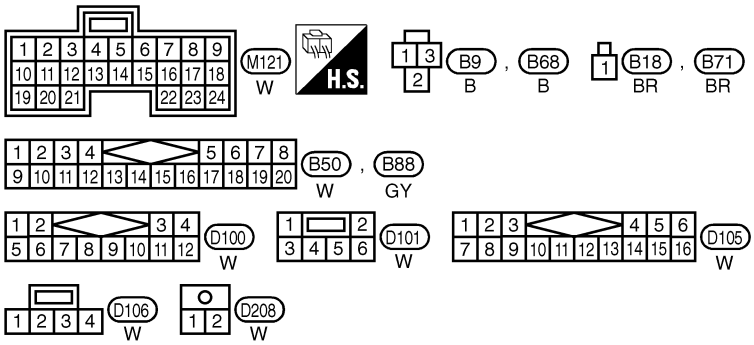
MEL411O

FIG. 2

NBEL0394S02

EL-KEYLES-02





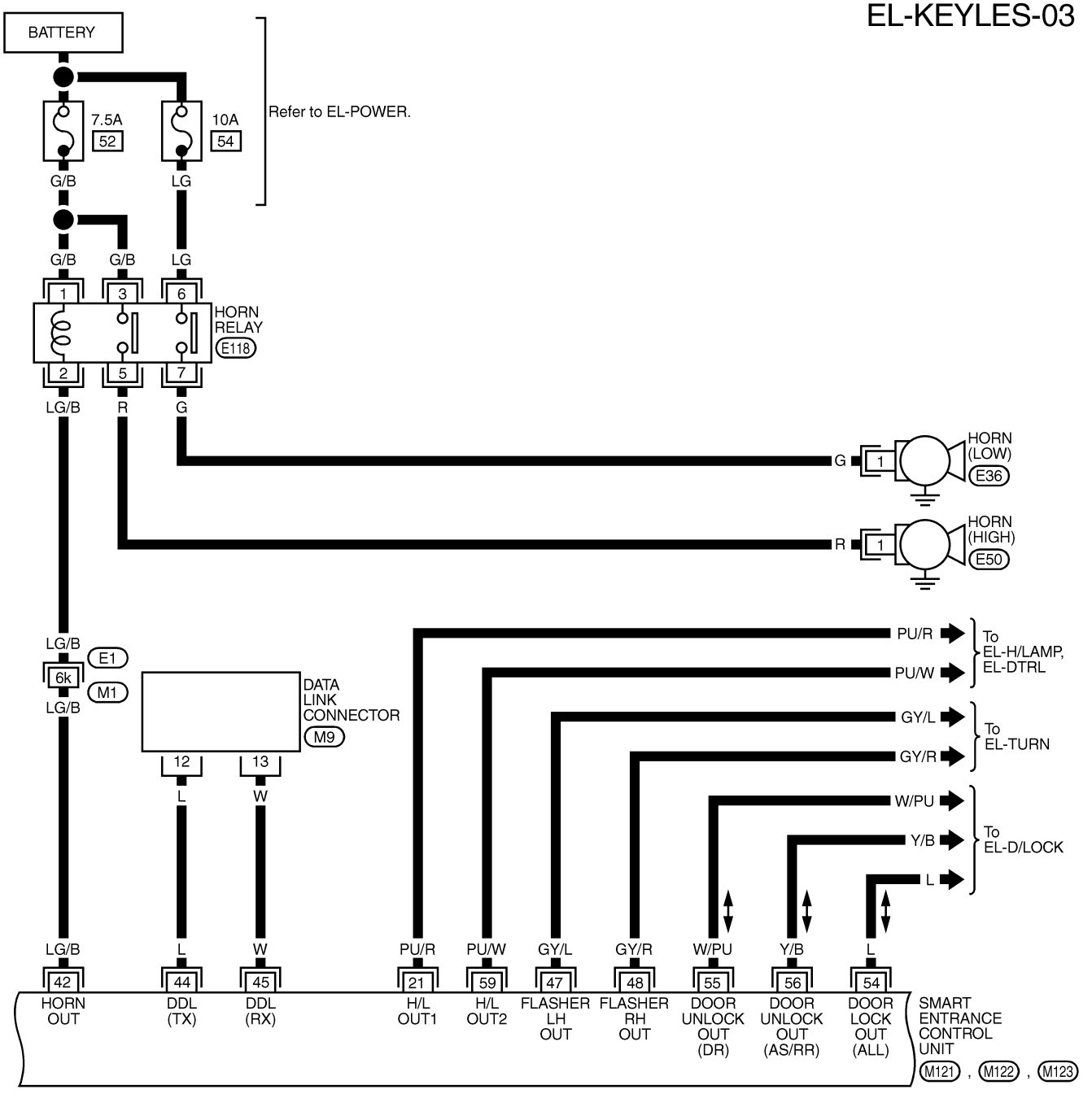
REFER TO THE FOLLOWING.
(B1) -SUPER MULTIPLE JUNCTION (SMJ)

MEL454O

FIG. 3

NBEL0394S03

EL-KEYLES-03

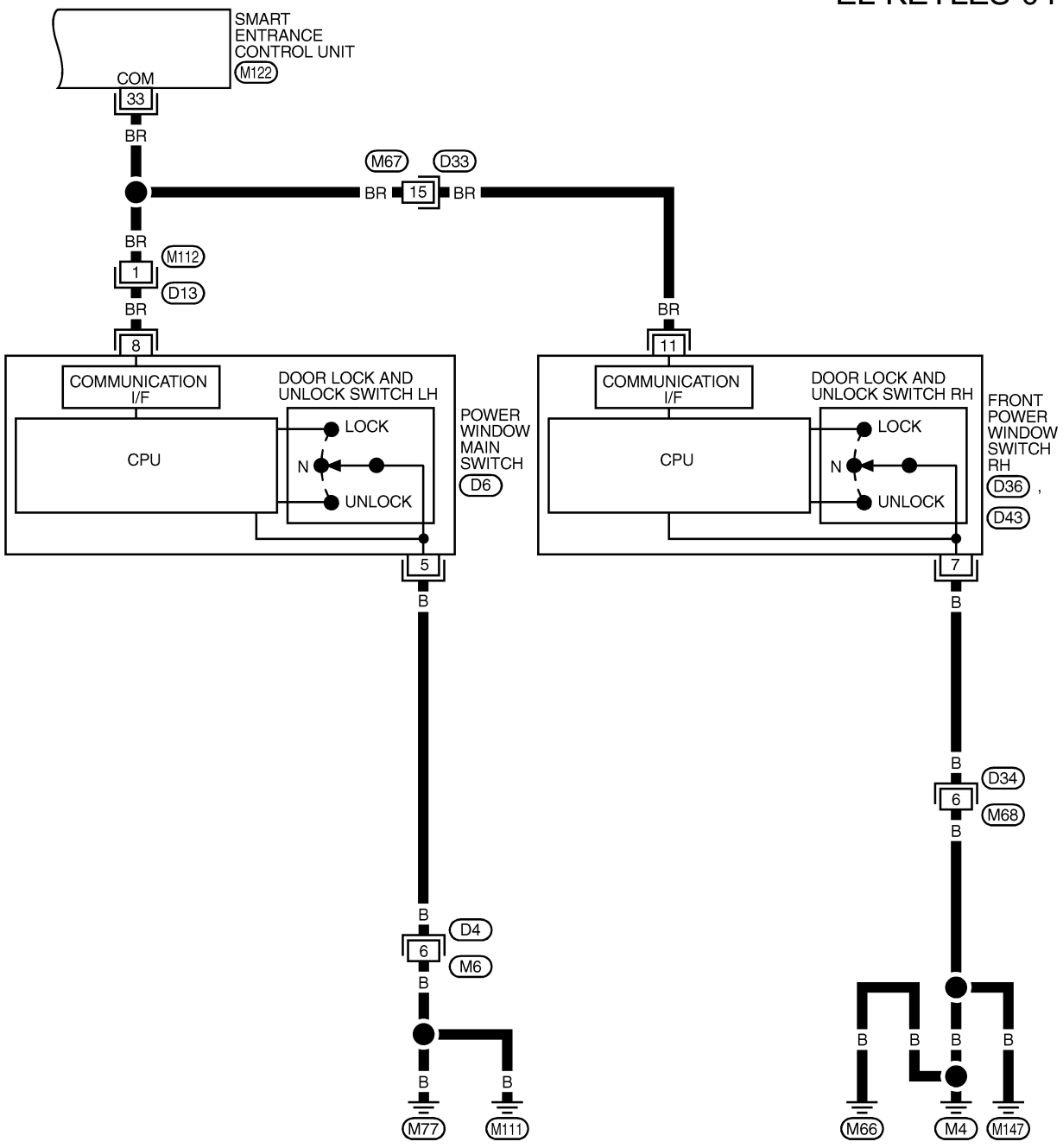


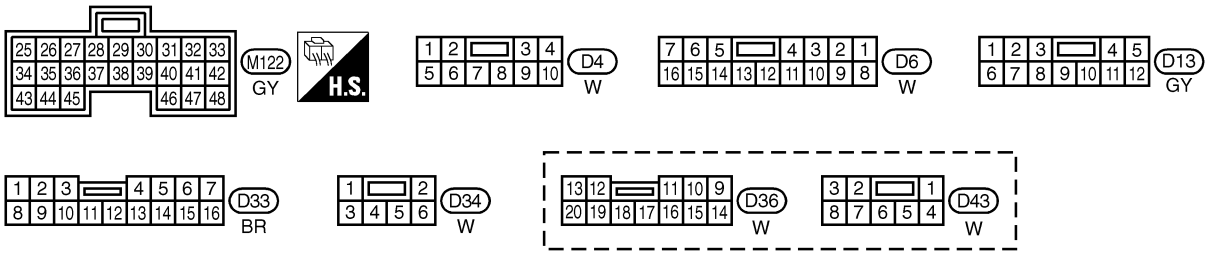
MEL455O

FIG. 4

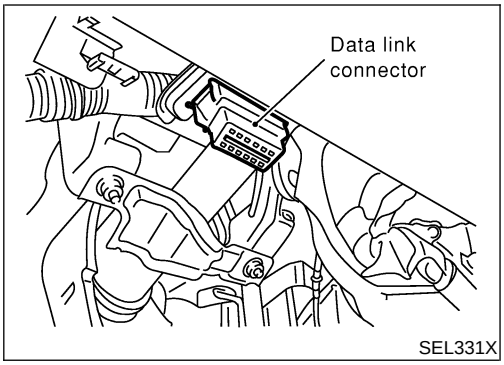
NBEL0394S05

EL-KEYLES-04





MEL685P



SEL331X

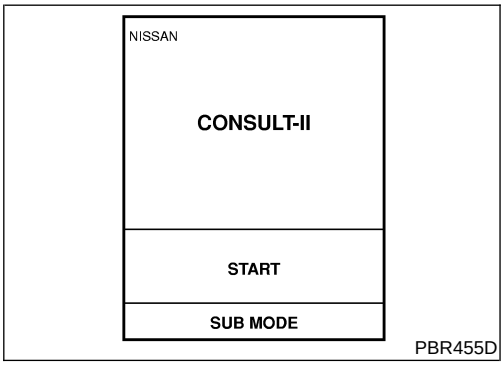
CONSULT-II Inspection Procedure

NBEL0395

“MULTI REMOTE ENT”

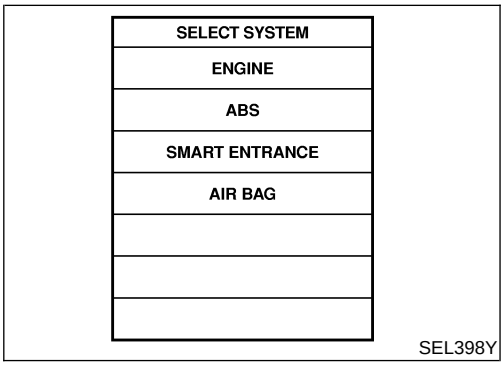
NBEL0395S01

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



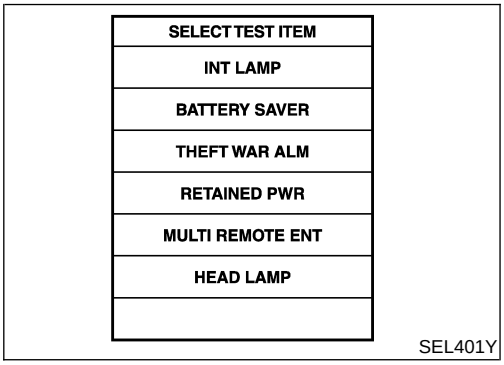
PBR455D

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



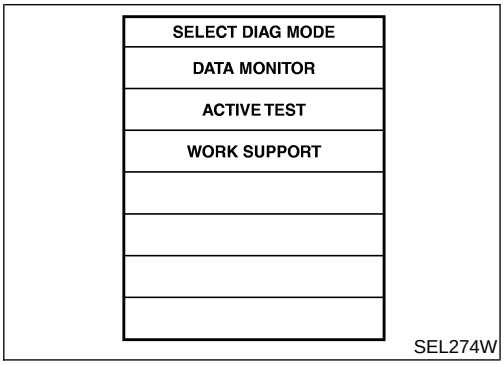
SEL398Y

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

NBEL0457

"MULTI REMOTE ENT"

NBEL0457S01

Data Monitor

NBEL0457S0101

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.

NOTE:
Even though TRUNK BTN/SIG is actually displayed on the CONSULT-II screen, it is not equipped, therefore, they cannot be activated.

Active Test

NBEL0457S0102

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.

NOTE:
Even though TRUNK OUTPUT is actually displayed on the CONSULT-II screen, it is not equipped, therefore, they cannot be activated.

Work Support

NBEL0457S0103

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.

CONSULT-II Application Items (Cont'd)

Test Item	Description
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-418).
AUTO LOCK SET	Auto door lock mode can be selected among the following periods: ● 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: ● 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: ● 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: ● MODE 1 (3 sec.)/MODE 2 (OFF-Mode)/MODE 3 (5 sec.)

NOTE:
Even though TRUNK OPENER is actually displayed on the CONSULT-II screen, it is not equipped, therefore, they cannot be activated.

Trouble Diagnoses

NBEL0397

SYMPTOM CHART

NBEL0397S01

NOTE:

- Always check keyfob battery before replacing keyfob.
- The panic alarm operation of remote keyless entry system does not activate with the ignition key inserted in the ignition key cylinder.

Symptom	Diagnoses/service procedure	Reference page (EL-)
All functions of remote keyless entry system do not operate.	1. Keyfob battery and function check	430
	2. Power supply and ground circuit for smart entrance control unit check	431
	3. Replace keyfob. Refer to ID Code Entry Procedure. NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning.	443
The new ID of keyfob cannot be entered.	1. Keyfob battery and function check	430
	2. Key switch (insert) check	435
	3. Door switch check	433
	4. Door lock/unlock switch LH check	436
	5. Power supply and ground circuit for smart entrance control unit check	431
	6. Replace keyfob. Refer to ID Code Entry Procedure. NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning.	443
Door lock or unlock does not function. (If the power door lock system does not operate manually, check power door lock system. Refer to EL-404)	1. Keyfob battery and function check	430
	2. Replace keyfob. Refer to ID Code Entry Procedure. NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning.	443

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	430
	2. Hazard reminder check	437
	3. Horn reminder check* *: Horn chirp can be activated or deactivated. First check the horn chirp setting. Refer to "System Description", EL-418.	438
	4. Door switch check	433
	5. Replace keyfob. Refer to ID Code Entry Procedure. NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning.	443
Interior room lamp operation do not activate properly.	1. Interior room lamp operation check	440
	2. Door switch check	433
Panic alarm (horn and headlamp) does not activate when panic alarm button is continuously pressed.	1. Keyfob battery and function check	430
	2. Theft warning operation check. Refer to "PRELIMINARY CHECK" in "VEHICLE SECURITY SYSTEM".	461
	3. Key switch (insert) check	435
	4. Replace keyfob. Refer to ID Code Entry Procedure. NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning.	443
Power window opener operation does not function. (If the power window system does not operate properly, check power window system. Refer to EL-384.)	1. Keyfob battery and function check	430
	2. Replace keyfob. Refer to ID Code Entry Procedure. NOTE: If the result of keyfob function check with CONSULT-II is OK, keyfob is not malfunctioning.	443

KEYFOB BATTERY AND FUNCTION CHECK

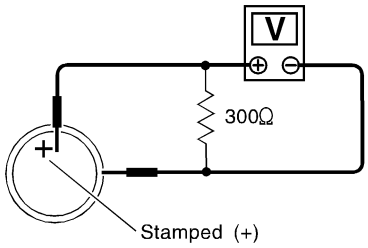
=NBEL0397S02

1	CHECK KEYFOB BATTERY

Remove battery (refer to EL-445) 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. (Refer to EL-445)

2	CHECK KEYFOB FUNCTION

With CONSULT-II
Check keyfob function ("LK BUTTON/SIG", "UN BUTTON/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

NOTE:
Even though TRUNK BTN/SIG is actually displayed on the CONSULT-II screen, it is not equipped, therefore, they cannot be activated.

OK or NG

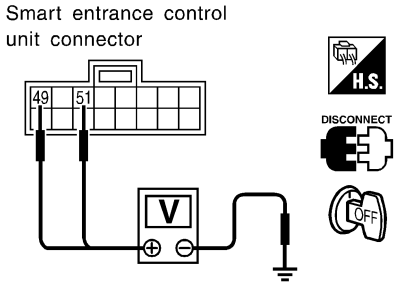
OK	▶	Keyfob is OK. Further inspection is necessary. Refer to "SYMPTOM CHART", EL-428.
NG	▶	Replace keyfob. Refer to ID Code Entry Procedure. (EL-441)

POWER SUPPLY AND GROUND CIRCUIT CHECK

=NBEL0397S03

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 M123 terminal 49 (G/R) or 51 (W/R) and ground.



Battery voltage should exist.

SEL018Y

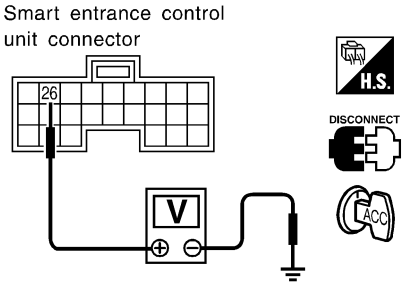
Refer to wiring diagram in EL-422.

OK or NG

OK	▶	GO TO 2.
NG	▶	**Check the following.** ● 40A fusible link (letter **f**, located in fuse and fusible link box) ● 7.5A fuse [No. 24, located in fuse block (J/B)] ● M145 circuit breaker ● 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 M122 terminal 26 (G/W) and ground while ignition switch is "ACC".



Battery voltage should exist.

SEL019Y

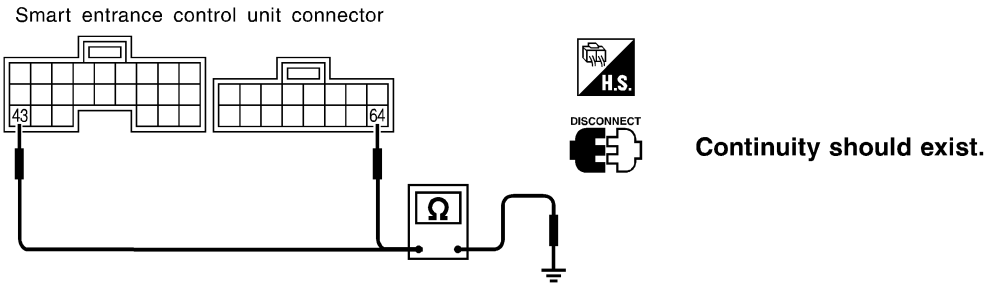
Refer to wiring diagram in EL-422.

OK or NG

OK	▶	GO TO 3.
NG	▶	**Check the following.** ● 10A fuse [No. 10, located in fuse block (J/B)] ● 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 M122 terminal 43 (B) or M123 terminal 64 (B) and ground.



SEL020Y

Refer to wiring diagram in EL-422.

OK or NG

OK	▶	Power supply and ground circuits are OK.
NG	▶	Check ground harness.

DOOR SWITCH CHECK

=NBEL0397S04

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

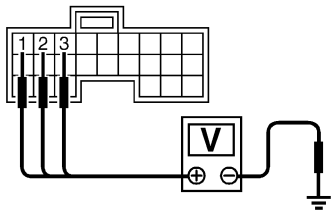
	Monitor item	Condition	Condition
DOOR SW-RR	Rear doors switch	Open	ON
		Closed	OFF
DOOR SW-DR	Door switch LH	Open	ON
		Closed	OFF
DOOR SW-AS	Door switch RH	Open	ON
		Closed	OFF

SEL024Y

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M121 terminals 1 (G/OR), 2 (Y) or 3 (R/L) and ground.

Smart entrance control unit connector



	Terminals (+)	Terminals (–)	Condition	Voltage [V]
Front door switch LH	1	Ground	Open	0
			Closed	Approx. 5
Front door switch RH	2	Ground	Open	0
			Closed	Approx. 5
Rear and back door switches	3	Ground	Open	0
			Closed	Approx. 5

SEL021YA

Refer to wiring diagram in EL-423.

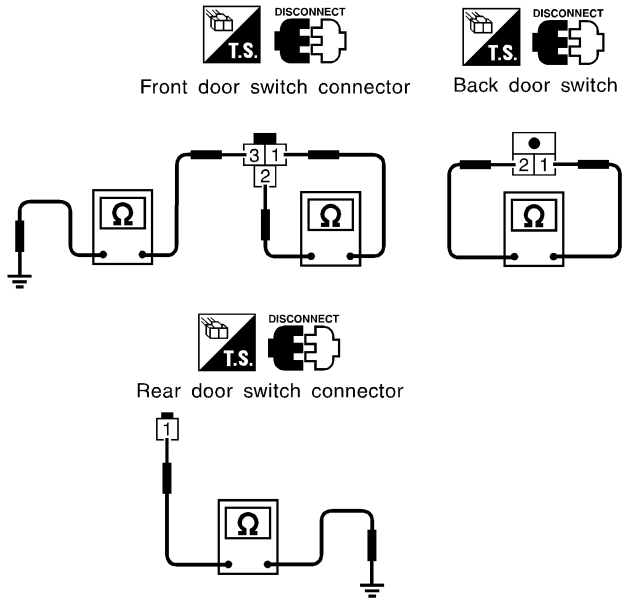
OK or NG

OK	▶	Door switch is OK.
NG	▶	GO TO 2.

2	CHECK DOOR SWITCH

1. Disconnect door switch harness connector.
2. Check the following.

- Continuity between front door switch harness connector B9 (LH) or B68 (RH) terminals 1 and 2
- Continuity between front door switch harness connector B9 (LH) or B68 (RH) terminal 3 and ground
- Continuity between back door switch harness connector D208 terminals 1 and 2
- Continuity between rear door switch harness connector B18 (LH) or B71 (RH) terminal 1 and ground



	Terminals	Condition	Continuity
Front door switches	1 - 2	Closed	No
	3 - Ground	Open	Yes
Back door switch	1 - 2	Closed	No
		Open	Yes
Rear door switches	1 - Ground	Closed	No
		Open	Yes

SEL287Y

OK or NG

OK	▶	**Check the following.** ● Door switch ground circuit (Front or back door) or door switch ground condition ● Harness for open or short between smart entrance control unit and door switch
NG	▶	Replace door switch.

KEY SWITCH (INSERT) CHECK

=NBEL0397S05

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

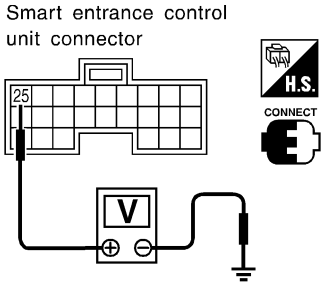
When key is removed from ignition key cylinder:

KEY ON SW OFF

SEL315W

Without CONSULT-II

Check voltage between control unit harness connector M122 terminal 25 (W/R) and ground.



Voltage [V]:

Condition of key switch : Key is inserted.

Approx. 12

Condition of key switch : Key is removed.

0

SEL022Y

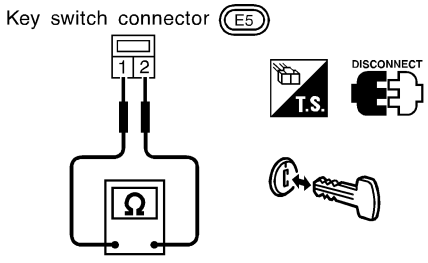
Refer to wiring diagram in EL-422.

OK or NG

OK	▶	Key switch is OK.
NG	▶	GO TO 2.

2	CHECK KEY SWITCH (INSERT)

Check continuity between key switch terminals 1 and 2.



Continuity:

Condition of key switch: Key is inserted.

Yes

Condition of key switch: Key is removed.

No

SEL308X

OK or NG

OK	▶	**Check the following.** ● 7.5A fuse [No. 24, located in fuse block (J/B)] ● Harness for open or short between key switch and fuse ● Harness for open or short between smart entrance control unit and key switch
NG	▶	Replace key switch.

DOOR LOCK/UNLOCK SWITCH LH CHECK

=NBEL0397S06

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

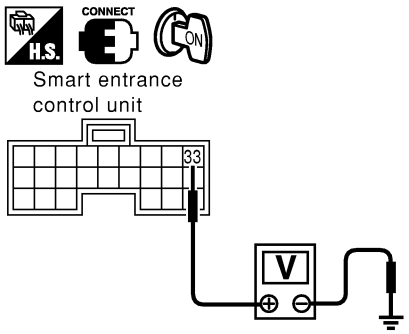
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

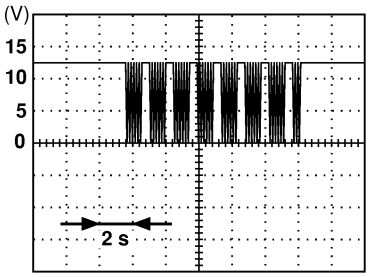
When lock/unlock switch is turned to UNLOCK:
UNLK SW DR/AS ON

SEL341W

Without CONSULT-II

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M122 terminal 33 (BR) and ground with an oscilloscope when door lock/unlock switch is turned "LOCK" or "UNLOCK".
3. Make sure signals shown in the figure below can be detected during the first 10 sec. just after door lock/unlock switch is turned to "LOCK" or "UNLOCK".





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

SEL487Y

Refer to wiring diagram in EL-425.

OK or NG

OK	▶	Door lock/unlock switch is OK.
NG	▶	**Check the following.** ● Ground circuit for each front power window switch ● Harness for open or short between each front power window switch and smart entrance control unit connector If above systems are normal, replace the front power window switch.

HAZARD REMINDER CHECK

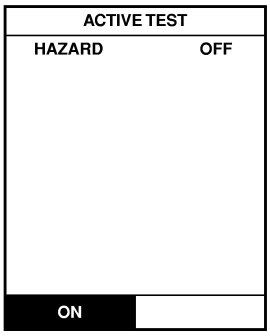
=NBEL0397S07

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.

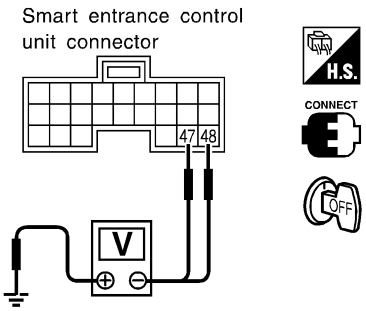
OK or NG

OK	▶	Hazard reminder operation is OK.
NG	▶	Replace smart entrance control unit.

3	CHECK HAZARD REMINDER OPERATION WITHOUT CONSULT-II	

Without CONSULT-II

Apply ground to smart entrance control unit harness connector M122 terminal 47 (GY/L) and 48 (GY/R).



Condition of lock or unlock button	Voltage (V)
Push.	Approx. more than 0 - 12
Do not push.	0

SEL027Y

Refer to wiring diagram in EL-424.

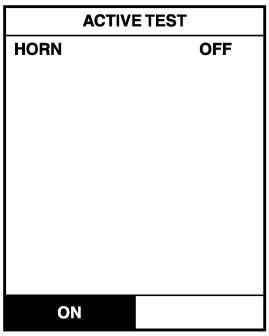
OK or NG

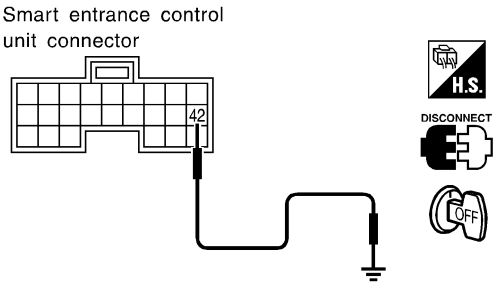
OK	▶	System is OK.
NG	▶	Replace smart entrance control unit.

HORN REMINDER CHECK

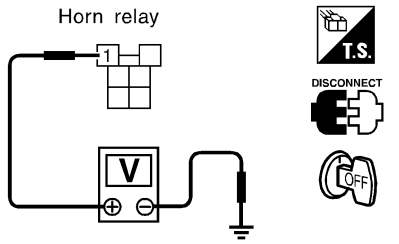
=NBEL0397S08

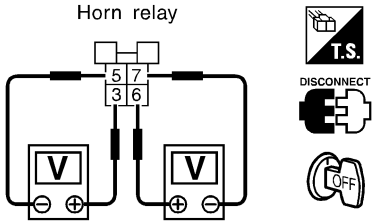
1	CHECK HORN	
Check if horn sounds with horn switch. **Does horn operate?**		
Yes	▶	GO TO 2.
No	▶	Check horn circuit.

2	CHECK HORN REMINDER OPERATION WITH CONSULT-II	
With CONSULT-II 1. Select "ACTIVE TEST" in "MULTI REMOTE ENT" with CONSULT-II. 2. Select "HORN" and touch "ON".  **Horn should sound.** SEL451Y **NOTE: If CONSULT-II is not available, skip this procedure and go to the next step.** **OK or NG**		
OK	▶	Horn reminder operation is OK.
NG	▶	GO TO 4.

3	CHECK HORN REMINDER 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 M122 terminal 42 (LG/B).  SEL028Y Refer to wiring diagram in EL-424. **Does horn sound?**		
Yes	▶	Replace smart entrance control unit.
No	▶	GO TO 4.

4	CHECK HORN RELAY	
Check horn relay.		
OK or NG		
OK	▶	GO TO 5.
NG	▶	Replace horn relay.

5	CHECK POWER SUPPLY FOR HORN RELAY	
1. Disconnect horn relay harness connector. 2. Check voltage between horn relay harness connector E118 terminal 1 (G/B) and ground.		
		**Battery voltage should exist.**
SEL326XA		
OK or NG		
OK	▶	GO TO 6.
NG	▶	**Check the following.** ● 7.5A fuse [No. 52, located in fuse block (J/B)] ● Harness for open or short between horn relay and fuse

6	CHECK HORN RELAY CIRCUIT	
1. Disconnect horn relay harness connector. 2. Check voltage between horn relay harness connector E118 terminals 3 (G/B) and 5 (R). 3. Check voltage between horn relay harness connector E118 terminals 6 (LG) and 7 (G).		
		**Battery voltage should exist.**
SEL327XA		
OK or NG		
OK	▶	Check harness for open or short between smart entrance control unit and horn relay.
NG	▶	**Check the following.** ● Harness for open or short between horn relay and fuse ● Harness for open or short between horn relay and horns

INTERIOR ROOM LAMP OPERATION CHECK

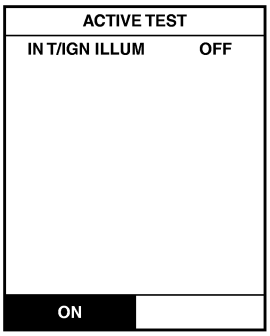
=NBEL0397S09

1	CHECK ROOM INTERIOR LAMP	
Check if the interior room lamp switch is in the "ON" position and the lamp illuminates. **Does interior room lamp illuminate?**		
Yes	▶	GO TO 2.
No	▶	**Check the following.** ● Harness for open or short between smart entrance control unit and interior room lamp ● Interior room lamp

2	CHECK INTERIOR ROOM LAMP OPERATION	

With CONSULT-II

1. Select "ACTIVE TEST" in "MULTI REMOTE ENT" with CONSULT-II.
2. Select "INT/IGN ILLUM" and touch "ON".

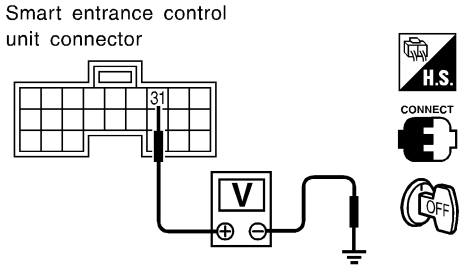


Interior room lamp should illuminate.

SEL312Y

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 M122 terminal 31 (R/B) 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-422.

OK or NG

OK	▶	System is OK.
NG	▶	Check harness open or short between smart entrance control unit and interior room lamp.

ID Code Entry Procedure

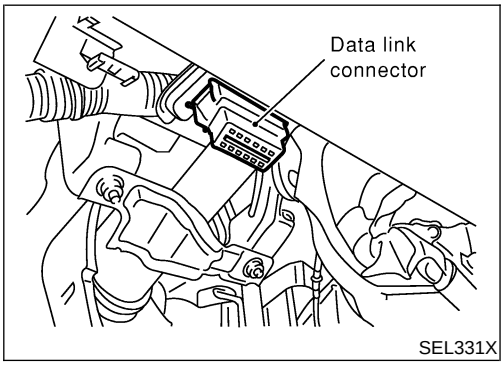
=NBEL0398

KEYFOB ID SET UP WITH CONSULT-II

NBEL0398S01

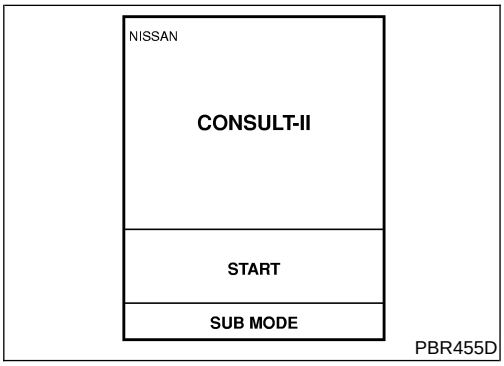
NOTE:

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.



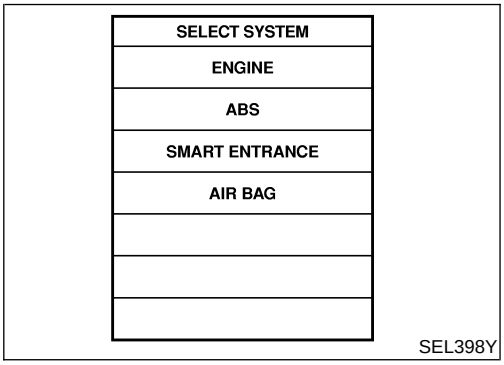
SEL331X

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



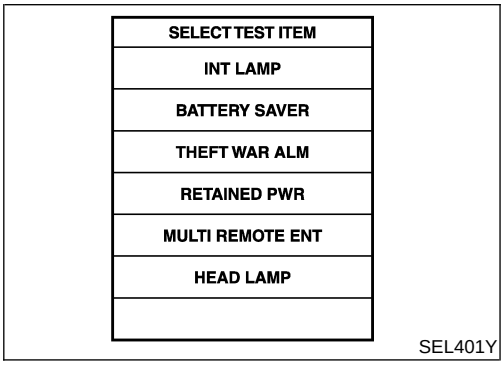
PBR455D

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



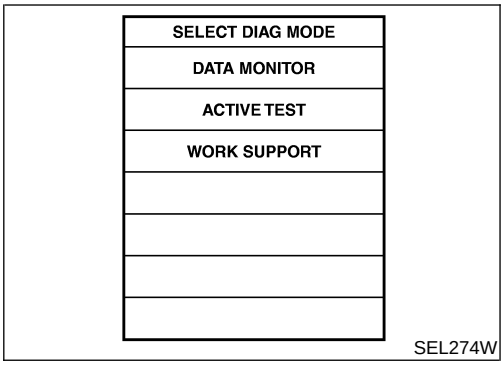
SEL398Y

5. Touch “SMART ENTRANCE”.

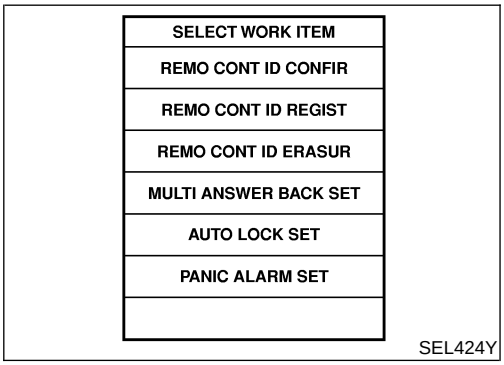


SEL401Y

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.

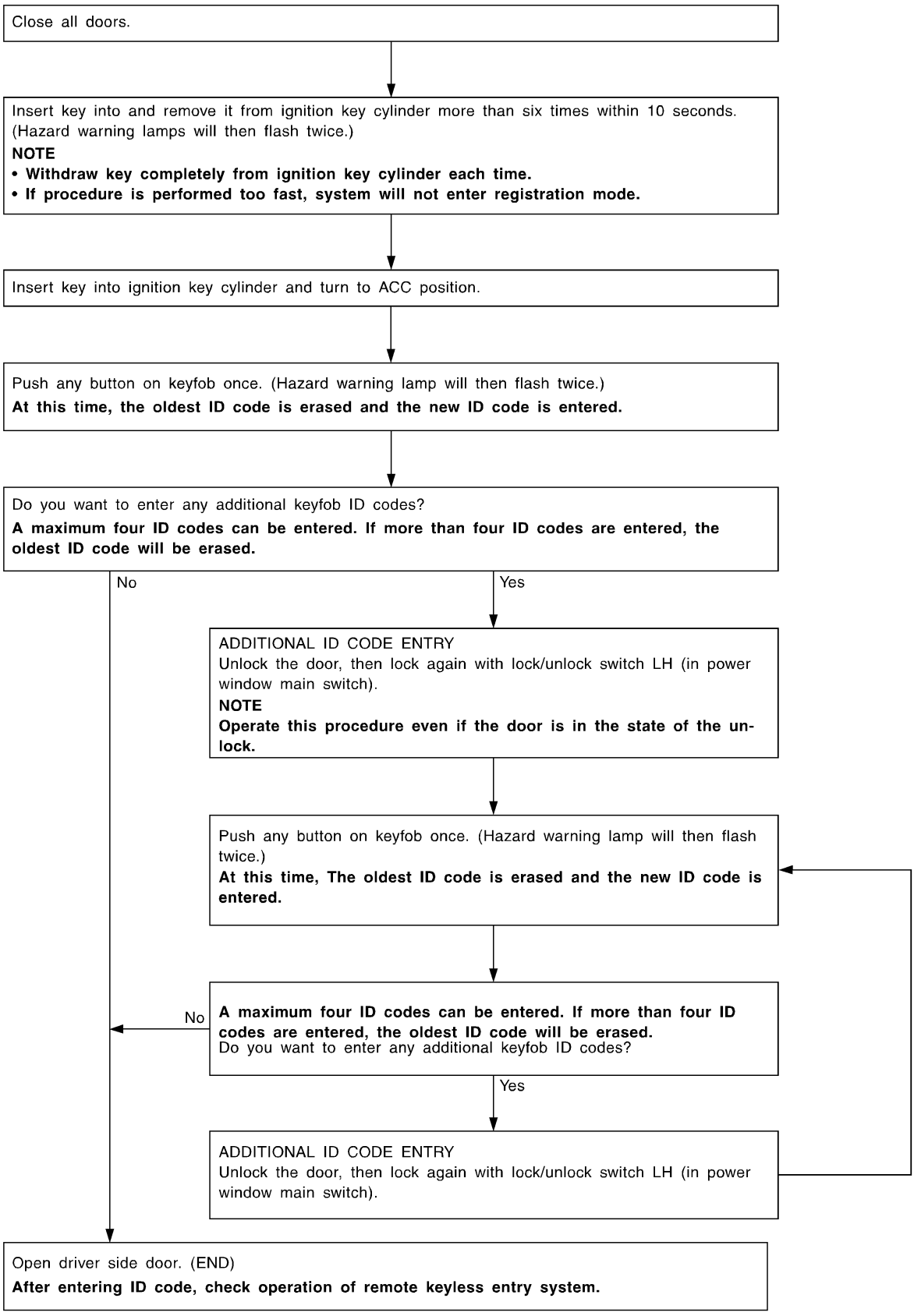
Refer to the EL-427, "WORK SUPPORT" in "CONSULT-II Application Items" for the following items.

- "MULTI ANSWER BACK SET"
- "AUTO LOCK SET"
- "PANIC ALARM SET"
- "TRUNK OPENER"
- "PW DOWN SET"

NOTE:
Even though TRUNK OPENER is actually displayed on the CONSULT-II screen, it is not equipped, therefore, they cannot be activated.

KEYFOB ID SET UP WITHOUT CONSULT-II

NBEL0398S02



SEL170YA

NOTE:

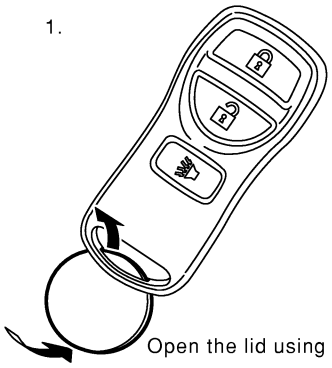
- If a keyfob is lost, the ID code of the lost keyfob must be erased to prevent unauthorized use. A specific ID code can be erased with CONSULT-II. However, when the ID code of a lost keyfob is not known, all keyfob ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new keyfob 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 keyfob 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 keyfob, 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 the 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

NBEL0399

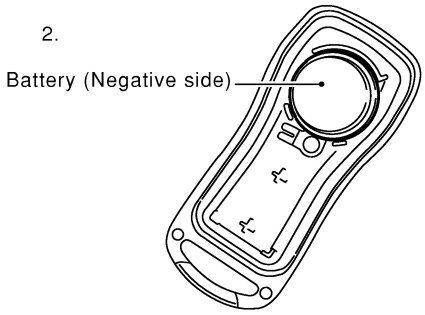
NOTE:
• Be careful not to touch the circuit board or battery terminal.
• The keyfob is water-resistant. However, if it does get wet, immediately wipe it dry.

1.



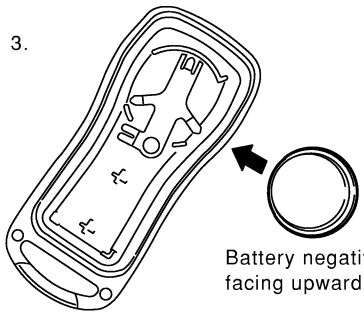
Open the lid using a coin.

2.



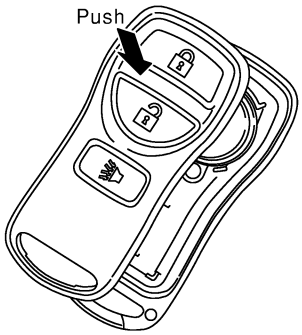
Remove the battery.

3.



Insert the new battery.

4.

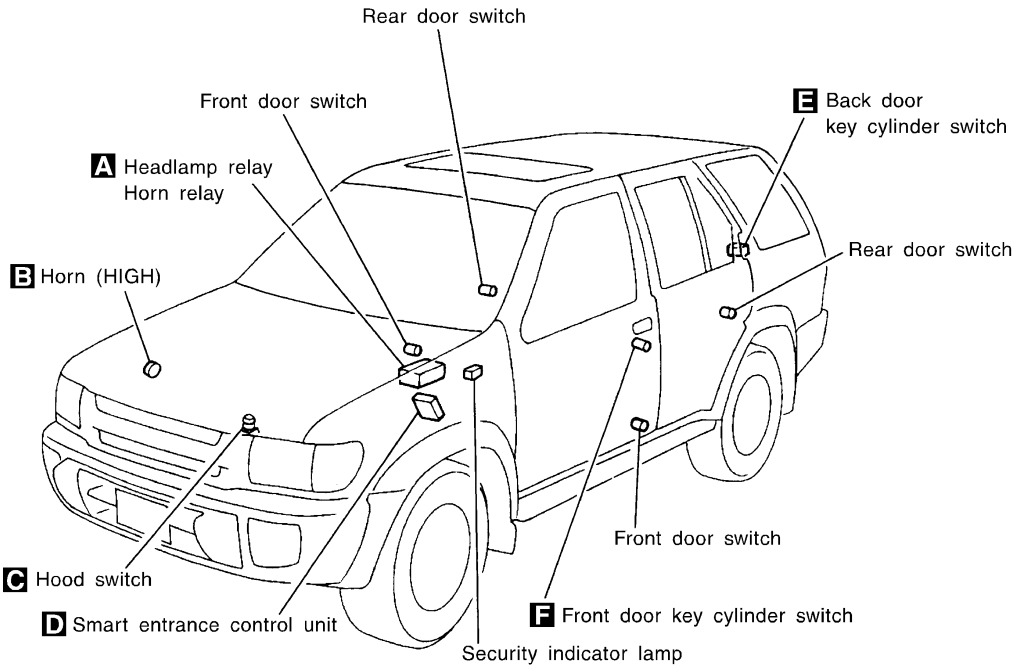


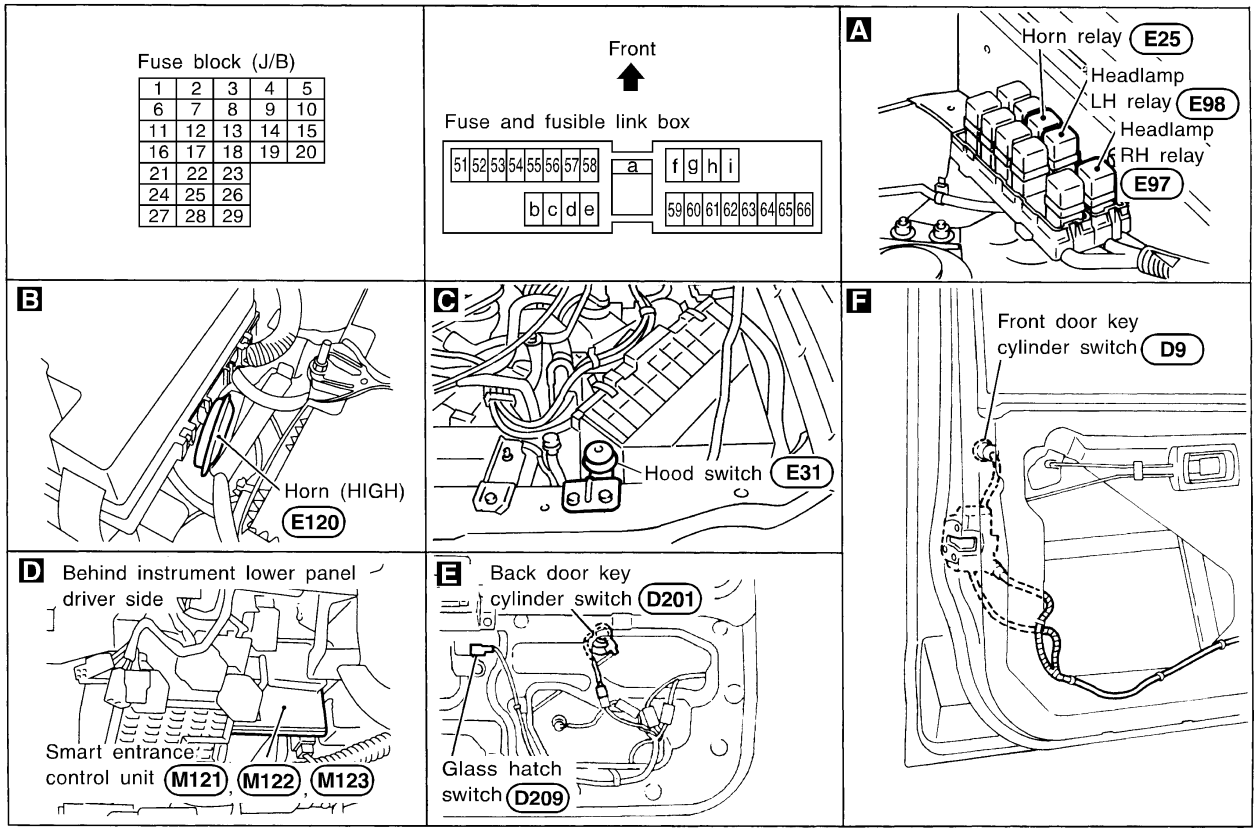
Close the lid securely.
Push the keyfob button two or three times to check its operation.

