ELECTRICAL SYSTEM

SECTION EL

CONTENTS

CONTENTS (Cont'd)

CONTENTS (Cont'd)

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

NAEL0001

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER” used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. The SRS system composition which is available to NISSAN MODEL R50 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 NISSAN dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the RS section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow harness connector (and by yellow harness protector or yellow insulation tape before the harness connectors).**

Wiring Diagrams and Trouble Diagnosis

NAEL0002

When you read wiring diagrams, refer to the following:

- GI-11, “HOW TO READ WIRING DIAGRAMS”
- EL-9, “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

NAEL0003

HARNESS CONNECTOR (TAB-LOCKING TYPE)

NAEL0003S01

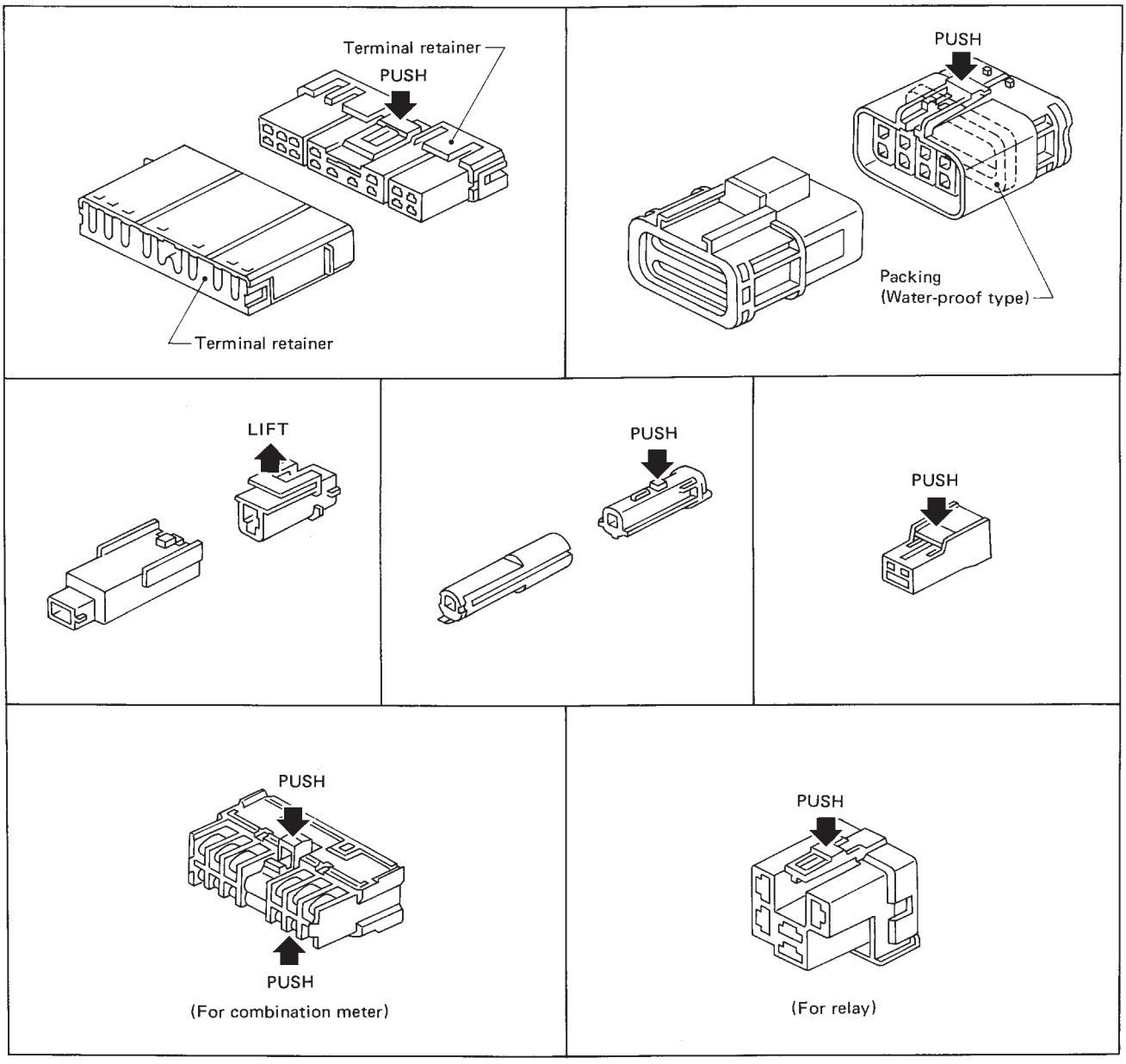
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to the illustration below.

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

Description (Cont'd)

HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

=NAEL0003S02

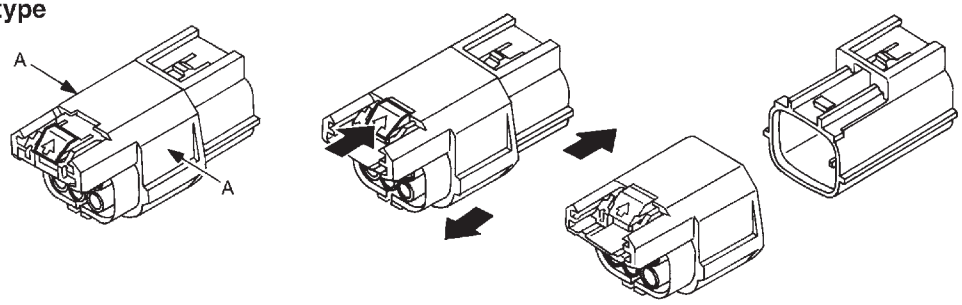
- A new style slide-locking type connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.
- The slide-locking type connectors are disconnected by pushing or pulling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

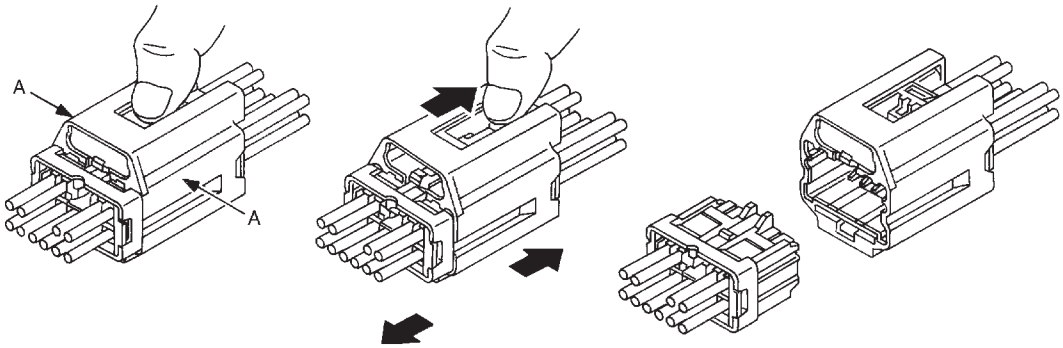


① Firmly grasp shell of connector housing at A.

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

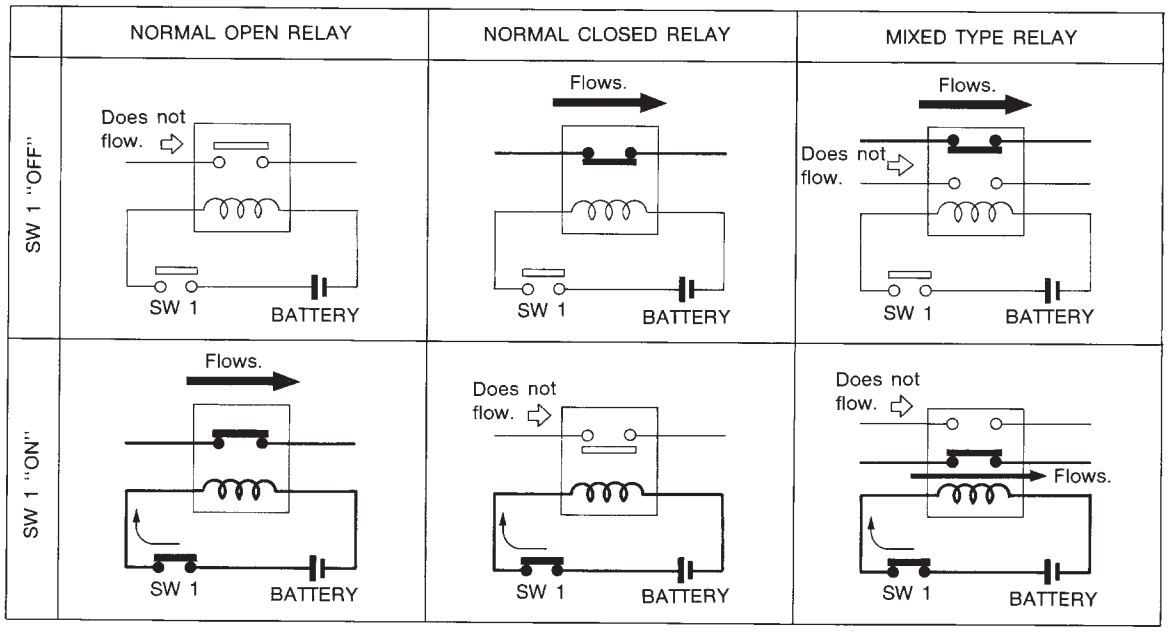
Description

NAEL0004

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

NAEL0004S01

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

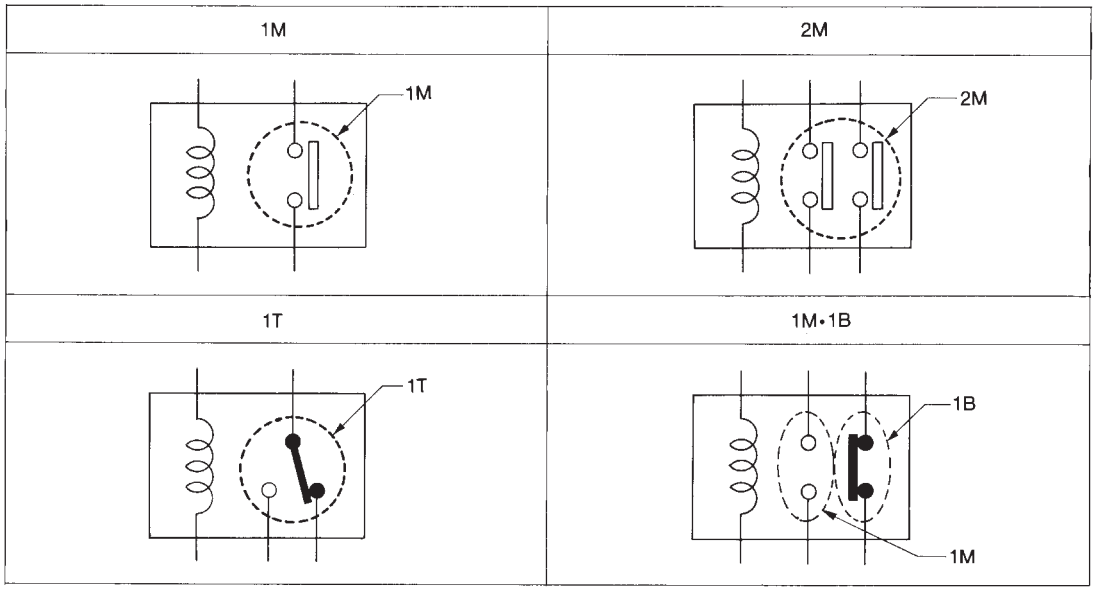


SEL881H

TYPE OF STANDARDIZED RELAYS

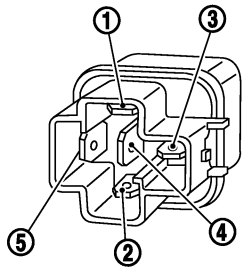
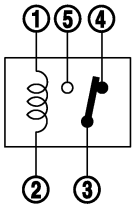
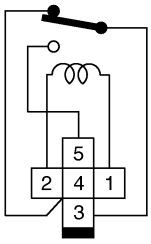
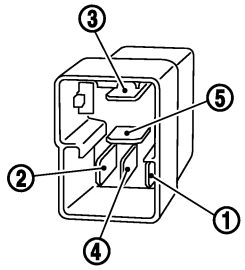
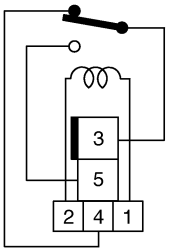
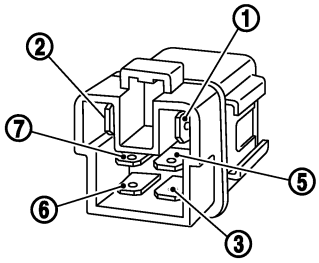
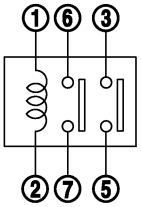
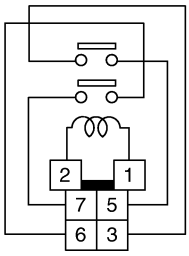
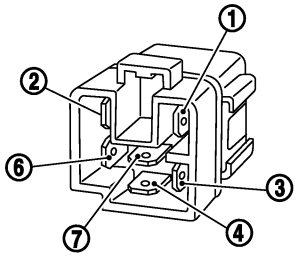
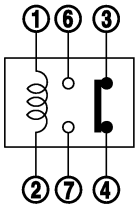
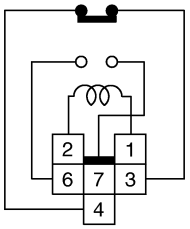
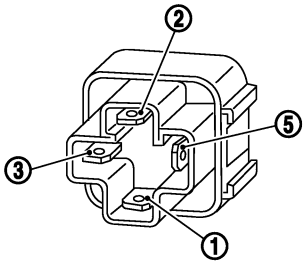
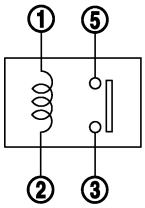
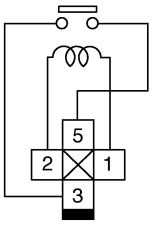
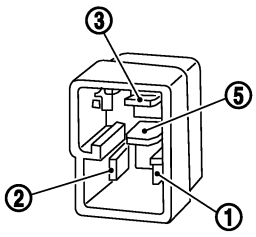
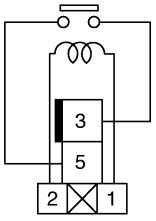
NAEL0004S02

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



SEL882H

Description (Cont'd)

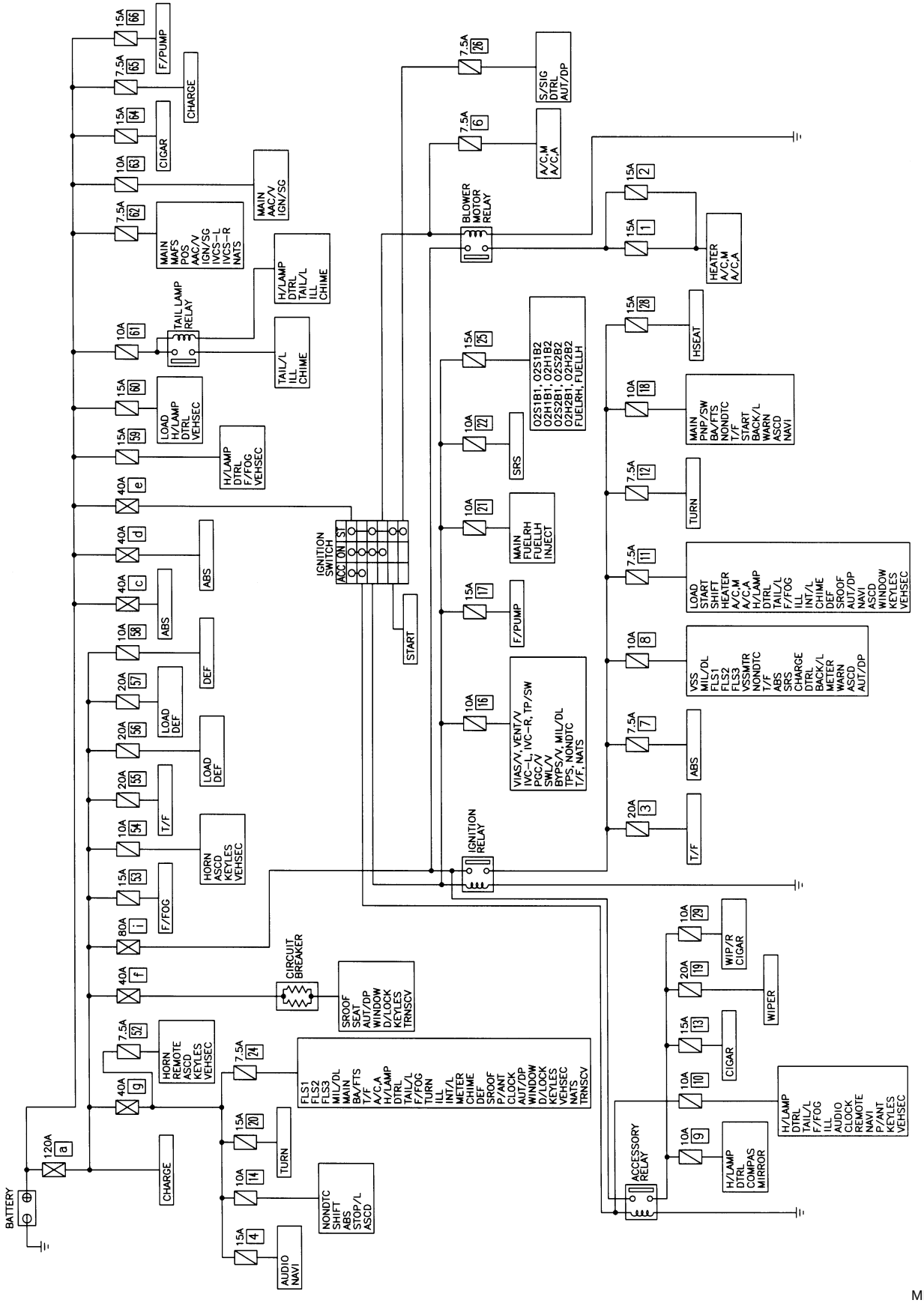
Type	Outer view	Circuit	Connector symbol and connector	Case color
1T				BLACK
				
2M				BROWN
1M•1B				GRAY
1M				BLUE
				

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

GEL264

Schematic

NAEL0247



MEL400O

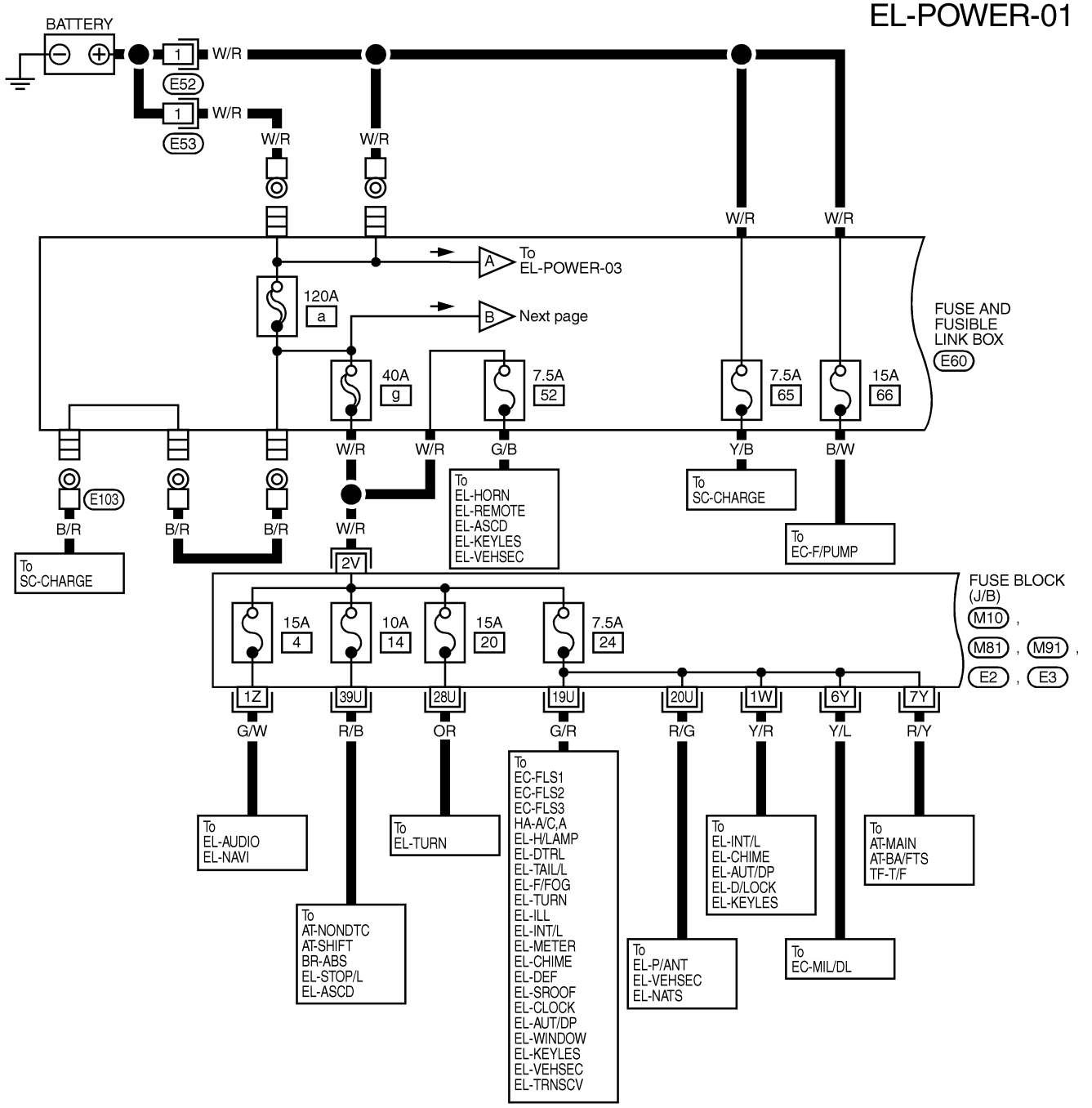
Wiring Diagram — POWER —

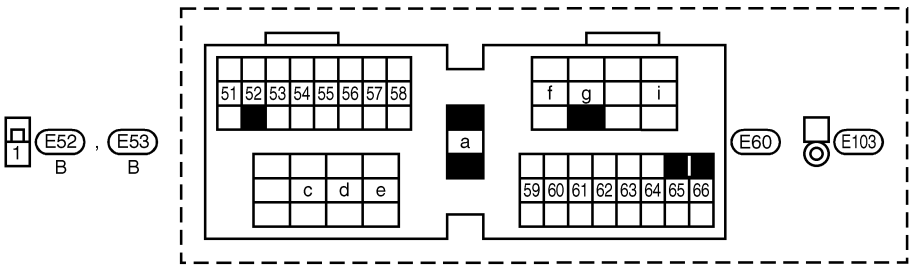
NAEL0248

BATTERY POWER SUPPLY — IGNITION SW. IN ANY POSITION

NAEL0248S01

EL-POWER-01





REFER TO THE FOLLOWING.

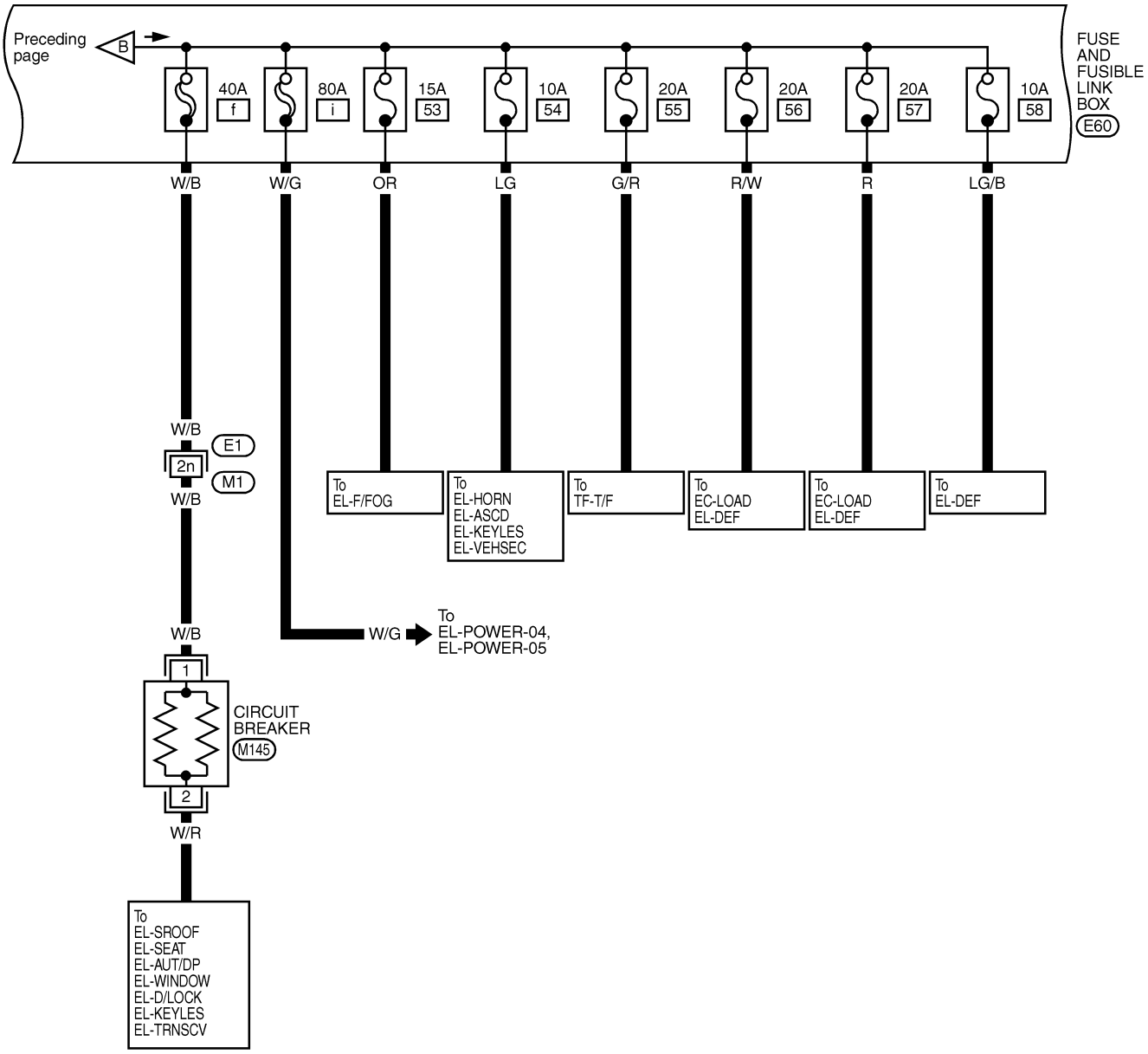
M10 , M81 , M91 ,
E2 , E3

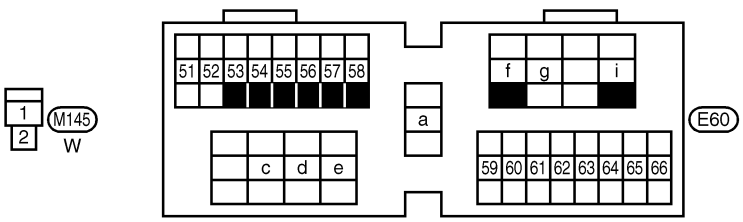
-FUSE BLOCK-
JUNCTION BOX (J/B)

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

MEL401O

EL-POWER-02



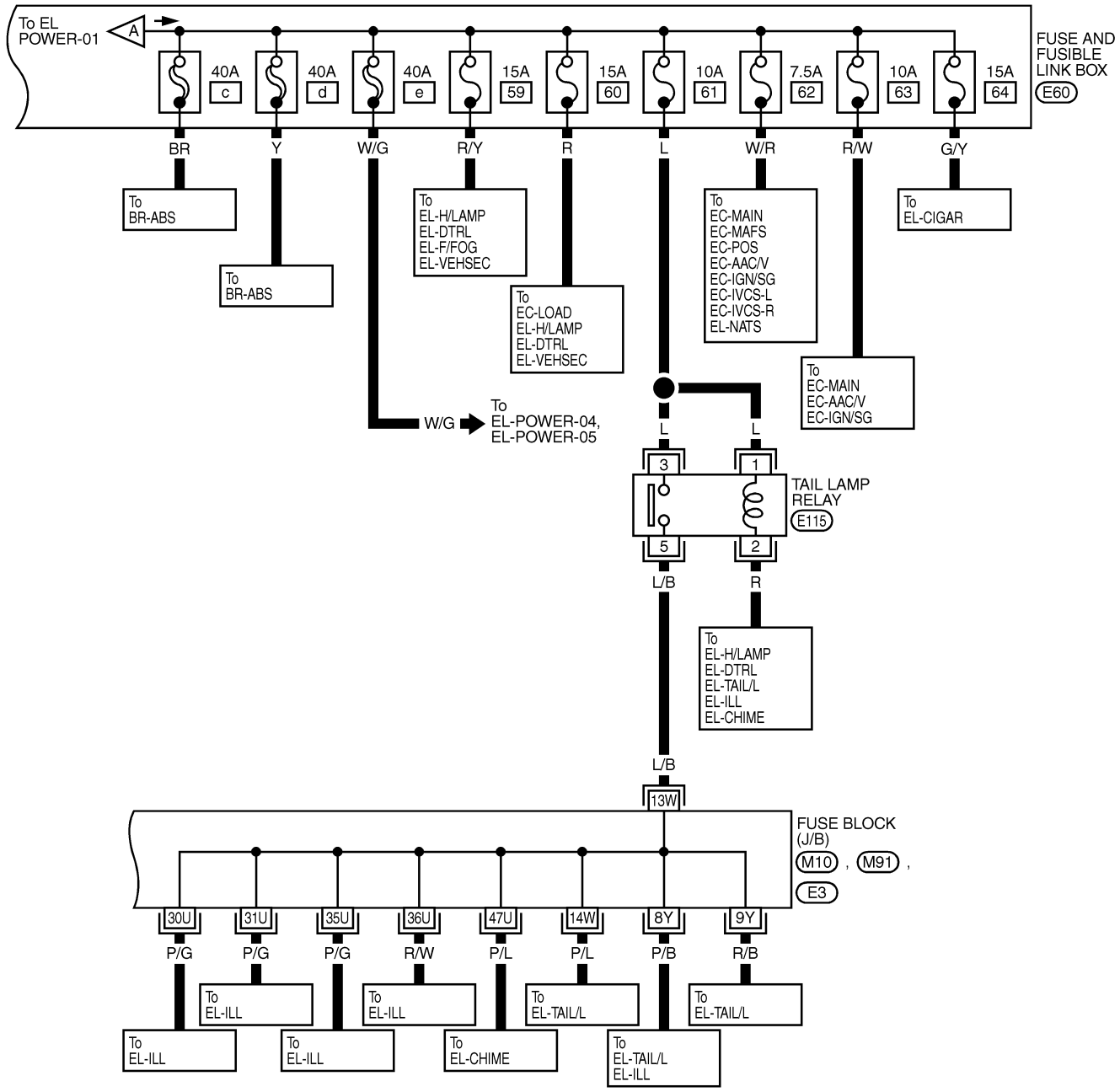


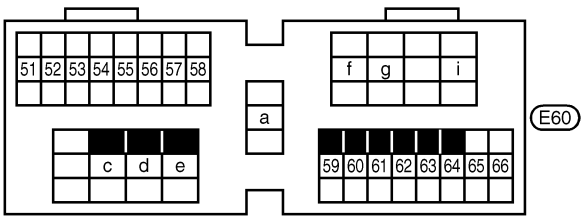
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

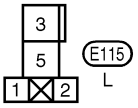
MEL402O

Wiring Diagram — POWER — (Cont'd)

EL-POWER-03







REFER TO THE FOLLOWING.

M10 , M91 , E3

-FUSE BLOCK-JUNCTION BOX (J/B)

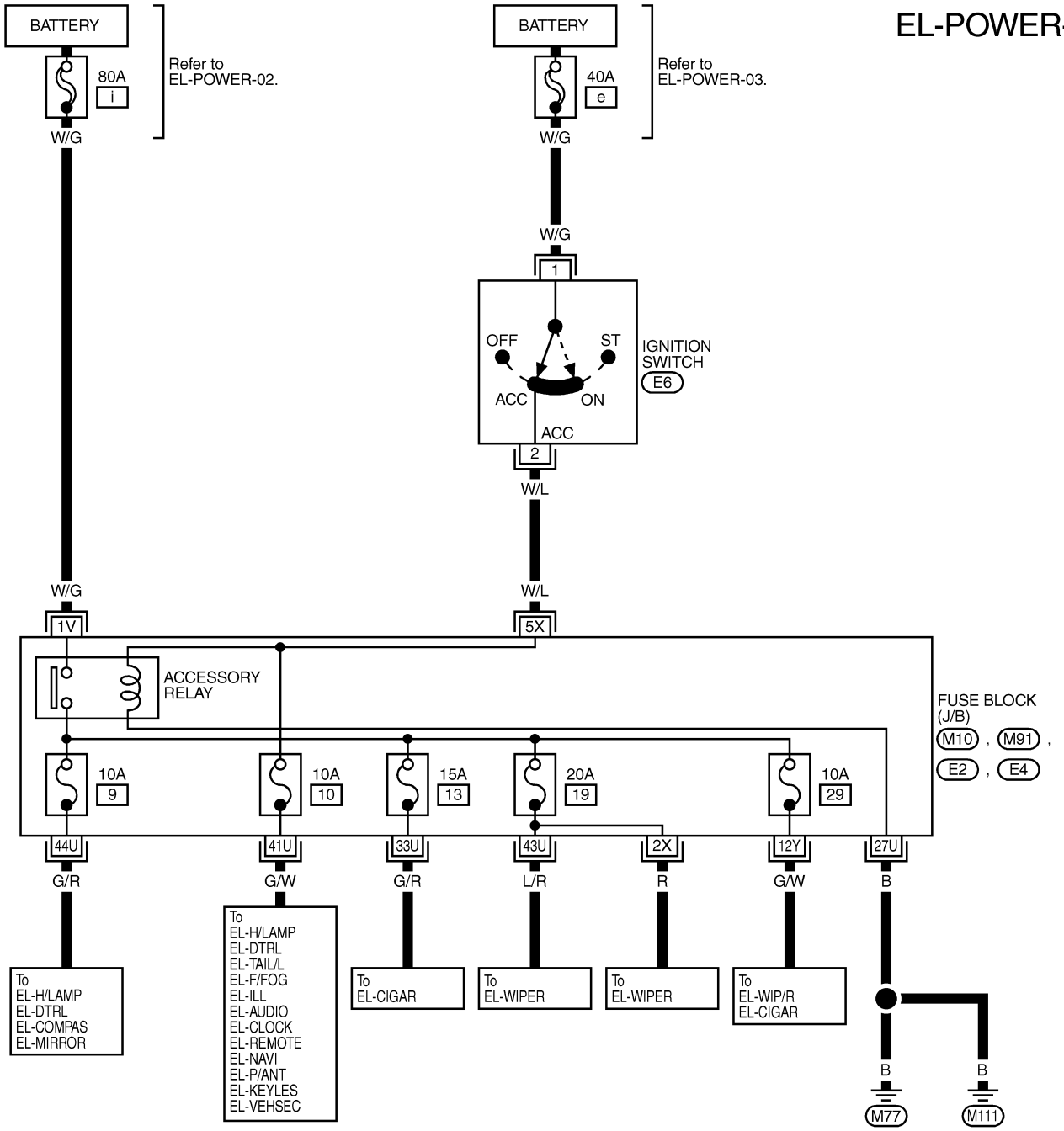
1	2	3	4	
6	7	8	9	10
11	12	13	14	
16	17	18	19	20
21	22			
24	25	26		
	28	29		

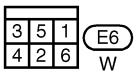
MEL551P

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

NAEL0248S02

EL-POWER-04





REFER TO THE FOLLOWING.

M10 , M91 , E2 , E4

- FUSE BLOCK - JUNCTION BOX (J/B)

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

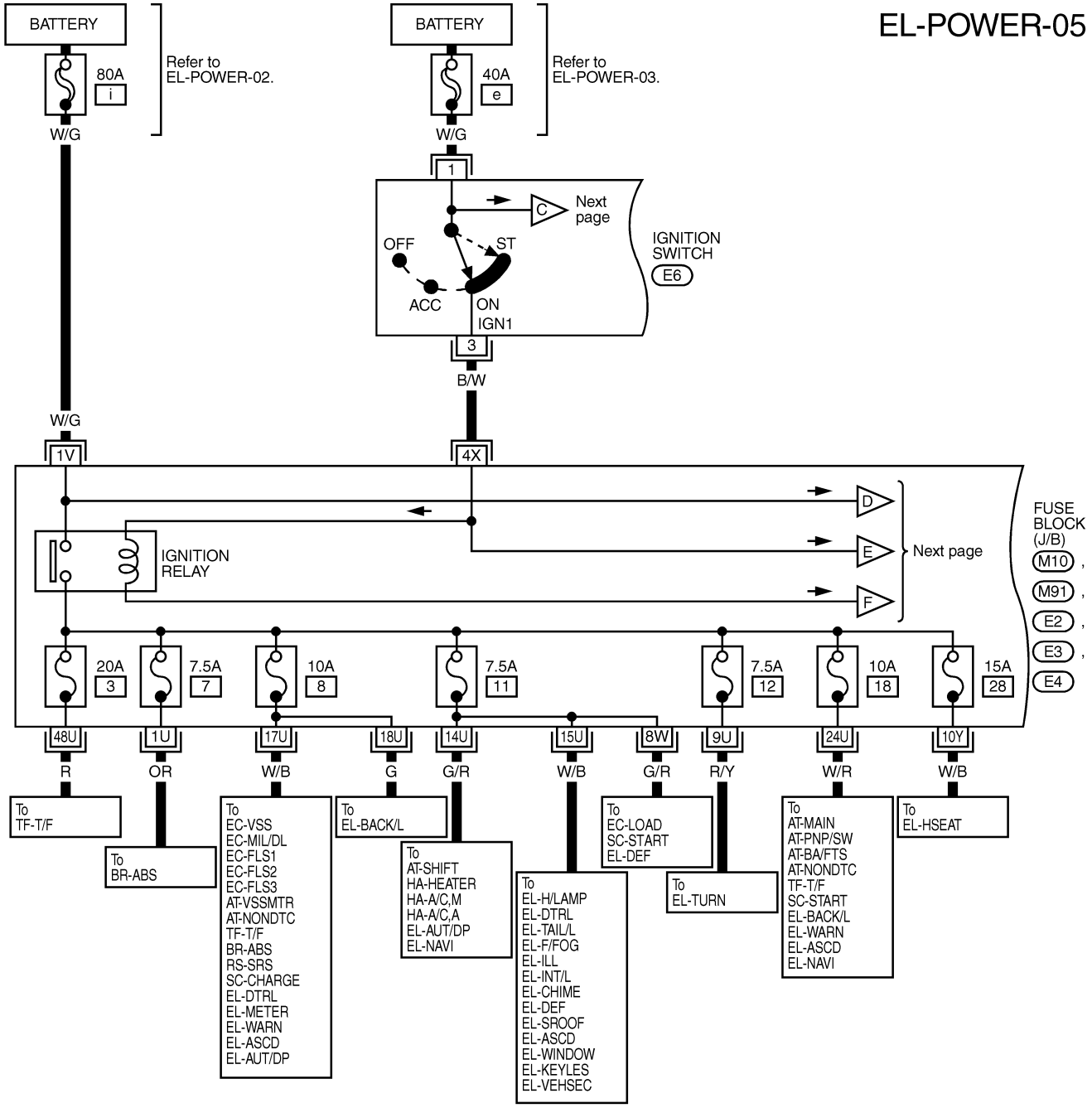
MEL403O

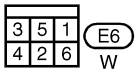
Wiring Diagram — POWER — (Cont'd)

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

NAEL0248S03

EL-POWER-05





REFER TO THE FOLLOWING.

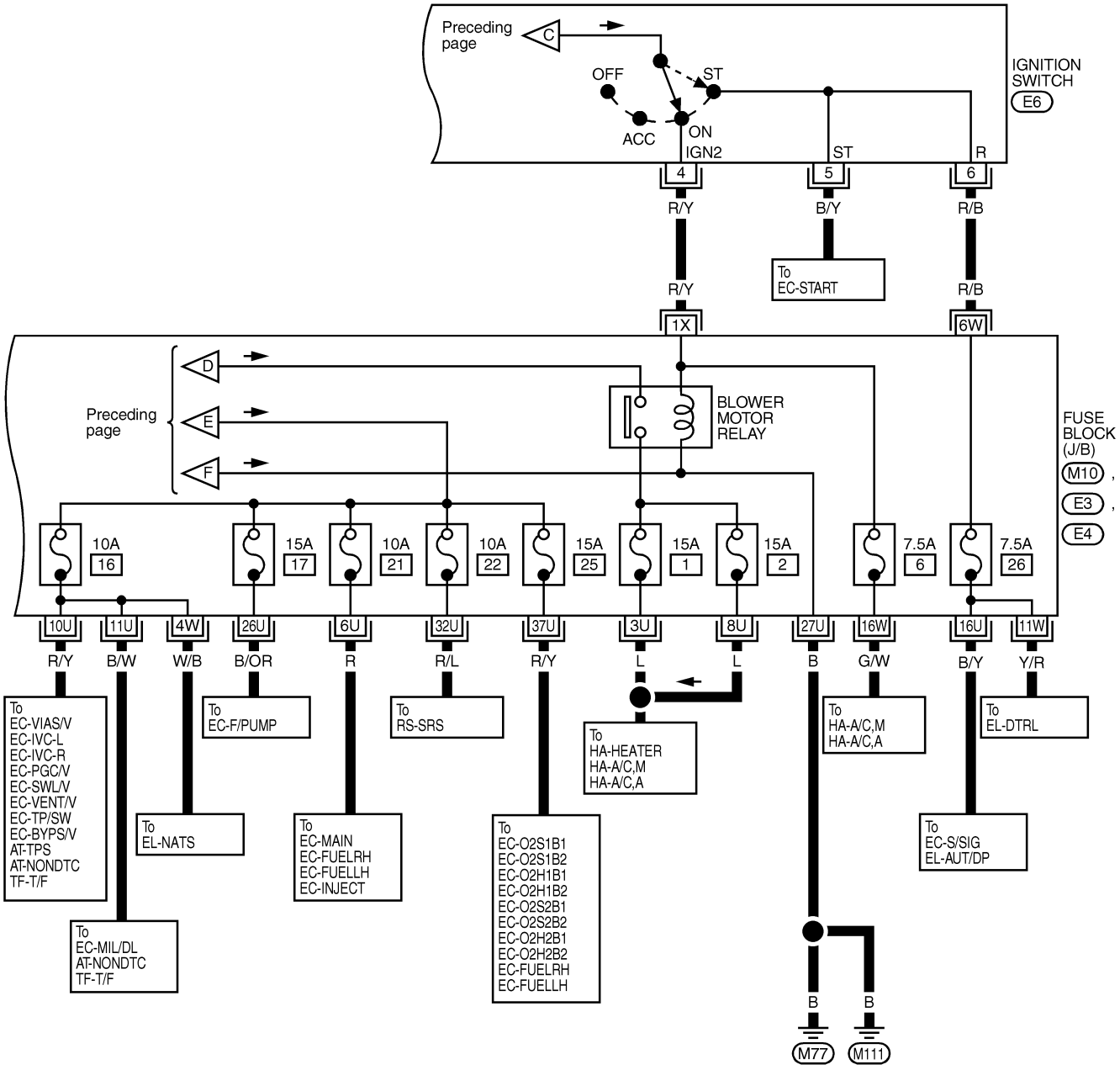
M10 , M91 , E2 , E3 , E4

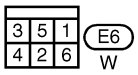
-FUSE BLOCK-
JUNCTION BOX (J/B)

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

MEL404O

EL-POWER-06





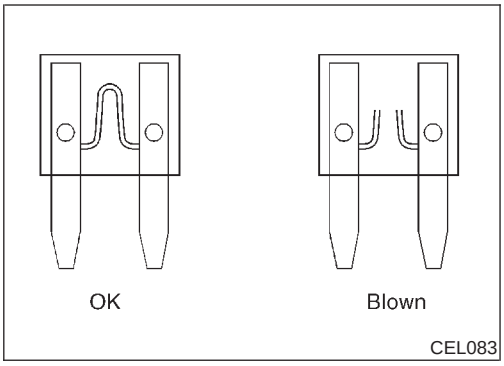
REFER TO THE FOLLOWING.

M10 , E3 , E4

-FUSE BLOCK-
JUNCTION BOX (J/B)

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

MEL552P



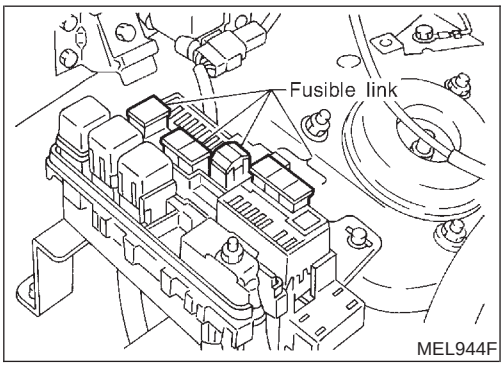
Inspection

NAEL0249

FUSE

NAEL0249S01

- **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.**



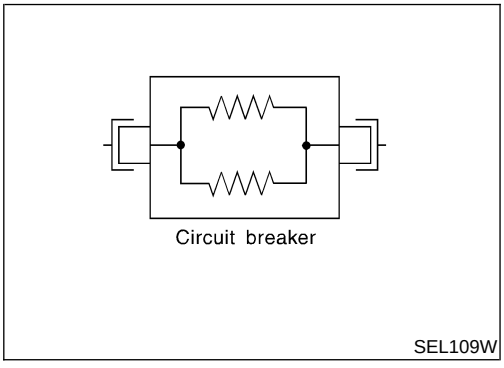
FUSIBLE LINK

NAEL0249S02

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)

NAEL0249S03

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.

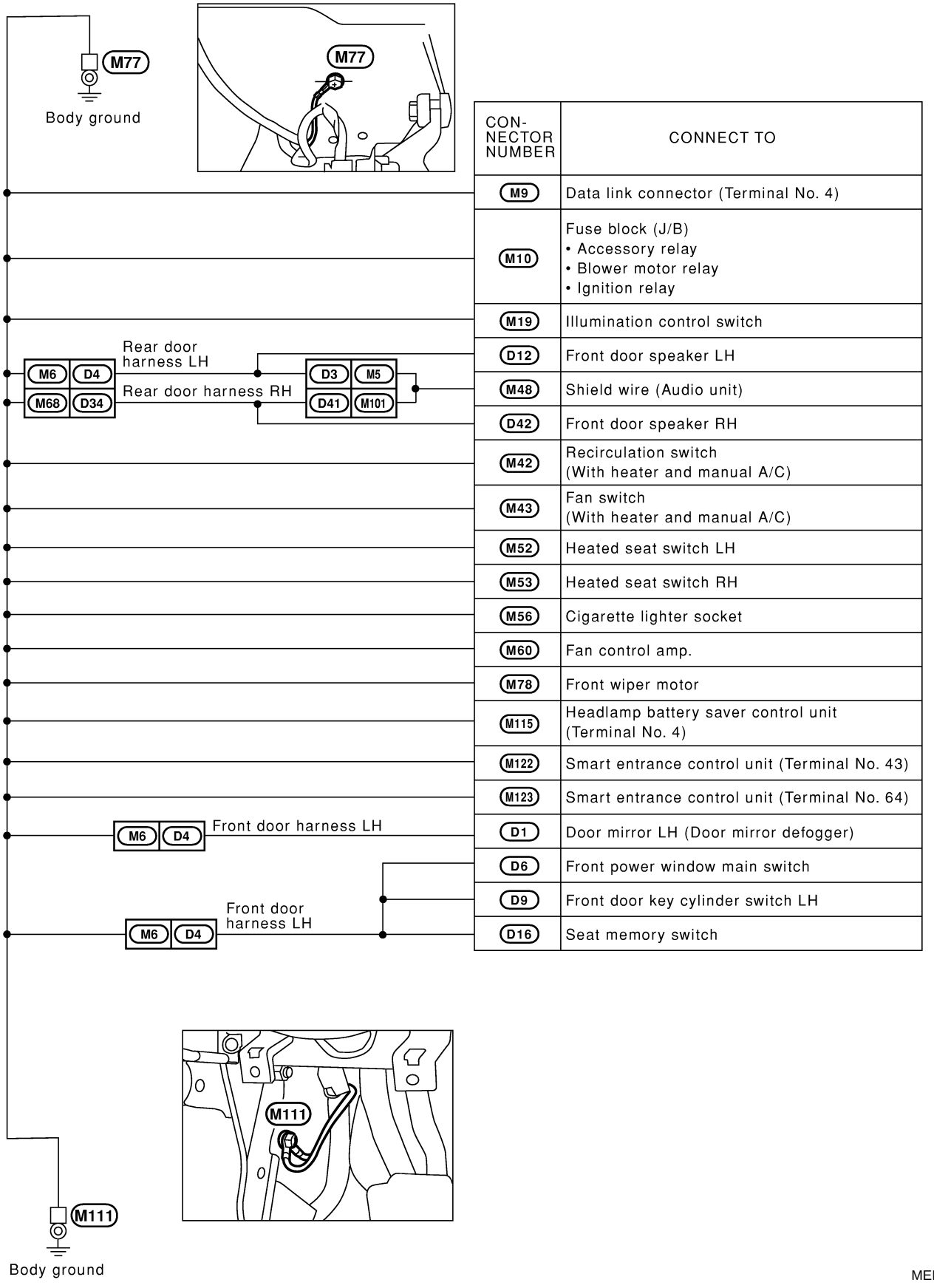
Reduced current flow will cause the element to cool. Resistance falls accordingly and normal circuit current flow is allowed to resume.

Ground Distribution

NAEL0250

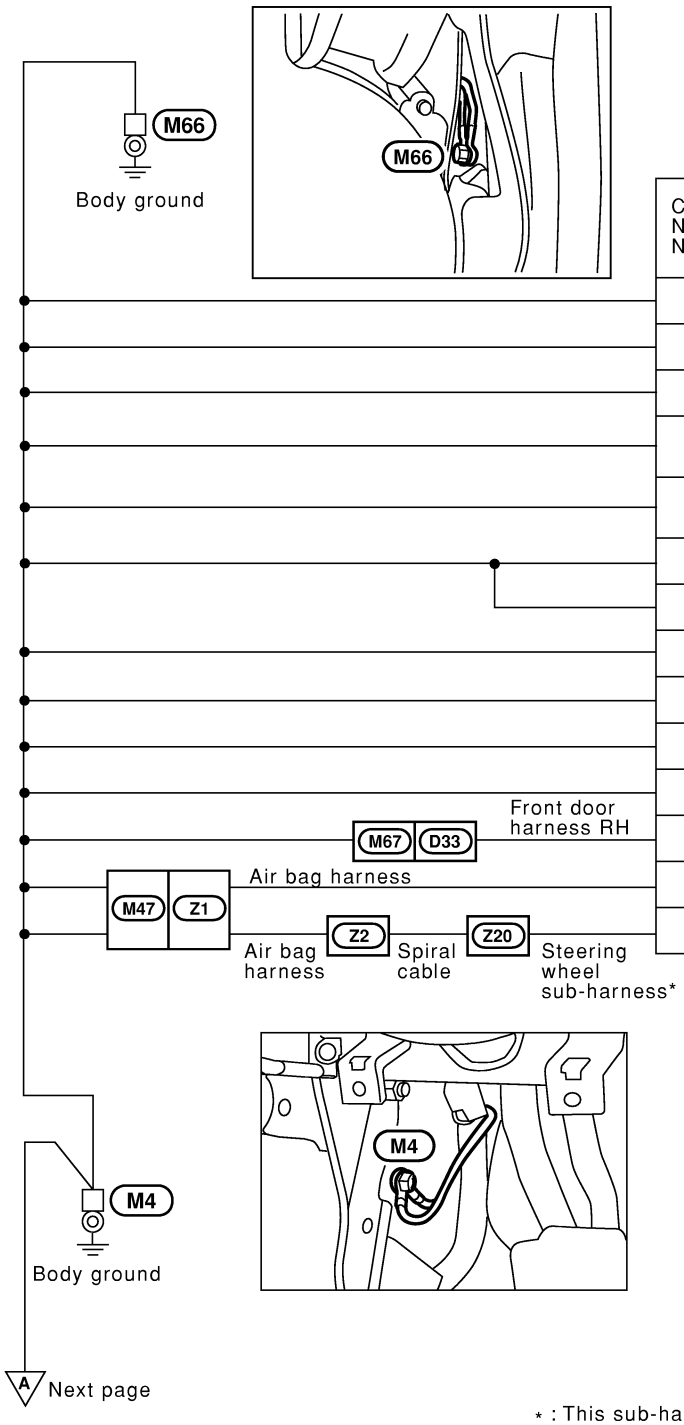
NAEL0250S01

MAIN HARNESS



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
D12	Front door speaker LH
M48	Shield wire (Audio unit)
D42	Front door speaker RH
M42	Recirculation switch (With heater and manual A/C)
M43	Fan switch (With heater and manual A/C)
M52	Heated seat switch LH
M53	Heated seat switch RH
M56	Cigarette lighter socket
M60	Fan control amp.
M78	Front wiper motor
M115	Headlamp battery saver control unit (Terminal No. 4)
M122	Smart entrance control unit (Terminal No. 43)
M123	Smart entrance control unit (Terminal No. 64)
D1	Door mirror LH (Door mirror defogger)
D6	Front power window main switch
D9	Front door key cylinder switch LH
D16	Seat memory switch

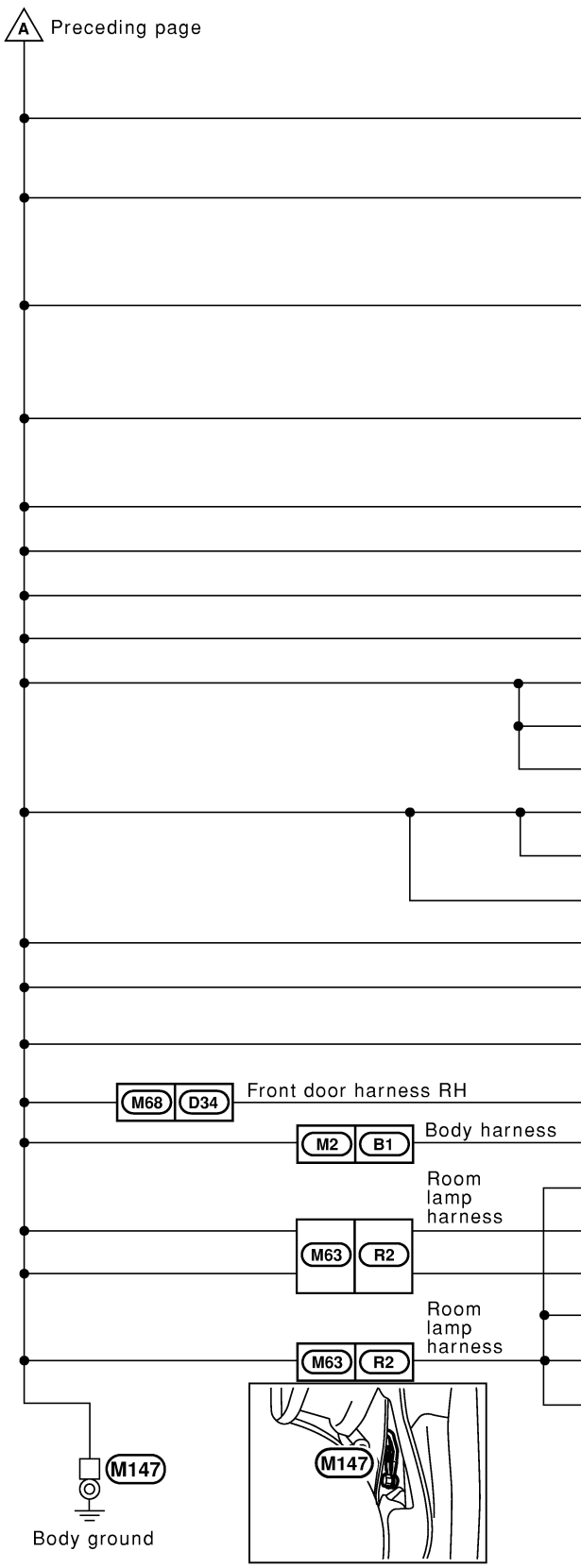
MEL489P



CONNECTOR NUMBER	CONNECT TO
M3	ASCD control unit (Terminal No.17)
M15	Combination flasher unit
M23	Power window relay
M36	Rear window defogger switch (Treminal No.1)
M36	Rear window defogger switch (Treminal No.4)
M38	Mode door motor (With auto A/C)
M55	Air mix door motor (With auto A/C)
M69	Power antenna
M140	Door mirror remote control switch
M144	Power socket relay
M148	Rear TV switch (With rear TV)
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.

MEL490P

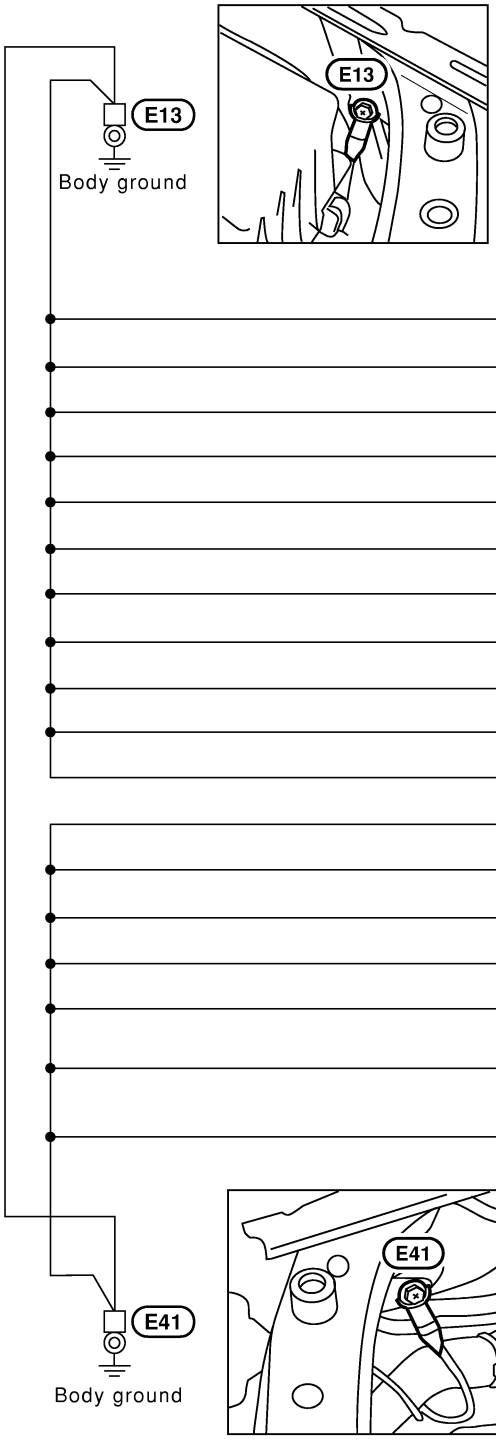


CON-NECTOR NUMBER	CONNECT TO
M17	Memory seat cancel switch
M25	Combination meter (Terminal No. 30) • Turn signal RH • Turn signal LH • ABS warning lamp
M26	Combination meter (Terminal No. 53) • 4WD warning lamp (With part-time 4-wheel drive)
M26	Combination meter (Terminal No. 59) • Water temp. gauge • Fuel gauge • Air bag warning lamp • Unified meter control unit
M28	Clutch interlock switch (With M/T)
M30	Glove box lamp
M40	Clock
M41	Steering wheel receiver control switch
M102	A/C auto amp. (With auto A/C) (Without navigation)
M103	A/C auto amp. (For Canada) (Without navigation)
M105	A/C auto amp. (With auto A/C) (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
M125	CD auto changer
M138	Intake door motor (With auto A/C)
M142	Transfer control unit (Terminal No. 3) (With all-mode 4-wheel drive)
D43	Front power window switch RH
B47	Audio amp. relay
R3	Vanity mirror RH illumination
R4	Compass and thermometer
R5	Home link universal transceiver
R5	Vanity mirror LH illumination
R6	Spot lamp
R11	Sunroof motor

MEL478O

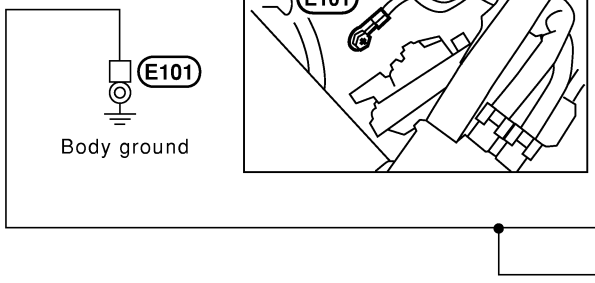
ENGINE ROOM HARNESS

NAEL0250S02

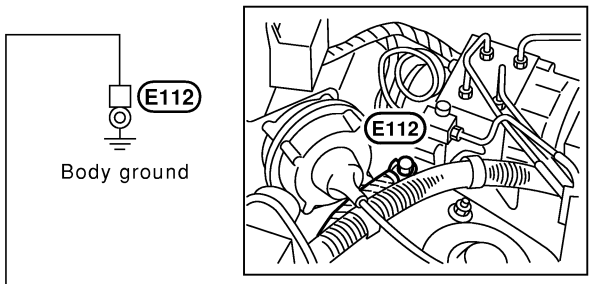


CON-NECTOR NUMBER	CONNECT TO
E7	Combination switch
E8	Combination switch
E9	Combination switch (front wiper switch)
E12	Parking lamp LH, Front turn signal lamp LH
E24	ATP relay (With A/T and part-time 4-wheel drive)
E28	Brake fluid level switch
E29	Headlamp LH
E31	Hood switch
E45	Daytime light control unit
E61	Front fog lamp LH
E114	Combination switch (rear wiper switch)
E38	Headlamp RH
E40	Parking lamp RH, Front turn signal lamp RH
E42	Washer level switch
E54	Fuel pump relay-2
E62	Front fog lamp RH
E95	Transfer shift Hi relay (With all-mode 4-wheel drive)
E99	Transfer shift Low relay (With all-mode 4-wheel drive)

MEL415O



CON-NECTOR NUMBER	CONNECT TO
E105	Alternator
E110	Power steering oil pressure switch

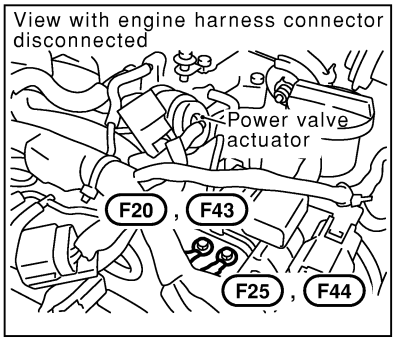


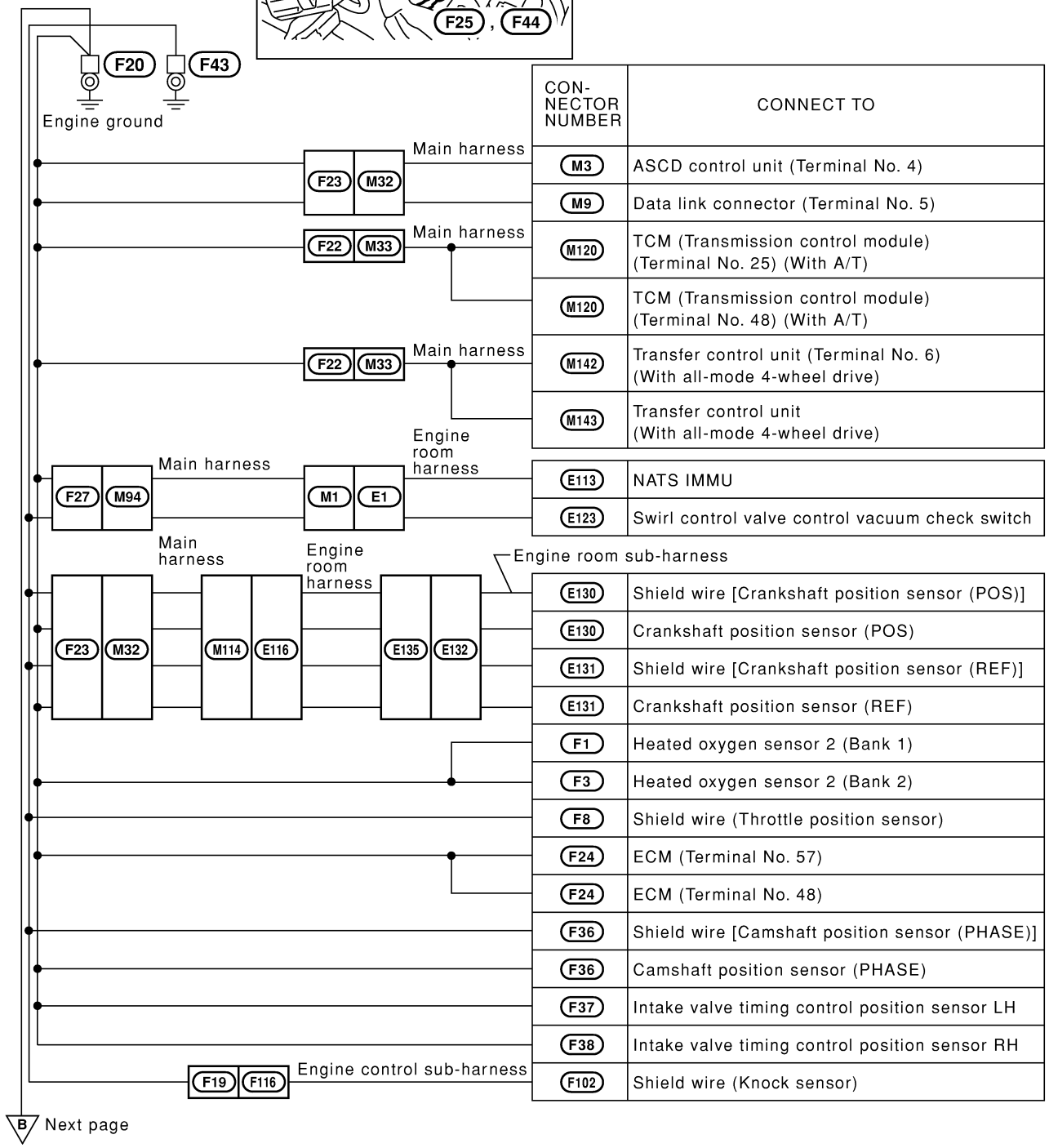
CON-NECTOR NUMBER	CONNECT TO
E111	ABS actuator and electric control unit (Terminal No. 16)
E111	ABS actuator and electric control unit (Terminal No. 20) (With 4-wheel drive)
E111	ABS actuator and electric control unit (Terminal No. 30)

MEL908N

ENGINE CONTROL HARNESS

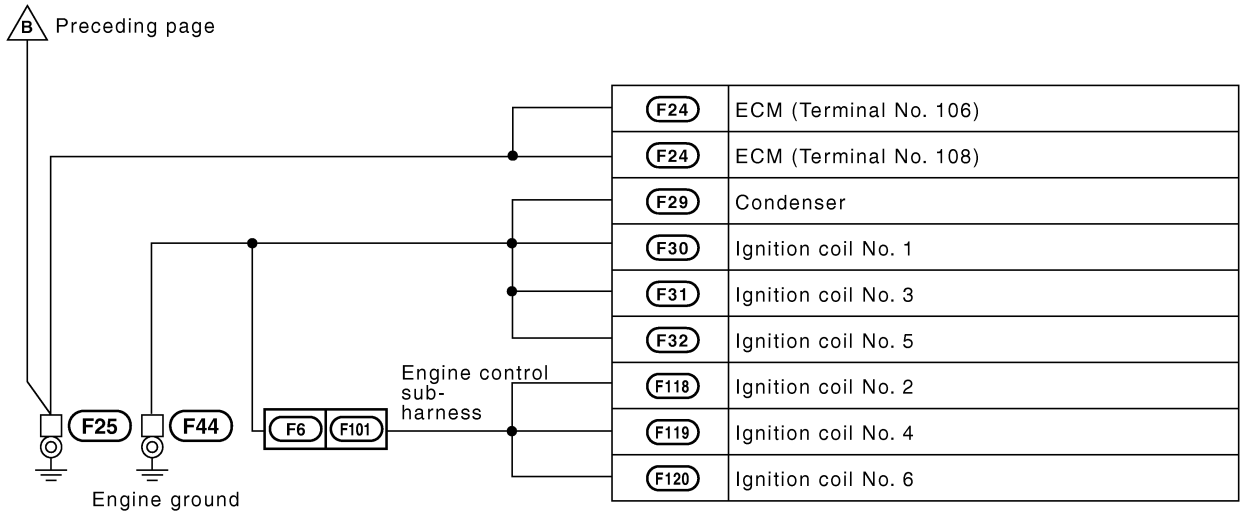
NAEL0250S03





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) (With A/T)
M120	TCM (Transmission control module) (Terminal No. 48) (With A/T)
M142	Transfer control unit (Terminal No. 6) (With all-mode 4-wheel drive)
M143	Transfer control unit (With all-mode 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 LH
F38	Intake valve timing control position sensor RH
F102	Shield wire (Knock sensor)

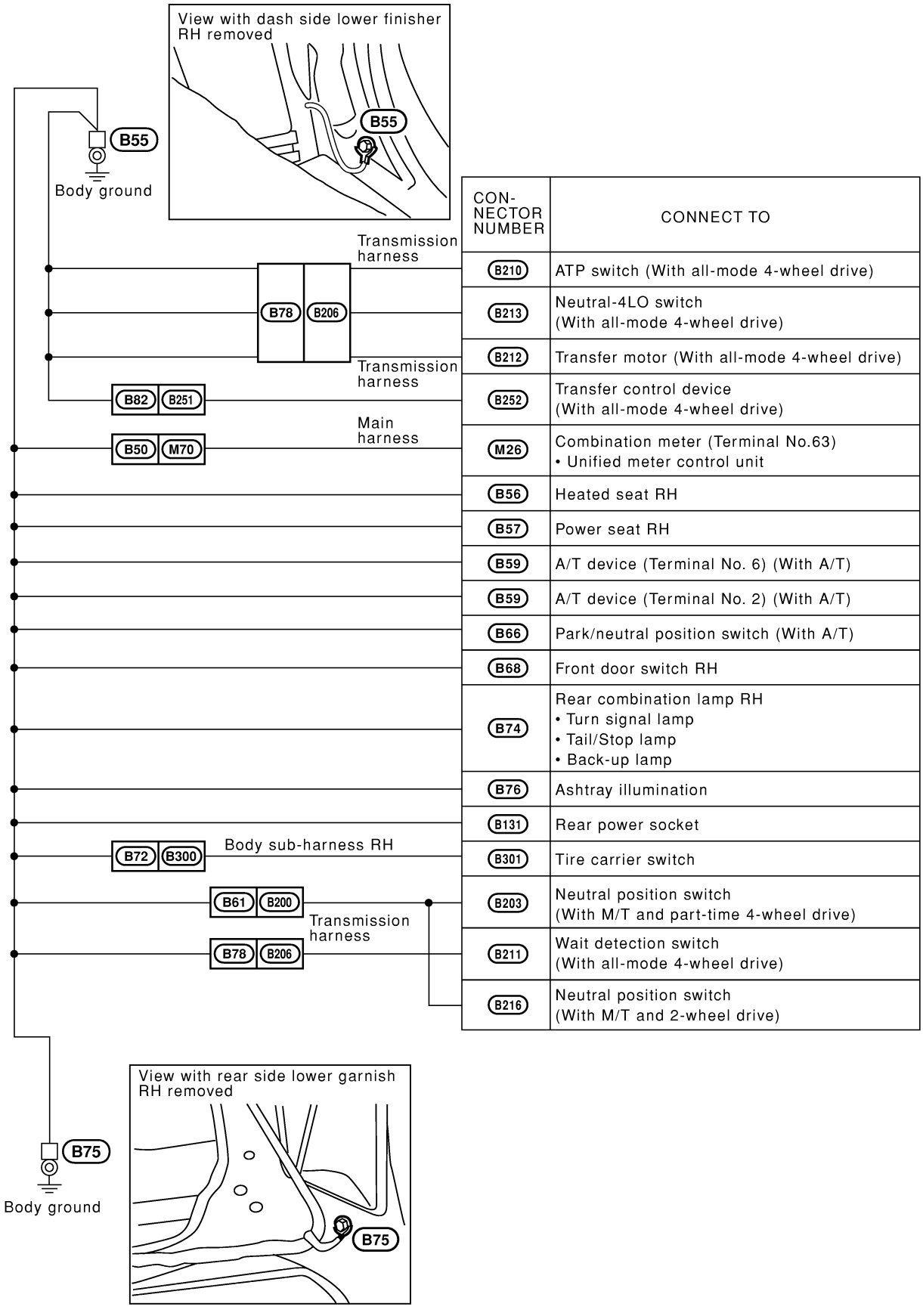
MEL704O


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
F25
F44
F6
F101
Engine ground

MEL233M

BODY HARNESS RH

NAEL0250S04

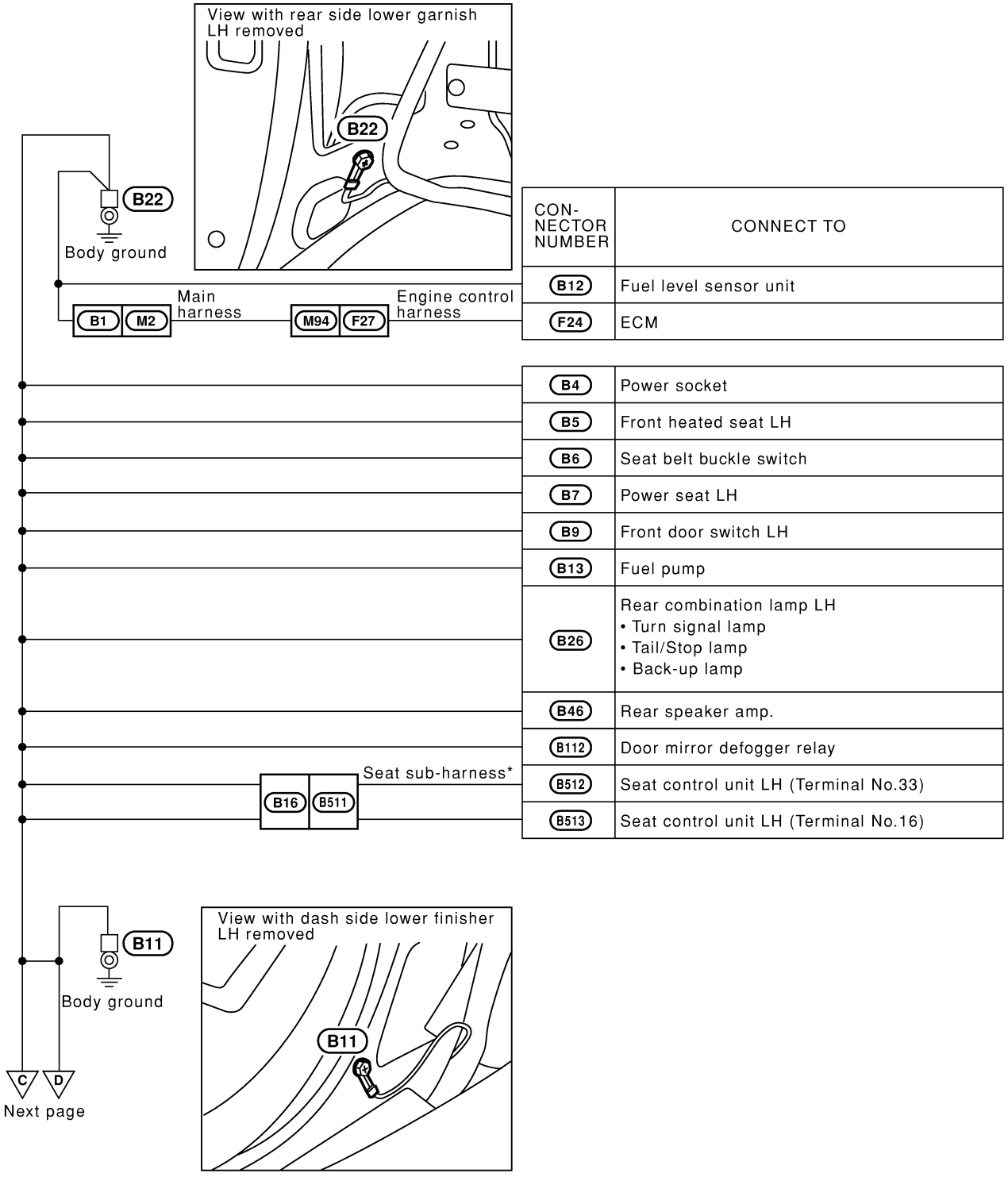


CON-NECTOR NUMBER	CONNECT TO
B210	ATP switch (With all-mode 4-wheel drive)
B213	Neutral-4LO switch (With all-mode 4-wheel drive)
B212	Transfer motor (With all-mode 4-wheel drive)
B252	Transfer control device (With all-mode 4-wheel drive)
M26	Combination meter (Terminal No.63) • Unified meter control unit
B56	Heated seat RH
B57	Power seat RH
B59	A/T device (Terminal No. 6) (With A/T)
B59	A/T device (Terminal No. 2) (With A/T)
B66	Park/neutral position switch (With A/T)
B68	Front door switch RH
B74	Rear combination lamp RH • Turn signal lamp • Tail/Stop lamp • Back-up lamp
B76	Ashtray illumination
B131	Rear power socket
B301	Tire carrier switch
B203	Neutral position switch (With M/T and part-time 4-wheel drive)
B211	Wait detection switch (With all-mode 4-wheel drive)
B216	Neutral position switch (With M/T and 2-wheel drive)

MEL909N

BODY HARNESS LH

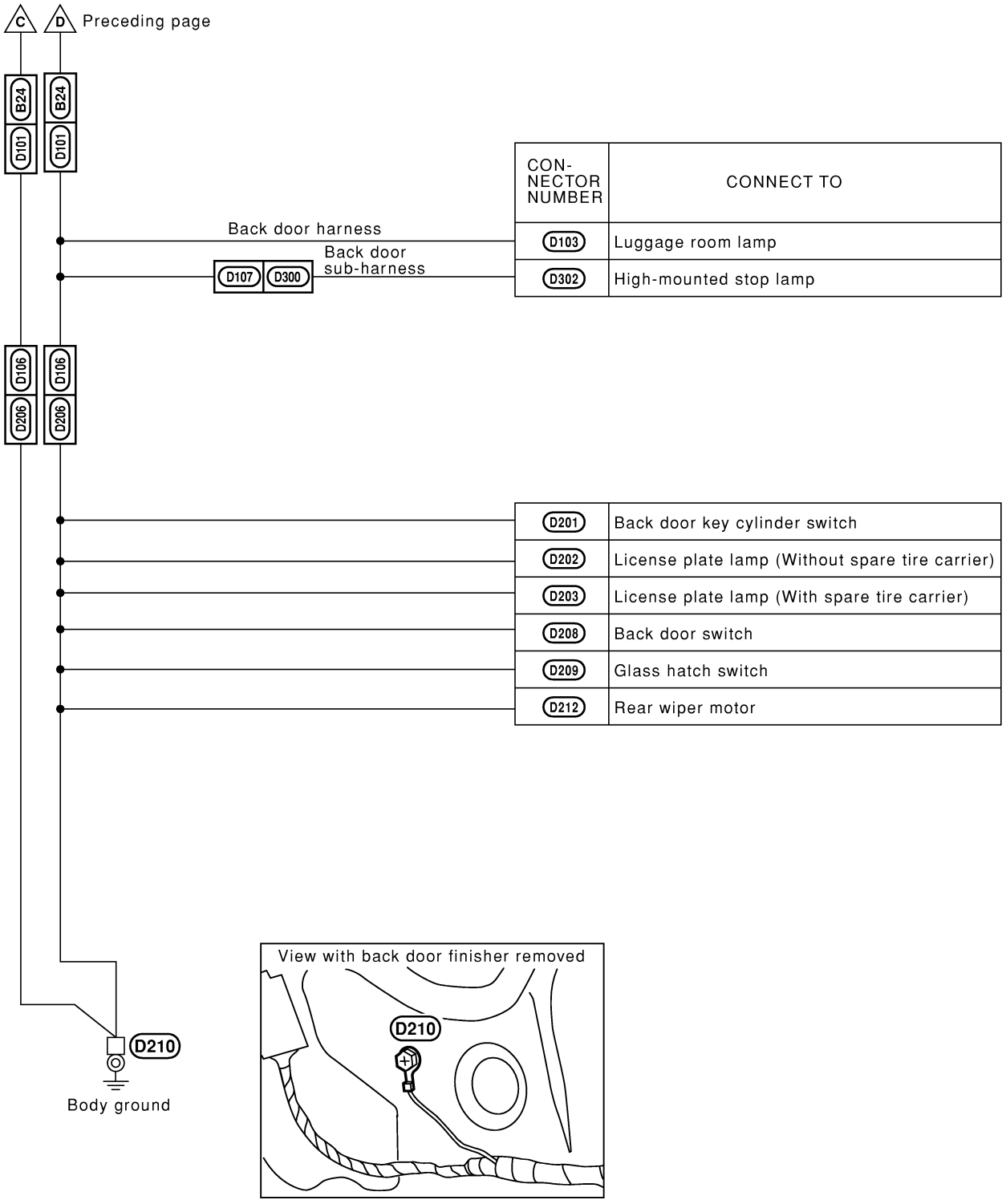
NAEL0250S05



CONNECTOR NUMBER	CONNECT TO
B12	Fuel level sensor unit
F24	ECM
B4	Power socket
B5	Front heated seat LH
B6	Seat belt buckle switch
B7	Power seat LH
B9	Front door switch LH
B13	Fuel pump
B26	Rear combination lamp LH • Turn signal lamp • Tail/Stop lamp • Back-up lamp
B46	Rear speaker amp.
B112	Door mirror defogger relay
B512	Seat control unit LH (Terminal No.33)
B513	Seat control unit LH (Terminal No.16)

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

MEL416O

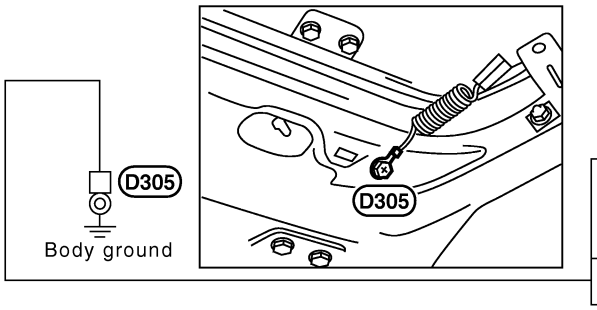


CONNECTOR NUMBER	CONNECT TO
D103	Luggage room lamp
D302	High-mounted stop lamp
D201	Back door key cylinder switch
D202	License plate lamp (Without spare tire carrier)
D203	License plate lamp (With spare tire carrier)
D208	Back door switch
D209	Glass hatch switch
D212	Rear wiper motor

MEL911N

BODY HARNESS

NAEL0250S06

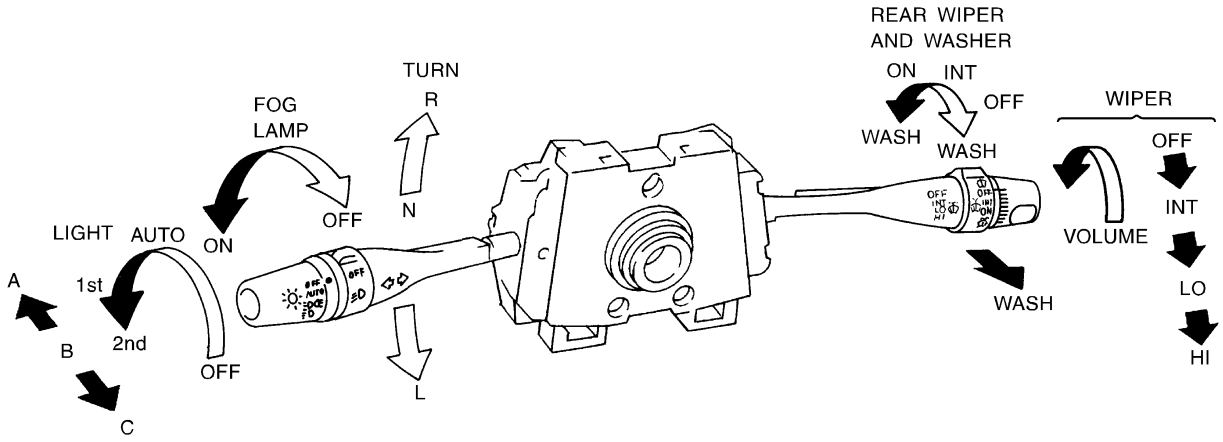


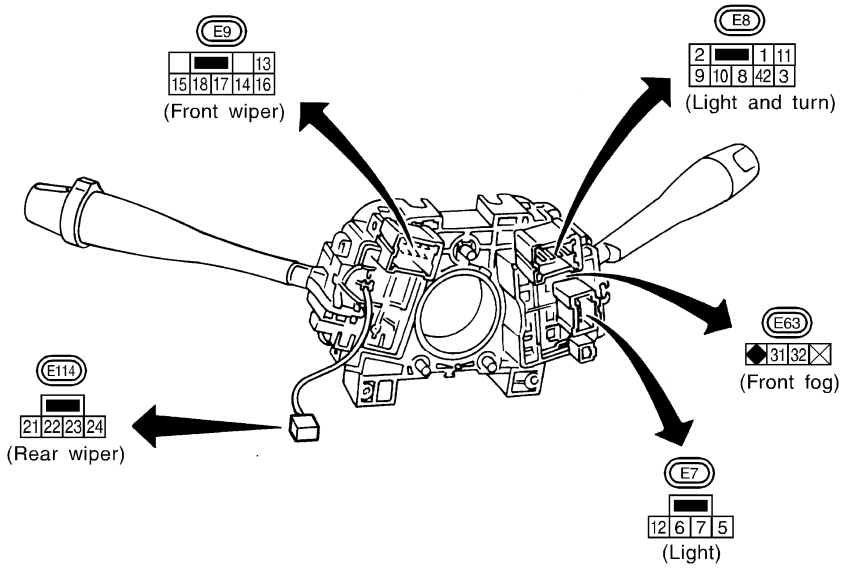
CON-NECTOR NUMBER	CONNECT TO
D304	Rear window defogger

MEL152M

Check

NAEL0251





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		○

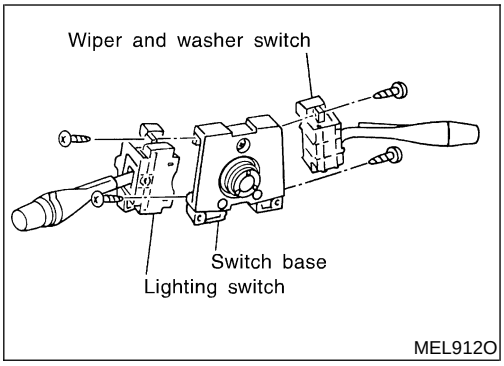
TURN SIGNAL LAMP SWITCH

	L	N	R
1	○		○
2			○
3	○		

REAR WIPER SWITCH

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

MEL911O

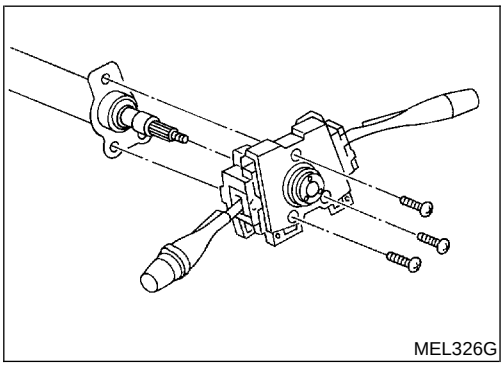


Replacement

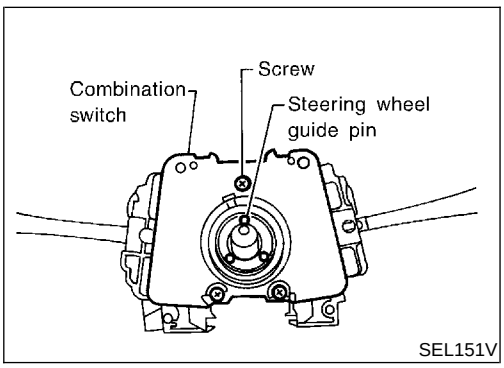
NAEL0252

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.



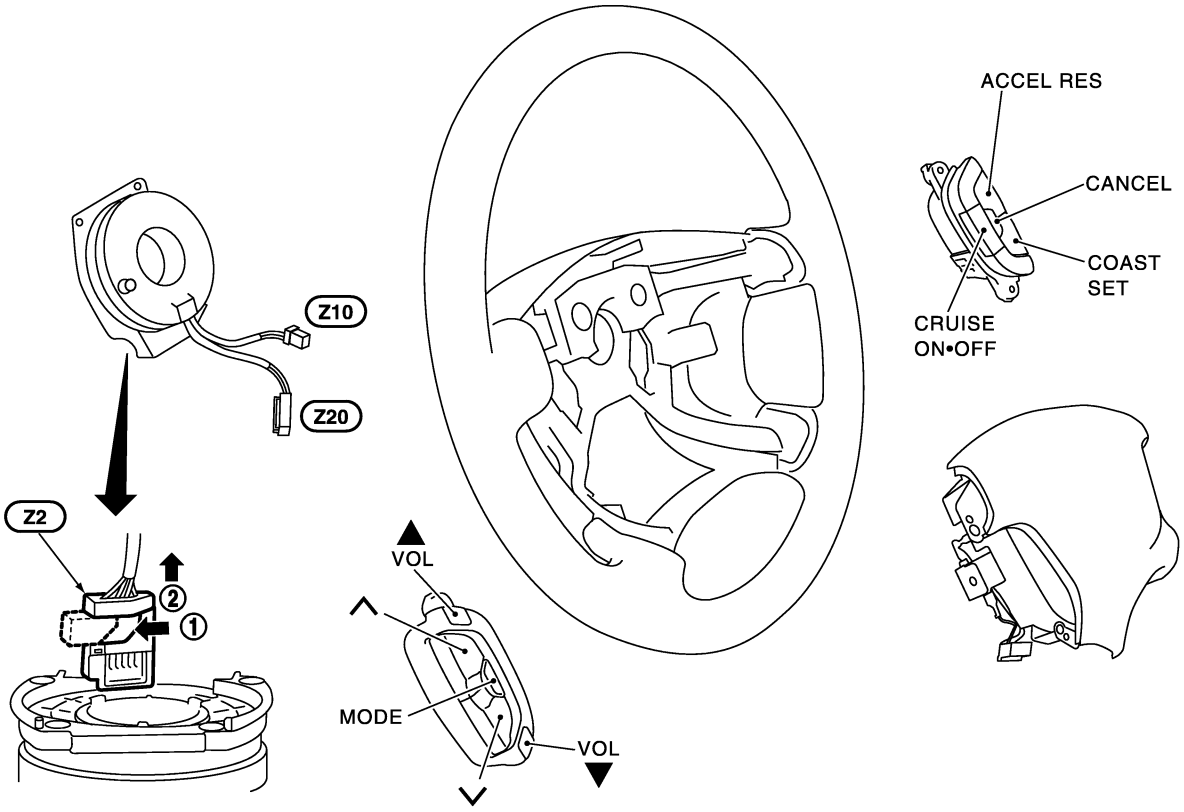
- To remove combination switch base, remove base attaching screw.

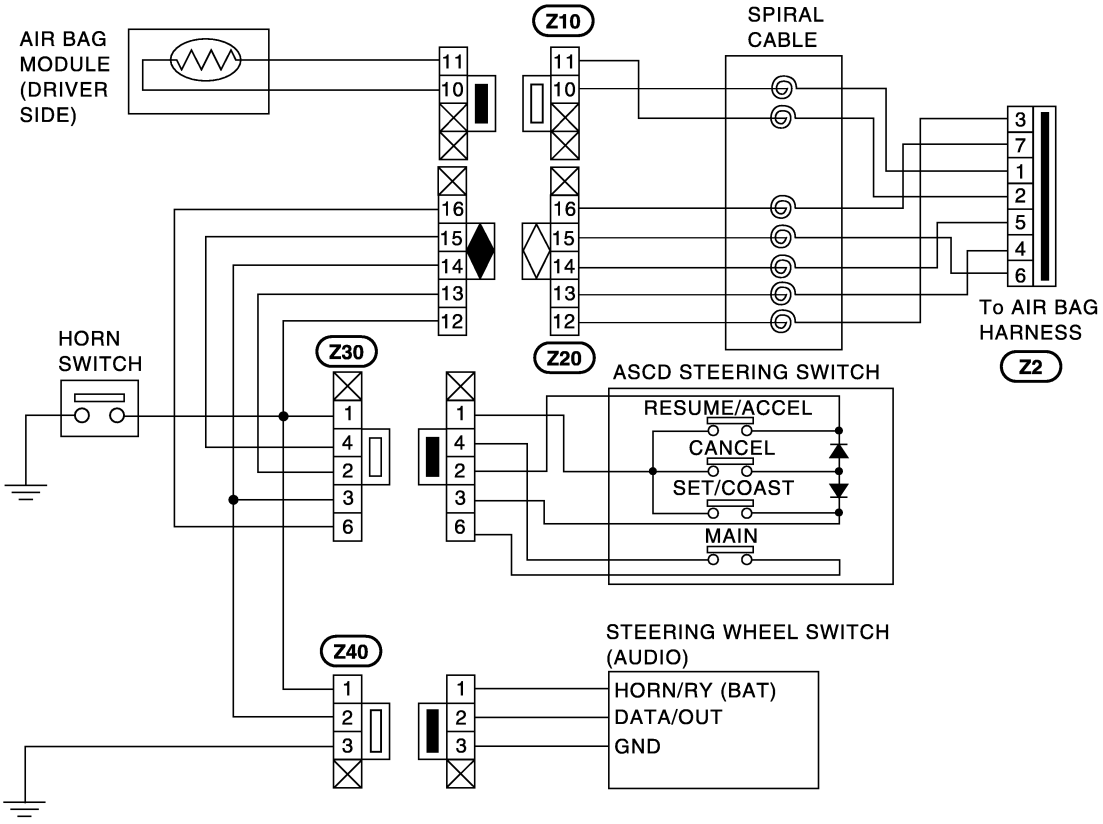


- Before installing the steering wheel, align the steering wheel guide pins with the screws which secure the combination switch as shown in the left figure.

Check

NAEL0253

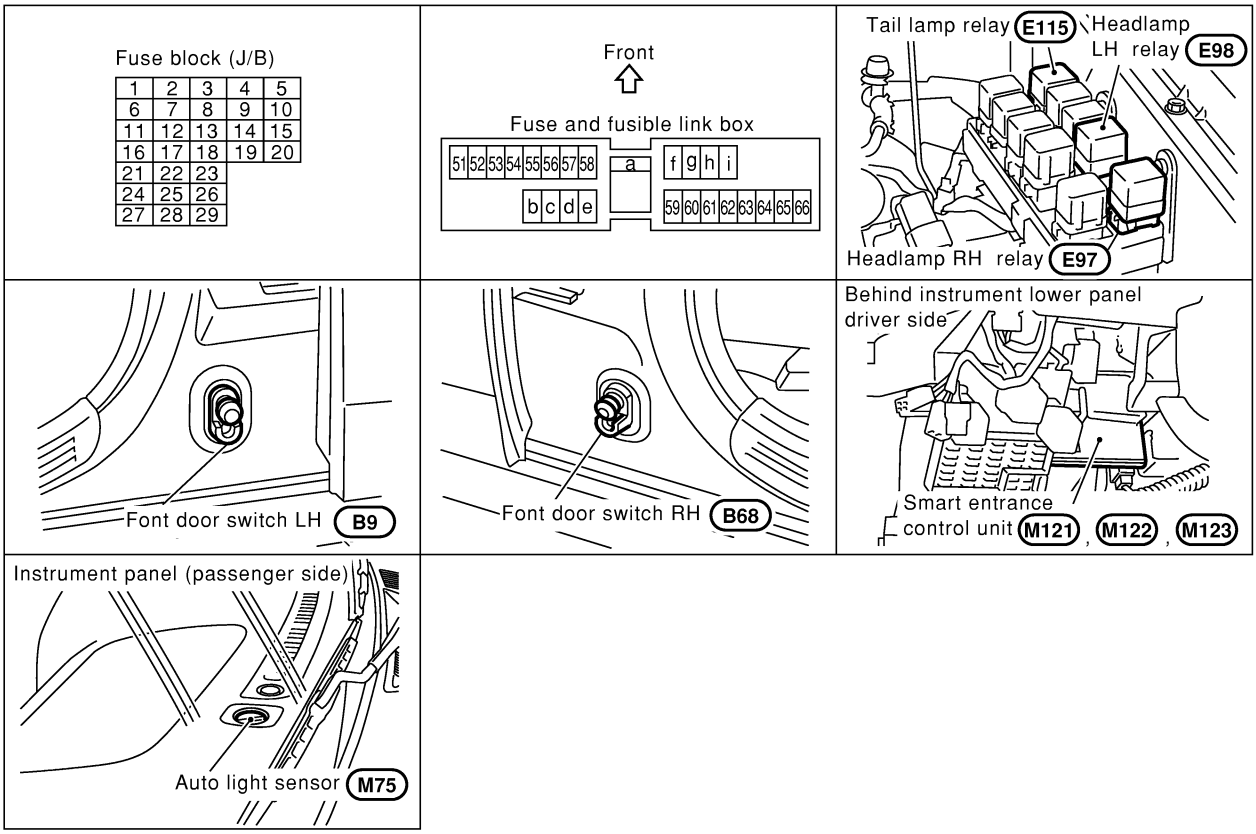




MEL447P

Component Parts and Harness Connector Location

NAEL0254



SEL288Y

System Description

NAEL0255

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

NAEL0255S01

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 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)].

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

NAEL0255S02

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

NAEL0255S03

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

- from terminal 5 of each headlamp relay
- to terminal 3 of each headlamp

Ground is supplied

- to headlamp LH terminal 2
- through lighting switch terminals 7 and 5
- through body grounds E13 and E41, and
- to headlamp RH terminal 2
- through lighting switch terminal 10 and 8
- through body grounds E13 and E41.

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

HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

NAEL0255S04

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

Ground is supplied

- to headlamp LH terminal 1, 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 1
- 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

NAEL0255S05

Except for Auto Light Control Operation

NAEL0255S0501

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

NAEL0255S0502

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

NAEL0255S06

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-32.)

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".

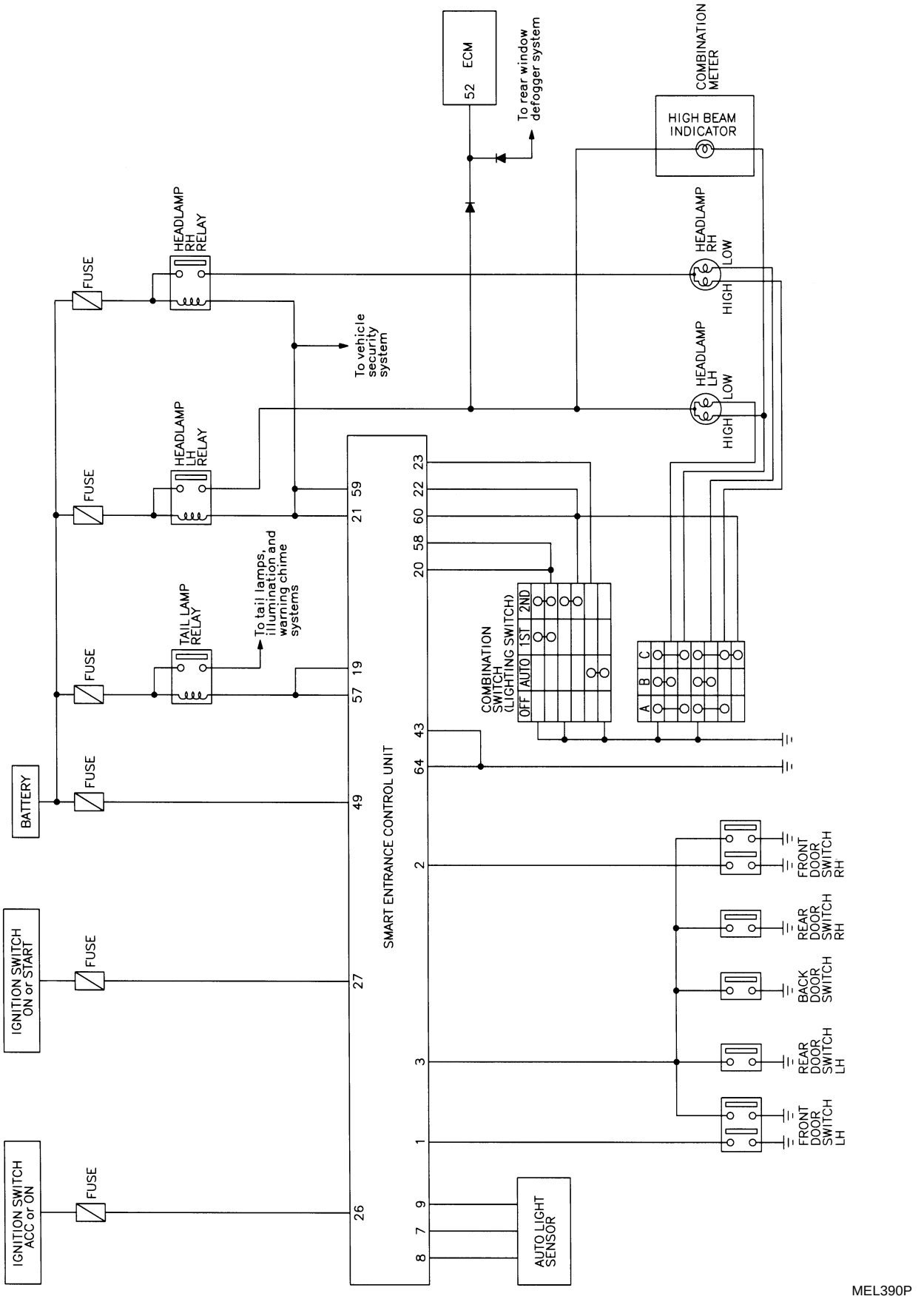
VEHICLE SECURITY SYSTEM

NAEL0255S07

The vehicle security system will flash the high beams if the system is triggered. Refer to "VEHICLE SECURITY (THEFT WARNING) SYSTEM" (EL-342).

Schematic

NAEL0256

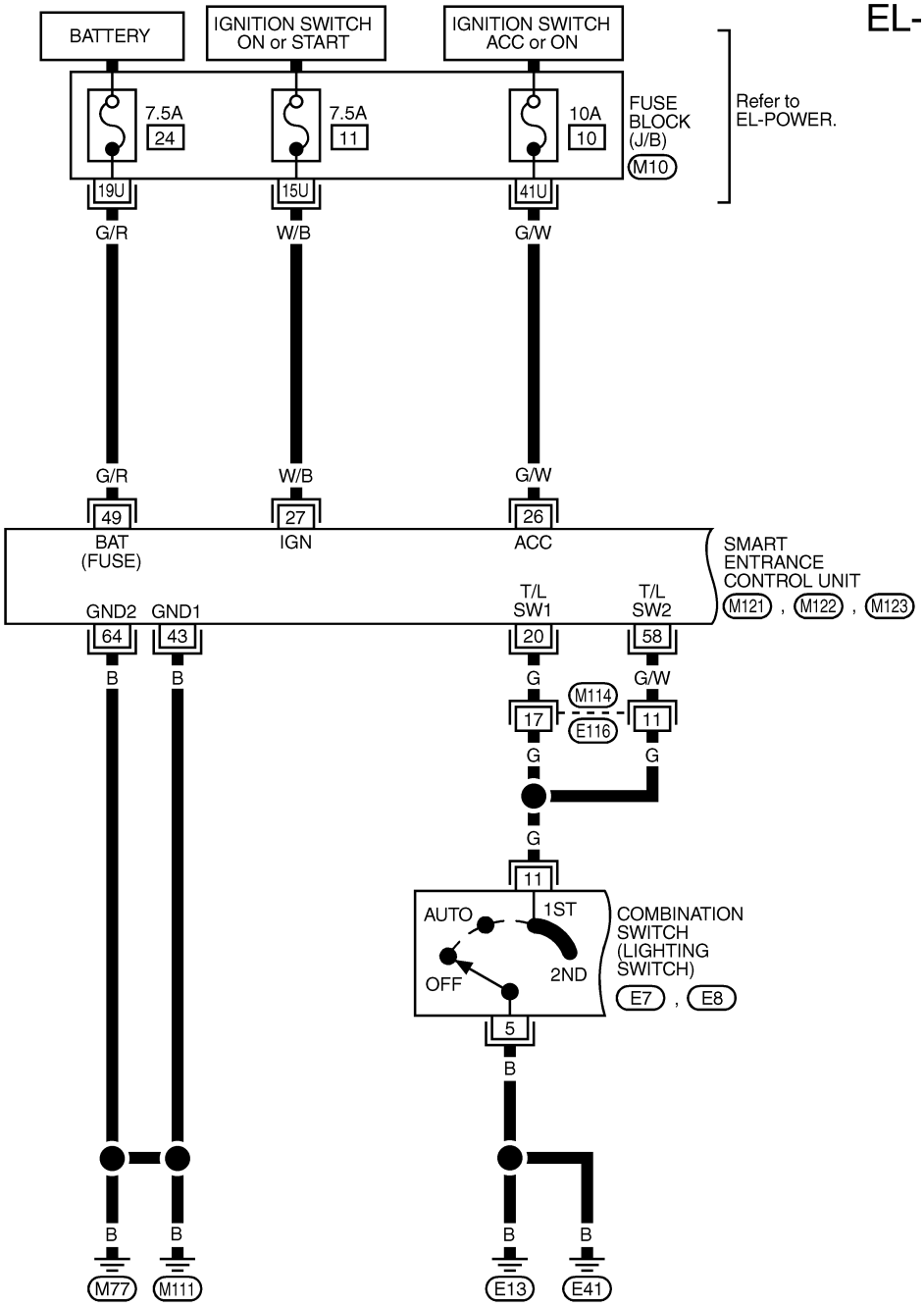


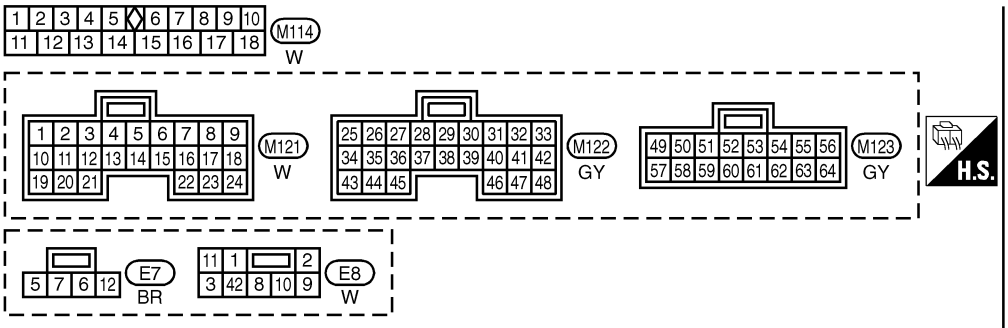
MEL390P

Wiring Diagram — H/LAMP —

NAEL0257

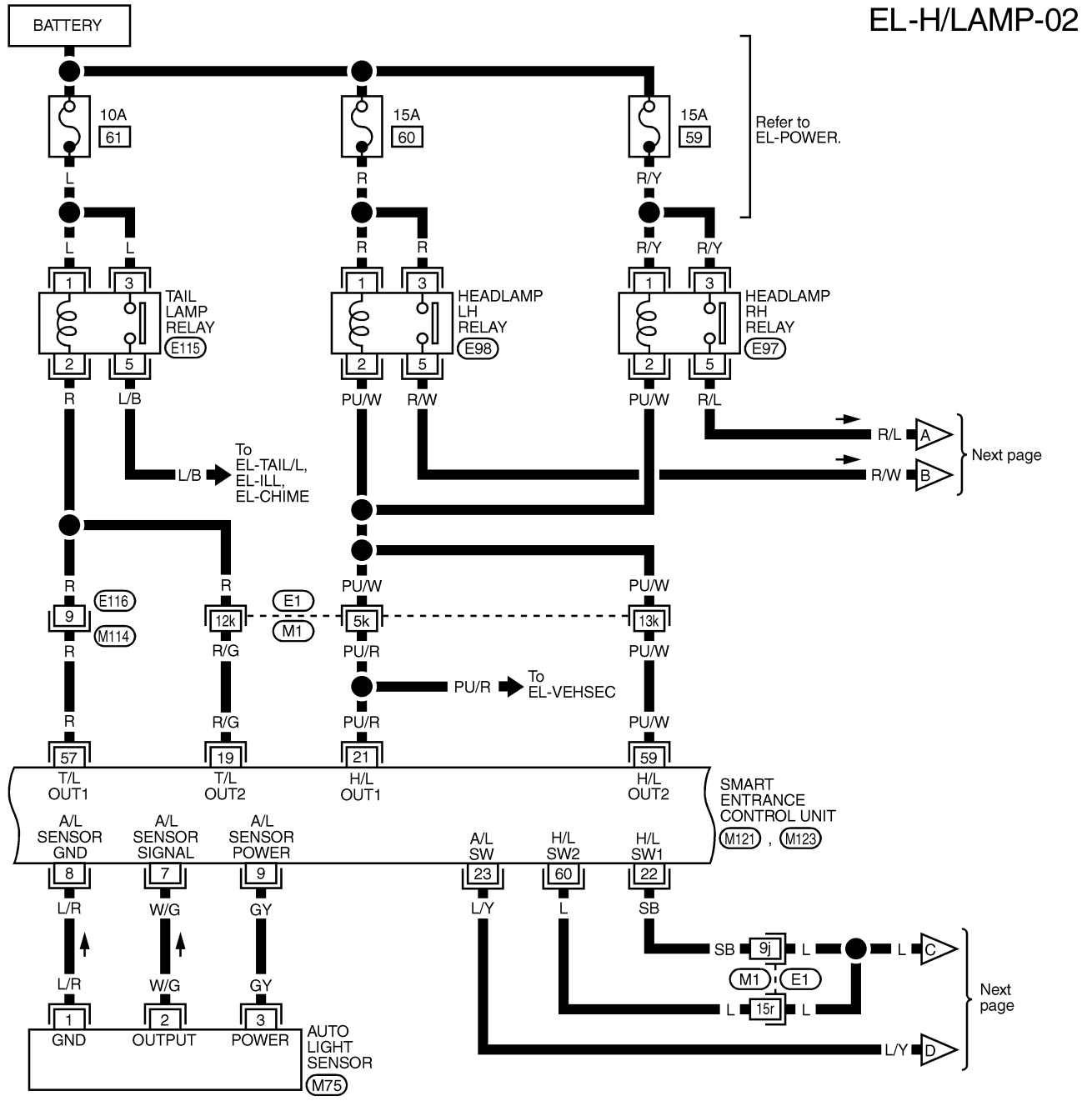
EL-H/LAMP-01

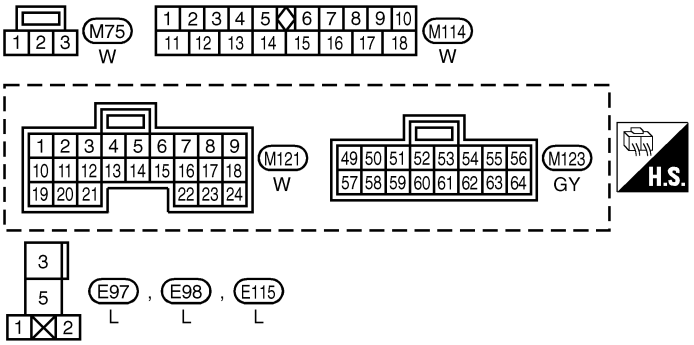




REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL389P



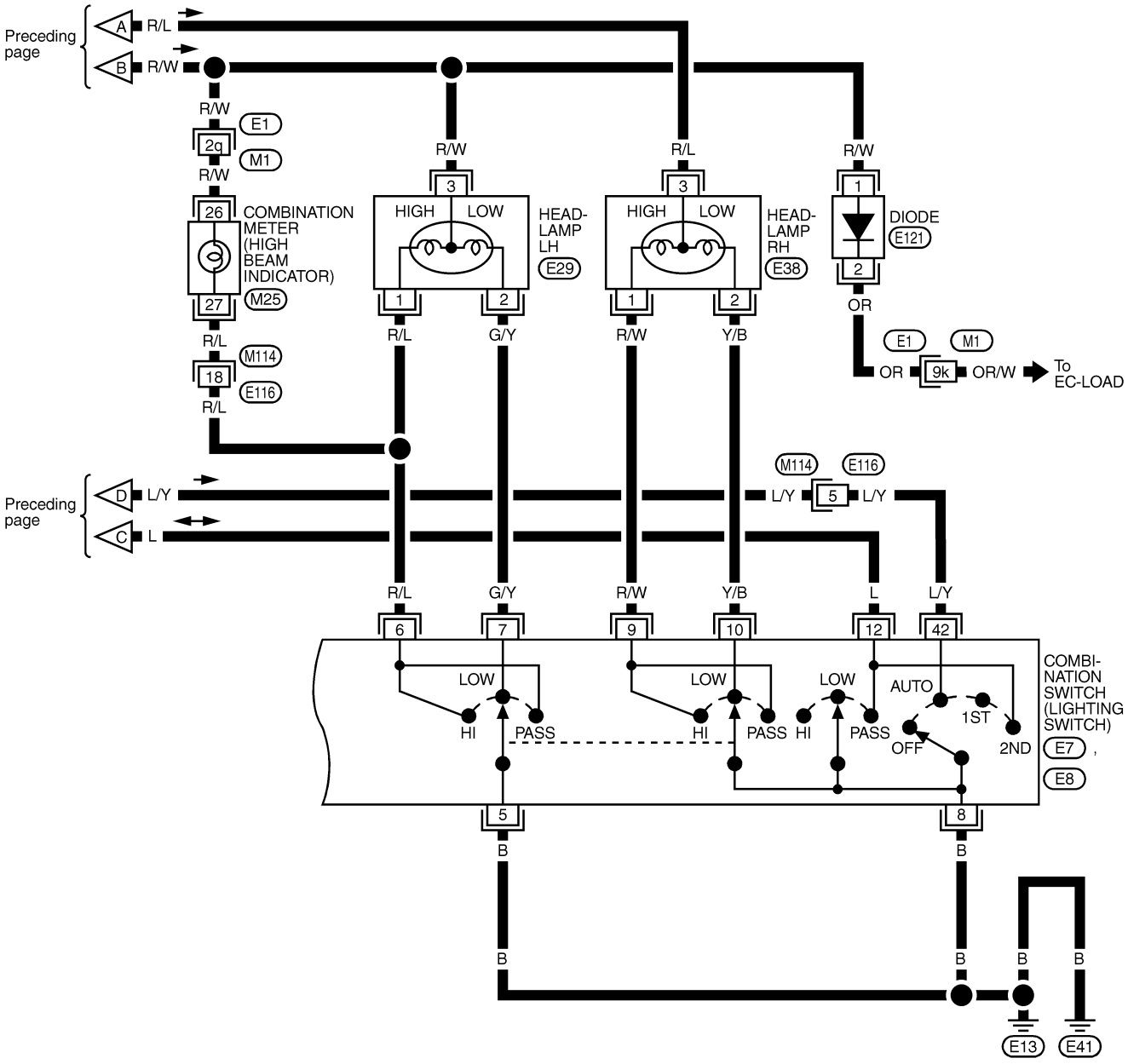


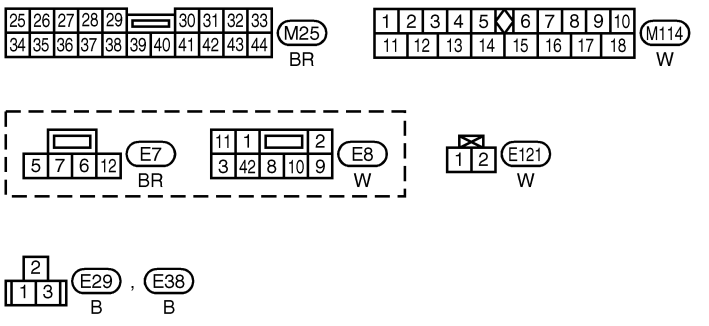
REFER TO THE FOLLOWING.

E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL391P

EL-H/LAMP-03

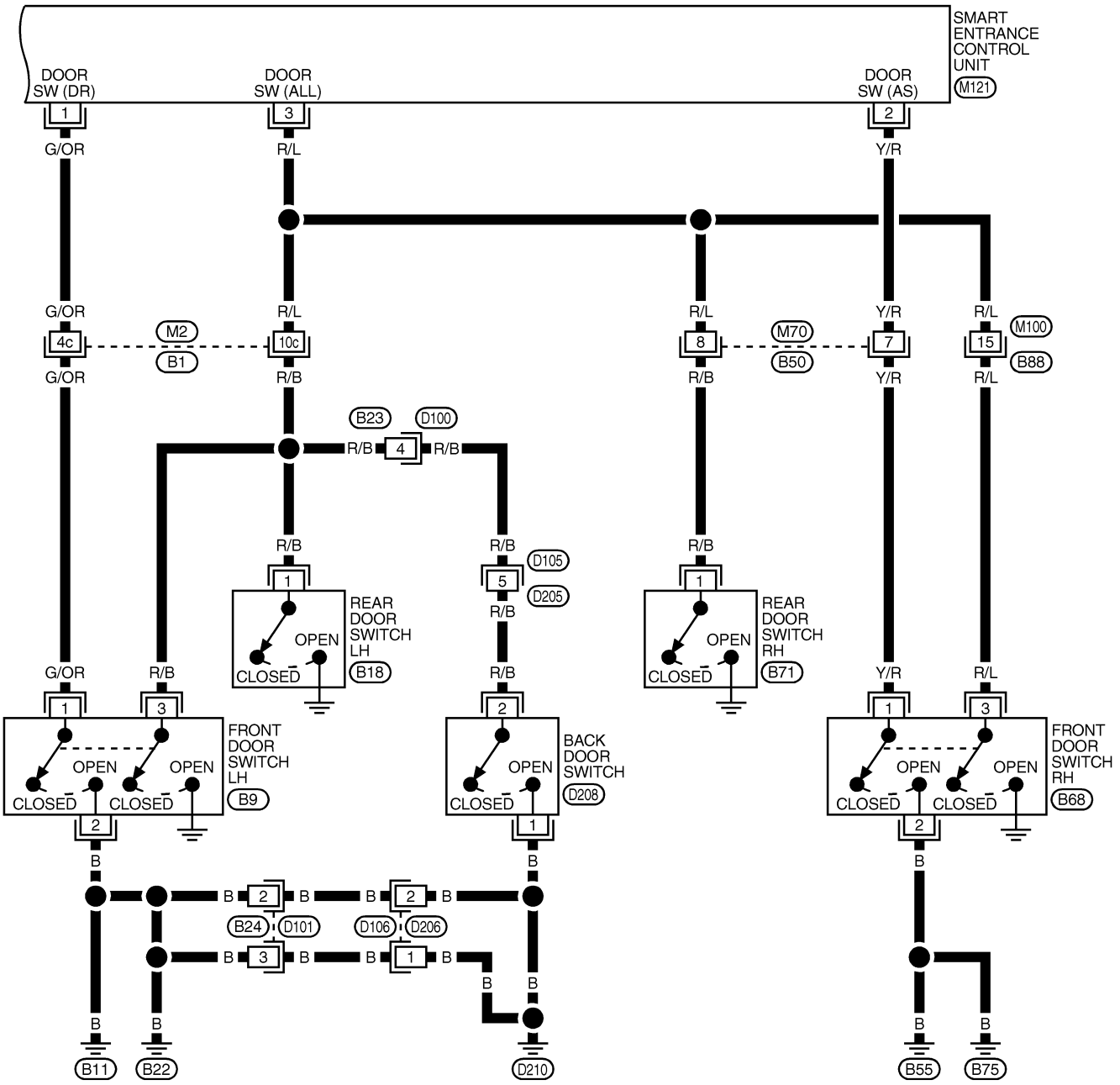


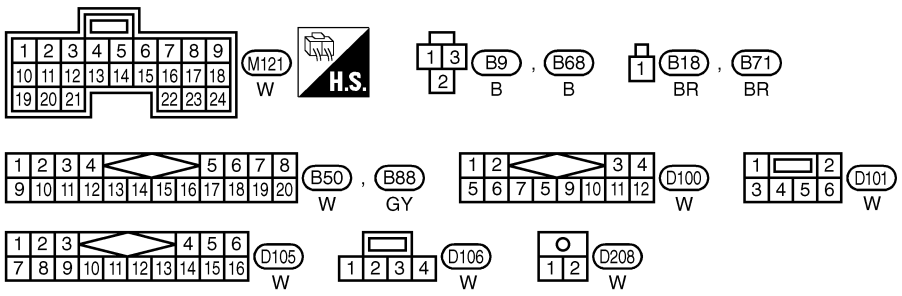


REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL853N

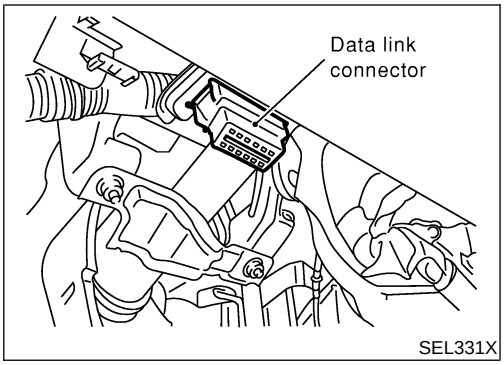
EL-H/LAMP-04





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

MEL392P



SEL331X

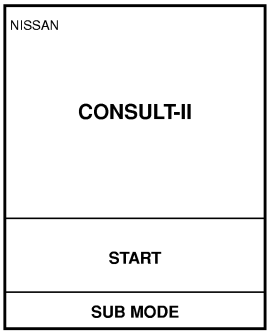
CONSULT-II Inspection Procedure

NAEL0258

“HEADLAMP”

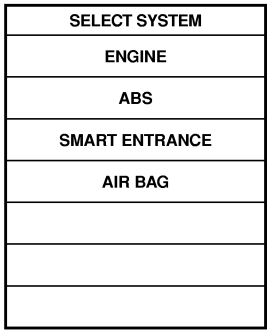
NAEL0258S01

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



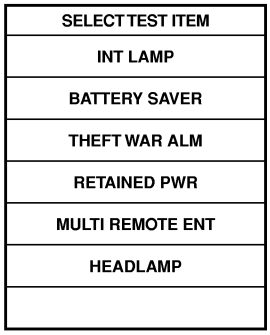
PBR455D

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



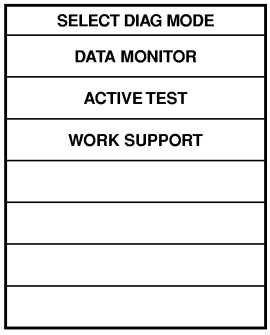
SEL398Y

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

NAEL0453

"HEAD LAMP"

NAEL0453S01

Data Monitor

NAEL0453S0101

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

NAEL0453S0102

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

NAEL0453S0103

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

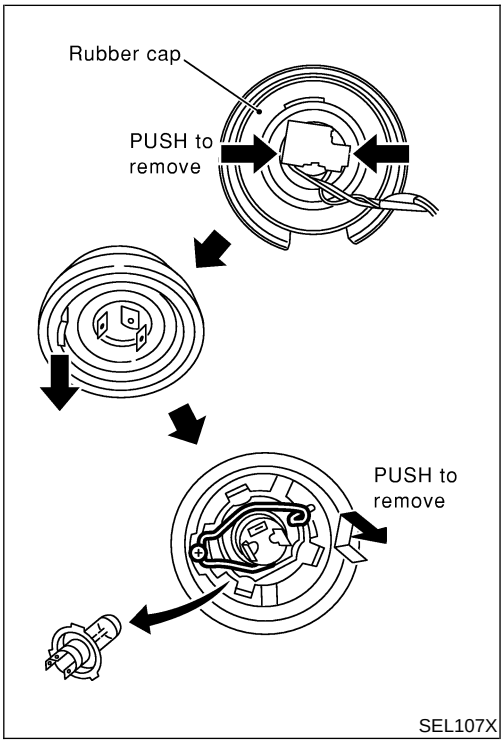
NAEL0260

Symptom	Possible cause	Repair order
Neither headlamp operates.	1. 7.5A fuse 2. Headlamp relay circuit 3. Lighting switch 4. 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 between smart entrance control unit and headlamp relays (LH and RH). 3. Check Lighting switch. 4. Check smart entrance control unit. (EL-378)

Symptom	Possible cause	Repair order
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. Open in the LH high beam circuit 3. Lighting switch	1. Check bulb. 2. Check harness between headlamp LH and lighting switch for open circuit. 3. Check lighting switch.
LH low beam does not operate, but LH high beam operates.	1. Bulb 2. Open in LH low beam circuit 3. Lighting switch	1. Check bulb. 2. Check harness between headlamp LH and lighting switch for open circuit. 3. Check lighting switch.
RH high beam does not operate, but RH low beam operates.	1. Bulb 2. Open in the RH high beam circuit 3. Lighting switch	1. Check bulb. 2. Check harness between headlamp RH and lighting switch for open circuit. 3. Check lighting switch.
RH low beam does not operate, but RH high beam operates.	1. Bulb 2. Open in RH low beam circuit 3. Lighting switch	1. Check bulb. 2. Check harness between headlamp RH and lighting switch for open circuit. 3. Check lighting switch.
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
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-378)

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-378) 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-378)
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-378)
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-378)



Bulb Replacement

NAEL0261

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

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

1. Disconnect the battery cable.
2. Disconnect the harness connector from the back side of the bulb.
3. Pull off the rubber cap.
4. Remove the headlamp bulb carefully. Do not shake or rotate the bulb when removing it.
5. Install in the reverse order of removal.

CAUTION:

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

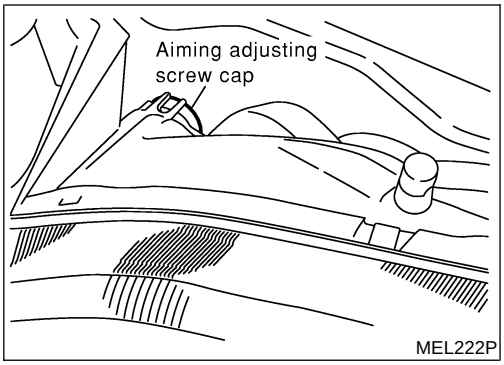
Aiming Adjustment

NAEL0262

Before performing aiming adjustment, check the following.

For details, refer to the regulations in your own country.

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

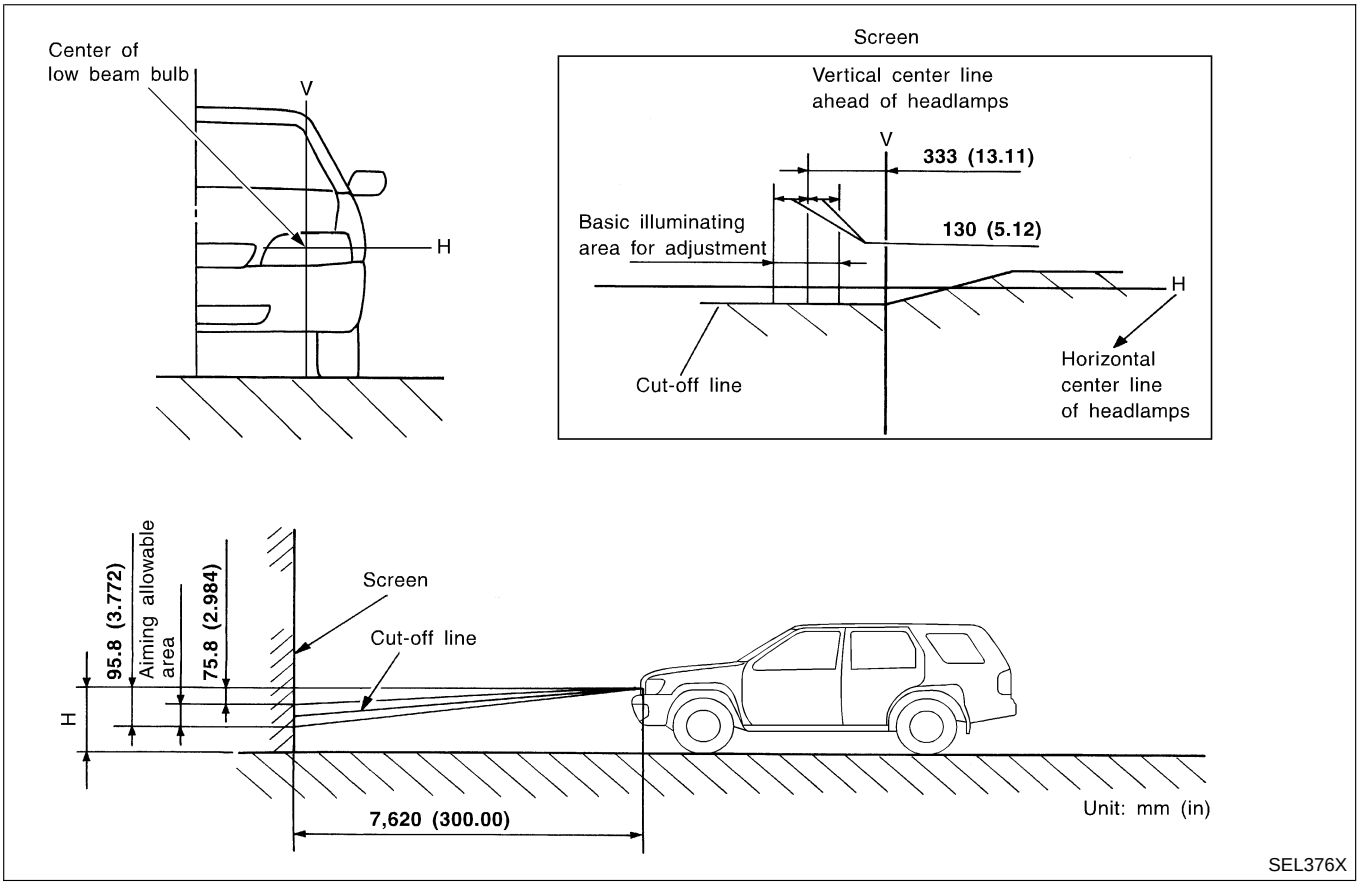


LOW BEAM

NAEL0262S01

1. Remove aiming adjusting screw cap.
2. Turn headlamp low beam on.
3. Use adjusting screws to perform aiming adjustment.

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

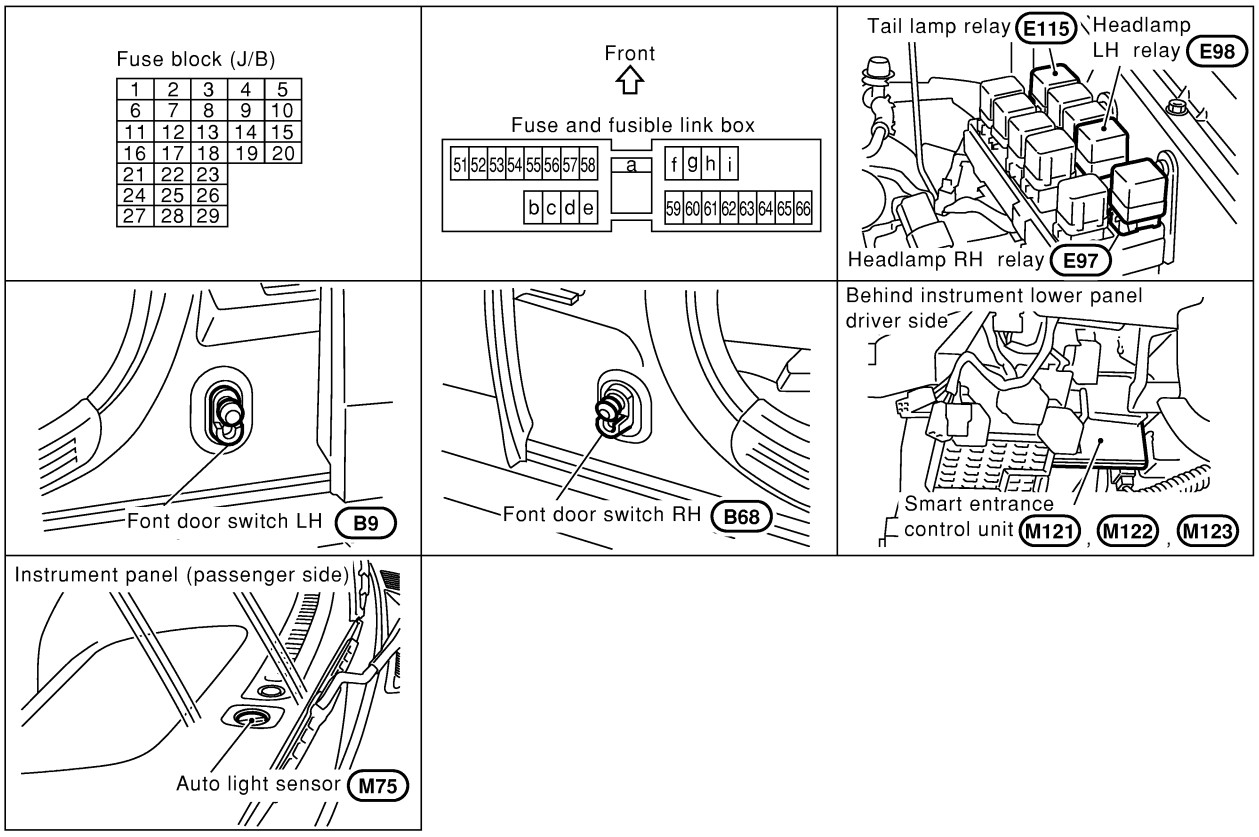


If the vehicle front body has been repaired and/or the headlamp assembly has been replaced, check aiming. Use the aiming chart shown in the figure.

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

Component Parts and Harness Connector Location

NAEL0263



SEL288Y

System Description

NAEL0264

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 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)].

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

NAEL0264S01

Power Supply to Low Beam and High Beam

NAEL0264S0101

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

NAEL0264S0102

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

- to terminal 2 of the headlamp LH
- through daytime light control unit terminals 11 and 15
- through lighting switch terminals 7 and 5
- through body grounds E13 and E41.

Ground is also supplied

- to terminal 2 of the headlamp RH
- through daytime light control unit terminals 8 and 12
- through lighting switch terminals 10 and 8
- through body grounds E13 and E41.

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

High Beam Operation/Flash-to-pass Operation

NAEL0264S0103

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

- to terminal 1 of headlamp LH
- 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.

Ground is also supplied

- to terminal 1 of headlamp RH
- through daytime light control unit terminals 9 and 14
- 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

NAEL0264S02

Except for Auto Light Control Operation

NAEL0264S0201

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

NAEL0264S0202

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

NAEL0264S03

For auto light operation, refer to "HEADLAMP" (EL-33).

