ELECTRICAL SYSTEM

SECTION EL

CONTENTS

CONTENTS (Cont'd)

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

NEEL0001

The Supplemental Restraint System “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a seat belt, help to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of air bag modules (located in the center of the steering wheel and in the instrument panel on the passenger side), seat belt pre-tensioners, a diagnosis sensor unit, a crash zone sensor (4WD models), warning lamp, wiring harness, and spiral cable.

The vehicle (except crew cab model) is equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate in a frontal collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate in a frontal collision. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

Information necessary to service the system safely is included in the **RS section** of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance should be performed by an authorized NISSAN dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see *RS-21*.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. Spiral cable and wiring harnesses (except “SEAT BELT PRE-TENSIONER”) are covered with yellow insulation either just before the harness connectors or on the complete harness, for easy identification.**
- **The vehicle (except crew cab model) is equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate in a frontal collision. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate in a frontal collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.**

Wiring Diagrams and Trouble Diagnosis

NEEL0002

When you read wiring diagrams, refer to the following:

- “HOW TO READ WIRING DIAGRAMS”, ***GI-11***
- “POWER SUPPLY ROUTING” for power distribution circuit, EL-8

When you perform trouble diagnosis, refer to the following:

- “HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSIS”, ***GI-35***
- “HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT”, ***GI-24***

Check for any Service bulletins before servicing the vehicle.

Description

NEEL0003

HARNESS CONNECTOR (TAB-LOCKING TYPE)

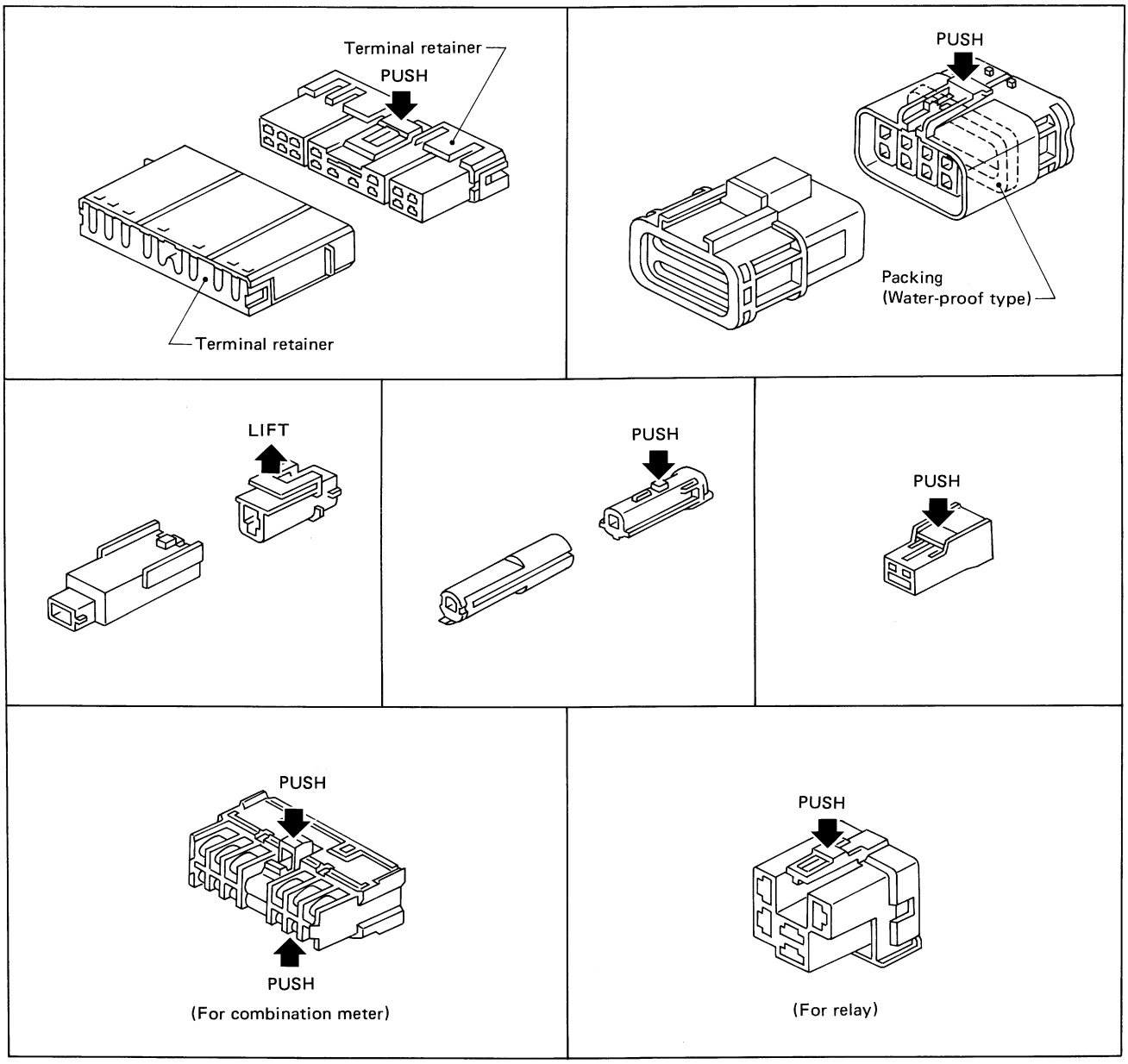
NEEL0003S01

- 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 toEL-5 for description of the slide-locking type connector.

CAUTION:

Do not pull the harness when disconnecting the connector.

[Example]



SEL769D

HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

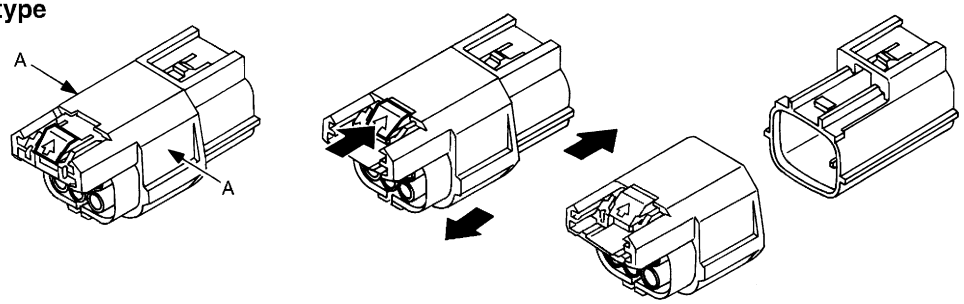
=NEEL0003S02

- A new style slide-locking 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.

Waterproof type

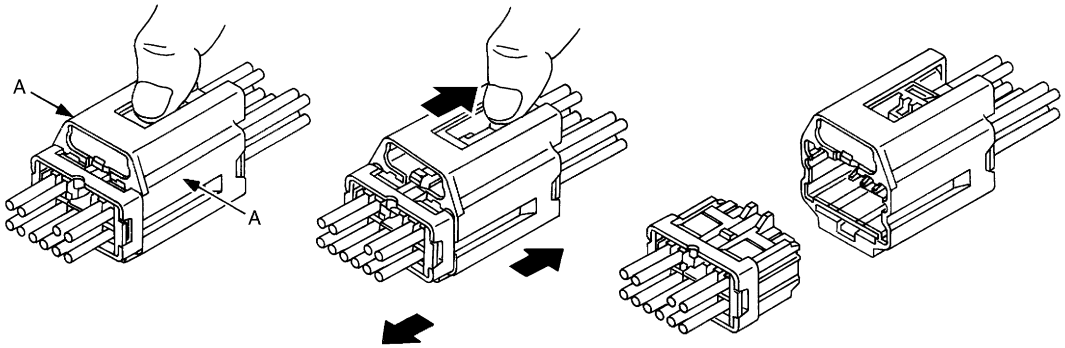


① Firmly grasp shell of connector housing at A.

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 female halves of connector.

③ Disconnect harness connector.

AEL299C

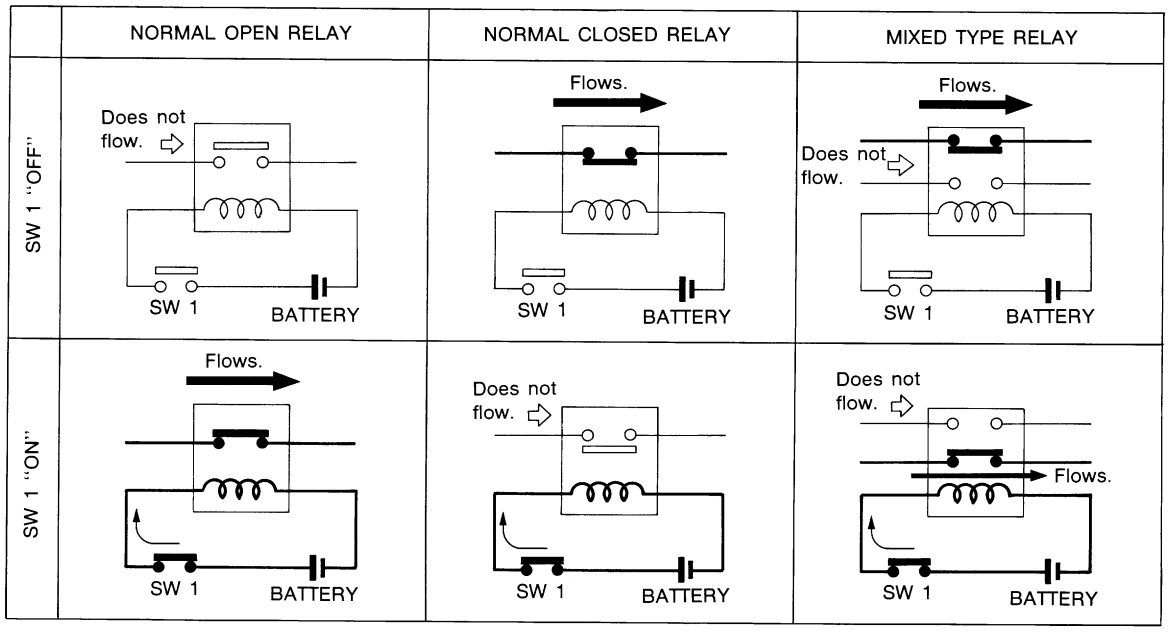
Description

NEEL0004

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

NEEL0004S01

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

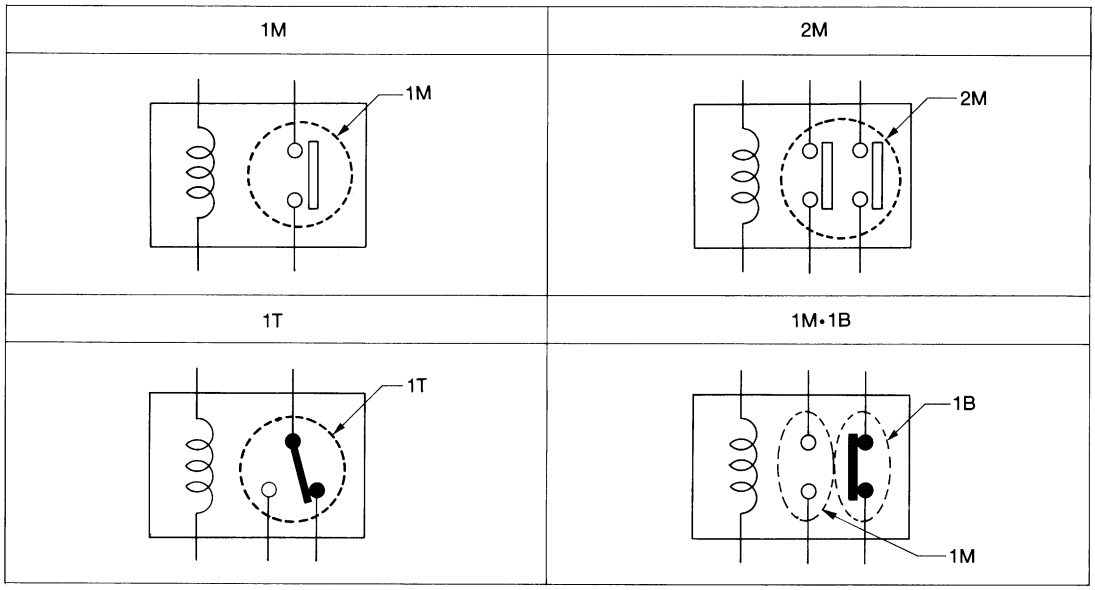


SEL881H

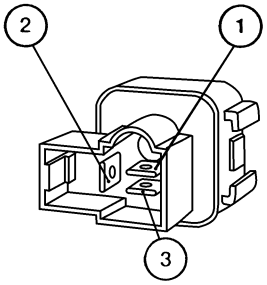
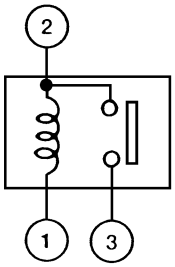
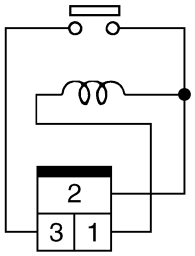
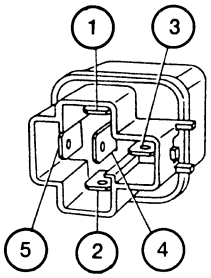
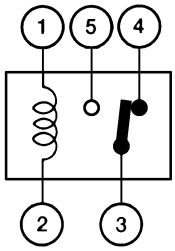
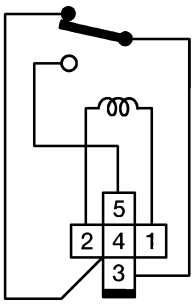
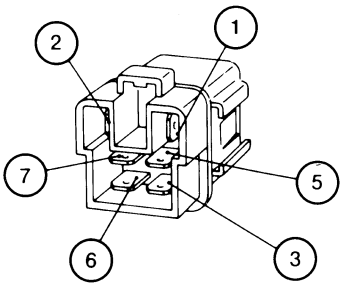
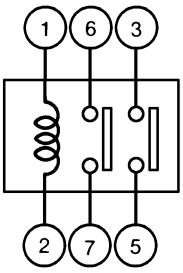
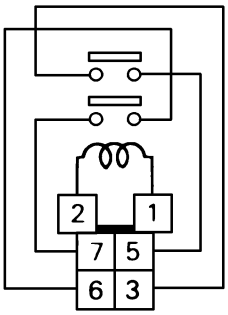
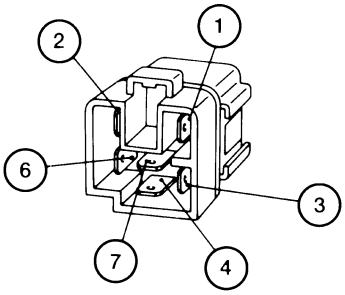
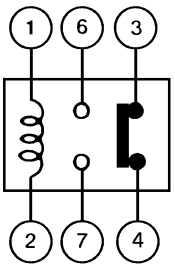
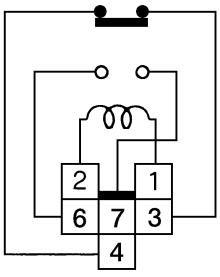
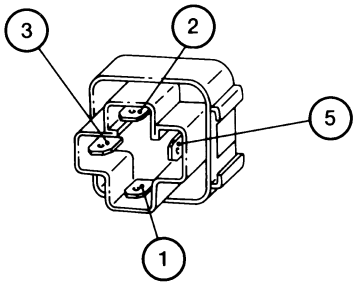
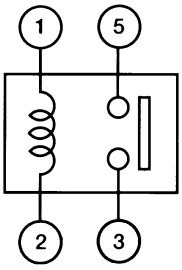
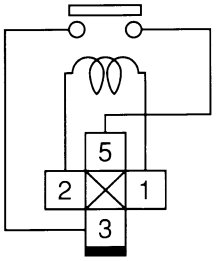
TYPE OF STANDARDIZED RELAYS

NEEL0004S02

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



SEL882H

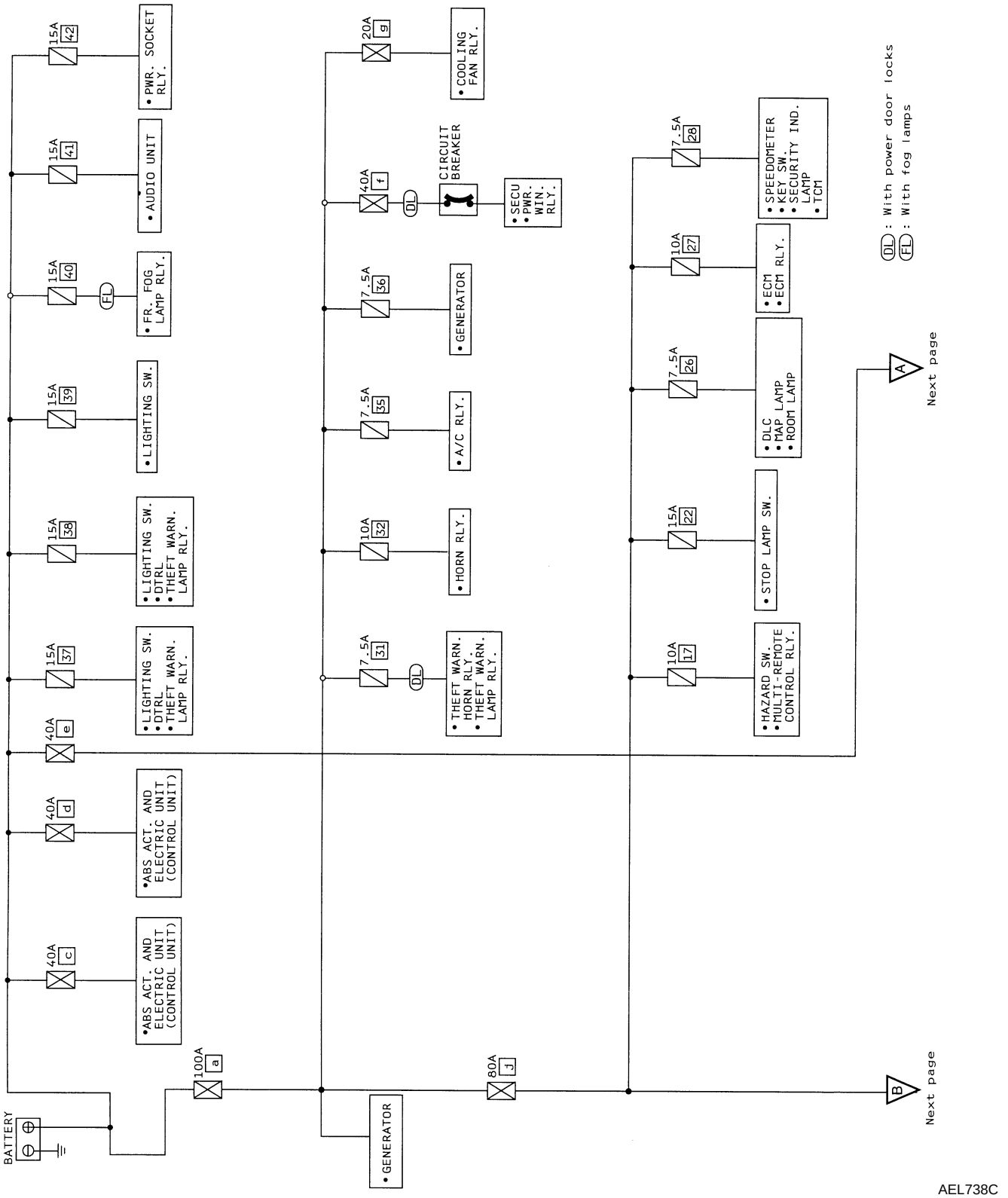
Type	Outer view	Circuit	Connector symbol and connection	Case color
1M				BLACK
1T				BLACK
2M				BROWN
1M·1B				GRAY
1M				BLUE

AEL684B

Circuit Diagram

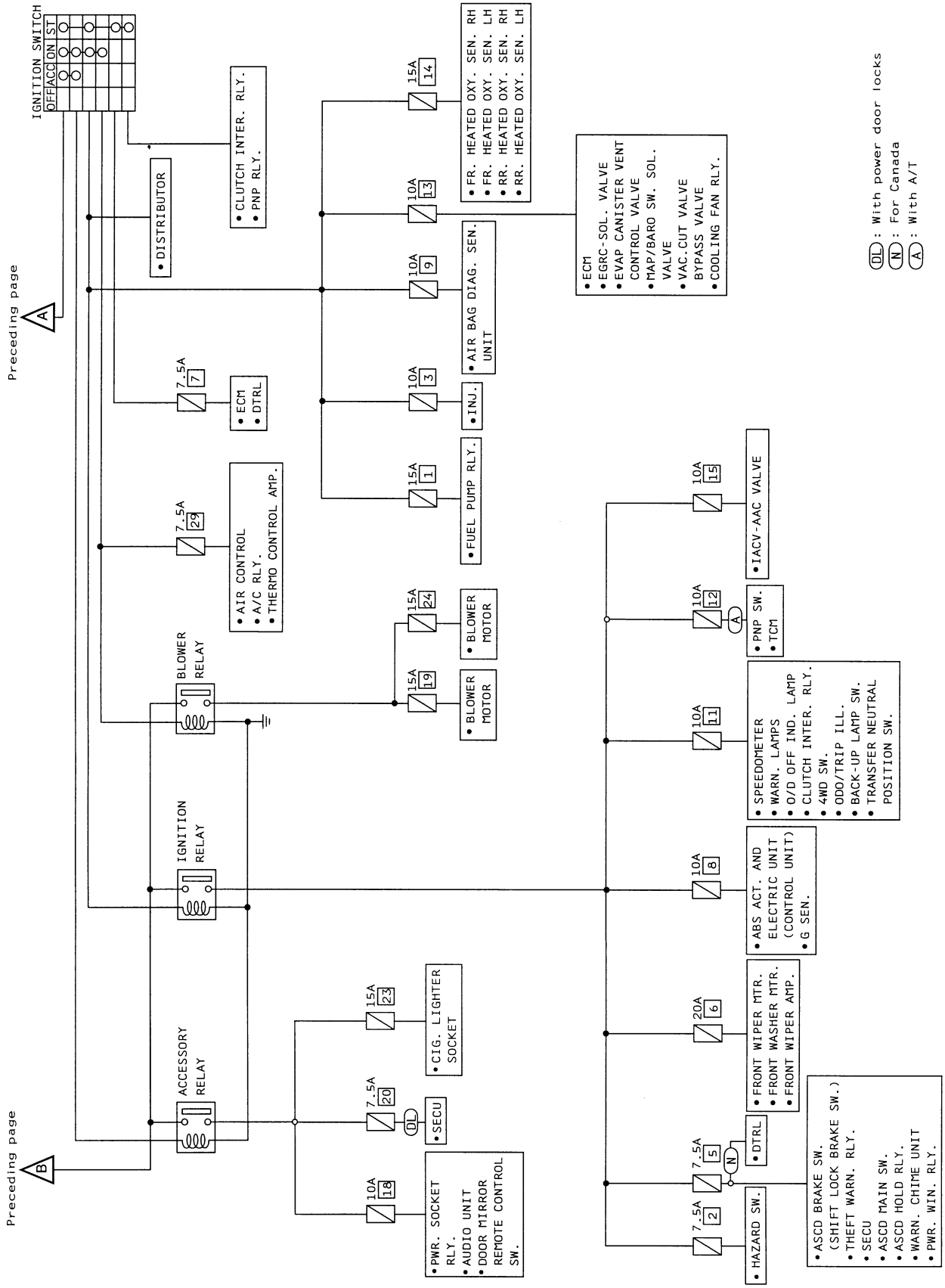
NEEL0005

NOTE: For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-16.