SEL485Y

Component Parts and Harness Connector Location

NBEL0400





SEL484Y

System Description

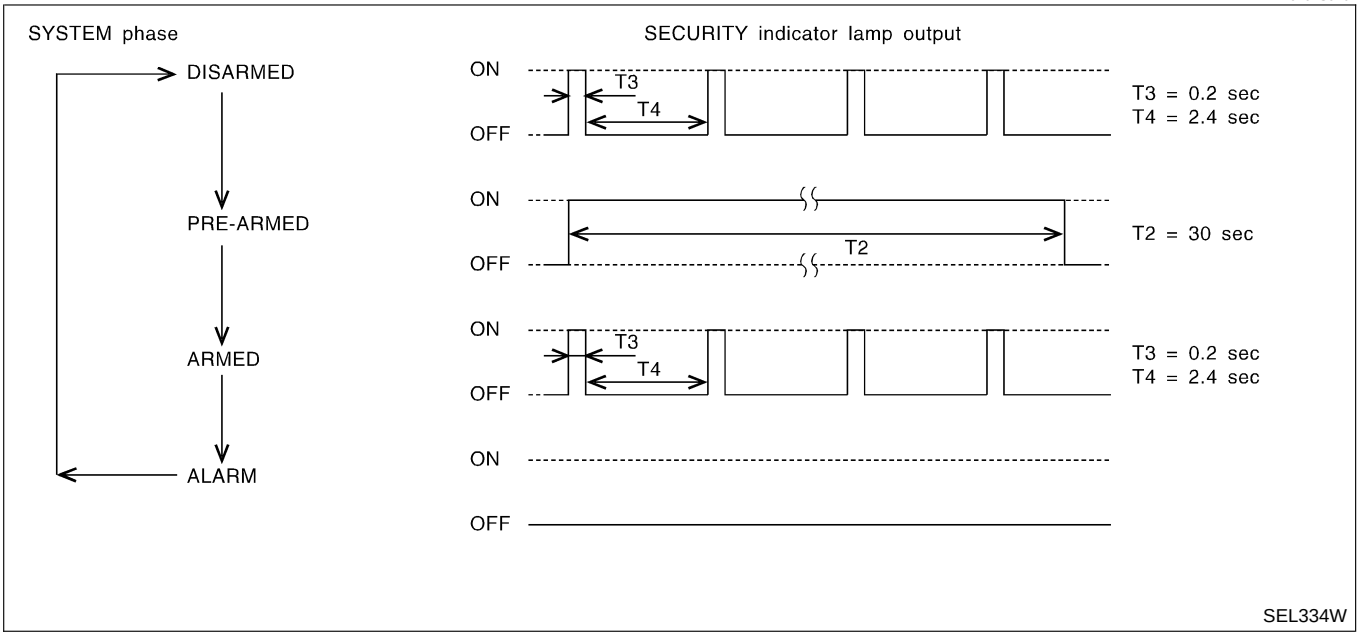
NBEL0401

DESCRIPTION

NBEL0401S01

1. Operation Flow

NBEL0401S0101



2. Setting The Vehicle Security System

NBEL0401S0102

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, glass hatch and all doors are closed.
2) Hood, glass hatch 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

NBEL0401S0103

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 glass hatch with the key or keyfob.

4. Activating The Alarm Operation of The Vehicle Security System

NBEL0401S0104

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, glass hatch or any door is opened during armed phase.
2) Disconnecting and connecting the battery connector before canceling armed phase.

POWER SUPPLY AND GROUND

NBEL0401S02

Power is supplied at all times

- through 7.5A fuse [No. 24, located in the fuse block (J/B)]
- to security indicator lamp terminal 1, and
- to smart entrance control unit terminal 49.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse [No. 11, 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. 10, 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 M77 and M111.

INITIAL CONDITION TO ACTIVATE THE SYSTEM

NBEL0401S03

The operation of the vehicle security system is controlled by the doors, hood and glass hatch.

Pattern A

NBEL0401S0301

To activate the vehicle security system, the smart entrance control unit must receive signals indicating the doors, hood and glass hatch 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 E13 and E41.

When the glass hatch is open, smart entrance control unit terminal 13 receives a ground signal
- from terminal 1 of the glass hatch switch
- through body grounds B11, B22 and D210.

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

NBEL0401S0302

To activate the vehicle security system, the smart entrance control unit must receive signal indicating any door (including hood and glass hatch) 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

NBEL0401S04

Pattern A

NBEL0401S0401

With all doors (including hood and glass hatch) closed, if the key is used to lock doors, smart entrance control unit terminal 33 receives a signal from power window main switch terminal 8.
When key cylinder switch is in LOCK position, ground is supplied
- to power window main switch terminal 6
- from terminal 3 of the front key cylinder switch LH
- through terminal 2 of front key cylinder switch LH
- through body grounds M77 and M111, or

smart entrance control unit terminal 11 receives a ground signal
- from terminal 1 of the back door key cylinder switch
- through body grounds B11, B22 and D210.

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

NBEL0401S0402

With any door (including hood and glass hatch) open, if lock/unlock switch is used to lock doors, smart entrance control unit terminal 33 receives a LOCK signal
- from terminal 8 of lock/unlock switch LH
- through body grounds M77 and M111, or
- from terminal 11 of lock/unlock switch RH

- through body grounds M4, M66 and M147, or

With any door (including hood and glass hatch) open if the key is used to lock doors, smart entrance control unit terminal 33 receives a LOCK signal from power window main front switch terminal 8.
When key cylinder switch LOCK signal ground is supplied

- to power window main switch terminal 6
- from terminal 3 of the front key cylinder switch LH
- through terminal 2 of front key cylinder switch LH
- through body grounds M9, M25 and M87, or

smart entrance control unit terminal 11 receives a ground signal

- from terminal 1 of the back door key cylinder switch
- through body grounds B11, B22 and D210.

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 2 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

NBEL0401S05

The vehicle security system is triggered by

- opening a door
- opening the hood or the glass hatch
- 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 (glass hatch 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 7.5A fuse (No. 52, located in fuse and fusible link box)
- to horn relay terminals 1 and 3.
- through 10A fuse (No. 54, located in fuse and fusible link box)
- to horn relay terminal 6.
- through 15A fuse (No. 60, located in fuse and fusible link box)
- to headlamp LH relay terminals 1 and 3,
- through 15A fuse (No. 59, located in fuse and fusible link box)
- to headlamp RH relay terminals 1 and 3.

When the vehicle security system is triggered, ground is supplied intermittently

- to headlamp (LH and RH) relay terminal 2 from smart entrance control unit terminals 21 and 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 horn relay terminal 2.

When horn relay are energized, then power is supplied to 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

NBEL0401S06

To deactivate the vehicle security system, a door or glass hatch must be unlocked with the key or keyfob.
When the key is used to unlock the door, smart entrance control unit terminal 33 receives an UNLOCK signal from power window main switch terminal 18.
When key cylinder switch is in UNLOCK position, the ground is supplied

- to power window main switch terminal 19
- from the front door key cylinder switch LH terminal 1
- through front door key cylinder switch terminal 2,
- through body grounds M77 and M111.

When the key is used to open the glass hatch, smart entrance control unit terminal 12 receives a ground signal from terminal 3 of the back door 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

NBEL0401S07

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

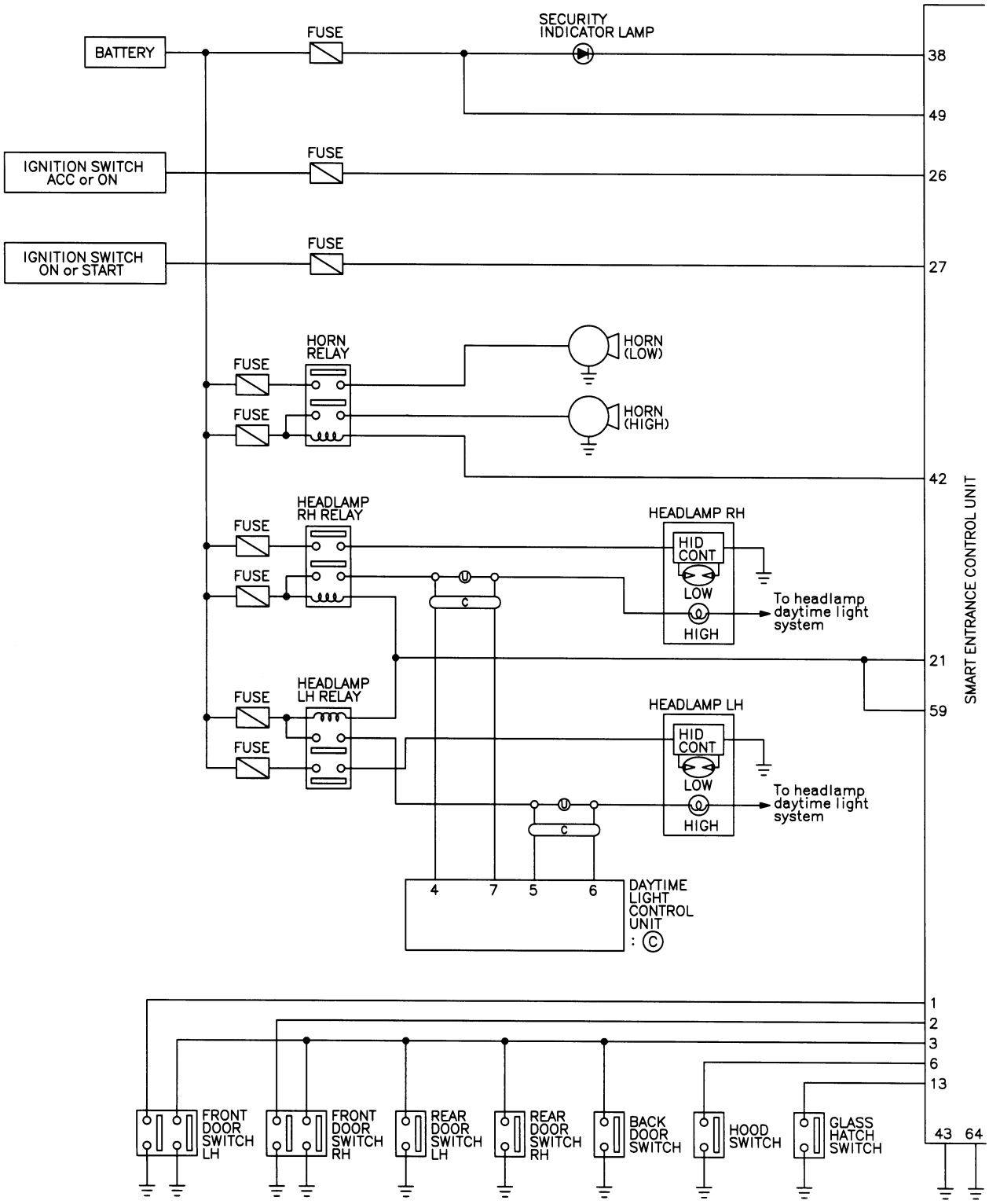
- from smart entrance control unit terminals 21 and 59
- to headlamp (LH and RH) relay terminal 2
- from smart entrance control unit terminal 42
- to horn relay terminal 2.

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.

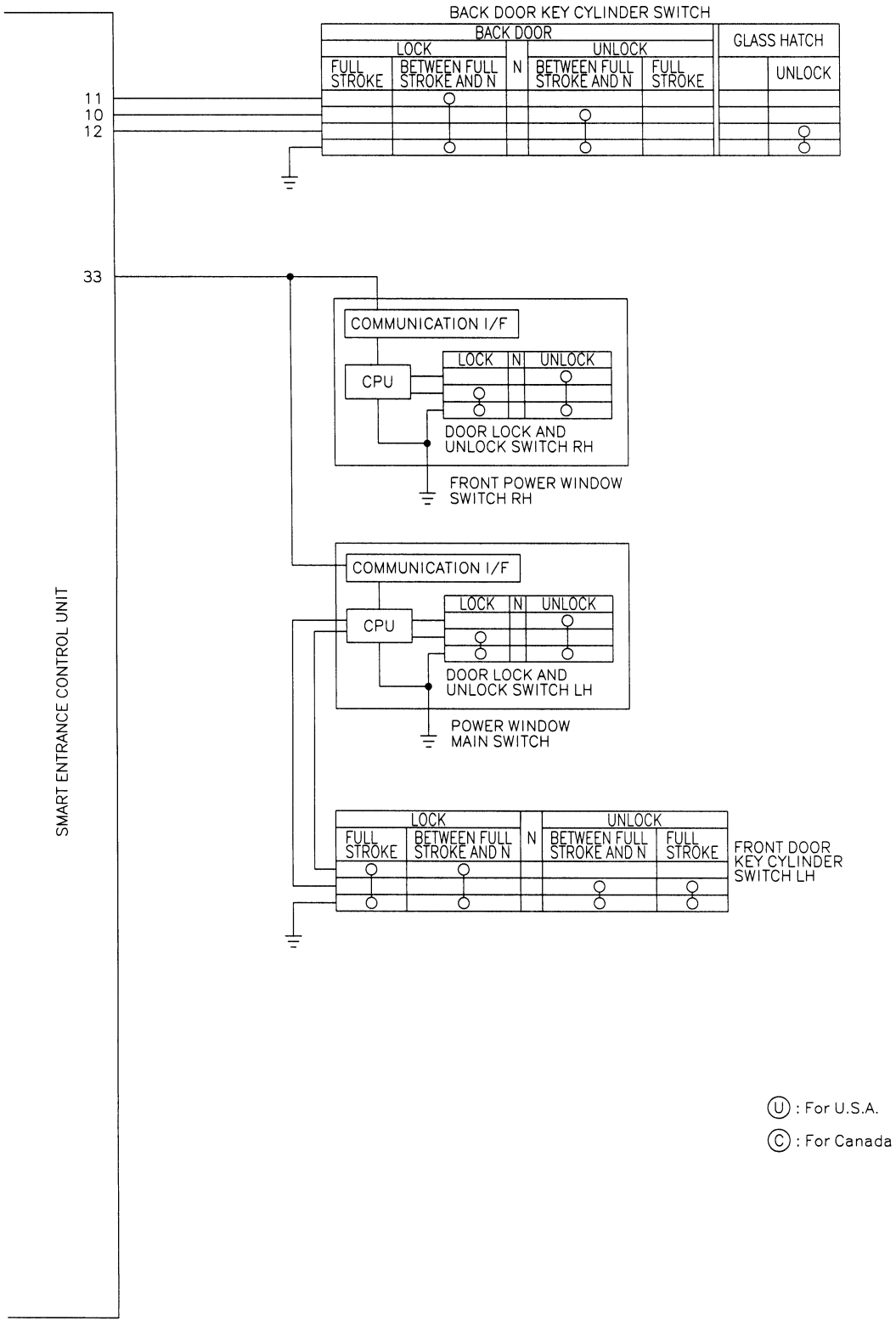
NOTE:

Schematic

NBEL0402



MEL740N


BACK DOOR KEY CYLINDER SWITCH
BACK DOOR
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
BETWEEN FULL STROKE AND N
FULL STROKE
GLASS HATCH
UNLOCK
11
10
12
33
SMART ENTRANCE CONTROL UNIT
COMMUNICATION I/F
CPU
LOCK
N
UNLOCK
DOOR LOCK AND UNLOCK SWITCH RH
FRONT POWER WINDOW SWITCH RH
COMMUNICATION I/F
CPU
LOCK
N
UNLOCK
DOOR LOCK AND UNLOCK SWITCH LH
POWER WINDOW MAIN SWITCH
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
BETWEEN FULL STROKE AND N
FULL STROKE
FRONT DOOR KEY CYLINDER SWITCH LH
Ⓤ : For U.S.A.
Ⓒ : For Canada

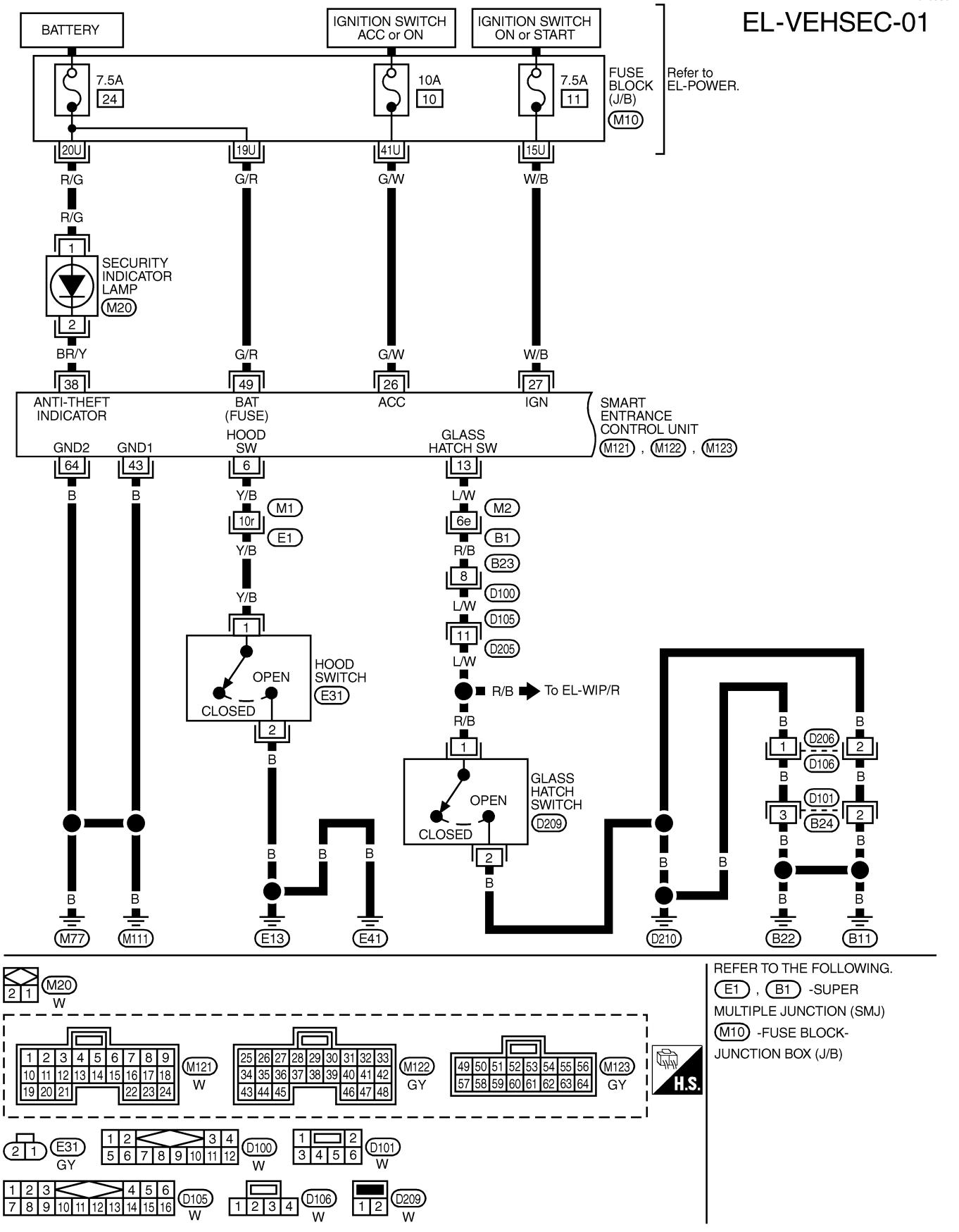
MEL437P

Wiring Diagram — VEHSEC —

NBEL0403

FIG. 1

NBEL0403S01

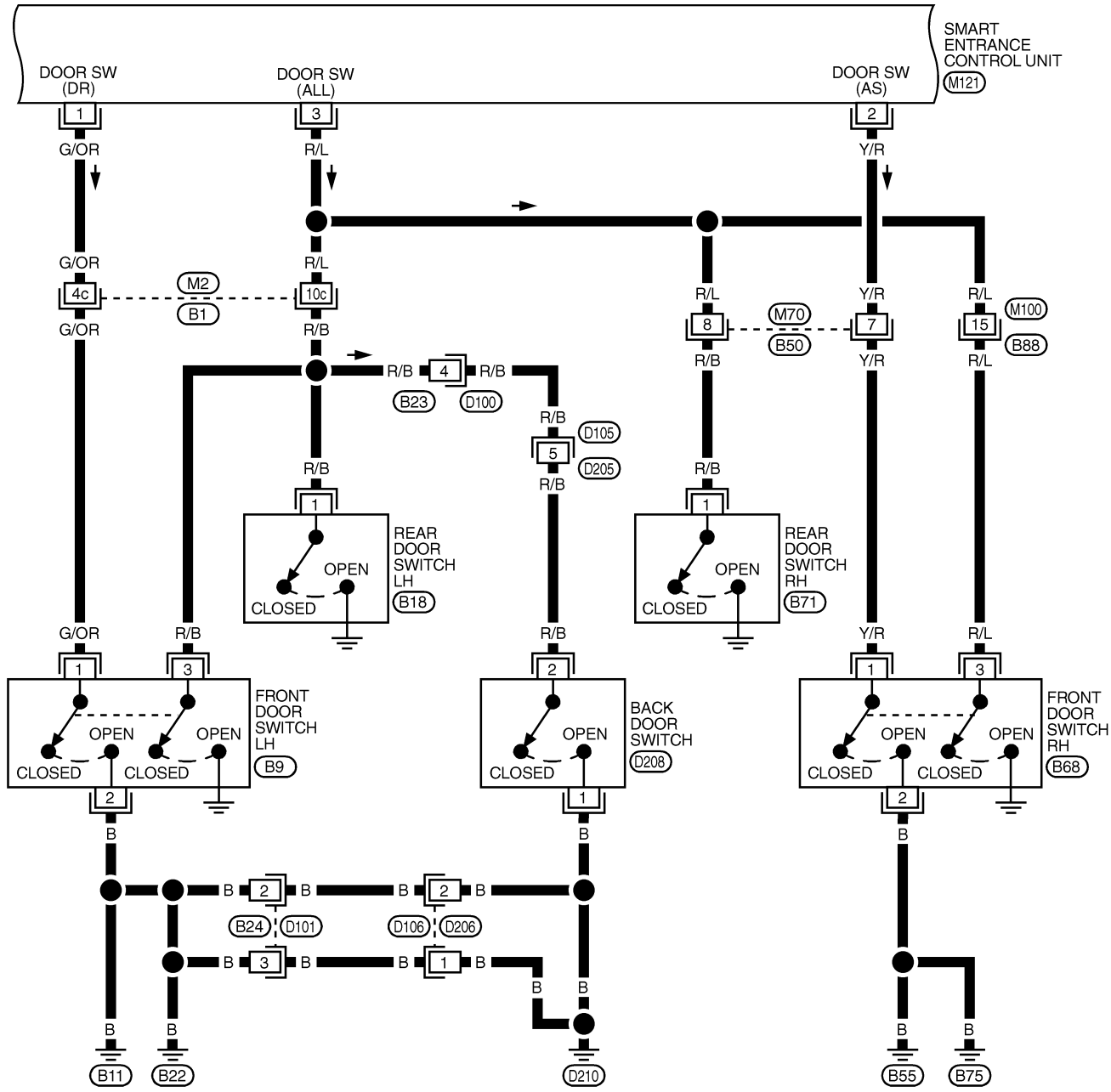


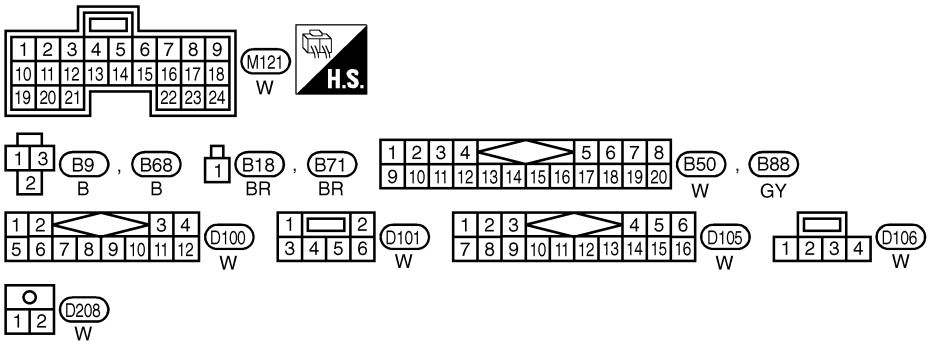
MEL456O

FIG. 2

NBEL0403S02

EL-VEHSEC-02





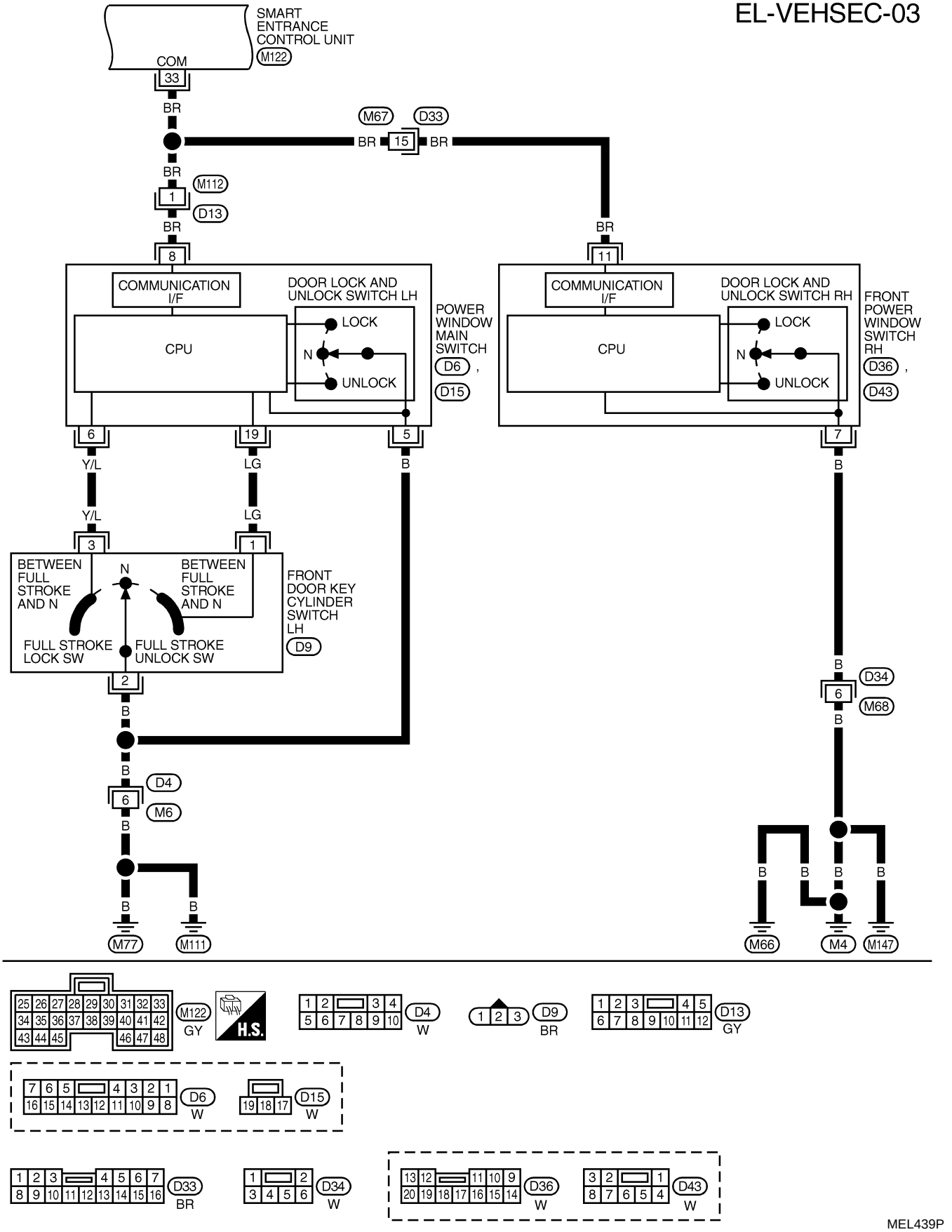
REFER TO THE FOLLOWING.
(B1) -SUPER MULTIPLE JUNCTION (SMJ)

MEL622P

FIG. 3

NBEL0403S03

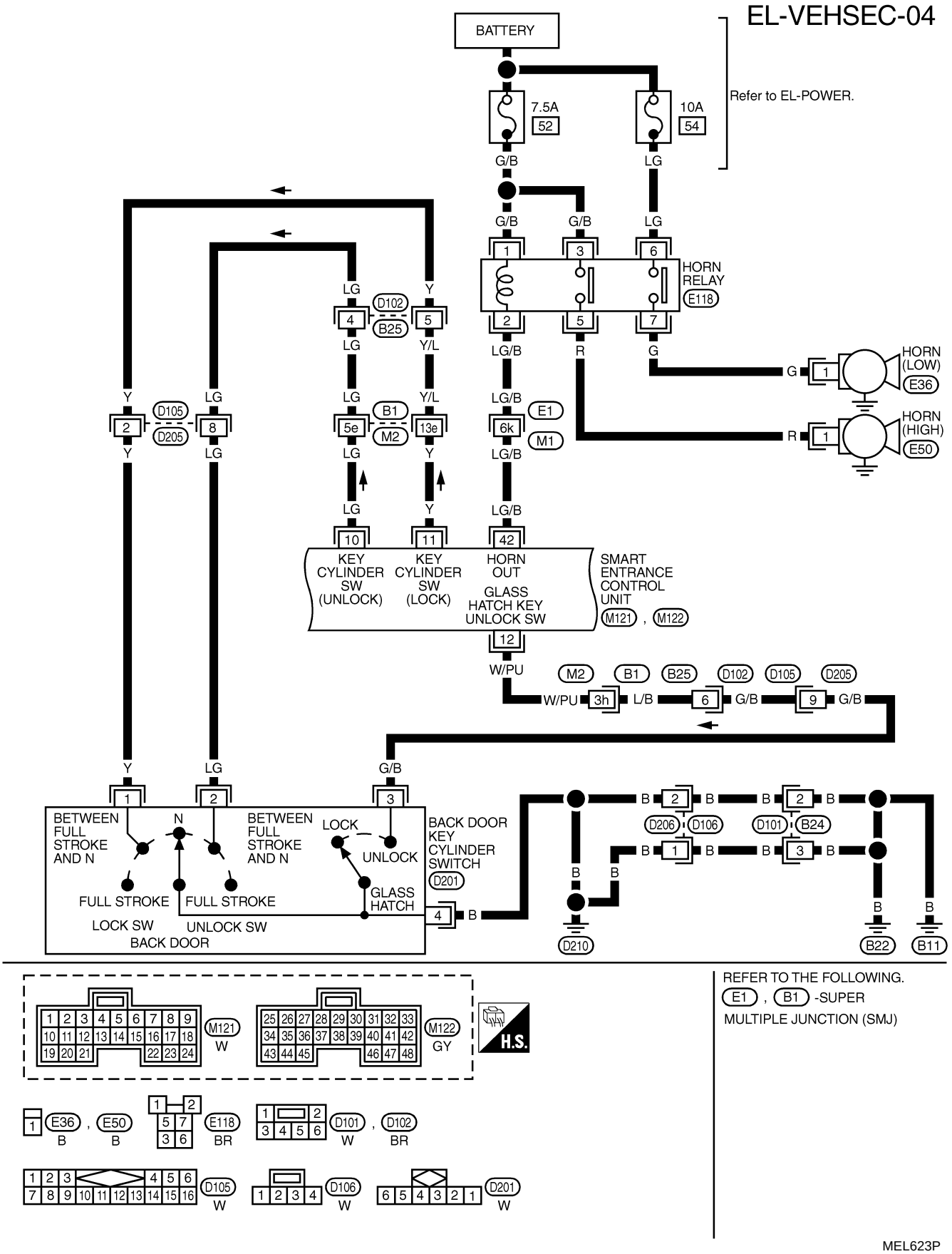
EL-VEHSEC-03



MEL439P

FIG. 4

NBEL0403S04

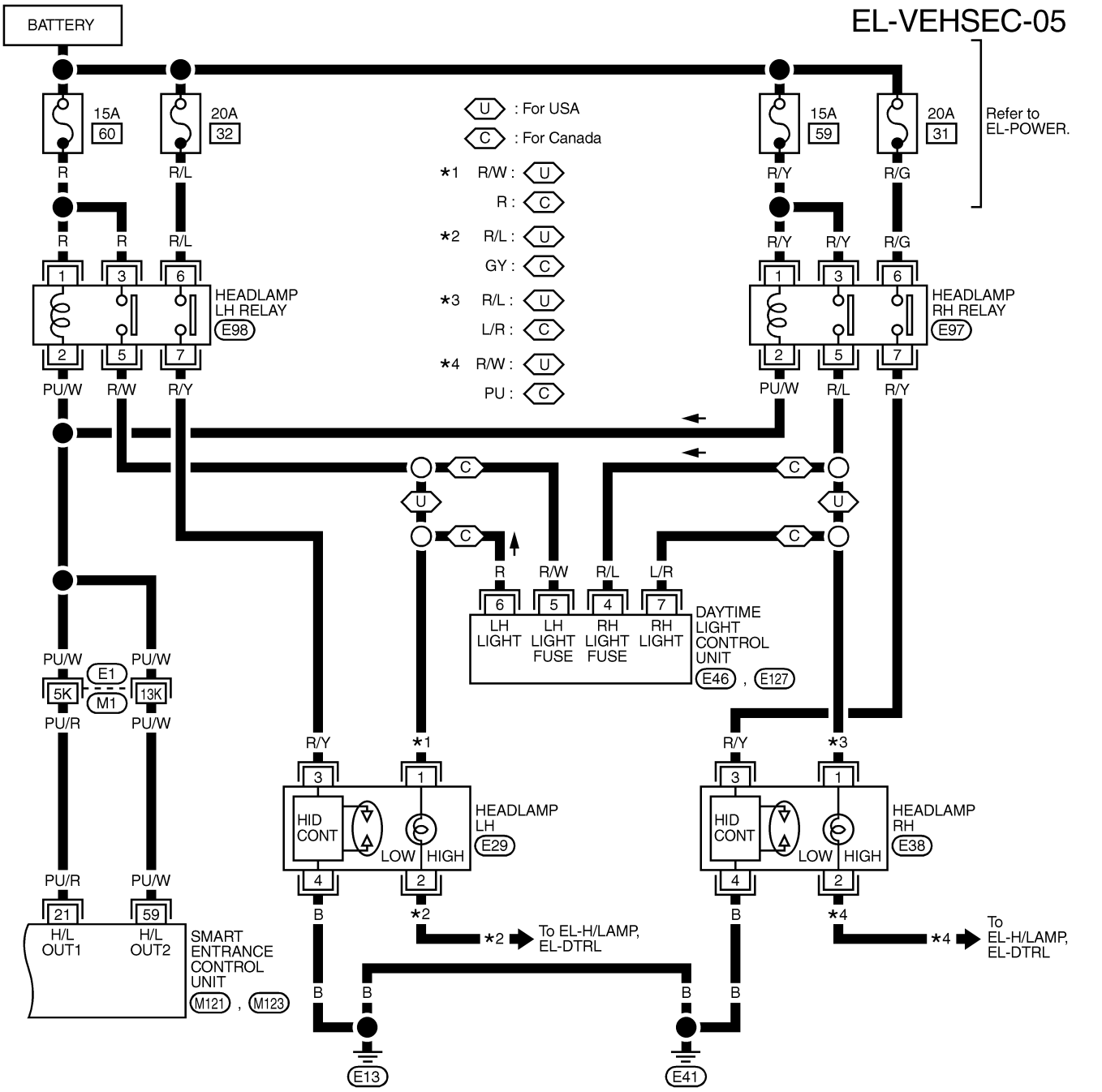


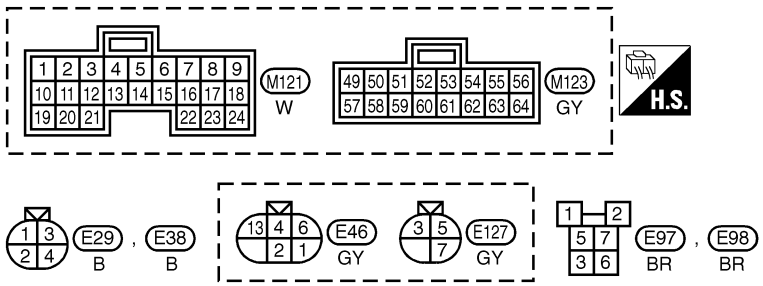
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL623P

FIG. 5

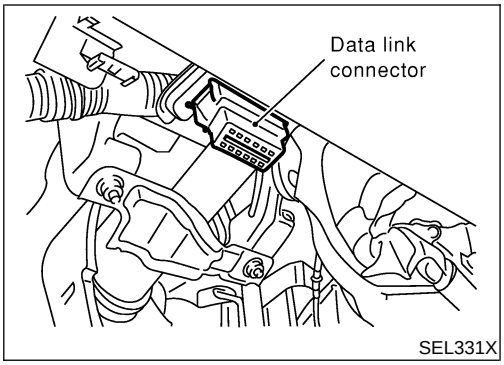
NBEL0403S05





REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL624P



SEL331X

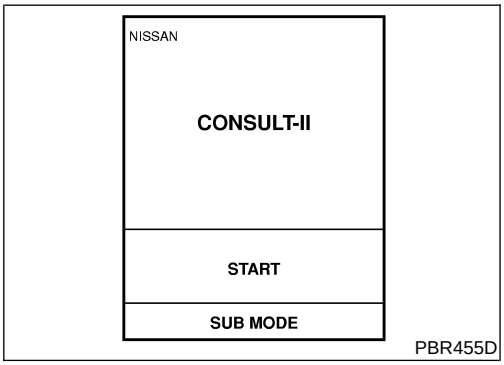
CONSULT-II Inspection Procedure

=NBEL0404

“THEFT WAR ALM”

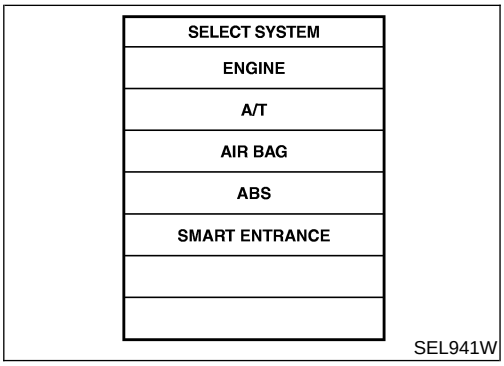
NBEL0404S01

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



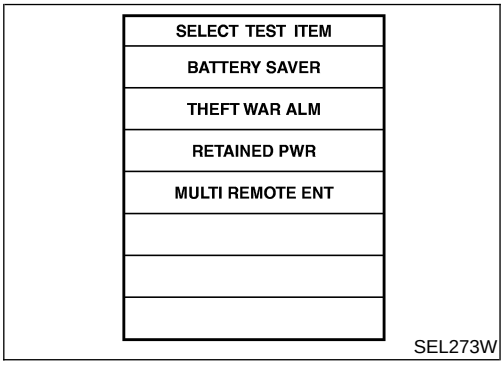
PBR455D

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



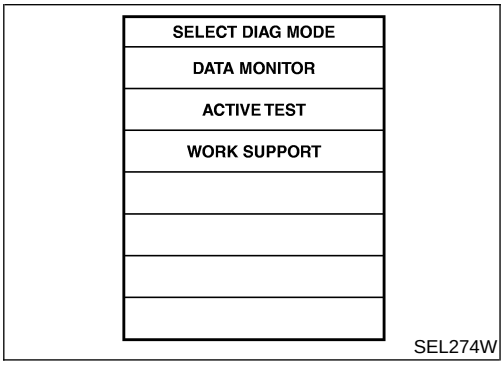
SEL941W

5. Touch “SMART ENTRANCE”.



SEL273W

6. Touch “THEFT WAR ALM”.



SEL274W

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

CONSULT-II Application Item

NBEL0405

"THEFT WAR ALM"

NBEL0405S01

Data Monitor

NBEL0405S0101

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 back door switch.
TRUNK KEY SW	Indicates [ON/OFF] condition of back door 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.

NOTE:
Even though TRUNK BTN/SIG is actually displayed on the CONSULT-II screen, it is not equipped, therefore, they cannot be activated.

Active Test

NBEL0405S0102

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

NBEL0405S0103

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.

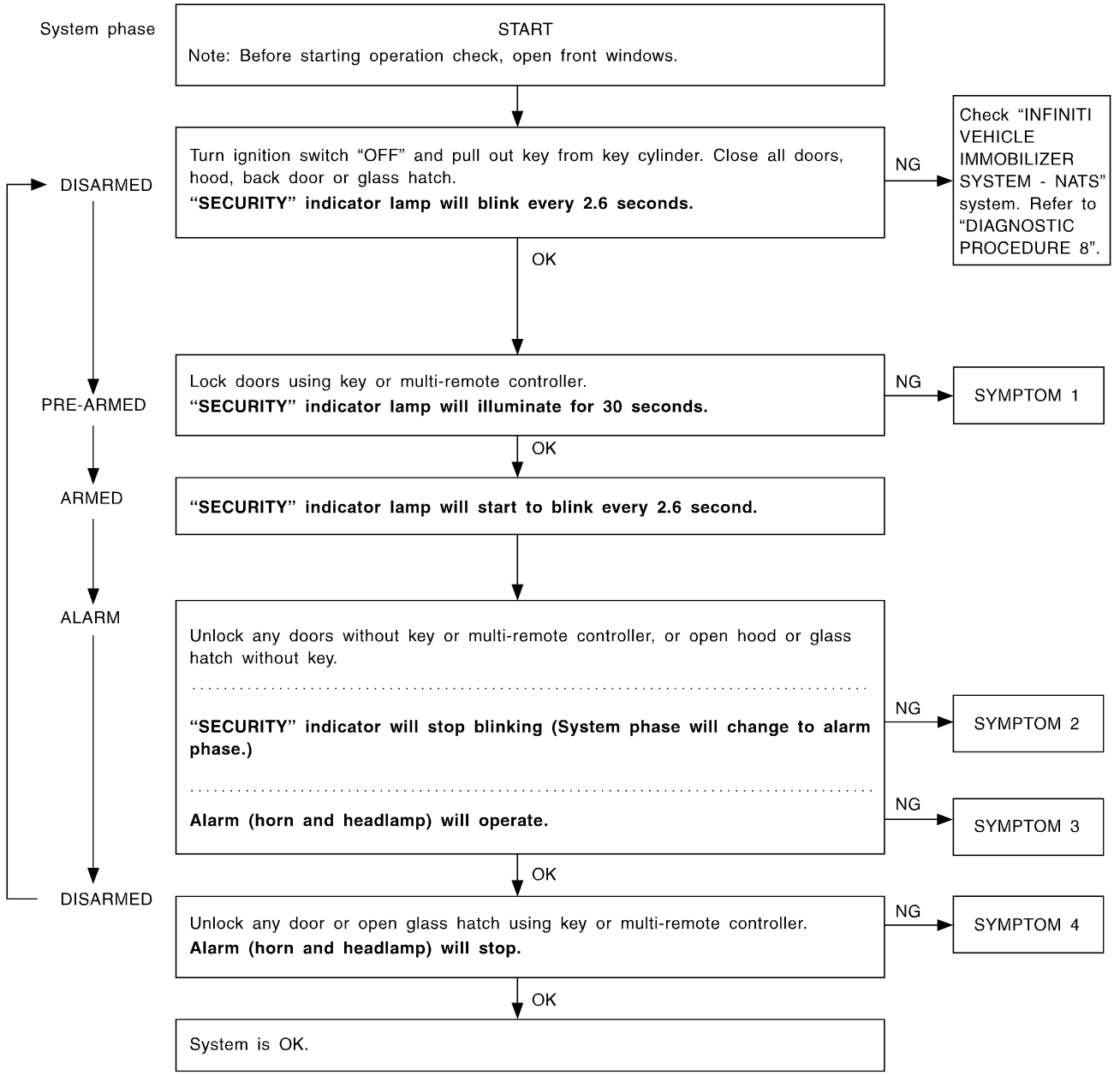
Trouble Diagnoses

=NBEL0406

PRELIMINARY CHECK

NBEL0406S01

The system operation is canceled by turning ignition switch to "ACC" at any step between START and ARMED in the following flow chart.