DAYTIME LIGHT OPERATION

NAEL0264S04

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

Ground is supplied to terminal 1 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

NAEL0264S05

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

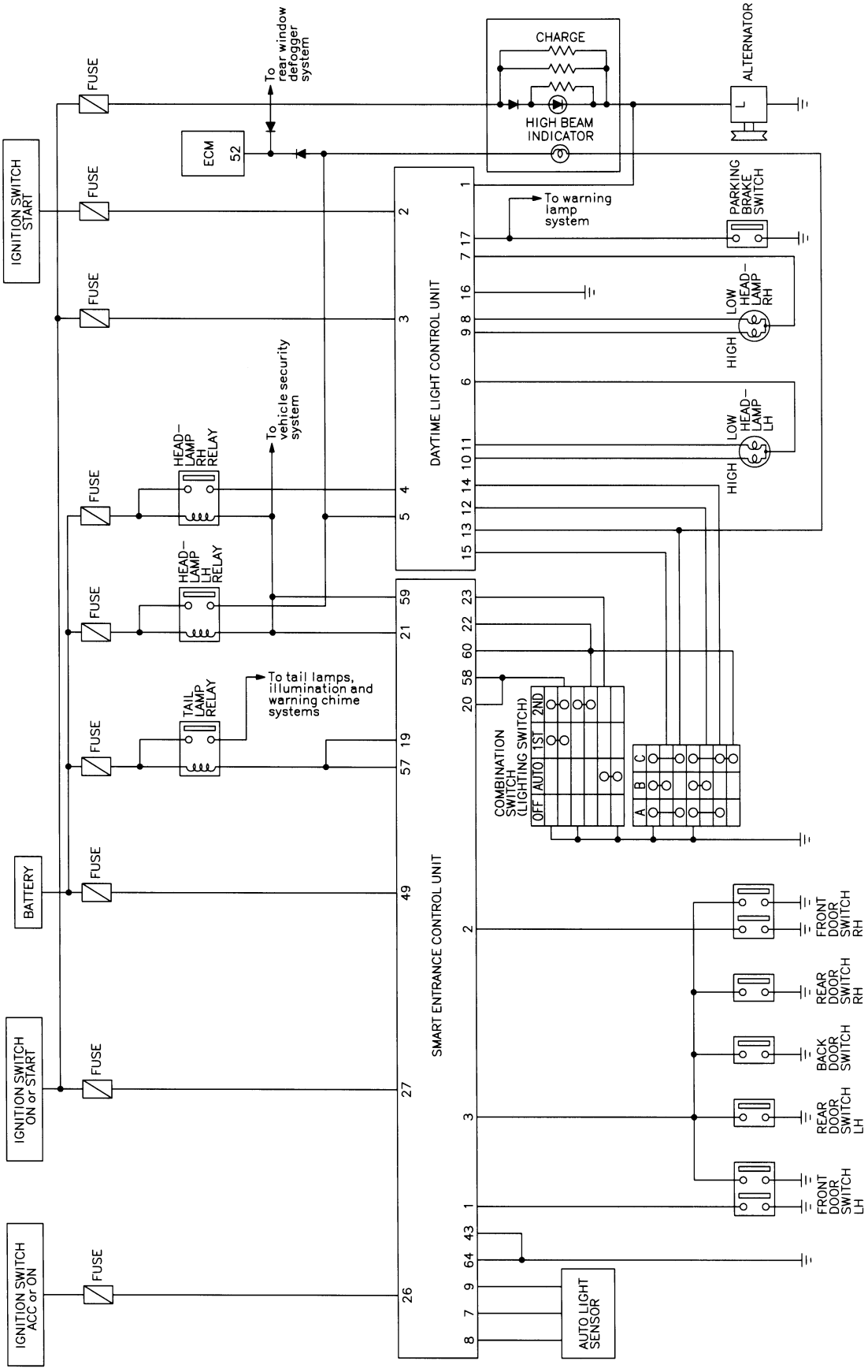
A: "HIGH BEAM" position
B: "LOW BEAM" position
C: "FLASH TO PASS" position
O : Lamp "ON"
X : Lamp "OFF"
△ : Lamp dims. (Added functions)

System Description (Cont'd)

*: 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

NAEL0265

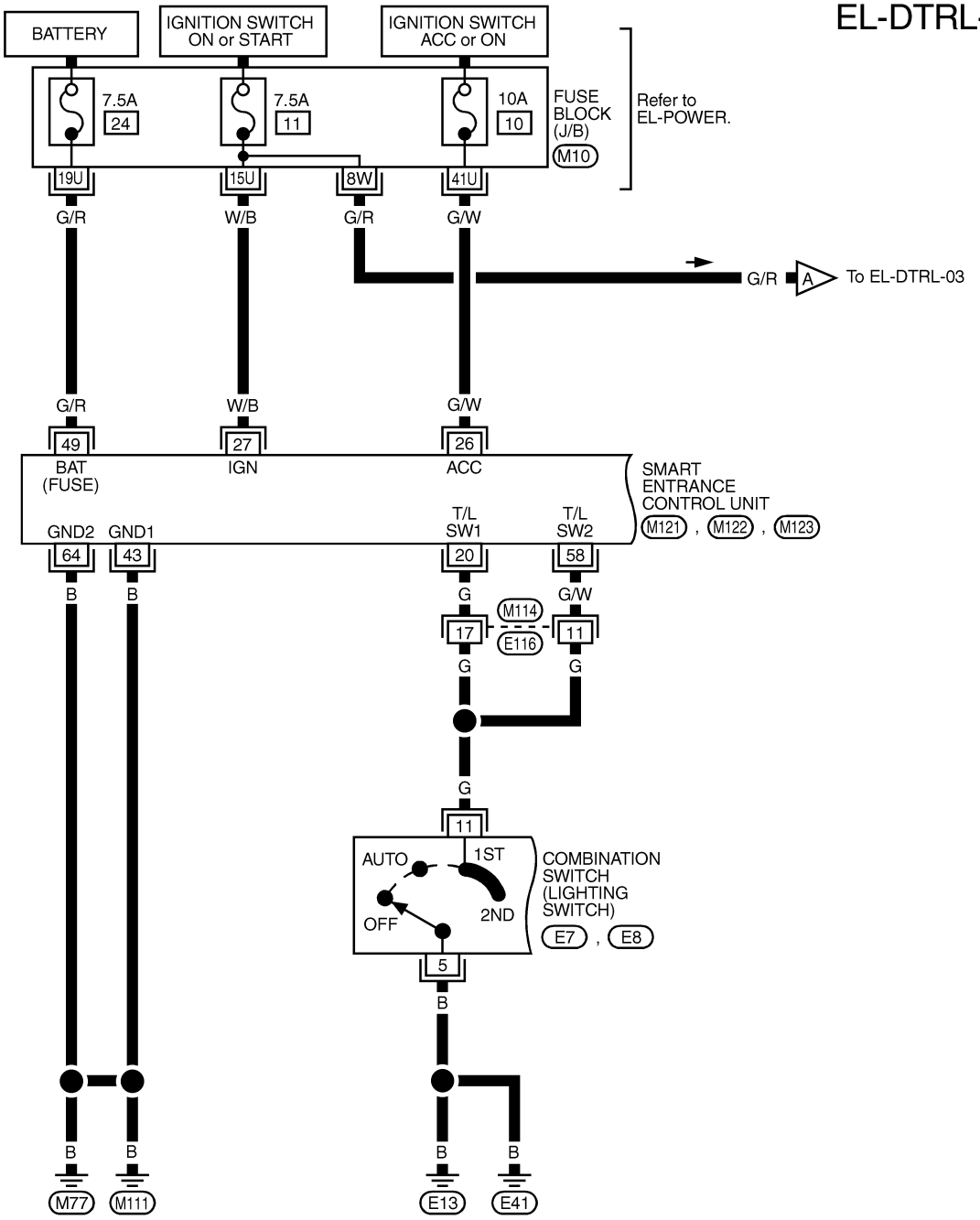


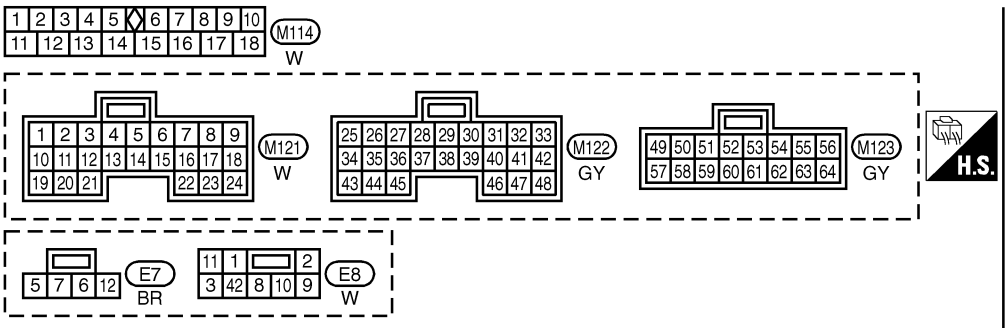
MEL393P

Wiring Diagram — DTRL —

NAEL0266

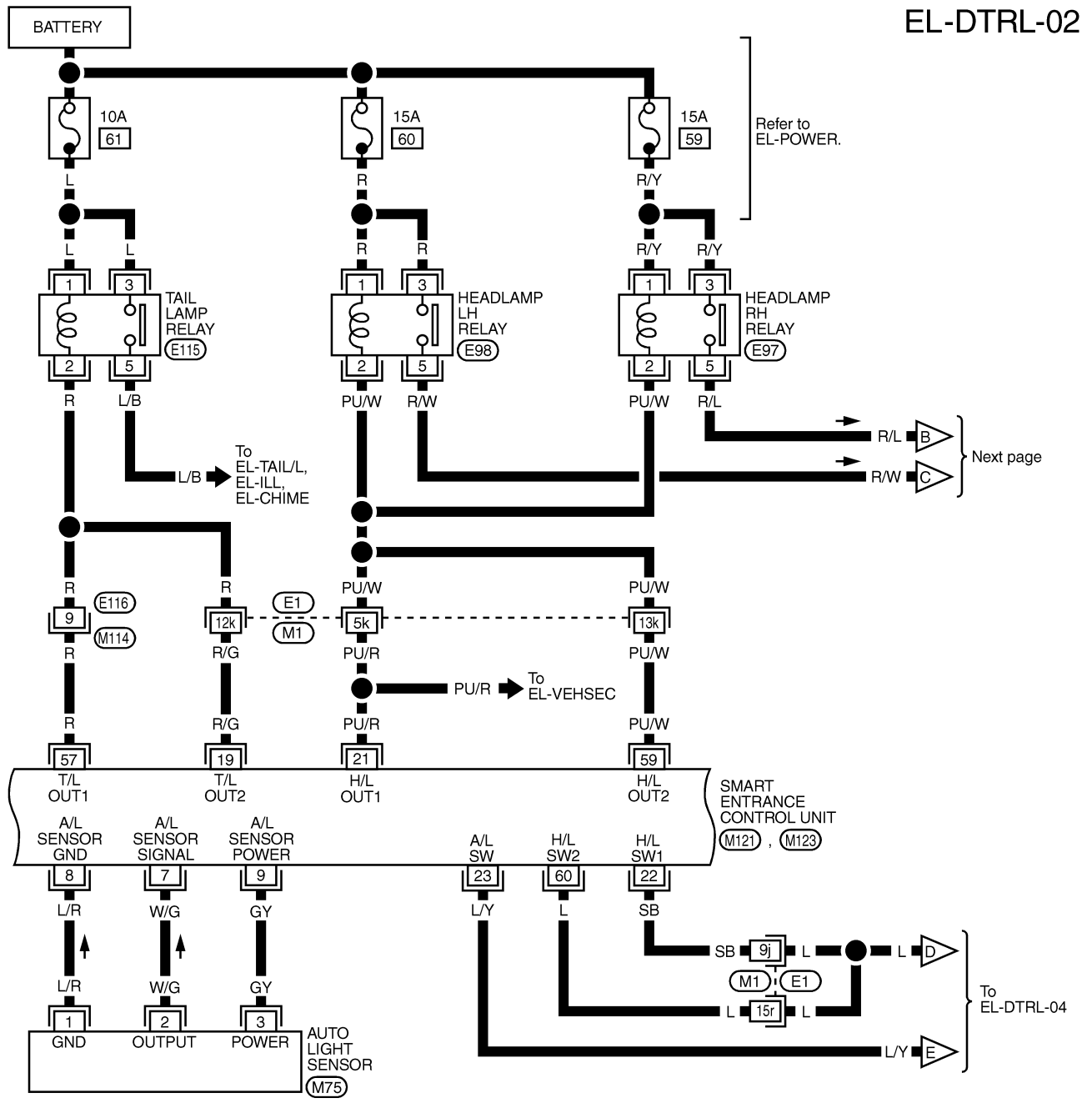
EL-DTRL-01

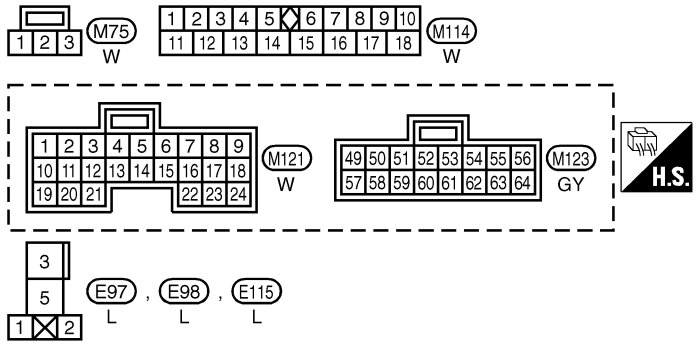




REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL394P



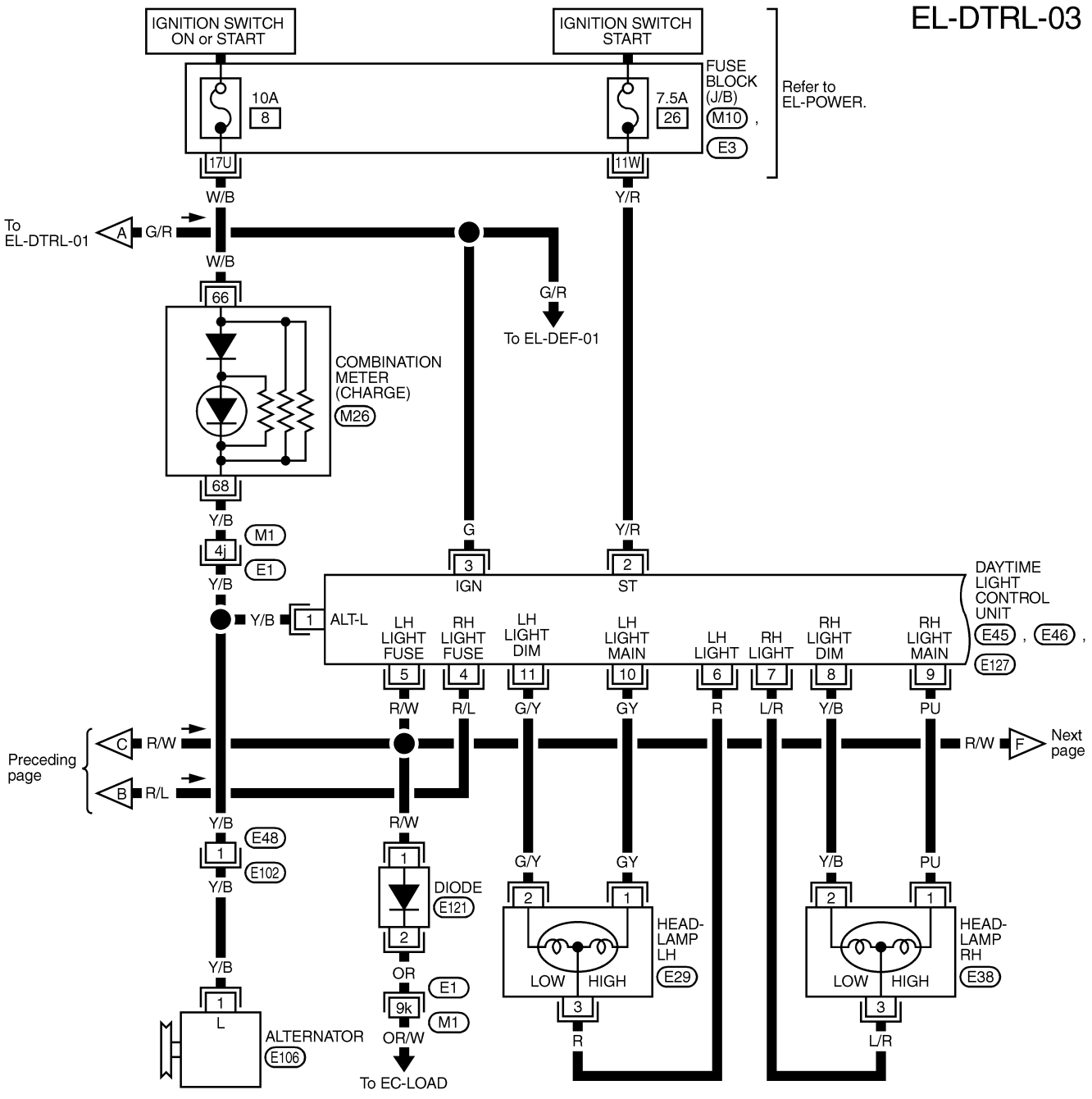


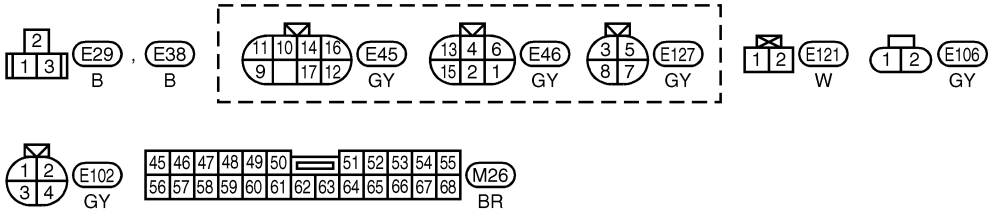
REFER TO THE FOLLOWING.

E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL395P

Wiring Diagram — DTRL — (Cont'd)

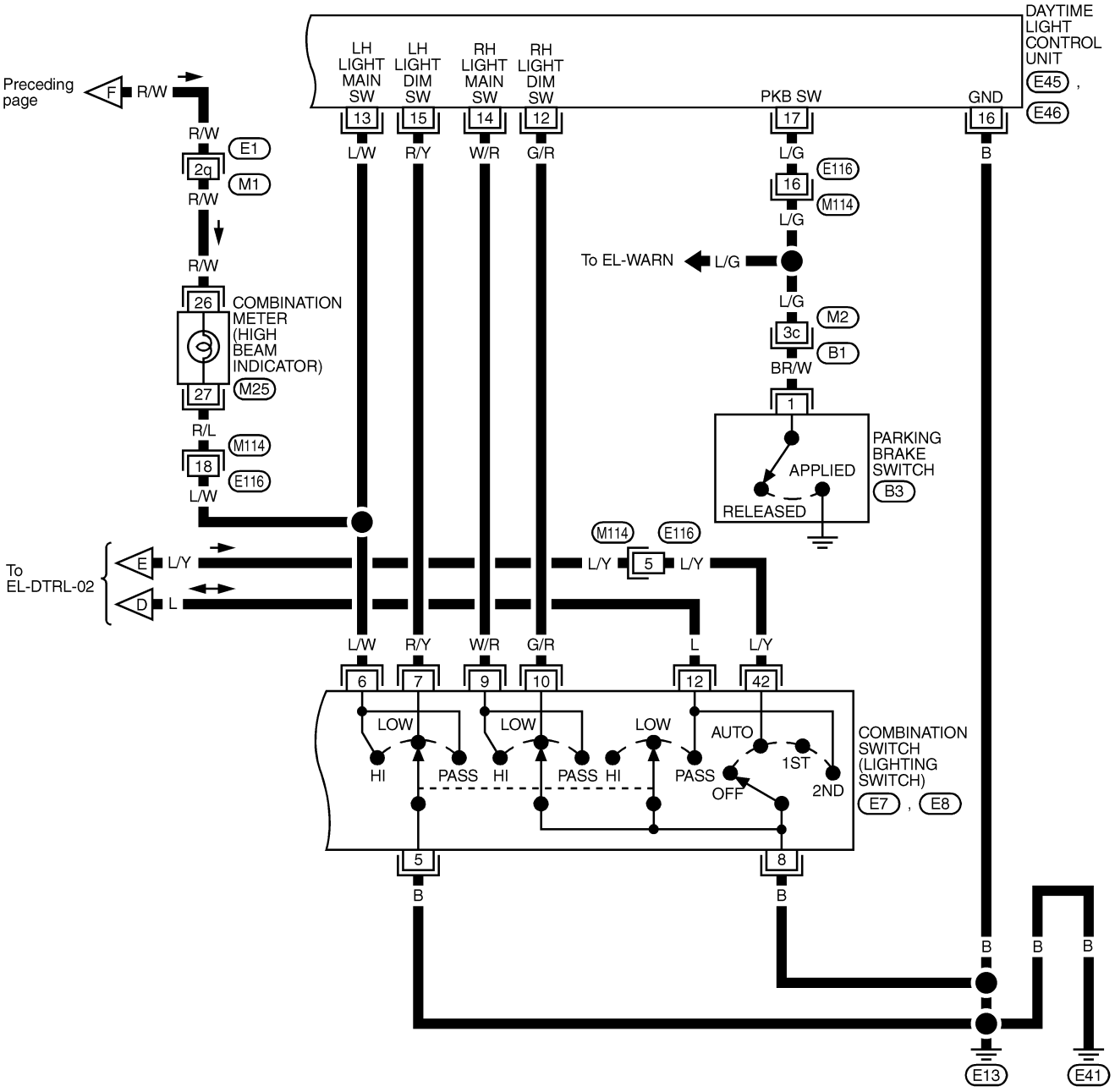


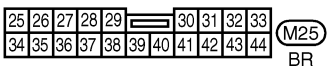


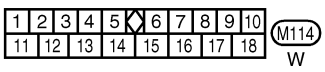
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK- JUNCTION (J/B)

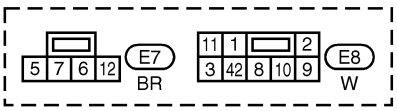
MEL396P

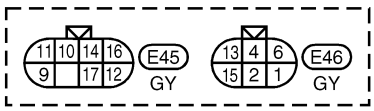
EL-DTRL-04







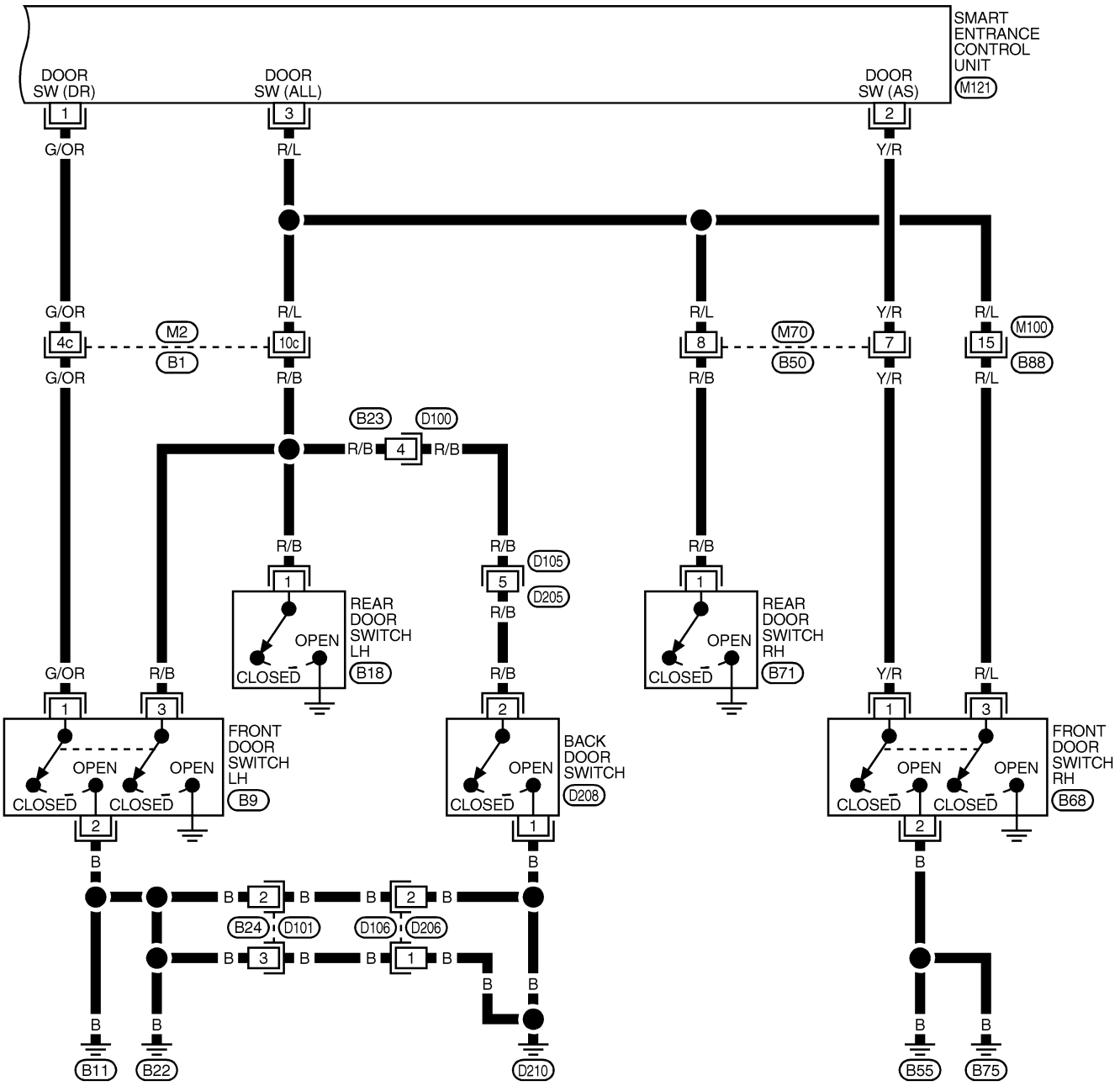


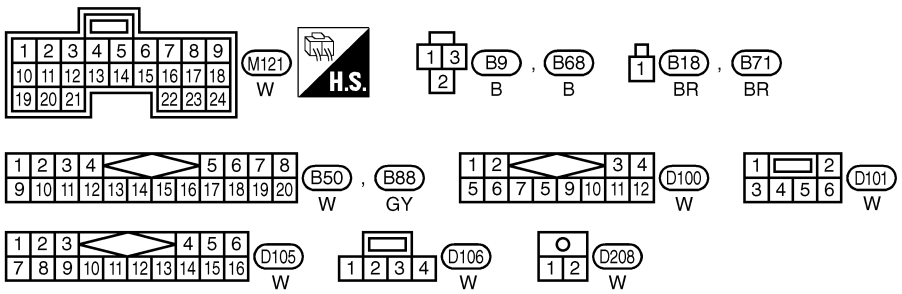


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL857N

EL-DTRL-05





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

MEL397P

CONSULT-II Inspection Procedure

NAEL0267

“HEADLAMP”

NAEL0267S01

Refer to “HEADLAMP (FOR USA)” (EL-39).

CONSULT-II Application Items

NAEL0268

“HEADLAMP”

NAEL0268S01

Refer to “HEADLAMP (FOR USA)” (EL-40).

Trouble Diagnoses

NAEL0269

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-378)
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. Headlamp LH ground circuit 5. Lighting switch circuit 6. Daytime light control unit 7. 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 the following. a. Harness between headlamp LH relay and daytime light control unit. b. Harness between headlamp LH relay and smart entrance control unit. 4. Harness between headlamp LH and daytime light control unit. 5. Check harness between smart entrance control unit and lighting switch. 6. Check daytime light control unit. (EL-58) 7. Check smart entrance control unit. (EL-378)

Trouble Diagnoses (Cont'd)

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. Headlamp RH ground circuit 5. Lighting switch circuit 6. Daytime light control unit 7. 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 the following. a. Harness between headlamp RH relay and daytime light control unit. b. Harness between headlamp RH relay and smart entrance control unit. 4. Harness between headlamp RH and daytime light control unit. 5. Check harness between smart entrance control unit and lighting switch. 6. Check daytime light control unit. (EL-58) 7. Check smart entrance control unit. (EL-378)
LH high beam does not operate, but LH low beam operates.	1. Bulb 2. Headlamp LH high beams circuit 3. Lighting switch 4. Lighting switch circuit 5. Daytime light control unit	1. Check bulb. 2. Check harness between LH headlamp and daytime light control unit. 3. Check lighting switch. 4. Check harness between daytime light control unit and lighting switch. 5. Check daytime light control unit. (EL-58)
LH low beam does not operate, but LH high beam operates.	1. Bulb 2. Headlamp LH high beams circuit 3. Lighting switch 4. Lighting switch circuit 5. Daytime light control unit	1. Check bulb. 2. Check harness between LH headlamp and daytime light control unit. 3. Check lighting switch. 4. Check harness between daytime light control unit and lighting switch. 5. Check daytime light control unit. (EL-58)
RH high beam does not operate, but RH low beam operates.	1. Bulb 2. Open in the RH high beams circuit 3. Lighting switch 4. Lighting switch circuit 5. Daytime light control unit	1. Check bulb. 2. Check harness between RH headlamp and daytime light control unit. 3. Check lighting switch. 4. Check harness between daytime light control unit and lighting switch. 5. Check daytime light control unit. (EL-58)
RH low beam does not operate, but RH high beam operates.	1. Bulb 2. Open in the RH high beams circuit 3. Lighting switch 4. Lighting switch circuit 5. Daytime light control unit	1. Check bulb. 2. Check harness between RH headlamp and daytime light control unit. 3. Check lighting switch. 4. Check harness between daytime light control unit and lighting switch. 5. Check daytime light control unit. (EL-58)
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.
Battery saver control does not operate properly.	1. Door switch LH or RH circuit 2. 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 smart entrance control unit. (EL-378)

Symptom	Possible cause	Repair order
Daytime light control does not operate properly.	1. Fuse check 2. Parking brake switch 3. Parking brake switch circuit 4. Alternator circuit 5. Daytime light control unit	1. 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. 2. Check parking brake switch. 3. Check harness between parking brake switch and daytime light control unit. 4. Check harness between alternator and daytime light control unit. 5. Check daytime light control unit. (EL-58)
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-378) 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-378)

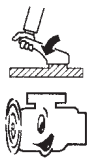
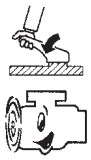
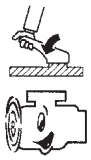
Trouble Diagnoses (Cont'd)

Symptom	Possible cause	Repair order
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-378)
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.
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-378)

DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

NAEL0269S01

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

Terminal No.	Wire color	Item	Condition		Voltage (Approximate values)
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
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

NAEL0270

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

Aiming Adjustment

NAEL0271

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

System Description

NAEL0272

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

NAEL0272S01

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

NAEL0272S02

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

NAEL0272S03

Except for Auto Light Control Operation

NAEL0272S0301

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 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 parking, license and tail lamps 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 parking, license and tail lamps illuminate again.

Auto light control operation

NAEL0272S0302

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".

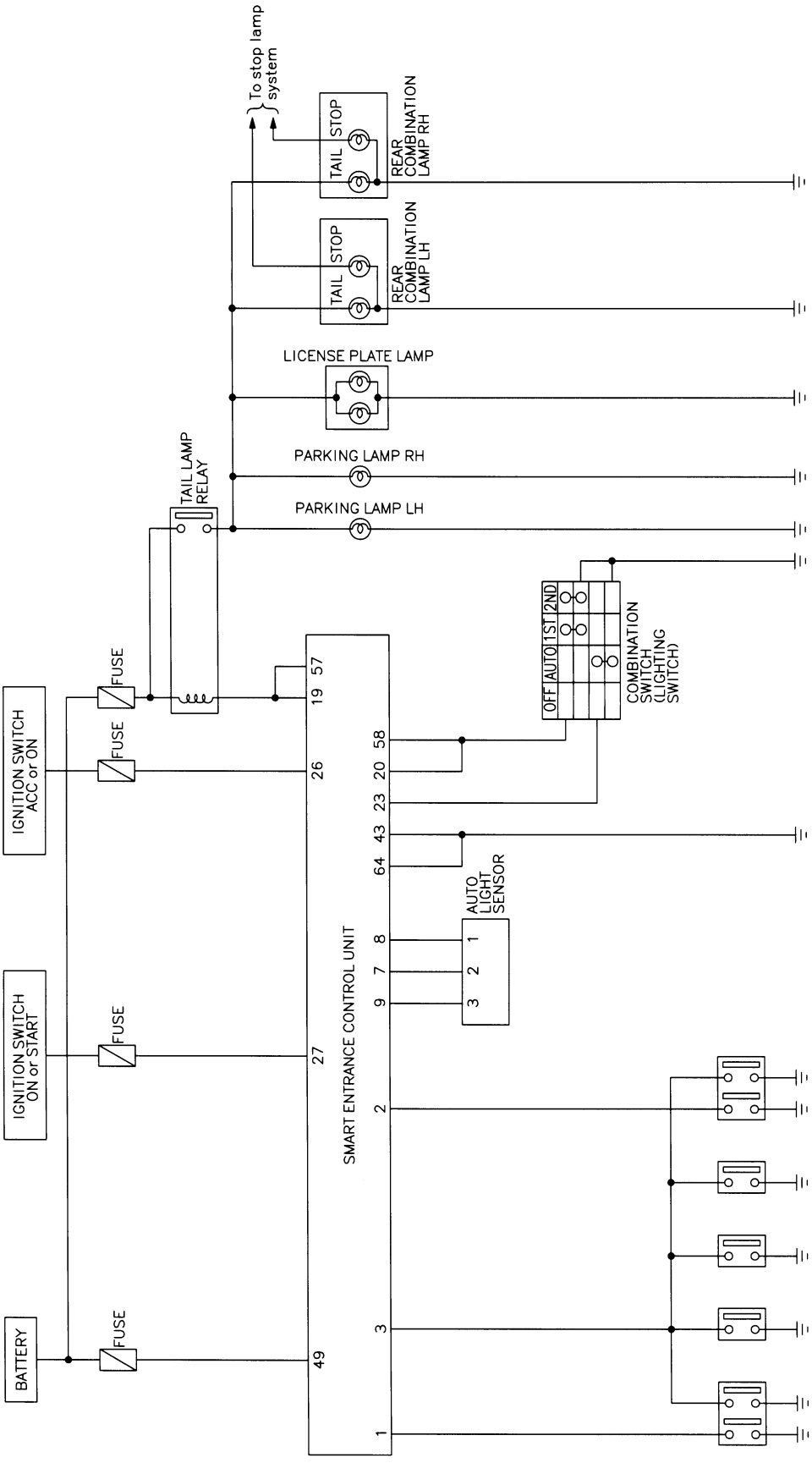
When the lighting switch is turned from OFF to 2ND after parking, license and tail lamps are turned to off by the exterior lamp battery saver control, ground is supplied

- 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 21 and 59,
- through smart entrance control unit terminals 22 and 60 and
- through lighting switch terminal 12.

Then parking, license and tail lamps illuminate again.

Schematic

NAEL0273

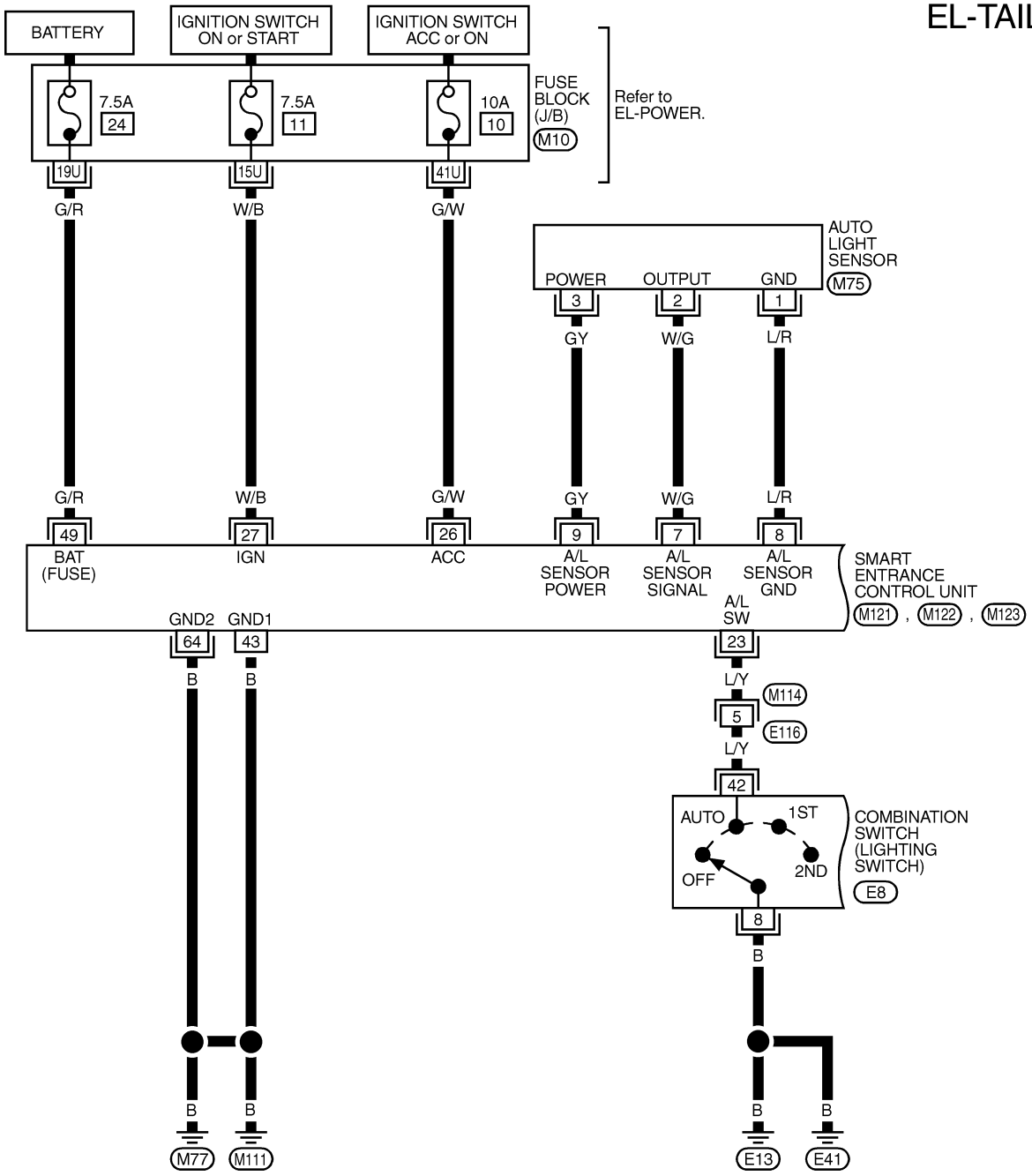


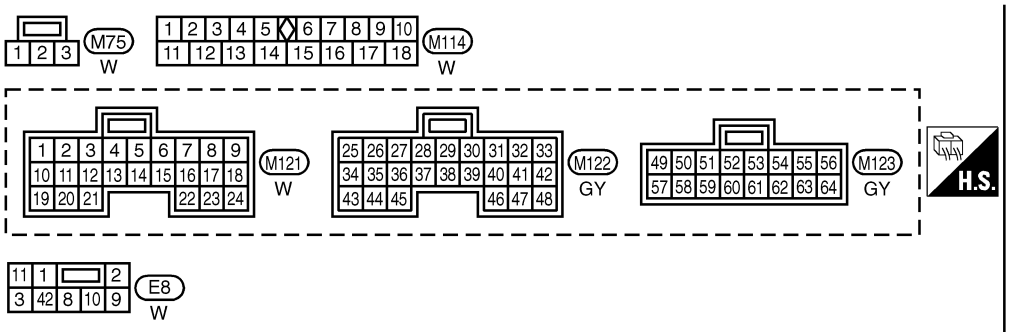
MEL515P

Wiring Diagram — TAIL/L —

NAEL0274

EL-TAIL/L-01



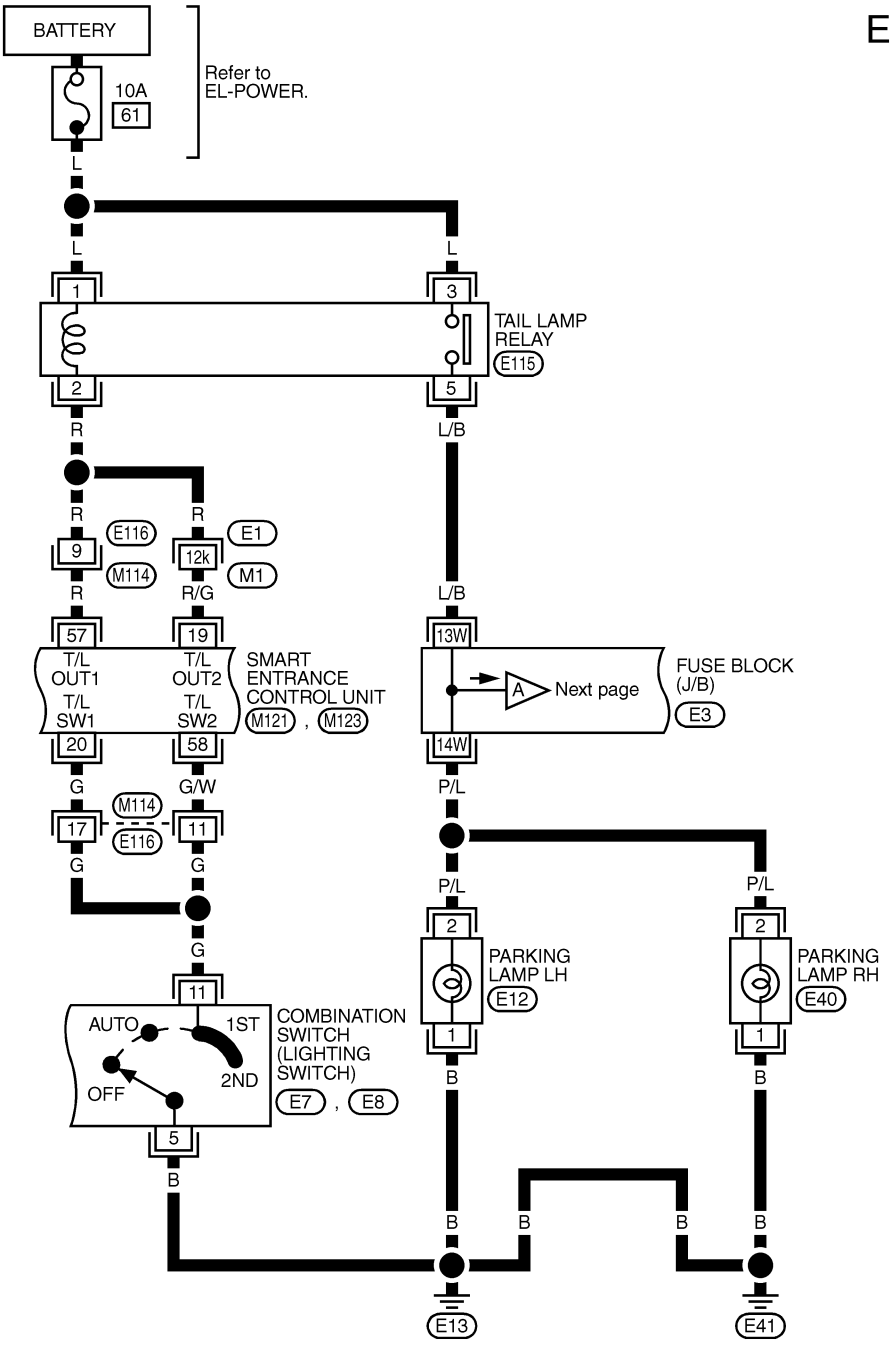


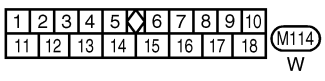
REFER TO THE FOLLOWING.

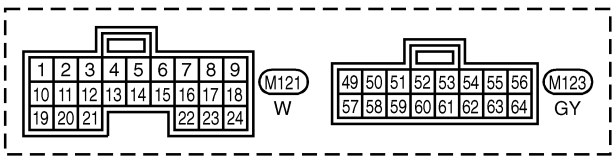
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

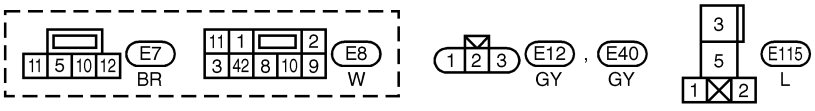
MEL398P

EL-TAIL/L-02





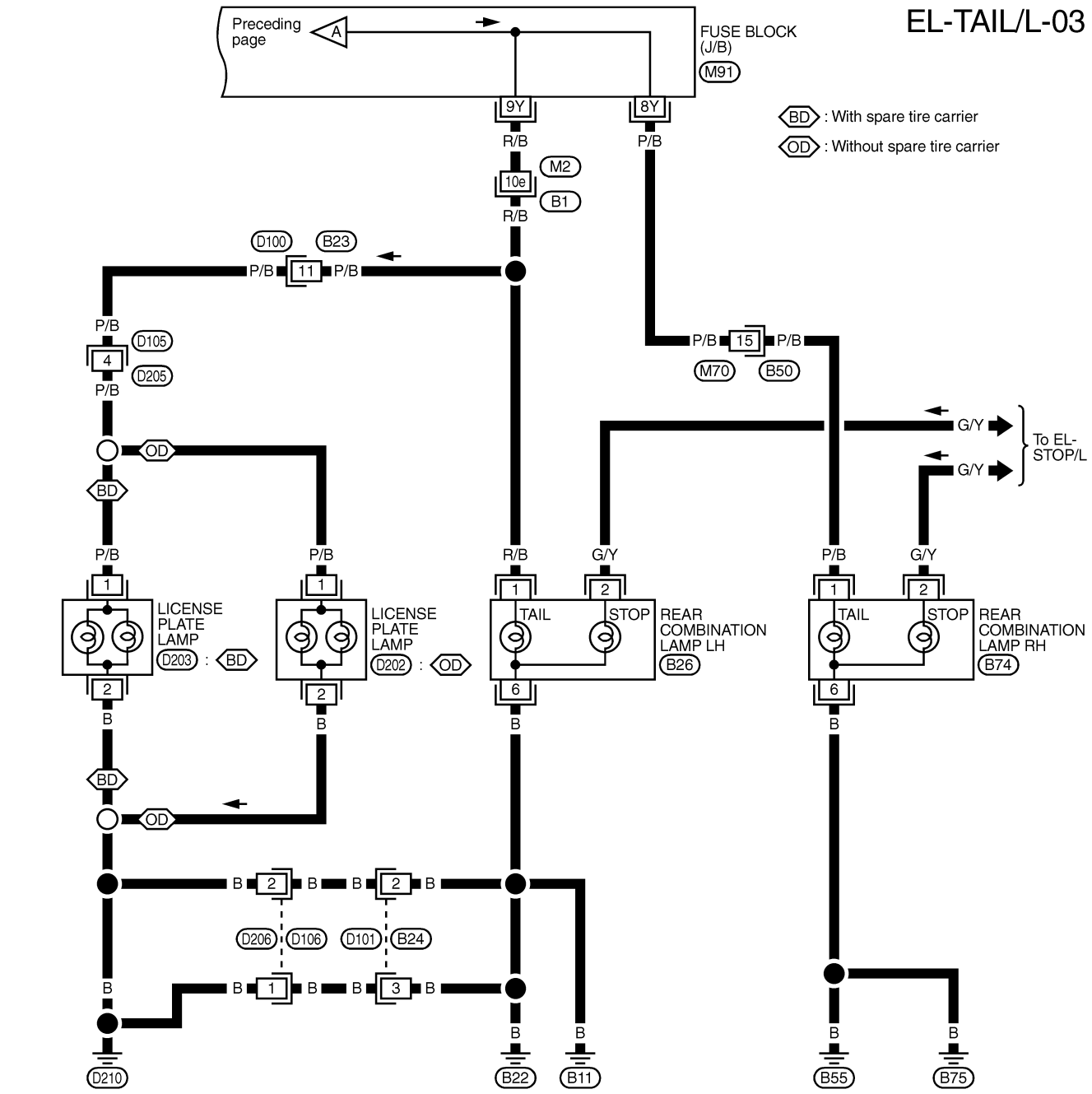


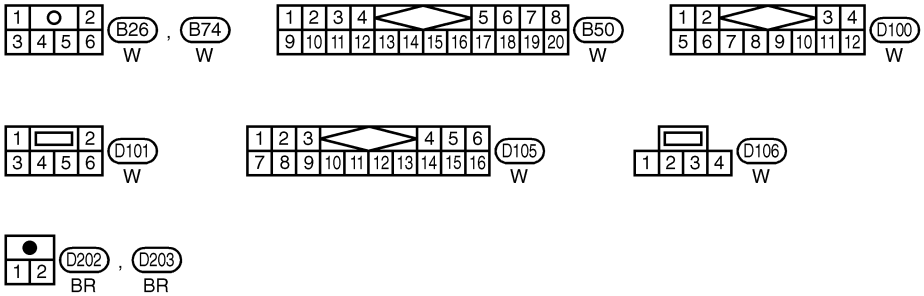


REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
E3 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL403P

Wiring Diagram — TAIL/L — (Cont'd)





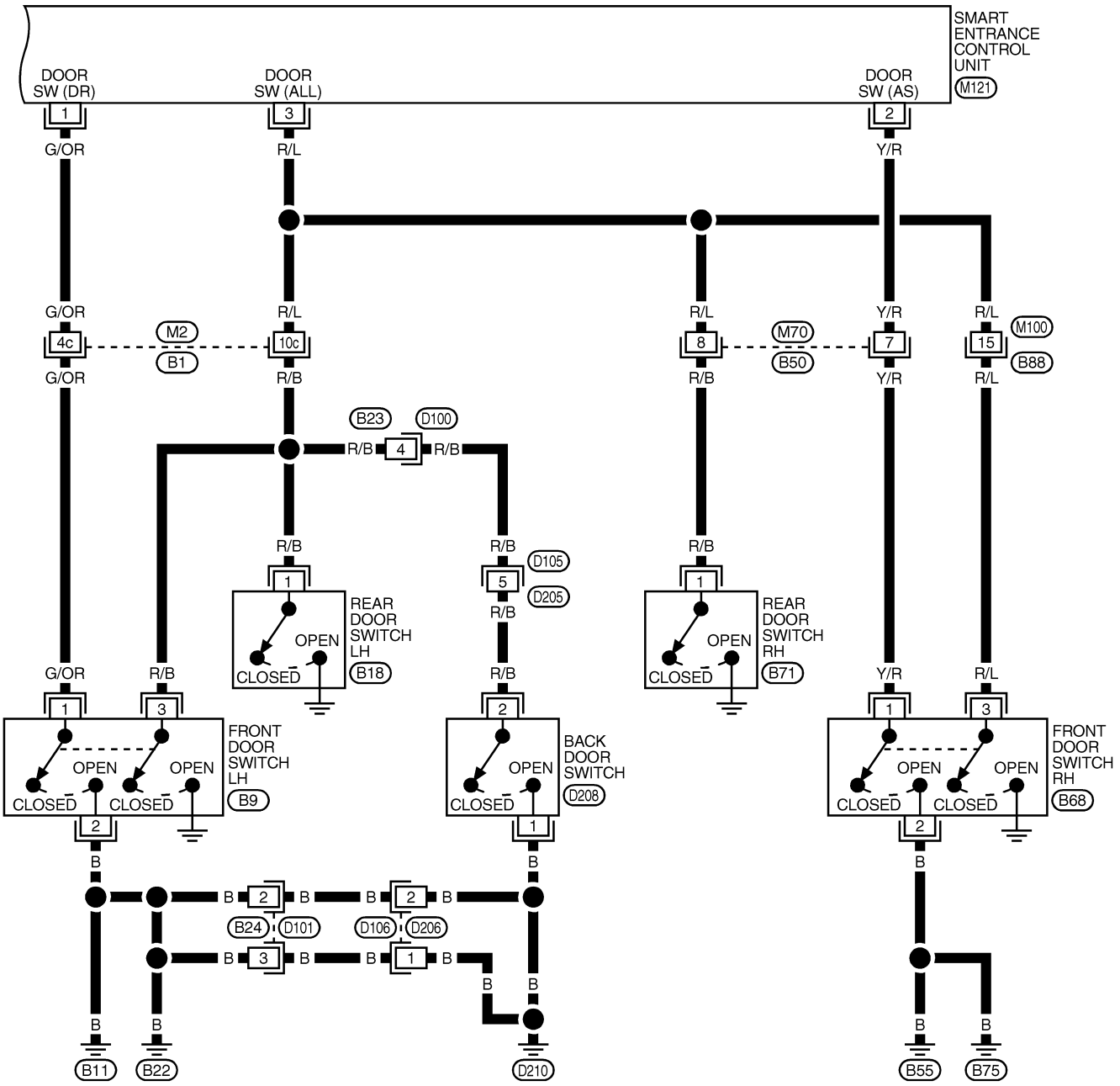
REFER TO THE FOLLOWING.

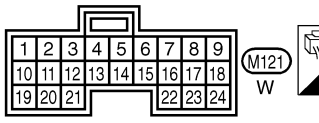
B1 -SUPER MULTIPLE JUNCTION (SMJ)

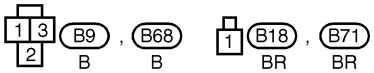
M91 -FUSE BLOCK- JUNCTION BOX (J/B)

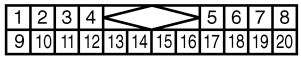
MEL553P

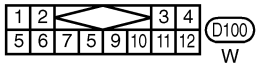
EL-TAIL/L-04

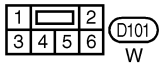


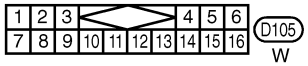


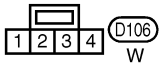


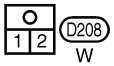






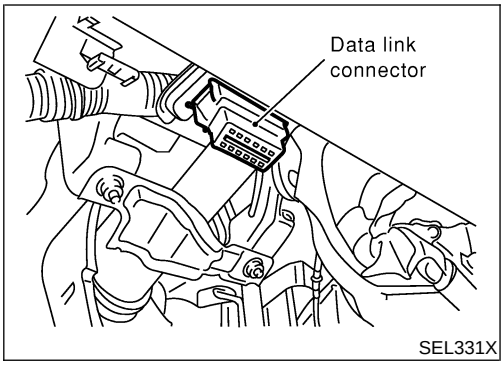






REFER TO THE FOLLOWING.
(B1) -SUPER MULTIPLE JUNCTION (SMJ)

MEL404P



SEL331X

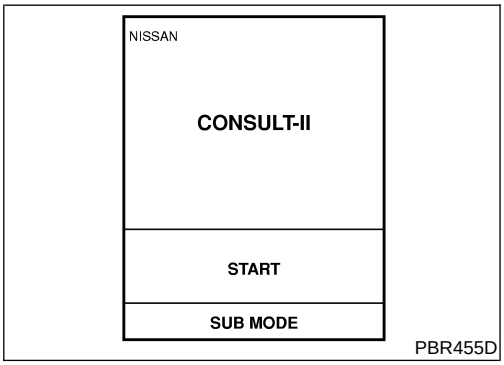
CONSULT-II Inspection Procedure

NAEL0275

“HEADLAMP”

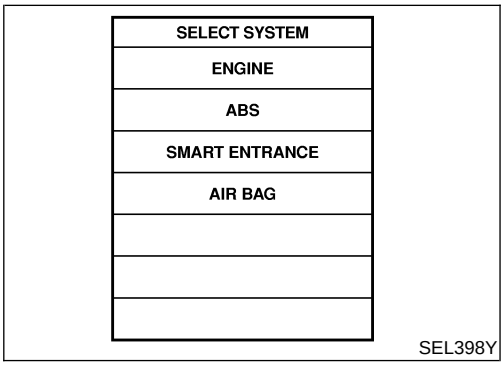
NAEL0275S01

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



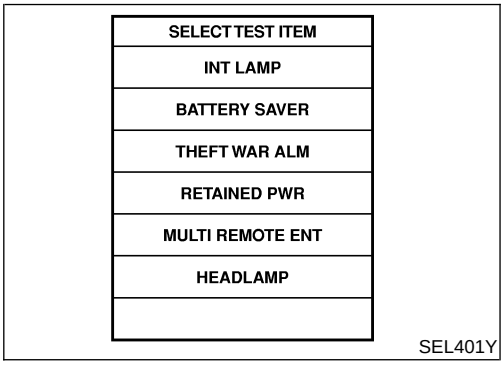
PBR455D

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



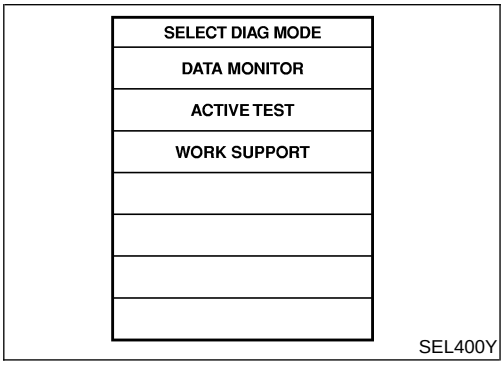
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL401Y

6. Touch “HEADLAMP”.



SEL400Y

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

CONSULT-II Application Items

NAEL0454

"HEADLAMP"

NAEL0454S01

Data Monitor

NAEL0454S0101

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

NAEL0454S0102

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

NAEL0454S0103

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

NAEL0277

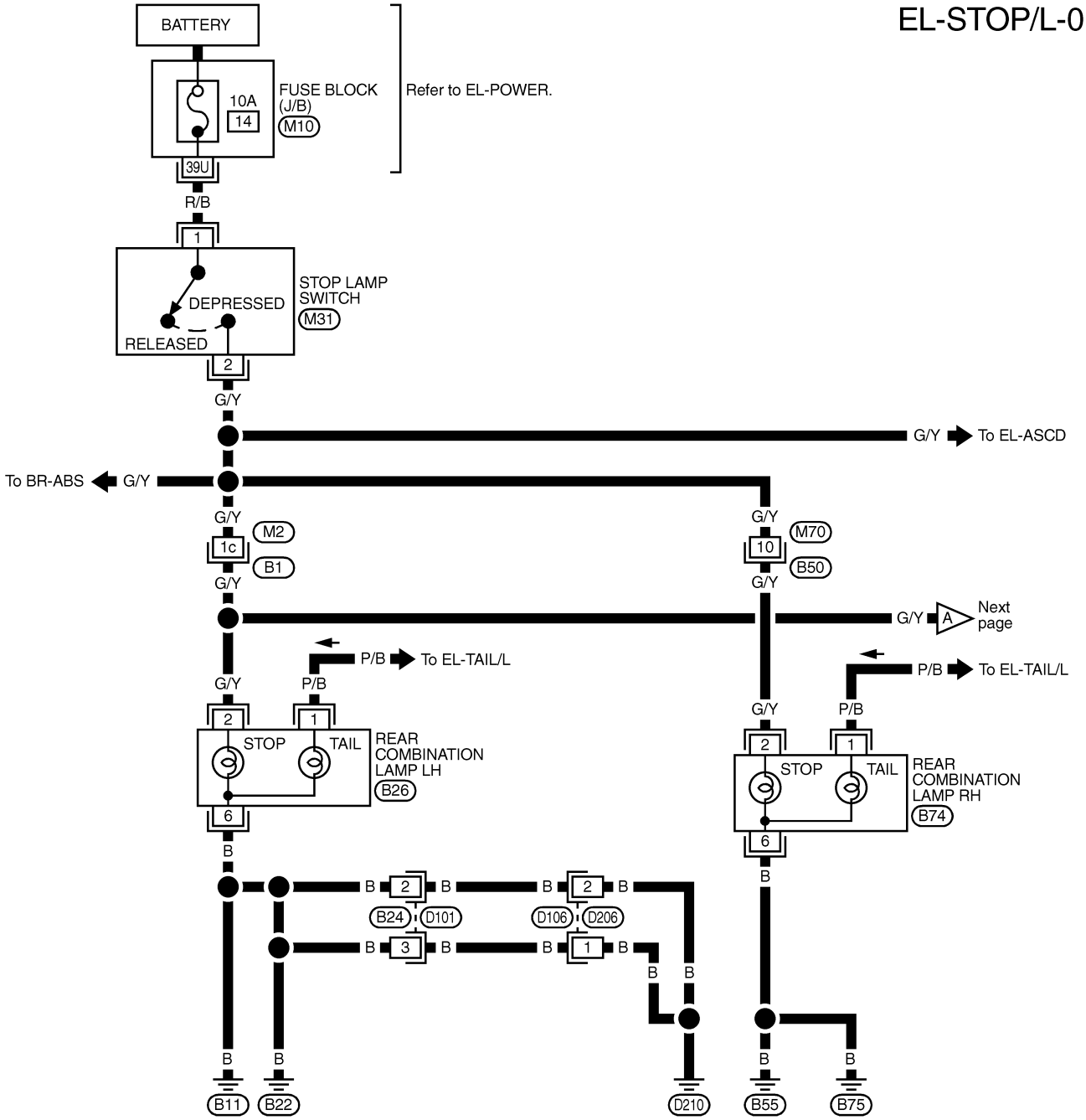
Symptom	Possible cause	Repair order
No lamps operate (including headlamps).	1. 7.5A fuse 2. Lighting switch 3. Smart entrance control unit	1. Check 7.5A fuse [No. 24, lacated in fuse block (J/B)]. Verify battery positive voltage is present at terminal 49 of smart entrance control unit. 2. Check lighting switch. 3. Check smart entrance control unit. (EL-378)

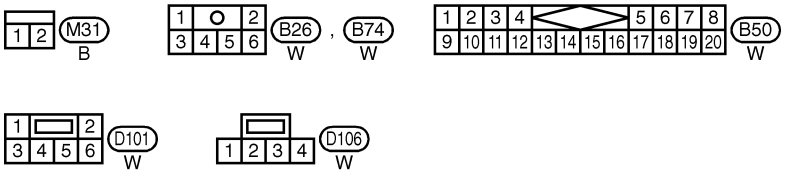
Trouble Diagnoses (Cont'd)

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-378)
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-378)
Auto light malfunctioning	—	Refer to trouble diagnosis in "HEADLAMP". (EL-40)

Wiring Diagram — STOP/L —

NAEL0278





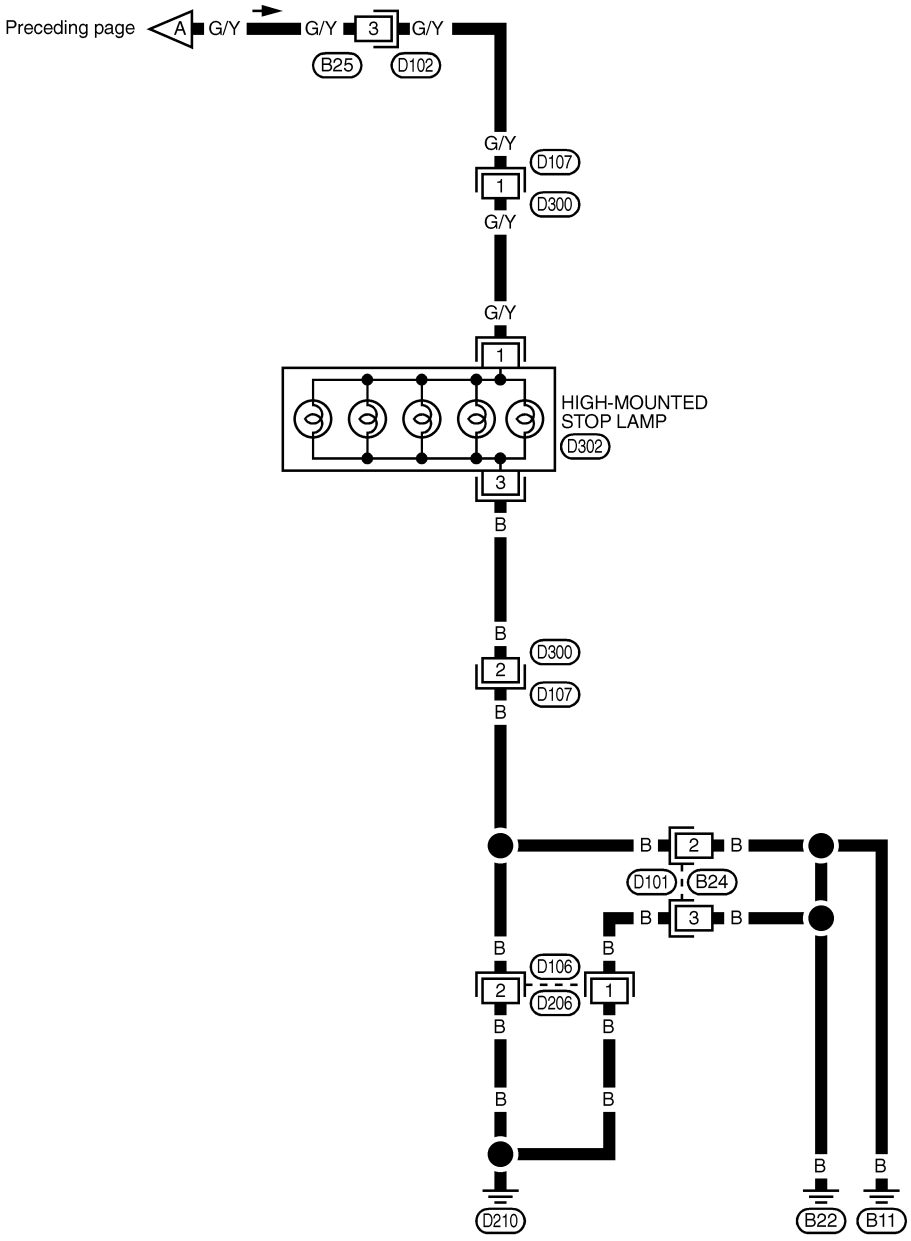
REFER TO THE FOLLOWING.

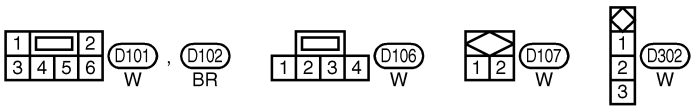
B1 -SUPER MULTIPLE JUNCTION (SMJ)

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

MEL777L

EL-STOP/L-02

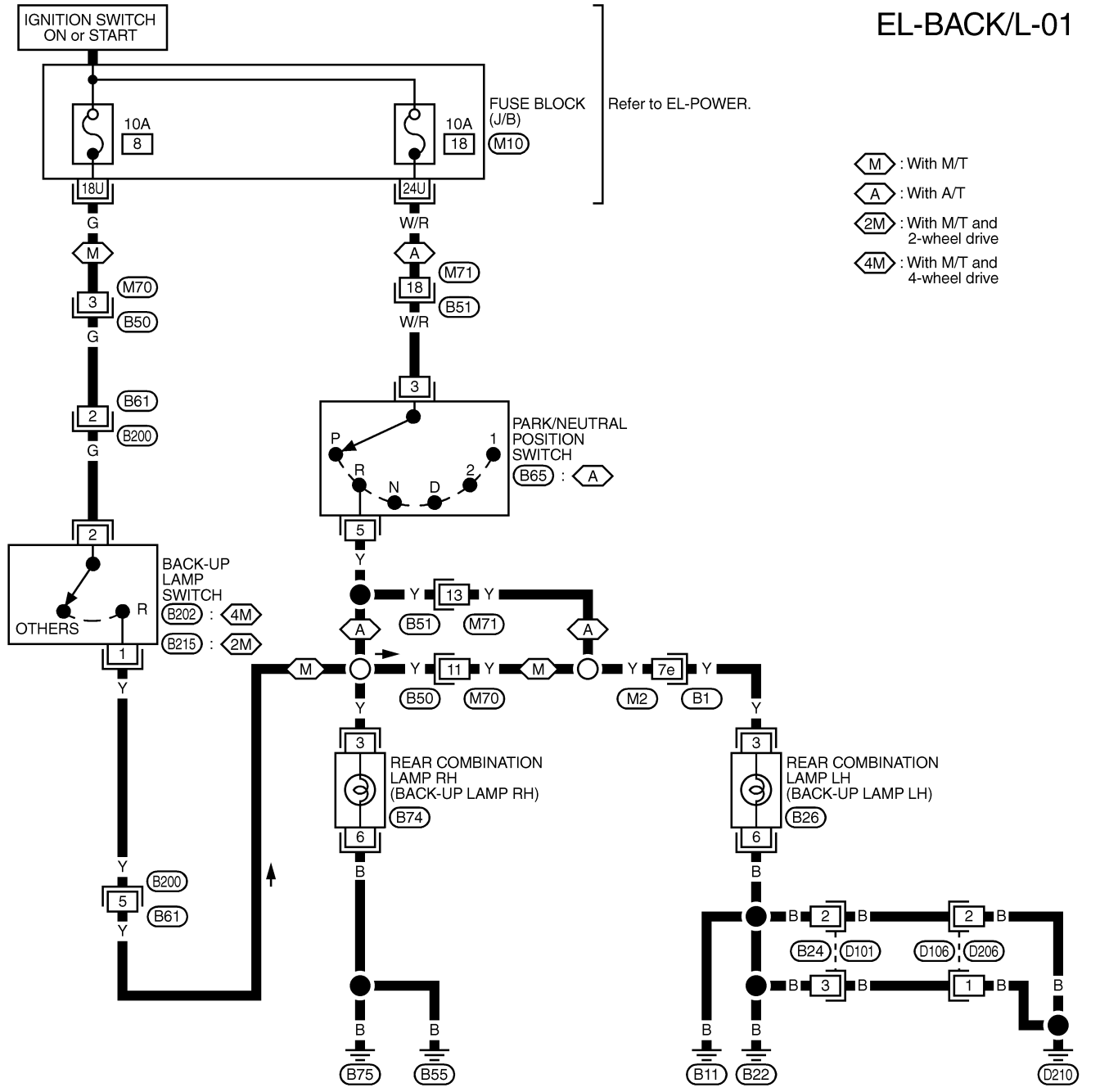


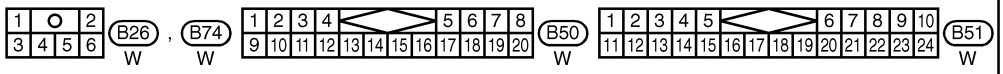


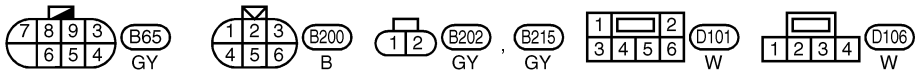
MEL262M

Wiring Diagram — BACK/L —

NAEL0279







REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

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

MEL006M

System Description

NAEL0280

OUTLINE

NAEL0280S01

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

NAEL0280S02

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

NAEL0280S03

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 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.

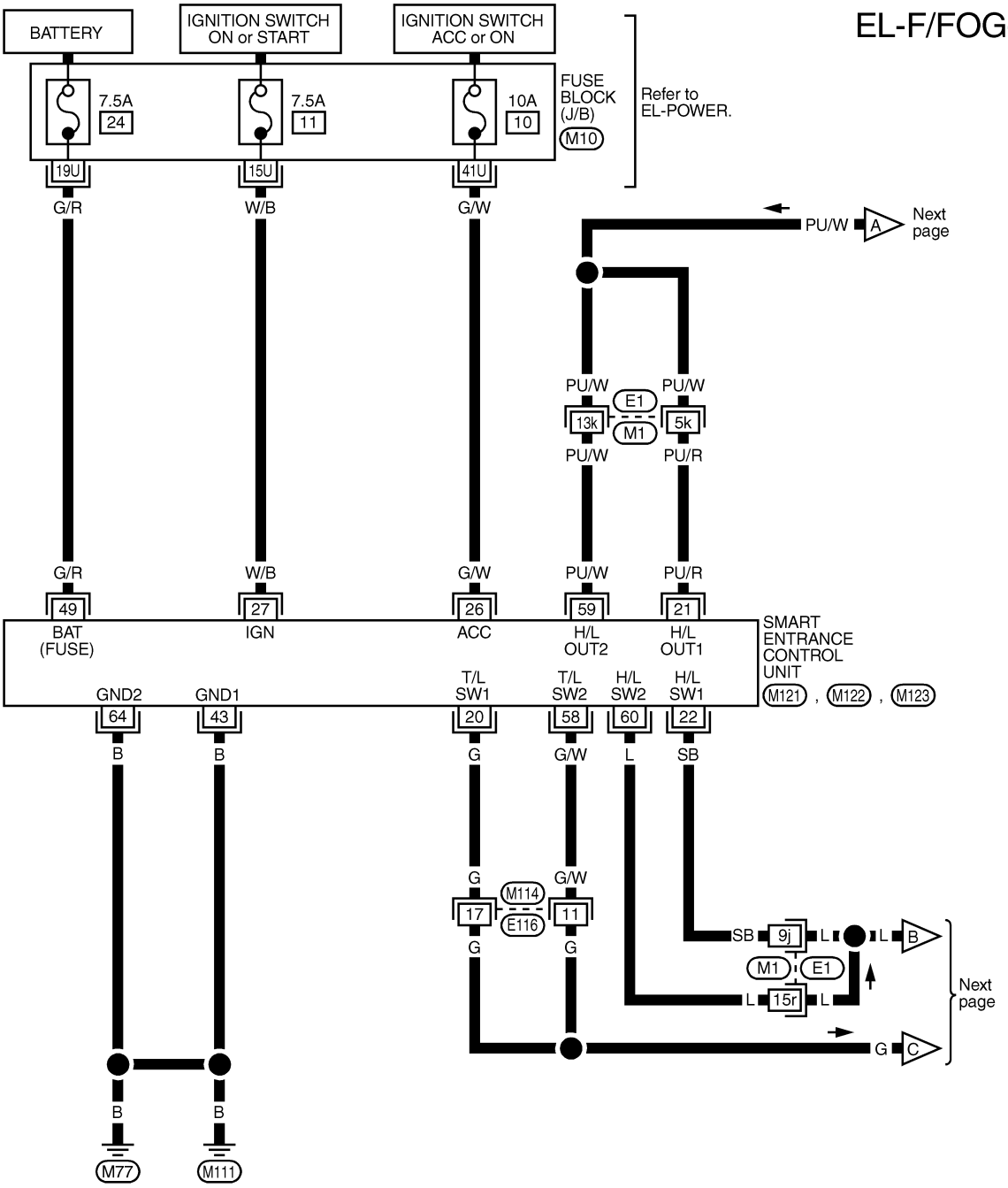
Then the front fog lamps illuminate again.

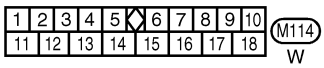
NOTE:
For Trouble Diagnoses for battery saver control, refer to “HEADLAMP (FOR USA)”, EL-40.

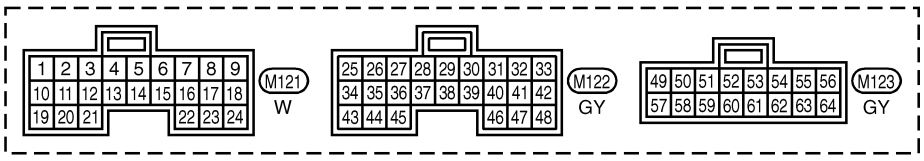
Wiring Diagram — F/FOG —

NAEL0281

EL-F/FOG-01

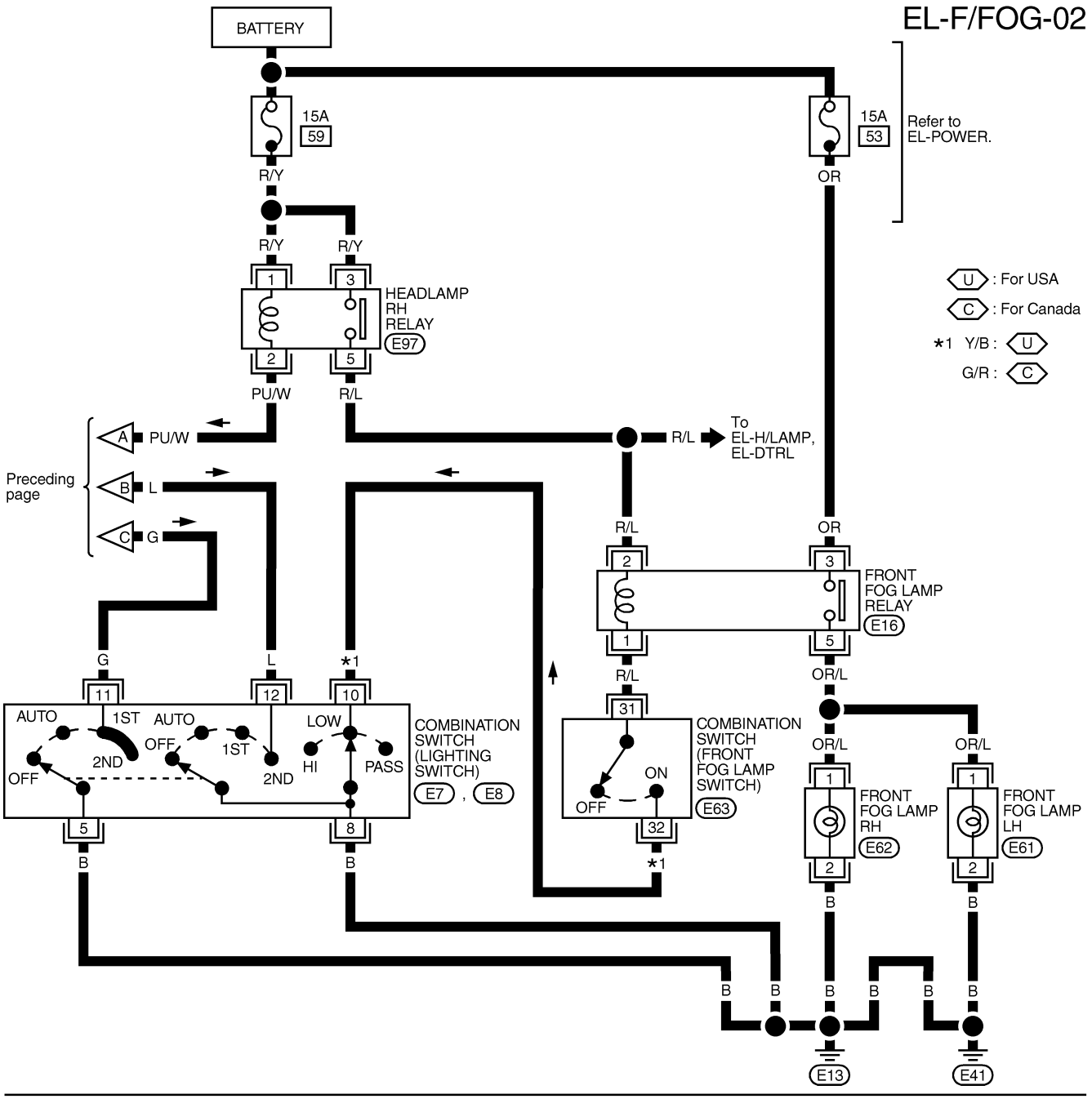




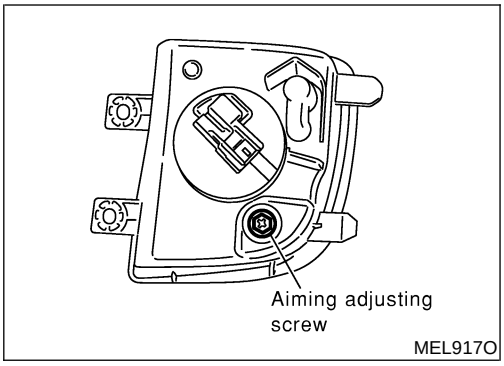


REFER TO THE FOLLOWING.
(E1) -SUPER MULTIPLE JUNCTION (SMJ)
(M10) -FUSE BLOCK-JUNCTION BOX (J/B)

MEL523P


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

MEL584P



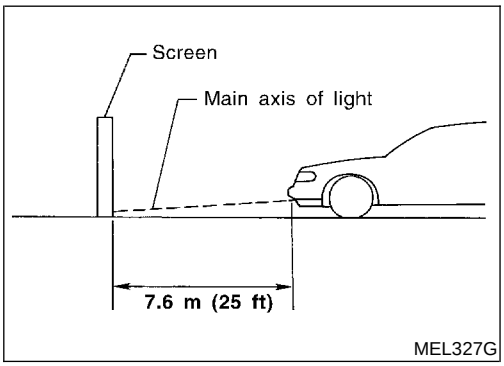
Aiming Adjustment

NAEL0282

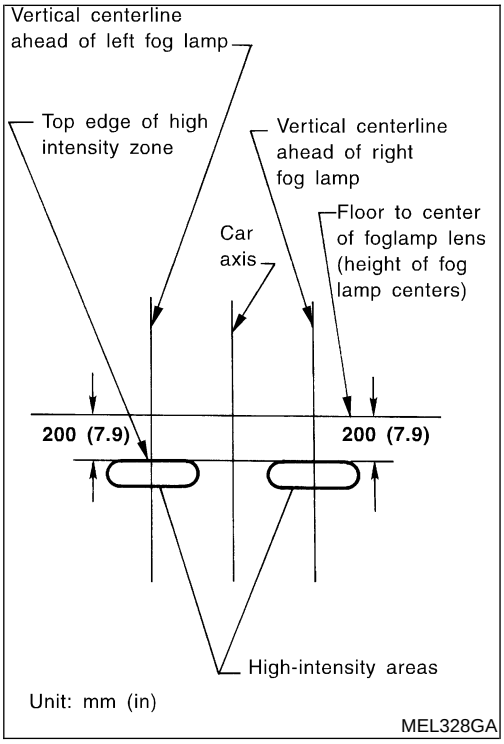
Before performing aiming adjustment, make sure of the following.

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

NAEL0283

TURN SIGNAL OPERATION

NAEL0283S01

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

NAEL0283S0101

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 1 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

NAEL0283S0102

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 3
- combination meter terminal 29
- rear combination lamp RH terminal 5.

Ground is supplied to the front turn signal lamp RH terminal 1 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

NAEL0283S02

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 3
- 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 3
- combination meter terminal 29
- rear combination lamp RH terminal 5.

Ground is supplied to terminal 1 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

NAEL0283S03

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)].

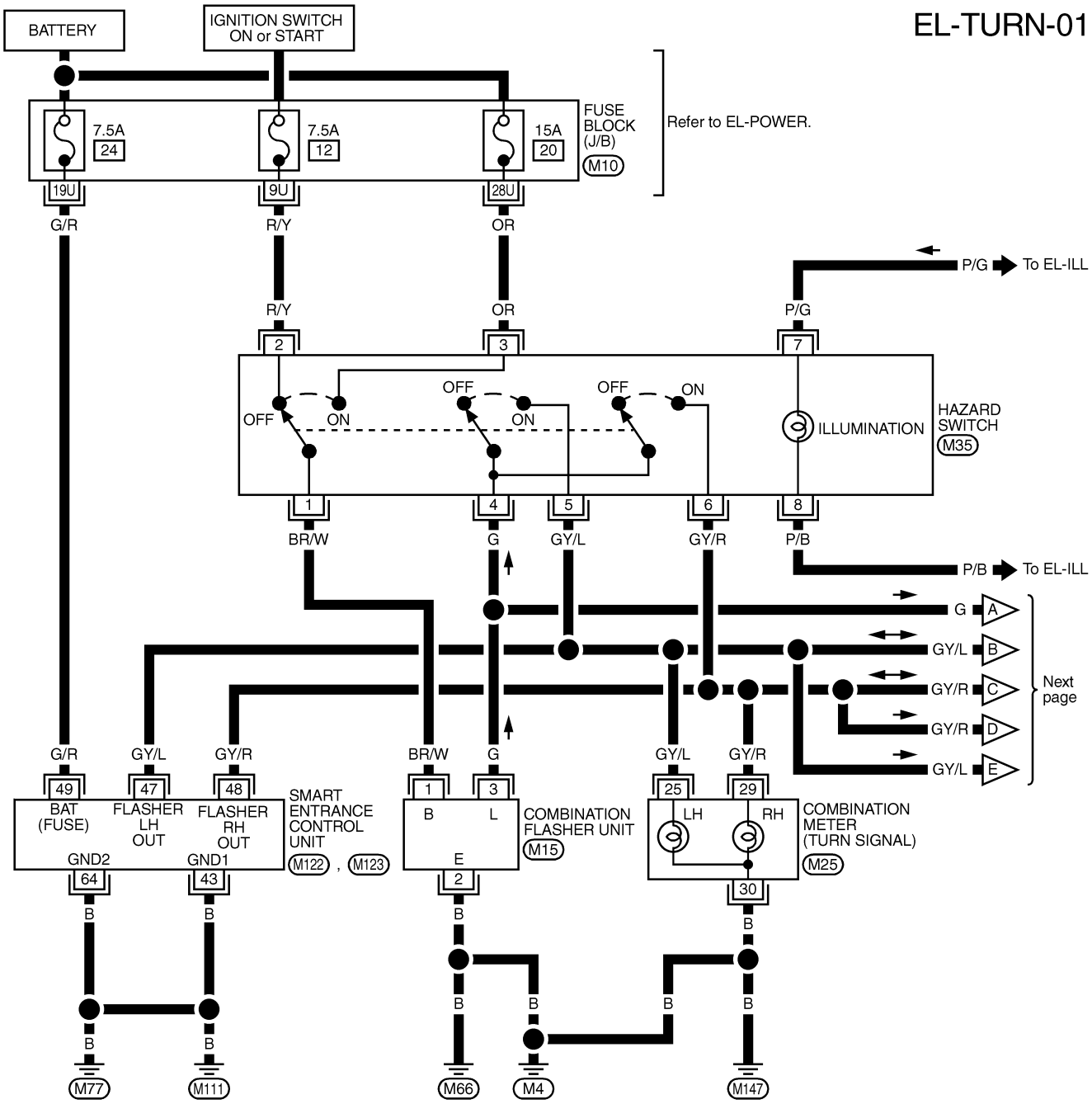
Ground is supplied to smart entrance control unit terminal 43 and 64.
Refer to "REMOTE KEYLESS ENTRY SYSTEM", EL-310.
When smart entrance control unit receives LOCK or UNLOCK signal from keyfob with all doors closed, power is supplied

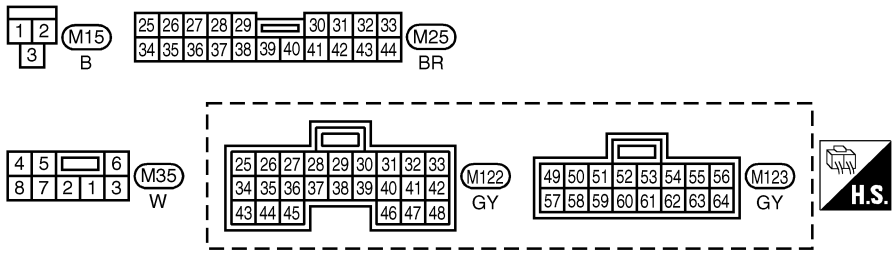
- through terminal 47 of smart entrance control unit
- to front turn signal lamp LH terminal 3
- to combination meter terminal 25
- to rear combination lamp LH terminal 5, and
- through terminal 48 of smart entrance control unit
- to front turn signal lamp RH terminal 3
- to combination meter terminal 29
- to rear combination lamp RH terminal 5.

Ground is supplied to terminal 1 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 —

NAEL0284

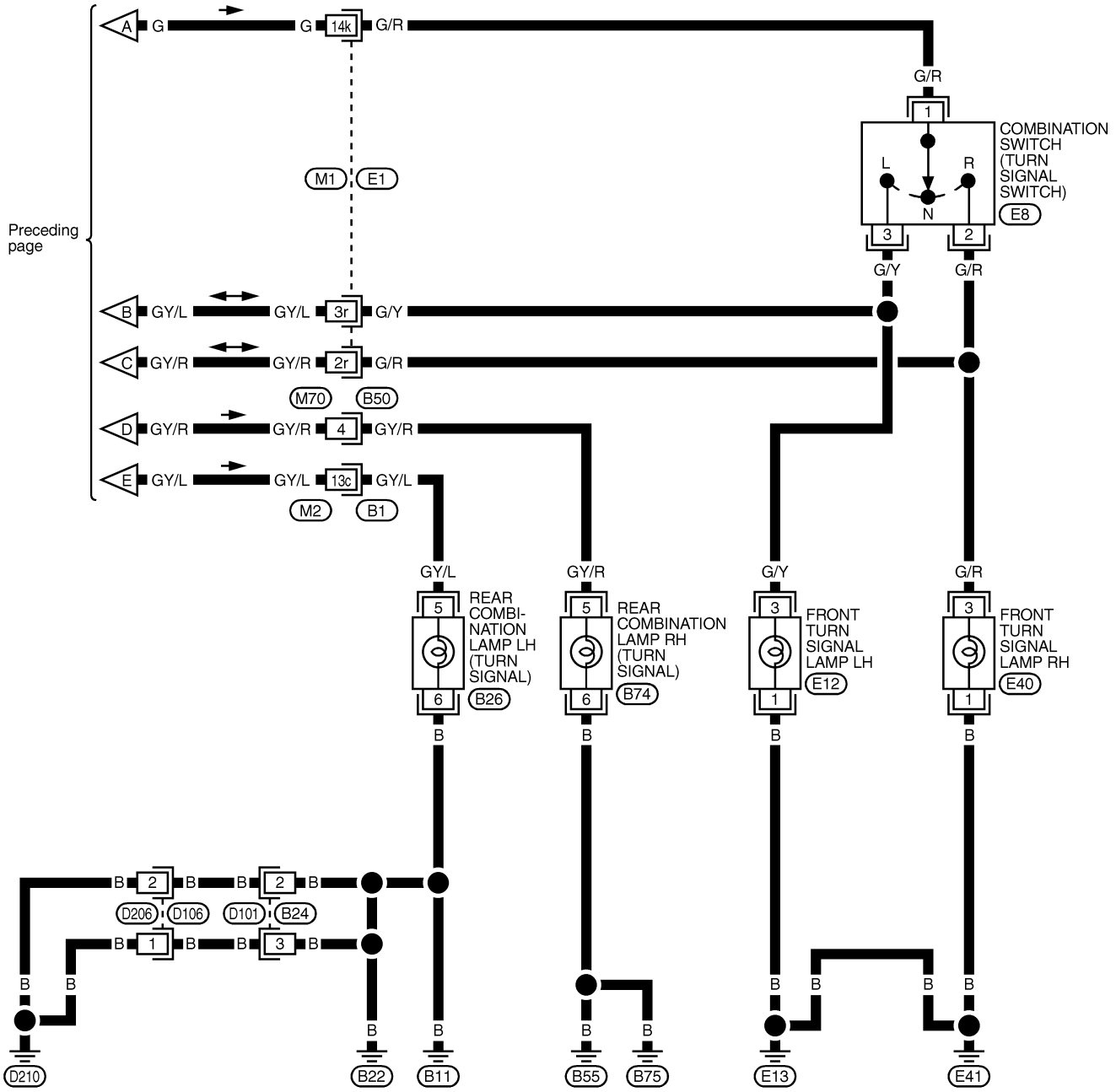


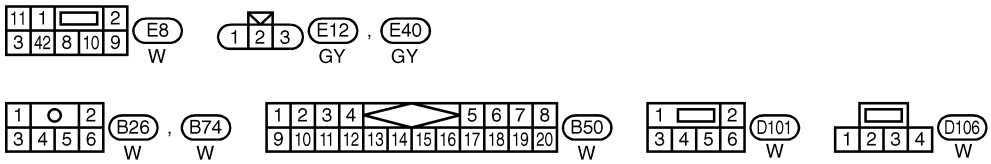


REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL861N

EL-TURN-02





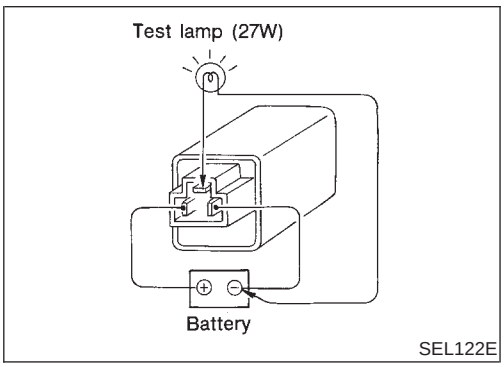
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL862N

Trouble Diagnoses

NAEL0285

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

NAEL0286

COMBINATION FLASHER UNIT CHECK

NAEL0286S01

- 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

NAEL0287

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

NAEL0287S01

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

NAEL0287S02

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
CD player	M92, M93	3	5
CD auto changer	M125	2	9
A/C switch illumination	M45	2	1
Power window main switch	D6	16	18
Front power window switch RH	D36	10	17
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

NAEL0287S03

Except for Auto Light Control Operation

NAEL0287S0301

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

NAEL0287S0302

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

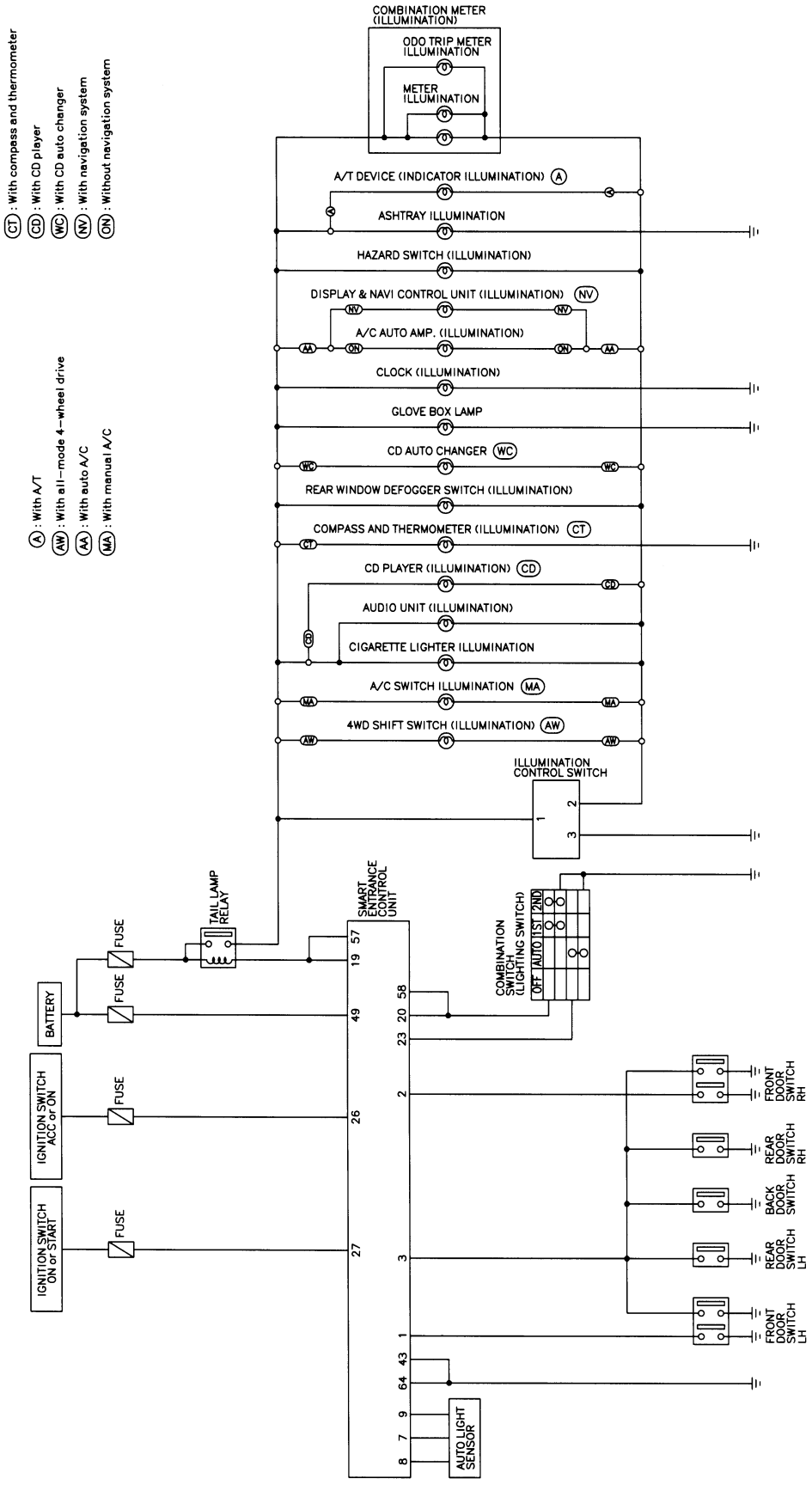
- to smart entrance control unit terminals 20 and 58 from lighting switch terminal 11, and then,
- to tail lamp relays terminal 2 from smart entrance control unit terminals 21 and 59,
- through smart entrance control unit terminals 22 and 60 and
- through lighting switch terminal 12.

Then illumination lamps illuminate again.

NOTE:
For Trouble Diagnoses for battery saver control, refer to "PARKING, LICENSE AND TAIL LAMPS" (EL-69).

Schematic

NAEL0288

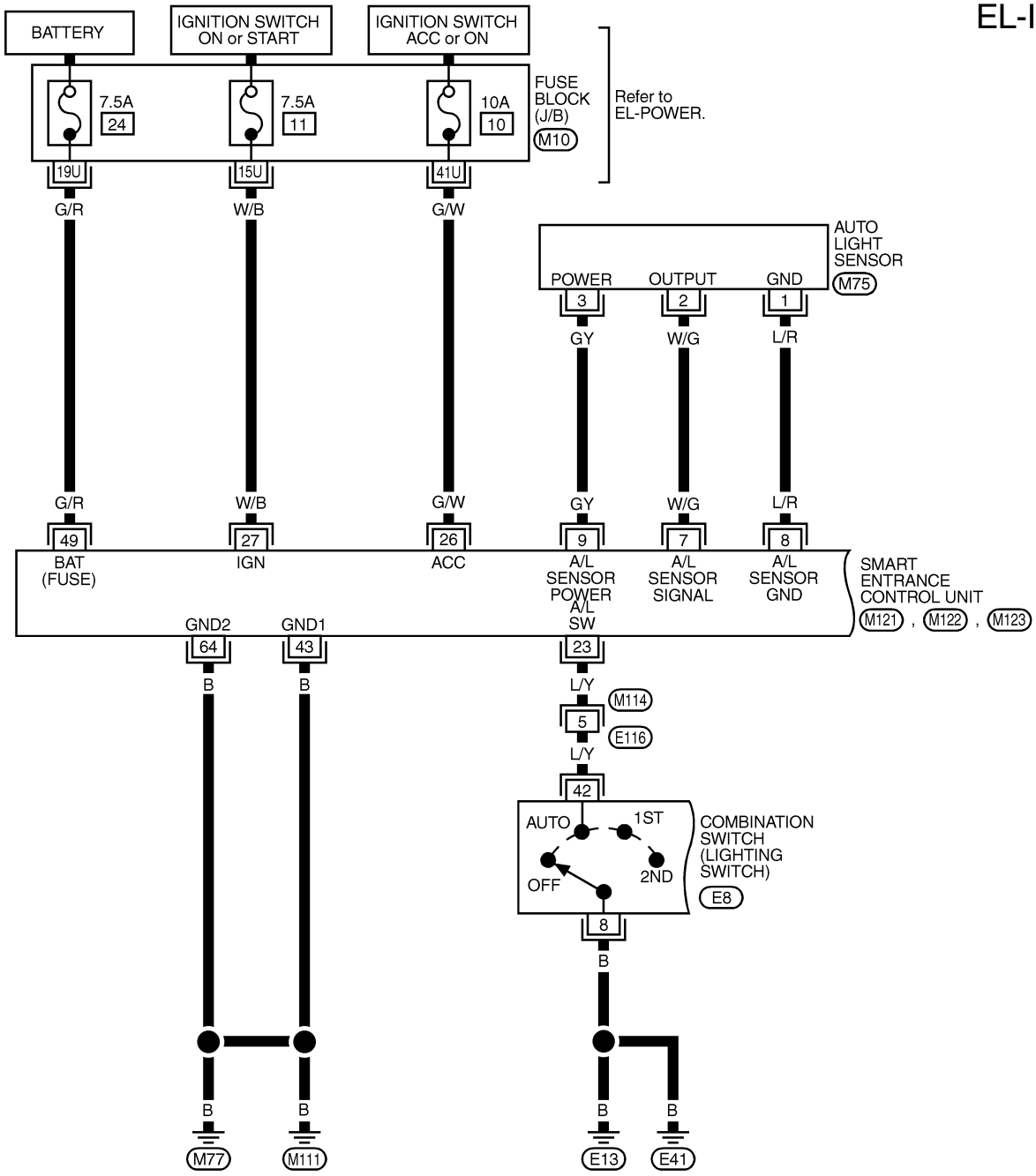


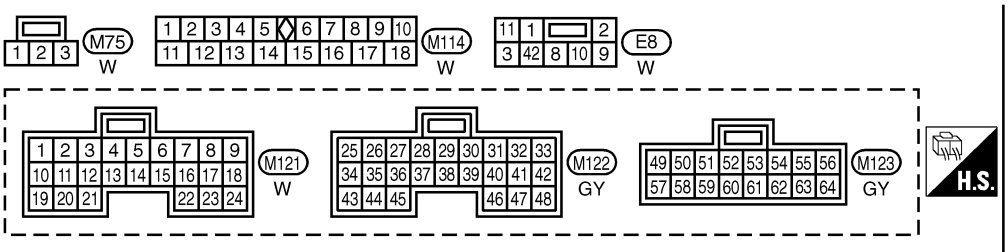
MEL399P

Wiring Diagram — ILL —

NAEL0289

EL-ILL-01

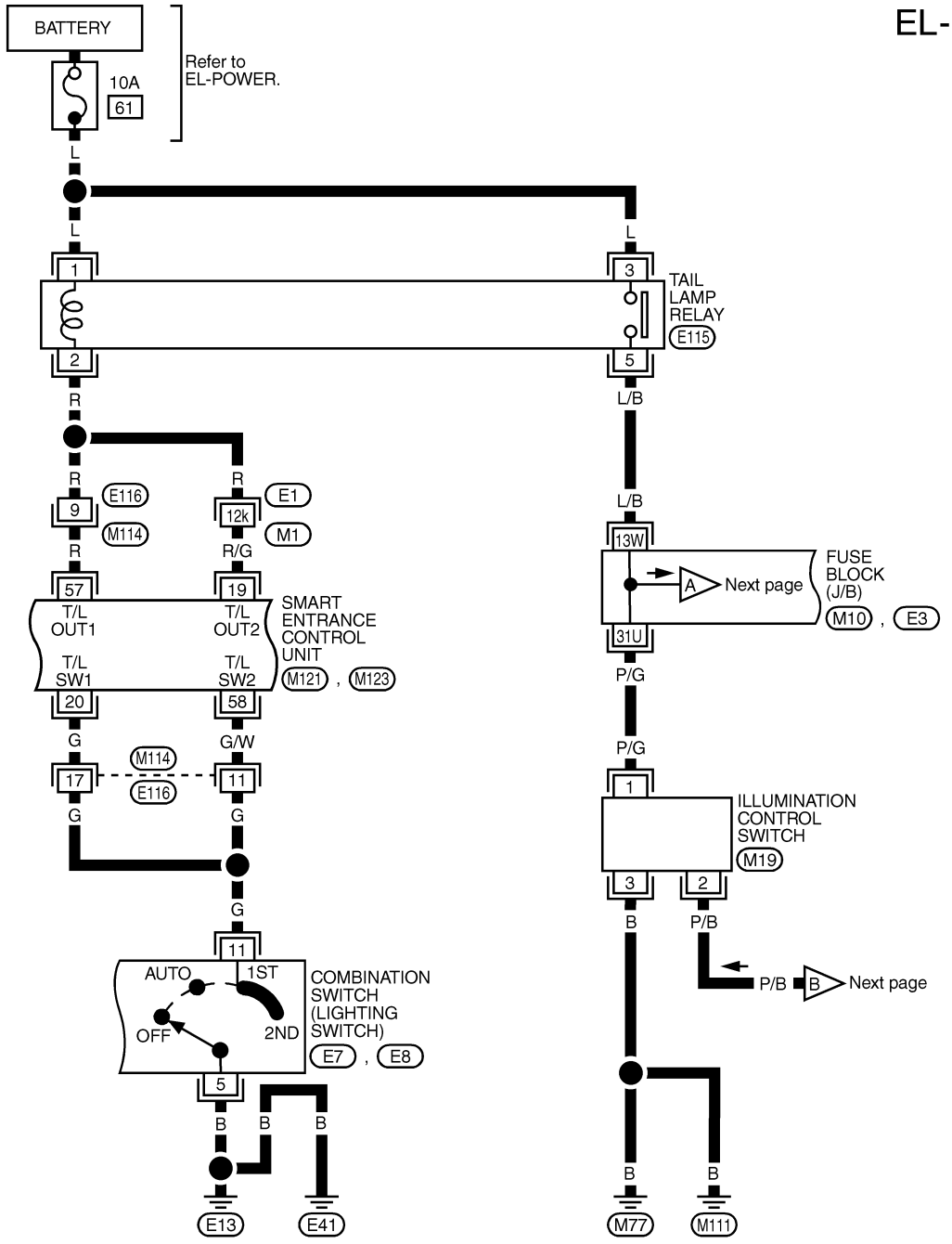


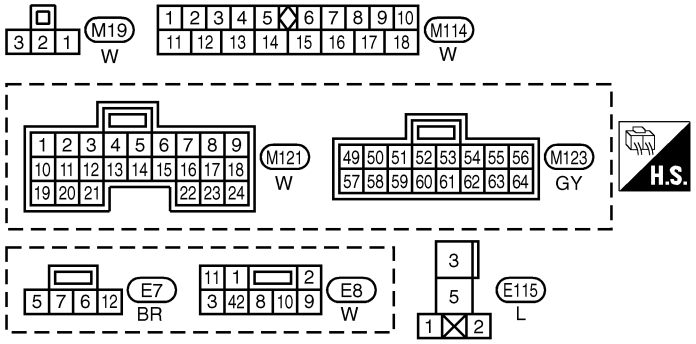


REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL400P

EL-ILL-02





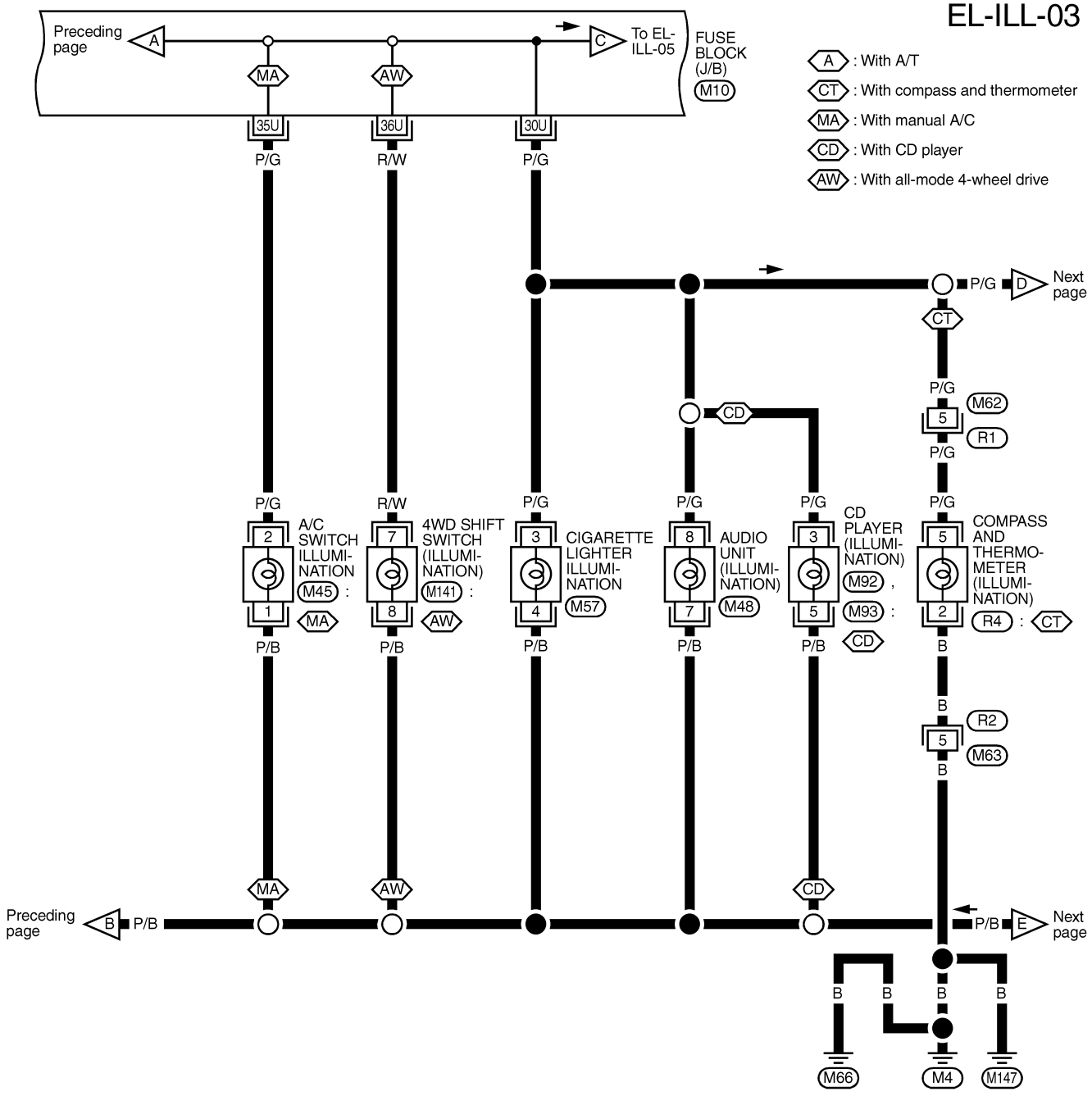
REFER TO THE FOLLOWING.

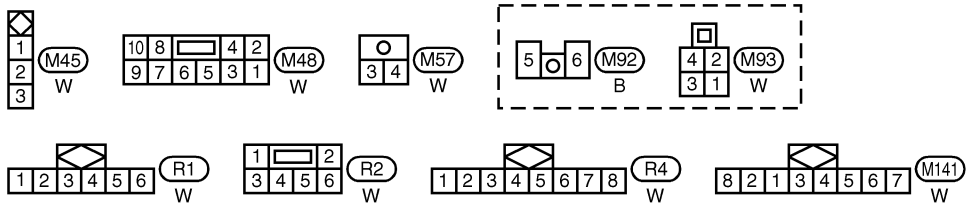
E1 -SUPER MULTIPLE JUNCTION (SMJ)

M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL405P

Wiring Diagram — ILL — (Cont'd)

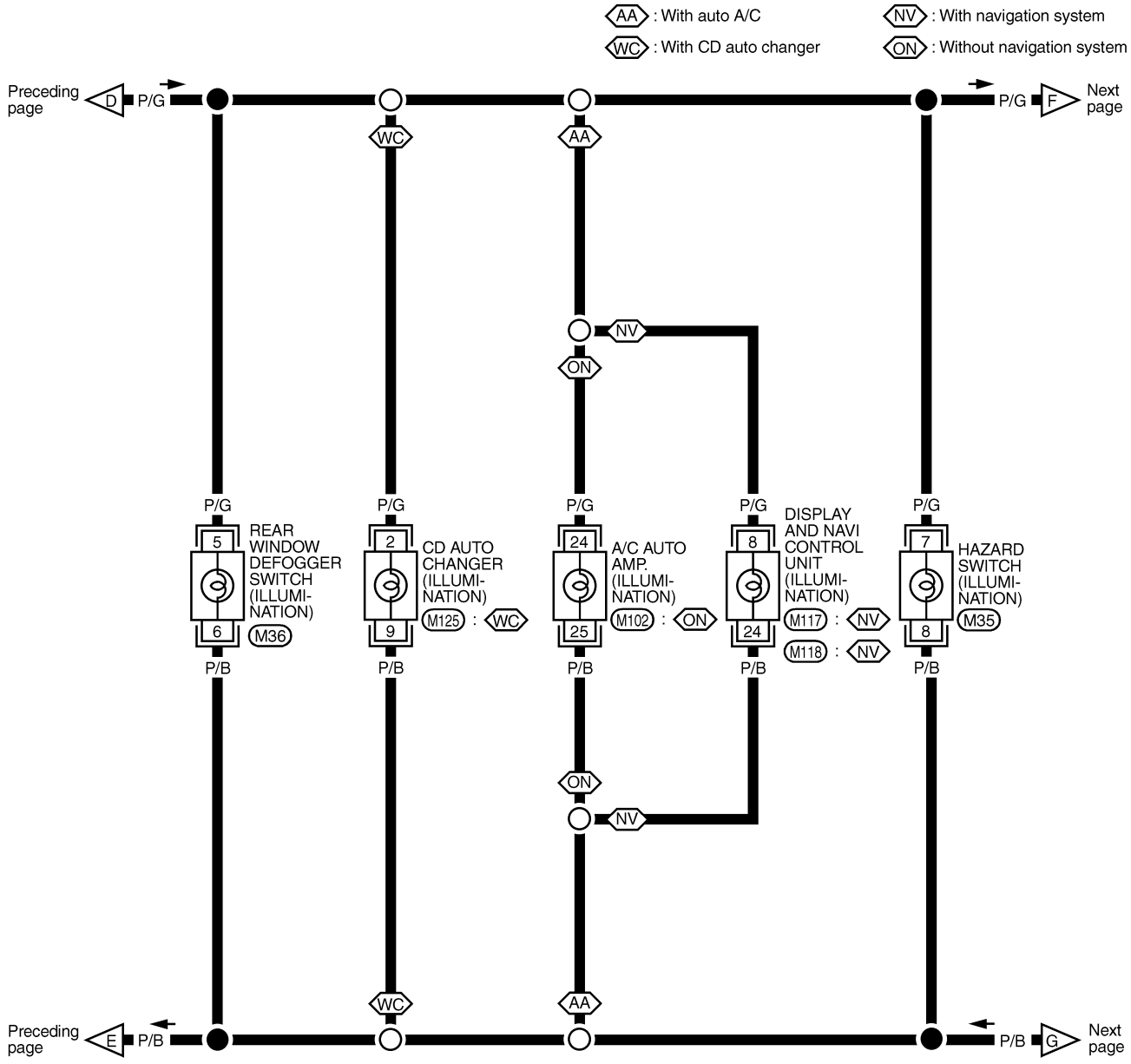


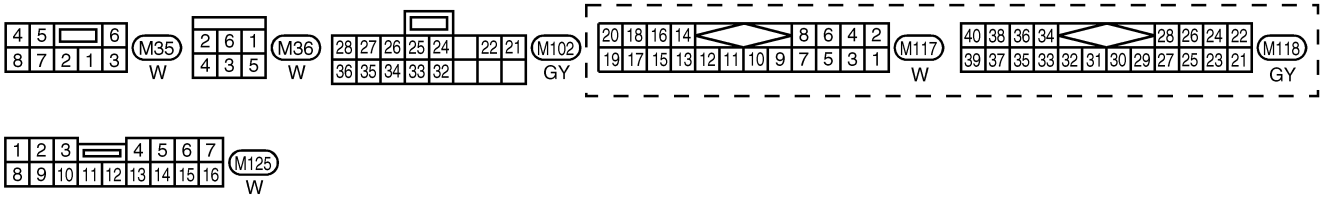


REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL427O

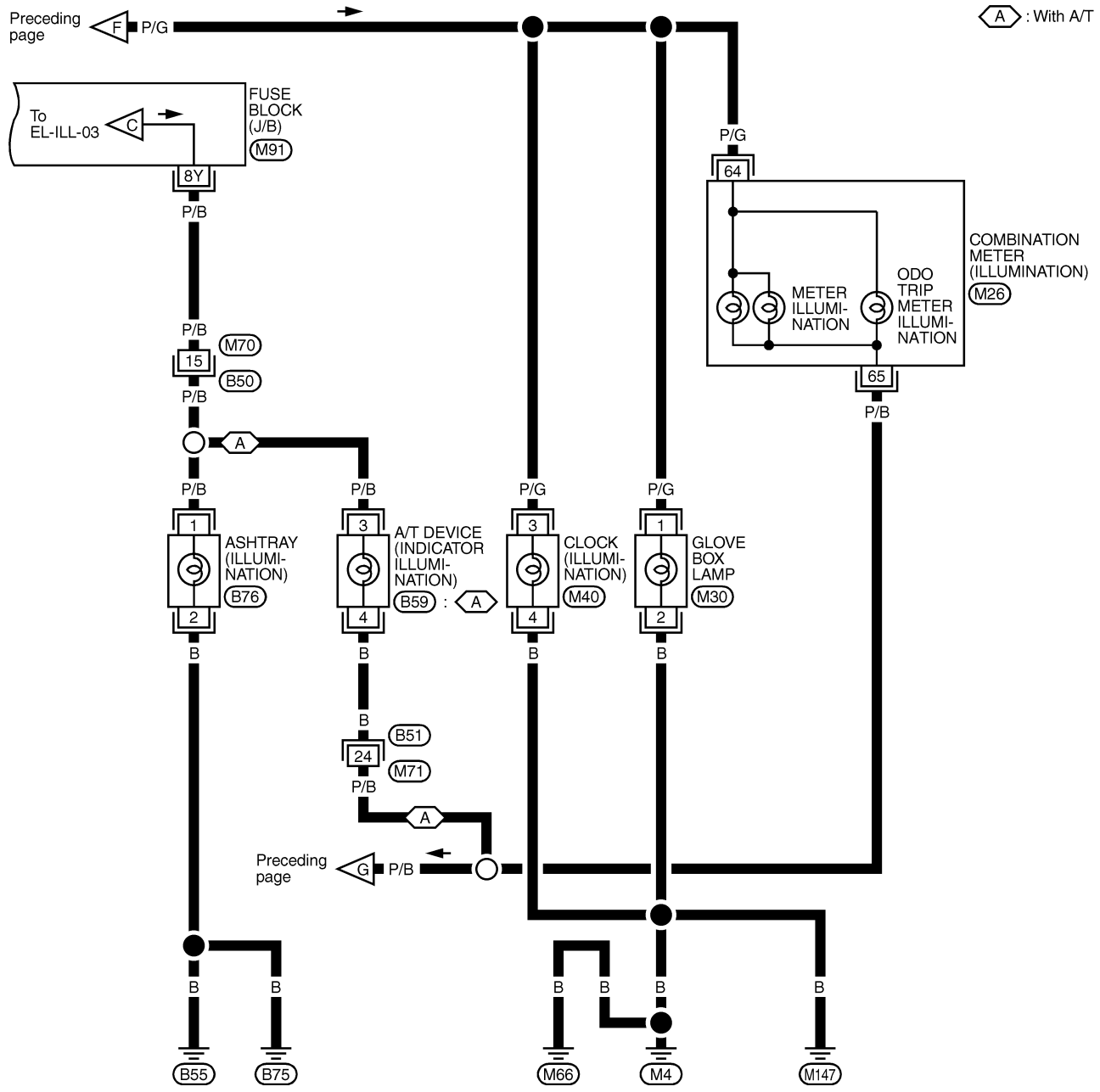
EL-ILL-04

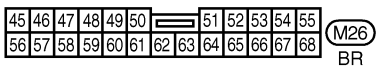


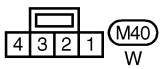


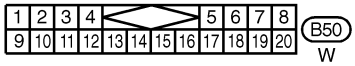
MEL401P

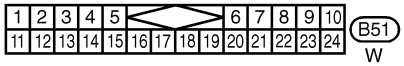
EL-ILL-05

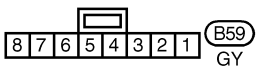


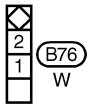






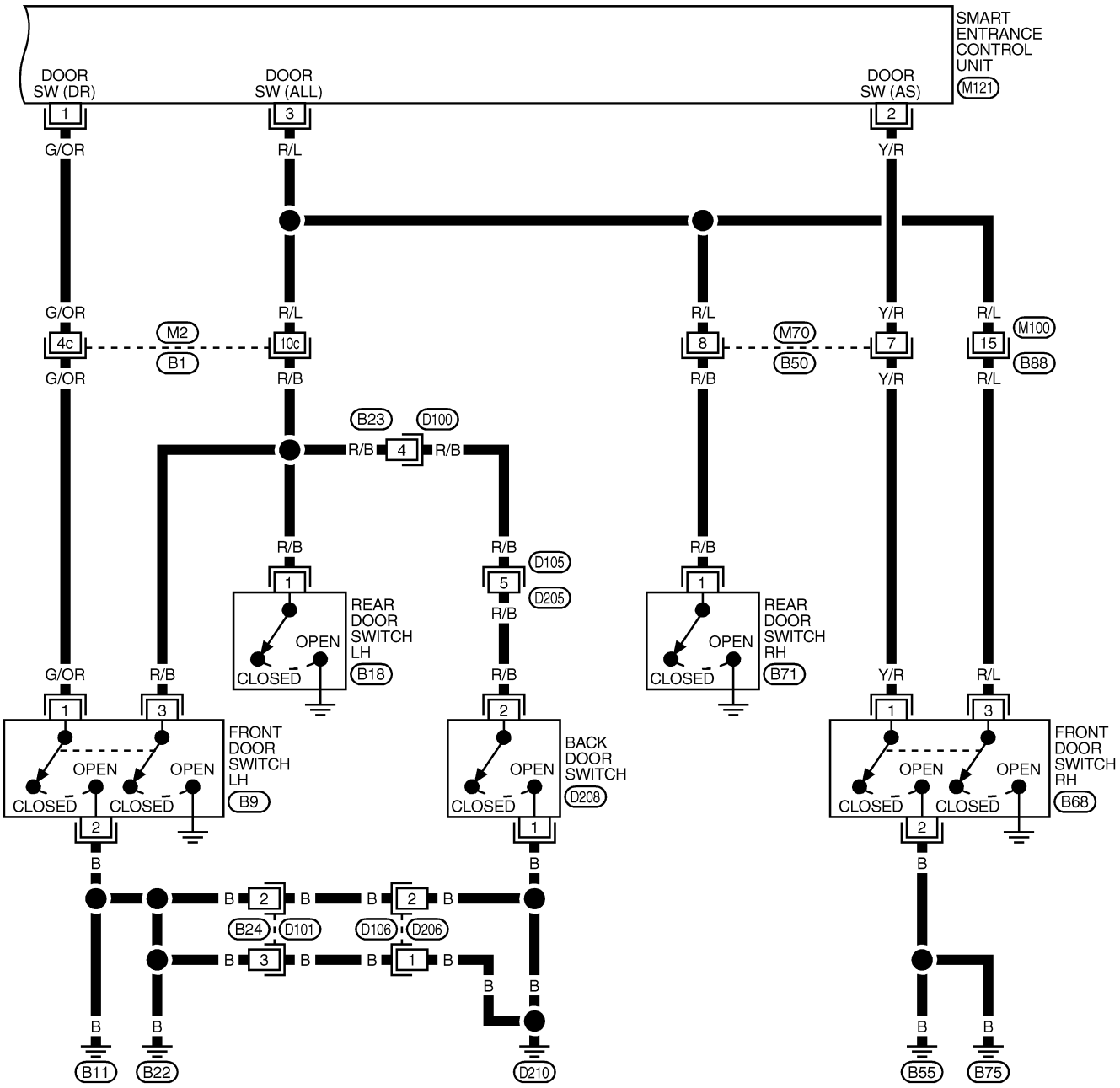


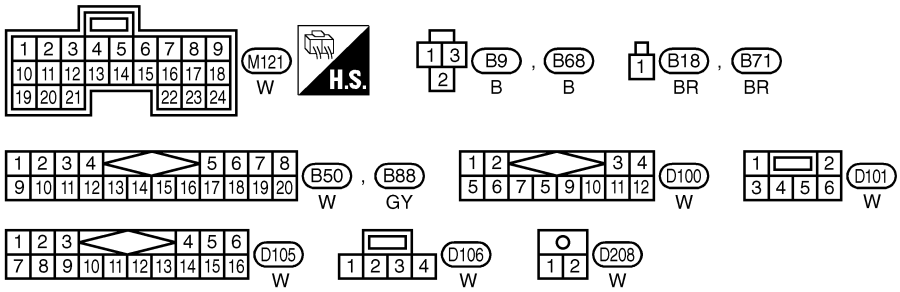




REFER TO THE FOLLOWING.
M91 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL402P





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

MEL406P

System Description

NAEL0290

POWER SUPPLY AND GROUND

NAEL0290S01

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 central switch, the smart entrance control unit receives a ground 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 19 (LH) or 18 (RH)
- to smart entrance control unit terminal 4.

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

- through body grounds terminals M77 and M111
- to front door key cylinder switch LH terminal 2
- from front door key cylinder switch LH terminal 1
- to smart entrance control unit terminal 10, and
- through body grounds terminals B11, B22 and D210
- to back door key cylinder switch terminal 4
- from back door key cylinder switch terminal 2
- to smart entrance control unit terminal 10.

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

NAEL0290S02

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.

With power and ground supplied, interior lamps turn ON.

INTERIOR LAMP TIMER OPERATION

NAEL0290S03

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

NAEL0290S04

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.