AEL738C

Circuit Diagram (Cont'd)



AEL739C

Wiring Diagram — POWER —

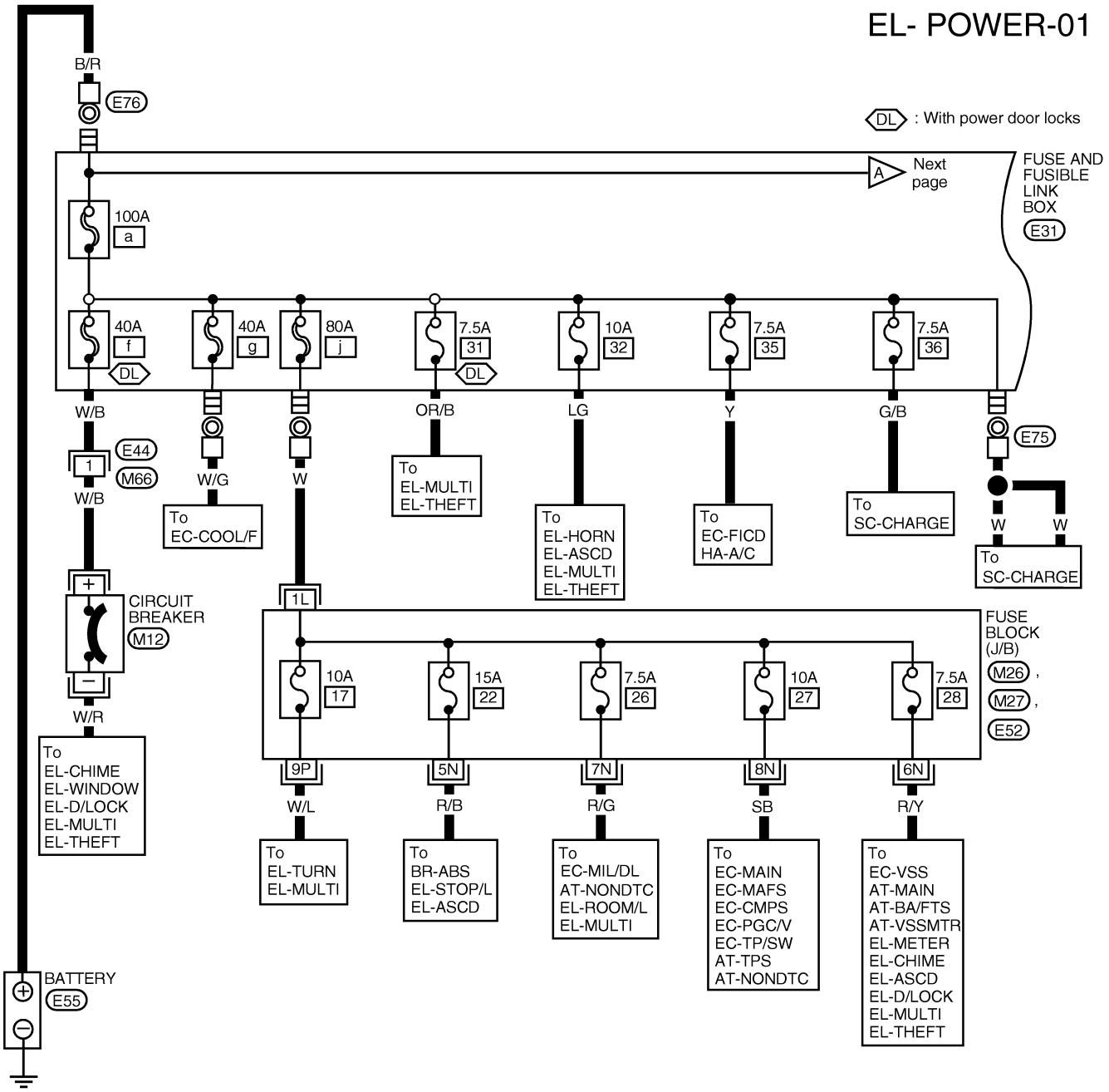
NEEL0006

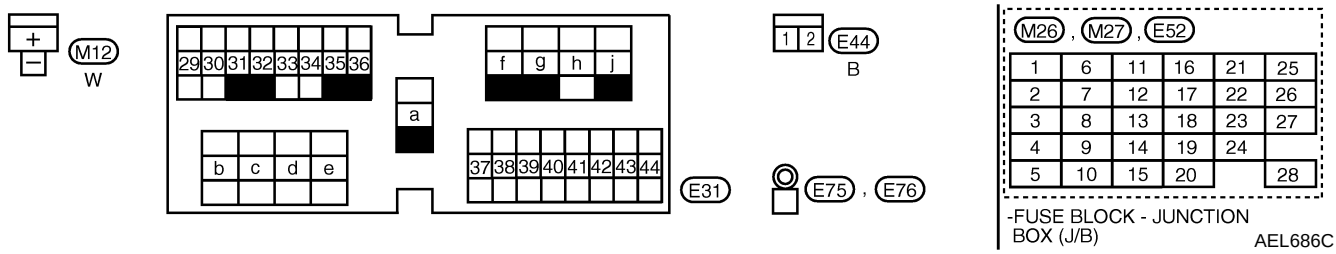
BATTERY POWER SUPPLY — IGNITION SW. IN ANY POSITION

NEEL0006S01

NOTE:

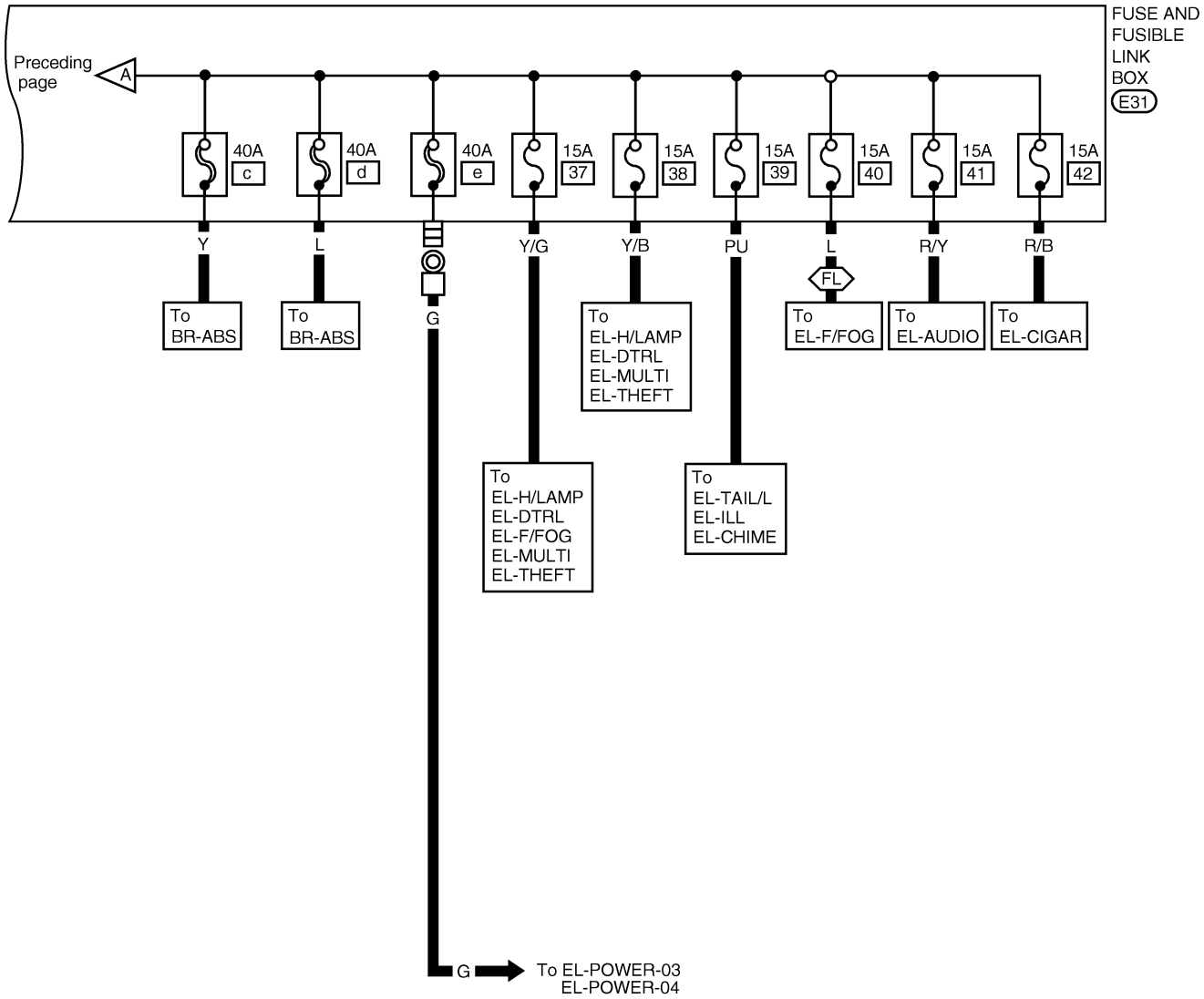
For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-16.

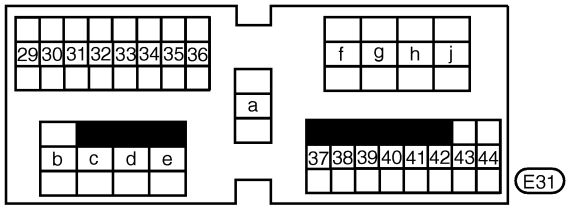




EL-POWER-02

FL : With fog lamps





AEL687C

Wiring Diagram — POWER — (Cont'd)

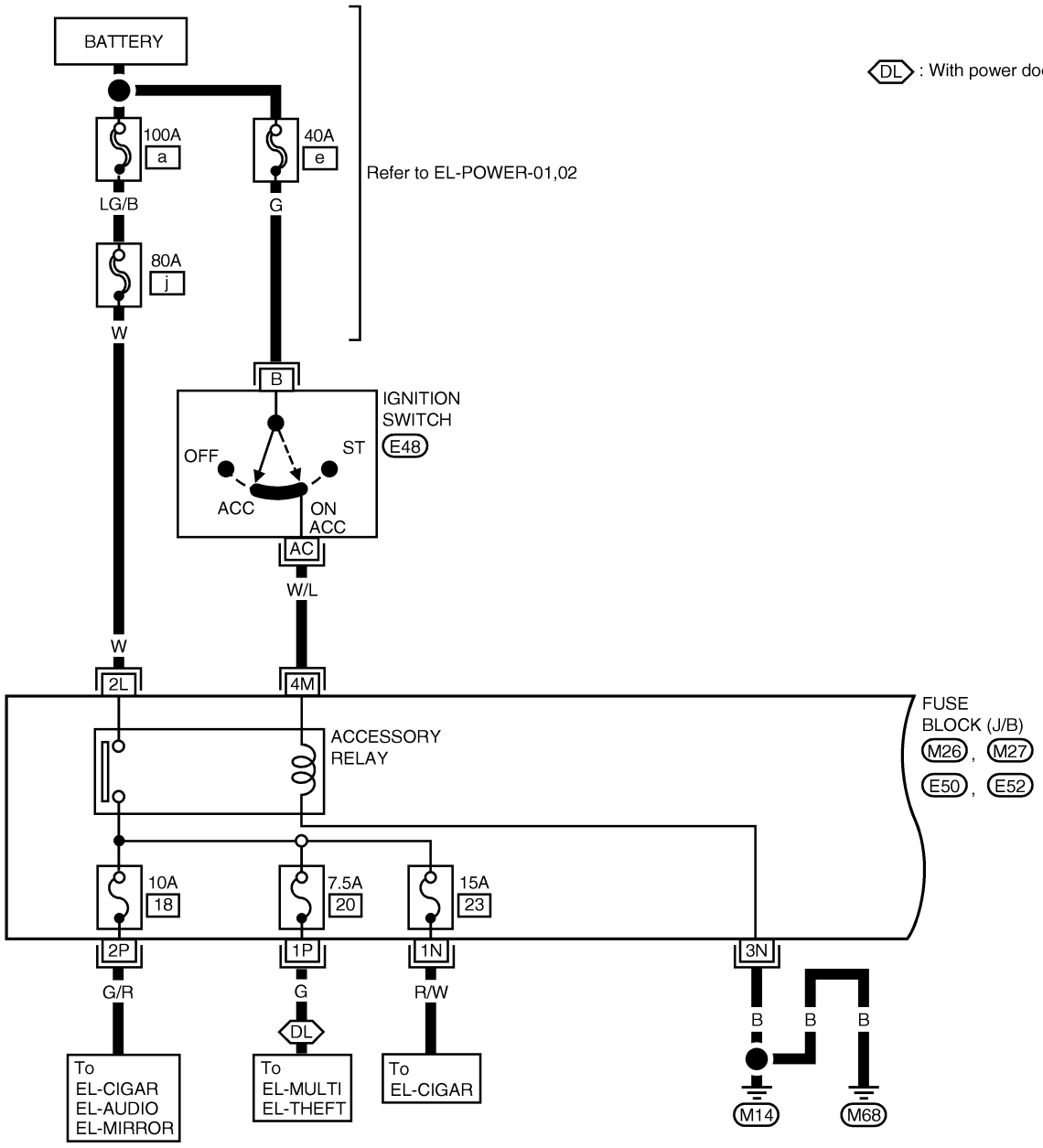
ACCESSORY POWER SUPPLY — IGNITION SW. IN ACC OR ON

=NEEL0006S02

NOTE:

For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-16.

EL-POWER-03



M26 , M27 , E50 , E52

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

-FUSE BLOCK - JUNCTION BOX (J/B)

AEL688C

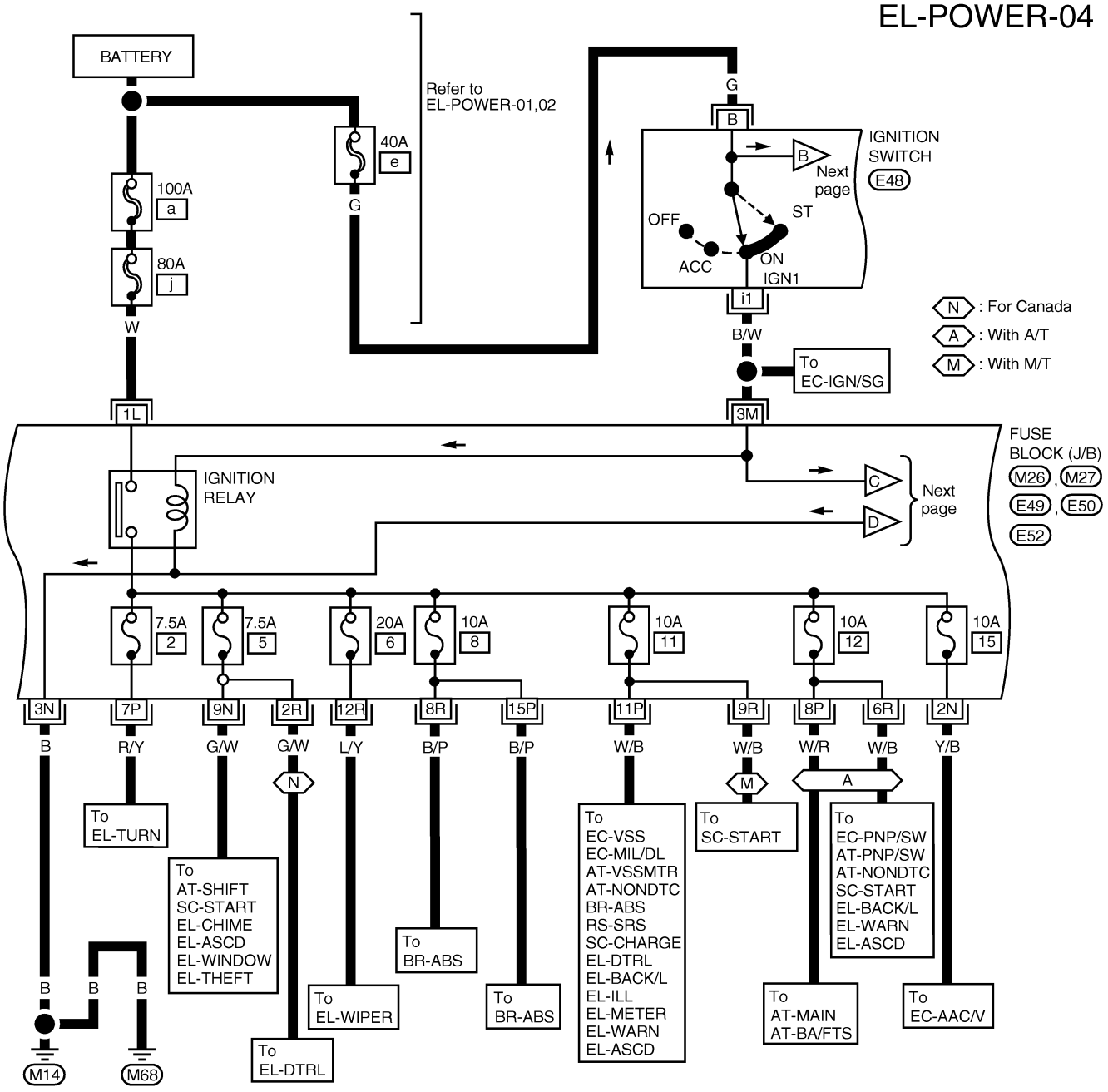
IGNITION POWER SUPPLY — IGNITION SW. IN ON AND/OR START

=NEEL0006S03

NOTE:

For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-16.

EL-POWER-04



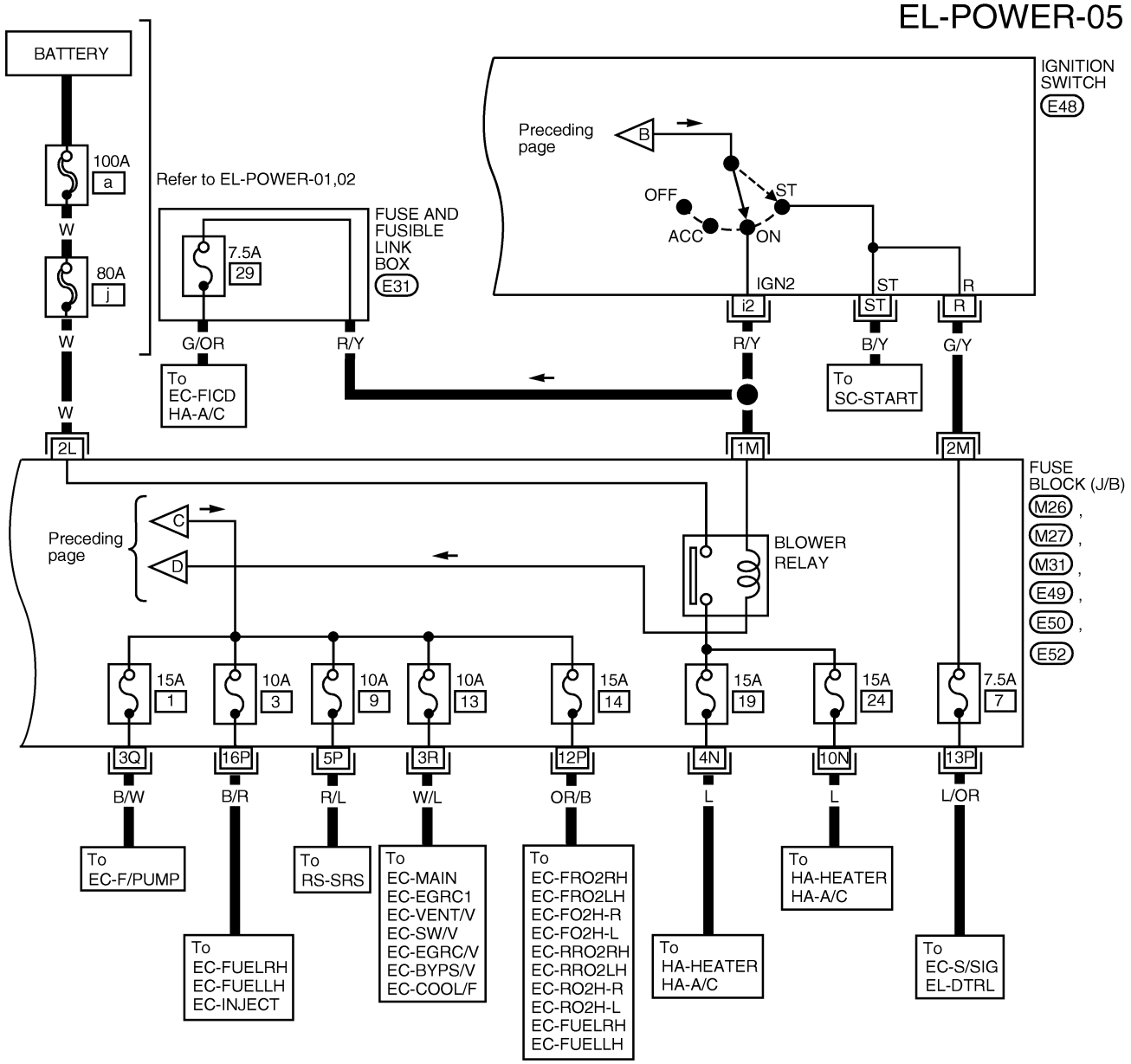
M26, M27, E49, E50, E52

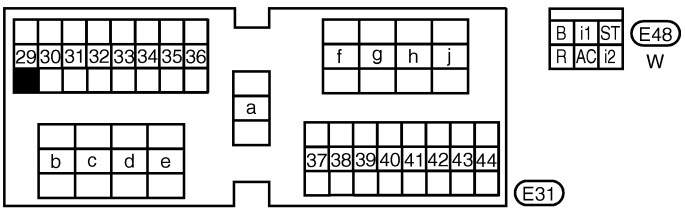
1	6	11	16	21	25
2	7	12	17	22	26
3	8	13	18	23	27
4	9	14	19	24	
5	10	15	20		28

-FUSE BLOCK - JUNCTION BOX (J/B)

AEL689C

EL-POWER-05



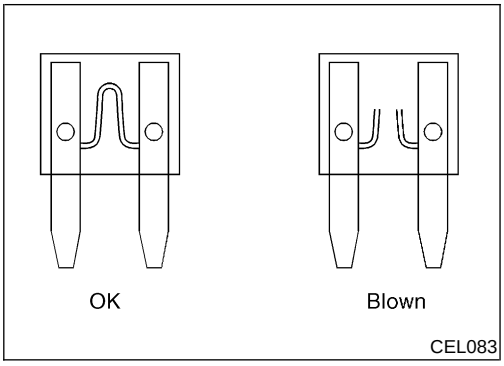


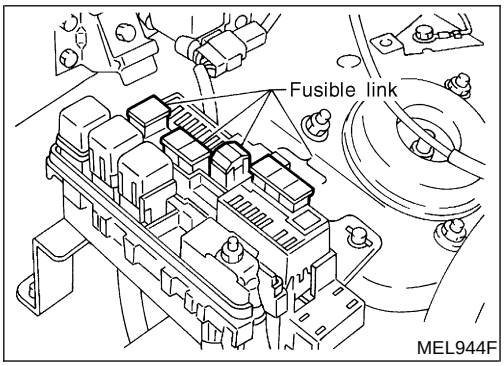
M26 , M27 , M31 , E49 , E50 , E52

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

-FUSE BLOCK - JUNCTION BOX (J/B)

AEL690C





Inspection

NEEL0007

FUSE

NEEL0007S01

- **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.**

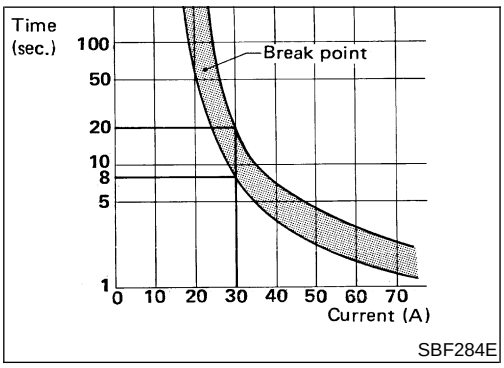
FUSIBLE LINK

NEEL0007S02

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

NEEL0007S03

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

Circuit breakers are used in the following systems.