SEL733W

After performing preliminary check, go to symptom chart below.

SYMPTOM CHART

NBEL0406S02

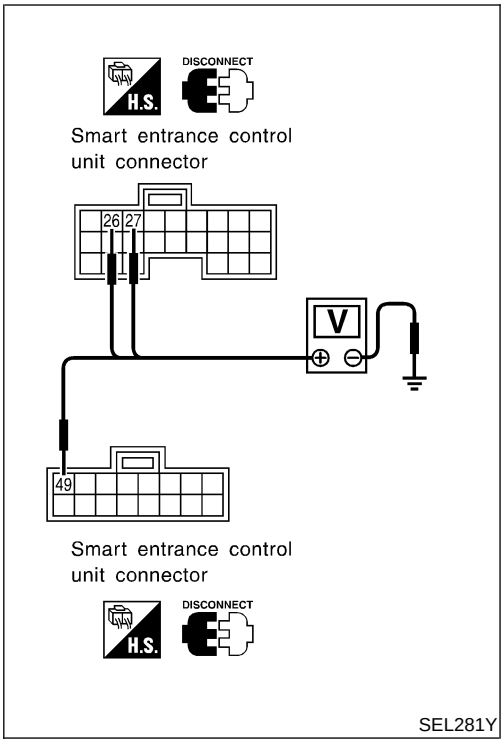
REFERENCE PAGE (EL-)			461	463	464	469	471	473	476	478	428
SYMPTOM			PRELIMINARY CHECK	POWER SUPPLY AND GROUND CIRCUIT CHECK	DOOR, HOOD AND GLASS HATCH SWITCH CHECK	SECURITY INDICATOR LAMP CHECK	DOOR KEY CYLINDER SWITCH CHECK	BACK DOOR KEY CYLINDER SWITCH CHECK	VEHICLE SECURITY HORN ALARM CHECK	VEHICLE SECURITY HEADLAMP ALARM CHECK	Check "REMOTE KEYLESS ENTRY" system.
	Vehicle security indicator does not illuminate for 30 seconds.		X	X	X	X					
1	Vehicle security system cannot be set by	All items	X	X	X						
		Door outside key	X				X				
		Back door key	X					X			
		Remote keyless entry	X								X
2	*1 Vehicle security system does not alarm when ...	Any door is opened.	X		X						
		Any door is unlocked without using key or keyfob	X								
3	Vehicle security alarm does not activate.	All function	X		X						
		Horn alarm	X						X		
		Headlamp alarm	X							X	
4	Vehicle security system cannot be canceled by	Door outside key	X				X				
		Back door key	X					X			
		Remote keyless entry	X								X

X : Applicable

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

Before starting trouble diagnoses above, perform preliminary check, EL-461.

Symptom numbers in the symptom chart correspond with those of preliminary check.



SEL281Y

POWER SUPPLY AND GROUND CIRCUIT CHECK

NBEL0406S03

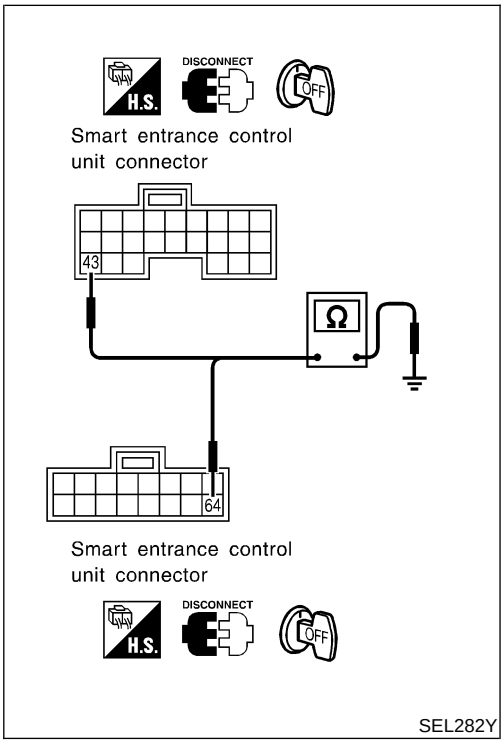
Power Supply Circuit Check

NBEL0406S0301

Terminals			Ignition switch position		
(+)		(−)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M123	49 (G/R)	Ground	Battery voltage	Battery voltage	Battery voltage
M122	26 (G/W)	Ground	0V	Battery voltage	Battery voltage
M122	27 (W/B)	Ground	0V	0V	Battery voltage

If NG, check the following.

- 7.5A fuse [No. 24, located in fuse block (J/B)]
- 7.5A fuse [No. 11, located in fuse block (J/B)]
- 10A fuse [No. 10, located in fuse block (J/B)]
- Harness for open or short between smart entrance control unit and fuse.



SEL282Y

Ground Circuit Check

NBEL0406S0302

Terminals			Continuity
(+)		(−)	
Connector	Terminal (Wire color)		
M122	43 (B)	Ground	Yes
M123	64 (B)		

DOOR, HOOD AND GLASS HATCH SWITCH CHECK

=NBEL0406S04

Door Switch Check

NBEL0406S0401

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 glass hatch.
3. Lock doors with multi-remote controller 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.

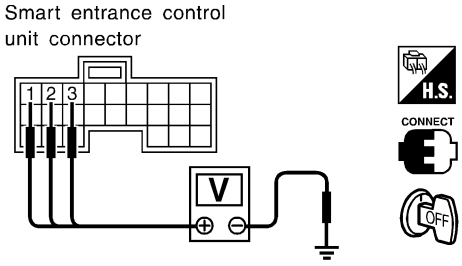
DATA MONITOR	
MONITOR	
DOOR SW-RR	OFF
DOOR SW-DR	OFF
DOOR SW-AS	OFF

	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 M121 terminals 1 (G/OR), 2 (Y) or 3 (R/L) and ground.



	Terminals (+)	Terminals (–)	Condition	Voltage [V]
Front door switch LH	1	Ground	Open	0
			Closed	Approx. 5
Front door switch RH	2	Ground	Open	0
			Closed	Approx. 5
Rear and back door switches	3	Ground	Open	0
			Closed	Approx. 5

SEL021YA

Refer to wiring diagram in EL-455.

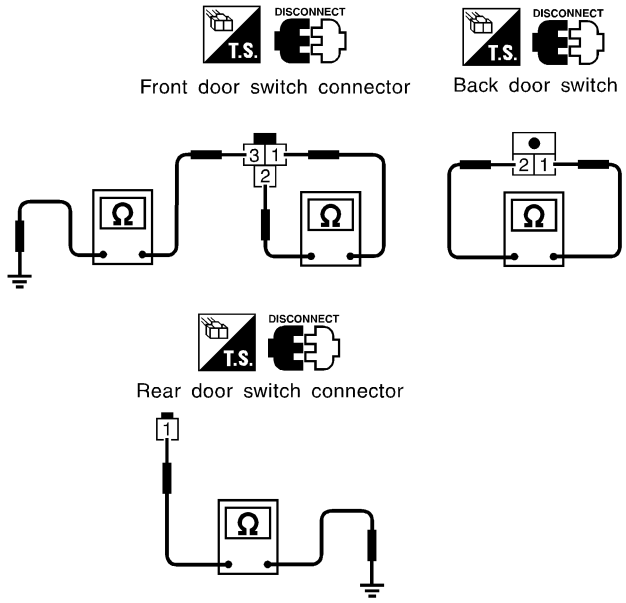
OK or NG

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 the following.

- Continuity between front door switch harness connector B9 (LH) or B68 (RH) terminals 1 and 2
- Continuity between front door switch harness connector B9 (LH) or B68 (RH) terminals 3 and ground
- Continuity between back door switch harness connector D208 terminals 1 and 2
- Continuity between rear door switch harness connector B18 (LH) or B71 (RH) terminal 1 and ground



	Terminals	Condition	Continuity
Front door switches	1 - 2	Closed	No
	3 - Ground	Open	Yes
Back door switch	1 - 2	Closed	No
		Open	Yes
Rear door switches	1 - Ground	Closed	No
		Open	Yes

SEL287Y

OK or NG

OK	▶	**Check the following.** ● Door switch ground circuit (Front or back) or door switch ground condition ● Harness for open or short between smart entrance control unit and door switch
NG	▶	Replace door switch.

Hood Switch Check

=NBEL0406S0402

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 multi-remote controller 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.

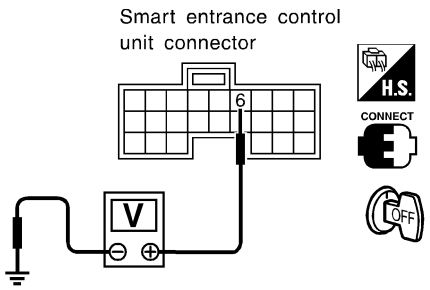
DATA MONITOR	
MONITOR	
HOOD SWITCH	OFF

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 M121 terminal 6 (Y/B) and ground.



Voltage [V]:
Engine hood is open.
0
Engine hood is closed.
Approx. 5

SEL035Y

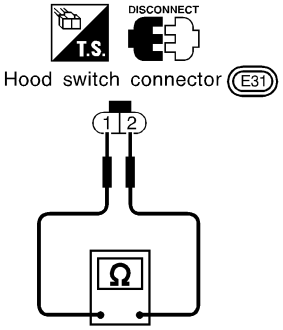
Refer to wiring diagram in EL-454.

OK or NG

OK	▶	Hood switch is OK, and go to glass hatch 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

SEL338X

OK or NG

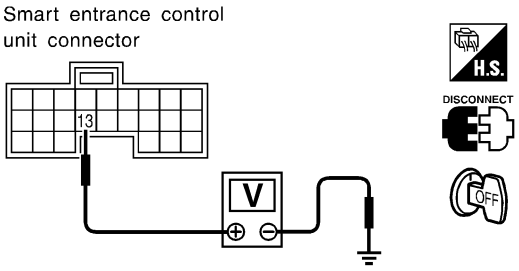
OK	▶	**Check the following.** ● Hood switch ground circuit ● Harness for open or short between smart entrance control unit and hood switch
NG	▶	Replace hood switch.

Glass Hatch Switch Check

=NBEL0406S0403

1	CHECK GLASS HATCH SWITCH INPUT SIGNAL

Check voltage between smart entrance control unit harness connector M121 terminal 13 (L/W) and ground.



Voltage [V]:
Glass hatch is open.
Approx. 0
Glass hatch is closed.
Approx. 12

SEL326Y

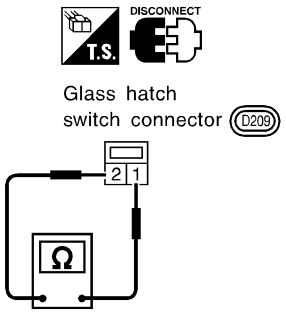
Refer to wiring diagram in EL-454.

OK or NG

OK	▶	Glass hatch switch is OK.
NG	▶	GO TO 2.

2	CHECK GLASS HATCH SWITCH

1. Disconnect glass hatch switch connector.
2. Check continuity between glass hatch switch terminals 1 and 2.



Continuity:
Condition: Closed
No
Condition: Open
Yes

SEL340X

OK or NG

OK	▶	**Check the following.** ● Glass hatch switch ground circuit ● Harness for open or short between smart entrance control unit and glass hatch switch
NG	▶	Replace glass hatch switch.

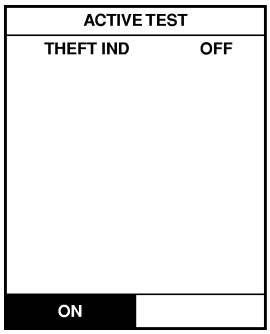
SECURITY INDICATOR LAMP CHECK

=NBEL0406S05

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".

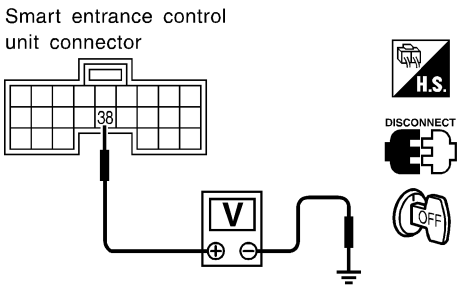


Security indicator lamp should illuminate.

SEL356W

Without CONSULT-II

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector M122 terminal 38 (BR/Y) and ground.



Battery voltage should exist.

SEL037Y

Refer to wiring diagram in EL-454.

OK or NG

OK	▶	Security indicator lamp is OK.
NG	▶	GO TO 2.

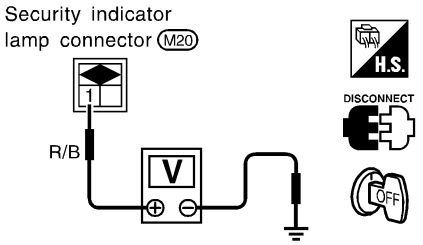
2	CHECK INDICATOR LAMP

OK or NG

OK	▶	GO TO 3.
NG	▶	Replace indicator lamp.

3	CHECK POWER SUPPLY CIRCUIT FOR INDICATOR LAMP

1. Disconnect security lamp connector.
2. Check voltage between indicator lamp terminal 1 and ground.



Battery voltage should exist.

SEL342X

Does battery voltage exist?

Yes	▶	Check harness for open or short between security indicator lamp and smart entrance control unit.
No	▶	**Check the following.** ● 7.5A fuse [No. 24, located in fuse block (J/B)] ● Harness for open or short between security indicator lamp and fuse

FRONT DOOR KEY CYLINDER SWITCH CHECK

=NBEL0406S06

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.

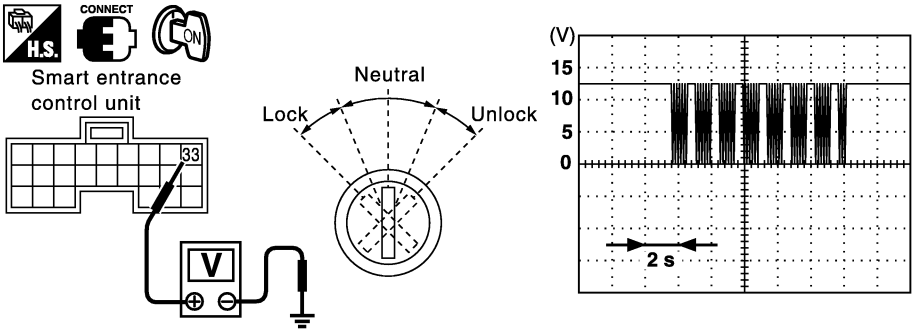
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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 M122 terminal 33 (BR) 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.

SEL488Y

Refer to wiring diagram in EL-456.

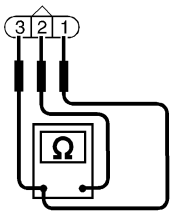
OK or NG

OK	▶	Door key cylinder switch LH is OK.
NG	▶	GO TO 2.

2	CHECK DOOR KEY CYLINDER SWITCH

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

Door key cylinder switch LH connector D9



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

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

SEL313X

OK or NG

OK	▶	**Check the following.** ● Door key cylinder switch LH ground circuit ● Harness for open or short between smart entrance control unit and door key cylinder switch LH
NG	▶	Replace door key cylinder switch LH.

BACK DOOR KEY CYLINDER SWITCH CHECK

=NBEL0406S07

1 | **CHECK BACK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK/UNLOCK SIGNAL)**

With CONSULT-II

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

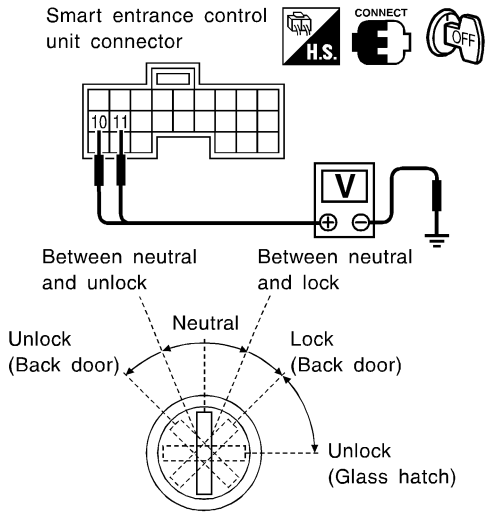
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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

SEL342WB

Without CONSULT-II

Check voltage between smart entrance control unit harness connector M122 terminals 10 (LG), 11 (Y) or 12 (W/PU) and ground.



	Terminals (+)	Terminals (−)	Key position	Voltage [V]
Back door	11	Ground	Between neutral and lock	0
			Other positions	Approx. 5
	10	Ground	Between neutral and unlock	0
			Other positions	Approx. 5
Glass hatch	12	Ground	Unlock	0
			Other positions	Approx. 5

SEL325Y

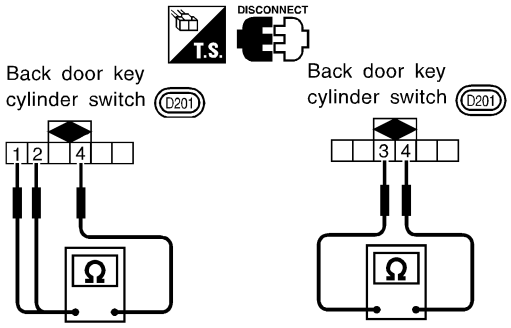
Refer to wiring diagram in EL-457.

OK or NG

OK	▶	Back door key cylinder switch is OK.
NG	▶	GO TO 2.

2 CHECK BACK DOOR KEY CYLINDER SWITCH

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



Key position	Terminals			
	1	2	3	4
Between neutral and lock (Back door)	○			○
Between neutral and unlock (Back door)		○		○
Between lock (Back door) and unlock (glass hatch)			○	○

SEL345X

OK or NG

OK	▶	**Check the following.** ● Back door key cylinder switch ground circuit ● Harness for open or short between smart entrance control unit and back door key cylinder switch
NG	▶	Replace back door key cylinder switch.

DOOR LOCK/UNLOCK SWITCH CHECK

=NBEL0406S08

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

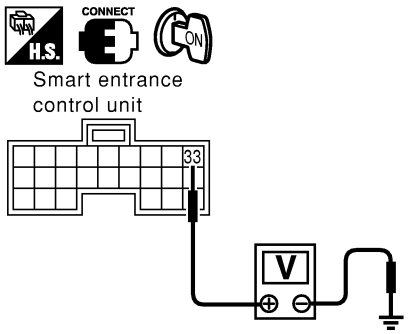
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

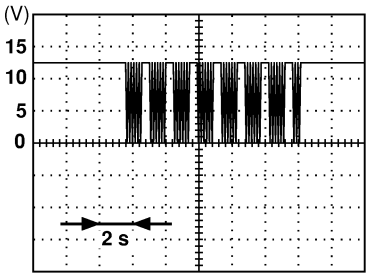
When lock/unlock switch is turned to UNLOCK:
UNLK SW DR/AS ON

SEL341W

Without CONSULT-II

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M122 terminal 33 (BR) 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.

SEL487Y

Refer to wiring diagram in EL-456.

OK or NG

OK	▶	Door lock/unlock switch is OK.
NG	▶	**Check the following.** ● Ground circuit for each front power window switch ● Harness for open or short between each front power window switch and smart entrance control unit connector If above systems are normal, replace the front power window switch.

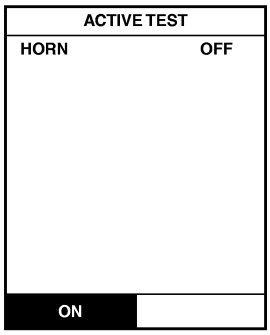
VEHICLE SECURITY HORN ALARM CHECK

=NBEL0406S09

1	CHECK VEHICLE SECURITY HORN

With CONSULT-II

1. Select "ACTIVE TEST" in "THEFT WAR ALM" with CONSULT-II.
2. Select "HORN" and touch "ON".

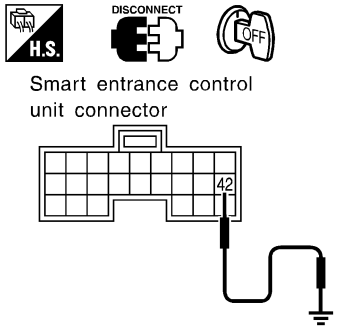


Vehicle security horn alarm should operate.

SEL041Y

Without CONSULT-II

1. Disconnect smart entrance control unit harness connector.
2. Apply ground to smart entrance control unit harness connector M121 terminal 42 (LG/B).



Vehicle security horn and headlamp alarm should operate.

SEL043Y

Refer to wiring diagram in EL-457.

NOTE:

If CONSULT-II is not available, skip this procedure and go to the next step.

OK or NG

OK	▶	Horn alarm is OK.
NG	▶	GO TO 2.

2	CHECK HORN RELAY

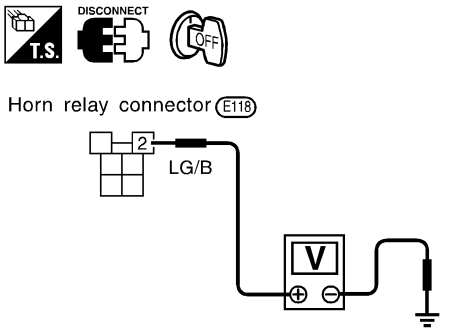
Check horn relay.

OK or NG

OK	▶	GO TO 3.
NG	▶	Replace horn relay.

3	CHECK POWER SUPPLY FOR HORN RELAY

1. Disconnect horn relay connector.
2. Check voltage between terminal 2 and ground.



Battery voltage should exist.

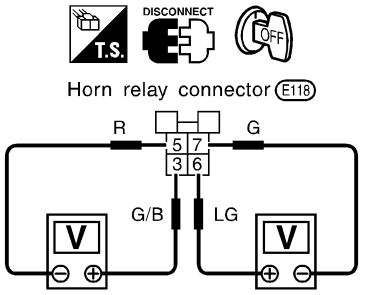
SEL347X

OK or NG

OK	▶	GO TO 4.
NG	▶	**Check the following.** ● 7.5A fuse (No. 52, located in the fuse and fusible link box) ● Harness for open or short between horn relay and fuse

4	CHECK HORN RELAY CIRCUIT

1. Disconnect horn relay connector.
2. Check voltage between terminals 3 and 5.
3. Check voltage between terminals 6 and 7.



Battery voltage should exist.

SEL348X

OK or NG

OK	▶	Check harness for open or short between horn relay and smart entrance control unit.
NG	▶	Check harness for open or short.

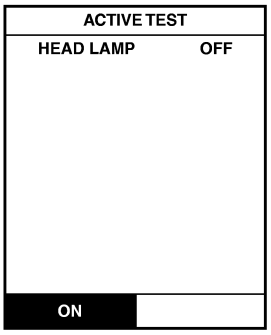
VEHICLE SECURITY HEADLAMP ALARM CHECK

=NBEL0406S10

1	CHECK VEHICLE SECURITY HEADLAMP ALARM OPERATION

With CONSULT-II

1. Select "ACTIVE TEST" in "THEFT WAR ALM" with CONSULT-II.
2. Select "HEADLAMP" and touch "ON".

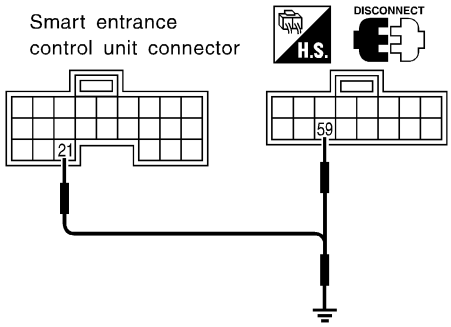


Vehicle security headlamp alarm should operate.

SEL042Y

Without CONSULT-II

1. Disconnect smart entrance control unit connector.
2. Apply ground to smart entrance control unit harness connector M121 terminal 21 (PU/R) or M122 terminal 59 (PU/W).



Vehicle security headlamp alarm should operate.

SEL198Y

Refer to wiring diagram in EL-458.

NOTE:

If CONSULT-II is not available, skip this procedure and go to the next step.

OK or NG

OK	▶	Headlamp is OK.
NG	▶	GO TO 2.

2	CHECK HEADLAMP OPERATION

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

Yes	▶	Check harness for open or short between headlamp relay and smart entrance control unit.
No	▶	Check headlamp system. Refer to "HEADLAMP".

Description

NBEL0407

OUTLINE

NBEL0407S01

The smart entrance control unit totally controls the following body electrical system operations.

- Headlamp auto light control system
- Warning chime
- Rear defogger and door mirror defogger timer
- 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

NBEL0407S02

Headlamps/Parking Lamps/License Lamps/Tail Lamps/Fog Lamps/Illumination Lamps

NBEL0407S0201

While the headlamps (including parking, license, tail, fog and illumination lamps) are turned ON by "1ST" or "2ND" of lighting switch, the exterior lamp battery saver control is activated when the ignition switch signal changes from ON (or ACC) to OFF, and either one of LH or RH front door switch ON signal is received. The headlamps (including parking, license, tail, fog and illumination lamps) are turned off after 5 minutes.

While the headlamps are turned ON by "AUTO" operation, the exterior lamp battery saver control is activated when the ignition switch is turned from ON (or ACC) to OFF, and either LH or RH front door switch ON signal is input.

The smart entrance control unit controls timer activation as follows:

- When the door switch signal changes from ON to OFF while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the headlamps (including parking, license, tail, fog and illumination lamps) will be turned off.
- When the door switch signal changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the headlamps will be turned off.
- When the one of four door switch signals changes from OFF to ON while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 5 minutes, then the headlamps (including parking, license, tail, fog and illumination lamps) will be turned off.
- When all the door switch ON signals are input while the exterior lamp battery saver is activated, the operation is discontinued, restarts and lasts for 45 seconds, then the headlamps (including parking, license, tail, fog and illumination lamps) will be turned off.

The "45" second timer's duration can be changed with the function setting mode of CONSULT-II.

Interior Lamp/Luggage Room Lamp/Spot Lamp/Vanity Mirror Illumination

NBEL0407S0202

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:

- Door is locked or unlocked with keyfob or door lock/unlock switch or door key cylinder.
- Ignition switch ON.
- Door is opened or closed,
- Key is inserted or removed into ignition key cylinder.

Rear Window Defogger/Door Mirror Defogger

NBEL0407S0203

Rear window defogger and door mirror defogger are turned off in approximately 15 minutes after the rear window defogger switch is turned on.

RETAINED POWER CONTROL

NBEL0407S03

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.

Description (Cont'd)

INPUT/OUTPUT

NBEL0407S04

System	Input	Output
Power door lock	Door lock and unlock switch LH and RH Key switch (Insert) Door switches Door key cylinder switches	Door lock actuator
Remote keyless entry	Key switch (Insert) Ignition switch (ACC) Door switches Keyfob signal Door lock/unlock switch LH	Horn relay Hazard warning lamp Interior lamp Door lock actuator Opener actuator
Warning chime	Key switch (Insert) Ignition switch (ON) Lighting switch (1st) Seat belt switch (driver's seat) Front door switch LH	Warning chime (located in smart entrance control unit)
Rear window defogger and door mirror defogger	Ignition switch (ON) Rear window defogger switch	Rear window defogger relay
Vehicle security	Ignition switch (ACC, ON) Door switches Hood switch Glass hatch switch Door lock/unlock switches Door key cylinder switches (lock/unlock) Key cylinder switch (unlock)	Horn relay Headlamp relay Security indicator
Interior lamp	Door switches Keyfob signal (lock/unlock) Door lock/unlock switches (lock/unlock) Door key cylinder switch (lock/unlock) Ignition switch (ON) Key switch (Insert)	Interior lamp Step lamp Door indicator
Battery saver control for headlamps/parking lamps/ licence lamps/tail lamps/fog lamps/illumination lamps	Ignition switch (ON) Front door switches Lighting switches	Headlamps Parking lamps Licence lamps Tail lamps Fog lamps Illumination lamps
Battery saver control for interior lamp/spot lamp/vanity mirror illumination	Ignition switch (ON) Front door switches Lamp switches	Interior lamp Spot lamp Vanity mirror illumination Luggage room lamp
Battery saver control for rear window defogger and door mirror defogger	Ignition switch (ON) Rear window defogger switch	Rear window defogger relay
Retained power control for electric sunroof	Ignition switch (ON) Front door switches	Sunroof motor
Retained power control for power window	Ignition switch (ON) Front door switches	Power window relay

CONSULT-II

NBEL0408

DIAGNOSTIC ITEMS APPLICATION

NBEL0408S01

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.

DIAGNOSTIC ITEM DESCRIPTION

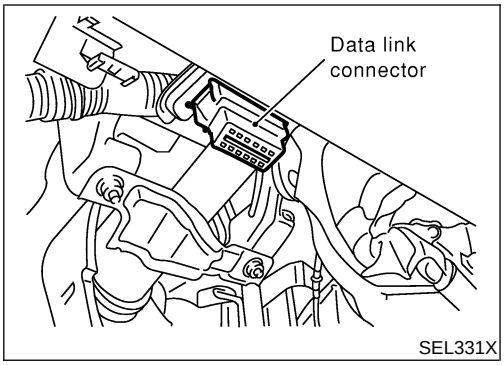
NBEL0408S02

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. • 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. • 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. • Hazard and horn reminder mode can be changed. • Pressing time of panic alarm and door unlock (for power window down operation) buttons on keyfob can be changed. • Auto lock operation starting time can be changed.
WORK SUPPORT for HEADLAMP	• Auto light sensitivity can be changed. • Exterior lamp battery saver control ON-OFF setting can be changed. • Auto light delay off time can be changed.

CONSULT-II (Cont'd)

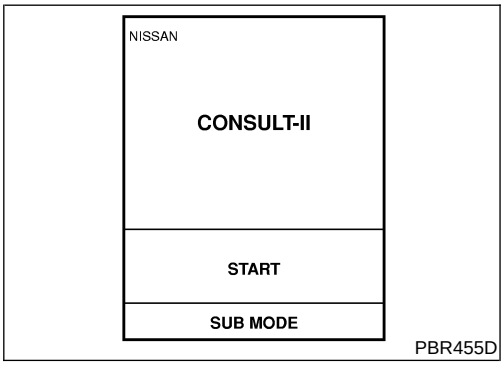
CONSULT-II INSPECTION PROCEDURE

NBEL0408S03



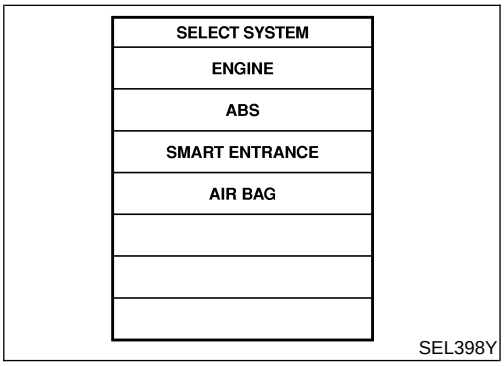
SEL331X

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



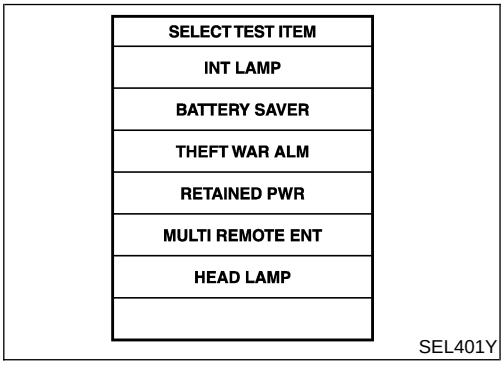
PBR455D

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



SEL398Y

5. Touch "SMART ENTRANCE".



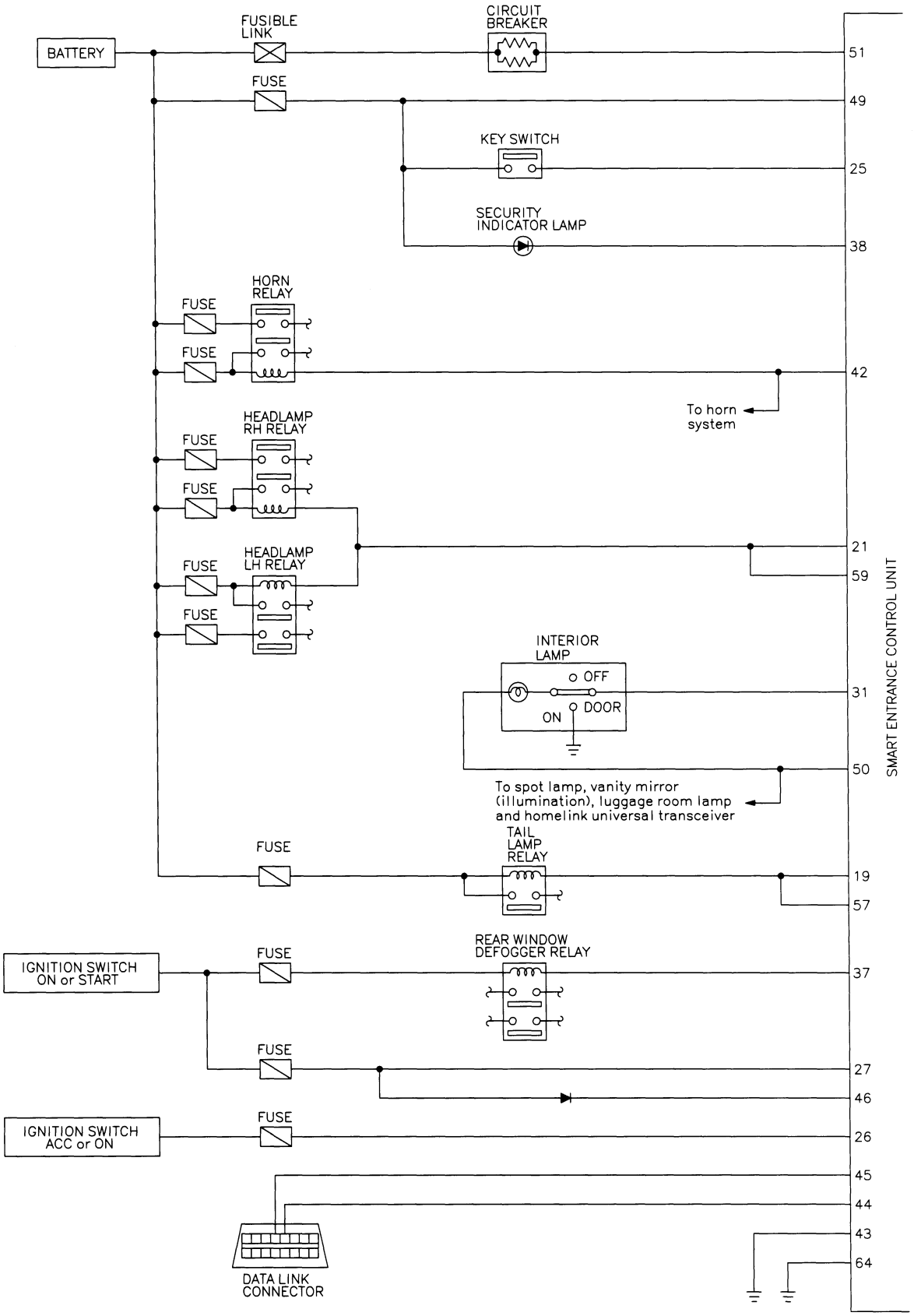
SEL401Y

6. Perform each diagnostic item according to "DIAGNOSTIC ITEMS APPLICATION". Refer to EL-481.

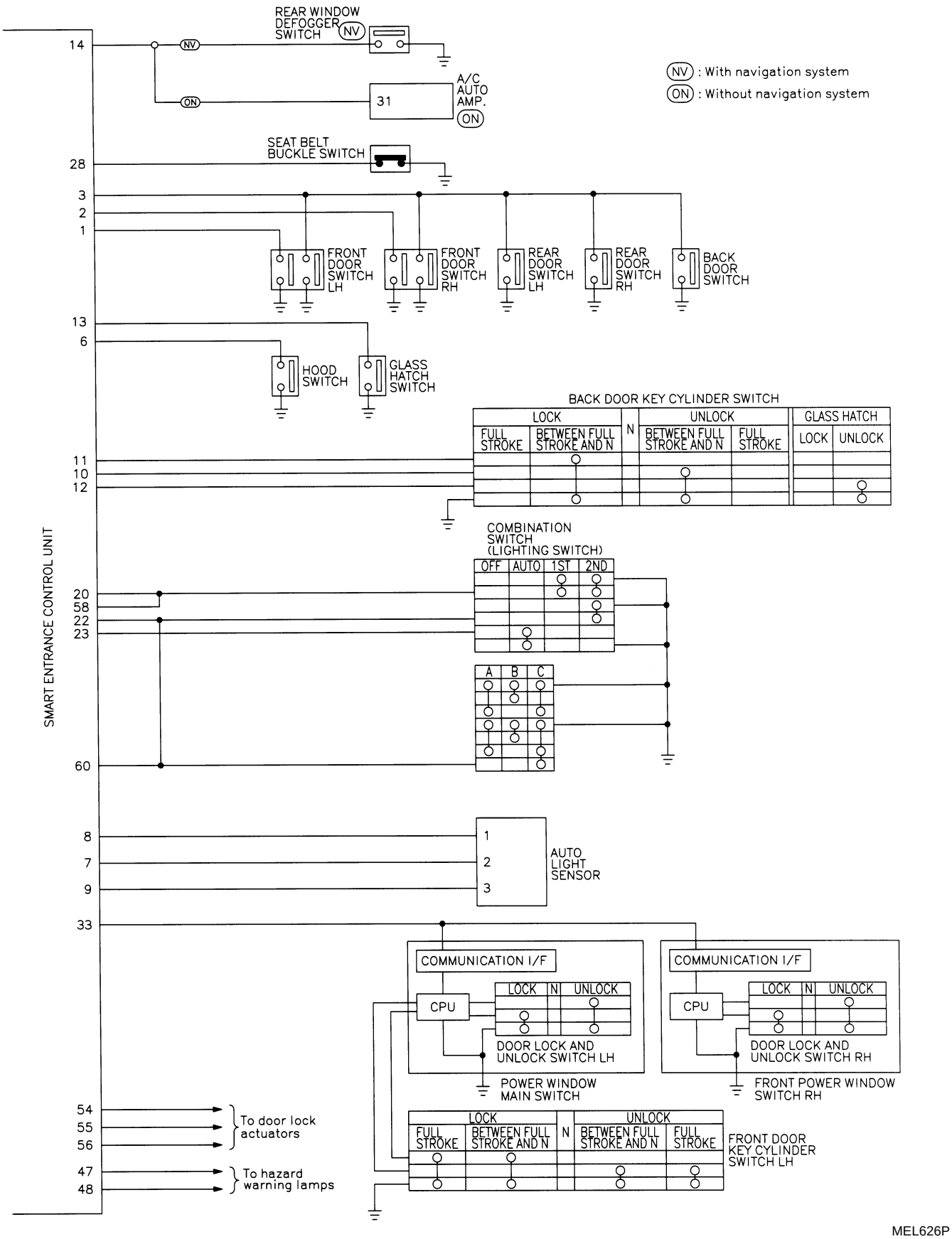
NOTE:

Schematic

NBEL0409



MEL625P


NV : With navigation system
ON : Without navigation system
SMART ENTRANCE CONTROL UNIT
REAR WINDOW DEFOGGER SWITCH
A/C AUTO AMP.
SEAT BELT BUCKLE SWITCH
FRONT DOOR SWITCH LH
FRONT DOOR SWITCH RH
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
BACK DOOR SWITCH
HOOD SWITCH
GLASS HATCH SWITCH
BACK DOOR KEY CYLINDER SWITCH
LOCK
UNLOCK
GLASS HATCH
FULL STROKE
BETWEEN FULL STROKE AND N
N
LOCK
UNLOCK
COMBINATION SWITCH (LIGHTING SWITCH)
OFF
AUTO
1ST
2ND
A
B
C
AUTO LIGHT SENSOR
COMMUNICATION I/F
CPU
DOOR LOCK AND UNLOCK SWITCH LH
DOOR LOCK AND UNLOCK SWITCH RH
POWER WINDOW MAIN SWITCH
FRONT POWER WINDOW SWITCH RH
FRONT DOOR KEY CYLINDER SWITCH LH
To door lock actuators
To hazard warning lamps

MEL626P

Smart Entrance Control Unit Inspection Table

NBEL0410

Terminal No.	Wire color	Connections	Operated condition			Voltage (Approximate values)
1	G/OR	Driver door switch	OFF (Closed) → ON (Open)			12V → 0V
2	Y	Passenger door switch	OFF (Closed) → ON (Open)			5V → 0V
3	R/L	Rear door switch	OFF (Closed) → ON (Open)			5V → 0V
4	LG/R	Door lock & unlock switches	Neutral → Unlocks			5V → 0V
5	BR	Door lock & unlock switches	Neutral → Locks			5V → 0V
6	Y/B	Hood switch	ON (Open) → OFF (Closed)			0V → 12V
7	W/G	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	L/R	Auto light sensor (GND)	—			—
9	GY	Auto light sensor (Power)	Ignition switch (OFF → ON)			0V → 5V
10	LG	Door key cylinder unlock switch	OFF (Neutral) → ON (Locked)			5V → 0V
11	Y	Door key cylinder lock switch	OFF (Neutral) → ON (Locked)			5V → 0V
12	W/PU	Back door key cylinder switch	OFF (Neutral) → ON (Unlock)			5V → 0V
13	L/W	Glass hatch switch	ON (Open) → OFF (Closed)			0V → 12V
14	OR	Rear window defogger switch	OFF → ON (Only when pushed)			5V → 0V
19	R/G	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	G	Tail lamp switch	Light switch (OFF or AUTO → 1ST or 2ND position)			12V → 0V
21	PU/R	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)

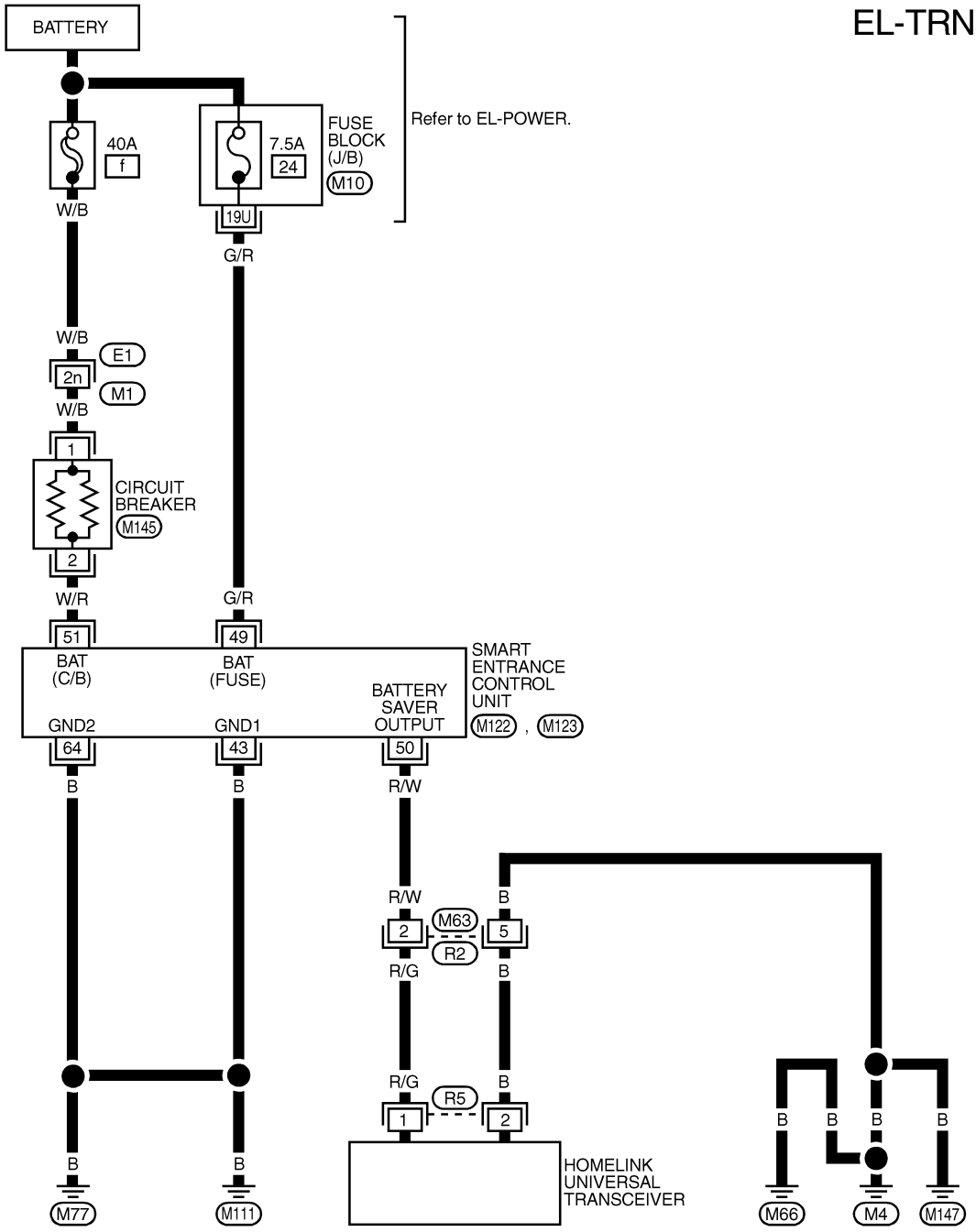
Terminal No.	Wire color	Connections	Operated condition			Voltage (Approximate values)
22	SB	Headlamp switch	Lighting switch	Except PASS or 2ND position		12V
				PASS or 2ND position		0V
			Headlamps illuminate by auto light control. (Operate → Not operate)			10V → 12V
23	L/Y	Headlamp switch	Ignition switch "ON" position	Lighting switch (Except AUTO → AUTO position)		12V → 0V
25	W/R	Ignition key switch (Insert)	Key inserted → Key removed from IGN key cylinder			12V → 0V
26	G/W	Ignition switch (ACC)	"ACC" position			12V
27	W/B	Ignition switch (ON)	Ignition key is in "ON" position			12V
28	B/Y	Seat belt buckle switch	Unfastened → Fastened (Ignition key is in "ON" position)			0V → 12V
31	R/B	Interior lamp	When doors are locked using keyfob (Lamp switch in "DOOR" position)			0V → 12V
37	G/B	Rear window defogger relay	OFF → ON (Ignition key is in "ON" position)			12V → 0V
38	BR/Y	Security indicator	Goes off → Illuminates			12V → 0V
42	LG/B	Horn relay	When panic alarm is operated using keyfob (ON → OFF)			12V → 0V
43	B	Ground	—			—
46	R/Y	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	G/R	Power source (Fuse)	—			12V
50	R/W	Battery saver (Interior lamp)	Battery saver operates → Does not operate (ON →OFF)			12V → 0V
51	W/R	Power source (PTC)	—			12V
54	L	Door lock actuators	Door lock & unlock switch (Free → Lock)			0V → 12V
55	W/PU	Driver door lock actuator	Door lock & unlock switch (Free → Unlock)			0V → 12V
56	Y/B	Passenger, rear and back doors lock actuator	Door lock & unlock switch (Free → Unlock)			0V → 12V
57	R	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

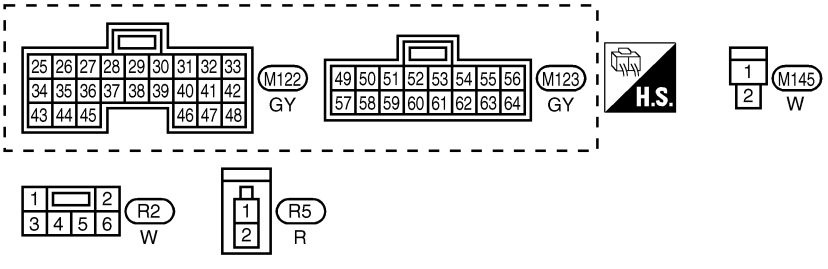
Smart Entrance Control Unit Inspection Table (Cont'd)

Terminal No.	Wire color	Connections	Operated condition			Voltage (Approximate values)
58	G/W	Tail lamp switch	Lighting switch OFF or AUTO → 1ST or 2ND			12V → 0V
59	PU/W	Headlamp RH relay	Ignition switch (with lighting switch OFF or 1ST)	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	L	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	—			—

Wiring Diagram — TRNSCV —

NBEL0411





REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK- JUNCTION BOX (J/B)

MEL627P

Trouble Diagnoses

NBEL0412

DIAGNOSTIC PROCEDURE

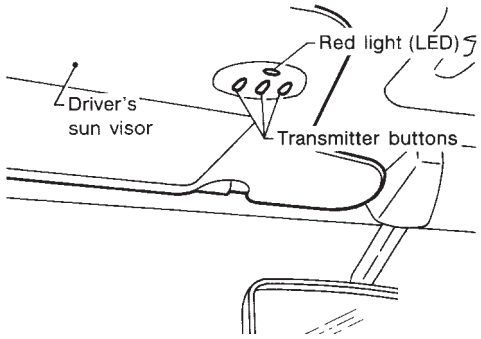
NBEL0412S01

SYMPTOM: Transmitter does not activate receiver.