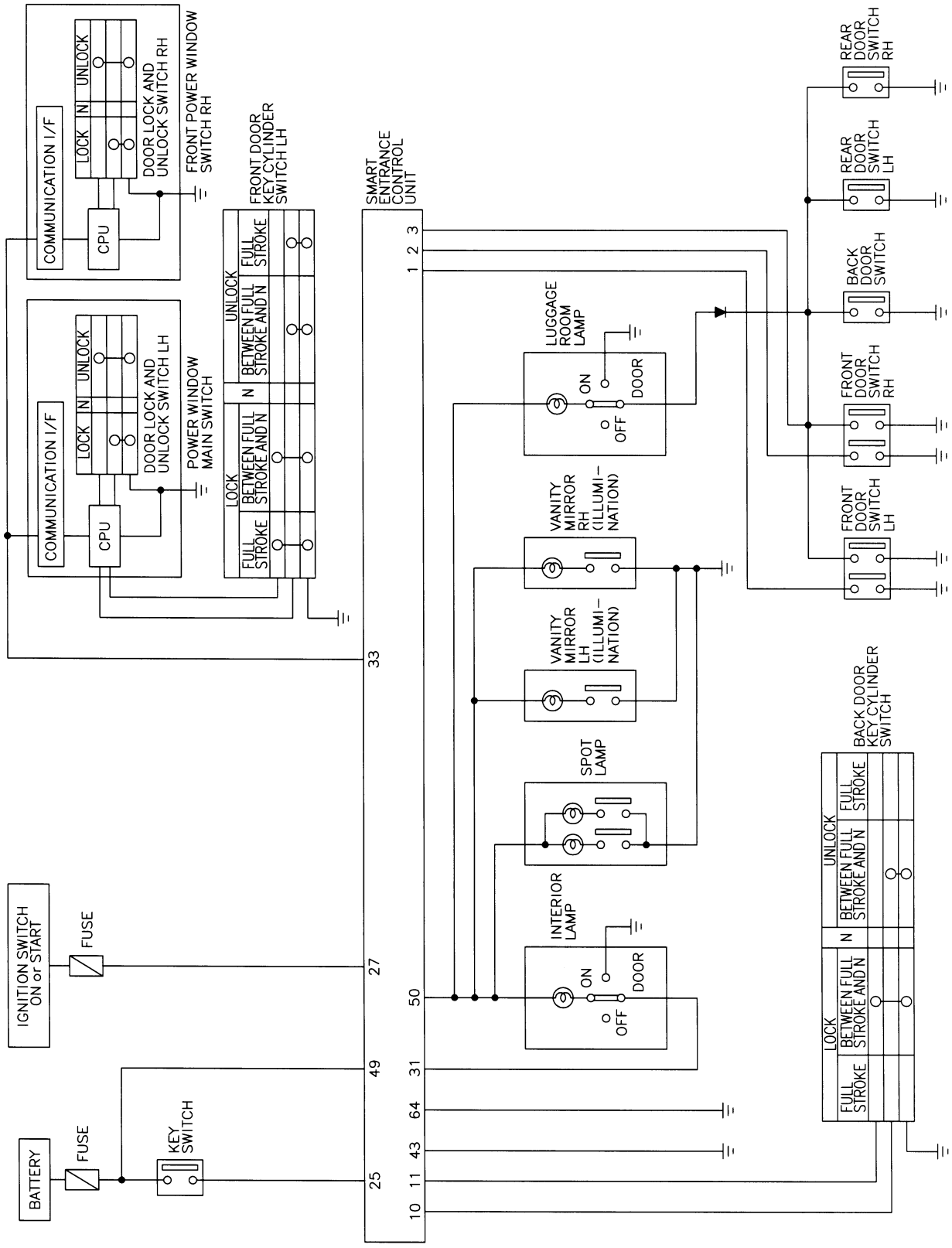
INTERIOR LAMP BATTERY SAVER

NAEL0290S05

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

Schematic

NAEL0291

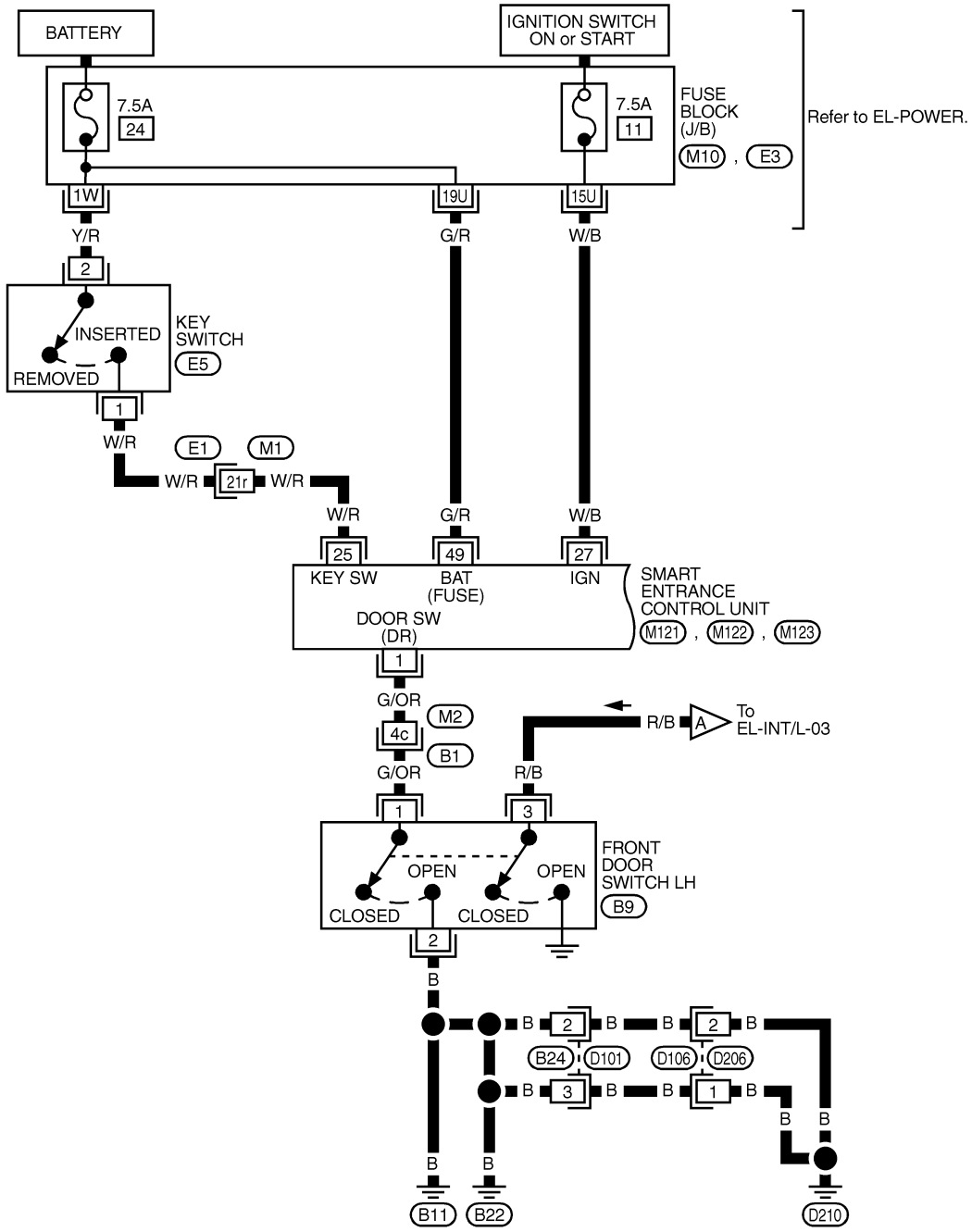


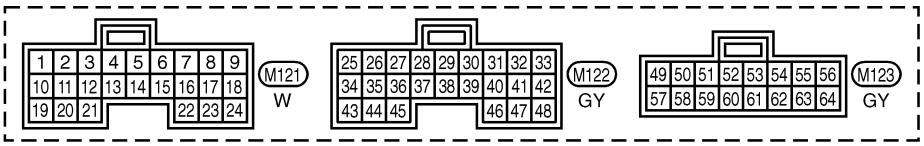
MEL407P

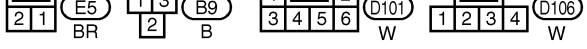
Wiring Diagram — INT/L —

NAEL0292

EL-INT/L-01



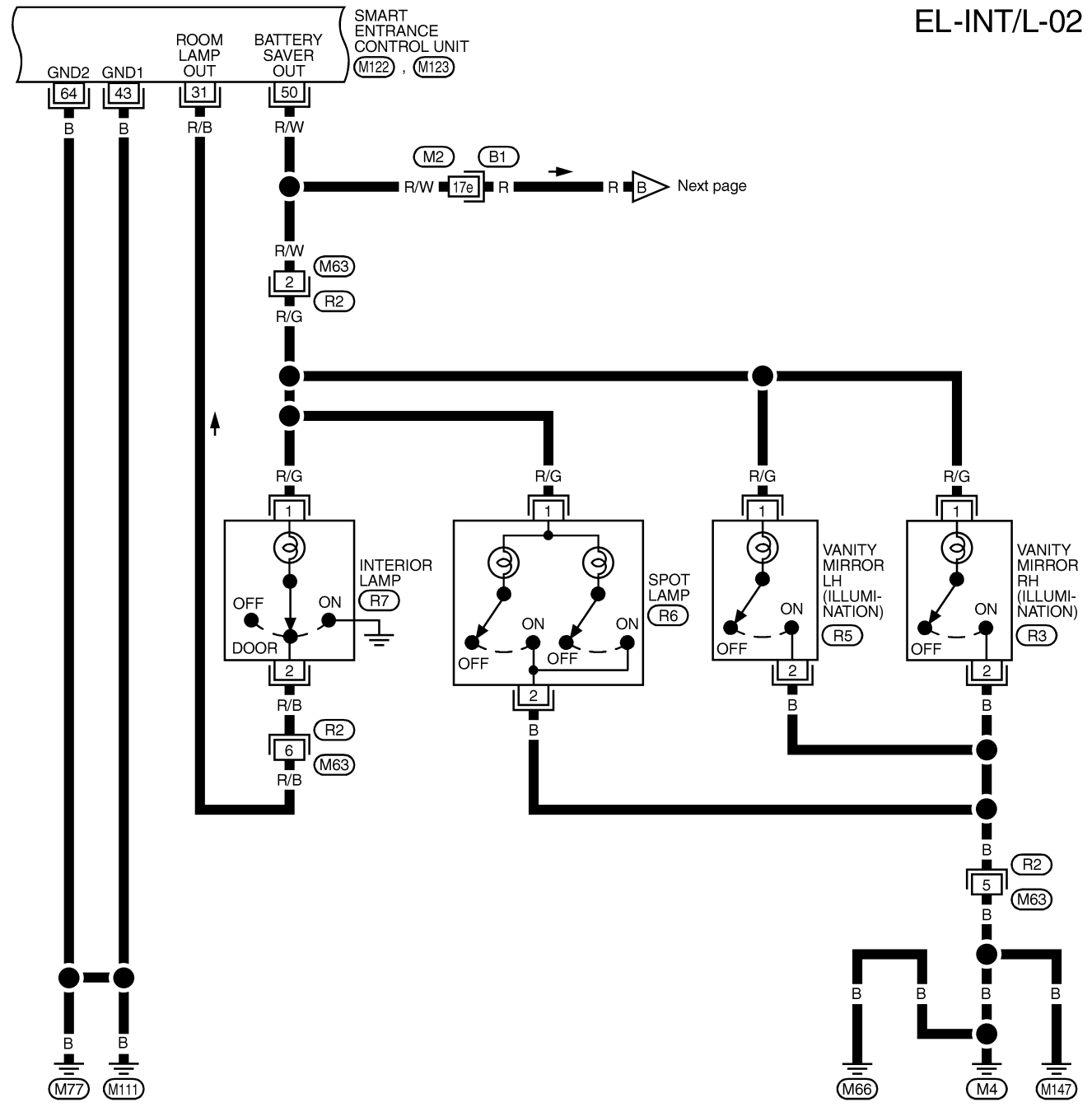


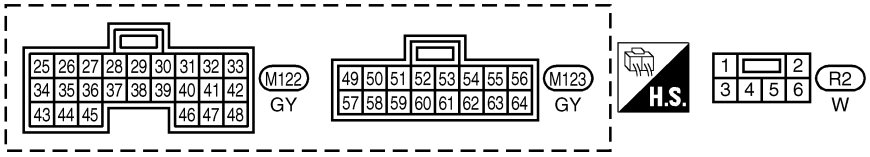


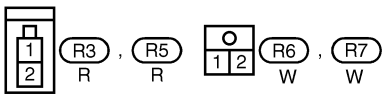
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL408P

Wiring Diagram — INT/L — (Cont'd)

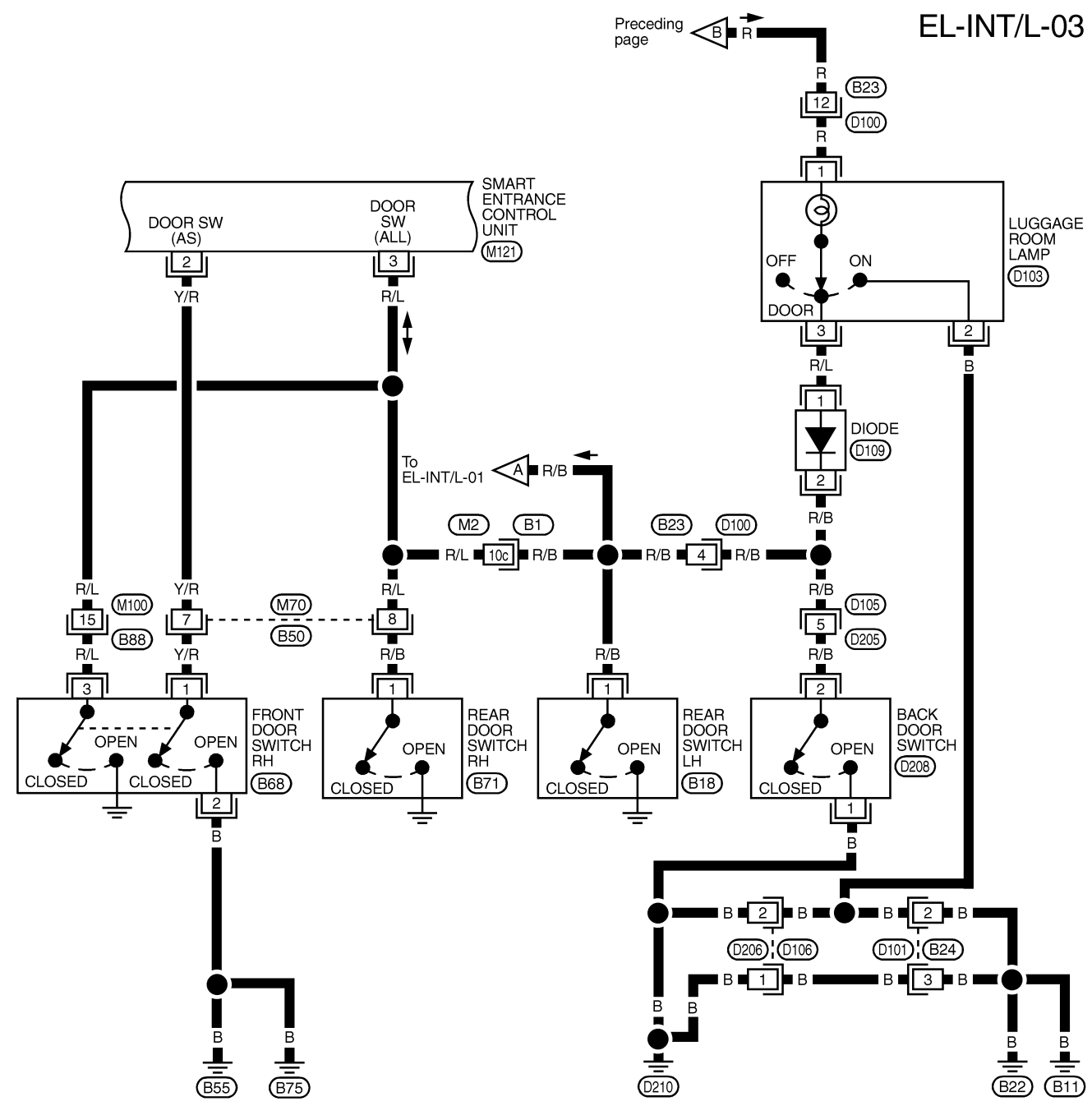


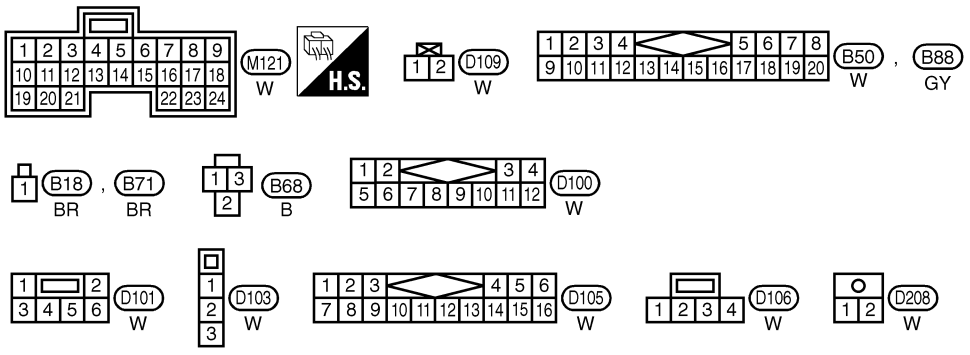




REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL713N

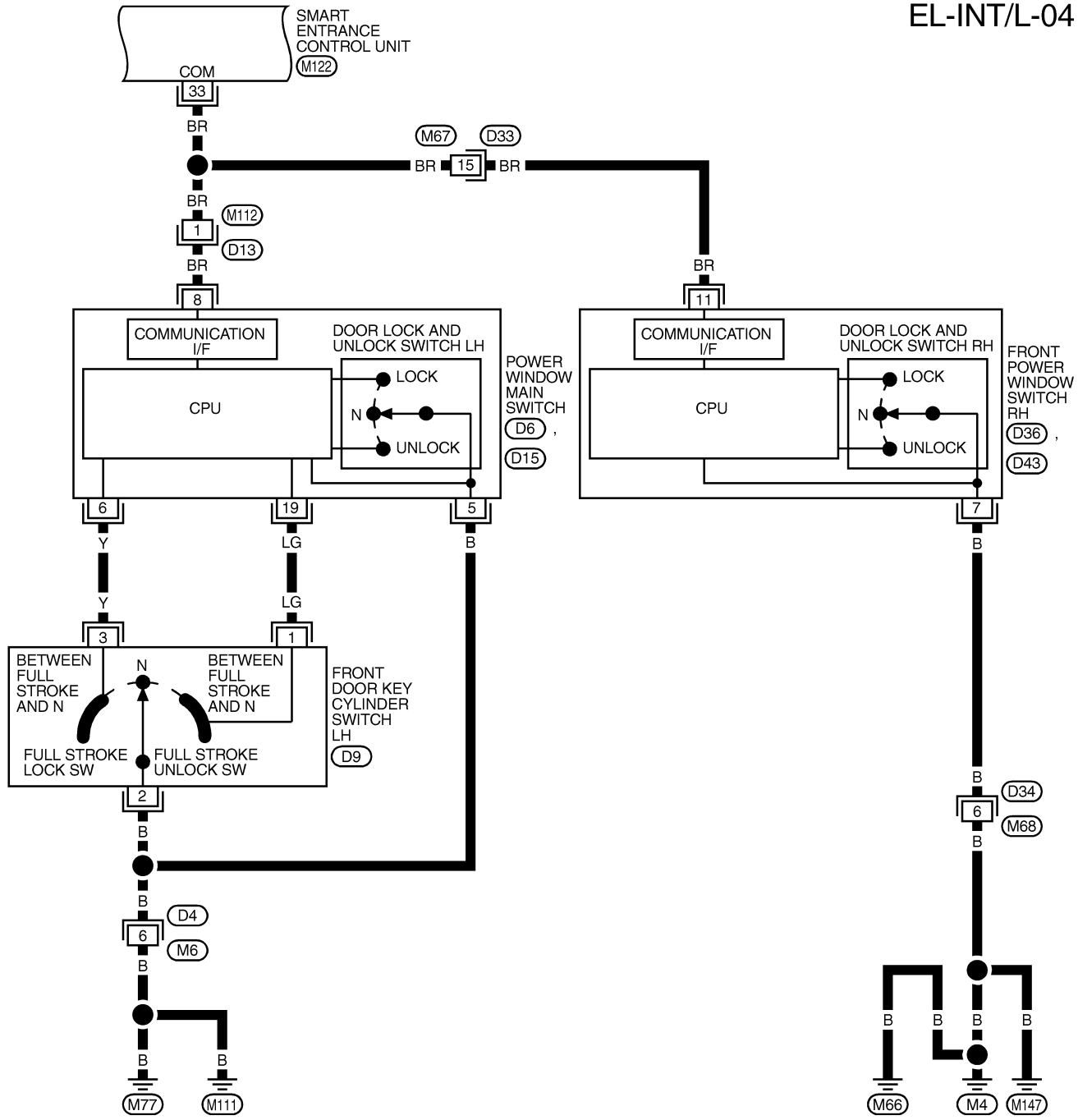


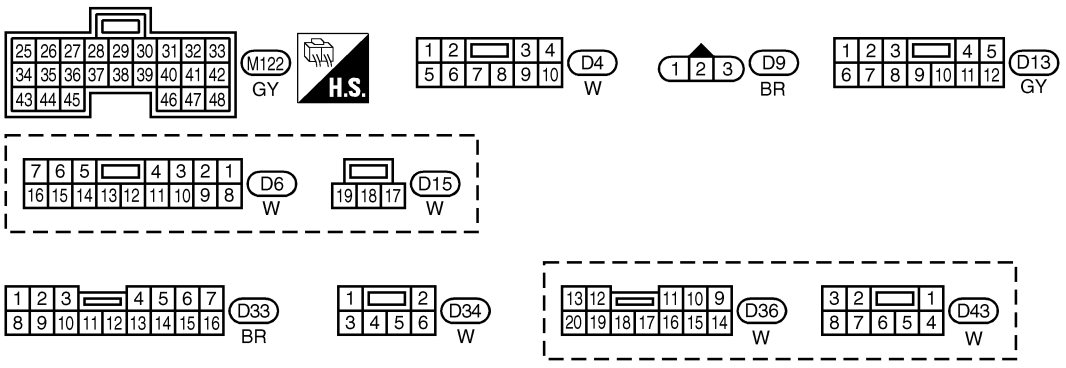


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL476O

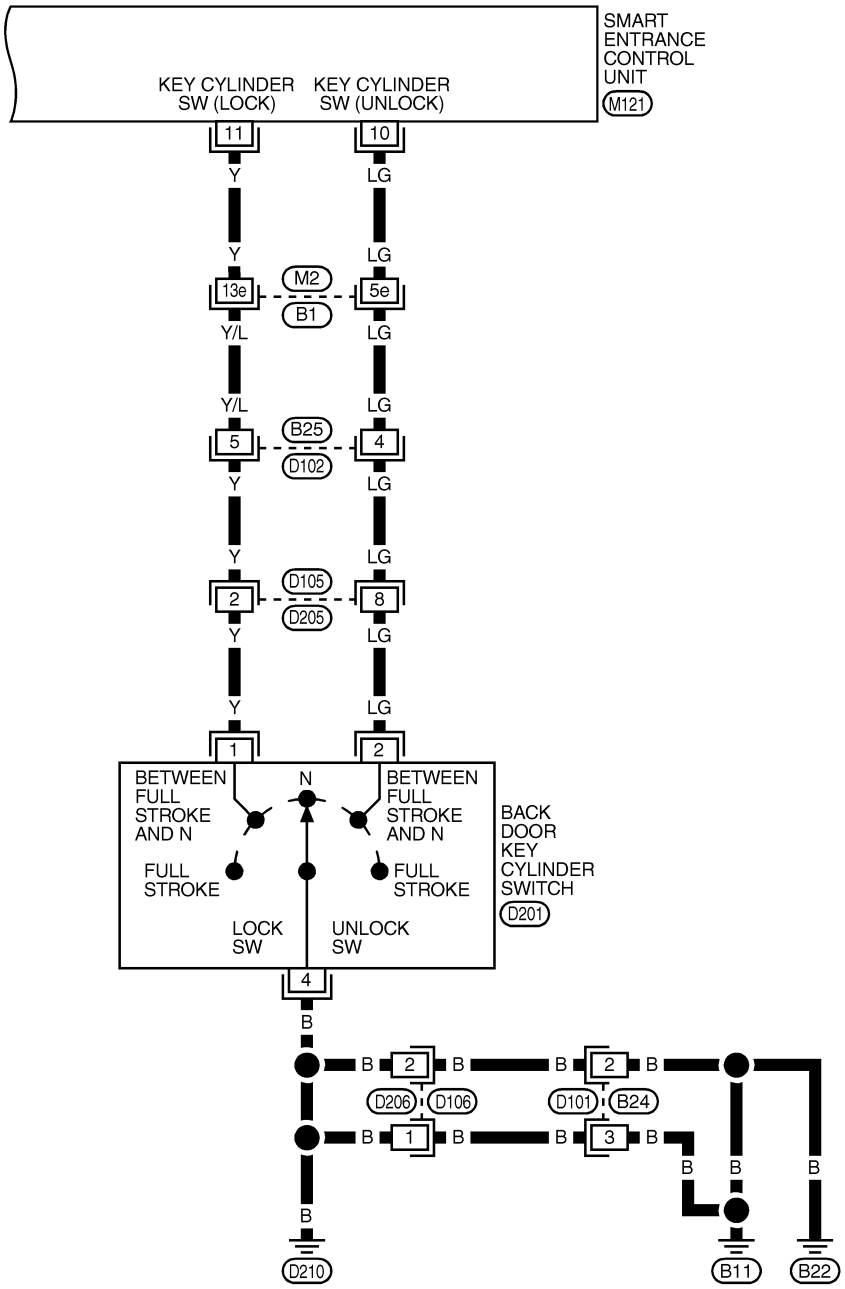
EL-INT/L-04

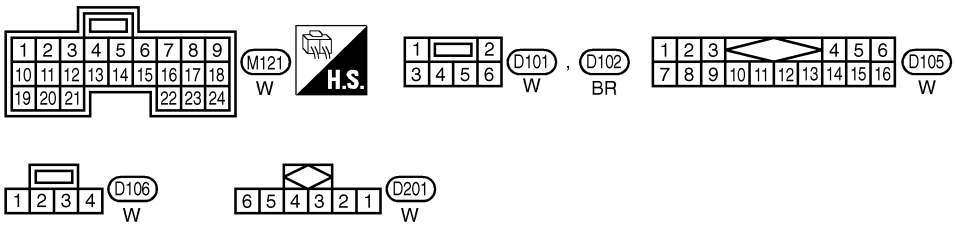




MEL409P

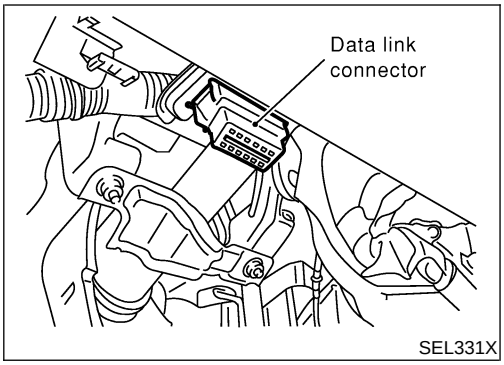
EL-INT/L-05





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

MEL410P



SEL331X

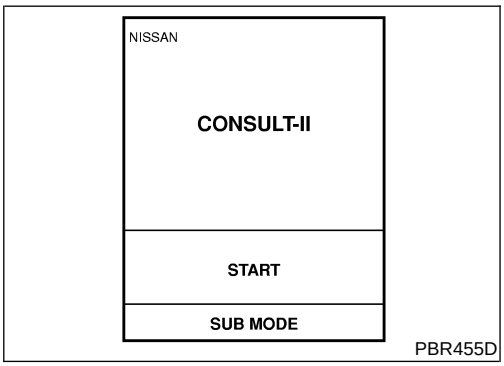
CONSULT-II Inspection Procedure

=NAEL0293

“INT LAMP”/“BATTERY SAVER”

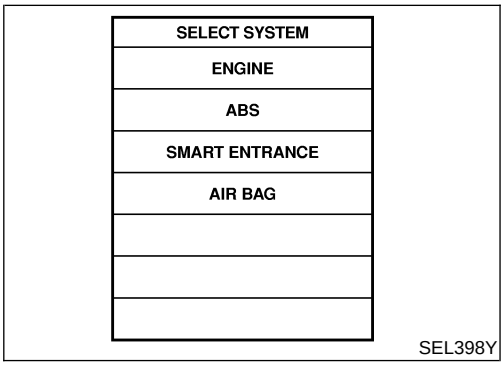
NAEL0293S01

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



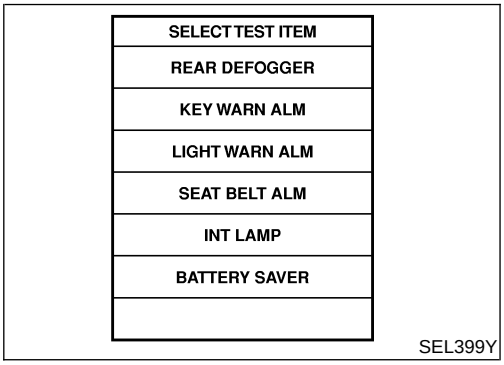
PBR455D

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



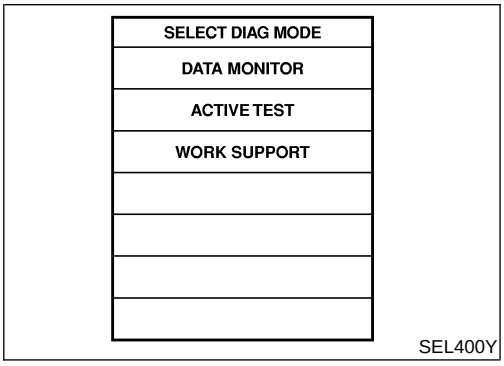
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL399Y

6. Touch “INT LAMP” or “BATTERY SAVER”.



SEL400Y

7. Select diagnosis mode.
   “DATA MONITOR” and “ACTIVE TEST” are available for “INT LAMP” and “BATTERY SAVER”.

CONSULT-II Application Items

NAEL0294

"INT LAMP"
Data Monitor

NAEL0294S01

NAEL0294S0101

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

NAEL0294S0102

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

NAEL0294S0103

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"
Data Monitor

NAEL0294S02

NAEL0294S0201

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

NAEL0294S0202

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

NAEL0294S0203

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

=NAEL0295

DIAGNOSTIC PROCEDURE 1

NAEL0295S01

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

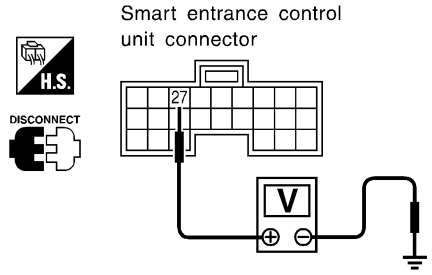
When ignition switch is ON:
IGN ON SW ON

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

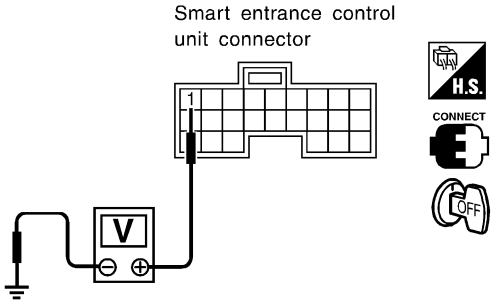
When front LH door is open:
DOOR SW-DR ON

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

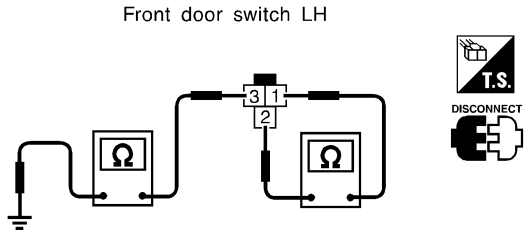
SEL004Y

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

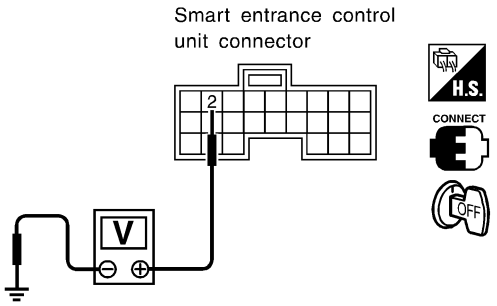
When front RH door is open:
DOOR SW-AS ON

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

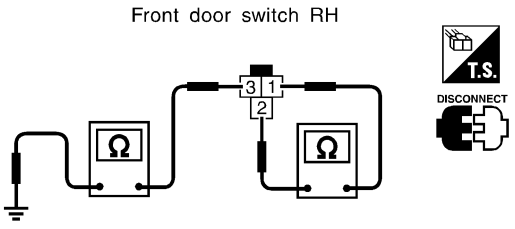
SEL152Y

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

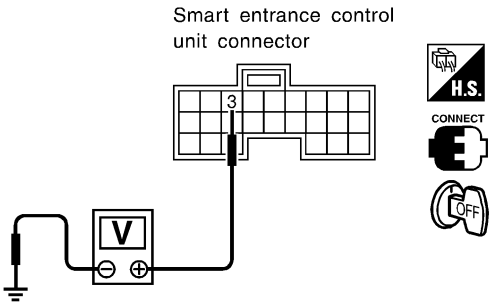
When rear door LH,RH and/or back is open:
DOOR SW-RR ON

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

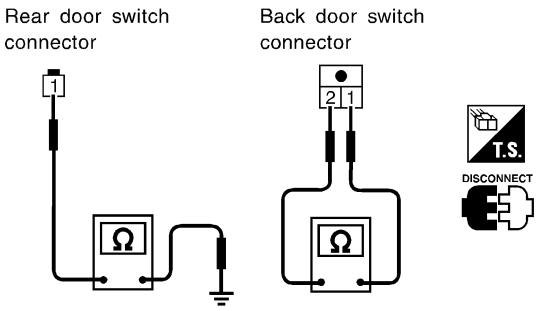
SEL155Y

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.

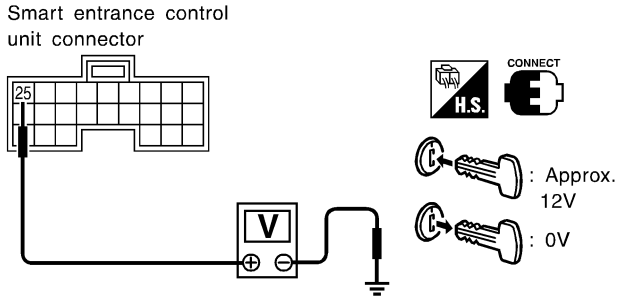
DATA MONITOR	
MONITOR	
KEY ON SW	ON

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

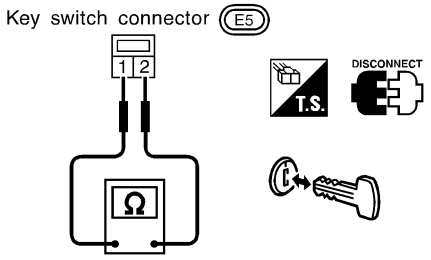
SEL011Y

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

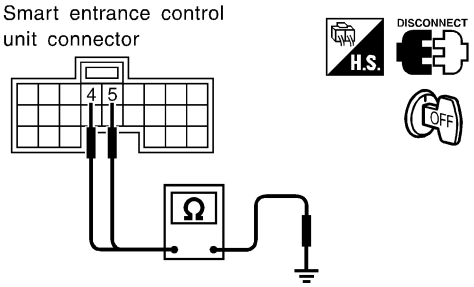
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

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

SEL341W

Without CONSULT-II

1. Disconnect smart entrance control unit harness connector .
2. Check continuity between smart entrance control unit harness connector M121 terminal 4 (LG/R) or 5 (BR) and ground.



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

SEL157Y

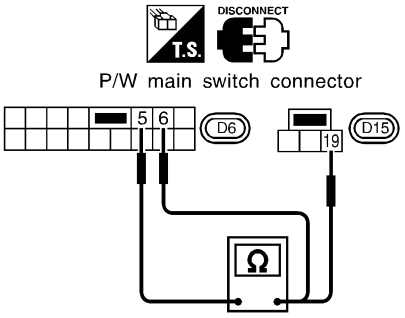
OK or NG

OK	▶	GO TO 12.
NG	▶	GO TO 11.

11 CHECK DOOR LOCK/UNLOCK SWITCH

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

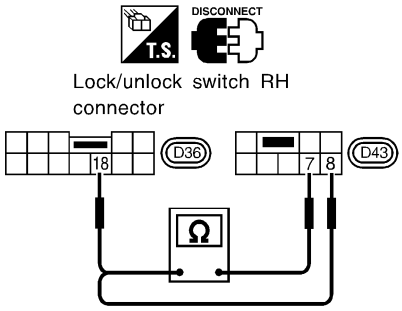
- Power window main switch (Door lock/unlock switch connector)



Condition	Terminals		
	5	19	6
Lock	○		○
N	No continuity		
Unlock	○	○	

SEL310X

- Door lock/unlock switch RH connector



Condition	Terminals		
	7	18	8
Lock	○		○
N	No continuity		
Unlock	○	○	

SEL311X

OK or NG

OK	▶	**Check the following.** • Ground circuit for door lock/unlock switch • Harness for open or short between door lock/unlock switch and smart entrance control unit connector
NG	▶	Replace door lock/unlock switch.

12 **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.

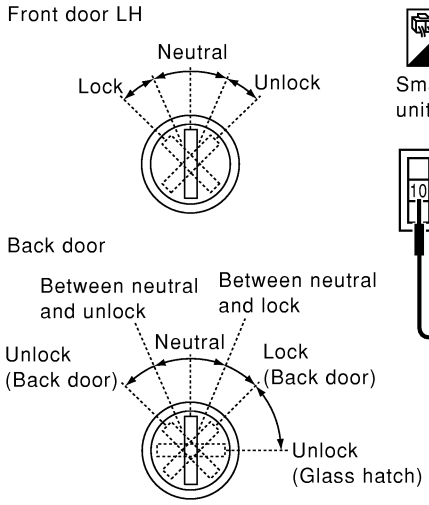
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

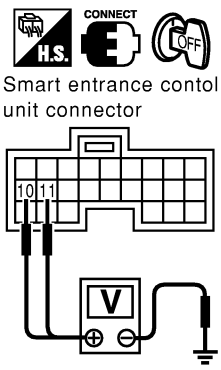
When key inserted in front key cylinder is turned to LOCK:
KEY CYL LK-SW ON
When key inserted in front key cylinder is turned to UNLOCK:
KEY CYL UN-SW ON

SEL342W

Without CONSULT-II

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





Door	Terminals (+)	Terminals (−)	Key position	Voltage V
Front door LH	11	Ground	Neutral/Unlock	Approx. 5
			Lock	0
	10	Ground	Neutral/Lock	Approx. 5
			Unlock	0
Back door	11	Ground	Between neutral and lock	0
			Other positions	Approx. 5
	10	Ground	Between neutral and unlock	0
			Other positions	Approx. 5

SEL280Y

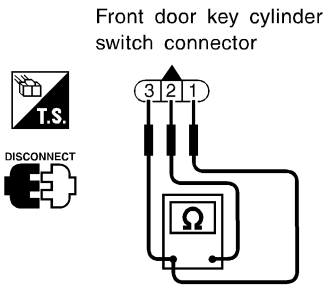
OK or NG

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

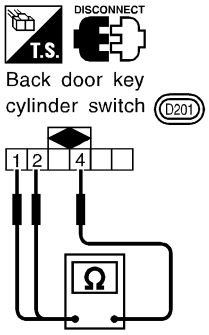


① : Door unlock switch terminal
② : Ground terminal
③ : Door lock switch terminal

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 or back door key cylinder switch and smart entrance control unit connector
NG	▶	Replace front or back door key cylinder switch.

DIAGNOSTIC PROCEDURE 2

NAEL0295S02

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

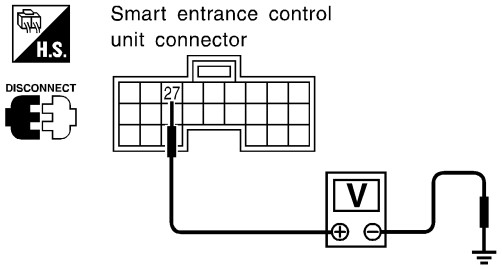
When ignition switch is ON:
IGN ON SW ON

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

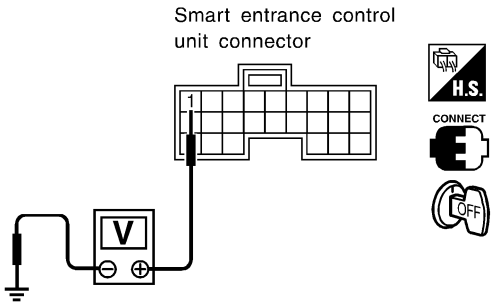
With CONSULT-II
Check driver door switch signal ("DOOR SW-DR") in "DATA MONITOR" mode with CONSULT-II.

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

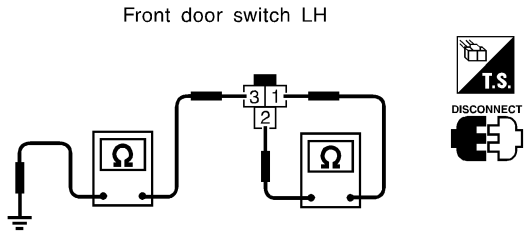
SEL004Y

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

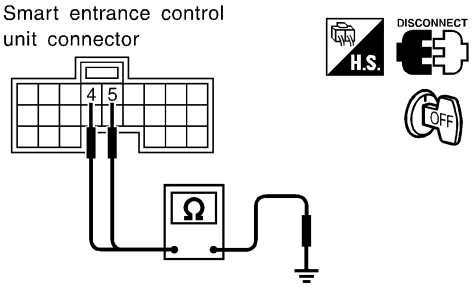
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

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

SEL341W

Without CONSULT-II

1. Disconnect smart entrance control unit harness connector .
2. Check continuity between smart entrance control unit harness connector M121 terminal 4 (LG/R) or 5 (BR) and ground.



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

SEL157Y

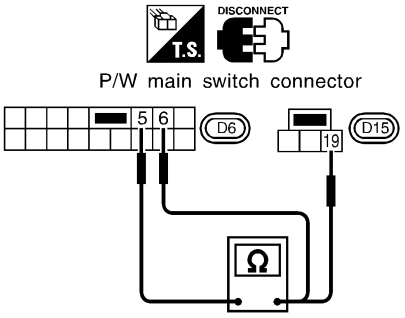
OK or NG

OK	▶	GO TO 6.
NG	▶	GO TO 5.

5 CHECK DOOR LOCK/UNLOCK SWITCH

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

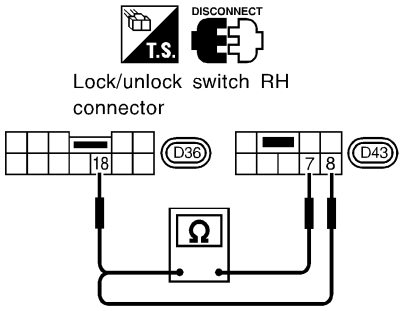
- Power window main switch (Door lock/unlock switch connector)



Condition	Terminals		
	5	19	6
Lock	○		○
N	No continuity		
Unlock	○	○	

SEL310X

- Door lock/unlock switch RH connector



Condition	Terminals		
	7	18	8
Lock	○		○
N	No continuity		
Unlock	○	○	

SEL311X

OK or NG

OK	▶	**Check the following.** • Ground circuit for door lock/unlock switch • Harness for open or short between door lock/unlock switch and smart entrance control unit connector
NG	▶	Replace door lock/unlock switch.

6 **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.

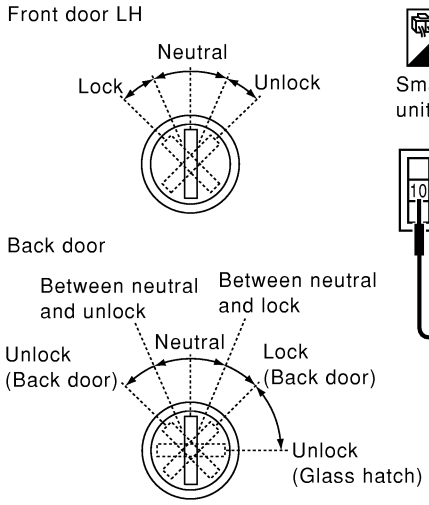
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

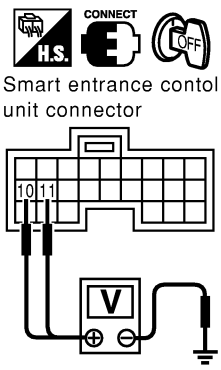
When key inserted in front key cylinder is turned to LOCK:
KEY CYL LK-SW ON
When key inserted in front key cylinder is turned to UNLOCK:
KEY CYL UN-SW ON

SEL342W

Without CONSULT-II

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





Door	Terminals (+)	Terminals (−)	Key position	Voltage V
Front door LH	11	Ground	Neutral/Unlock	Approx. 5
			Lock	0
	10	Ground	Neutral/Lock	Approx. 5
			Unlock	0
Back door	11	Ground	Between neutral and lock	0
			Other positions	Approx. 5
	10	Ground	Between neutral and unlock	0
			Other positions	Approx. 5

SEL280Y

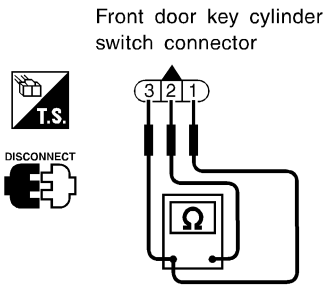
OK or NG

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

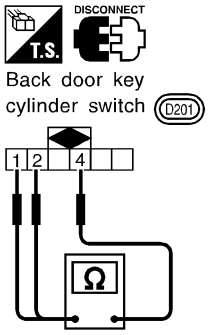


① : Door unlock switch terminal
② : Ground terminal
③ : Door lock switch terminal

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)		○	○

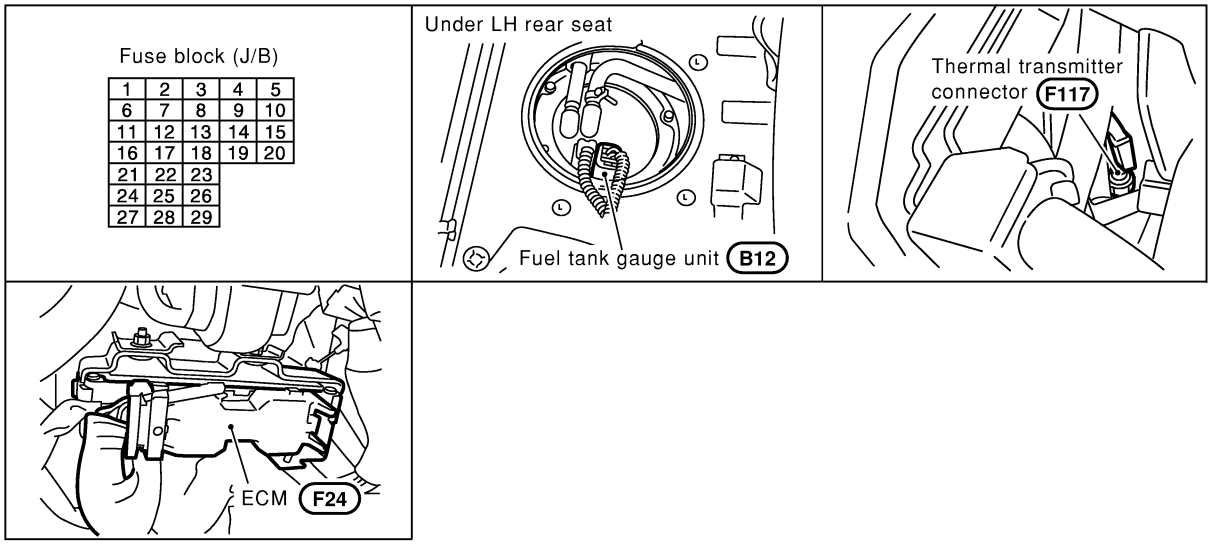
SEL315X

OK or NG

OK	▶	**Check the following.** ● Front or back door key cylinder switch ground circuit ● Harness for open or short between front 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

NAEL0296



SEL486Y

System Description

NAEL0297

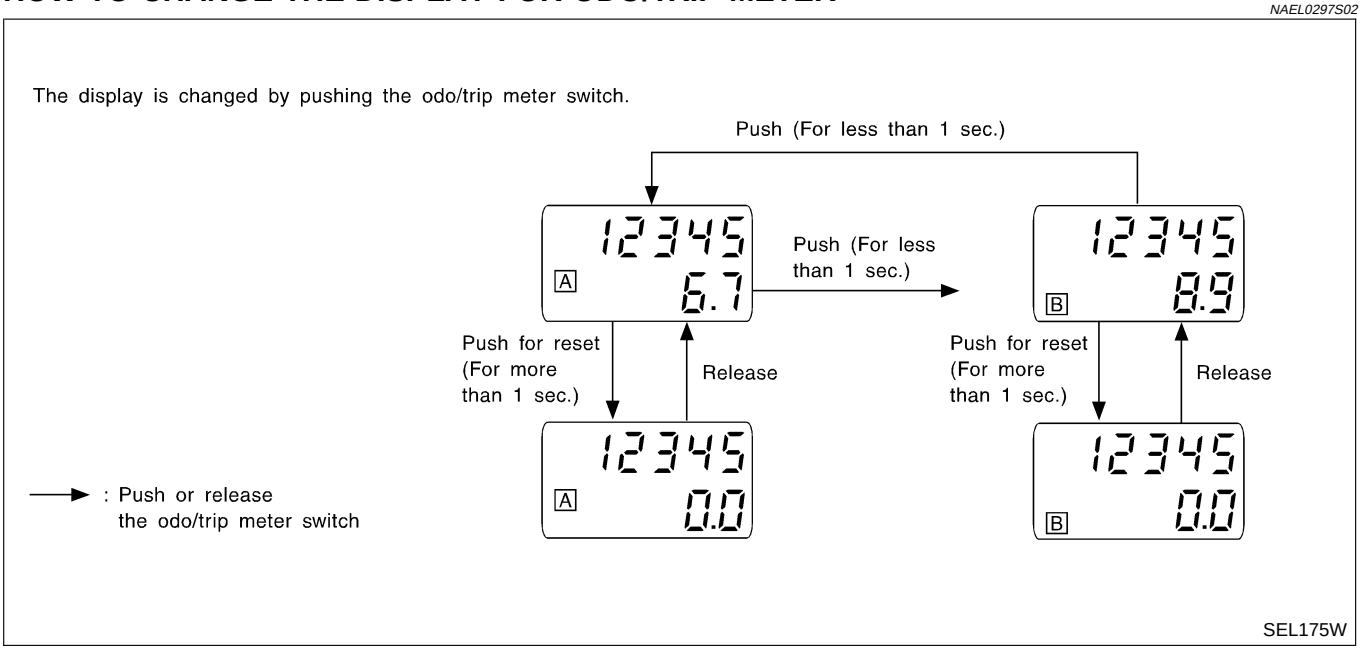
UNIFIED CONTROL METER

NAEL0297S01

- 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

NAEL0297S02



SEL175W

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

POWER SUPPLY AND GROUND CIRCUIT

NAEL0297S03

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.

Ground is supplied

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

WATER TEMPERATURE GAUGE

NAEL0297S04

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

NAEL0297S05

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

NAEL0297S06

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

NAEL0297S07

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.

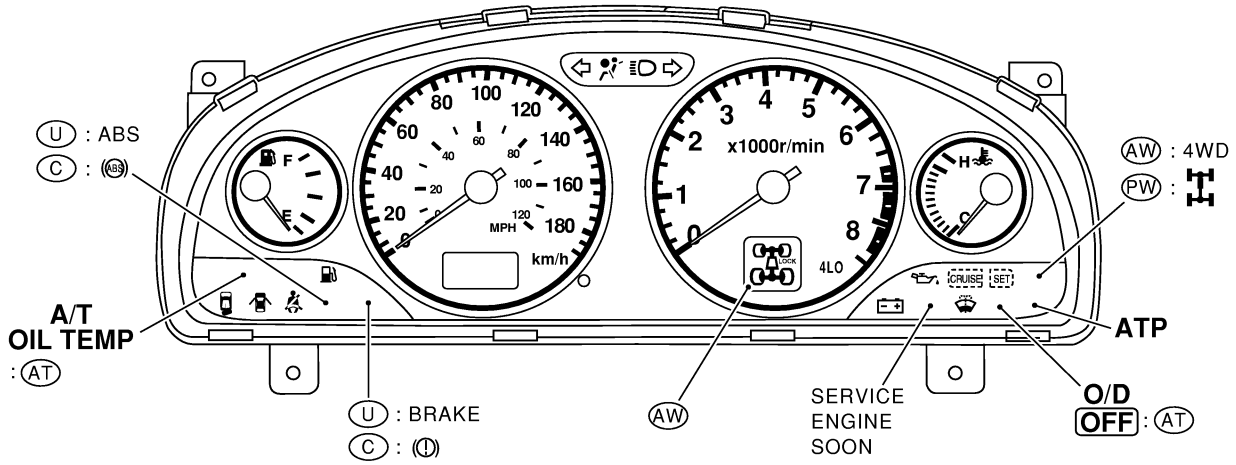
The speedometer converts the voltage into the vehicle speed displayed.

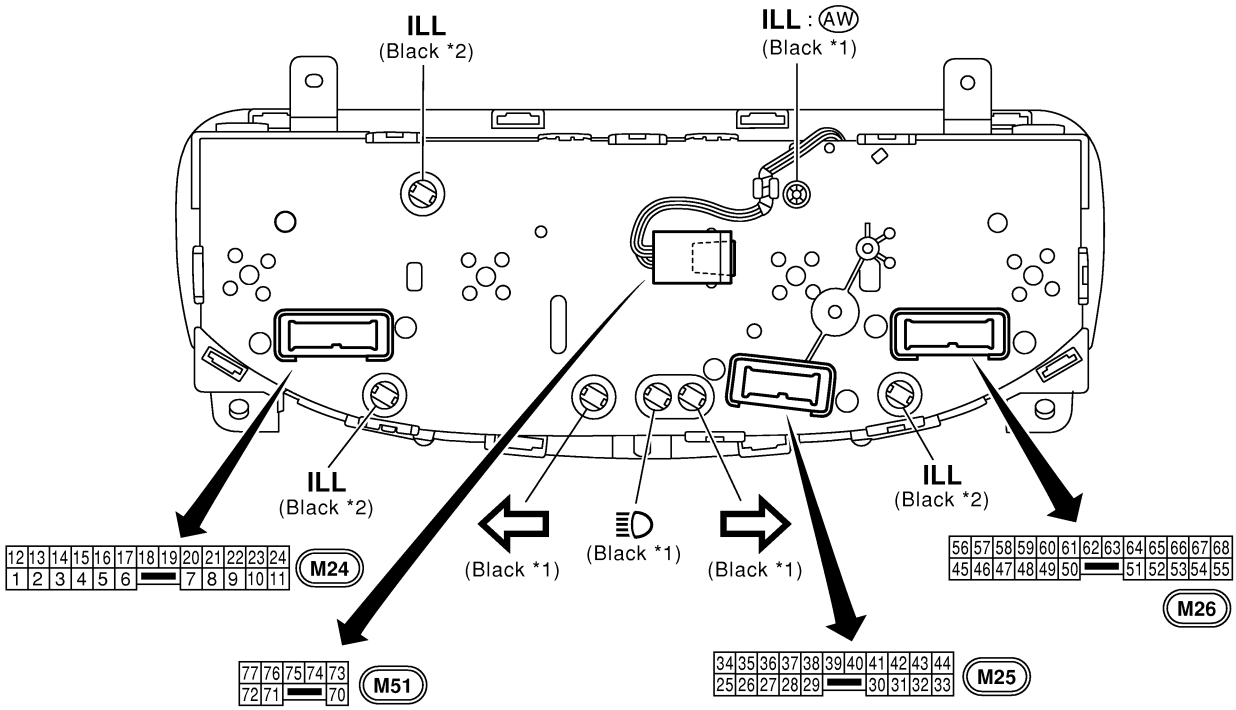
Combination Meter

CHECK

NAEL0298

NAEL0298S01





Bulb socket color	Bulb wattage
Black (*1)	1.4W
Black (*2)	3.0W

( ): Warning bulb socket color

U : For USA

C : For Canada

AW : With all-mode 4-wheel drive

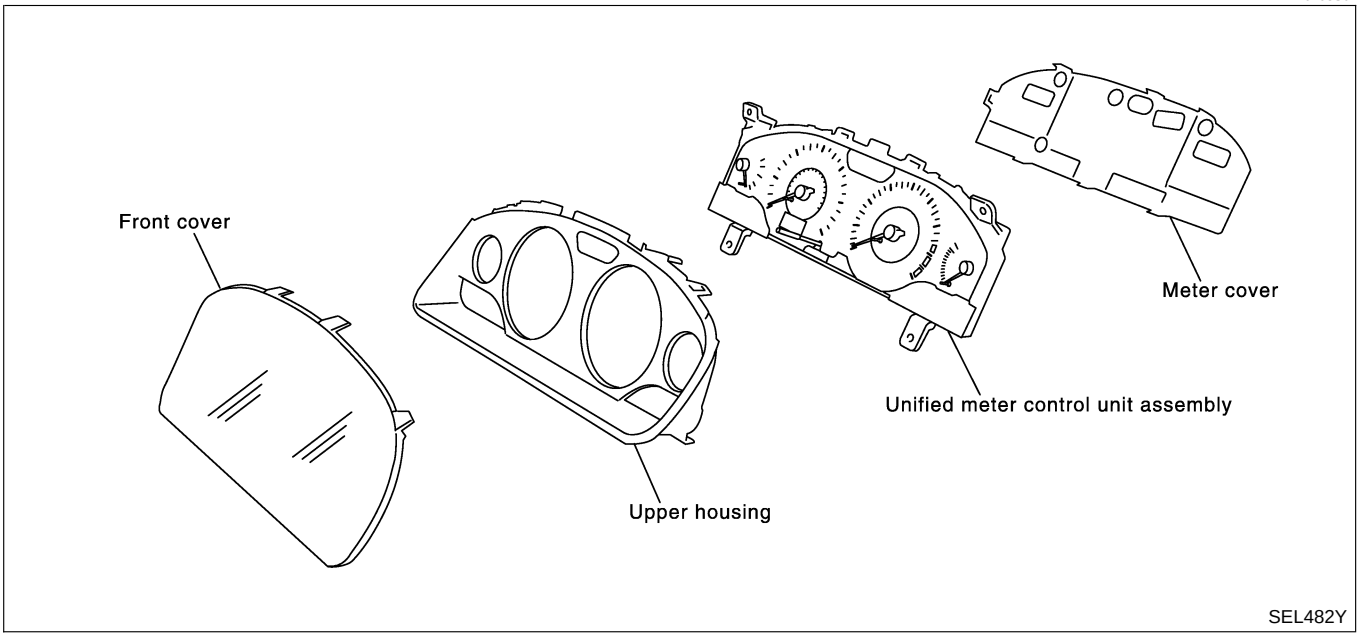
PW : With part-time 4-wheel drive

AT : With A/T

MEL915O

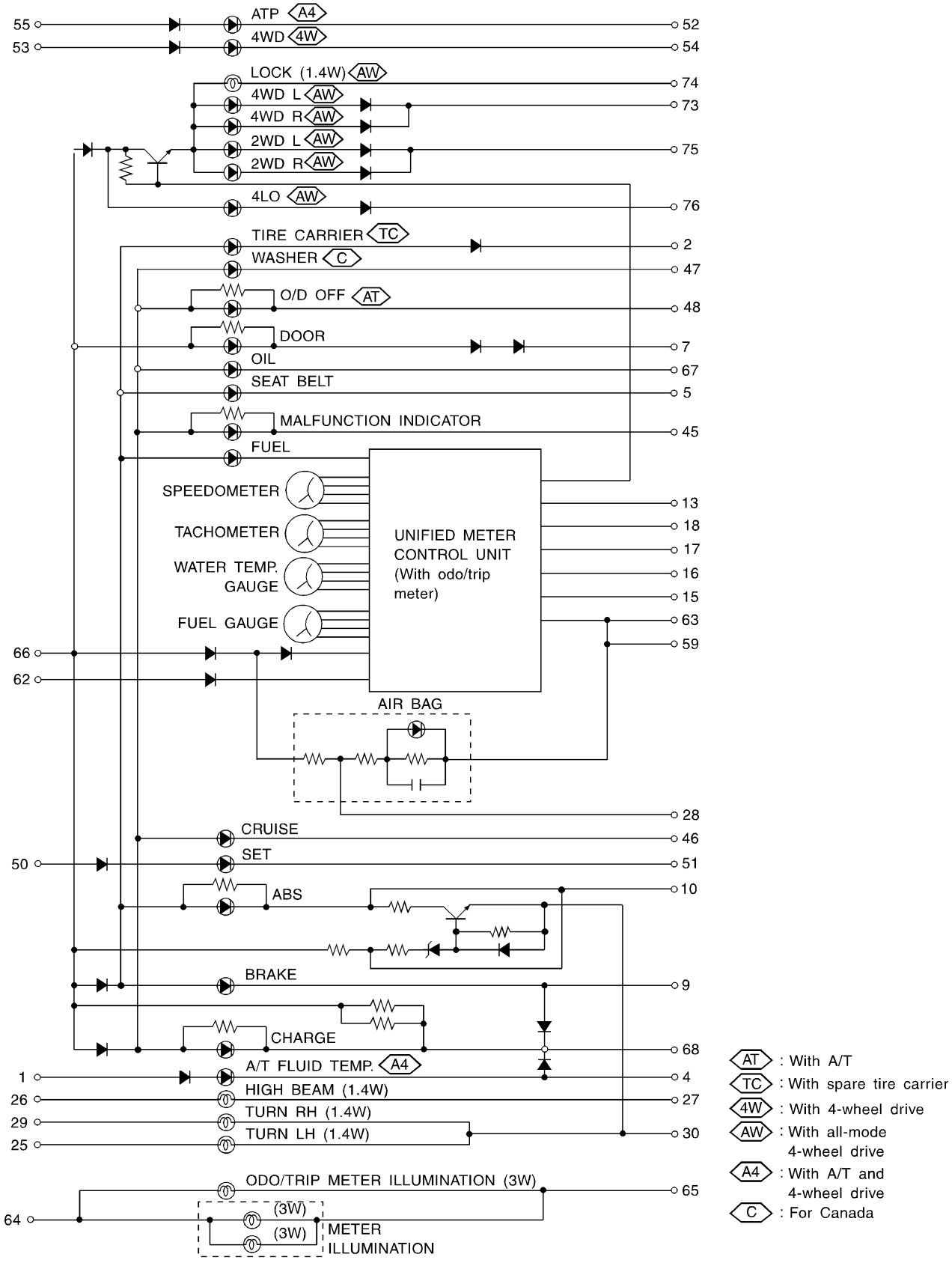
CONSTRUCTION

NAEL0298S02



Schematic

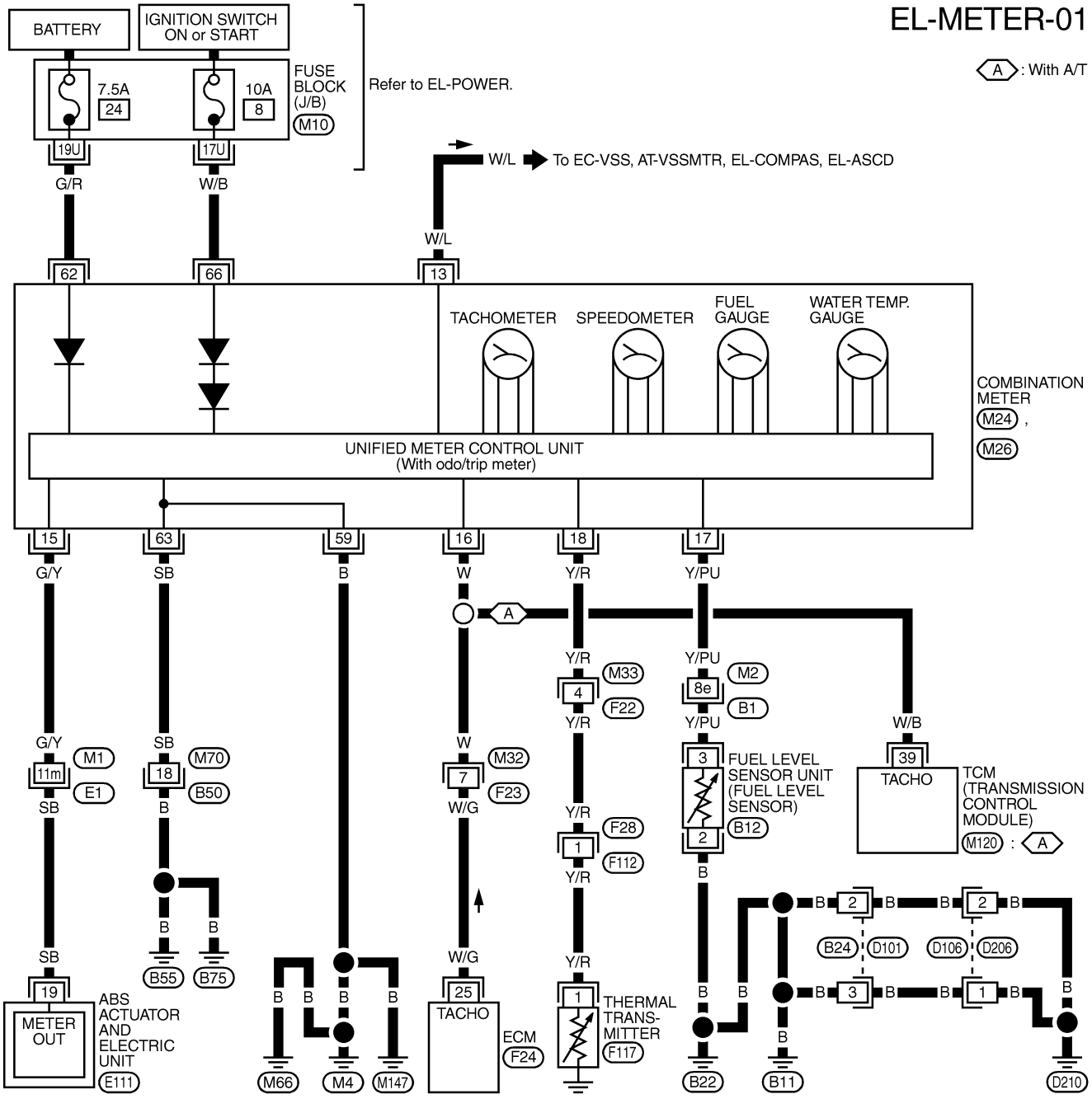
NAEL0299

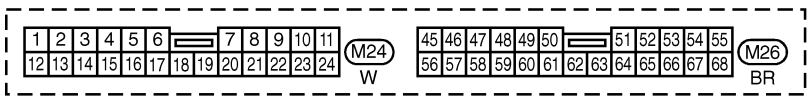


MEL411P

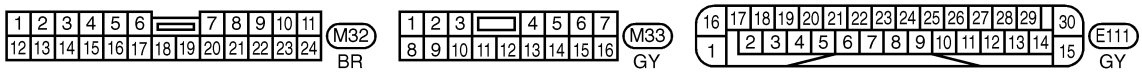
Wiring Diagram — METER —

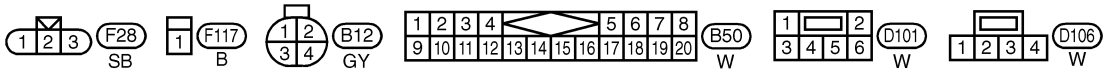
NAEL0300





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





MEL412P

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

NAEL0301

DIAGNOSIS FUNCTION

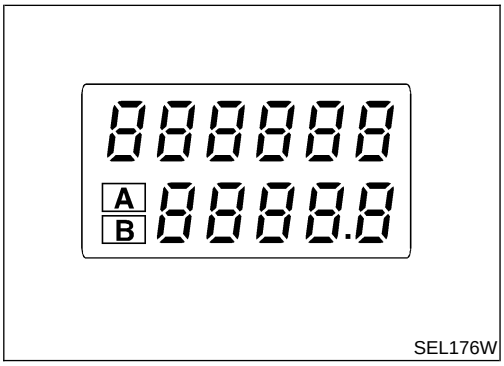
NAEL0301S01

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

HOW TO ALTERNATE DIAGNOSIS MODE

NAEL0301S02

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.

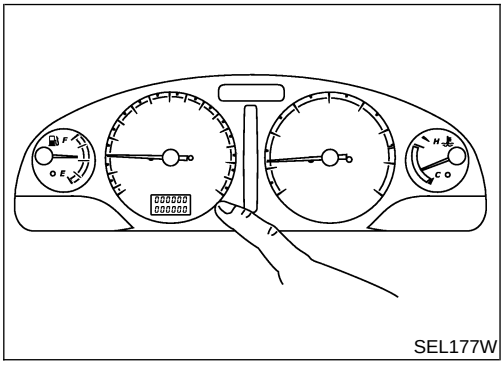


SEL176W

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.

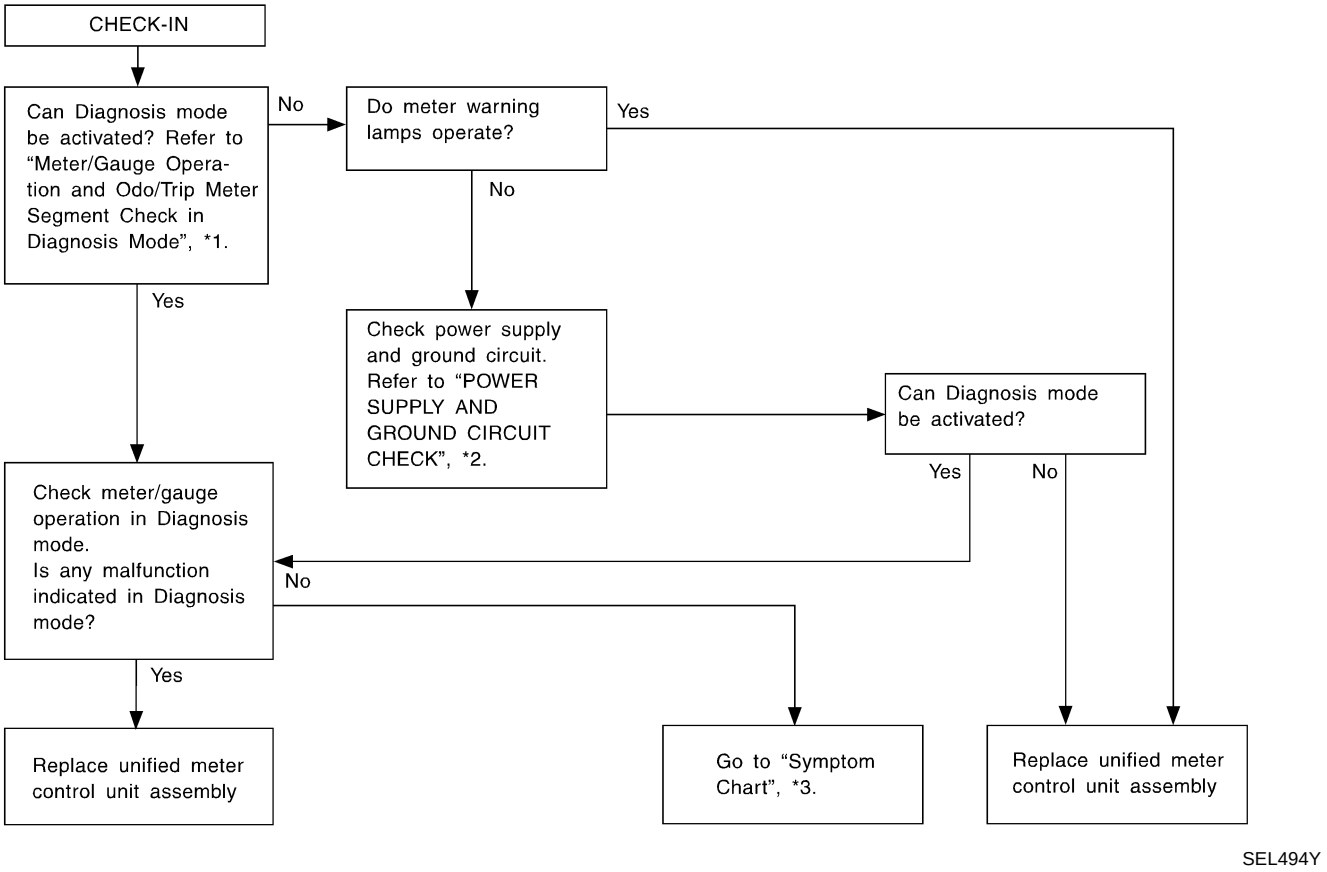
NOTE:
It takes about a few seconds for indication of fuel gauge and water temperature gauge to become stable.

Trouble Diagnoses

NAEL0302

PRELIMINARY CHECK

NAEL0302S01



*1: Meter/Gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode (EL-124)

*2: POWER SUPPLY AND GROUND CIRCUIT CHECK (EL-126)

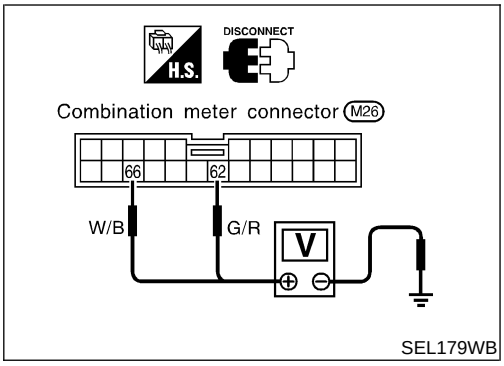
*3: Symptom Chart 1 (EL-125)

SYMPTOM CHART

NAEL0302S02

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-127.) INSPECTION/ENGINE REVOLUTION SIGNAL (Refer to EL-128.) INSPECTION/FUEL LEVEL SENSOR UNIT (Refer to EL-129.) INSPECTION/THERMAL TRANSMITTER (Refer to EL-130.) 2. Replace unified meter control unit assembly.
Multiple meter/gauge are malfunctioning. (except odo/trip meter)	Unified meter control unit	

Before starting trouble diagnoses below, perform PRELIMINARY CHECK, EL-125.



POWER SUPPLY AND GROUND CIRCUIT CHECK

=NAEL0302S03

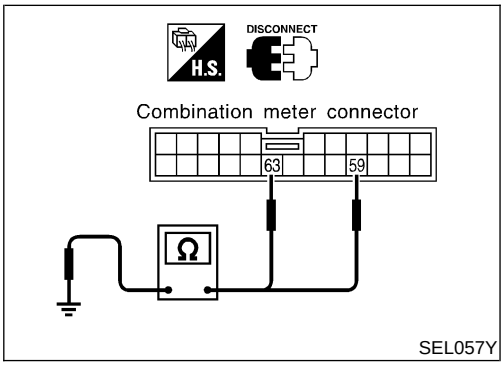
Power Supply Circuit Check

NAEL0302S0301

Terminals		Ignition switch position		
(+)	(−)	OFF	ACC	ON
62	Ground	Battery voltage	Battery voltage	Battery voltage
66	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)]
- Harness for open or short between fuse and combination meter



Ground Circuit Check

NAEL0302S0302

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

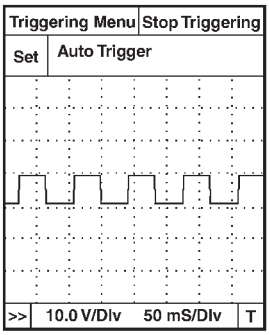
INSPECTION/VEHICLE SPEED SIGNAL

=NAEL0302S04

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.)



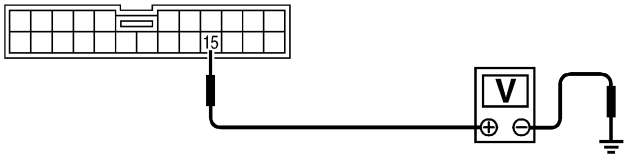
SEL938W

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

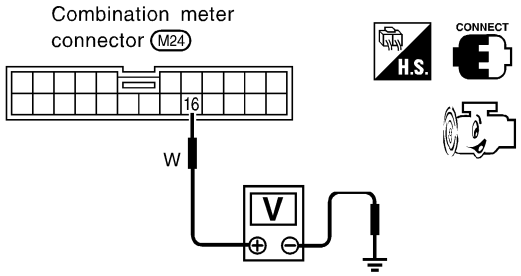
OK	▶	ABS control unit is OK.
NG	▶	**Check the following.** ● Harness for open or short between ABS actuator and electric unit and combination meter. ● ABS actuator and electric unit. Refer to BR-59, "Wheel Sensor or Rotor".

INSPECTION/ENGINE REVOLUTION SIGNAL

NAEL0302S05

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

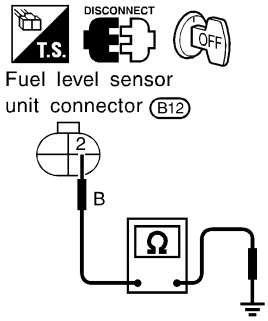
OK	▶	Engine revolution signal is OK.
NG	▶	Harness for open or short between ECM and combination meter

INSPECTION/FUEL LEVEL SENSOR UNIT

=NAEL0302S06

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

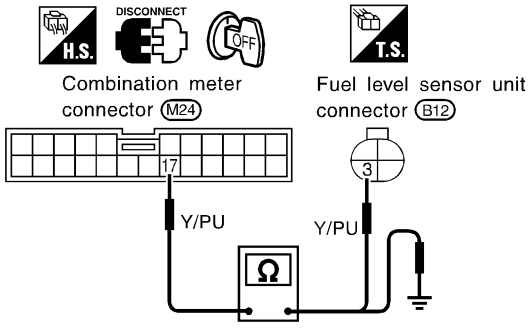
Refer to "FUEL LEVEL SENSOR UNIT CHECK" (EL-131).

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

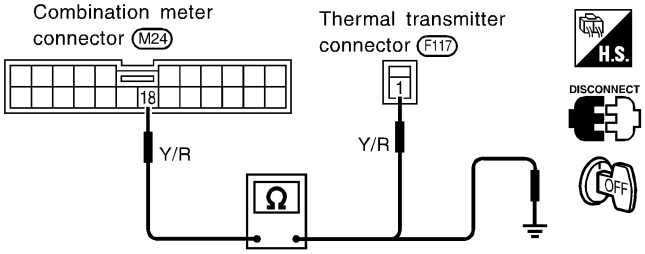
OK or NG

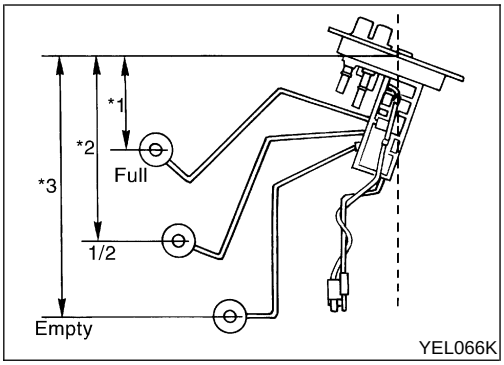
OK	▶	Fuel level sensor unit is OK.
NG	▶	Repair harness or connector.

INSPECTION/THERMAL TRANSMITTER

=NAEL0302S07

1	CHECK THERMAL TRANSMITTER	
Refer to "THERMAL TRANSMITTER CHECK" (EL-131).		
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.**		
 SEL184WA		
OK or NG		
OK	▶	Thermal transmitter is OK.
NG	▶	Repair harness or connector.



Electrical Components Inspection

=NAEL0303

FUEL LEVEL SENSOR UNIT CHECK

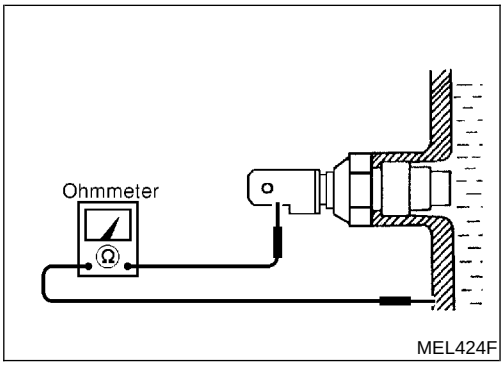
NAEL0303S02

- 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

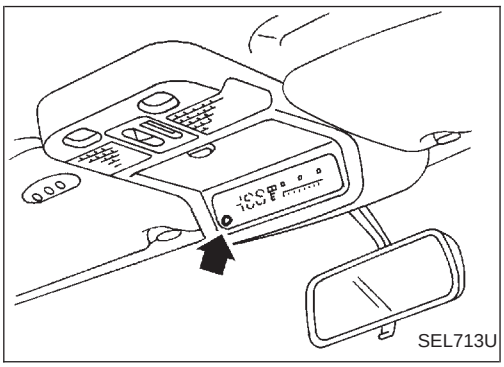
NAEL0303S03

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

NAEL0304



This unit displays following items:

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

OUTSIDE TEMPERATURE DISPLAY

NAEL0304S01

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.)

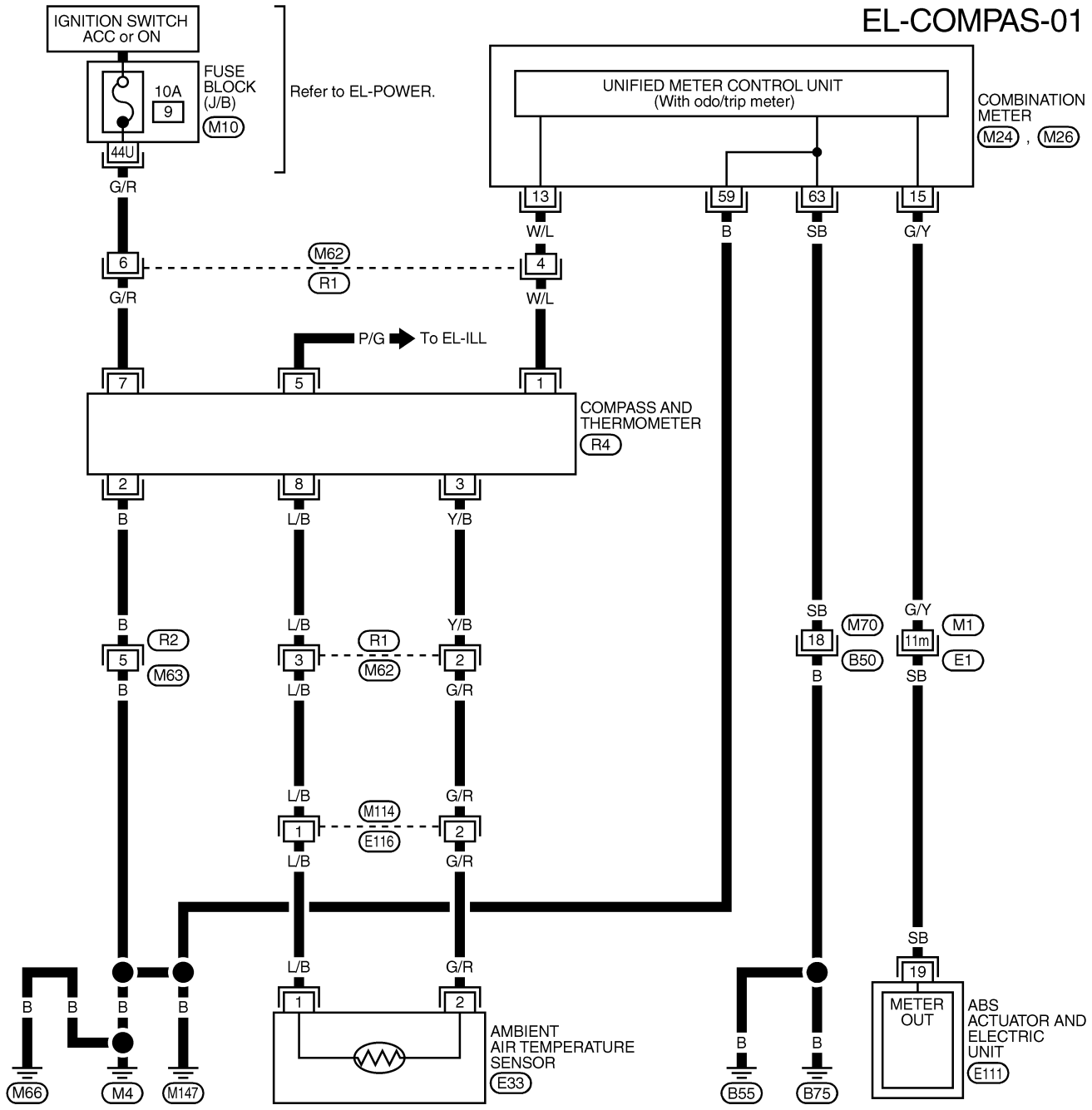
DIRECTION DISPLAY

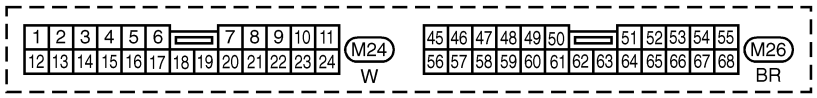
NAEL0304S02

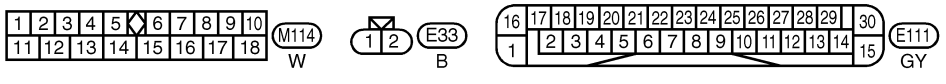
Push the switch when the ignition key is in the “ACC” or “ON” position. The direction will be displayed.

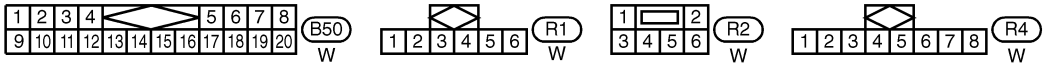
Wiring Diagram — COMPAS —

NAEL0305









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

MEL346N

Trouble Diagnoses

NAEL0306

PRELIMINARY CHECK FOR THERMOMETER

NAEL0306S01

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

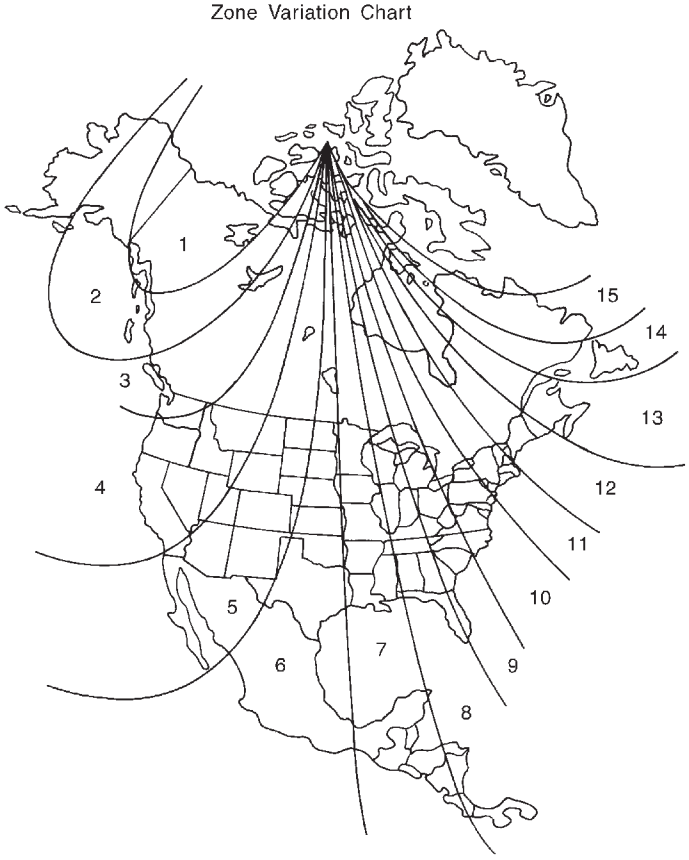
NAEL0306S02

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

=NAEL0307

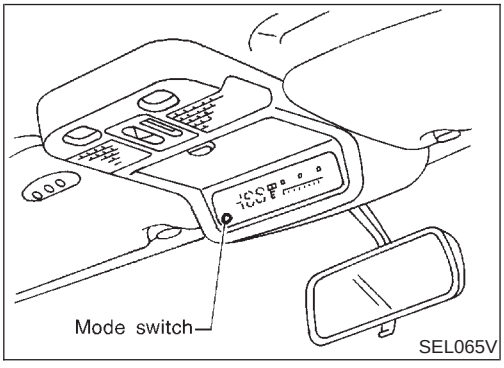
The difference between magnetic North and geographical North can sometimes be great enough to cause false compass readings. In order for the compass to operate accurately in a particular zone, it must be calibrated using the following procedure.



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

NAEL0307S01

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

NAEL0307S02

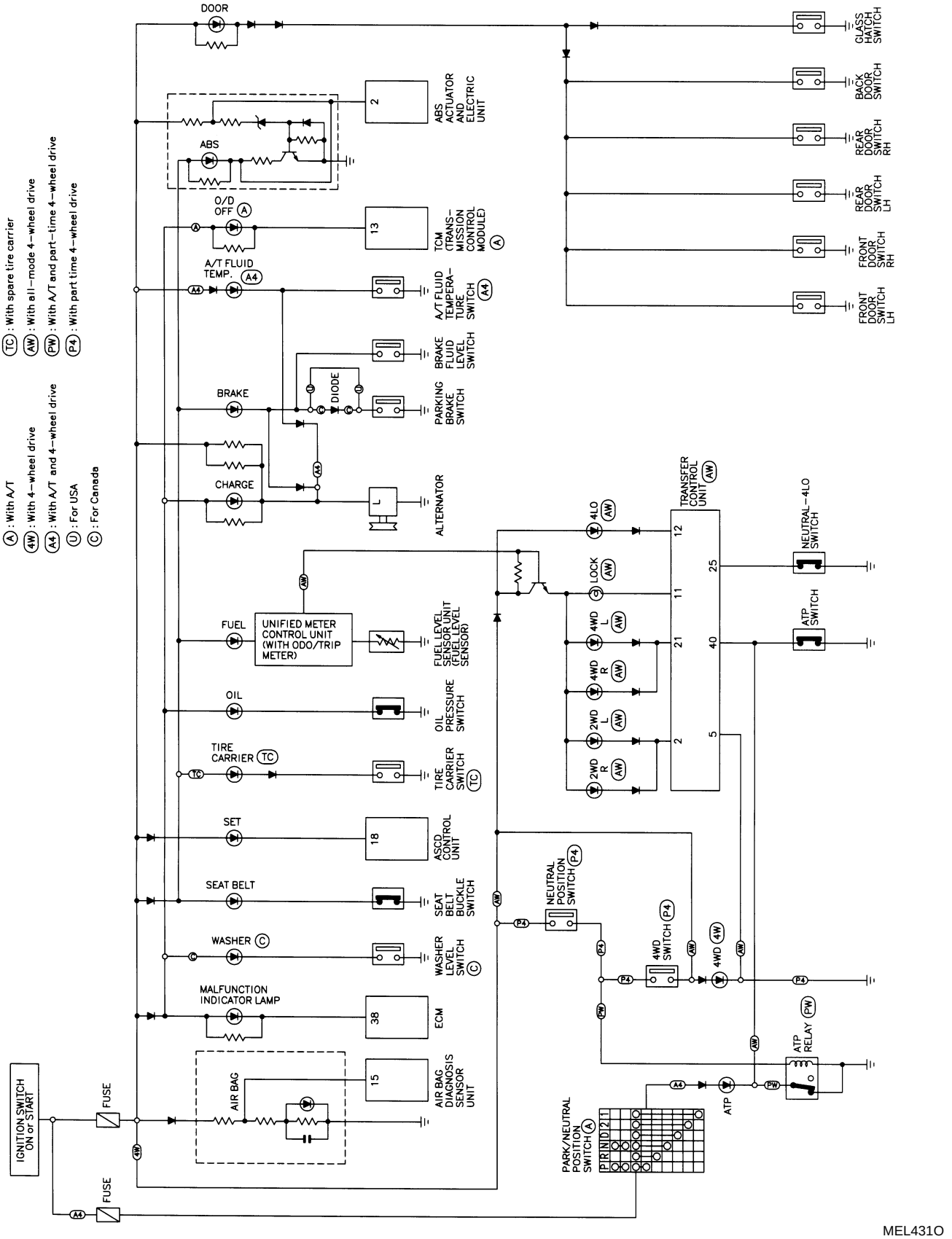
1. Pushing the "Mode" switch for about 10 seconds will enter the initial correction mode. The direction bar starts blinking.
2. Turn the vehicle slowly in an open, safe place. The initial correction is completed in one or two turns.

NOTE:

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

Schematic

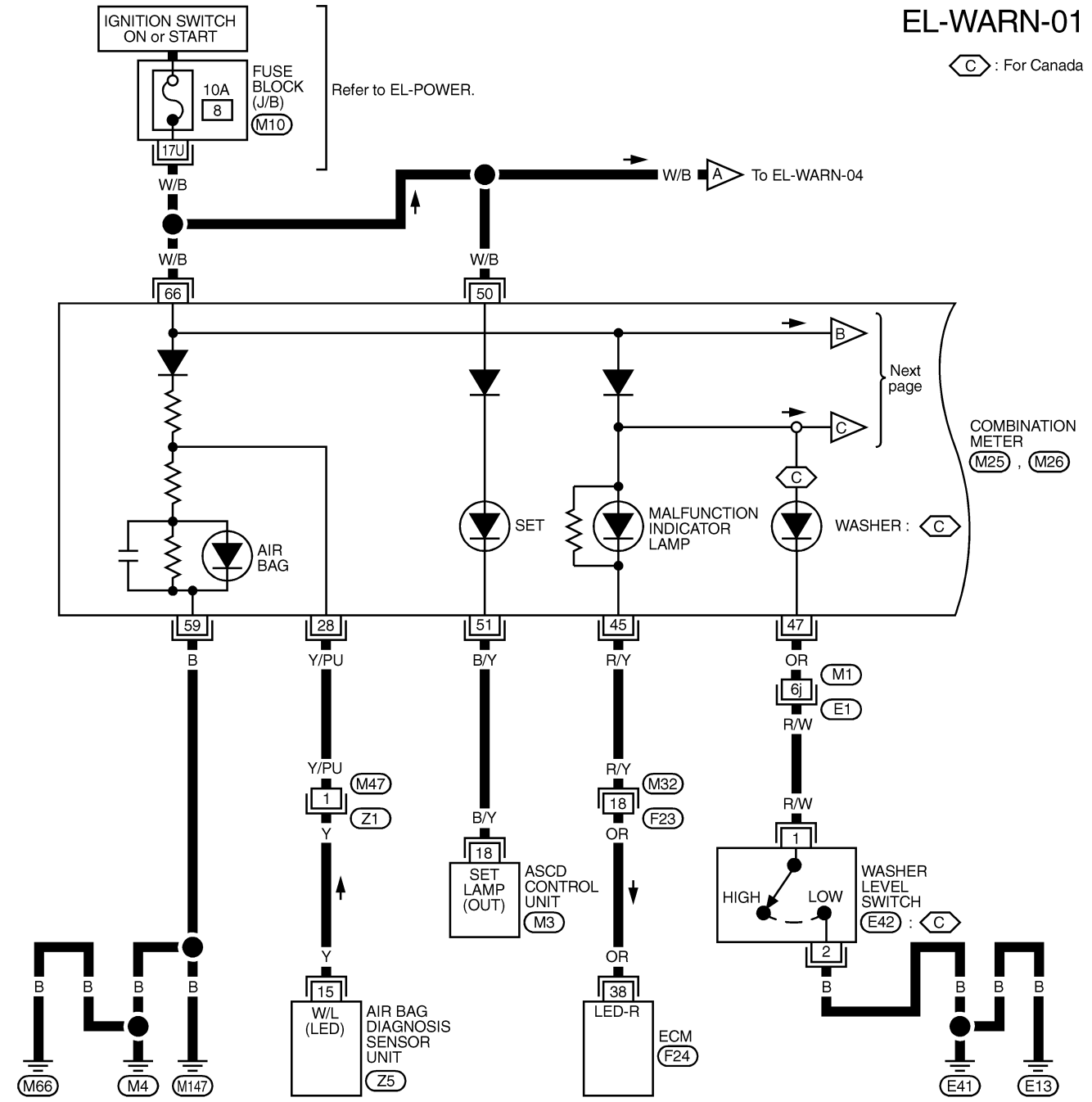
NAEL0308

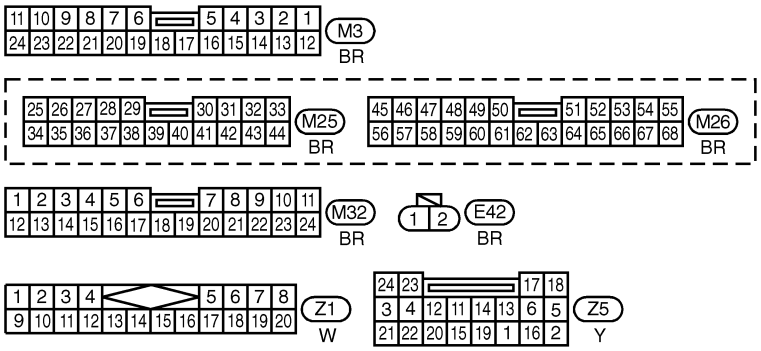


MEL431O

Wiring Diagram — WARN —

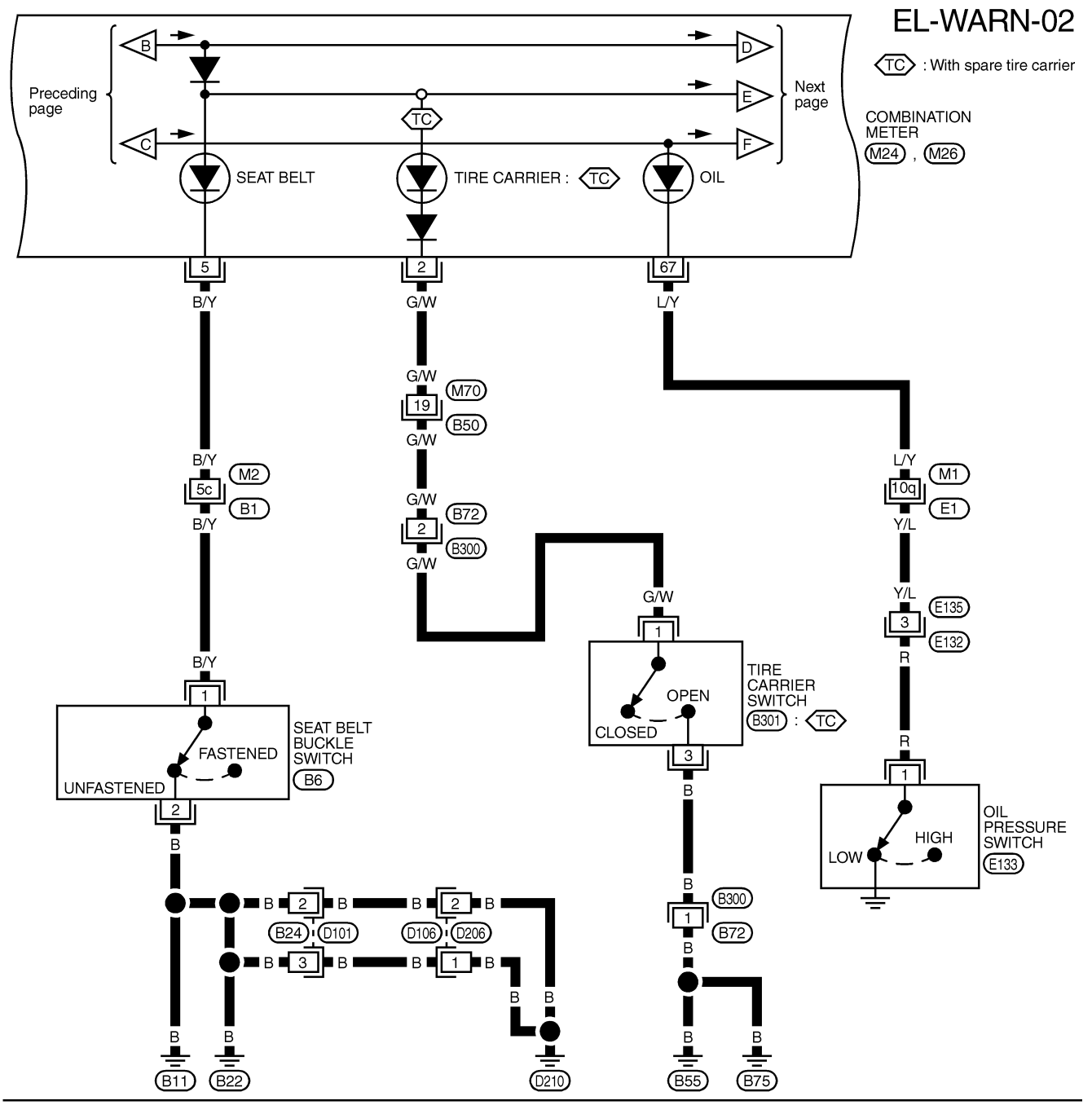
NAEL0309





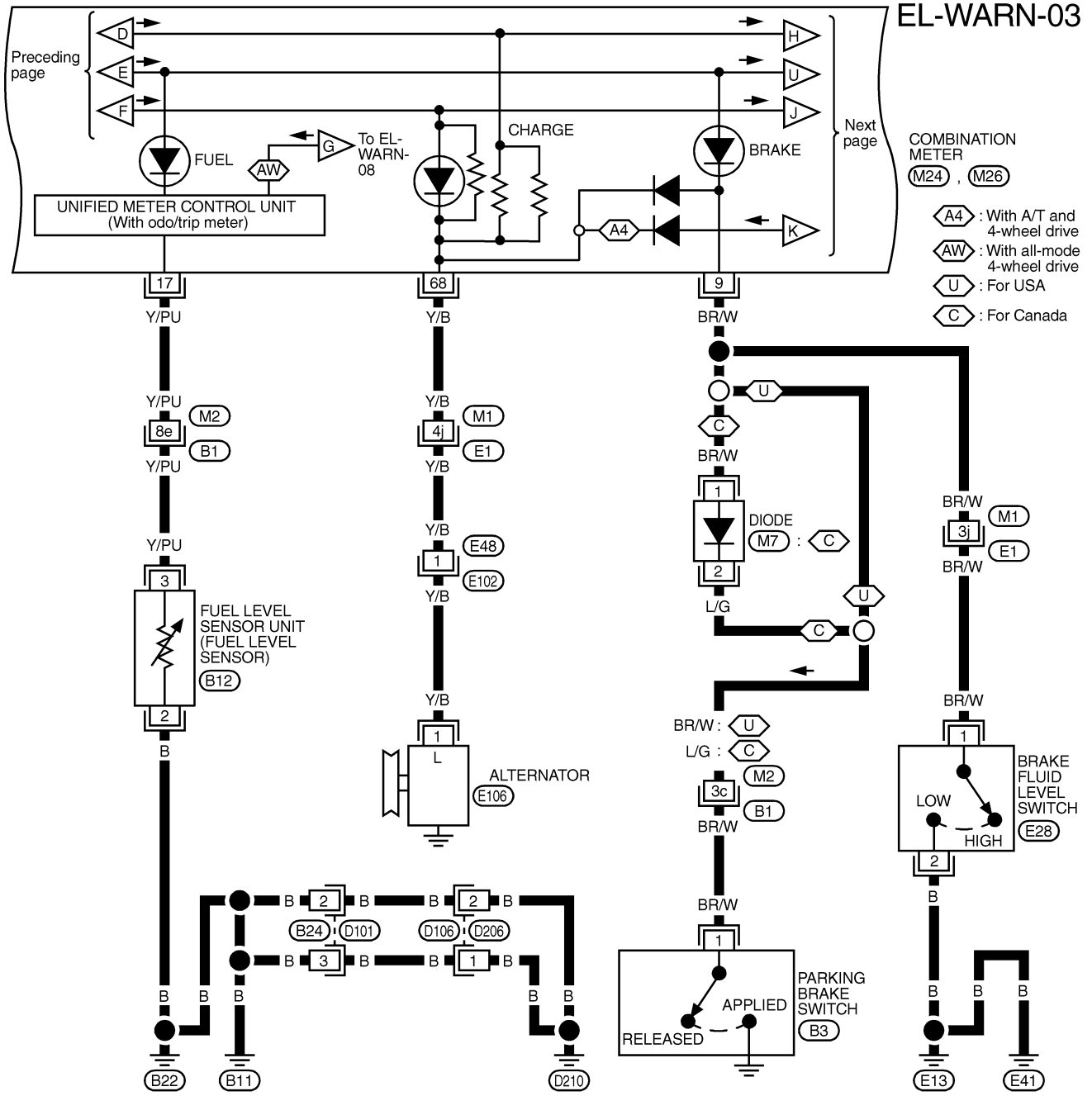
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)
F24 -ELECTRICAL UNITS-

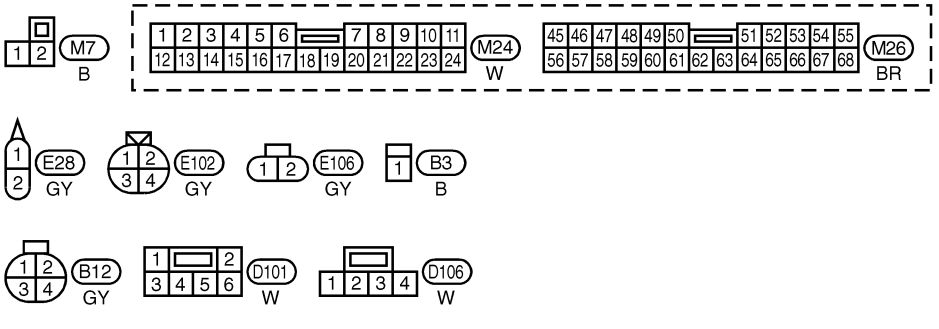
MEL413P



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

MEL414P

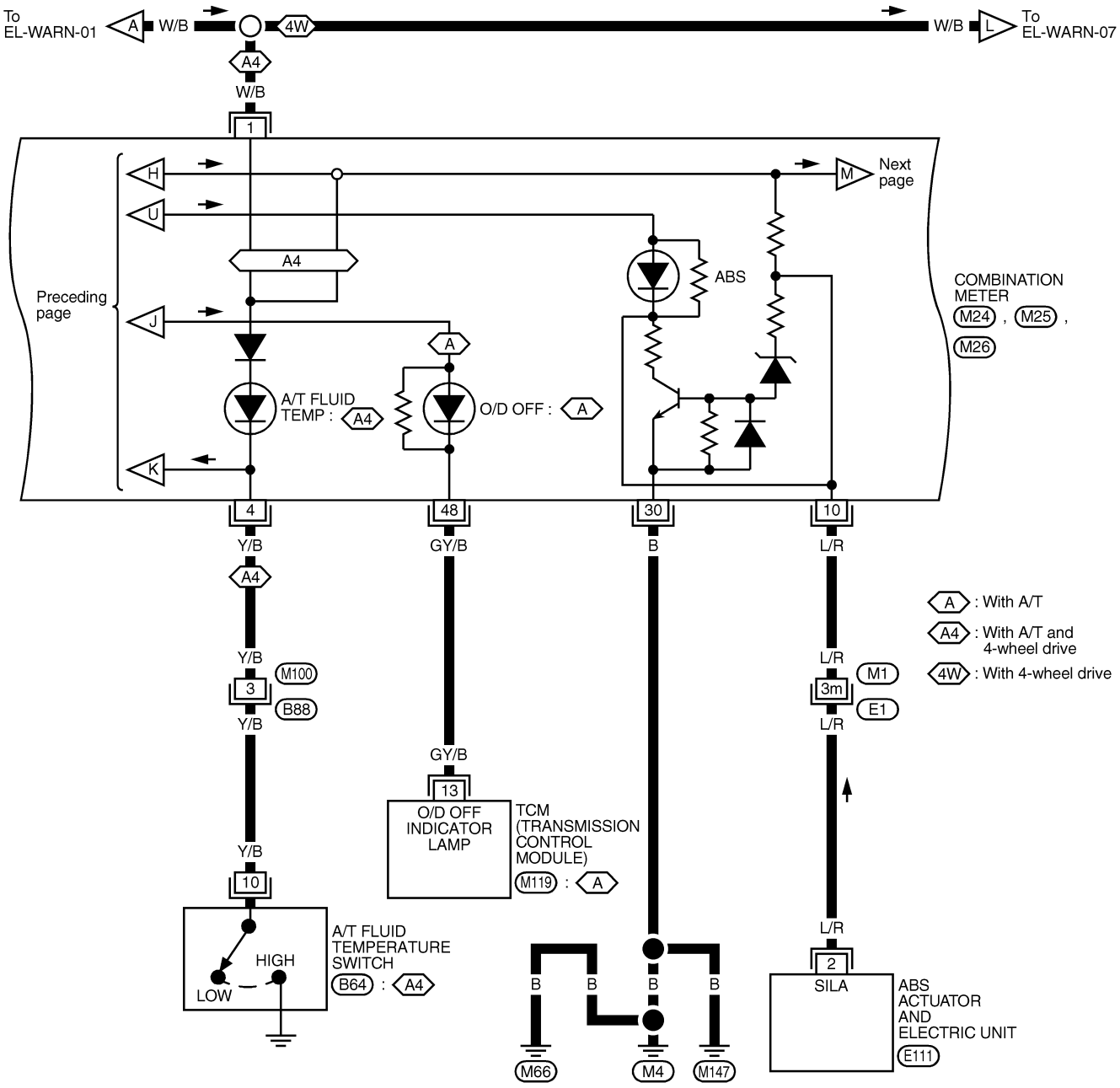




REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

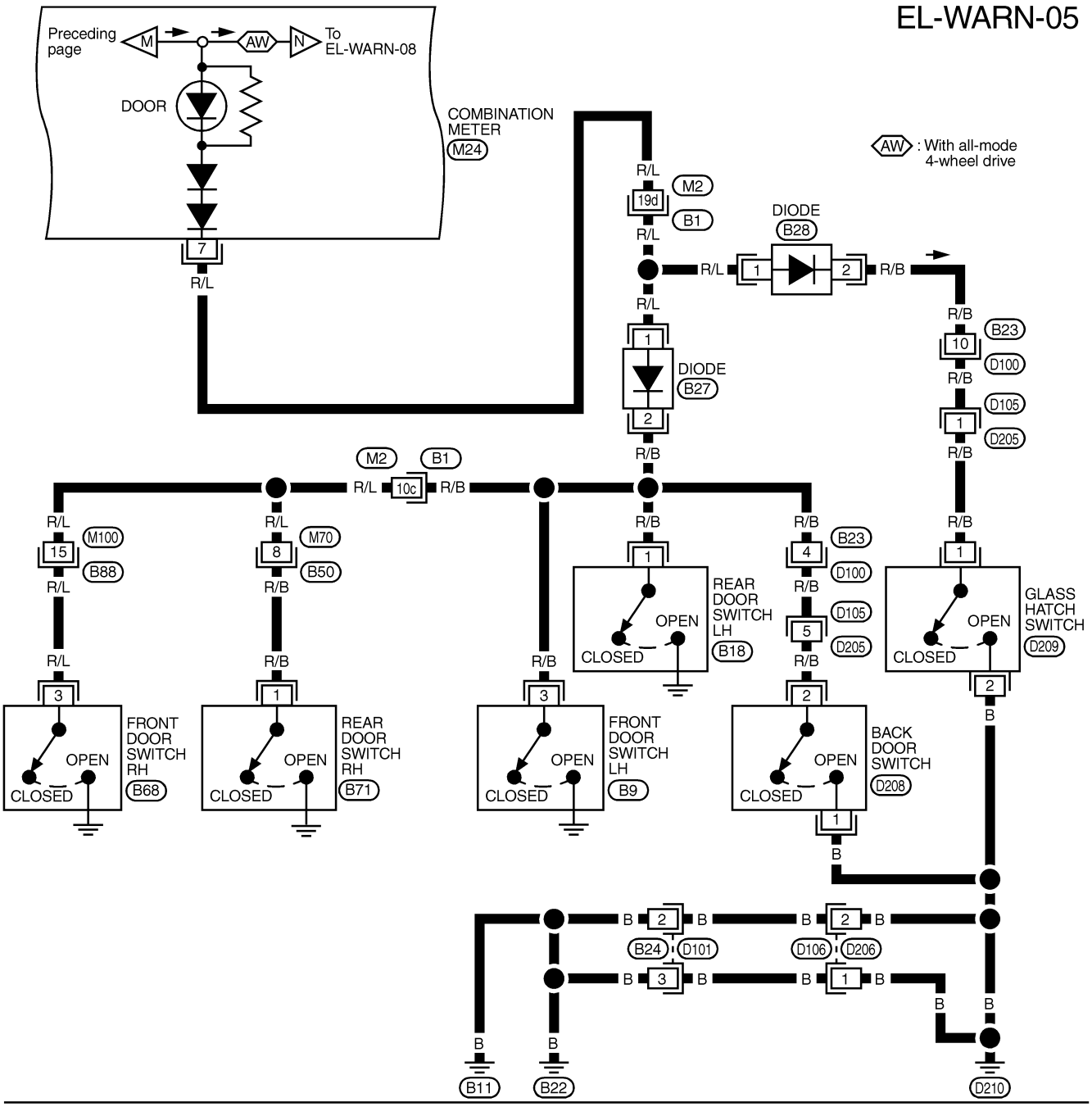
MEL405O

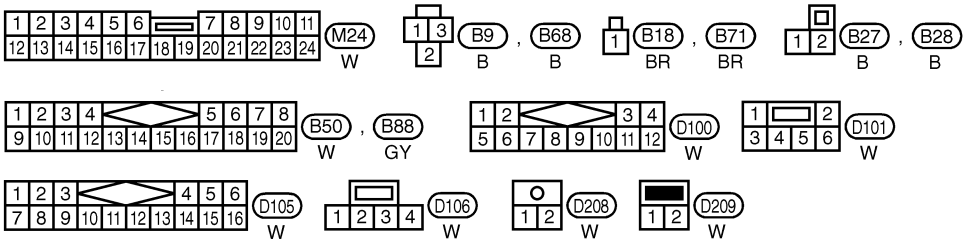
EL-WARN-04



MEL432O

EL-WARN-05

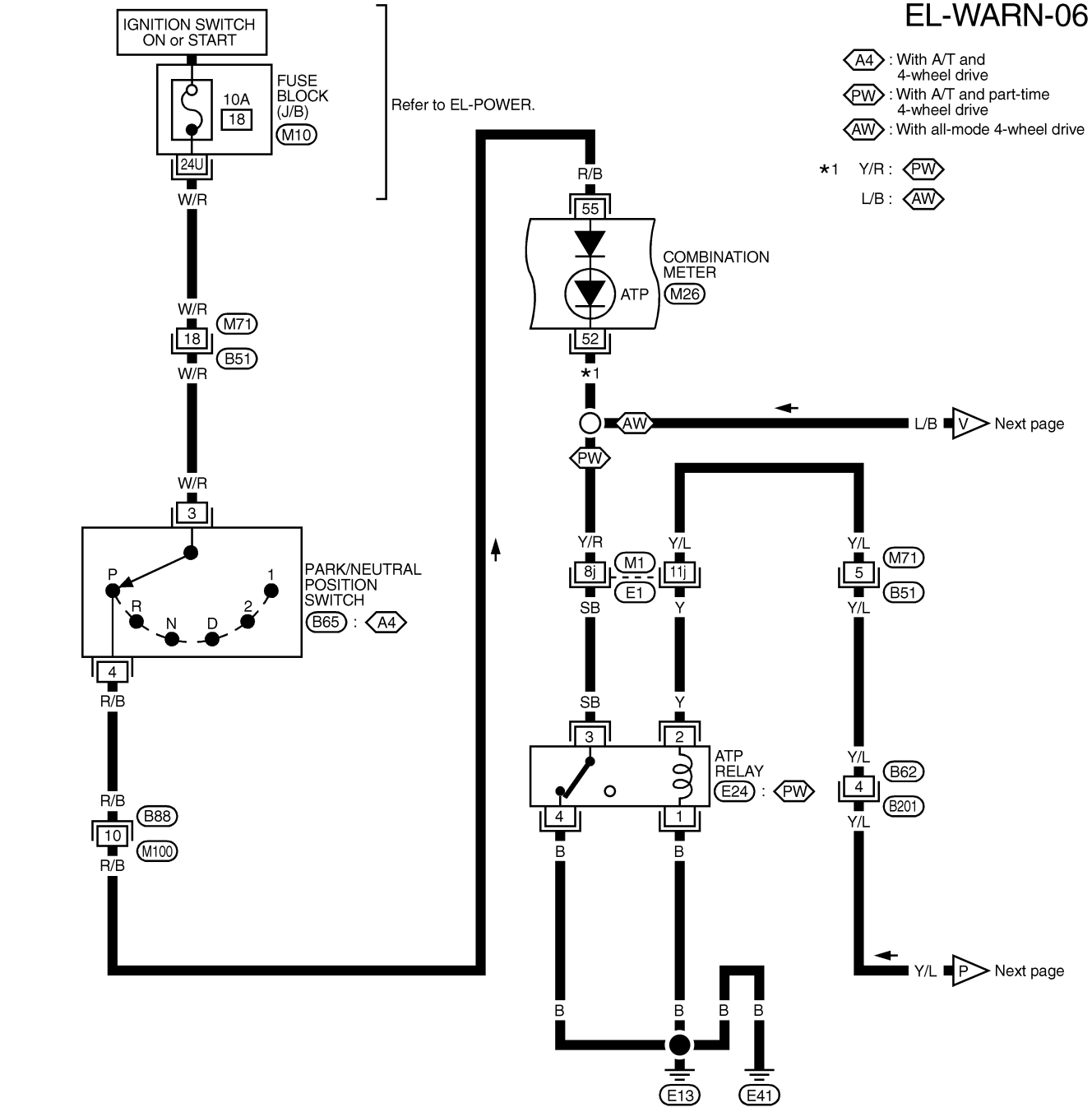


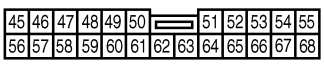


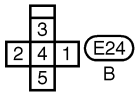
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

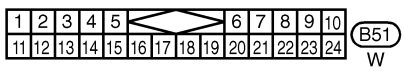
MEL406O

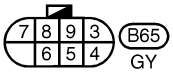
Wiring Diagram — WARN — (Cont'd)

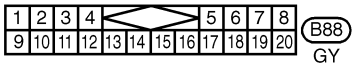


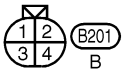






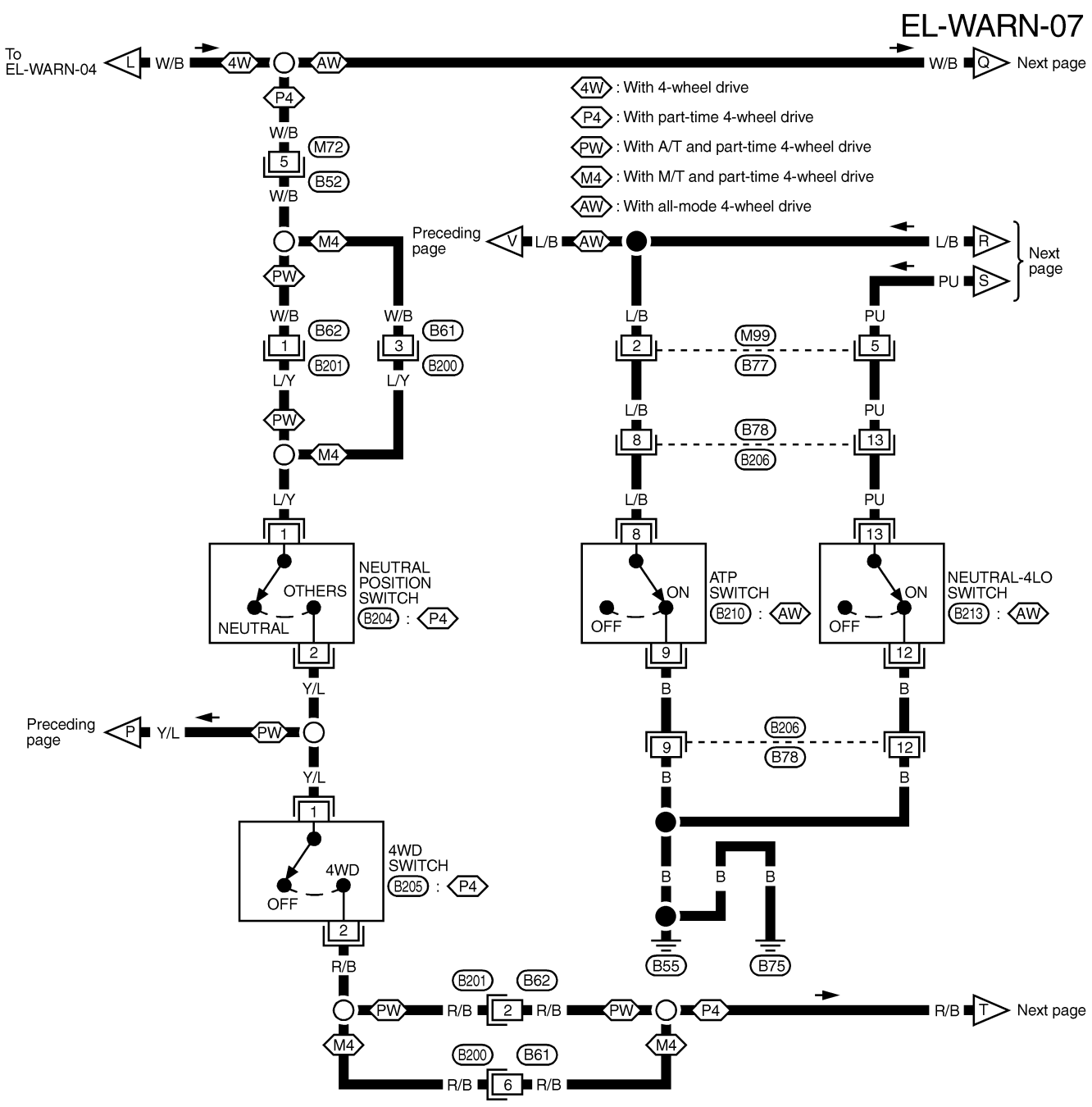


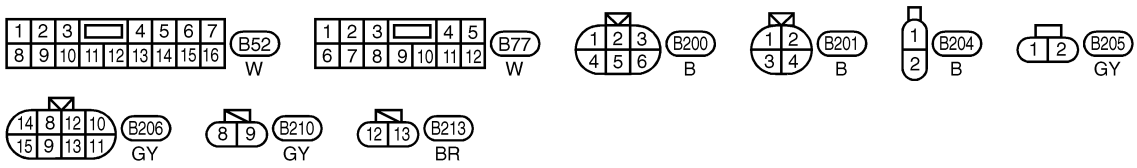




REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK-JUNCTION BOX (J/B)

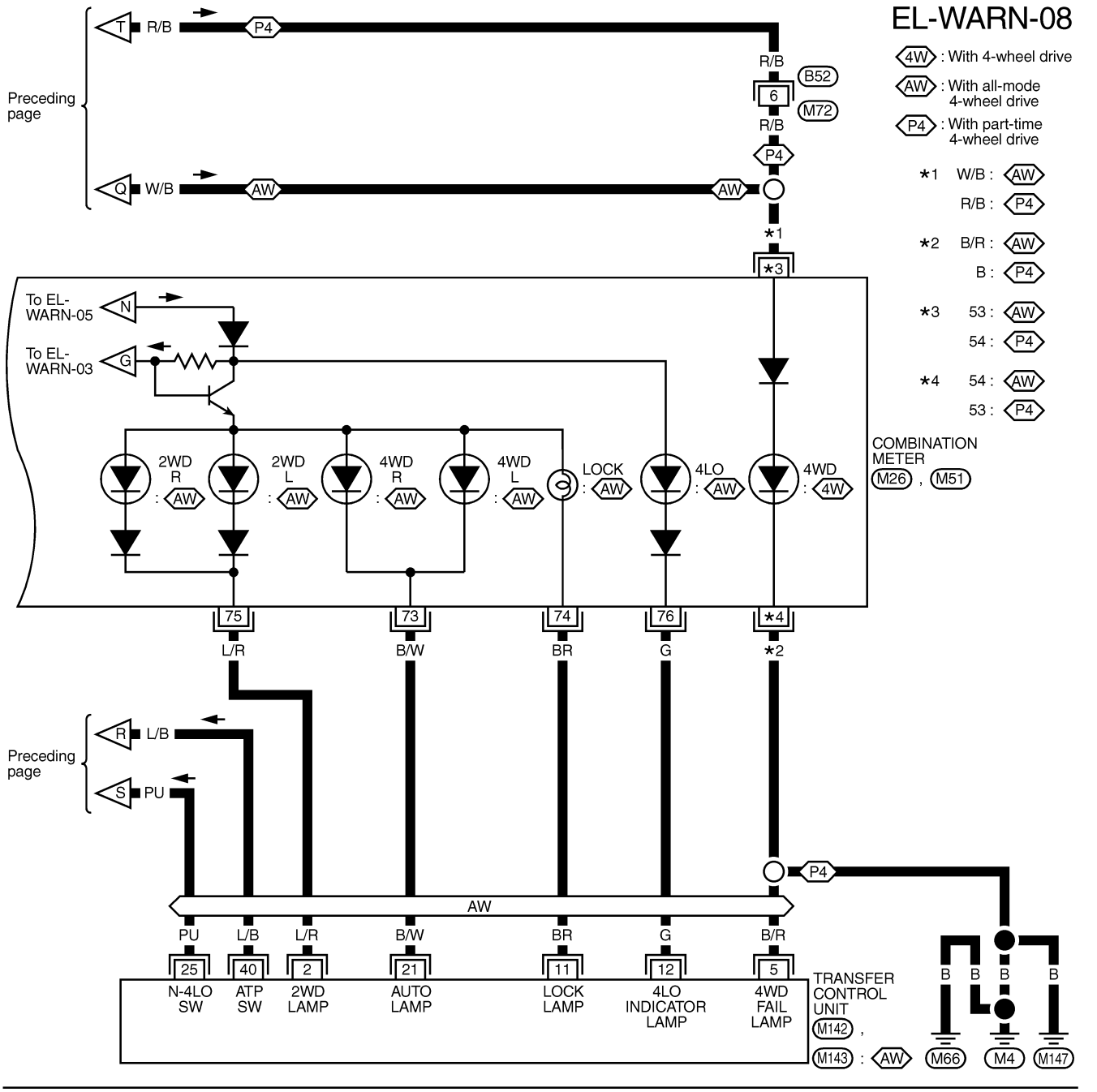
MEL415P

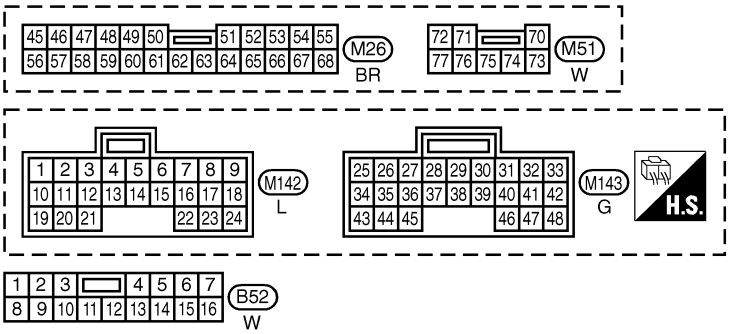

EL-WARN-07
To EL-WARN-04
L
W/B
4W
AW
W/B
Q
Next page
4W : With 4-wheel drive
P4 : With part-time 4-wheel drive
PW : With A/T and part-time 4-wheel drive
M4 : With M/T and part-time 4-wheel drive
AW : With all-mode 4-wheel drive
P4
W/B
M72
5
B52
W/B
M4
Preceding page
V
L/B
AW
L/B
R
Next page
PU
S
PW
W/B
B62
1
B201
W/B
B61
3
B200
L/Y
L/Y
L/B
2
M99
B77
5
PU
L/B
8
B78
B206
13
PU
PW
M4
L/Y
1
L/B
8
13
PU
NEUTRAL POSITION SWITCH
OTHERS
NEUTRAL
B204 : P4
ATP SWITCH
ON
OFF
B210 : AW
NEUTRAL-4LO SWITCH
ON
OFF
B213 : AW
2
9
12
Y/L
B
B
Preceding page
P
Y/L
PW
B206
B78
9
12
Y/L
B
B
1
4WD SWITCH
4WD
OFF
B205 : P4
2
B
B
B
R/B
B55
B75
B201
B62
PW
R/B
2
R/B
PW
P4
R/B
T
Next page
M4
M4
B200
B61
R/B
6
R/B


B52 W
B77 W
B200 B
B201 B
B204 B
B205 GY
B206 GY
B210 GY
B213 BR

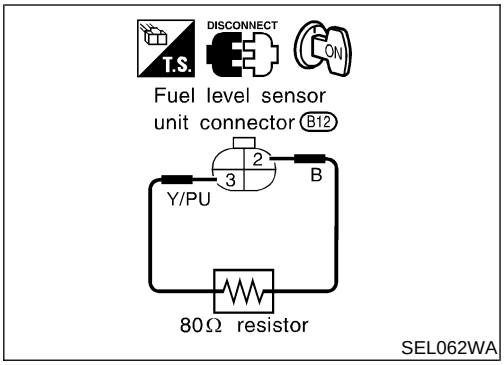
MEL416P

Wiring Diagram — WARN — (Cont'd)





MEL417P



SEL062WA

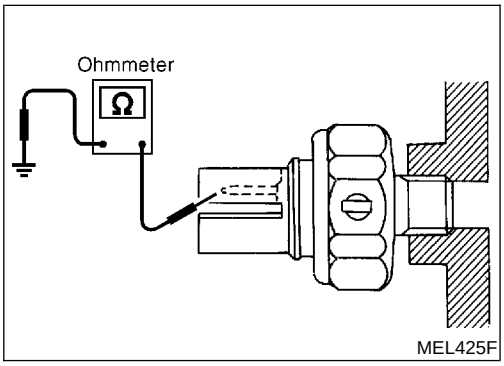
Fuel Warning Lamp Sensor Check

NAEL0310

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-73, “HOW TO ERASE EMISSION-RELATED DIAGNOSTIC INFORMATION”.



MEL425F

Electrical Components Inspection

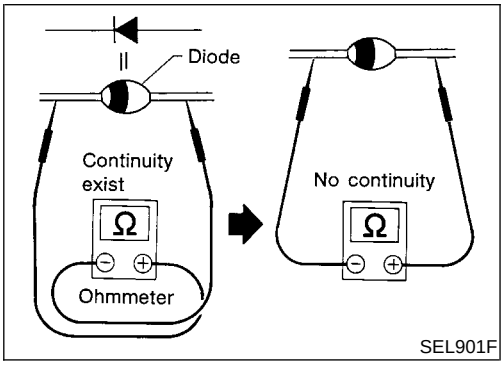
NAEL0311

OIL PRESSURE SWITCH CHECK

NAEL0311S01

	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.



SEL901F

DIODE CHECK

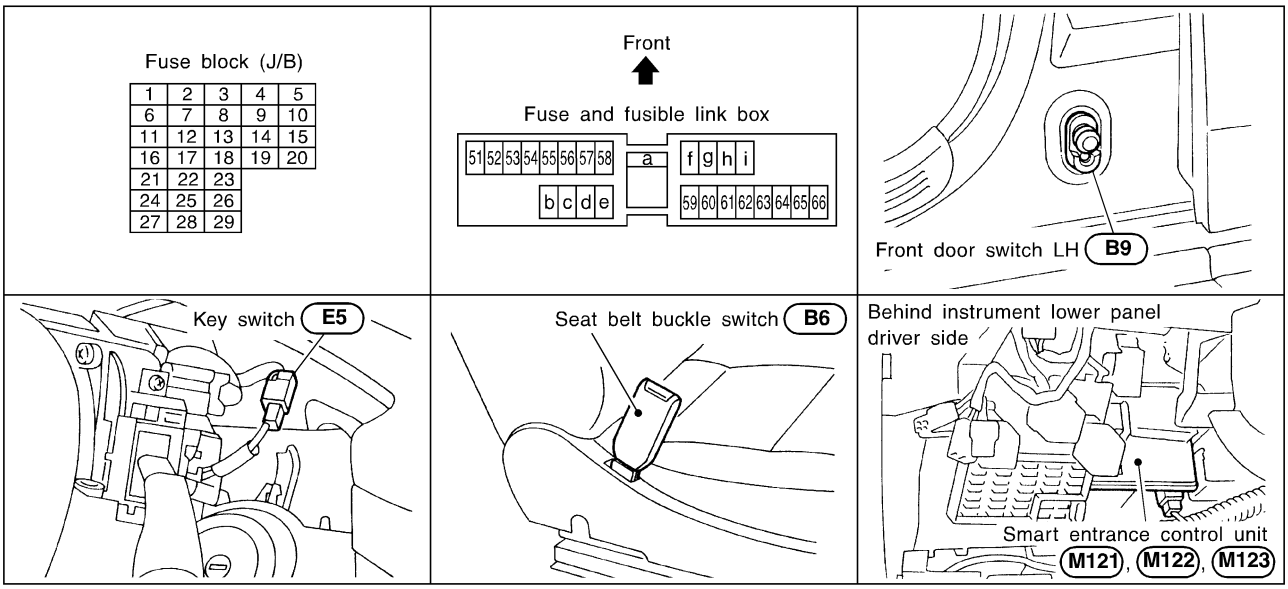
NAEL0311S02

- 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-137, “WARNING LAMP” wiring diagrams.

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

Component Parts and Harness Connector Location

NAEL0312



SEL046WA

System Description

NAEL0313

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

NAEL0313S01

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

NAEL0313S02

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

NAEL0313S03

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

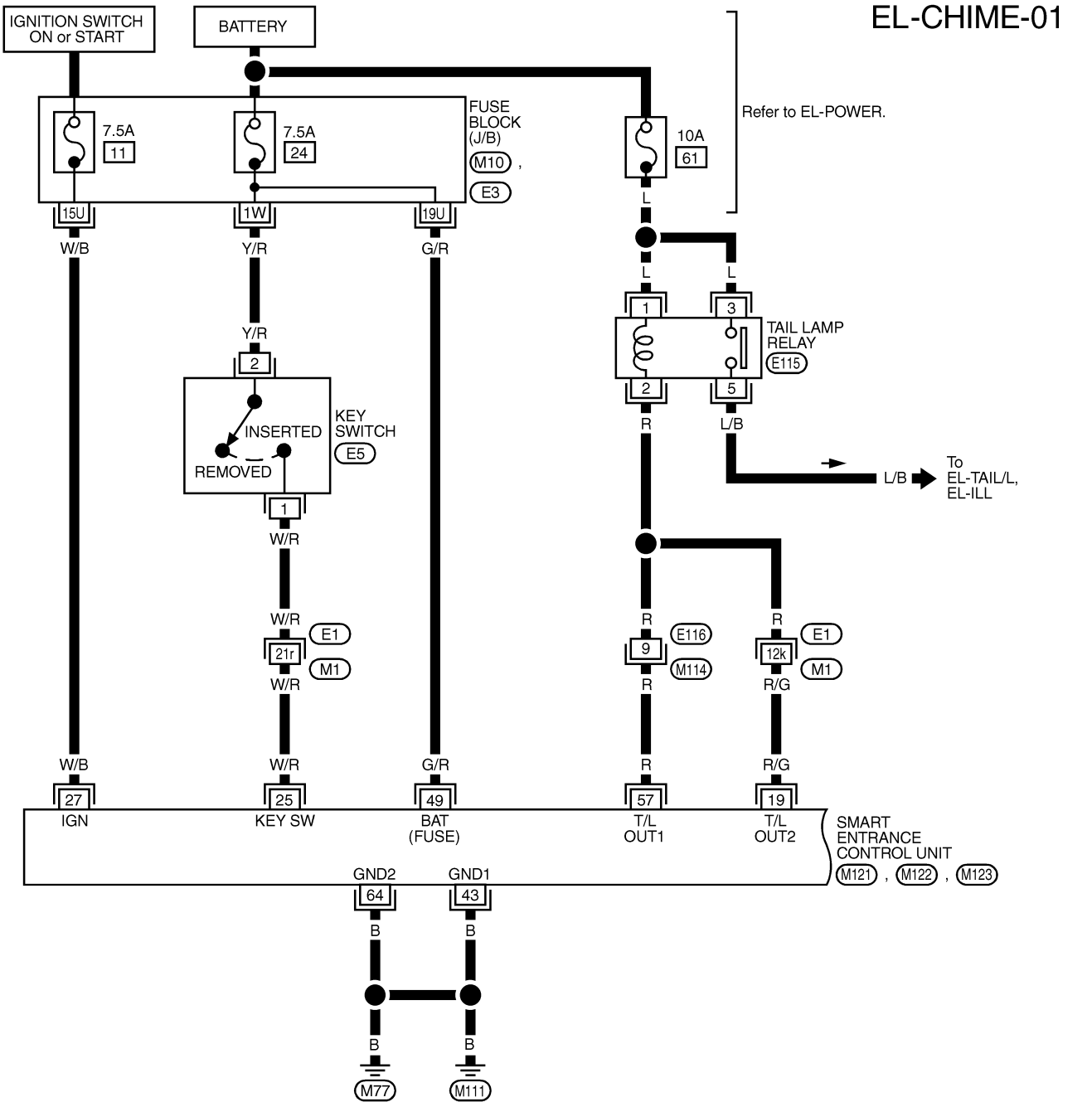
Ground is supplied

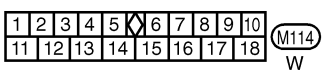
- from seat belt switch terminal 1
- to smart entrance control unit terminal 28.

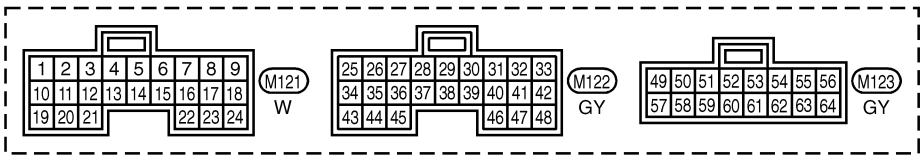
Seat belt switch terminal 2 is grounded through body grounds B11, B22 and D210.

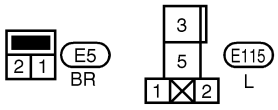
Wiring Diagram — CHIME —

NAEL0314





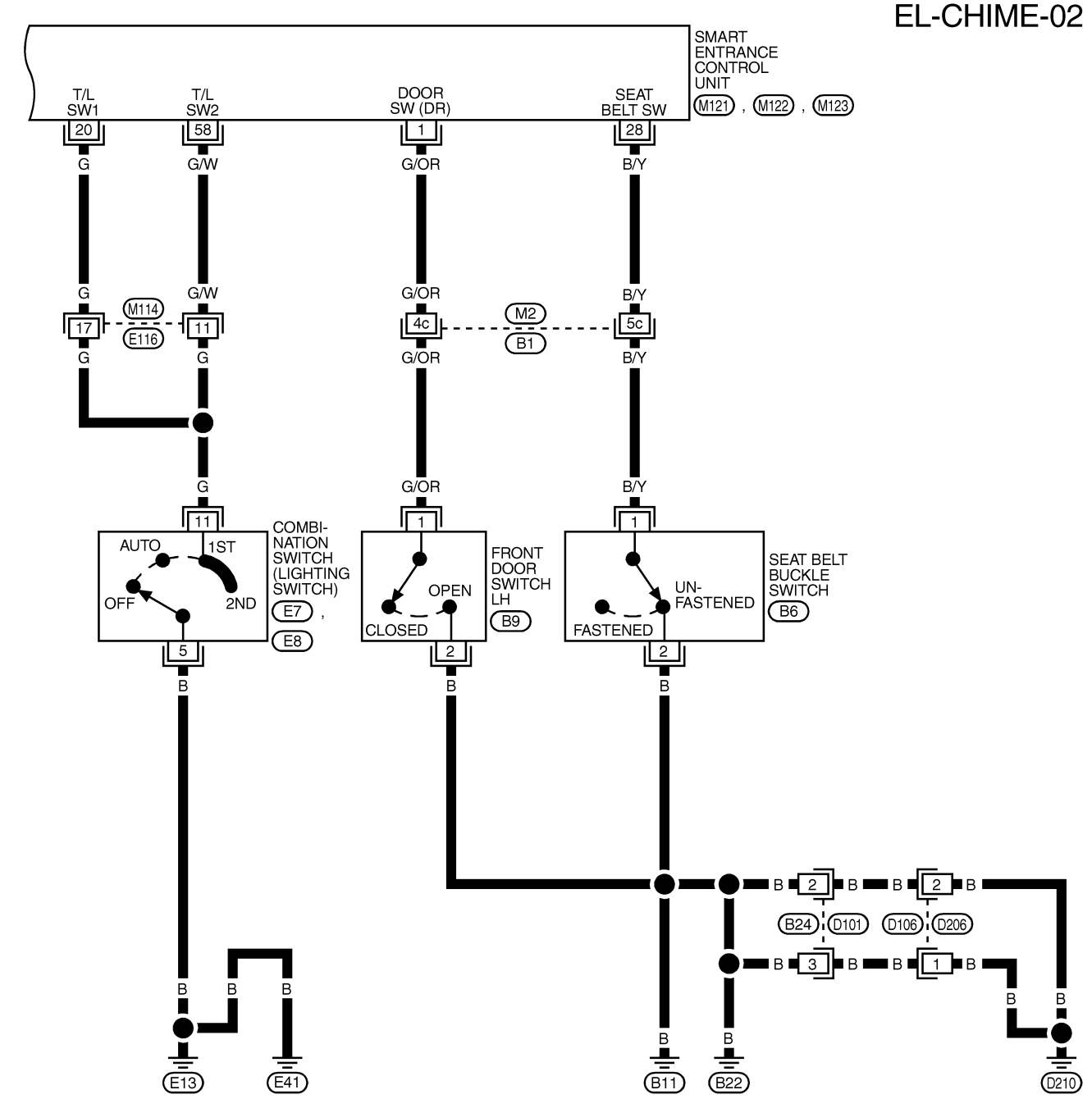


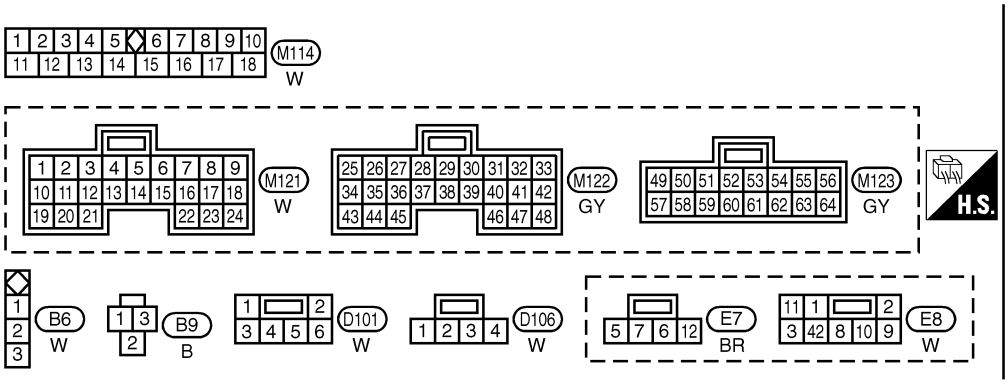


REFER TO THE FOLLOWING.
E1 - SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 - FUSE BLOCK - JUNCTION BOX (J/B)

MEL554P

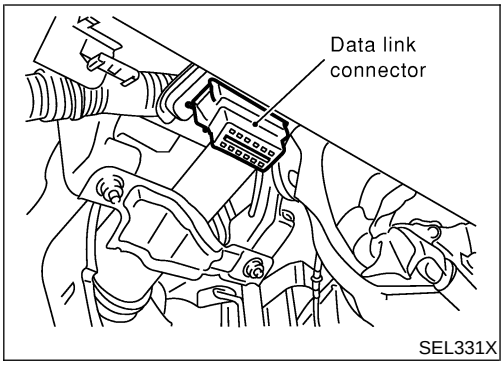
EL-CHIME-02





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

MEL555P



SEL331X

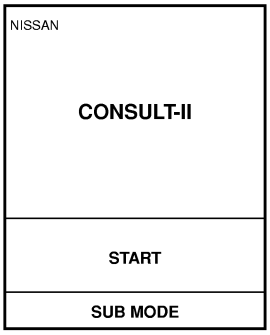
CONSULT-II Inspection Procedure

=NAEL0315

“KEY WARN ALM”/“LIGHT WARN ALM”/“SEAT BELT ALM”

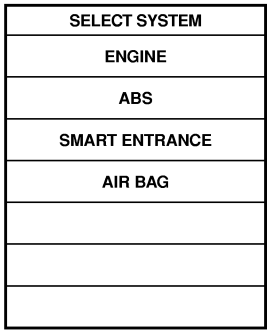
NAEL0315S01

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



PBR455D

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

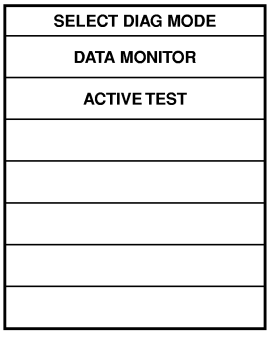


SEL398Y

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

NAEL0316

“KEY WARNING ALARM”
Data Monitor

NAEL0316S01

NAEL0316S0101

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

NAEL0316S0102

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

NAEL0316S02

NAEL0316S0201

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

NAEL0316S0202

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

NAEL0316S03

NAEL0316S0301

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

NAEL0316S0302

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.

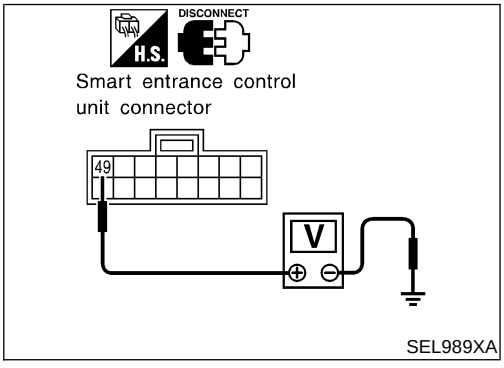
Trouble Diagnoses

NAEL0317

SYMPTOM CHART

NAEL0317S01

REFERENCE PAGE (EL-)	152	154	155	156	157
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

NAEL0317S02

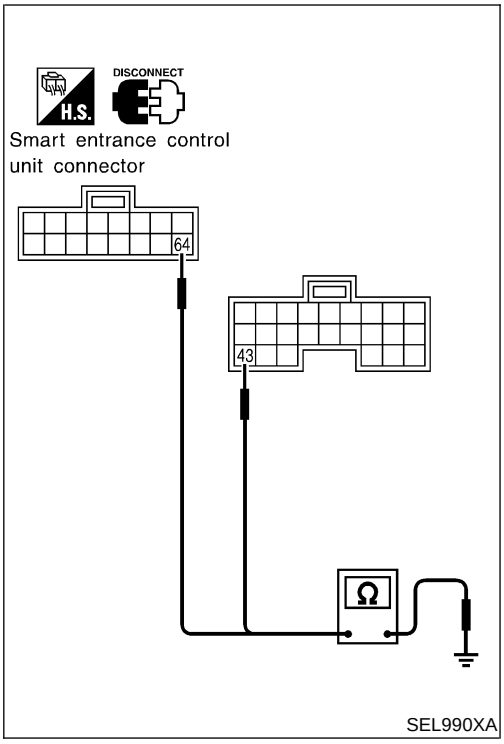
Power Supply Circuit Check

NAEL0317S0201

Terminals			Voltage
(+)		(–)	Battery voltage
Connector	Terminal (Wire color)	Ground	
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

NAEL0317S0202

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

DIAGNOSTIC PROCEDURE 1 (LIGHTING SWITCH INPUT SIGNAL CHECK)

=NAEL0317S03

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

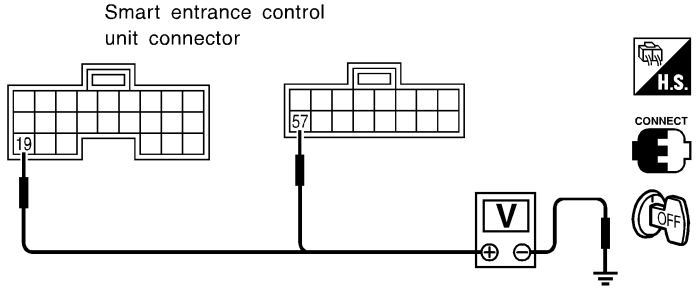
When lighting switch is in 1st or 2nd position:
LIGHT SW 1ST ON

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) 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)

=NAEL0317S04

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

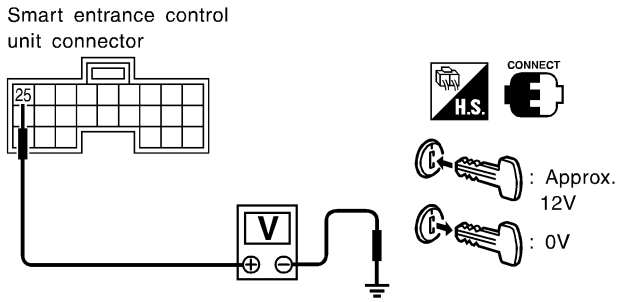
When key is removed from ignition key cylinder:

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

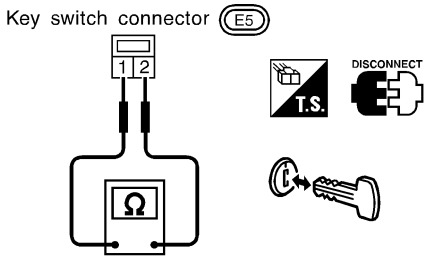
SEL011Y

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)

=NAEL0317S05

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

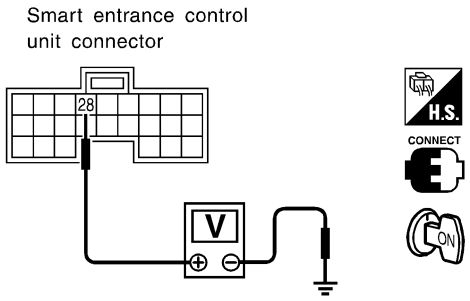
When seat belt is fastened:
SEAT BELT SW ON

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

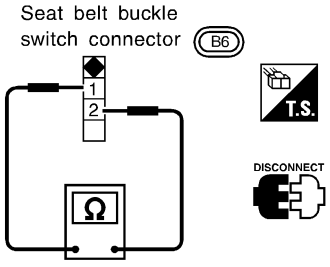
SEL994X

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

NAEL0317S06

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

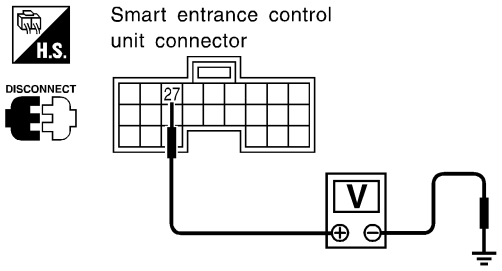
When ignition switch is ON:
IGN ON SW ON

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

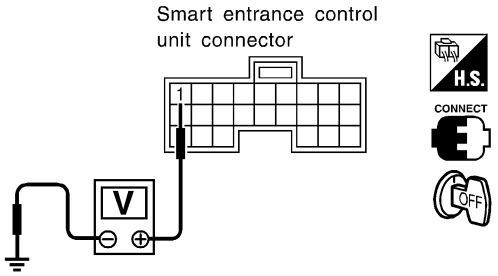
When driver's door is closed:

DOOR SW-DR OFF

SEL319W

Without CONSULT-II

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



Voltage [V]:

Condition of driver's door: CLOSED

Approx. 5

Condition of driver's door: OPENED

0

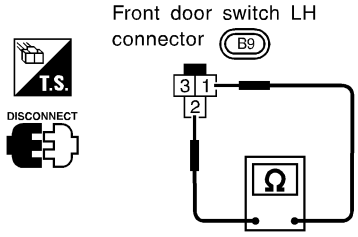
SEL996X

OK or NG

OK	▶	GO TO 4.
NG	▶	GO TO 3.