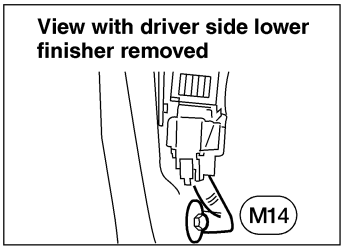
Ground Distribution

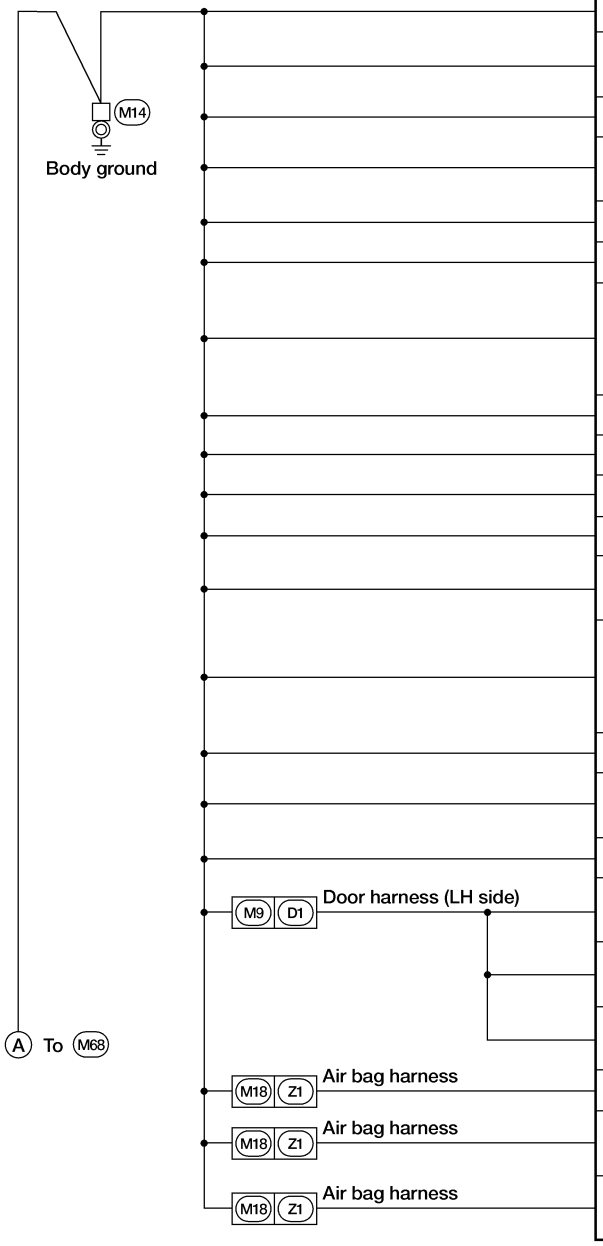
MAIN HARNESS

NEEL0171

NEEL0171S01

Body ground

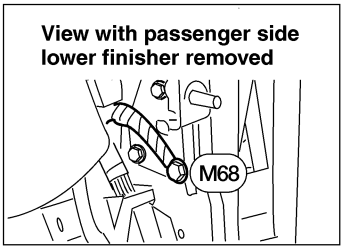


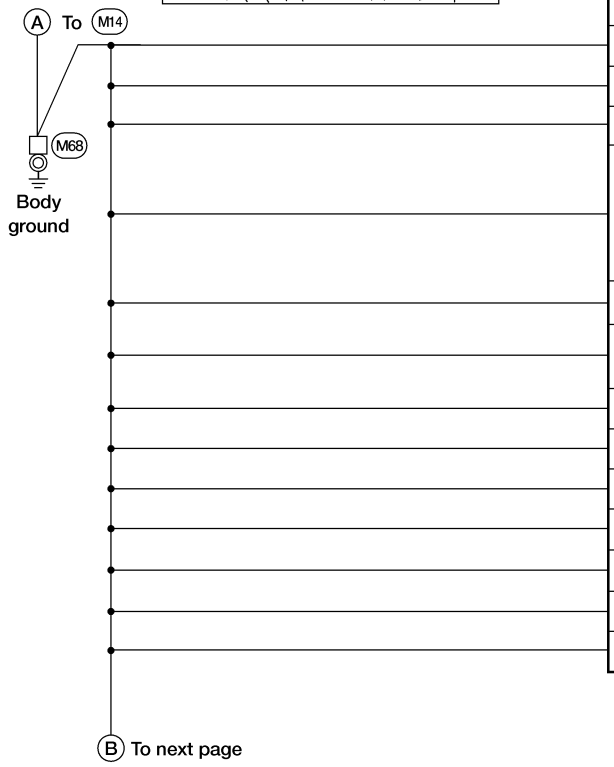


CONNECTOR NUMBER	CONNECT TO
M5	Clutch interlock switch (with M/T)
M6	Theft warning relay (Terminal No. 3) (with power door locks)
M10	Smart entrance control unit
M11	Warning chime unit (Terminal No. 8) (without power door locks)
M19	Seat belt buckle switch
M20	Front door switch LH
M27	Fuse block (J/B) (Terminal No. 3N) • Accessory relay • Blower relay • Ignition relay
M28	Illumination control switch
M32	Data link connector (Terminal No. 13)
M33	ASCD control unit (Terminal No. 3) (with ASCD)
M35	A/T device (shift lock) (Terminal No. 1) (with A/T)
M35	A/T device (overdrive control switch) (Terminal No. 5) (with A/T)
M39	Combination meter (Terminal No. 36) • ABS warning lamp • Four wheel drive indicator • Turn signal indicators
M72	Door mirror remote control switch (Terminal No. 3)
M75	Subwoofer amplifier (with premium audio system) (except crew cab)
M76	ATP relay (Terminal No. 4) (with A/T)
D7	Main power window and door lock/unlock switch (with power door locks)
D8	Front door lock actuator LH (door unlock sensor) (with power door locks)
D9	Front door key cylinder switch LH (with power door locks)
Z4	Air bag diagnosis sensor unit
Z8	Passenger air bag deactivation switch indicator (except crew cab)
Z9	Passenger air bag deactivation switch (except crew cab)

AEL691C

Body ground

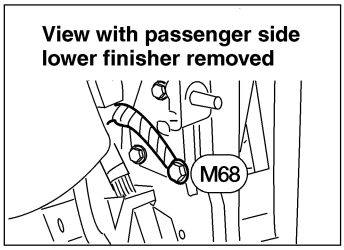


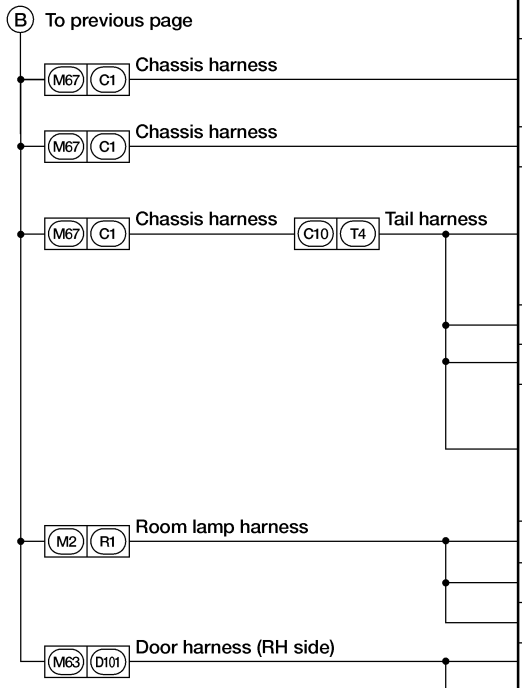


CONNECTOR NUMBER	CONNECT TO
M13	Power window relay (Terminal No.1) (with power windows)
M29	ASCD main switch (with ASCD)
M34	ASCD hold relay (Terminal No.1) (with ASCD)
M38	Combination meter (Terminal No. 24) • Air bag warning lamp • Fuel gauge • Speedometer • Water temperature gauge
M39	Combination meter (high beam indicator) (Terminal No. 27)
M39	Combination meter (cruise indicator lamp with ASCD) (Terminal No. 46)
M45	Combination flasher unit
M52	Cigarette lighter socket
M54	Power socket
M57	Fan switch
M76	ATP relay (Terminal No. 2) (with A/T)
M80	Power socket relay
M95	Air control (Terminal No. 8) (with A/C)

AEL692C

Body ground





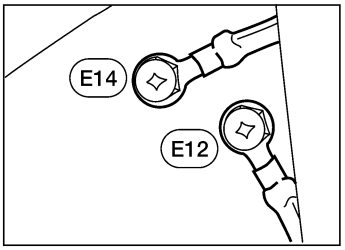
CONNECTOR NUMBER	CONNECT TO
C13	Fuel tank gauge unit (Terminal No. E) • Fuel tank gauge unit • Tank fuel temperature sensor
C14	Fuel pump
T1	Rear combination lamp LH (Terminal No. 2) • Back-up lamp • Stop lamp • Tail lamp • Turn signal lamp
T2	License plate lamp LH
T3	License plate lamp RH
T5	Rear combination lamp RH (Terminal No. 2) • Back-up lamp • Stop lamp • Tail lamp • Turn signal lamp
R2	Map lamp
R3	High-mounted stop lamp
R4	Room lamp
D107	Front door lock and unlock switch RH (with power door locks)
D108	Front door lock actuator RH (door unlock sensor) (with power door locks)
D109	Front door key cylinder switch RH (with power door locks)

AEL700C

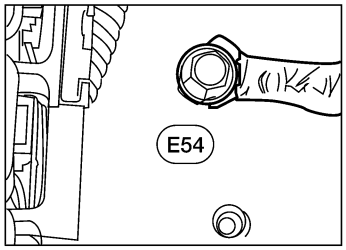
ENGINE ROOM HARNESS (KA24DE MODELS)

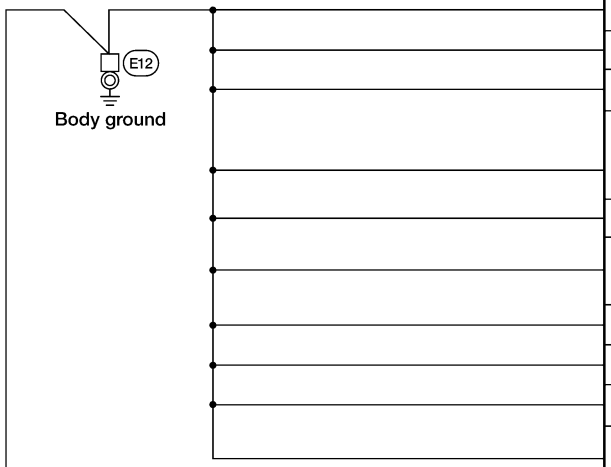
NEEL0171S02

Body ground

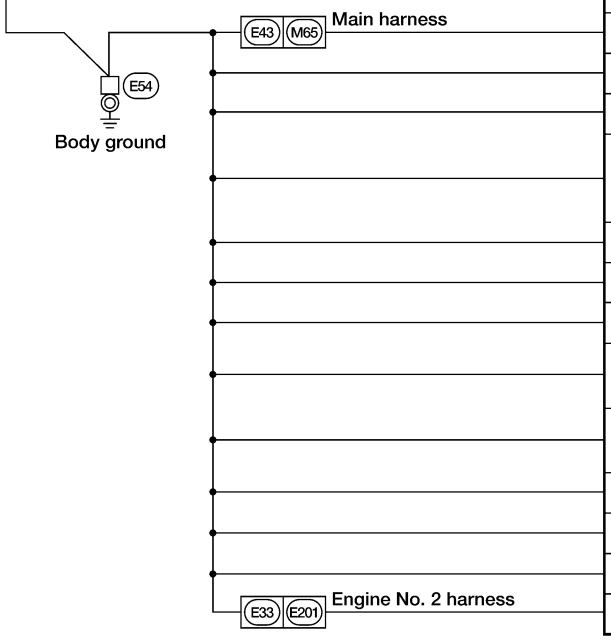


Body ground





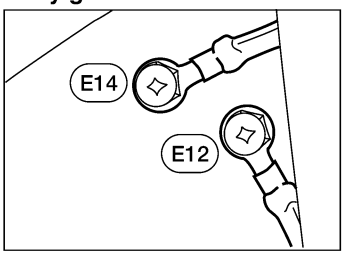
CONNECTOR NUMBER	CONNECT TO
E5	Washer fluid level switch (For Canada)
E7	Headlamp LH
E9	Hood switch (With theft warning system)
E13	Front combination lamp LH (Terminal No.2) • Parking lamp • Turn signal lamp
E37	Brake fluid level switch
E39	ABS actuator and electric unit (Control unit) (Terminal No.16) (With 4-wheel ABS)
E46	Wiper switch (Terminal No. 17)
E46	Wiper switch (Terminal No. 20) (With intermittent wipers)
E58	Front fog lamp LH (With fog lamps)
E59	Combination switch (Front fog lamp switch) (With fog lamps)

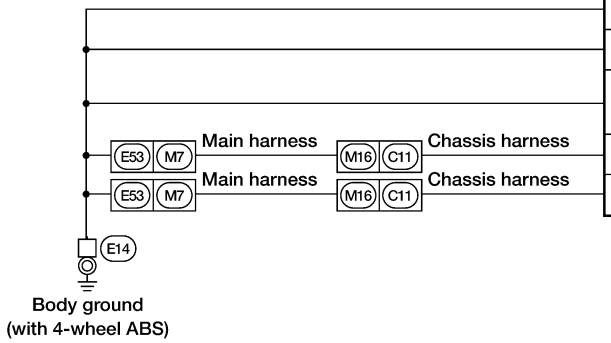


CONNECTOR NUMBER	CONNECT TO
M6	Theft warning relay (With theft warning system)
E1	Headlamp RH
E17	Daytime light control unit (For Canada)
E19	Front combination lamp RH (Terminal No.2) • Parking lamp • Turn signal lamp
E20	Theft warning horn relay (With theft warning systerm)
E21	ASCD relay (With A/T and ASCD)
E26	Power socket relay
E27	Park/neutral position (PNP) relay (Terminal No. 1) (With A/T)
E27	Park/neutral position (PNP) relay (Terminal No. 6) (With A/T)
E40	Wiper amplifier (With intermittent wipers)
E42	Wiper motor
E57	Front fog lamp RH (With fog lamps)
E218	Park/neutral position (PNP) switch (With M/T)

AEL096C

Body ground





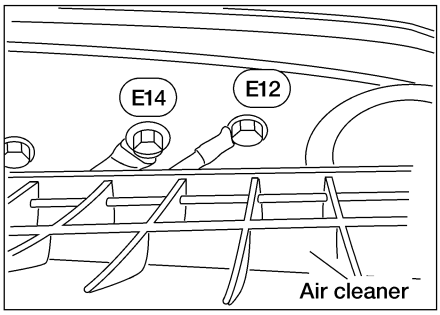
CONNECTOR NUMBER	CONNECT TO
E2	Front wheel sensor RH (Shield wire)
E16	Front wheel sensor LH (Shield wire)
E39	ABS actuator and electric unit (Control unit) (Terminal No. 19)
C12	Rear wheel sensor RH (Shield wire)
C12	Rear wheel sensor LH (Shield wire)

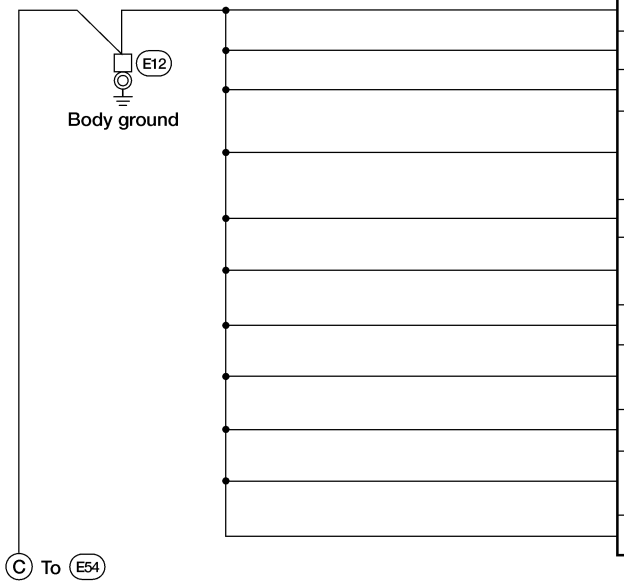
AEL097C

ENGINE ROOM HARNESS (VG33E MODELS)

NEEL0171S08

Body ground

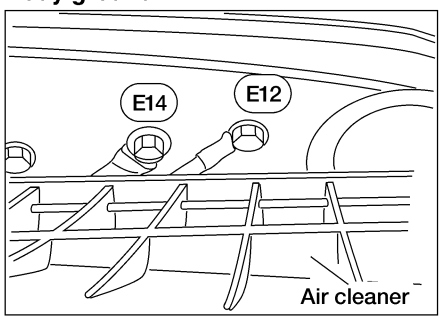




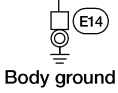
CONNECTOR NUMBER	CONNECT TO
E5	Washer fluid level switch (for Canada)
E7	Headlamp LH
E9	Hood switch (with power door locks)
E13	Front combination lamp LH (Terminal No.2) • Parking lamp • Turn signal lamp
E37	Brake fluid level switch
E39	ABS actuator and electric unit (control unit) (Terminal No.16)
E46	Front wiper switch (Terminal No. 17)
E46	Front wiper switch (Terminal No. 20) (with intermittent wipers)
E58	Front fog lamp LH (with fog lamps)
E59	Combination switch (front fog lamp switch) (with fog lamps)
E68	Ambient air temperature switch

AEL693C

Body ground

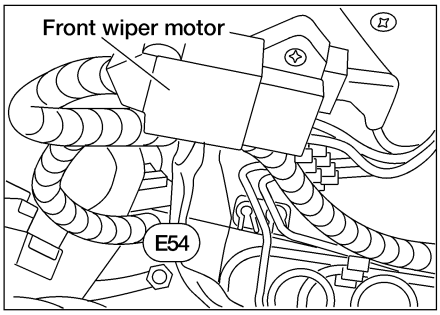


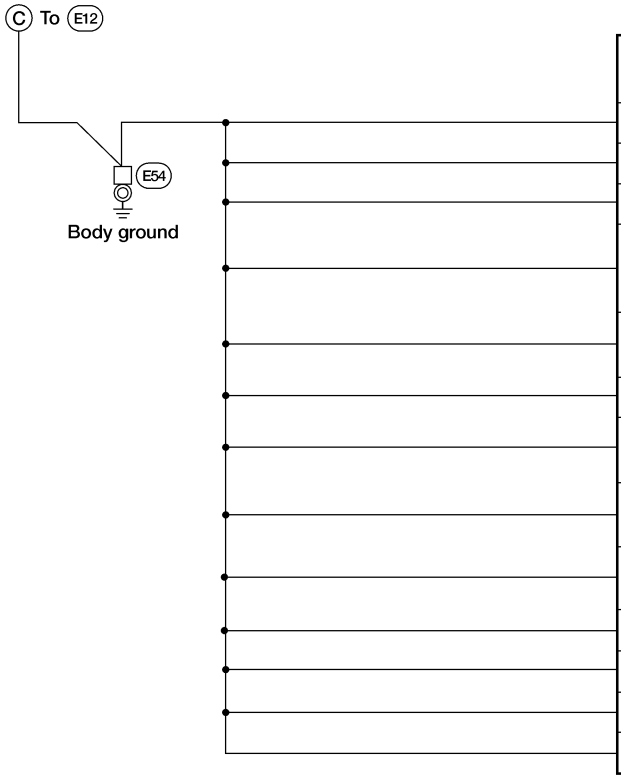
CONNECTOR NUMBER	CONNECT TO
E39	ABS actuator and electric unit (control unit) (Terminal No. 19)



AEL694C

Body ground





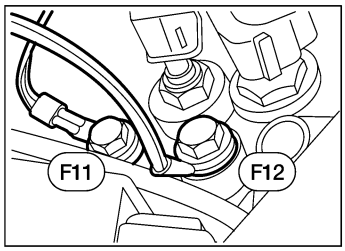
CONNECTOR NUMBER	CONNECT TO
E1	Headlamp RH
E3	Triple-pressure switch (with A/C)
E17	Daytime light control unit (for Canada)
E19	Front combination lamp RH (Terminal No.2) • Parking lamp • Turn signal lamp
E20	Theft warning horn relay (Terminal No. 3) (with power door locks)
E21	ASCD relay (Terminal No. 2) (with A/T and ASCD)
E27	Park/neutral position (PNP) relay (Terminal No. 1) (with A/T)
E27	Park/neutral position (PNP) relay (Terminal No. 6) (with A/T)
E40	Front wiper amplifier (Terminal No. 7) (with intermittent wipers)
E42	Front wiper motor
E57	Front fog lamp RH (with fog lamps)
E69	Cooling fan motor (Terminal No. 3)
E69	Cooling fan motor (Terminal No. 4)

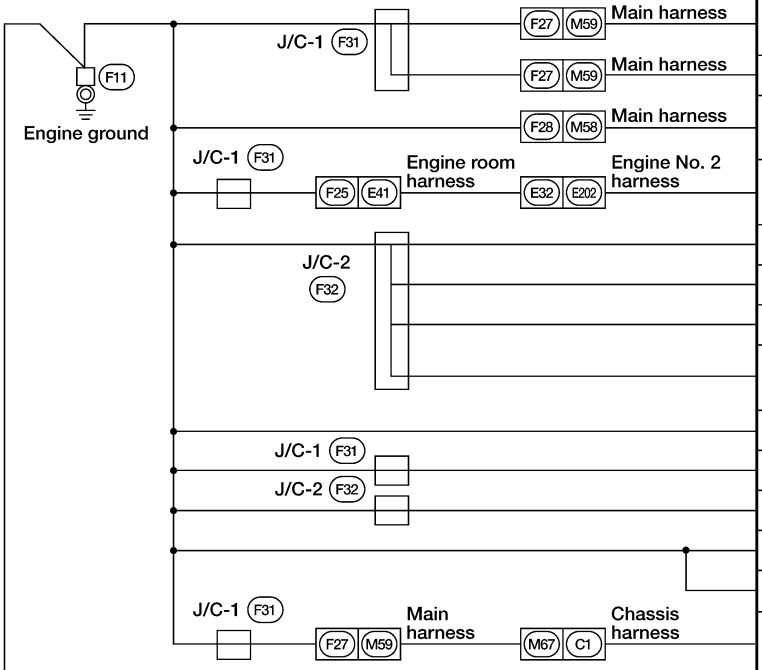
AEL701C

ENGINE CONTROL HARNESS (KA24DE MODELS)

NEEL0171S04

Engine ground





CONNECTOR NUMBER	CONNECT TO
M21	Rear heated oxygen sensor (Terminal No. 4)
M21	Rear heated oxygen sensor (Shield wire)
M32	Data link connector (Terminal No. 12)
E211	Crankshaft position sensor (OBD) (Shield wire)
F1	Mass air flow sensor (Shield wire)
F2	Knock sensor (Shield wire)
F3	Throttle position sensor (Shield wire)
F13	Distributor (Camshaft position sensor) (Shield wire)
F14	Resistor (Ignition coil) (Shield wire)
F16	Front heated oxygen sensor (Shield wire)
F23	Absolute pressure sensor (Shield wire)
F29	ECM (Terminal No. 25)
F29	ECM (Terminal No. 32)
C7	Evap control system pressure sensor (Shield wire)

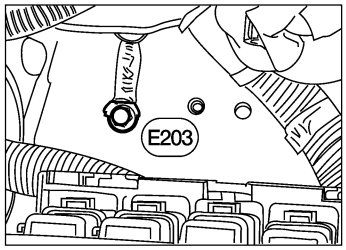
CONNECTOR NUMBER	CONNECT TO
F7	IACV-FICD solenoid valve
F13	Distributor (Power transistor) (Terminal No. 2)
F13	Distributor (Camshaft position sensor) (Terminal No. 6)
F29	ECM (Terminal No. 10)
F29	ECM (Terminal No. 19)
F29	ECM (Terminal No. 116)
F29	ECM (Terminal No. 124)

LEL530A

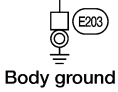
ENGINE NO. 2 HARNESS (KA24DE MODELS)