Before conducting the procedure given below, make sure that system receiver (garage door opener, etc.) operates with original, hand-held transmitter. If NG, receiver or hand-held transmitter is at fault, not vehicle related.

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

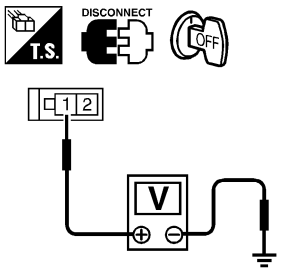
Check transmitter with Tool.
For details, refer to Technical Service Bulletin.

OK or NG

OK	▶	Receiver or handheld transmitter fault, 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.



Battery voltage should exist.

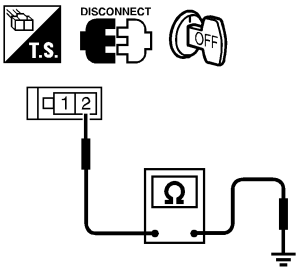
SEL358X

OK or NG

OK	▶	GO TO 4.
NG	▶	GO TO 5.

4	CHECK GROUND CIRCUIT

Check continuity between terminal 2 and ground.



Continuity should exist.

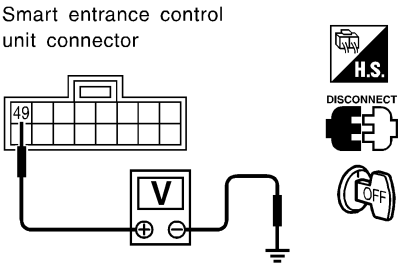
SEL359X

OK or NG

OK	▶	Replace transmitter with sun visor assembly.
NG	▶	Repair harness.

5	CHECK MAIN POWER SUPPLY FOR SMART ENTRANCE CONTROL UNIT

1. Disconnect smart entrance control unit.
2. Check voltage between smart entrance control unit harness connector M123 terminal 49 (G/R) and ground.



Battery voltage should exist.

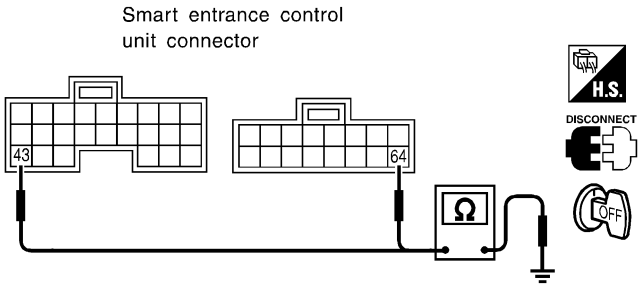
SEL284Y

OK or NG

OK	▶	GO TO 6.
NG	▶	**Check the following.** ● 7.5A fuse No. 24, located in fuse block (J/B)

6	CHECK GROUND CIRCUIT FOR SMART ENTRANCE CONTROL UNIT

Check continuity between smart entrance control unit harness connector M122 terminal 43 (B) or M123 terminal 64 (B) and ground.



Continuity should exist.

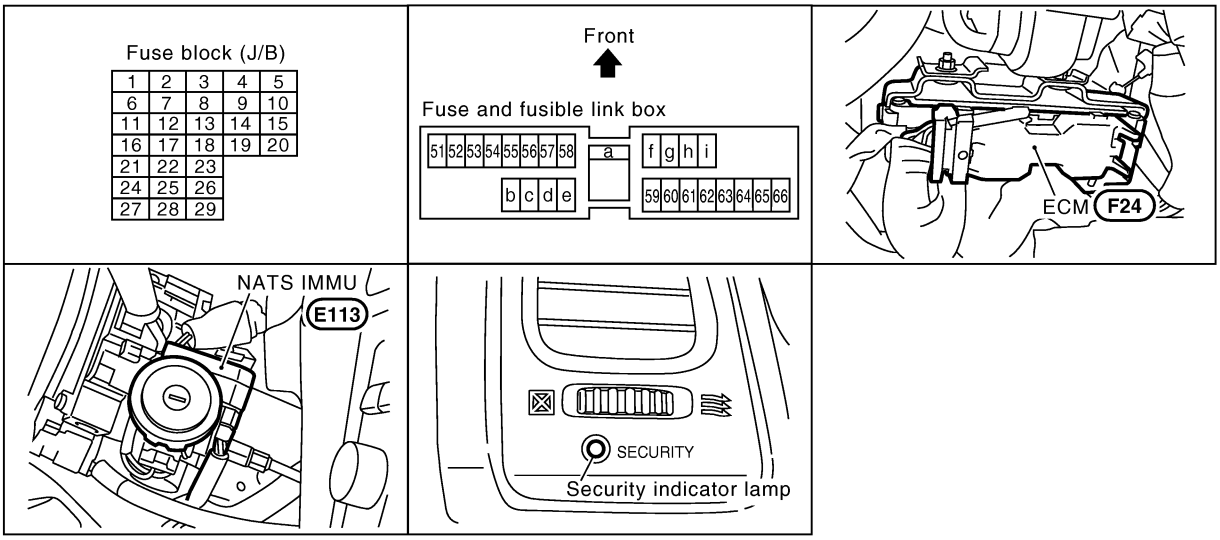
SEL285Y

OK or NG

OK	▶	Power supply and ground circuits are OK.
NG	▶	Check ground harness.

Component Parts and Harness Connetor Location

NBEL0413



SEL357X

NOTE:
If customer reports a “No Start” condition, request ALL KEYS to be brought to the INFINITI dealer in case of an IVIS (NATS) malfunction.

System Description

=NBEL0482

NATS (Nissan Anti-Theft System) has the following immobilizer functions:

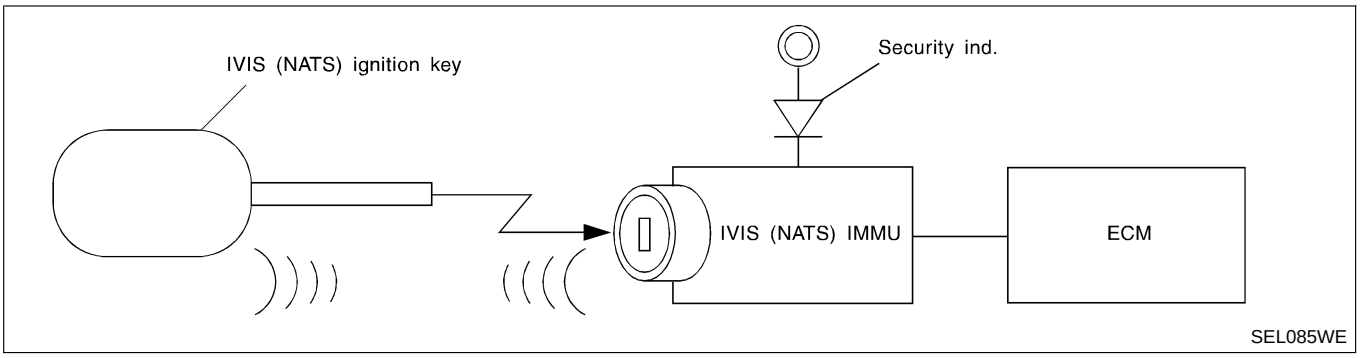
- Since only IVIS (NATS) ignition keys, whose ID nos. have been registered into the ECM and IMMU of IVIS (NATS), allow the engine to run, operation of a stolen vehicle without an IVIS (NATS) registered key is prevented by IVIS (NATS).
  That is to say, IVIS (NATS) will immobilize the engine if someone tries to start it without the registered key of IVIS (NATS).
- All of the originally supplied ignition key IDs (except for card plate key) have been IVIS (NATS) registered. If requested by the vehicle owner, a maximum of five key IDs can be registered into the IVIS (NATS) components.
- The security indicator blinks when the ignition switch is in “OFF” or “ACC” position. Therefore, IVIS (NATS) warns outsiders that the vehicle is equipped with the anti-theft system.
- When IVIS (NATS) detects trouble, the security indicator lamp lights up while ignition key is in the “ON” position.
- IVIS (NATS) trouble diagnoses, system initialization and additional registration of other IVIS (NATS) ignition key IDs must be carried out using CONSULT-II hardware and CONSULT-II IVIS (NATS) software.
  When IVIS (NATS) initialization has been completed, the ID of the inserted ignition key is automatically IVIS (NATS) registered. Then, if necessary, additional registration of other IVIS (NATS) ignition key IDs can be carried out.
  Regarding the procedures of IVIS (NATS) initialization and IVIS (NATS) ignition key ID registration, refer to CONSULT-II Operation Manual, IVIS/NVIS.
- **When servicing a malfunction of the IVIS (NATS) (indicated by lighting up of Security Indicator Lamp) or registering another IVIS (NATS) ignition key ID no., it is necessary to re-register original key identification. Therefore, be sure to receive ALL KEYS from vehicle owner.**

System Composition

NBEL0483

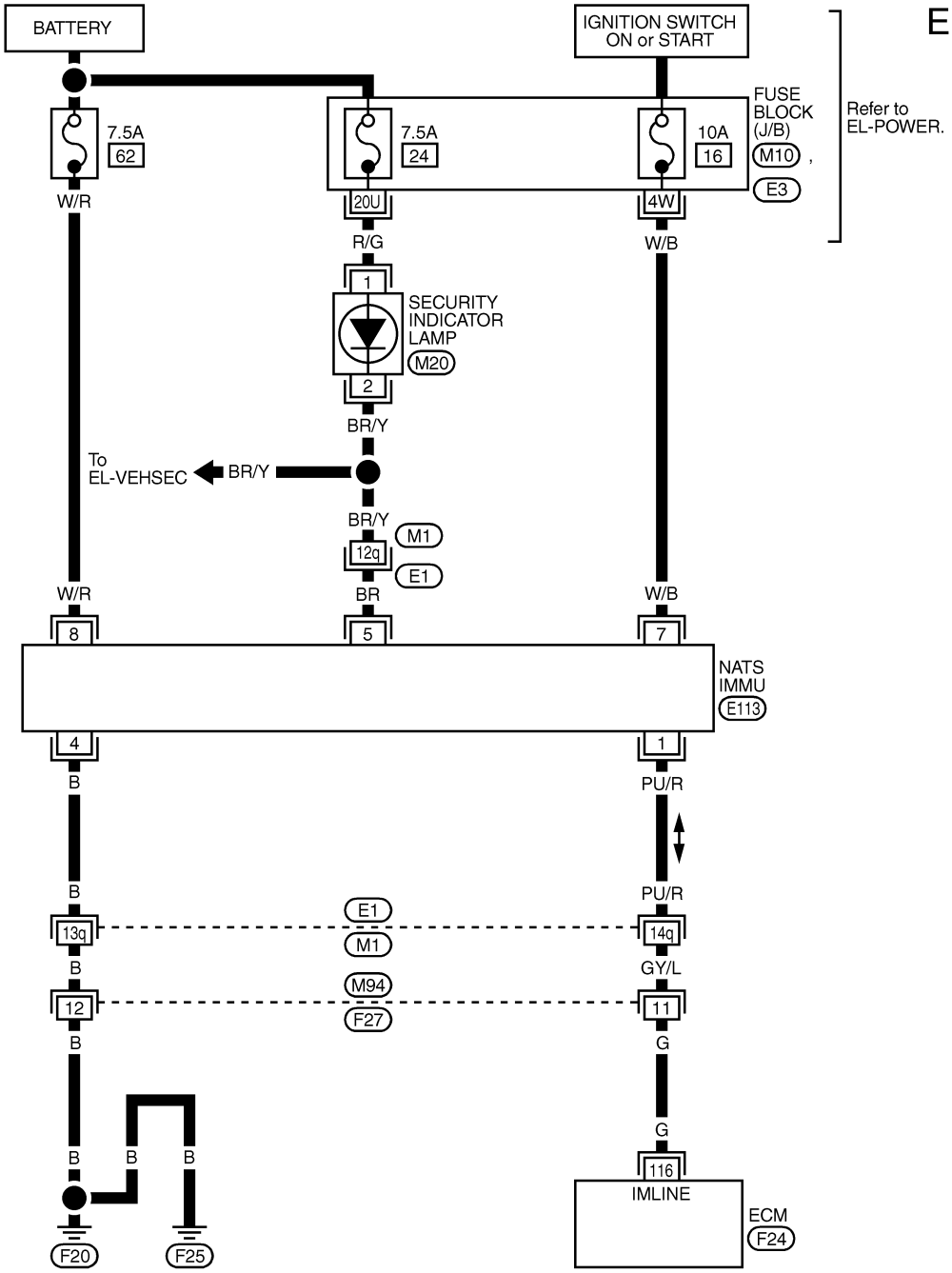
The immobilizer function of the IVIS (NATS) consists of the following:

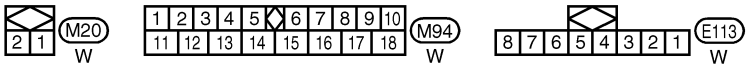
- IVIS (NATS) ignition key
- IVIS (NATS) immobilizer control unit (IMMU) located in the ignition key cylinder
- Engine control module (ECM)
- Security indicator



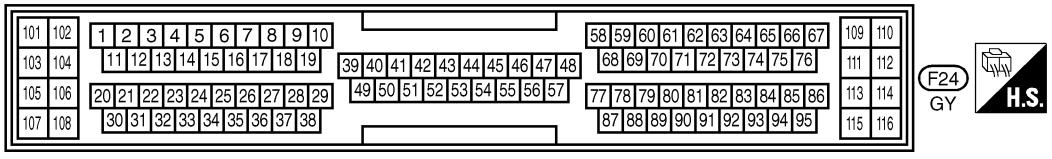
Wiring Diagram — NATS —

NBEL0484

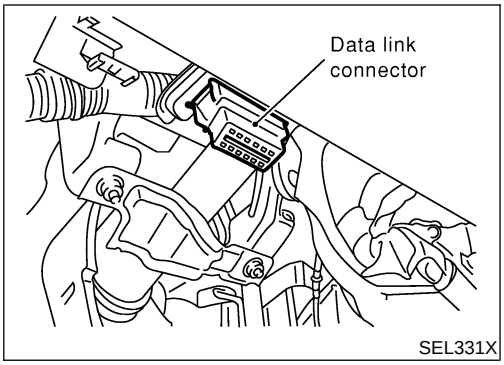




REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)



MEL628P



SEL331X

CONSULT-II

NBEL0485

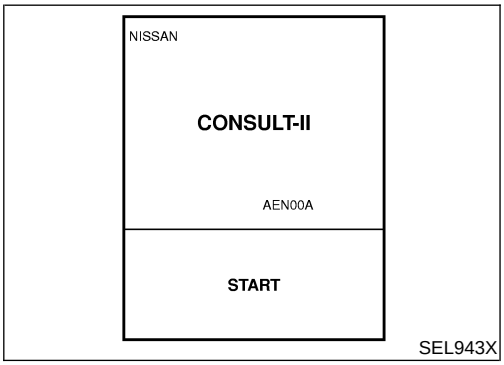
CONSULT-II INSPECTION PROCEDURE

NBEL0485S01

1. Turn ignition switch OFF.
2. Insert IVIS (NATS) program card into CONSULT-II.

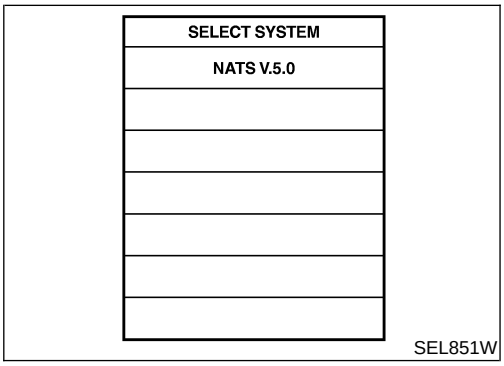
Program card
NATS (AEN00A)

3. Connect CONSULT-II to data link connector.



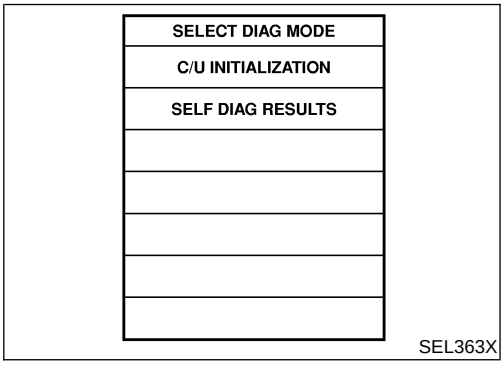
SEL943X

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



SEL851W

6. Select “NATS V.5.0”.



SEL363X

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

NBEL0485S02

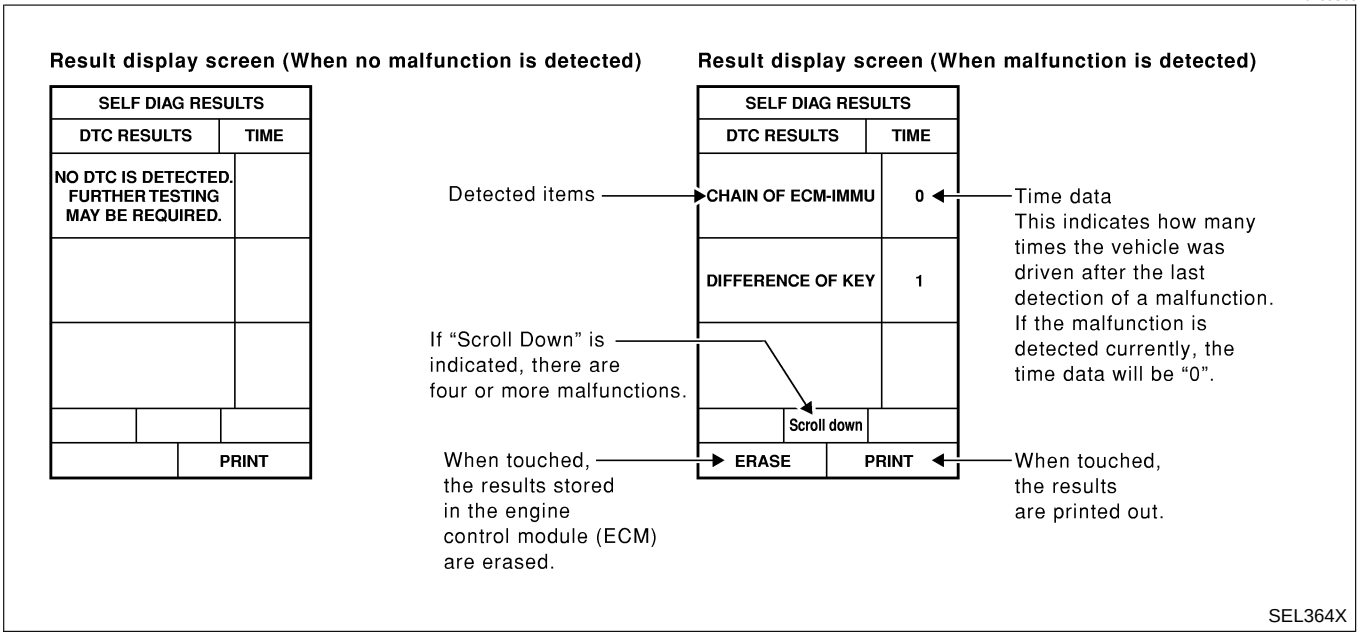
CONSULT-II DIAGNOSTIC TEST MODE	Description
C/U INITIALIZATION	When replacing any of the following three components, C/U initialization and re-registration of all IVIS (NATS) ignition keys are necessary. [IVIS (NATS) ignition key/IMMU/ECM]
SELF-DIAG RESULTS	Detected items (screen terms) are as shown in the chart EL-497.

NOTE:

- **When any initialization is performed, all ID previously registered will be erased and all IVIS (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

NBEL0485S03



SEL364X

IVIS (NATS) SELF-DIAGNOSTIC RESULTS ITEM CHART

NBEL0485S04

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-501
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-502
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-506
CHAIN OF IMMU-KEY	NATS MALFUNCTION P1614	IMMU cannot receive the key ID signal.	EL-507
ID DISCORD, IMM-ECM	NATS MALFUNCTION P1611	The result of ID verification between IMMU and ECM is NG. System initialization is required.	EL-508

CONSULT-II (Cont'd)

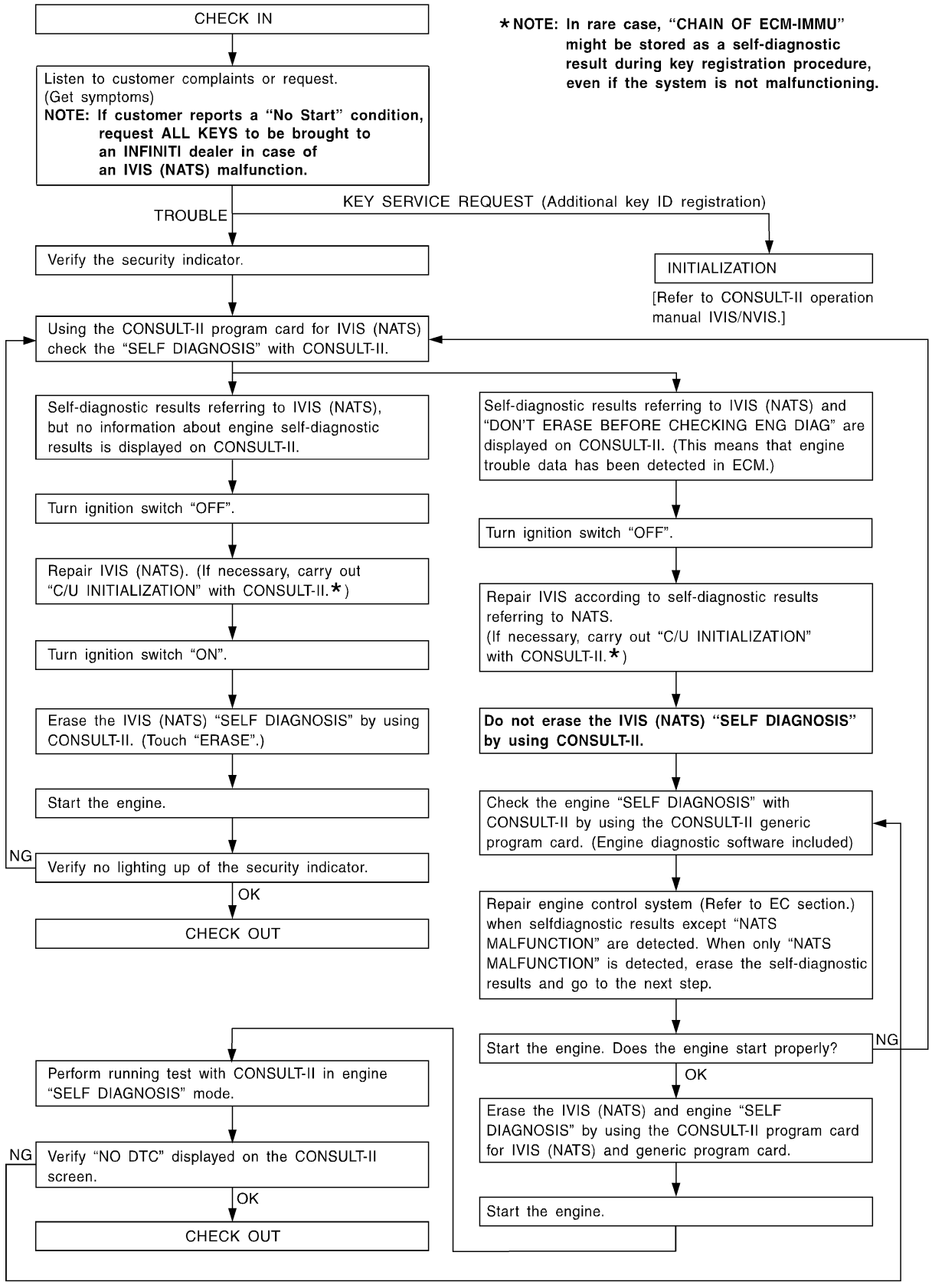
Detected items (NATS program card screen terms)	P No. Code (Self-diagnostic result of "ENGINE"	Malfunction is detected when	Reference page
LOCK MODE	NATS MALFUNCTION P1610	When the starting operation is carried out five or more times consecutively under the following conditions, IVIS (NATS) will shift the mode to one which prevents the engine from being started. ● Unregistered ignition key is used. ● IMMU or ECM's malfunctioning.	EL-511
DON'T ERASE BEFORE CHECKING ENG DIAG	—	All engine trouble codes except IVIS (NATS) trouble code has been detected in ECM.	EL-499

Trouble Diagnoses

NBEL0486

WORK FLOW

NBEL0486S01



SEL024X

SYMPTOM MATRIX CHART 1
(Self-diagnosis related item)

NBEL0486S02

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* • Engine cannot be started.	ECM INT CIRC-IMMU	PROCEDURE 1 (EL-501)	ECM	B
	CHAIN OF ECM-IMMU	PROCEDURE 2 (EL-502)	In rare case, "CHAIN OF ECM-IMMU" might be stored during 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-506)	Unregistered key	D
			IMMU	A
	CHAIN OF IMMU-KEY	PROCEDURE 4 (EL-507)	Malfunction of key ID chip	E
			IMMU	A
	ID DISCORD, IMM-ECM	PROCEDURE 5 (EL-508)	System initialization has not yet been completed.	F
			ECM	F
	LOCK MODE	PROCEDURE 7 (EL-511)	LOCK MODE	D
• MIL staying ON • Security indicator lighting up*	DON'T ERASE BEFORE CHECKING ENG DIAG	WORK FLOW (EL-499)	Engine trouble data and IVIS (NATS) trouble data have been detected in ECM	—

*: When IVIS (NATS) detects trouble, the security indicator lights up while ignition key is in the "ON" position.

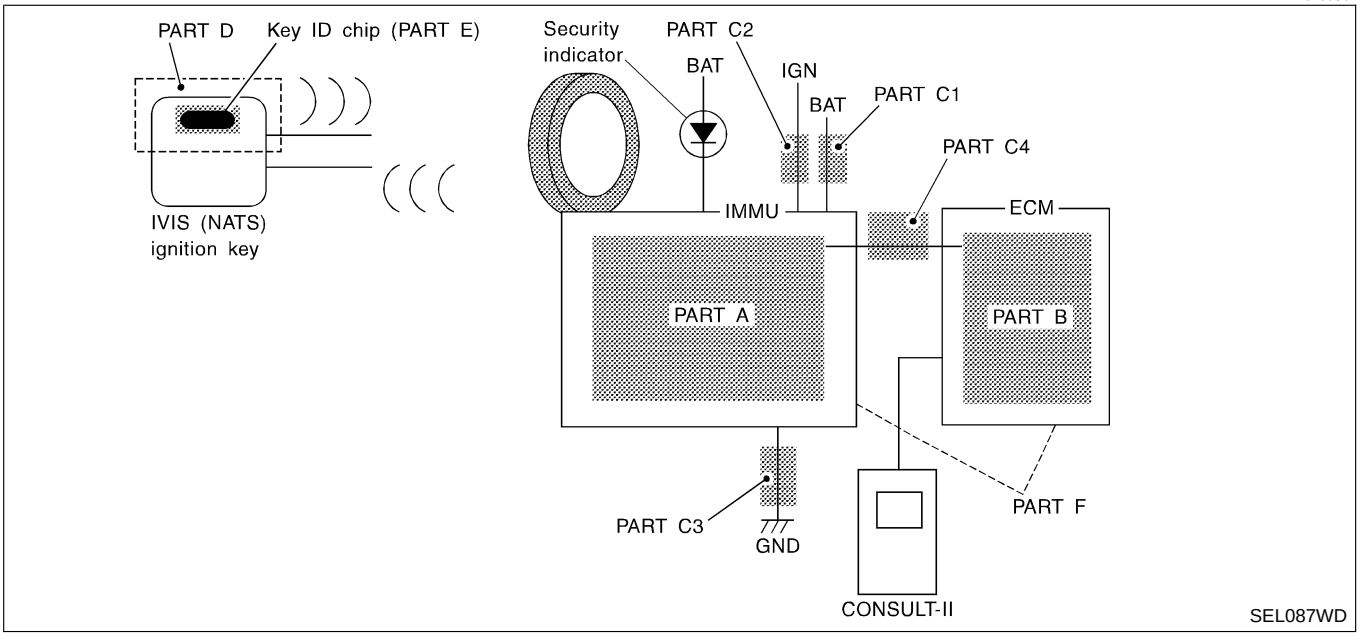
SYMPTOM MATRIX CHART 2
(Non self-diagnosis related item)

NBEL0486S03

SYMPTOM	DIAGNOSTIC PROCEDURE (Reference page)	SYSTEM (Malfunctioning part or mode)
Security ind. does not light up.	PROCEDURE 6 (EL-509)	Security ind.
		Open circuit between Fuse and IMMU
		Continuation of initialization mode
		IMMU

DIAGNOSTIC SYSTEM DIAGRAM

NBEL0486S04



SELF DIAG RESULTS	
DTC RESULTS	TIME
ECM INT CIRC-IMMU	0

SEL365X

DIAGNOSTIC PROCEDURE 1

NBEL0486S05

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

=NBEL0486S06

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 case, "CHAIN OF ECM-IMMU" might be stored during key registration procedure, even if the system is not malfunctioning.

SELF DIAG RESULTS	
DTC RESULTS	TIME
CHAIN OF ECM-IMMU	0

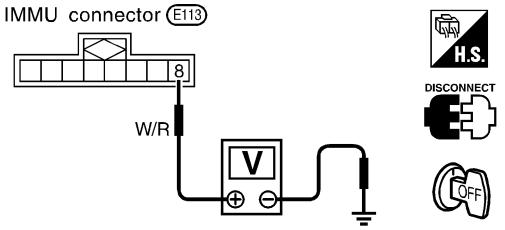
SEL366X

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.

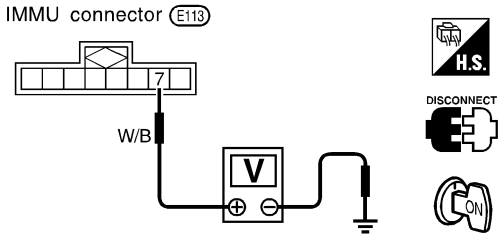
SEL302WD

OK or NG

OK	▶	GO TO 3.
NG	▶	**Check the following** ● 7.5A fuse (No. 62, located in the fuse and fusible link box) ● Harness for open or short between fuse and IMMU connector **Ref. Part No. C1**

3	CHECK IGN SW. ON SIGNAL

1. Turn ignition switch ON.
2. Check voltage between terminal 7 of IMMU and ground with CONSULT-II or tester.



Battery voltage should exist.

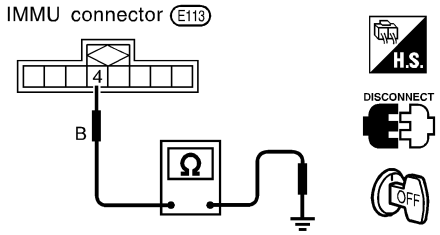
SEL303WF

OK or NG

OK	▶	GO TO 4.
NG	▶	**Check the following** ● 10A fuse [No. 16, located in the fuse block (J/B)] ● Harness for open or short between fuse and IMMU connector **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.

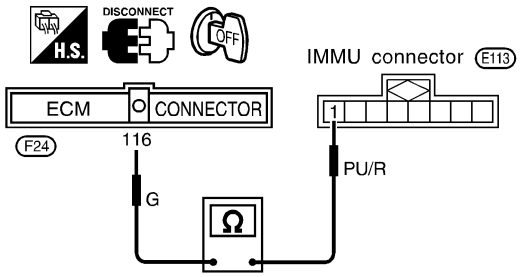
SEL304WD

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.

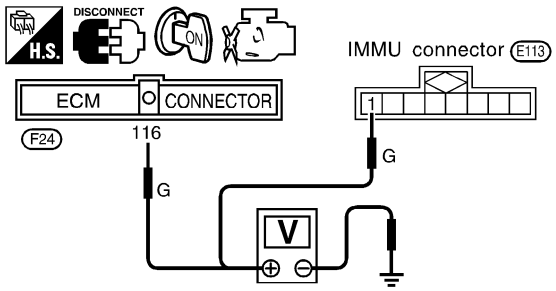
SEL305WD

OK or NG

OK	▶	GO TO 6.
NG	▶	Repair harness or connector. **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

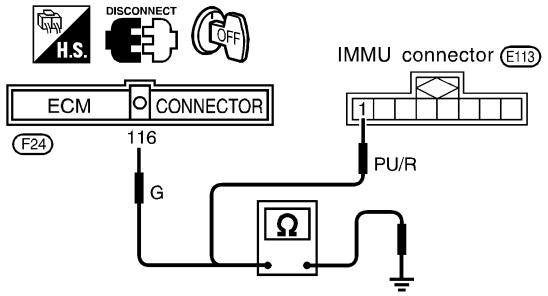
SEL306WD

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. **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.

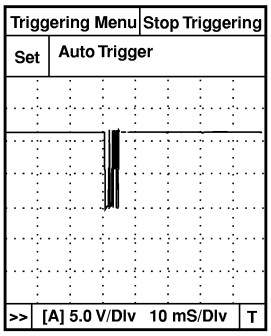
SEL307WD

OK or NG

OK	▶	GO TO 8.
NG	▶	Communication line is short-circuited with ground line. Repair harness or connectors. **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. Replace IMMU. **Ref. part No. A** Perform initialization with CONSULT-II. For the operation of initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS".
NG	▶	ECM is malfunctioning. Replace ECM. **Ref. part No. B** Perform initialization with CONSULT-II. For the operation of initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS".

DIAGNOSTIC PROCEDURE 3

=NBEL0486S07

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 DIAG RESULTS	
DTC RESULTS	TIME
DIFFERENCE OF KEY	0

SEL367X

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 IVIS (NATS) ignition key IDs.
For initialization and registration of IVIS (NATS) ignition key IDs, 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 IVIS (NATS) ignition key?

Yes	▶	Ignition key ID was unregistered. **Ref. part No. D**
No	▶	IMMU is malfunctioning. Replace IMMU. **Ref. part No. A** Perform initialization with CONSULT-II. For initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS".

DIAGNOSTIC PROCEDURE 4

=NBEL0486S08

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 DIAG RESULTS	
DTC RESULTS	TIME
CHAIN OF IMMU-KEY	0

SEL368X

Is CONSULT-II screen displayed as above?

Yes	▶	GO TO 2.
No	▶	GO TO SYMPTOM MATRIX CHART 1.

2	CHECK IVIS (NATS) IGNITION KEY ID CHIP

Start engine with another registered IVIS (NATS) ignition key.

Does the engine start?

Yes	▶	Ignition key ID chip is malfunctioning. Replace the ignition key. **Ref. part No. E** Perform initialization with CONSULT-II. 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-512.

OK or NG

OK	▶	IMMU is malfunctioning. Replace IMMU. **Ref. part No. A** Perform initialization with CONSULT-II. For initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS".
NG	▶	Reinstall IMMU correctly.

DIAGNOSTIC PROCEDURE 5

=NBEL0486S09

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 DIAG RESULTS	
DTC RESULTS	TIME
ID DISCORD, IMM-ECM	0

SEL369X

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 IVIS (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) (System initialization had not been completed. **Ref. part No. F**)
No	▶	ECM is malfunctioning. Replace ECM. **Ref. part No. F** Perform initialization with CONSULT-II. For initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS".

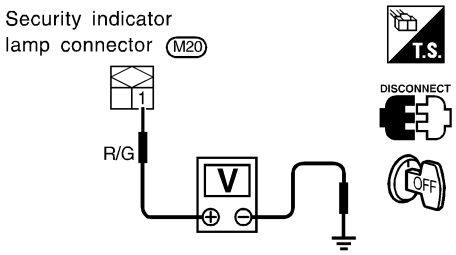
DIAGNOSTIC PROCEDURE 6

=NBEL0486S10

"SECURITY INDICATOR LAMP DOES NOT LIGHT UP"

1	CHECK FUSE	
Check 10A fuse [No. 12, located in the fuse block (J/B)]. **Is 10A fuse OK?**		
Yes	▶	GO TO 2.
No	▶	Replace fuse.

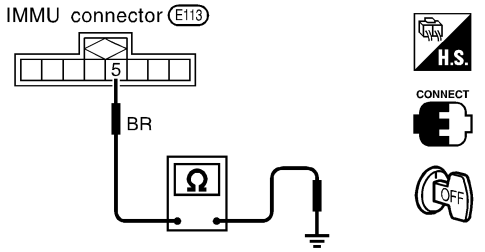
2	CHECK SECURITY INDICATOR LAMP	
1. Install 10A fuse. 2. Perform initialization with CONSULT-II. For initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS". 3. Turn ignition switch OFF. 4. Start engine and turn ignition switch OFF. 5. Check the security indicator lamp lighting. **Security indicator lamp should be blinking.** **OK or NG**		
OK	▶	INSPECTION END
NG	▶	GO TO 3.

3	CHECK SECURITY INDICATOR LAMP POWER SUPPLY CIRCUIT	
1. Disconnect security indicator lamp connector. 2. Check voltage between security indicator lamp connector terminal 1 and ground.  **Battery voltage should exist.** SEL370XB **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. **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.



Continuity should exist intermittently.

SEL300WC

OK or NG

OK	▶	Check harness for open or short between security indicator lamp and IMMU.
NG	▶	IMMU is malfunctioning. Replace IMMU. Perform initialization with CONSULT-II. For initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS".

DIAGNOSTIC PROCEDURE 7

=NBEL0486S11

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 DIAG RESULTS	
DTC RESULTS	TIME
LOCK MODE	0

SEL371X

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. (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-512.

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".

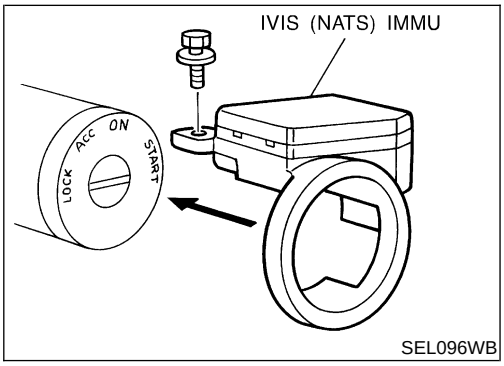
IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

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 4 to check "CHAIN OF IMMU-KEY", refer to EL-507.



SEL096WB

How to Replace IVIS (NATS) IMMU

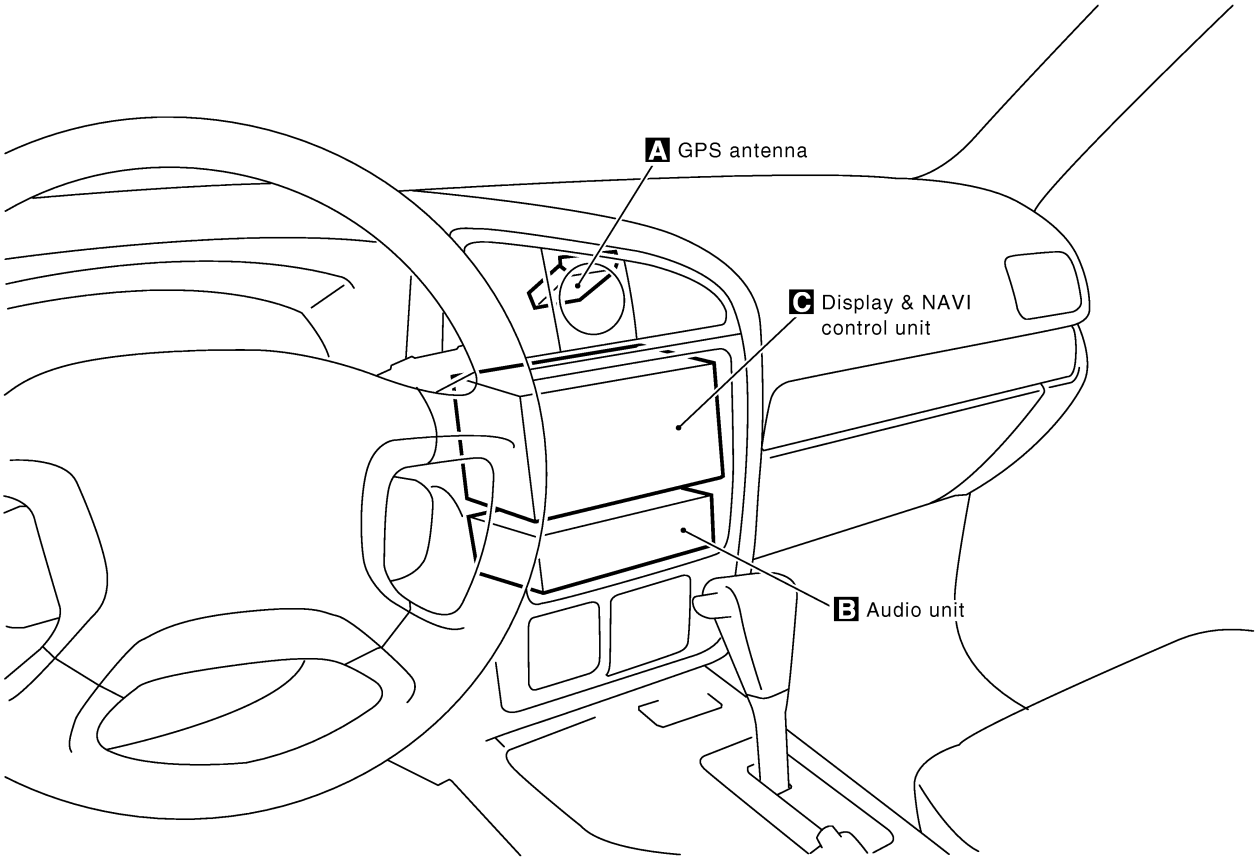
NBEL0487

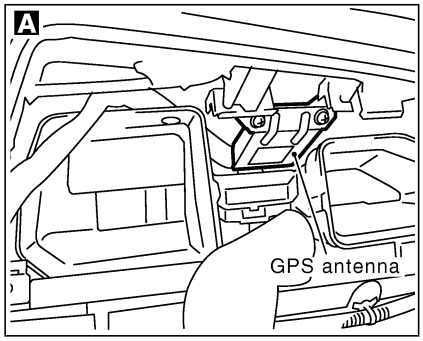
NOTE:

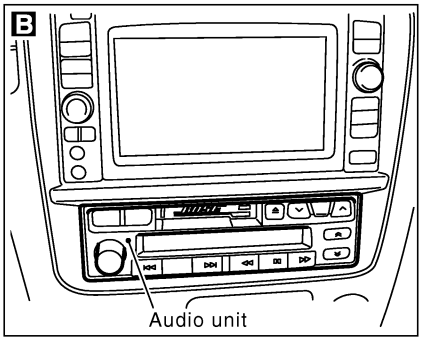
- **If IVIS (NATS) IMMU is not installed correctly, IVIS (NATS) system will not operate properly and SELF-DIAG RESULTS on CONSULT-II screen will show "LOCK MODE".**

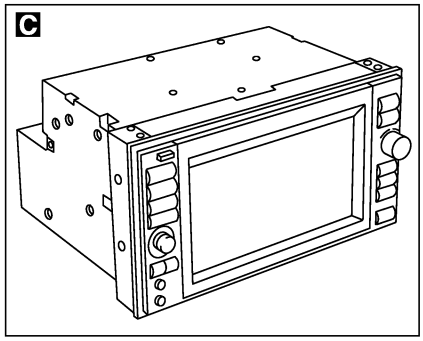
Component Parts Location

NBEL0420

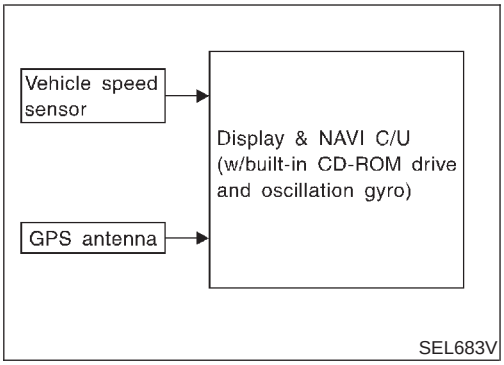








SEL508X



System Description

=NBEL0421

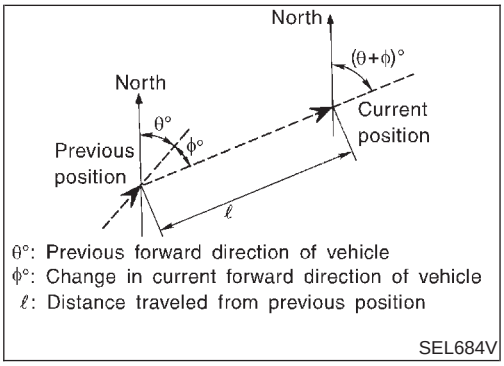
OUTLINE

NBEL0421S01

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.