3	CHECK DRIVER SIDE DOOR SWITCH

Check continuity between terminals 2 and 3.



Continuity:

Door switch is pushed.

No

Door switch is released.

Yes

SEL383X

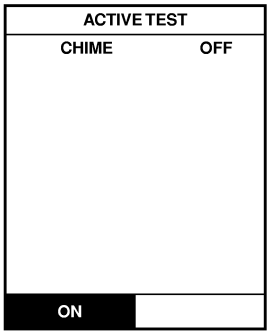
OK or NG

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

NAEL0318

WIPER OPERATION

NAEL0318S01

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

NAEL0318S0101

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

NAEL0318S0102

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

NAEL0318S0103

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 in 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

NAEL0318S02

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

- to front washer motor terminal 2
- through terminal 18 of the front wiper switch

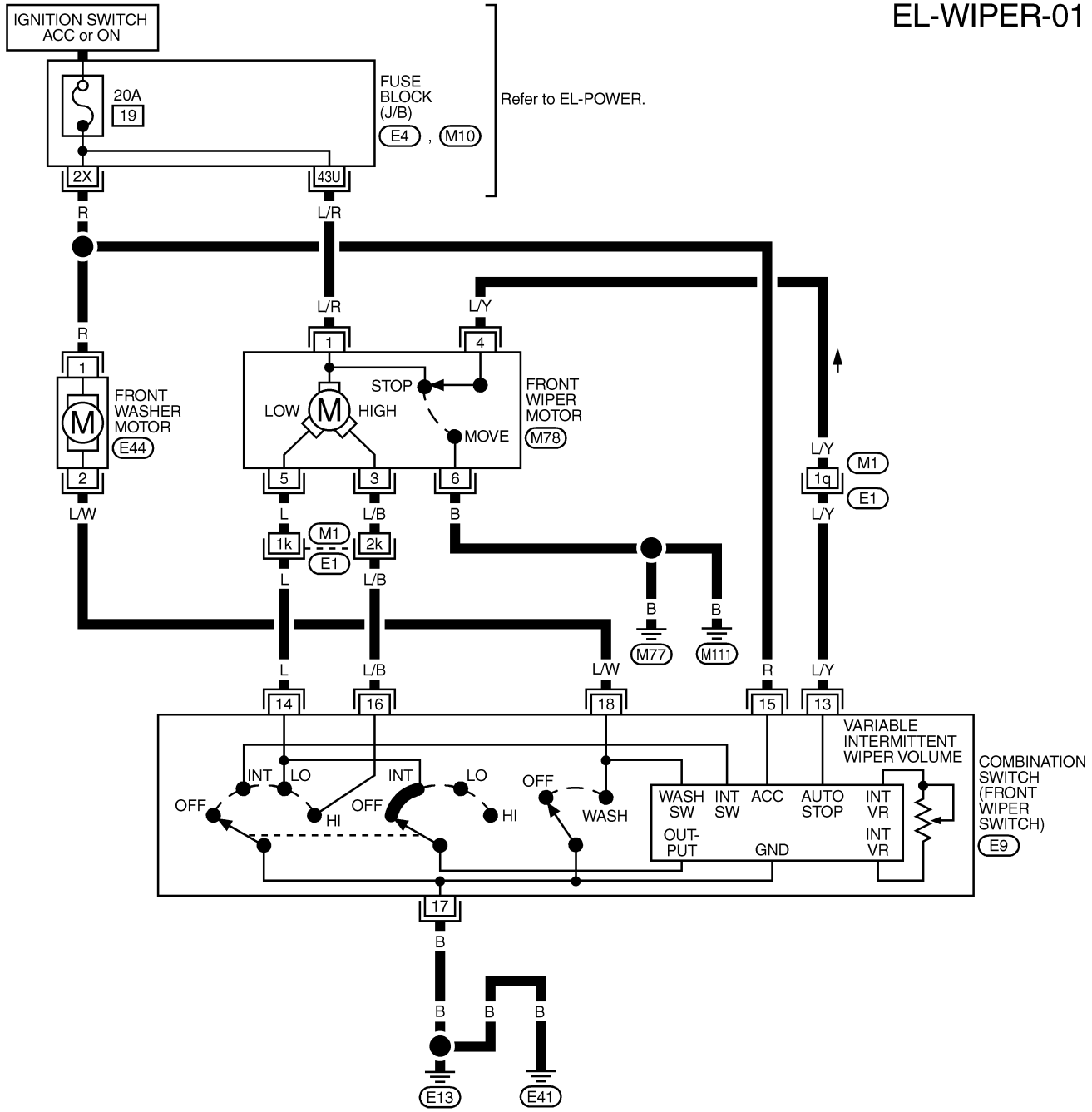
- through terminal 17 of the front wiper switch, and
- through body grounds E13 and E41.

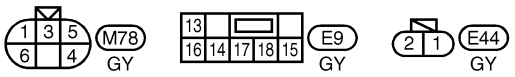
With power and ground supplied, the front washer motor operates.
When the lever is pulled to the WASH position for one second or more, the front wiper motor operates at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the wiper amplifier in the same manner as the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

Wiring Diagram — WIPER —

NAEL0319

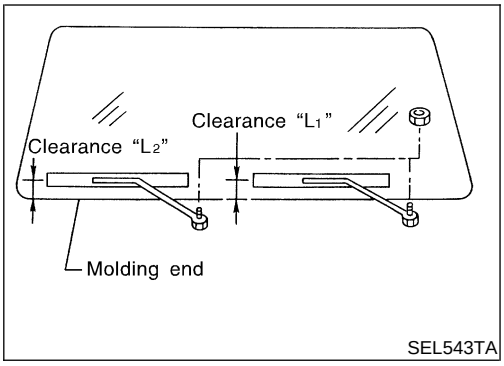
EL-WIPER-01





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

MEL349N



Removal and Installation

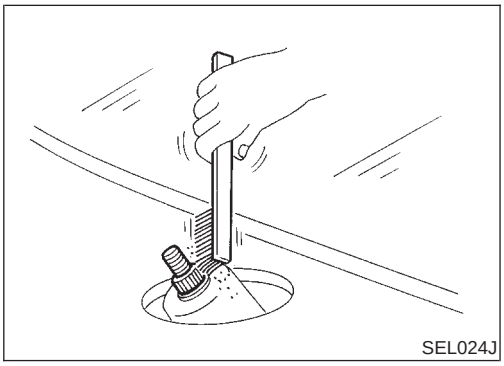
NAEL0320

WIPER ARMS

NAEL0320S01

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)

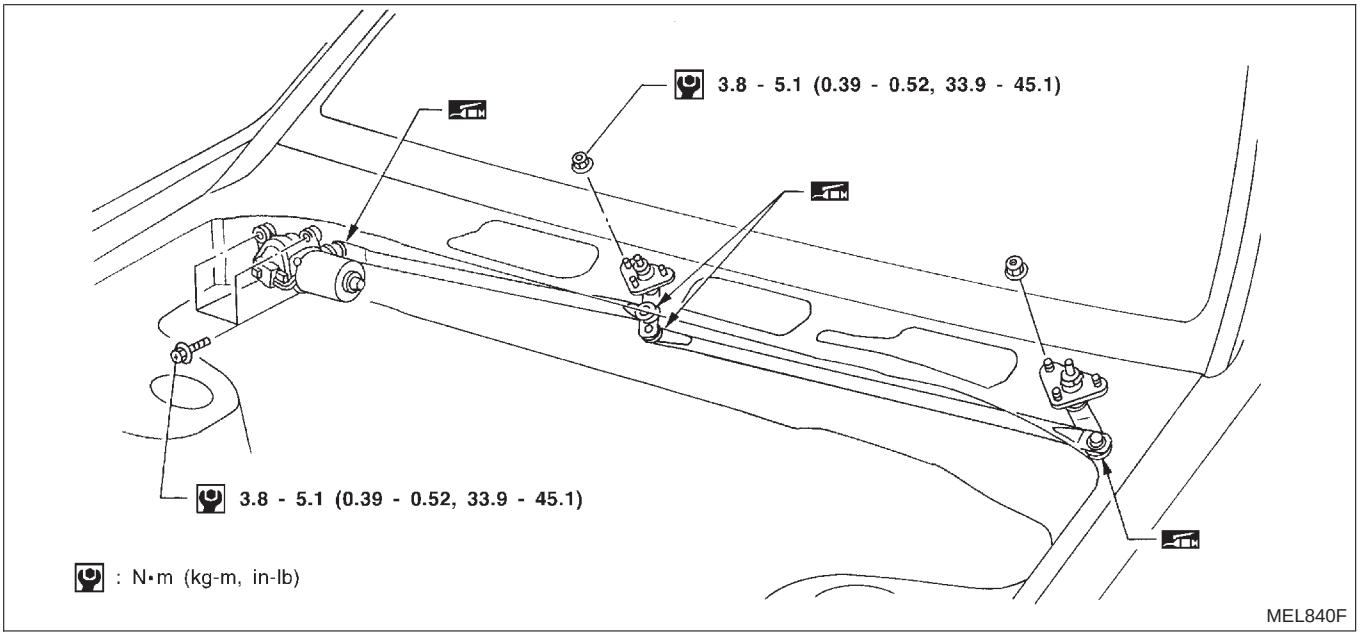
- Tighten wiper arm nuts to specified torque.
  Front wiper: 21 - 26 N·m (2.1 - 2.7 kg-m, 15 - 20 ft-lb)



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

WIPER LINKAGE

NAEL0320S02



Removal

NAEL0320S0201

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

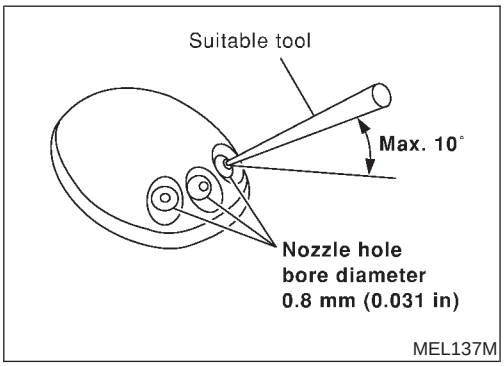
Be careful not to break ball joint rubber boot.

Installation

NAEL0320S0202

- Grease ball joint portion before installation.

1. Installation is the reverse order of removal.



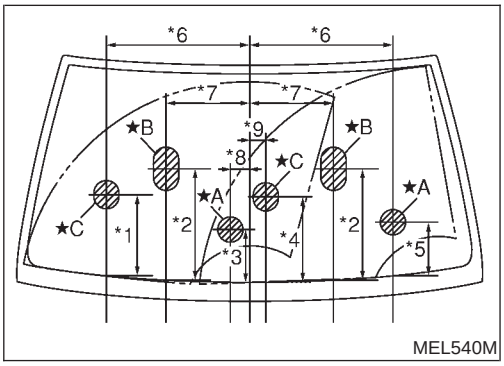
MEL137M

Washer Nozzle Adjustment

NAEL0321

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

Adjustable range: ±10°



MEL540M

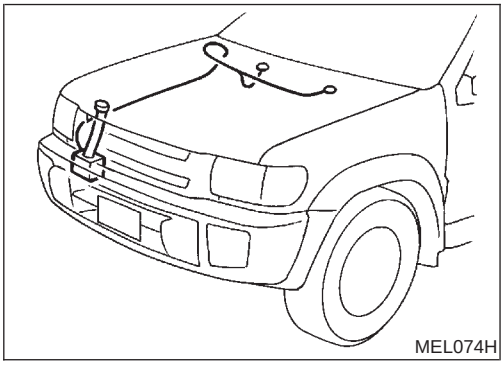
Unit: mm (in)

*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

NAEL0322


MEL074H

System Description

NAEL0323

WIPER OPERATION

NAEL0323S01

Power Supply and Ground

NAEL0323S0101

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

NAEL0323S0102

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

NAEL0323S0103

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

NAEL0323S0104

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

NAEL0323S02

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

NAEL0323S03

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.

System Description (Cont'd)

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

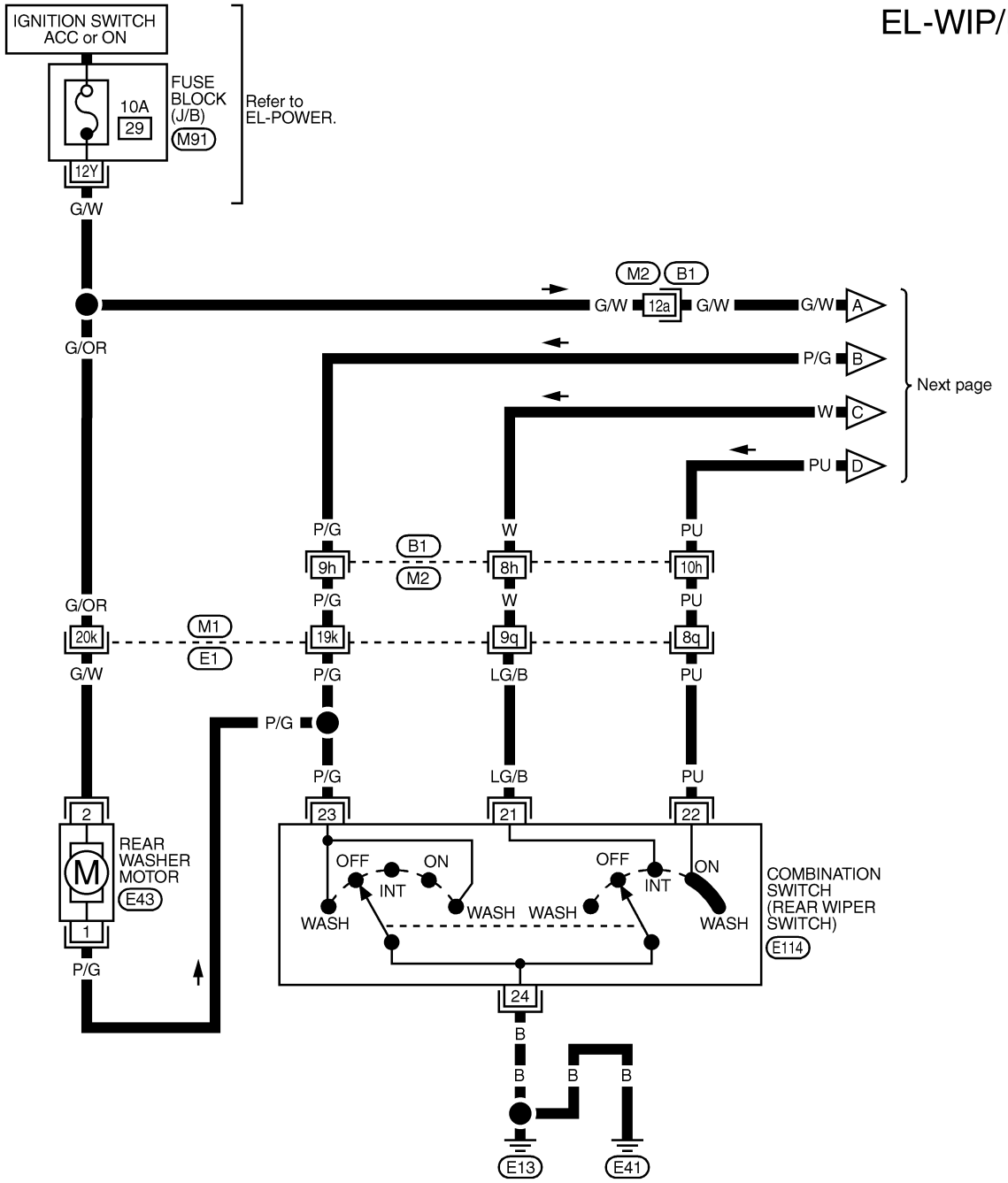
- to rear washer motor terminal 1
- through rear wiper switch terminals 23 and 24
- through body grounds E13 and E41.

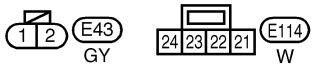
With power and ground supplied, the rear washer motor operates.
When the rear wiper switch is turned to WASH position for 0.4 seconds or more, the rear wiper motor operates approximately 3 times after the rear wiper switch is released.

Wiring Diagram — WIP/R —

NAEL0324

EL-WIP/R-01

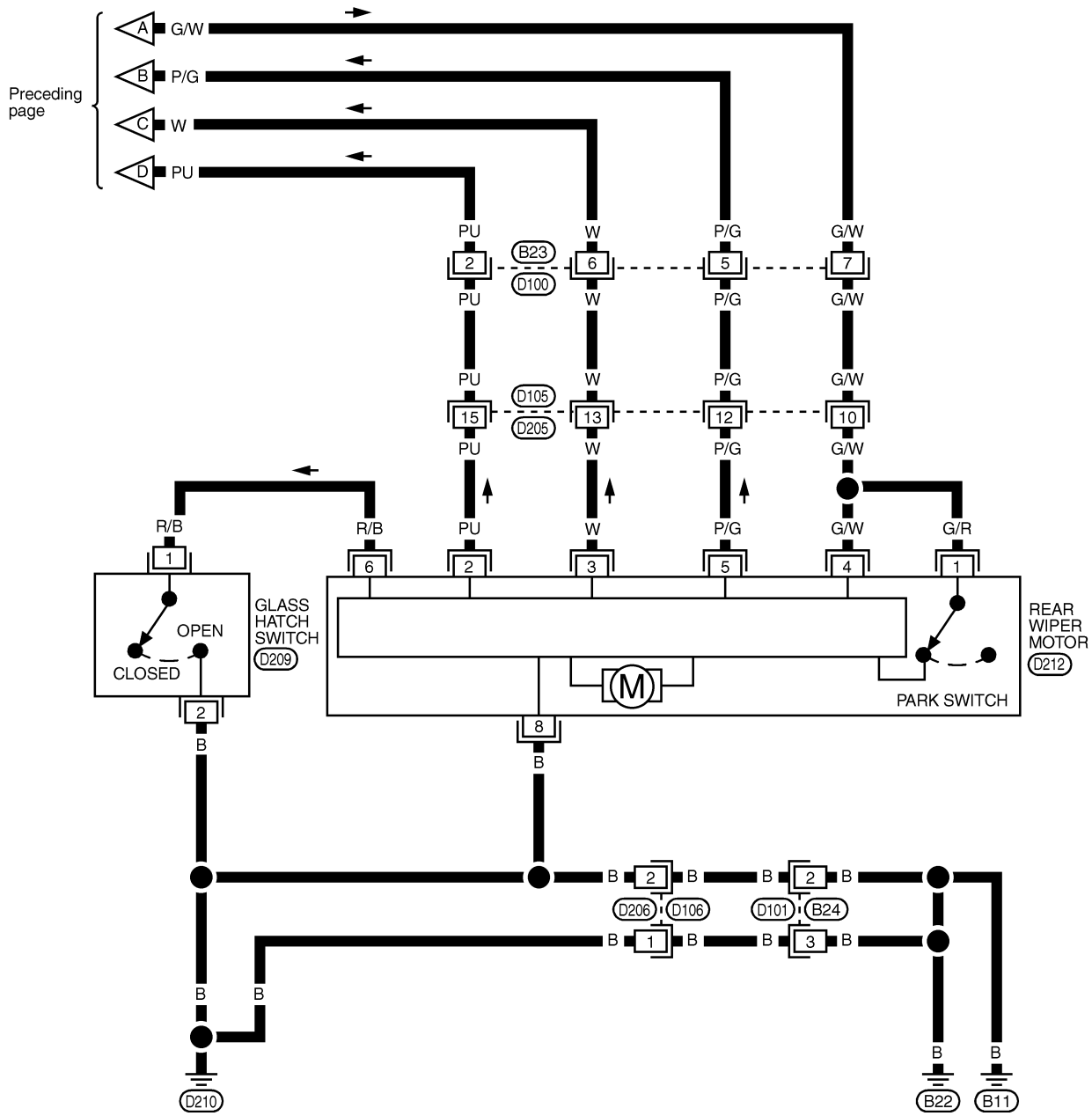


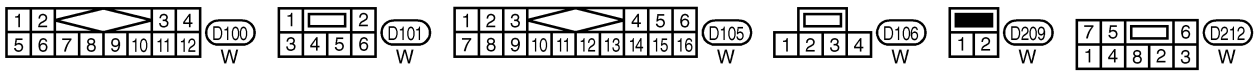


REFER TO THE FOLLOWING.
B1 , E1 -SUPER MULTIPLE JUNCTION (SMJ)
M91 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL407O

EL-WIP/R-02





MEL408O

Trouble Diagnoses

NAEL0325

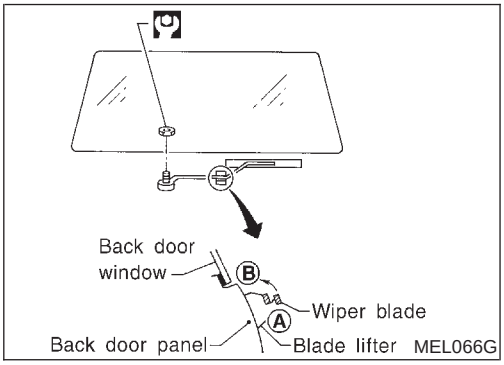
REAR WIPER MOTOR INSPECTION TABLE

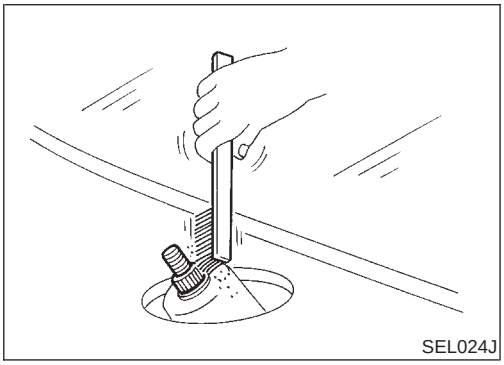
NAEL0325S01

(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

NAEL0326

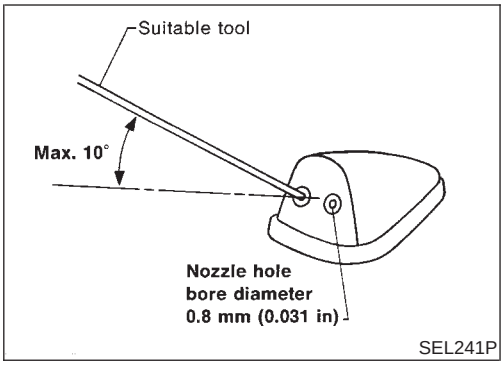
WIPER ARMS

NAEL0326S01

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.**



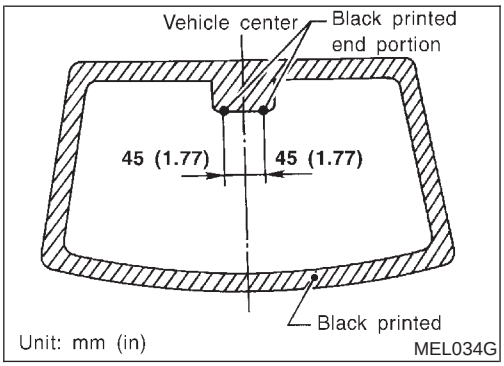
SEL241P

Washer Nozzle Adjustment

NAEL0327

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

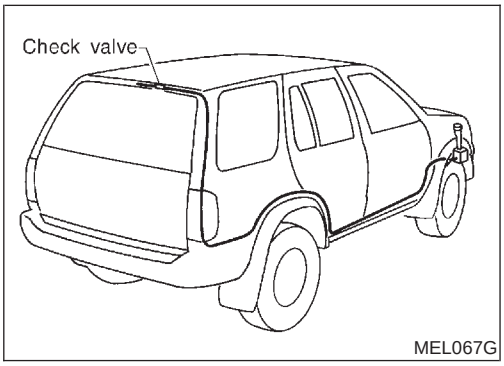
Adjustable range: ±10° (In any direction)



MEL034G

Washer Tube Layout

NAEL0328

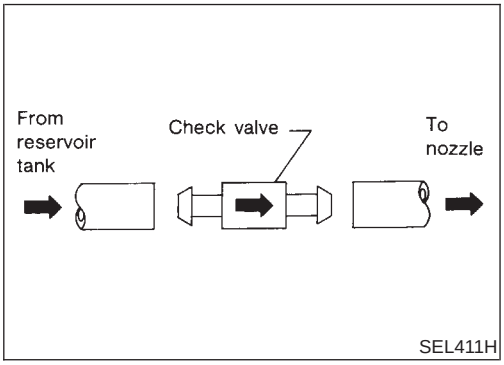


MEL067G

Check Valve

NAEL0329

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

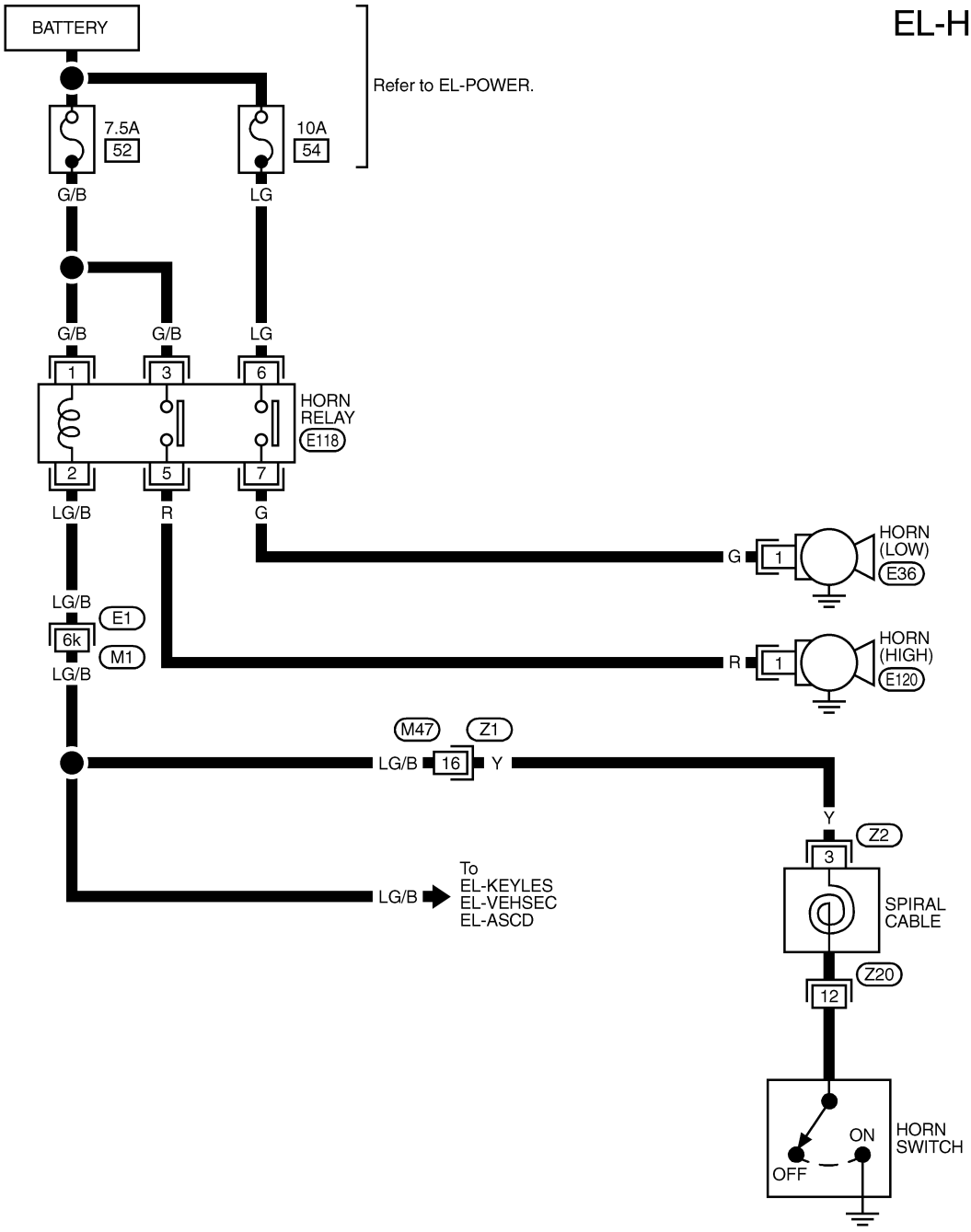


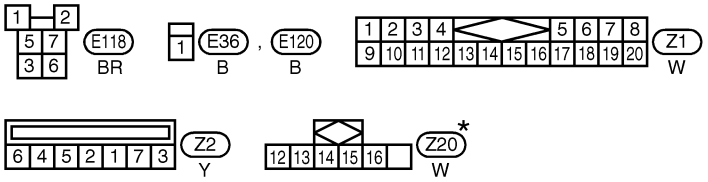
SEL411H

Wiring Diagram — HORN —

NAEL0330

EL-HORN-01





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

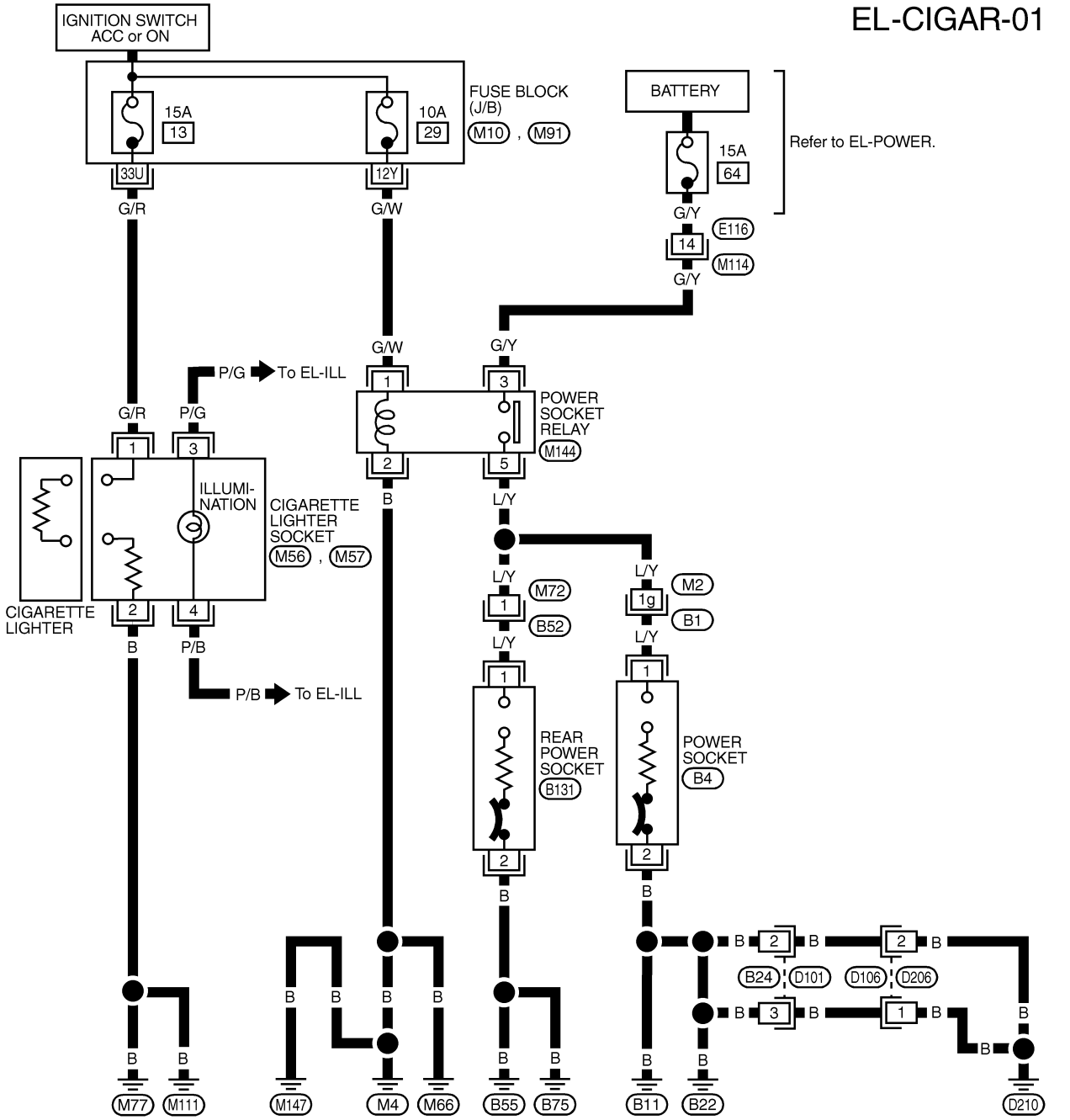
REFER TO THE FOLLOWING.
E1 -SUPER
MULTIPLE JUNCTION (SMJ)

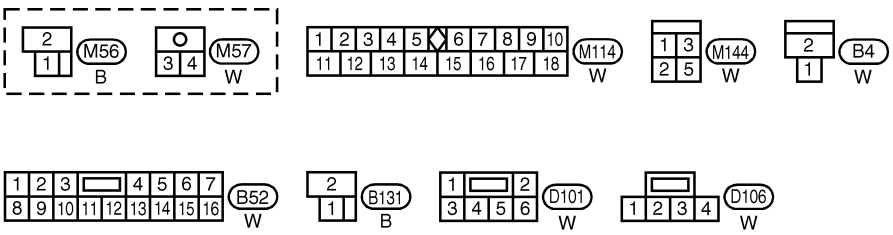
MEL428O

Wiring Diagram — CIGAR —

NAEL0331

EL-CIGAR-01





REFER TO THE FOLLOWING.

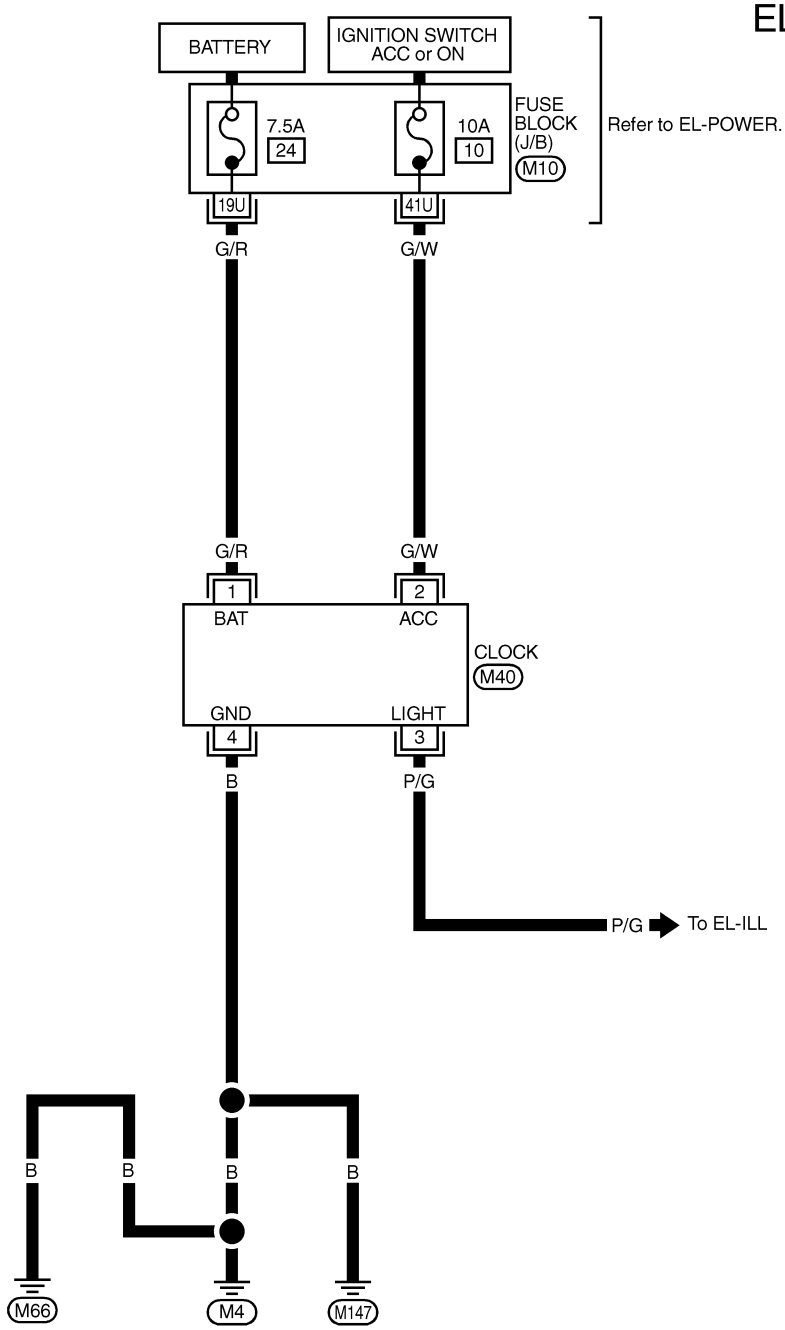
B1 - SUPER MULTIPLE JUNCTION (SMJ)

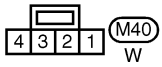
M10 , M91 - FUSE BLOCK - JUNCTION BOX (J/B)

MEL353N

Wiring Diagram — CLOCK —

NAEL0332



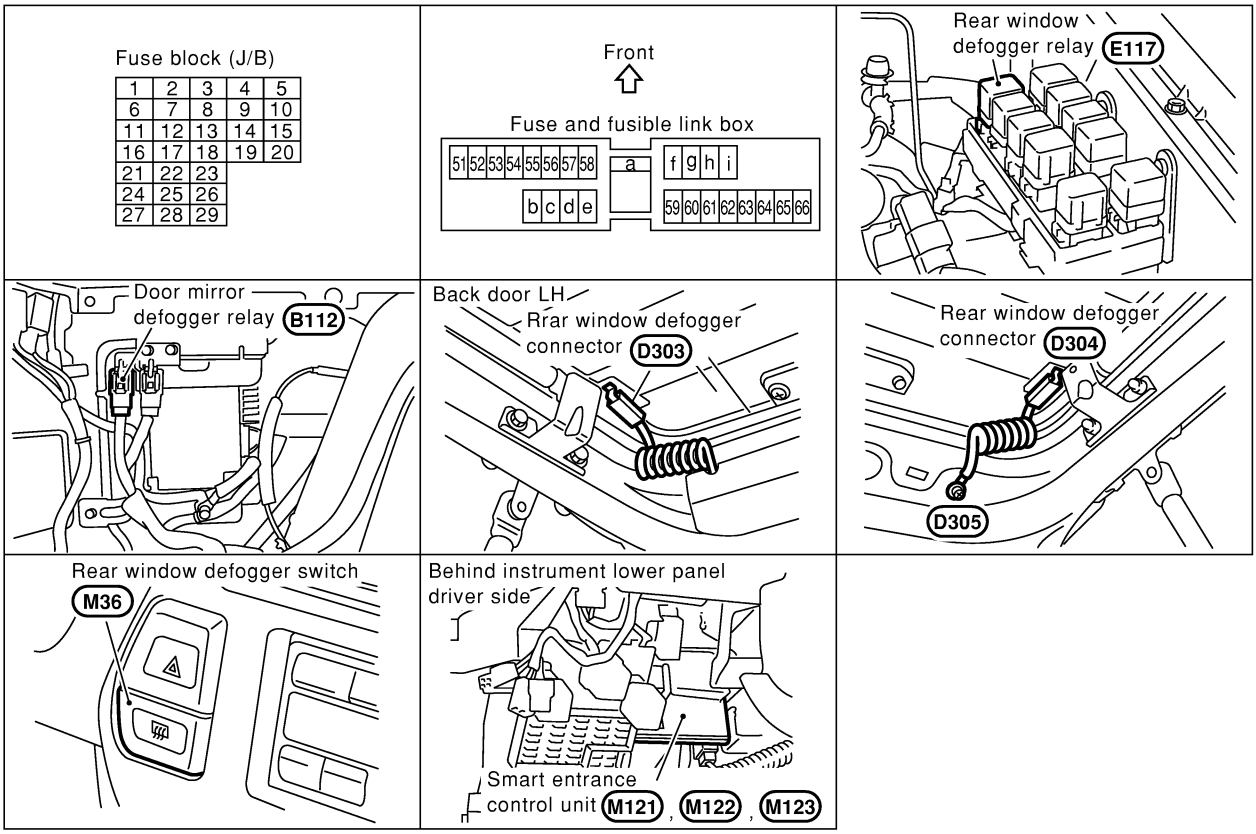


REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-
JUNCTION BOX (J/B)

MEL035M

Component Parts and Harness Connector Location

NAEL0333



SEL483Y

System Description

NAEL0334

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

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

- through terminal 2 of the rear window defogger switch
- 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.

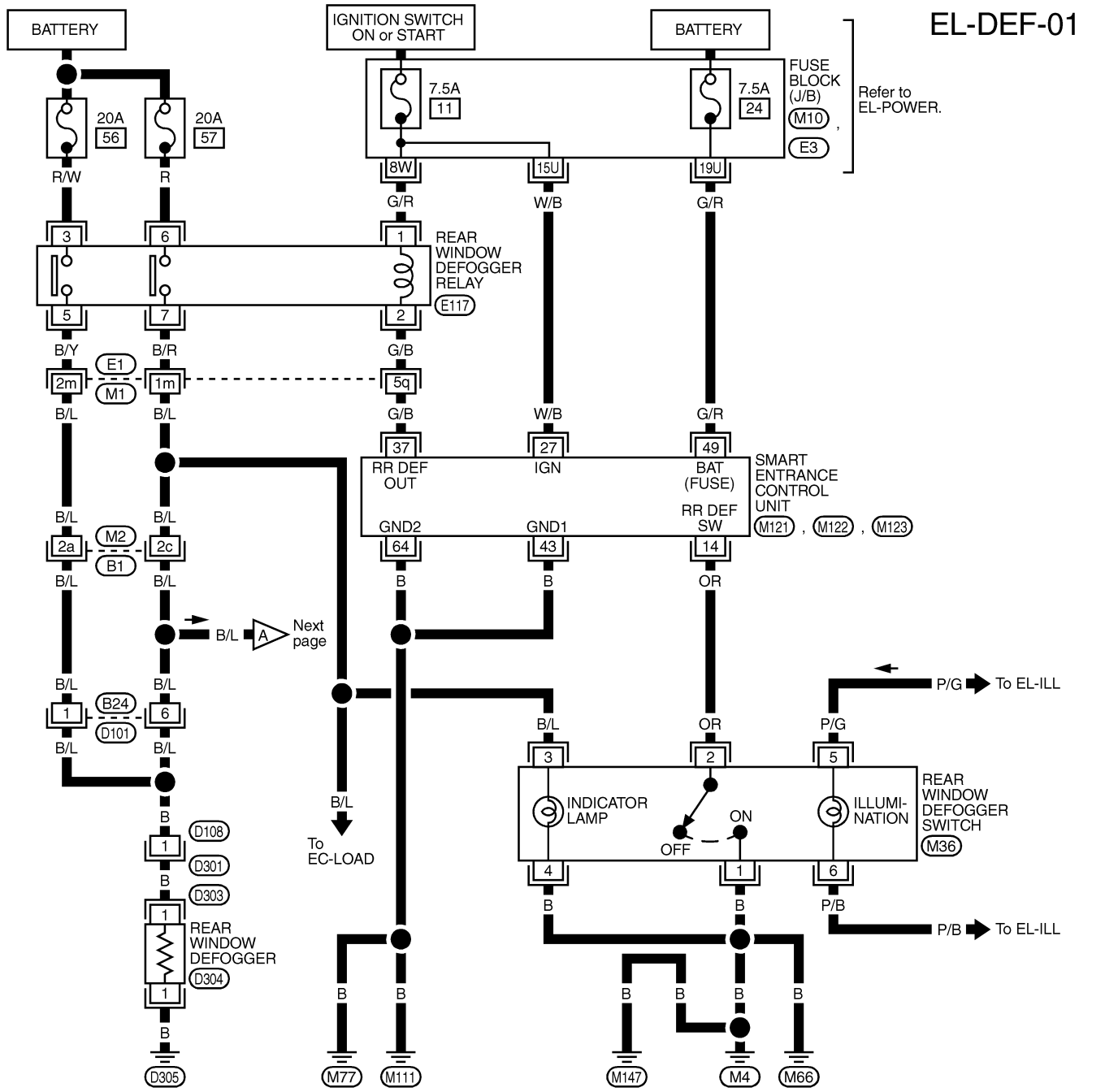
The rear window defogger has an independent ground.
With power and ground supplied, the rear window defogger filaments heat and defog the rear window.
When the system is activated, the rear window defogger indicator illuminates in the rear window defogger switch.
Power is supplied

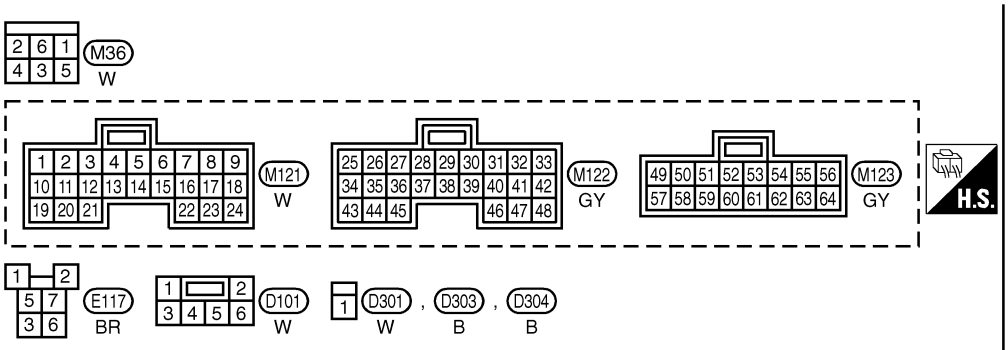
- to terminal 3 of the rear window defogger switch
- from terminal 7 of the rear window defogger relay.

Terminal 4 of the rear window defogger switch is grounded through body grounds M4, M66 and M147.

Wiring Diagram — DEF —

NAEL0335

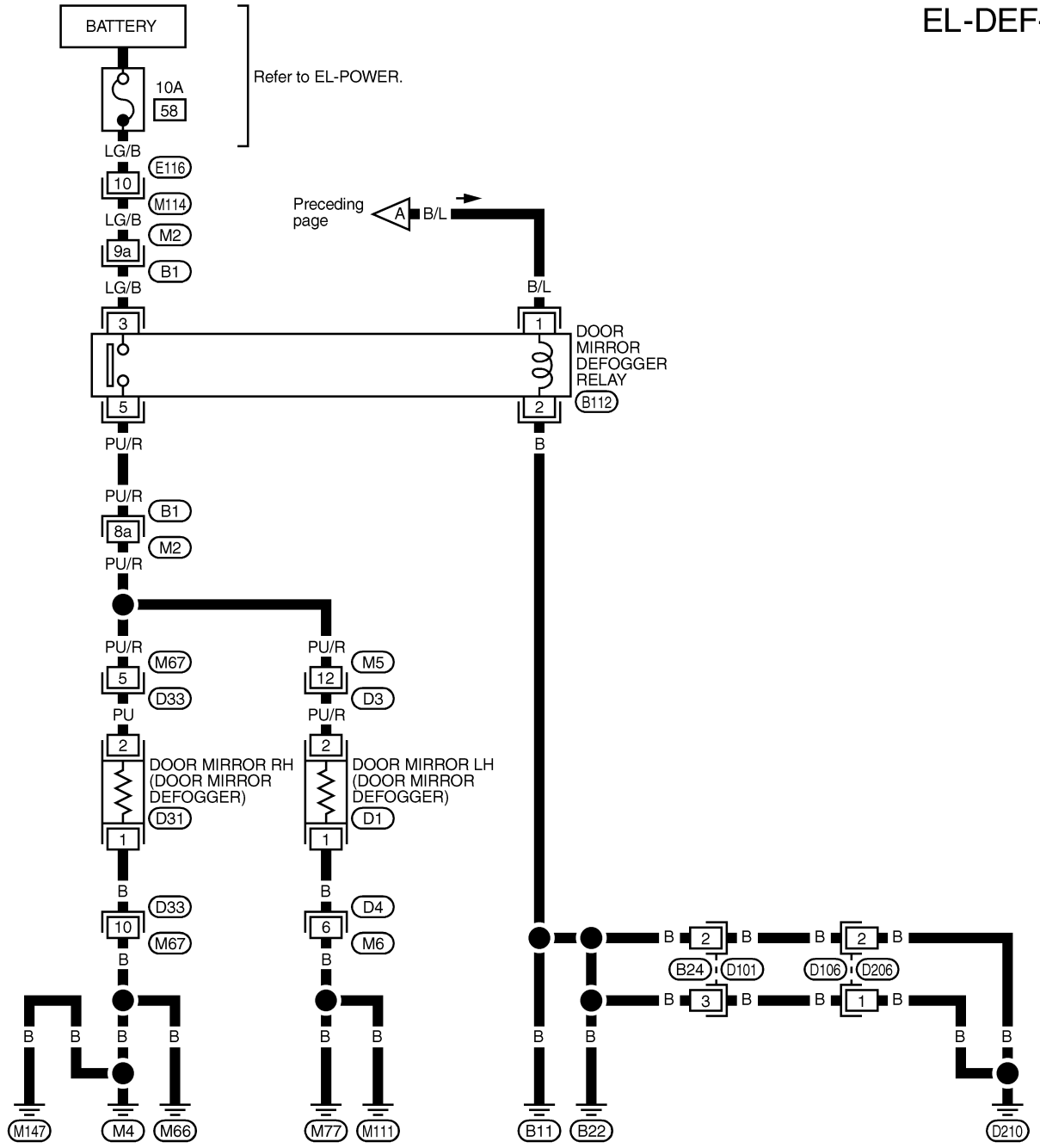


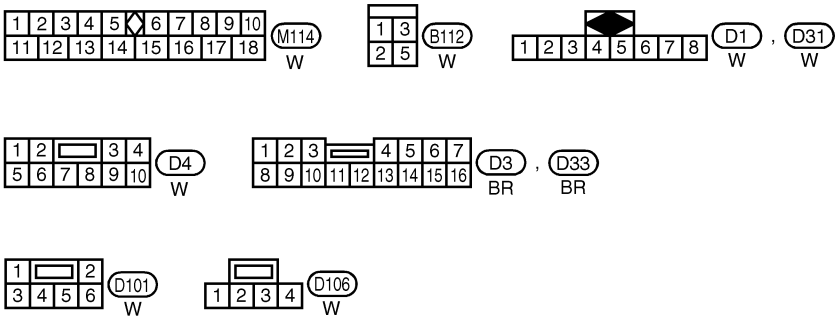


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL867N

EL-DEF-02

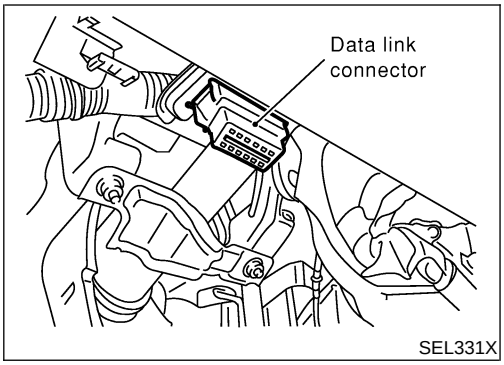




REFER TO THE FOLLOWING.

B1 - SUPER MULTIPLE JUNCTION (SMJ)

MEL418P



SEL331X

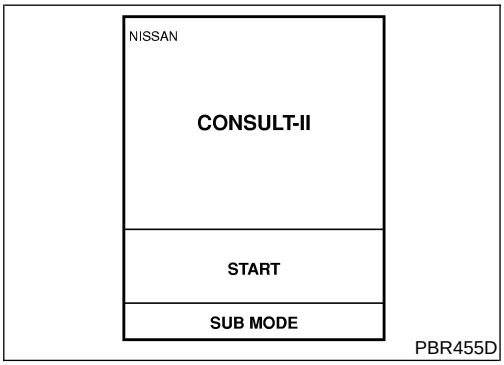
CONSULT-II Inspection Procedure

NAEL0336

“REAR DEFOGGER”

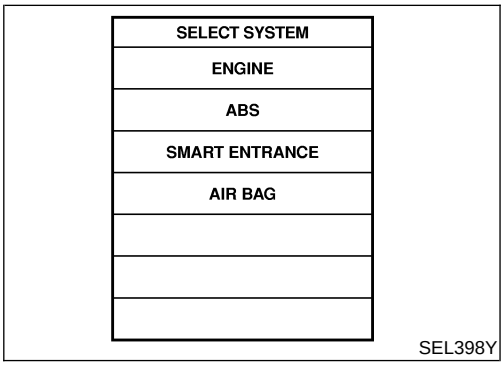
NAEL0336S01

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



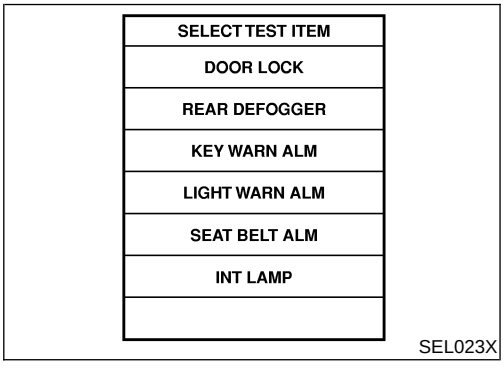
PBR455D

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



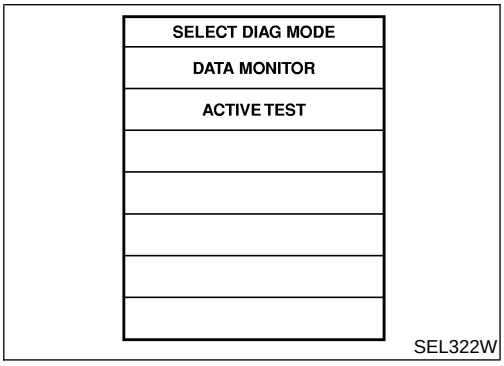
SEL398Y

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

NAEL0337

“REAR DEFOGGER”

NAEL0337S01

Data Monitor

NAEL0337S0101

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

NAEL0337S0102

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

NAEL0338

DIAGNOSTIC PROCEDURE

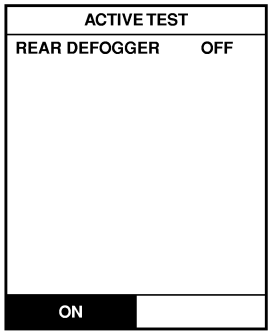
NAEL0338S01

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.

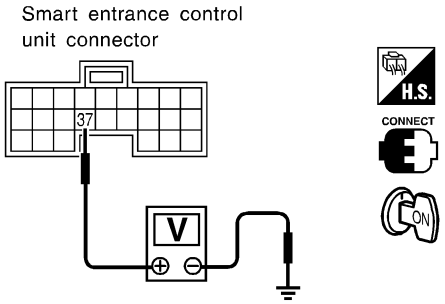


Rear window defogger and rear window defogger switch indicator should operate when the “ON” button on the CONSULT-II screen is touched.

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]:

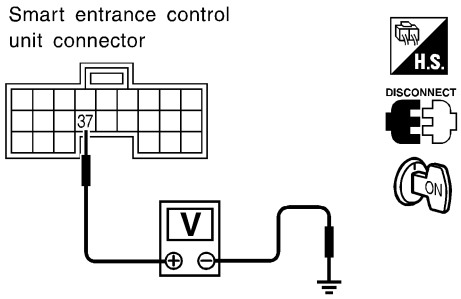
Rear window defogger switch is “OFF”.
Approx. 12

Rear window defogger switch is “ON”.
0

SEL997X

OK or NG

OK	▶	**Check the following.** ● Rear window defogger relay (Refer to EL-183.) ● Rear window defogger circuit ● Rear window defogger filament (Refer to EL-183.)
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 ● 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.

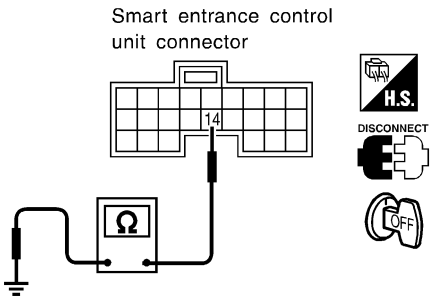
DATA MONITOR	
MONITOR	
REAR DEF SW	ON

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.

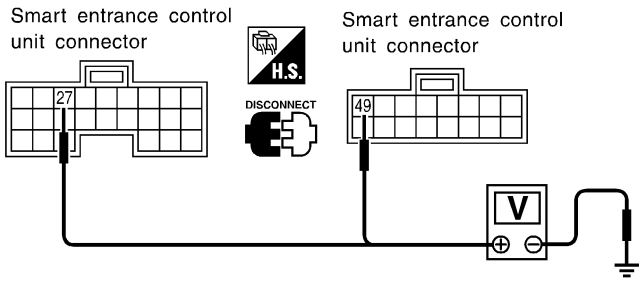
SEL999X

OK or NG

OK	▶	GO TO 4.
NG	▶	**Check the following.** ● Rear window defogger switch (Refer to EL-183.) ● Harness for open or short between smart entrance control unit and rear window defogger switch ● Rear window defogger switch 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

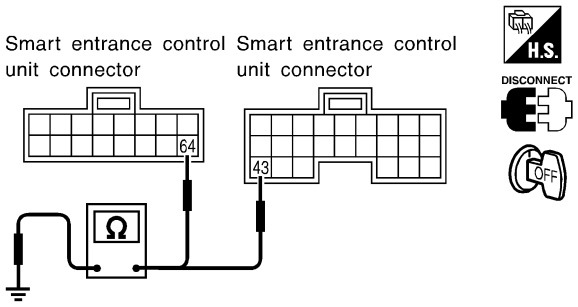
SEL001Y

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

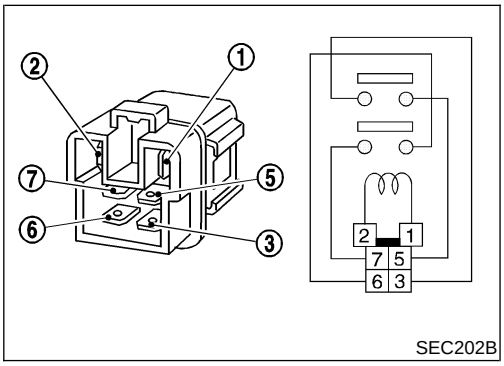
Check continuity between smart entrance control unit harness connector M122 terminal 43 (B), M123 terminal 64 (B) and ground.



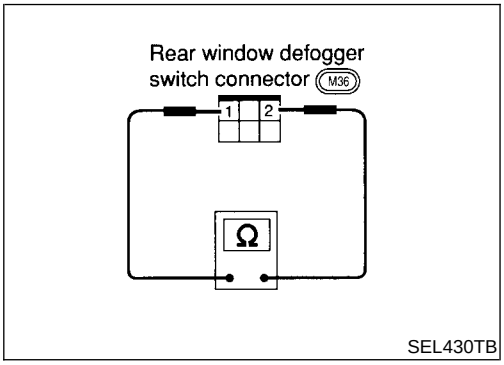
Continuity should exist.

SEL002Y

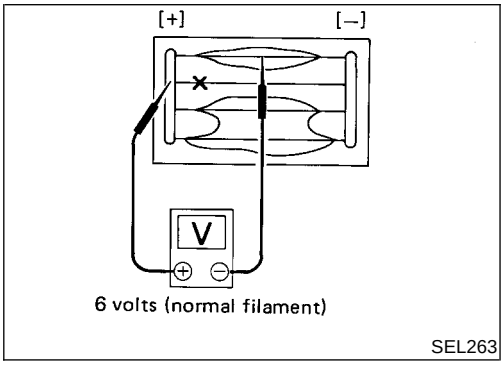
Yes	▶	Replace smart entrance control unit.
No	▶	Repair harness or connectors.



SEC202B



SEL430TB



SEL263

Electrical Components Inspection

NAEL0339

REAR WINDOW DEFOGGER RELAY

NAEL0339S01

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

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

REAR WINDOW DEFOGGER SWITCH

NAEL0339S02

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

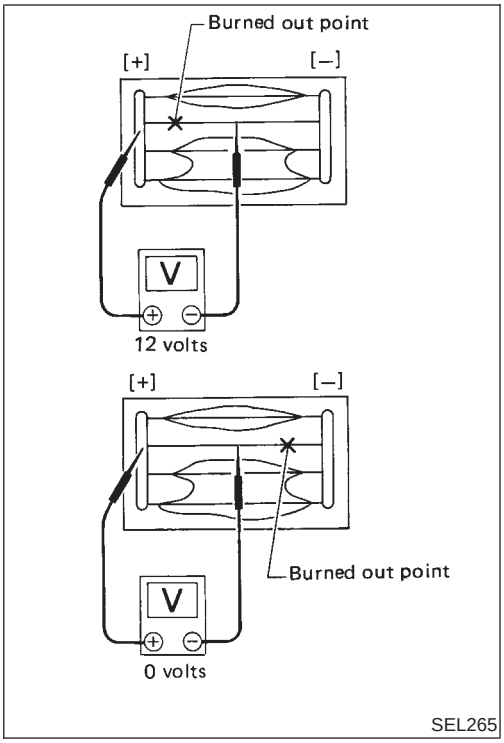
Terminals	Condition	Continuity
1 - 2	Rear window defogger switch is pushed	Yes
	Rear window defogger switch is released	No

Filament Check

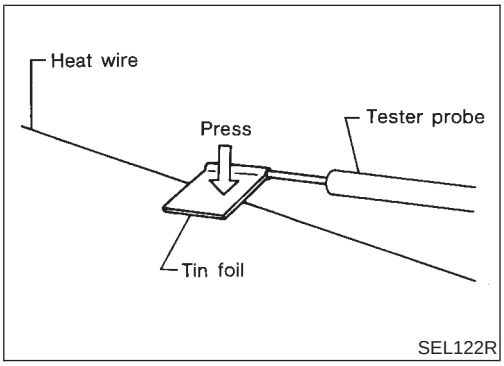
NAEL0340

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

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.**

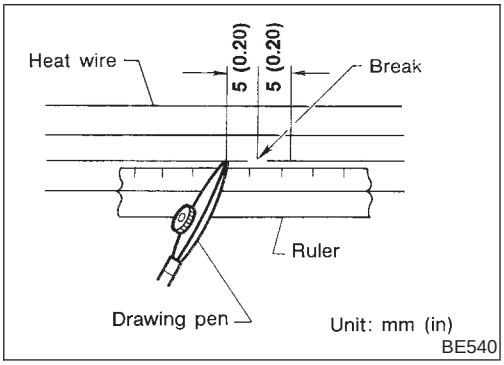
Filament Repair

NAEL0341

REPAIR EQUIPMENT

NAEL0341S01

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



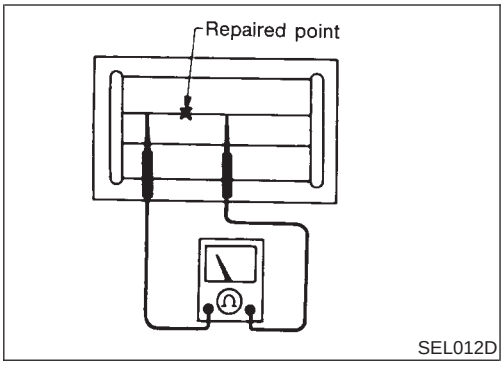
REPAIRING PROCEDURE

NAEL0341S02

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

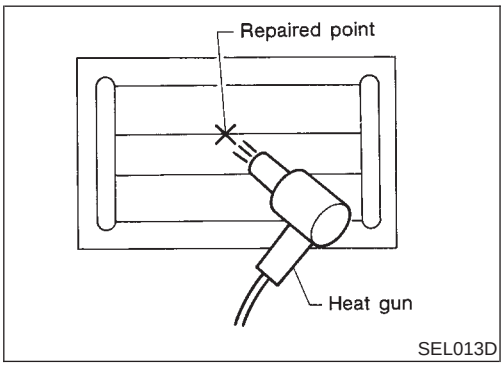
Shake silver composition container before use.

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



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

Do not touch repaired area while test is being conducted.



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

System Description

NAEL0342

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

BASE SYSTEM

NAEL0342S01

Power is supplied at all times

- through 15A fuse [No. 4, located in the fuse block (J/B)]
- to audio unit terminal 6, and
- to CD player terminal 4 (with CD player).

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 CD player terminal 1 (with CD player).

Ground is supplied through the case of the audio unit.
When the audio unit power knob is pushed to the ON position, audio signals are supplied

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

BOSE SYSTEM

NAEL0342S02

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,
- to CD auto changer terminal 12 (with CD auto changer) 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,
- to CD auto changer terminal 16 (with CD auto changer) 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
- to CD auto changer terminal 15 and
- to rear TV switch terminal 3
- through body grounds M4, M66 and M147.

When the audio unit POWER button is pressed, power is supplied to rear speaker amp. terminal 9 and audio amp. relay terminal 1 from audio unit terminal 12. Then audio amp. relay is energized and power is supplied

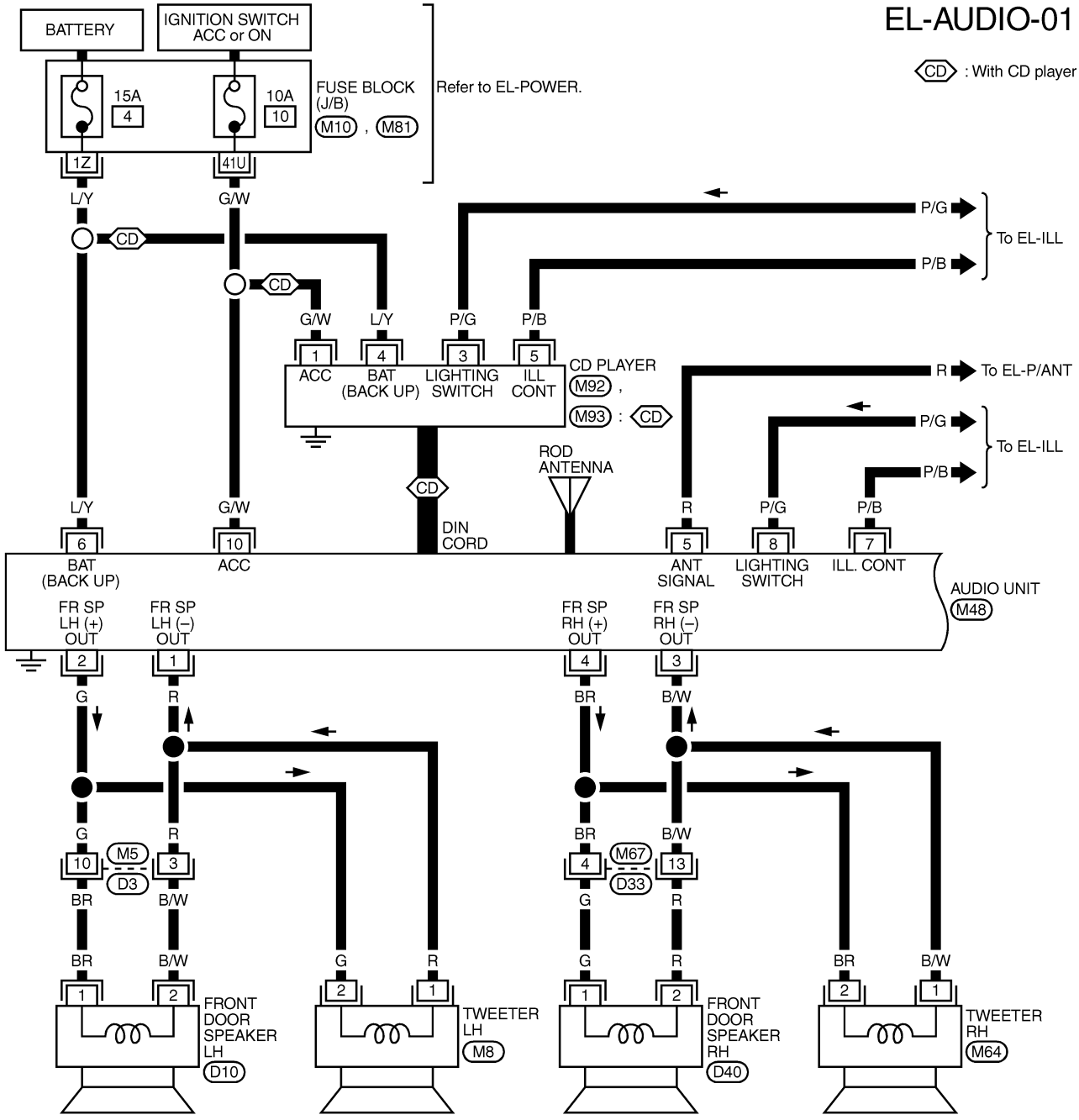
- to front door speaker LH terminal 4 and
- to front door speaker RH terminal 4.

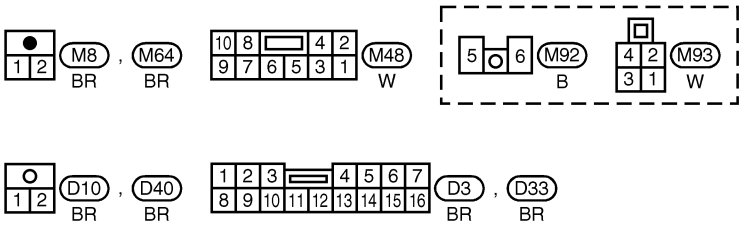
Audio signals are supplied

- 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.

Wiring Diagram — AUDIO —/Base System

NAEL0343

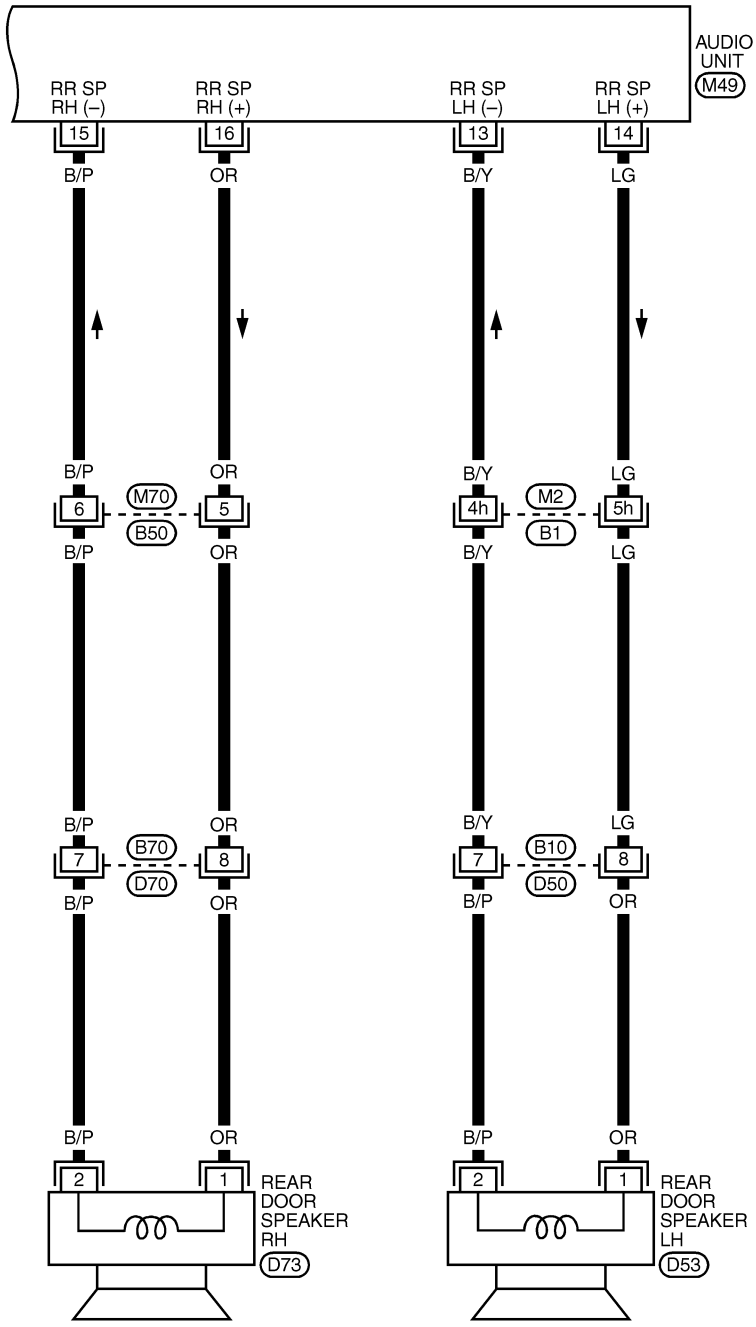


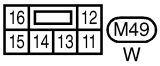


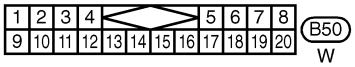
REFER TO THE FOLLOWING.
M10 , M81 -FUSE BLOCK-JUNCTION BOX (J/B)

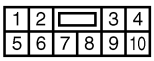
MEL355N

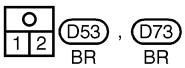
EL-AUDIO-02









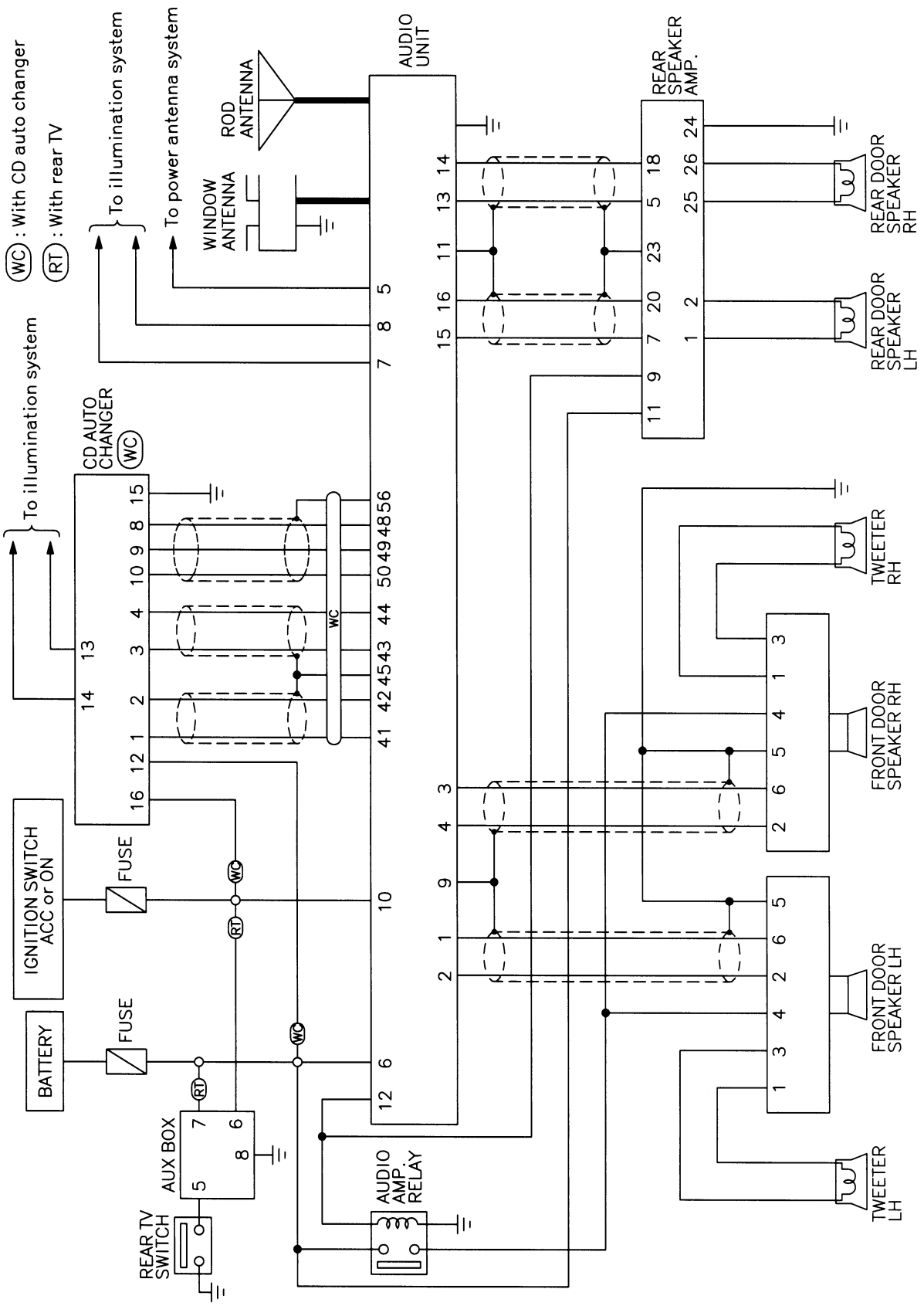


REFER TO THE FOLLOWING.
(B1) -SUPER MULTIPLE JUNCTION (SMJ)

MEL038M

Schematic/BOSE System

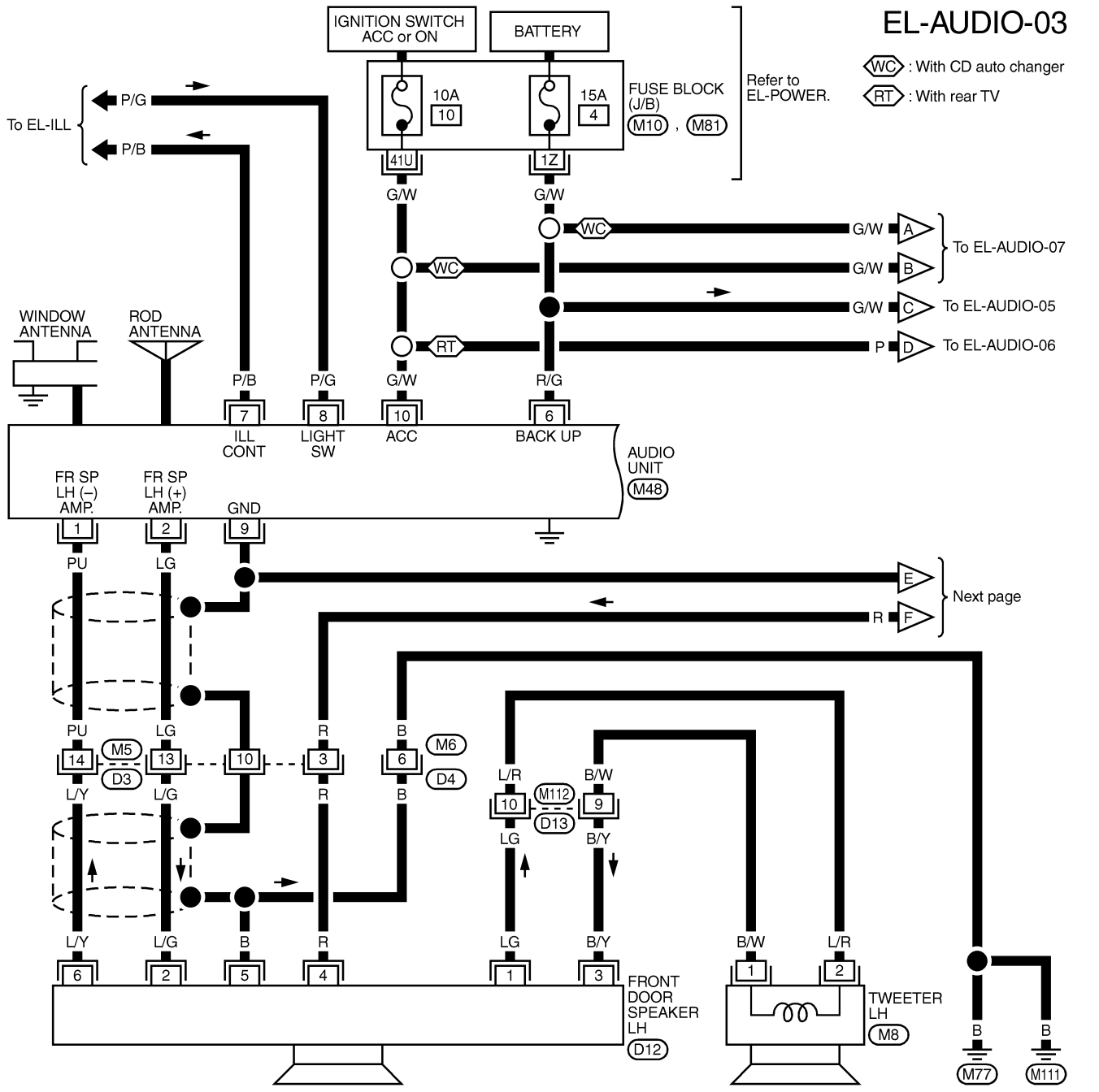
NAEL0344

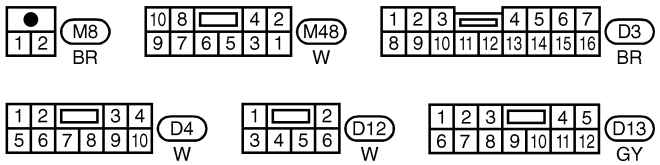


MEL356N

Wiring Diagram — AUDIO —/BOSE System

NAEL0345

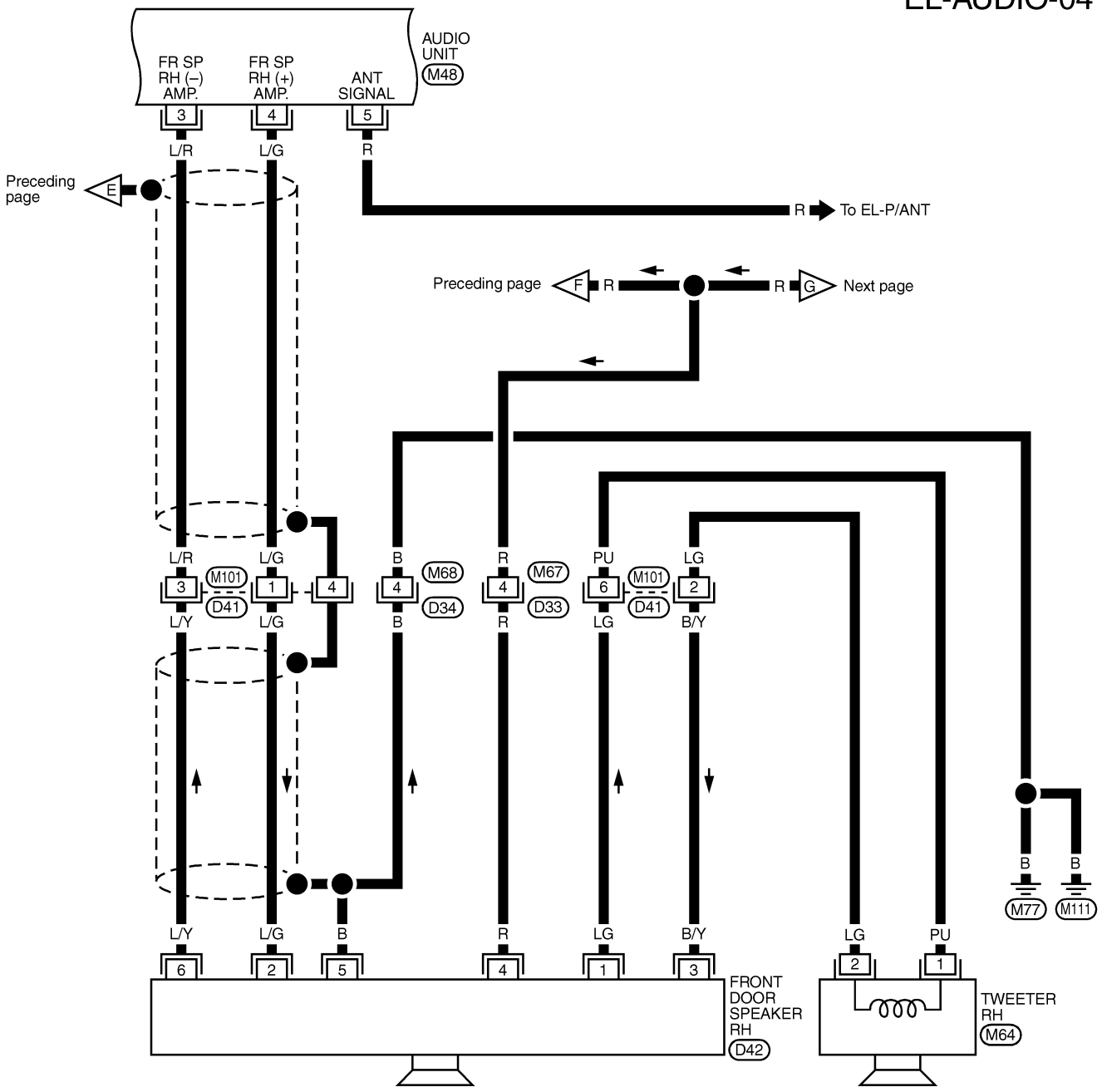


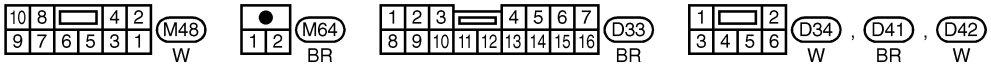


REFER TO THE FOLLOWING.
M10 , M81 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL357N

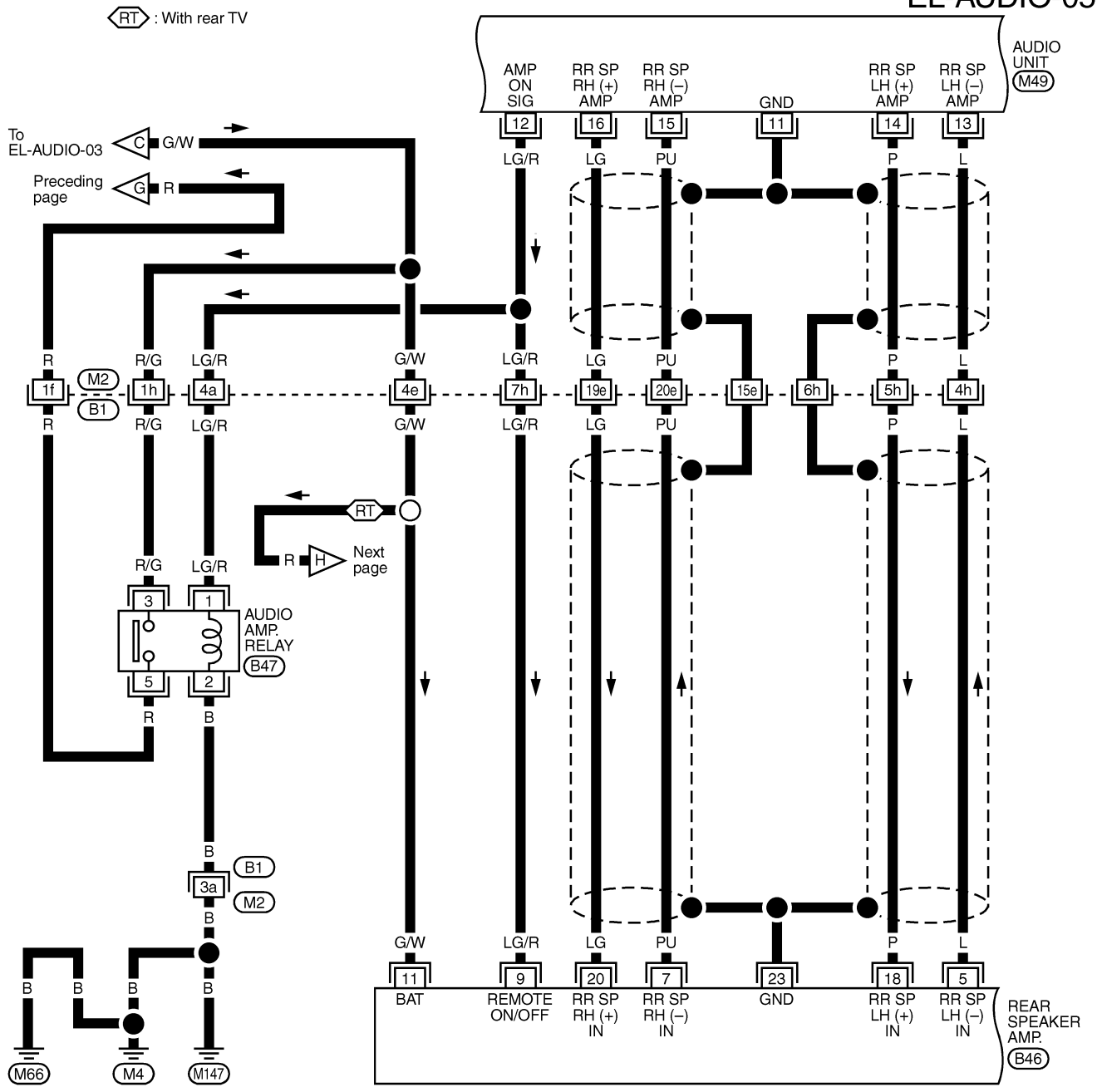
EL-AUDIO-04

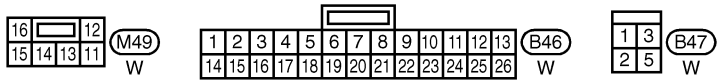




MEL419P

EL-AUDIO-05

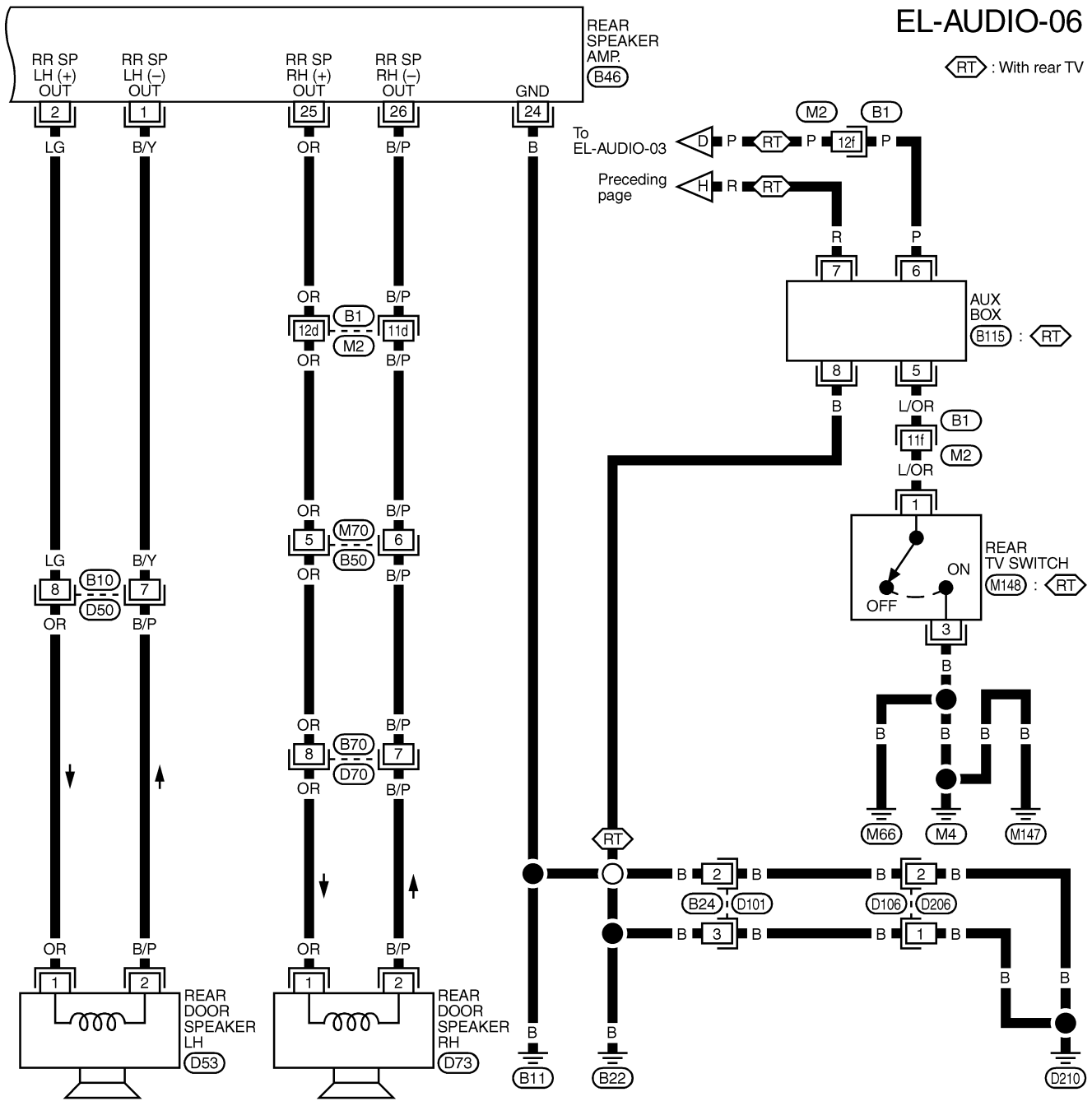


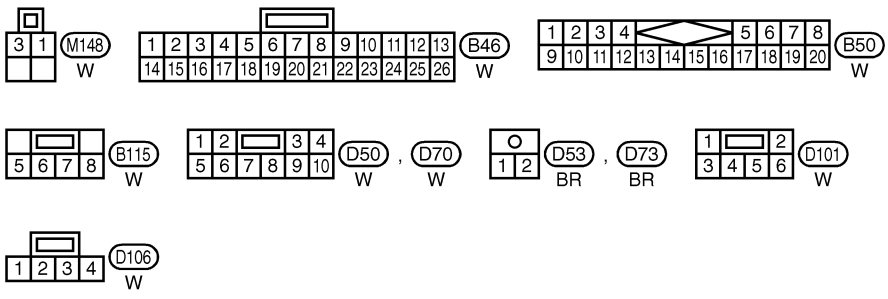


REFER TO THE FOLLOWING.

B1 - SUPER MULTIPLE JUNCTION (SMJ)

MEL359N



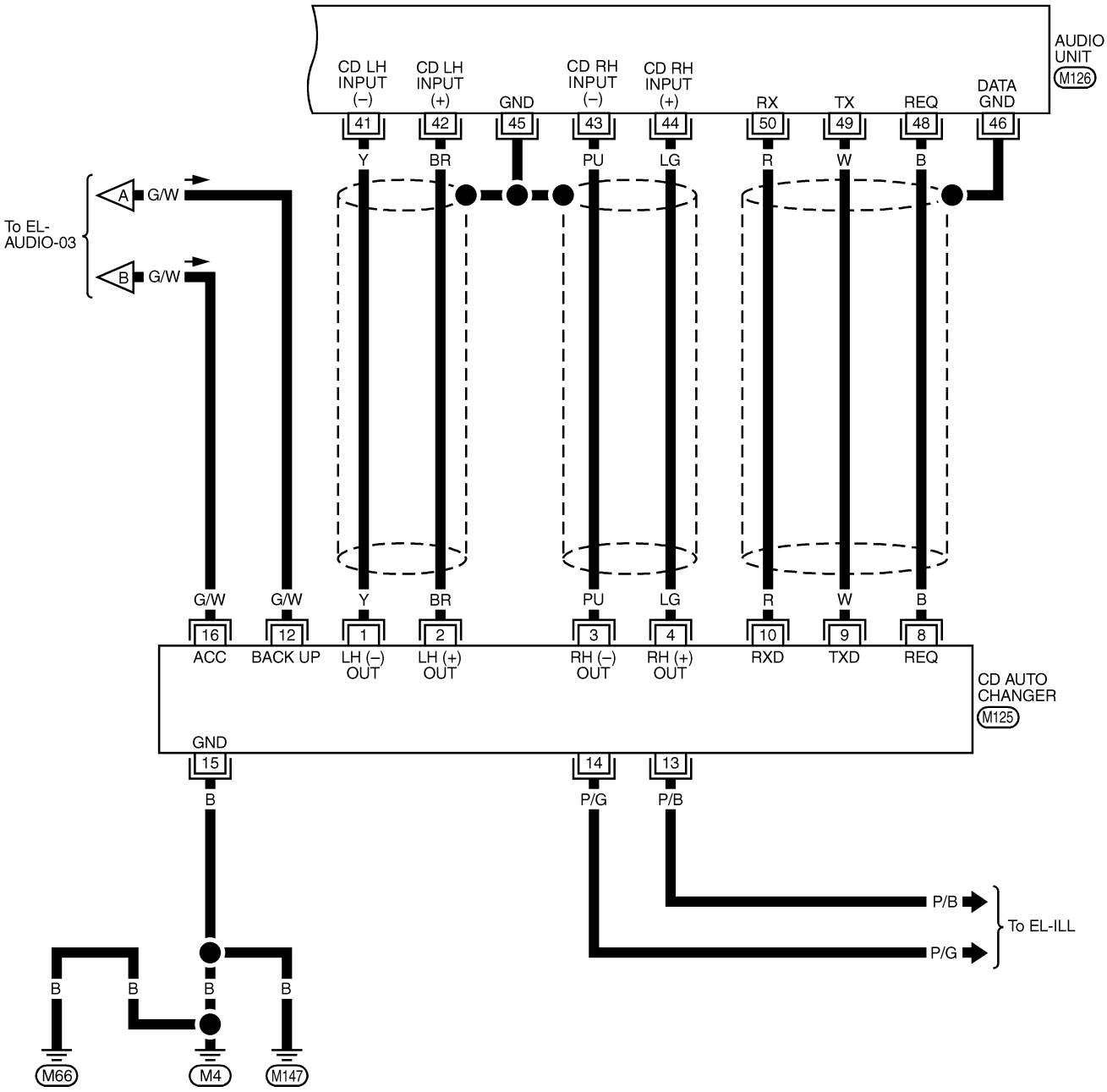


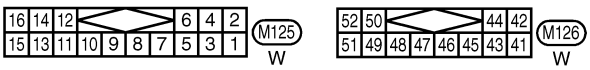
REFER TO THE FOLLOWING.

B1 - SUPER MULTIPLE JUNCTION (SMJ)

MEL556P

EL-AUDIO-07





MEL044M

Trouble Diagnoses

NAEL0346

AUDIO UNIT

NAEL0346S01

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.

BASE SYSTEM

NAEL0346S02

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

BOSE SYSTEM

NAEL0346S03

Symptom	Possible causes	Repair order
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 2 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 3). 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.

Trouble Diagnoses (Cont'd)

Symptom	Possible causes	Repair order
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

NAEL0347

AUDIO UNIT AND AMP.

NAEL0347S01

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

NAEL0347S02

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.

Audio Unit Removal and Installation

NAEL0348

1. Lock the CD changer unit mechanism (if so equipped) prior to removing a malfunctioning CD changer unit. Refer to "LOCKING CD CHANGER UNIT MECHANISM", EL-196.
2. Remove CD changer unit. Refer to BT-22, "INSTRUMENT PANEL ASSEMBLY".

LOCKING CD CHANGER UNIT MECHANISM

NAEL0348S01

CAUTION:

- **Prior to removing a malfunctioning CD changer unit that will be shipped for repair, the changer mechanism MUST BE LOCKED to prevent the mechanism from being damaged during shipping.**
- **If a CD is jammed or unable to be removed from the unit, do NOT lock the changer mechanism. If the unit is to be shipped for repair, carefully package the unit to prevent vibration and shock.**

1. Eject and remove any CDs from the CD changer unit.
2. Turn ignition switch OFF. Wait until CD changer unit display is off and mechanism stops moving (mechanism sound stops).
3. Press any one of the disc selection buttons once. When a display shows on the CD changer unit, press the same disc selection button again within 5 seconds.

- The changer mechanism will lock itself within 10 seconds.

4. After mechanism stops moving (mechanism sound stops), disconnect the CD changer unit connectors.

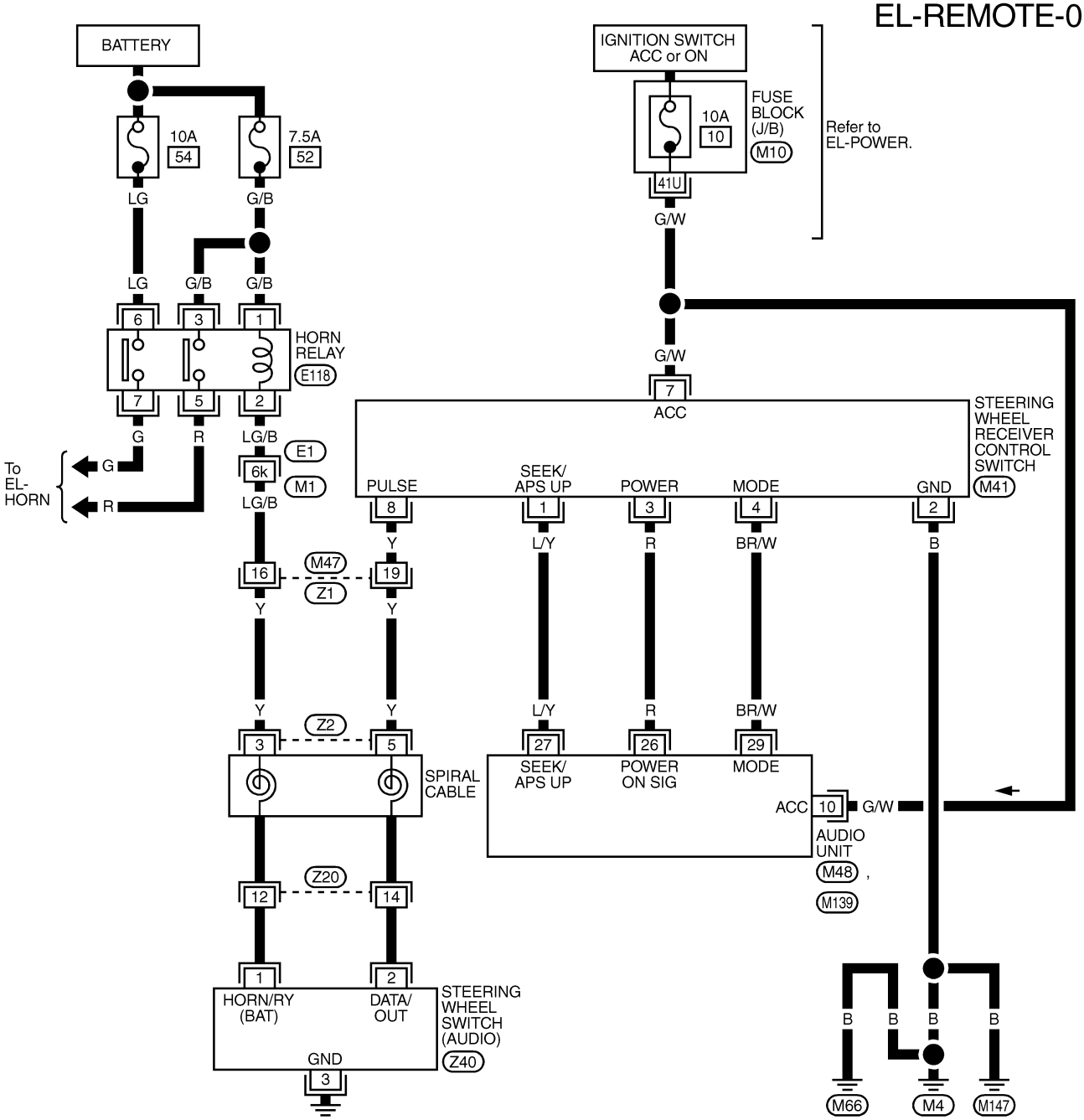
NOTE:

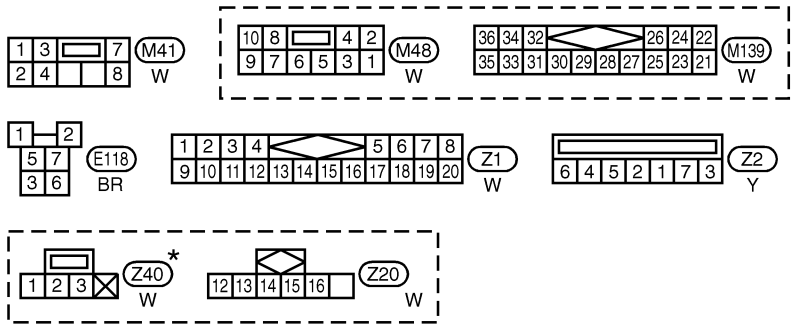
After installing a new or remanufactured CD changer unit, switching the CD changer unit ON will automatically unlock the mechanism. A special unlocking procedure is not required.

Wiring Diagram — REMOTE —

NAEL0349

EL-REMOTE-01





* : 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)

MEL409O

System Description

NAEL0350

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 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

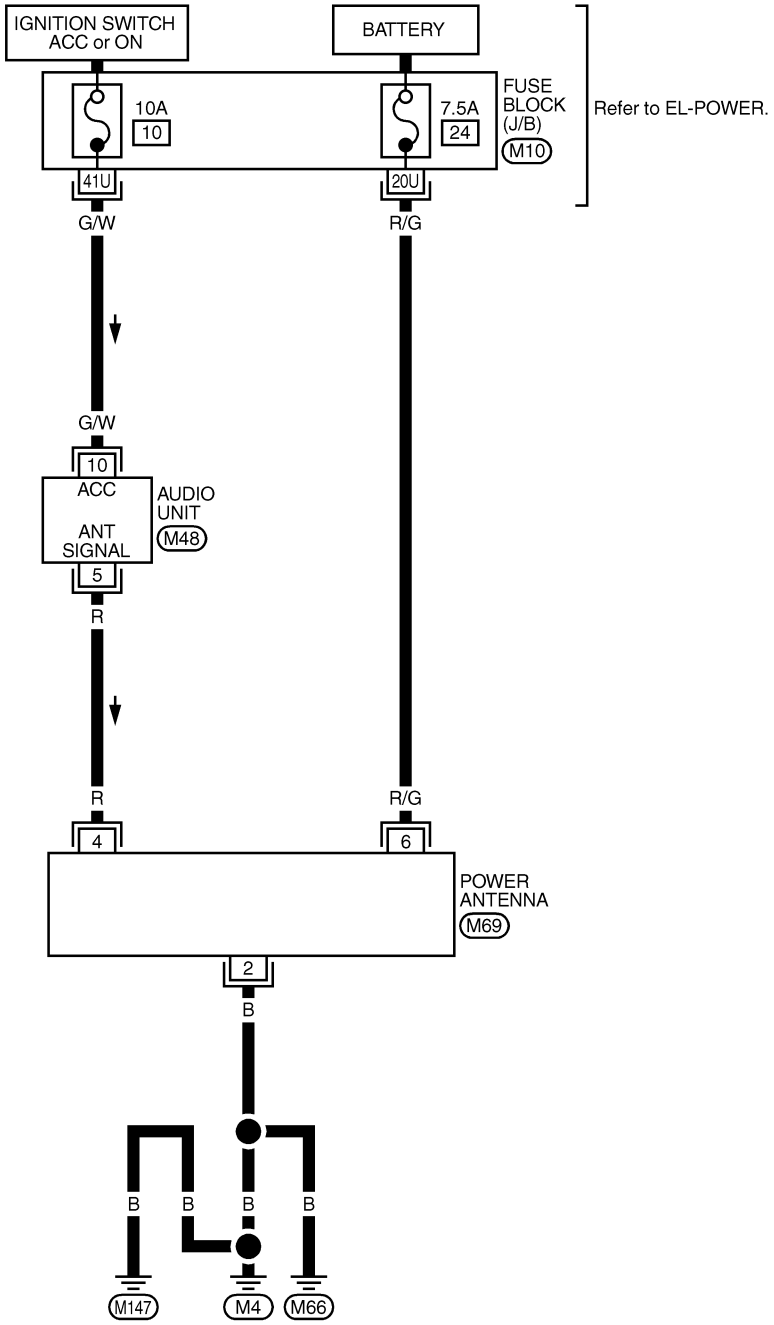
- from audio unit terminal 5
- to power antenna terminal 4.

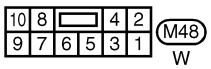
The antenna retracts.

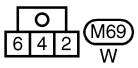
Wiring Diagram — P/ANT —

NAEL0351

EL-P/ANT-01







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

MEL824L

Trouble Diagnoses

NAEL0352

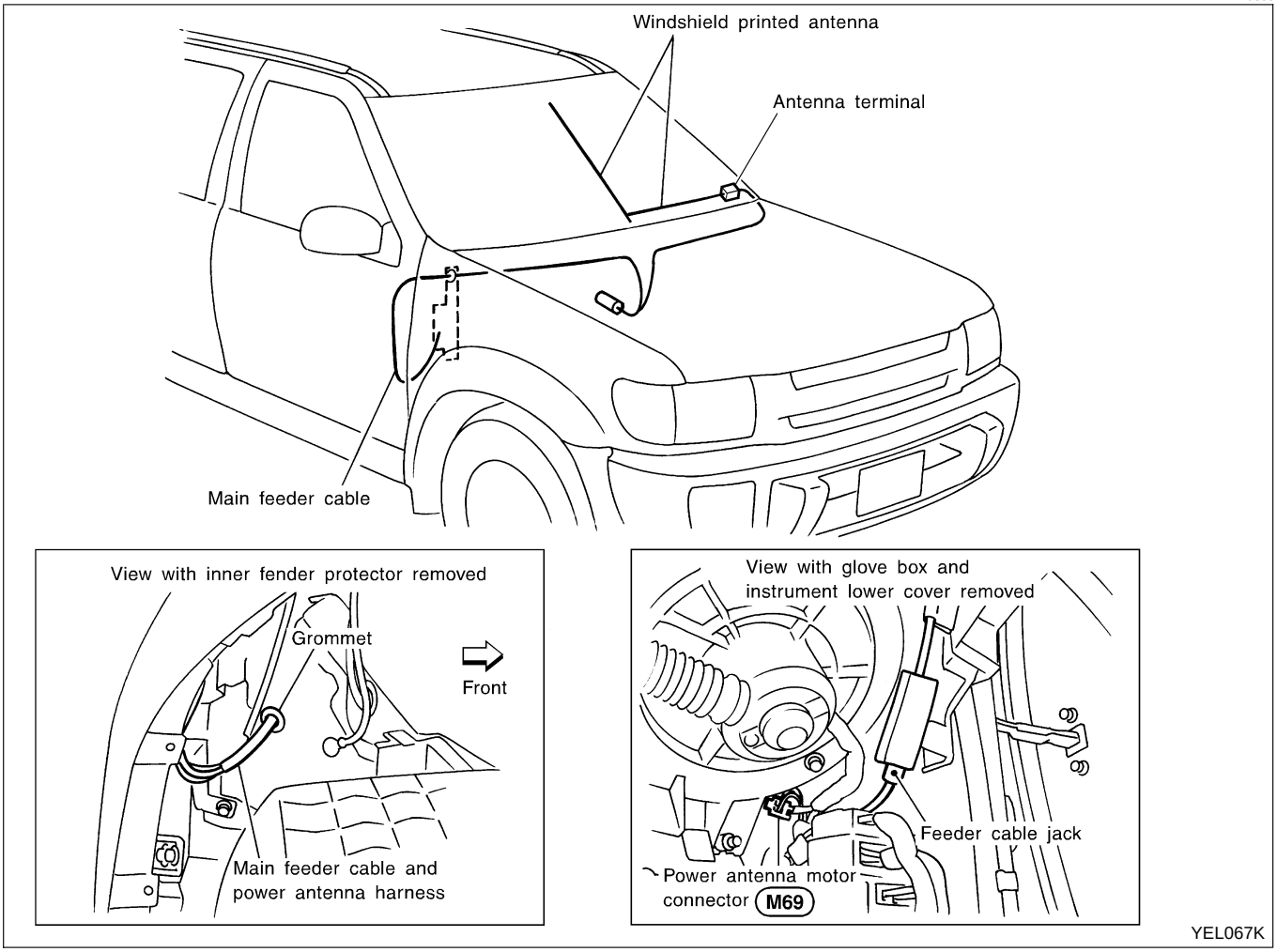
POWER ANTENNA

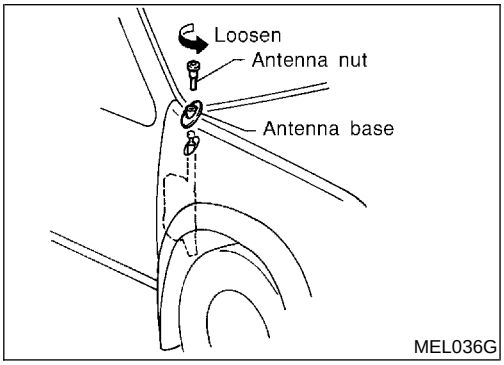
NAEL0352S01

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

NAEL0353





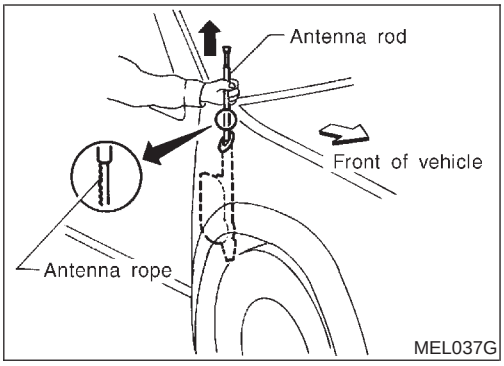
Antenna Rod Replacement

NAEL0354

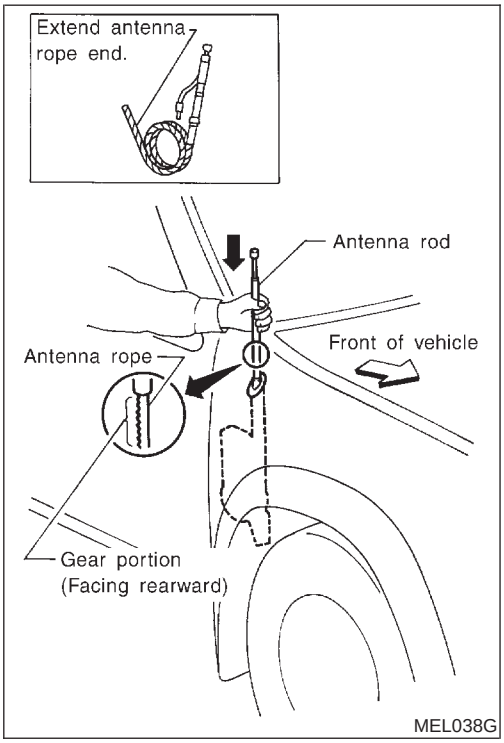
REMOVAL

NAEL0354S01

1. Remove antenna nut and antenna base.



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



INSTALLATION

NAEL0354S02

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

NAEL0355

OUTLINE

NAEL0355S01

Electric sunroof system consists of

- Sunroof switch
- Sunroof motor
- Smart entrance control unit

Smart entrance control unit controls retained power operation.

OPERATION

NAEL0355S02

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

NAEL0355S04

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-206)

INTERRUPTION DETECTION FUNCTION

NAEL0355S05

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,

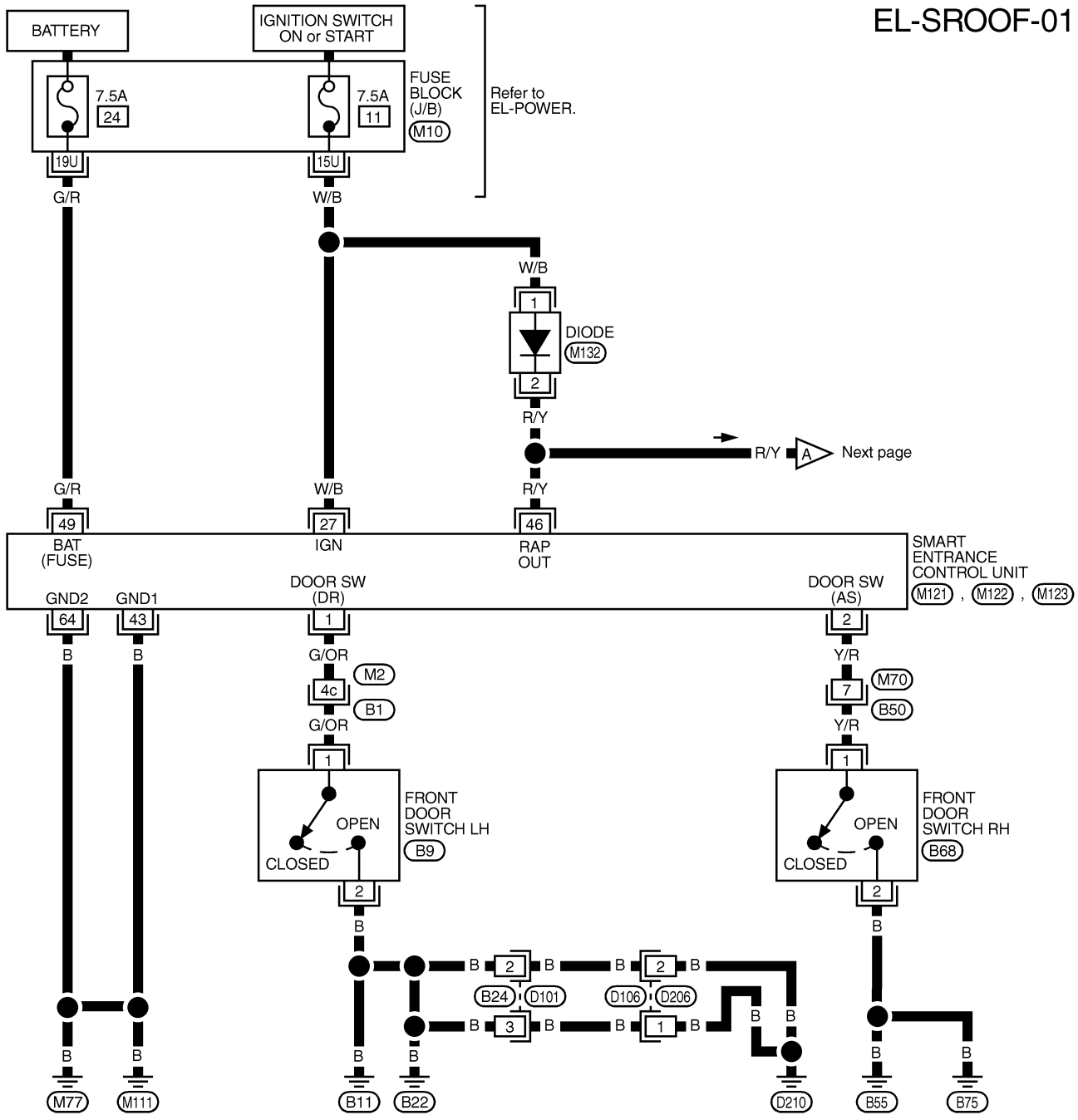
- automatic close operation when ignition switch is in the “ON” position
- automatic close operation during retained power operation

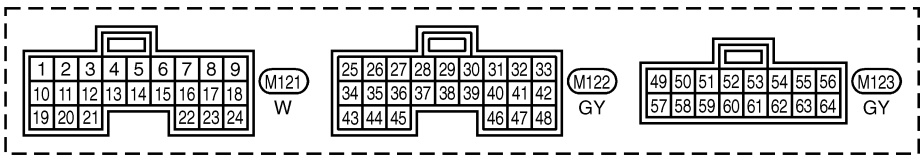
sunroof switch controls the motor for open and the sunroof will operate about 150 mm (5.91 in).

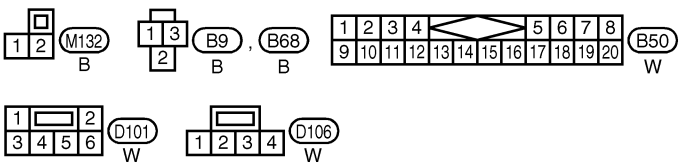
Wiring Diagram — SROOF —

NAEL0356

EL-SROOF-01







REFER TO THE FOLLOWING.

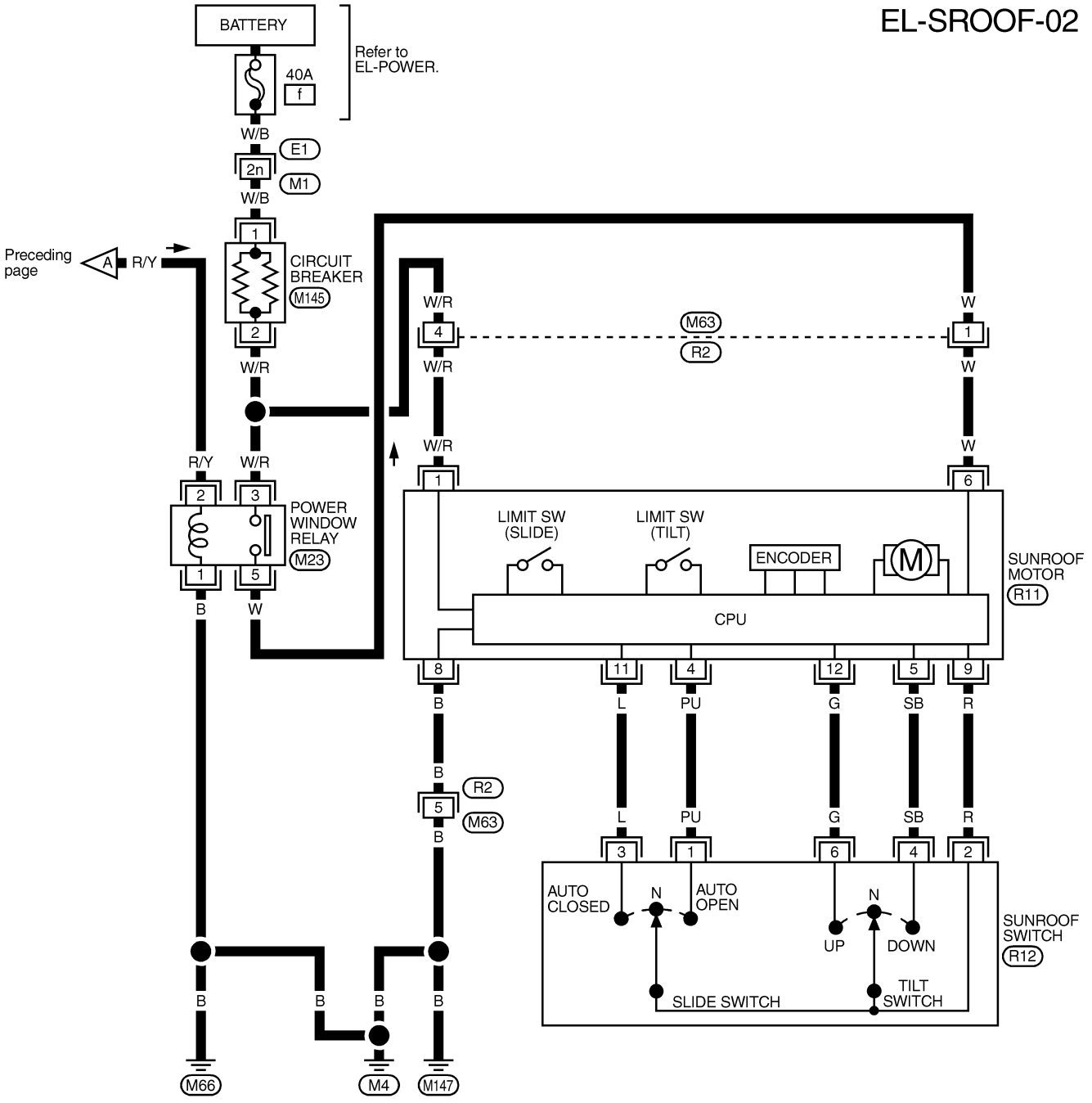
B1 - SUPER MULTIPLE JUNCTION (SMJ)

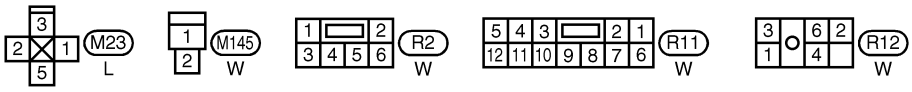
M10 - FUSE BLOCK - JUNCTION BOX (J/B)

MEL429O

Wiring Diagram — SROOF — (Cont'd)

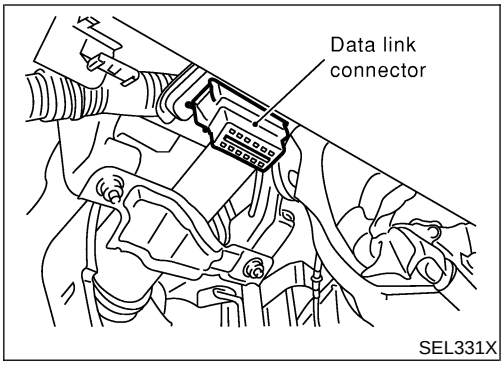
EL-SROOF-02





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

MEL420P



SEL331X

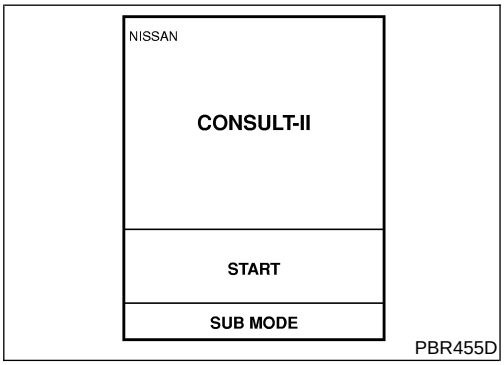
CONSULT-II Inspection Procedure

=NAEL0357

“RETAINED PWR”

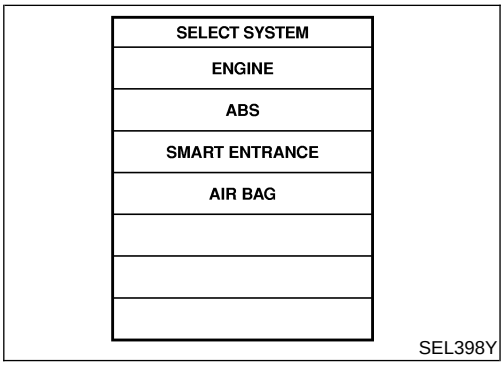
NAEL0357S01

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



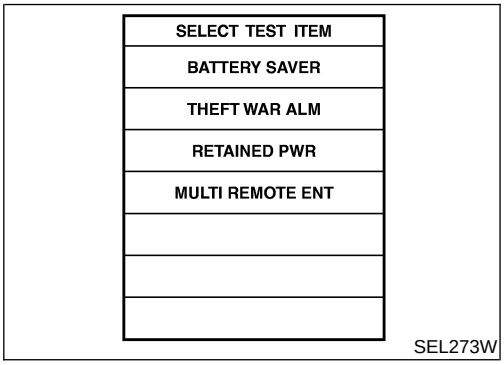
PBR455D

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



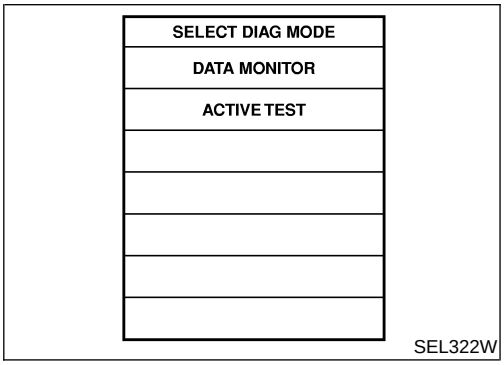
SEL398Y

5. Touch “SMART ENTRANCE”.



SEL273W

6. Touch “RETAINED PWR”.



SEL322W

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

CONSULT-II Application Items

NAEL0455

"RETAINED PWR" Data Monitor

NAEL0455S01

NAEL0455S0101

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

NAEL0455S0102

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

NAEL0455S0103

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

NAEL0456

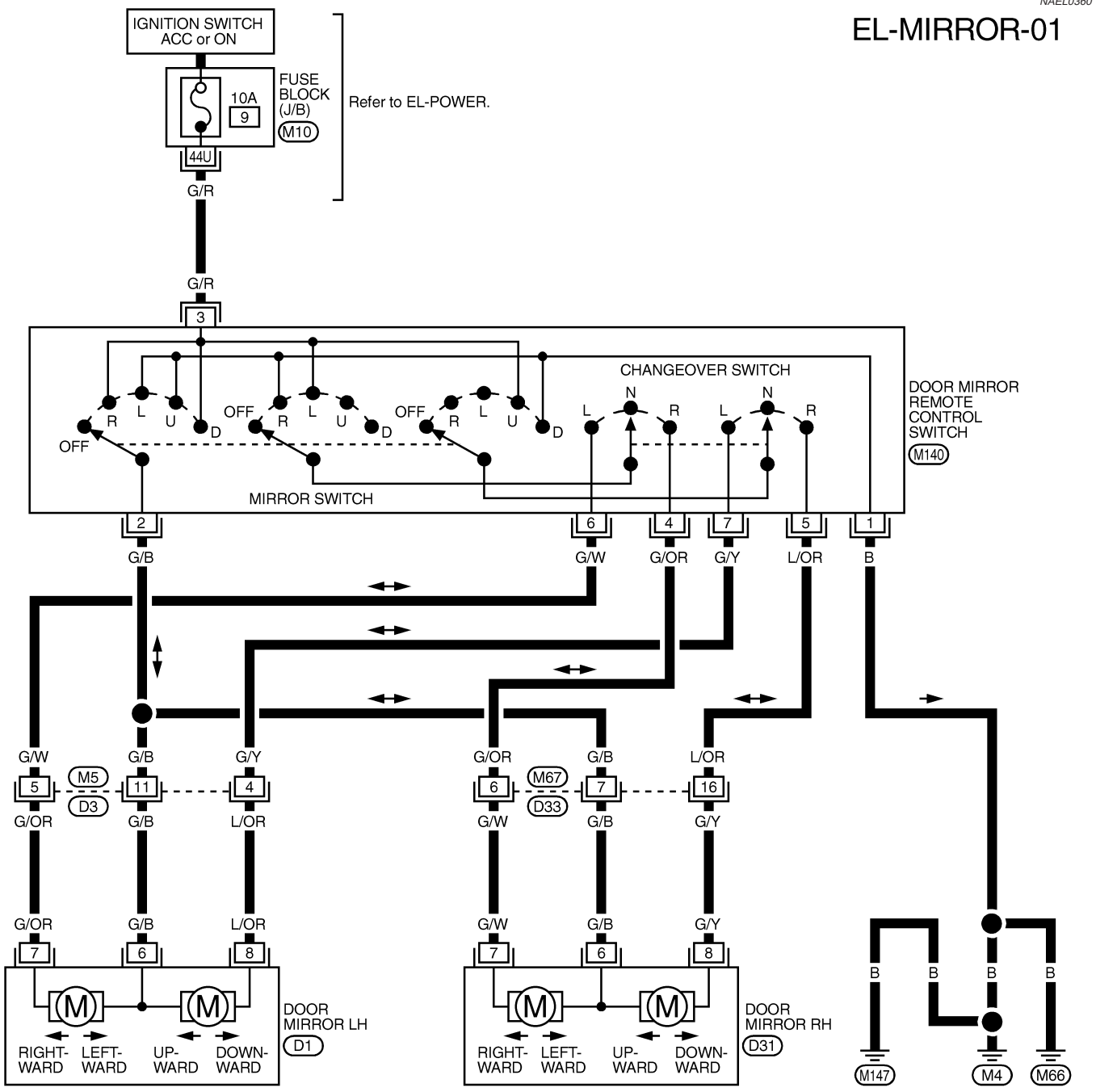
Symptom	Possible cause	Repair order
Power sunroof cannot be operated using any switch.	1. 7.5A fuse, 40A fusible link and M145 circuit breaker 2. Power window relay ground circuit 3. Sunroof motor ground circuit 4. Power window relay 5. Sunroof motor circuit 6. Sunroof switch 7. Sunroof switch circuit 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.

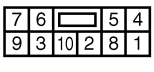
Symptom	Possible cause	Repair order
Power sunroof cannot be opened or closed fully.	1. Full closed position not initialized 2. Sunroof slide mechanism 3. Sunroof switch 4. Sunroof switch circuit 5. Sunroof motor	1. Initialize full closed position. 2. Check the following. a. Check obstacles in sunroof, 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-206.) 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 harness between smart entrance control unit and driver or passenger side door switch. Check driver or passenger side door switch. Check driver or passenger side door switch. 3. Check smart entrance control unit. (EL-378)

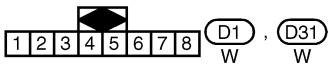
Wiring Diagram — MIRROR —

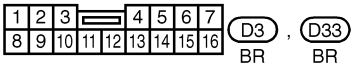
NAEL0360

EL-MIRROR-01









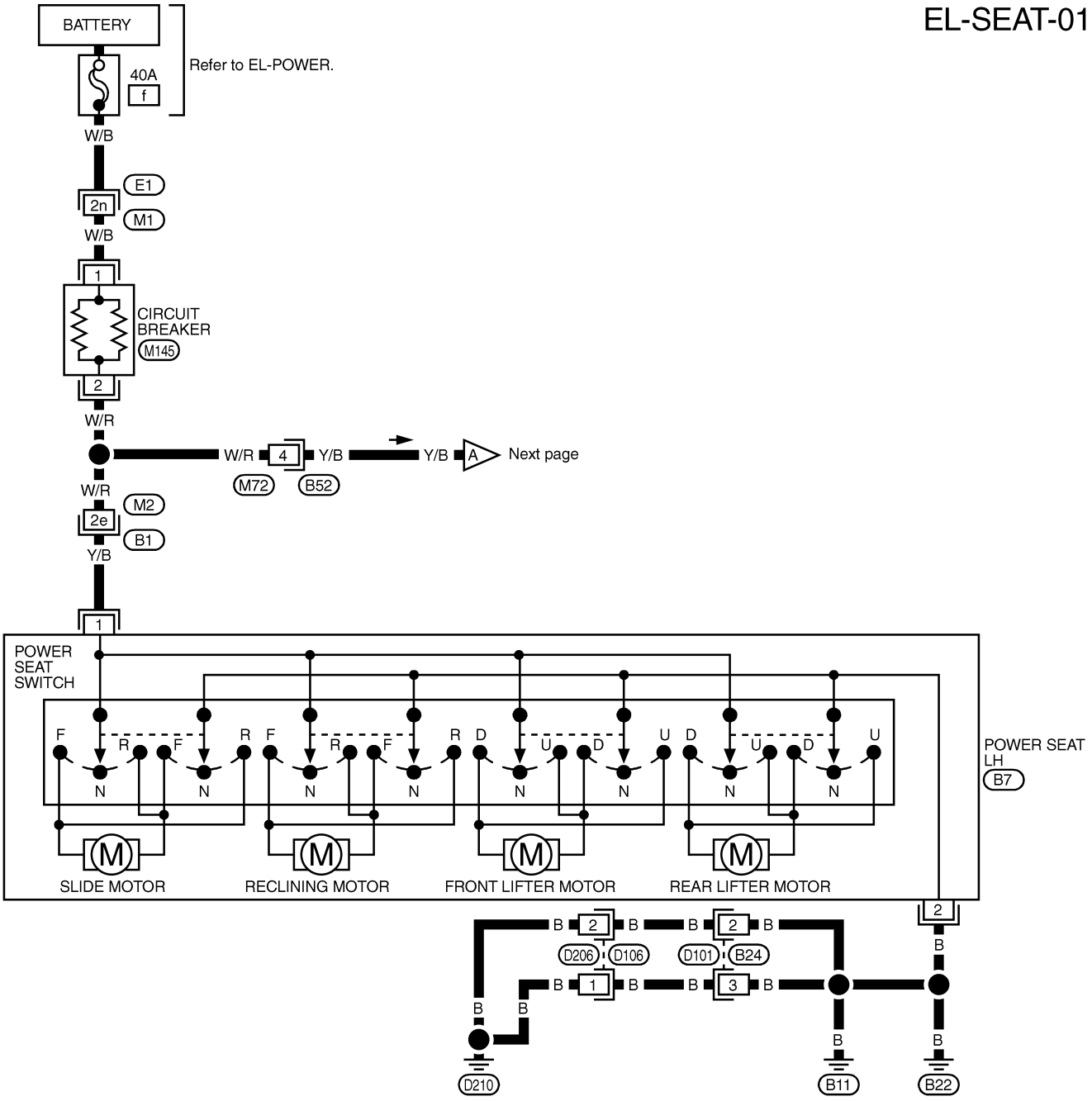
REFER TO THE FOLLOWING.
M10 -FUSE BLOCK-
JUNCTION BOX (J/B)

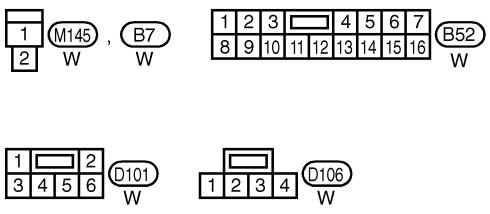
MEL421P

Wiring Diagram — SEAT —

NAEL0361

EL-SEAT-01

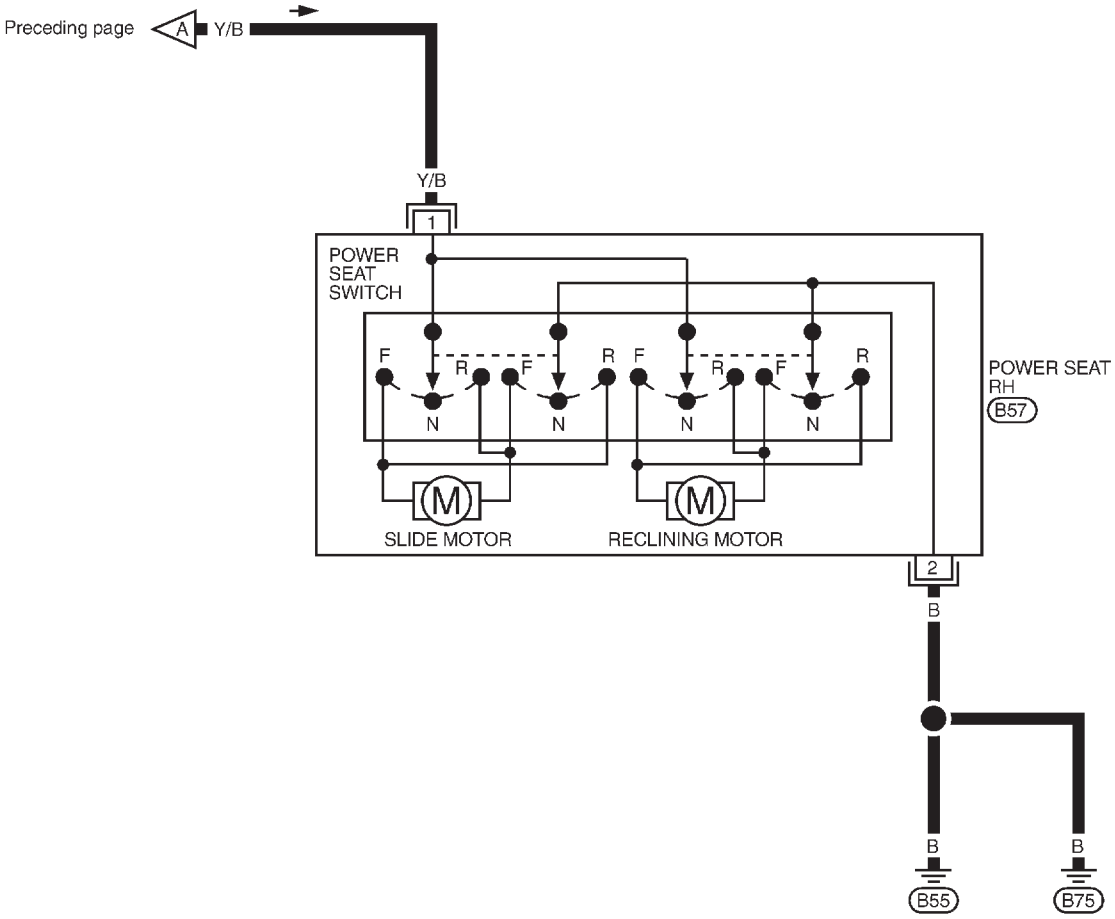


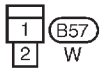


REFER TO THE FOLLOWING.