NEEL0171S09

Body ground



CONNECTOR NUMBER	CONNECT TO
E206	Generator

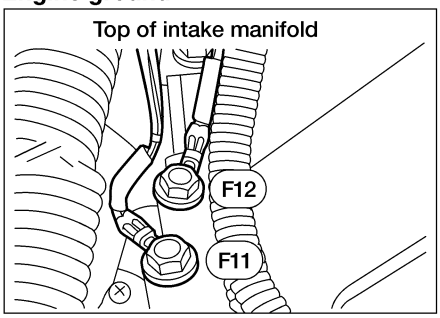


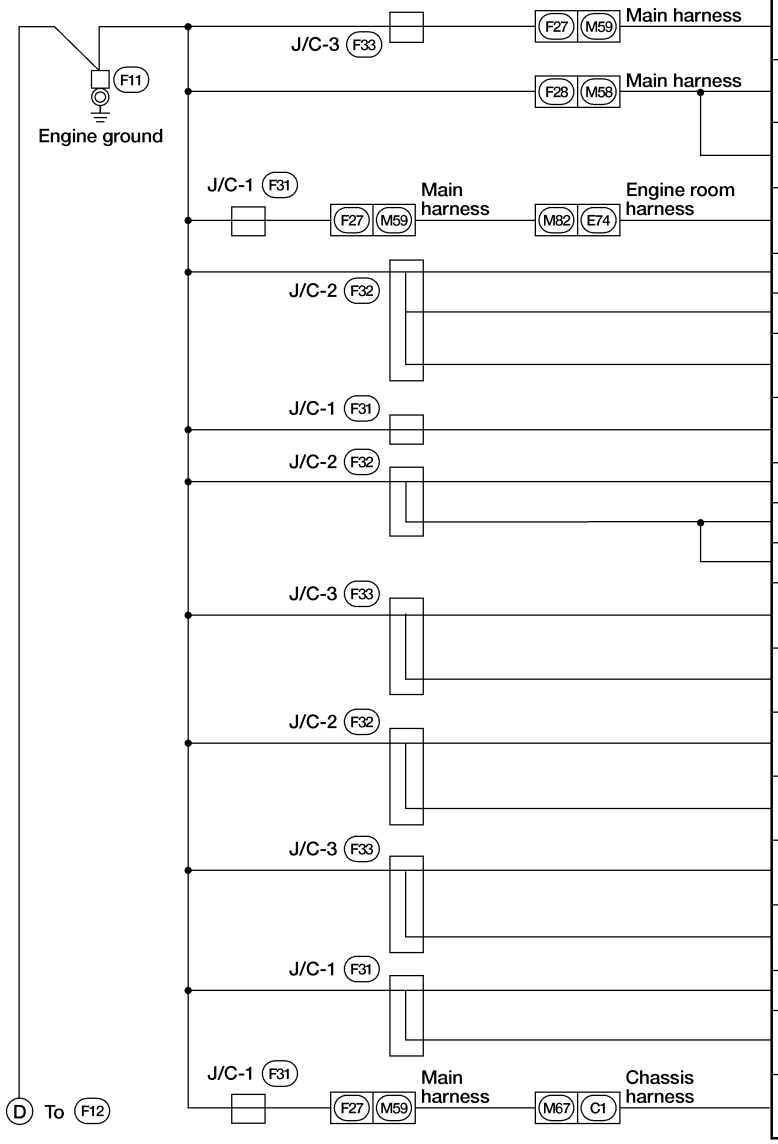
AEL099C

ENGINE CONTROL HARNESS (VG33E MODELS)

NEEL0171S10

Engine ground

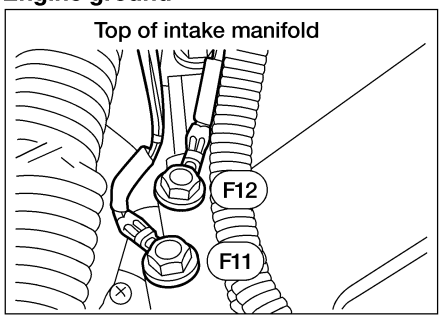


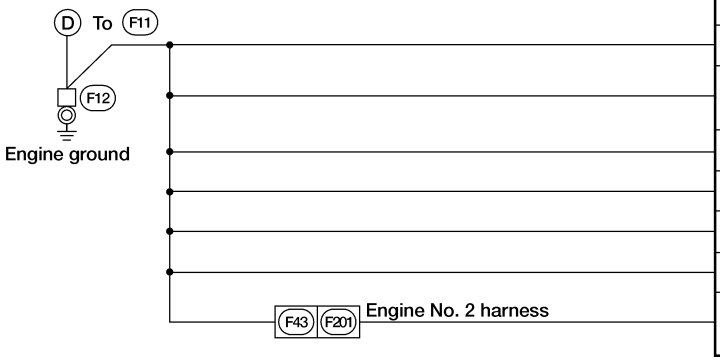


CONNECTOR NUMBER	CONNECT TO
M32	Data link connector (Terminal No. 12)
M78	TCM (transmission control module) (Terminal No. 25) (with A/T)
M78	TCM (transmission control module) (Terminal No. 48) (with A/T)
E62	Absolute pressure sensor (shield wire)
F1	Mass air flow sensor (shield wire)
F3	Throttle position sensor (shield wire)
F13	Distributor (camshaft position sensor) (Terminal No. 6)
F13	Distributor (camshaft position sensor) (shield wire)
F14	Resistor (ignition coil) (shield wire)
F29	ECM (Terminal No. 25)
F29	ECM (Terminal No. 32)
F39	Rear heated oxygen sensor LH (shield wire)
F39	Rear heated oxygen sensor LH (Terminal No. 4)
F40	Front heated oxygen sensor LH (shield wire)
F41	Front heated oxygen sensor RH (shield wire)
F42	Rear heated oxygen sensor RH (shield wire)
F42	Rear heated oxygen sensor RH (Terminal No. 4)
F109	Knock sensor (shield wire)
F110	Crankshaft position sensor (OBD) (shield wire)
C7	Evap control system pressure sensor (shield wire)

AEL695C

Engine ground





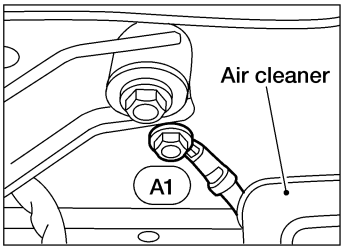
CONNECTOR NUMBER	CONNECT TO
F8	Power steering oil pressure switch
F13	Distributor (power transistor) (Terminal No. 2)
F29	ECM (Terminal No. 10)
F29	ECM (Terminal No. 19)
F29	ECM (Terminal No. 116)
F29	ECM (Terminal No. 124)
F218	Park/neutral position (PNP) switch (with M/T)

AEL696C

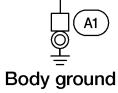
GENERATOR HARNESS (VG33E MODELS)

NEEL0171S03

Body ground



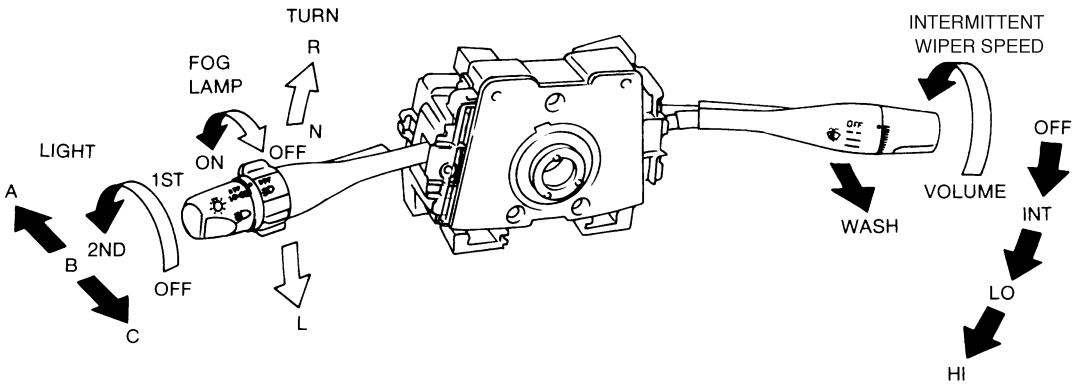
CONNECTOR NUMBER	CONNECT TO
A7	Generator

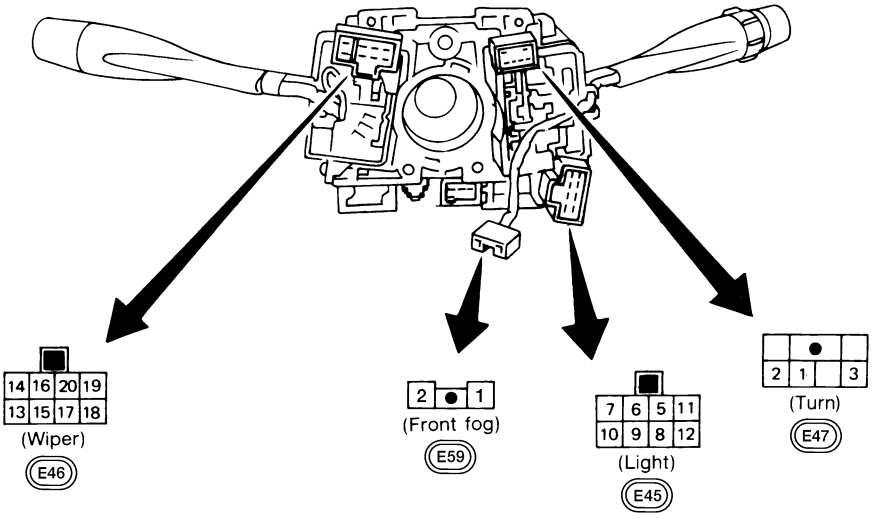


AEL697C

Check

NEEL0009





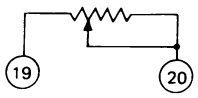
LIGHTING SWITCH

	OFF			1ST			2ND		
	A	B	C	A	B	C	A	B	C
5			○			○	○	○	○
6			○			○	○		○
7								○	
8			○			○	○	○	○
9			○			○	○		○
10								○	
11				○	○	○	○	○	○
12				○	○	○	○	○	○

WIPER SWITCH

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

INTERMITTENT WIPER VOLUME



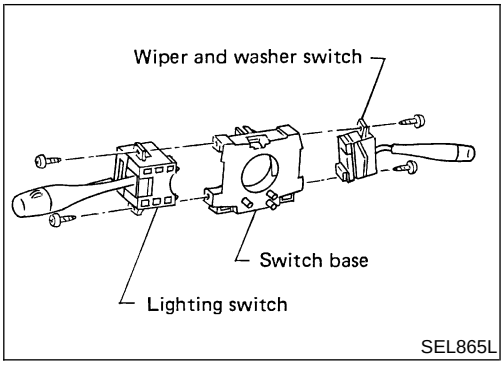
TURN SIGNAL SWITCH

	R	N	L
1	○		○
2	○		
3			○

FRONT FOG LAMP SWITCH

	OFF	ON
1		○
2		○

AEL122C

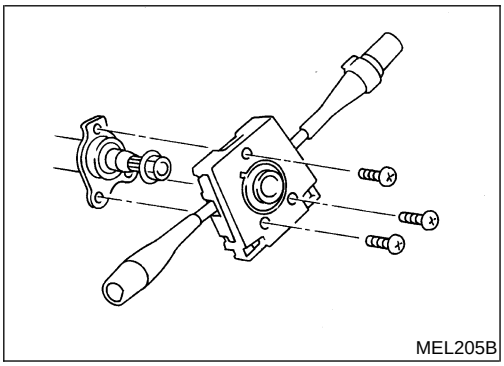


Replacement

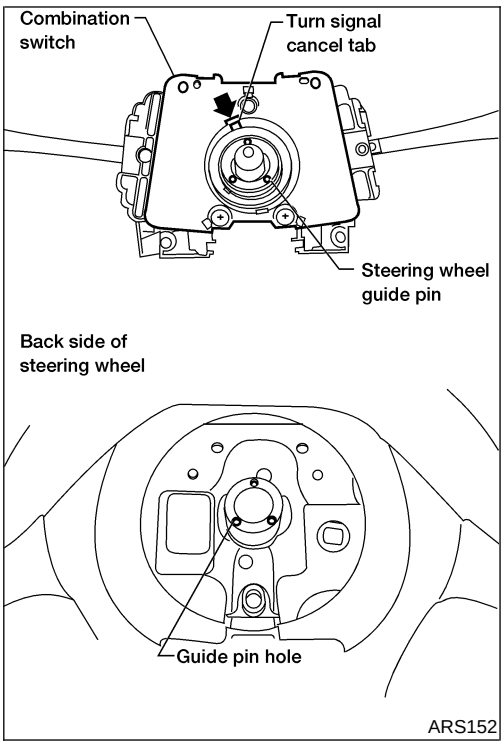
NEEL0010

For removal and installation of spiral cable, refer to "Driver Air Bag Module and Spiral Cable", "SUPPLEMENTAL RESTRAINT SYSTEM (SRS)", *RS-21*.

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



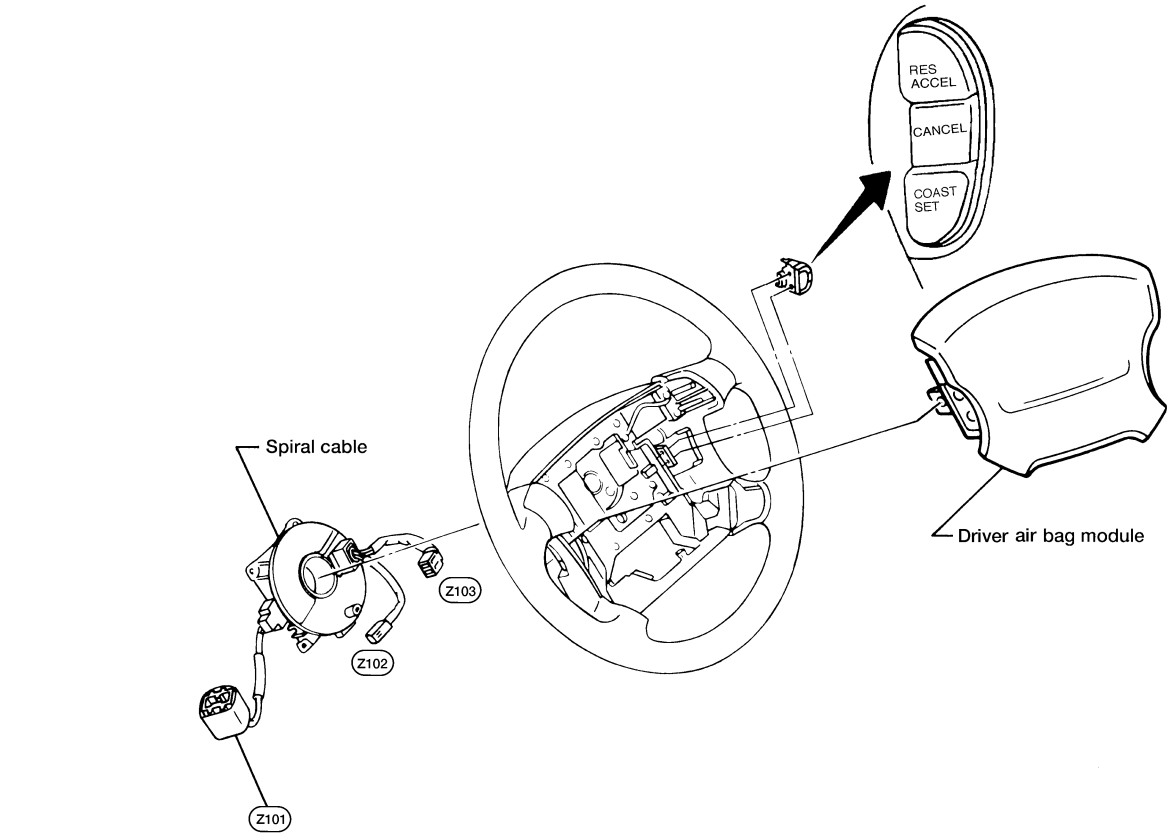
- To remove combination switch base, remove base attaching screws.

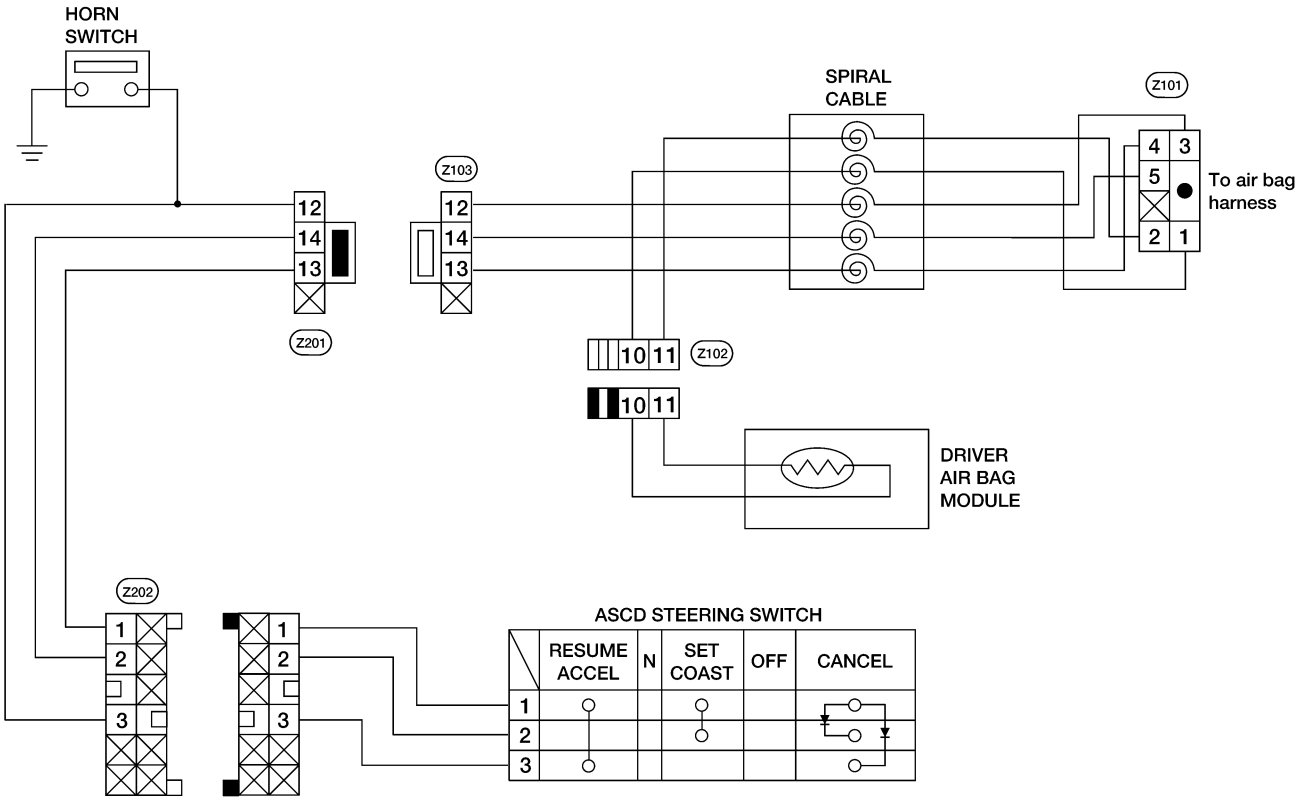


- Before installing the steering wheel, align the turn signal cancel tab with the notch of the combination switch. Refer to "Driver Air Bag Module and Spiral Cable", ***RS-21***.

Check

NEEL0011





AEL603B

System Description

NEEL0012

The headlamps are controlled by the lighting switch which is built into the combination switch.
Power is supplied at all times

- through 15A fuse (No. 37, located in the fuse and fusible link box)
- to lighting switch terminal 5 and
- through 15A fuse (No. 38, located in the fuse and fusible link box)
- to lighting switch terminal 8.

LOW BEAM OPERATION

NEEL0012S01

With the lighting switch in the headlamp ON (2ND) position and LOW BEAM (B) position, power is supplied

- from lighting switch terminal 10
- to headlamp LH terminal D and
- from lighting switch terminal 7
- to headlamp RH terminal D.

Ground is supplied to headlamp LH/RH terminal E through body grounds E12 and E54.
With power and ground supplied, the low beams illuminate.

HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

NEEL0012S02

With the lighting switch in the FLASH TO PASS (C) position or the headlamp ON (2ND) position and HIGH BEAM (A) position, power is supplied

- from lighting switch terminal 6
- to headlamp RH terminal M and
- from lighting switch terminal 9
- to headlamp LH terminal M and
- to combination meter terminal 26 for the high beam indicator.

Ground is supplied to terminal 27 of the combination meter through body grounds M14 and M68.
Ground is supplied to headlamp LH/RH terminal E through body grounds E12 and E54.
With power and ground supplied, the high beams and the high beam indicator illuminate.

THEFT WARNING SYSTEM

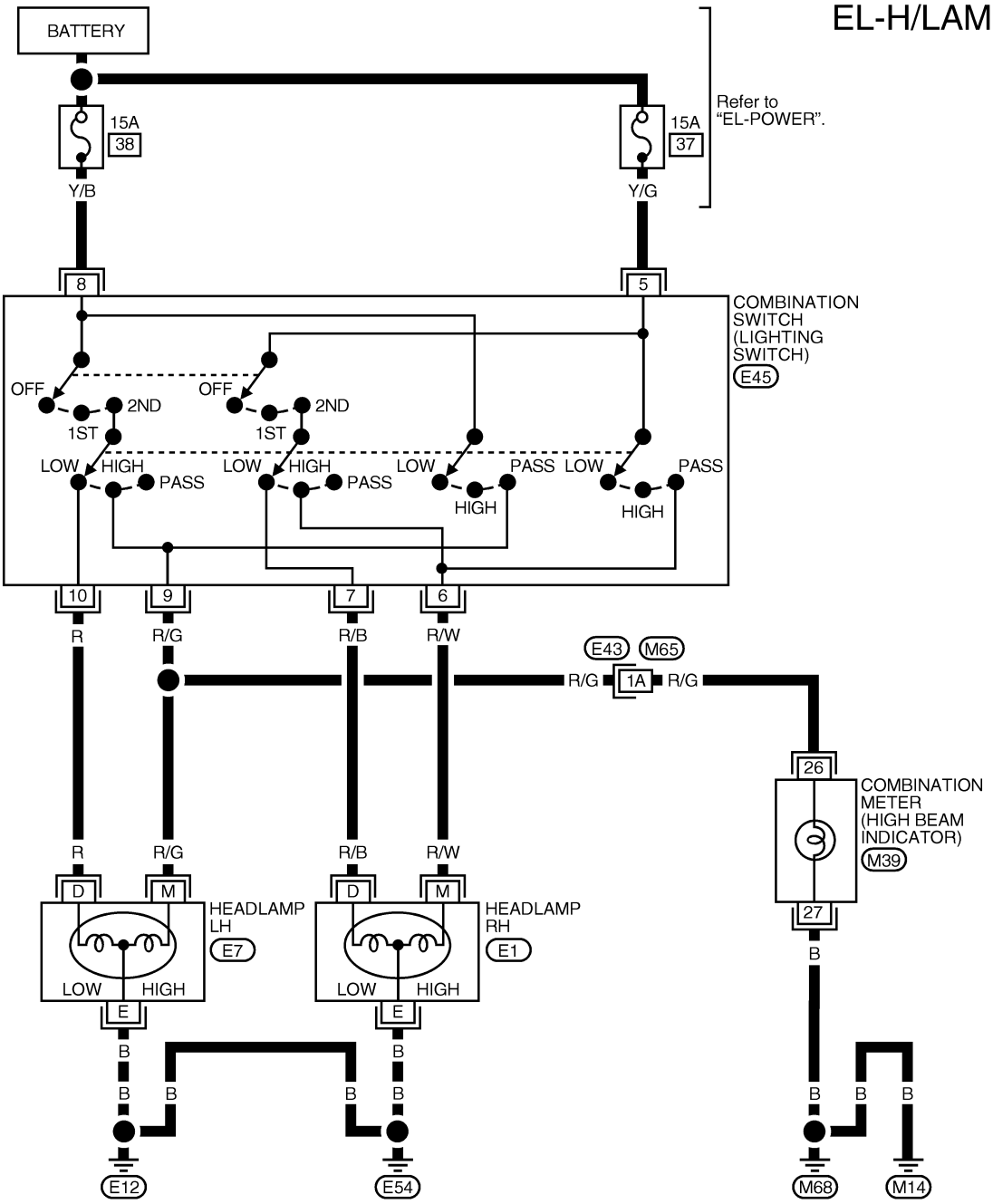
NEEL0012S03

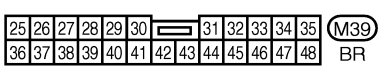
The theft warning system will flash the high beams if the system is triggered. Refer to “System Description”, “THEFT WARNING SYSTEM”, EL-207.