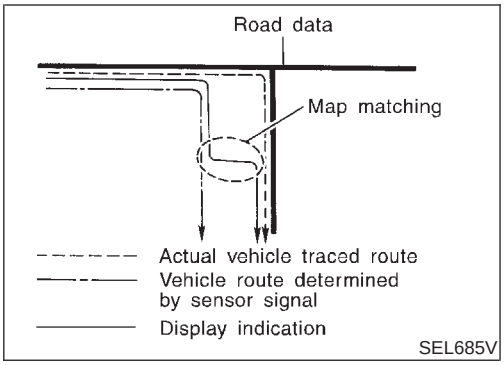
Position Sensor Operating Principles

NBEL0421S0101

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.

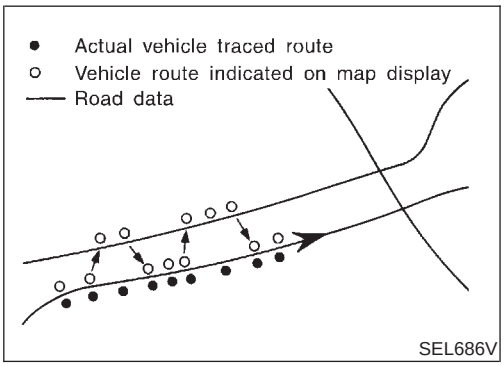
Function type	Advantage	Disadvantage
Gyro (Angular velocity sensor)	• Able to accurately detect minute changes in steering angle and direction.	• Calculation errors may accumulate over a long period of continuous vehicle travel.
GPS antenna (GPS data)	• Able to sense vehicle travel in four general directions (North, South, East, and West)	• Unable to detect direction of vehicle travel at low vehicle speeds.



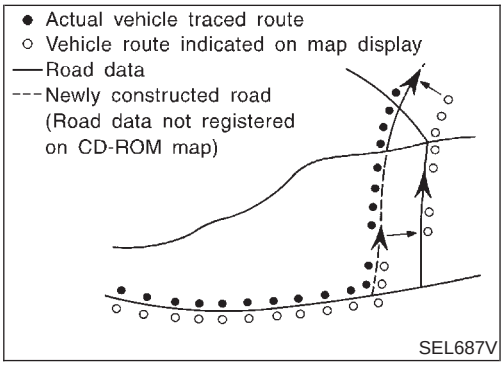
Map Matching

NBEL0421S0102

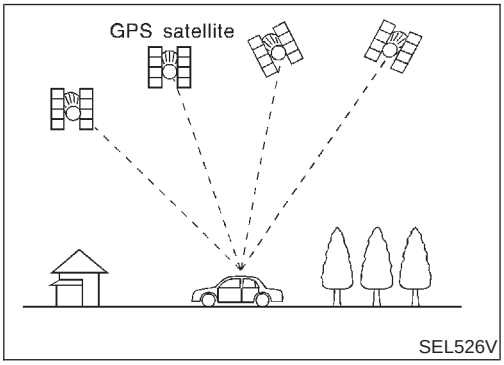
Map matching allows the driver to compare the sensed vehicle location data with the road map contained in the CD-ROM drive. Vehicle position is marked on the CD-ROM map. This permits the driver to accurately determine his/her present position on the highway and to make appropriate course decisions.
When 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.



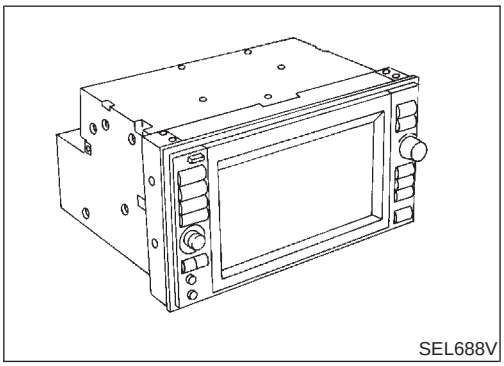
GPS (Global Positioning System)

NBEL0421S0103

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

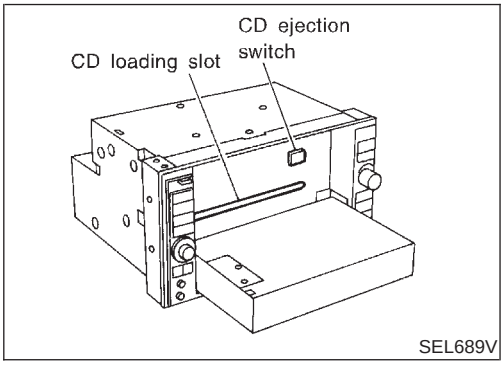
COMPONENT DESCRIPTION

NBEL0421S02

Display & NAVI Control Unit

NBEL0421S0201

- 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

NBEL0421S0202

Maps, traffic control regulations, and other pertinent information can be easily red from the CD-ROM disc.

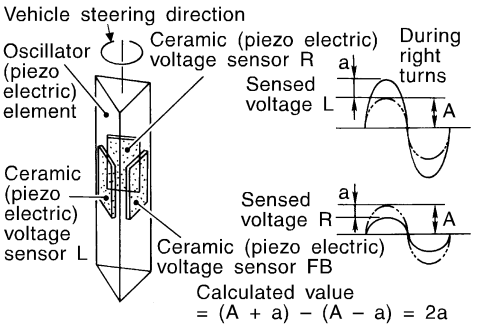
NOTE:

- 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

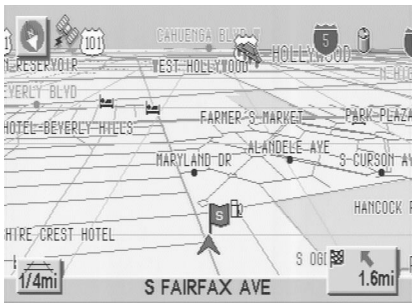
NBEL0421S0203

- 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.



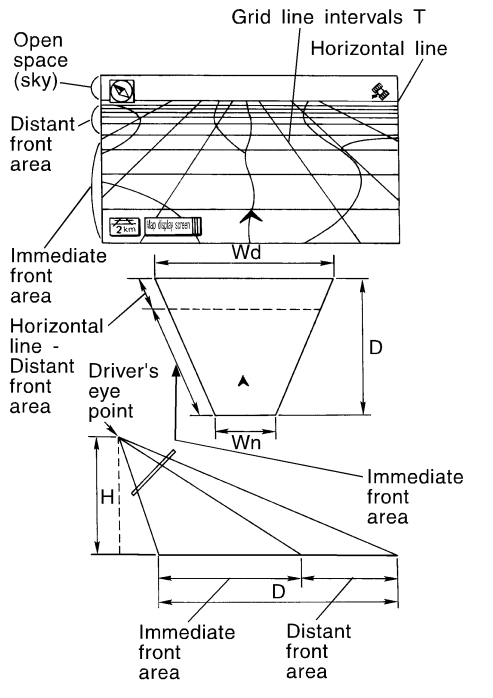
SEL690V

MAP DISPLAY



BIRDVIEW®

SEL636X



SEL691V

Gyro (Angular Speed Sensor)

NBEL0421S0204

- 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®

NBEL0421S0205

The BIRDVIEW® provides a detailed and easily seen display of road conditions covering the vehicle's immediate to distant area.

Description

NBEL0421S0206

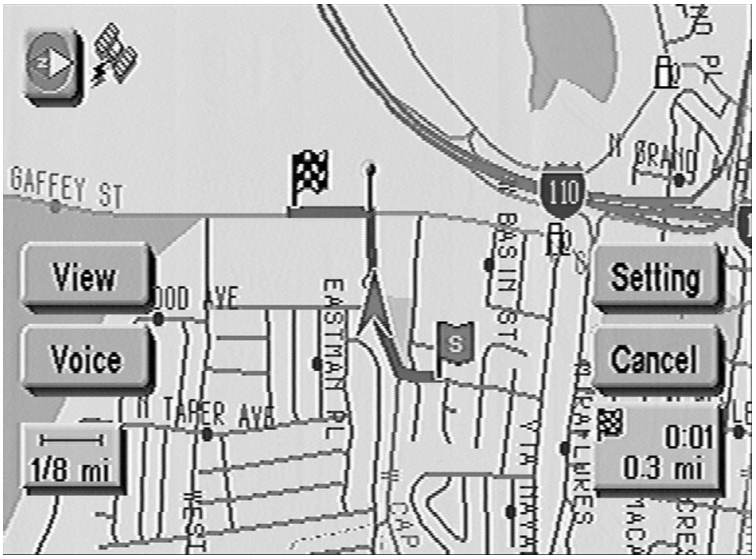
- Display area: Trapezoidal representation showing approximate distances (Wn, D, and Wd).
- Ten horizontal grid lines indicate display width while six vertical grid lines indicate display depth and direction.
- Drawing line area shows open space, depth, and immediate front area. Each area is to a scale 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.

FUNCTION OF TOUCH SWITCH (SUMMARY)

=NBEL0421S03

Display with Pushed "MAP" Switch

NBEL0421S0301



SEL475Y

The function of each touch switch is as follows:

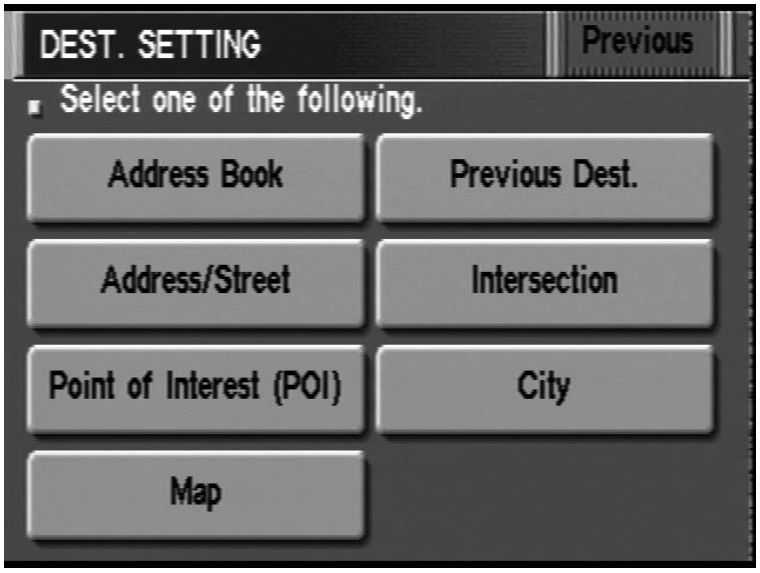
1) Azimuth indication
2) Position marker
   The tip of the arrow shows the current position. The shaft of the arrow indicates the direction in which the vehicle is traveling.
3) GPS reception signal (indicates current reception conditions)
4) Distance display (shows the distance in a reduced scale)
5) 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

=NBEL0421S0302



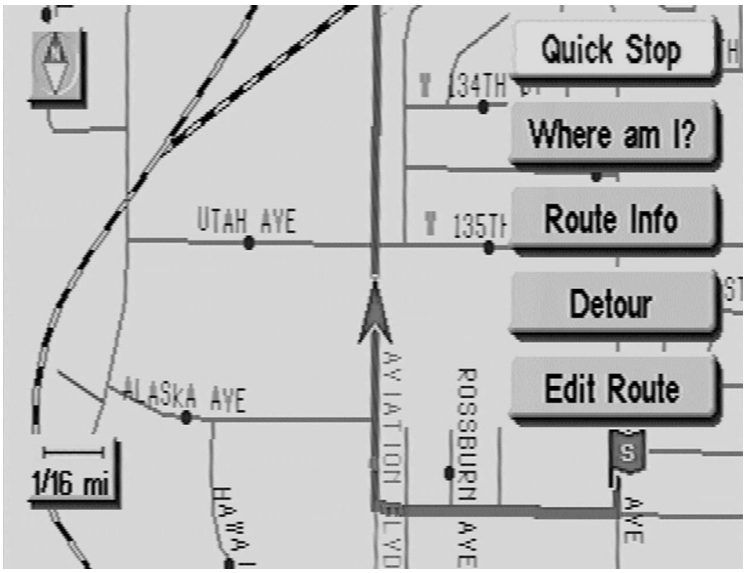
SEL581X

The function of each touch switch is as follows:

Icon	Description
Address Book	Favorite place can be saved to memory. 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

NBEL0421S0303



SEL476Y

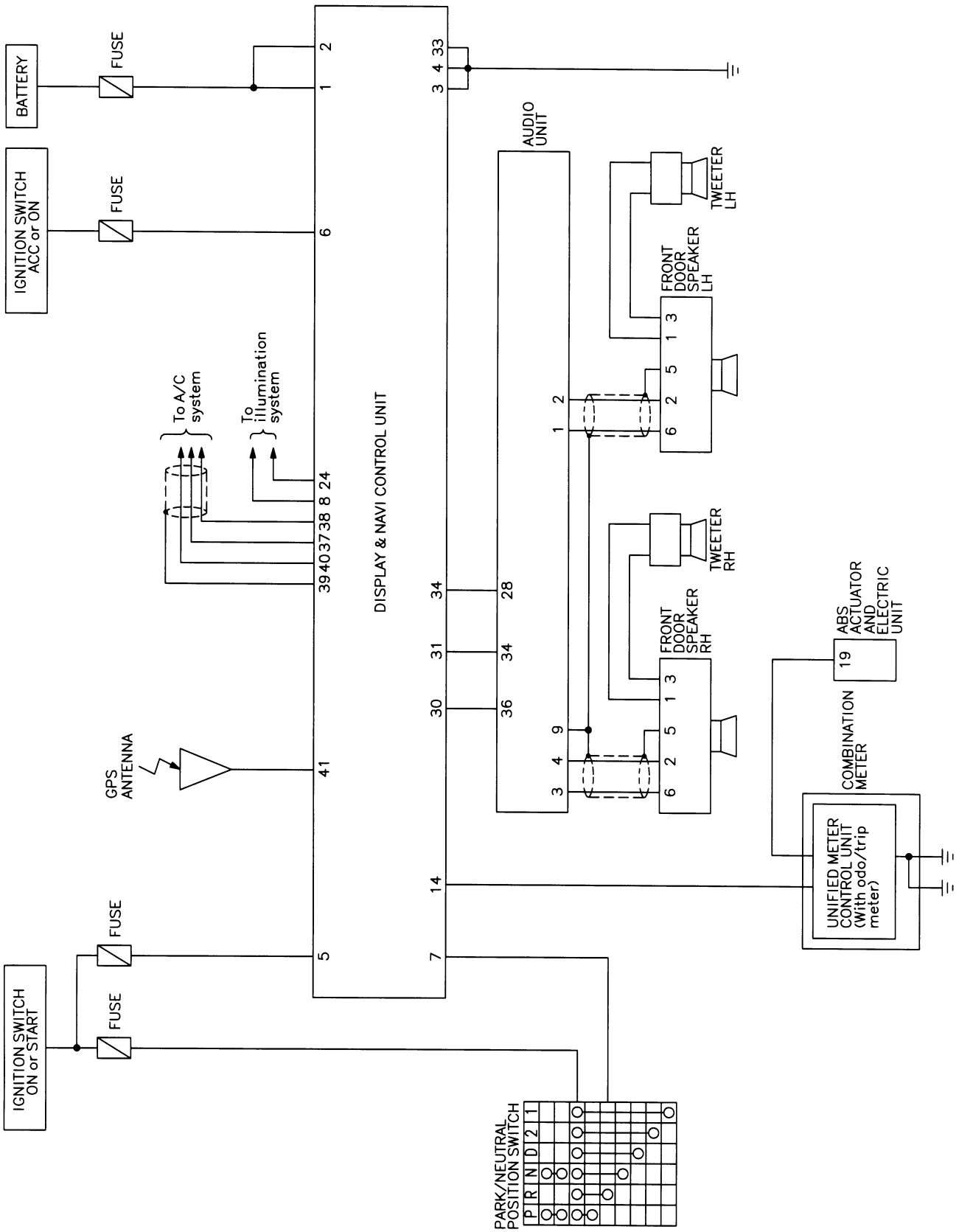
The function of each touch switch is as follows:

Icon	Description
Quick Stop	The selected facility is set as the destination or waypoint. (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. ● Complete Route ● Turn List ● Route Simulation (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.)
Route Calc.	Search for a recommended route between the vehicle's current location and the destination area. (Displayed only when the destination area has been set.)

*: When destinations have been entered, route guidance has been turned OFF or destination has been reached, "Route Info.", "Detour" and "Edit Route" are not displayed.

Schematic

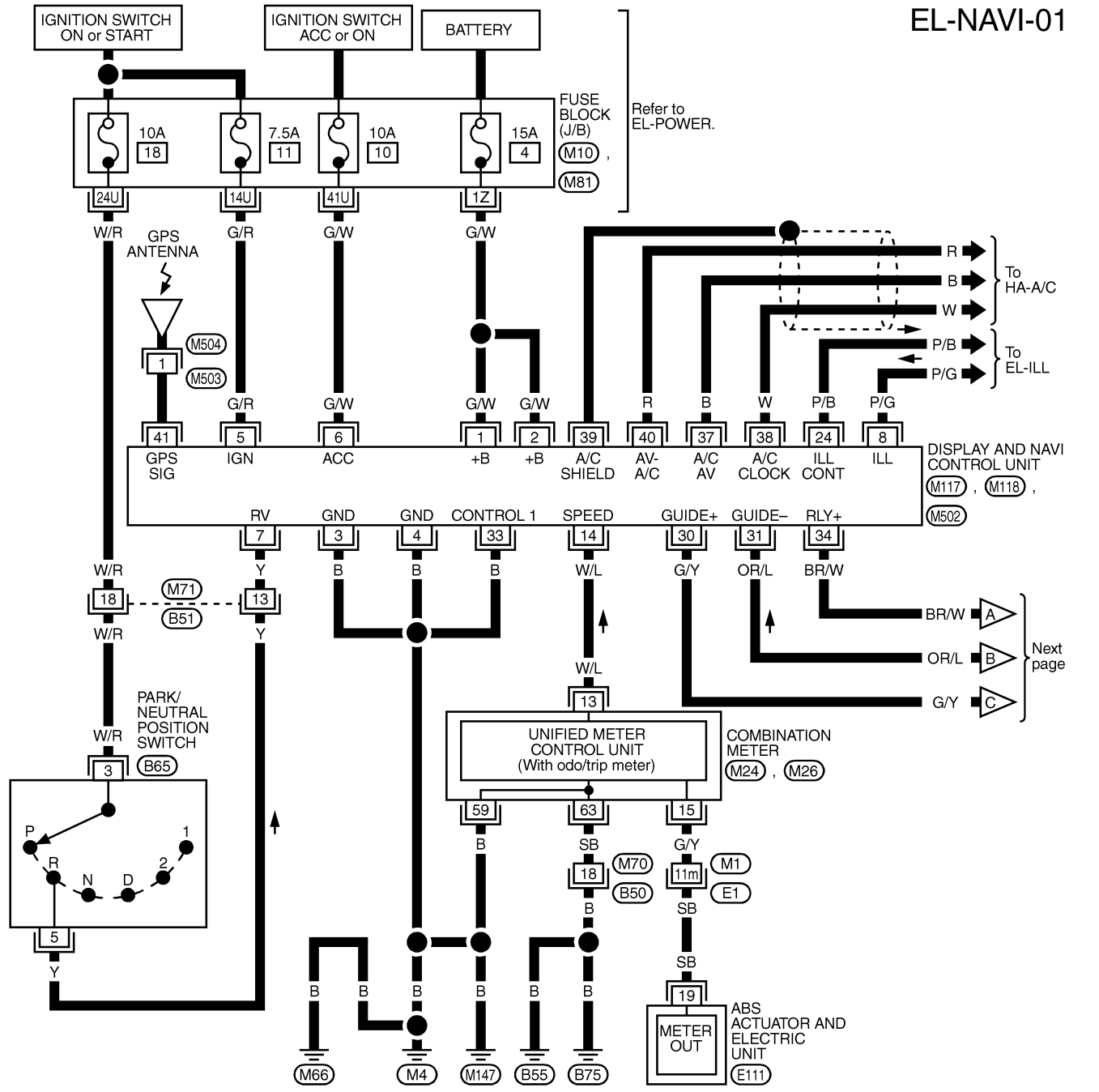
NBEL0422

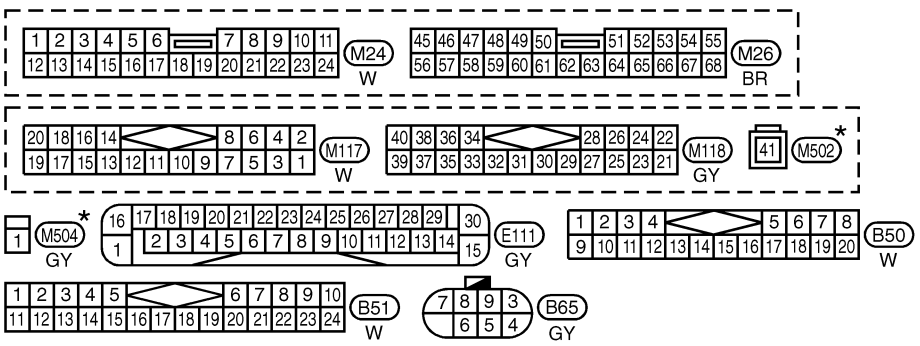


MEL270N

Wiring Diagram — NAVI —

NBEL0423



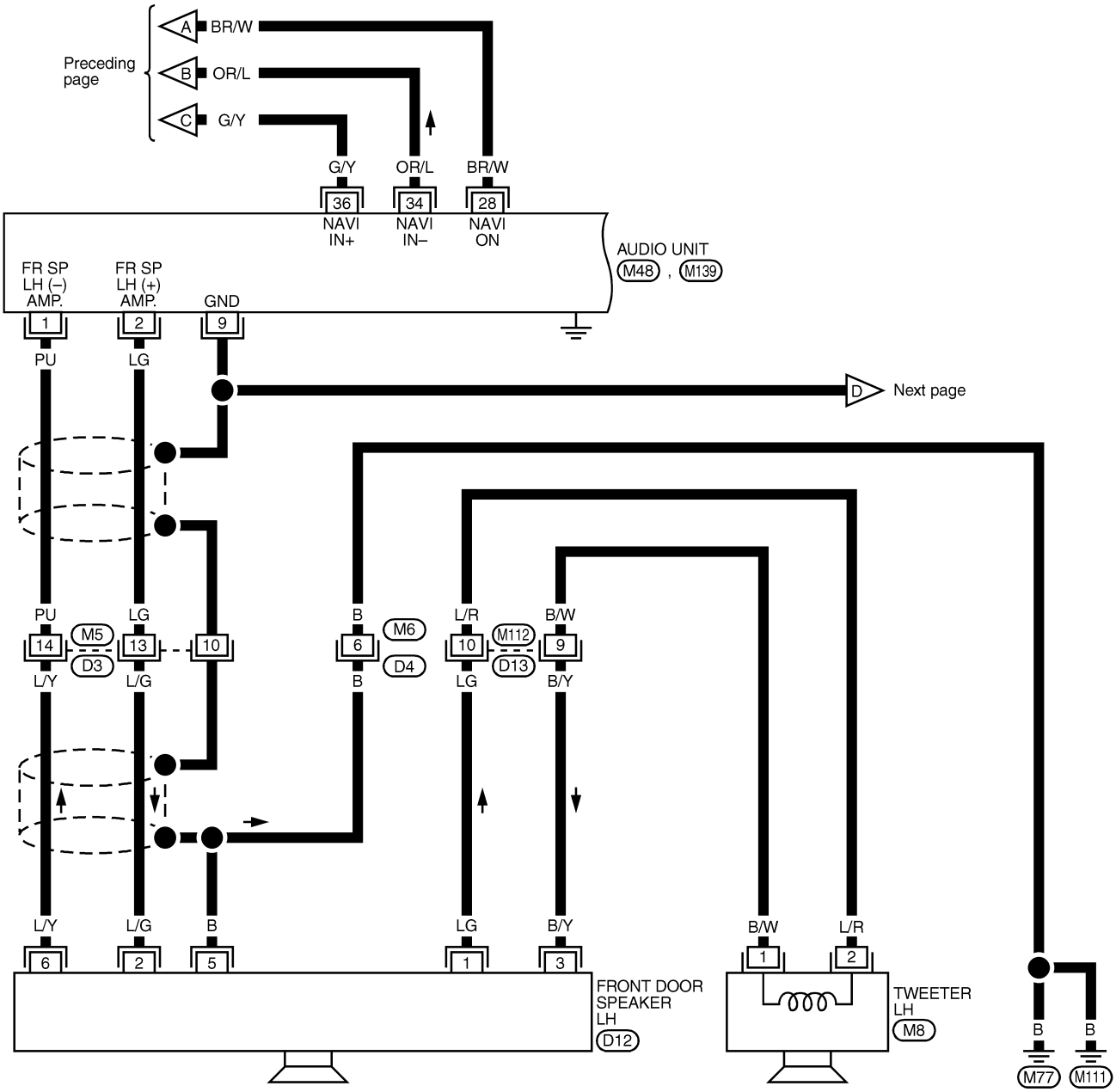


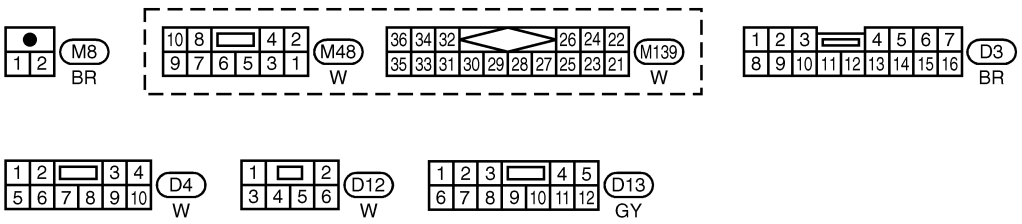
★ : This connector is not shown in “HARNESS LAYOUT”, EL section.

REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10, M81 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL750N

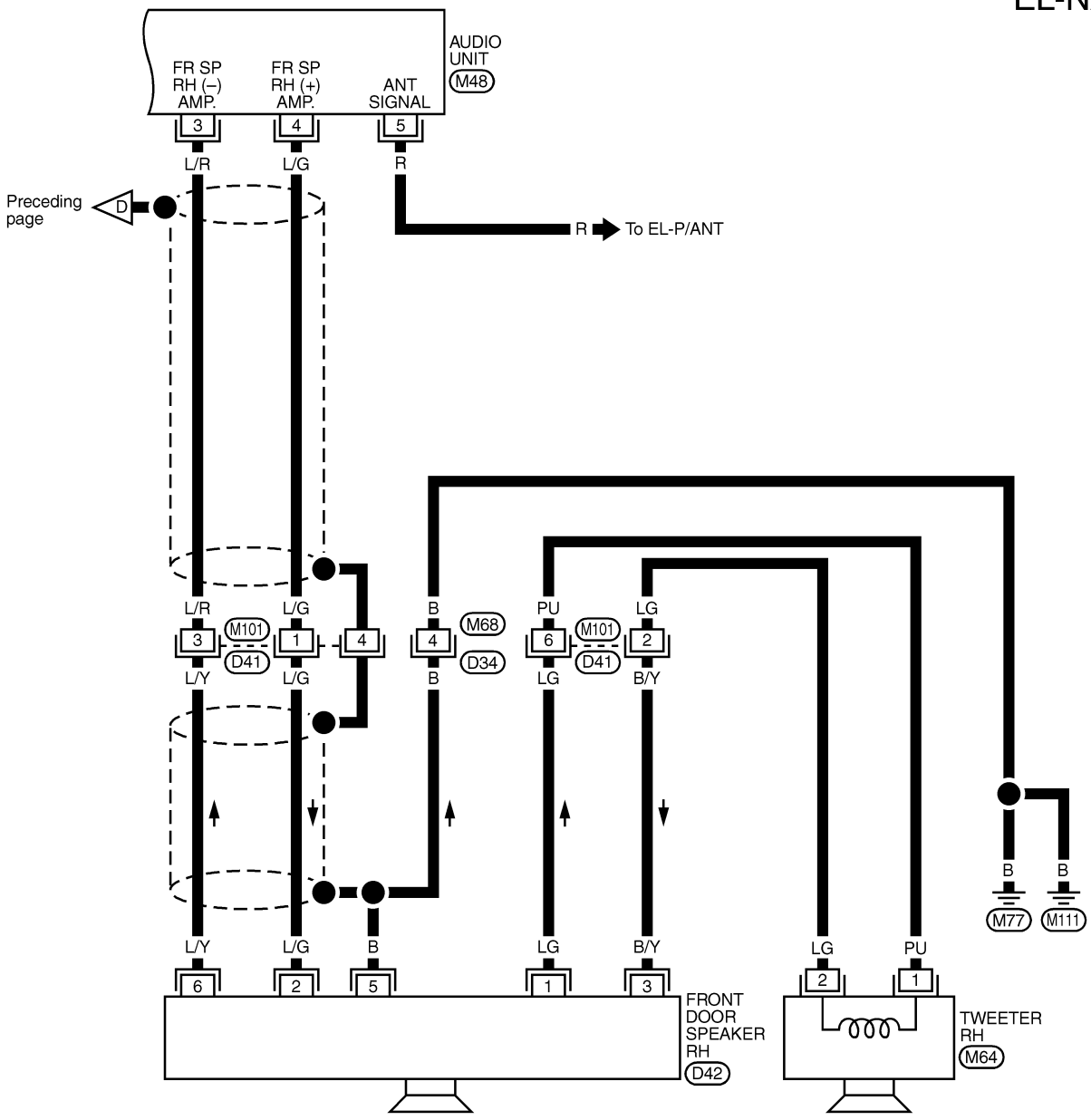
EL-NAVI-02

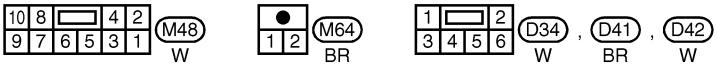




MEL272N

EL-NAVI-03





MEL270M

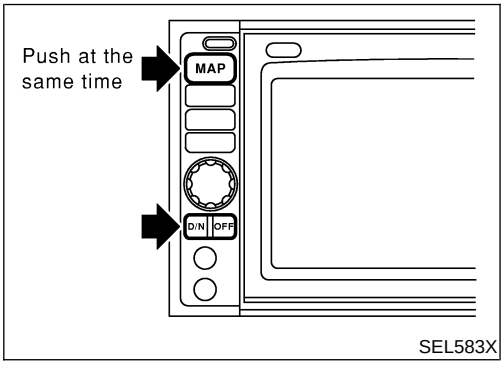
Self-diagnosis Mode

NBEL0424

APPLICATION ITEMS

NBEL0424S01

Mode			Description	Reference page
Self Diagnosis			Self-diagnosis for display & NAVI control unit, CD-ROM and GPS antenna connection.	EL-526
Confirmation/ adjustment	Display Diagnosis		Color and gray gradation of display can be checked in this mode.	EL-534
	Diagnostic Signals from the Car		Several input signals to display & NAVI control unit, can be monitored in this mode.	EL-532
	Navigation	Check the map CD-ROM version	The version (parts number) of inserted CD-ROM can be checked in this mode.	EL-533
		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-528
		Longitude & Latitude	Display the map. Use the joystick to adjust position. Longitude and latitude will be displayed.	EL-535
		Adjust the angle	Turning angle of the vehicle on the display can be adjusted in this mode.	EL-536
		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-537
		Initialize Location	This mode is for initializing the current location. Use when the vehicle is transported a long distance on a trailer, etc.	EL-562

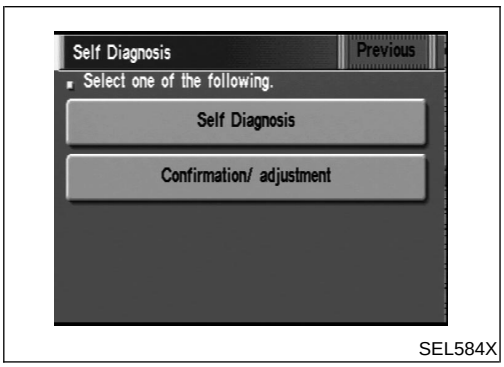


SEL583X

HOW TO PERFORM SELF-DIAGNOSIS MODE

NBEL0424S02

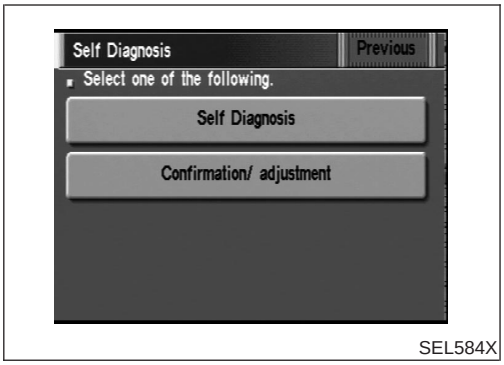
1. Start the engine.
2. Push both of “MAP” and “D/N” switches at the same time for more than 5 seconds.



SEL584X

3. Touch “Self Diagnosis” or “Confirmation/ adjustment”.

- For further procedure, refer to the following pages which describe each application item of the self-diagnosis mode.

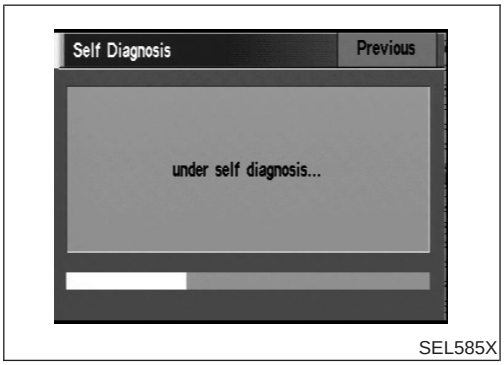


SEL584X

"Self Diagnosis"

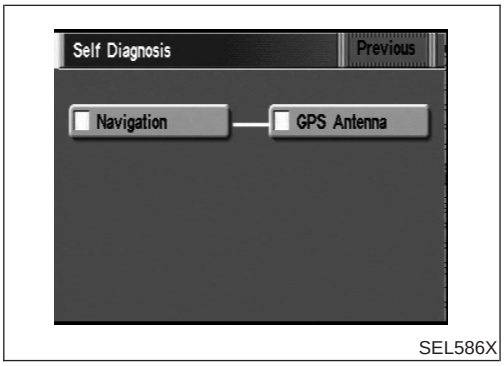
NBEL0424S0201

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".



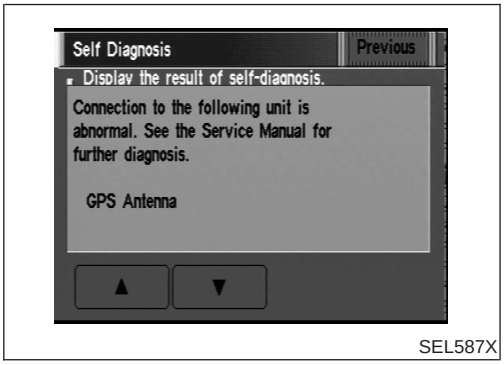
SEL585X

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

=NBEL0424S03

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. 2. Visually check GPS antenna feeder cable. If NG, replace GPS antenna assembly. 3. Replace GPS antenna.
"Navigation" (Display & NAVI control unit)	Green	—	No failure is detected.	—
	Red	[*** is abnormal.]	Display & NAVI control unit is malfunctioning.	Replace display & NAVI control unit.
	Gray	Self-diagnosis for CD-ROM DRIVER of DISP & NAVI was not conducted due to no insertion of CD-ROM.	Any CD-ROM is not inserted or display & NAVI control unit is malfunctioning.	1. Confirm that map CD-ROM is not inserted into display & NAVI control unit. 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. Map CD-ROM or CD-ROM driver of the unit is malfunctioning.	1. Confirm the disk is installed correctly (not up side down.) 2. Perform "CHECK THE MAP CD-ROM VERSION" in EL-533 to confirm whether correct CD-ROM is inserted or not. 3. Check the disk surface. Are there any scratches, abrasions or pits on the surface? 4. Replace the CD-ROM. 5. Replace display & NAVI control unit.
		CD-ROM is abnormal. Please check the disc.	Inserted map CD-ROM can not be read. 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. 2. Visually check GPS antenna feeder cable. If NG, replace GPS antenna assembly. 3. Replace GPS antenna.

Confirmation/Adjustment Mode

=NBEL0425

"HISTORY OF ERRORS" MODE

NBEL0425S01

Description

NBEL0425S0101

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

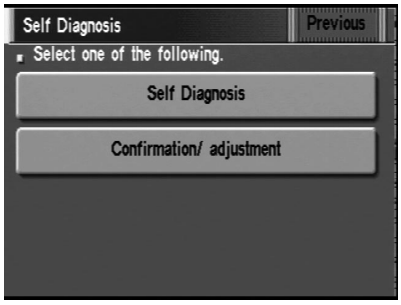
NOTE:

- **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.**

How to Perform

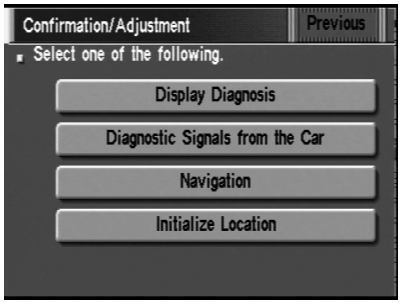
NBEL0425S0102

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".



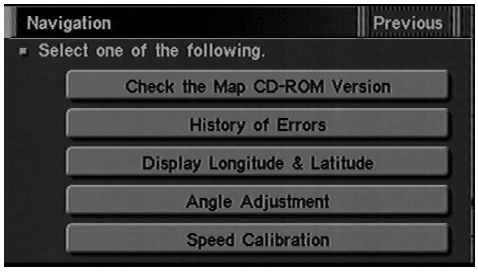
SEL584X

4. Touch "Navigation".



SEL588X

5. Touch "Error history".



SEL453Y

SEL590X

6. If trouble items are displayed with time count, repair/replace the system according to "HISTORY OF ERRORS" TABLE, EL-530.
7. If necessary, touch error item to display the time when the error was detected and the place where the error was detected.
8. After repairing the system, erase the diagnosis memory.

NOTE:
When the display & NAVI control unit must be replaced, do not erase the diagnosis memory for further inspection of malfunctions.

a. Start the engine.
b. Push both "Map" and "D/N" switches at the same time for more than 5 seconds.
c. Touch "Confirmation/ adjustment".
d. Touch "Navigation".
e. Touch "Error history".
f. Touch "Delete".
g. Touch "Yes".

Confirmation/Adjustment Mode (Cont'd)

"HISTORY OF ERRORS" TABLE

=NBEL0425S02

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-525
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-532
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-525
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-525
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-533
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-546
		2. Perform self-diagnosis to confirm GPS antenna connection.	EL-525
		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-525

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 NAVI & display control unit.	—
CD-ROM reading error	It is confirmed that the appropriate CD-ROM disc is positioned in the CD-ROM loader. However, no data can be read.	Perform self-diagnosis to confirm whether the inserted disc is malfunctioning or not.	EL-525
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-525

"DIAGNOSTIC SIGNALS FROM THE CAR" MODE

=NBEL0425S03

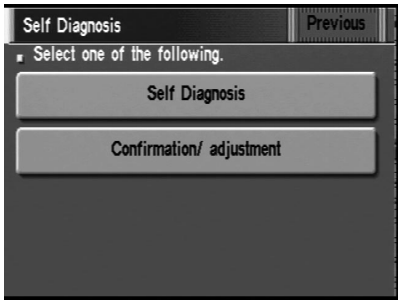
Description

NBEL0425S0301

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 "-".

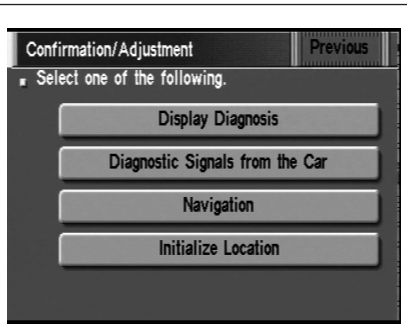


SEL584X

How to Perform

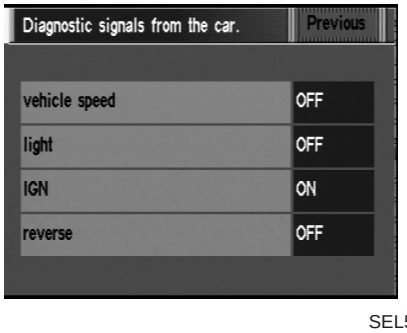
NBEL0425S0302

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".



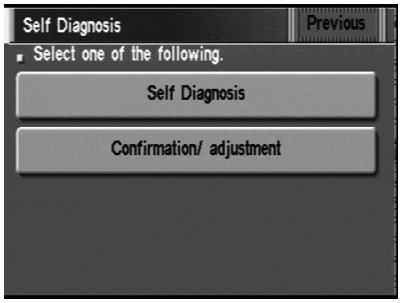
SEL588X

4. Touch "Diagnostic Signals from the Car".



SEL591X

5. Then "Diagnostic Signals from the Car" mode is performed.



SEL584X

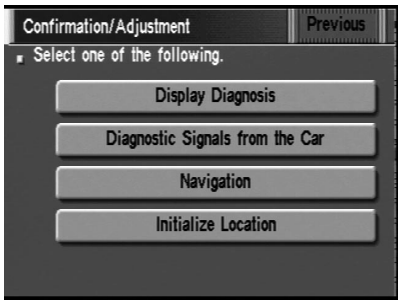
"CHECK THE MAP CD-ROM VERSION" MODE

=NBEL0425S04

How to Perform

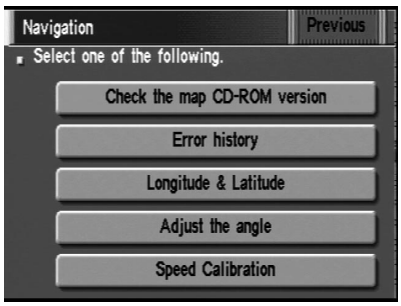
NBEL0425S0401

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".



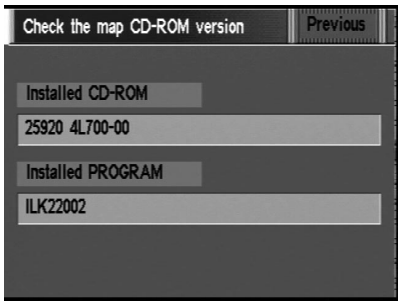
SEL588X

4. Touch "Navigation".



SEL589X

5. Touch "Check the map CD-ROM version".



SEL592X

6. The version (parts number) of CD-ROM loaded to the display and NAVI control unit will be displayed.

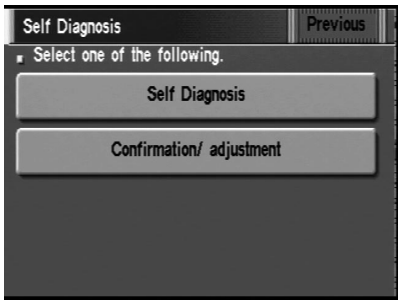
"DISPLAY DIAGNOSIS" MODE

=NBEL0425S05

Description

NBEL0425S0501

Use the "Diagnosis Display" mode to check the display color brightness and shading. The display & NAVI control unit must be replaced if the color brightness and shading are abnormal.

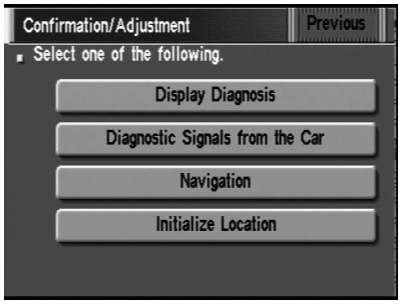


SEL584X

How to Perform

NBEL0425S0502

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".

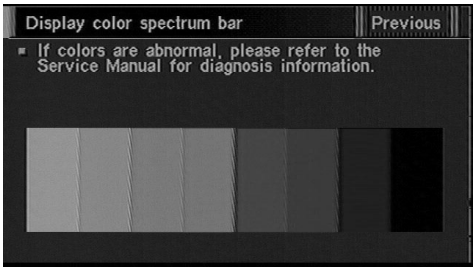


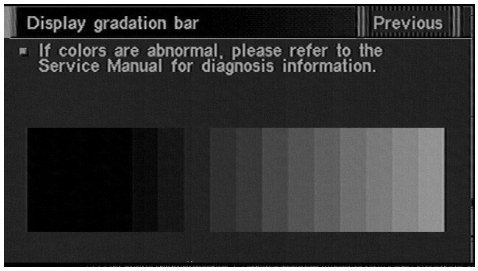
SEL588X

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

"LONGITUDE & LATITUDE" MODE

NBEL0425S06

Description

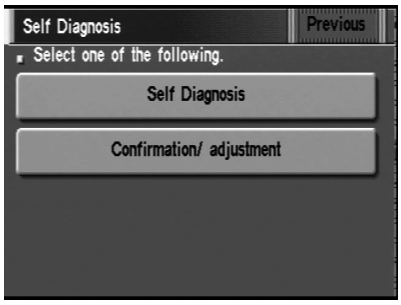
NBEL0425S0601

The "Longitude & Latitude" is used to confirm the longitude and latitude of some optional area point.