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
B55
B
B75

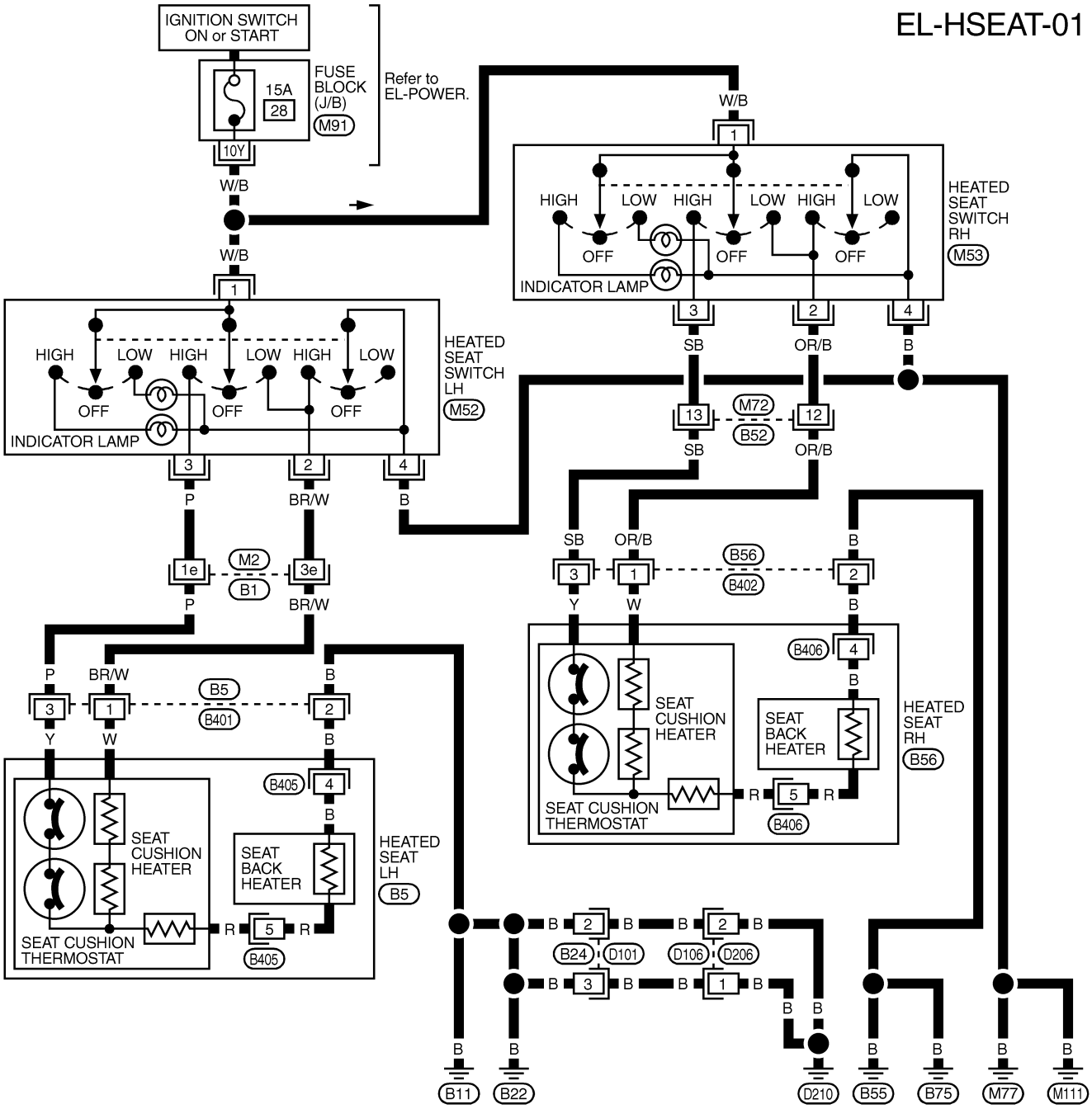

1
2
B57
W

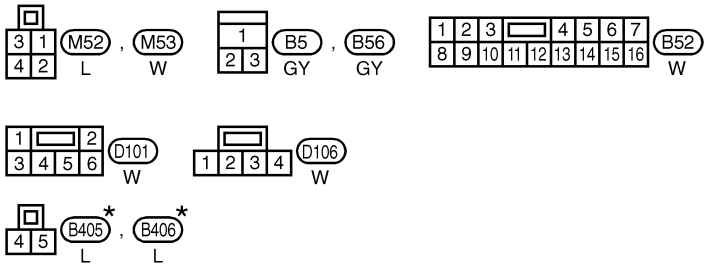
MEL601F

Wiring Diagram — HSEAT —

NAEL0362

EL-HSEAT-01





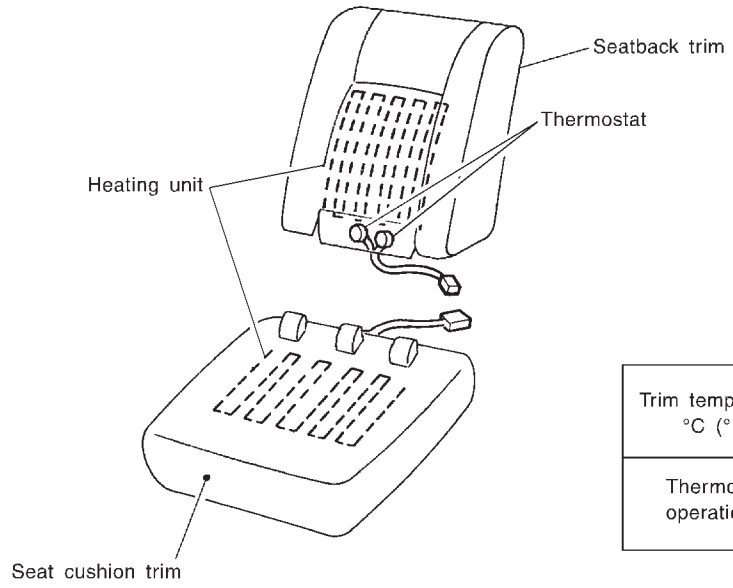
* : This connector is not shown in "HARNESS LAYOUT", EL section.

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

MEL046M

Seatback Heating Unit

NAEL0363

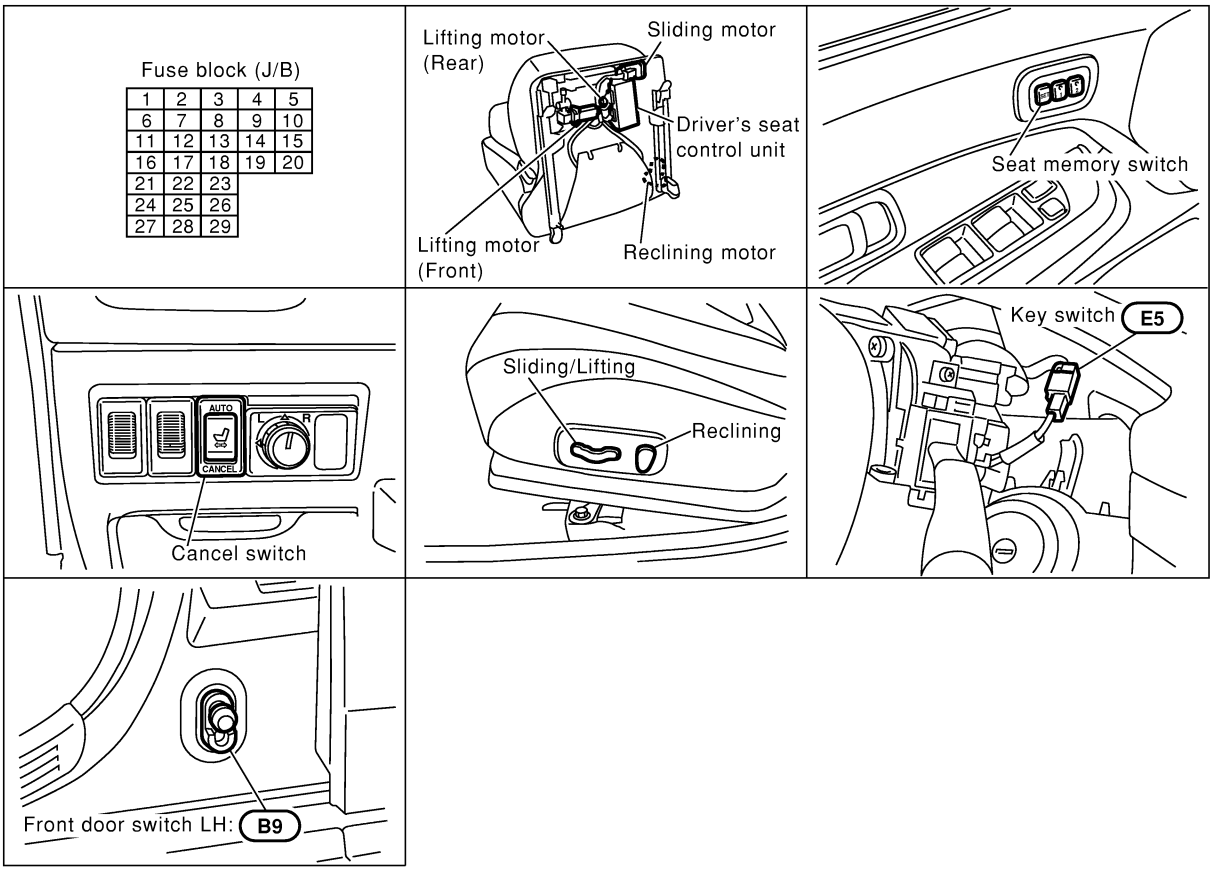


Trim temperature °C (°F)	Increasing to 35 - 45 (95 - 113)	Decreasing to 25 - 35 (77 - 95)
Thermostat operation	OFF	ON

SBT314

Component Parts and Harness Connector Location

NAEL0364



SEL190Y

System Description

=NAEL0365

OPERATIVE CONDITION

NAEL0365S01

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

Manual Operation

NAEL0365S0101

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

NAEL0365S0102

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

NAEL0365S02

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

NAEL0365S03

Output Failure

NAEL0365S0301

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

NAEL0365S0302

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

INITIALIZATION

NAEL0365S04

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

=NAEL0365S05

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

PROCEDURE FOR STORING MEMORY

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

↓ Ignition switch "ON".

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

↓ Within 5 seconds.

Press memory switch for which driver's seat positions are to be entered in memory for more than 0.5 seconds. (2 driver's seat positions can be memorized.)	Indicator LEDs
	(1) To modify driver's seat positions, press memory switch. Indicator LED will then go out for 0.5 seconds and then illuminate for 5 seconds.
	(2) To enter driver's seat positions in blank memory, indicator LED illuminates for 5 seconds after memory switch is pressed.

↓

END OF MEMORY SETTING

SEL592W

NOTE:

- When memory switch for which driver's seat positions are already retained in memory is pressed, new seat positions will be retained in memory in place of the previously set positions.
- Drive position is erased from the memory when battery cable is disconnected more than 30 seconds. After connecting battery cable, perform initialization procedures.

SELECTING THE MEMORIZED POSITION

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

PROCEDURE-B
Open driver's door and withdraw key from ignition key cylinder. Then press desired memory switch for more than 0.3 seconds. (Indicator LED illuminates.) (See NOTE 2.)

(See NOTE 1.)

↓ Within 1 minute

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

↓

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

(See NOTE 3.)

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.

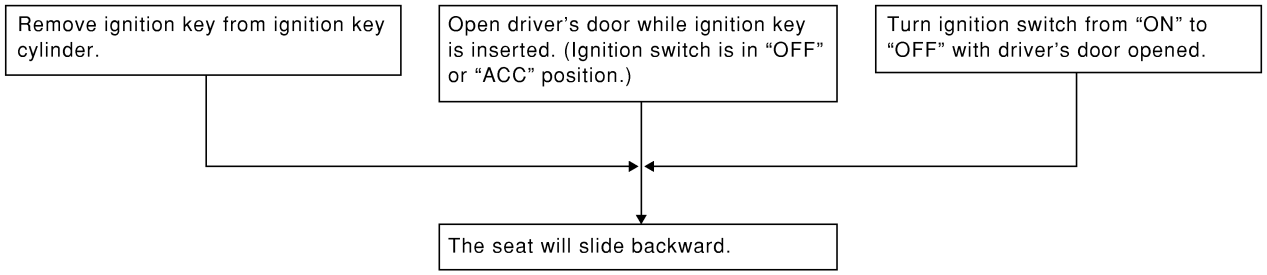
The order of priority	Operated portion
1	Seat sliding
2	Seat reclining
3	Seat front lifting
4	Seat rear lifting

AUTOMATIC EXITING SETTING

NAEL0365S06

"Exiting" positions:

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

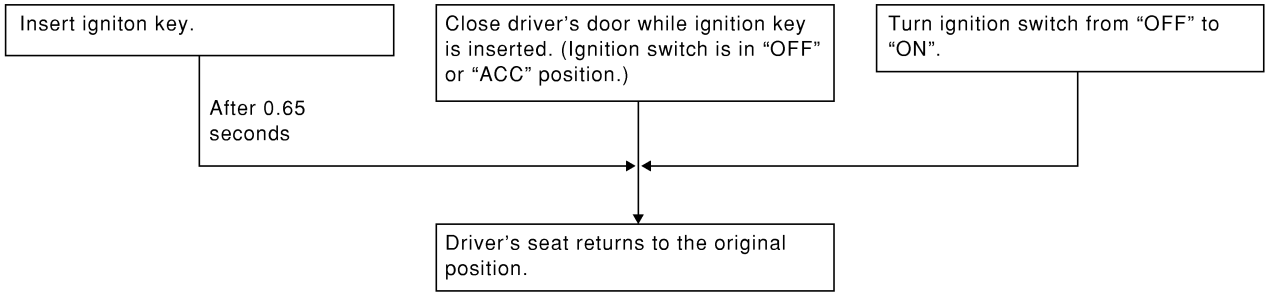


SEL594W

AUTOMATIC SET RETURN

NAEL0365S07

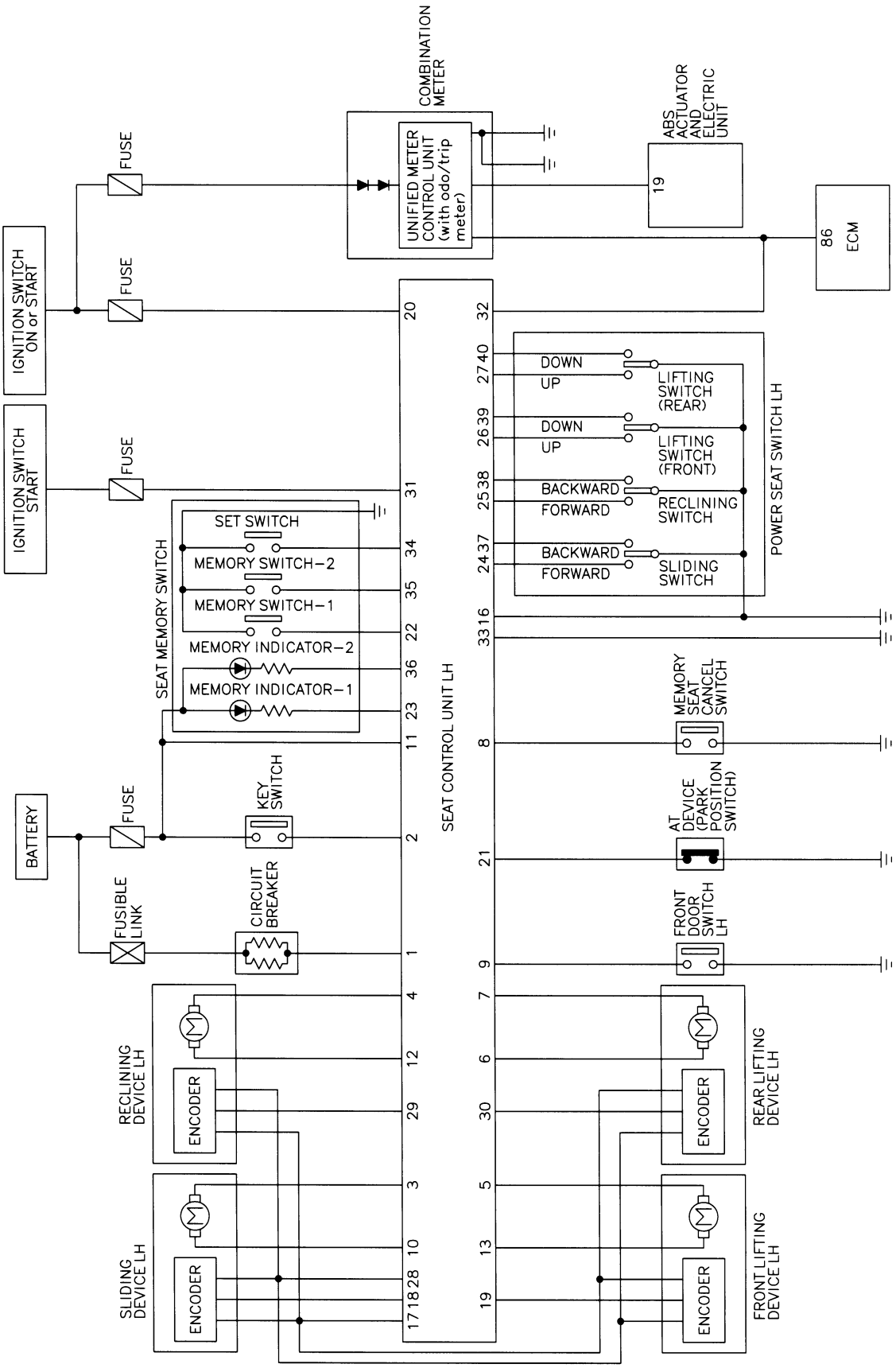
With driver's seat set to the "exiting" position, operating one of the following procedures moves it to the position previously retained in memory.



SEL595W

Schematic

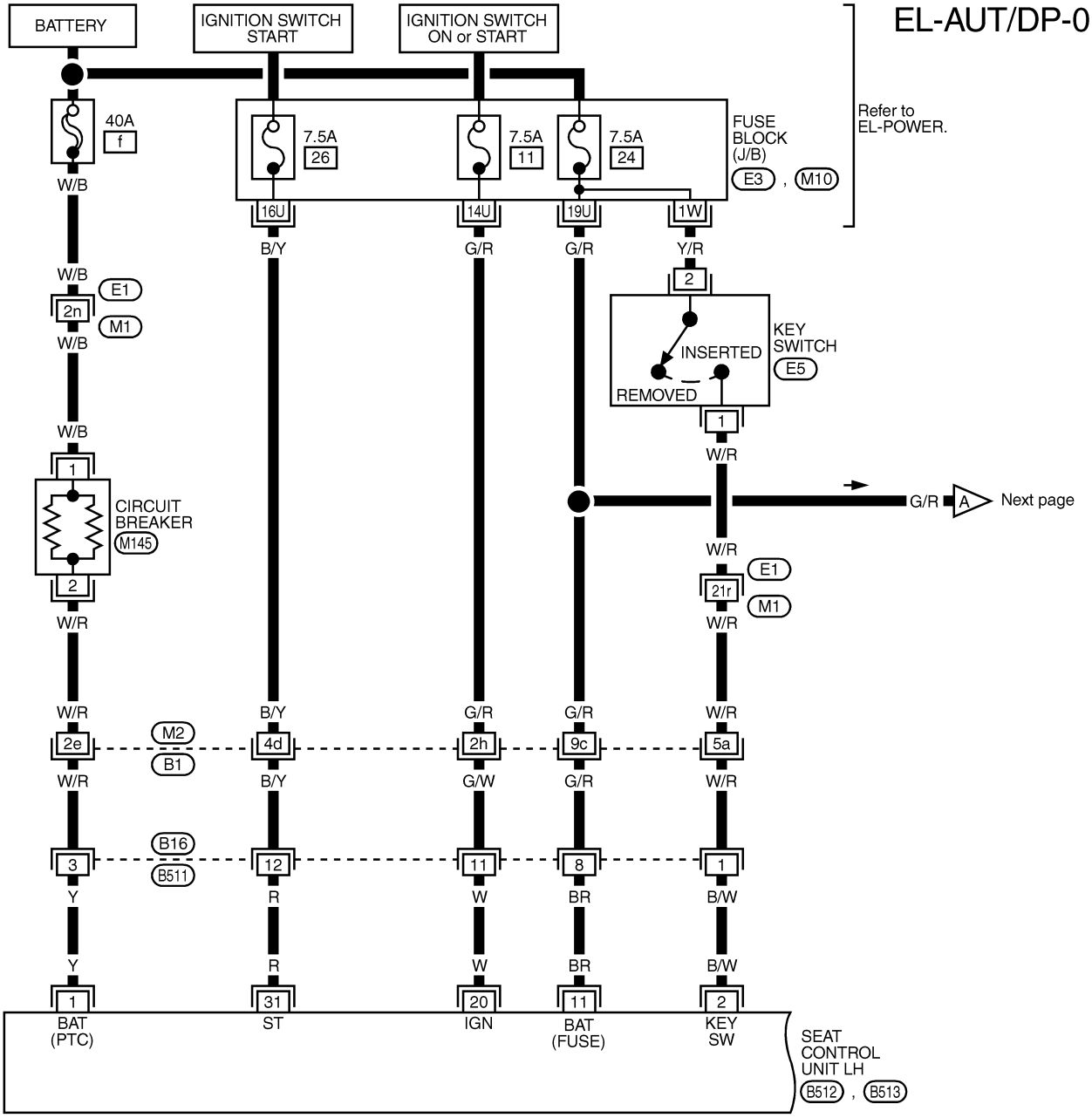
NAEL0366

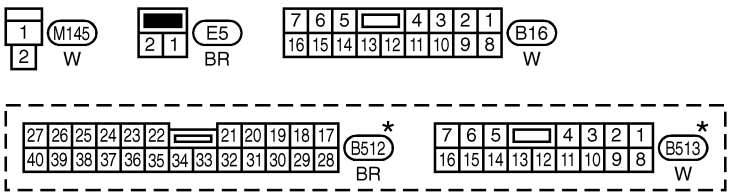


MEL422P

Wiring Diagram — AUT/DP —

NAEL0367



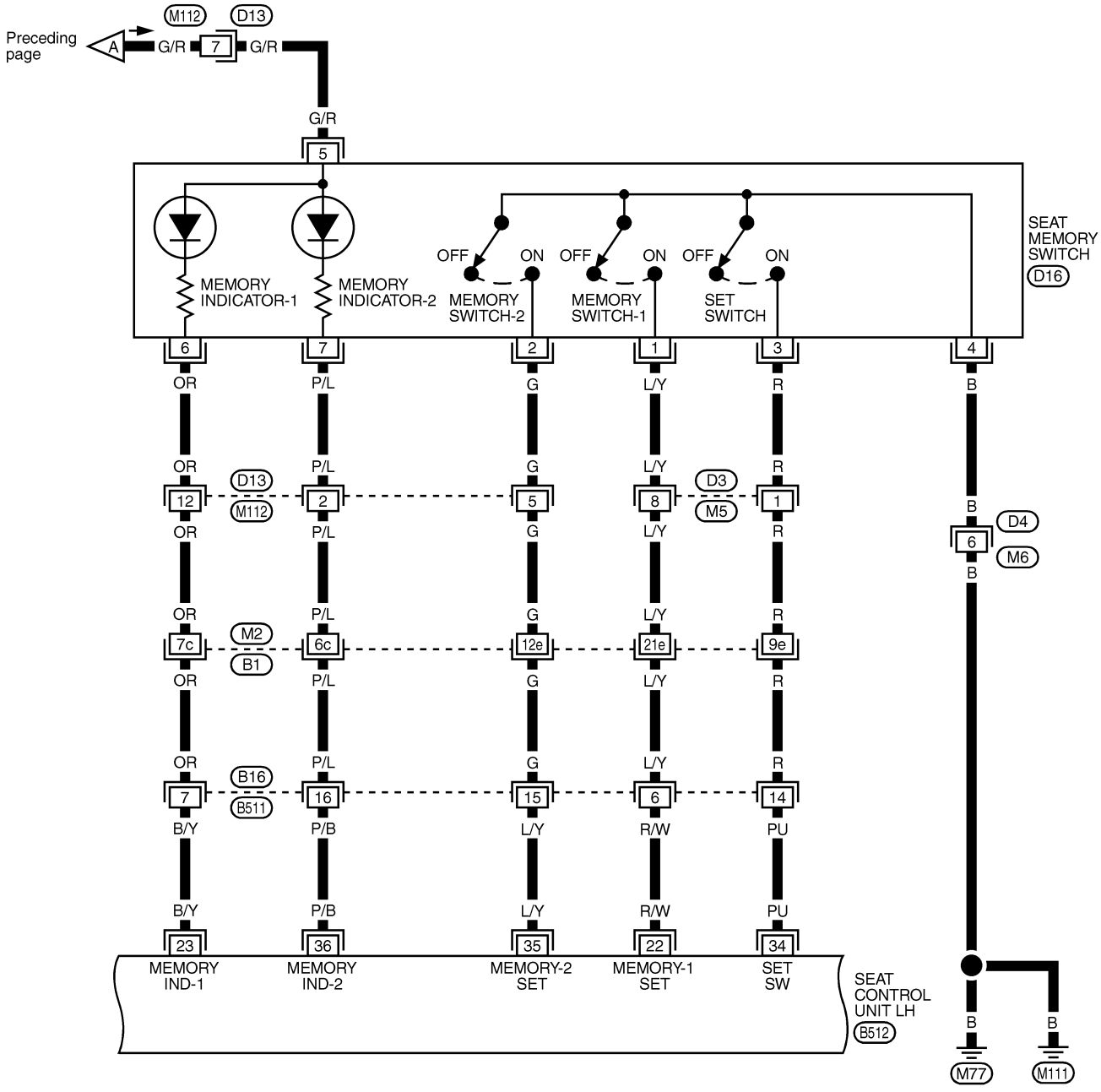


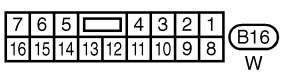
★ : This connector is not shown in "HARNESS LAYOUT", EL section.

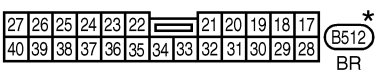
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

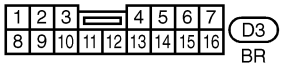
MEL557P

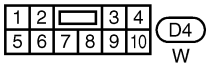
EL-AUT/DP-02

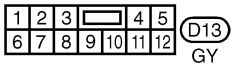


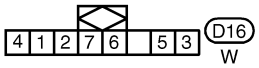










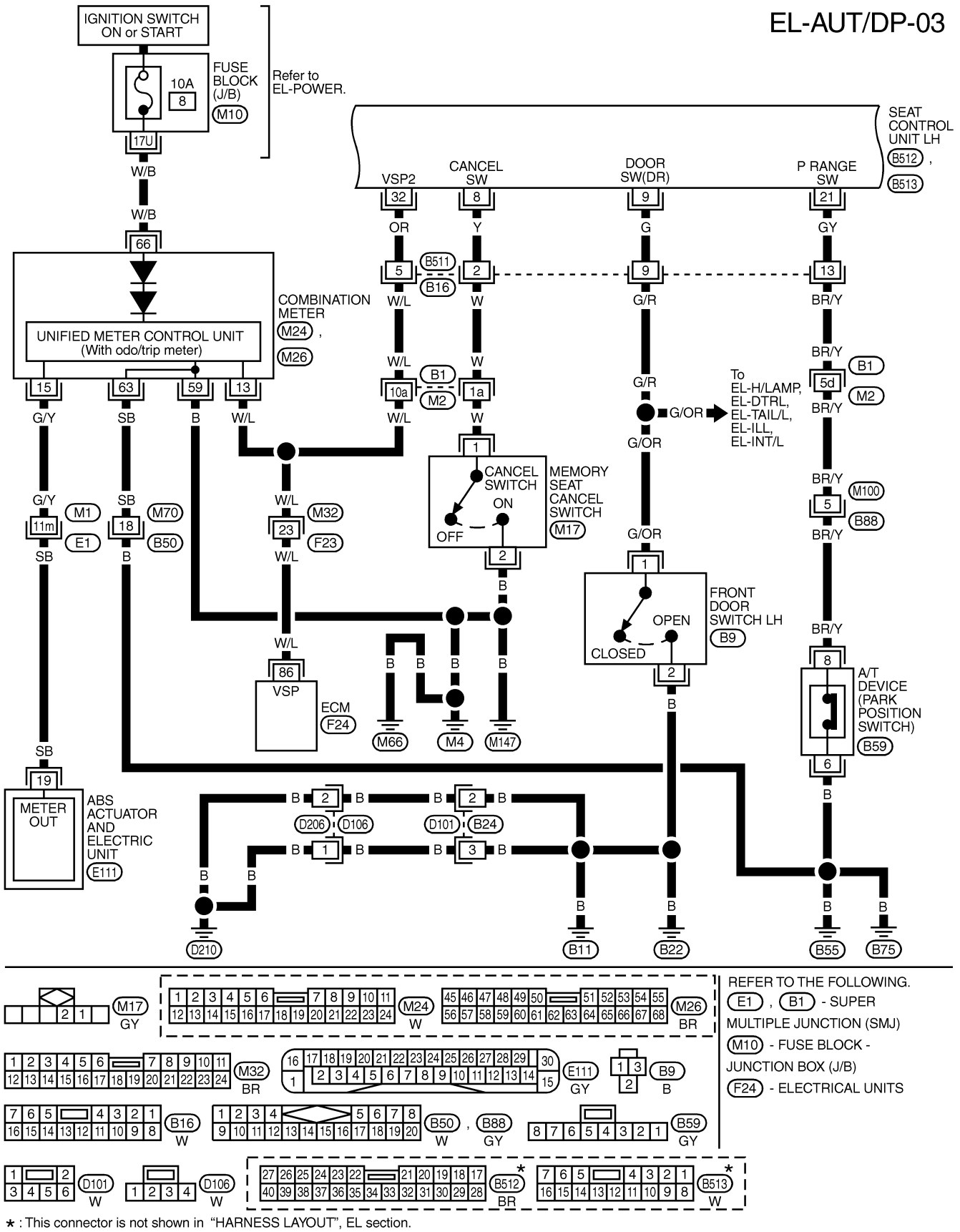


∗ : This connector is not shown in "HARNESS LAYOUT", EL section.

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

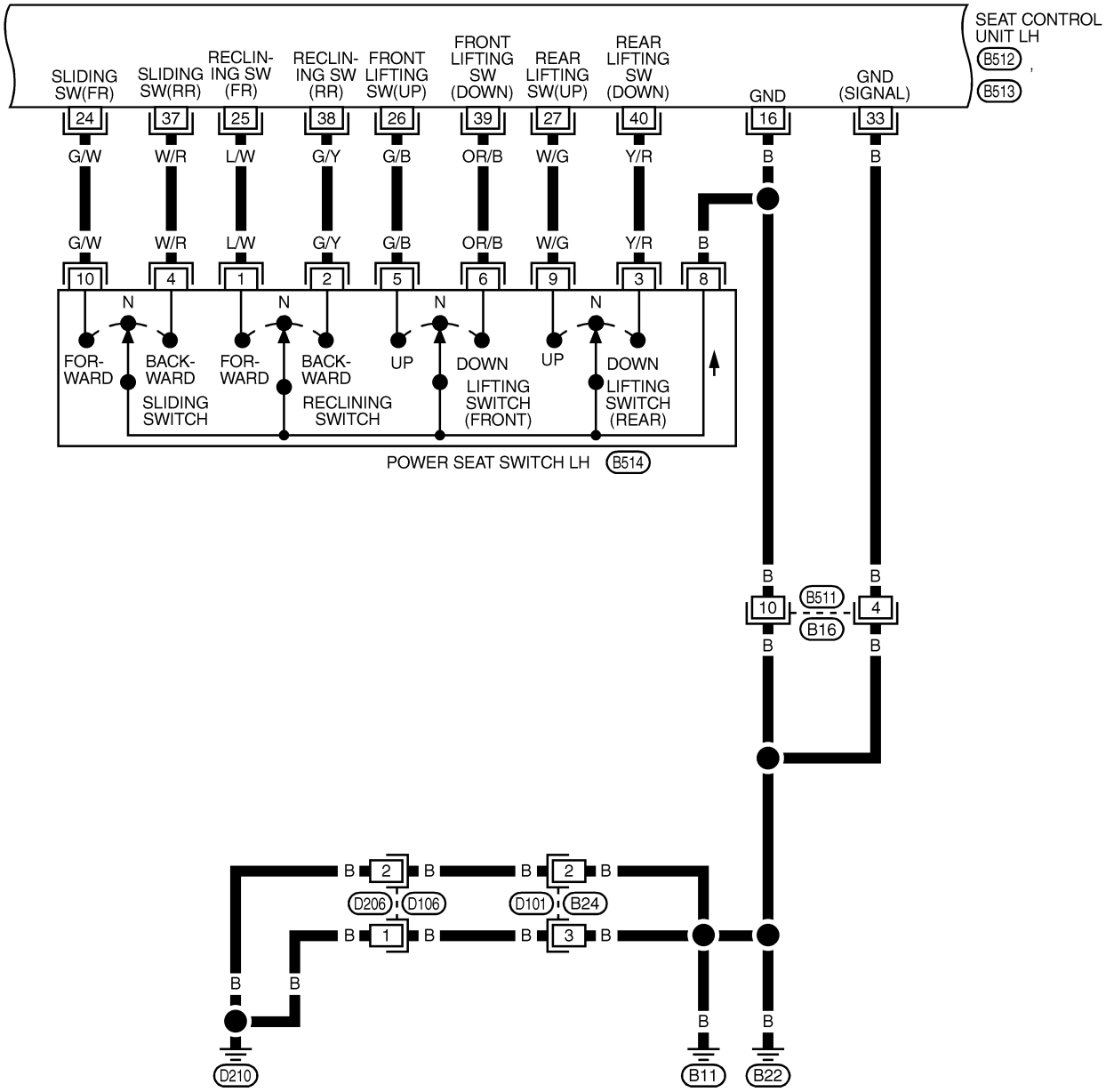
MEL558P

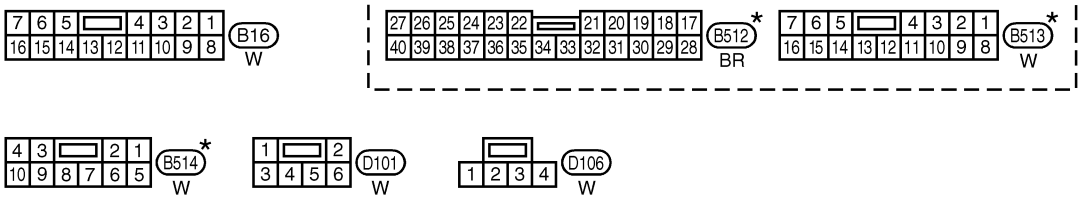
Wiring Diagram — AUT/DP — (Cont'd)



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

MEL423P

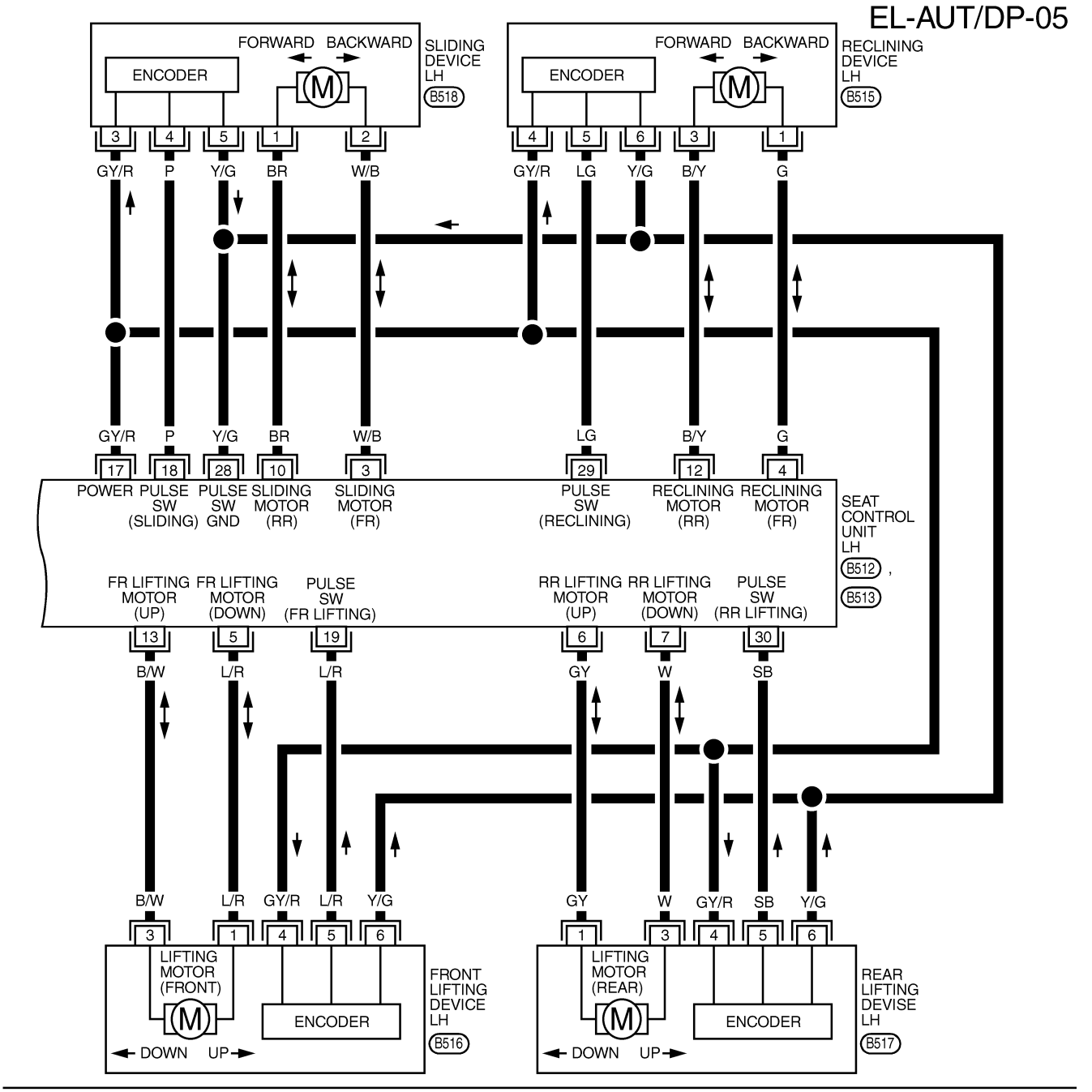


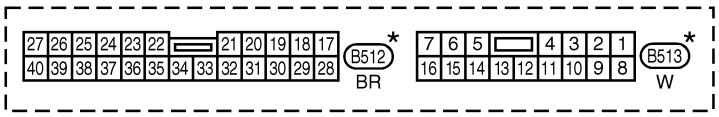


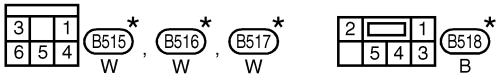
∗ : This connector is not shown in "HARNESS LAYOUT", EL section.

MEL186M

Wiring Diagram — AUT/DP — (Cont'd)





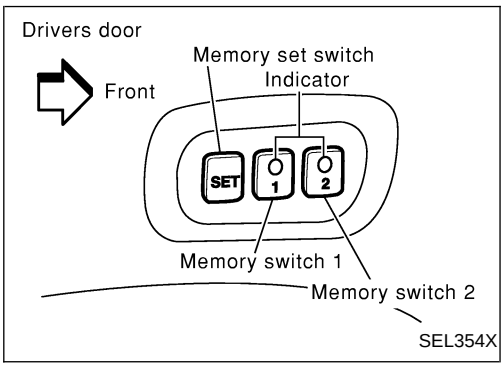


∗ : This connector is not shown in "HARNESS LAYOUT", EL section.

MEL187M

On Board Diagnosis

NAEL0368



HOW TO PERFORM SELF-DIAGNOSIS

NAEL0368S01

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

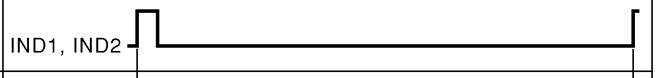
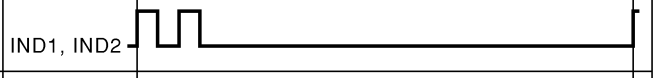
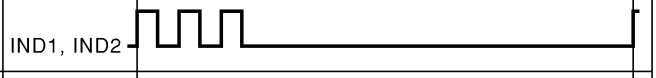
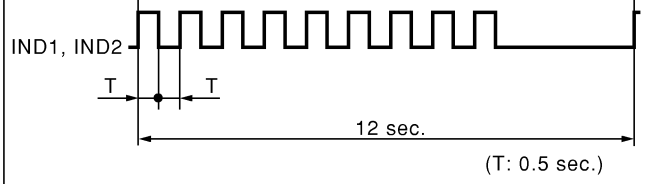
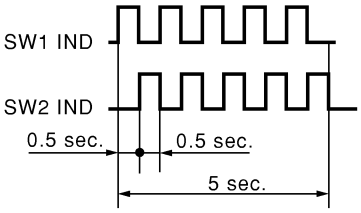
SEL596W

*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

=NAEL0368S02

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

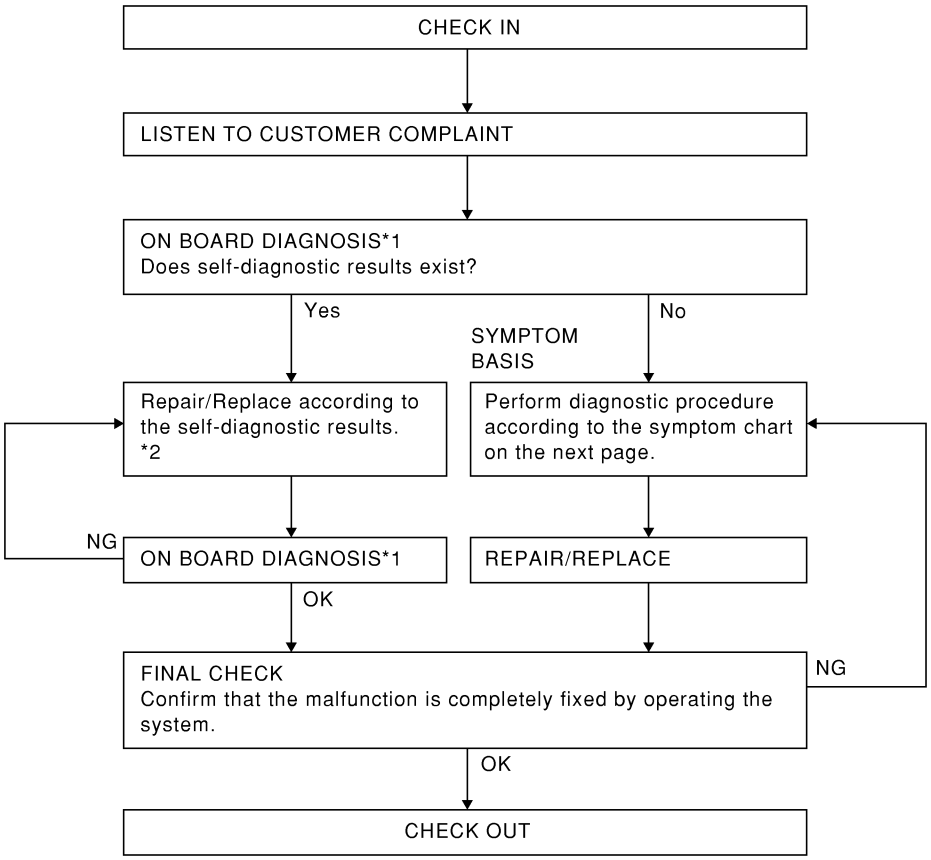
Code No.	Detected items	Diagnostic procedure	Reference page	Code No.	Detected items	Diagnostic procedure	Reference page
1	Seat sliding	PROCEDURE 2 (Sliding encoder check) PROCEDURE 6 (Sliding motor check)	EL-230 EL-238	4	Seat lifting rear	PROCEDURE 5 [Lifting encoder (rear) check] PROCEDURE 9 [Lifting motor (rear) check]	EL-236 EL-241
2	Seat reclining	PROCEDURE 3 (Reclining encoder check) PROCEDURE 7 (Reclining motor check)	EL-232 EL-239	9	Vehicle speed sensor	PROCEDURE 12 (Vehicle speed sensor check)	EL-244
3	Seat lifting front	PROCEDURE 4 [Lifting encoder (front) check] PROCEDURE 8 [Lifting motor (front) check]	EL-234 EL-240				

Trouble Diagnoses

NAEL0369

WORK FLOW

NAEL0369S01

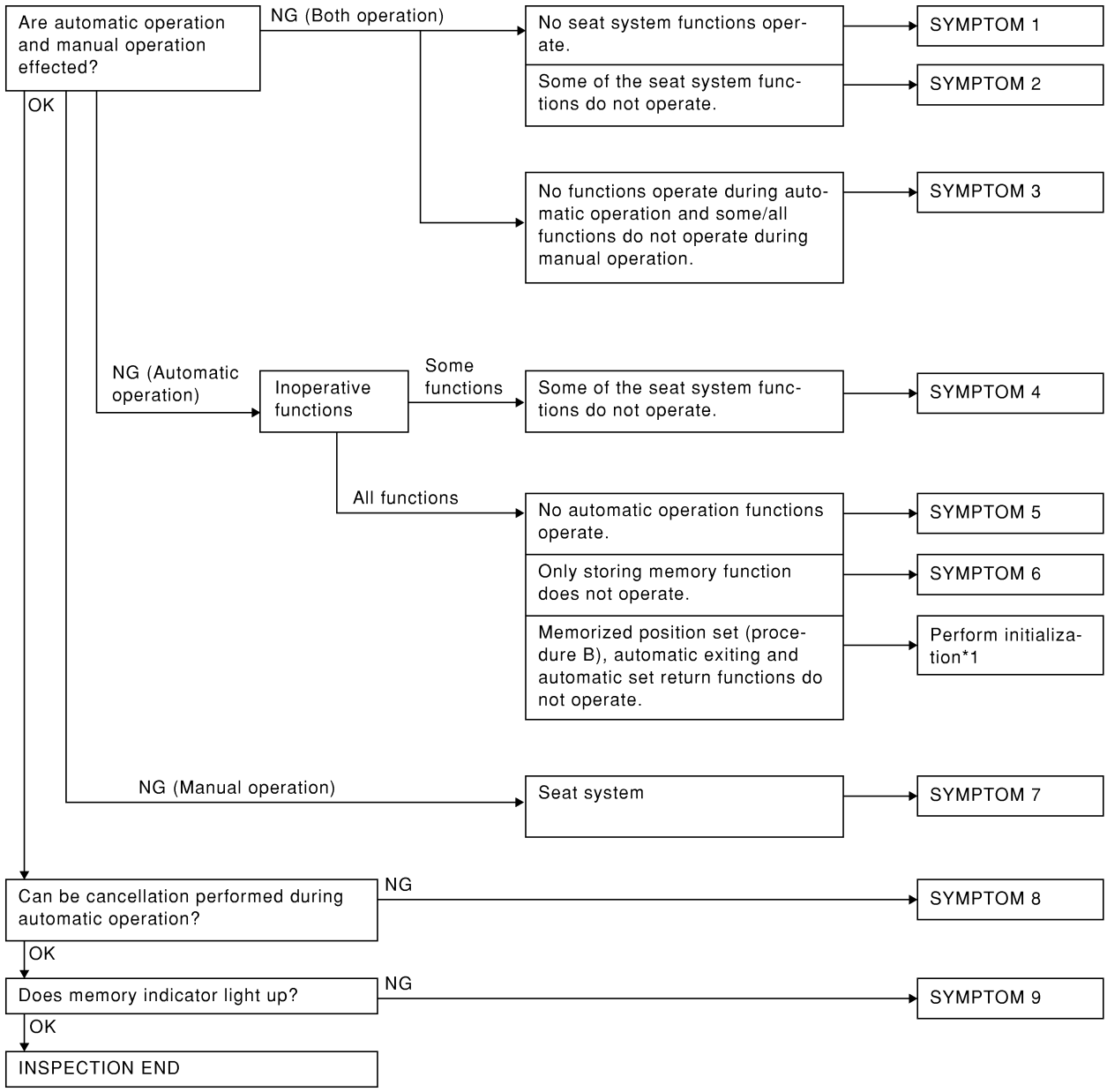


SEL599W

*1 EL-223 *2 EL-224

PRELIMINARY CHECK

NAEL0369S02



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-226. Symptom numbers in the symptom chart correspond with those of preliminary check.

SYMPTOM CHART

NAEL0369S03

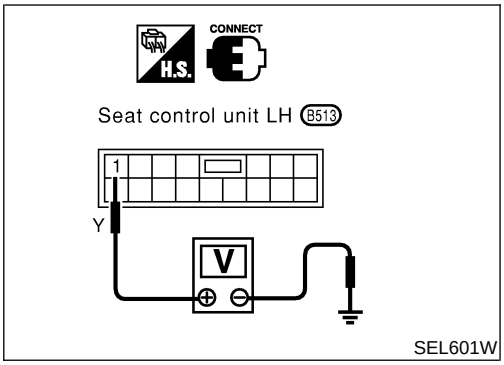
PROCEDURE			Diagnostic procedure						
REFERENCE PAGE (EL-)			229	230	232	234	236	238	239
SYMPTOM			DIAGNOSTIC PROCEDURE 1 (Power supply and ground circuit for Driver's seat control unit)	DIAGNOSTIC PROCEDURE 2 (Sliding encoder check)	DIAGNOSTIC PROCEDURE 3 (Reclining encoder check)	DIAGNOSTIC PROCEDURE 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-)			240	241	242	243	244	247	247
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

=NAEL0369S04

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

Power Supply Circuit Check

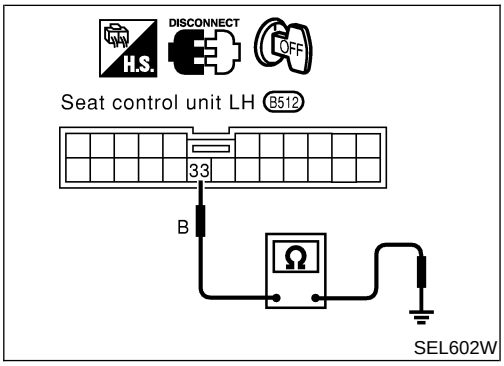
NAEL0369S0401

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

NAEL0369S0402

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

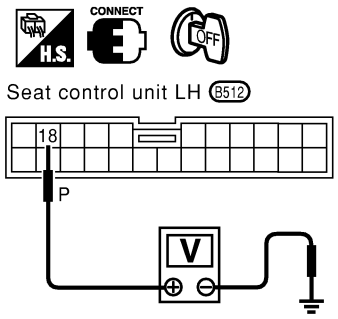
Terminals	Continuity
33 - Ground	Yes

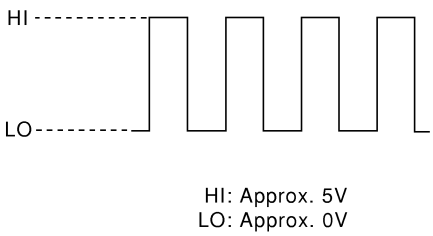
DIAGNOSTIC PROCEDURE 2
(Sliding encoder check)

=NAEL0369S05

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

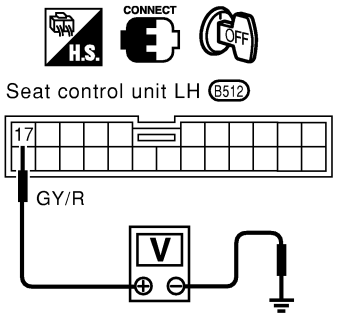
SEL603W

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.

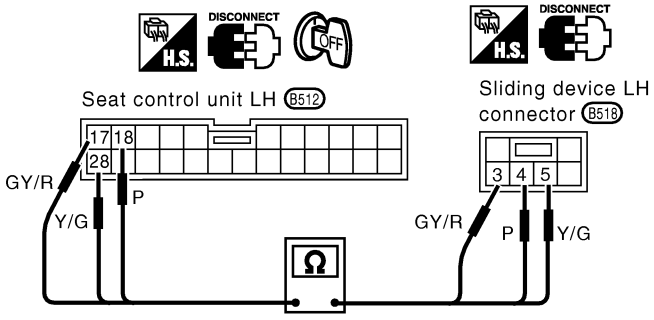
SEL604W

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	

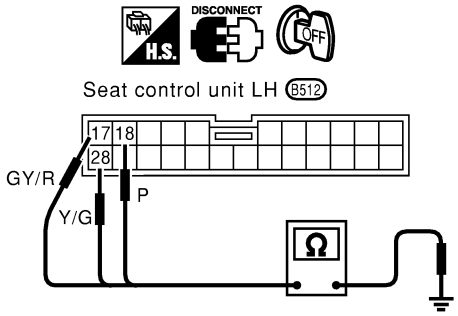
SEL605WA

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

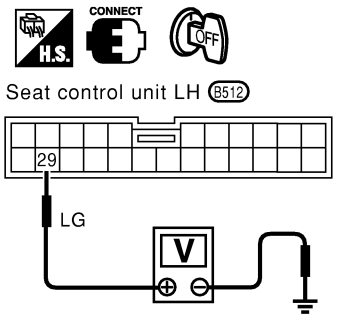
OK	▶	Replace sliding encoder.
NG	▶	Repair harness.

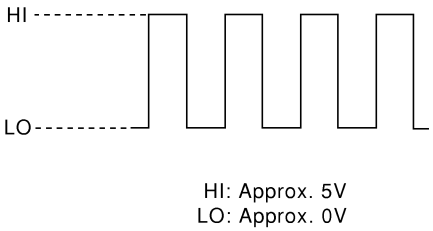
DIAGNOSTIC PROCEDURE 3
(Reclining encoder check)

=NAEL0369S06

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

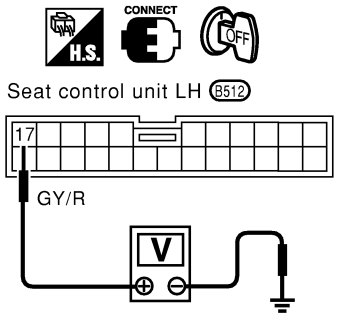
SEL607W

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.

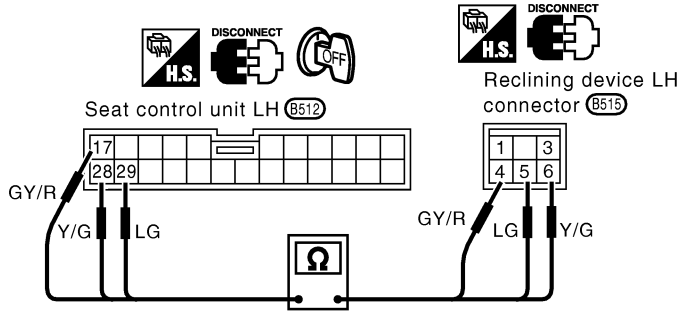
SEL608W

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	

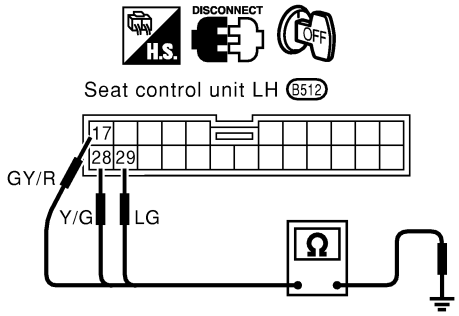
SEL609WA

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.

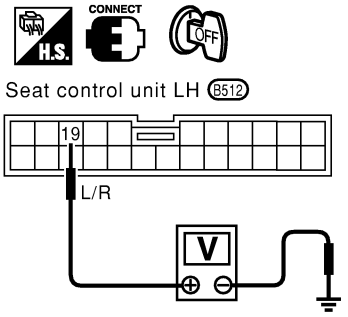
DIAGNOSTIC PROCEDURE 4

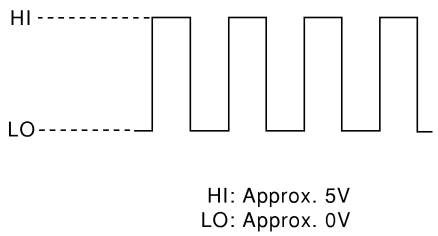
=NAEL0369S07

[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

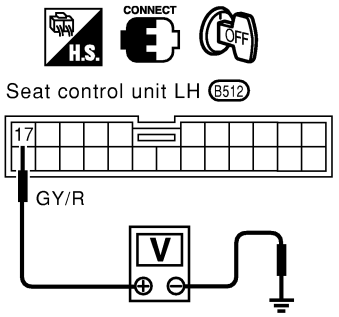
SEL611W

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.

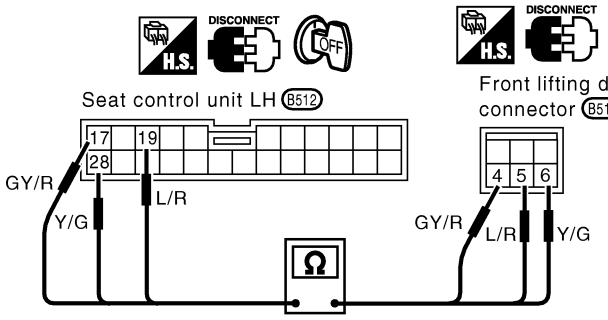
SEL612W

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	

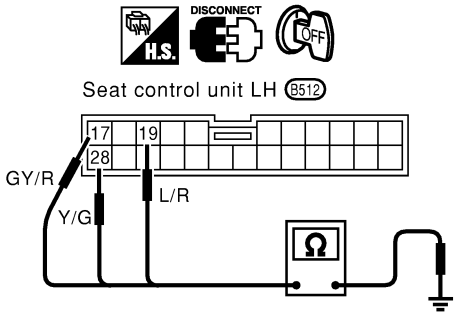
SEL613WA

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.

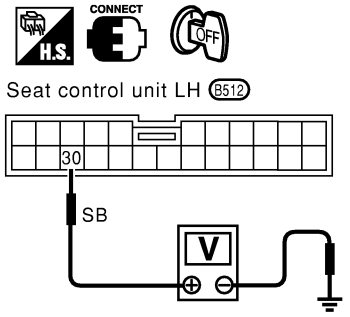
DIAGNOSTIC PROCEDURE 5

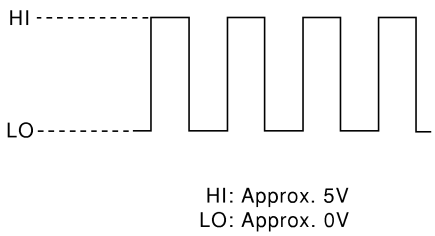
=NAEL0369S08

[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

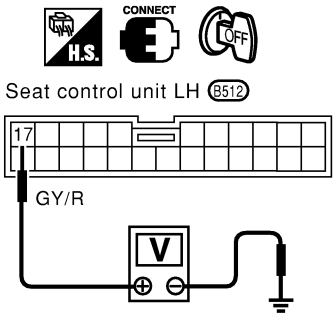
SEL615W

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.

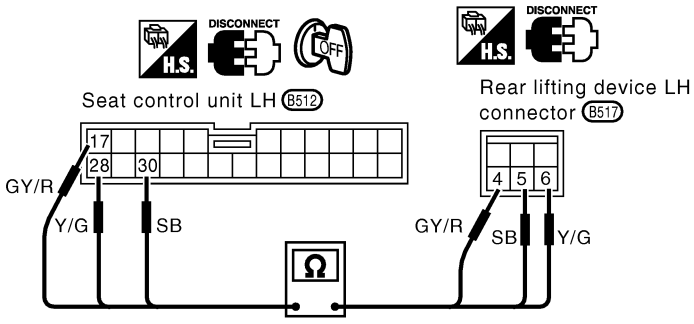
SEL616W

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	

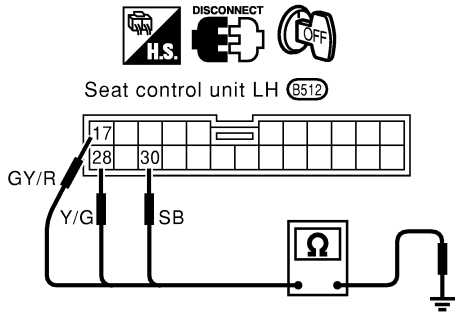
SEL617WA

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

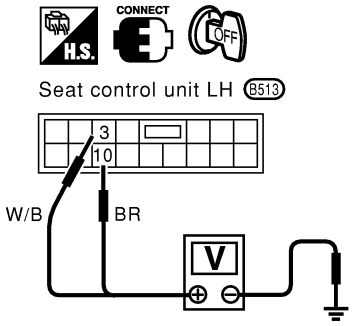
OK	▶	Replace lifting encoder (rear).
NG	▶	Repair harness.

DIAGNOSTIC PROCEDURE 6
(Sliding motor check)

=NAEL0369S09

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

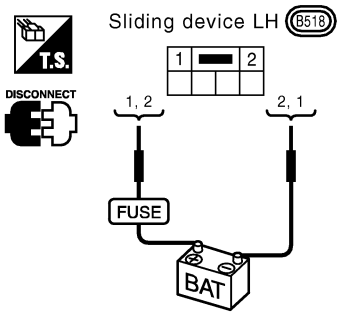
SEL619W

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

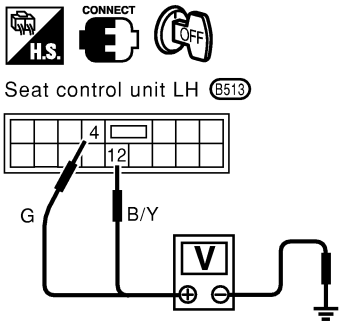
OK	▶	Check harness for operation between seat control unit LH and sliding motor.
NG	▶	Replace sliding motor.

DIAGNOSTIC PROCEDURE 7
(Reclining motor check)

=NAEL0369S10

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

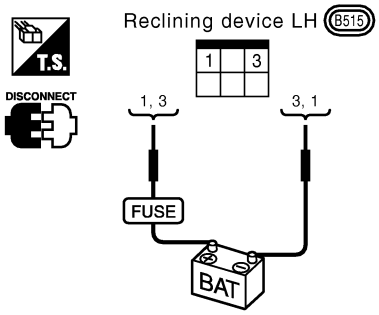
SEL621W

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.

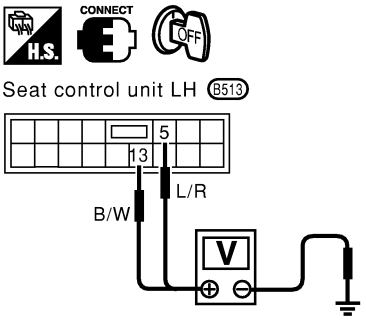
DIAGNOSTIC PROCEDURE 8

=NAEL0369S11

[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

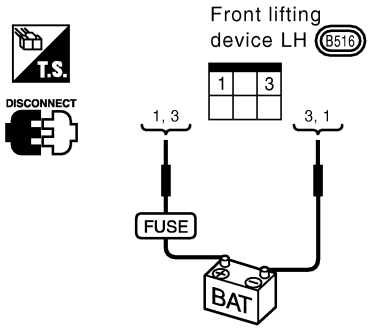
SEL623W

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).

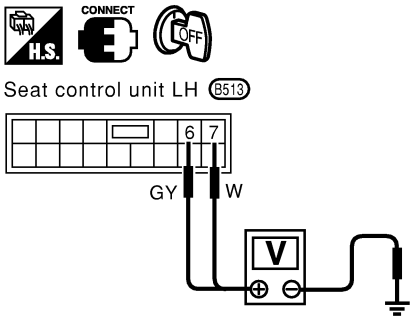
DIAGNOSTIC PROCEDURE 9

=NAEL0369S12

[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

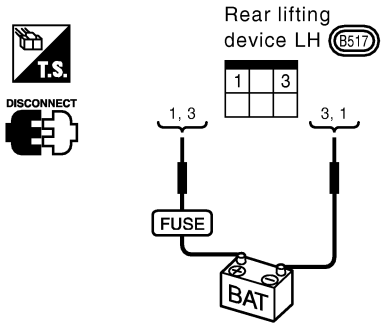
SEL625W

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

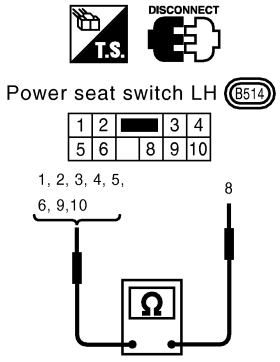
OK	▶	Check harness for operation between seat control unit LH and lifting motor (rear).
NG	▶	Replace lifting motor (rear).

DIAGNOSTIC PROCEDURE 10
(Power seat switch check)

=NAEL0369S13

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

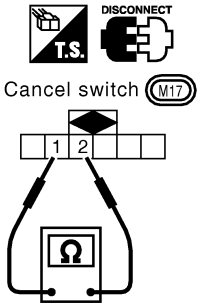
OK	▶	**Check the following.** ● Ground circuit for power seat switch ● Harness for open or short between seat control unit LH and power seat switch
NG	▶	Replace power seat switch.

DIAGNOSTIC PROCEDURE 11
(Cancel switch check)

=NAEL0369S14

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.

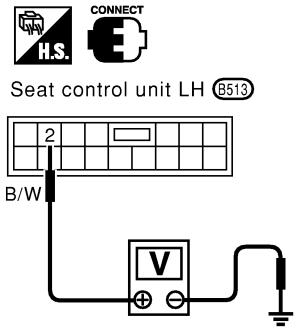
DIAGNOSTIC PROCEDURE 12

=NAEL0369S15

(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

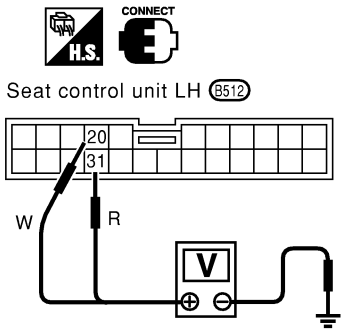
SEL629W

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

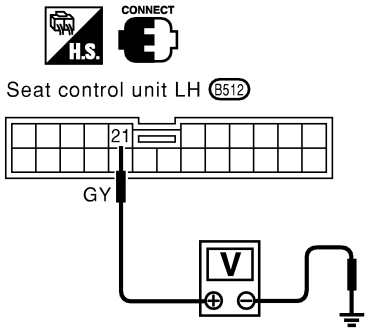
SEL630W

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

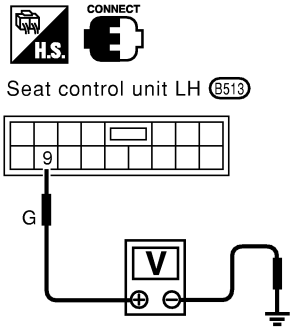
SEL631W

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

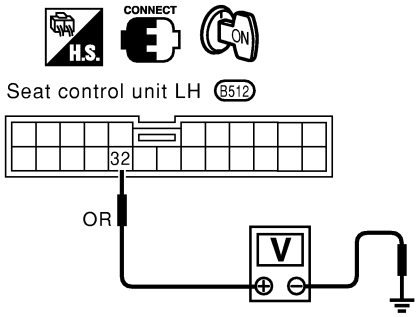
Does speedometer operate normally?

Yes or No

OK	▶	GO TO 6.
NG	▶	Check speedometer and ABS actuator and electric unit circuit. Refer to EL-127.

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

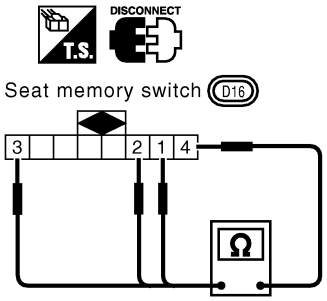
OK	▶	Harness for open or short between seat control unit LH and combination meter.
NG	▶	Repair harness.

DIAGNOSTIC PROCEDURE 13
(Seat memory switch check)

=NAEL0369S16

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)

NAEL0369S17

1	CHECK INDICATOR LAMP

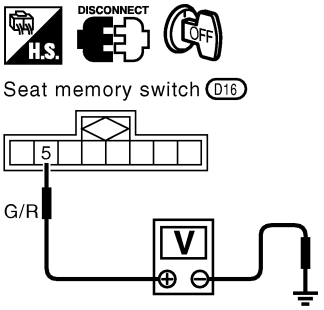
Check indicator lamp illumination.

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.

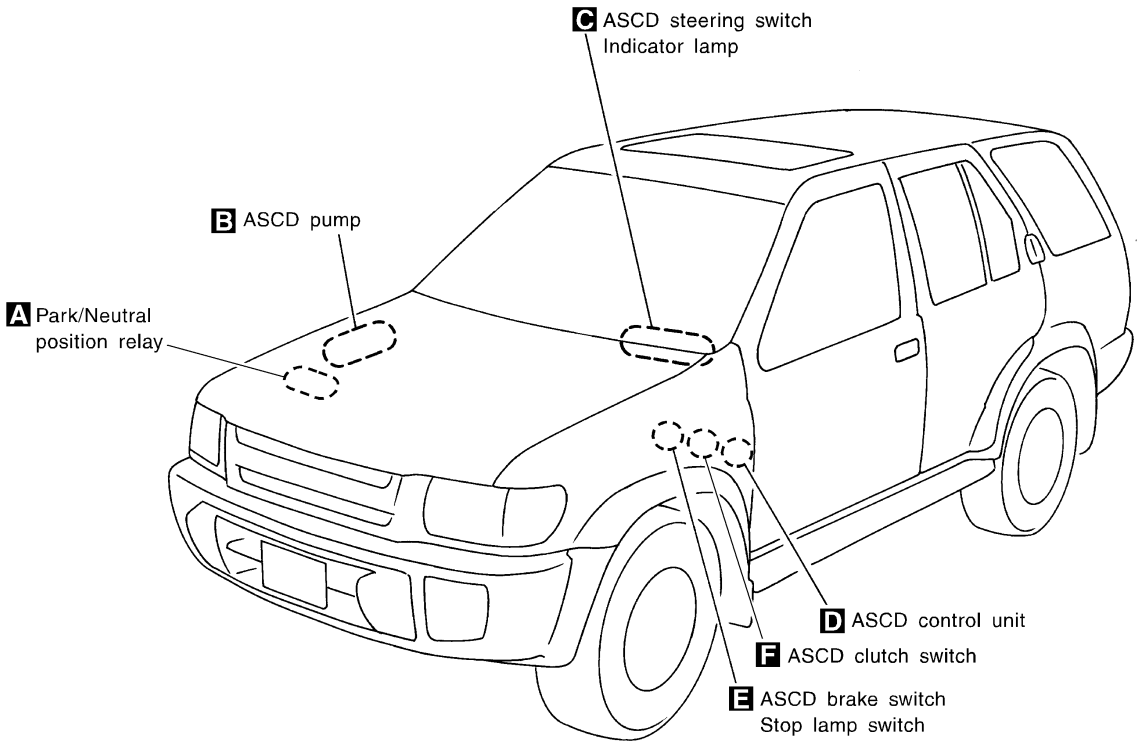
SEL635WA

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

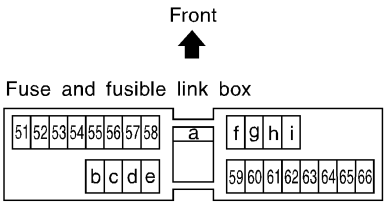
Component Parts and Harness Connector Location

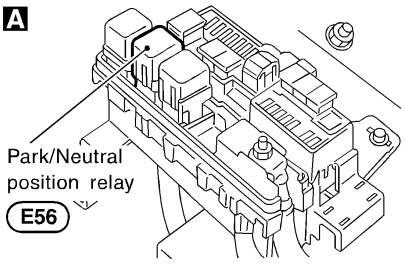
NAEL0370

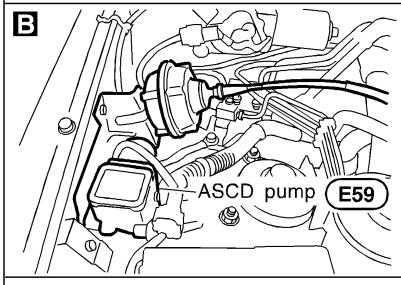


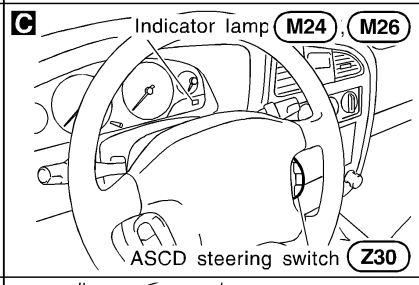
Fuse block (J/B)

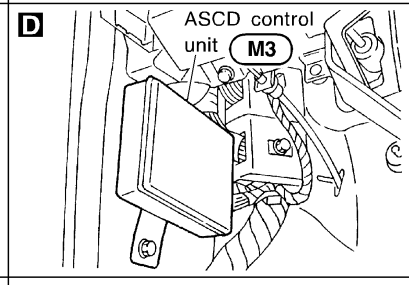
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23		
24	25	26		
27	28	29		

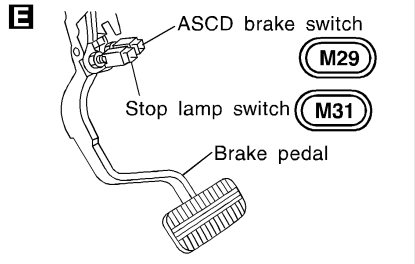


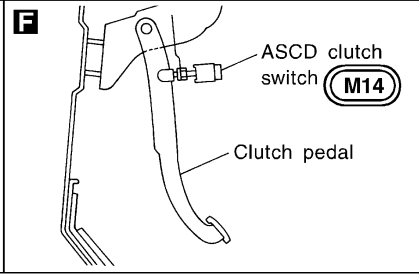












SEL256Y

System Description

NAEL0371

Refer to Owner's Manual for ASCD operating instructions.

POWER SUPPLY AND GROUND

NAEL0371S01

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 (A/T models), 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

NAEL0371S02

Set Operation

NAEL0371S0201

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 and clutch pedal are released (M/T models) and brake pedal is released and A/T selector lever is in other than P and N position (A/T models)].
- 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 (A/T models)

NAEL0371S0202

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 (A/T models)

NAEL0371S0203

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

NAEL0371S0204

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

NAEL0371S0205

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

NAEL0371S0206

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 or clutch pedal is depressed (M/T models)/brake pedal is depressed or A/T selector lever is shifted to P or N position (A/T models). (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

NAEL0371S0207

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

ASCD PUMP OPERATION

NAEL0371S03

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.

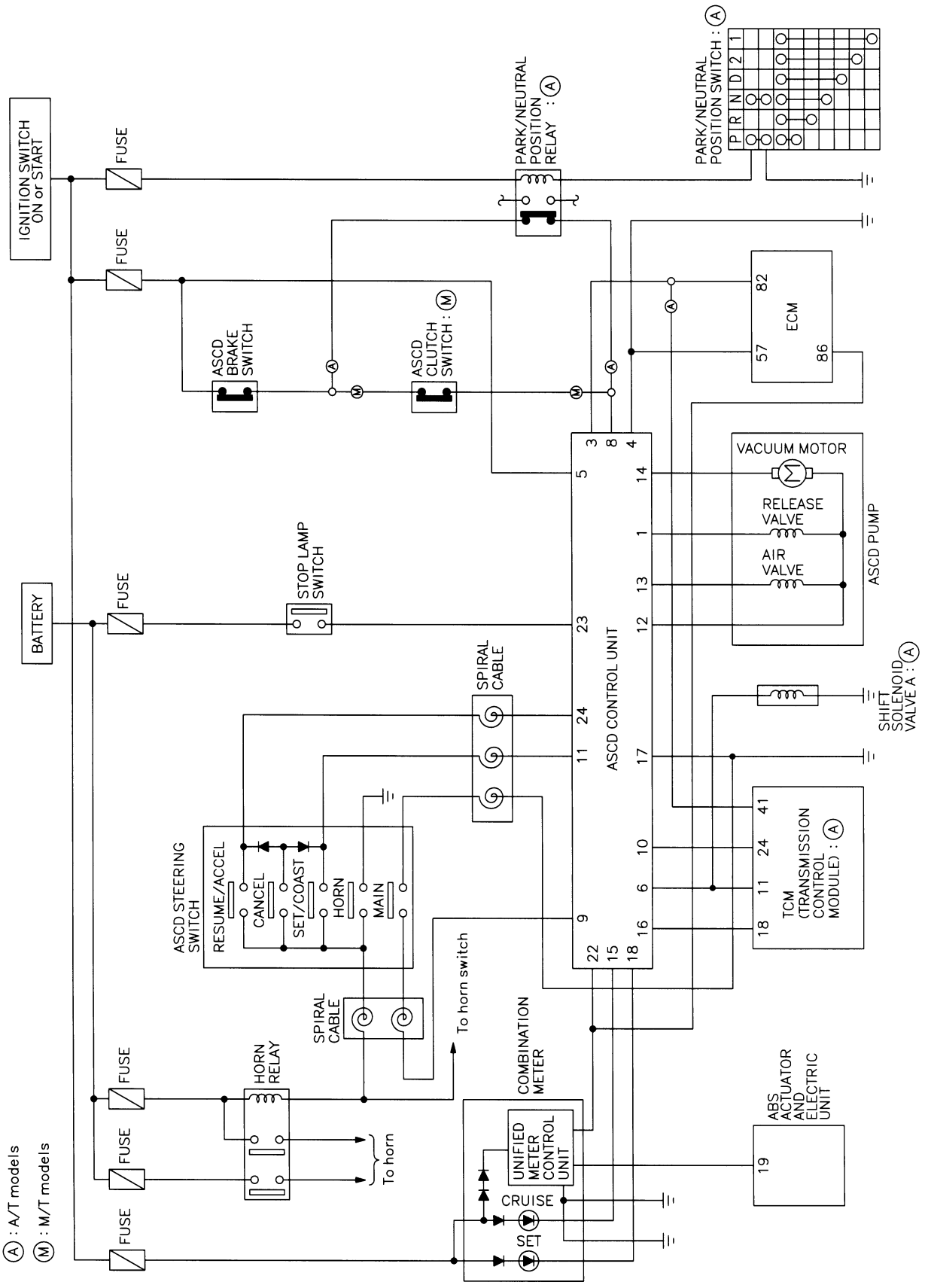
		Air valve (*1)	Release valve (*1)	Vacuum motor	Actuator inner pressure
ASCD not operating		Open	Open	Stopped	Atmosphere
ASCD operating	Releasing throttle cable	Open	Closed	Stopped	Vacuum
	Holding throttle position	Closed	Closed	Stopped	Vacuum (*2)
	Pulling throttle cable	Closed	Closed	Operated	Vacuum

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

*2: Set position held.

Schematic

NAEL0372



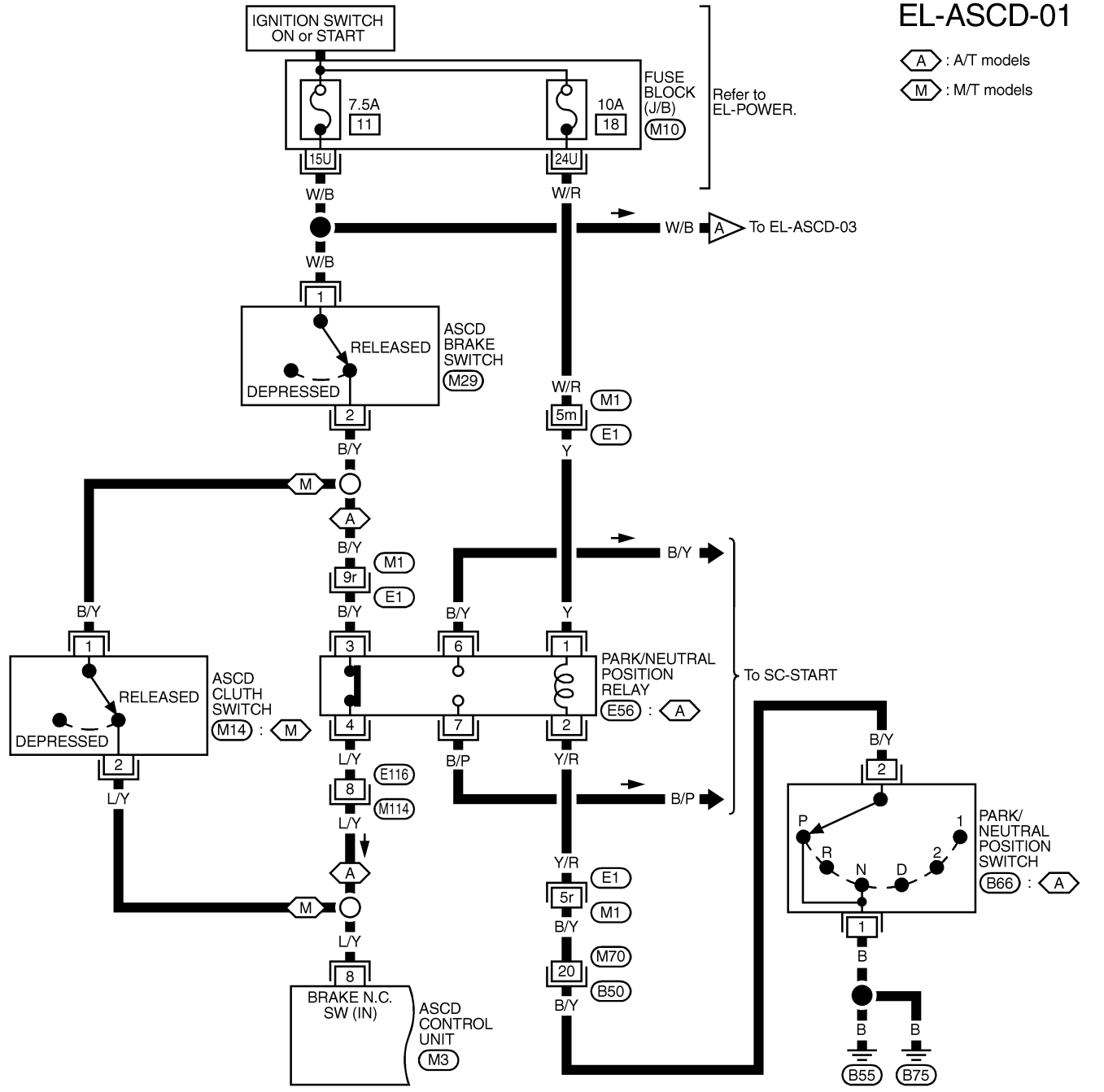
MEL424P

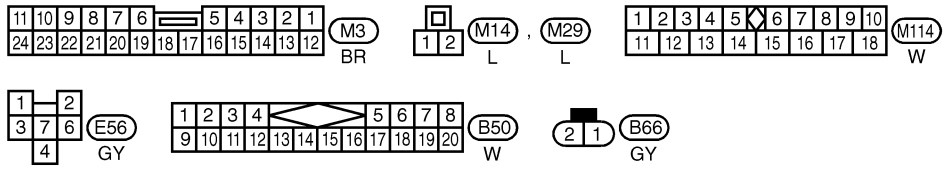
Wiring Diagram — ASCD —

NAEL0373

FIG. 1

NAEL0373S01





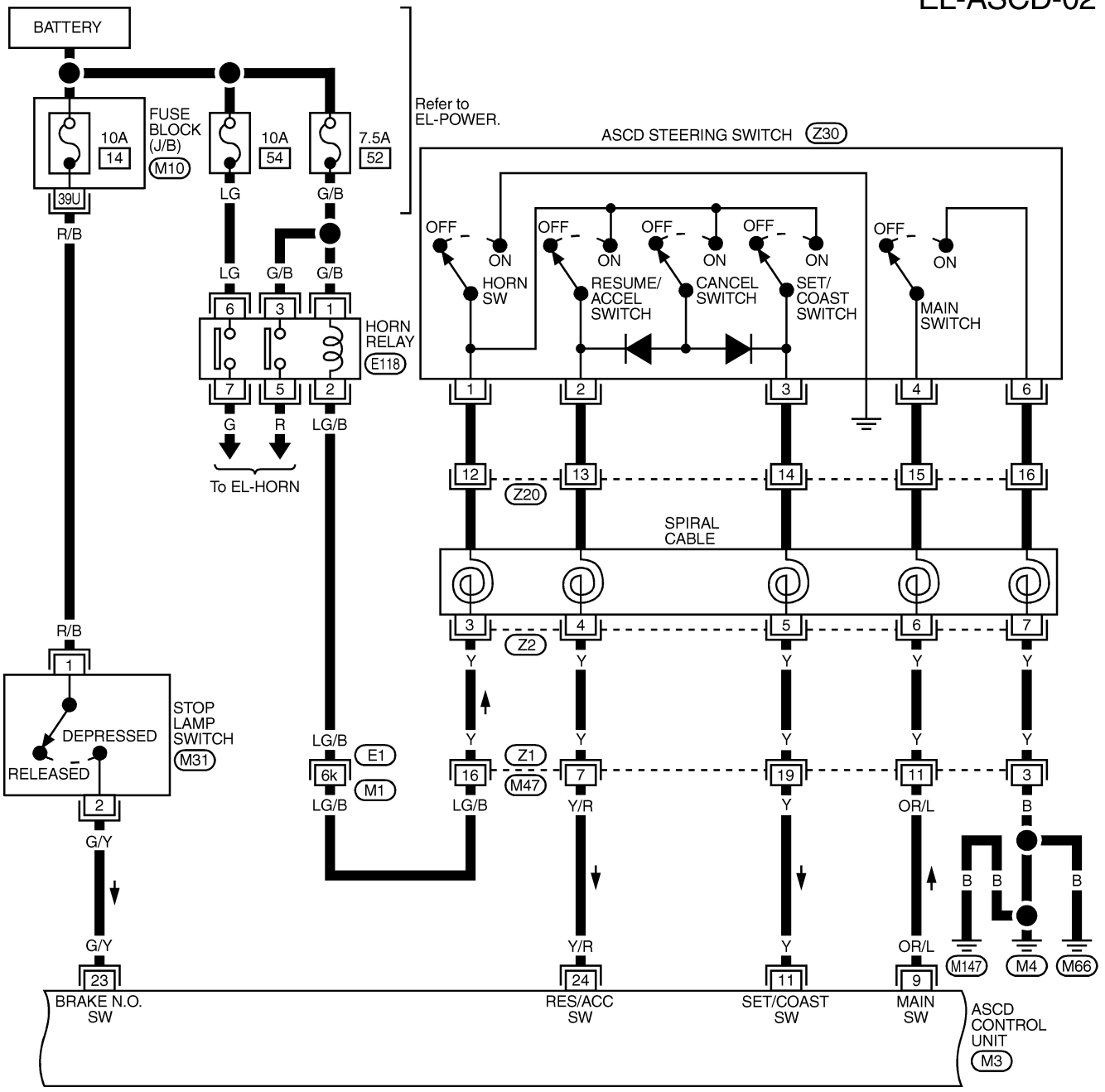
REFER TO THE FOLLOWING.
(E1) -SUPER MULTIPLE JUNCTION (SMJ)
(M10) -FUSE BLOCK- JUNCTION BOX (J/B)

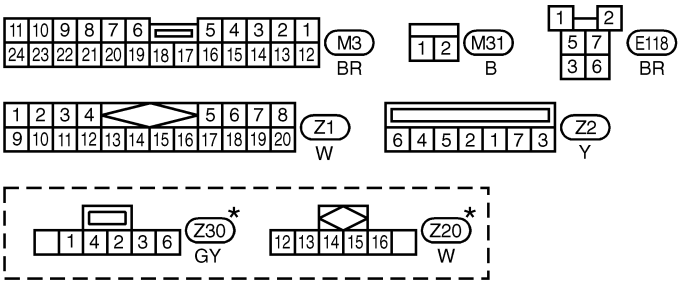
MEL048M

FIG. 2

NAEL0373S02

EL-ASCD-02





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

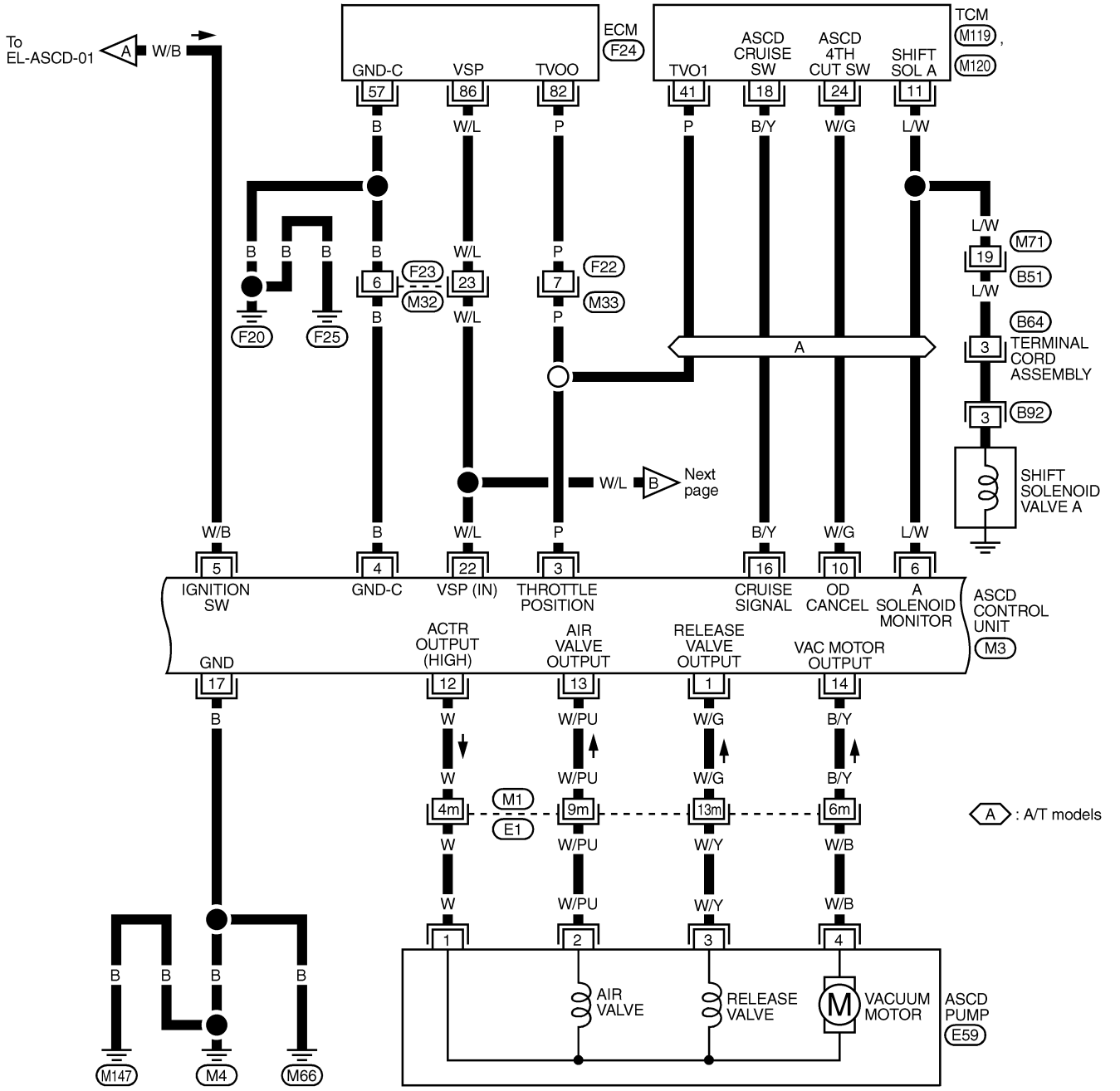
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK- JUNCTION BOX (J/B)

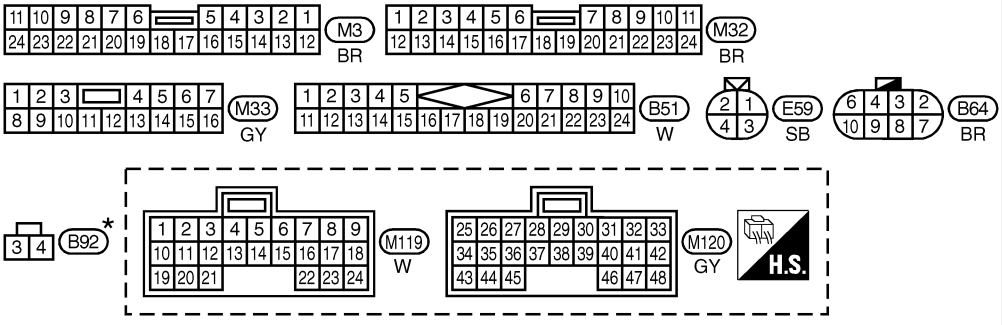
MEL916O

FIG. 3

NAEL0373S03

EL-ASCD-03





REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
F24 -ELECTRICAL UNITS

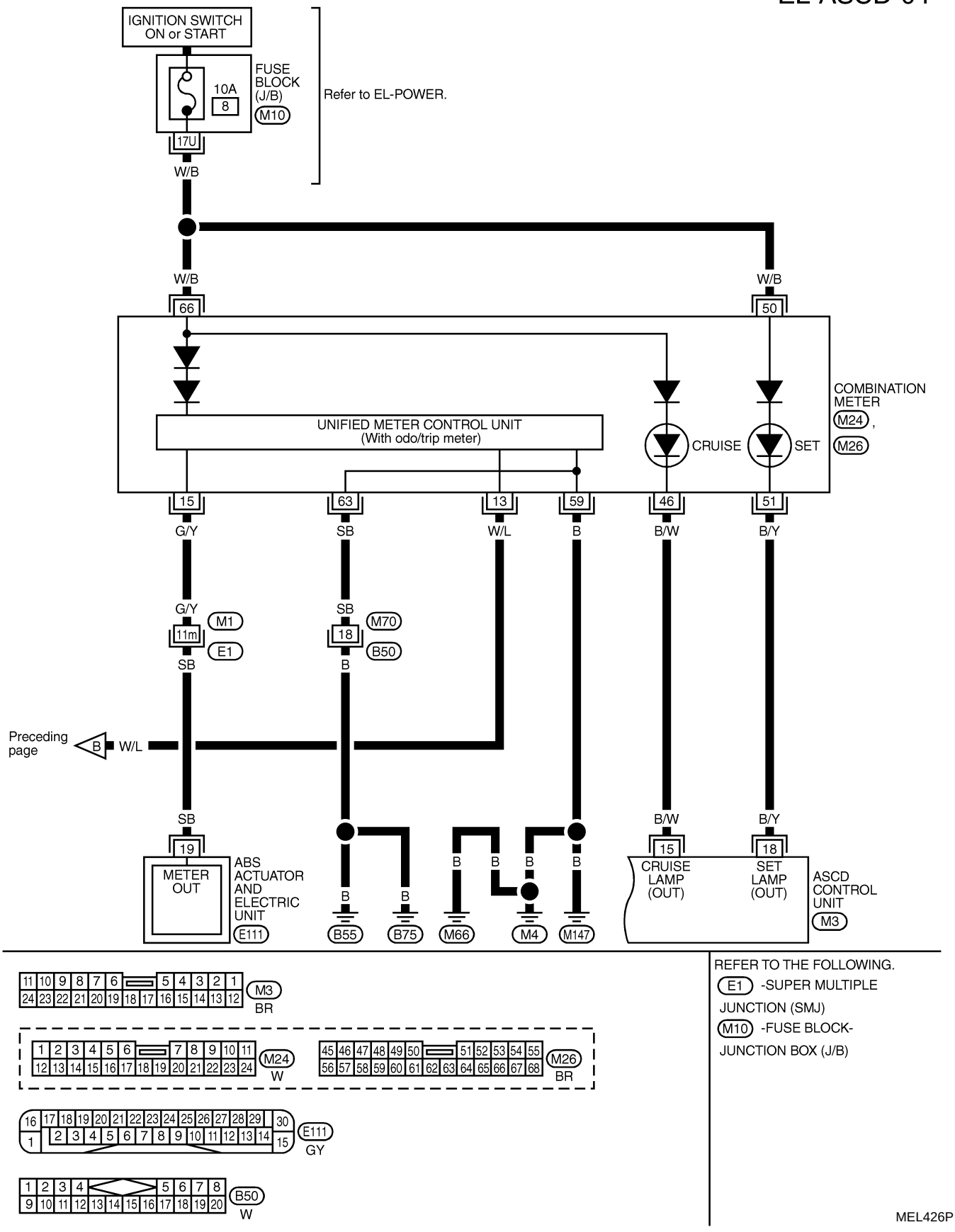
* : This connector is not shown in "HARNESS LAYOUT", EL section.

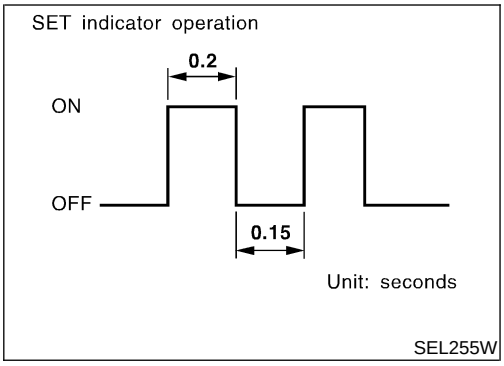
MEL425P

FIG. 4

NAEL0373S04

EL-ASCD-04





Fail-safe System

NAEL0374

DESCRIPTION

NAEL0374S01

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

NAEL0374S02

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 faulty. • ASCD control unit internal circuit is malfunctioning.	• ASCD is deactivated. • Vehicle speed memory is canceled.
• ASCD brake switch or stop lamp switch is faulty.	• ASCD is deactivated. • Vehicle speed memory is not canceled.

Trouble Diagnoses

NAEL0375

SYMPTOM CHART

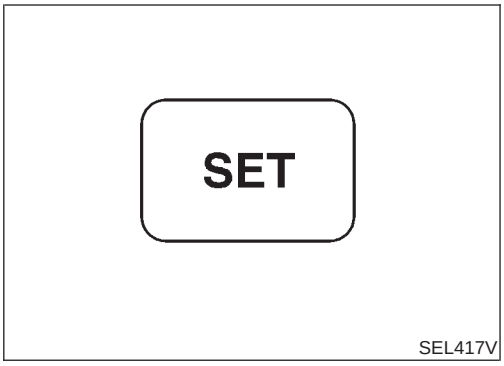
NAEL0375S01

PROCEDURE	Diagnostic procedure						
REFERENCE PAGE (EL-)	258	259	260	261	262	262	264
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-258) 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.

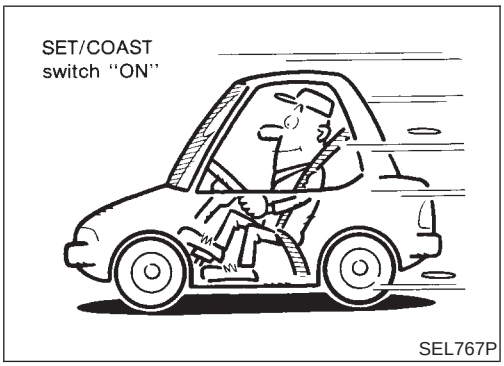


SEL417V

FAIL-SAFE SYSTEM CHECK

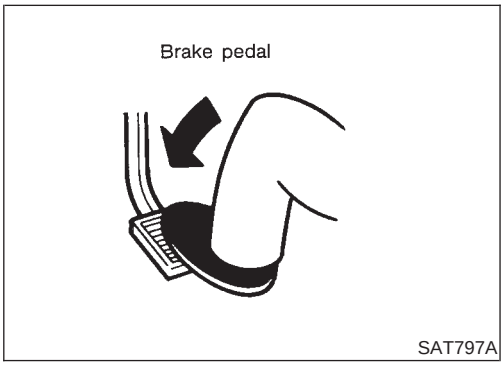
=NAEL0375S02

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-261.



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-262.
- ASCD pump circuit. Refer to EL-262.
- 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-260.

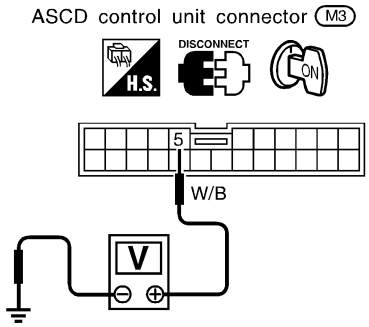
5. END. (System is OK.)

POWER SUPPLY AND GROUND CIRCUIT CHECK

=NAEL0375S03

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?

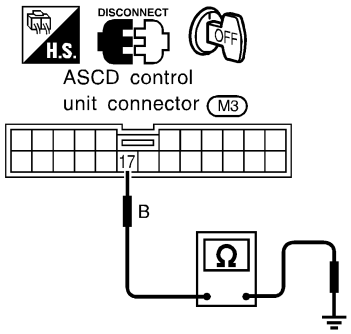
SEL256WB

Refer to wiring diagram in EL-254.

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-254.

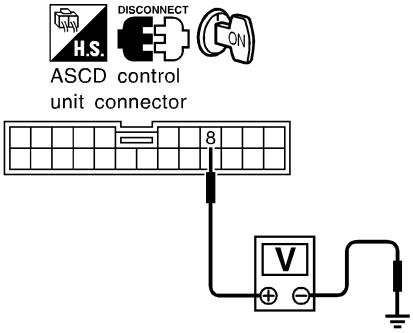
Yes	▶	Power supply and ground circuit is OK.
No	▶	Repair harness.

ASCD BRAKE/STOP LAMP SWITCH CHECK

=NAEL0375S04

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

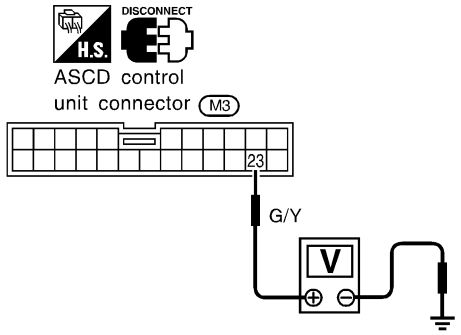
SEL258WF

OK or NG

OK	▶	GO TO 2.
NG	▶	**Check the following.** ● ASCD brake switch Refer to "Electrical Component Inspection" (EL-266). ● ASCD clutch switch (M/T models) Refer to "Electrical Component Inspection" (EL-266). ● Park/neutral position switch (A/T models) Refer to "Electrical Component Inspection" (EL-266). ● Park/neutral position relay (A/T models) ● 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-253.

OK or NG

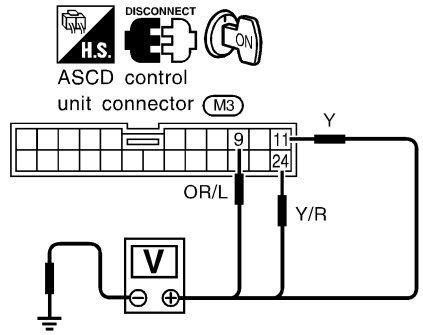
OK	▶	ASCD brake/stop lamp switch is OK.
NG	▶	**Check the following.** ● 10A fuse [No. 14, located in the fuse block (J/B)] ● Harness for open or short between ASCD control unit and stop lamp switch ● Harness for open or short between fuse and stop lamp switch ● Stop lamp switch Refer to "Electrical Component Inspection" (EL-266).

ASCD STEERING SWITCH CHECK

=NAEL0375S05

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-253.

OK or NG

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

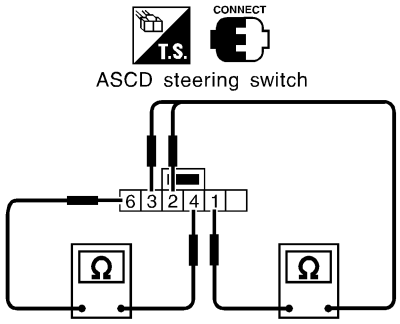
2 **CHECK POWER SUPPLY FOR ASCD STEERING SWITCH**

Does horn work?

Yes	▶	GO TO 3.
No	▶	**Check the following.** ● 7.5A fuse (No. 52, located in the relay 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

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

=NAEL0375S06

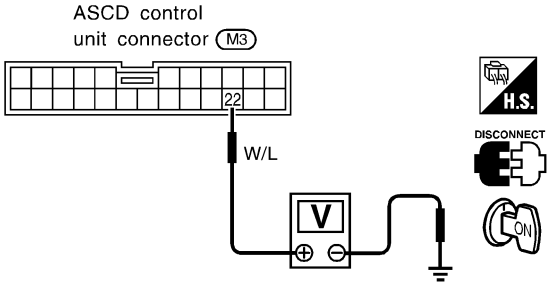
1	CHECK SPEEDOMETER OPERATION

Does speedometer operate normally?

Yes	▶	GO TO 2.
No	▶	Check speedometer and ABS actuator and electric unit circuit. Refer to wiring diagram in EL-255.

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-254.

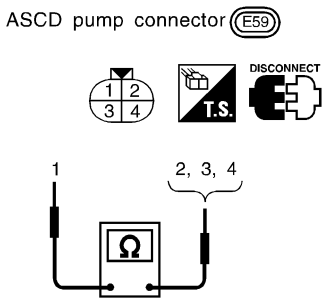
Yes	▶	Vehicle speed signal is OK.
No	▶	Check harness for open or short between ASCD control unit terminal 22 and combination meter terminal 13.

ASCD PUMP CIRCUIT CHECK

NAEL0375S07

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

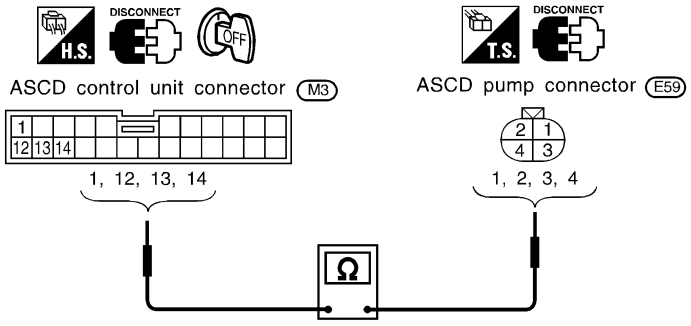
Refer to wiring diagram in EL-254.

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

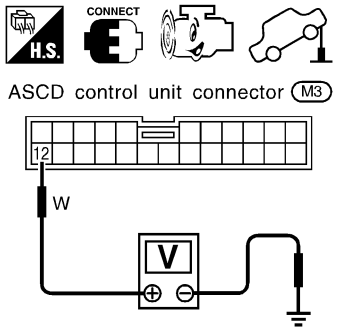
OK or NG

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

OK or NG

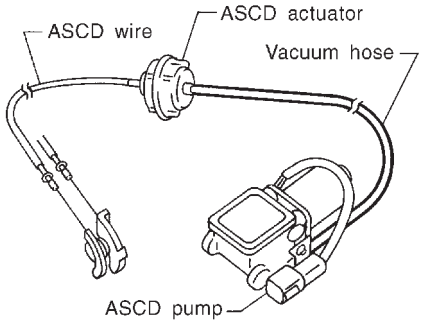
OK	▶	ASCD pump power supply is OK.
NG	▶	Replace ASCD control unit.

ASCD ACTUATOR/PUMP CHECK

=NAEL0375S08

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

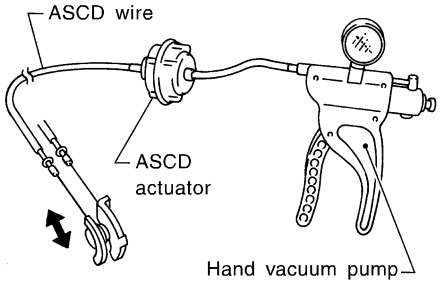
Check wire for improper installation, rust formation or breaks.

OK or NG

OK	▶	GO TO 3.
NG	▶	Repair or replace wire. Refer to "ASCD Wire Adjustment" (EL-267).

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)

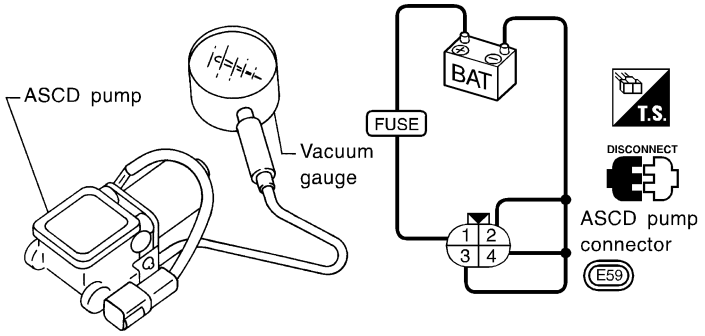
SEL264W

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.



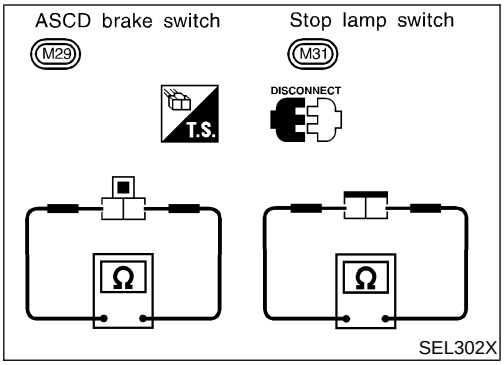
	12V direct current supply terminals		Operation
	(+)	(−)	
Air valve	1	2	Close
Release valve		3	Close
Vacuum motor		4	Operate

A vacuum pressure of at least –40 kPa (–0.41 kg/cm^2, –5.8 psi) should be generated.

SEL265WB

OK or NG

OK	▶	INSPECTION END
NG	▶	Replace ASCD pump.



Electrical Component Inspection

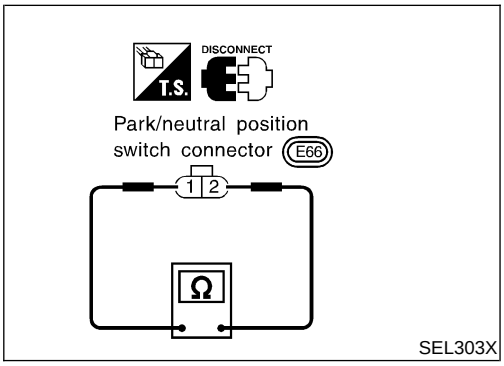
=NAEL0376

ASCD BRAKE SWITCH AND STOP LAMP SWITCH

NAEL0376S01

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

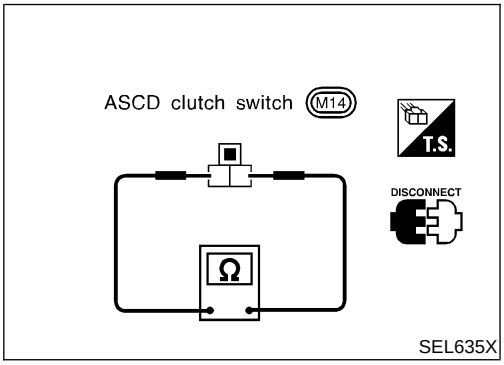
Check each switch after adjusting brake pedal — refer to BR-14, "BRAKE PEDAL AND BRACKET".



PARK/NEUTRAL POSITION SWITCH (FOR A/T MODELS)

NAEL0376S02

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



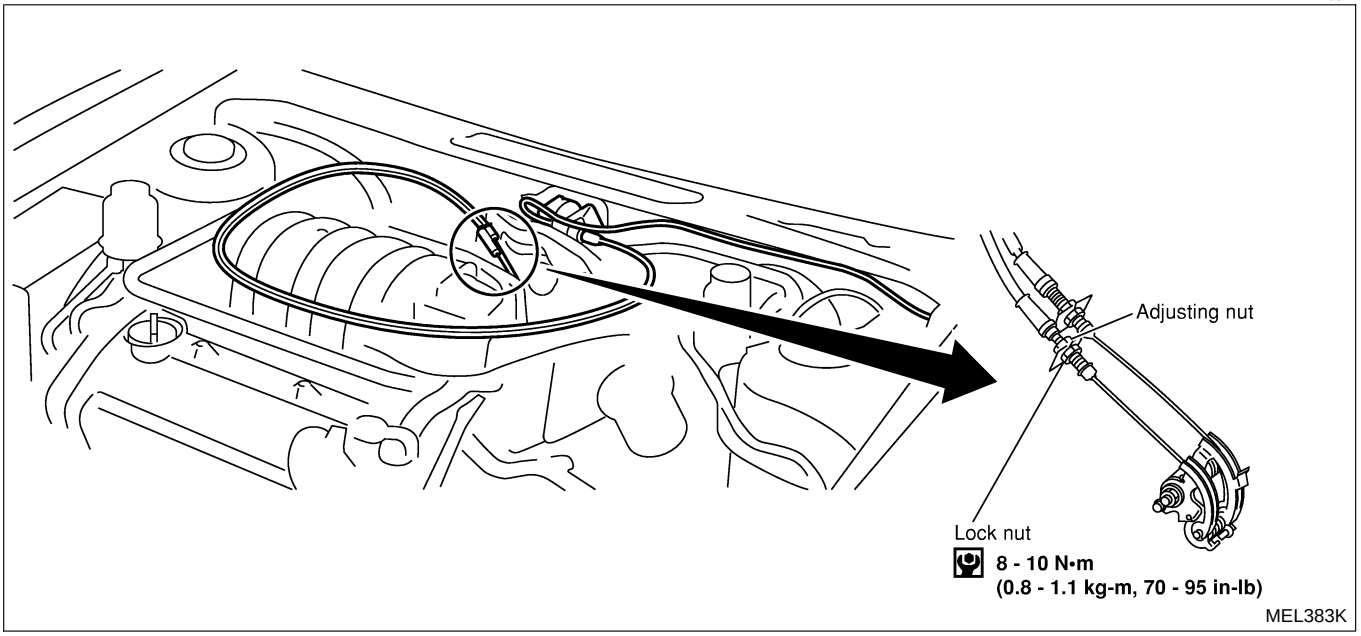
ASCD CLUTCH SWITCH (FOR M/T MODELS)

NAEL0376S03

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

ASCD Wire Adjustment

=NAEL0377



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

NAEL0378

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

NAEL0378S01

Front Door LH

NAEL0378S0101

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

NAEL0378S0102

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

NAEL0378S0103

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

NAEL0378S0104

Rear door RH windows will rise and lower in the same manner as the rear door LH window.

AUTO OPERATION

NAEL0378S02

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

NAEL0378S03

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

NAEL0378S04

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-278)

INTERRUPTION DETECTION FUNCTION

NAEL0378S05

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

NAEL0378S06

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.

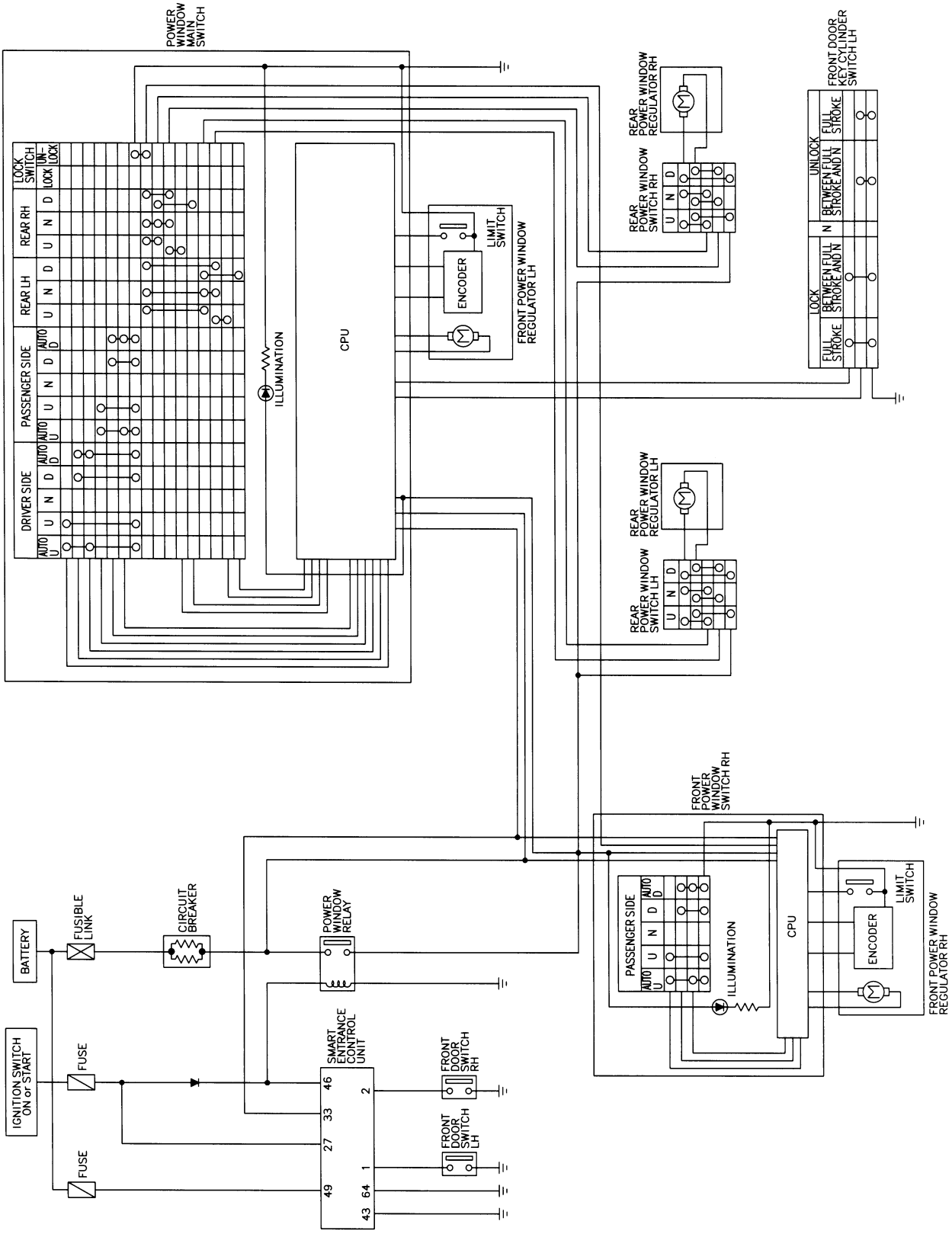
- Power window can be opened as the door key cylinder is kept fully turning to the UNLOCK position.
- Power window can be closed as the door key cylinder is kept fully turning to the LOCK position.

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

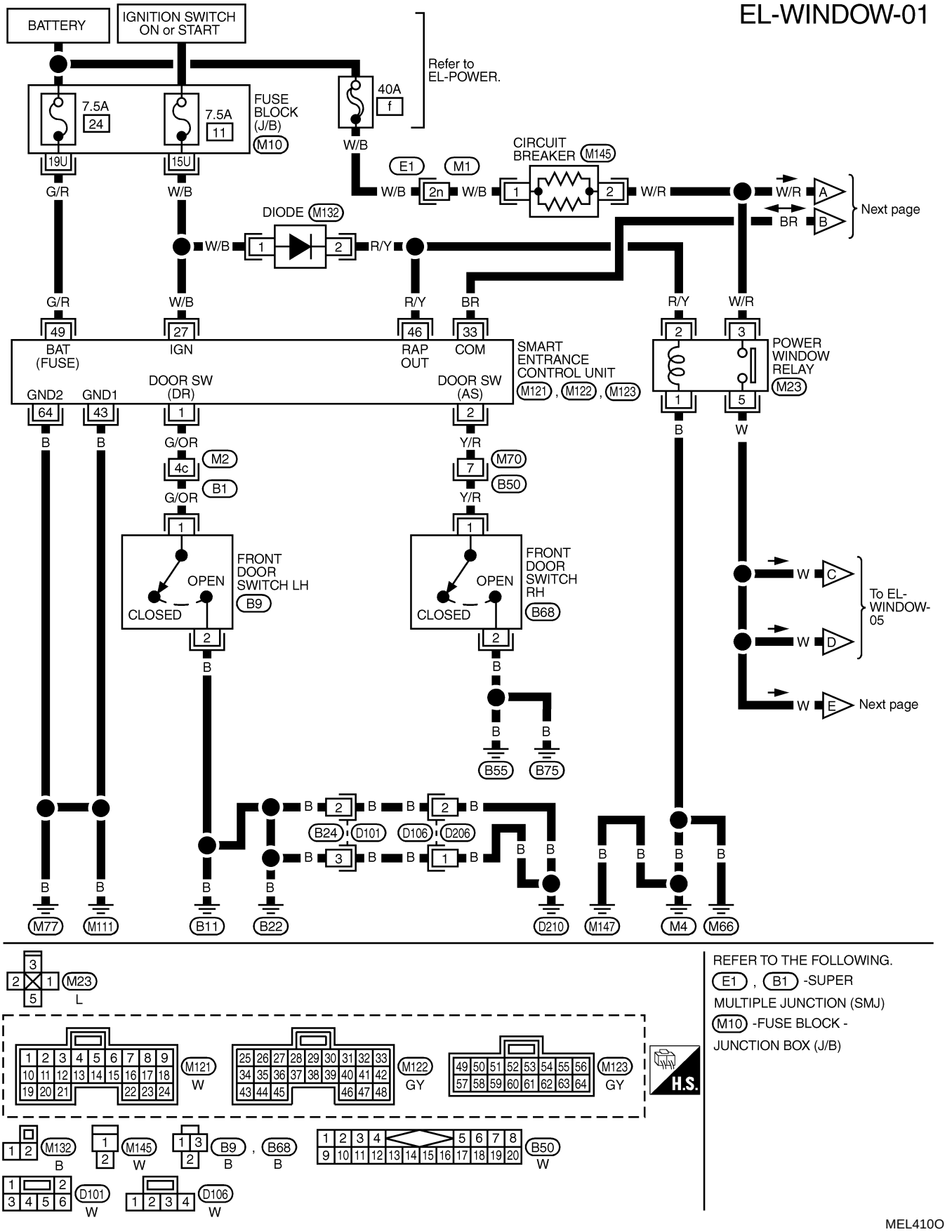
NAEL0379



MEL427P

Wiring Diagram — WINDOW —

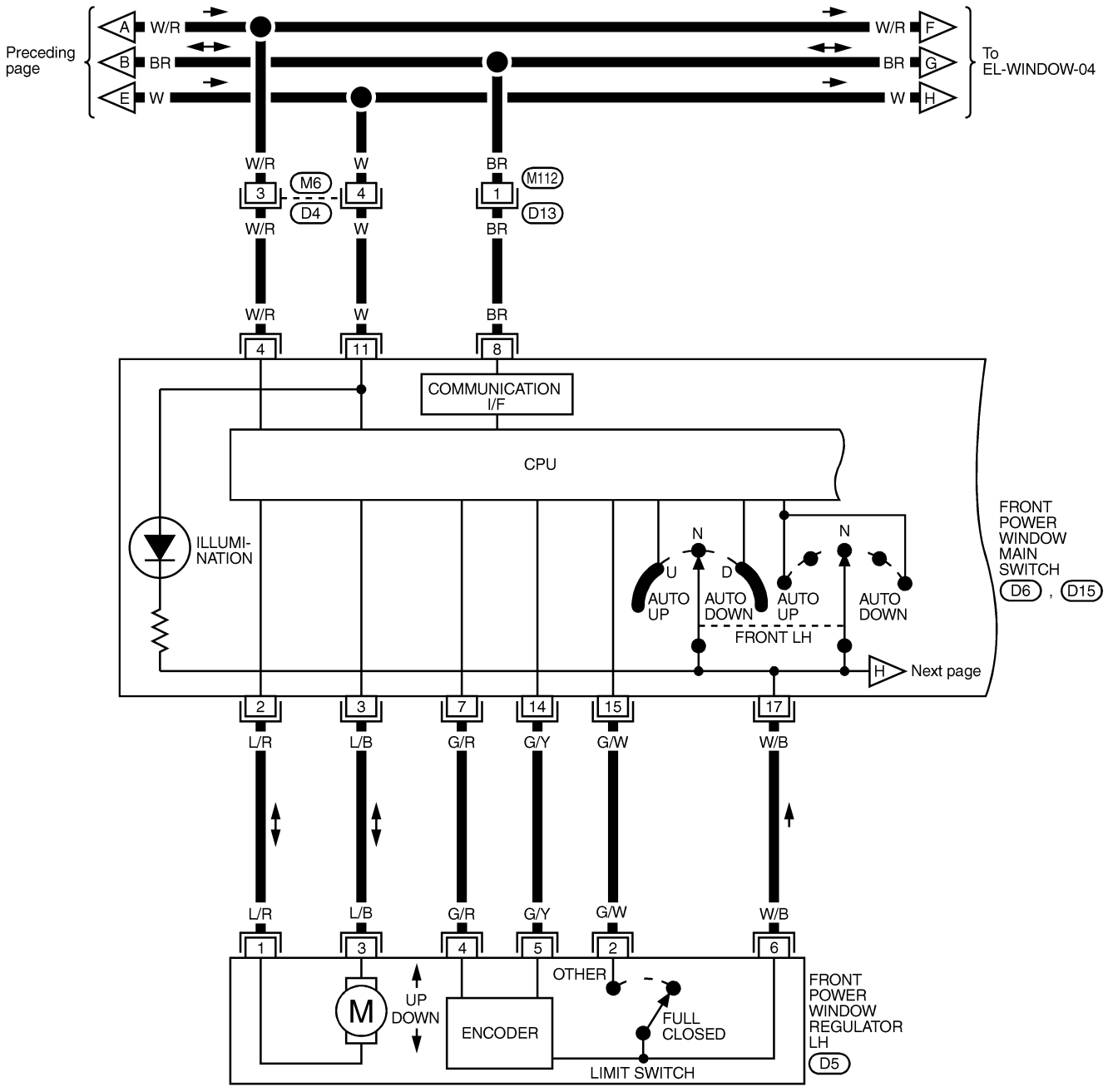
NAEL0380

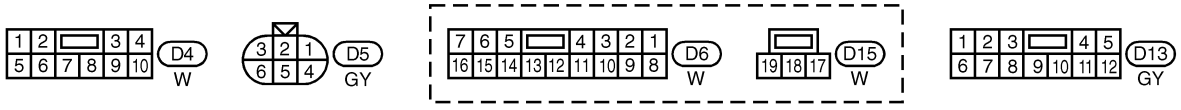


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK - JUNCTION BOX (J/B)

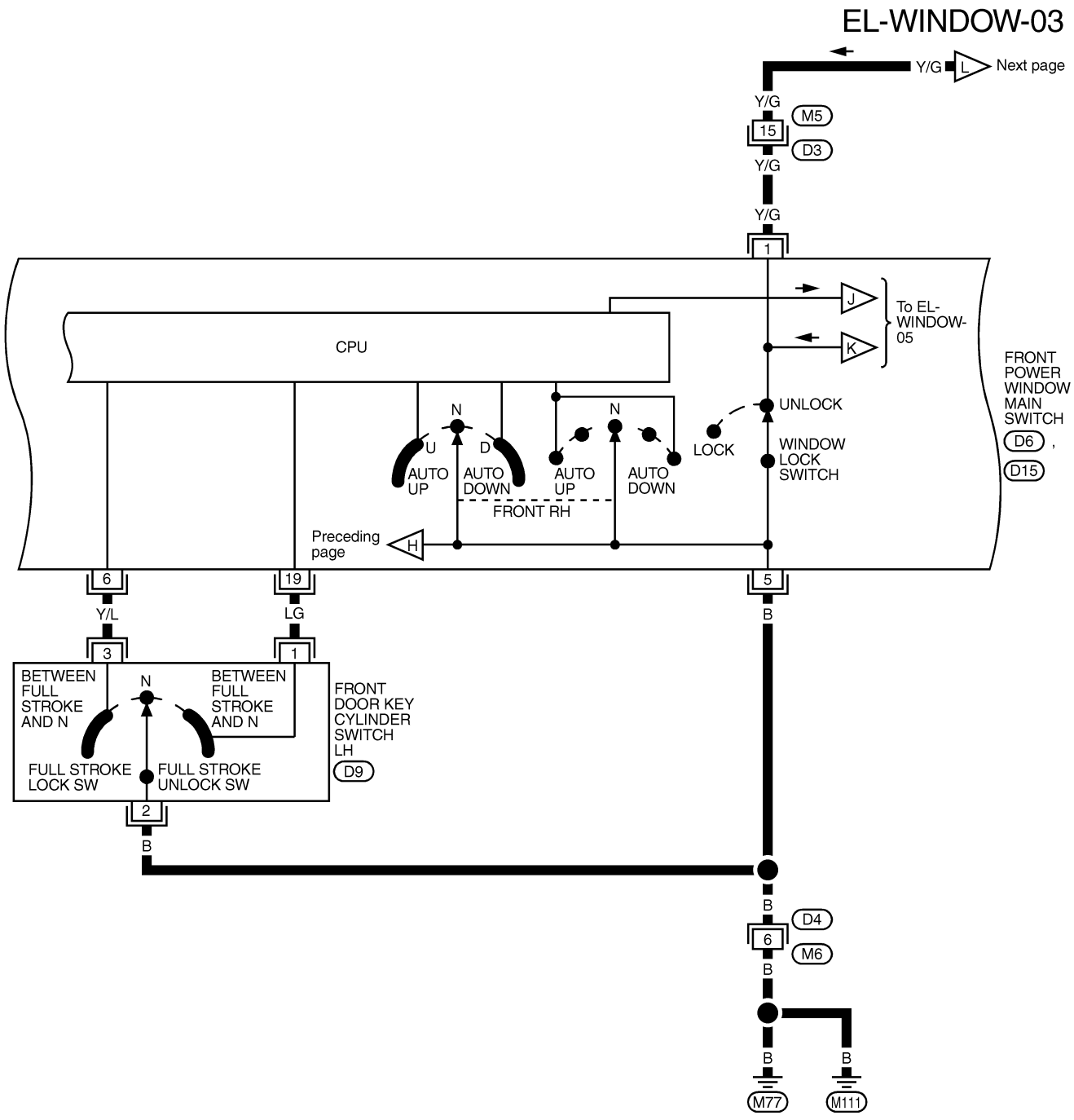
MEL410O

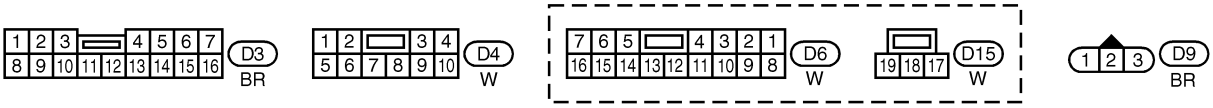
EL-WINDOW-02





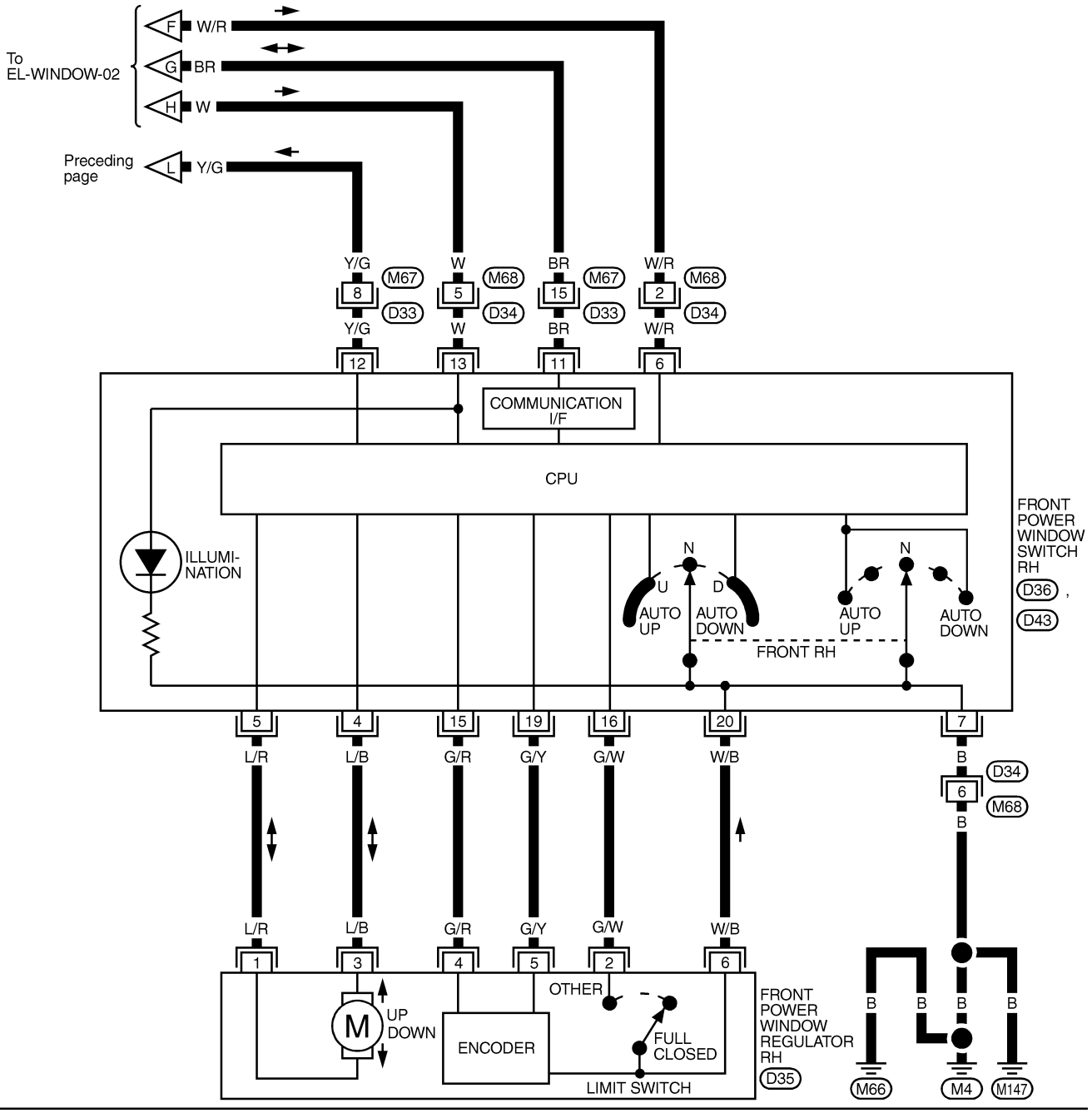
MEL428P

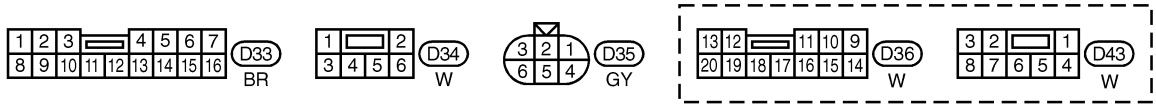

EL-WINDOW-03
Y/G
L
Next page
Y/G
15
M5
D3
Y/G
Y/G
1
J
K
To EL-WINDOW-05
CPU
FRONT POWER WINDOW MAIN SWITCH
D6
D15
N
U
D
AUTO UP
AUTO DOWN
FRONT RH
N
AUTO UP
AUTO DOWN
LOCK
UNLOCK
WINDOW LOCK SWITCH
Preceding page
H
6
19
5
Y/L
LG
B
3
1
BETWEEN FULL STROKE AND N
N
BETWEEN FULL STROKE AND N
FULL STROKE 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

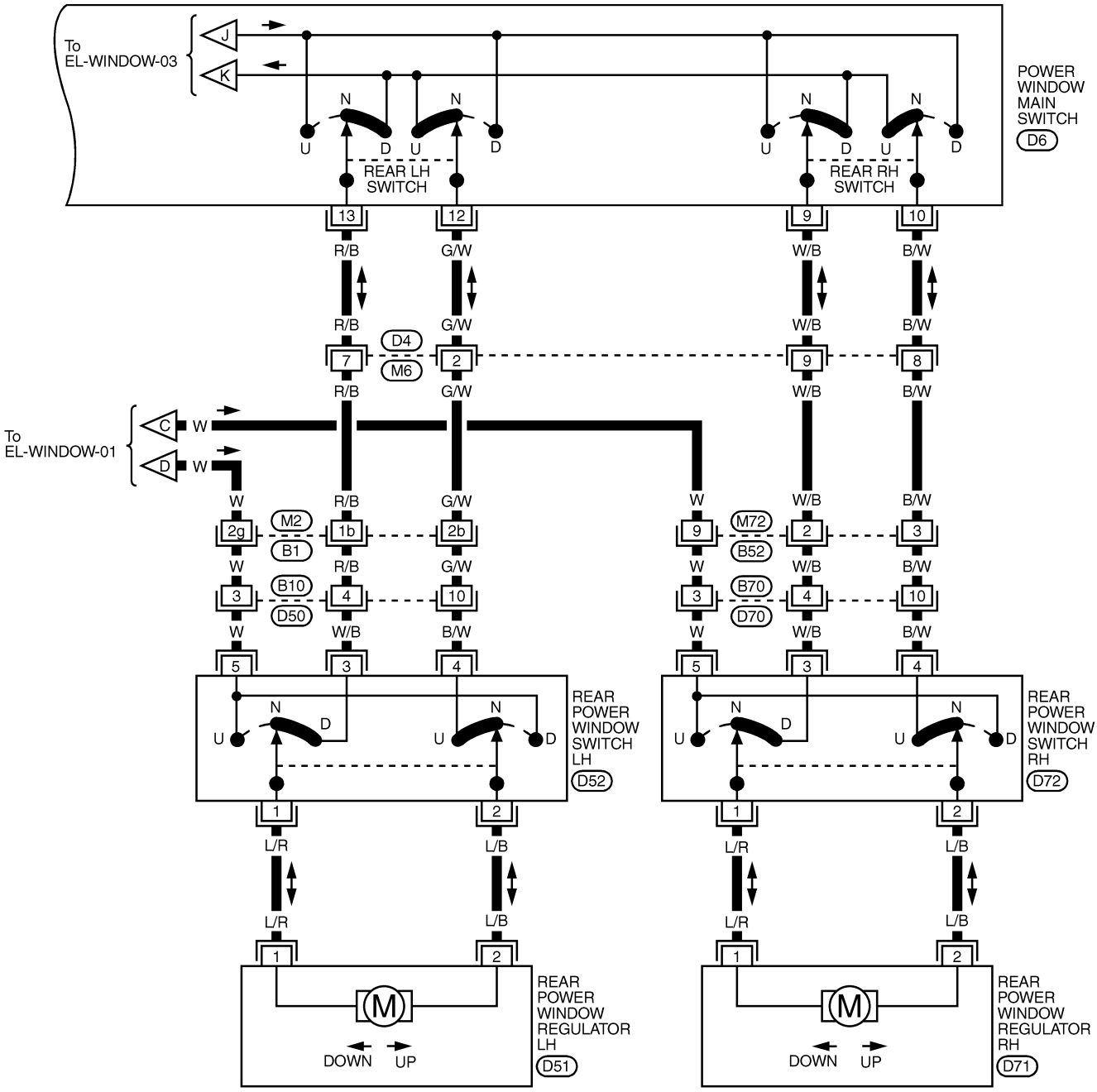
EL-WINDOW-04

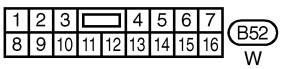


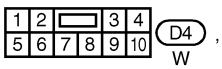


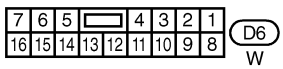
MEL429P

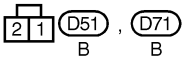
EL-WINDOW-05

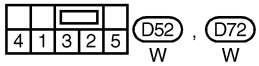



B52 W


D4 W , D50 W , D70 W


D6 W

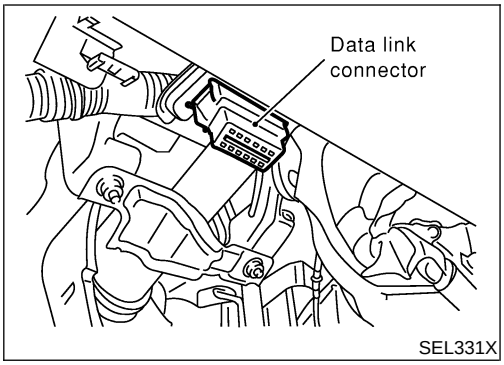

D51 B , D71 B


D52 W , D72 W

REFER TO THE FOLLOWING.