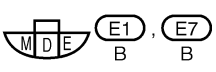
Wiring Diagram — H/LAMP —

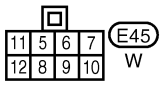
NEEL0013

EL-H/LAMP-01









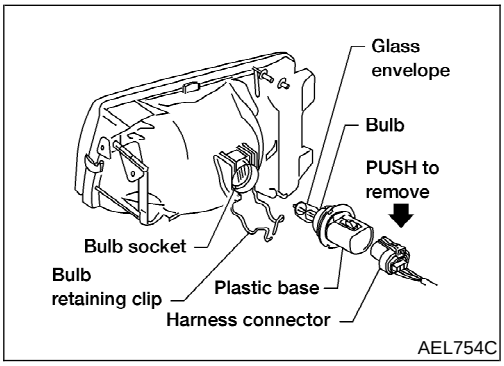
Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL347C

Trouble Diagnoses

NEEL0014

Symptom	Possible cause	Repair order
Neither headlamp LH nor headlamp RH operate.	1. Lighting switch	1. Check lighting switch.
Headlamp LH does not operate, but headlamp RH operates properly.	1. Bulb 2. Headlamp LH ground circuit 3. 15A fuse 4. Lighting switch	1. Check bulb. 2. Check grounds E12 and E54 and continuity between headlamp LH terminal E and grounds E12 and E54. 3. Check 15A fuse (No. 38, located in fuse and fusible link box). Verify battery positive voltage is present at terminal 8 of lighting switch. 4. Check lighting switch.
Headlamp RH does not operate, but headlamp LH operates properly.	1. Bulb 2. Headlamp RH ground circuit 3. 15A fuse 4. Lighting switch	1. Check bulb. 2. Check grounds E12 and E54 and continuity between headlamp RH terminal E and grounds E12 and E54. 3. Check 15A fuse (No. 37, located in fuse and fusible link box). Verify battery positive voltage is present at terminal 5 of lighting switch. 4. Check lighting switch.
High beam LH does not operate, but low beam LH operates.	1. Bulb 2. Open in high beam LH circuit 3. Lighting switch	1. Check bulb. 2. Check R/G wire between lighting switch and headlamp LH for an open circuit. 3. Check lighting switch.
Low beam LH does not operate, but high beam LH operates.	1. Bulb 2. Open in low beam LH circuit 3. Lighting switch	1. Check bulb. 2. Check R wire between lighting switch and headlamp LH for an open circuit. 3. Check lighting switch.
High beam RH does not operate, but low beam RH operates.	1. Bulb 2. Open in high beam RH circuit 3. Lighting switch	1. Check bulb. 2. Check R/W wire between lighting switch and headlamp RH for an open circuit. 3. Check lighting switch.
Low beam RH does not operate, but high beam RH operates.	1. Bulb 2. Open in low beam RH circuit 3. Lighting switch	1. Check bulb. 2. Check R/B wire between lighting switch and headlamp RH for an open circuit. 3. Check lighting switch.
High beam indicator does not work.	1. Bulb 2. High beam indicator ground circuit 3. Open in high beam circuit	1. Check bulb in combination meter. 2. Check grounds M14 and M68 and continuity between combination meter terminal 27 and grounds M14 and M68. 3. Check R/G wire between lighting switch and combination meter for an open circuit.



Bulb Replacement

NEEL0015

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. Unclip the bulb retaining clip, and then remove it.

4. Remove the headlamp bulb carefully. Do not shake or rotate the bulb when removing it.
5. Install in the reverse order of removal.

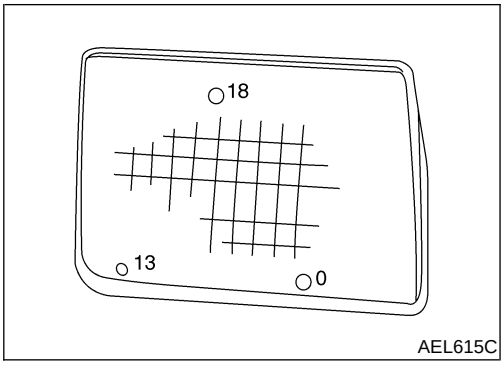
CAUTION:
Do not leave headlamp reflector without bulb for a long period of time. Dust, moisture, smoke, etc. entering headlamp body may affect the performance of the headlamp. Remove headlamp bulb from the headlamp reflector just before a replacement bulb is installed.

Aiming Adjustment

NEEL0016

When performing headlamp aiming adjustment, use an aiming machine, aiming wall screen or headlamp tester. Aimers should be in good repair, calibrated and operated in accordance with respective operation manuals.
If any aimer is not available, aiming adjustment can be done as follows:
For details, refer to the regulations in your own country.

1) **Keep all tires inflated to correct pressures.**
2) **Place vehicle and tester on 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).**



AEL615C

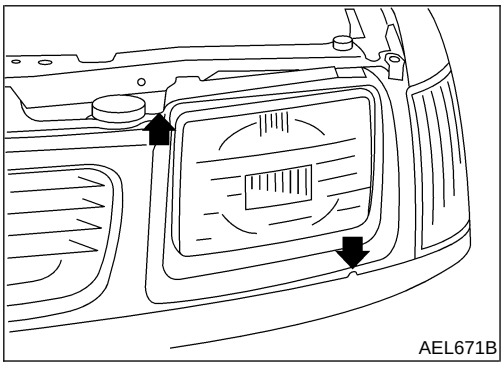
AIMER ADJUSTMENT MARK

=NEEL0016S01

When using a mechanical aimer, adjust adapter legs to the data marked on the headlamps.

Adjustment value for mechanical aimer

	Mechanical aimer level
Horizontal side	−4 to 4
Vertical side	−4 to 4

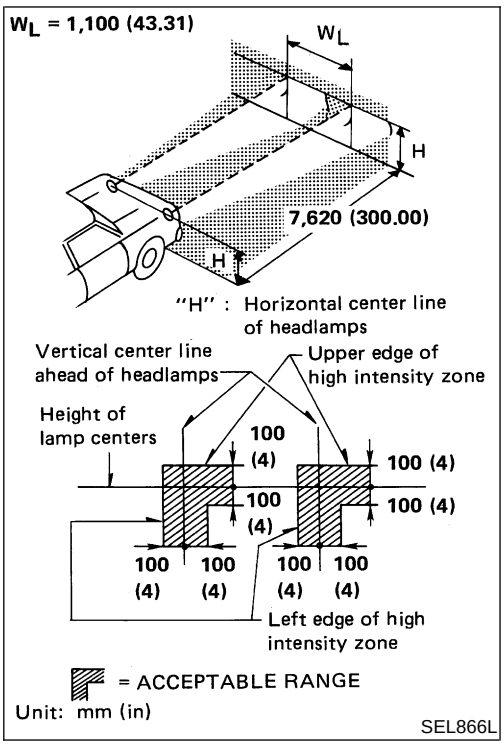

AEL671B

LOW BEAM

NEEL0016S02

1. Turn headlamp low beam on.
2. Use a #2 cross-recessed screwdriver to adjust the aim of the lamp.

- **Cover the opposite lamp.**



SEL866L

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

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

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

System Description (For Canada)

NEEL0017

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. If the daytime light control unit receives a ground signal from the generator, the daytime lights will not be illuminated. The daytime lights will illuminate once a battery positive voltage signal is sent to the daytime light control unit from the generator.

Power is supplied at all times

- through 15A fuse (No. 38, located in the fuse and fusible link box)
- to daytime light control unit terminal 3 and
- to lighting switch terminal 8.

Power is also supplied at all times

- through 15A fuse (No. 37, located in the fuse and fusible link box)
- to daytime light control unit terminal 2 and
- to lighting switch terminal 5.

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

- through 7.5A fuse [No. 5, located in the fuse block (J/B)]
- to daytime light control unit terminal 12.

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

- through 7.5A fuse [No. 7, located in the fuse block (J/B)]
- to daytime light control unit terminal 1.

Ground is supplied to daytime light control unit terminal 9 through body grounds E12 and E54.

HEADLAMP OPERATION

NEEL0017S01

Low Beam Operation

NEEL0017S0101

When the lighting switch is turned to the headlamp ON (2ND) position, LOW BEAM (B), power is supplied

- from lighting switch terminal 7
- to headlamp RH terminal D and
- to daytime light control unit terminal 4.

Ground is supplied to headlamp RH terminal E through body grounds E12 and E54.

Also, when the lighting switch is turned to the headlamp ON (2ND) position, LOW BEAM (B), power is supplied

- from lighting switch terminal 10
- to headlamp LH terminal D.

Ground is supplied

- to headlamp LH terminal E
- from daytime light control unit terminal 7
- through daytime light control unit terminal 9
- through body grounds E12 and E54.

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

High Beam Operation/Flash-to-pass Operation

NEEL0017S0102

When the lighting switch is turned to the headlamp ON (2ND) position, HIGH BEAM (A) or FLASH TO PASS (C) position, power is supplied

- from lighting switch terminal 6
- to headlamp RH terminal M and
- to daytime light control unit terminal 8.

Also, when the lighting switch is turned to the headlamp ON (2ND) position, HIGH BEAM (A) or FLASH TO PASS (C) position, power is supplied

- from lighting switch terminal 9
- to combination meter terminal 26 for the high beam indicator and
- to daytime light control unit terminal 5
- through daytime light control unit terminal 6

- to headlamp LH terminal M.

Ground is supplied in the same manner as low beam operation.
Ground is supplied to combination meter terminal 27 through body grounds M14 and M68.
With power and ground supplied, the high beam headlamps and HI BEAM indicator illuminate.

DAYTIME LIGHT OPERATION

NEEL0017S02

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

- to daytime light control unit terminal 3
- through daytime light control unit terminal 6
- to headlamp LH terminal M
- through headlamp LH terminal E
- to daytime light control unit terminal 7
- through daytime light control unit terminal 8
- to headlamp RH terminal M.

Ground is supplied to headlamp RH terminal E through body grounds E12 and E54.
Because the high beam headlamps are now wired in series, they operate at half illumination.

OPERATION (FOR CANADA)

NEEL0017S03

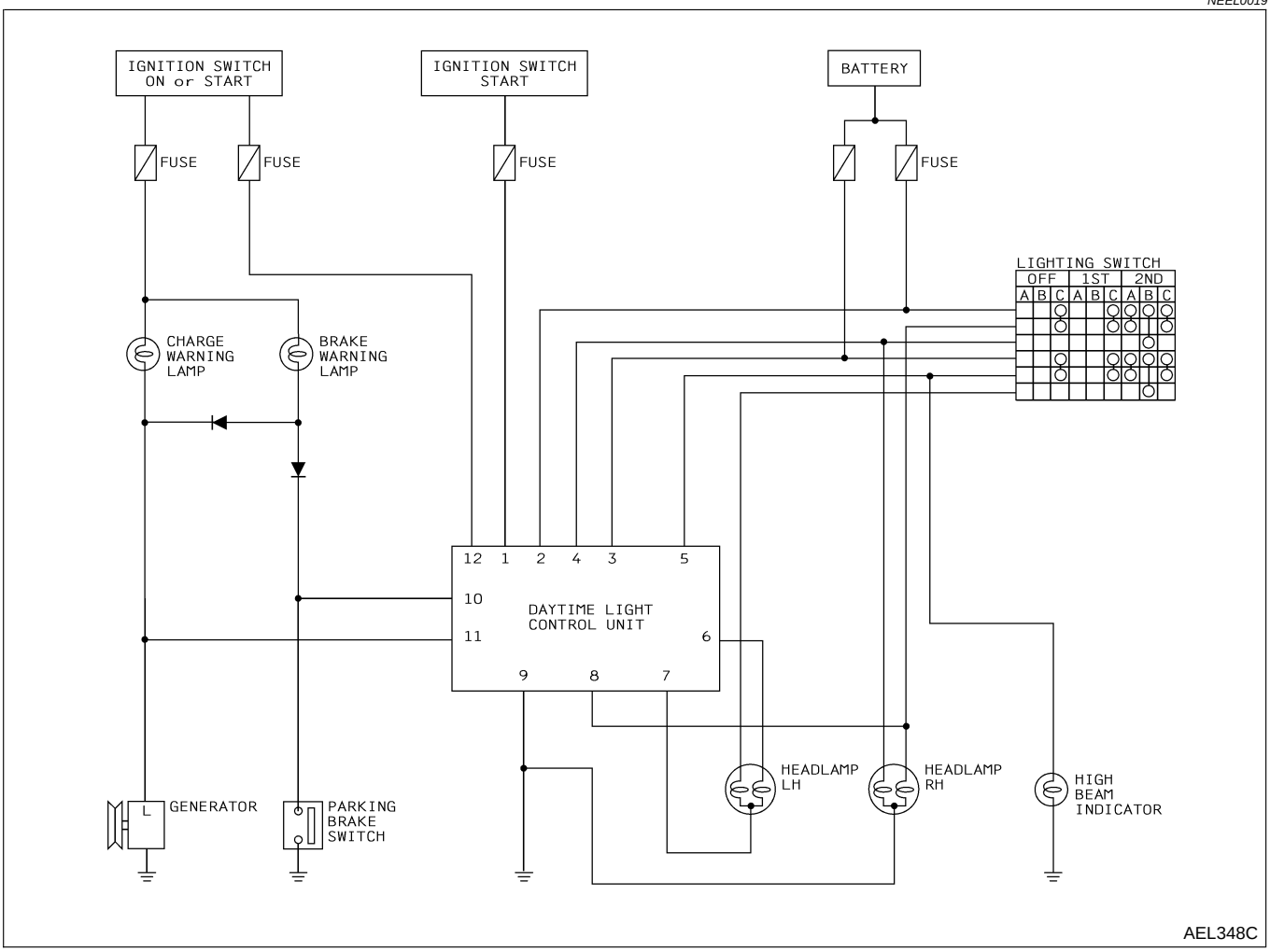
After starting the engine with the lighting switch in the OFF or parking lamp (1ST) position, the headlamp high beams automatically turn on. Lighting switch operations other than the above are the same as conventional light systems.

Engine		With engine stopped									With engine running								
Lighting switch		OFF			1ST			2ND			OFF			1ST			2ND		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Headlamp	High beam	X	X	O	X	X	O	O	X	O	△*	△*	O	△*	△*	O	O	X	O
	Low beam	X	X	X	X	X	X	X	O	X	X	X	X	X	X	X	X	O	X
Clearance and tail lamp		X	X	X	O	O	O	O	O	O	X	X	X	O	O	O	O	O	O
License and instrument illumination lamp		X	X	X	O	O	O	O	O	O	X	X	X	O	O	O	O	O	O

A: HIGH BEAM position
B: LOW BEAM position
C: FLASH TO PASS position
O : Lamp ON
X : Lamp OFF
△ : Lamp dims. (Added functions)
*: When starting the engine with the parking brake released, the daytime lights will come ON.
When starting the engine with the parking brake pulled, the daytime lights won't come ON.

Circuit Diagram

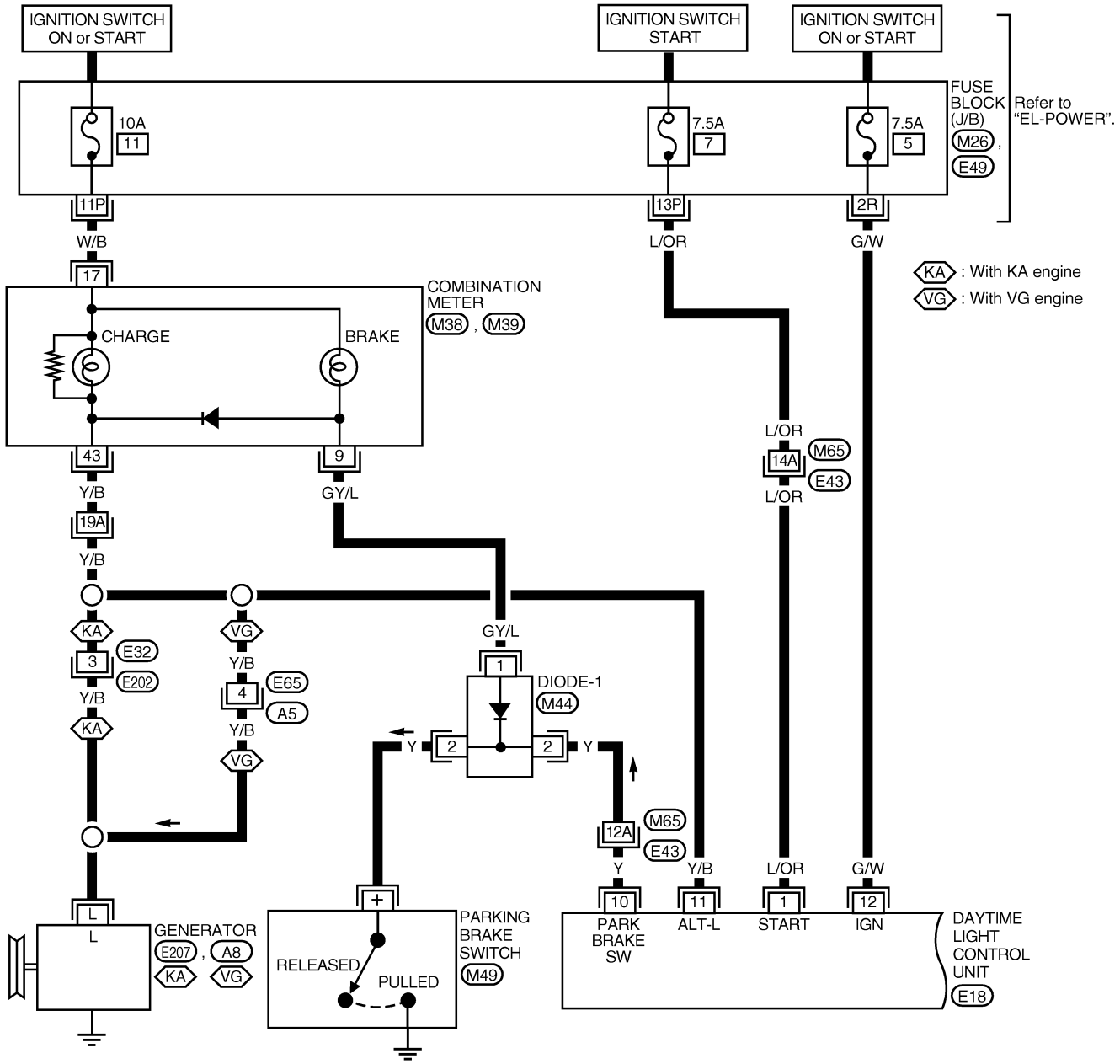
NEEL0019

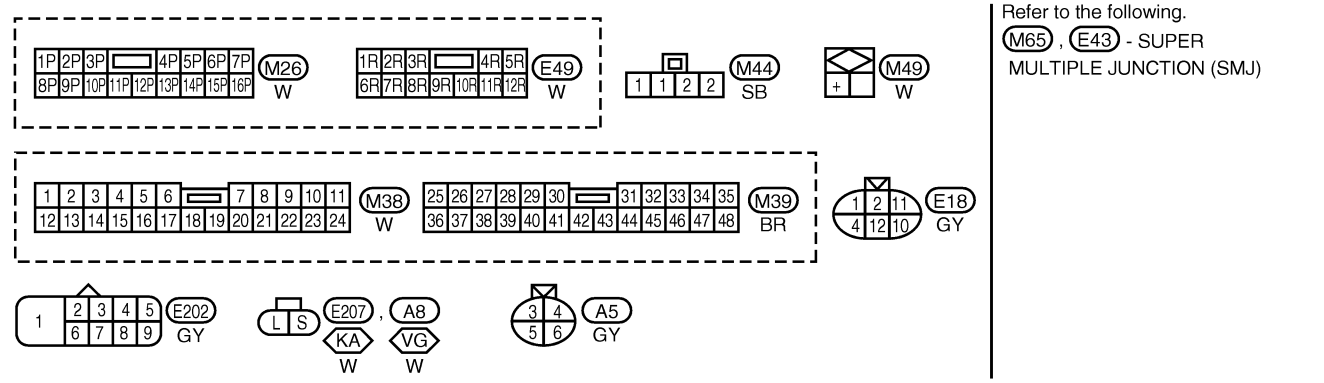


Wiring Diagram — DTRL —

NEEL0020

EL-DTRL-01

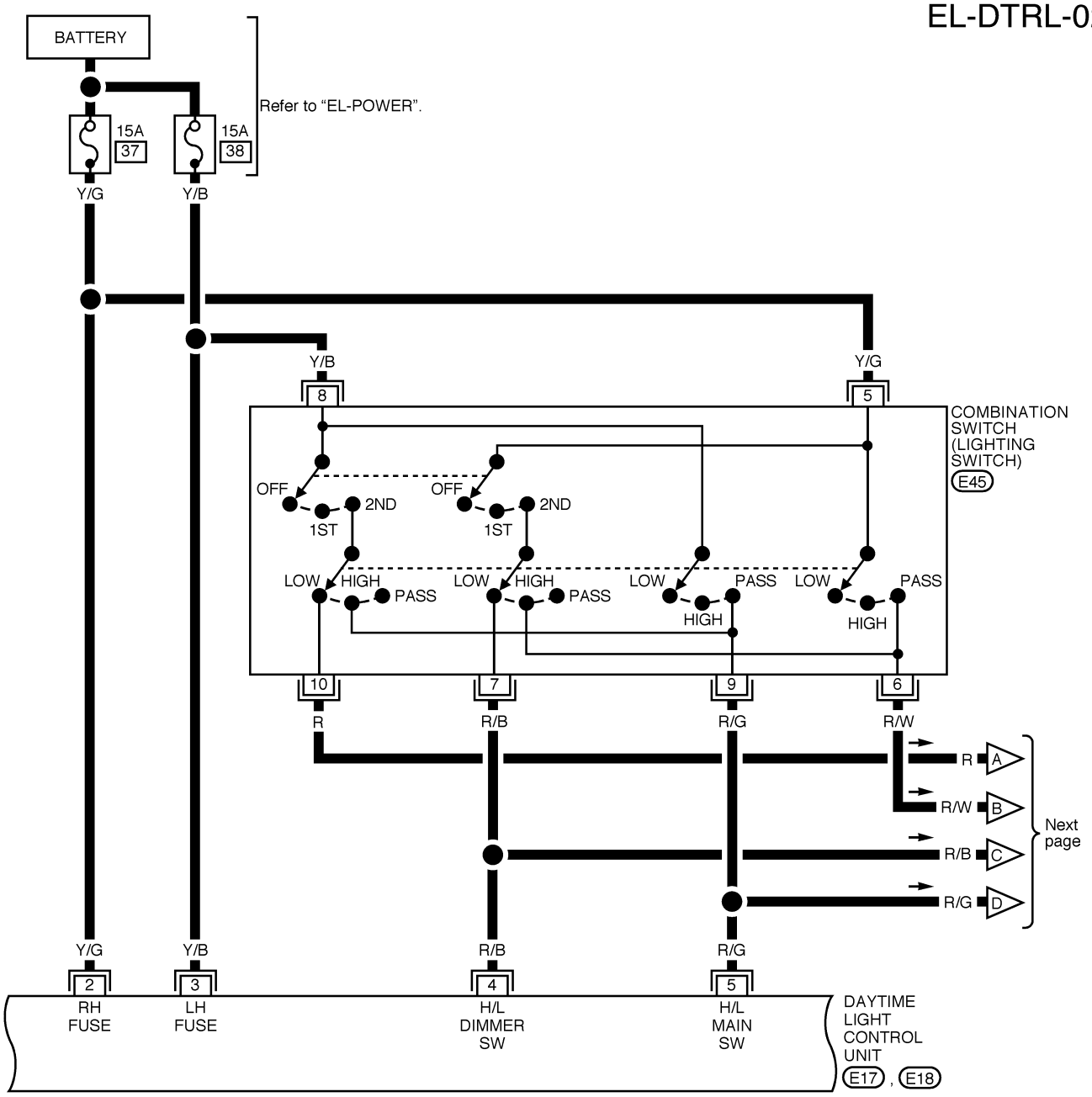


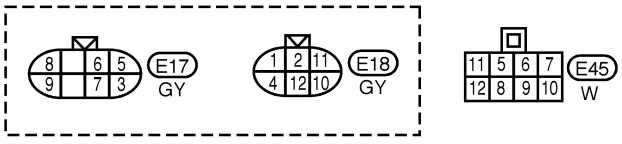


Refer to the following.
M65, E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL349C