How to Perform

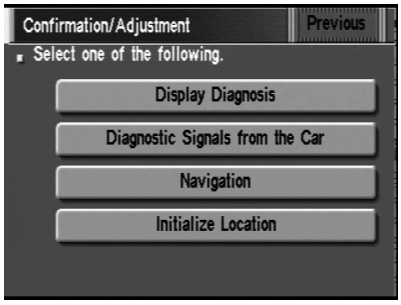
NBEL0425S0602

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".



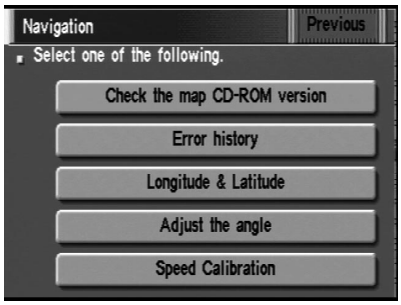
SEL584X

4. Touch "Navigation".



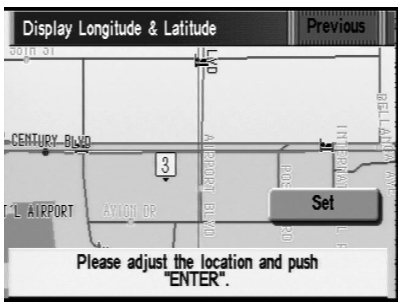
SEL588X

5. Touch "Longitude & Latitude".



SEL589X

6. Adjust the pointer with using the joystick and touch "Set".
7. The longitude and latitude are displayed.



SEL595X

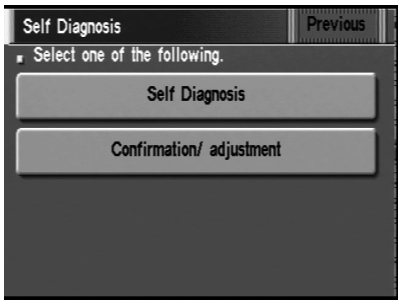
"ADJUST THE ANGLE" MODE

=NBEL0425S07

Description

NBEL0425S0701

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 "+".

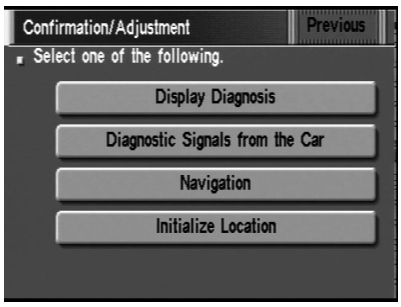


SEL584X

How to Perform

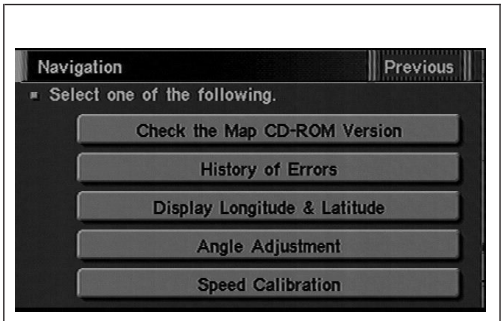
NBEL0425S0702

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".



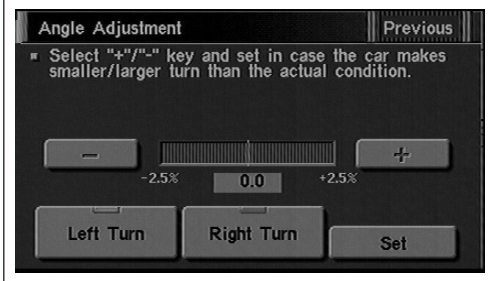
SEL588X

4. Touch "Navigation".



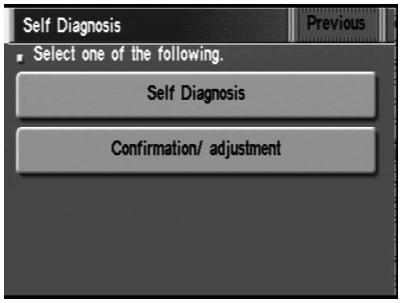
SEL453Y

5. Touch "Adjust the angle".



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.

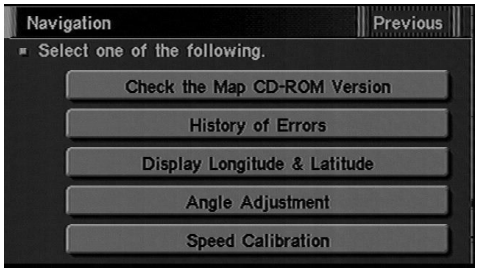


SEL584X

SPEED CALIBRATION

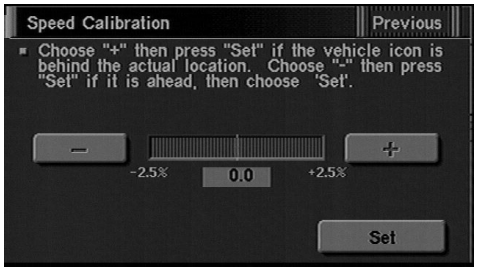
=NBEL0425S08

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".

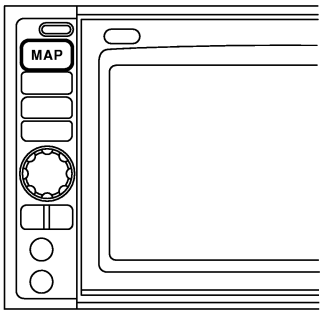
Setting Mode

=NBEL0426

APPLICATION ITEMS

NBEL0426S01

Mode	Description	Reference page
GPS Information	The GPS includes longtitude, latitude and altitude (distance above sea level) of the present vehicle position, and current date and time for the area in which the vehicle is being driven. Also indicated are the GPS reception conditions and the GPS satellite position.	EL-538
Quick Stop Customer Setting	One facility of your selection can be added to your Quick Stop.	EL-541
Route Priorities	Priorities of search request and automatic re-searching can be set for route search.	EL-542
Tracking	Tracking to the present vehicle position can be displayed.	EL-543
Display Setting	The following display settings can be customized. ● Display color (Day mode or Night mode) ● Brightness of display	EL-540
Heading	Heading of the map display can be customized for either north heading or the actual driving direction of the vehicle.	EL-543
Nearby Display Icons	Icons of facilities can be displayed. Facilities to be displayed can be selected from the variety of selections.	EL-544
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-539
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-540
Clear Memory	Address book, Previous destination or Avoid area can be deleted.	EL-544



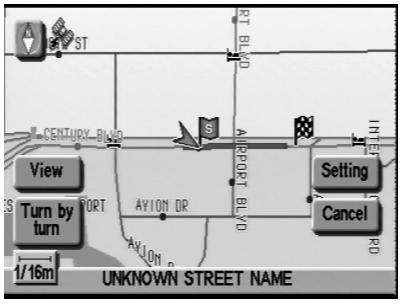
SEL597X

HOW TO PERFORM CONTROL PANEL MODE

NBEL0426S02

1. Start the engine.
2. Push “MAP” switch.

● For further procedures, refer to the following pages which describe each application item of the control panel mode.

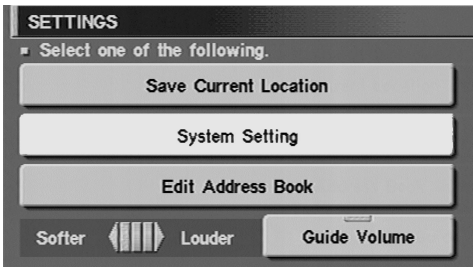


SEL598X

“GPS INFORMATION” SETTING

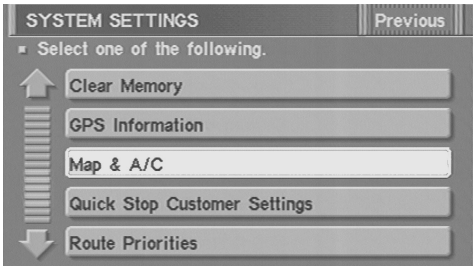
NBEL0426S03

1. Start the engine.
2. Push “MAP” switch.
3. Touch “Setting”.



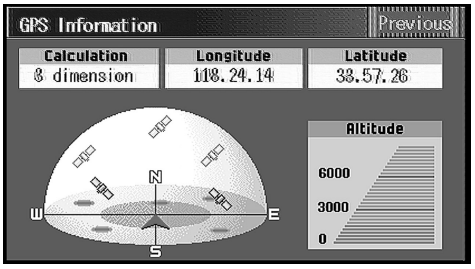
SEL461Y

4. Touch "System Setting".



SEL462Y

5. Touch "GPS Information".



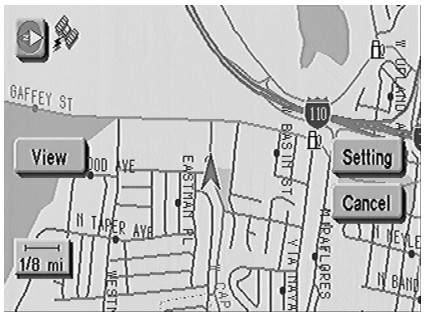
SEL146W

6. Then GPS information will be displayed.

"ADJUST CURRENT LOCATION" SETTING

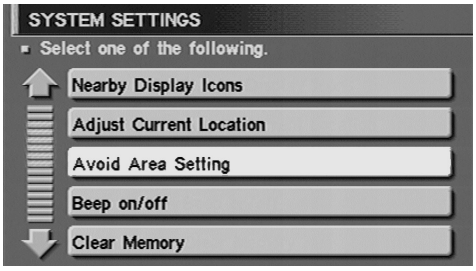
NBEL0426S04

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

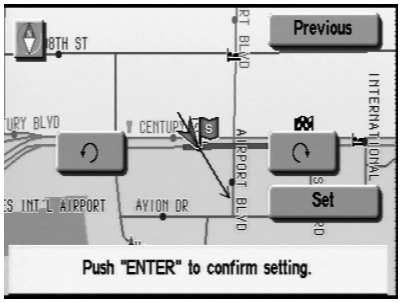


SEL460Y

5. Touch "Adjust Current Location".



SEL463Y



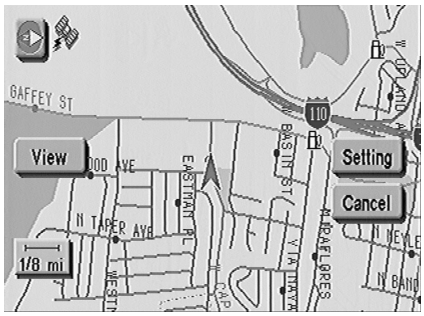
SEL602X

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.

BEEP ON/OFF SETTING

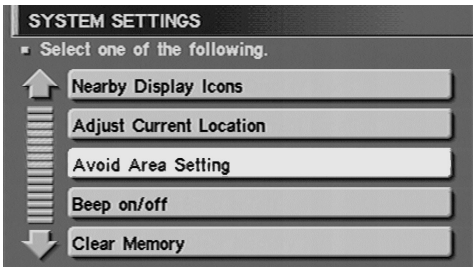
NBEL0426S05

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

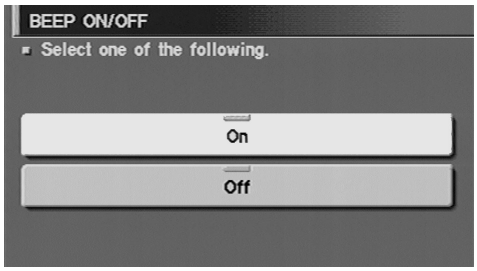


SEL460Y

5. Touch "Beep on/off".



SEL463Y



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

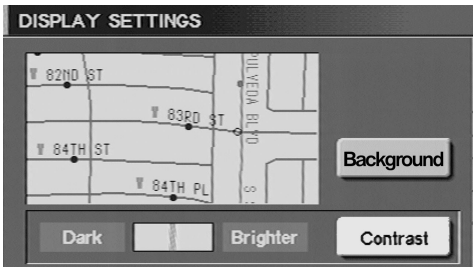
NBEL0426S06

Description

NBEL0426S0601

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

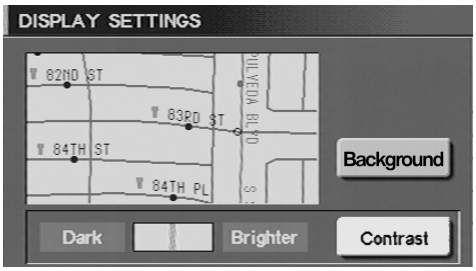
DISPLAY COLOR SETTING

NBEL0426S07

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".
5. Touch "Color". Display color will change to Day mode/Night mode.
6. Touch "Previous".

NOTE:

- **Display color can be changed independently when lighting switch is turned on and off.**
- **Initial setting of the color is as follows:**
  When lighting switch is turned off: Day mode
  When lighting switch is turned on: Night mode
  Day mode: White background
  Night mode: Black background



SEL465Y

BRIGHTNESS SETTING

NBEL0426S08

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".
5. Touch "Display Setting".
6. Touch "Bright" or "Dark" to adjust the brightness of display.
7. Touch "Previous".

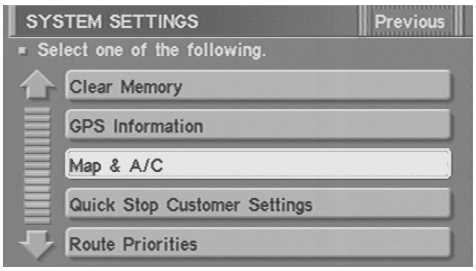
NOTE:
Display brightness can be adjusted independently when lighting switch is turned on and off.

SEL460Y

"QUICK STOP CUSTOMER SETTING" MODE

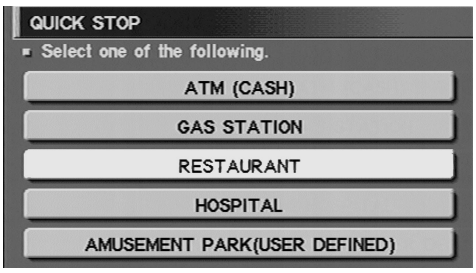
NBEL0426S09

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL462Y

5. Touch "Quick Stop Customer Setting".



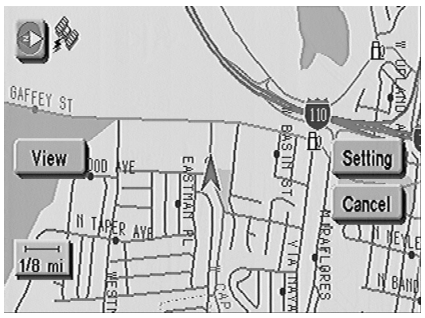
SEL466Y

6. Select from the itemized list.

"ROUTE PRIORITIES" MODE

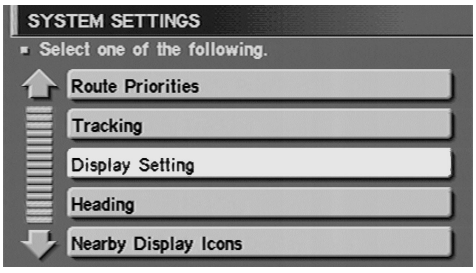
NBEL0426S10

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL460Y

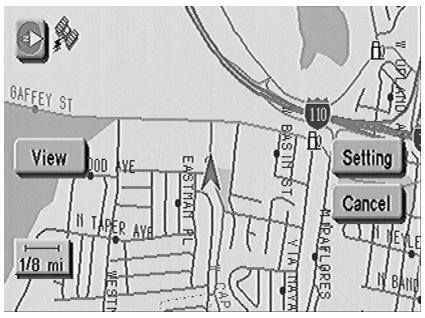
5. Touch "Route Priorities".



SEL467Y

6. Select from the itemized list.

SEL468Y

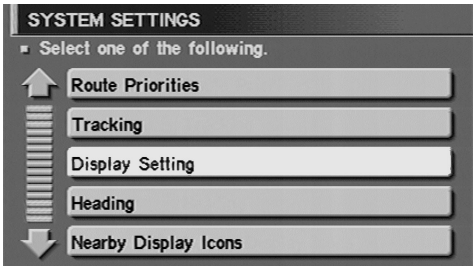


SEL460Y

"TRACKING" MODE

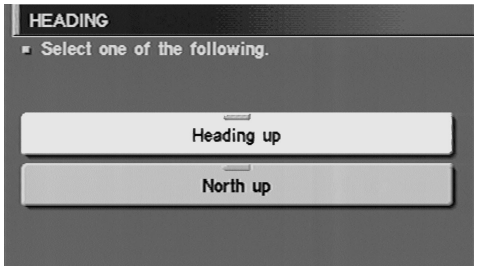
NBEL0426S11

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL467Y

5. Touch "Tracking".



SEL470Y

6. Touch the "On" or "Off" icon.
- If you don't need a trail on the map, select "Off".
- If you need a trail on the map, select "On".

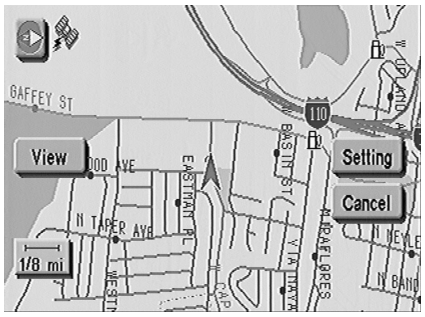
7. Push the "MAP" switch to return the display to the current location map.

NOTE:
When a trail display is turned OFF, trail data is erased from the memory.

"HEADING" MODE

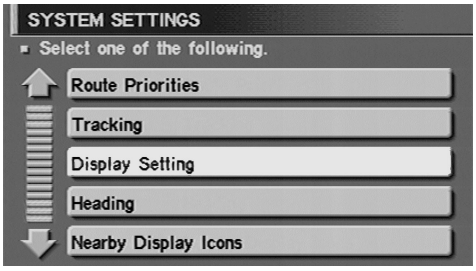
NBEL0426S12

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

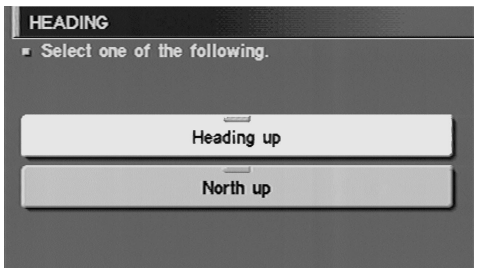


SEL460Y

5. Touch "Heading".



SEL467Y



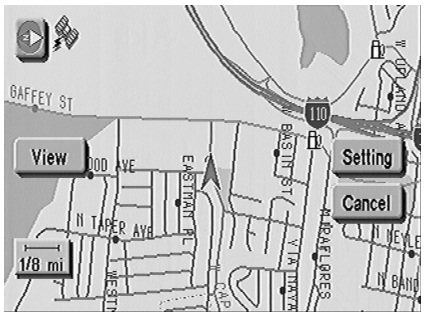
SEL470Y

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.

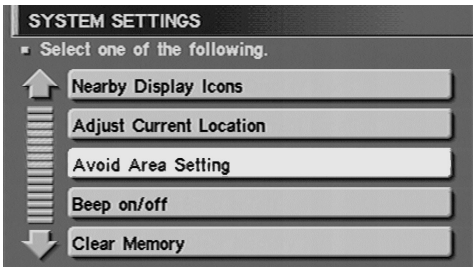
"NEARBY DISPLAY ICONS" MODE

NBEL0426S13



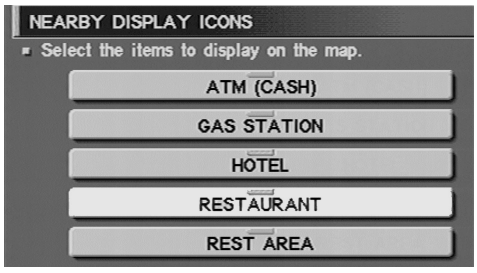
SEL460Y

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL463Y

5. Touch "Nearby Display Icons".

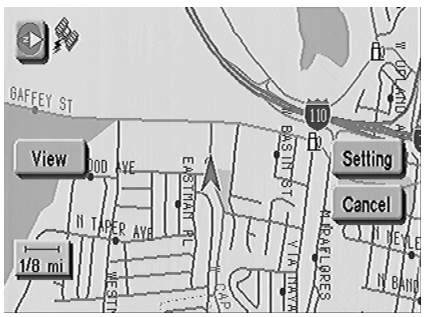


SEL471Y

6. Select and touch the itemized list.
7. Push the "MAP" switch to return the display to the current location map.

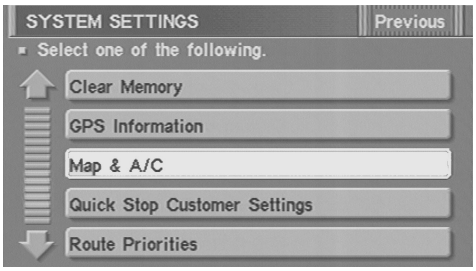
"CLEAR MEMORY" MODE

NBEL0426S14



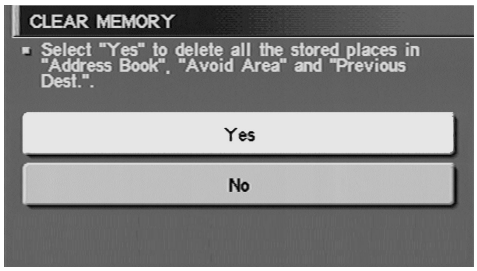
SEL460Y

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL462Y

5. Touch "Clear Memory".



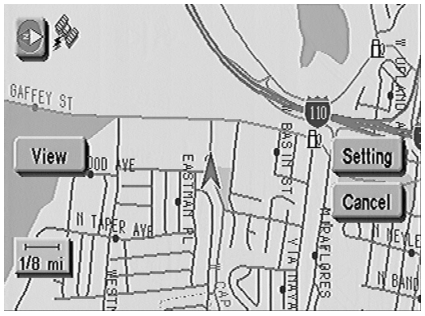
SEL472Y

6. To delete all the stored places in the "Address Book", "Avoid Area" and "Previous Dest.", select "Yes".

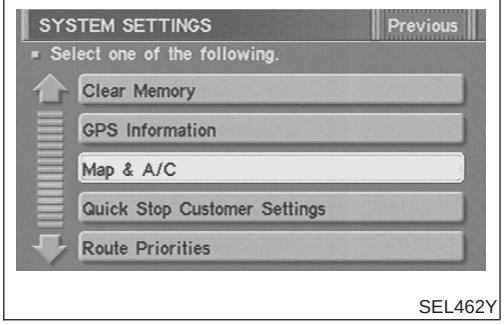
"MAP & A/C" MODE

NBEL0426S15

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

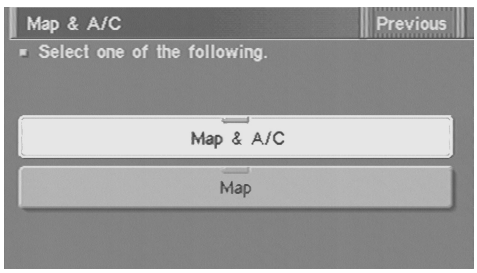


SEL460Y



SEL462Y

5. Touch "MAP & A/C".



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

NBEL0427

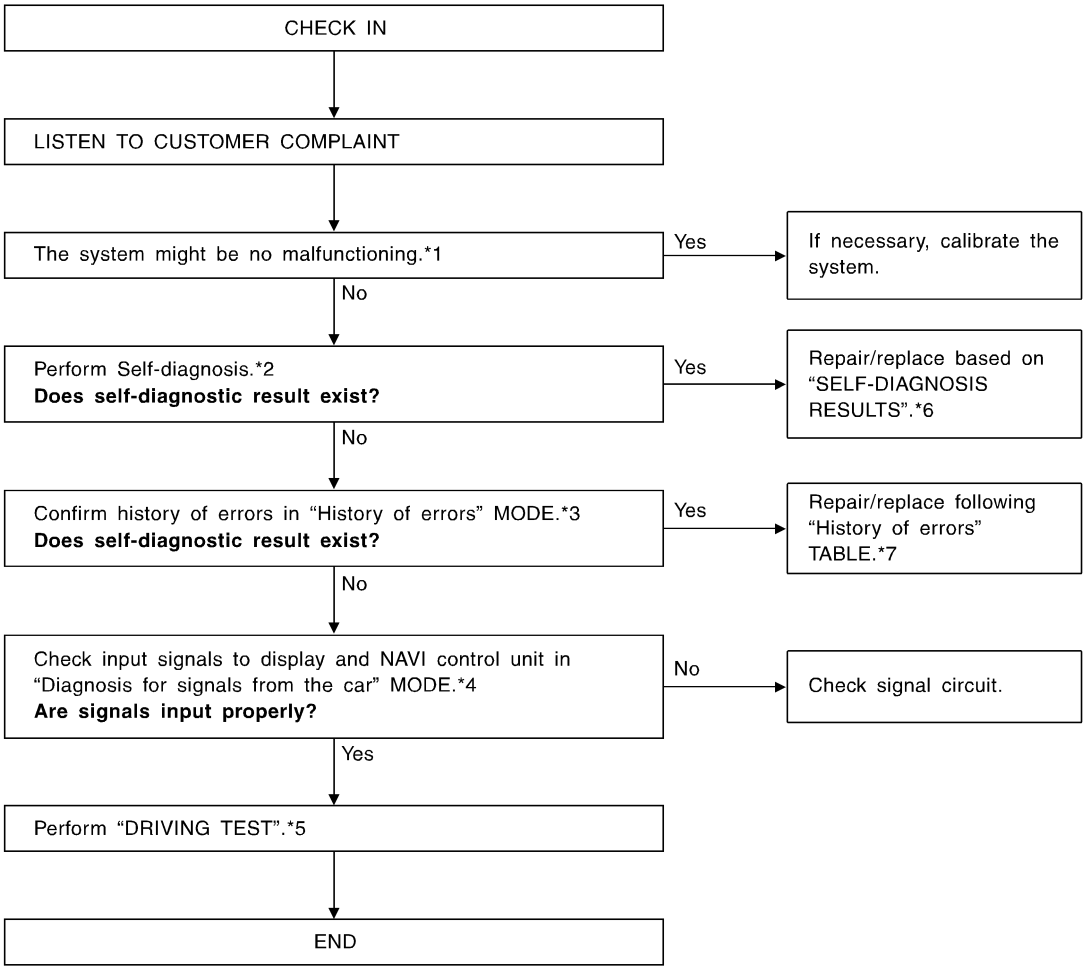
SYMPTOM CHART

NBEL0427S01

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-549
Strange screen color or unusual screen brightness.	1. Check “DISPLAY SETTING”.	EL-540
	2. Check display in “Diagnosis of Display” MODE.	—
The display is not dimmed when turning lighting switch to ON.	1. Check “DISPLAY SETTING”.	EL-540
	2. Check lighting switch signal input to display & NAVI control unit correctly in “DIAGNOSTIC SIGNAL FROM THE CAR” MODE.	EL-532
No navigation guide voice are heard from both front speakers.	1. Check “Voice Guidance Setting”.	—
	2. Check voice guide operation.	EL-550
Beep does not sound when the system guides route.	Check “BEEP ON/OFF SETTING”.	EL-540
Position marker does not trace along the route being traveled.	Go to “WORK FLOW FOR NAVIGATION INSPECTION”.	EL-547
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-532
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-538
	3. Check GPS antenna in “Self Diagnosis”.	EL-525
Heading direction of position marker does not match vehicle direction.	1. Perform “ADJUST CURRENT LOCATION” SETTING.	EL-539
	2. Go to “WORK FLOW FOR NAVIGATION INSPECTION”.	EL-547
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. Perform “Initialize Location”.	EL-562

WORK FLOW FOR NAVIGATION INSPECTION

NBEL0427S02



SEL629XA

*1: EL-552
*2: EL-525
*3: EL-528
*4: EL-532
*5: EL-548
*6: EL-527
*7: EL-530

DRIVING TEST

=NBEL0427S03

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-539).

Test pattern 2

Test procedure in which map matching is not used.

- Before driving the vehicle, perform "ADJUST CURRENT LOCATION" (EL-539). 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>

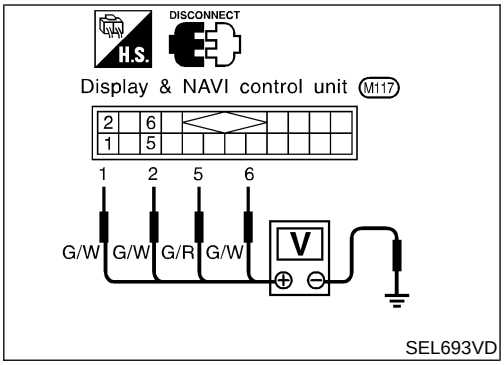
→ Perform test patterns 1 and 2.

- 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

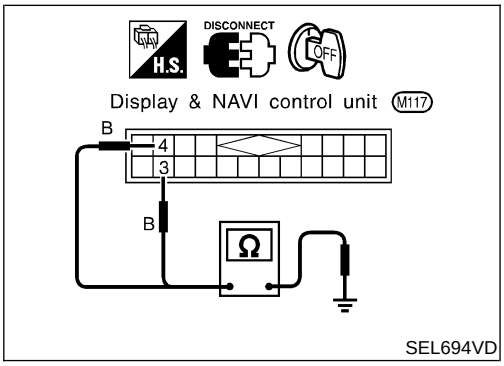
=NBEL0427S04

NBEL0427S0401

Terminal		Ignition switch		
(+)	(−)	OFF	ACC	ON
1	Ground	Battery voltage	Battery voltage	Battery voltage
2	Ground	Battery voltage	Battery voltage	Battery voltage
5	Ground	0V	0V	Battery voltage
6	Ground	0V	Battery voltage	Battery voltage

If NG, check the following.

- 7.5A fuse [No. 11, located in the fuse block (J/B)]
- 10A fuse [No. 10, located in the fuse block (J/B)]
- 15A fuse [No. 4, located in the fuse block (J/B)]
- Harness for open or short between fuse and display & NAVI control unit



Ground Circuit Check

NBEL0427S0402

Terminals	Continuity
3 - Ground	Yes
4 - Ground	Yes

VOICE GUIDE OPERATION CHECK

=NBEL0427S05

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.

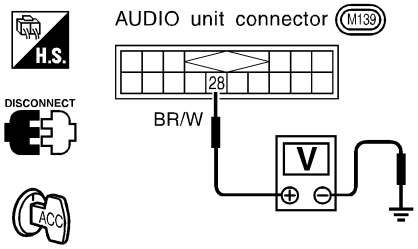
Is the sound emitted from all speakers?

Yes or No

Yes	▶	GO TO 2.
No	▶	Repair or replace audio system. Refer to "AUDIO", EL-181.

2	CHECK NAVI OPERATION ON SIGNAL

1. Disconnect audio unit connector.
2. Push "VOICE" button.
3. Check voltage between terminal 28 and ground.



Voltage [V]:
Condition of VOICE button: Push.
Approx. More than 0 - 10
Condition of VOICE button: Do not push.
0

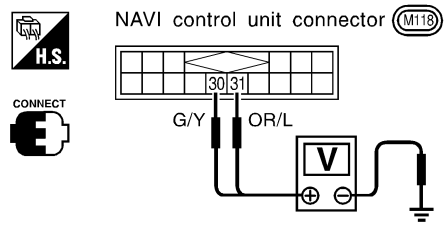
SEL645XA

OK or NG

OK	▶	GO TO 3.
NG	▶	Repair or replace harness or NAVI control unit.

3	CHECK VOICE SIGNAL CIRCUIT

1. Push "VOICE" button.
2. Check voltage between NAVI control unit terminal 30 or 31 and ground.



Voltage [V]:
Condition of VOICE button: Push.
Approx. 5
Condition of VOICE button: Do not push.
0

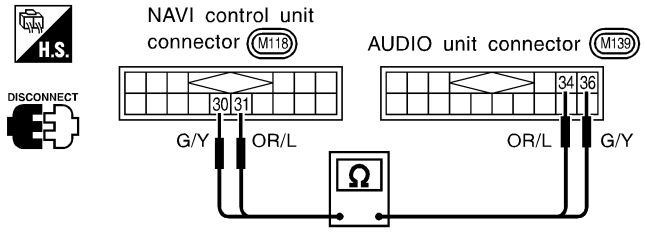
SEL648X

OK or NG

OK	▶	GO TO 4.
NG	▶	Repair or replace NAVI control unit.

4	CHECK VOICE SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect NAVI control unit connector and AUDIO unit connector.
3. Check continuity between NAVI control unit terminal 30 and AUDIO unit terminal 36.
4. Check continuity between NAVI control unit terminal 31 and AUDIO unit terminal 34.



Does continuity exist?

SEL649X

Yes or No

Yes	▶	Repair or replace audio system. Refer to "AUDIO", EL-181.
No	▶	Repair or replace harness or connector.

This Condition is Not Abnormal

=NBEL0428

EXAMPLE OF BASIC OPERATIONAL ERRORS

NBEL0428S01

Symptom	Possible cause	Repair order
No image is displayed.	Monitor brightness control is set to full dark.	Readjust monitor brightness.
Map does not appear on display.	Map CD is not inserted or inserted upside down.	Insert the map CD with the label facing up.
	Map mode is turned OFF.	Press the “MAP” button.
No guide tone is heard.	Voice guide adjustment OFF/Volume is set to the lowest or highest level.	Adjust the voice guide level.
Voice guide volume is too high or too low.		
Dark display/Slow image movement	Low vehicle interior temperature	Wait until vehicle interior temperature rises to appropriate level.
Small black or white dots appear on the screen.	Unique liquid crystal display phenomena	No problem
“Unable to read CD” message appears only during specified operation.	Map CD surface is tainted/CD surface is partially scratched.	Check map CD surface. If dirty, wipe clean with a soft cloth.
		If map CD surface is damaged, replace the CD.

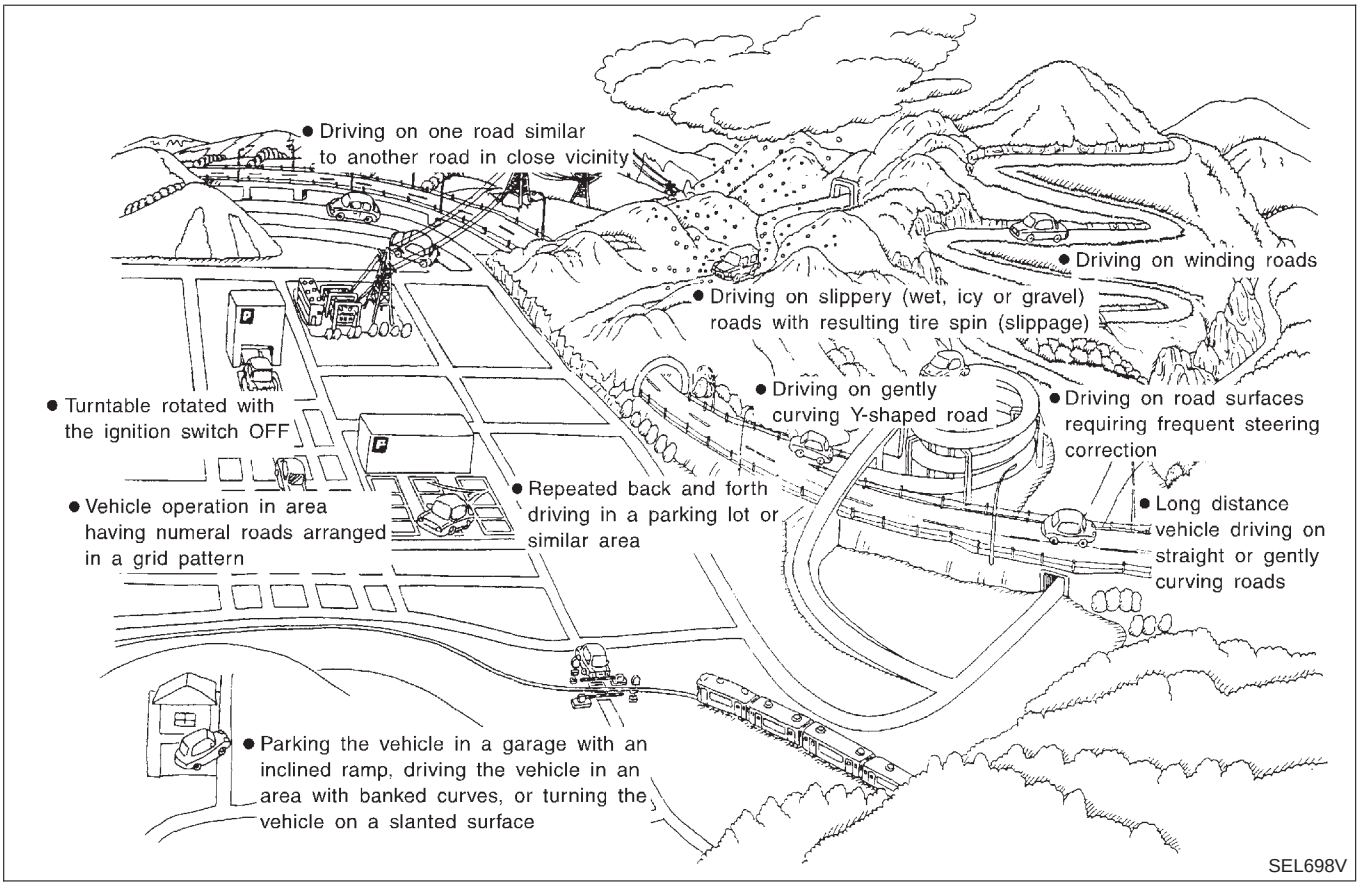
Area place names are not displayed.
If area place names do not appear on the map display, these names may not be available. Use the BIRDVIEW® flat surface map display function. Display output may differ. Note the items related to BIRDVIEW® below.

- Priority is given to the display of place names in the direction of vehicle travel.
- Extended display of vehicle travel distance for both surfaces and steering angle (flat directional changes). This phenomenon disappears after the display image has been replaced by another one.
- The names of route and area might vary between the immediate front area and distance front area.
- Alphanumeric display characters are limited to maintain display simplicity and clarity. Display details may differ with time and place.
- Identical place and road names may appear on the display at more than one location.

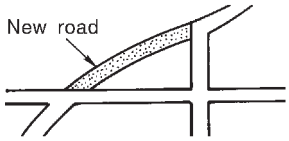
EXAMPLE OF CURRENT VEHICLE POSITION MARKER ERROR

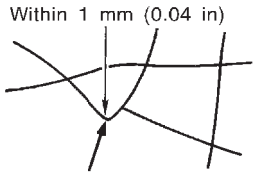
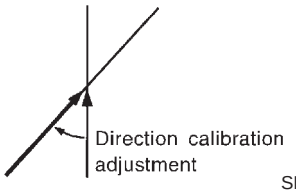
=NBEL0428S02

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-539).

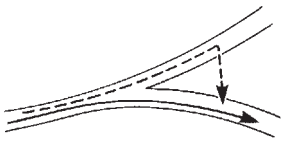
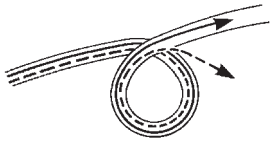
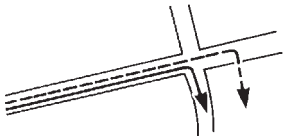
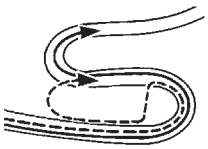
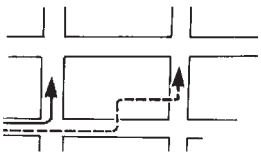
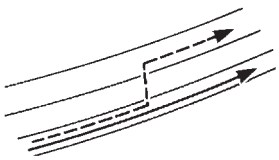


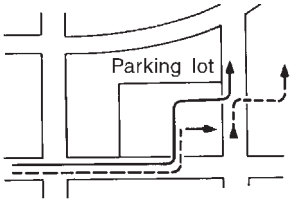
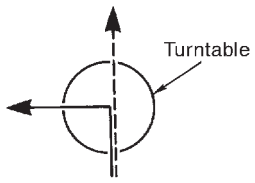
This Condition is Not Abnormal (Cont'd)

Possible cause		Drive condition	Service procedure
Area	Slippery road surface	On wet, icy, or gravel road where frequent wheel slippage occurs, distance calculations may be erroneous. The position marker may show the vehicle to be in inaccurate position.	If the position marker does not move to the correct position even after the vehicle has been driven approximately 10 km (6 miles), perform "ADJUST CURRENT LOCATION" (EL-539). If necessary, perform "SPEED CALIBRATION" (EL-537).
	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.  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).  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-537). After removing the tire chains, sensing accuracy may recover by itself.

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-537).
	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-539).
Positional calibration procedures	Positional calibration precision  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-539) within a precision standard of 1 mm (0.04 in) on the display. Note: During calibration, use the most detailed map possible.
	Position calibration direction  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-539.

This Condition is Not Abnormal (Cont'd)

Possible cause: —: Vehicle running ---: Indication		Drive condition	Service procedure
Road shapes	Y-intersection  SEL703V	In Y-intersections with a very gradual change in course, a directional sensing may be inaccurate. This may result in the position marker giving the wrong road indication.	If the position marker does not move to the correct position even after the vehicle has been driven approximately 10 km (6 miles), perform "Store place". If required, also perform "ADJUST CURRENT LOCATION" (EL-539).
	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.	

	Possible cause: —: Vehicle running ---: Indication	Drive condition	Service procedure
Location	Parking lot or similar area  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  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-539).

NOTE:

- When GPS satellite signal reception conditions are poor, the position of position marker may be erroneous. If correction is not made immediately, the position marker error will be compounded and a completely different location will be indicated. In an area where GPS satellite signal reception conditions are good, the system can be returned to normal operation.
- The vehicle is driven aboard a car ferry or is towed for some distance with the ignition switch OFF. Vehicle movement is not sensed. Current location calculations do not occur and current location data does not appear on the display screen. Use GPS to accurately determine actual vehicle position. The system can be returned to normal operation when the GPS satellite signal reception conditions are good.

Position marker jumps

In circumstances such as those described below, the position marker may jump as a result of automatic current location corrections made by the system.

During map matching

- During map matching, the position marker may jump from one spot to another. In this case, it may be corrected to a wrong road or to an area where no road exist.

GPS location correcting

- Vehicle current location is sensed using the GPS data. Positional calibration is performed. The position marker continues to be in the wrong position. It may jump about from one area of the screen to another. In this case, it may be corrected to a wrong road or to an area where no road exist.

Position marker indicates that the vehicle is in the middle of an ocean or large river

The navigation system does not distinguish between land and water surfaces. In some cases, a position marker error may cause the display to show the vehicle above a water surface.

Position of position marker varies when the vehicle is repeatedly operated on the same road

Driving lane and steering wheel movement results in a variety of different positions of the position mark when traveling on the same road based on sensing results by the GPS antenna and gyro (angular velocity sensor).

Slow locational correction using map matching

- The map matching function requires verification of local data. To make the map matching function, some distance needs to be driven.
- The map matching function may not provide accurate performance in an area where there are numerous parallel roads. Until the system judges the road characteristics, an incorrect position may be shown.

This Condition is Not Abnormal (Cont'd)

GPS signal reception conditions are good. However, the position mark does not return to its proper position.

- 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-540.]
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-537). 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

NBEL0428S03

- 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.

- The enlarged intersection map may display an "Unknown Street" message at some street intersections.
- Because of road configuration, etc. the guide may finish early. If this occurs, follow the marker to reach your destination.
- Destination area side information (left side and right side) may differ from actual conditions because of data error.

Unable to Set Destination, Way Point, and/or Menu Items

NBEL0428S0301

Symptom	Possible cause	Repair order
Unable to search way points in re-search mode	A way point already crossed or determined to have been crossed.	If you desire to pass through a way point for a second time, reperform route edit.
Turn list is not displayed.	Route search does not occur.	Set designation areas and perform route search.
	Car marker does not appear on recommended route.	Drive on the recommended route.
	Route guide is canceled.	Turn the route guide ON. (Push "VOICE" switch.)
Automatic search does not function.	Vehicle is not running on search object route (road indicated by orange, brown or red line).	Drive the vehicle on the search object route or perform a manual route search. Note that all routes will be re-searched at this time.
Unable to select detour route.	Vehicle is not running on recommended route.	Use the "RE-ROUTE" mode to search again or return to the recommended route.
Detour route search results are identical to previous search.	All possible conditions were considered, but results are the same.	This is not abnormal.
Unable to set a way point.	More than five way points have been previously set (and not cleared).	More than five way points cannot be specified at the same time. Break down into smaller segments and perform search.
Unable to select starting point during route edit.	Starting point will normally be your present location during route edit.	This is not abnormal.
Cannot select certain menu items.	While vehicle is running.	Park the vehicle in a safe area and perform operation.

Voice Guide Information

NBEL0428S0302

Symptom	Possible cause	Repair order
Voice guide does not function.	Voice guide is only available at certain intersections (marked with ⚲). In some cases, the guide is not available even when the vehicle makes a turn.	This is not abnormal.
	Vehicle is not running on recommended route.	Return to recommended route or reperform route search.
	Voice guide is OFF.	Set voice guide to the ON position.
	Route guide is canceled.	Turn the route guide ON. (Push "VOICE" switch.)
The guide content does not correspond to actual conditions.	The content of the voice guide may vary depending on the type of junction.	Operate vehicle following the traffic rules and regulation.

Route Search Information

NBEL0428S0303

Symptom	Possible cause	Repair order
Proceeding in desired direction. However, route search in desired direction does not function.	Unable to find appropriate route in the desired direction.	This is not abnormal.

This Condition is Not Abnormal (Cont'd)

Symptom	Possible cause	Repair order
No route is displayed.	No object route is searched near destination area.	Adjust position to wide road (brown) near destination area. In an area where traffic direction is displayed separately, pay close attention to the direction of travel. Set the destination area and the way point over the road.
	Starting point and destination areas are very near.	Move destination areas away from starting point on the screen.
Recommended route which has been passed disappears from the display.	The recommended route is divided into individual control segments. When way point 1 is passed, the data from the starting point to the way point 1 is erased.	This is not abnormal.
Search recommends roundabout route.	There may be special conditions for roads near the starting point and destination area (one-way traffic, etc.). A roundabout route may be displayed.	Slightly change starting point and destination area settings.
Landmark display does not show actual conditions.	Mistaken or missing map data may result in erroneous display.	Change map CD.
Recommended route drawn slightly away from starting point, way points, and destination area.	Course search data may not exist for closely positioned starting point, way points, and destination area shown on the map. Route guide starting point, way point, and destination point may be separated.	Set the destination area to the general route (indicated by a thick brown line). However, even if the selected route is a major one, appropriate route search data may not be available.