B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL517P



SEL331X

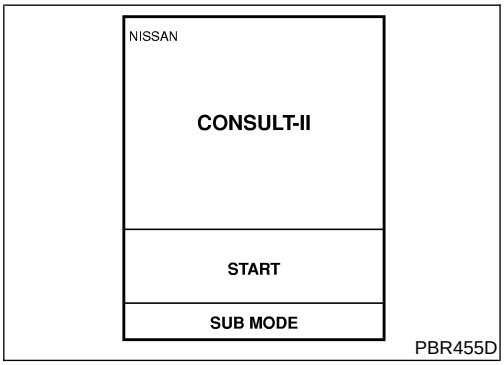
CONSULT-II Inspection Procedure

NAEL0381

“RETAINED PWR”

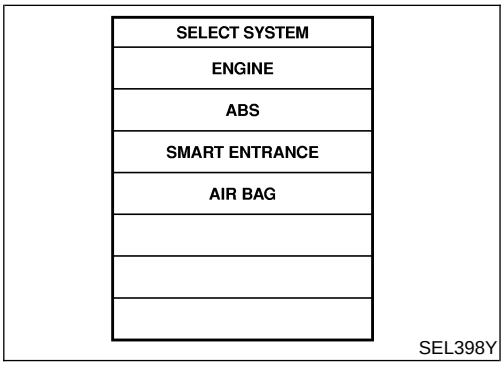
NAEL0381S01

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



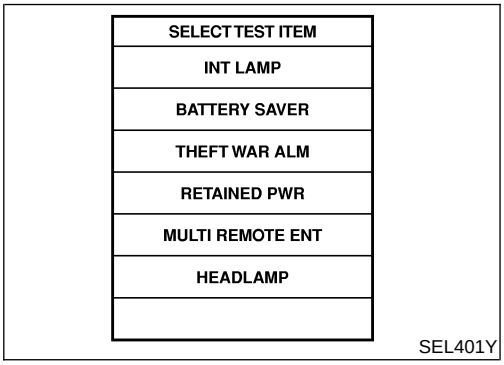
PBR455D

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



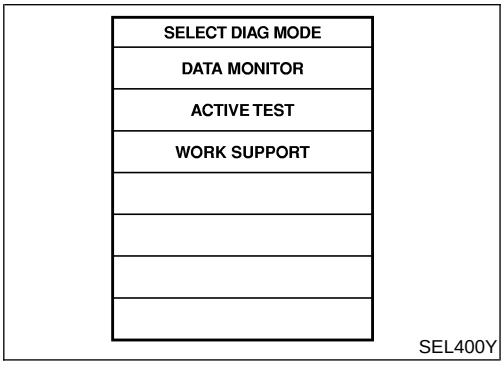
SEL398Y

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

NAEL0382

“RETAINED PWR” Data Monitor

NAEL0382S01

NAEL0382S0101

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

NAEL0382S0102

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

NAEL0382S0103

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

NAEL0383

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-281)
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-281)

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-278.) ● Check RAP signal with CONSULT-II. Use "ACTIVE TEST" mode, "RETAINED PWR" in "SMART ENTRANCE". (Refer to EL-277.) 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-378)
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-283)
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-283)
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-283)

*1: RAP signal's period can be changed by CONSULT-II. (EL-278)

ENCODER AND LIMIT SWITCH CHECK

=NAEL0383S01

1	CHECK DOOR WINDOW SLIDE MECHANISM

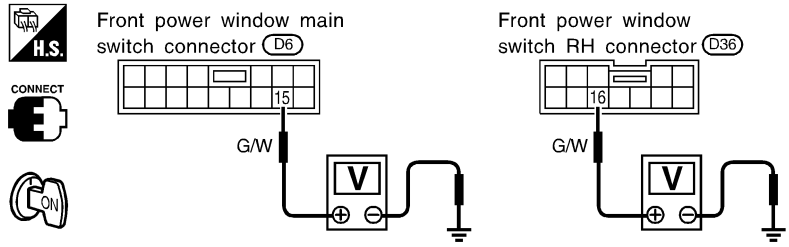
Check the following.
- Obstacles in window, glass molding, etc.
- Worn or deformed glass molding
- Door sash tilted too far inward or outward
- Door window regulator

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.

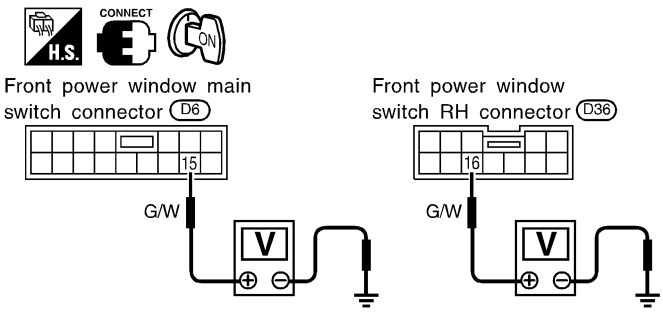
SEL725WA

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

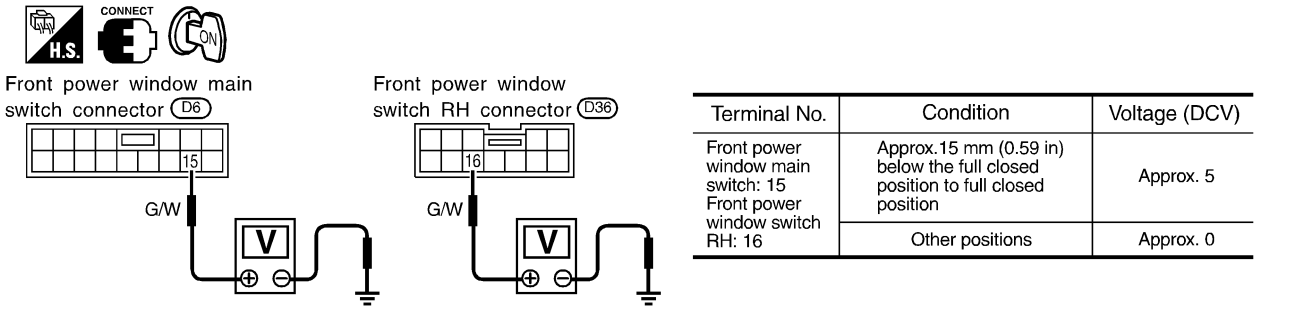
SEL726WA

OK or NG

OK	▶	GO TO 5.
NG	▶	GO TO 4.

4	RESET LIMIT SWITCH

Reset limit switch. Refer to BT-20, "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

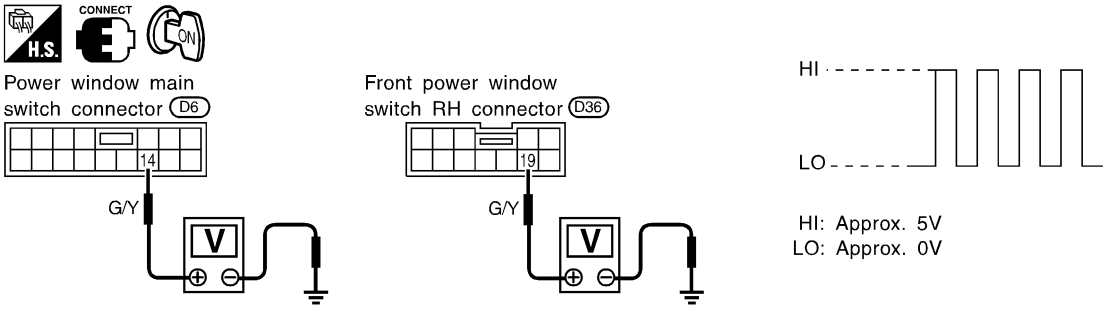
SEL726WA

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.

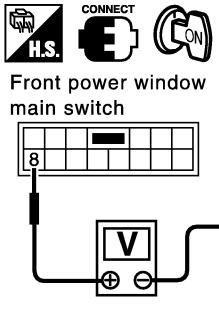
MAIN SWITCH OPERATION CHECK
NAEL0383S02

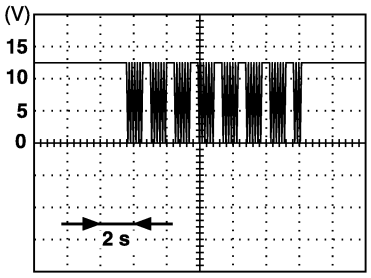
Passenger Side Operation
NAEL0383S0201

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.)



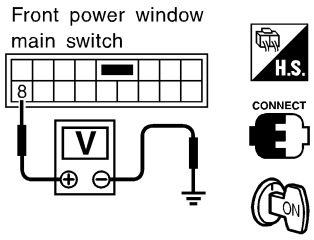


Voltage:
12V → 9V (10 sec.) measurement by analog circuit tester.

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.

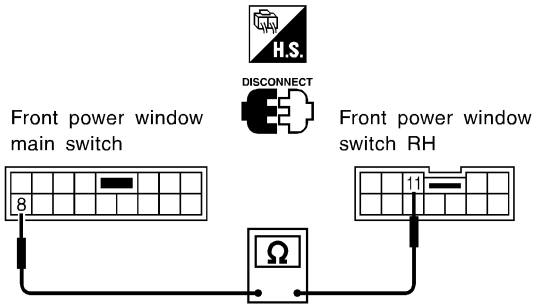
SEL497Y

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

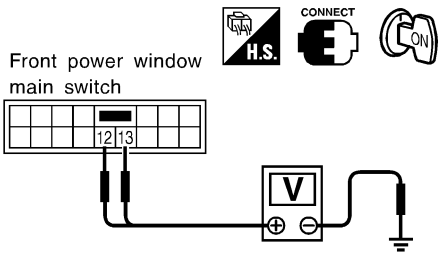
Yes	▶	INSPECTION END
No	▶	Repair harness or connectors.

Rear LH Side Window Operation

=NAEL0383S0202

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

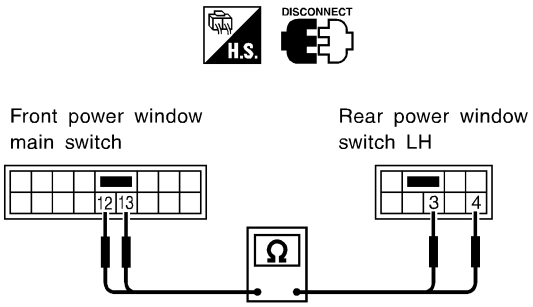
SEL164Y

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

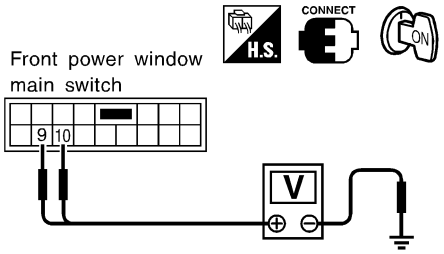
Yes	▶	INSPECTION END
No	▶	Repair harness or connectors.

Rear RH Side Window Operation

=NAEL0383S0203

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

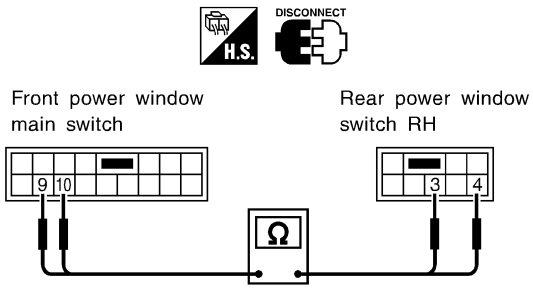
SEL166Y

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.

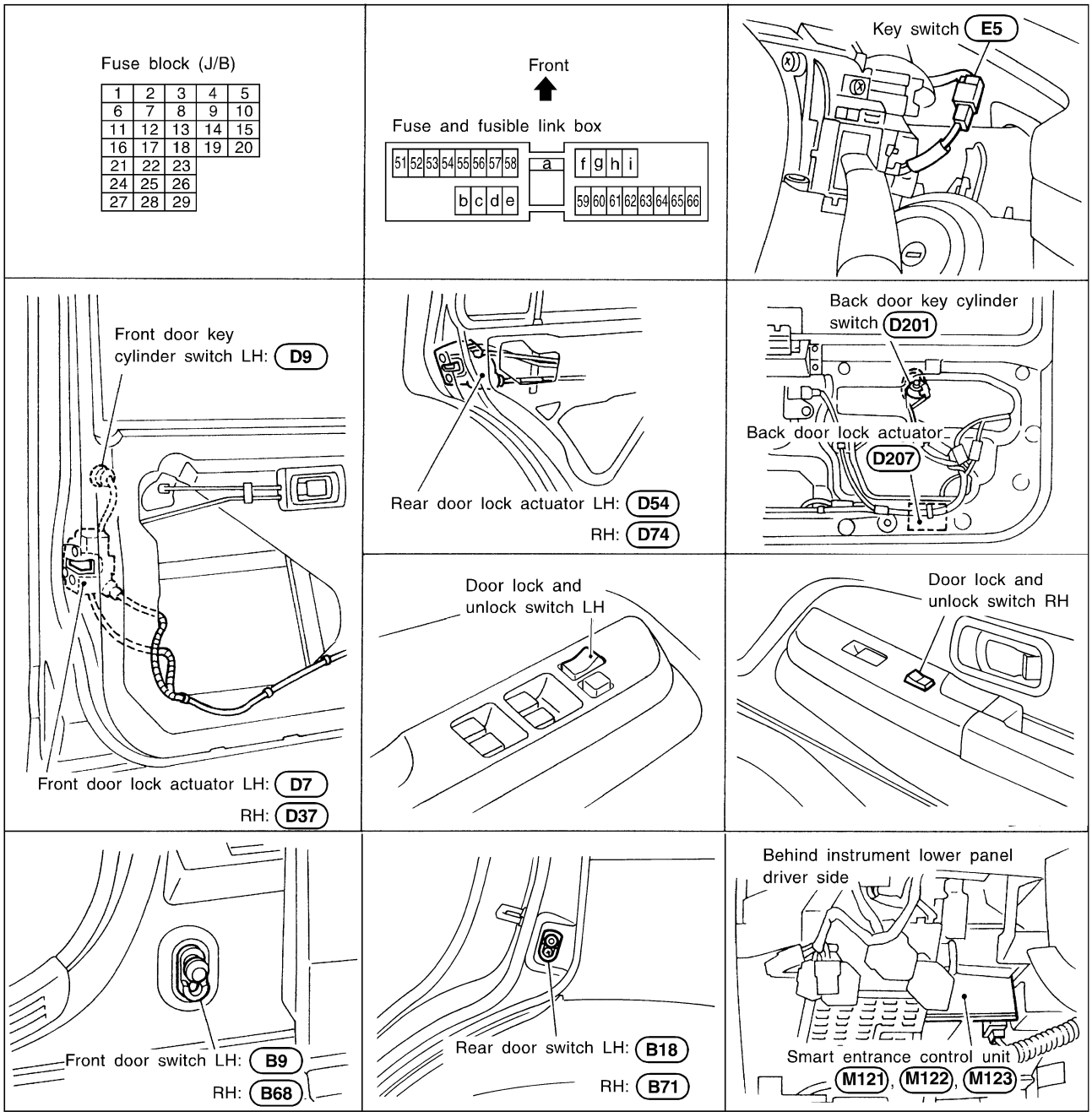
SEL167Y

Yes or No

Yes	▶	INSPECTION END
No	▶	Repair harness or connectors.

Component Parts and Harness Connector Location

NAEL0384



SEL065WB

System Description

NAEL0385

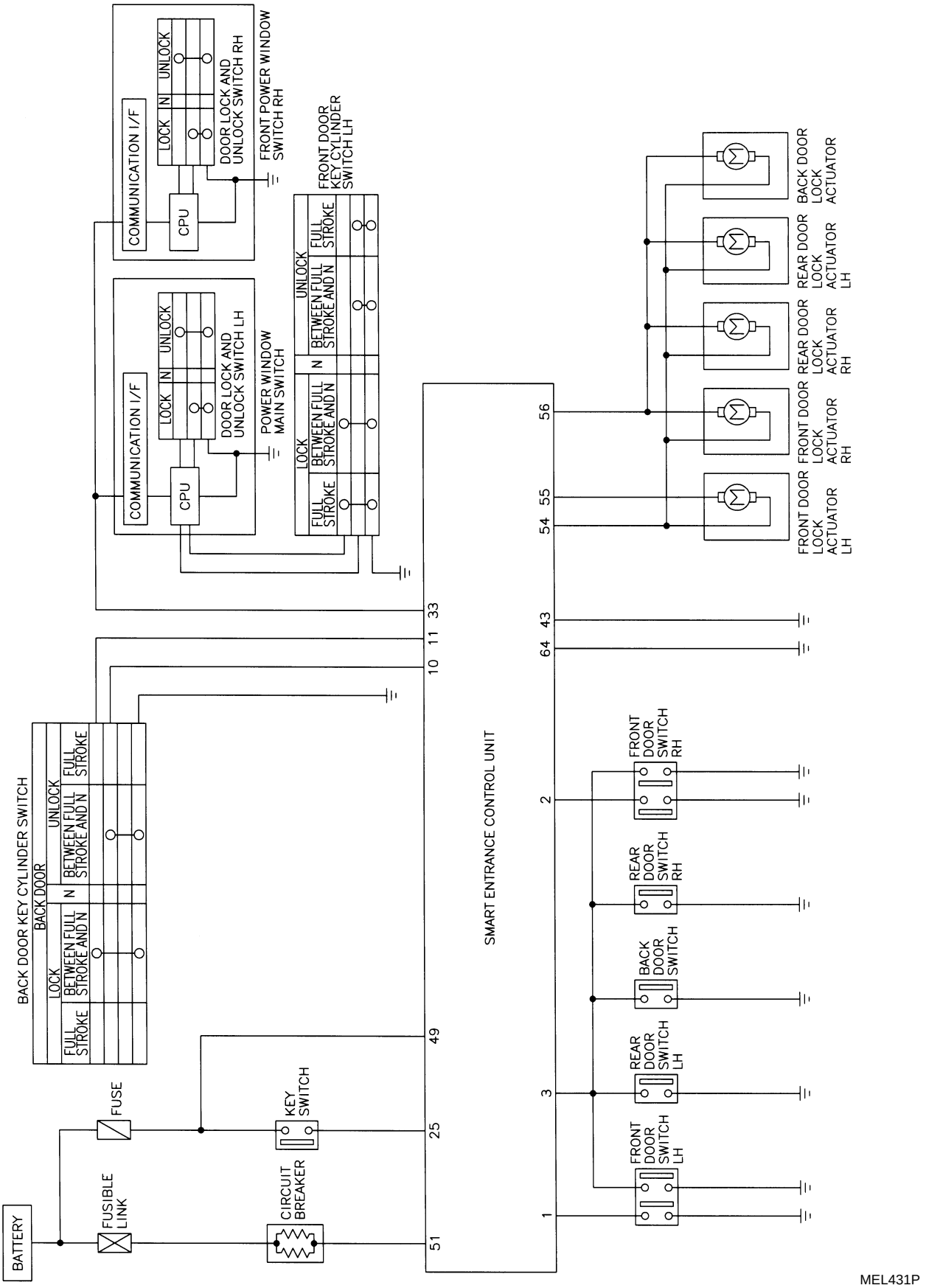
OPERATION

NAEL0385S01

- 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 or back door, turning it to “LOCK”, will lock all doors; turning it to “UNLOCK” once unlocks the corresponding door; turning it to “UNLOCK” again within 5 seconds after the first unlock operation unlocks all of the other doors. (Signals from door key cylinder switch)
- 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)

Schematic

NAEL0386



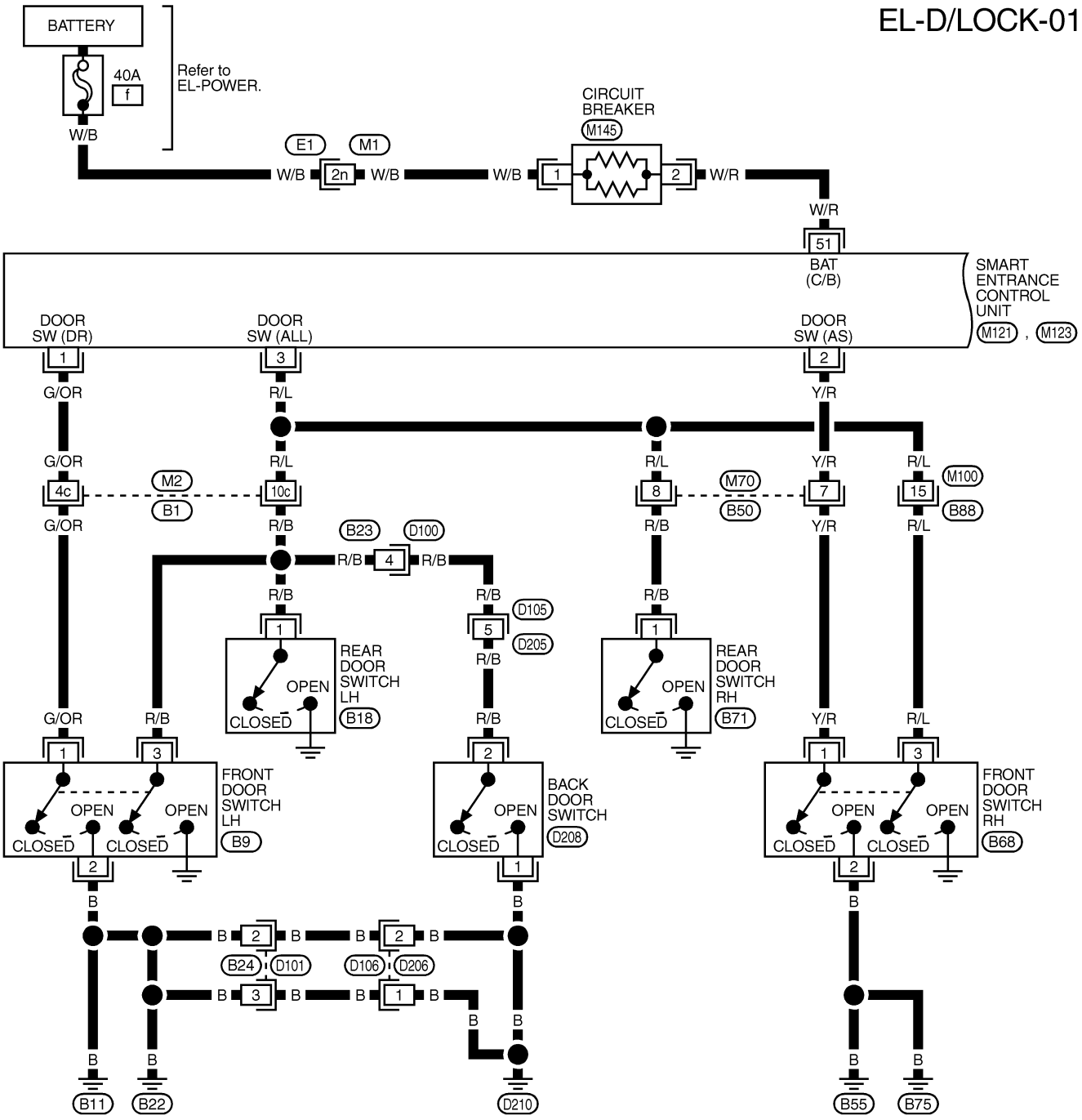
MEL431P

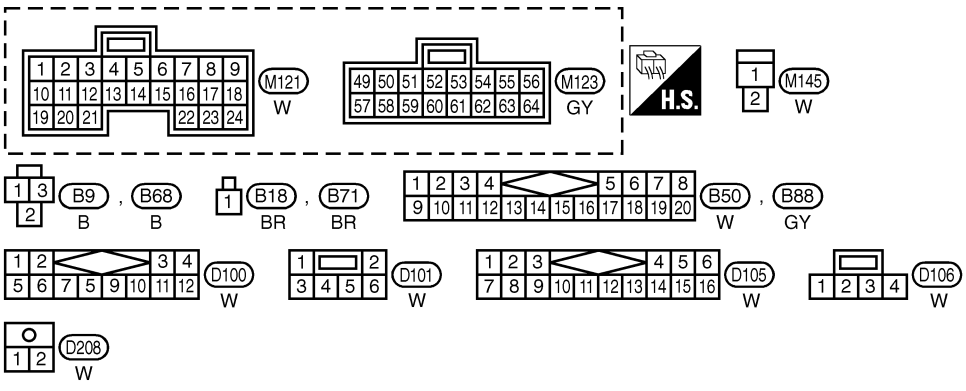
Wiring Diagram — D/LOCK —

NAEL0387

FIG. 1

NAEL0387S01



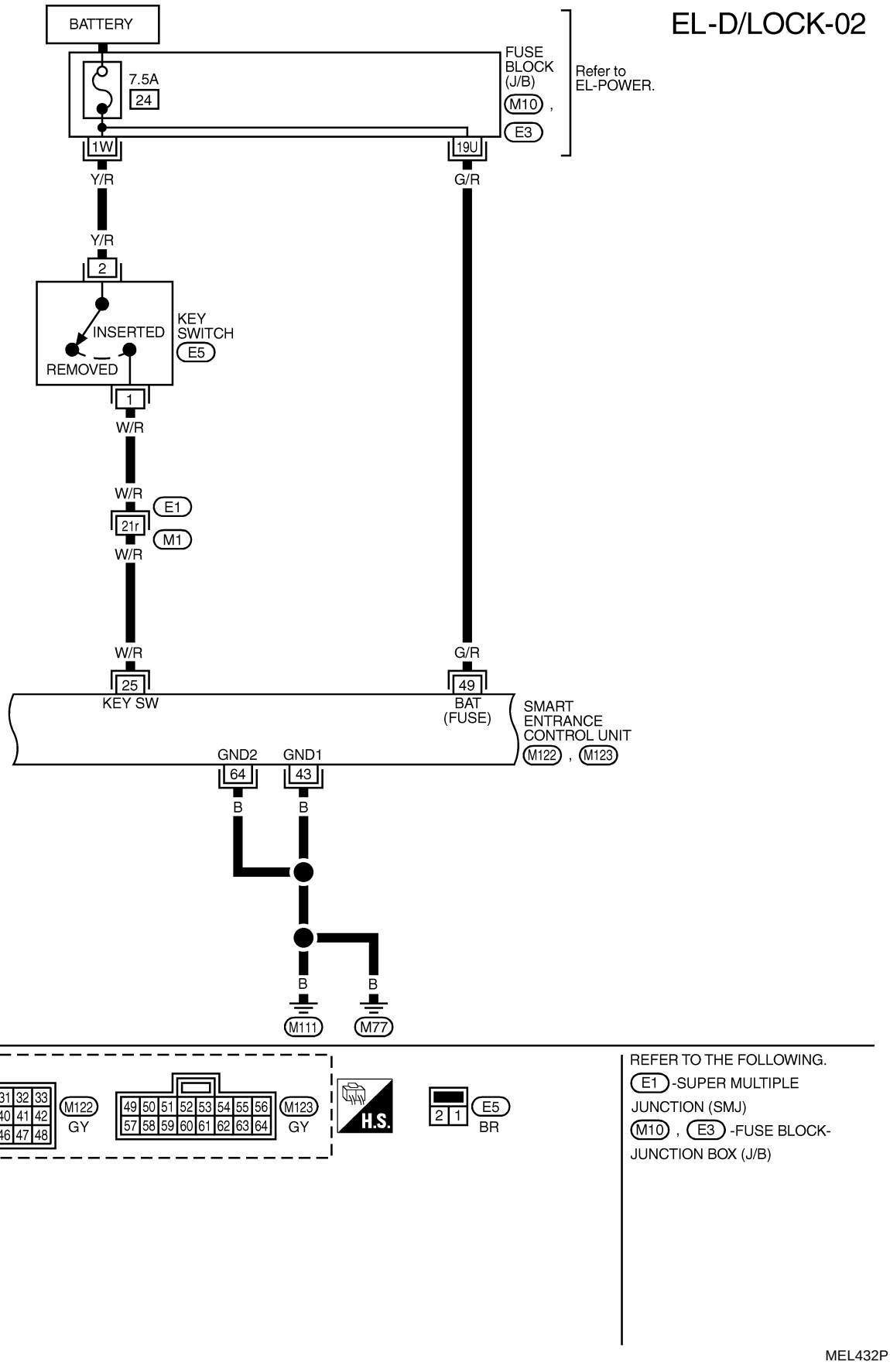


REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL388P

FIG. 2

NAEL0387S02



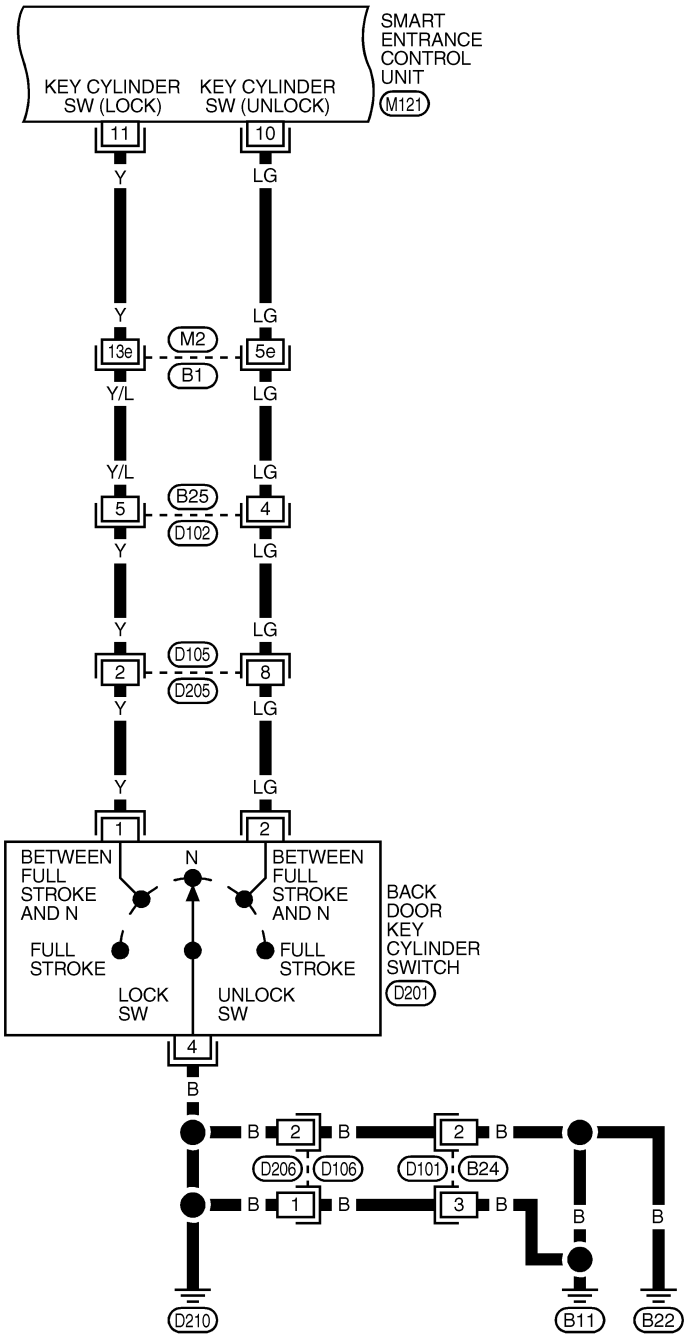
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)

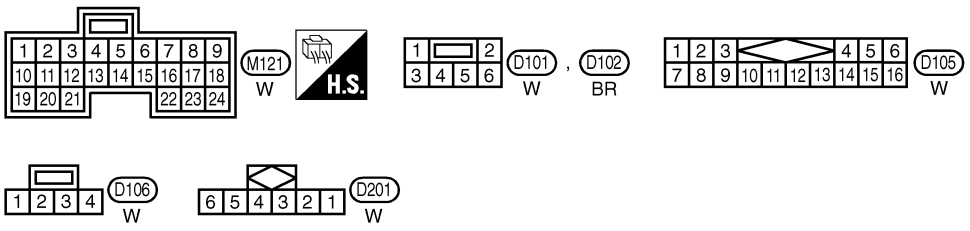
MEL432P

FIG. 3

NAEL0387S03

EL-D/LOCK-03





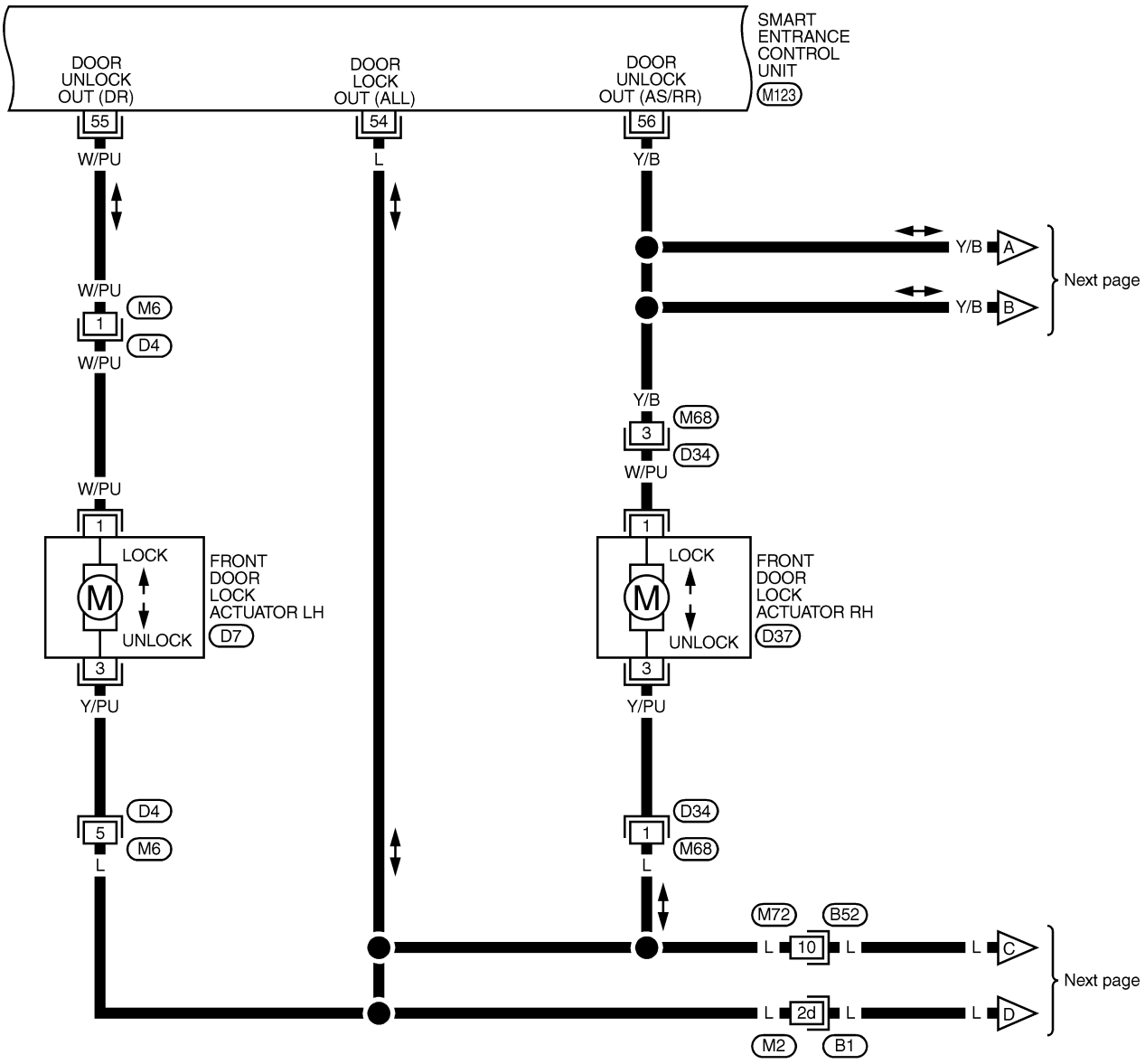
REFER TO THE FOLLOWING.
B1 - SUPER MULTIPLE JUNCTION (SMJ)

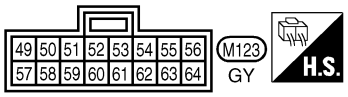
MEL433P

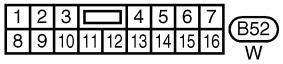
FIG. 4

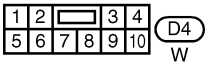
NAEL0387S04

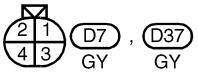
EL-D/LOCK-04

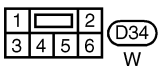












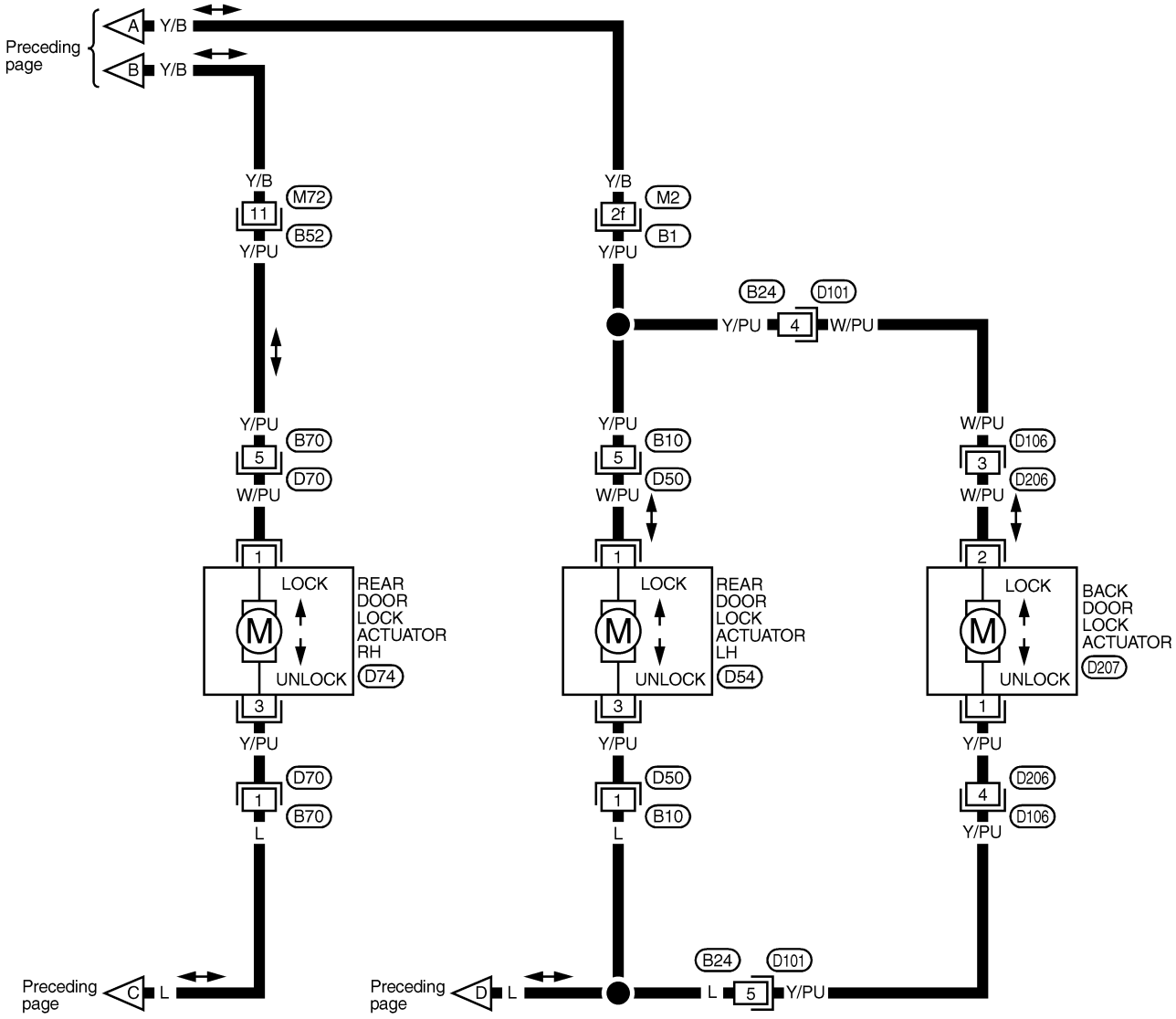
REFER TO THE FOLLOWING.
(B1) - SUPER MULTIPLE JUNCTION (SMJ)

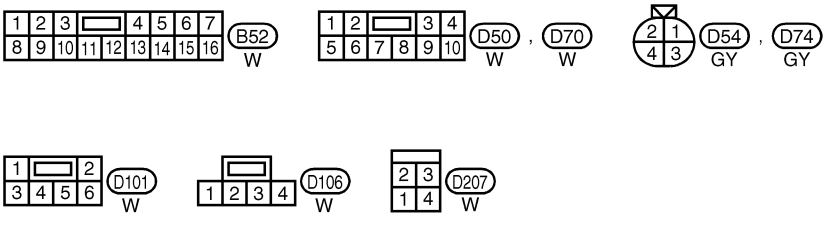
MEL434P

FIG. 5

NAEL0387S05

EL-D/LOCK-05





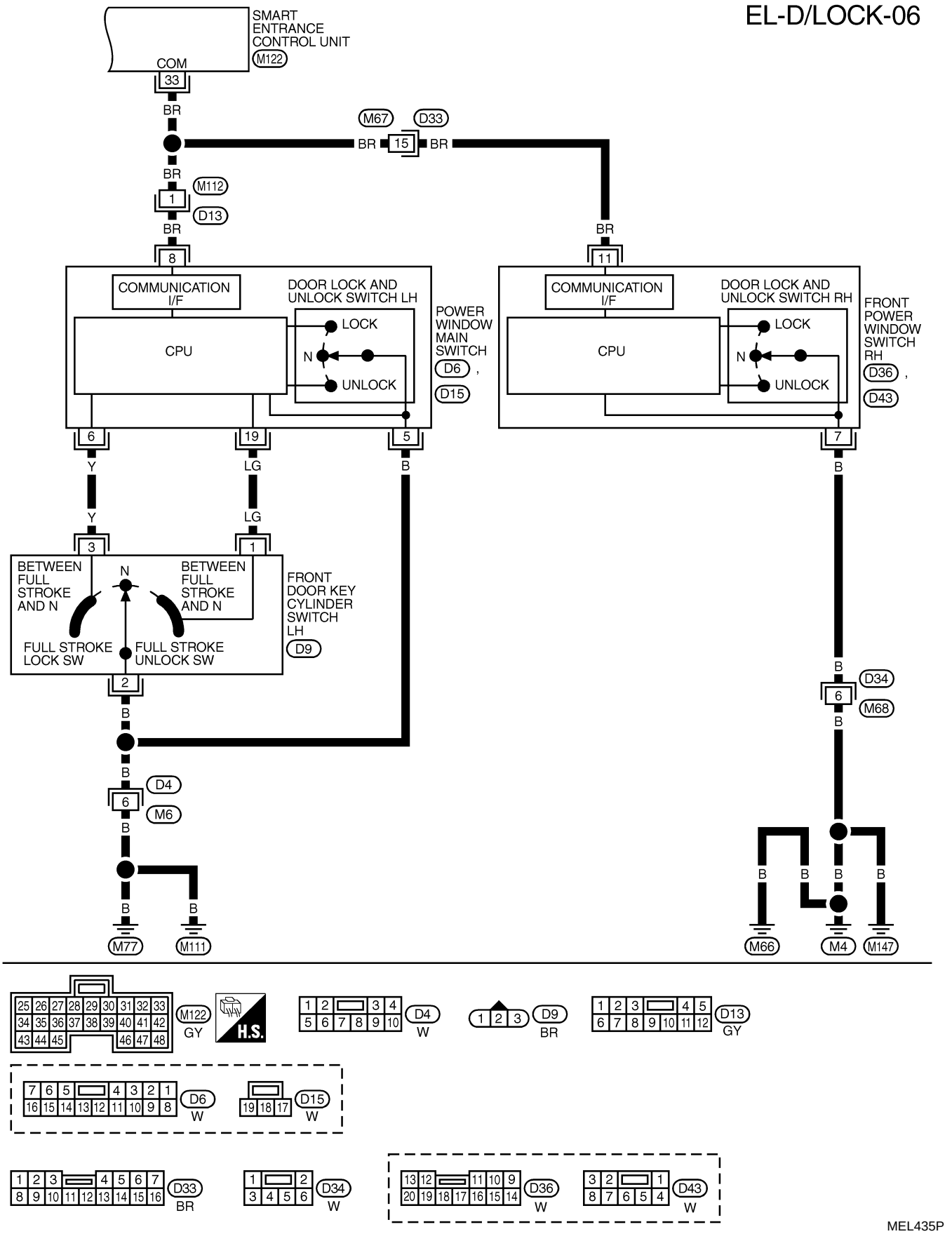
REFER TO THE FOLLOWING.
(B1) - SUPER MULTIPLE JUNCTION (SMJ)

MEL852L

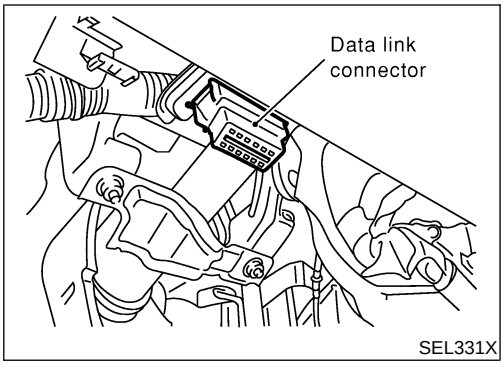
Wiring Diagram — D/LOCK — (Cont'd)

FIG. 6

NAEL0387S06



MEL435P



SEL331X

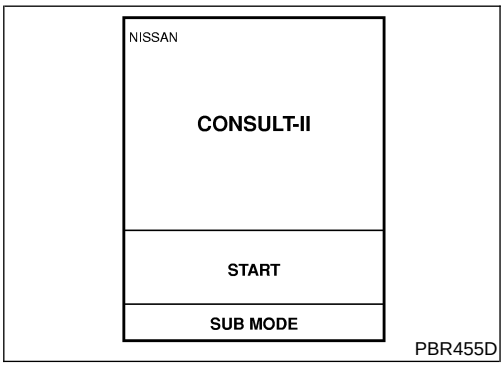
CONSULT-II Inspection Procedure

=NAEL0388

NAEL0388S01

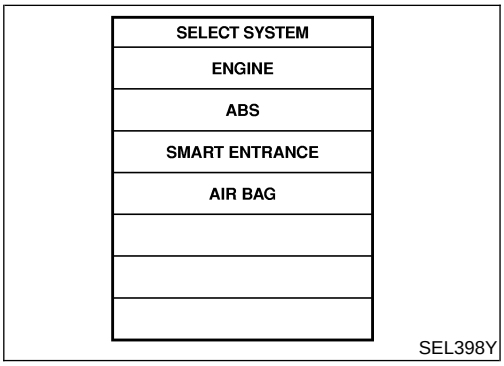
“DOOR LOCK”

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



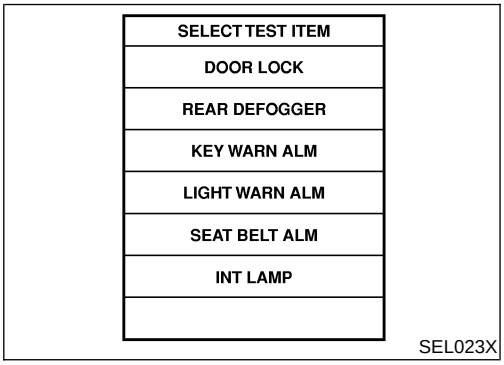
PBR455D

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



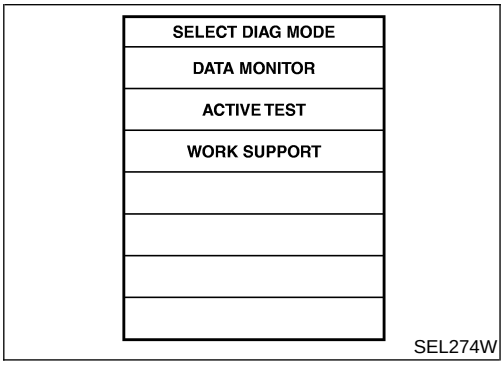
SEL398Y

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

NAEL0389

"DOOR LOCK"

NAEL0389S01

Data Monitor

NAEL0389S0101

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

NAEL0389S0102

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

NAEL0389S0103

Work Item	Description
DOOR LOCK-UNLOCK SET	Select unlock mode can be changed in this mode. Selects ON-OFF of select unlock mode.
ANTI-LOCK OUT SET	Key reminder door mode can be changed in this mode. Selects ON-OFF of key reminder door mode.

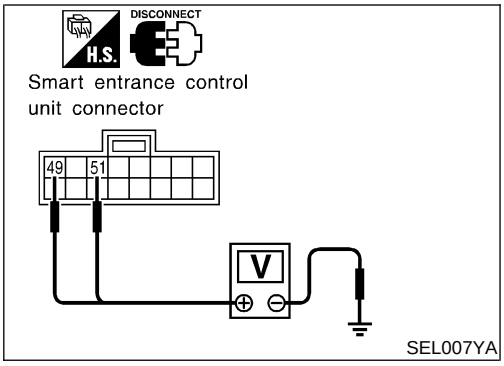
Trouble Diagnoses

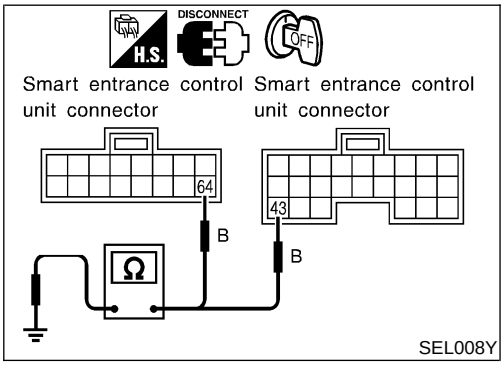
SYMPTOM CHART

NAEL0390

NAEL0390S01

REFERENCE PAGE (EL-)	298	299	301	302	303	305	307
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

=NAEL0390S02

Main Power Supply Circuit Check

NAEL0390S0201

Terminals			Ignition switch		
(+)		(–)	OFF	ACC	ON
Connector	Terminal (Wire color)				
M123	49 (G/R)	Ground	Battery voltage	Battery voltage	Battery voltage
	51 (W/R)				

Ground Circuit Check

NAEL0390S0202

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

DOOR SWITCH CHECK

=NAEL0390S03

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

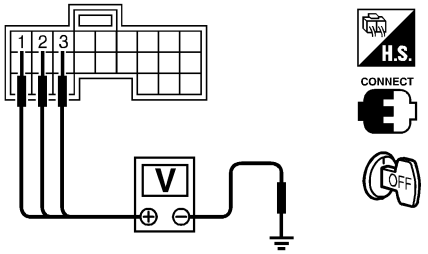
When any doors are closed:
DOOR SW-DR OFF
DOOR SW-AS OFF
DOOR SW-RR OFF

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-289.

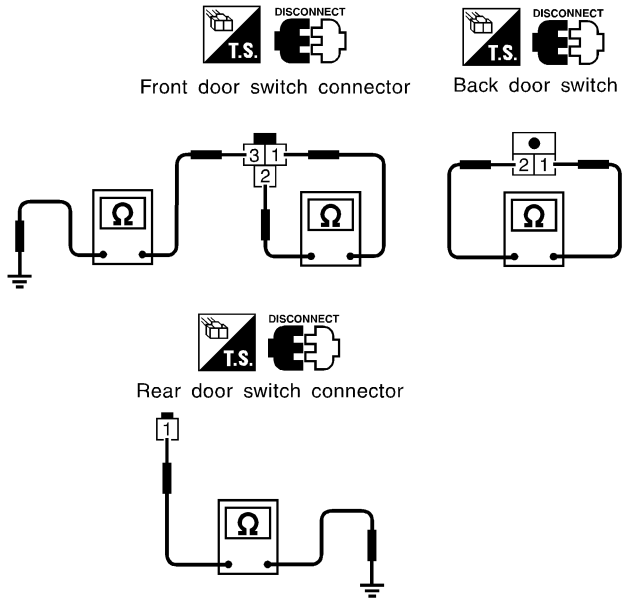
OK or NG

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

=NAEL0390S04

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

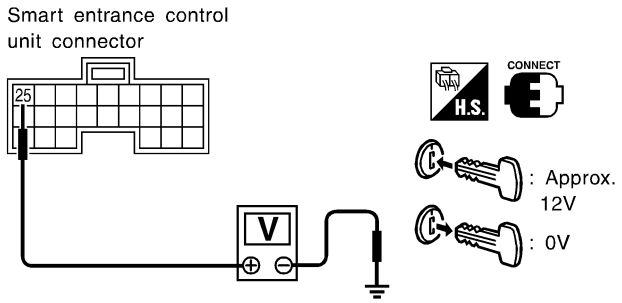
When key is removed from ignition key cylinder:

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

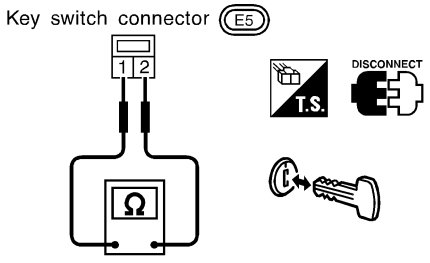
Refer to wiring diagram in EL-290.

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

=NAEL0390S05

1 CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL

With CONSULT-II

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

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

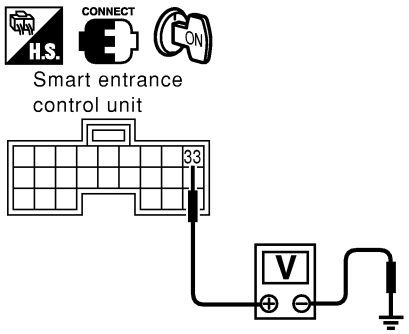
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

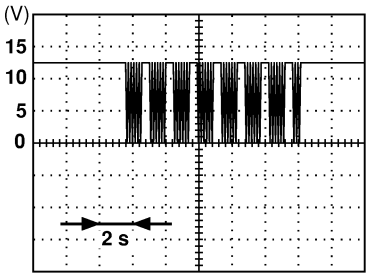
When lock/unlock switch is turned to UNLOCK:
UNLK SW DR/AS ON

SEL341W

Without CONSULT-II

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





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

SEL487Y

Refer to wiring diagram in EL-294.

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

=NAEL0390S06

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

With CONSULT-II

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

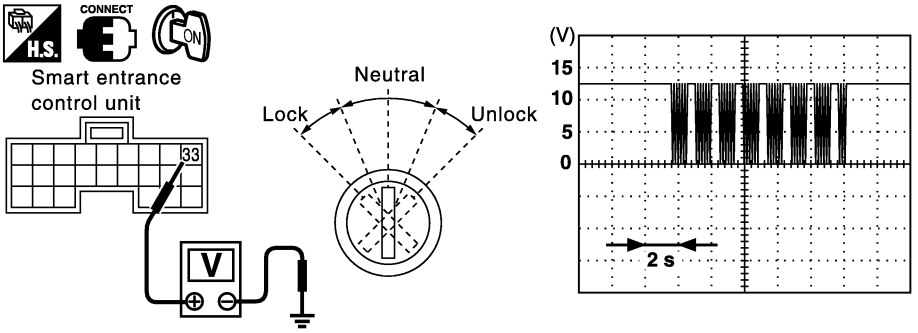
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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

SEL342W

Without CONSULT-II

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



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

SEL488Y

Refer to wiring diagram in EL-294.

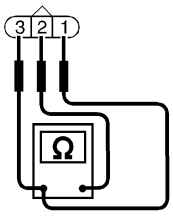
OK or NG

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

=NAEL0390S07

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.

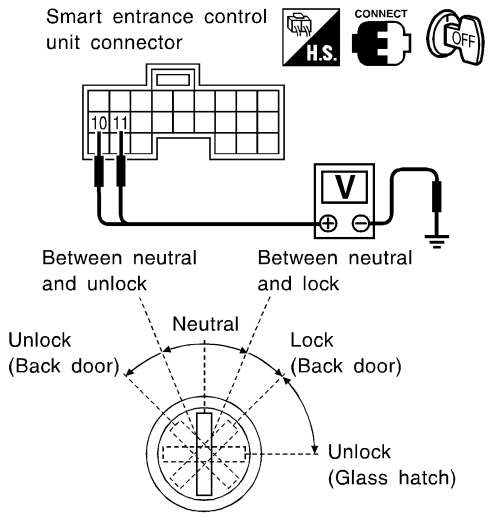
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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

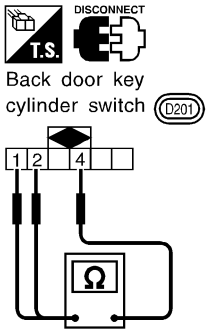
Refer to wiring diagram in EL-291.

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.

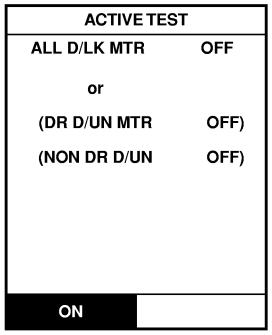
DOOR LOCK ACTUATOR CHECK

=NAEL0390S08

1	CHECK DOOR LOCK ACTUATOR OPERATION

With CONSULT-II

1. Select "ACTIVE TEST" in "DOOR LOCK" with CONSULT-II.
2. Select "ALL D/LK MTR" and touch "ON".
3. Then, select "DR D/UN MTR" and touch "ON".
4. Select "NON DR D/UN" and touch "ON".



Door lock motor should operate.

SEL343W

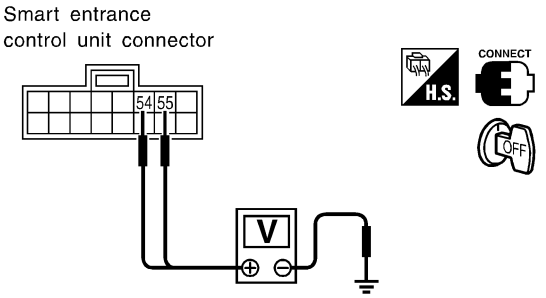
NOTE:
If CONSULT-II is not available, skip this procedure and go to the next step.

OK or NG

OK	▶	Door lock actuator is OK.
NG	▶	GO TO 2.

2	CHECK DOOR LOCK ACTUATOR CIRCUIT

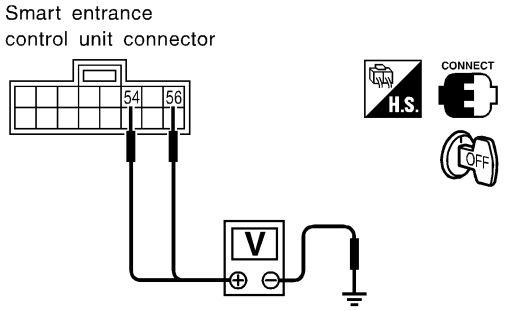
- Door lock actuator front LH
  Check voltage between smart entrance control unit harness connector M145 terminal 54 (GY), 55 (W/B) and ground.



Door lock/unlock switch condition	Terminal No. (+)	Terminal No. (–)	Voltage V
Lock	54	Ground	Approx. 12
Unlock	55	Ground	

SEL014Y

- Door lock actuator front RH and rear
  Chcek voltage between smart entrance control unit harness connector M145 terminal 54 (GY), 56 (G/Y) and ground.



Door lock/unlock switch condition	Terminal No. (+)	Terminal No. (–)	Voltage V
Lock	54	Ground	Approx. 12
Unlock	56	Ground	

SEL015Y

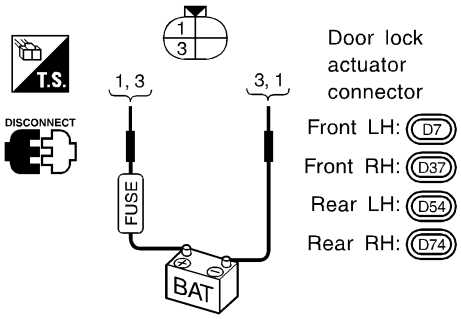
Refer to wiring diagram in EL-292.

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".)

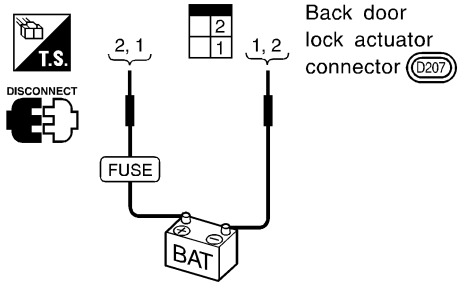
3	CHECK DOOR LOCK ACTUATOR

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

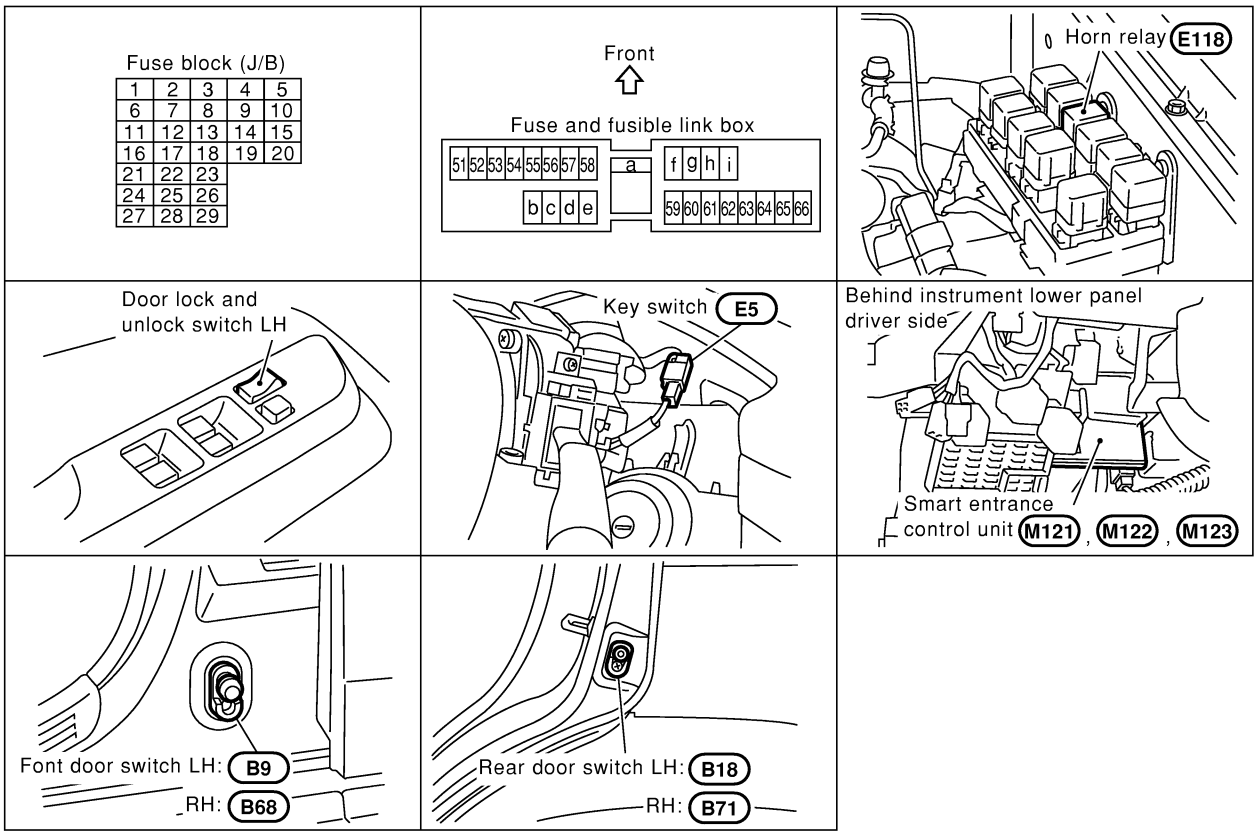
SEL319X

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

NAEL0391



SEL290Y

System Description

NAEL0392

INPUTS

NAEL0392S01

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

NAEL0392S02

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

NAEL0392S03

Power Door Lock Operation

NAEL0392S0301

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-320).

Auto Door Lock Operation

NAEL0392S0308

Auto lock function signal is sent for operation when any of the following signals are not sent within 5 minutes after the unlock signal is sent from the keyfob:

- when door switch is turned ON for open.
- when the ignition switch is turned ON.
- when the lock signal is sent from the keyfob.

Auto door lock mode can be changed by CONSULT-II (EL-320).

Hazard and Horn Reminder

NAEL0392S0302

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.

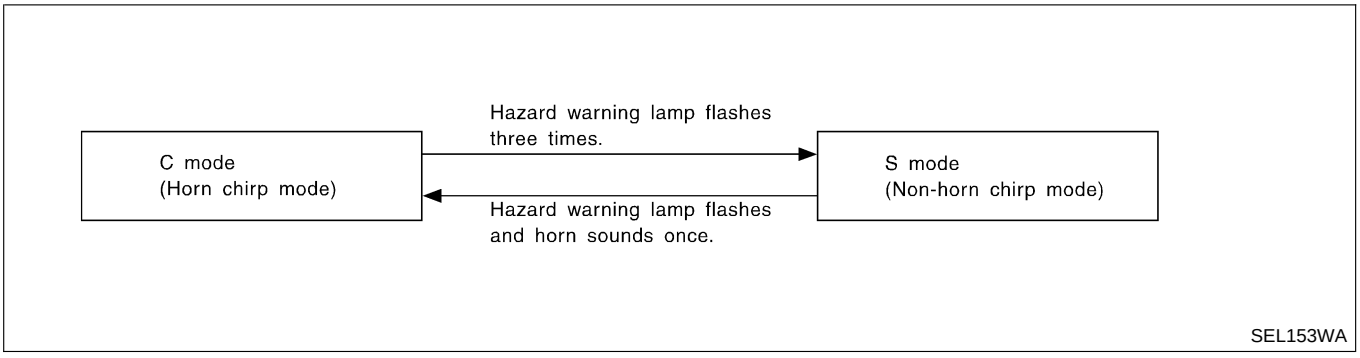
Horn relay are now energized, and hazard warning lamp flashes and horn sounds as a reminder.
The hazard and horn reminder has C mode (horn chirp mode) and S mode (non-horn chirp mode).

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-320).
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:



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

NAEL0392S0303

When the following input signals are both supplied:

- door switch CLOSED (when all the doors are closed);
- driver's door LOCKED;

remote keyless entry system turns on interior lamp and keyhole illumination (for 30 seconds) with input of UNLOCK signal from keyfob.
For detailed description, refer to "INTERIOR, STEP, SPOT, VANITY MIRROR AND TRUNK ROOM LAMPS" (EL-92).

Panic Alarm Operation

NAEL0392S0304

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-343).
The panic alarm button's pressing time on keyfob can be changed with CONSULT-II (EL-320).

Power Window Opener Operation

NAEL0392S0307

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:

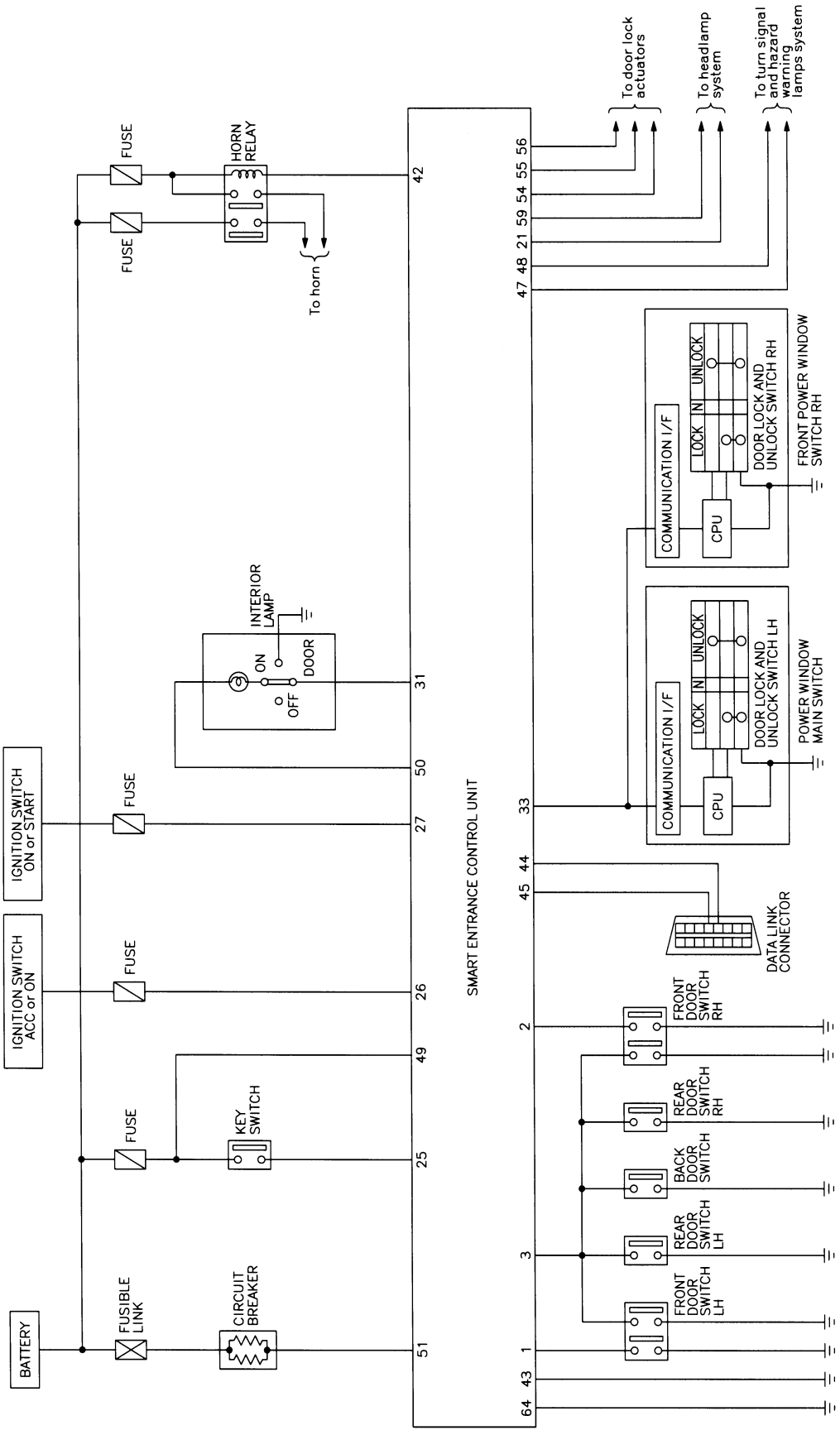
- When the unlock button is kept pressed more than 15 seconds.
- When the ignition switch is turned ON while the power window opening is operated.
- When the unlock button is released.

The unlock button's pressing time can be changed with CONSULT-II (EL-320).
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

NAEL0393



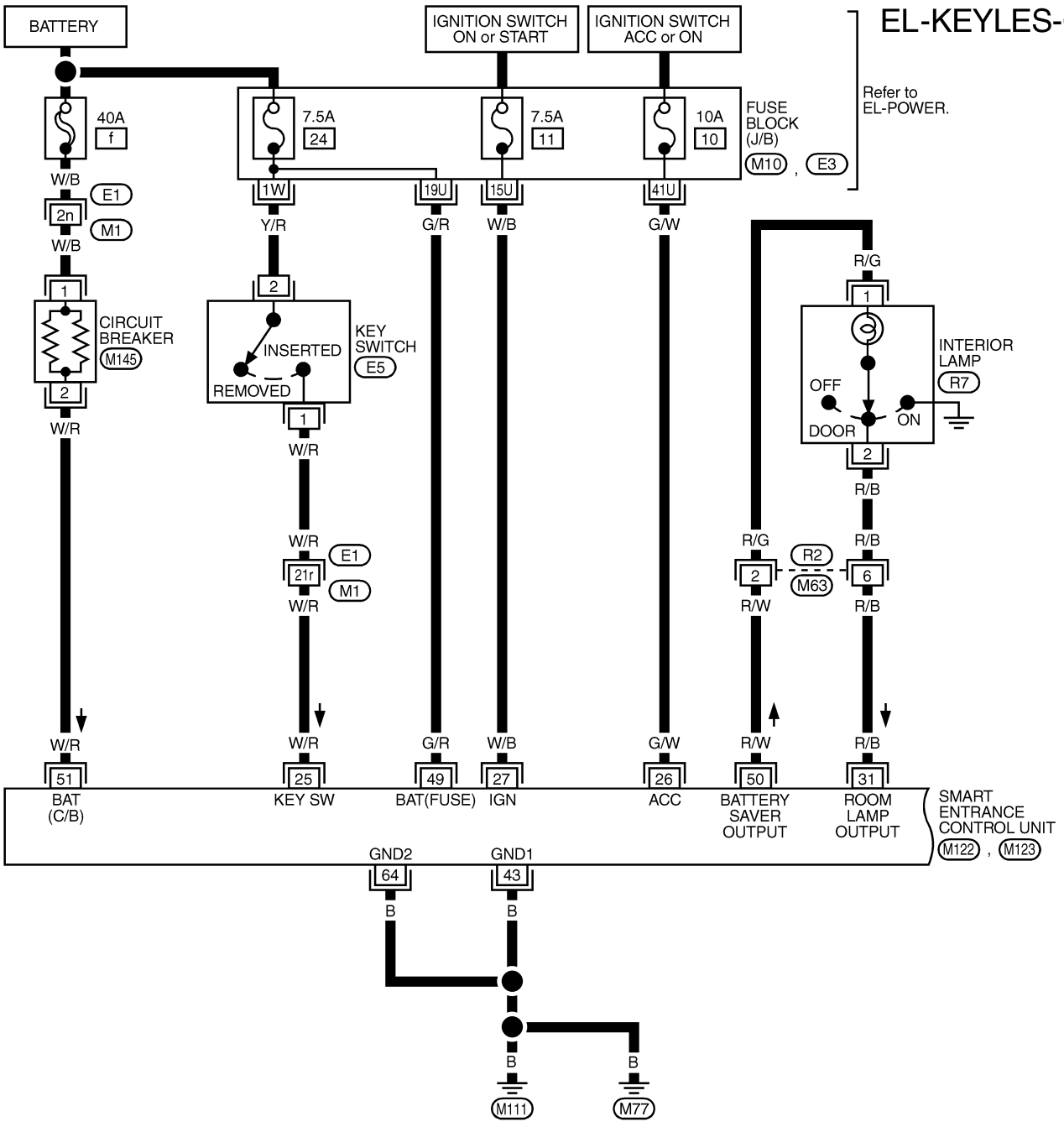
MEL433O

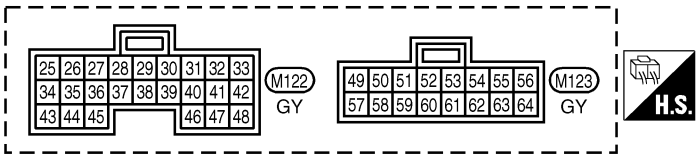
Wiring Diagram — KEYLESS —

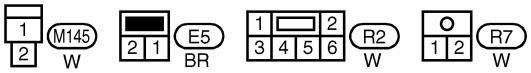
NAEL0394

FIG. 1

NAEL0394S01







REFER TO THE FOLLOWING.

E1 - SUPER MULTIPLE JUNCTION (SMJ)

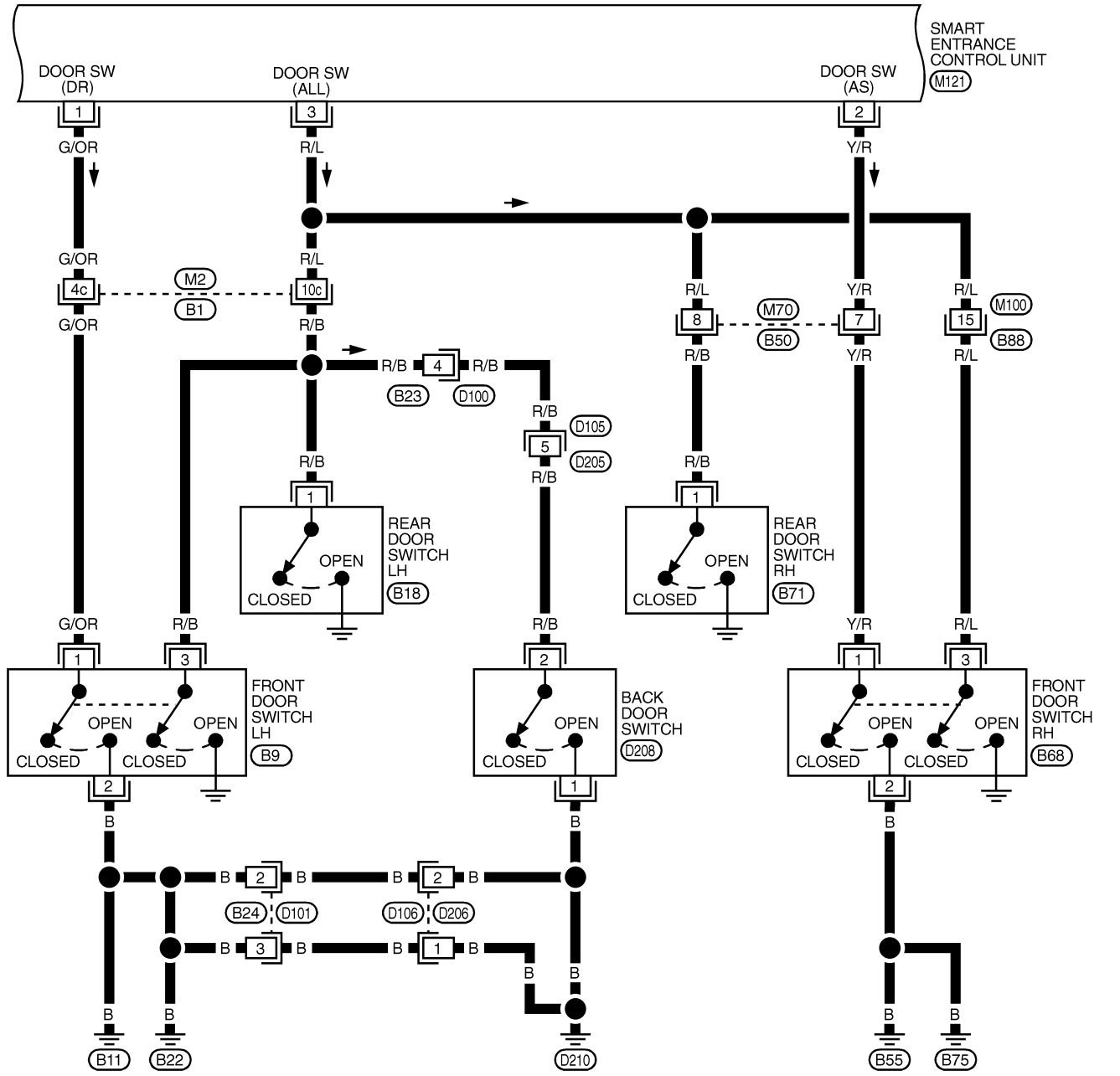
M10 , E3 - FUSE BLOCK - JUNCTION BOX (J/B)

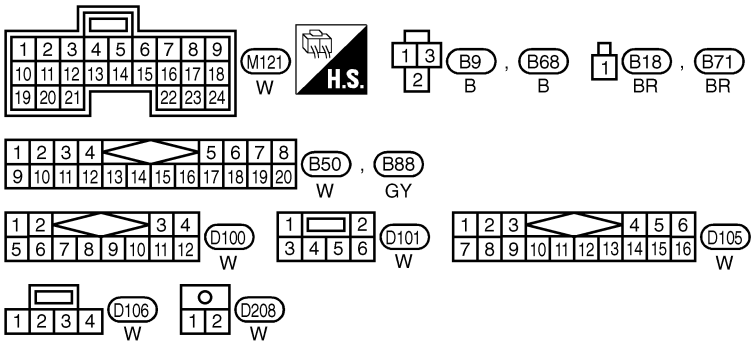
MEL411O

FIG. 2

NAEL0394S02

EL-KEYLES-02





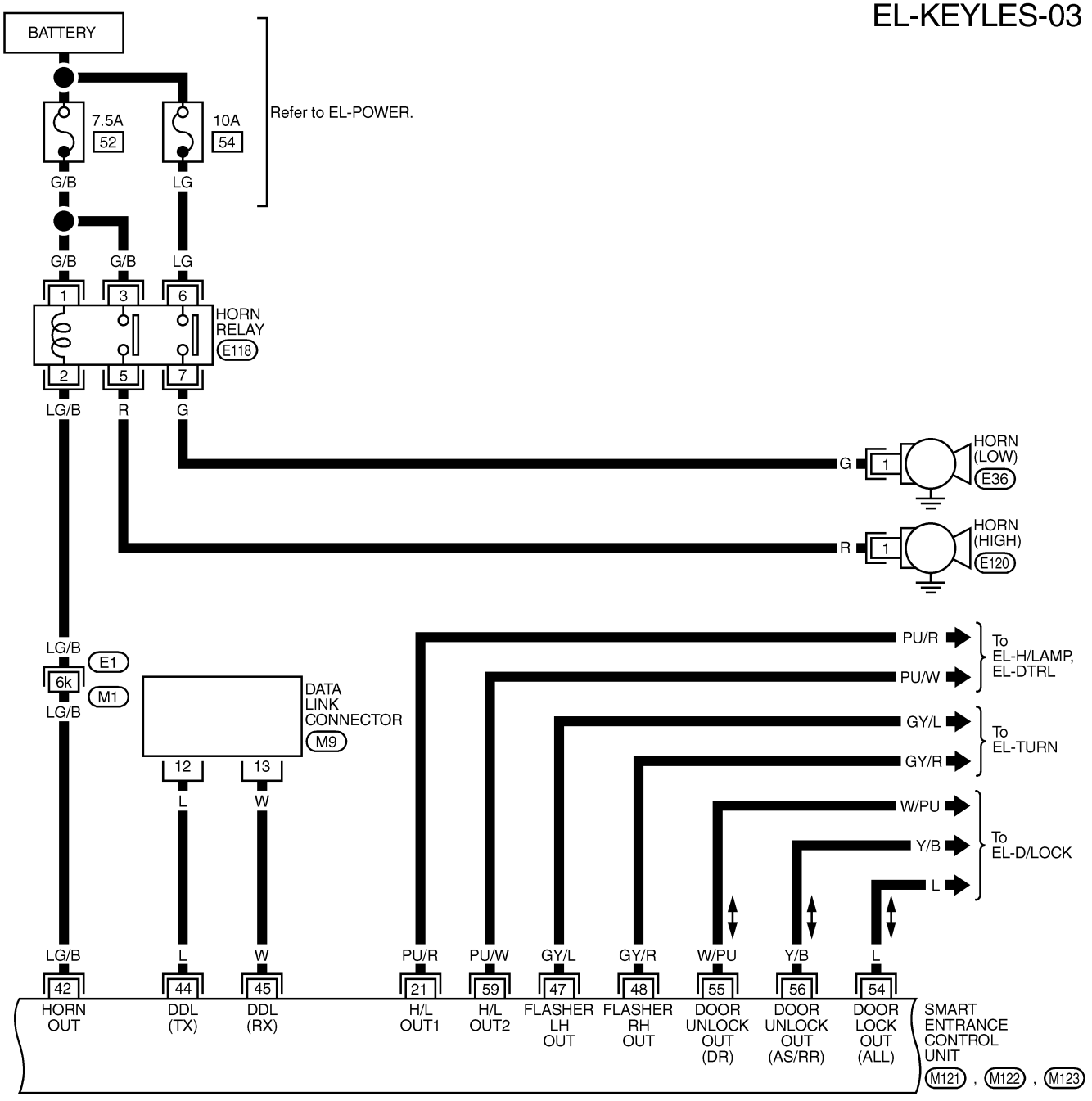
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

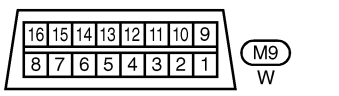
MEL412O

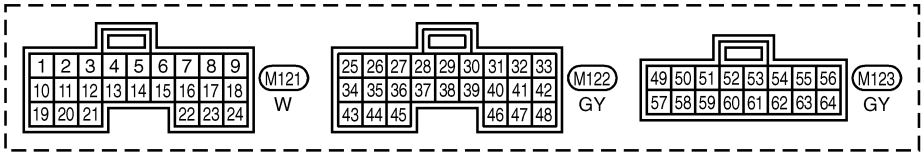
FIG. 3

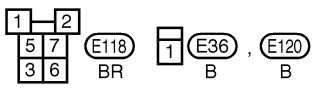
NAEL0394S03

EL-KEYLES-03







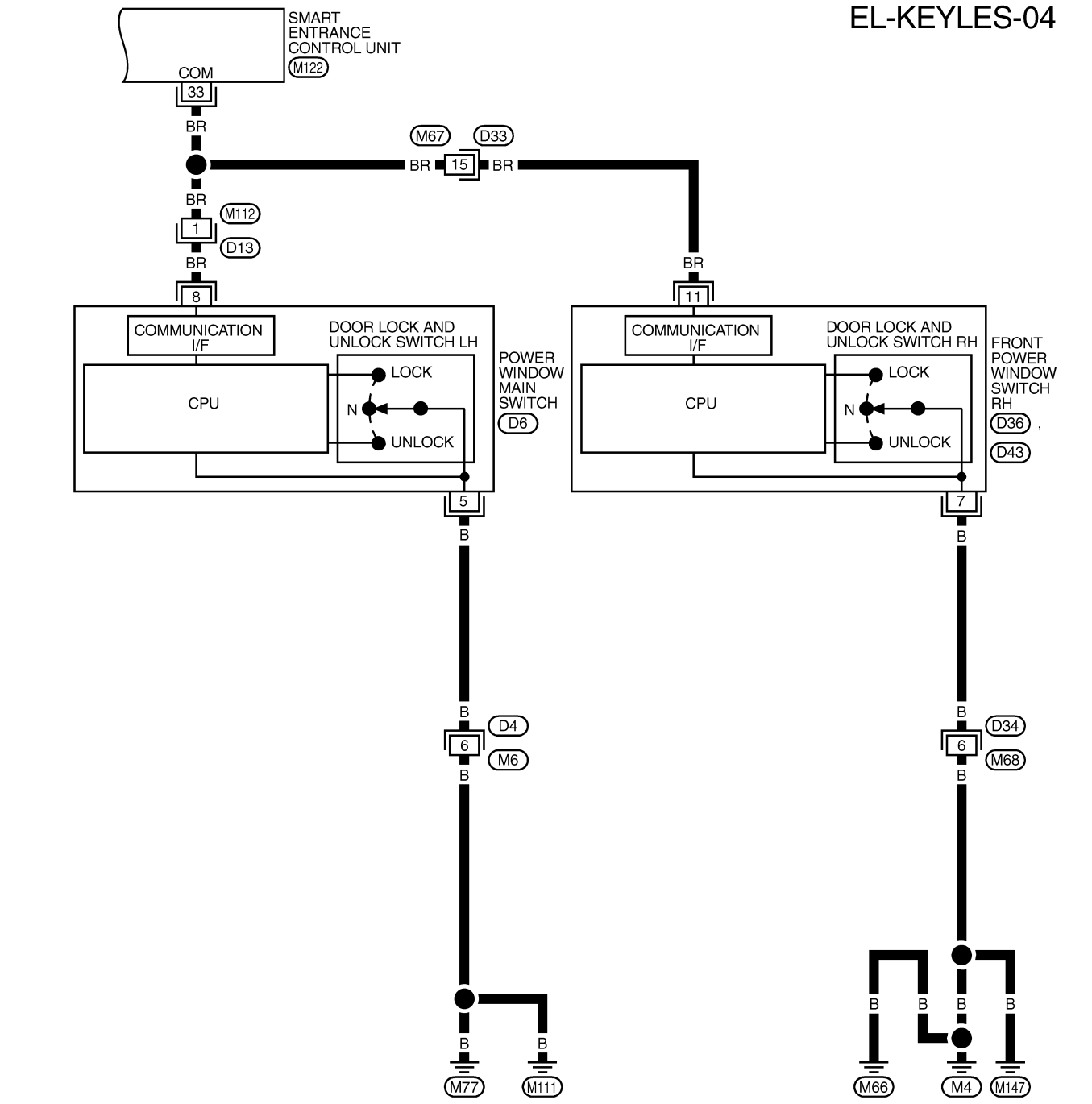


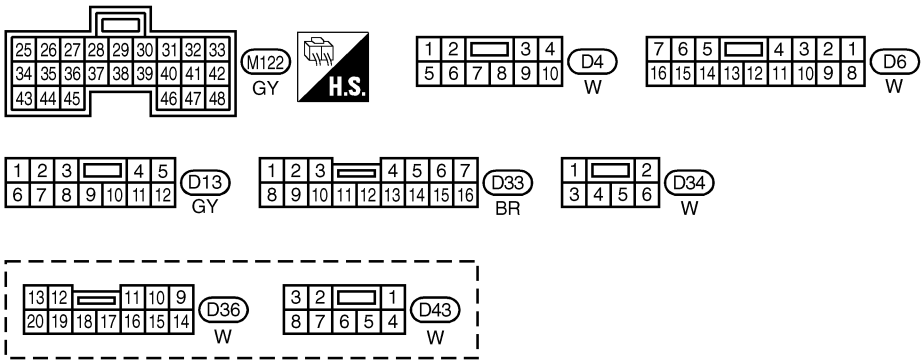
REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)

MEL413O

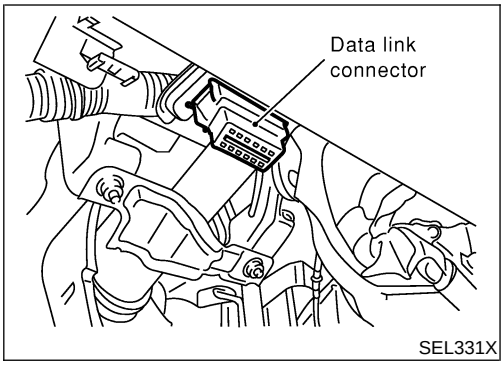
FIG. 4

NAEL0394S05





MEL436P



SEL331X

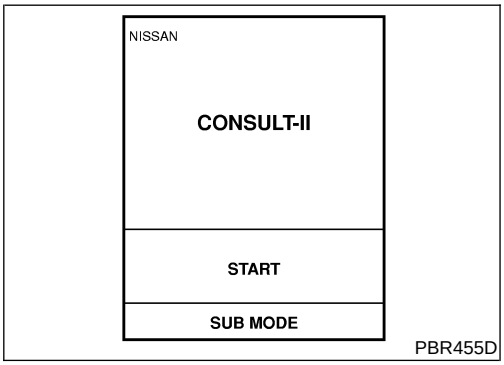
CONSULT-II Inspection Procedure

NAEL0395

“MULTI REMOTE ENT”

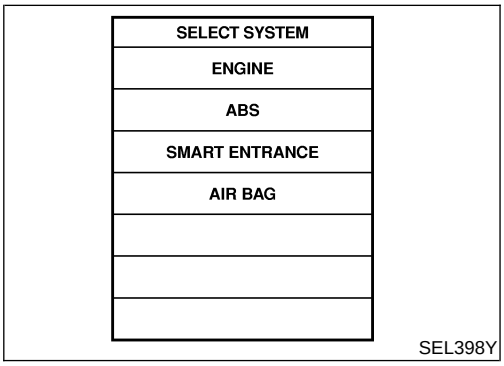
NAEL0395S01

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



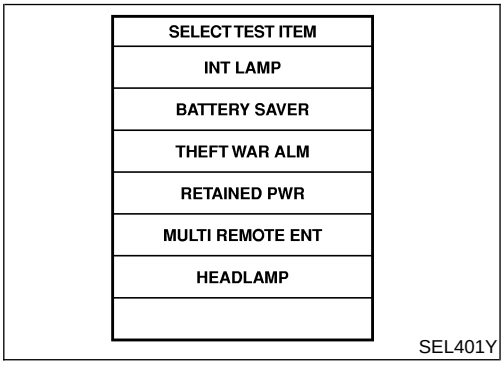
PBR455D

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



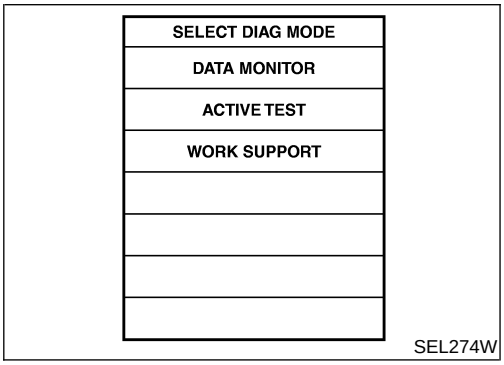
SEL398Y

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

NAEL0457

"MULTI REMOTE ENT"

NAEL0457S01

Data Monitor

NAEL0457S0101

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

NAEL0457S0102

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

NAEL0457S0103

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-311).
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

NAEL0397

SYMPTOM CHART

NAEL0397S01

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	323
	2. Power supply and ground circuit for smart entrance control unit check	324
	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.	336
The new ID of keyfob cannot be entered.	1. Keyfob battery and function check	323
	2. Key switch (insert) check	328
	3. Door switch check	326
	4. Door lock/unlock switch LH check	329
	5. Power supply and ground circuit for smart entrance control unit check	324
	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.	336
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-297)	1. Keyfob battery and function check	323
	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.	336

Trouble Diagnoses (Cont'd)

Symptom	Diagnoses/service procedure	Reference page (EL-)
Hazard and horn reminder does not activate properly when pressing lock or unlock button of keyfob.	1. Keyfob battery and function check	323
	2. Hazard reminder check	330
	3. Horn reminder check* *: Horn chirp can be activated or deactivated. First check the horn chirp setting. Refer to "System Description", EL-311.	331
	4. Door switch check	326
	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.	336
Interior room lamp operation do not activate properly.	1. Interior room lamp operation check	333
	2. Door switch check	326
Panic alarm (horn and headlamp) does not activate when panic alarm button is continuously pressed.	1. Keyfob battery and function check	323
	2. Theft warning operation check. Refer to "PRELIMINARY CHECK" in "VEHICLE SECURITY SYSTEM".	354
	3. Key switch (insert) check	328
	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.	336

REMOTE CONTROLLER BATTERY AND FUNCTION CHECK

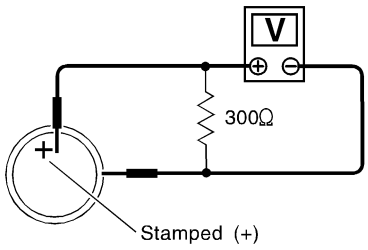
=NAEL0397S02

1 CHECK REMOTE CONTROLLER BATTERY

Remove battery (refer to EL-338) and measure voltage across battery positive and negative terminals, (+) and (−).

Voltage [V]:
2.5 - 3.0

NOTE:
Keyfob does not function if battery is not set correctly.



SEL237W

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace battery.

2 CHECK REMOTE CONTROLLER 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

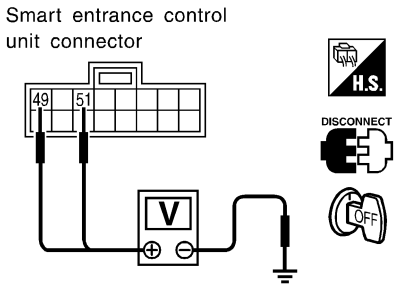
OK	▶	Keyfob is OK. Further inspection is necessary. Refer to "SYMPTOM CHART", EL-321.
NG	▶	Replace keyfob. Refer to ID Code Entry Procedure.

POWER SUPPLY AND GROUND CIRCUIT CHECK

=NAEL0397S03

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

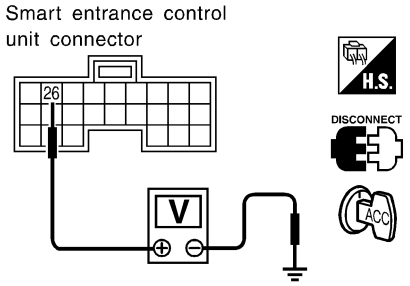
Refer to wiring diagram in EL-315.

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

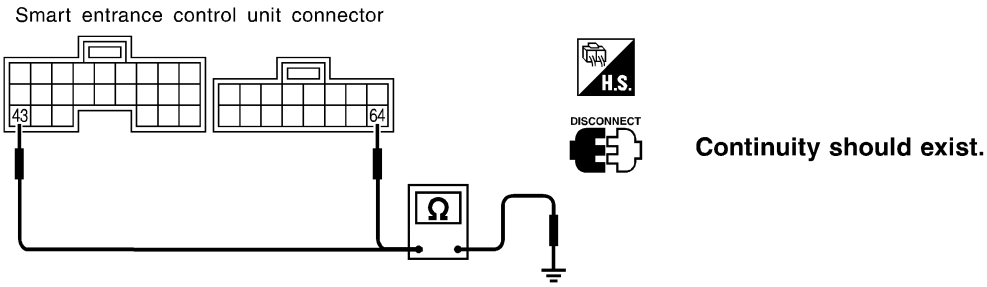
Refer to wiring diagram in EL-315.

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-315.

OK or NG

OK	▶	Power supply and ground circuits are OK.
NG	▶	Check ground harness.

DOOR SWITCH CHECK

=NAEL0397S04

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.

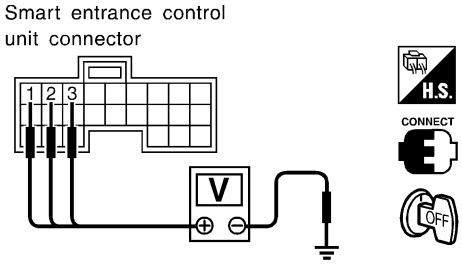
DATA MONITOR	
MONITOR	
DOOR SW-RR	OFF
DOOR SW-DR	OFF
DOOR SW-AS	OFF

	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.



	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-316.

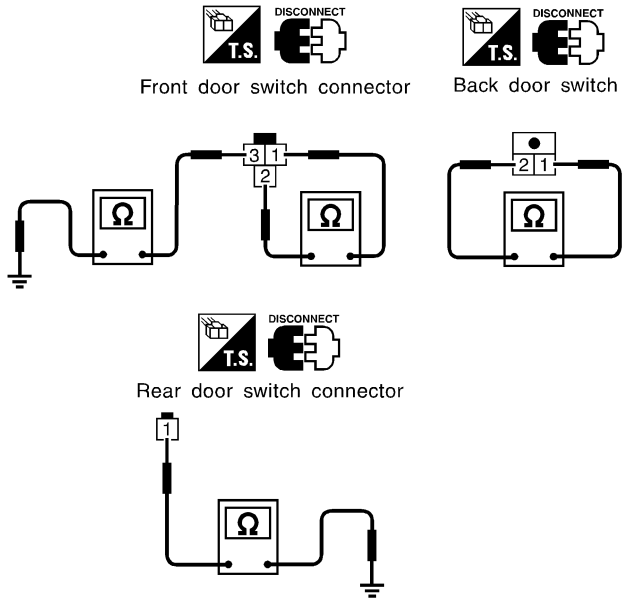
OK or NG

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

=NAEL0397S05

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

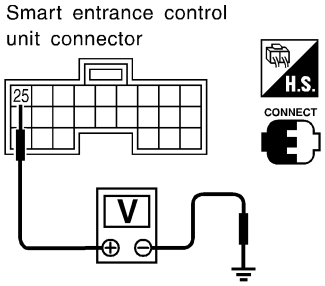
When key is removed from ignition key cylinder:

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

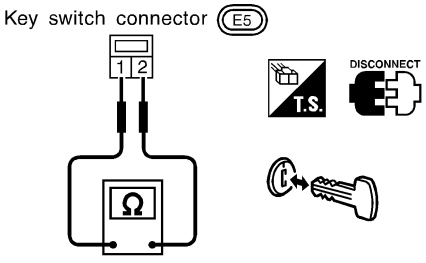
Refer to wiring diagram in EL-315.

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

=NAEL0397S06

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

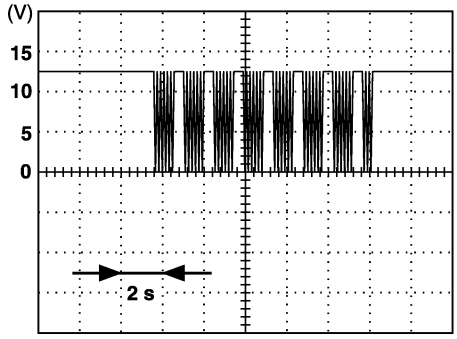
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

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.

SEL396Y

Refer to wiring diagram in EL-315.

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

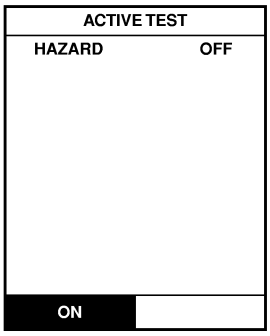
=NAEL0397S07

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.

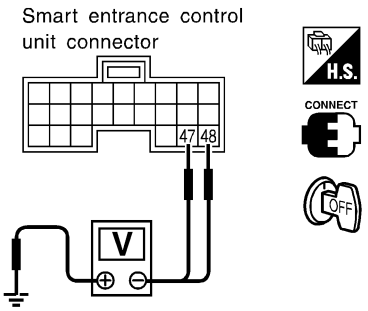
OK or NG

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-317.

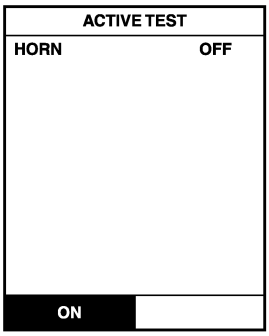
OK or NG

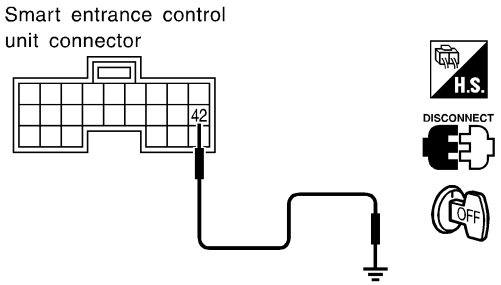
OK	▶	System is OK.
NG	▶	Replace smart entrance control unit.

HORN REMINDER CHECK

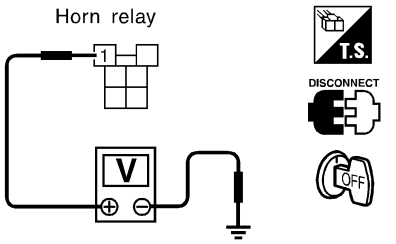
=NAEL0397S08

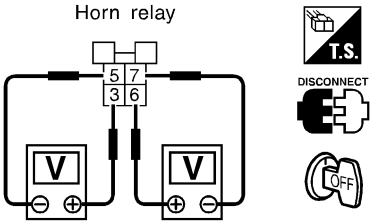
1	CHECK HORN	
Check if horn sounds with horn switch. **Does horn operate?**		
Yes	▶	GO TO 2.
No	▶	Check horn circuit.

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-317. **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.		
 SEL326XA		**Battery voltage should exist.**
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).		
 SEL327XA		**Battery voltage should exist.**
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

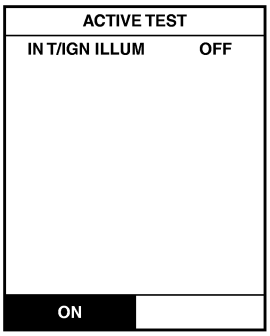
=NAEL0397S09

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".

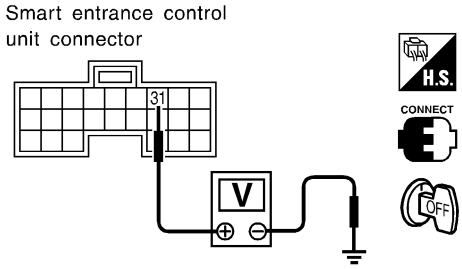


Interior room lamp should illuminate.

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-315.

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

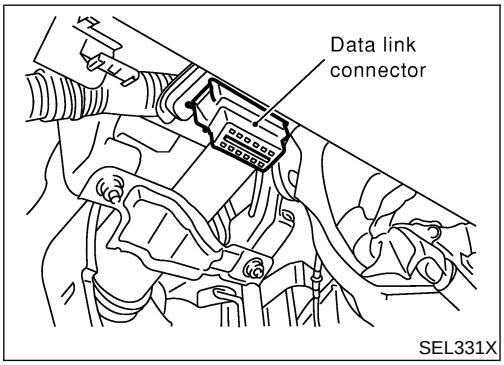
=NAEL0398

KEYFOB ID SET UP WITH CONSULT-II

NAEL0398S01

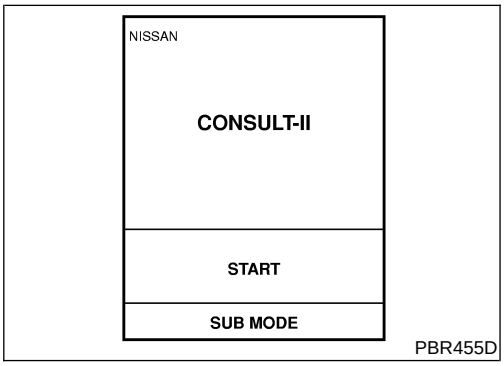
NOTE:

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.



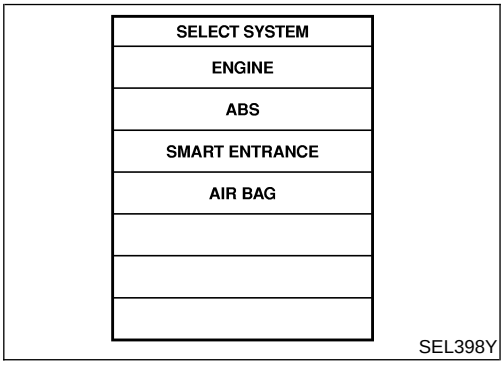
SEL331X

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



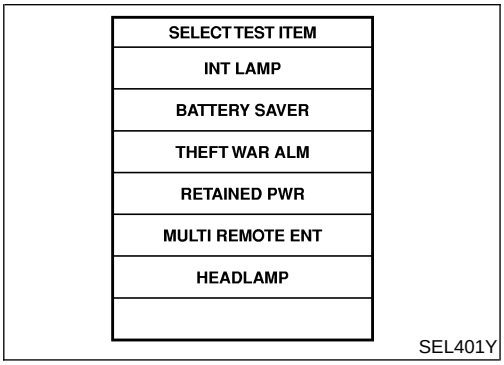
PBR455D

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



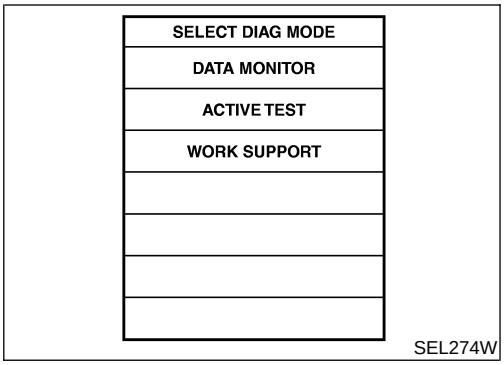
SEL398Y

5. Touch “SMART ENTRANCE”.

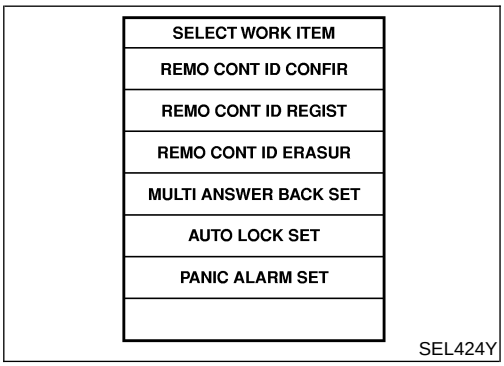


SEL401Y

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.

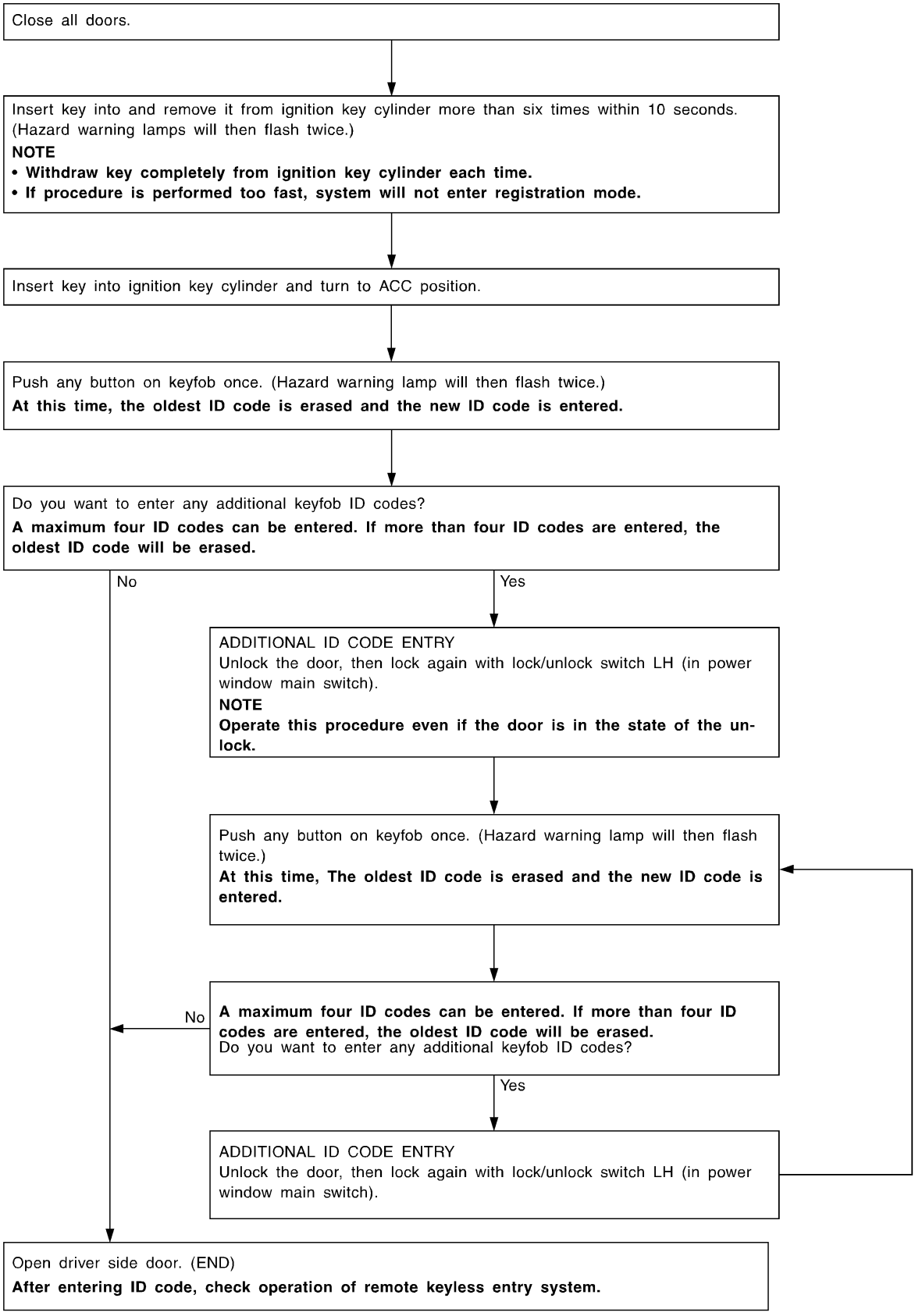
Refer to the EL-320, "WORK SUPPORT" in "CONSULT-II Application Items" for the following items.

- "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

NAEL0398S02



SEL170YA

NOTE:

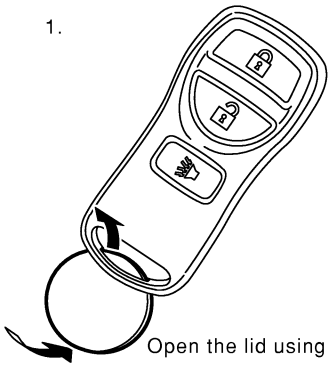
- If a keyfob is lost, the ID code of the lost keyfob must be erased to prevent unauthorized use. A specific ID code can be erased with CONSULT-II. However, when the ID code of a lost keyfob is not known, all keyfob ID codes should be erased. After all ID codes are erased, the ID codes of all remaining 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

NAEL0399

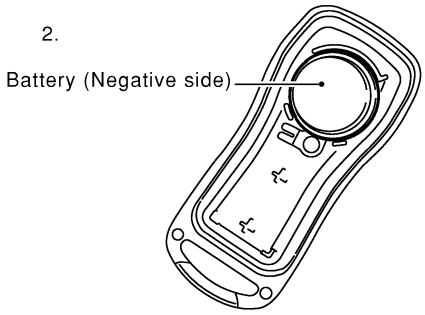
NOTE:
- Be careful not to touch the circuit board or battery terminal.
- The keyfob is water-resistant. However, if it does get wet, immediately wipe it dry.

1.



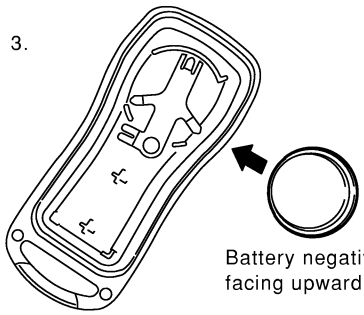
Open the lid using a coin.

2.



Remove the battery.

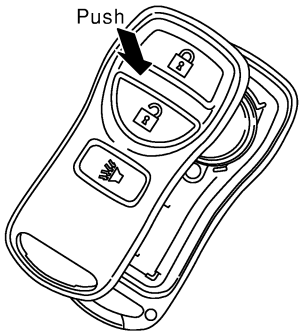
3.



Battery negative side facing upward

Insert the new battery.

4.

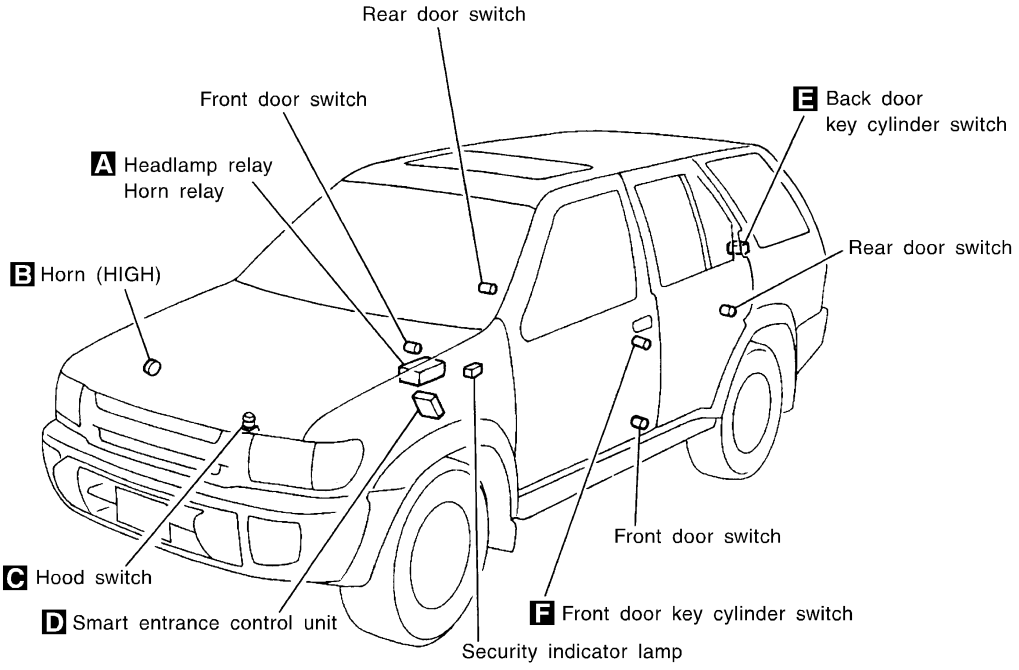


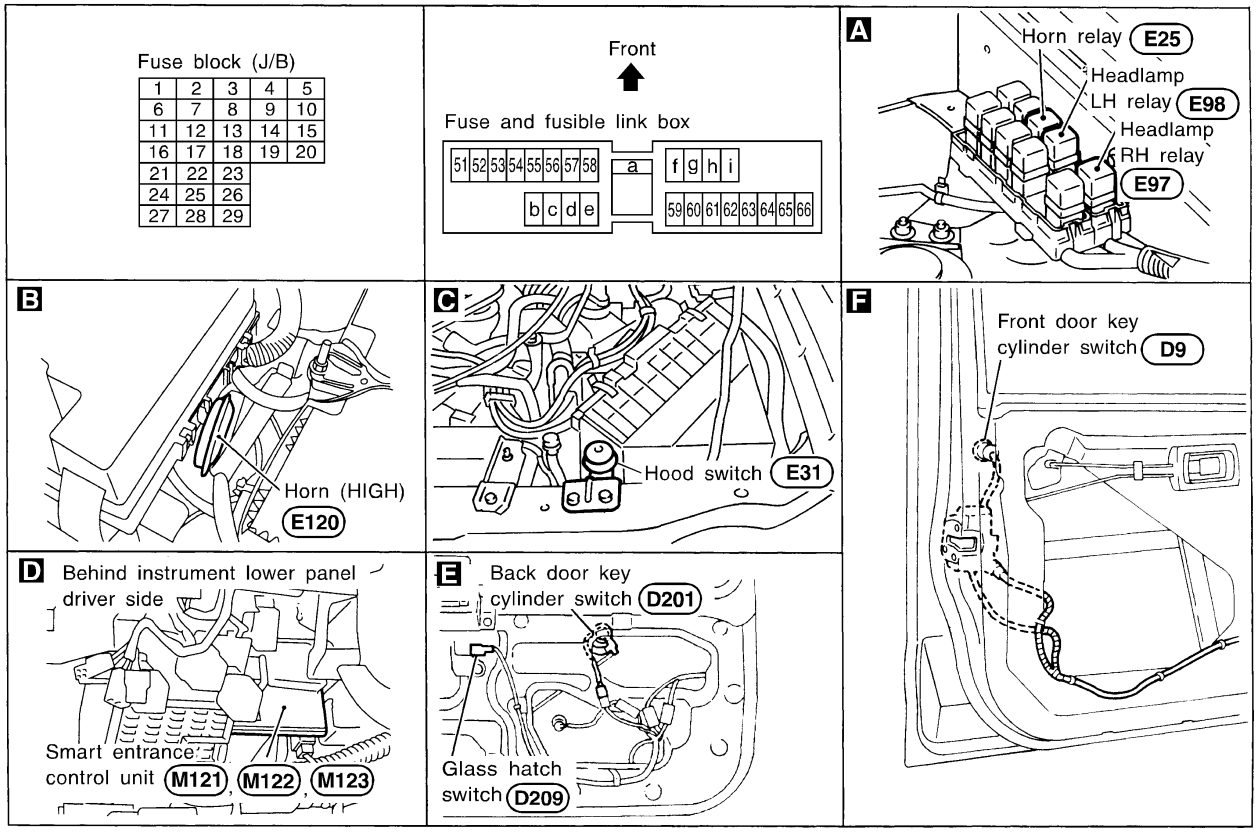
Close the lid securely.
Push the keyfob button two or three times to check its operation.

SEL485Y

Component Parts and Harness Connector Location

NAEL0400





SEL484Y

System Description

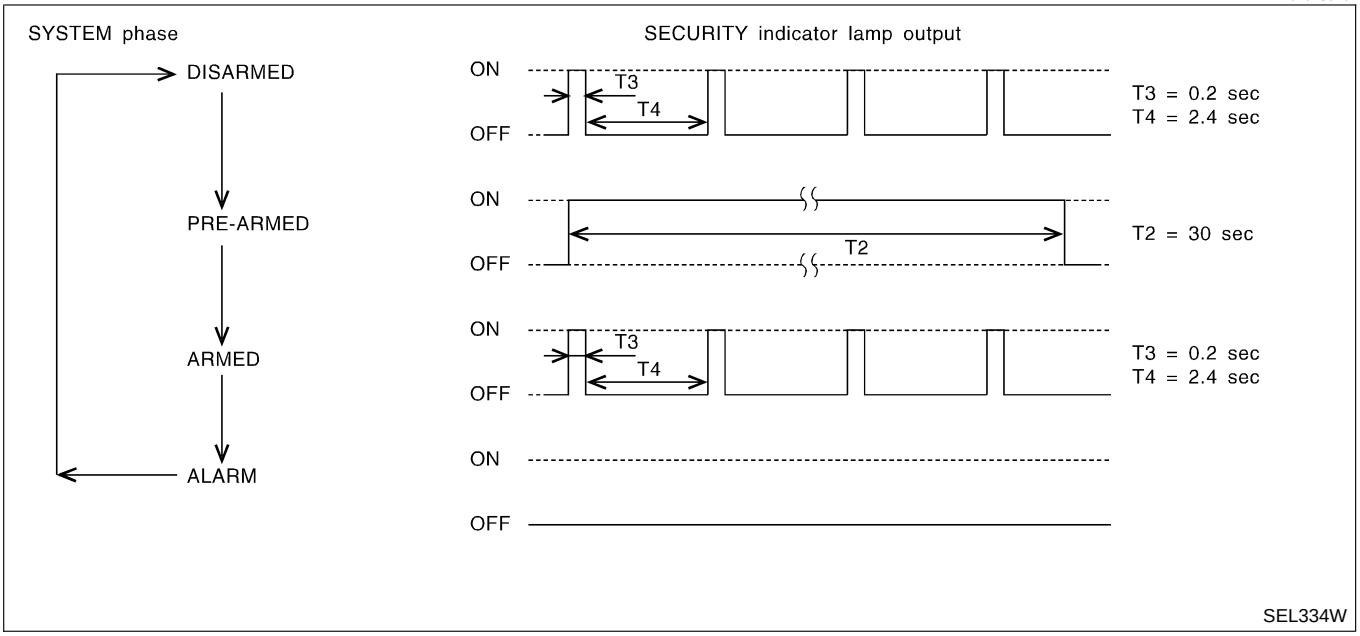
NAEL0401

DESCRIPTION

NAEL0401S01

1. Operation Flow

NAEL0401S0101



2. Setting The Vehicle Security System

NAEL0401S0102

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 multi-remote controller.

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

NAEL0401S0103

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

NAEL0401S0104

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

NAEL0401S02

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

NAEL0401S03

The operation of the vehicle security system is controlled by the doors, hood and glass hatch.

Pattern A

NAEL0401S0301

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

NAEL0401S0302

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

NAEL0401S04

Pattern A

NAEL0401S0401

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

NAEL0401S0402

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

NAEL0401S05

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

NAEL0401S06

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

NAEL0401S07

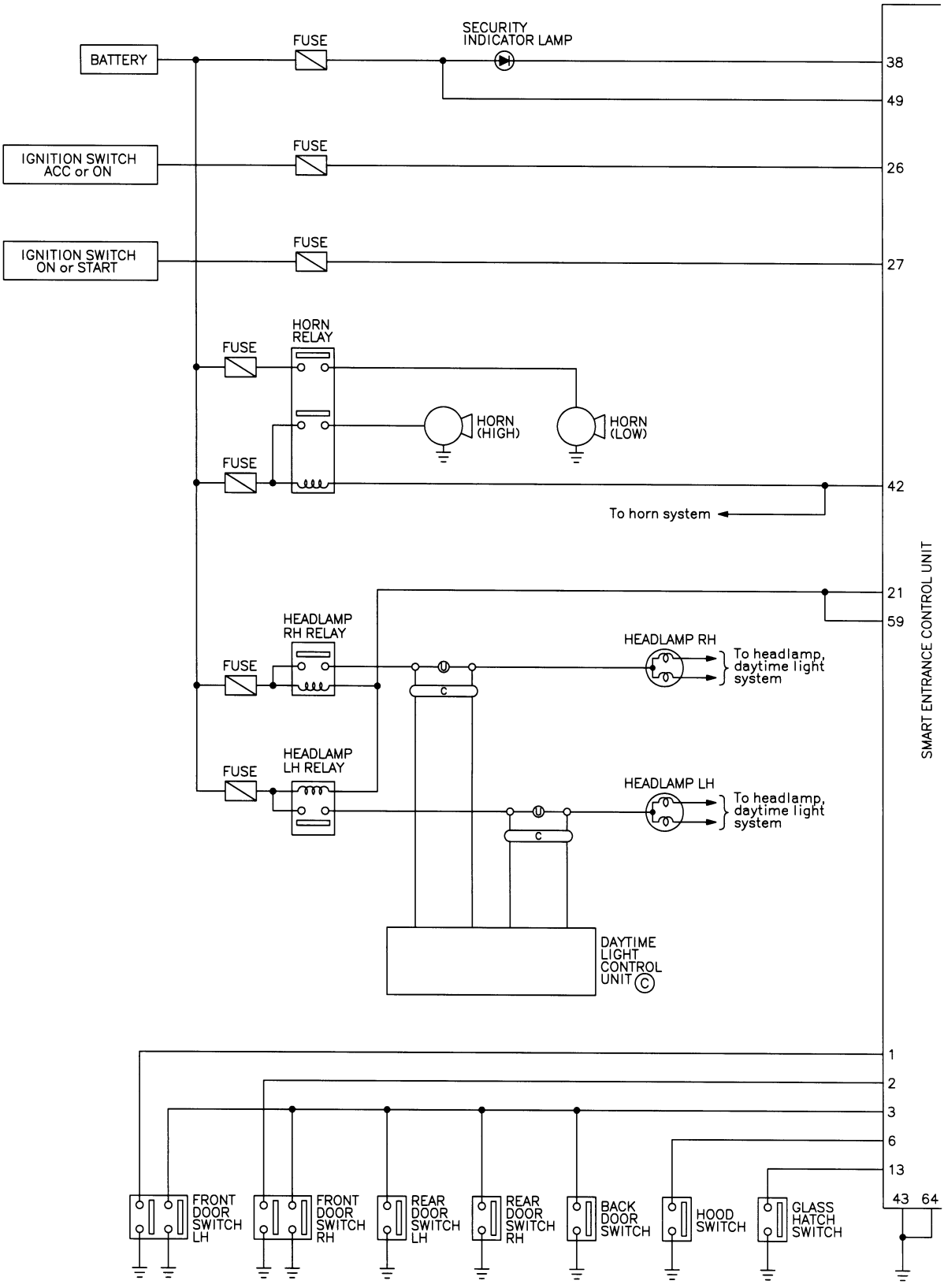
Remote keyless entry system may or may not operate vehicle security system (horn and headlamps) as required.
When the remote keyless entry system (panic alarm) is triggered, ground is supplied intermittently

- 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.

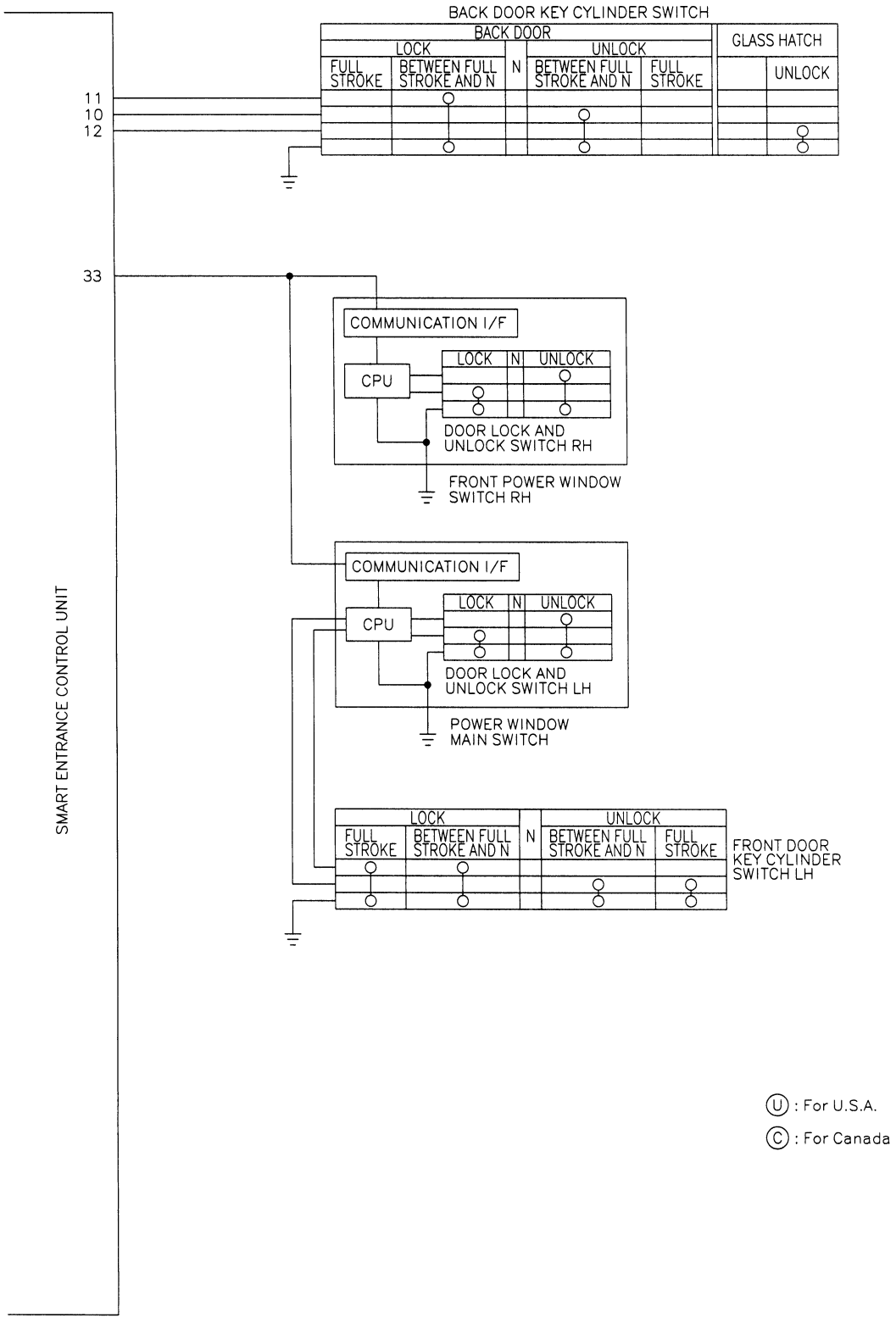
The headlamp flashes and the horn sounds intermittently.
The alarm automatically turns off after 25 seconds or when smart entrance control unit receives any signal from keyfob.