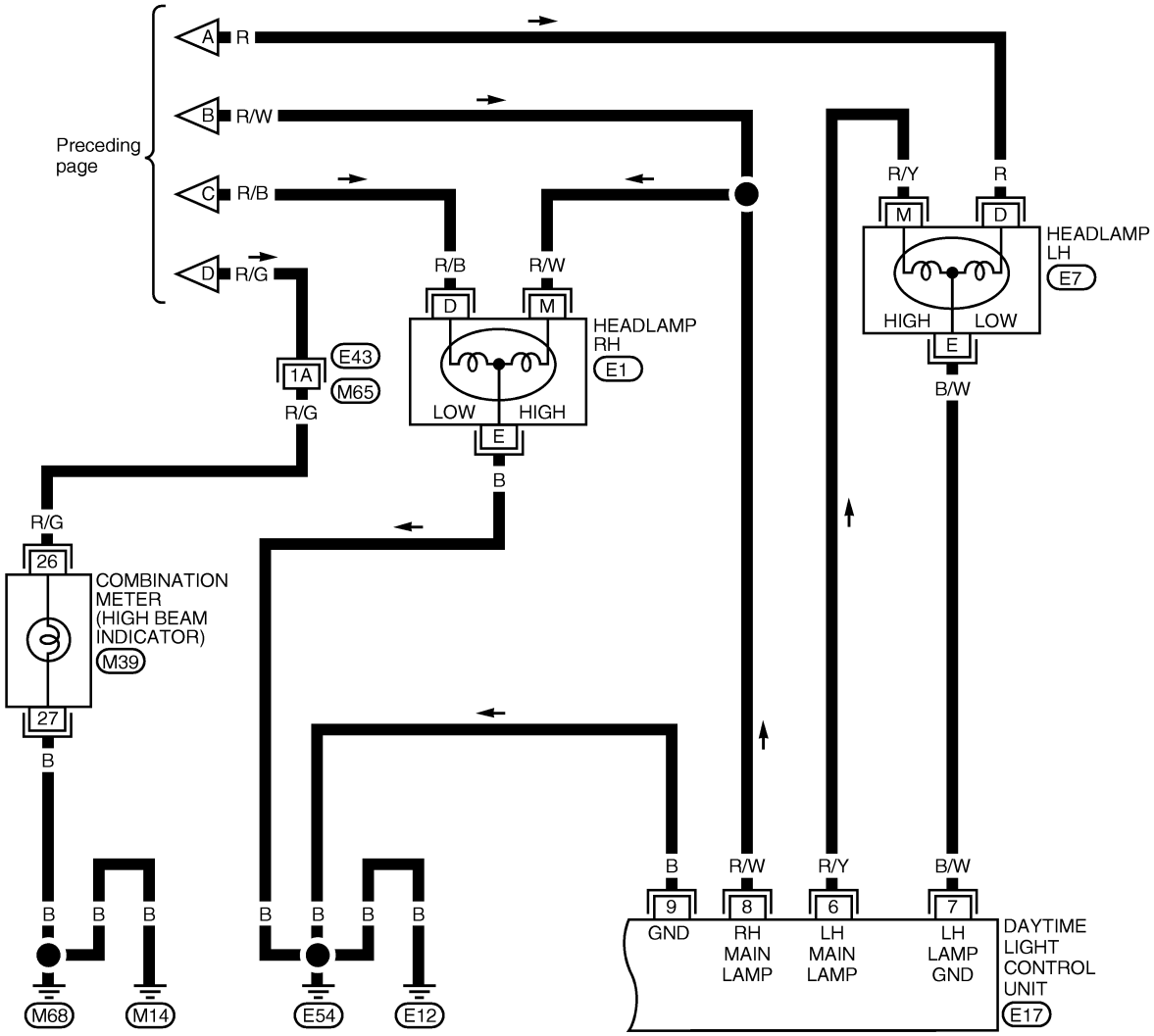
EL-DTRL-02

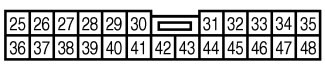


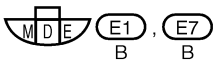


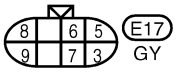
AEL350C

EL-DTRL-03









Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL351C

Trouble Diagnoses

NEEL0021

DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

NEEL0021S01

Terminal No.	Wire color	Item	Condition	Voltage (Approximate value)
1	L/OR	Ignition switch start signal	Ignition switch in START position	12
			All other conditions	0
2	Y/G	Power source for headlamp RH	—	12
3	Y/B	Power source for headlamp LH	—	12
4	R/B	Lighting switch headlamp RH low beam output	Lighting switch in the headlamp ON (2ND) position and LOW BEAM (B) position	12
			All other conditions	0
5	R/G	Lighting switch headlamp LH high beam output	Lighting switch in the FLASH TO PASS (C) position or headlamp ON (2ND) position and HIGH BEAM (A) position	12
			All other conditions	0
6	R/Y	Headlamp LH high beam	Lighting switch in the FLASH TO PASS (C) position or headlamp ON (2ND) position and HIGH BEAM (A) position	12
			With parking brake released, engine running and lighting switch in OFF or parking and tail lamp ON (1ST) positions **CAUTION:** **Block wheels and ensure selector lever is in P or N position.**	12
			All other conditions	0
7	B/W	Headlamp LH control (ground)	Lighting switch in the FLASH TO PASS (C) position or headlamp ON (2ND) position	0
			All other conditions	6
8	R/W	Lighting switch headlamp RH high beam output	Lighting switch in the FLASH TO PASS (C) position or headlamp ON (2ND) position and HIGH BEAM (A) position	12
			With parking brake released, engine running and lighting switch in OFF or parking and tail lamp ON (1ST) positions **CAUTION:** **Block wheels and ensure selector lever is in P or N position.**	6
			All other conditions	0
9	B	Ground	—	—
10	Y	Parking brake switch	Parking brake released	12
			Parking brake set	0
11	Y/B	Generator (L terminal)	When engine is running	12
			All other conditions	0

Trouble Diagnoses (Cont'd)

Terminal No.	Wire color	Item	Condition	Voltage (Approximate value)
12	G/W	Ignition switch on signal	Ignition switch OFF, ACC positions	0
			Ignition switch ON, START positions	12

Bulb Replacement

NEEL0022

Refer to "HEADLAMP (FOR USA)", EL-34.

Aiming Adjustment

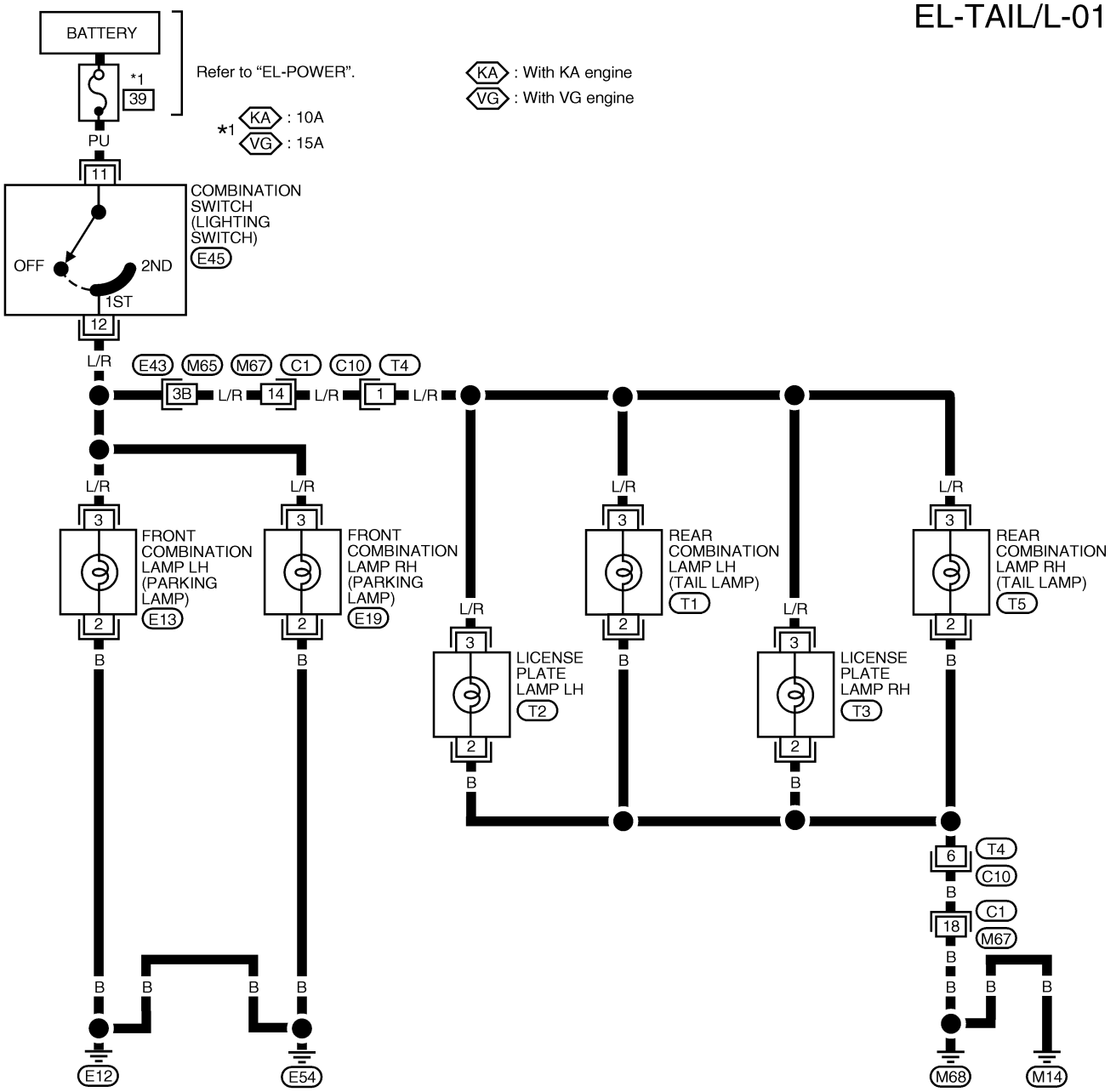
NEEL0023

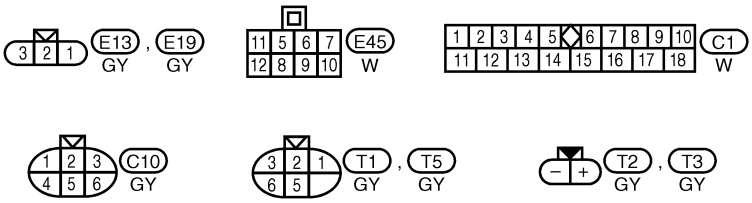
Refer to "HEADLAMP (FOR USA)", EL-35.

Wiring Diagram — TAIL/L —

NEEL0024

EL-TAIL/L-01



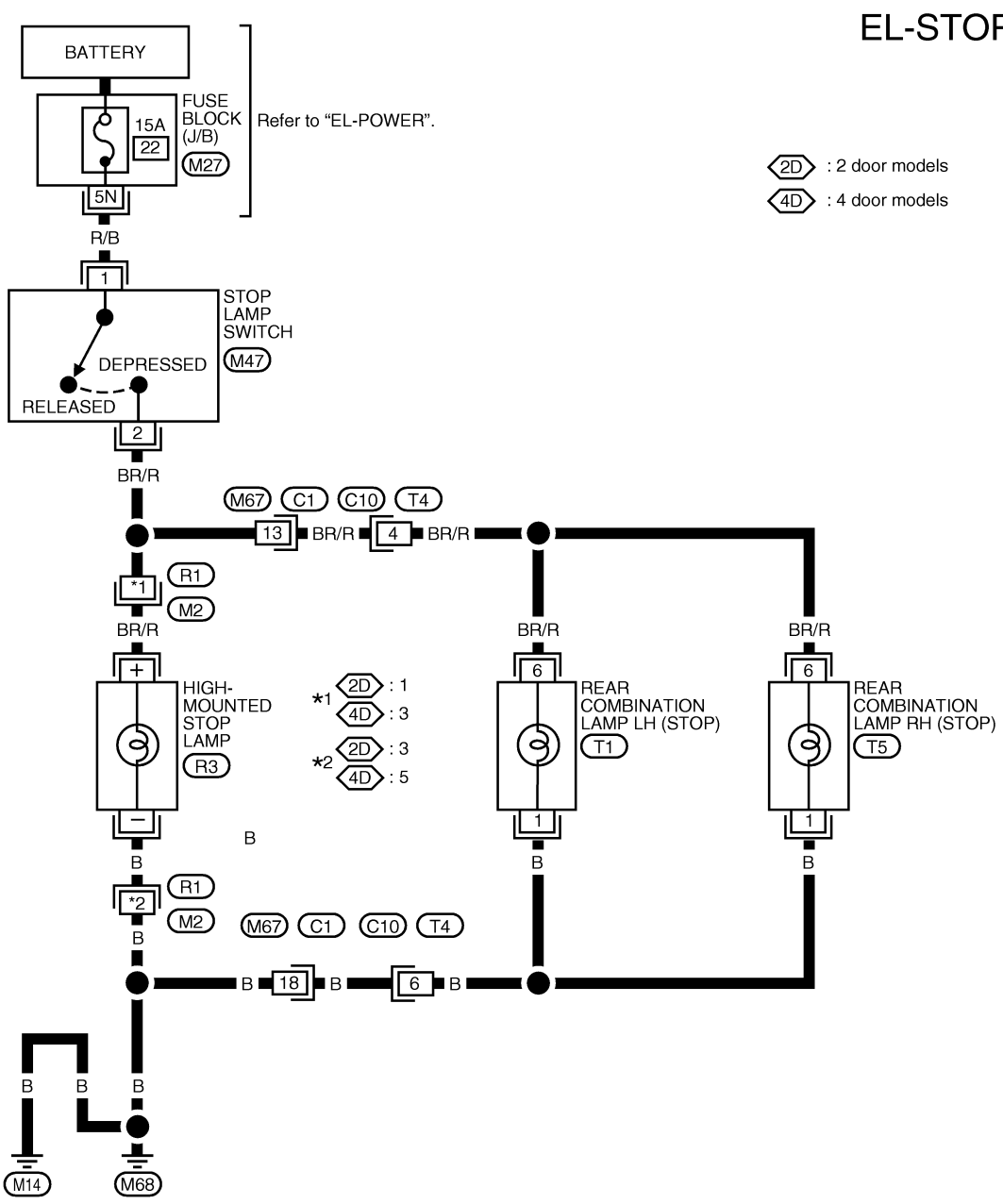


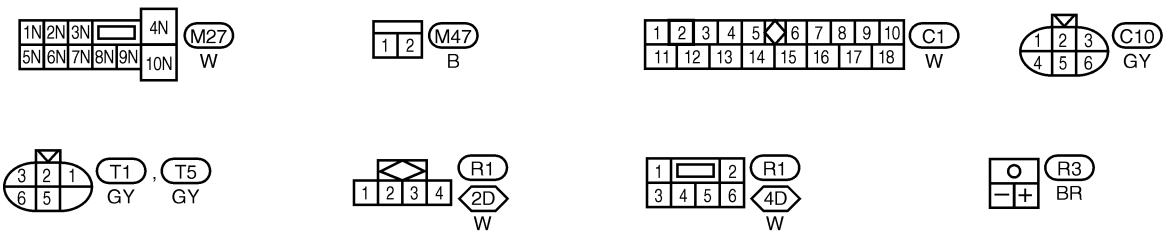
Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL456C

Wiring Diagram — STOP/L —

NEEL0025



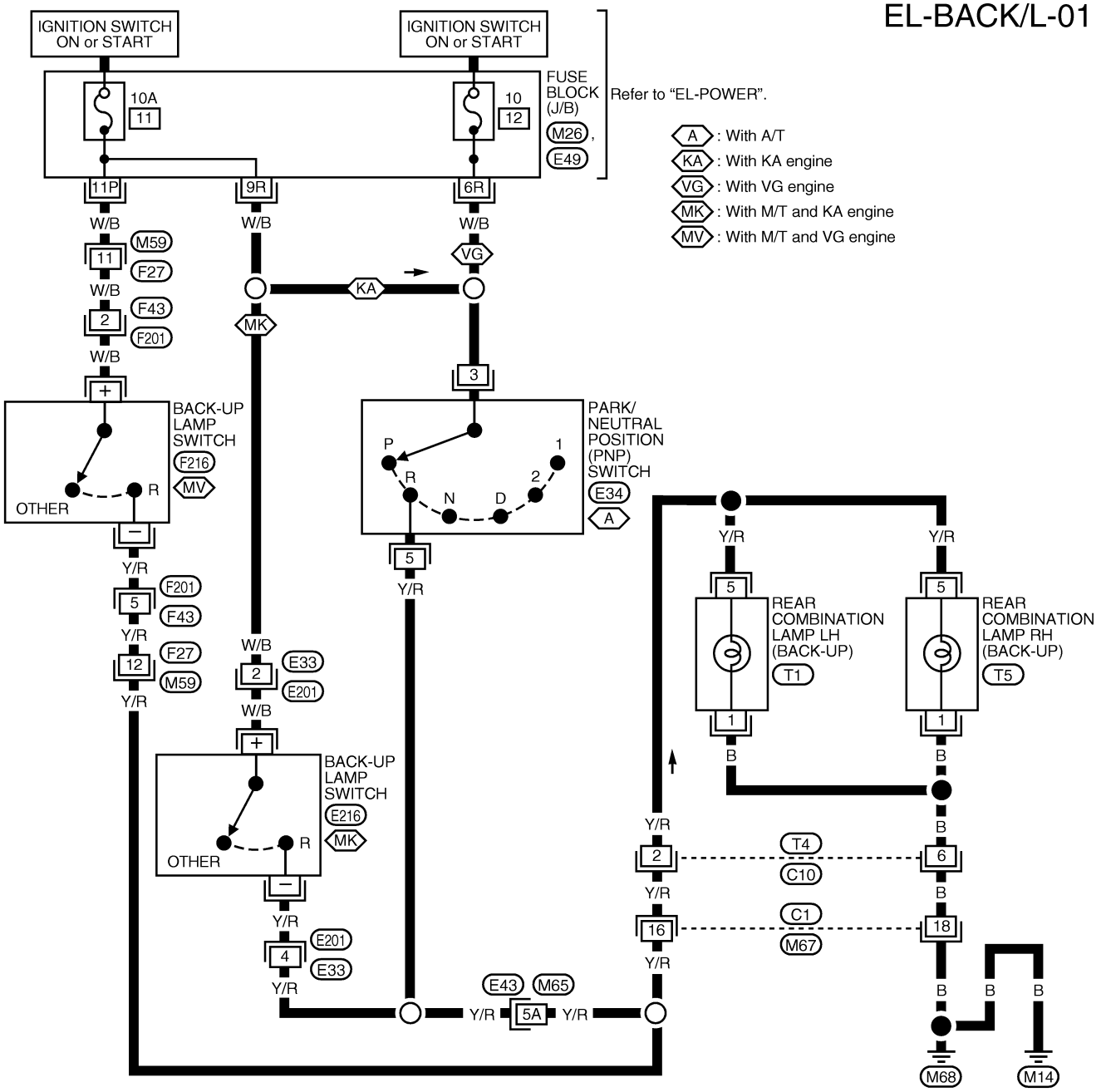


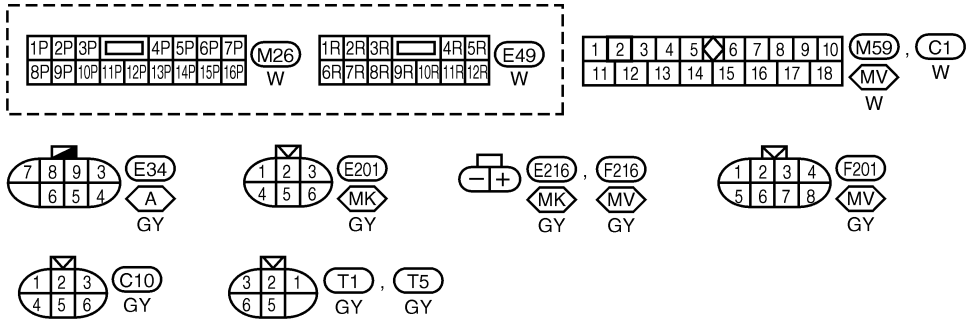
AEL458C

Wiring Diagram — BACK/L —

NEEL0026

EL-BACK/L-01





Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL459C

System Description

NEEL0027

Power is supplied at all times
- through 15A fuse (No. 40, located in the fuse and fusible link box)
- to front fog lamp relay terminal 5 and
- through 15A fuse (No. 37, located in the fuse and fusible link box)
- to lighting switch terminal 5.

With the lighting switch in the headlamp ON (2ND) position and LOW BEAM (B) position, power is supplied
- through lighting switch terminal 7
- to front fog lamp relay terminal 2.

FRONT FOG LAMP OPERATION

NEEL0027S01

The front fog lamp switch is built into the combination switch. The lighting switch must be in the headlamp ON (2ND) position and LOW BEAM (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 2
- from the front fog lamp switch terminal 2
- through front fog lamp switch terminal 1
- through body grounds E12 and E54.

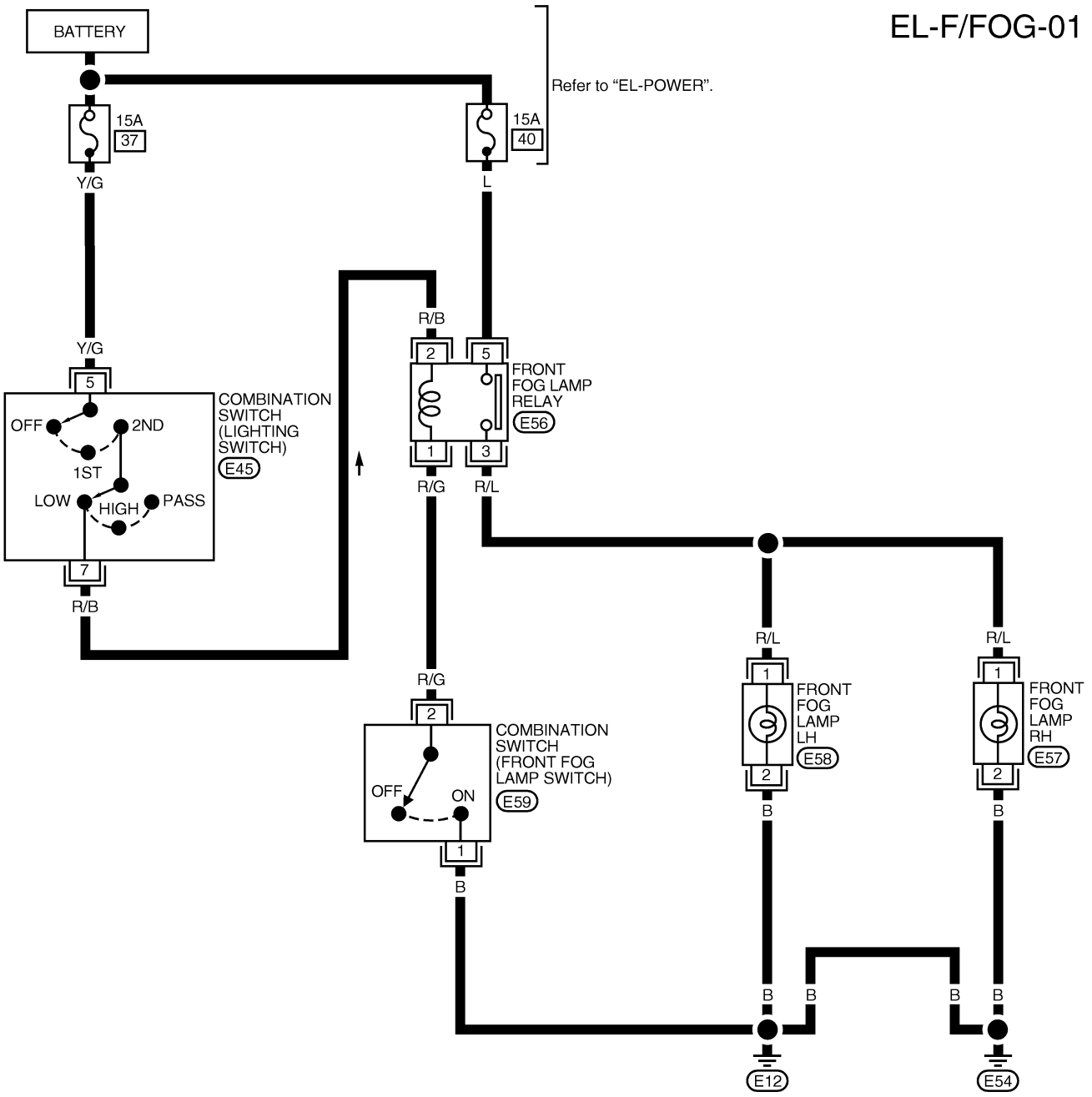
The front fog lamp relay is energized and power is supplied
- from front fog lamp relay terminal 3
- to front fog lamp LH/RH terminal 1.