LOCATION OF CAR MARKER

NBEL0428S04

- 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

NBEL0428S05

- 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

NBEL0428S06

- 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.

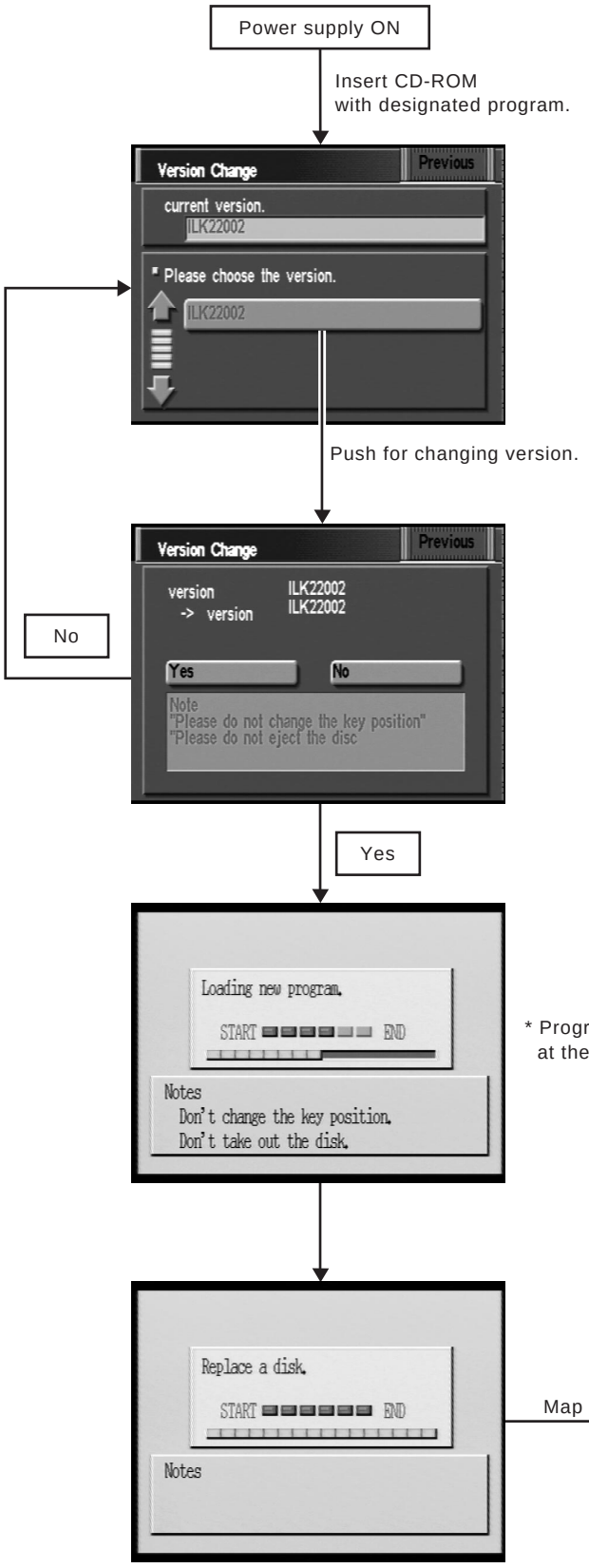
GPS ANTENNA

NBEL0428S07

- 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

NBEL0429



* Program loading progress is shown on the bar graph at the center of the screen.

Note: Load the program only after the engine has been started.

SEL612X

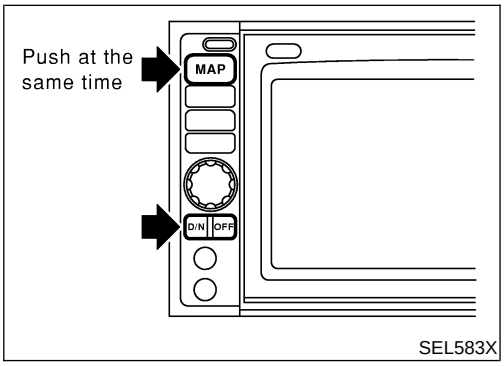
Initialization

NBEL0430

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.**

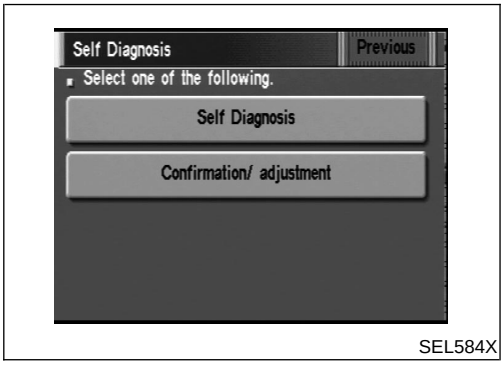


SEL583X

HOW TO PERFORM

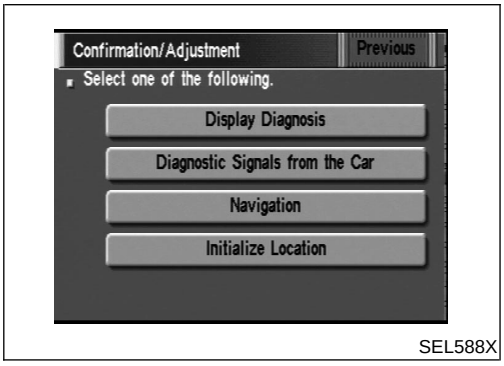
NBEL0430S01

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.



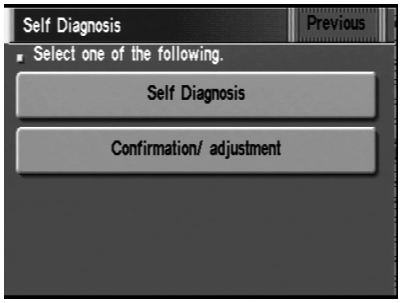
SEL584X

2. Touch "Confirmation/ adjustment".



SEL588X

3. Touch "Initialize Location". Then the previous screen is displayed.

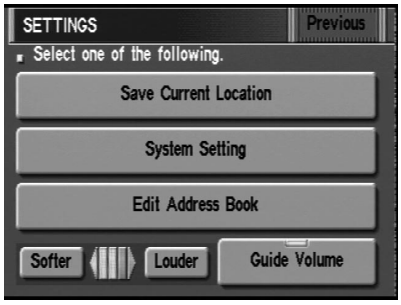


SEL584X

4. Push "Previous" switch.

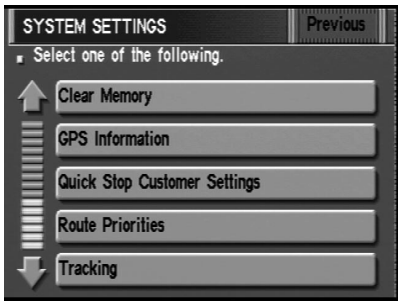
SEL598X

5. Push the "MAP" switch.
6. Touch "Setting".



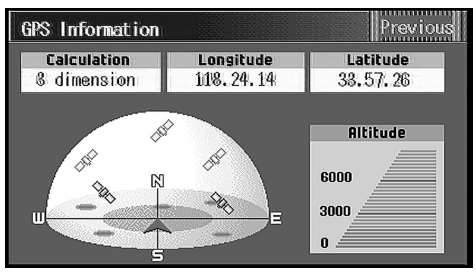
SEL599X

7. Touch "System Setting".



SEL600X

8. Touch "GPS Information".

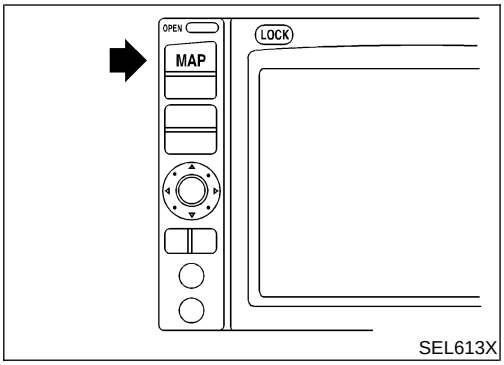


SEL146W

9. More than one GPS satellite icon turns green. (It may take 1 to 15 minutes.)

NOTE:
Drive the vehicle for a while* in order to change the receiving condition of the radio wave from the GPS satellite if the GPS icon does not turn green.
*** The driving distance which is necessary depends on the receiving condition of the radio wave from the GPS satellite.**

Initialization (Cont'd)

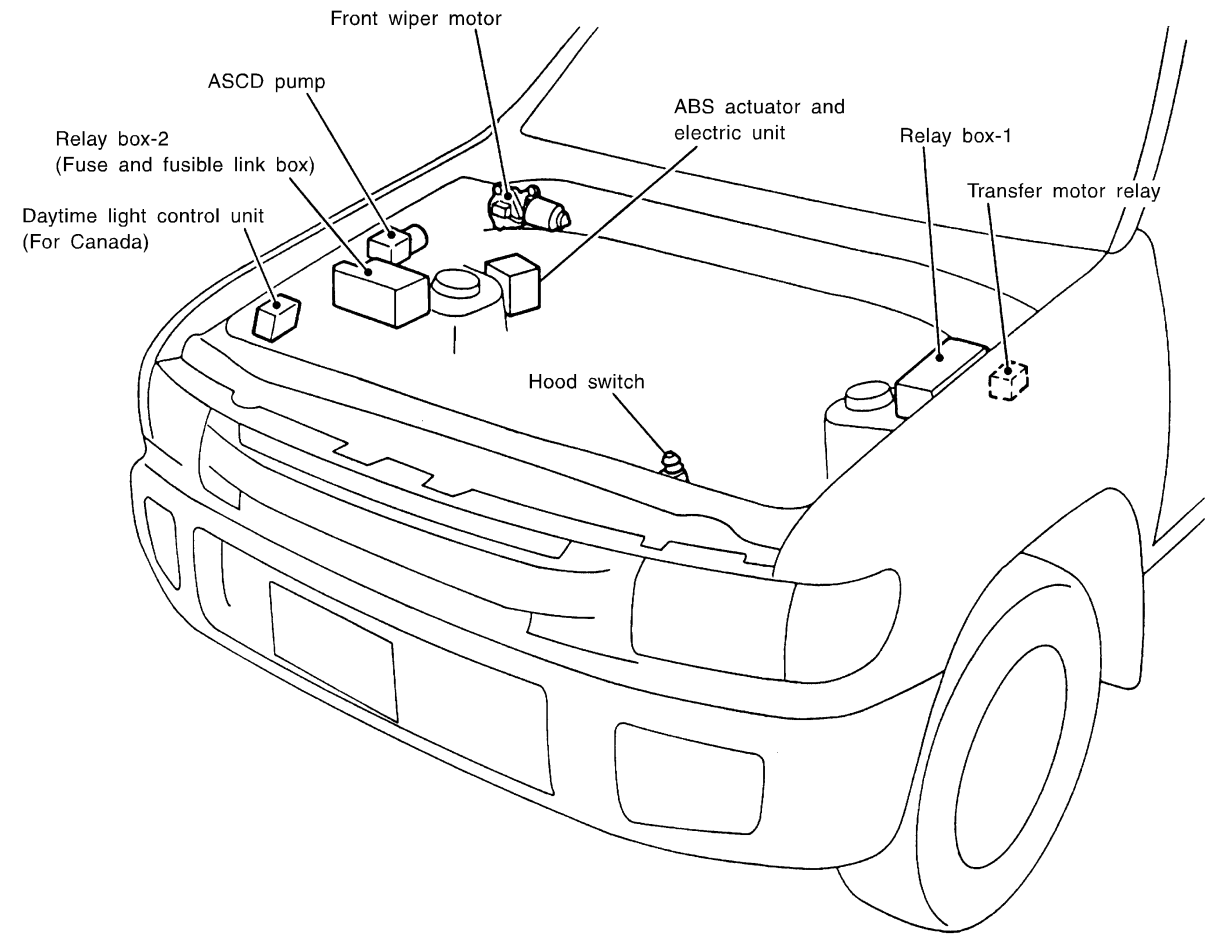


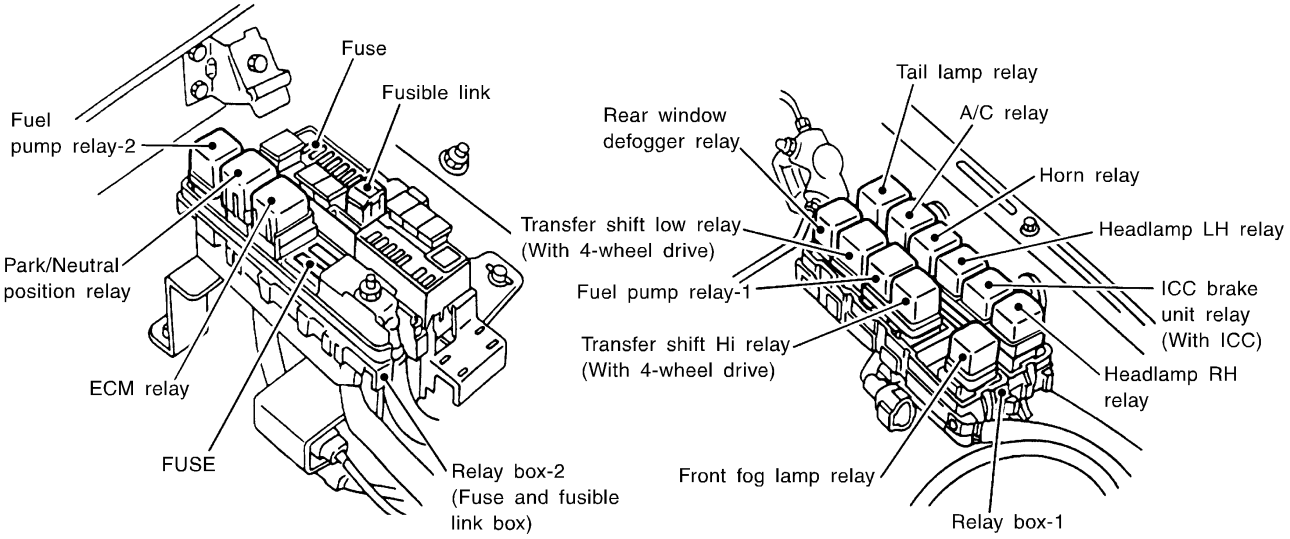
10. Push "MAP" switch and check the following.
- Confirm that the GPS icon on the map turns green.
- Then the position marker should show the current location.
- Position marker rotates corresponding to the movement of the vehicle.

11. Initialization is completed.

Engine Compartment

NBEL0431

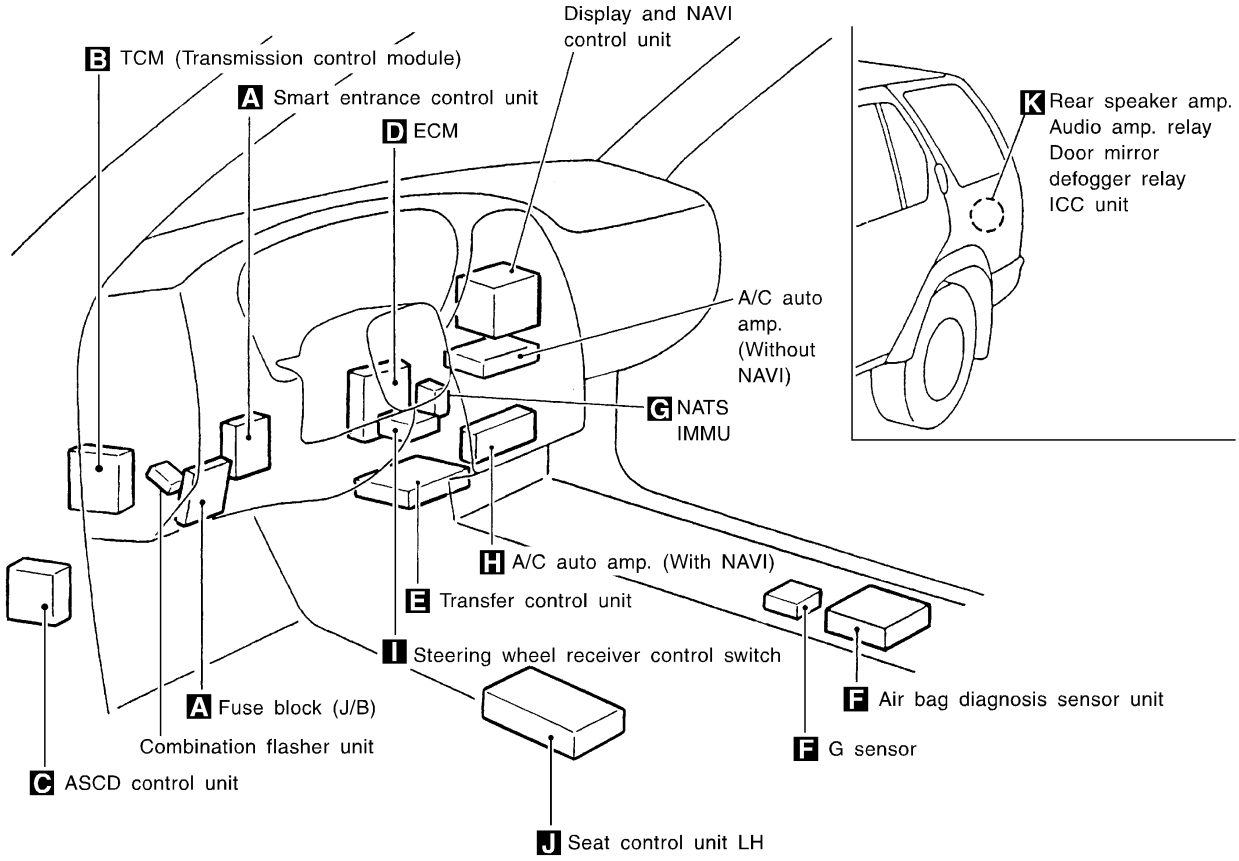


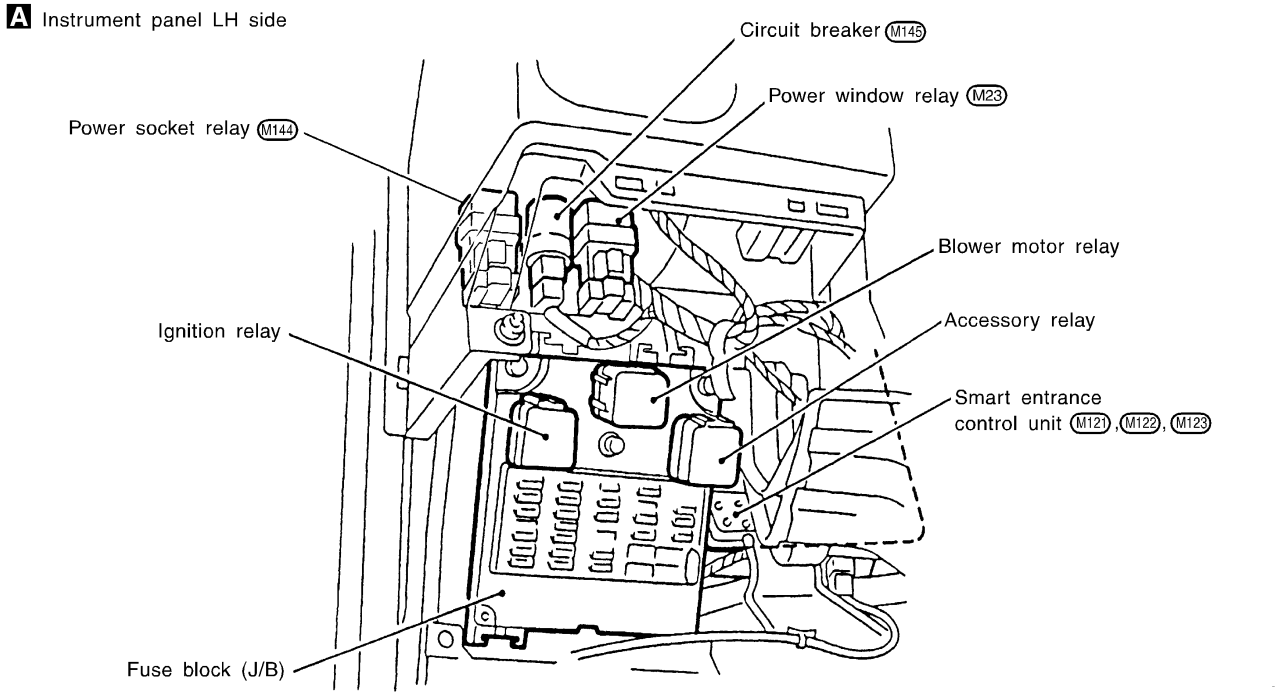


MEL634O

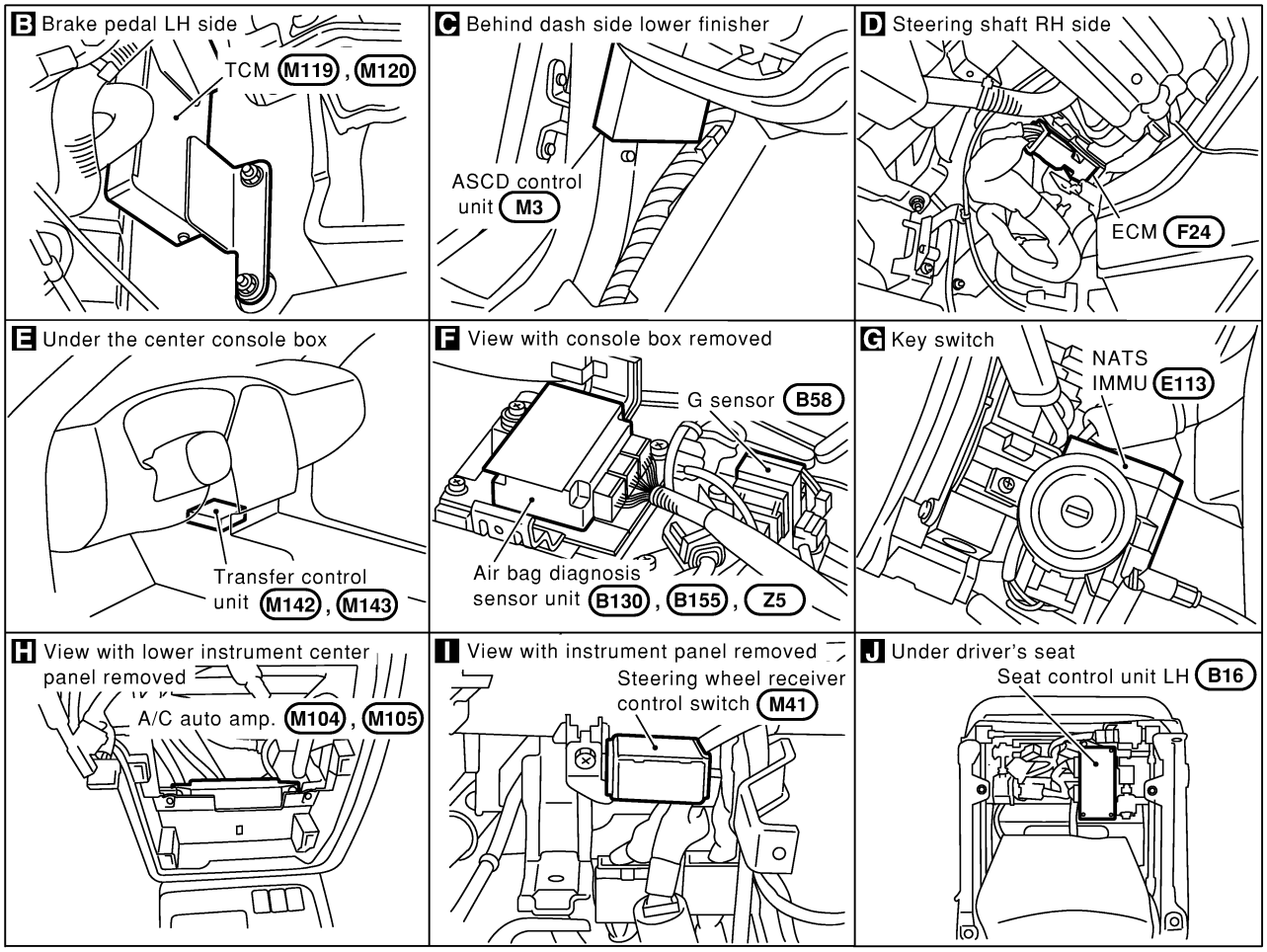
Passenger Compartment

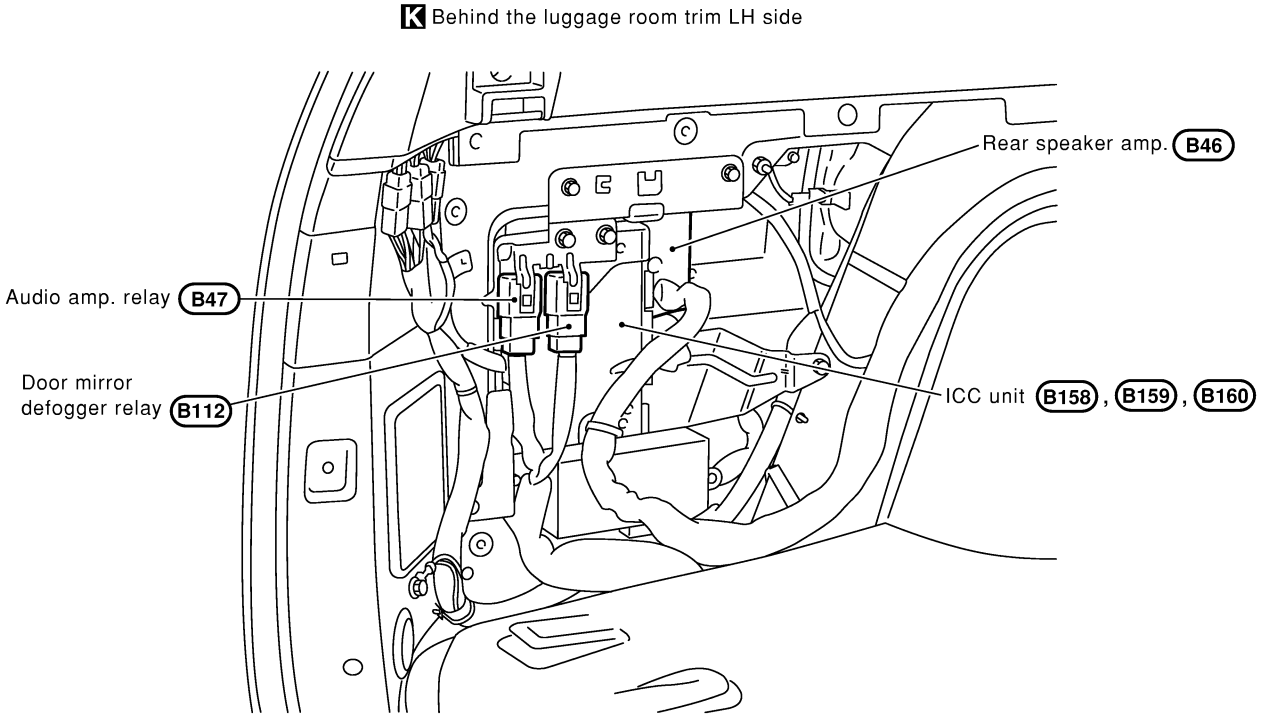
NBEL0432





MEL635O

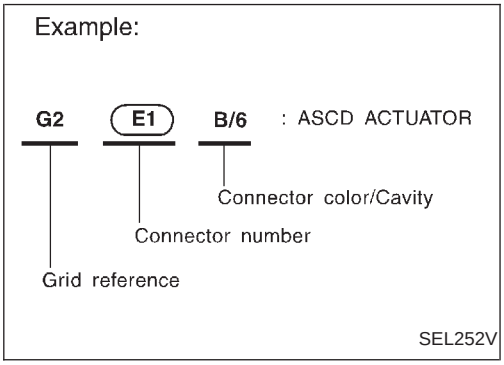

B Brake pedal LH side
TCM M119, M120
C Behind dash side lower finisher
ASCD control unit M3
D Steering shaft RH side
ECM F24
E Under the center console box
Transfer control unit M142, M143
F View with console box removed
G sensor B58
Air bag diagnosis sensor unit B130, B155, Z5
G Key switch
NATS IMMU E113
H View with lower instrument center panel removed
A/C auto amp. M104, M105
I View with instrument panel removed
Steering wheel receiver control switch M41
J Under driver's seat
Seat control unit LH B16


K Behind the luggage room trim LH side
Rear speaker amp. B46
Audio amp. relay B47
Door mirror defogger relay B112
ICC unit B158, B159, B160

MEL636O

How to Read Harness Layout

NBEL0433



The following Harness Layouts use a map style grid to help locate connectors on the drawings:

- Main Harness
- Engine Room Harness (Engine Compartment)
- Engine Control Harness

TO USE THE GRID REFERENCE

NBEL0433S01

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

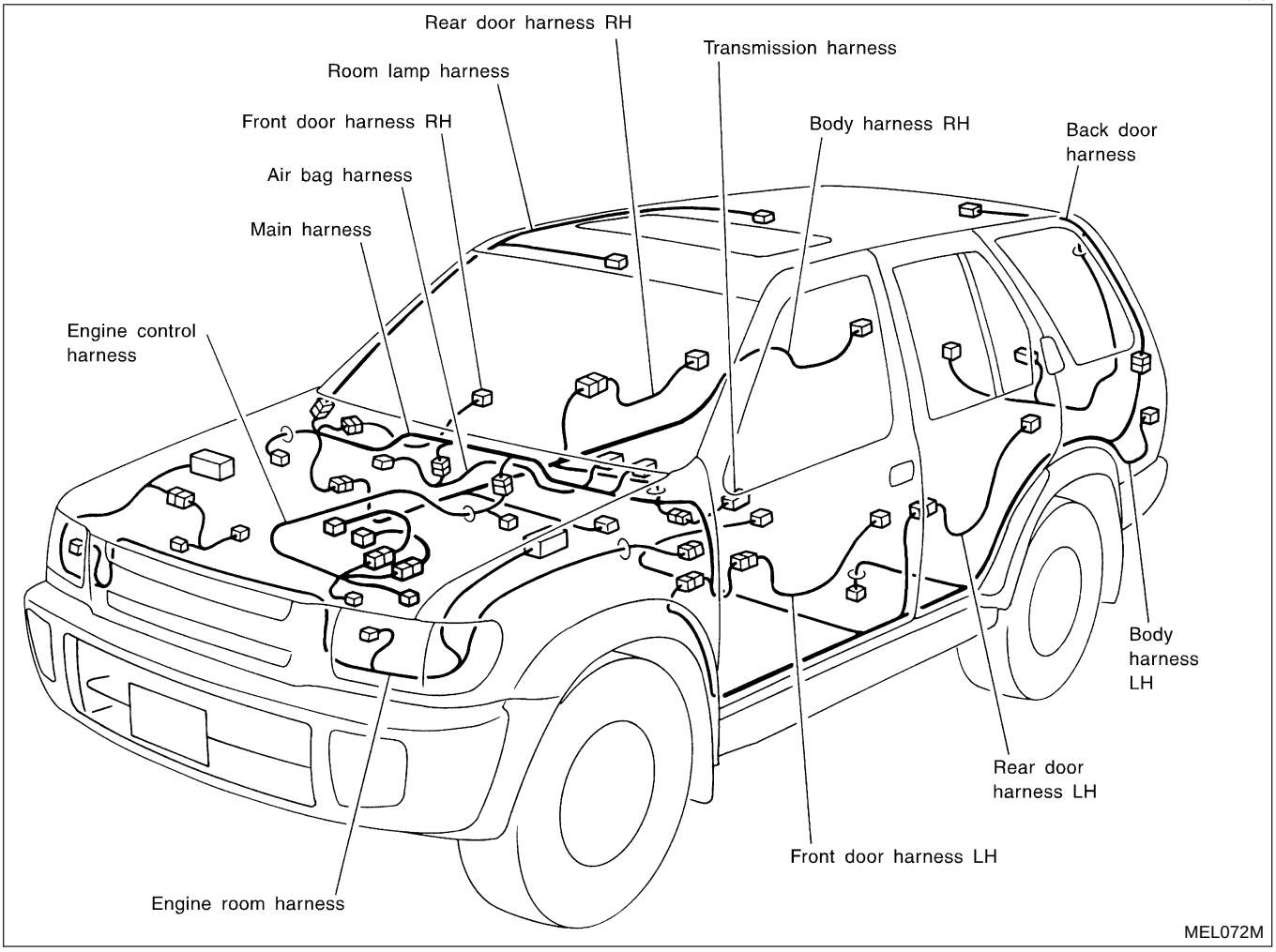
NBEL0433S02

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 • Relay connector				
• Cavity: From 5 to 8				
• Cavity: More than 9	—	—		
• Ground terminal etc.	—			

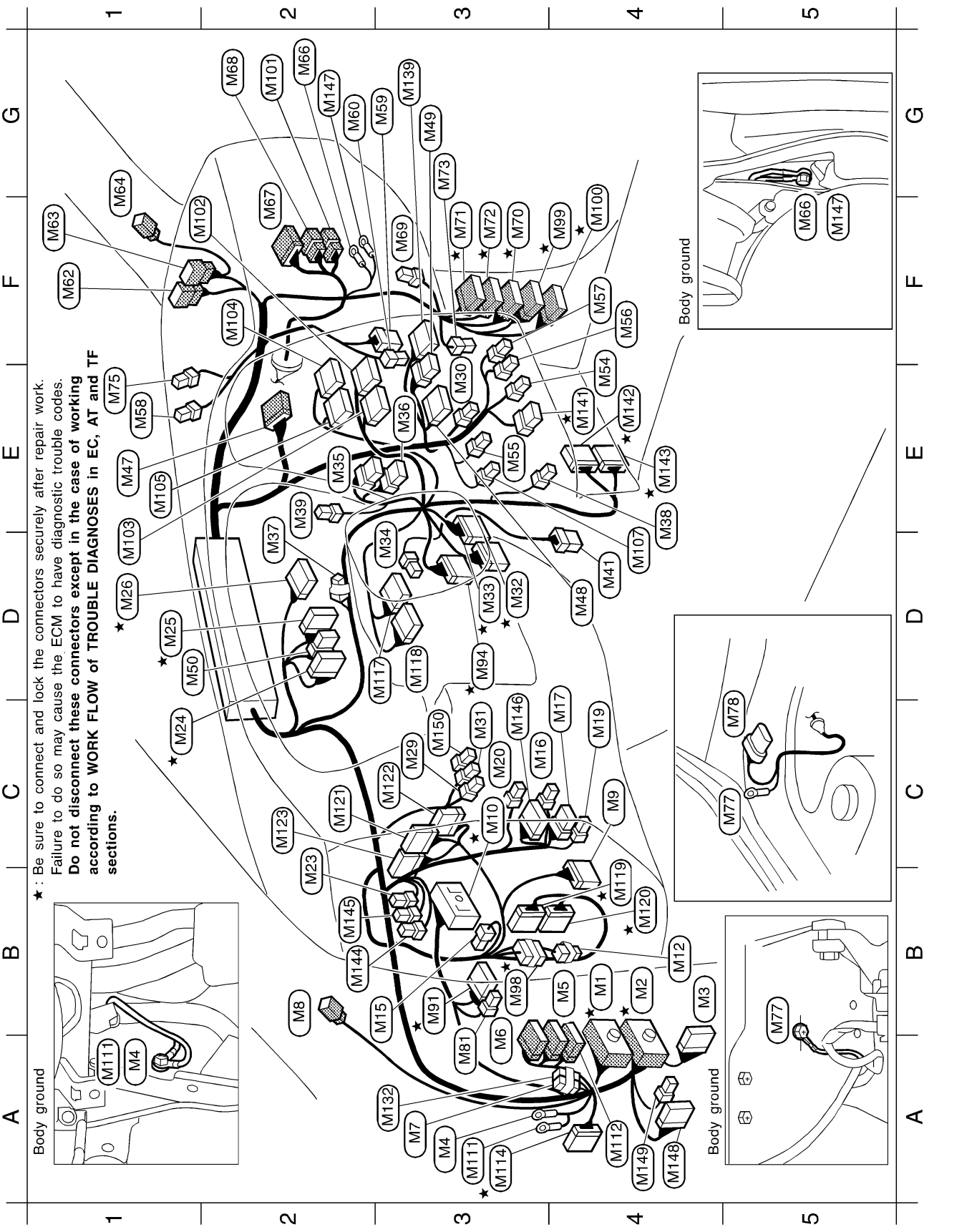
Outline

NBEL0434



Main Harness

NBEL0435



MEL637O

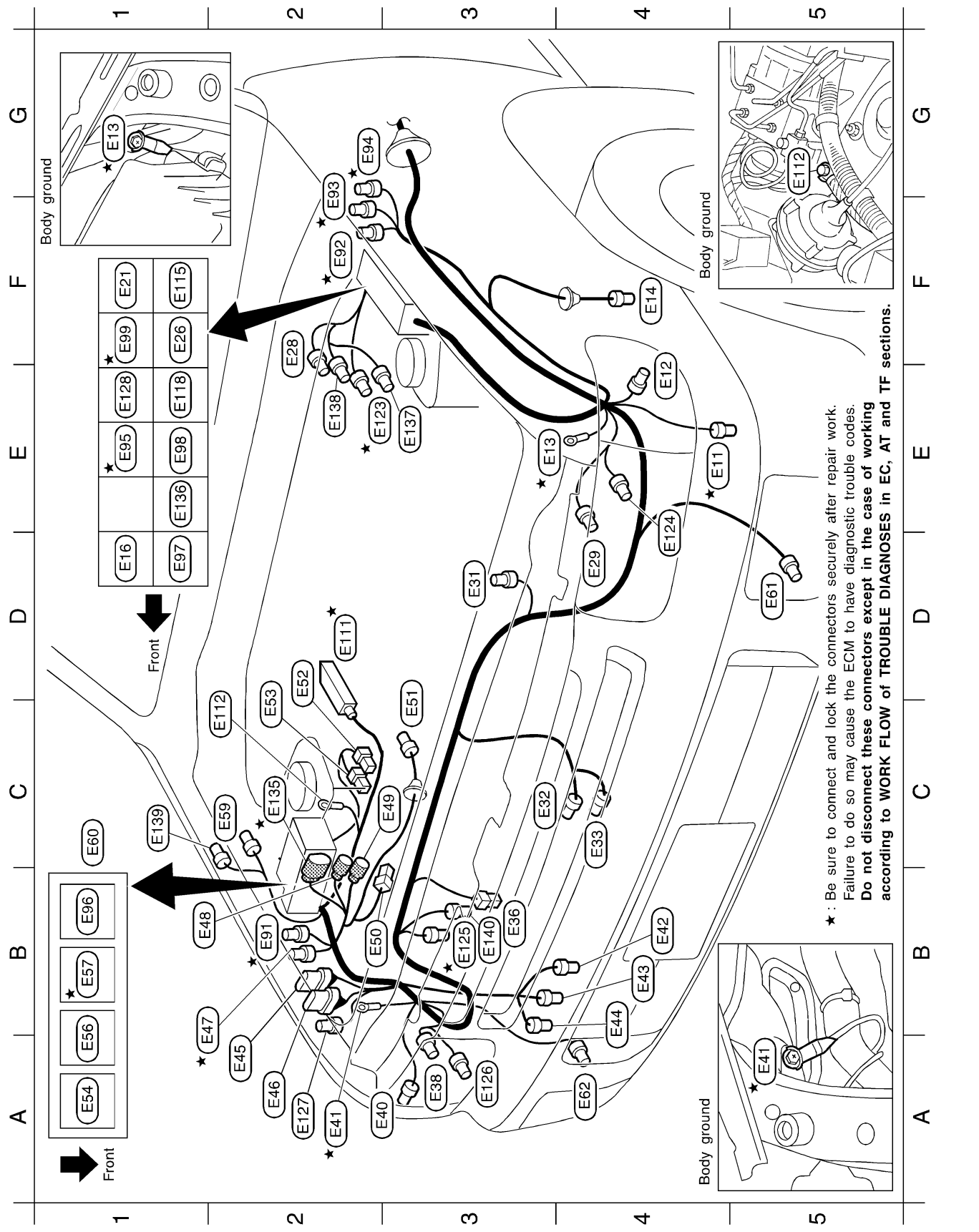
B4★ (M1) SMJ : To (E1)
B4★ (M2) SMJ : To (B1)
B4 (M3) BR/24 : ASCD control unit (Without ICC)
A3 (M4) — : Body ground
B4 (M5) BR/16 : To (D3)
A3 (M6) W/10 : To (D4)
A3 (M7) B/2 : Diode
B2 (M8) BR/2 : Tweeter LH
C4 (M9) W/16 : Data link connector
C3★ (M10) SMJ : Fuse block (J/B)
B4 (M12) GY/3 : Diode
B3 (M15) B/3 : Combination flasher unit
C3 (M16) W/4 : Headlamp aiming switch
C4 (M17) GY/6 : Memory seat cancel switch
C4 (M19) W/3 : Illumination control switch
C3 (M20) W/2 : Security indicator lamp
B2 (M23) L/4 : Power window relay
C1★ (M24) W/24 : Combination meter
D1★ (M25) BR/20 : Combination meter
D1★ (M26) BR/24 : Combination meter
C3 (M29) L/2 : ASCD brake switch (Without ICC)
E3 (M30) W/2 : Glove box lamp
C3 (M31) B/2 : Stop lamp switch
D3★ (M32) BR/24 : To (F23)
D3★ (M33) GY/16 : To (F22)
D3 (M34) W/2 : In-vehicle sensor
E2 (M35) W/8 : Hazard switch
E3 (M36) W/6 : Rear window defogger switch
E2 (M37) B/2 : Diode
E4 (M38) W/3 : Mode door motor
E2 (M39) W/4 : Clock
D4 (M41) W/8 : Steering wheel receiver control switch
E1 (M47) W/20 : To (Z1)
D4 (M48) W/10 : Audio unit
G3 (M49) W/6 : Audio unit
D1 (M50) W/6 : Combination meter
E4 (M54) W/2 : Ashtray illumination
E3 (M55) W/3 : Air mix door motor
F4 (M56) B/2 : Cigarette lighter socket
F4 (M57) W/2 : Cigarette lighter illumination
E1 (M58) B/2 : Sunload sensor
G3 (M59) W/8 : Intake door motor
G2 (M60) W/4 : Fan control amp.
F1 (M62) W/6 : To (R1)
F1 (M63) W/6 : To (R2)
F1 (M64) BR/2 : Tweeter RH
G2 (M66) — : Body ground
F2 (M67) BR/16 : To (D33)
G2 (M68) W/6 : To (D34)
F3 (M69) W/3 : Power antenna
F3★ (M70) W/20 : To (B50)
F3★ (M71) W/24 : To (B51)
F3★ (M72) W/16 : To (B52)
G3 (M73) W/2 : Blower motor
E1 (M75) W/3 : Auto light sensor
C5 (M77) — : Body ground
C5 (M78) GY/6 : Front wiper motor
A3 (M81) B/2 : Fuse block (J/B)
B3★ (M91) W/12 : Fuse block (J/B)
D3★ (M94) W/18 : To (F27)
B3★ (M98) GY/6 : Joint connector
F4★ (M99) W/12 : To (B77)
F4★ (M100) GY/20 : To (B88)
G2 (M101) BR/6 : To (D41)
F2 (M102) GY/16 : A/C auto amp.(Without NAVI)
D1 (M103) GY/20 : A/C auto amp.(Without NAVI)
F2 (M104) W/20 : A/C auto amp. (With NAVI)
E1 (M105) W/16 : A/C auto amp. (With NAVI)
D4 (M107) W/2 : Intake sensor
A3 (M111) — : Body ground
A4 (M112) GY/12 : To (D13)
A3★ (M114) W/18 : To (E116)
D3 (M117) W/20 : Display & NAVI control unit
D3 (M118) GY/20 : Display & NAVI control unit
B4★ (M119) W/24 : TCM (Transmission control module)
B4★ (M120) GY/24 : TCM (Transmission control module)
C2 (M121) W/24 : Smart entrance control unit
C3 (M122) GY/24 : Smart entrance control unit
C2 (M123) GY/16 : Smart entrance control unit
A3 (M132) B/2 : Diode
G3 (M139) W/16 : Audio unit
E4★ (M141) W/8 : 4WD shift switch
E4★ (M142) L/24 : Transfer control unit
E4★ (M143) G/24 : Transfer control unit
B2 (M144) W/4 : Power socket relay
B2 (M145) W/2 : Circuit breaker
C3 (M146) W/10 : Door mirror remote control switch
G2 (M147) — : Body ground
A4 (M148) BR/16 : To (E157) (With ICC)
A4 (M149) W/3 : ICC warning chime (With ICC)
C2 (M150) BR/2 : ICC brake switch (With ICC)

★ : 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, AT and TF sections.

MEL642O

Engine Room Harness

NBEL0436



★: 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, AT and TF sections.**

MEL638O

★: 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, AT and TF sections.