Schematic

NAEL0402



MEL873N


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

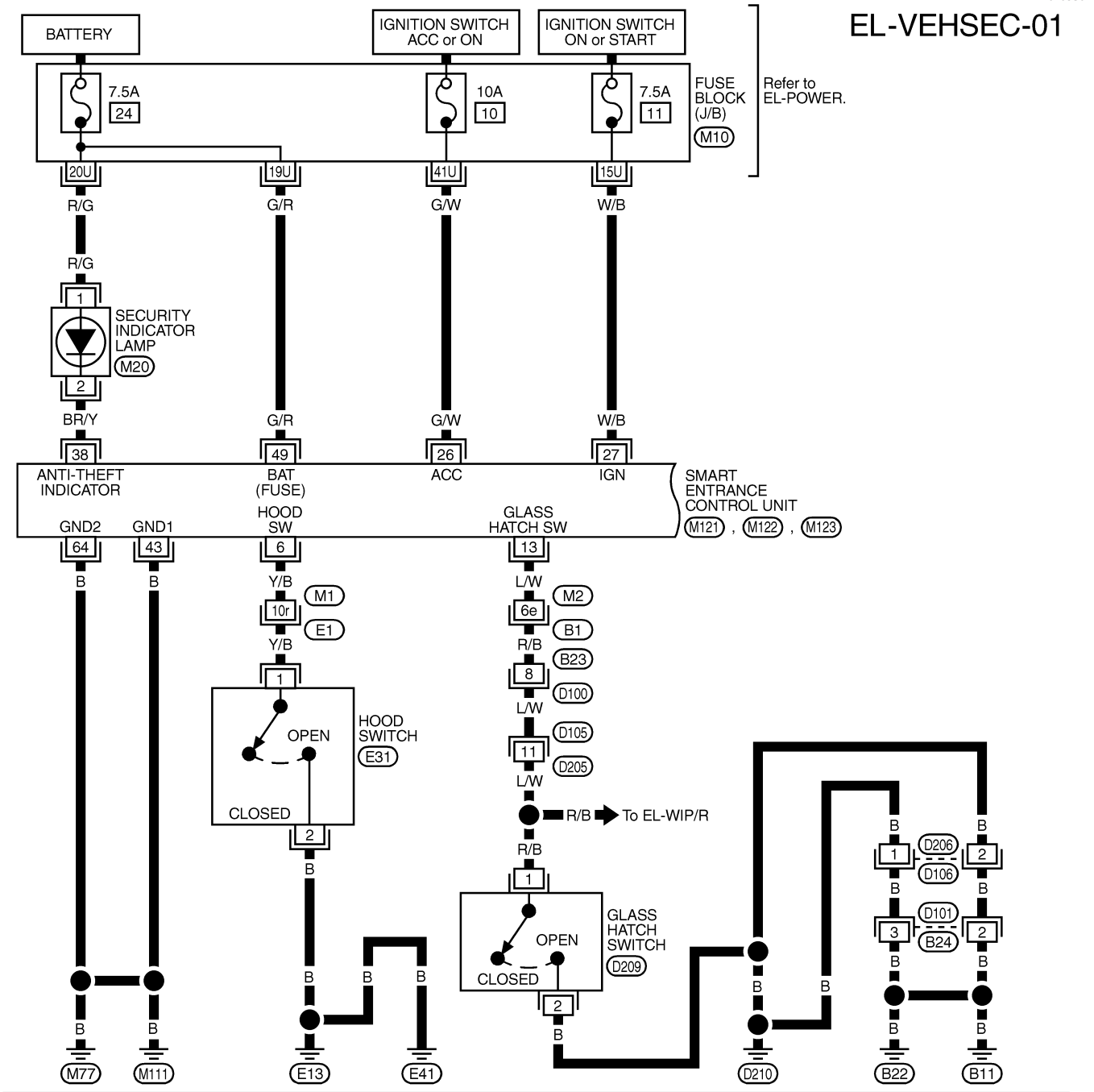
MEL437P

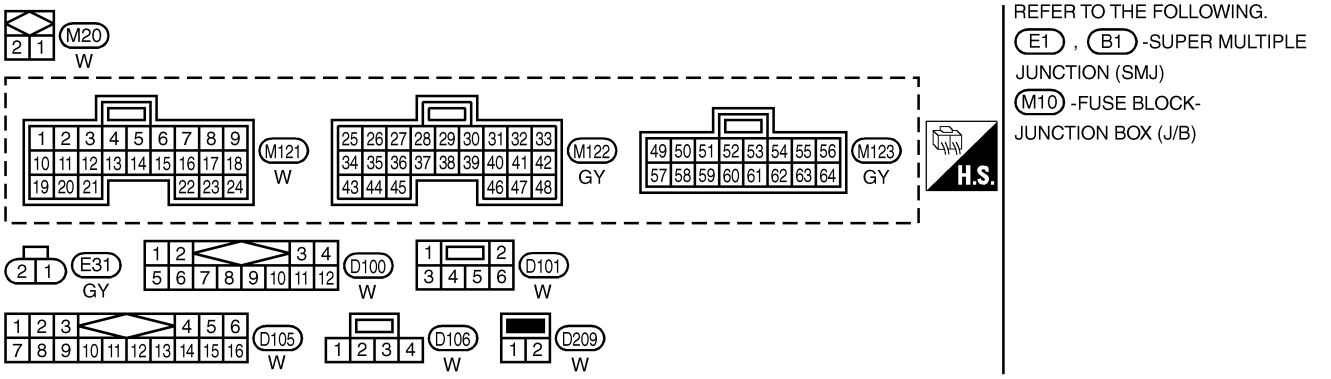
Wiring Diagram — VEHSEC —

NAEL0403

FIG. 1

NAEL0403S01





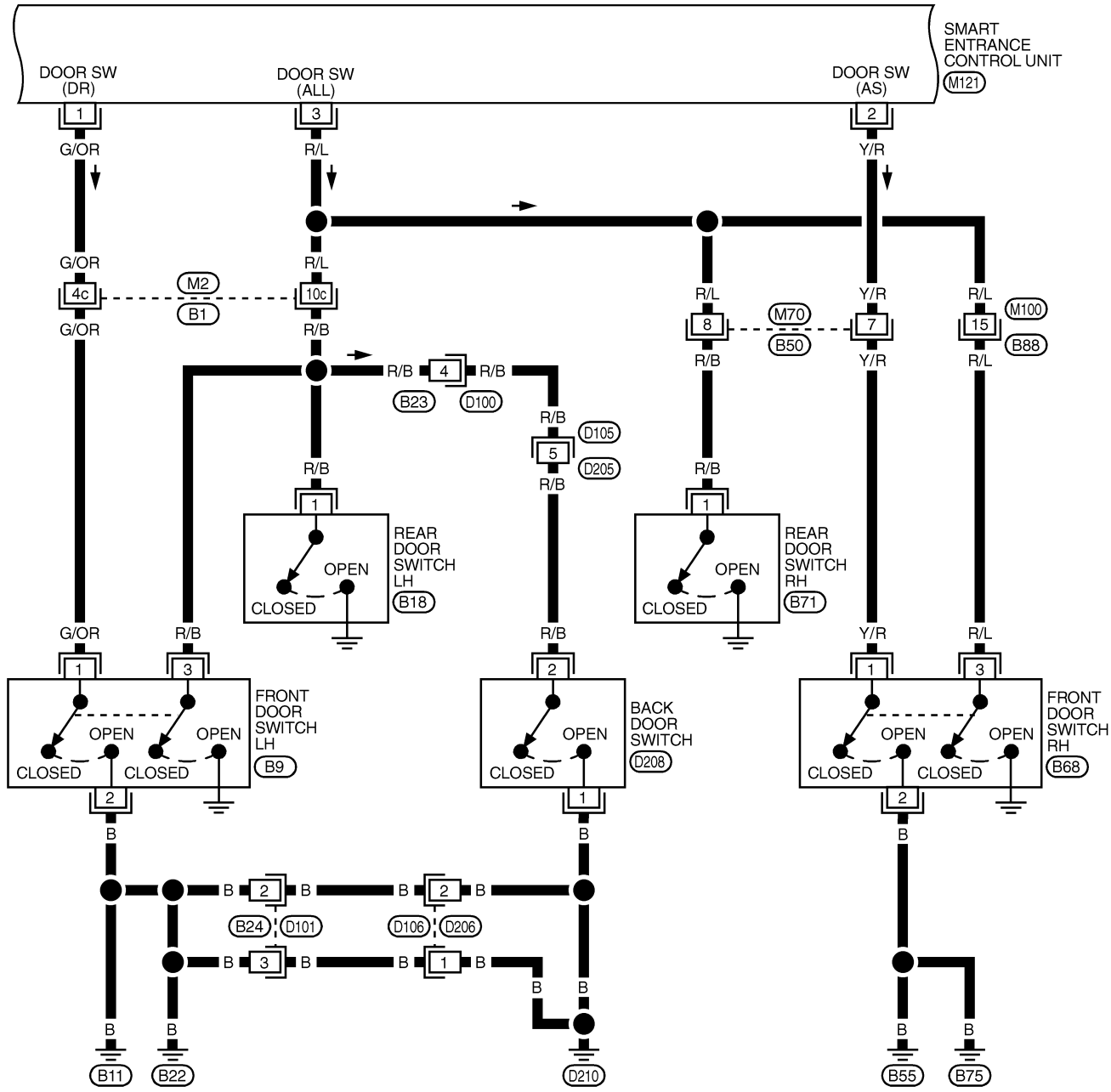
REFER TO THE FOLLOWING.
E1 , B1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 -FUSE BLOCK- JUNCTION BOX (J/B)

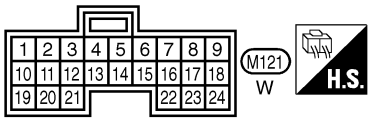
MEL414O

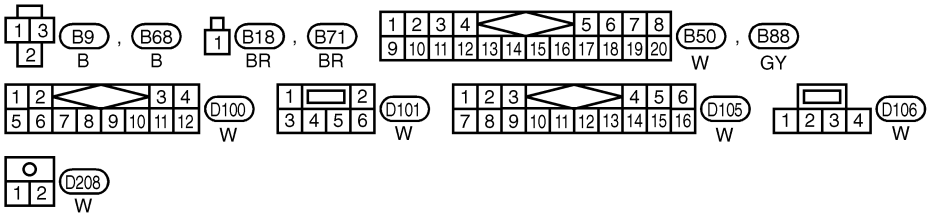
FIG. 2

NAEL0403S02

EL-VEHSEC-02







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

MEL438P

FIG. 3

NAEL0403S03

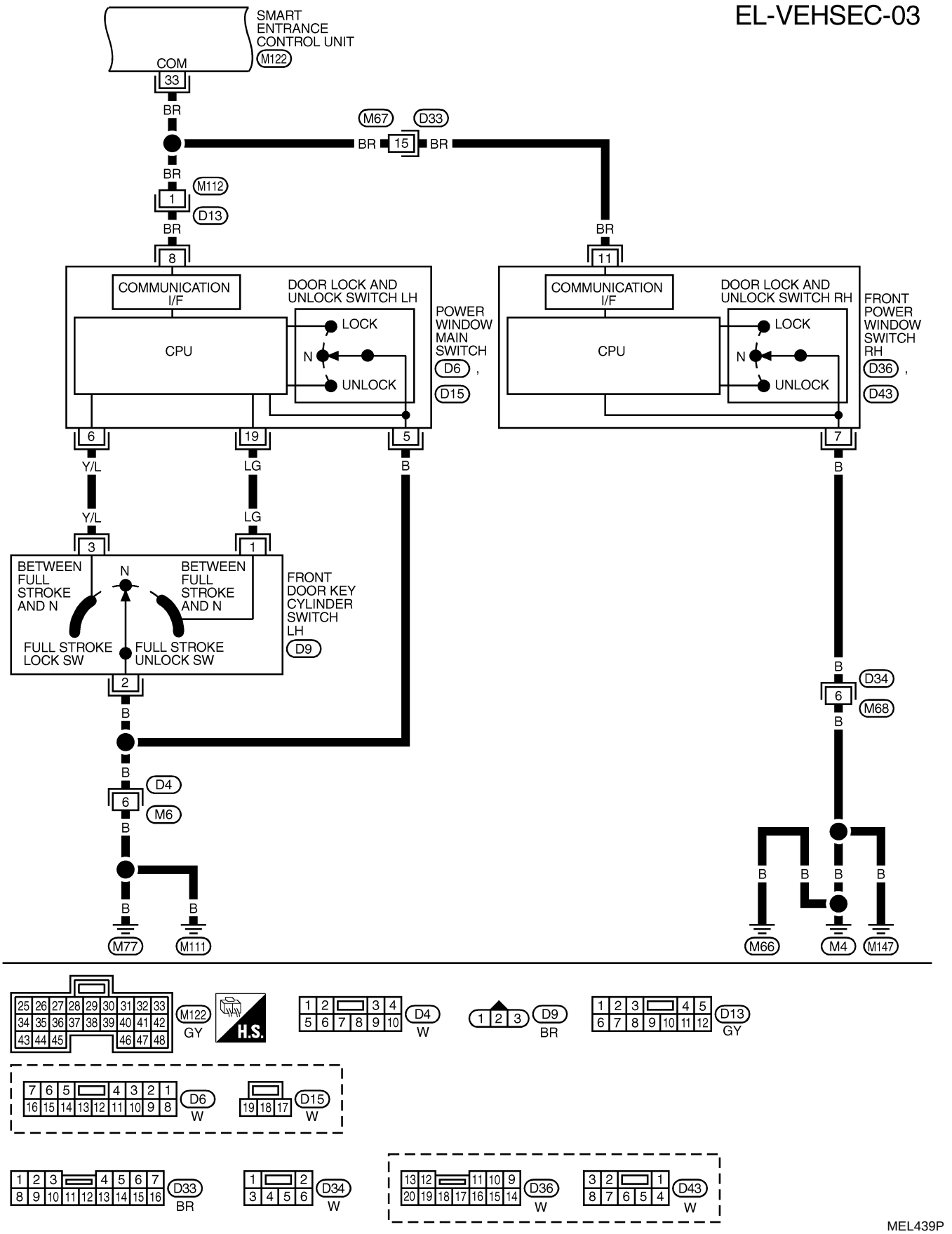


FIG. 4

NAEL0403S04

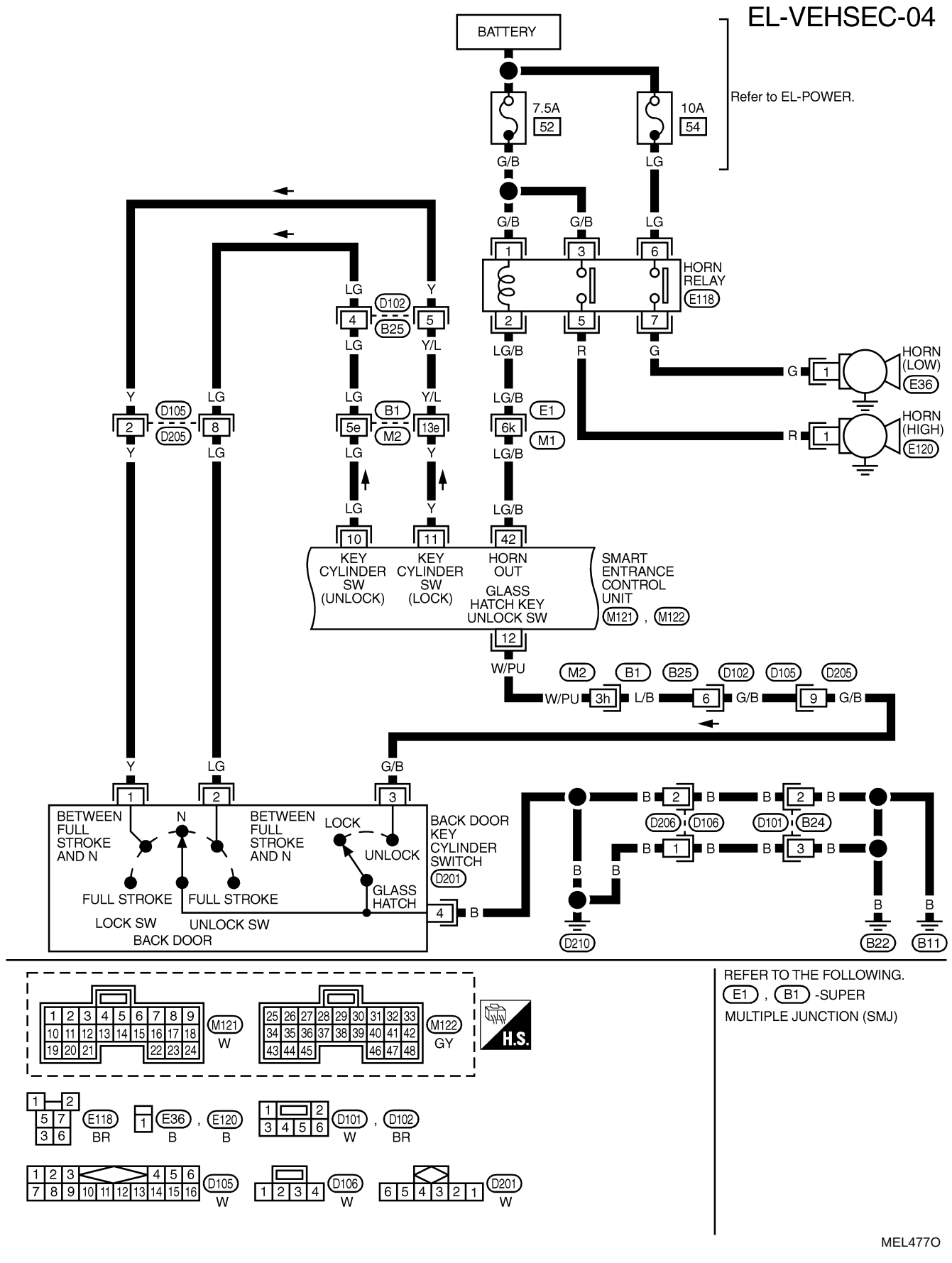
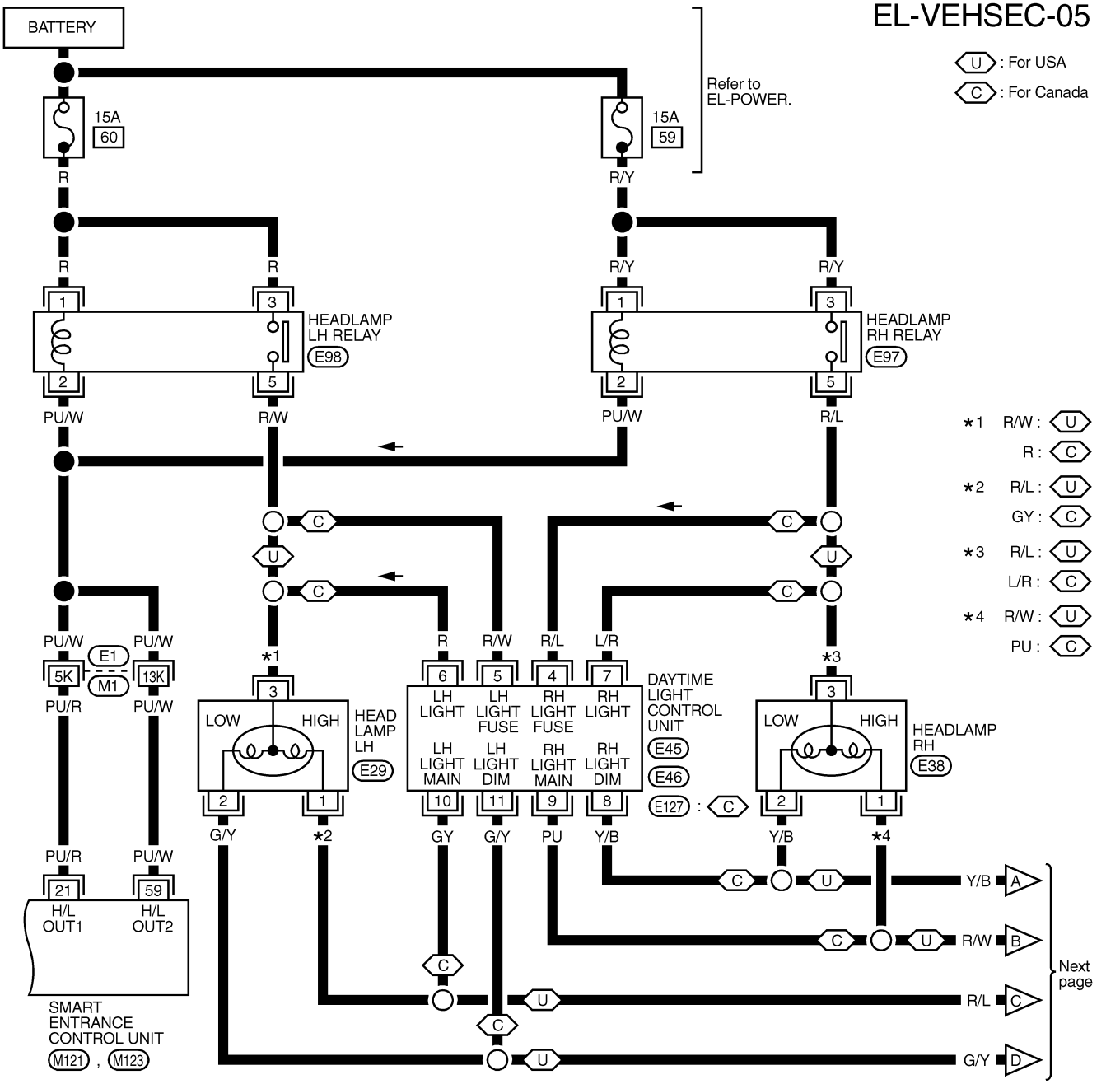
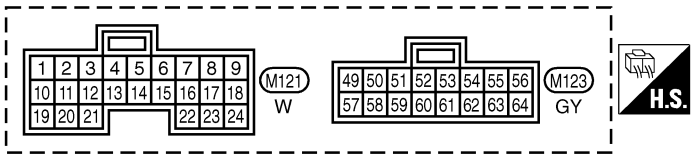
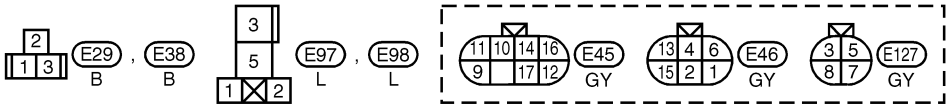


FIG. 5

NAEL0403S05





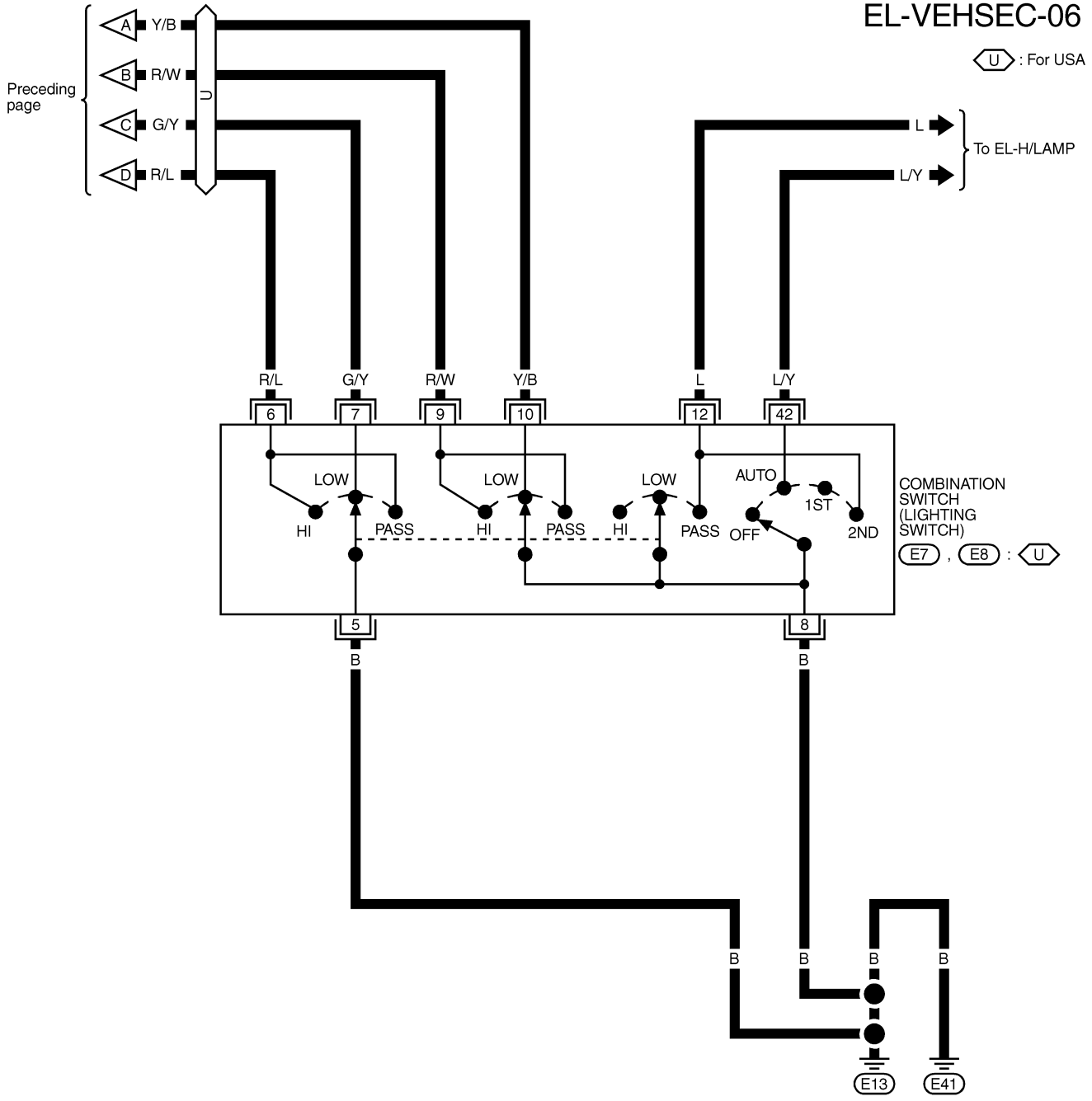


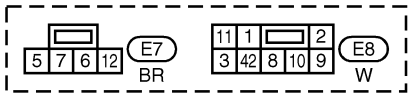
REFER TO THE FOLLOWING.
E1 - SUPER MULTIPLE JUNCTION (SMJ)

MEL440P

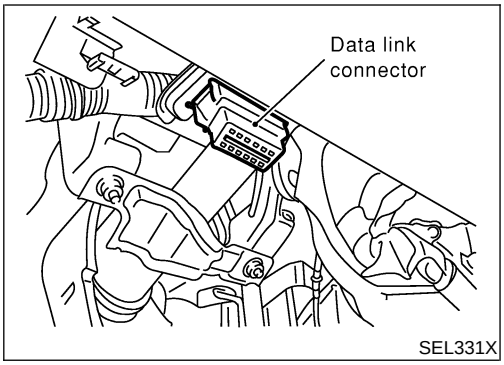
FIG. 6

NAEL0403S06





MEL441P



SEL331X

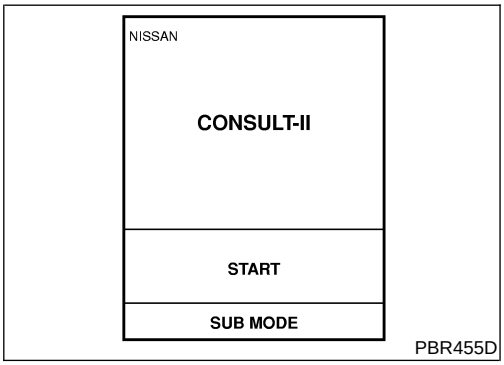
CONSULT-II Inspection Procedure

=NAEL0404

“THEFT WAR ALM”

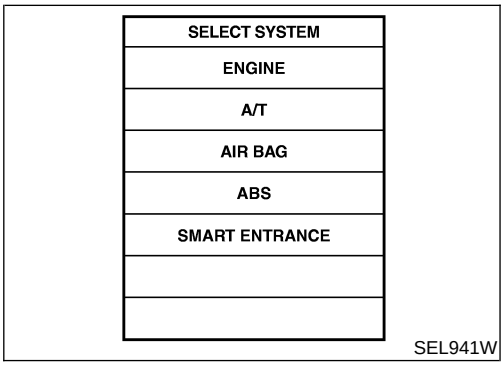
NAEL0404S01

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



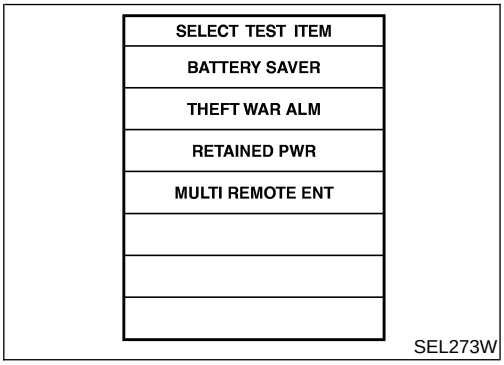
PBR455D

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



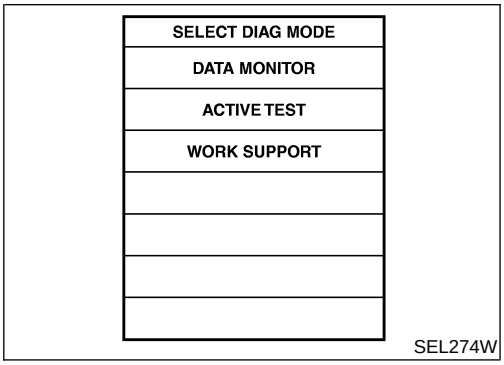
SEL941W

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

NAEL0405

“THEFT WAR ALM”

NAEL0405S01

Data Monitor

NAEL0405S0101

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

NAEL0405S0102

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

NAEL0405S0103

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.

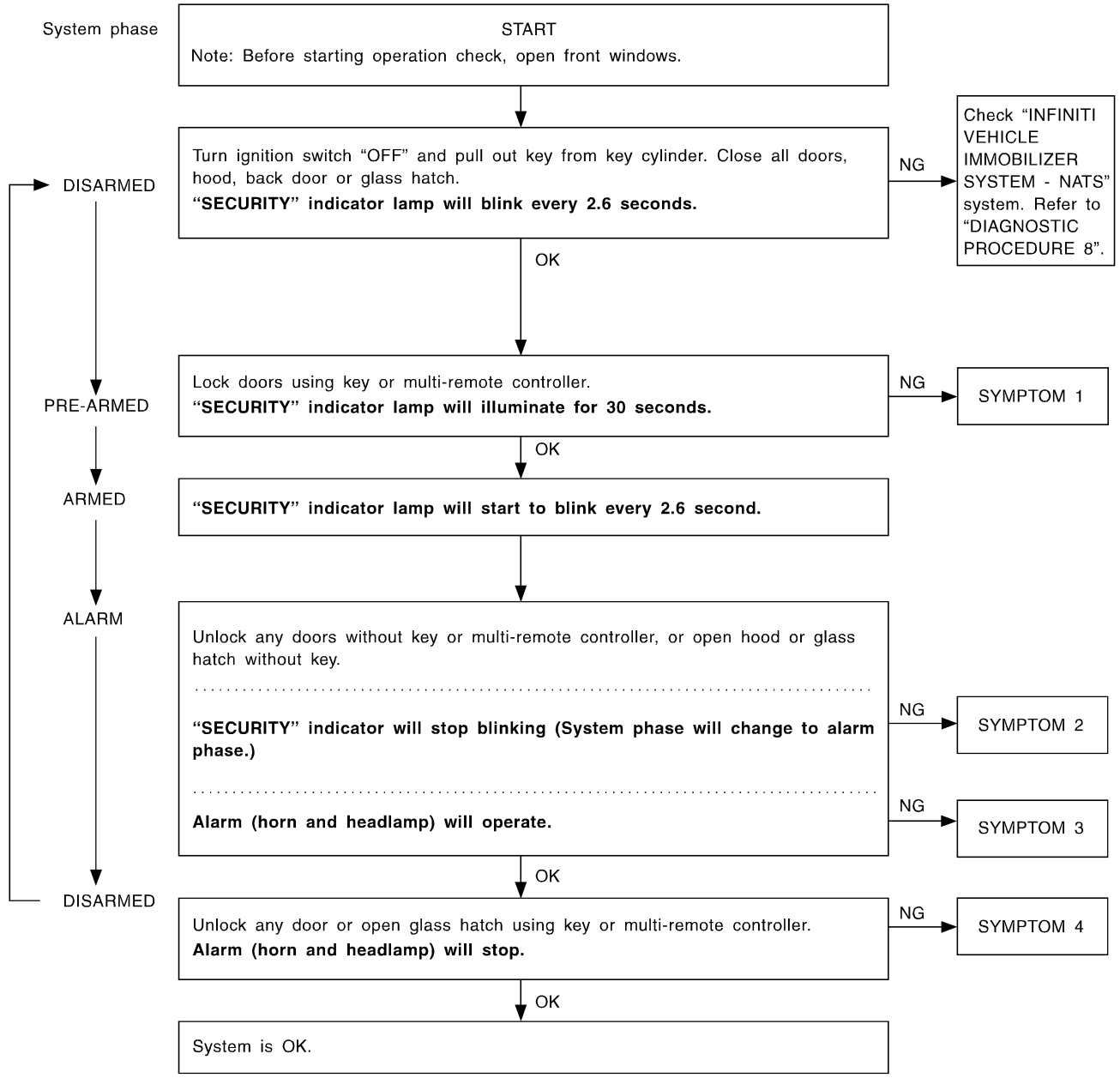
Trouble Diagnoses

=NAEL0406

PRELIMINARY CHECK

NAEL0406S01

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

NAEL0406S02

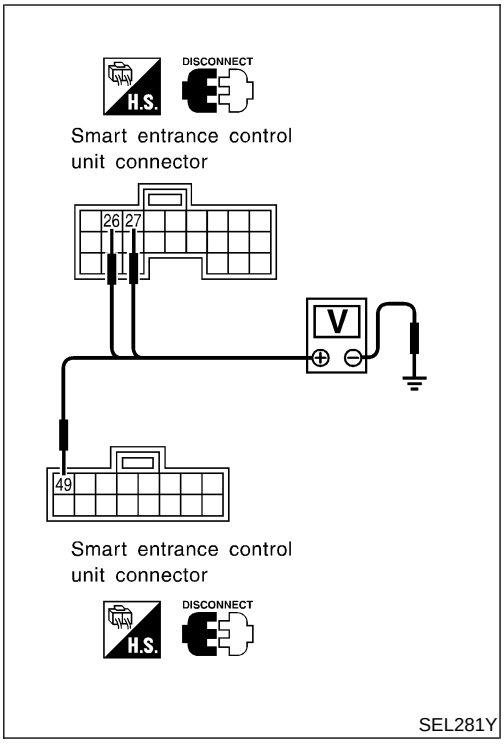
REFERENCE PAGE (EL-)			354	356	357	362	364	366	369	371	321
SYMPTOM			PRELIMINARY CHECK	POWER SUPPLY AND GROUND CIRCUIT CHECK	DOOR, HOOD AND GLASS HATCH SWITCH CHECK	SECURITY INDICATOR LAMP CHECK	DOOR KEY CYLINDER SWITCH CHECK	BACK DOOR KEY CYLINDER SWITCH CHECK	VEHICLE SECURITY HORN ALARM CHECK	VEHICLE SECURITY HEADLAMP ALARM CHECK	Check "MULTI-REMOTE CONTROL" system.
1	Vehicle security indicator does not illuminate for 30 seconds.		X	X	X	X					
	Vehicle security system cannot be set by	All items	X	X	X						
		Door outside key	X				X				
		Back door key	X					X			
		Multi-remote control	X								X
2	*1 Vehicle security system does not alarm when ...	Any door is opened.	X		X						
		Any door is unlocked without using key or multi-remote controller	X								
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			
		Multi-remote control	X								X

X : Applicable

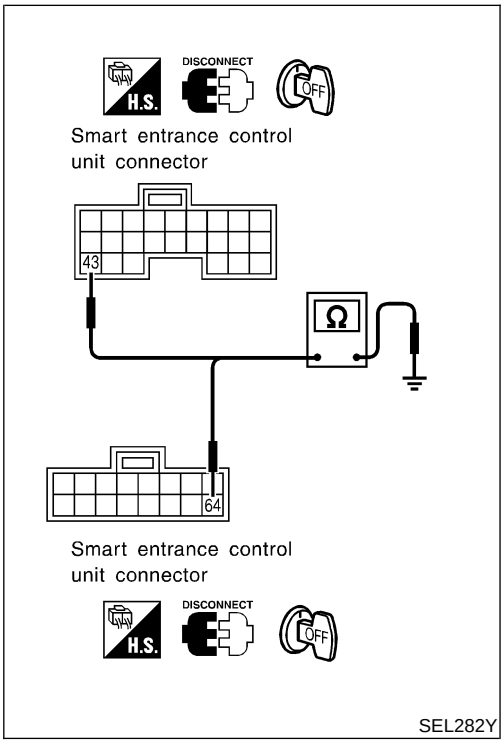
*1: Make sure the system is in the armed phase.

Before starting trouble diagnoses above, perform preliminary check, EL-354.

Symptom numbers in the symptom chart correspond with those of preliminary check.



SEL281Y



SEL282Y

POWER SUPPLY AND GROUND CIRCUIT CHECK

NAEL0406S03

Power Supply Circuit Check

NAEL0406S0301

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.

Ground Circuit Check

NAEL0406S0302

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

DOOR, HOOD AND GLASS HATCH SWITCH CHECK

=NAEL0406S04

Door Switch Check

NAEL0406S0401

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.

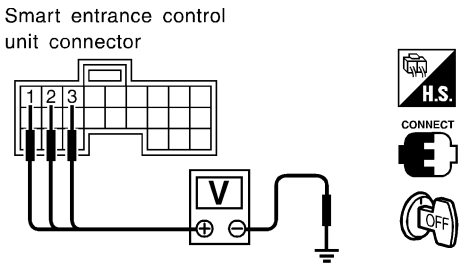
DATA MONITOR	
MONITOR	
DOOR SW-RR	OFF
DOOR SW-DR	OFF
DOOR SW-AS	OFF

	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-347.

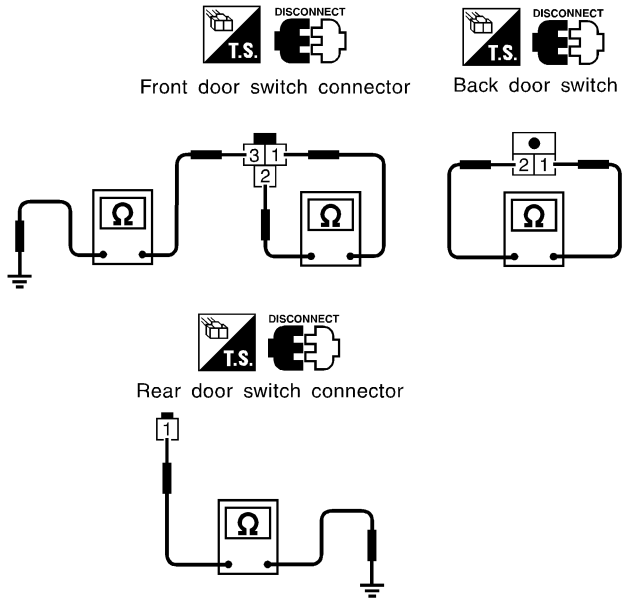
OK or NG

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

=NAEL0406S0402

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.

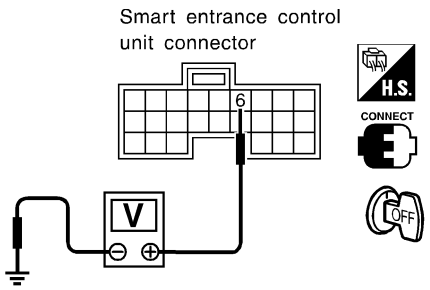
DATA MONITOR	
MONITOR	
HOOD SWITCH	OFF

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

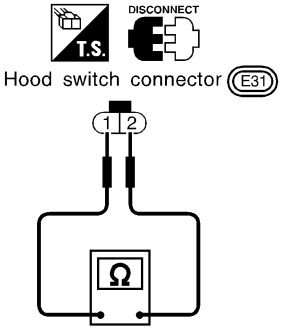
Refer to wiring diagram in EL-346.

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

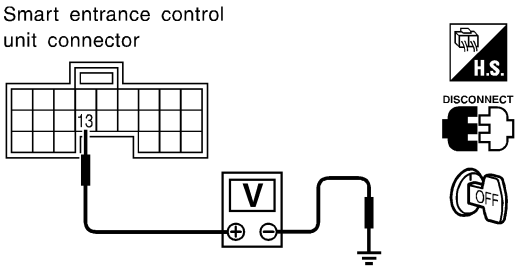
OK	▶	**Check the following.** ● Hood switch ground circuit ● Harness for open or short between smart entrance control unit and hood switch
NG	▶	Replace hood switch.

Glass Hatch Switch Check

=NAEL0406S0403

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

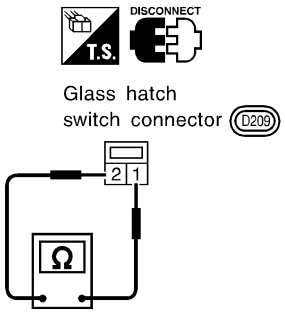
Refer to wiring diagram in EL-346.

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.

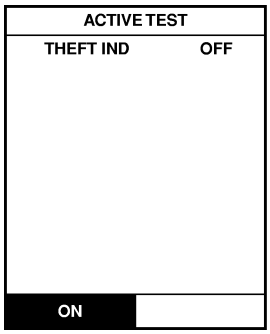
SECURITY INDICATOR LAMP CHECK

=NAEL0406S05

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".

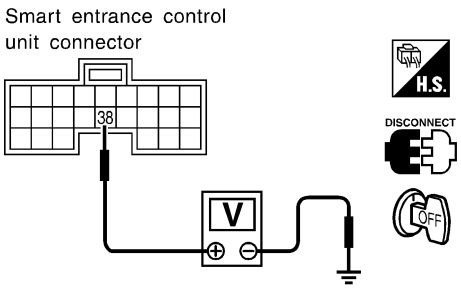


Security indicator lamp should illuminate.

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-346.

OK or NG

OK	▶	Security indicator lamp is OK.
NG	▶	GO TO 2.

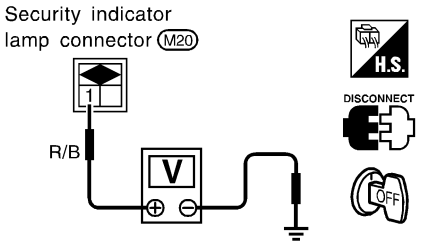
2	CHECK INDICATOR LAMP

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.



SEL342X

Battery voltage should exist.

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

=NAEL0406S06

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

With CONSULT-II

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

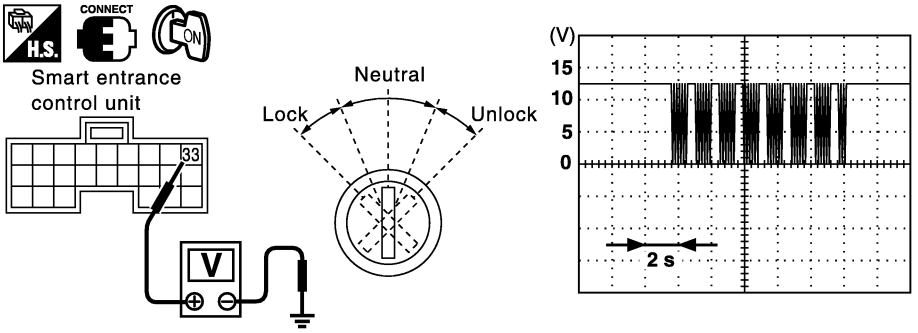
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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

SEL342W

Without CONSULT-II

1. Check the signal between smart entrance control unit harness connector M144 terminal 33 (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-348.

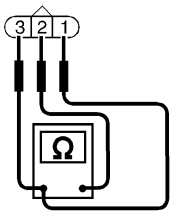
OK or NG

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

=NAEL0406S07

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.

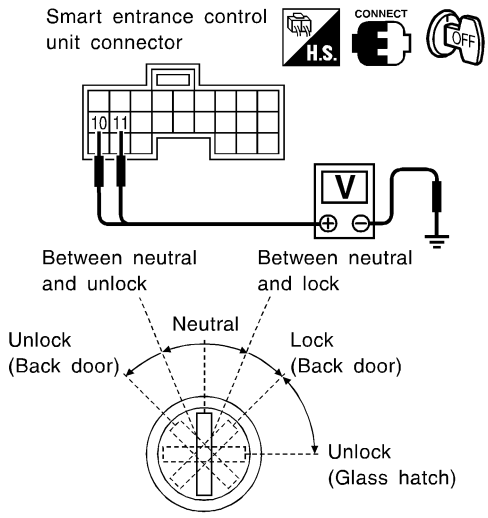
DATA MONITOR	
MONITOR	
KEY CYL LK-SW	OFF
KEY CYL UN-SW	OFF

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 terminals 10 (LG), 11 (Y) or 12 (G/B) 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

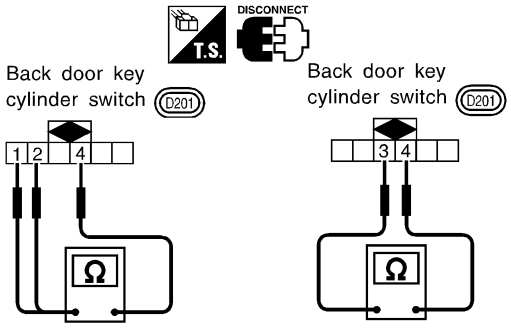
Refer to wiring diagram in EL-349.

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

=NAEL0406S08

1 CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL

With CONSULT-II

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

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

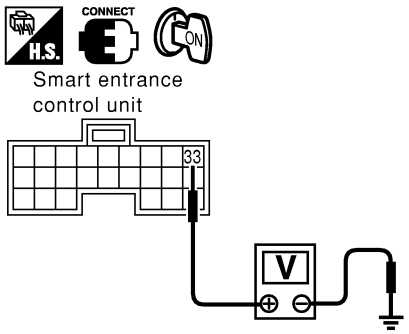
When lock/unlock switch is turned to LOCK:
LOCK SW DR/AS ON

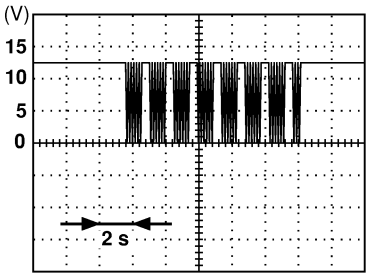
When lock/unlock switch is turned to UNLOCK:
UNLK SW DR/AS ON

SEL341W

Without CONSULT-II

1. Remove key from ignition switch.
2. Check the signal between smart entrance control unit harness connector M144 terminal 33 (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-348.

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.

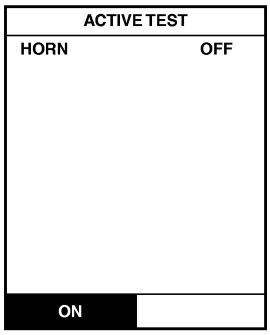
VEHICLE SECURITY HORN ALARM CHECK

=NAEL0406S09

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".

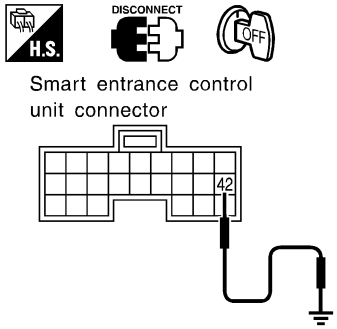


Vehicle security horn alarm should operate.

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-349.

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

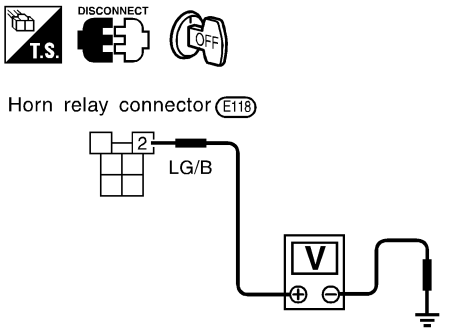
Check horn relay.

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.

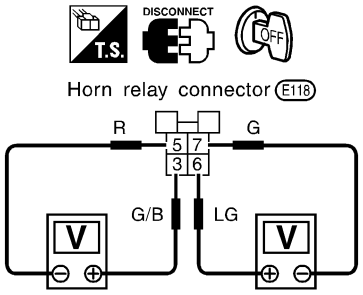
SEL347X

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.

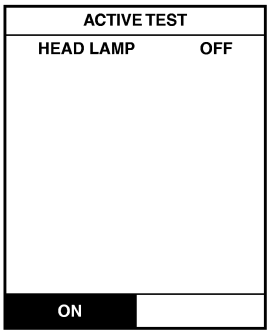
VEHICLE SECURITY HEADLAMP ALARM CHECK

=NAEL0406S10

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".

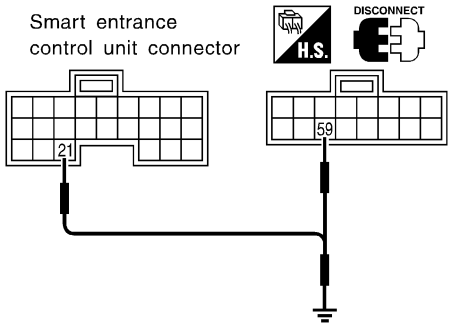


Vehicle security headlamp alarm should operate.

SEL042Y

Without CONSULT-II

1. Disconnect smart entrance control unit connector.
2. Apply ground to smart entrance control unit terminal 4.



Vehicle security headlamp alarm should operate.

SEL198Y

Refer to wiring diagram in EL-350.

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

NAEL0407

OUTLINE

NAEL0407S01

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

NAEL0407S02

Headlamps/Parking Lamps/License Lamps/Tail Lamps/Fog Lamps/Illumination Lamps

NAEL0407S0201

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

NAEL0407S0202

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

NAEL0407S0203

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

NAEL0407S03

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.

INPUT/OUTPUT

NAEL0407S04

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
Multi-remote control	Key switch (Insert) Ignition switch (ACC) Door switches Remote controller signal Door lock/unlock switch LH	Horn relay Headlamp relay (LH and RH) Hazard warning lamp Interior lamp Door lock actuator
Remote keyless entry	Key switch (Insert) Ignition switch (ACC) Door switches Keyfob signal Door lock/unlock switch LH	Horn relay Vehicle security horn relay-1 Vehicle security horn relay-2 Hazard warning lamp Interior lamp Ignition key hole illumination 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 Trunk room lamp switch Door lock/unlock switches Door key cylinder switches (lock/unlock) Key cylinder switch (unlock)	Vehicle security horn relay-2 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 Key hole illumination 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 Step lamp Spot lamp Vanity mirror illumination
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

NAEL0408

DIAGNOSTIC ITEMS APPLICATION

NAEL0408S01

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

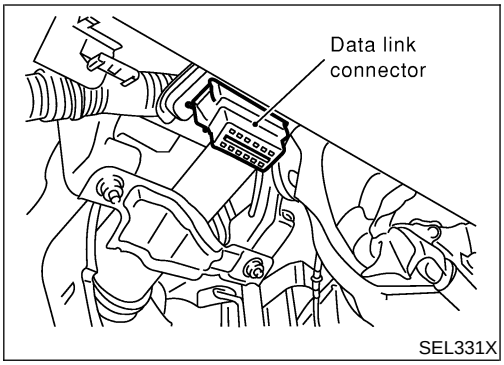
X: Applicable

For diagnostic item in each control system, refer to the relevant pages for each system.

DIAGNOSTIC ITEM DESCRIPTION

NAEL0408S02

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. • Keyless answer back mode can be changed. • Pressing time of panic alarm, trunk lid opener 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.

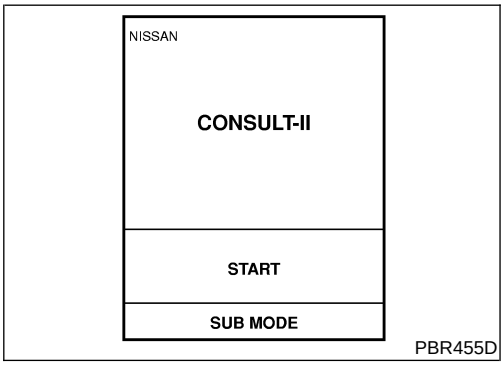


SEL331X

CONSULT-II INSPECTION PROCEDURE

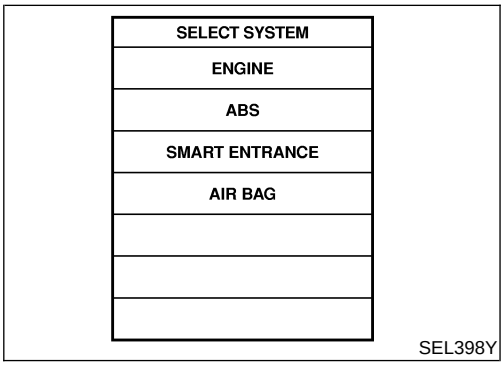
NAEL0408S03

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



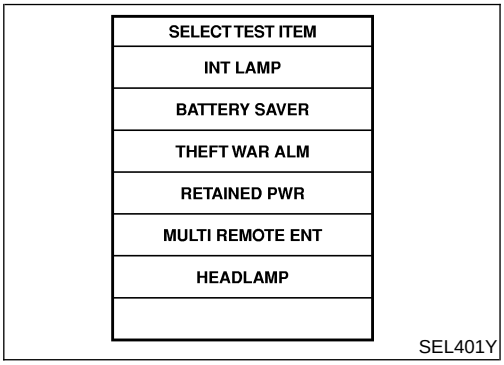
PBR455D

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



SEL398Y

5. Touch "SMART ENTRANCE".

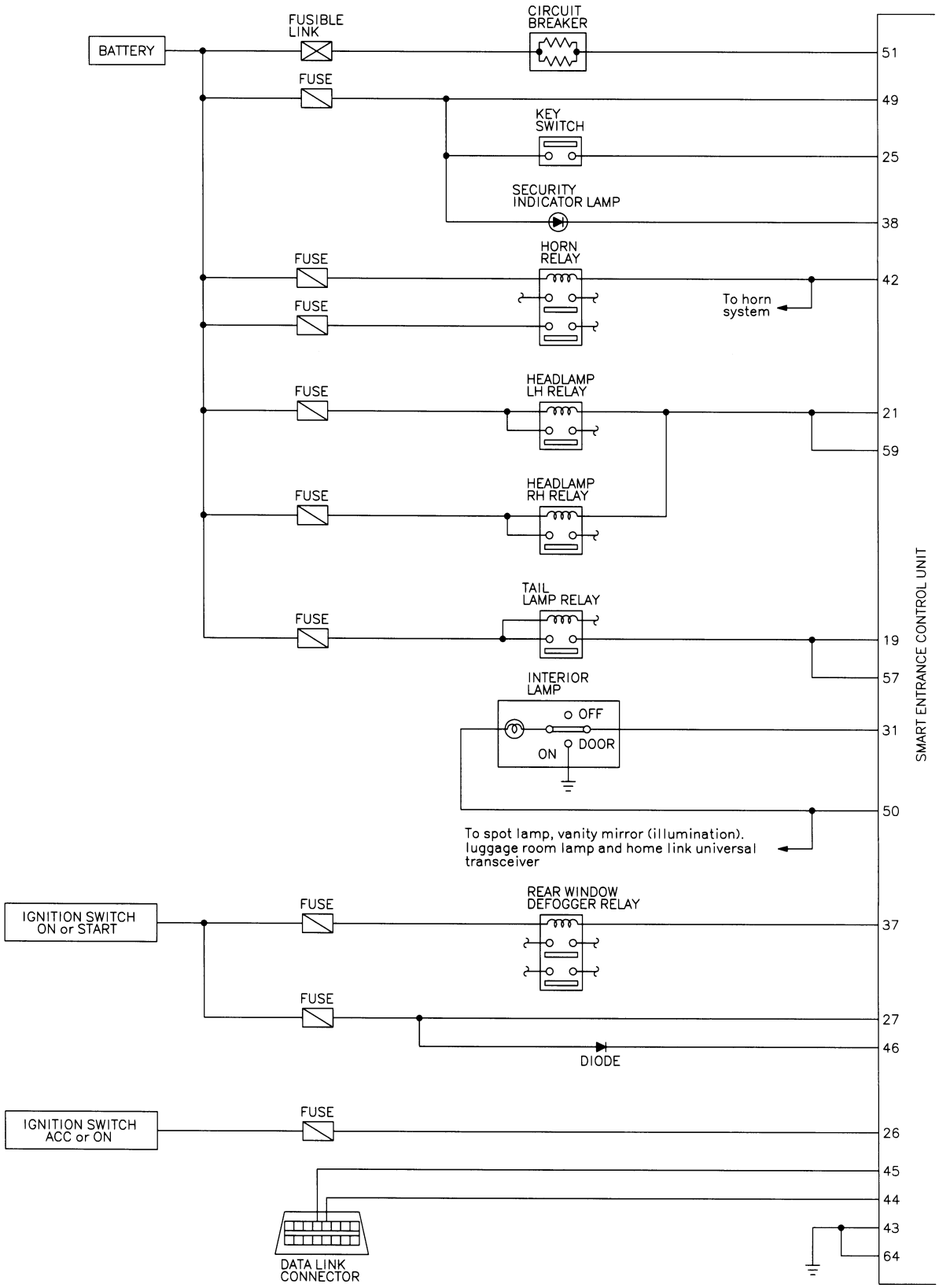


SEL401Y

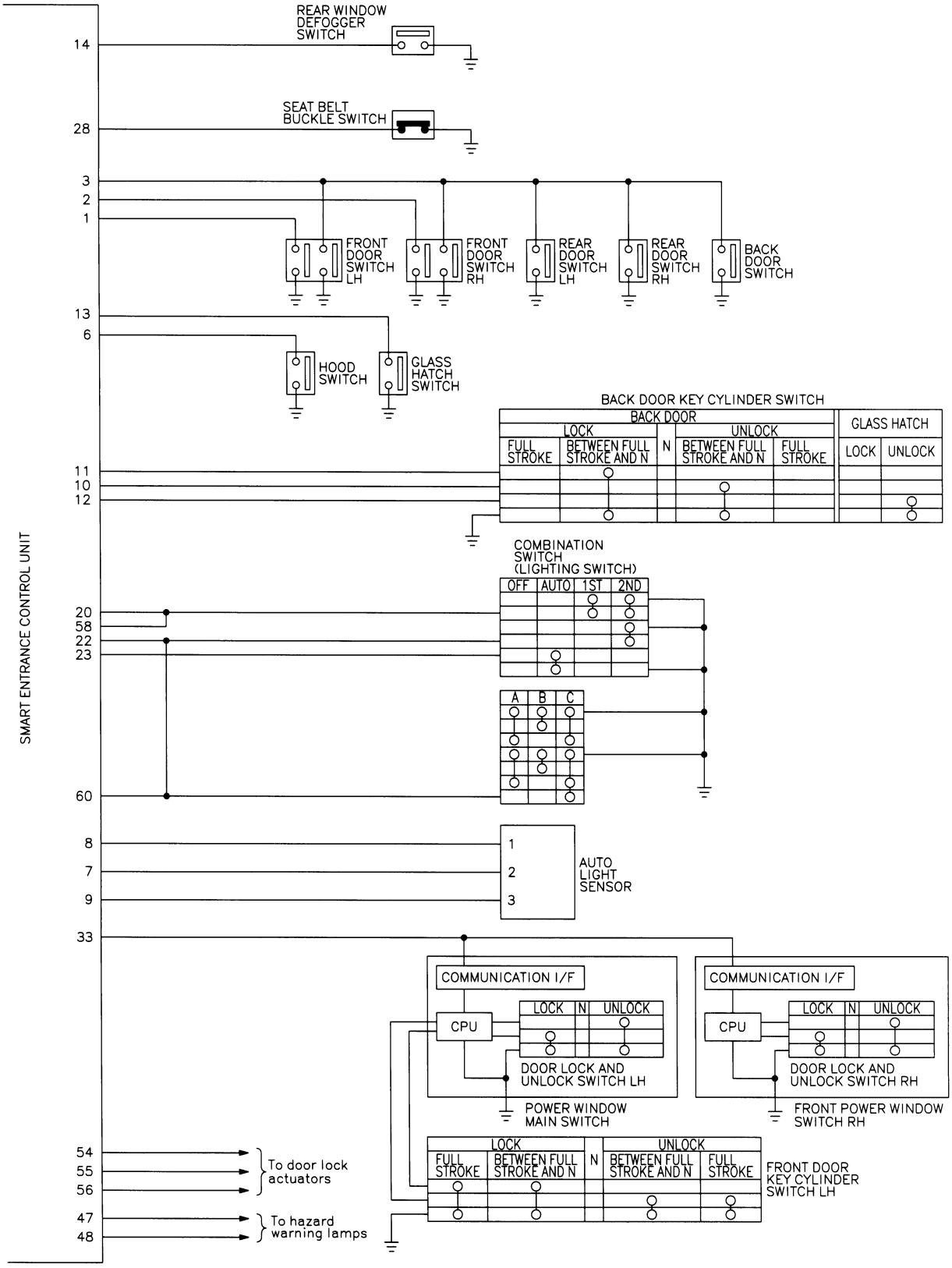
6. Perform each diagnostic item according to "DIAGNOSTIC ITEMS APPLICATION". Refer to EL-374.

Schematic

NAEL0409



MEL442P


SMART ENTRANCE CONTROL UNIT
14
REAR WINDOW DEFOGGER SWITCH
28
SEAT BELT BUCKLE SWITCH
3
2
1
FRONT DOOR SWITCH LH
FRONT DOOR SWITCH RH
REAR DOOR SWITCH LH
REAR DOOR SWITCH RH
BACK DOOR SWITCH
13
6
HOOD SWITCH
GLASS HATCH SWITCH
BACK DOOR KEY CYLINDER SWITCH
BACK DOOR
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
GLASS HATCH
LOCK
UNLOCK
11
10
12
COMBINATION SWITCH (LIGHTING SWITCH)
OFF
AUTO
1ST
2ND
20
58
22
23
A
B
C
60
8
7
9
1
2
3
AUTO LIGHT SENSOR
33
COMMUNICATION I/F
CPU
DOOR LOCK AND UNLOCK SWITCH LH
POWER WINDOW MAIN SWITCH
DOOR LOCK AND UNLOCK SWITCH RH
FRONT POWER WINDOW SWITCH RH
54
55
56
To door lock actuators
47
48
To hazard warning lamps
FRONT DOOR KEY CYLINDER SWITCH LH

MEL443P

Smart Entrance Control Unit Inspection Table

NAEL0410

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

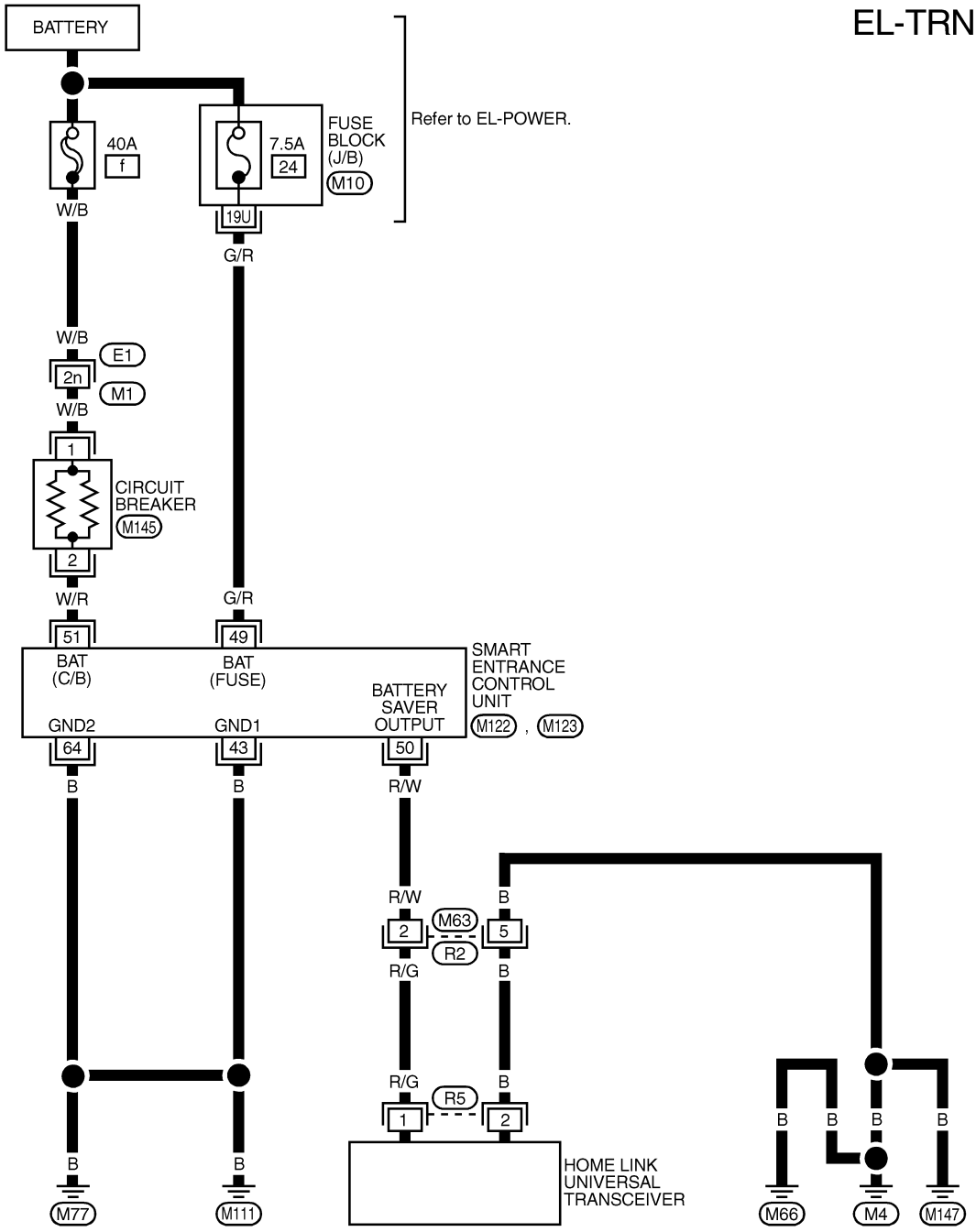
Smart Entrance Control Unit Inspection Table (Cont'd)

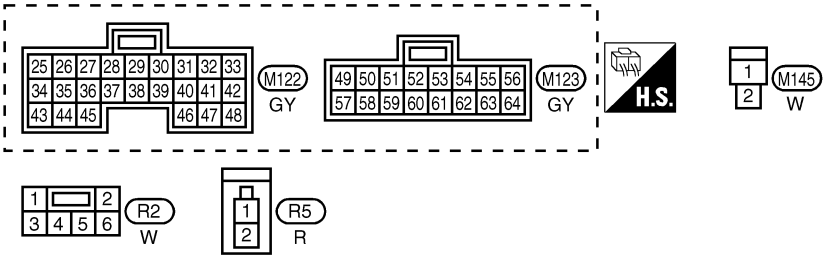
Terminal No.	Wire color	Connections	Operated condition			Voltage (Approximate values)
58	G/W	Tail lamp switch	Lighting switch OFF or AUTO → 1ST or 2ND			12V → 0V
59	PU/W	Headlamp RH relay	Ignition switch (with lighting switch OFF or 1ST)	ON or START → OFF position	More than 5 minutes after ignition switch 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 —

NAEL0411

EL-TRNSCV-01





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

MEL444P

Trouble Diagnoses

NAEL0412

DIAGNOSTIC PROCEDURE

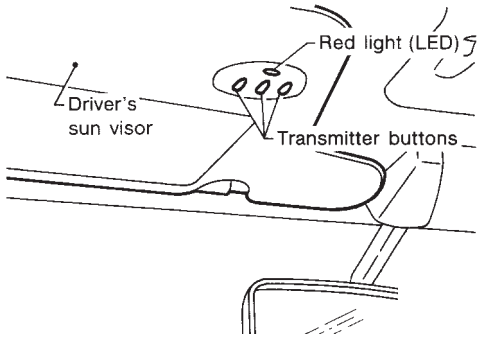
NAEL0412S01

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

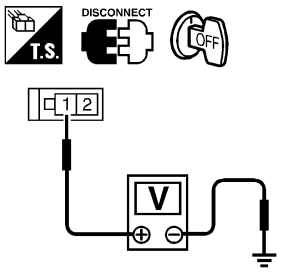
Check transmitter with Tool.
For details, refer to Technical Service Bulletin.

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.

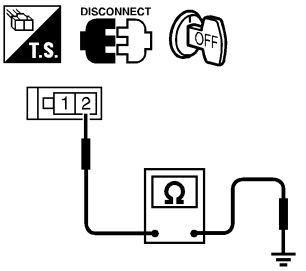
SEL358X

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.

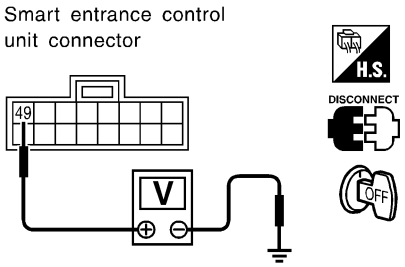
SEL359X

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.

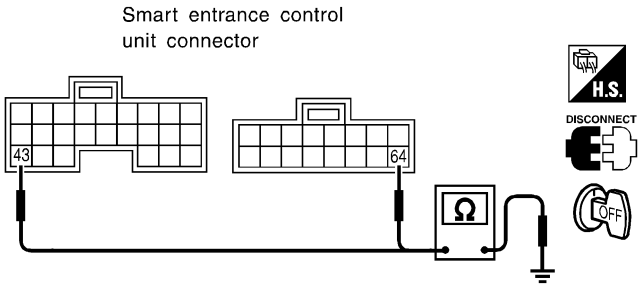
SEL284Y

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.

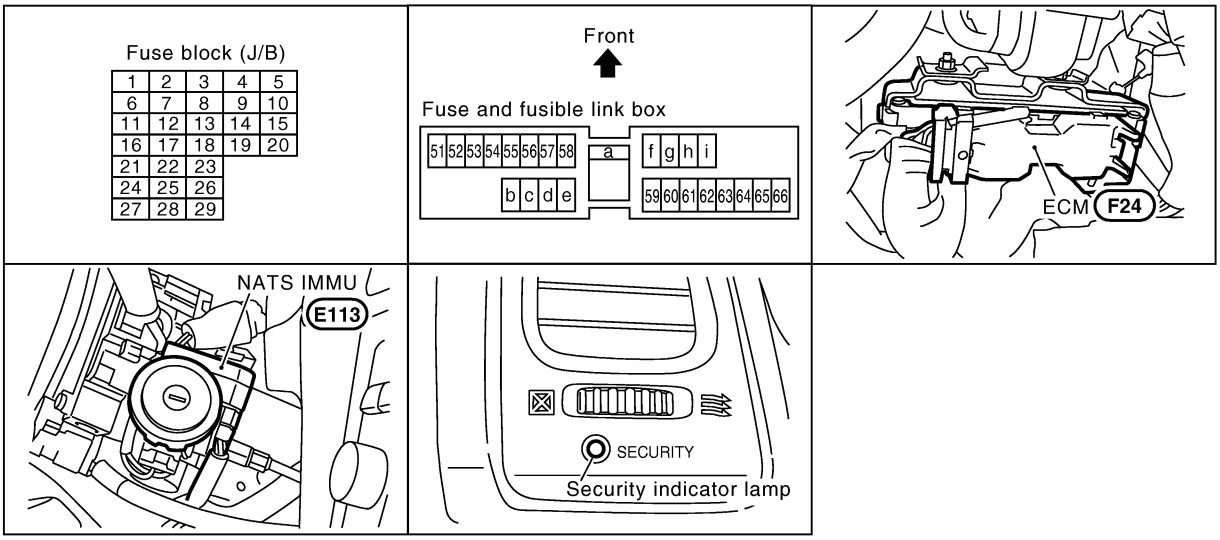
SEL285Y

OK or NG

OK	▶	Power supply and ground circuits are OK.
NG	▶	Check ground harness.

Component Parts and Harness Connetor Location

NAEL0413



SEL357X

NOTE:
If customer reports a “No Start” condition, request ALL KEYS to be brought to the Dealer in case of an NVIS (NATS) malfunction.

System Description

=NAEL0414

NATS (Nissan Anti-Theft System) has the following immobilizer functions:

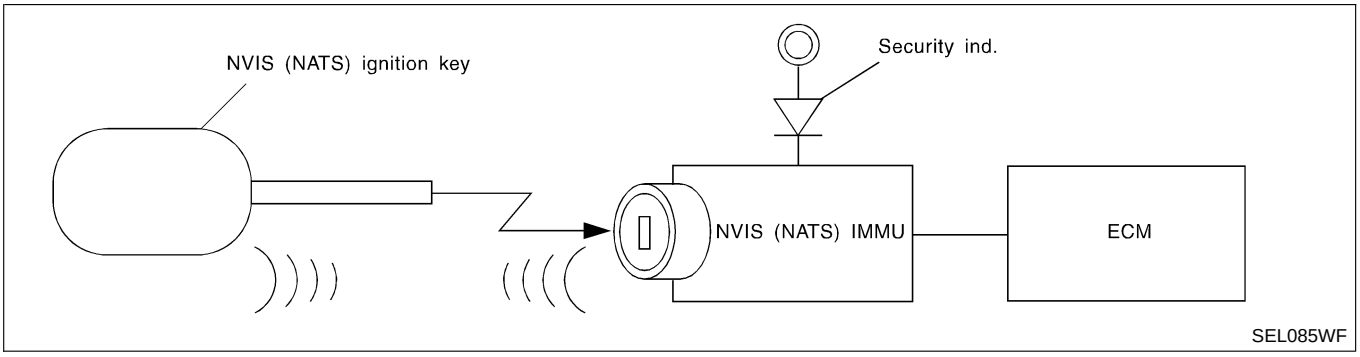
- Since only NVIS (NATS) ignition keys, whose ID nos. have been registered into the ECM and IMMU of NVIS (NATS), allow the engine to run, operation of a stolen vehicle without an NVIS (NATS) registered key is prevented by NVIS (NATS).
  That is to say, NVIS (NATS) will immobilise the engine if someone tries to start it without the registered key of NVIS (NATS).
- All of the originally supplied ignition key IDs (except for card plate key) have been NVIS (NATS) registered.
  If requested by the vehicle owner, a maximum of five key IDs can be registered into the NVIS (NATS) components.
- The security indicator blinks when the ignition switch is in “OFF” or “ACC” position. Therefore, NVIS (NATS) warns outsiders that the vehicle is equipped with the anti-theft system.
- When NVIS (NATS) detects trouble, the security indicator lamp lights up while ignition key is in the “ON” position.
- NVIS (NATS) trouble diagnoses, system initialization and additional registration of other NVIS (NATS) ignition key IDs must be carried out using CONSULT-II hardware and CONSULT-II NVIS (NATS) software. When NVIS (NATS) initialization has been completed, the ID of the inserted ignition key is automatically NVIS (NATS) registered. Then, if necessary, additional registration of other NVIS (NATS) ignition key IDs can be carried out.
  Regarding the procedures of NVIS (NATS) initialization and NVIS (NATS) ignition key ID registration, refer to CONSULT-II operation manual, IVIS/NVIS.
- **When servicing a malfunction of the NVIS (NATS) (indicated by lighting up of Security Indicator Lamp) or registering another NVIS (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

NAEL0415

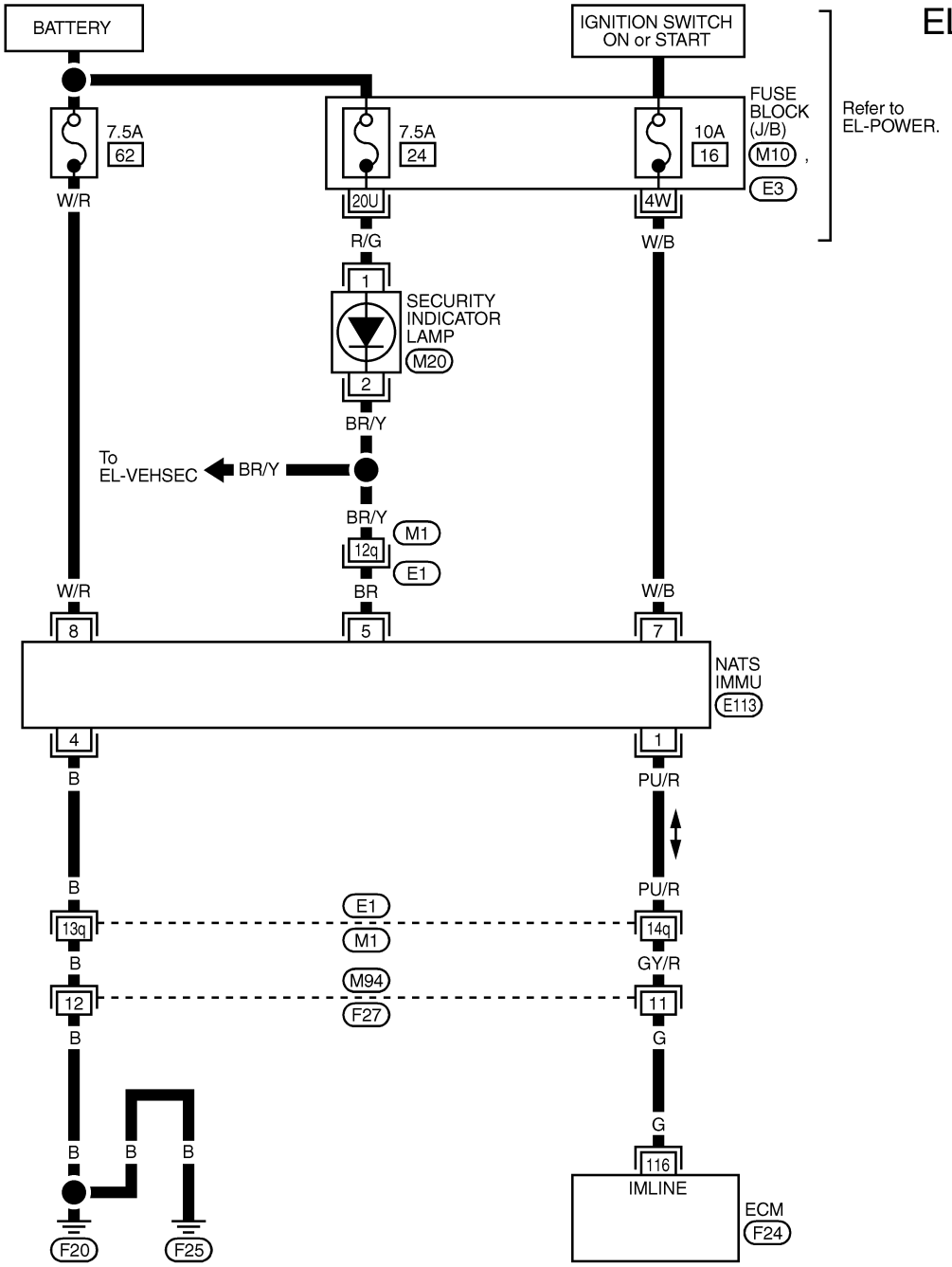
The immobiliser function of the NVIS (NATS) consists of the following:

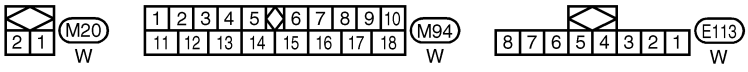
- NVIS (NATS) ignition key
- NVIS (NATS) immobilizer control unit (IMMU) located in the ignition key cylinder
- Engine control module (ECM)
- Security indicator



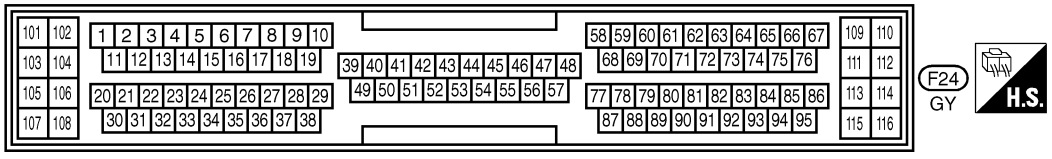
Wiring Diagram — NATS —

NAEL0416

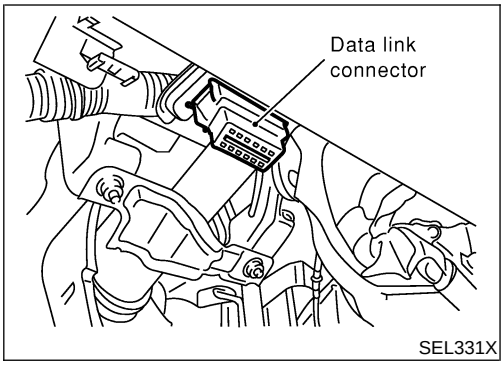




REFER TO THE FOLLOWING.
E1 -SUPER MULTIPLE JUNCTION (SMJ)
M10 , E3 -FUSE BLOCK-JUNCTION BOX (J/B)



MEL559P



SEL331X

CONSULT-II

NAEL0417

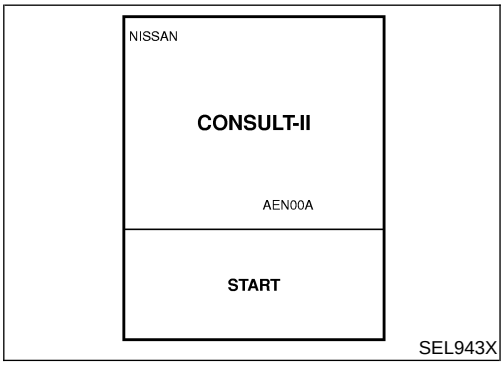
CONSULT-II INSPECTION PROCEDURE

NAEL0417S01

1. Turn ignition switch OFF.
2. Insert NVIS (NATS) program card into CONSULT-II.

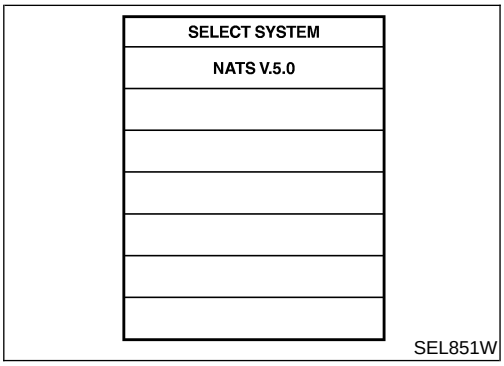
Program card
NATS (AEN00A)

3. Connect CONSULT-II to data link connector.



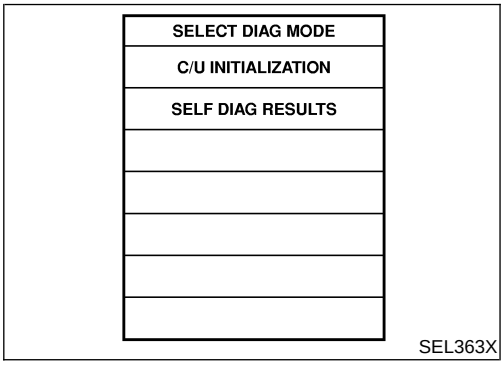
SEL943X

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

NAEL0417S02

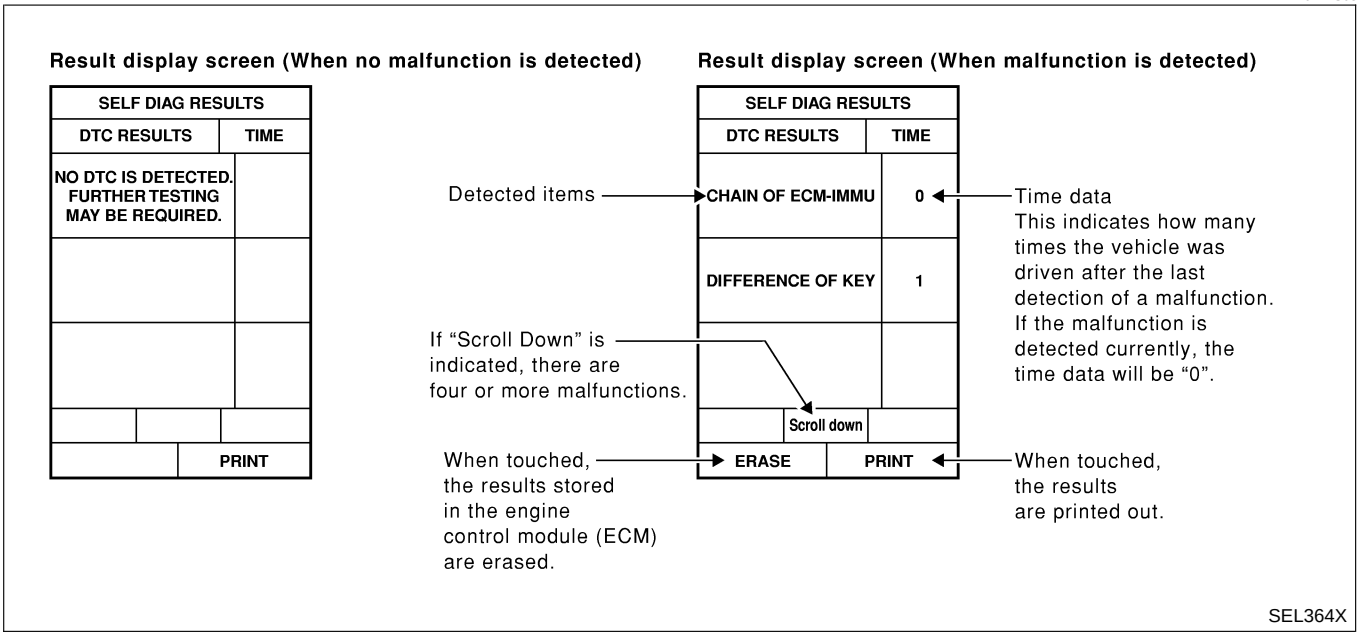
CONSULT-II DIAGNOSTIC TEST MODE	Description
C/U INITIALIZATION	When replacing any of the following three components, C/U initialization and re-registration of all NVIS (NATS) ignition keys are necessary. [NVIS (NATS) ignition key/IMMU/ECM]
SELF-DIAG RESULTS	Detected items (screen terms) are as shown in the chart EL-389.

NOTE:

- **When any initialization is performed, all ID previously registered will be erased and all NVIS (NATS) ignition keys must be registered again.**
- The engine cannot be started with an unregistered key. In this case, the system will show "DIFFERENCE OF KEY" or "LOCK MODE" as a self-diagnostic result on the CONSULT-II screen.
- In rare case, "CHAIN OF ECM-IMMU" might be stored as a self-diagnostic result during key registration procedure, even if the system is not malfunctioning.

HOW TO READ SELF-DIAGNOSTIC RESULTS

NAEL0417S03



SEL364X

NVIS (NATS) SELF-DIAGNOSTIC RESULTS ITEM CHART

NAEL0417S04

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-393
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-394
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-398
CHAIN OF IMMU-KEY	NATS MALFUNCTION P1614	IMMU cannot receive the key ID signal.	EL-399
ID DISCORD, IMM-ECM	NATS MALFUNCTION P1611	The result of ID verification between IMMU and ECM is NG. System initialization is required.	EL-400

CONSULT-II (Cont'd)

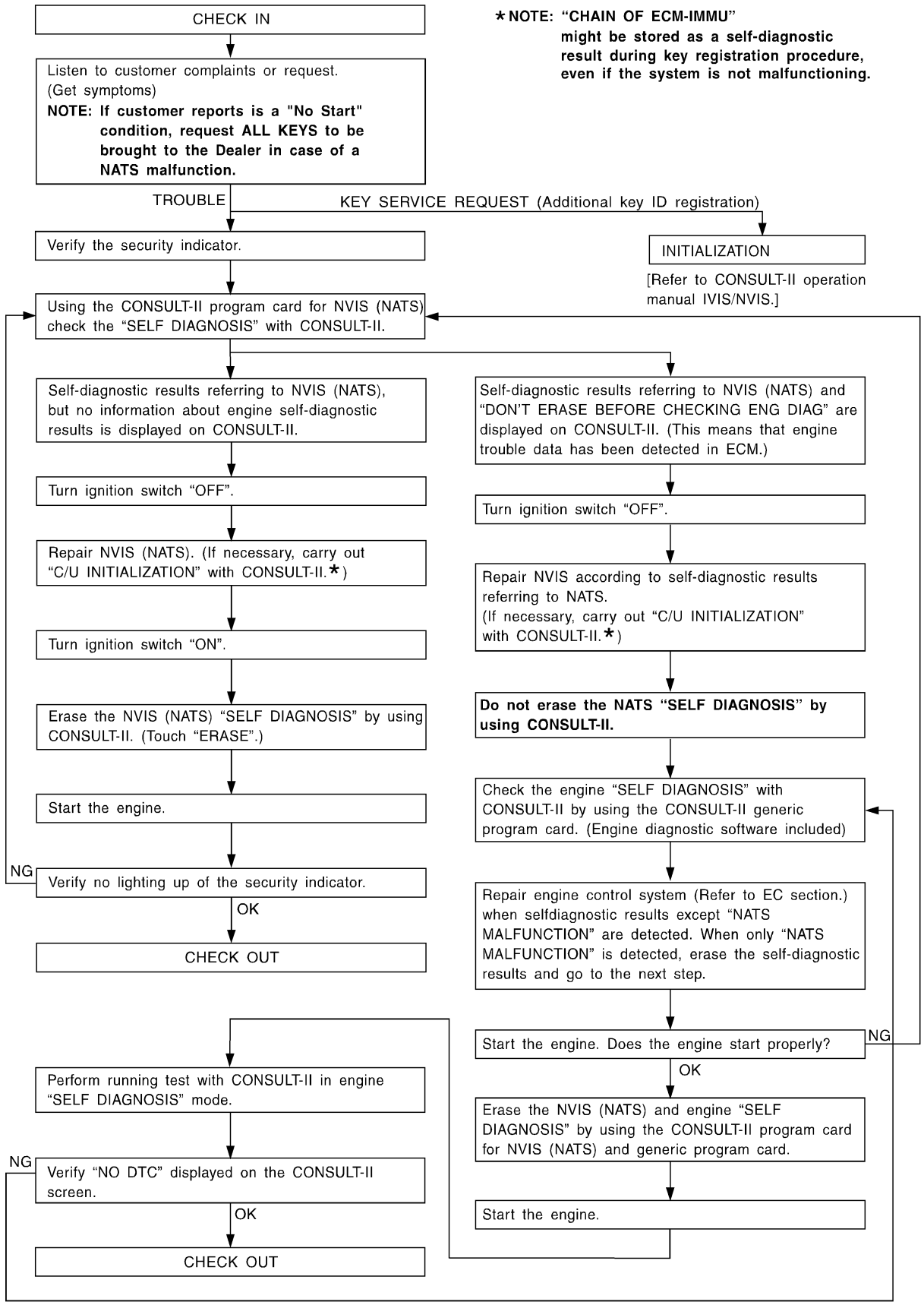
Detected items (NATS program card screen terms)	P No. Code (Self-diagnostic result of "ENGINE"	Malfunction is detected when	Reference page
LOCK MODE	NATS MALFUNCTION P1610	When the starting operation is carried out five or more times consecutively under the following conditions, NVIS (NATS) will shift the mode to one which prevents the engine from being started. ● Unregistered ignition key is used. ● IMMU or ECM's malfunctioning.	EL-403
DON'T ERASE BEFORE CHECKING ENG DIAG	—	All engine trouble codes except NVIS (NATS) trouble code has been detected in ECM.	EL-391

Trouble Diagnoses

NAEL0418

WORK FLOW

NAEL0418S01



SEL004XA

SYMPTOM MATRIX CHART 1
(Self-diagnosis related item)

NAEL0418S02

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-393)	ECM	B
	CHAIN OF ECM-IMMU	PROCEDURE 2 (EL-394)	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-398)	Unregistered key	D
			IMMU	A
	CHAIN OF IMMU-KEY	PROCEDURE 4 (EL-399)	Malfunction of key ID chip	E
			IMMU	A
	ID DISCORD, IMM-ECM	PROCEDURE 5 (EL-400)	System initialization has not yet been completed.	F
			ECM	F
	LOCK MODE	PROCEDURE 7 (EL-403)	LOCK MODE	D
• MIL staying ON • Security indicator lighting up*	DON'T ERASE BEFORE CHECKING ENG DIAG	WORK FLOW (EL-391)	Engine trouble data and NVIS (NATS) trouble data have been detected in ECM	—

*: When NVIS (NATS) detects trouble, the security indicator lights up while ignition key is in the "ON" position.

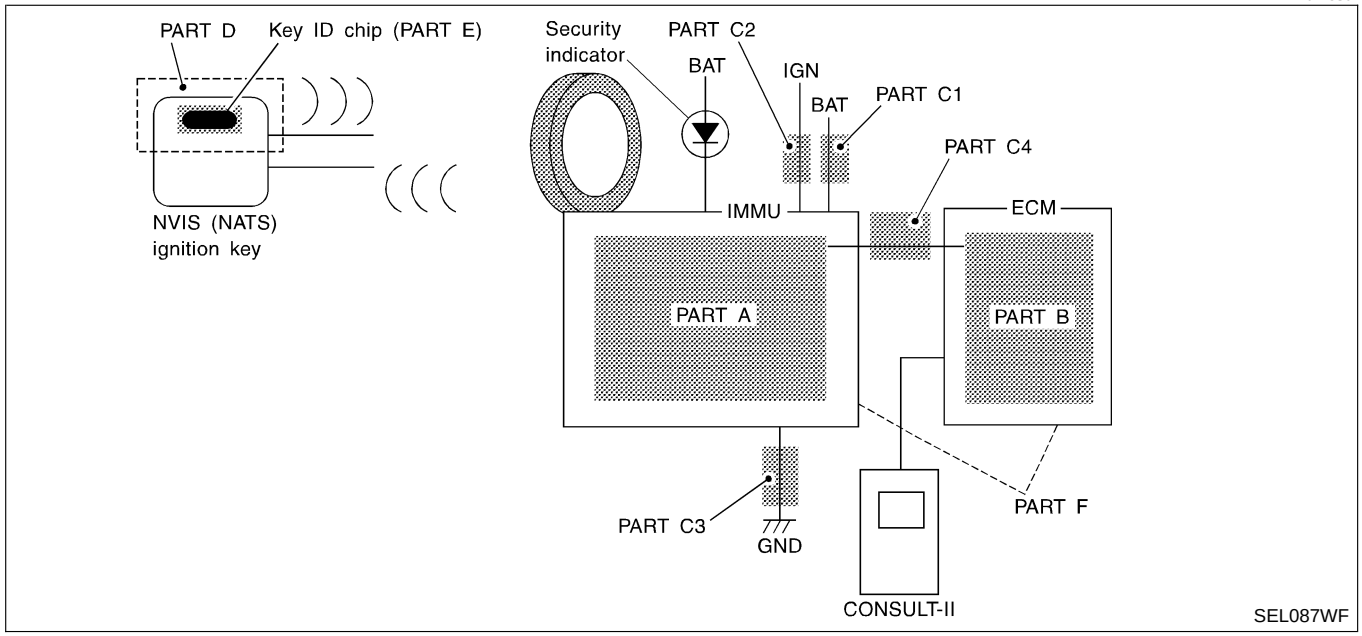
SYMPTOM MATRIX CHART 2
(Non self-diagnosis related item)

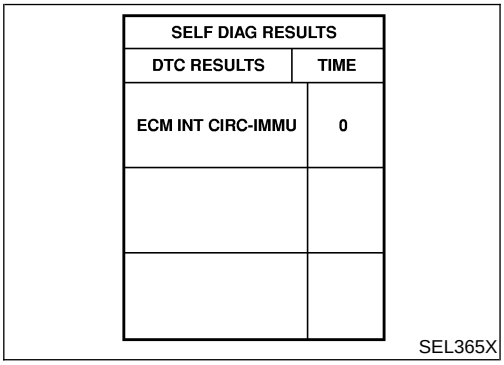
NAEL0418S03

SYMPTOM	DIAGNOSTIC PROCEDURE (Reference page)	SYSTEM (Malfunctioning part or mode)
Security ind. does not light up.	PROCEDURE 6 (EL-401)	Security ind.
		Open circuit between Fuse and IMMU
		Continuation of initialization mode
		IMMU

DIAGNOSTIC SYSTEM DIAGRAM

NAEL0418S04





DIAGNOSTIC PROCEDURE 1

NAEL0418S05

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

=NAEL0418S06

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

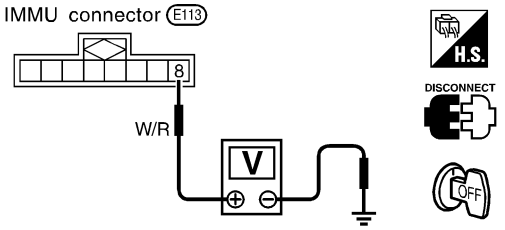
SEL366X

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.

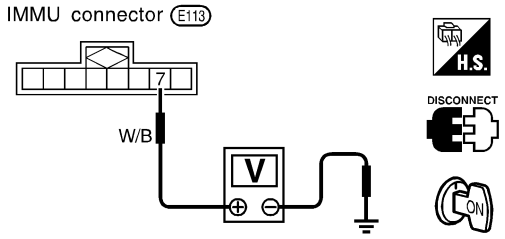
SEL302WD

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.

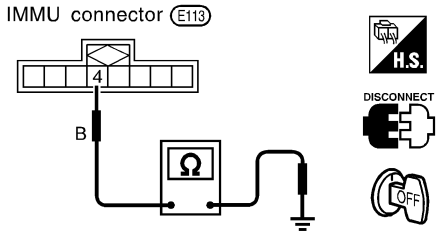
SEL303WF

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.

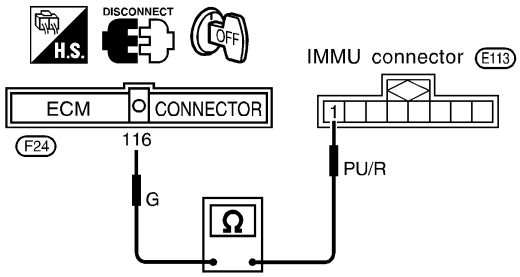
SEL304WD

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.

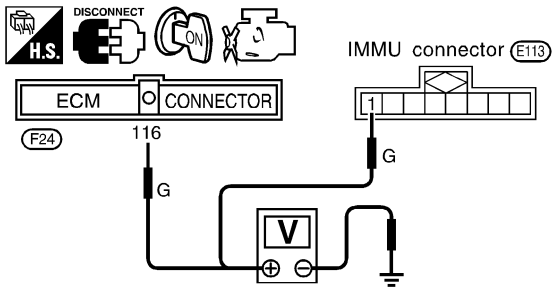
SEL305WD

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

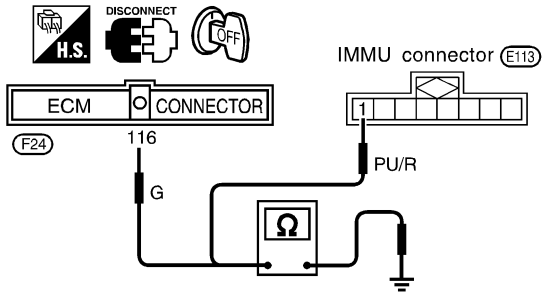
SEL306WD

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.

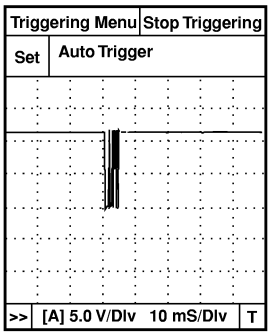
SEL307WD

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

=NAEL0418S07

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 NVIS (NATS) ignition key IDs.
For initialization and registration of NVIS (NATS) ignition key IDs, refer to "CONSULT-II operation manual NVIS/NVIS".

IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

SEL297W

NOTE:
If the initialization is not completed or fails, CONSULT-II shows above message on the screen.

Can the system be initialized and can the engine be started with re-registered NVIS (NATS) ignition key?

Yes	▶	Ignition key ID was unregistered. **Ref. part No. D**
No	▶	IMMU is malfunctioning. Replace IMMU. **Ref. part No. A** Perform initialization with CONSULT-II. For initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

DIAGNOSTIC PROCEDURE 4

=NAEL0418S08

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 NVIS (NATS) IGNITION KEY ID CHIP

Start engine with another registered NVIS (NATS) ignition key.

Does the engine start?

Yes	▶	Ignition key ID chip is malfunctioning. 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-404.

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

=NAEL0418S09

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 NVIS (NATS) ignition key IDs.
For initialization, refer to "CONSULT-II operation manual IVIS/NVIS".

IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

SEL297W

NOTE:
If the initialization is not completed or fails, CONSULT-II shows above message on the screen.

Can the system be initialized?

Yes	▶	Start engine. (END) (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".

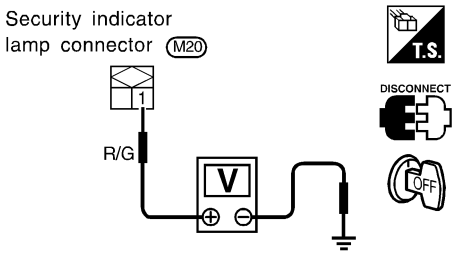
DIAGNOSTIC PROCEDURE 6

=NAEL0418S10

"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.

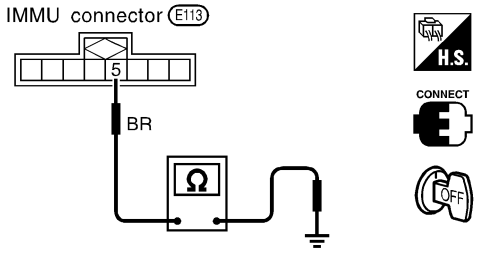
2	CHECK SECURITY INDICATOR LAMP	
1. Install 10A fuse. 2. Perform initialization with CONSULT-II. For initialization, refer to "CONSULT-II Operation Manual IVIS/NVIS". 3. Turn ignition switch OFF. 4. Start engine and turn ignition switch OFF. 5. Check the security indicator lamp lighting. **Security indicator 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.** SEL370XA
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

=NAEL0418S11

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-404.

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".

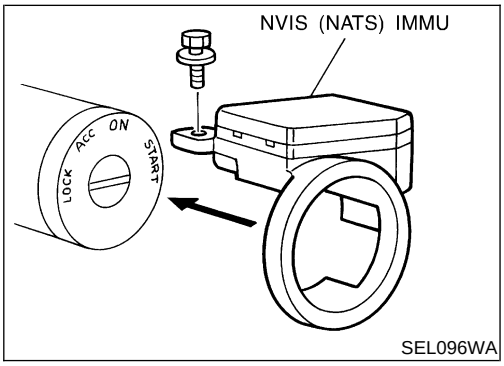
IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

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-399.



SEL096WA

How to Replace NVIS (NATS) IMMU

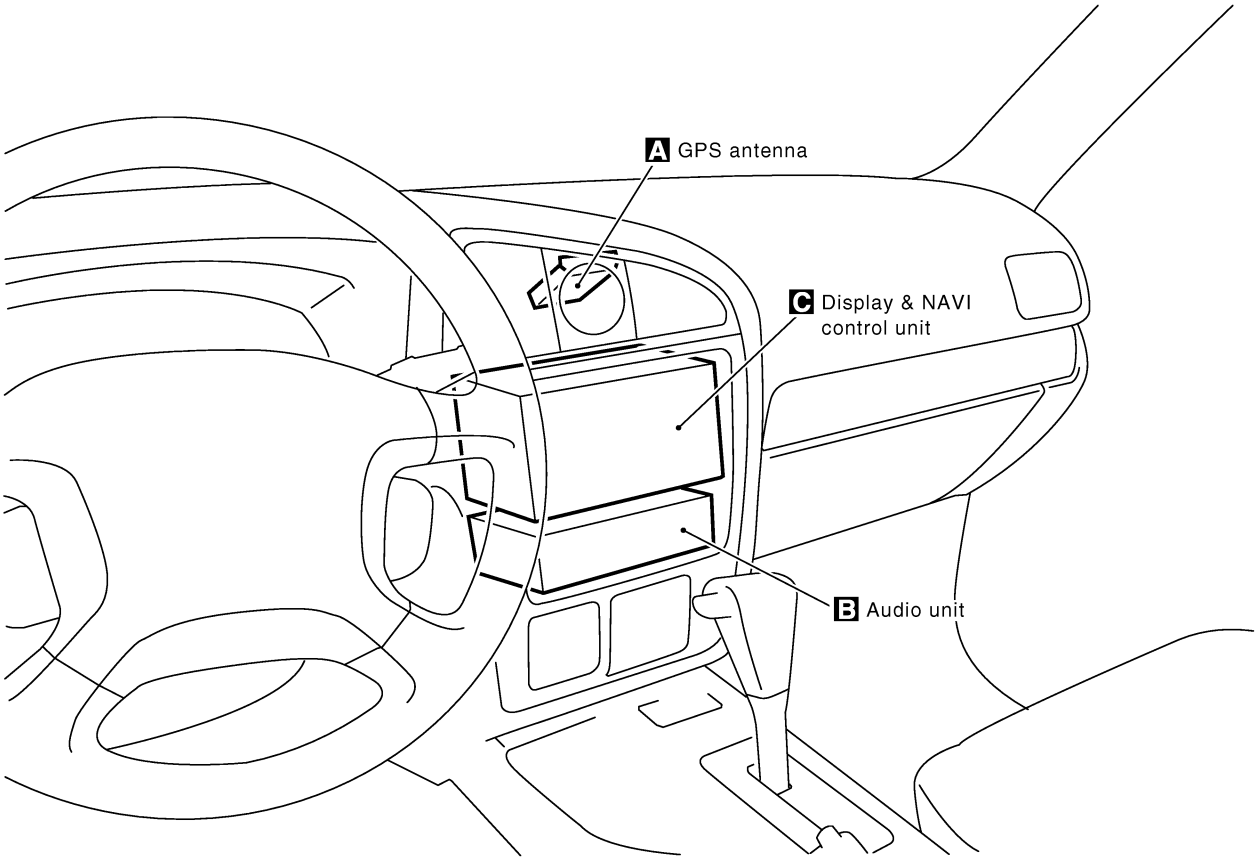
NAEL0419

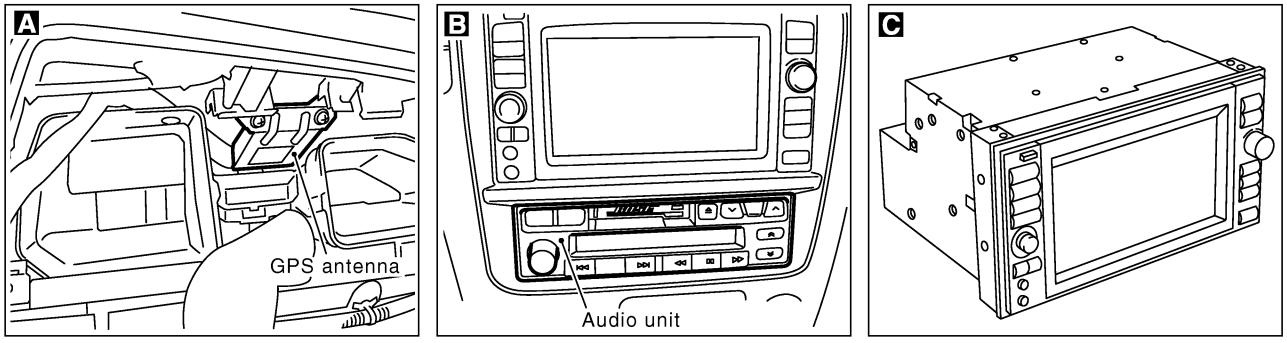
NOTE:

- **If NVIS (NATS) IMMU is not installed correctly, NVIS (NATS) system will not operate properly and SELF-DIAG RESULTS on CONSULT-II screen will show "LOCK MODE".**

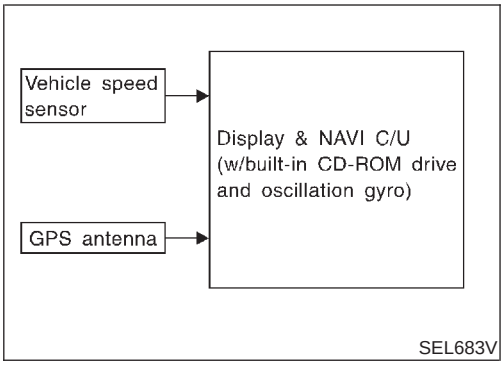
Component Parts Location

NAEL0420





SEL508X



System Description

=NAEL0421

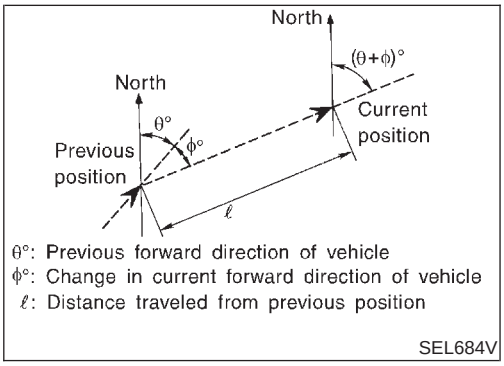
OUTLINE

NAEL0421S01

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.



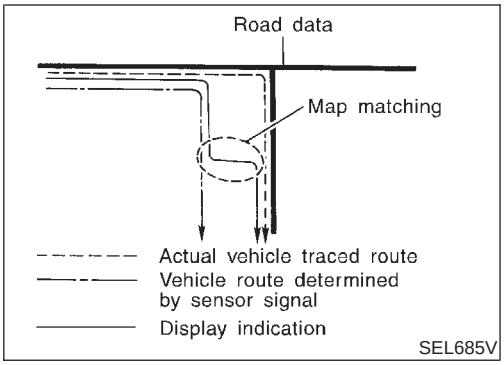
Position Sensor Operating Principles

NAEL0421S0101

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.

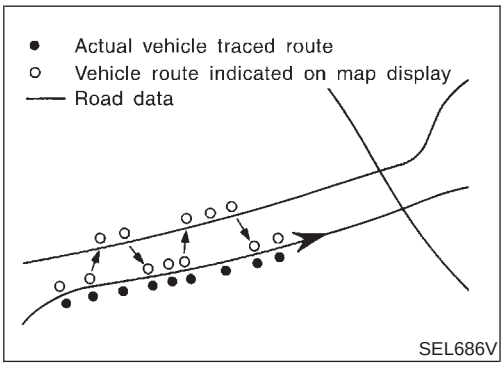


Map Matching

NAEL0421S0102

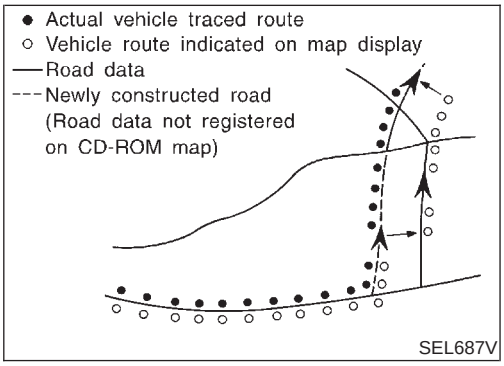
Map matching allows the driver to compare the sensed vehicle location data with the road map contained in the CD-ROM drive. Vehicle position is marked on the CD-ROM map. This permits the driver to accurately determine his/her present position on the highway and to make appropriate course decisions.

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.



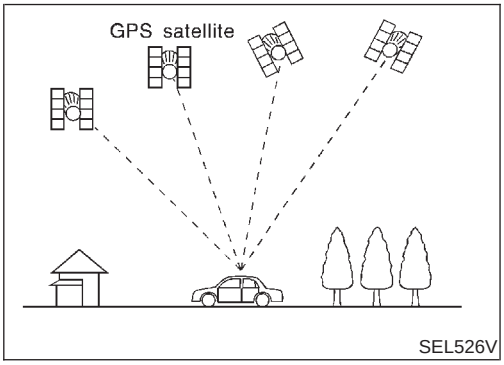
Map matching permits the driver to make priority judgments about possible appropriate roads other than the one currently being traveled.

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)

NAEL0421S0103

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).

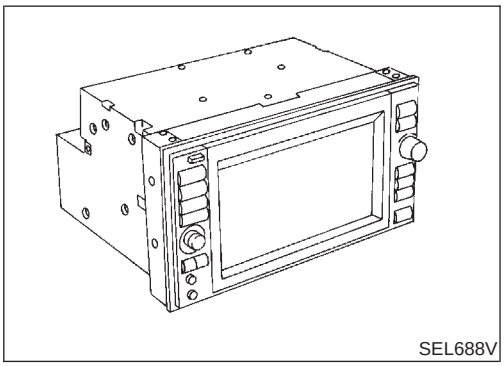
GPS receiver calculates the three-dimensional position of the vehicle (latitude, longitude, and altitude from the sea level) by the time difference of the radio wave arriving from more than four GPS satellites (three-dimensional positioning).

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

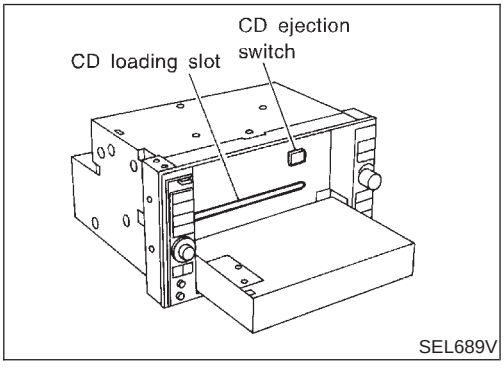
COMPONENT DESCRIPTION

NAEL0421S02

Display & NAVI Control Unit

NAEL0421S0201

- 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

NAEL0421S0202

Maps, traffic control regulations, and other pertinent information can be easily red from the CD-ROM disc.

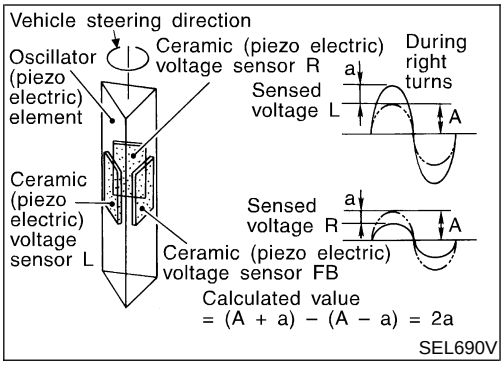
NOTE:

- 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

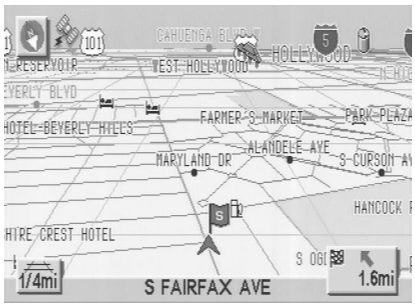
NAEL0421S0203

- 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.



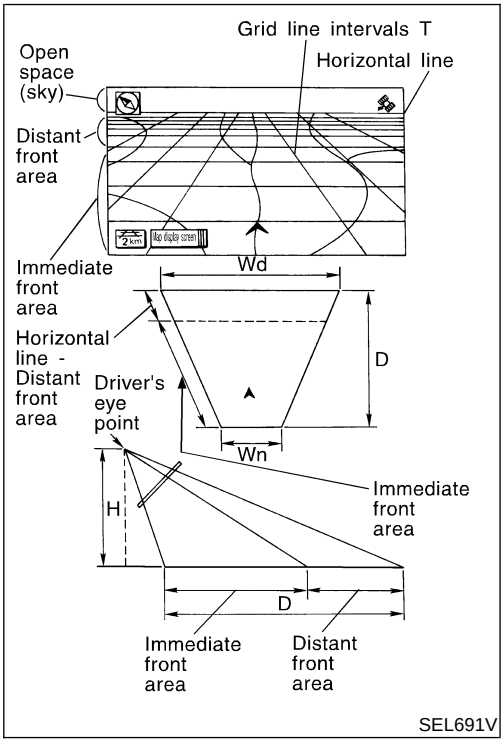
SEL690V

MAP DISPLAY



BIRDVIEW®

SEL636X



SEL691V

Gyro (Angular Speed Sensor)

NAEL0421S0204

- 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®

NAEL0421S0205

The BIRDVIEW® provides a detailed and easily seen display of road conditions covering the vehicle's immediate to distant area.

Description

NAEL0421S0206

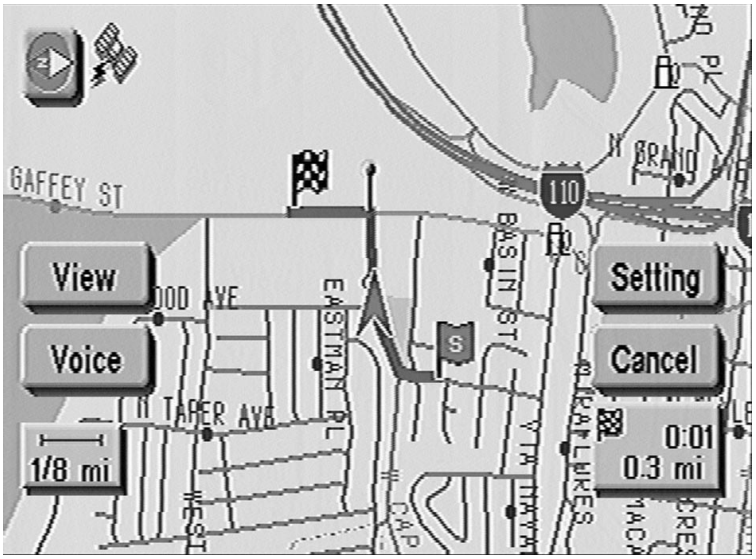
- Display area: Trapezoidal representation showing approximate distances (Wn, D, and Wd).
- Ten horizontal grid lines indicate display width while six vertical grid lines indicate display depth and direction.
- Drawing line area shows open space, depth, and immediate front area. Each area is to a scale 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)

=NAEL0421S03

Display with Pushed "MAP" Switch

NAEL0421S0301



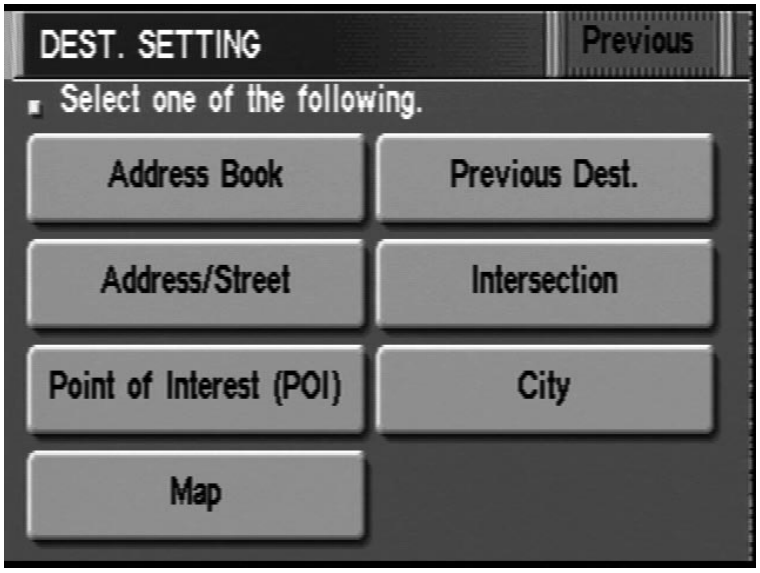
SEL475Y

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

=NAEL0421S0302



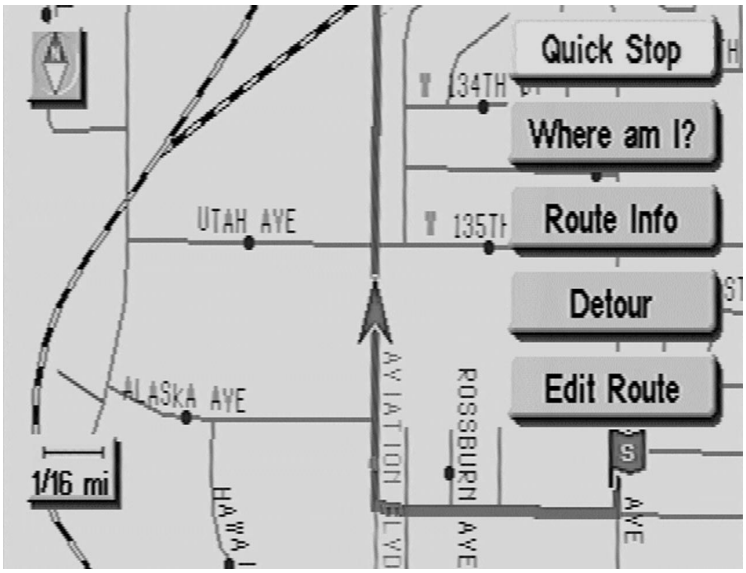
SEL581X

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

NAEL0421S0303



SEL476Y

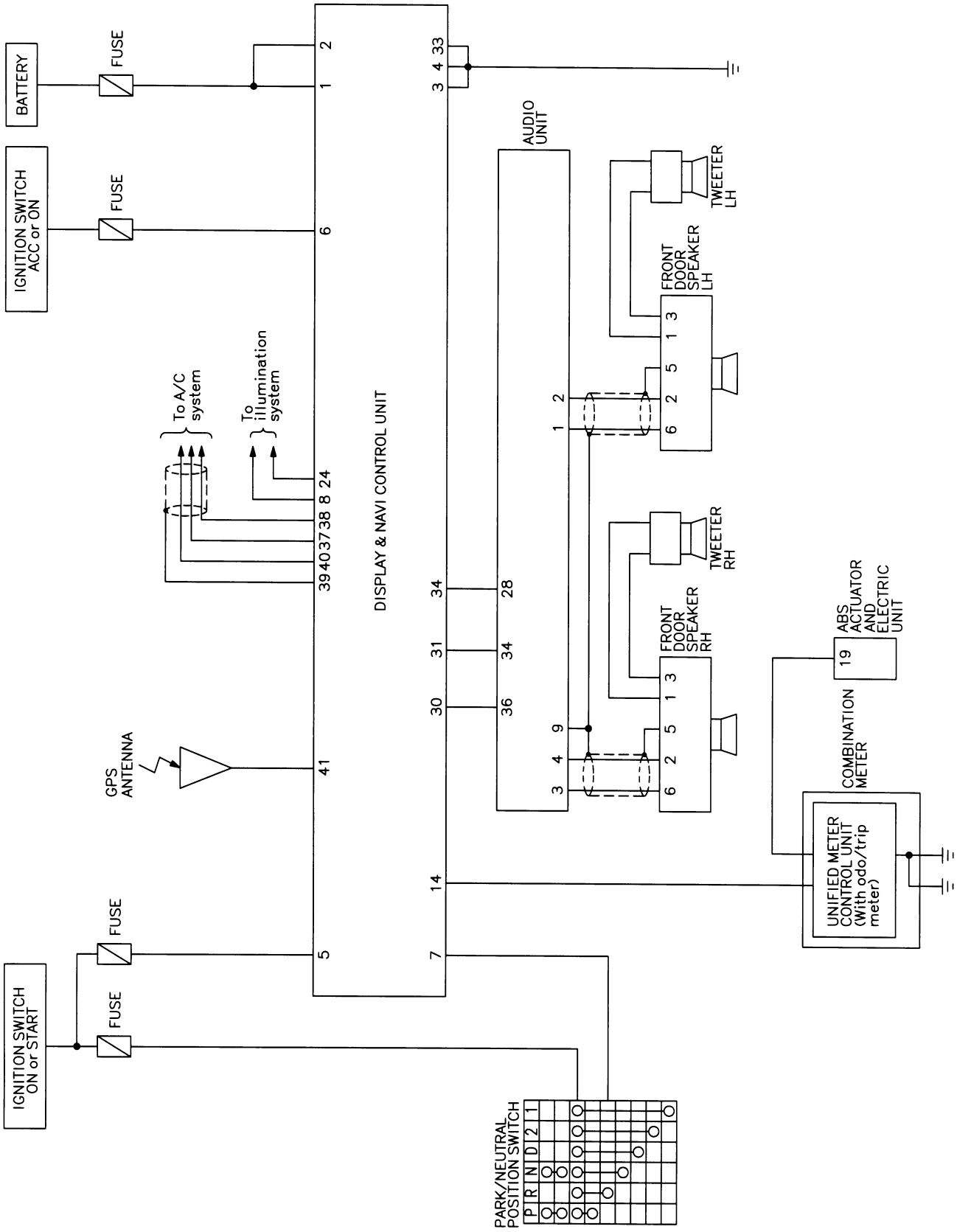
The function of each touch switch is as follows:

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

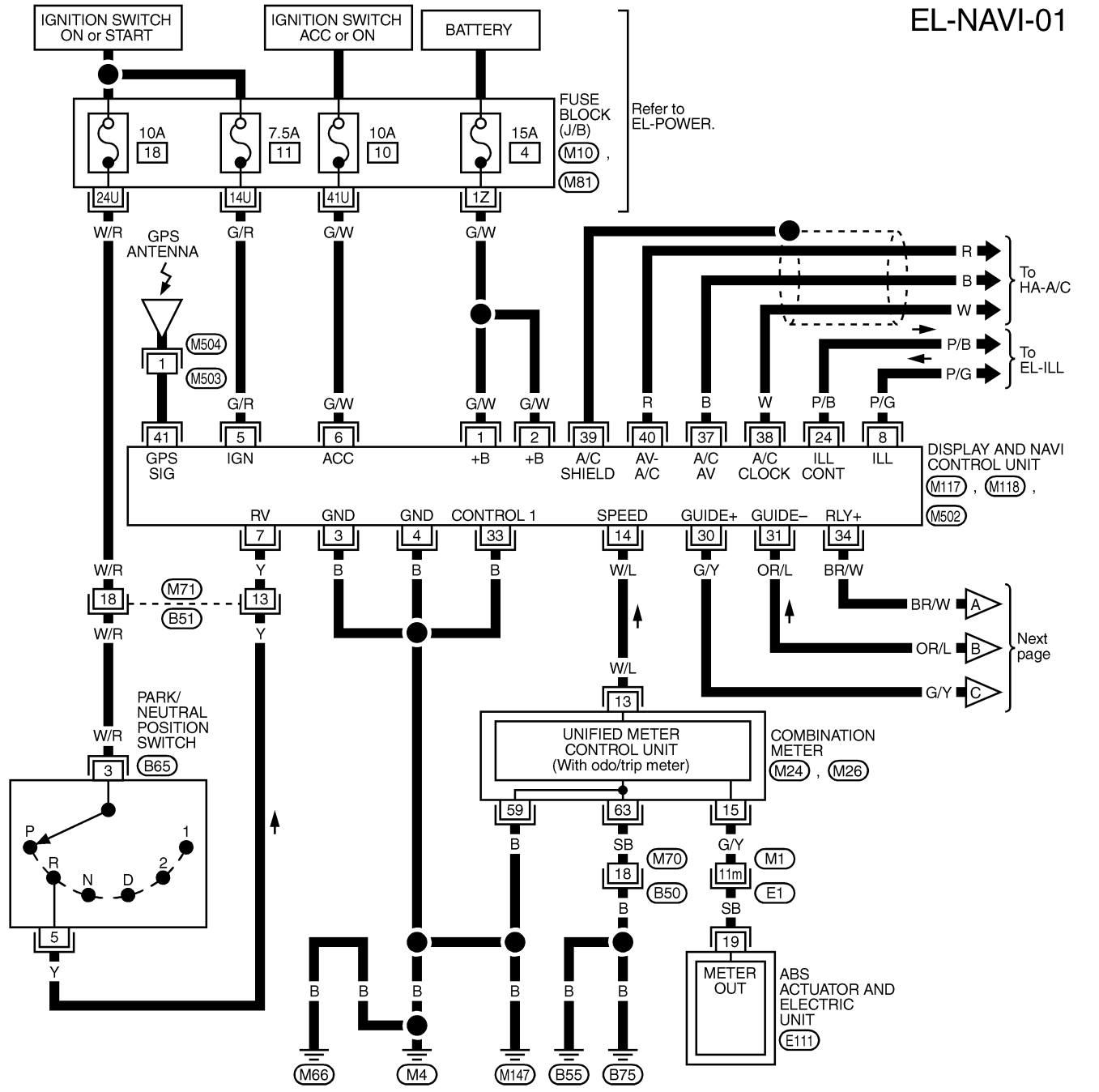
NAEL0422

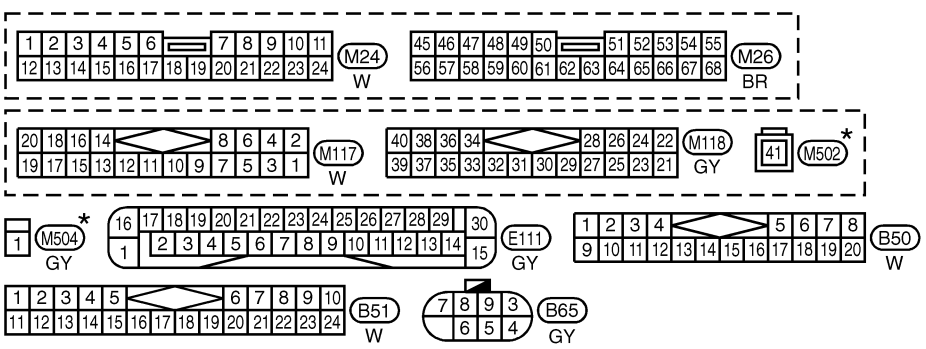


MEL270N

Wiring Diagram — NAVI —

NAEL0423





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

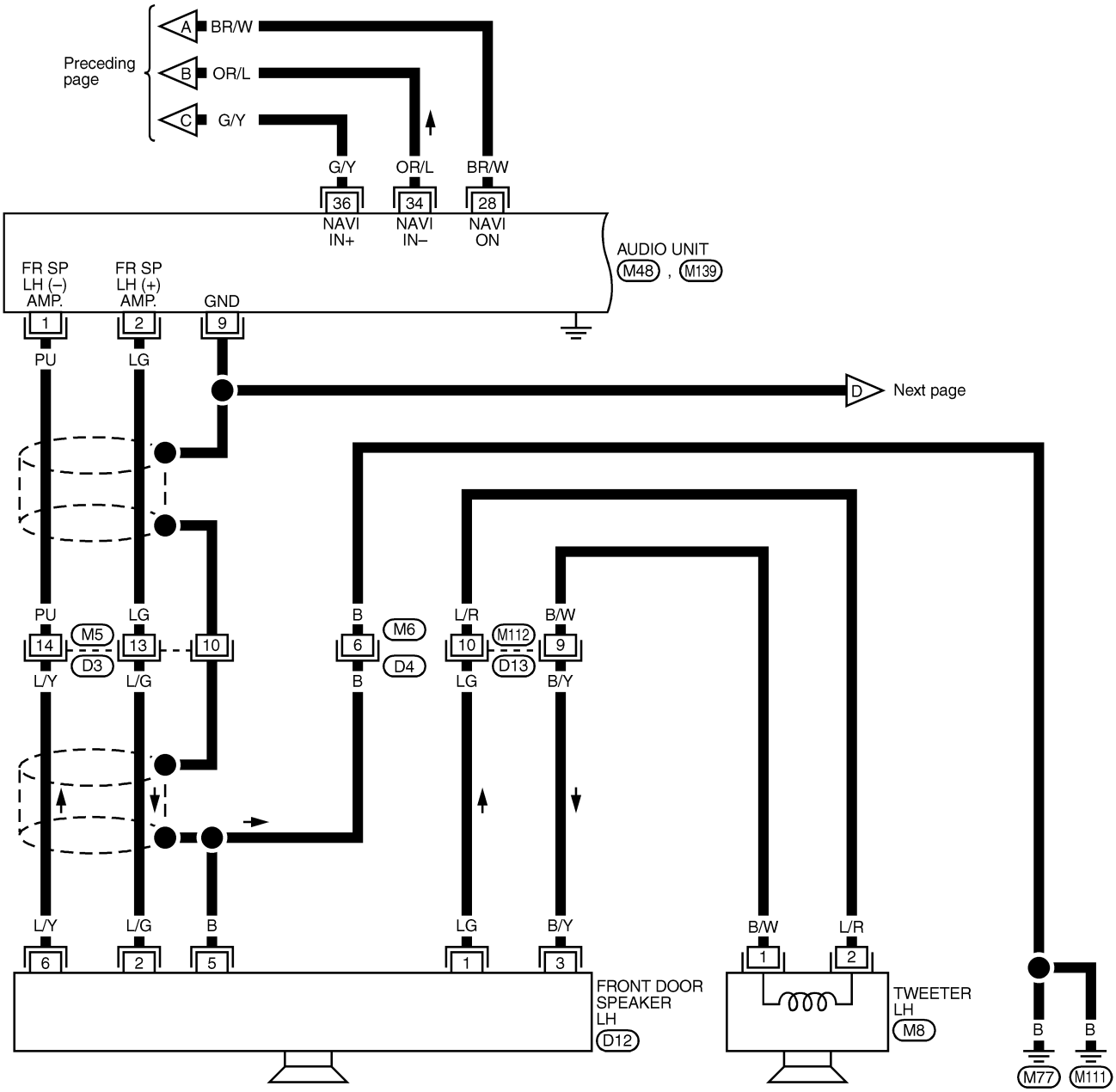
REFER TO THE FOLLOWING.

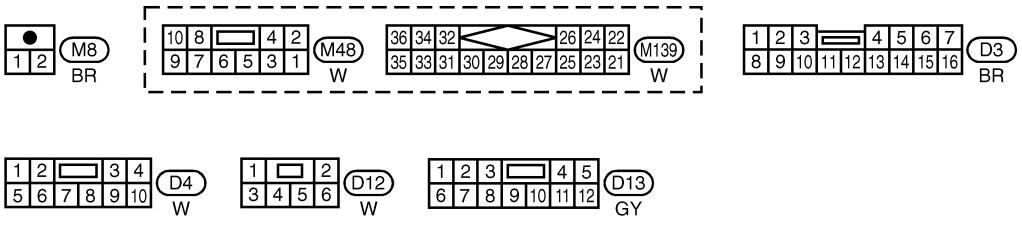
E1 -SUPER MULTIPLE JUNCTION (SMJ)

M10, M81 -FUSE BLOCK-JUNCTION BOX (J/B)

MEL878N

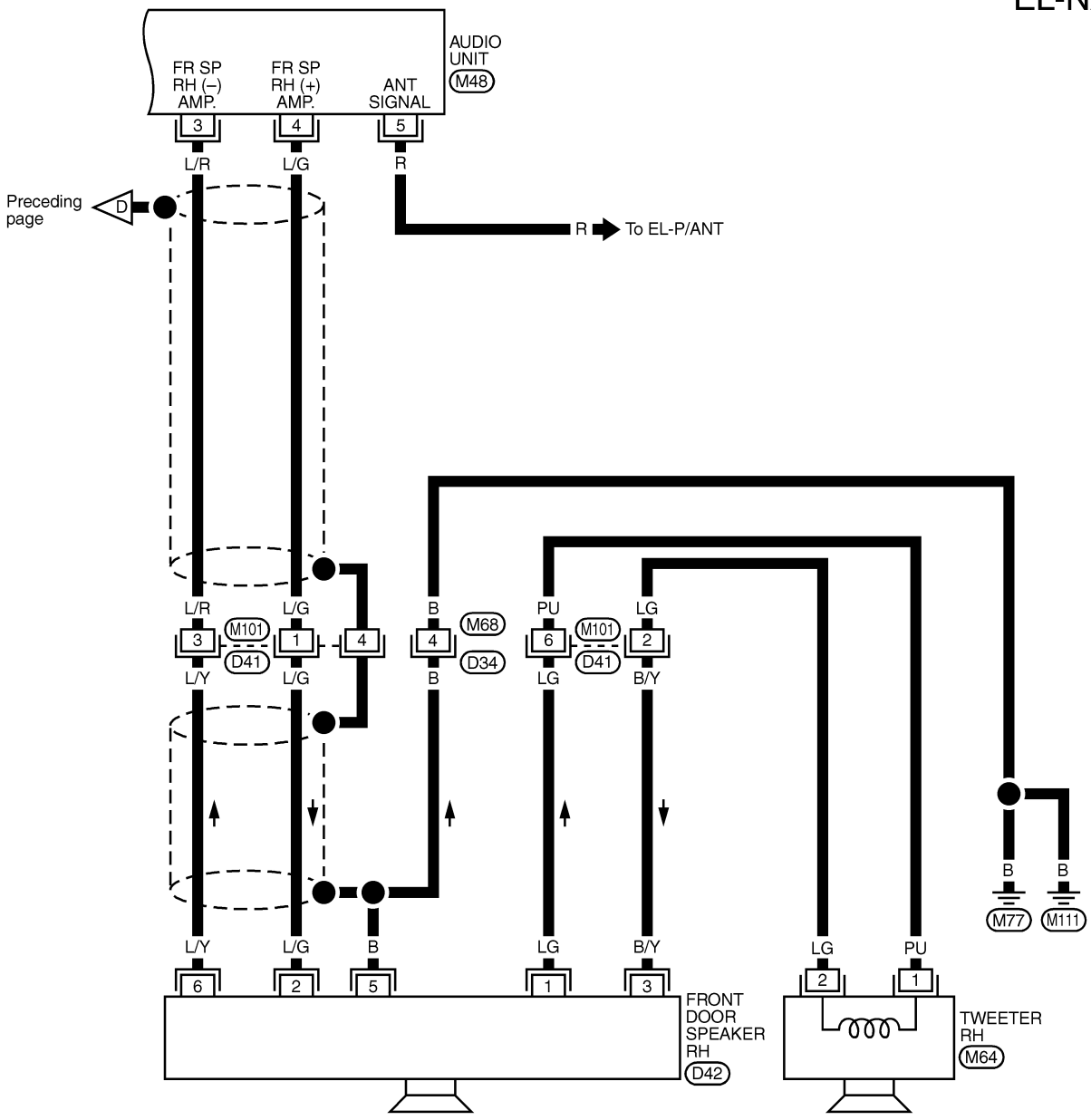
EL-NAVI-02

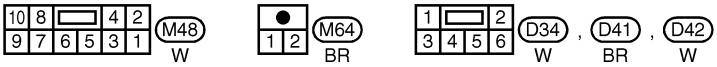




MEL272N

EL-NAVI-03





MEL270M

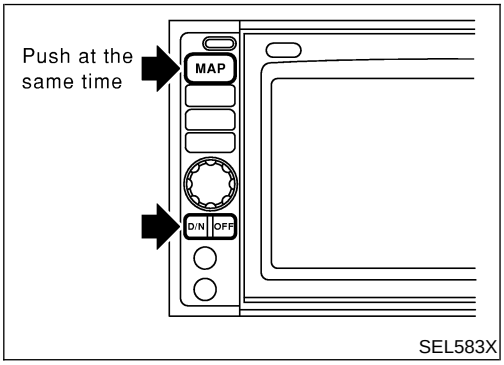
Self-diagnosis Mode

NAEL0424

APPLICATION ITEMS

NAEL0424S01

Mode			Description	Reference page
Self Diagnosis			Self-diagnosis for display & NAVI control unit, CD-ROM and GPS antenna connection.	EL-418
Confirmation/ adjustment	Display Diagnosis		Color and gray gradation of display can be checked in this mode.	EL-426
	Diagnostic Signals from the Car		Several input signals to display & NAVI control unit, can be monitored in this mode.	EL-424
	Navigation	Check the map CD-ROM version	The version (parts number) of inserted CD-ROM can be checked in this mode.	EL-425
		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-420
		Longitude & Latitude	Display the map. Use the joystick to adjust position. Longitude and latitude will be displayed.	EL-427
		Adjust the angle	Turning angle of the vehicle on the display can be adjusted in this mode.	EL-428
		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-429
		Initialize Location	This mode is for initializing the current location. Use when the vehicle is transported a long distance on a trailer, etc.	EL-454

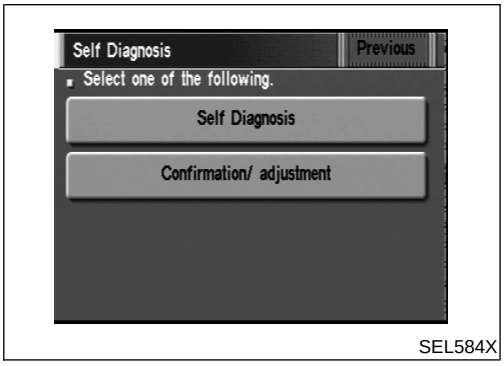


SEL583X

HOW TO PERFORM SELF-DIAGNOSIS MODE

NAEL0424S02

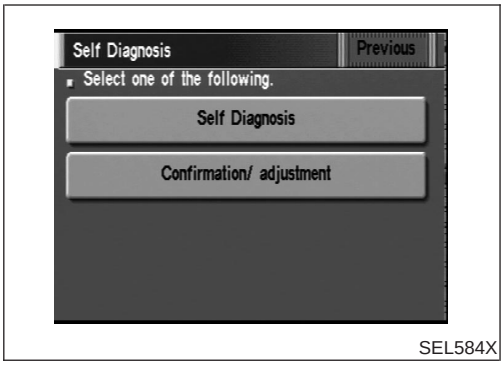
1. Start the engine.
2. Push both of “MAP” and “D/N” switches at the same time for more than 5 seconds.