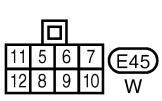
Ground is supplied to front fog lamp LH/RH terminal 2 through body grounds E12 and E54.
With power and ground supplied, the front fog lamps illuminate.

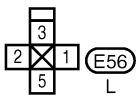
Wiring Diagram — F/FOG —

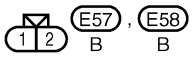
NEEL0028

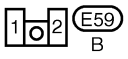
EL-F/FOG-01



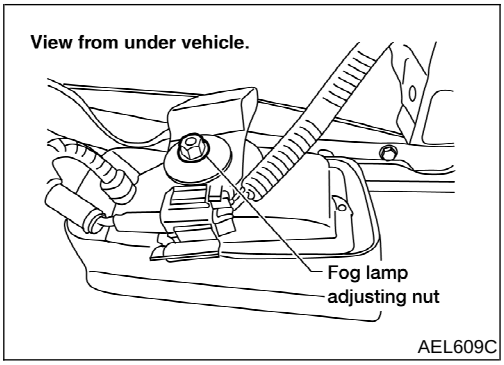








AEL460C



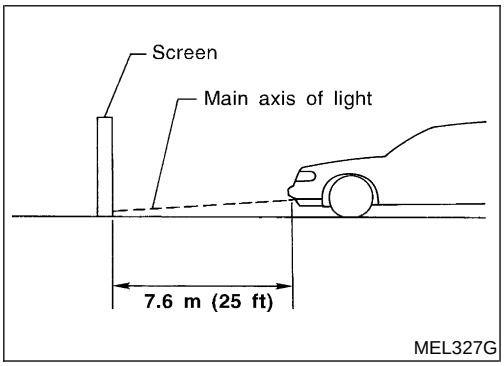
Aiming Adjustment

NEEL0029

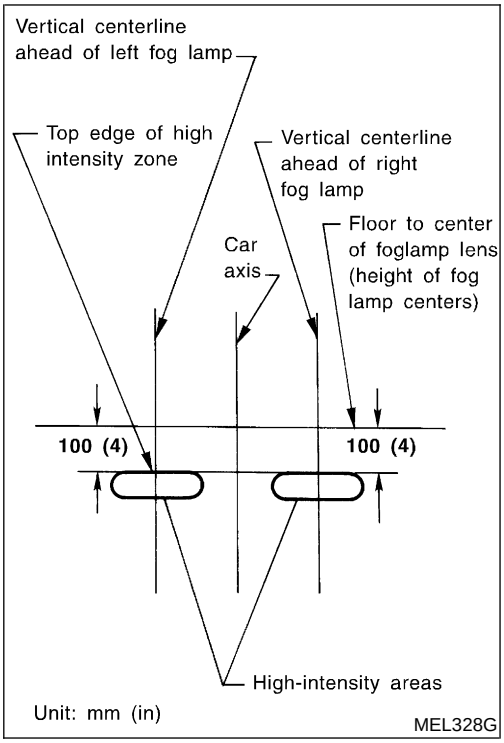
Before performing aiming adjustment, make sure of the following.

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.

Loosen front fog lamp adjusting nuts and adjust aiming by moving front fog lamps.



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



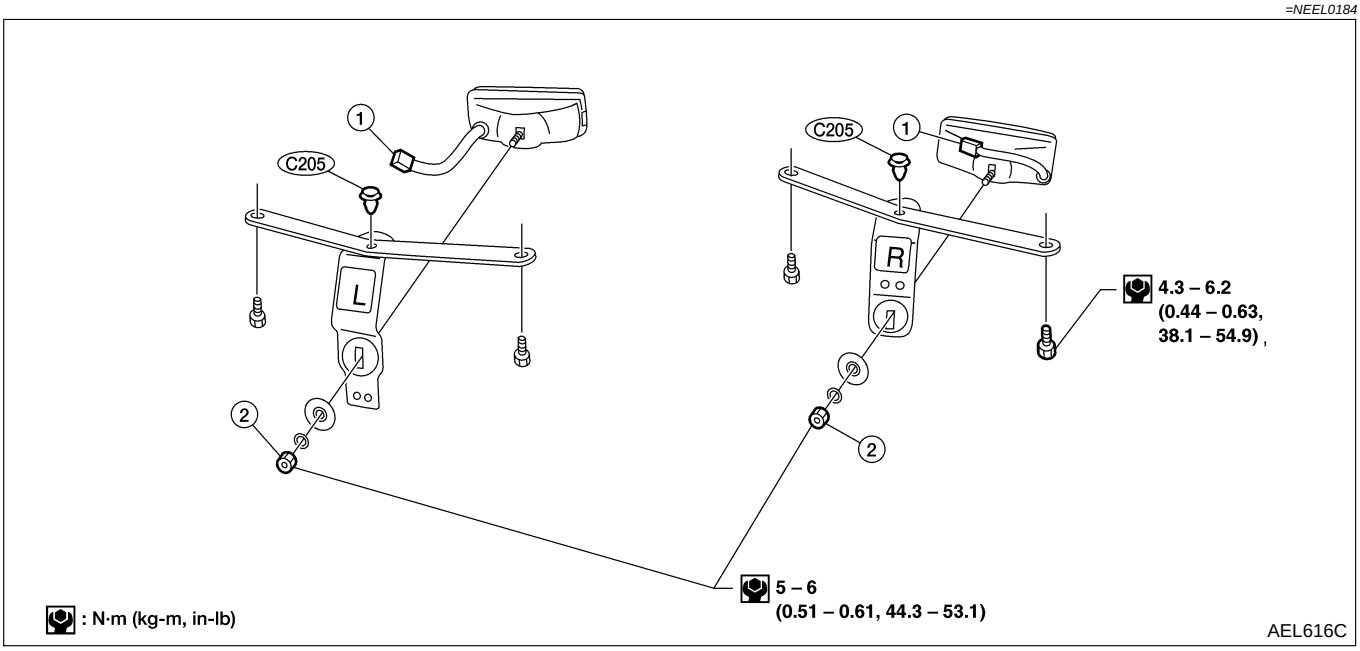
3. Adjust front fog lamps so that the top edge of the high intensity zone is 100 mm (4 in) below the height of the fog lamp centers as shown at left.

- **When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.**

4. Tighten the front fog lamp adjusting nuts.

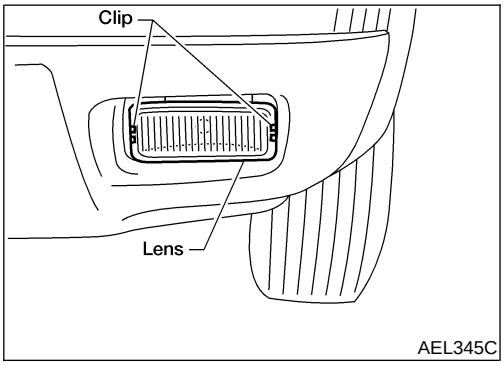
Removal and Installation

=NEEL0184



1. Disconnect front fog lamp harness connector and separate front fog lamp connector from front fog lamp bracket.
2. Remove mounting nut and remove lens and housing assembly from front fog lamp bracket.
3. Install in reverse order of removal. Ensure top of lens faces up.
4. Tighten mounting nut.

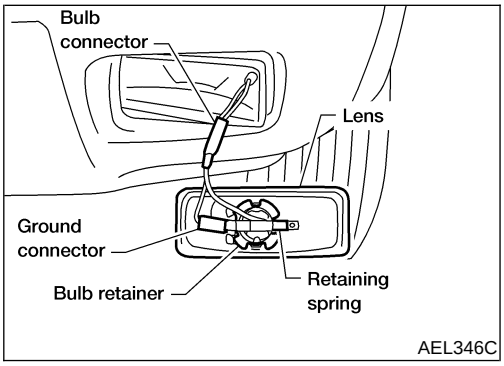
: 5 – 6 N·m (0.51 – 0.61 kg-m, 44.3 – 53.1 in-lb)



Bulb and Lens Replacement

NEEL0185

1. Remove the two metal clips on sides of fog lamp.
2. Pull out and support fog lamp lens.
3. Disconnect fog lamp bulb connector.



4. Lift retaining spring.
5. Remove fog lamp bulb.

- Fog lamp bulb cannot be separated from wire and is serviced as an assembly.

6. For lens replacement, disconnect ground connector from bulb retainer and remove lens.
7. Install in reverse order of removal. Ensure top of lens faces up. **DO NOT TOUCH BULB.**

System Description

NEEL0030

TURN SIGNAL OPERATION

NEEL0030S01

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. 2, located in the fuse block (J/B)]
- to hazard switch terminal 2
- through the hazard switch terminal 1
- to combination flasher unit terminal B
- through combination flasher unit terminal L
- to turn signal switch terminal 1.

Ground is supplied to combination flasher unit terminal E through body grounds M14 and M68.

LH Turn

NEEL0030S0101

With the turn signal switch in the LH position, power is supplied from turn signal switch terminal 3 to

- front combination lamp LH terminal 1
- combination meter terminal 24 and
- rear combination lamp LH terminal 3.

Ground is supplied to front combination lamp LH terminal 2 through body grounds E12 and E54.
Ground is supplied

- to rear combination lamp LH terminal 2 and
- to combination meter terminal 33
- through body grounds M14 and M68.

With power and ground supplied, the combination flasher unit controls the flashing of the LH turn signal lamps.

RH Turn

NEEL0030S0102

With the turn signal switch in the RH position, power is supplied from turn signal switch terminal 2 to

- front combination lamp RH terminal 1
- combination meter terminal 40 and
- rear combination lamp RH terminal 3.

Ground is supplied to the front combination lamp RH terminal 2 through body grounds E12 and E54.
Ground is supplied

- to the rear combination lamp RH terminal 2 and
- to combination meter terminal 33
- through body grounds M14 and M68.

With power and ground supplied, the combination flasher unit controls the flashing of the RH turn signal lamps.

HAZARD LAMP OPERATION

NEEL0030S02

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

- 10A fuse [No. 17, located in the fuse block (J/B)].

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

- through hazard switch terminal 1
- to combination flasher unit terminal B
- through combination flasher unit terminal L
- to hazard switch terminal 4.

Ground is supplied to combination flasher unit terminal E through body grounds M14 and M68.
Power is supplied through hazard switch terminal 5 to

- front combination lamp LH terminal 1
- combination meter terminal 24 and
- rear combination lamp LH terminal 3.

Power is supplied through hazard switch terminal 6 to

- front combination lamp RH terminal 1
- combination meter terminal 40 and
- rear combination lamp RH terminal 3.

Ground is supplied to front combination lamp LH/RH terminal 2 through body grounds E12 and E54.
Ground is supplied to combination meter terminal 33 and rear combination lamp LH/RH terminal 2 through body grounds M14 and M68.
With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

MULTI-REMOTE CONTROL SYSTEM OPERATION

NEEL0030S03

Power is supplied at all times

- through 10A fuse [No. 17, located in the fuse block (J/B)]
- to multi-remote control relay terminals 2, 5 and 7.

Ground is supplied to multi-remote control relay terminal 1 through smart entrance control unit terminal 7, when the multi-remote control system is triggered through the smart entrance control unit.
Refer to "MULTI-REMOTE CONTROL SYSTEM", EL-183.
The multi-remote control relay is energized.
Power is supplied through multi-remote control relay terminal 3 to

- front combination lamp LH terminal 1
- combination meter terminal 24 and
- rear combination lamp LH terminal 3.

Power is supplied through multi-remote control relay terminal 6 to

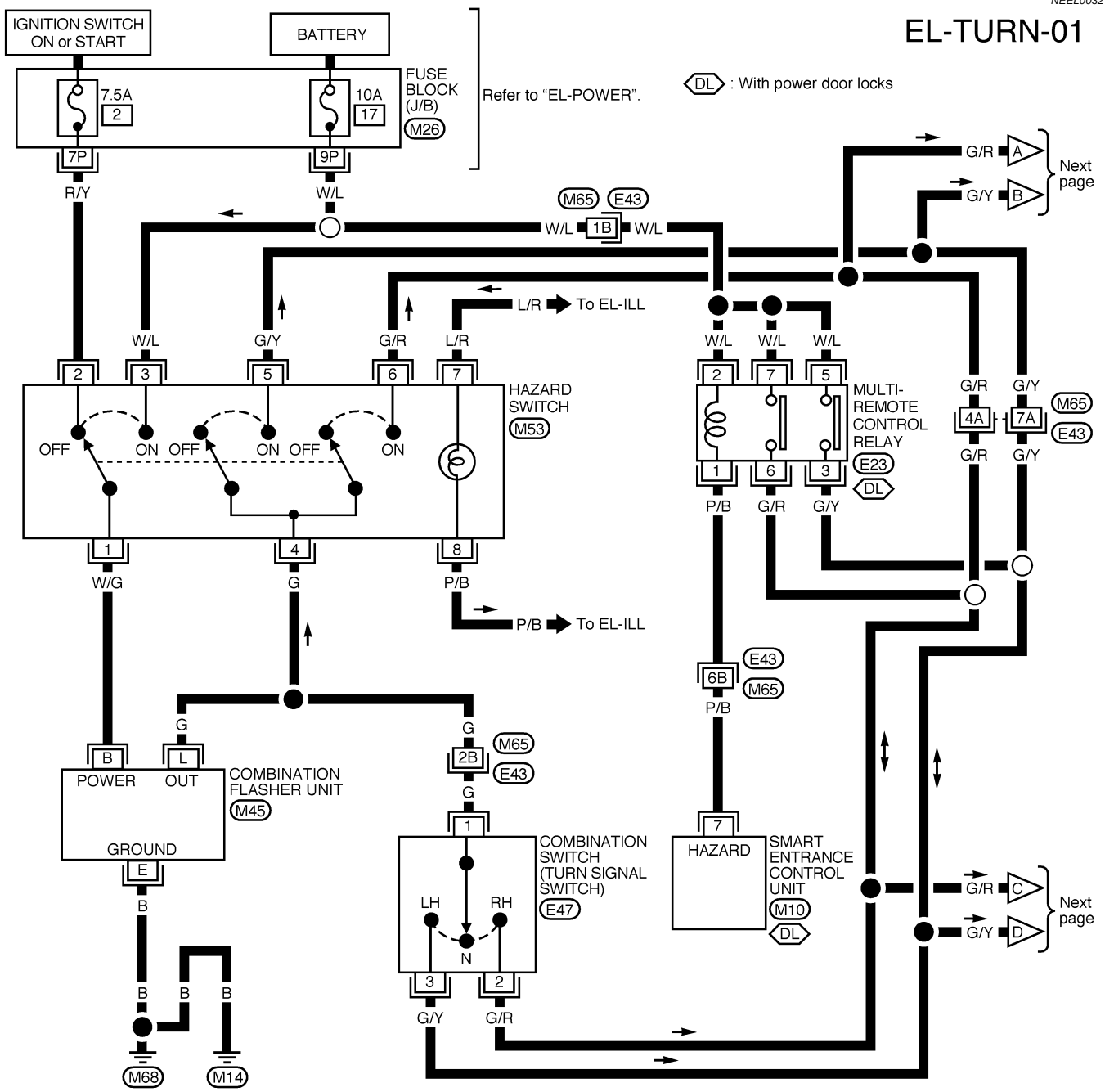
- front combination lamp RH terminal 1
- combination meter terminal 40 and
- rear combination lamp RH terminal 3.

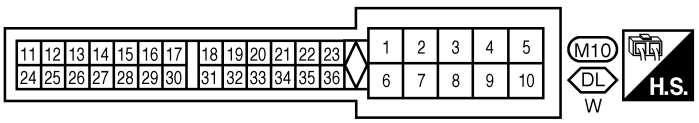
Ground is supplied to front combination lamp LH/RH terminal 2 through body grounds E12 and E54.
Ground is supplied to combination meter terminal 33 and rear combination lamp LH/RH terminal 2 through body grounds M14 and M68.
With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

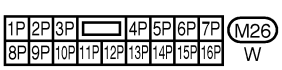
Wiring Diagram — TURN —

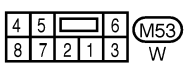
NEEL0032

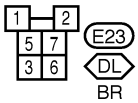
EL-TURN-01

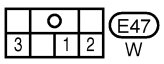








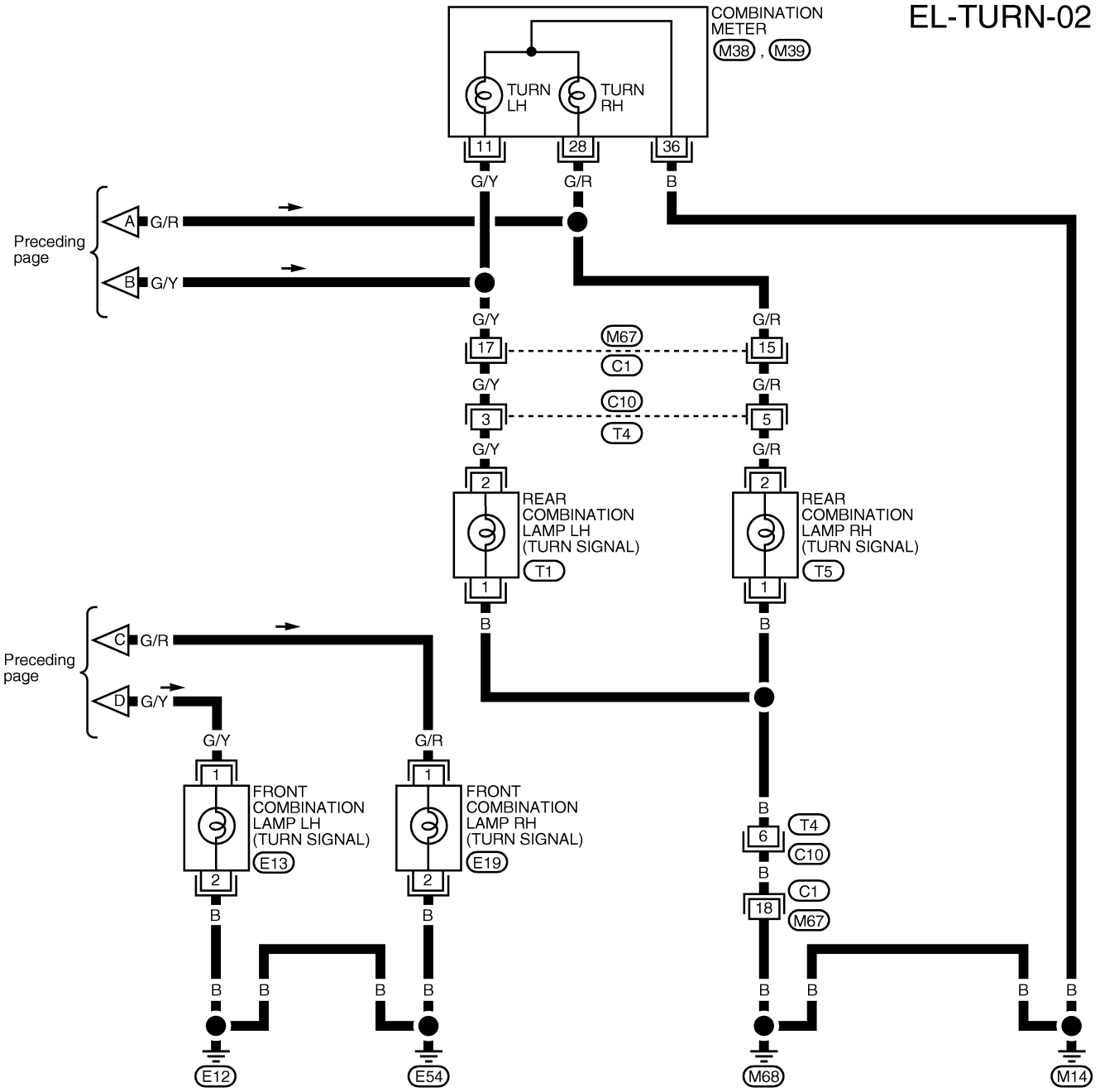


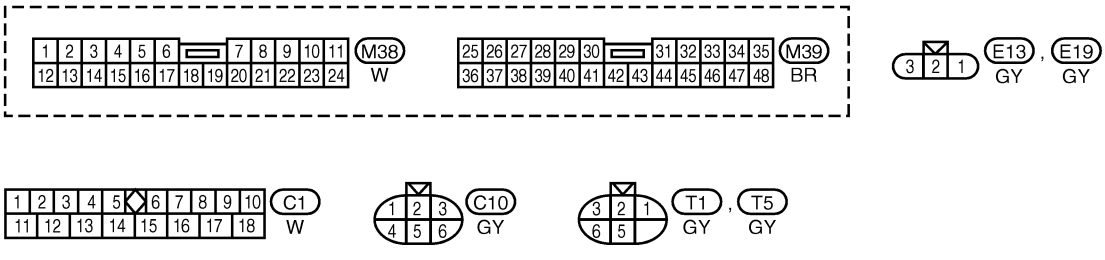


Refer to last page (Foldout page).
M65 , E43

AEL356C

EL-TURN-02



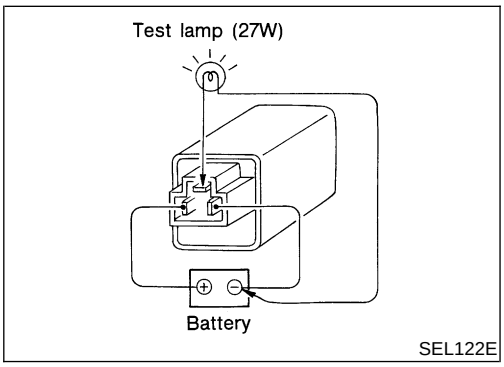


AEL461C

Trouble Diagnoses

NEEL0033

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. Turn signal switch 4. Open in turn signal switch circuit	1. Check 7.5A fuse [No. 2, 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 turn signal switch. 4. Check G wire between combination flasher unit and turn signal switch for open circuit.
Hazard warning lamps do not operate but turn signal lamps operate.	1. 10A fuse 2. Hazard switch 3. Open in hazard switch circuit	1. Check 10A fuse [No. 17, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 3 of hazard switch. 2. Check hazard switch. 3. Check G wire between combination flasher unit and hazard switch for open circuit.
Front turn signal lamp LH or RH does not operate.	1. Bulb 2. Front turn signal lamp ground circuit	1. Check bulb. 2. Check grounds E12 and E54 and continuity between front turn signal lamp and grounds E12 and E54.
Rear turn signal lamp LH does not operate.	1. Bulb 2. Rear turn signal lamp LH ground circuit	1. Check bulb. 2. Check grounds M14 and M68 and continuity between rear turn signal lamp LH and grounds M14 and M68.
Rear turn signal lamp RH does not operate.	1. Bulb 2. Rear turn signal lamp RH ground circuit	1. Check bulb. 2. Check grounds M14 and M68 and continuity between rear turn signal lamp RH and grounds M14 and M68.
LH and RH turn indicators do not operate.	1. Ground circuit	1. Check ground circuit.
LH or RH turn indicator does not operate.	1. Bulb	1. Check bulb in combination meter.