★E1	SMJ	: To M1	B4	E42	BR/2	: Washer level switch	B3	★E125	B/3	: Refrigerant pressure sensor	
E2	B/2	: Fuse block (J/B)	B4	E43	GY/2	: Rear washer motor					
E3	W/16	: Fuse block (J/B)	B4	E44	GY/2	: Front washer motor	A3	E126	B/3	: Headlamp aiming motor RH	
E4	W/4	: Fuse block (J/B)	A2	E45	GY/8	: Daytime light control unit					
E5	BR/2	: Key switch	A2	E46	GY/6	: Daytime light control unit	A2	E127	GY/4	: Daytime light control unit	
★E6	W/6	: Ignition switch	B1★	E47	GY/2	: A/T dropping resistor					
E7	BR/4	: Combination switch (Lighting switch)	B1	E48	GY/4	: To E102	E1	E128	L/4	: Fuel pump relay-1 (Relay box-1)	
E8	W/8	: Combination switch (Lighting & turn signal switch)	C2	E49	GY/1	: To E104					
E9	GY/8	: Combination switch (Front wiper switch)	B2	E50	B/1	: Horn (High)	C2★	E135	GY/8	: To E132	
★E11	GY/2	: Intake air temperature sensor	C3	E51	GY/2	: Front wheel sensor RH	E1	E136	GY/6	: ICC brake hold relay	(With ICC)
E12	B/2	: Parking lamp LH	D2	E52	B/1	: Battery					
★E13	—	: Body ground	D2	E53	B/1	: Battery	E3	E137	GY/6	: Brake booster	
E14	BR/2	: Front wheel sensor LH	A1	E54	L/4	: Fuel pump relay-2	E2	E138	/3	: Brake pressure sensor	
E16	L/4	: Front fog lamp relay	B1	E56	GY/6	: Park/Neutral position relay (Relay box-2)					
E21	BR/6	: Rear window defogger relay (Relay box-1)	B1★	E57	BR/6	: ECM relay	C1	E139	SB/4	: ASCD pump	
E26	L/4	: A/C relay	C2	E59	GY/4	: ASCD pump (Without ICC)	B3	E140	B/6	: ICC sensor	
E28	GY/2	: Brake fluid level switch	C1	E60	—	: Fuse and fusible link box		E141	W/18	: To E156	
E29	B/4	: Headlamp LH	D5	E61	B/3	: Front fog lamp LH					
E31	GY/2	: Hood switch	A4	E62	B/3	: Front fog lamp RH					
E32	B/2	: Ambient sensor		E63	W/3	: Combination switch (Front fog lamp switch)					
E33	B/2	: Ambient air temperature sensor (For thermometer)	B2★	E91	GY/2	: Transfer dropping resistor					
E36	B/1	: Horn (Low)	F2★	E92	W/1	: Transfer motor relay					(With 4-wheel drive)
E38	B/4	: Headlamp RH	G2★	E93	W/1	: Transfer motor relay					
E40	B/2	: Parking lamp RH	G2★	E94	G/2	: Transfer motor relay					
★E41	—	: Body ground	E1★	E95	B/5	: Transfer shift Hi relay (With 4-wheel drive) (Relay box-1)					
			B1	E96	—	: Fuse block (Relay box-2)					
			E1	E97	BR/6	: Headlamp RH relay					(Relay box-1)
			E1	E98	BR/6	: Headlamp LH relay					
			F1★	E99	B/5	: Transfer shift low relay					
			D2★	E111	SMJ	: ABS actuator and electric unit					
			C2	E112	–	: Body ground					
				E113	W/8	: NATS IMMU					
				E114	W/4	: Combination switch (Rear wiper switch)					
			D1	E115	L/4	: Tail lamp relay (Relay box-1)					
			★	E116	W/18	: To M114					
			F1	E118	BR/6	: Horn relay (Relay box-1)					
				E121	W/2	: Diode					
			★E2	E123	SB/2	: Swirl control valve control vacuum check switch					
			E4	E124	B/3	: Headlamp aiming motor LH					

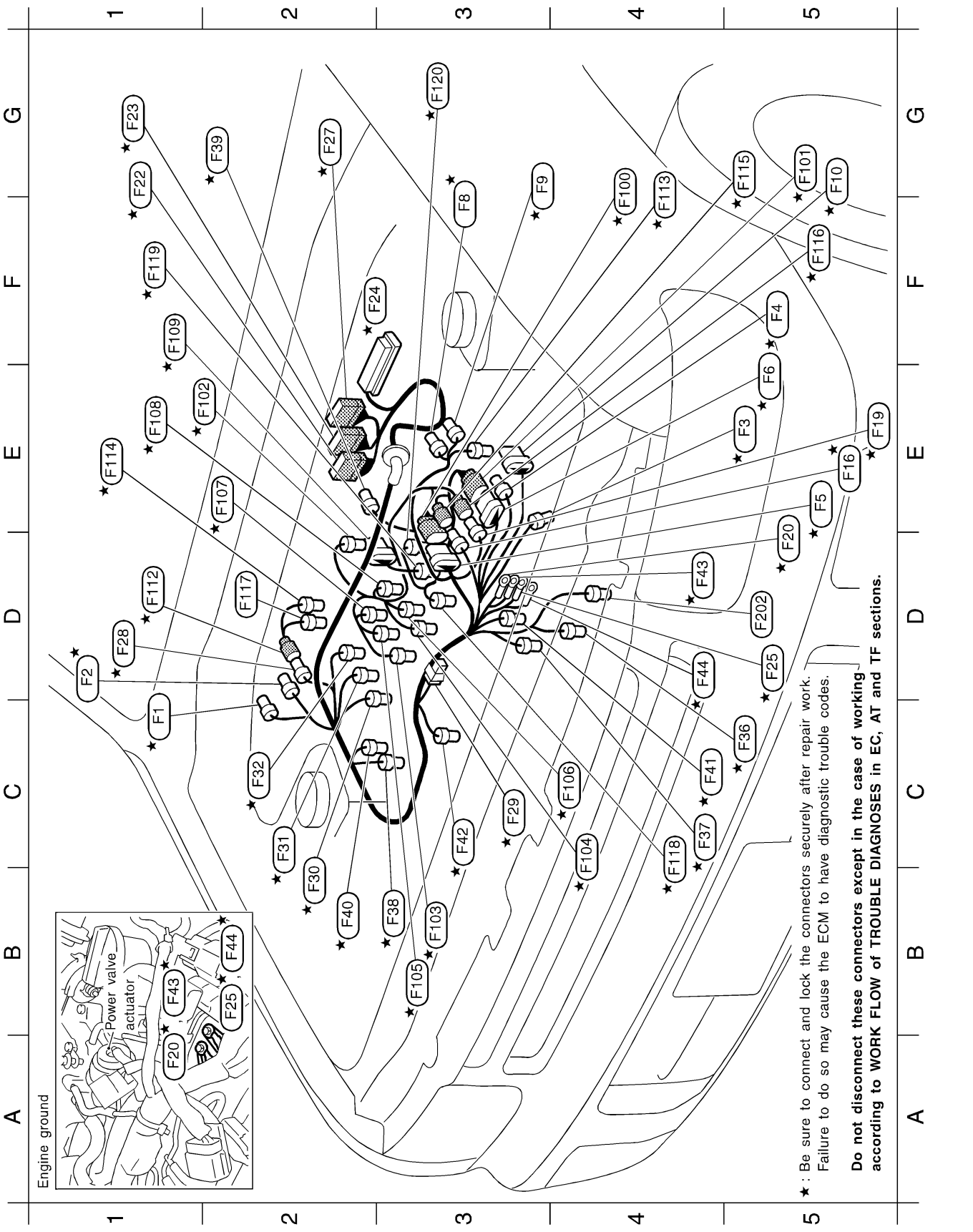
Diode E121

Headlamp LH relay → ECM

MEL639O

Engine Control Harness

NBEL0437



★: 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, AT and TF sections.

MEL171N

C1★ (F1) G/4 : Heated oxygen sensor 2 (Bank 1)
D1★ (F2) SB/3 : Heated oxygen sensor 1 (Bank 1)
E5★ (F3) G/4 : Heated oxygen sensor 2 (Bank 2)
F5★ (F4) SB/3 : Heated oxygen sensor 1 (Bank 2)
E5★ (F5) L/8 : To (F100)
E5★ (F6) G/8 : To (F101)
F3★ (F8) BR/3 : Throttle position sensor
G3★ (F9) GY/3 : Throttle position switch
G5★ (F10) GY/5 : Mass air flow sensor
E5★ (F16) GY/2 : To (F115)
E5★ (F19) SB/2 : To (F116)
D5★ (F20) — : Engine ground
G1★ (F22) GY/16 : To (M33)
G1★ (F23) BR/24 : To (M32)
F2★ (F24) SMJ : ECM
D5★ (F25) — : Engine ground
G2★ (F27) W/18 : To (M94)
D1★ (F28) SB/3 : To (F112)
C3★ (F29) W/2 : Condenser
B2★ (F30) GY/3 : Ignition coil No.1
C2★ (F31) GY/3 : Ignition coil No.3
C2★ (F32) GY/3 : Ignition coil No.5
C5★ (F36) GY/2 : Camshaft position sensor (PHASE)
C4★ (F37) B/3 : Intake valve timing control position sensor (B2)
B3★ (F38) B/3 : Intake valve timing control position sensor (B1)
G2★ (F39) G/2 : Intake valve timing control solenoid valve (B2)
B2★ (F40) SB/2 : Intake valve timing control solenoid valve (B1)
C4★ (F41) G/2 : Swirl control valve control solenoid valve
C3★ (F42) BR/2 : VIAS control solenoid valve
D4★ (F43) — : Engine ground
D4★ (F44) — : Engine ground
F4★ (F100) L/8 : To (F5)
G5★ (F101) G/8 : To (F6)

E2★ (F102) GY/2 : Knock sensor
B3★ (F103) GY/2 : Injector No. 1
C4★ (F104) GY/2 : Injector No. 2
B3★ (F105) GY/2 : Injector No. 3
C4★ (F106) GY/2 : Injector No. 4
E2★ (F107) GY/2 : Injector No. 5
E1★ (F108) GY/2 : Injector No. 6
F1★ (F109) L/6 : IACV-AAC valve
D1★ (F112) SB/3 : To (F28)
F4★ (F113) L/2 : EVAP canister purge volume control solenoid valve
E1★ (F114) GY/2 : Engine coolant temperature sensor
G5★ (F115) GY/2 : To (F16)
F5★ (F116) SB/2 : To (F19)
D2 (F117) B/1 : Thermal transmitter
C4★ (F118) GY/3 : Ignition coil No.2
F1★ (F119) GY/3 : Ignition coil No.4
G3★ (F120) GY/3 : Ignition coil No.6
D5 (F202) B/1 : Compressor (Air conditioner)

★ : 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, AT and TF sections.**

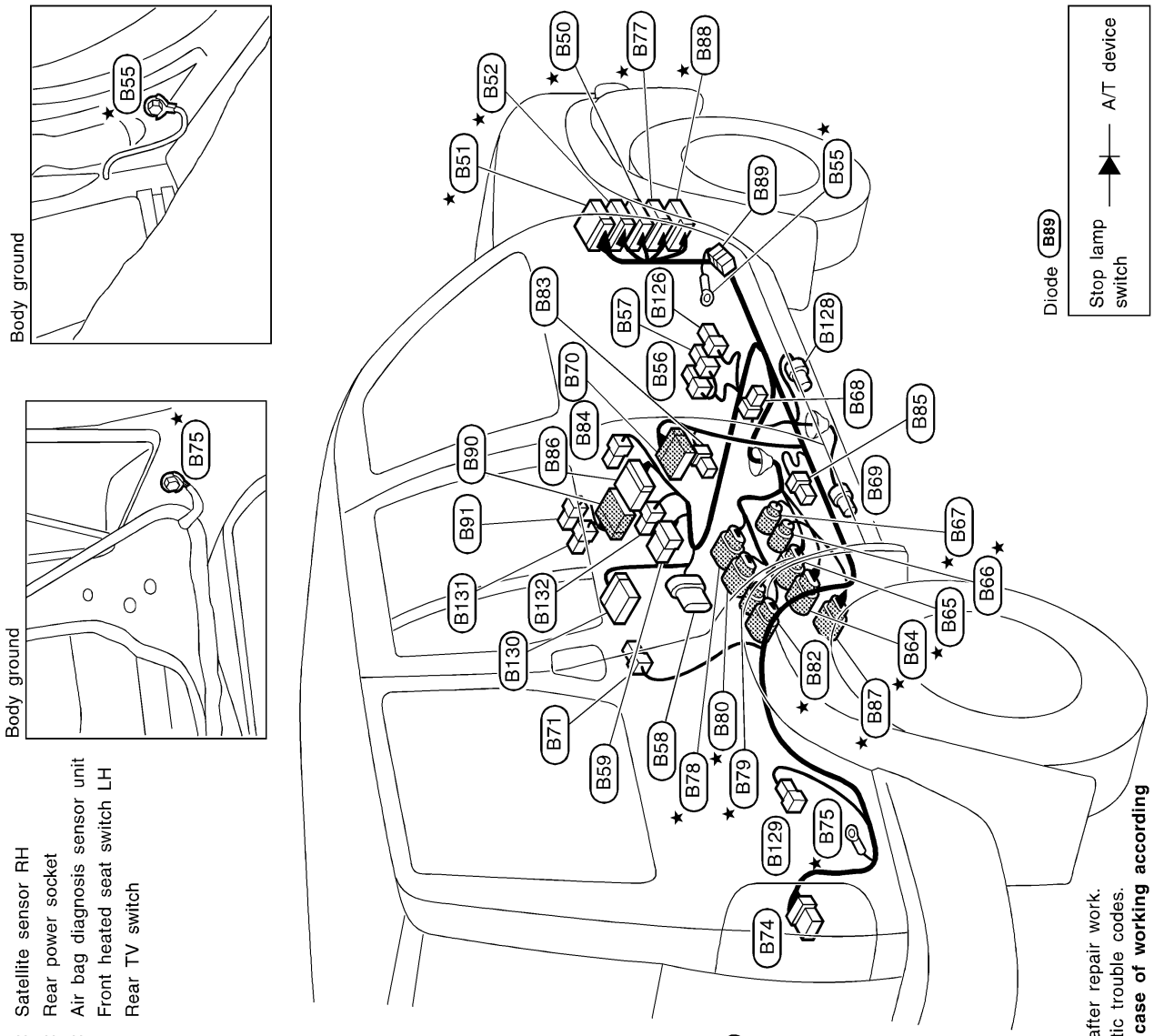
MEL666P

Body Harness LH

NBEL0438

Body Harness RH

NBEL0439



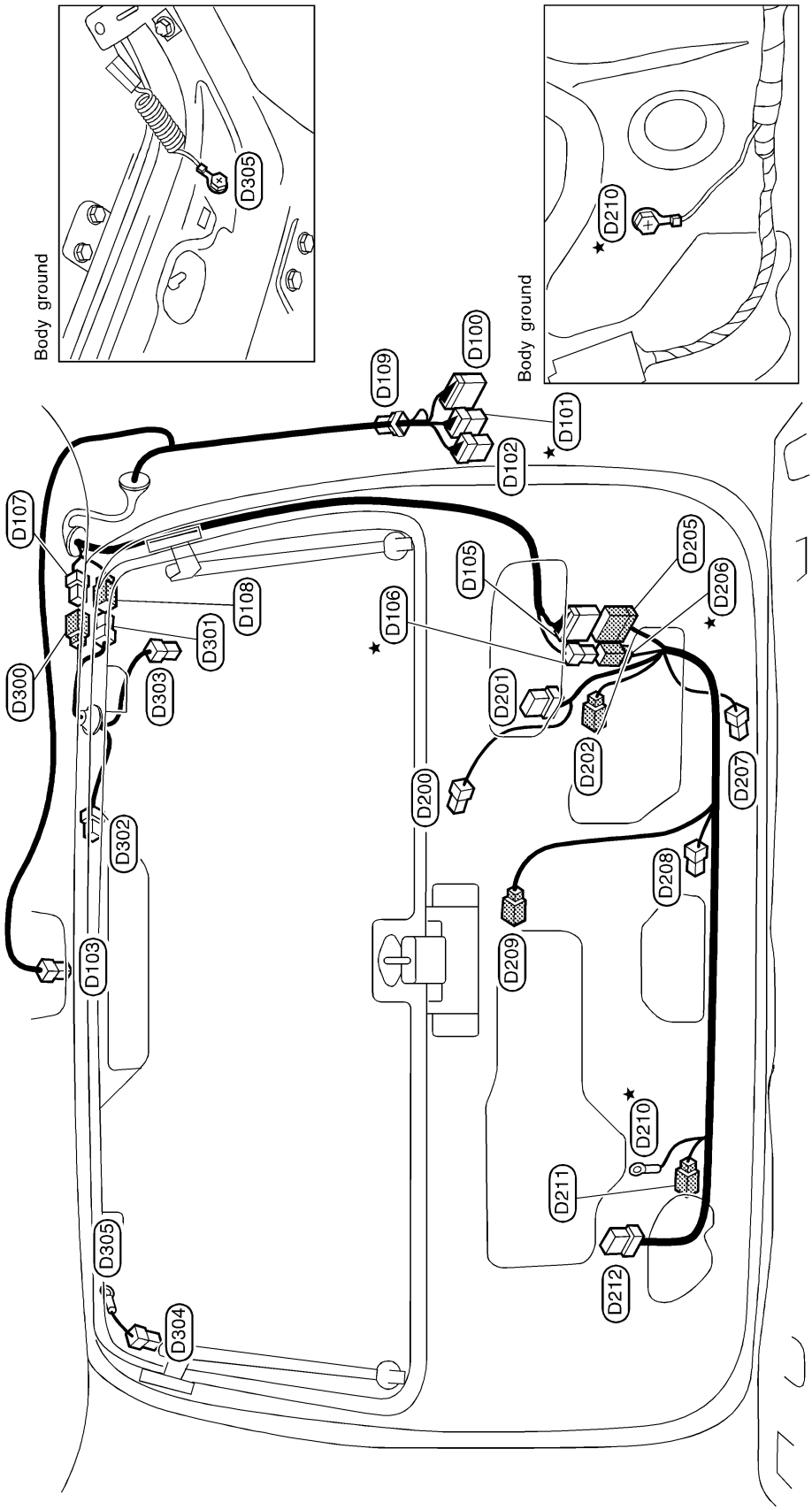
★★	B50	W/20	To M70	B128	Y/2	Satellite sensor RH
★★	B51	W/24	To M71	B129	B/2	Rear power socket
★★	B52	W/16	To M72	B130	Y/12	Air bag diagnosis sensor unit
★★	B55	—	Body ground	B131	L/4	Front heated seat switch LH
	B56	GY/3	Front heated seat RH (Via sub-harness)	B132	W/4	Rear TV switch
	B57	W/2	Power seat RH			
	B58	GY/5	G sensor			
	B59	GY/8	A/T device (Via sub-harness)			
★★	B64	BR/8	Terminal cord assembly			
★★	B65	GY/8	Park/Neutral position switch			
★★	B66	GY/2	Park/Neutral position switch			
★★	B67	GY/3	Rear revolution sensor			
	B68	B/3	Front door switch RH			
	B69	GY/2	Rear wheel sensor RH			
	B70	W/10	To D70			
	B71	BR/1	Rear door switch RH			
	B74	W/6	Rear combination lamp RH			
★★	B75	—	Body ground			
★★	B77	W/12	To M99			
★★	B78	GY/8	To B206			
★★	B79	B/4	To B208			
★★	B80	B/8	To B207			
★★	B82	GY/6	To B251			
	B83	Y/2	Seat belt pre-tensioner RH			
	B84	W/4	Rear heated seat switch RH			
	B85	W/3	Rear heated seat RH (Via sub-harness)			
	B86	W/10	To B90			
★★	B87	BR/4	Turbine revolution sensor			
★★	B88	GY/20	To M100			
	B89	W/2	Diode			
	B90	W/10	To B86			
	B91	W/4	Front heated seat switch RH			
	B126	Y/2	Side air bag module RH			

★: 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, AT and TF sections.

MEL641O

Back Door Harness

NBEL0440



D100	W/12	: To	B23	D205	W/16	: To	D105
★ D101	W/6	: To	B24	★ D206	W/4	: To	D106
D102	BR/6	: To	B25	D207	W/4	: Back door lock actuator	
D103	W/3	: Luggage room lamp		D208	W/2	: Back door switch	
D105	W/16	: To	D205	D209	W/2	: Glass hatch switch	
★ D106	W/4	: To	D206	★ D210	—	: Body ground	
D107	W/2	: To	D300	D211	W/3	: License plate lamp RH	
D108	W/1	: To	D301	D212	W/8	: Rear wiper motor	
D109	W/2	: Diode		D300	W/2	: To	D107
D200	W/4	: Glass hatch opener actuator		D301	W/1	: To	D108
D201	W/6	: Back door key cylinder switch		D302	W/3	: High-mounted stop lamp	
D202	W/3	: License plate lamp LH		D303	B/1	: Rear window defogger	

D304	B/1	:	Rear window defogger
D305	—	:	Body ground

Diode D109

Luggage room lamp — Rear door switch LH, Rear door switch RH, Back door 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, AT and TF sections.**

MEL981N

Engine and Transmission Harness

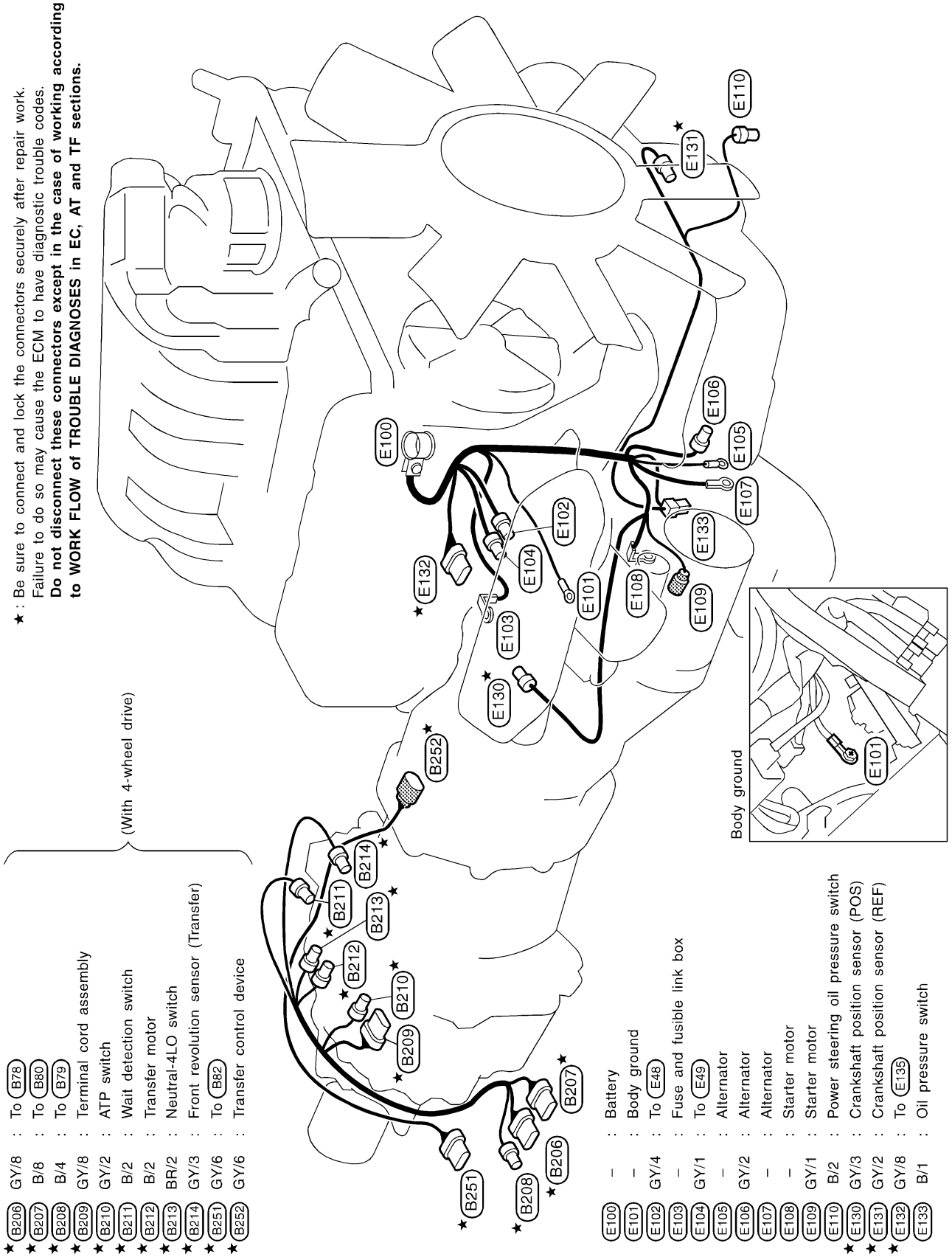
NBEL0441

★: 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, AT and TF sections.

(With 4-wheel drive)

★★★	B206	GY/8	: To B78
★★★	B207	B/8	: To B80
★★★	B208	B/4	: To B79
★★★	B209	GY/8	: Terminal cord assembly
★★★	B210	GY/2	: ATP switch
★★★	B211	B/2	: Wait detection switch
★★★	B212	B/2	: Transfer motor
★★★	B213	BR/2	: Neutral-4LO switch
★★★	B214	GY/3	: Front revolution sensor (Transfer)
★★★	B251	GY/6	: To B82
★★★	B252	GY/6	: Transfer control device

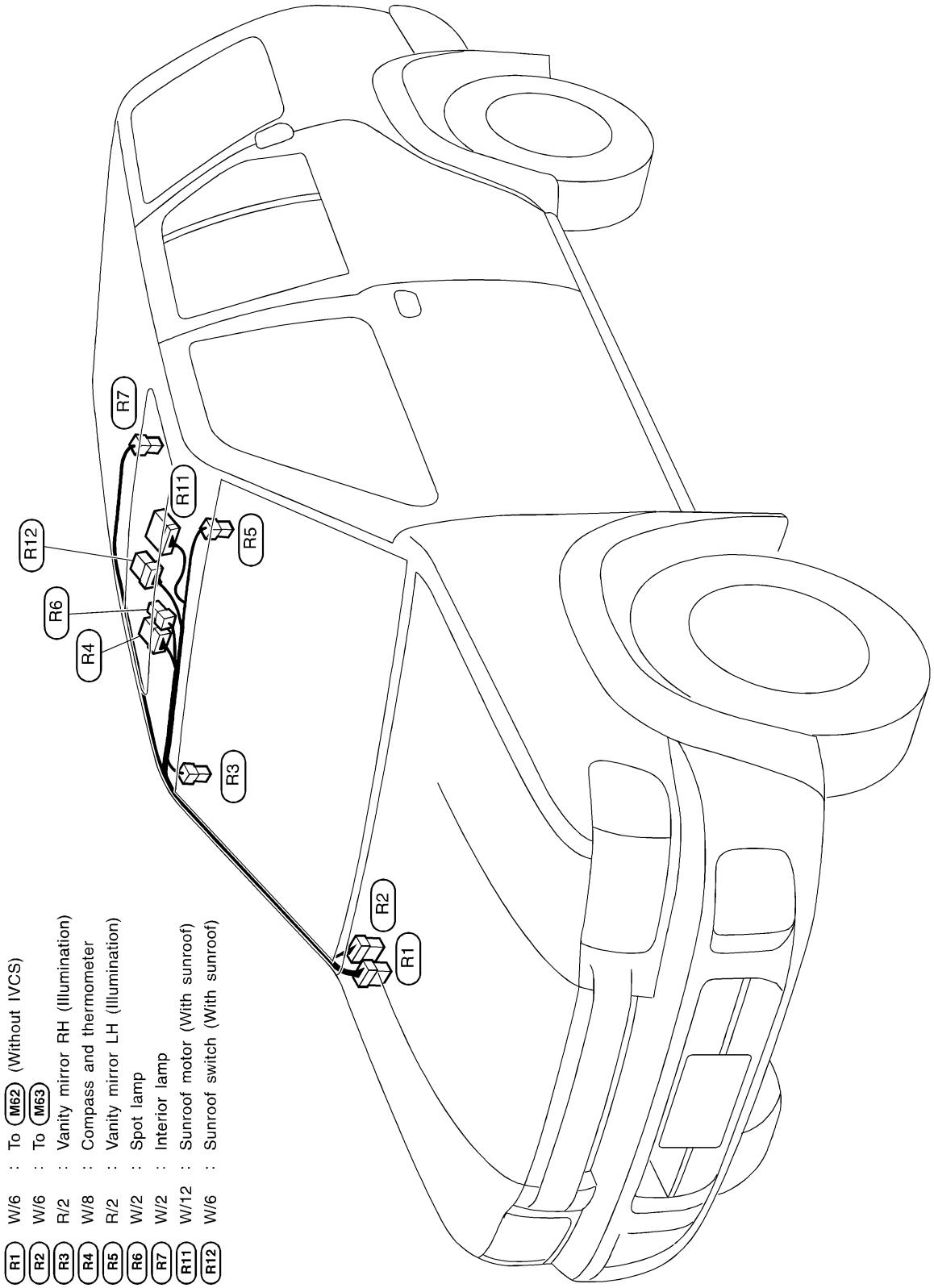
	E100	–	: Battery
	E101	–	: Body ground
	E102	GY/4	: To E48
	E103	–	: Fuse and fusible link box
	E104	GY/1	: To E49
	E105	–	: Alternator
	E106	GY/2	: Alternator
	E107	–	: Alternator
	E108	–	: Starter motor
	E109	GY/1	: Starter motor
★★★	E110	B/2	: Power steering oil pressure switch
★★★	E130	GY/3	: Crankshaft position sensor (POS)
★★★	E131	GY/2	: Crankshaft position sensor (REF)
★★★	E132	GY/8	: To E135
	E133	B/1	: Oil pressure switch



MEL082M

Room Lamp Harness

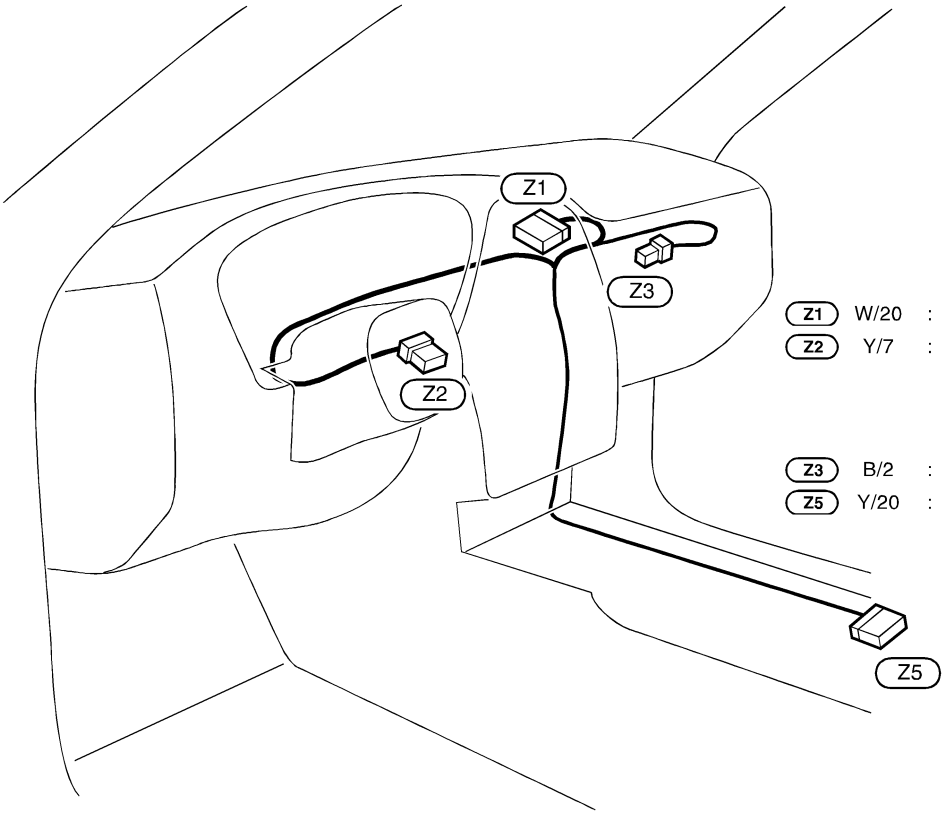
NBEL0442



MEL653P

Air Bag Harness

NBEL0443



Z1	W/20	:	To M47
Z2	Y/7	:	Air bag module (Driver side), AUDIO switch, ASCD steering switch, ICC steering switch and horn switch via spiral cable
Z3	B/2	:	Air bag module (Passenger side)
Z5	Y/20	:	Air bag diagnosis sensor unit

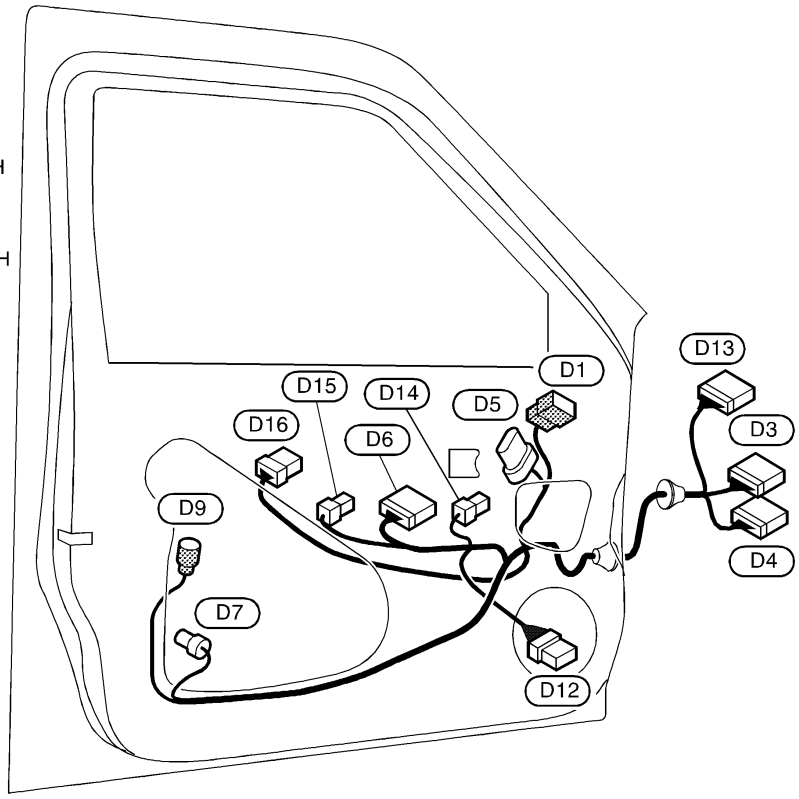
MEL654P

Front Door Harness

NBEL0444

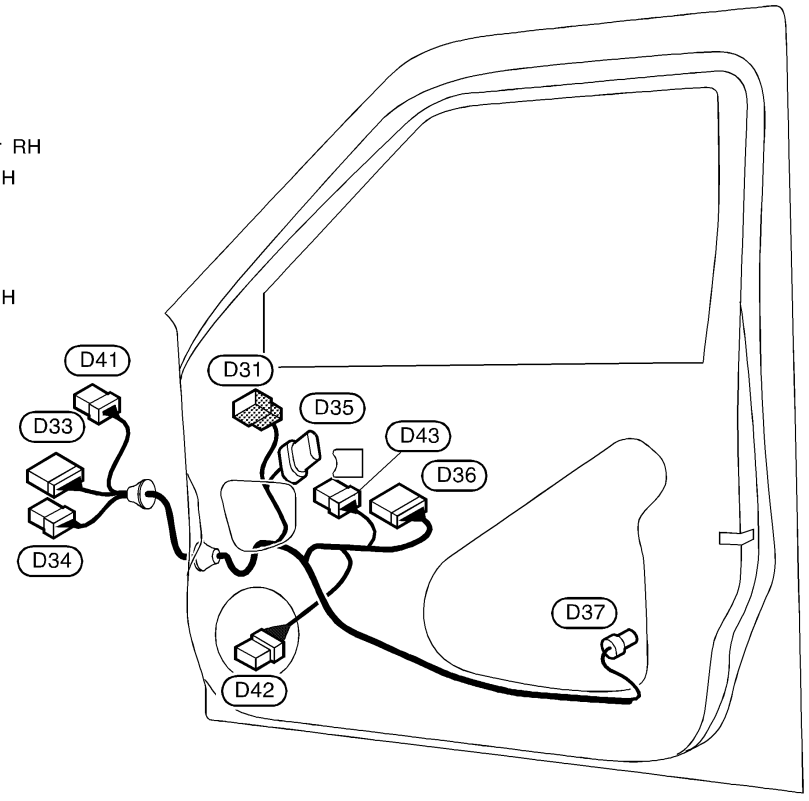
LH side

D1	W/8	:	Door mirror LH
D3	BR/16	:	To M5
D4	W/10	:	To M6
D5	GY/6	:	Front power window regulator LH
D6	W/16	:	Power window main switch
D7	GY/4	:	Front door lock actuator LH
D9	BR/3	:	Front door key cylinder switch LH
D12	W/6	:	Front door speaker LH
D13	GY/12	:	To M112
D14	W/4	:	Fuel filler lid and glass hatch opener switch
D15	W/3	:	Power window main switch
D16	W/8	:	Seat memory switch



RH side

D31	W/8	:	Door mirror RH
D33	BR/16	:	To M67
D34	W/6	:	To M68
D35	GY/6	:	Front power window regulator RH
D36	W/12	:	Front power window switch RH
D37	GY/4	:	Front door lock actuator RH
D41	BR/6	:	To M101
D42	W/6	:	Front door speaker RH
D43	W/8	:	Front power window switch RH

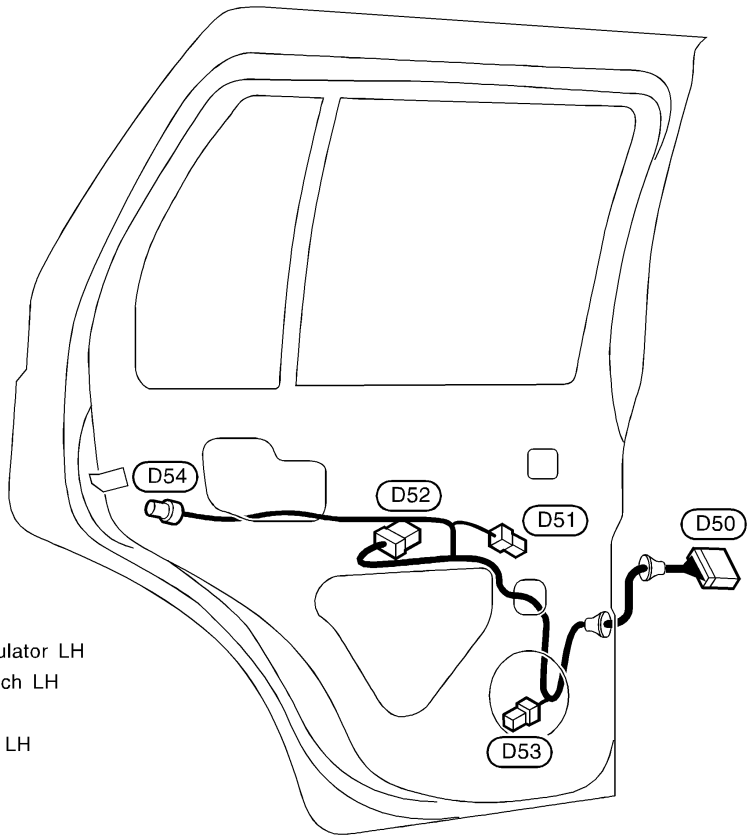


MEL655P

Rear Door Harness

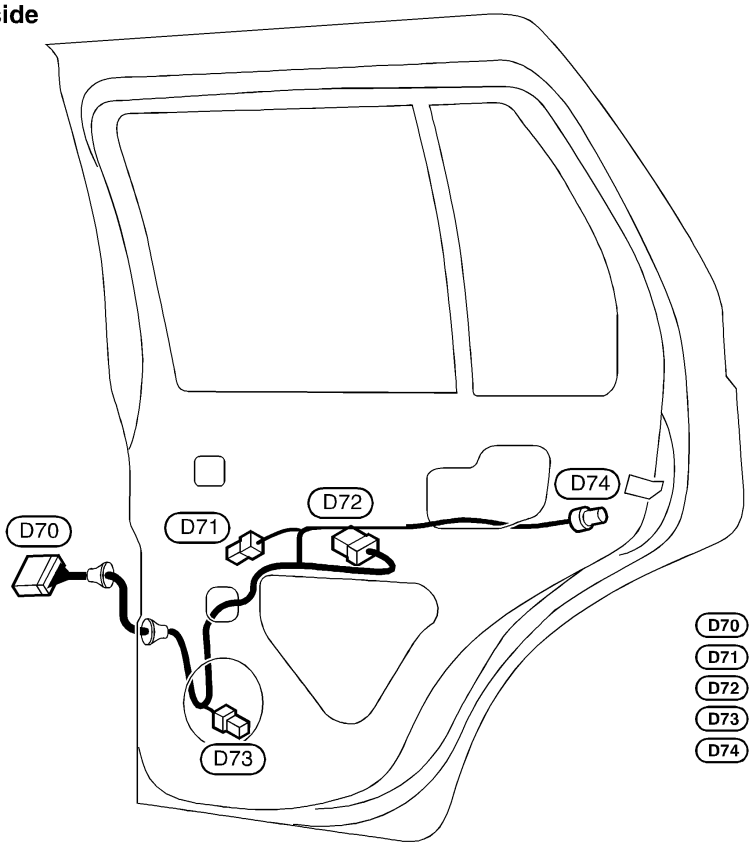
NBEL0445

LH side



D50	W/10	:	To B10
D51	B/2	:	Rear power window regulator LH
D52	W/8	:	Rear power window switch LH
D53	BR/2	:	Rear door speaker LH
D54	GY/4	:	Rear door lock actuator LH

RH side



D70	W/10	:	To B70
D71	B/2	:	Rear power window regulator RH
D72	W/8	:	Rear power window switch RH
D73	BR/2	:	Rear door speaker RH
D74	GY/4	:	Rear door lock actuator RH

MEL261M

BULB SPECIFICATIONS

Headlamp

Headlamp

NBEL0446S01

Item	Wattage W
High/Low (Semi-sealed beam)	60/55 (HB2)

Exterior Lamp

NBEL0446S02

Item		Wattage W
Front fog lamp		55
Front turn signal lamp		21
Parking lamp		5
Rear combination lamp	Turn signal lamp	27
	Stop/Tail lamp	21/5
	Back-up lamp	18
License plate lamp		5
High-mounted stop lamp		5

Interior Lamp

NBEL0446S03

Item	Wattage W
Interior lamp	10
Spot lamp	8
Luggage room lamp	10

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
A/C, A	HA	Auto Air Conditioner
AAC/V	EC	IACV-AAC Valve
ABS	BR	Anti-lock Brake System
AP/SEN	EC	Absolute Pressure Sensor
ASCD	EL	Automatic Speed Control Device
AT/C	EC	A/T Control
ATDIAG	EC	A/T Diagnosis Communication Line
AUDIO	EL	Audio
AUT/DP	EL	Automatic Drive Positioner
BA/FTS	AT	A/T Fluid Temperature Sensor and TCM Power Supply
BACK/L	EL	Back-up Lamp
BYPS/V	EC	Vacuum Cut Valve Bypass Valve
CHARGE	SC	Charging System
CHIME	EL	Warning Chime
CIGAR	EL	Cigarette Lighter
CLOCK	EL	Clock
COMPAS	EL	Compass and Thermometer
D/LOCK	EL	Power Door Lock
DEF	EL	Rear Window Defogger
DTRL	EL	Headlamp — With Daytime Light System —
ECTS	EC	Engine Coolant Temperature Sensor
ENGSS	AT	Engine Speed Signal
F/FOG	EL	Front Fog Lamp
F/PUMP	EC	Fuel Pump Control
FICD	EC	IACV-FICD Solenoid Valve
FLS1	EC	Fuel Level Sensor Circuit
FLS2	EC	Fuel Level Sensor Circuit
FLS3	EC	Fuel Level Sensor Circuit
FTS	AT	A/T Fluid Temperature Sensor
FTTS	EC	Fuel Tank Temperature Sensor
FUELB2	EC	Fuel Injection System Function (Left Bank)
FUELB1	EC	Fuel Injection System Function (Right Bank)
H/LAMP	EL	Headlamp
HORN	EL	Horn
HSEAT	EL	Heated Seat
IATS	EC	Intake Air Temperature Sensor
ICC	EL	Intelligent Cruise Control System
IGN/SG	EC	Ignition Signal
ILL	EL	Illumination
INJECT	EC	Injector
INT/L	EL	Interior, Spot, Vanity Mirror, and Luggage Room Lamps
IVCB2	EC	Intake Valve Timing Control Solenoid Valve (B2)
IVCB1	EC	Intake Valve Timing Control Solenoid Valve (B1)
IVCSB2	EC	Intake Valve Timing Control Position Sensor (B2)
IVCSB1	EC	Intake Valve Timing Control Position Sensor (B1)
KEYLES	EL	Remote Keyless Entry System
KS	EC	Knock Sensor
LAN	AT	A/T Communication Line
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., Oil, and Fuel Gauges
MIL/DL	EC	MIL and Data Link Connectors
MIRROR	EL	Door Mirror
NATS	EL	IVIS (INFINITI Vehicle Immobilizer System)
NAVI	EL	Navigation System
NONDTC	AT	Non-detectable Items

Code	Section	Wiring Diagram Name
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
P/ANT	EL	Power Antenna
PGC/V	EC	EVAP Canister Purge Volume Control Solenoid Valve
PHASE	EC	Camshaft Position Sensor (PHASE)
PNP/SW	EC	Park/Neutral Position Switch
PNP/SW	AT	Park/Neutral Position Switch
POS	EC	Crankshaft Position Sensor (CKPS) (POS)
POWER	EL	Power Supply Routing
PRE/SE	EC	EVAP Control System Pressure Sensor
PST/SW	EC	Power Steering Oil Pressure Switch
REF	EC	Crankshaft Position Sensor (CKPS) (REF)
REMOTE	EL	Audio (Remote Control Switch)
RP/SEN	EC	Refrigerant Pressure Sensor
S/SIG	EC	Start Signal
S/VCSW	EC	Swirl Control Valve Control Vacuum Check Switch
SEAT	EL	Power Seat
SHIFT	AT	A/T Shift Lock System
SROOF	EL	Sunroof
SRS	RS	Supplemental Restraint System
SSV/A	AT	Shift Solenoid Valve A
SSV/B	AT	Shift Solenoid Valve B
START	SC	Starting System
STOP/L	EL	Stop lamp

Code	Section	Wiring Diagram Name
SWL/V	EC	Swirl Control Valve Control Solenoid Valve
TAIL/L	EL	Parking, License and Tail Lamps
TCCSIG	AT	A/T TCC Signal (Lock up)
TCV	AT	Torque Converter Clutch Solenoid Valve
T/F	TF	Transfer
TP/SW	EC	Throttle Position Switch
TPS	AT	Throttle Position Sensor
TPS	EC	Throttle Position Sensor
TRNSCV	EL	Homelink Universal Transceiver
TRSA/T	AT	Turbine Revolution Sensor
TURN	EL	Turn Signal and Hazard Warning Lamps
VEHSEC	EL	Vehicle Security 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
WARN	EL	Warning Lamps
WINDOW	EL	Power Window
WIP/R	EL	Rear Wiper and Washer
WIPER	EL	Front Wiper and Washer