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.

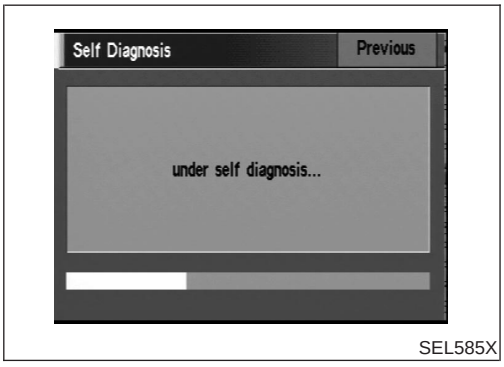


SEL584X

"Self Diagnosis"

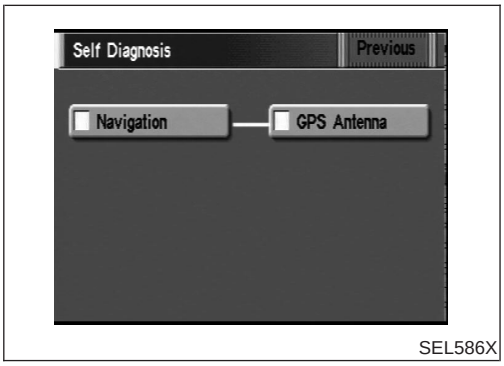
NAEL0424S0201

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".



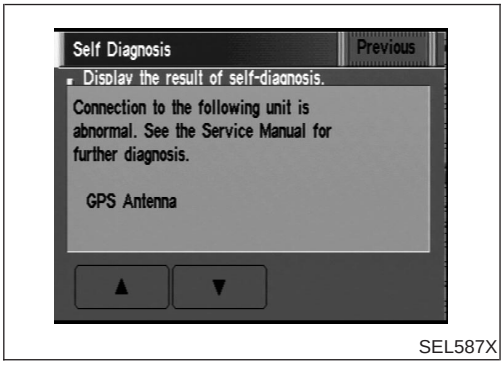
SEL585X

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

=NAEL0424S03

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-425 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

=NAEL0425

"HISTORY OF ERRORS" MODE

NAEL0425S01

Description

NAEL0425S0101

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

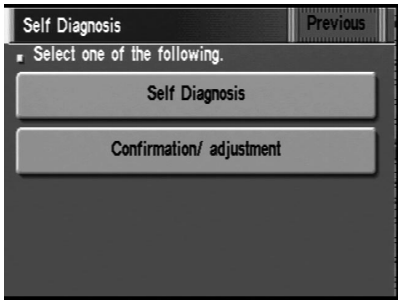
NOTE:

- **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

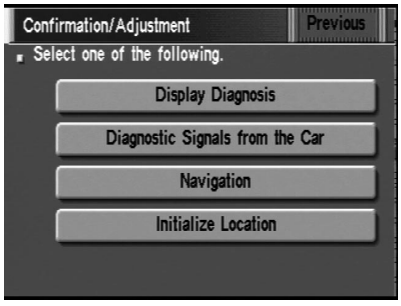
NAEL0425S0102

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".



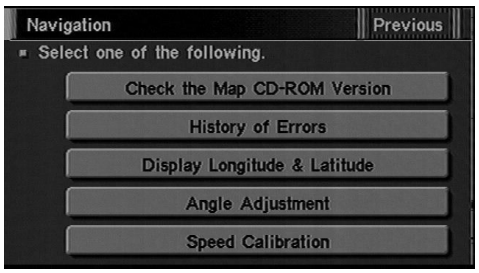
SEL584X

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-422.
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

=NAEL0425S02

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-417
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-424
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-417
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-417
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-425
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-438
		2. Perform self-diagnosis to confirm GPS antenna connection.	EL-417
		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-417

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-417
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-417

"DIAGNOSTIC SIGNALS FROM THE CAR" MODE

=NAEL0425S03

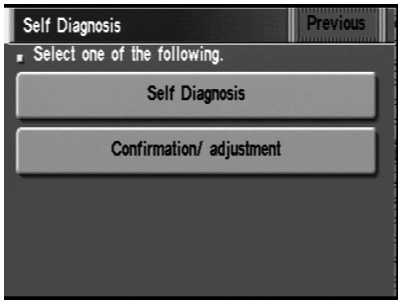
Description

NAEL0425S0301

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 "-".

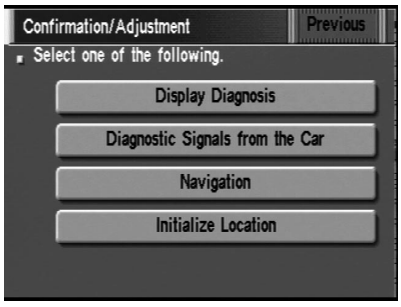


SEL584X

How to Perform

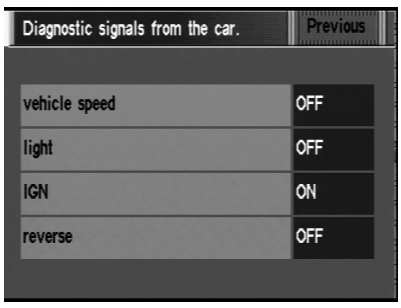
NAEL0425S0302

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".



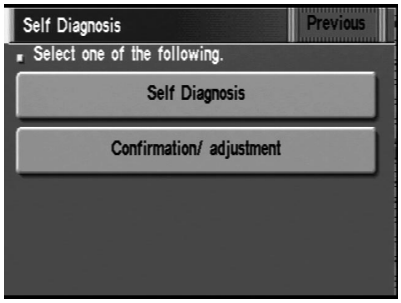
SEL588X

4. Touch "Diagnostic Signals from the Car".



SEL591X

5. Then "Diagnostic Signals from the Car" mode is performed.



SEL584X

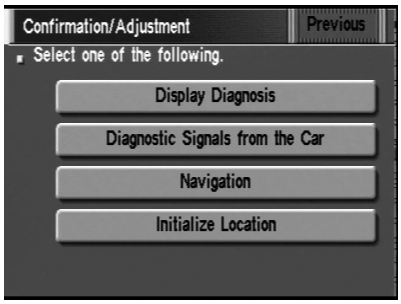
"CHECK THE MAP CD-ROM VERSION" MODE

=NAEL0425S04

How to Perform

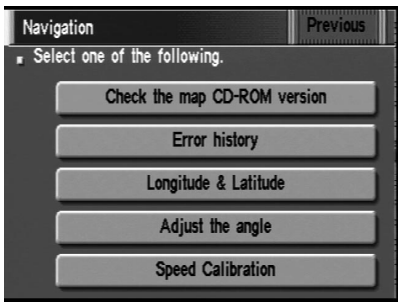
NAEL0425S0401

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".



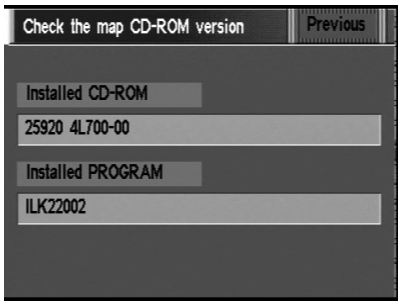
SEL588X

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.

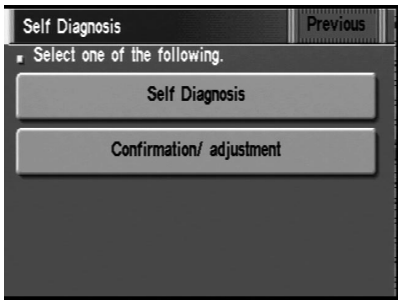
"DISPLAY DIAGNOSIS" MODE

=NAEL0425S05

Description

NAEL0425S0501

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.

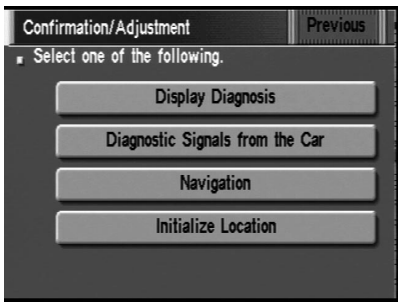


SEL584X

How to Perform

NAEL0425S0502

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".

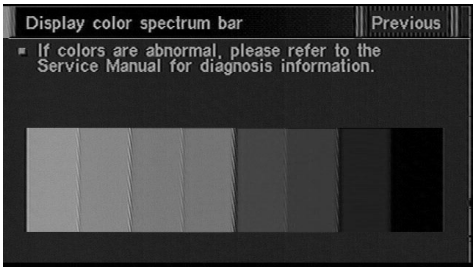


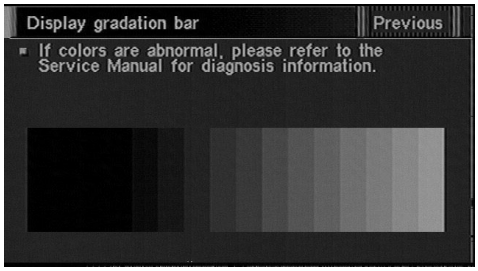
SEL588X

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

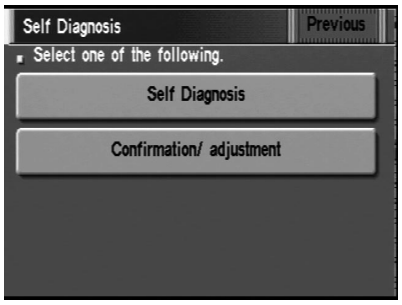
"LONGITUDE & LATITUDE" MODE

NAEL0425S06

Description

NAEL0425S0601

The "Longitude & Latitude" is used to confirm the longitude and latitude of some optional area point.

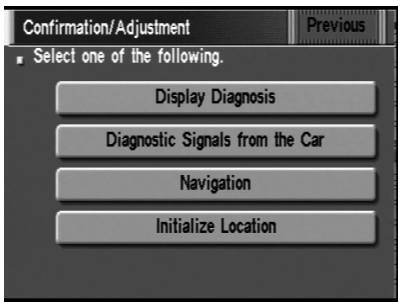


SEL584X

How to Perform

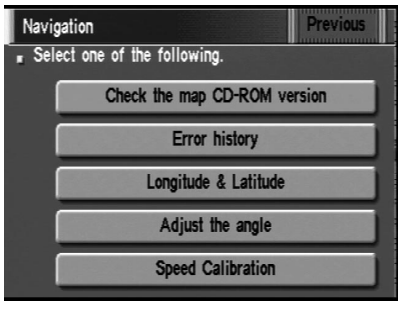
NAEL0425S0602

1. Start the engine.
2. Push both "MAP" and "D/N" switches at the same time for more than 5 seconds.
3. Touch "Confirmation/ adjustment".



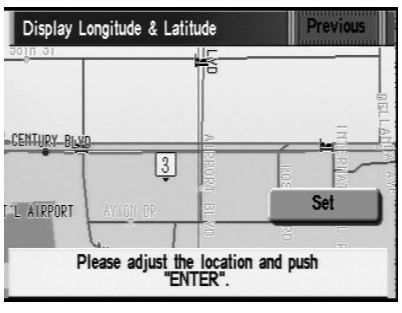
SEL588X

4. Touch "Navigation".



SEL589X

5. Touch "Longitude & Latitude".



SEL595X

6. Adjust the pointer with using the joystick and touch "Set".
7. The longitude and latitude are displayed.

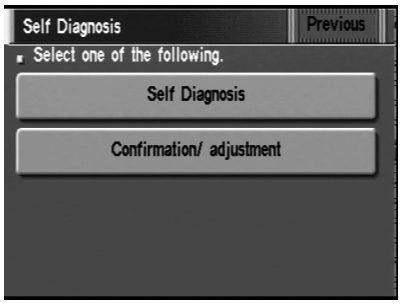
"ADJUST THE ANGLE" MODE

=NAEL0425S07

Description

NAEL0425S0701

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 "+".

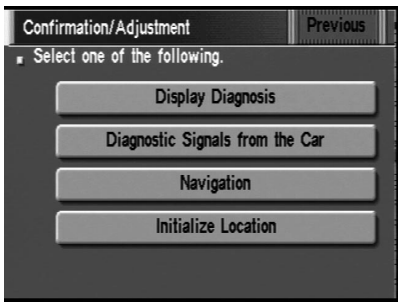


SEL584X

How to Perform

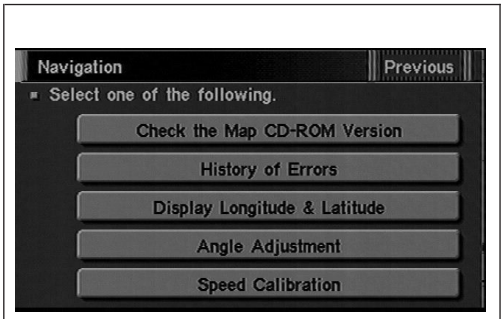
NAEL0425S0702

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".



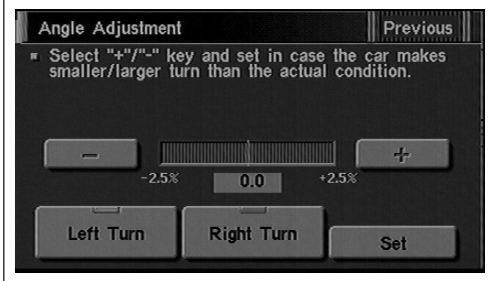
SEL588X

4. Touch "Navigation".



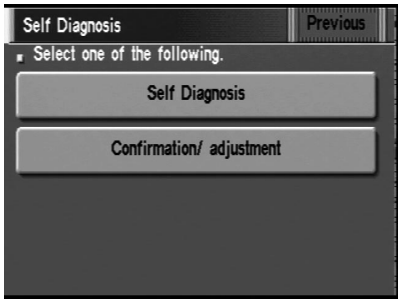
SEL453Y

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.

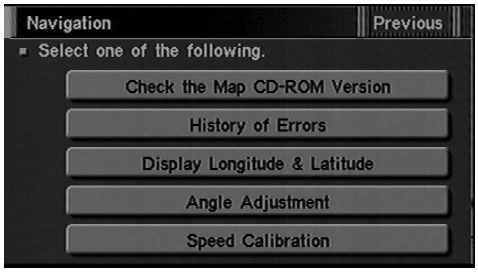


SEL584X

SPEED CALIBRATION

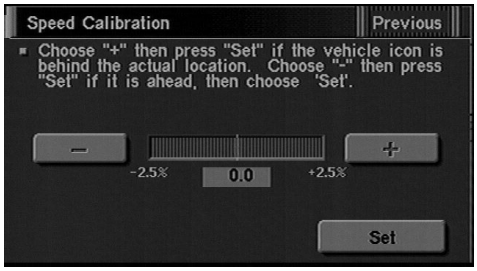
=NAEL0425S08

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".

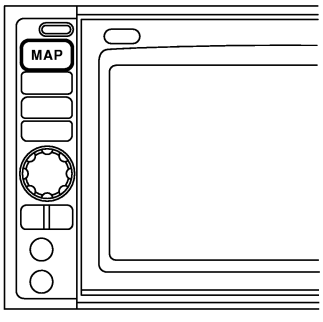
Setting Mode

=NAEL0426

APPLICATION ITEMS

NAEL0426S01

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-430
Quick Stop Customer Setting	One facility of your selection can be added to your Quick Stop.	EL-433
Route Priorities	Priorities of search request and automatic re-searching can be set for route search.	EL-434
Tracking	Tracking to the present vehicle position can be displayed.	EL-435
Display Setting	The following display settings can be customized. ● Display color (Day mode or Night mode) ● Brightness of display	EL-432
Heading	Heading of the map display can be customized for either north heading or the actual driving direction of the vehicle.	EL-435
Nearby Display Icons	Icons of facilities can be displayed. Facilities to be displayed can be selected from the variety of selections.	EL-436
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-431
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-432
Clear Memory	Address book, Previous destination or Avoid area can be deleted.	EL-436



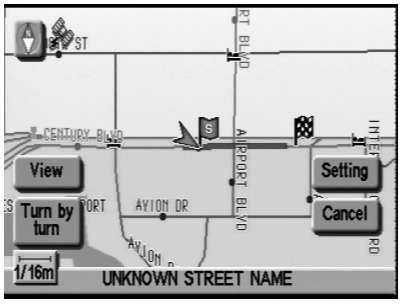
SEL597X

HOW TO PERFORM CONTROL PANEL MODE

NAEL0426S02

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.

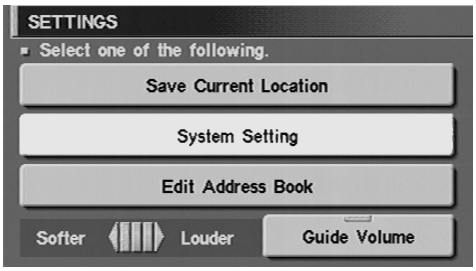


SEL598X

“GPS INFORMATION” SETTING

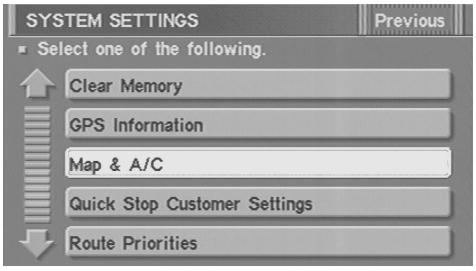
NAEL0426S03

1. Start the engine.
2. Push “MAP” switch.
3. Touch “Setting”.



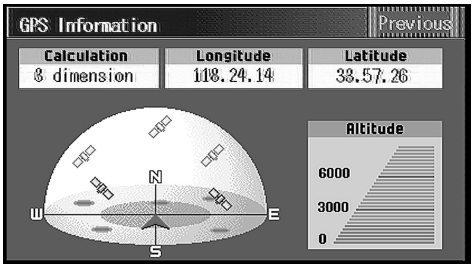
SEL461Y

4. Touch "System Setting".



SEL462Y

5. Touch "GPS Information".



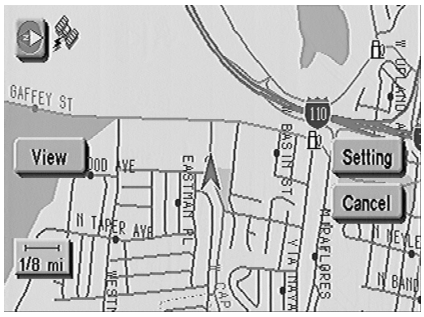
SEL146W

6. Then GPS information will be displayed.

"ADJUST CURRENT LOCATION" SETTING

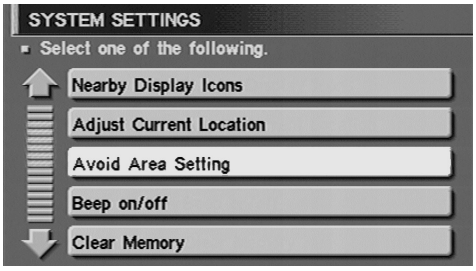
NAEL0426S04

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

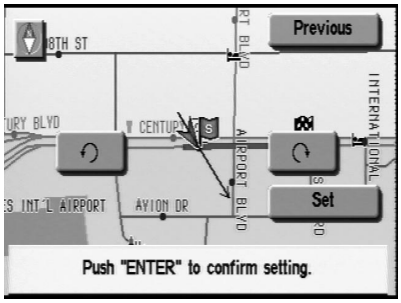


SEL460Y

5. Touch "Adjust Current Location".



SEL463Y



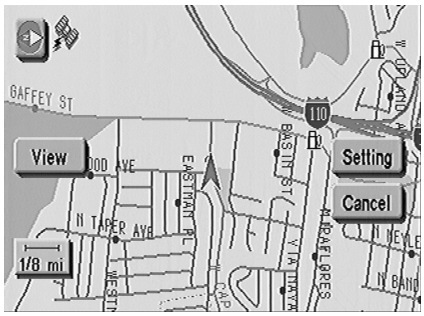
SEL602X

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

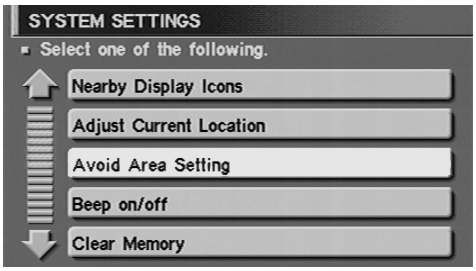
NAEL0426S05

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

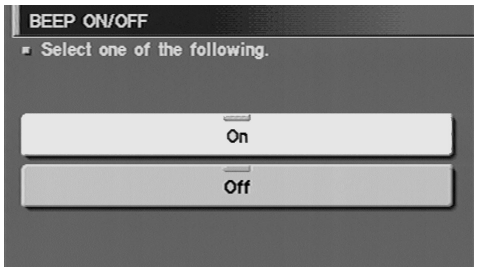


SEL460Y

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

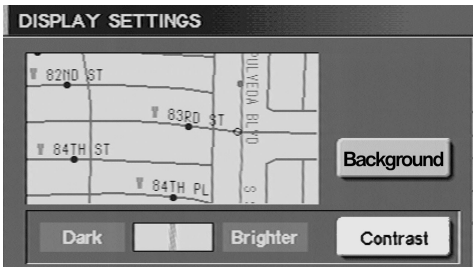
NAEL0426S06

Description

NAEL0426S0601

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

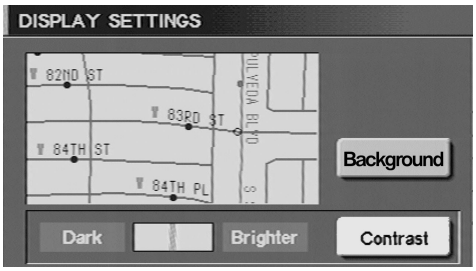
DISPLAY COLOR SETTING

NAEL0426S07

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



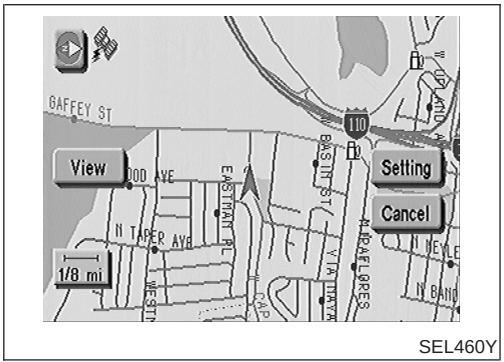
SEL465Y

BRIGHTNESS SETTING

NAEL0426S08

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.

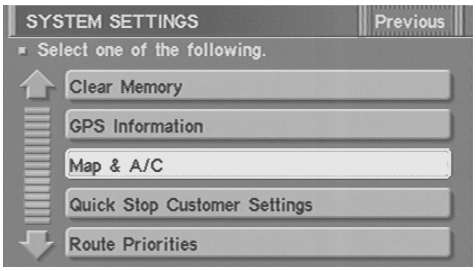


SEL460Y

"QUICK STOP CUSTOMER SETTING" MODE

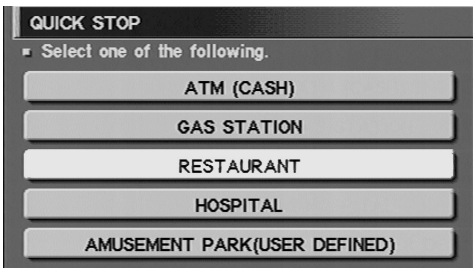
NAEL0426S09

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL462Y

5. Touch "Quick Stop Customer Setting".



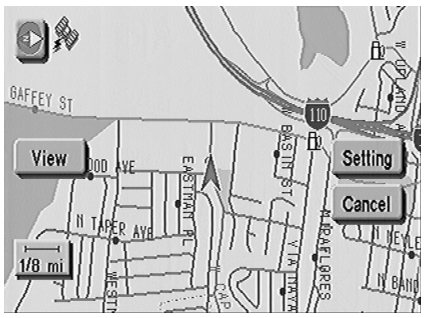
SEL466Y

6. Select from the itemized list.

"ROUTE PRIORITIES" MODE

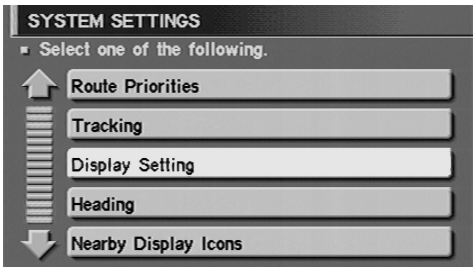
NAEL0426S10

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL460Y

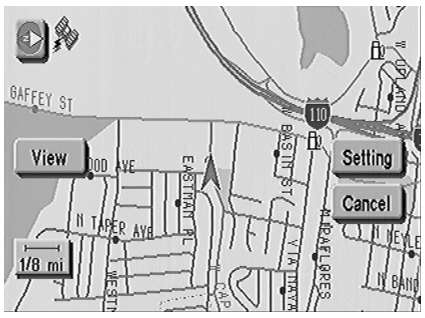
5. Touch "Route Priorities".



SEL467Y

6. Select from the itemized list.

SEL468Y

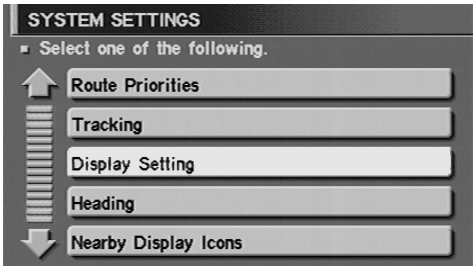


SEL460Y

"TRACKING" MODE

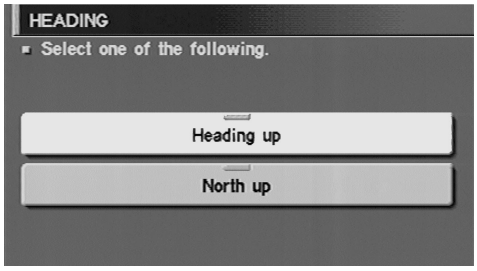
NAEL0426S11

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".

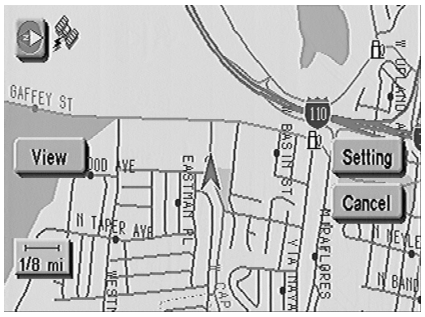
7. Push the "MAP" switch to return the display to the current location map.

NOTE:
When a trail display is turned OFF, trail data is erased from the memory.

"HEADING" MODE

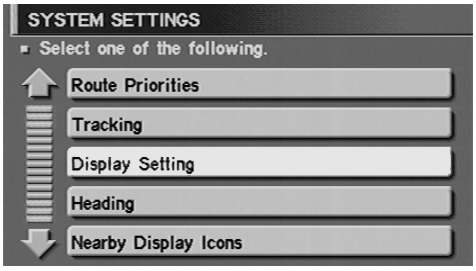
NAEL0426S12

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

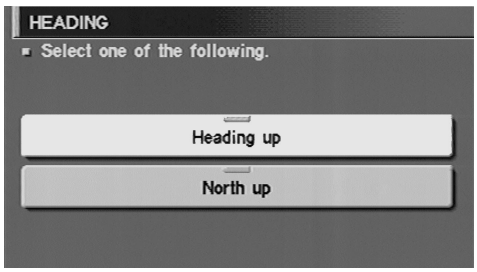


SEL460Y

5. Touch "Heading".



SEL467Y



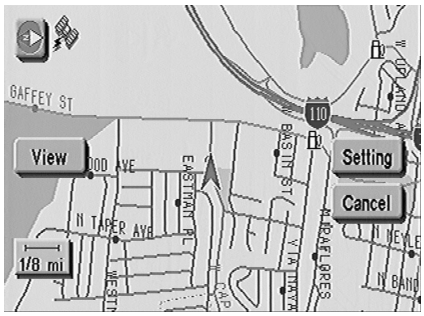
SEL470Y

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.

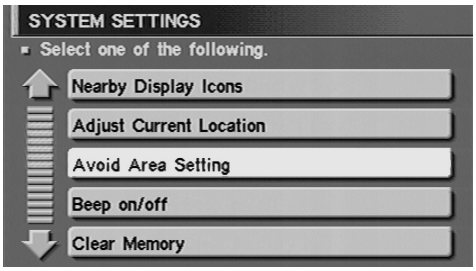
"NEARBY DISPLAY ICONS" MODE

NAEL0426S13



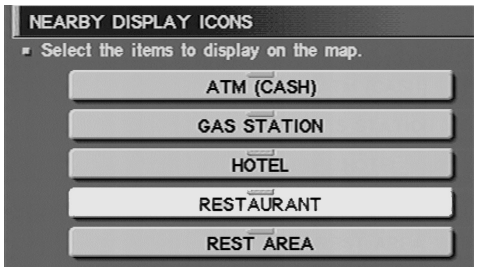
SEL460Y

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL463Y

5. Touch "Nearby Display Icons".

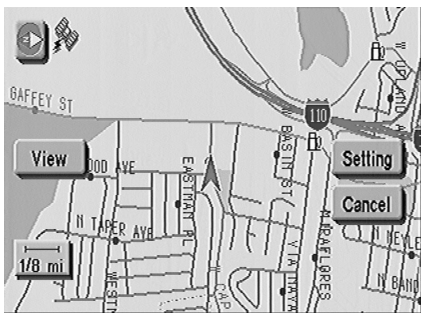


SEL471Y

6. Select and touch the itemized list.
7. Push the "MAP" switch to return the display to the current location map.

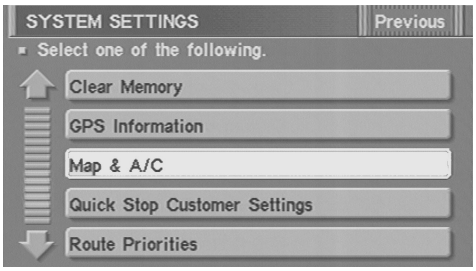
"CLEAR MEMORY" MODE

NAEL0426S14



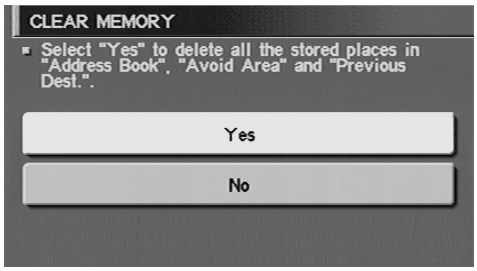
SEL460Y

1. Start the engine.
2. Push the "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".



SEL462Y

5. Touch "Clear Memory".



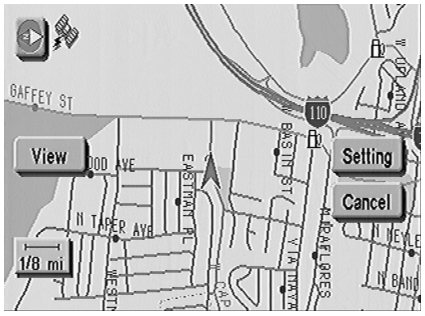
SEL472Y

6. To delete all the stored places in the "Address Book", "Avoid Area" and "Previous Dest.", select "Yes".

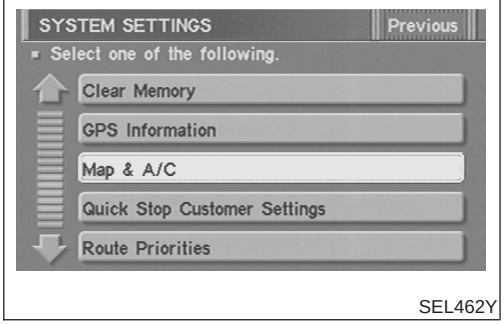
"MAP & A/C" MODE

NAEL0426S15

1. Start the engine.
2. Push "MAP" switch.
3. Touch "Setting".
4. Touch "System Setting".

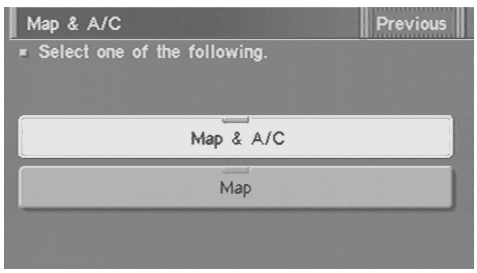


SEL460Y



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

NAEL0427

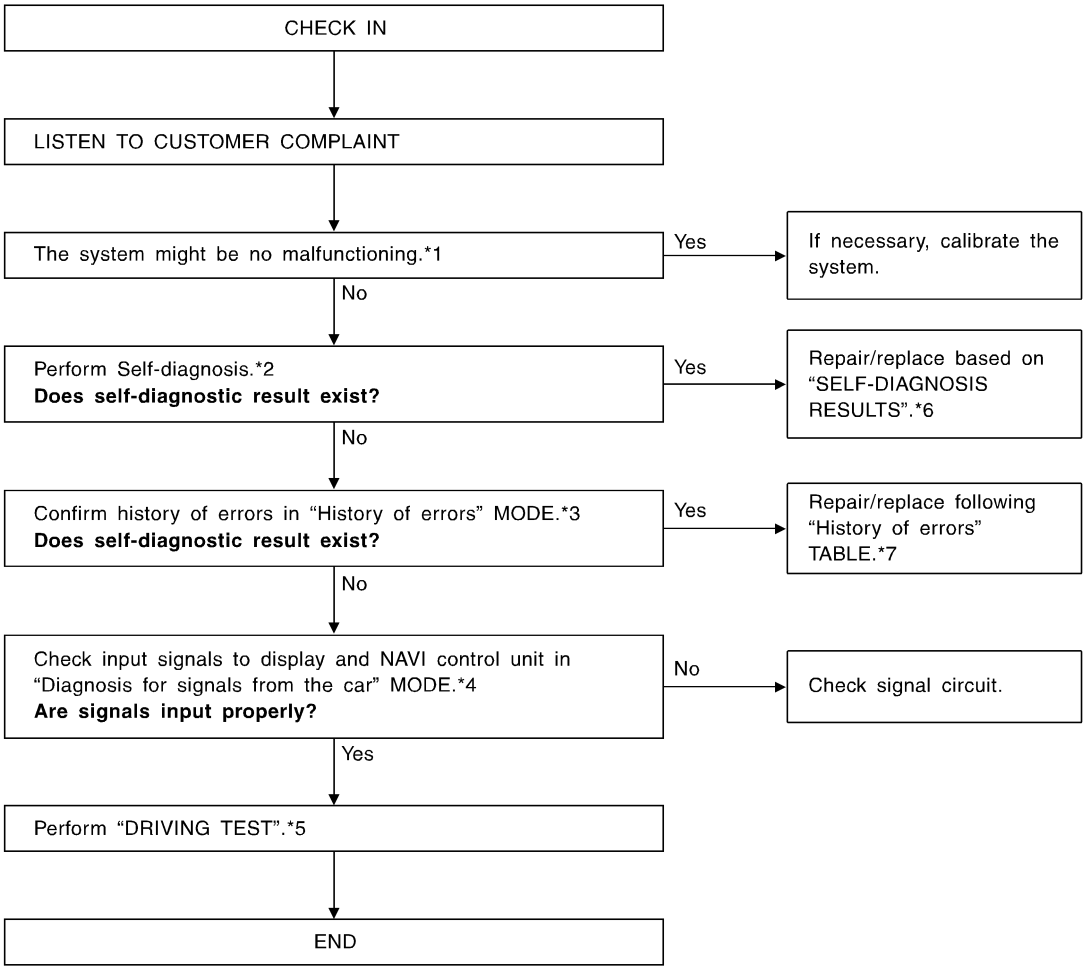
SYMPTOM CHART

NAEL0427S01

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-441
Strange screen color or unusual screen brightness.	1. Check “DISPLAY SETTING”.	EL-432
	2. Check display in “Diagnosis of Display” MODE.	—
The display is not dimmed when turning lighting switch to ON.	1. Check “DISPLAY SETTING”.	EL-432
	2. Check lighting switch signal input to display & NAVI control unit correctly in “DIAGNOSTIC SIGNAL FROM THE CAR” MODE.	EL-424
No navigation guide voice are heard from both front speakers.	1. Check “Voice Guidance Setting”.	—
	2. Check voice guide operation.	EL-442
Beep does not sound when the system guides route.	Check “BEEP ON/OFF SETTING”.	EL-432
Position marker does not trace along the route being traveled.	Go to “WORK FLOW FOR NAVIGATION INSPECTION”.	EL-439
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-424
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-430
	3. Check GPS antenna in “Self Diagnosis”.	EL-417
Heading direction of position marker does not match vehicle direction.	1. Perform “ADJUST CURRENT LOCATION” SETTING.	EL-431
	2. Go to “WORK FLOW FOR NAVIGATION INSPECTION”.	EL-439
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-454

WORK FLOW FOR NAVIGATION INSPECTION

NAEL0427S02



SEL629XA

*1: EL-444
*2: EL-417
*3: EL-420
*4: EL-424
*5: EL-440
*6: EL-419
*7: EL-422

DRIVING TEST

=NAEL0427S03

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-431).

Test pattern 2

Test procedure in which map matching is not used.

- Before driving the vehicle, perform "ADJUST CURRENT LOCATION" (EL-431). 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>

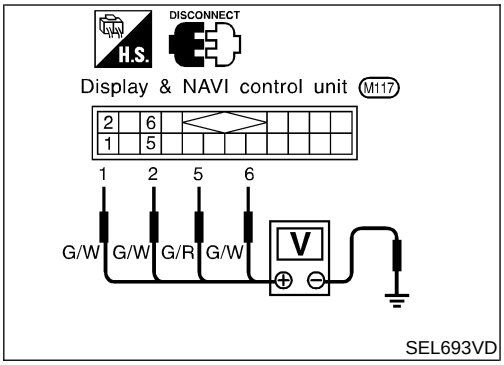
→ Perform test patterns 1 and 2.

- 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

=NAEL0427S04

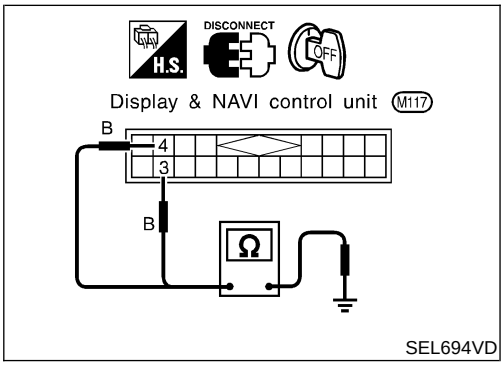
Power Supply Circuit Check

NAEL0427S0401

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

NAEL0427S0402

Terminals	Continuity
3 - Ground	Yes
4 - Ground	Yes

VOICE GUIDE OPERATION CHECK

=NAEL0427S05

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.

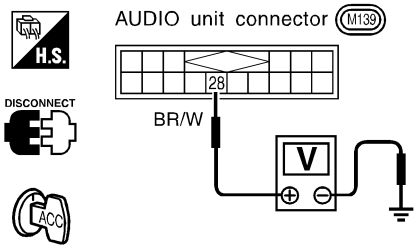
Is the sound emitted from all speakers?

Yes or No

Yes	▶	GO TO 2.
No	▶	Repair or replace audio system. Refer to "AUDIO", EL-170.

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

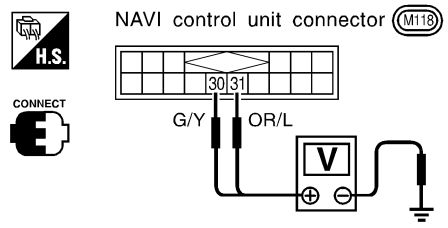
SEL645XA

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

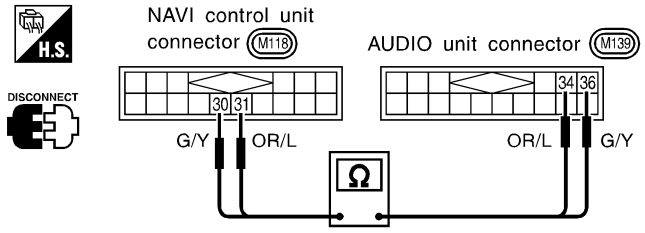
SEL648X

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-170.
No	▶	Repair or replace harness or connector.

This Condition is Not Abnormal

=NAEL0428

EXAMPLE OF BASIC OPERATIONAL ERRORS

NAEL0428S01

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.

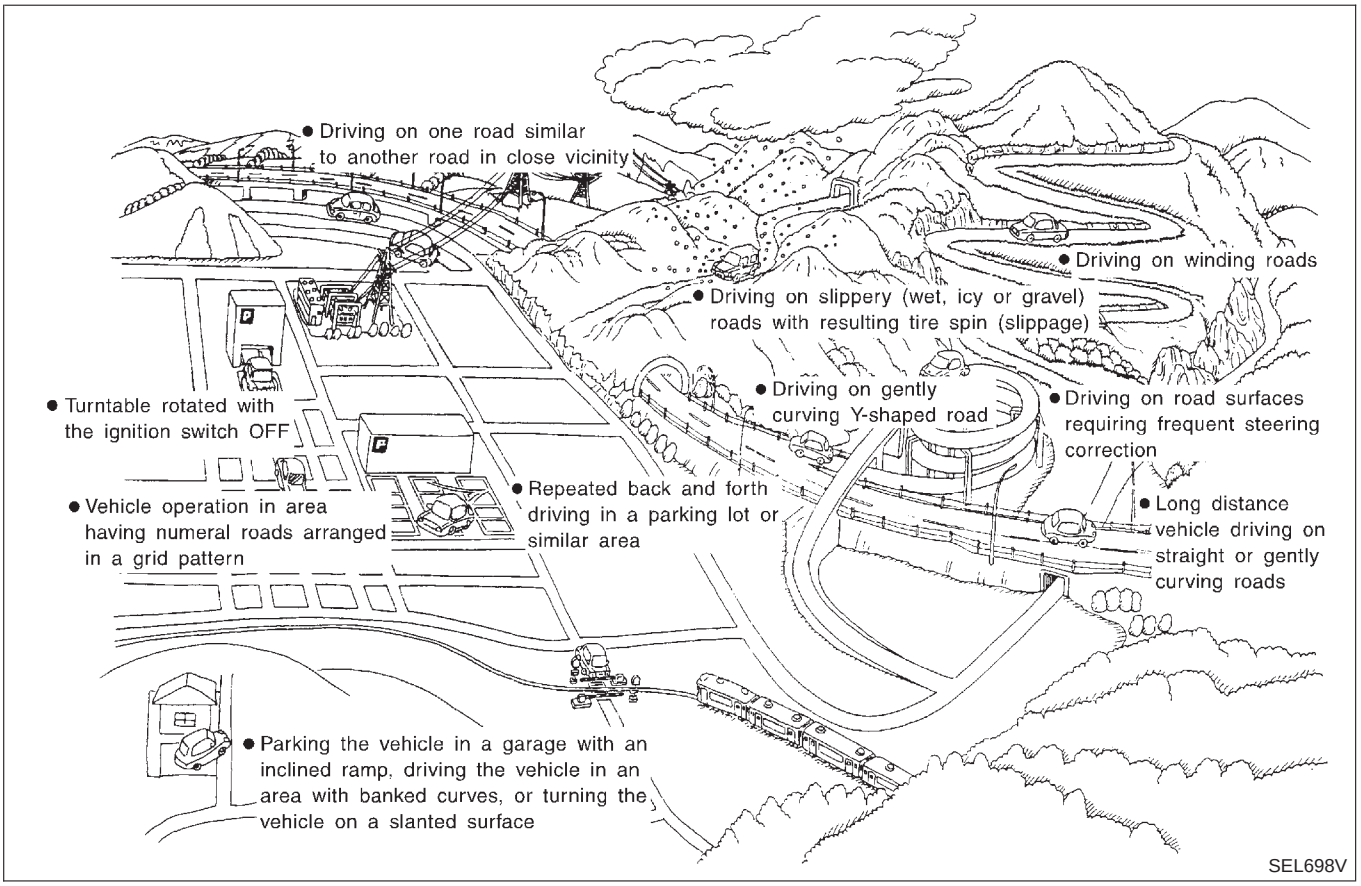
Area place names are not displayed.
If area place names do not appear on the map display, these names may not be available. Use the BIRDVIEW® flat surface map display function. Display output may differ. Note the items related to BIRDVIEW® below.

- 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.

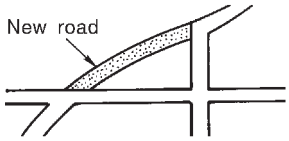
EXAMPLE OF CURRENT VEHICLE POSITION MARKER ERROR

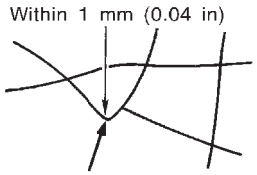
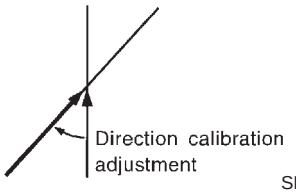
=NAEL0428S02

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-431).

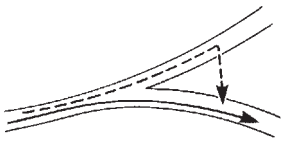
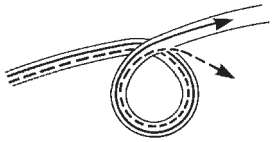
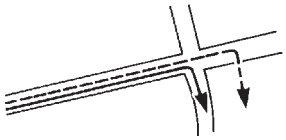
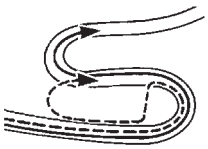
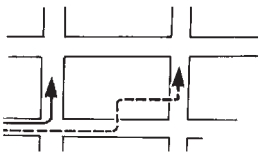
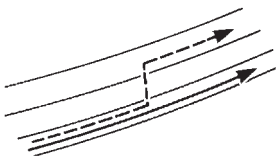


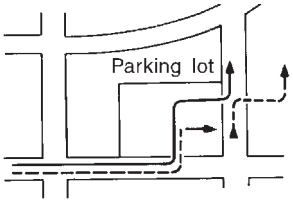
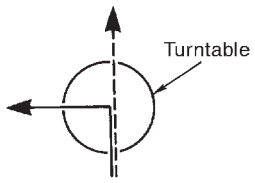
This Condition is Not Abnormal (Cont'd)

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-431). If necessary, perform "SPEED CALIBRATION" (EL-429).
	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-429). 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-429).
	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-431).
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-431) 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-431.

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-431).
	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-431).

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-432.]

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-429). 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

NAEL0428S03

- If the present location or the destination location is displayed in the avoid area, it is not possible to search routes.
- If the avoid area is set to wide range area, it may not be possible to find appropriate routes or search for alternate routes.
- The automatic re-route calculates a return to the original route. Because of this, it may not be possible to search appropriate new routes. If you deviate from the original route and wish to select an appropriate new route, touch "Route Calculation".
- The automatic re-route function may sometimes require considerable time.
- Displayed route number and directional information at a highway junction may differ from the information posted on the actual road signs.
- Displayed street name information at a highway exit may differ from the information posted on the actual road signs.
- Street name information displayed on the enlarged intersection map may differ from the information posted on the actual road signs.

This Condition is Not Abnormal (Cont'd)

- The enlarged intersection map may display an "Unknown Street" message at some street intersections.
- Because of road configuration, etc. the guide may finish early. If this occurs, follow the marker to reach your destination.
- Destination area side information (left side and right side) may differ from actual conditions because of data error.

Unable to Set Destination, Way Point, and/or Menu Items

NAEL0428S0301

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

NAEL0428S0302

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

NAEL0428S0303

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

NAEL0428S04

- 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

NAEL0428S05

- 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

NAEL0428S06

- 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.

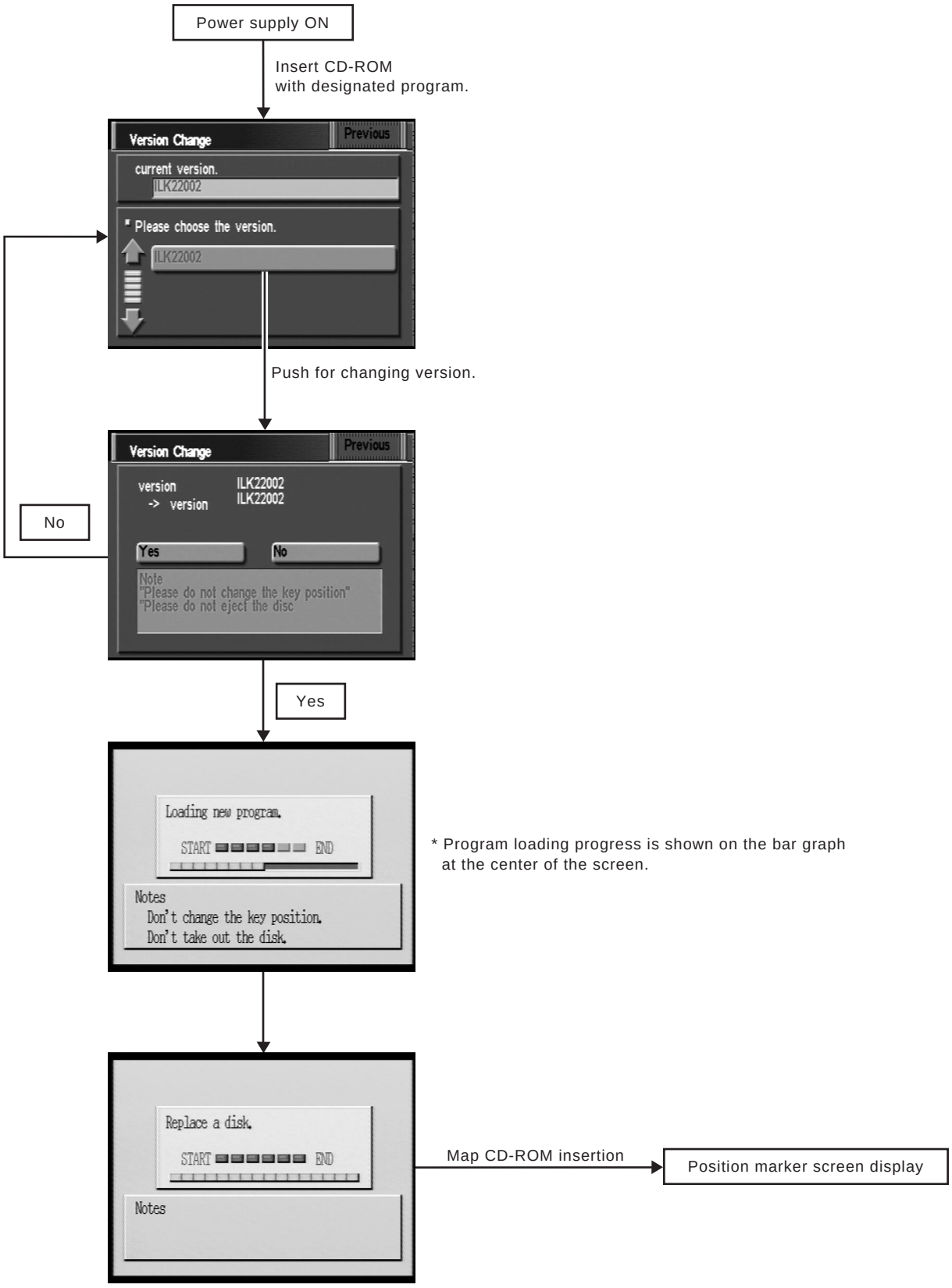
GPS ANTENNA

NAEL0428S07

- 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

NAEL0429



Note: Load the program only after the engine has been started.

SEL612X

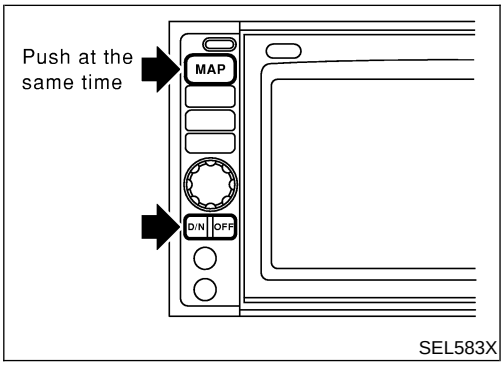
Initialization

NAEL0430

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.**

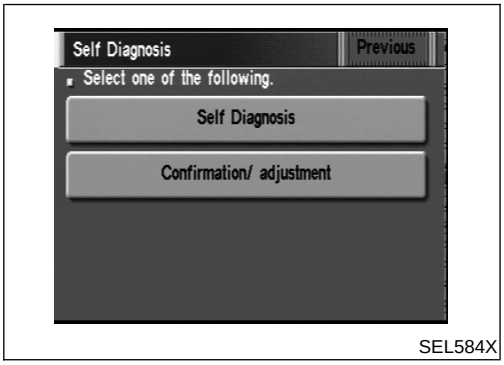


SEL583X

HOW TO PERFORM

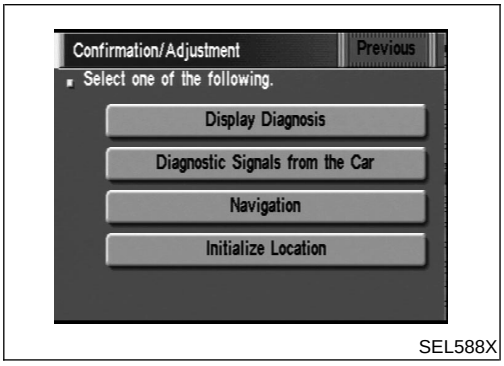
NAEL0430S01

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.



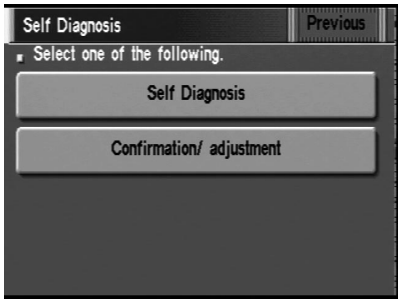
SEL584X

2. Touch "Confirmation/ adjustment".



SEL588X

3. Touch "Initialize Location". Then the previous screen is displayed.

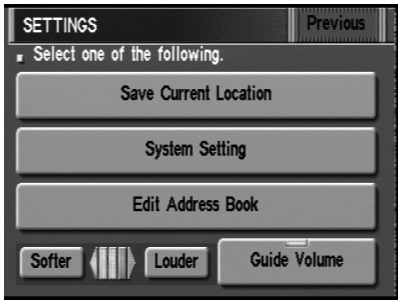


SEL584X

4. Push "Previous" switch.

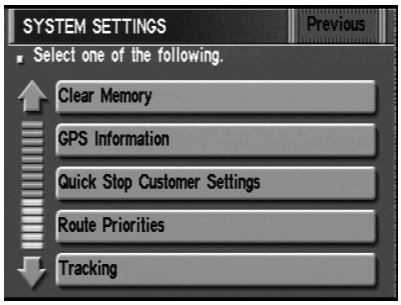
SEL598X

5. Push the "MAP" switch.
6. Touch "Setting".



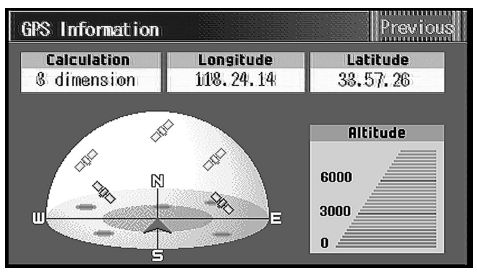
SEL599X

7. Touch "System Setting".



SEL600X

8. Touch "GPS Information".

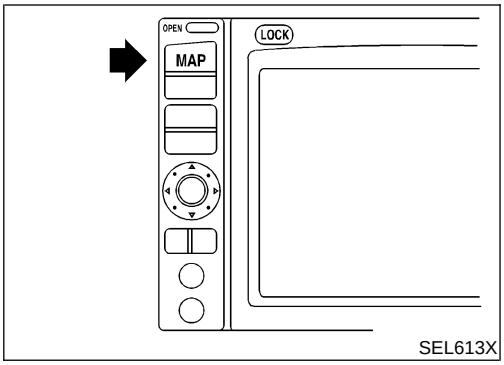


SEL146W

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)

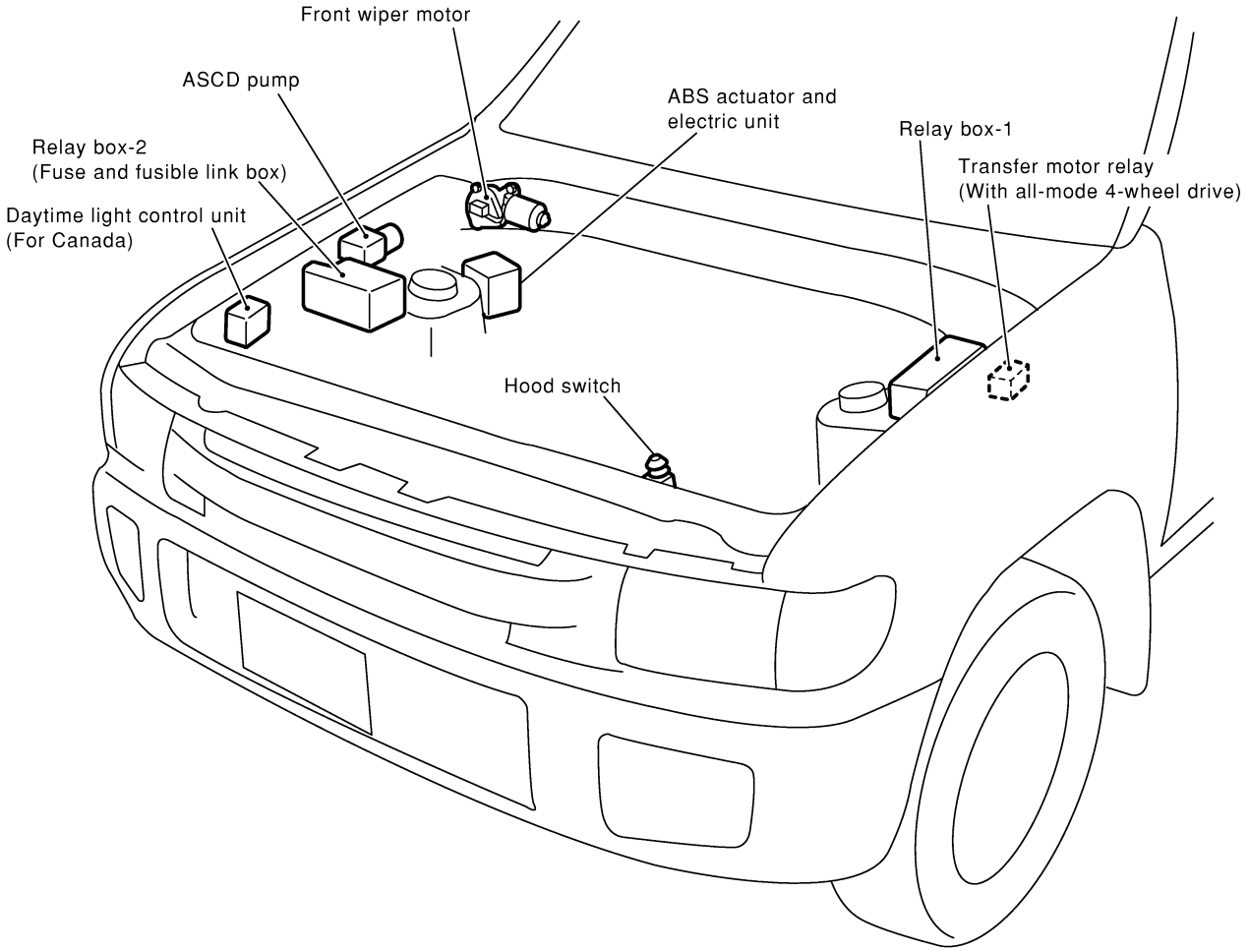


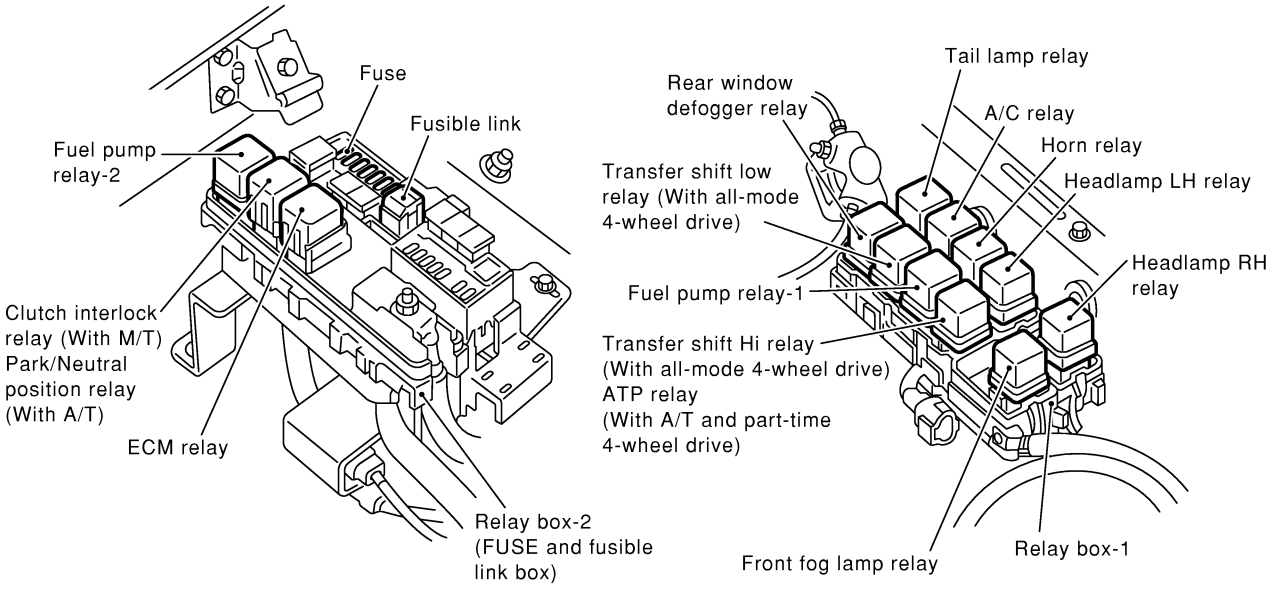
10. Push "MAP" switch and check the following.
- Confirm that the GPS icon on the map turns green.
- Then the position marker should show the current location.
- Position marker rotates corresponding to the movement of the vehicle.

11. Initialization is completed.

Engine Compartment

NAEL0431

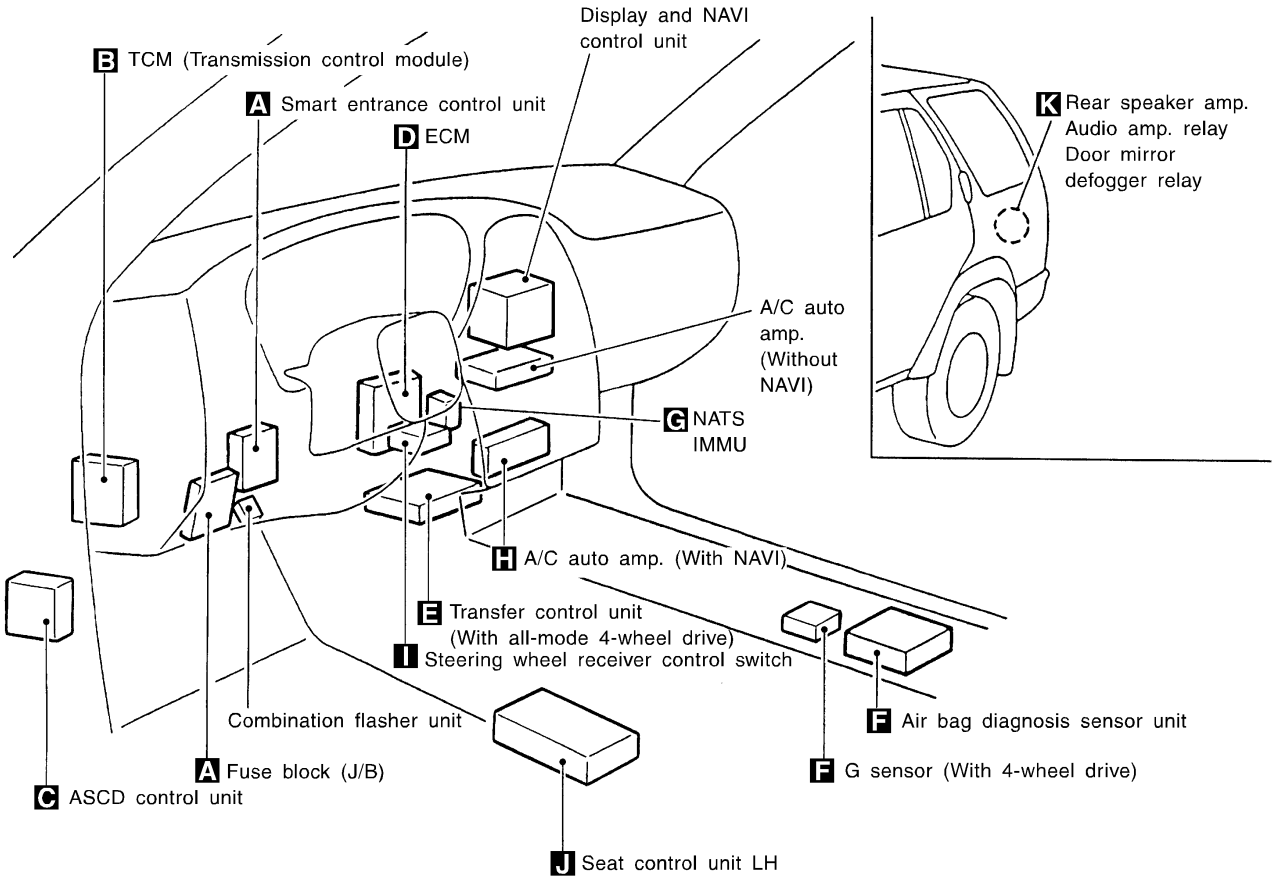




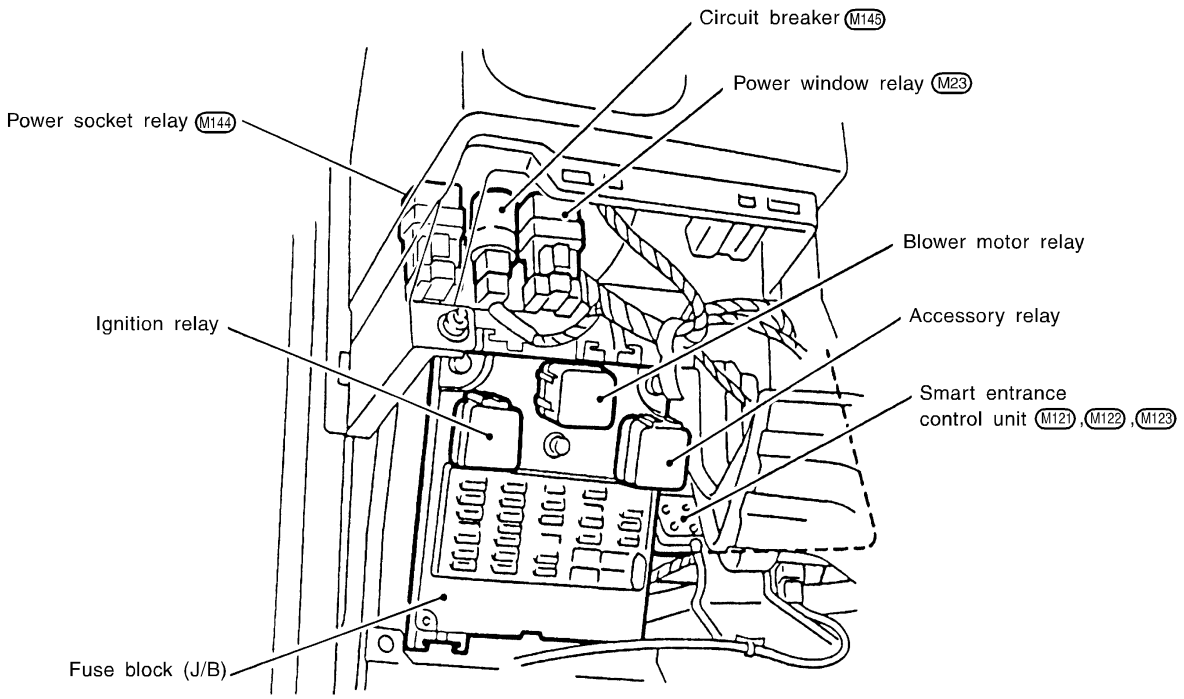
MEL912N

Passenger Compartment

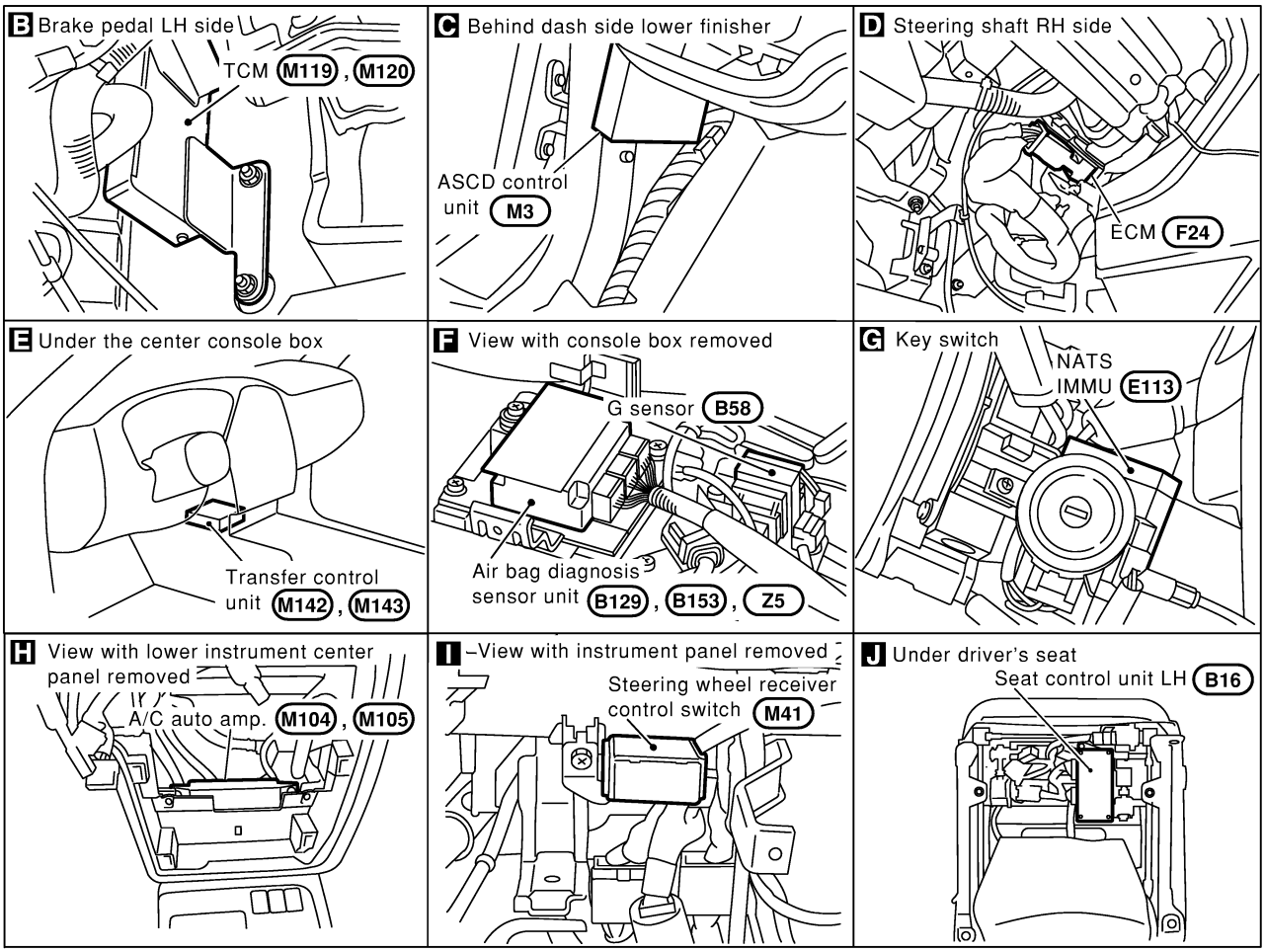
NAEL0432

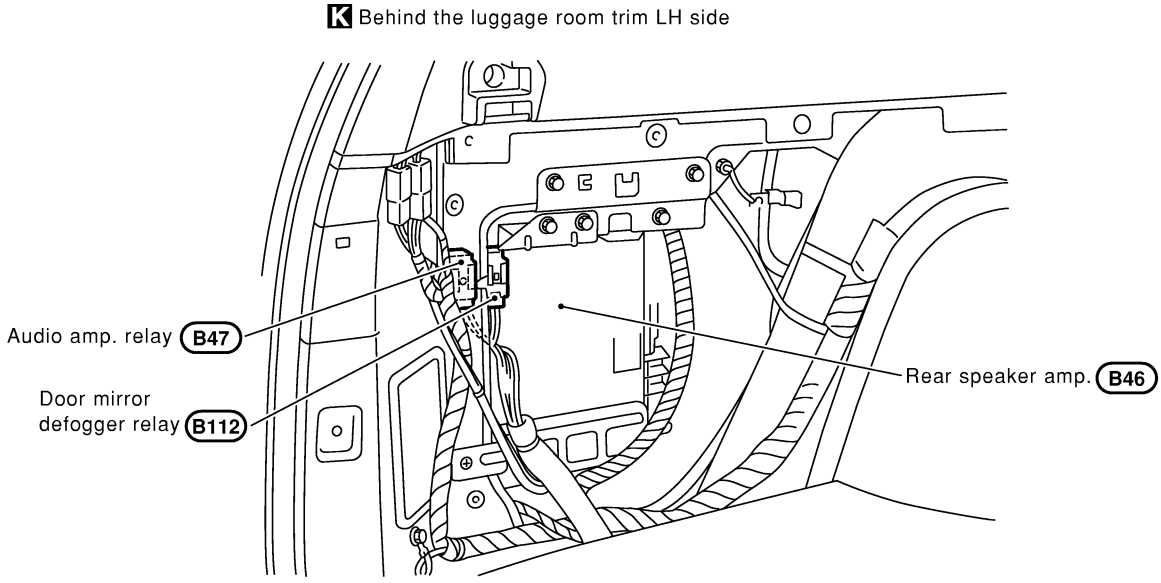


A Instrument panel LH side



MEL918O

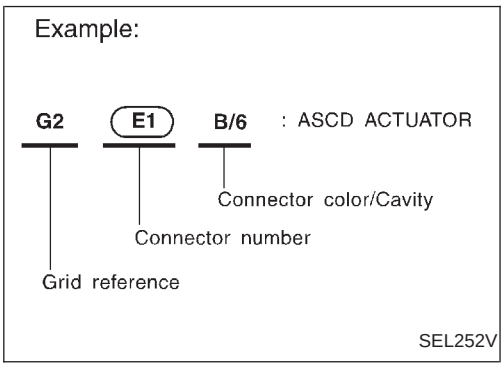

B Brake pedal LH side
TCM M119, M120
C Behind dash side lower finisher
ASCD control unit M3
D Steering shaft RH side
ECM F24
E Under the center console box
Transfer control unit M142, M143
F View with console box removed
G sensor B58
Air bag diagnosis sensor unit B129, B153, Z5
G Key switch
NATS IMMU 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
Audio amp. relay B47
Door mirror defogger relay B112
Rear speaker amp. B46

MEL417O

How to Read Harness Layout

NAEL0433



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

NAEL0433S01

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

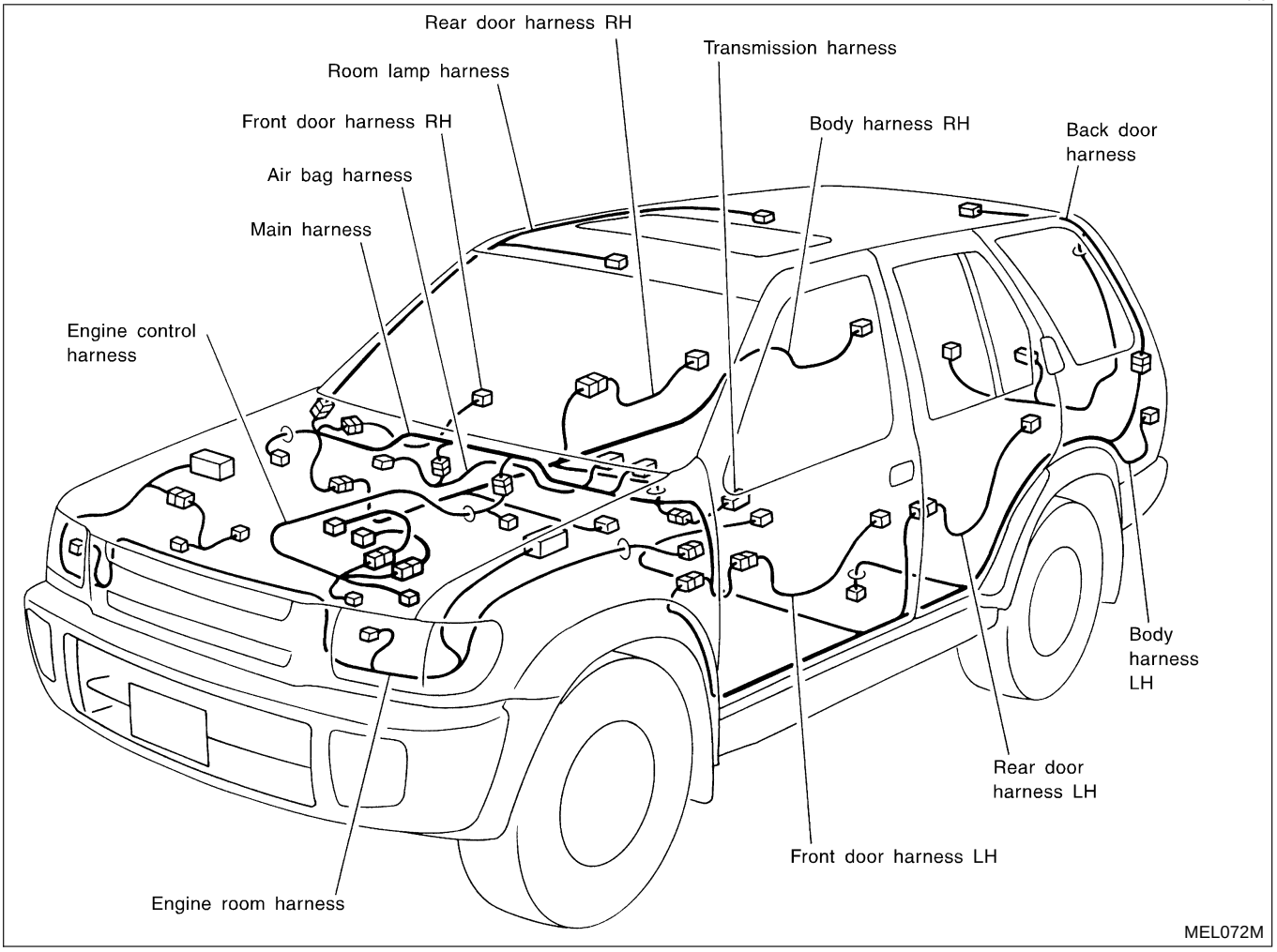
NAEL0433S02

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.	—			

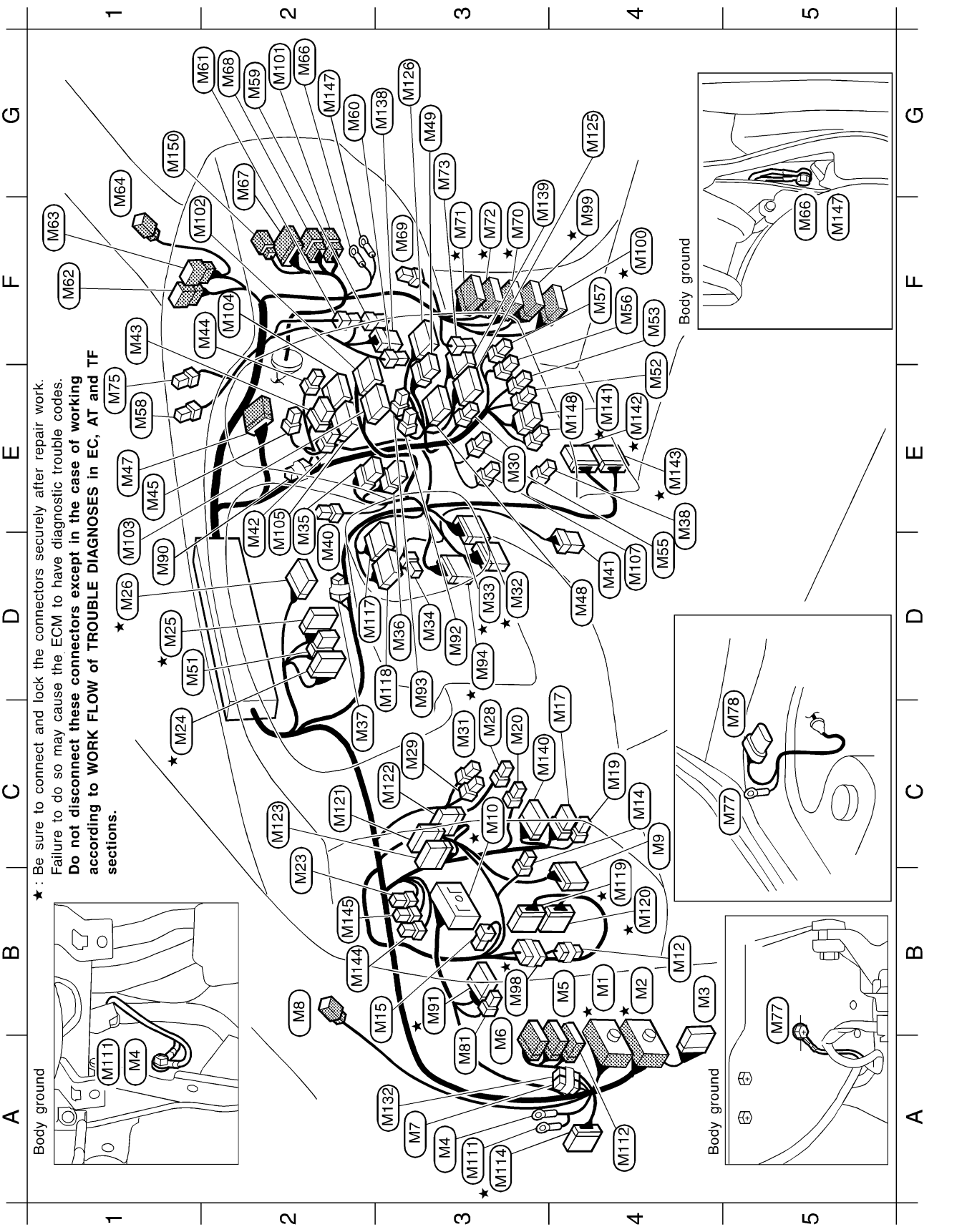
Outline

NAEL0434



Main Harness

NAEL0435



MEL418O

B4★ (M1) SMJ : To (E1)
B4★ (M2) SMJ : To (B1)
B4 (M3) BR/24 : ASCD control unit
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
C4 (M14) L/2 : ASCD clutch switch (With M/T)
B3 (M15) B/3 : Combination flasher unit
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 (M28) L/2 : Clutch interlock switch (With M/T)
C3 (M29) L/2 : ASCD brake switch
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 (With auto A/C)
D2 (M35) W/8 : Hazard switch
D3 (M36) W/6 : Rear window defogger switch
C3 (M37) B/2 : Diode
D4 (M38) W/3 : Mode door motor (With auto A/C)
D2 (M40) W/4 : Clock
D4 (M41) W/8 : Steering wheel receiver
control switch
E2 (M42) W/4 : Recirculation switch
F1 (M43) W/6 : Fan switch
F2 (M44) W/3 : A/C switch (With manual A/C)
E1 (M45) W/3 : A/C switch illumination
(With manual A/C)
Diode (M7)
Combination meter (Brake warning lamp) — Parking brake switch

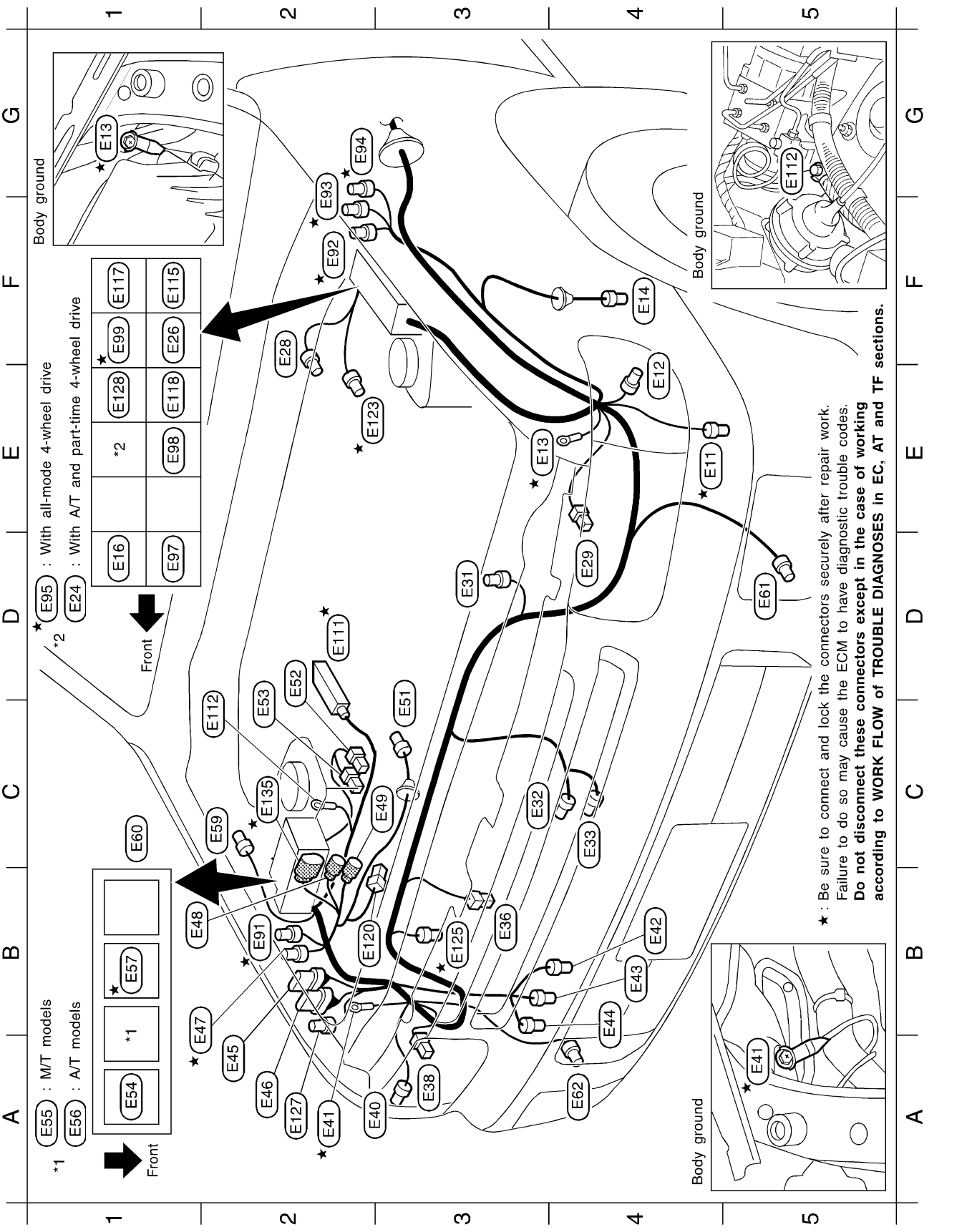
E1 (M47) W/20 : To (Z1)
D4 (M48) W/10 : Audio unit
G3 (M49) W/6 : Audio unit
D1 (M51) W/8 : Combination meter
E4 (M52) L/4 : Heated seat switch LH
F4 (M53) W/4 : Heated seat switch RH
D4 (M55) W/3 : Air mix door motor (With auto A/C)
F4 (M56) B/2 : Cigarette lighter socket
F4 (M57) W/2 : Cigarette lighter illumination
E1 (M58) B/2 : Sunload sensor (With auto A/C)
G2 (M59) W/8 : Intake door motor (With auto A/C)
G2 (M60) W/4 : Fan control amp. (With auto A/C)
G1 (M61) BR/4 : Fan resistor
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)
D1 (M90) B/2 : Diode (With manual A/C)
B3★ (M91) W/12 : Fuse block (J/B)
D3 (M92) B/2 : CD player
D3 (M93) W/4 : CD player
★ : 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.
Diode (M12)
Park/neutral position switch — TCM (Transmission control module)
Diode (M37)
Rear window defogger relay — ECM

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) (With auto A/C)
D1 (M103) GY/20 : A/C auto amp. (Without NAVI) (With auto A/C)
F2 (M104) W/20 : A/C auto amp. (With NAVI) (With auto A/C)
E2 (M105) W/16 : A/C auto amp. (With NAVI) (With auto A/C)
D4 (M107) W/2 : Intake sensor
A3 (M111) — : Body ground
A4 (M112) GY/12 : To (D13)
A3★ (M114) W/18 : To (E116)
D2 (M117) W/20 : Display & NAVI control unit
D3 (M118) GY/20 : Display & NAVI control unit
B4★ (M119) W/24 : TCM (Transmission control module) (With A/T)
B4★ (M120) GY/24 : TCM (Transmission control module) (With A/T)
C2 (M121) W/24 : Smart entrance control unit
C3 (M122) GY/24 : Smart entrance control unit
C2 (M123) GY/16 : Smart entrance control unit
G4 (M125) W/16 : CD auto changer
G3 (M126) W/12 : Audio unit (With BOSE system)
A3 (M132) B/2 : Diode
G3 (M138) W/8 : Intake door motor (With auto A/C)
F3 (M139) W/16 : Audio unit
C3 (M140) W/10 : Door mirror remote control switch
E4★ (M141) W/8 : 4WD shift switch (With all-mode 4-wheel drive)
E4★ (M142) L/24 : Transfer control unit (With all-mode 4-wheel drive)
E4★ (M143) G/24 : Transfer control unit (With all-mode 4-wheel drive)
B2 (M144) W/4 : Power socket relay
B2 (M145) W/2 : Circuit breaker
G2 (M147) — : Body ground
E4 (M148) W/4 : Rear TV switch (With rear TV)
G1 (M150) W/4 : Intake door motor (With manual A/C)
Diode (M90)
Fuse block — Recirculation switch
Diode (M132)
Fuse block — Smart entrance control unit — Power window relay

MEL419O

Engine Room Harness

NAEL0436



MEL917N

★: 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	A2 ★ E41	—	Body ground	D2 ★ E111	SMJ	ABS actuator and electric unit
E2	B/2	Fuse block (J/B)	B4 E42	BR/2	Washer level switch	C2 E112	–	Body ground
E3	W/16	Fuse block (J/B)	B4 E43	GY/2	Rear washer motor	E113	W/8	NATS IMMU
E4	W/4	Fuse block (J/B)	B4 E44	GY/2	Front washer motor	E114	W/4	Combination switch (Rear wiper switch)
E5	BR/2	Key switch	A2 E45	GY/8	Daytime light control unit	F1 E115	L/4	Tail lamp relay (Relay box-2)
★ E6	W/6	Ignition switch	A2 E46	GY/6	Daytime light control unit	★ E116	W/18	To M114
E7	BR/4	Combination switch (Lighting switch)	B1 ★ E47	GY/2	A/T dropping resistor	F1 E117	BR/6	Rear window defogger relay (Relay box-1)
E8	W/8	Combination switch (Lighting & turn signal switch)	B1 E48	GY/4	To E102	E1 E118	BR/6	Horn relay
E9	GY/8	Combination switch (Front wiper switch)	C2 E49	GY/1	To E104	B2 E120	B/1	Horn (High)
★ E11	GY/2	Intake air temperature sensor	C3 E51	GY/2	Front wheel sensor RH	A1 E121	W/2	Diode
E12	GY/3	Front turn signal and parking lamp LH	D2 E52	B/1	Battery	E2 ★ E123	SB/2	Swirl control valve control vacuum check switch
★ E13	—	Body ground	D2 E53	B/1	Battery	B1 E55	L/4	Clutch interlock relay (With M/T) (Relay box-2)
E14	BR/2	Front wheel sensor LH	A1 E54	L/4	Fuel pump relay-2 (Relay box-2)	B3 ★ E125	B/3	Refrigerant pressure sensor
E16	L/4	Front fog lamp relay (Relay box-1)				B1 E56	GY/6	Park/Neutral position relay (With A/T and ASCD) (Relay box-2)
E24	B/5	ATP relay (With A/T and part-time 4-wheel drive) (Relay box-1)				A2 E127	GY/4	Daytime light control unit
E26	L/4	A/C relay				B1 ★ E57	BR/6	ECM relay (Relay box-2)
E28	GY/2	Brake fluid level switch				E1 E128	L/4	Fuel pump relay-1 (Relay box-1)
E29	B/3	Headlamp LH				C2 ★ E59	SB/4	ASCD pump
E31	GY/2	Hood switch				C1 E60	—	Fuse and fusible link box
E32	B/2	Ambient sensor				C2 ★ E135	GY/8	To E132
E33	B/2	Ambient air temperature sensor (For thermometer)				D5 E61	L/2	Front fog lamp LH
E36	B/1	Horn (Low)				A4 E62	L/2	Front fog lamp RH
E38	B/3	Headlamp RH				E1 E63	W/3	Combination switch (Front fog lamp switch)
E40	GY/3	Front turn signal and parking lamp RH				B2 ★ E91	GY/2	Transfer dropping resistor (With all-mode 4-wheel drive)
						F2 ★ E92	W/1	Transfer motor relay (With all-mode 4-wheel drive)
						G2 ★ E93	W/1	Transfer motor relay (With all-mode 4-wheel drive)
						G2 ★ E94	G/2	Transfer motor relay (With all-mode 4-wheel drive)
						E1 ★ E95	B/5	Transfer shift Hi relay (With all-mode 4-wheel drive) (Relay box-1)
						D1 E97	L/4	Headlamp RH relay (Relay box-1)
						E1 E98	L/4	Headlamp LH relay (Relay box-1)
						F1 ★ E99	B/5	Transfer shift Low relay (Relay box-1)

Diode E121 (With auto light)

Headlamp LH relay	ECM

Diode E121 (Without auto light)

Daytime light control unit (For Canada) Combination switch (Lighting switch) (For USA)	ECM

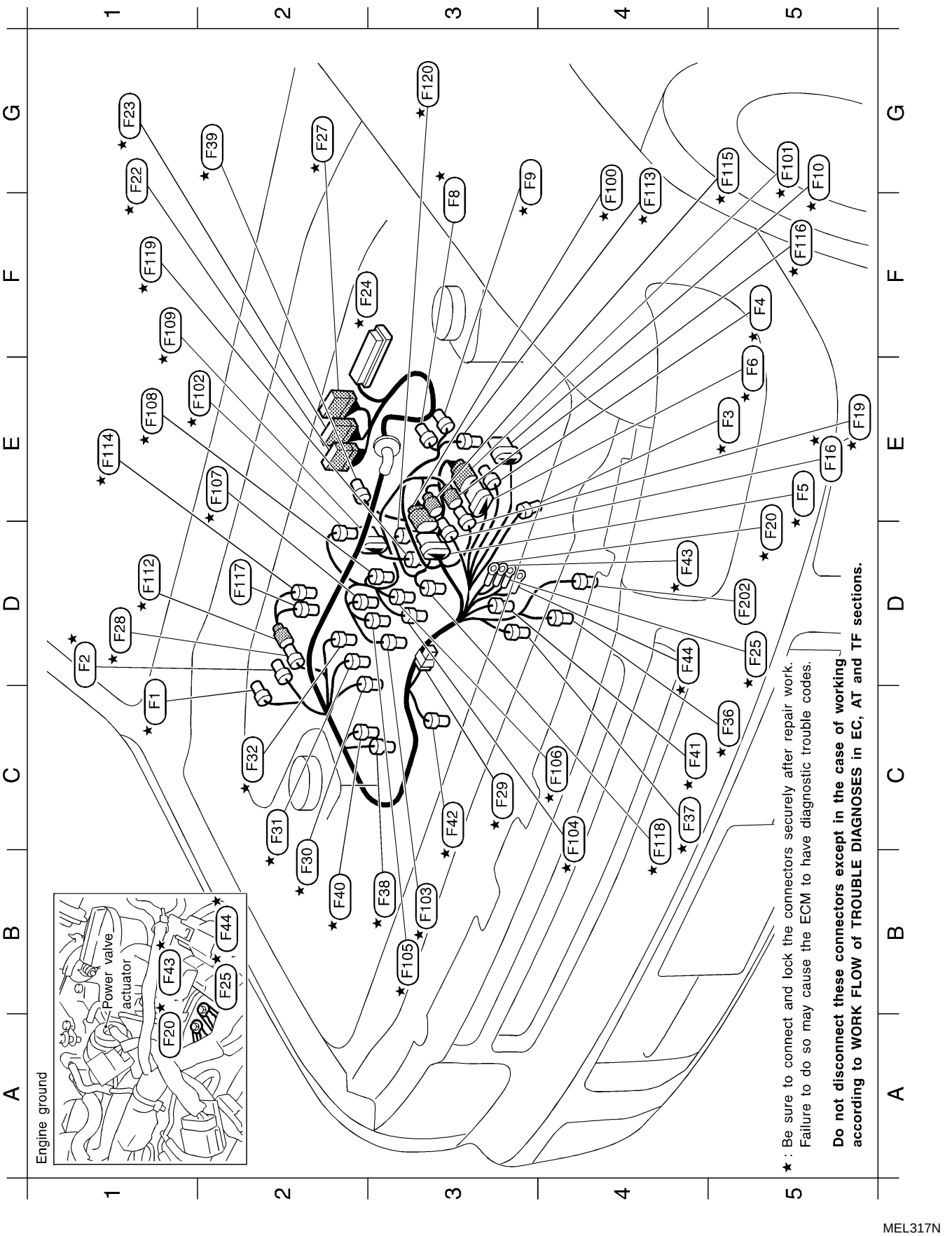
Diode E122 (Without auto light)

Combination switch (Lighting switch)	ECM

MEL481O

Engine Control Harness

NAEL0437



★: 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.

MEL317N

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 LH
B3★ F38 B/3 : Intake valve timing control position sensor RH
G2★ F39 G/2 : Intake valve timing control solenoid valve LH
B2★ F40 SB/2 : Intake valve timing control solenoid valve RH
C4★ F41 G/2 : Swirl control valve control solenoid valve
C3★ F42 BR/2 : VIAS control solenoid valve (With A/T)
D4★ F43 — : Engine ground
D4★ F44 — : Engine ground
F4★ F100 L/8 : To F5
G5★ F101 G/8 : To F6

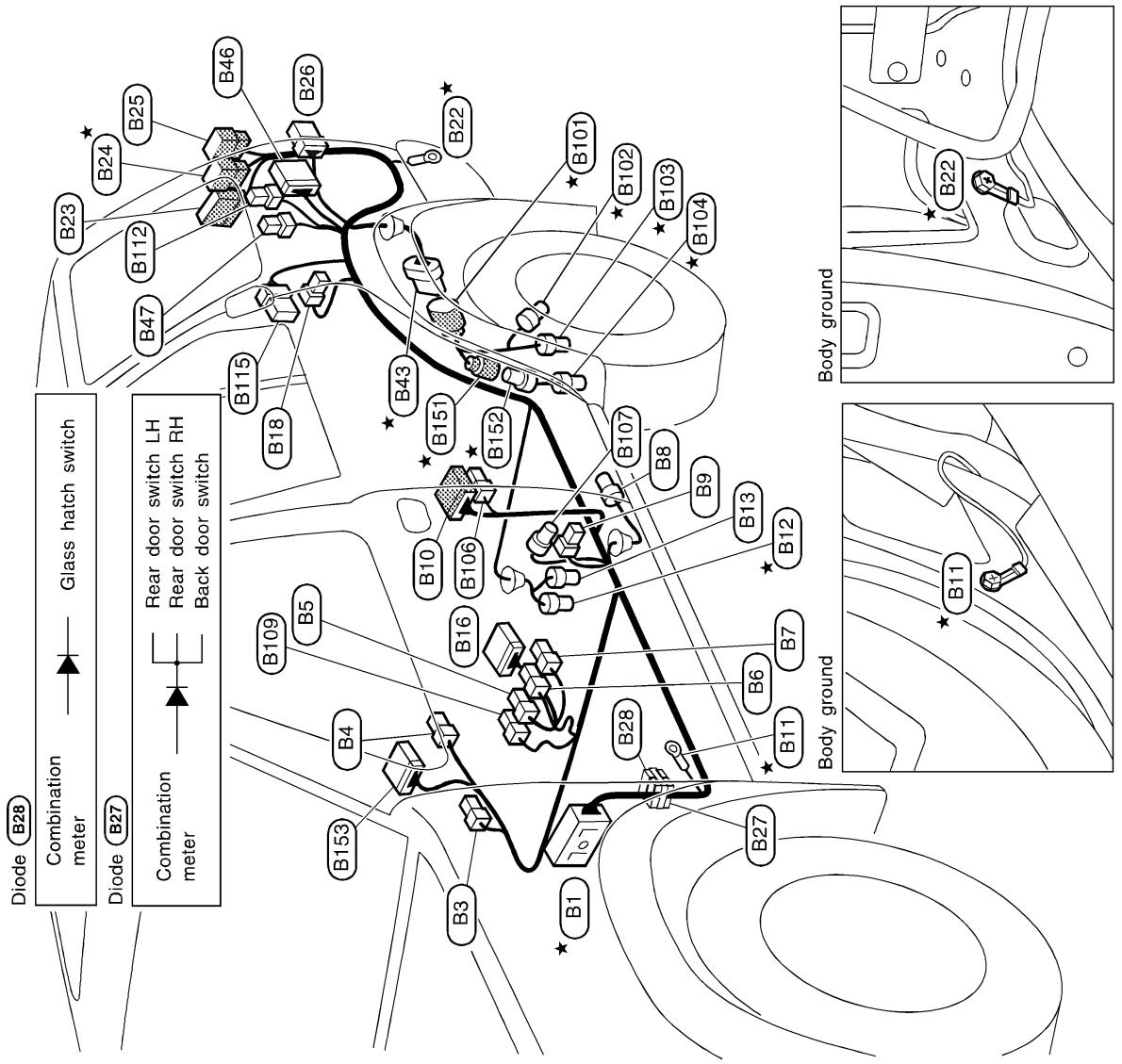
E2★ F102 GY/2 : Knock sensor
B3★ F103 GY/2 : Injector No. 1
C4★ F104 GY/2 : Injector No. 2
B3★ F105 GY/2 : Injector No. 3
C4★ F106 GY/2 : Injector No. 4
E2★ F107 GY/2 : Injector No. 5
E1★ F108 GY/2 : Injector No. 6
F1★ F109 L/6 : IACV-AAC valve
D1★ F112 SB/3 : To F28
F4★ F113 L/2 : EVAP canister purge 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.**

MEL705O

Body Harness LH

NAEL0438



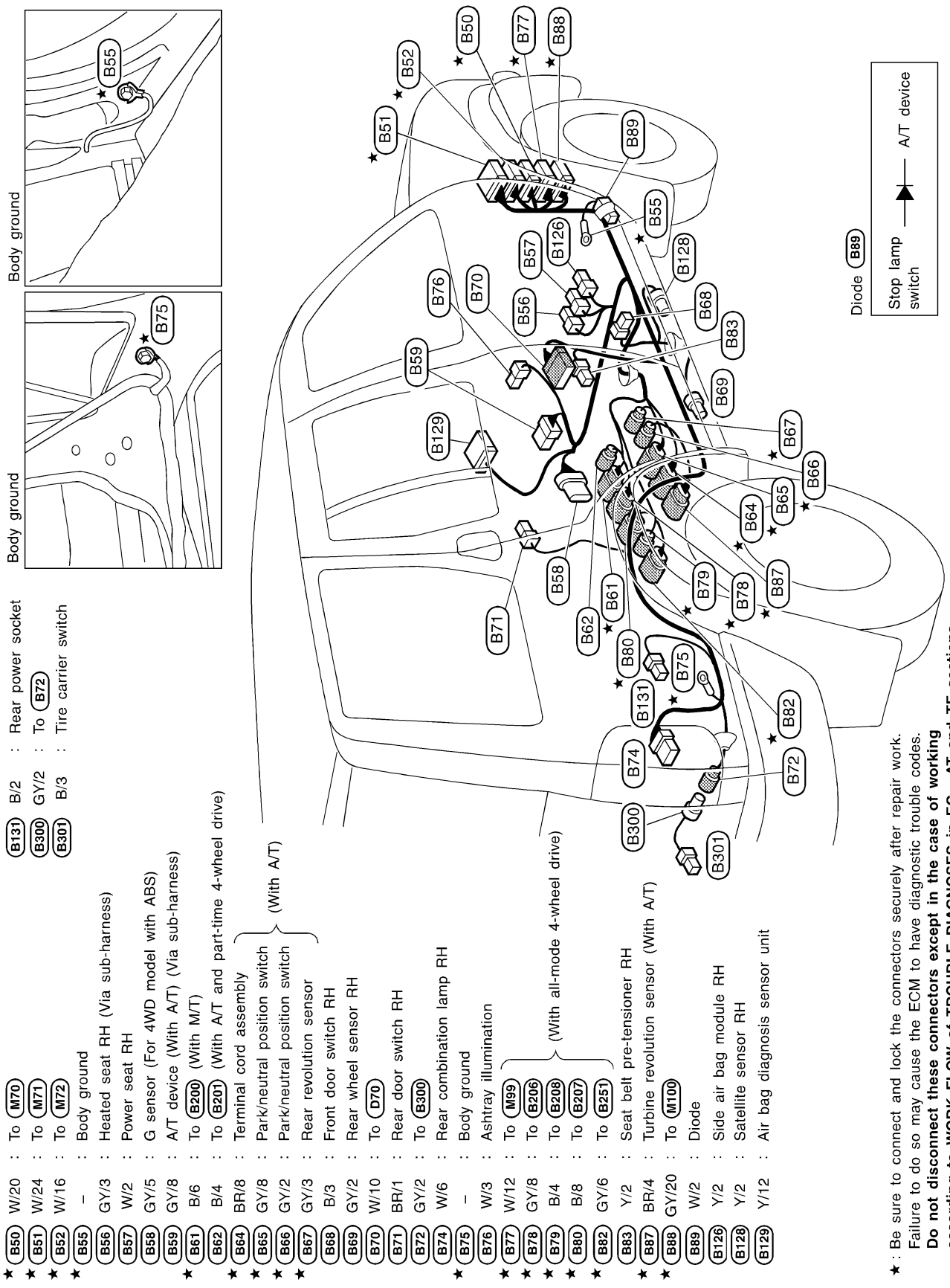
★: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. **Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC, AT and TF sections.**

★ B1	SMJ	: To M2	
B3	B/1	: Parking brake switch	
B4	W/2	: Power socket	
B5	GY/3	: Front heated seat LH (Via sub-harness)	
B6	W/3	: Seat belt buckle switch	
B7	W/2	: Power seat LH	
B8	BR/2	: Rear wheel sensor LH	
B9	B/3	: Front door switch LH	
B10	W/10	: To D50	
★ B11	—	: Body ground	
★ B12	GY/4	: Fuel level sensor unit	
B13	GY/2	: Fuel pump	
B14	W/12	: Rear wiper amp.	
B16	W/16	: Seat control unit LH (Via sub-harness)	
B18	BR/1	: Rear door switch LH	
★ B22	—	: Body ground	
B23	W/12	: To D100	
★ B24	W/6	: To D101	
B25	BR/6	: To D102	
B26	W/6	: Rear combination lamp LH	
B27	B/2	: Diode	
B28	B/2	: Diode	
★ B43	GY/8	: To B101	
B46	W/26	: Rear speaker amp. (With BOSE system)	
B47	W/4	: Audio amp. relay (With BOSE system)	
★ B101	GY/8	: To B43	
★ B102	GY/3	: EVAP control system pressure sensor	
★ B103	B/2	: EVAP canister vent control valve	
★ B104	G/2	: Vacuum cut valve bypass valve	
B106	Y/2	: Seat belt pre-tensioner LH	
B107	Y/2	: Satellite sensor LH	
B109	Y/2	: Side air bag module LH	
B112	W/4	: Door mirror defogger relay	
B115	W/6	: Aux box (With rear TV)	
★ B151	GY/2	: To B152	
★ B152	GY/2	: To B151	
B153	Y/12	: Air bag diagnosis sensor unit	

MEL420O

Body Harness RH

NAEL0439



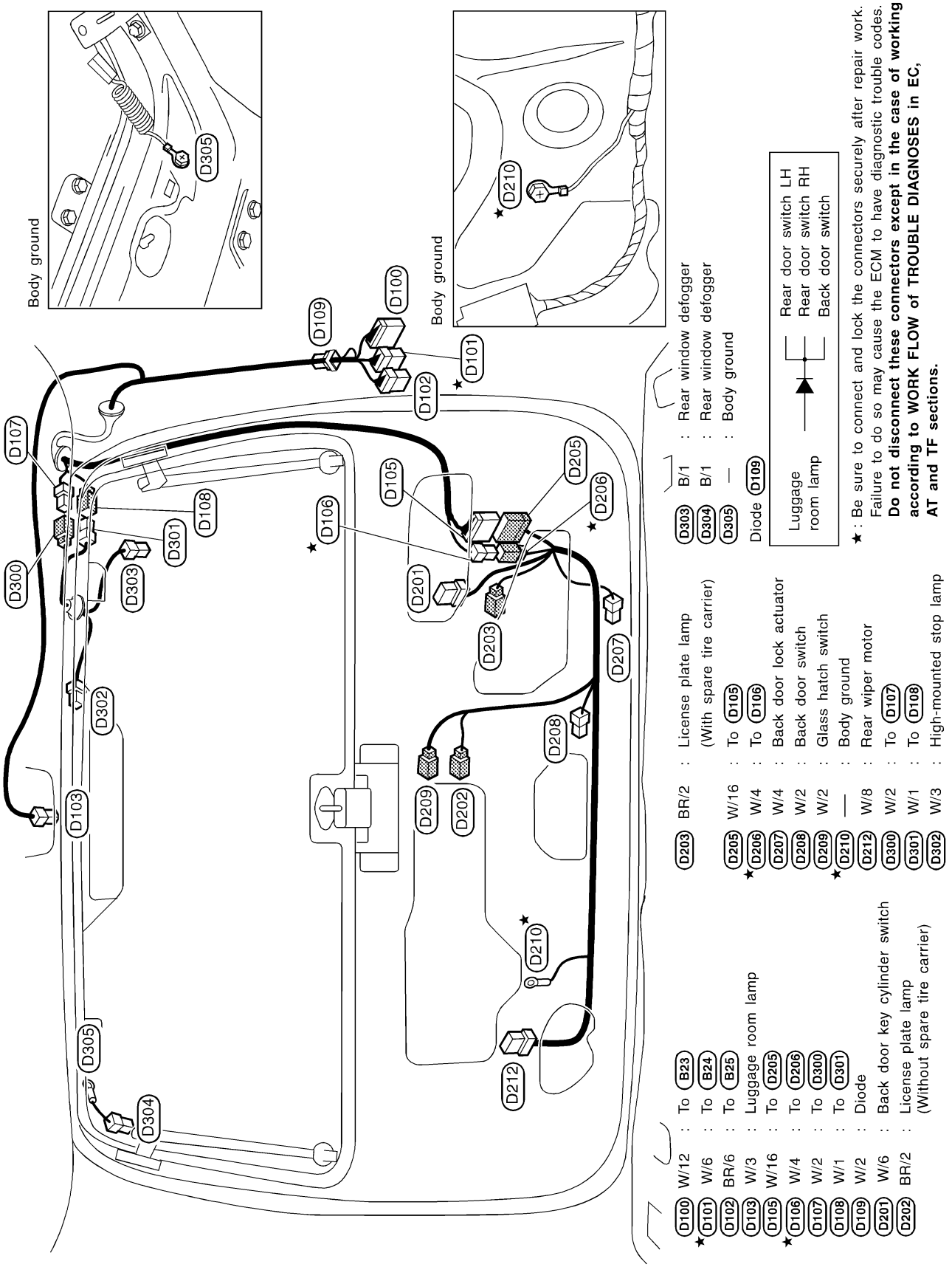
★	B50	W/20	: To M70	B131 B/2	: Rear power socket
★	B51	W/24	: To M71	B300 GY/2	: To B72
★	B52	W/16	: To M72	B301 B/3	: Tire carrier switch
★	B55	–	: Body ground		
	B56	GY/3	: Heated seat RH (Via sub-harness)		
	B57	W/2	: Power seat RH		
	B58	GY/5	: G sensor (For 4WD model with ABS)		
	B59	GY/8	: A/T device (With A/T) (Via sub-harness)		
★	B61	B/6	: To B200 (With M/T)		
	B62	B/4	: To B201 (With A/T and part-time 4-wheel drive)		
★	B64	BR/8	: Terminal cord assembly		
★	B65	GY/8	: Park/neutral position switch (With A/T)		
★	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		
	B72	GY/2	: To B300		
	B74	W/6	: Rear combination lamp RH		
★	B75	–	: Body ground		
	B76	W/3	: Ashtray illumination		
★	B77	W/12	: To M99		
★	B78	GY/8	: To B206 (With all-mode 4-wheel drive)		
★	B79	B/4	: To B208		
★	B80	B/8	: To B207		
★	B82	GY/6	: To B251		
	B83	Y/2	: Seat belt pre-tensioner RH		
★	B87	BR/4	: Turbine revolution sensor (With A/T)		
★	B88	GY/20	: To M100		
	B89	W/2	: Diode		
	B126	Y/2	: Side air bag module RH		
	B128	Y/2	: Satellite sensor RH		
	B129	Y/12	: Air bag diagnosis sensor unit		

★: Be sure to connect and lock the connectors securely after repair work.
Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC , AT and TF sections.

MEL445P

Back Door Harness

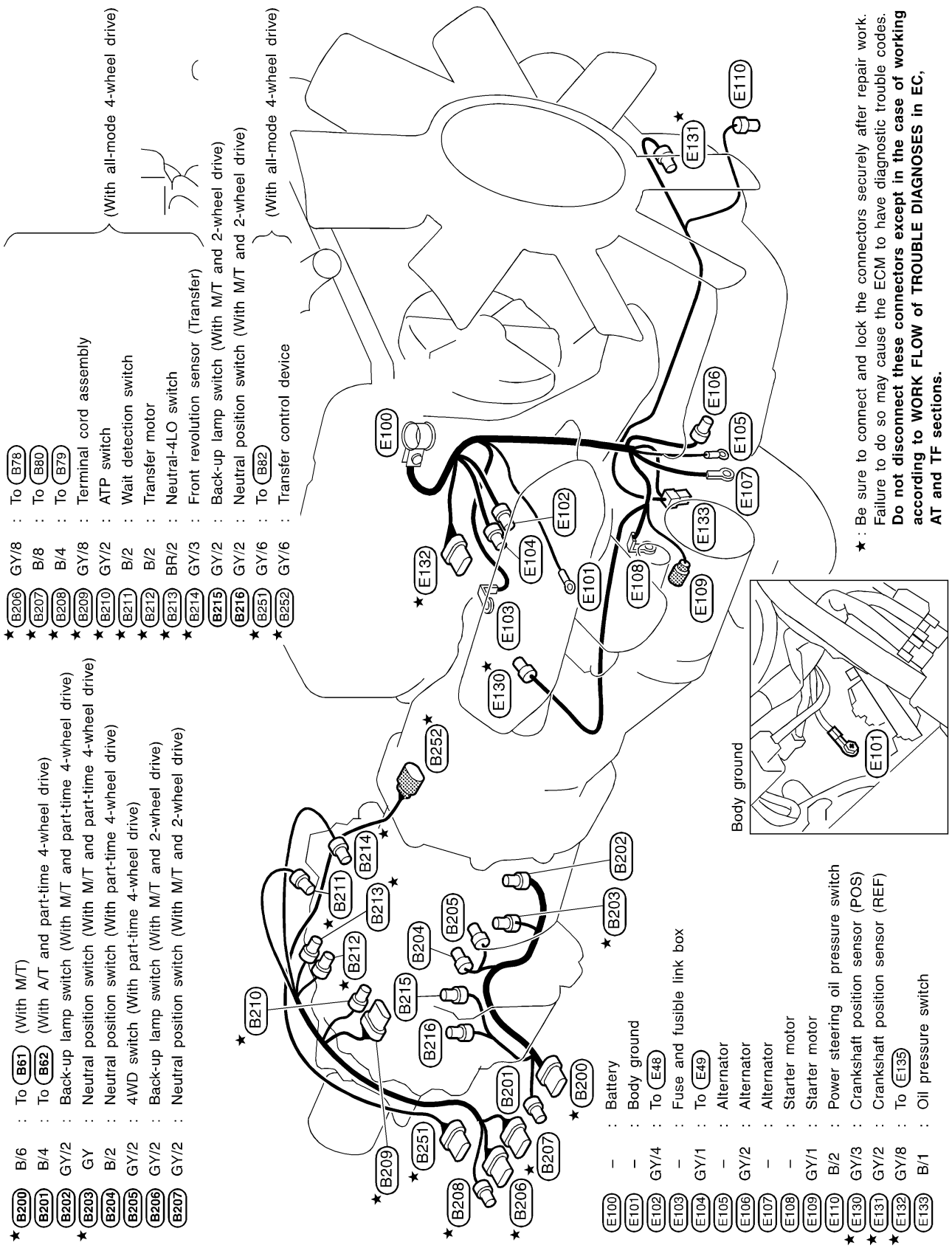
NAEL0440



MEL241M

Engine and Transmission Harness

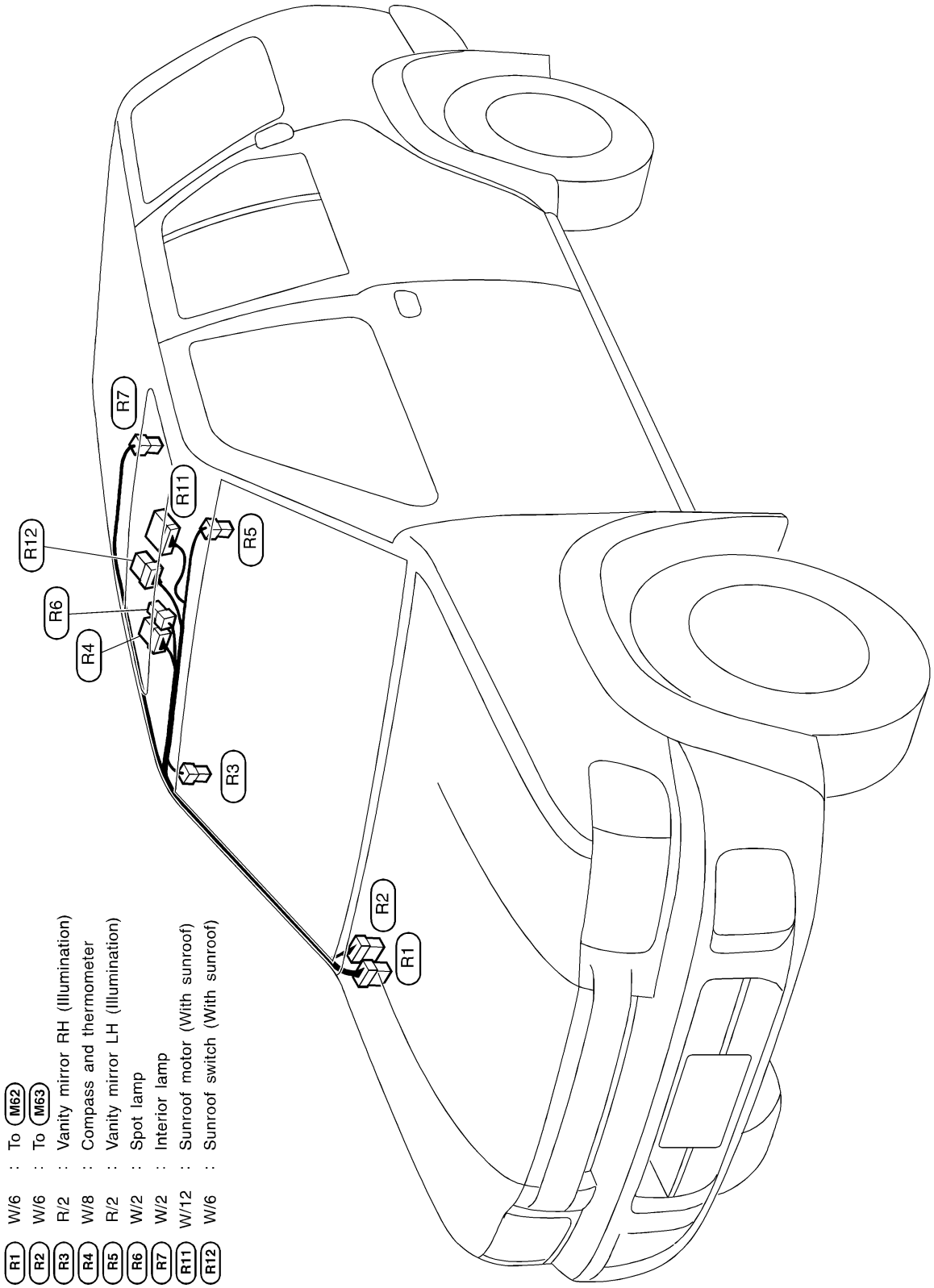
NAEL0441



MEL479O

Room Lamp Harness

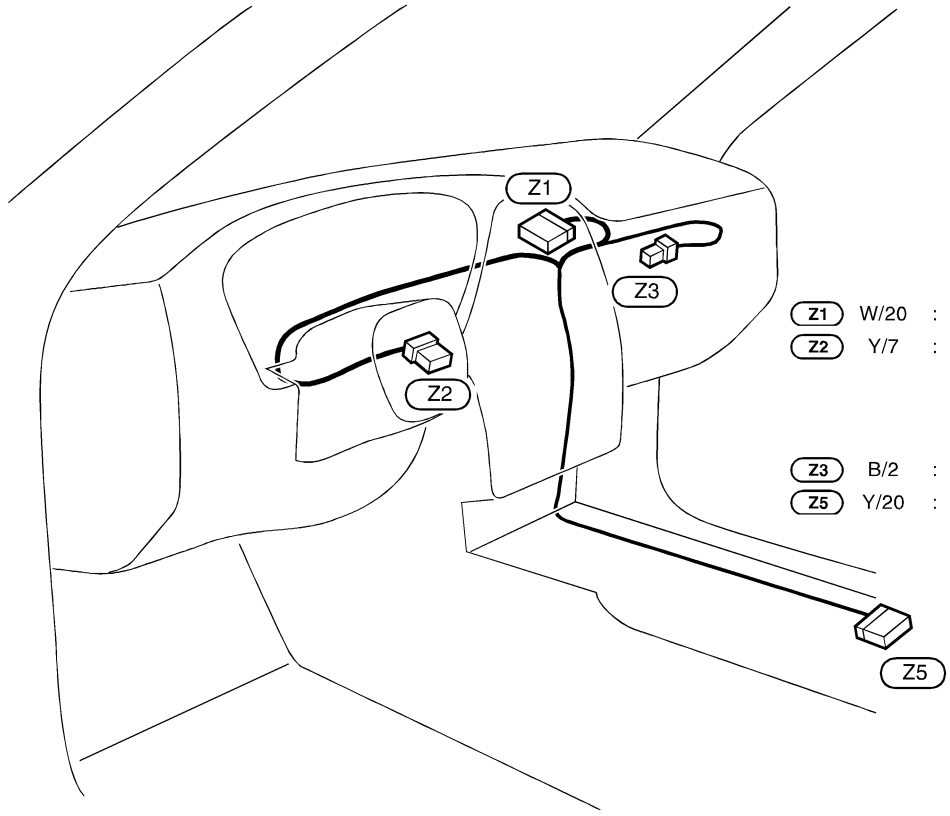
NAEL0442



MEL446P

Air Bag Harness

NAEL0443



Z1 W/20 : To M47
Z2 Y/7 : Air bag module (Driver side), AUDIO switch, ASCD steering switch and horn switch via spiral cable
Z3 B/2 : Air bag module (Passenger side)
Z5 Y/20 : Air bag diagnosis sensor unit

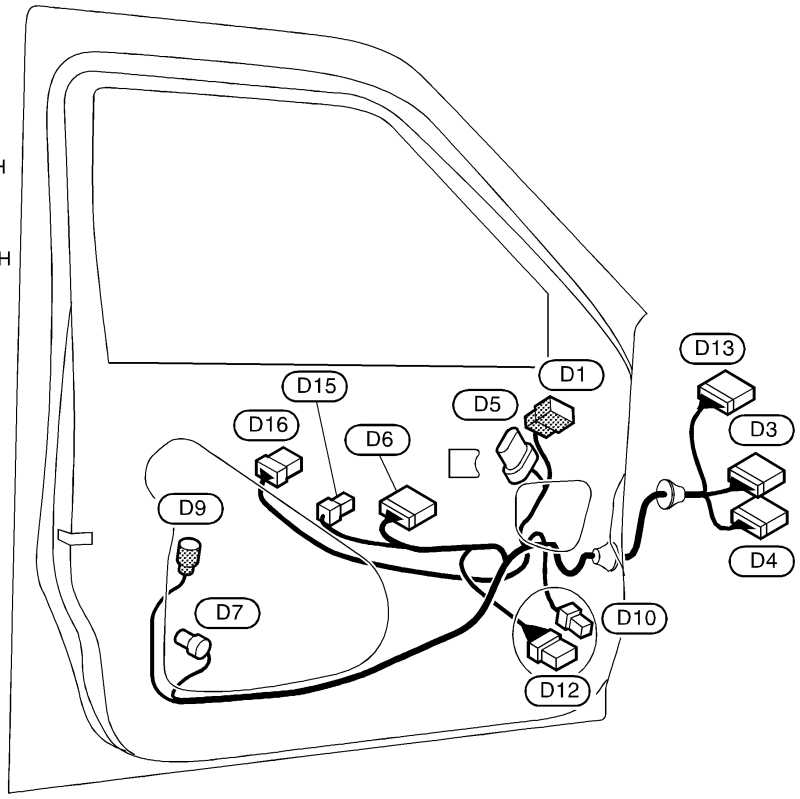
MEL244M

Front Door Harness

NAEL0444

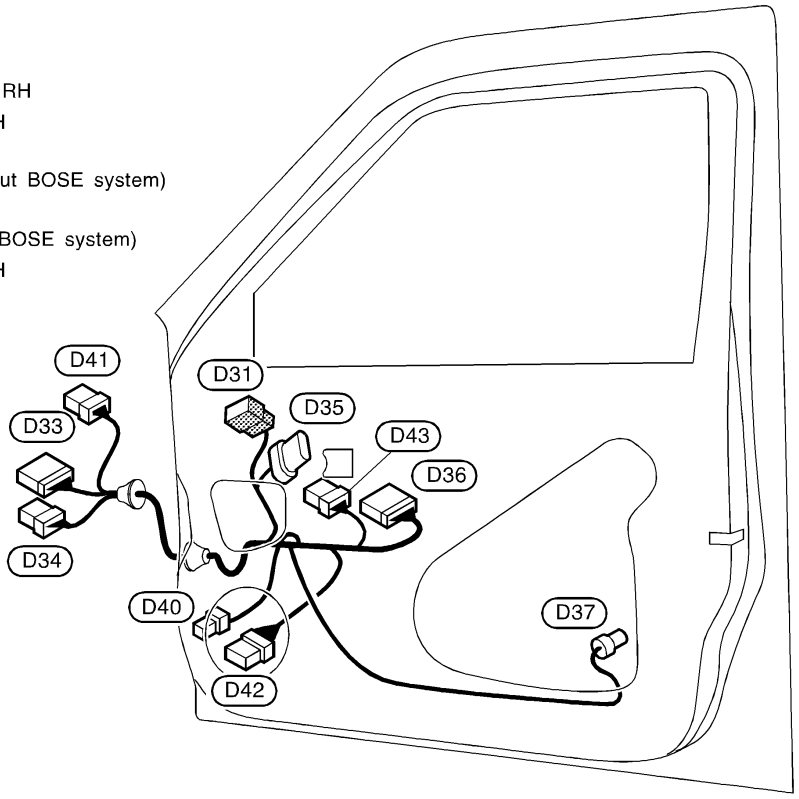
LH side

- (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
- (D10) BR/2 : Front door speaker LH (Without BOSE system)
- (D12) W/6 : Front door speaker LH (With BOSE system)
- (D13) GY/12 : To (M112)
- (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
- (D40) BR/2 : Front door speaker RH (Without BOSE system)
- (D41) BR/6 : To (M101) (With BOSE system)
- (D42) W/6 : Front door speaker RH (With BOSE system)
- (D43) W/8 : Front power window switch RH

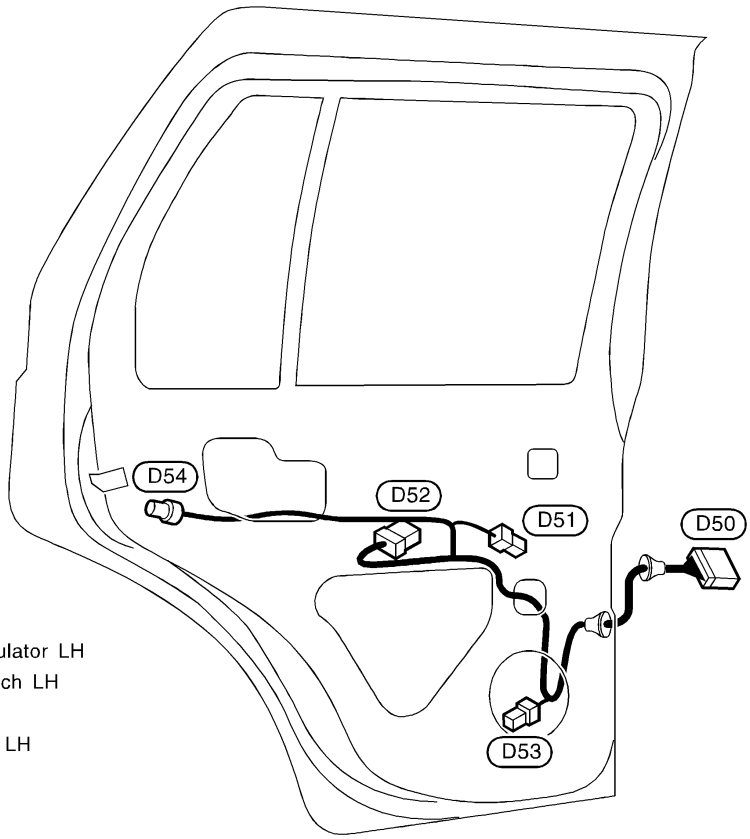


MEL482O

Rear Door Harness

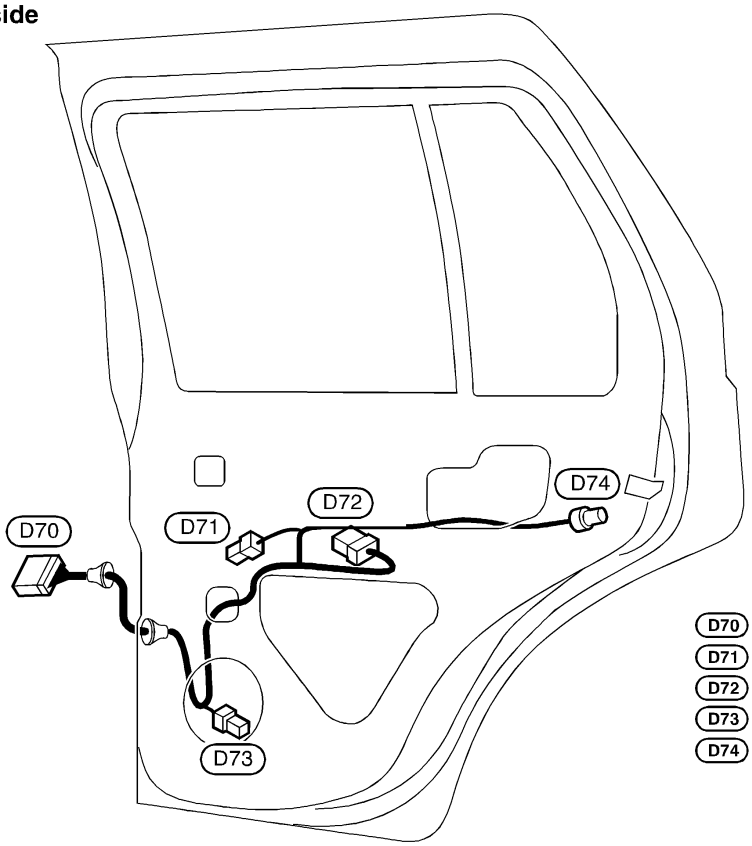
NAEL0445

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

NAEL0446S01

Item	Wattage W
High/Low (Semi-sealed beam)	60/55 (HB2)

Exterior Lamp

NAEL0446S02

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

NAEL0446S03

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 Gauge
FLS2	EC	Fuel Gauge
FLS3	EC	Fuel Gauge
FTS	AT	A/T Fluid Temperature Sensor
FUELLH	EC	Fuel Injection System Function (Left Bank)
FUELRH	EC	Fuel Injection System Function (Right Bank)
H/LAMP	EL	Headlamp
HORN	EL	Horn
HSEAT	EL	Heated Seat
IATS	EC	Intake Air Temperature Sensor
IGN/SG	EC	Ignition Signal
ILL	EL	Illumination
INJECT	EC	Injector
INT/L	EL	Interior, Spot, Vanity Mirror, and Luggage Room Lamps
IVC-L	EC	Intake Valve Timing Control Solenoid Valve LH
IVC-R	EC	Intake Valve Timing Control Solenoid Valve RH
IVCS-L	EC	Intake Valve Timing Control Position Sensor LH
IVCS-R	EC	Intake Valve Timing Control Position Sensor RH
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
KEYLES	EL	Remote Keyless Entry System
NATS	EL	NVIS (NISSAN Vehicle Immobilizer System)
NAVI	EL	Navigation System
NONDTC	AT	Non-detectable Items
O2H1B1	EC	Heated Oxygen Sensor 1 Heater (Bank 1)

Code	Section	Wiring Diagram Name
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
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
FTTS	EC	Fuel Tank Temperature Sensor
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