Electrical Components Inspection

NEEL0034

COMBINATION FLASHER UNIT CHECK

NEEL0034S01

- 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

NEEL0035

Power is supplied at all times

- through 10A fuse (with KA24DE engine) (No. 39, located in the fuse and fusible link box) or
- through 15A fuse (with VG33E engine) (No. 39, located in the fuse and fusible link box)
- to lighting switch terminal 11.

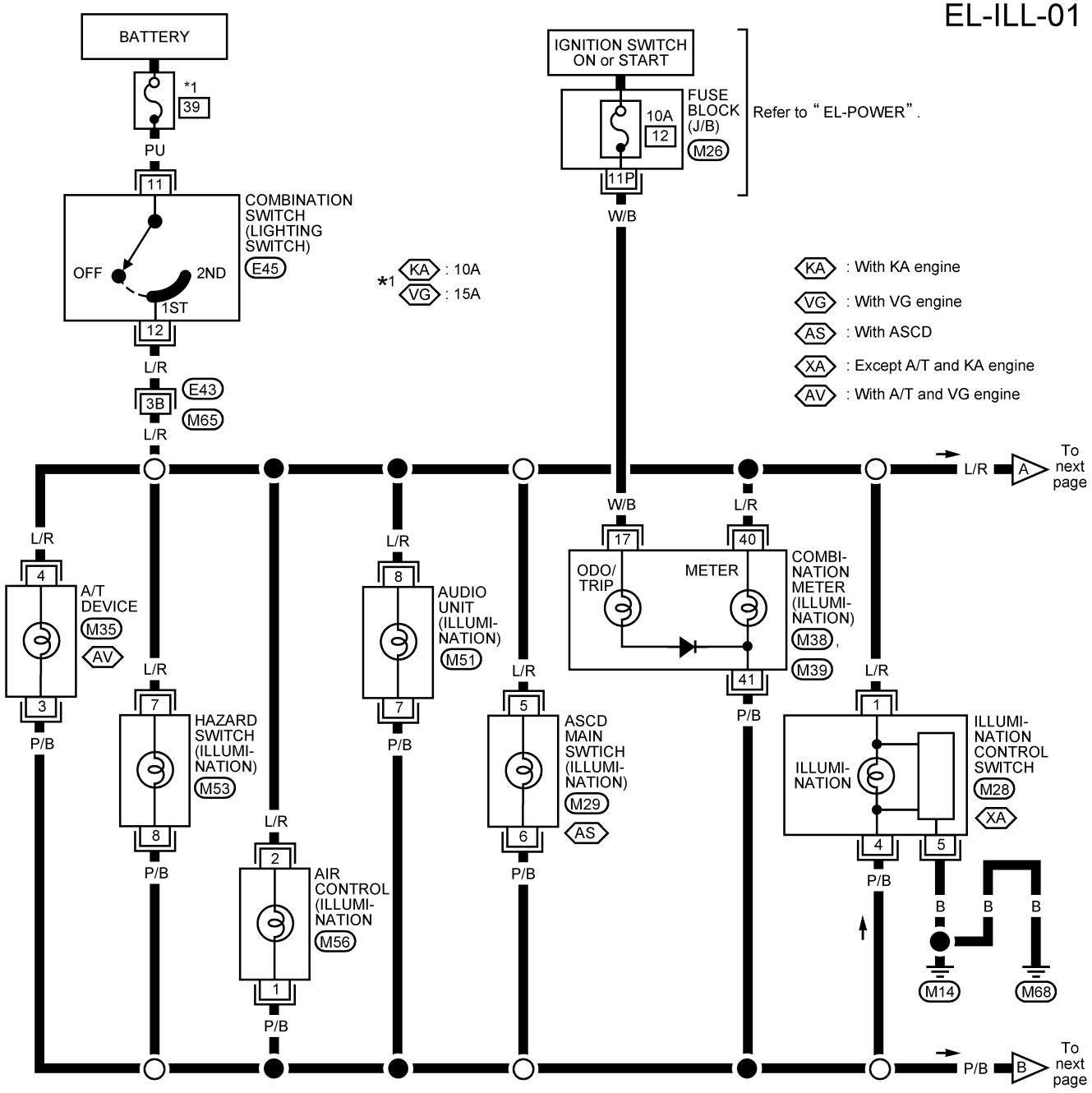
The lighting switch must be in the parking and tail lamps ON (1ST) or headlamps ON (2ND) position for illumination.
The illumination control switch controls the amount of current to the illumination system. As the amount of current increases, the illumination becomes brighter.
The following chart shows the power and ground connector terminals for the components included in the illumination system.

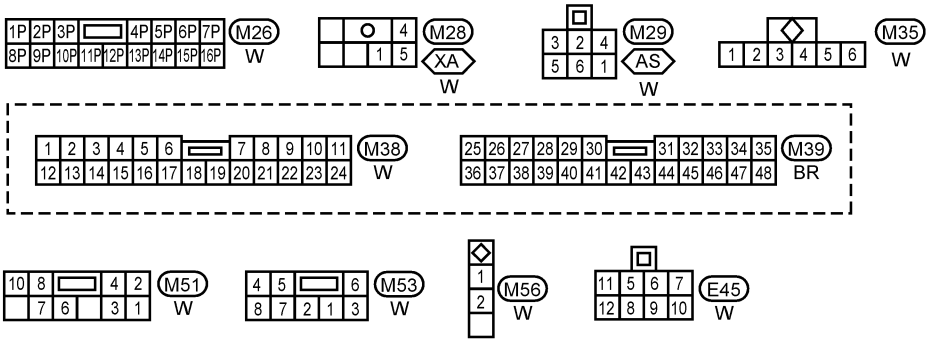
Component	Connector No.	Power terminal	Ground terminal
A/T device (With A/T and VG33E engine)	M35	4	3
Hazard switch	M53	7	8
Air control	M56	2	1
Audio unit	M51	8	7
ASCD main switch	M29	5	6
Combination meter	M39	40	41
Illumination control switch (Except A/T and KA24DE engine)	M28	1	5
Main power window and door lock/unlock switch	D7	3	8
A/T (With A/T and KA24DE engine)	M203	1	2
Illumination control switch (With A/T and KA24DE engine)	M202	1	5

The ground for all of the components are controlled through terminals 4 and 5 of the illumination control switch and body grounds M14 and M68.

Wiring Diagram — ILL —

NEEL0037



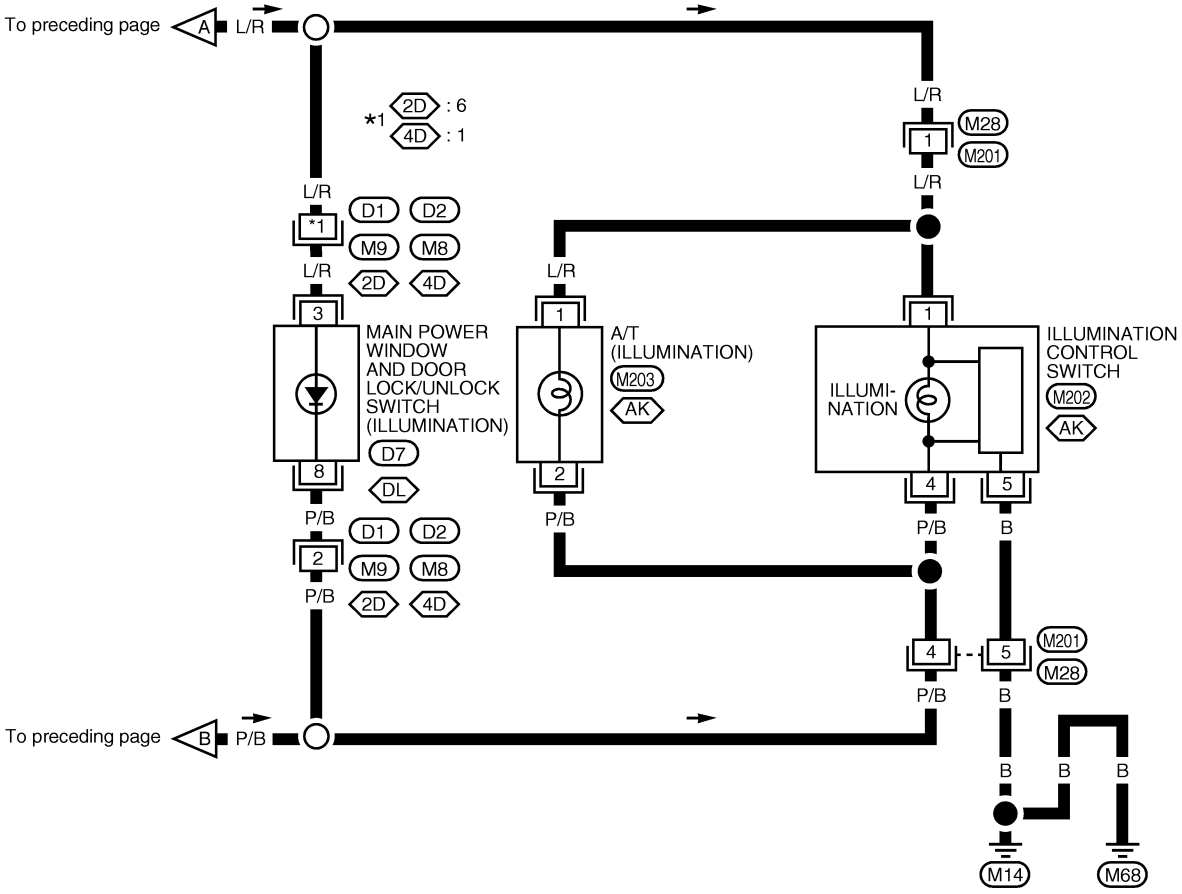


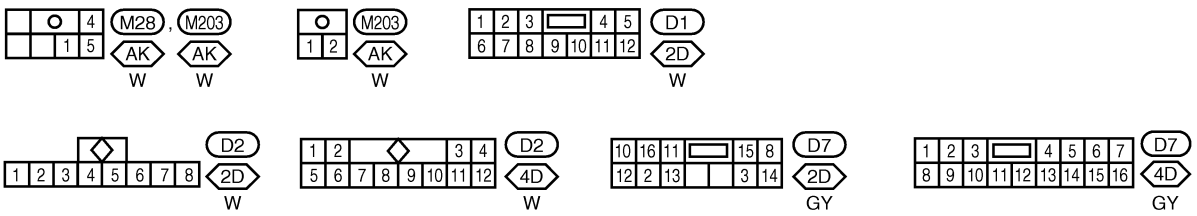
Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL740C

EL-ILL-02

2D : 2 door models
4D : 4 door models
AK : With A/T and KA engine
DL : With power door locks



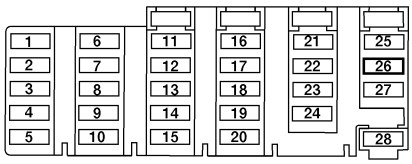


AEL463C

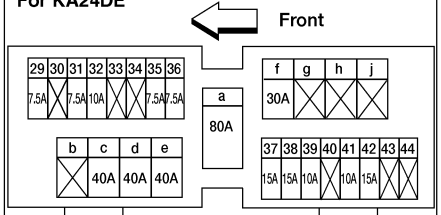
Component Parts and Harness Connector Location

NEEL0194

Fuse block (J/B)

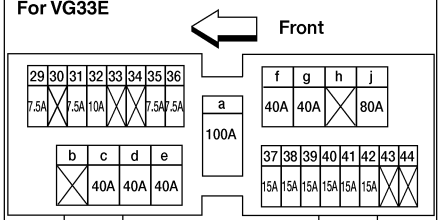


Fuse and fusible link box
For KA24DE

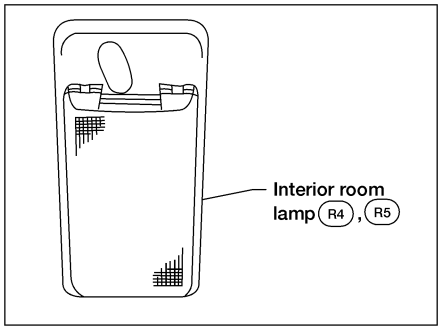


No 29 - 44: FUSE
a - j: FUSIBLE LINK
E31

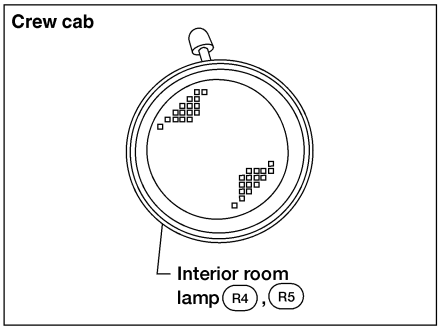
Fuse and fusible link box
For VG33E



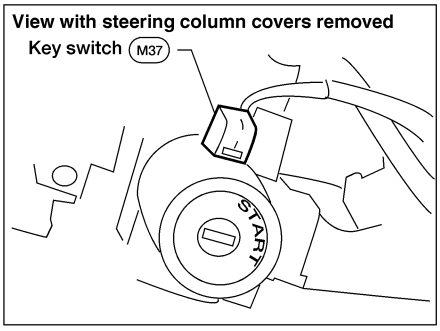
No 29 - 44: FUSE
a - j: FUSIBLE LINK
E31

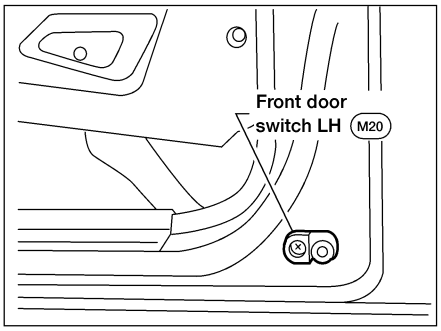


Crew cab

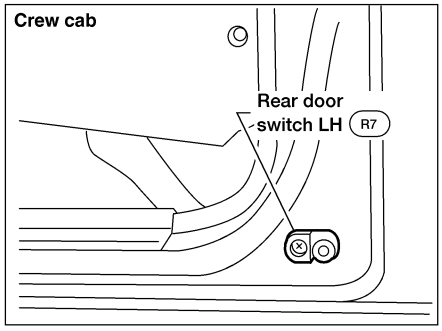


View with steering column covers removed

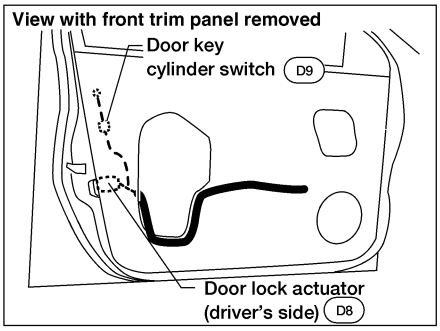




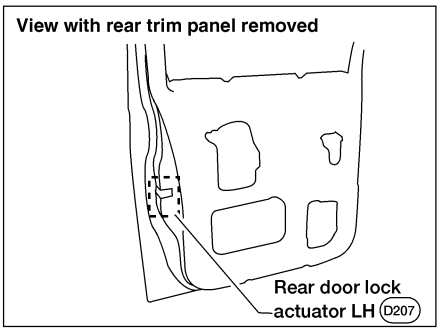
Crew cab



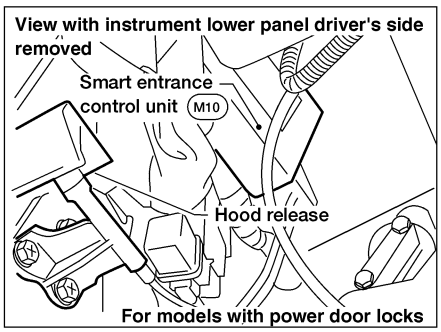
View with front trim panel removed



View with rear trim panel removed



View with instrument lower panel driver's side removed



AEL447C

System Description

NEEL0038

MODELS WITHOUT POWER DOOR LOCKS

NEEL0038S09

Room Lamp

NEEL0038S0901

Power is supplied at all times

- through 7.5A fuse [No. 26, located in the fuse block (J/B)]
- to room lamp terminal +.

On 2 door models, with the room lamp switch in the ON position, ground is supplied

- to room lamp terminal –
- through body grounds M14 and M68.

On 4 door models, with the room lamp switch in the ON position, ground is supplied through the case of the room lamp.

With one or more doors open, with the room lamp switch in the DOOR position, ground is supplied

- to room lamp terminal SW
- through front door switch LH terminal 1 and/or
- through front door switch RH and/or rear door switch LH/RH terminal +.

MODELS WITH POWER DOOR LOCKS

NEEL0038S07

Room Lamp

NEEL0038S0701

Power is supplied at all times

- through 7.5A fuse [No. 26, located in the fuse block (J/B)]
- to room lamp terminal +.

Ground is supplied at all times to smart entrance control unit terminal 10 through body grounds M14 and M68.

On 2 door models, with the room lamp switch in the ON position, ground is supplied

- to room lamp terminal –
- through body grounds M14 and M68.

On 4 door models, with the room lamp switch in the ON position, ground is supplied through the case of the room lamp.

With the front door LH open and the room lamp switch in the DOOR position, ground is supplied

- to smart entrance control unit terminal 15
- through front door switch LH terminal 2
- through front door switch LH terminal 3
- through body grounds M14 and M68 and
- to room lamp terminal SW
- through smart entrance control unit terminal 9.

With the front door RH open and the room lamp switch in the DOOR position, ground is supplied

- to smart entrance control unit terminal 35
- through front door switch RH terminal + and
- to room lamp terminal SW
- through smart entrance control unit terminal 9.

On 4 door models, with rear door LH/RH open and the room lamp switch in the DOOR position, ground is supplied

- to smart entrance control unit terminal 16
- through rear door switch LH/RH terminal + and
- to room lamp terminal SW
- through smart entrance control unit terminal 9.

Room Lamp Timer Operation

NEEL0038S0702

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

- unlock signal is supplied from multi-remote controller
- key is removed from ignition key cylinder while front door LH is closed
- driver's door is opened and then closed while ignition switch is not in the ON position.

The timer is canceled and room lamp turns off when:

- front door LH is locked with multi-remote controller, or
- ignition switch is turned ON.

The smart entrance control unit turns off the room lamp if it is left on for 30 minutes.

MAP LAMP

NEEL0038S08

Power is supplied at all times

- through 7.5A fuse [No. 26, located in the fuse block (J/B)]
- to map lamp terminal +.

With the map lamp switch in the ON position, ground is supplied to map lamp terminal – through body grounds M14 and M68.

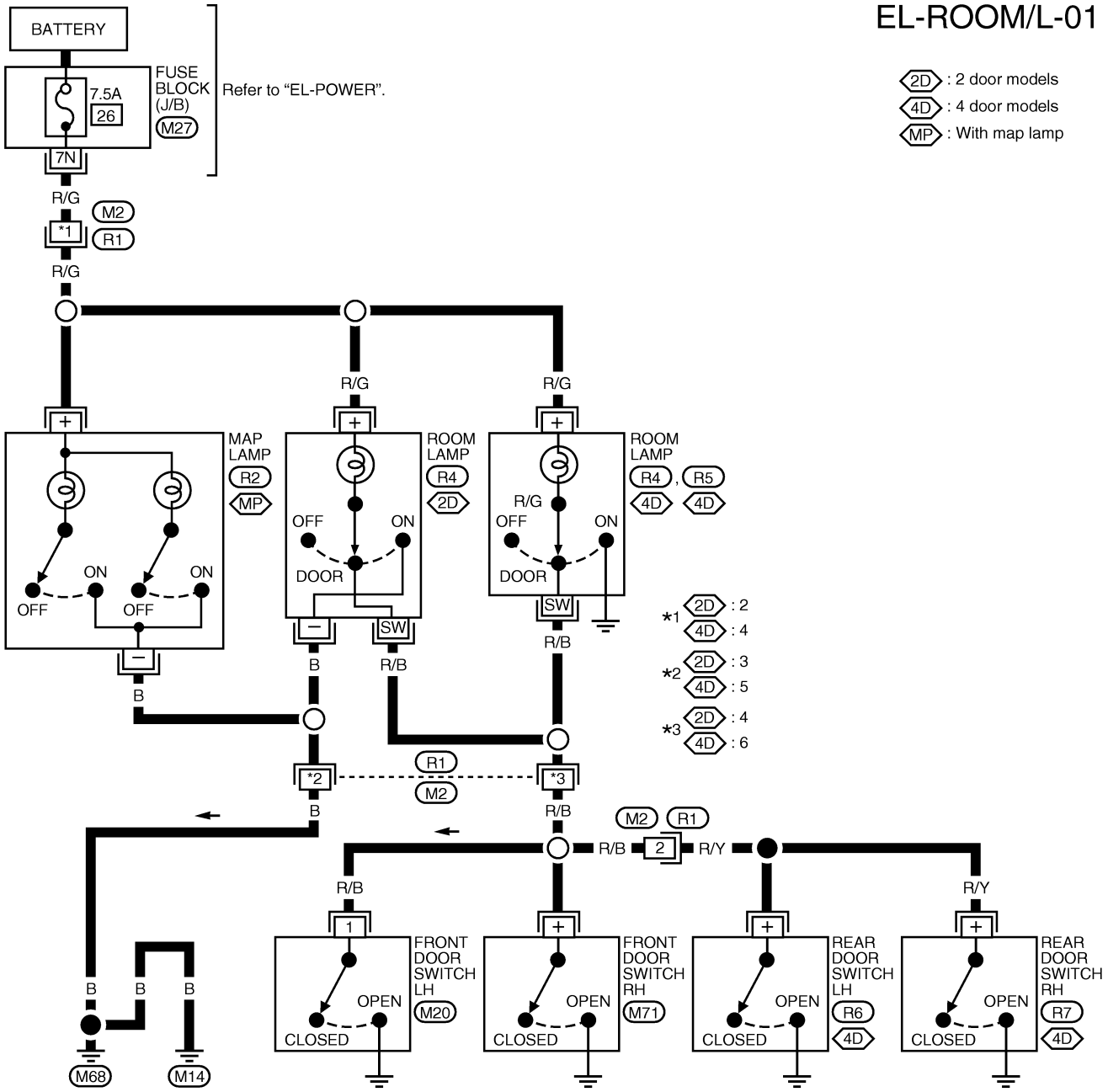
Wiring Diagram — ROOM/L —

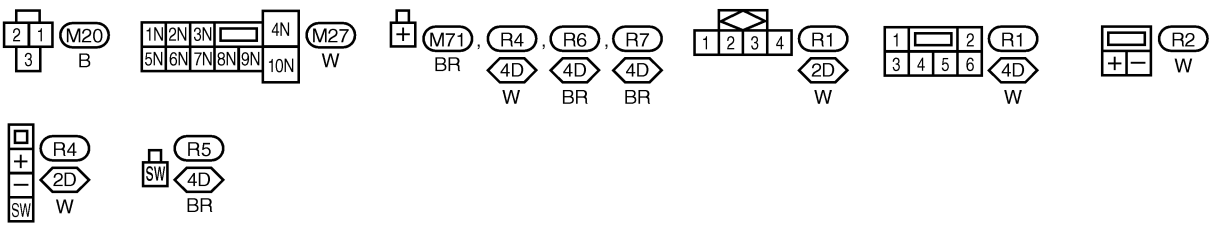
NEEL0040

MODELS WITHOUT POWER DOOR LOCKS

NEEL0040S01

EL-ROOM/L-01



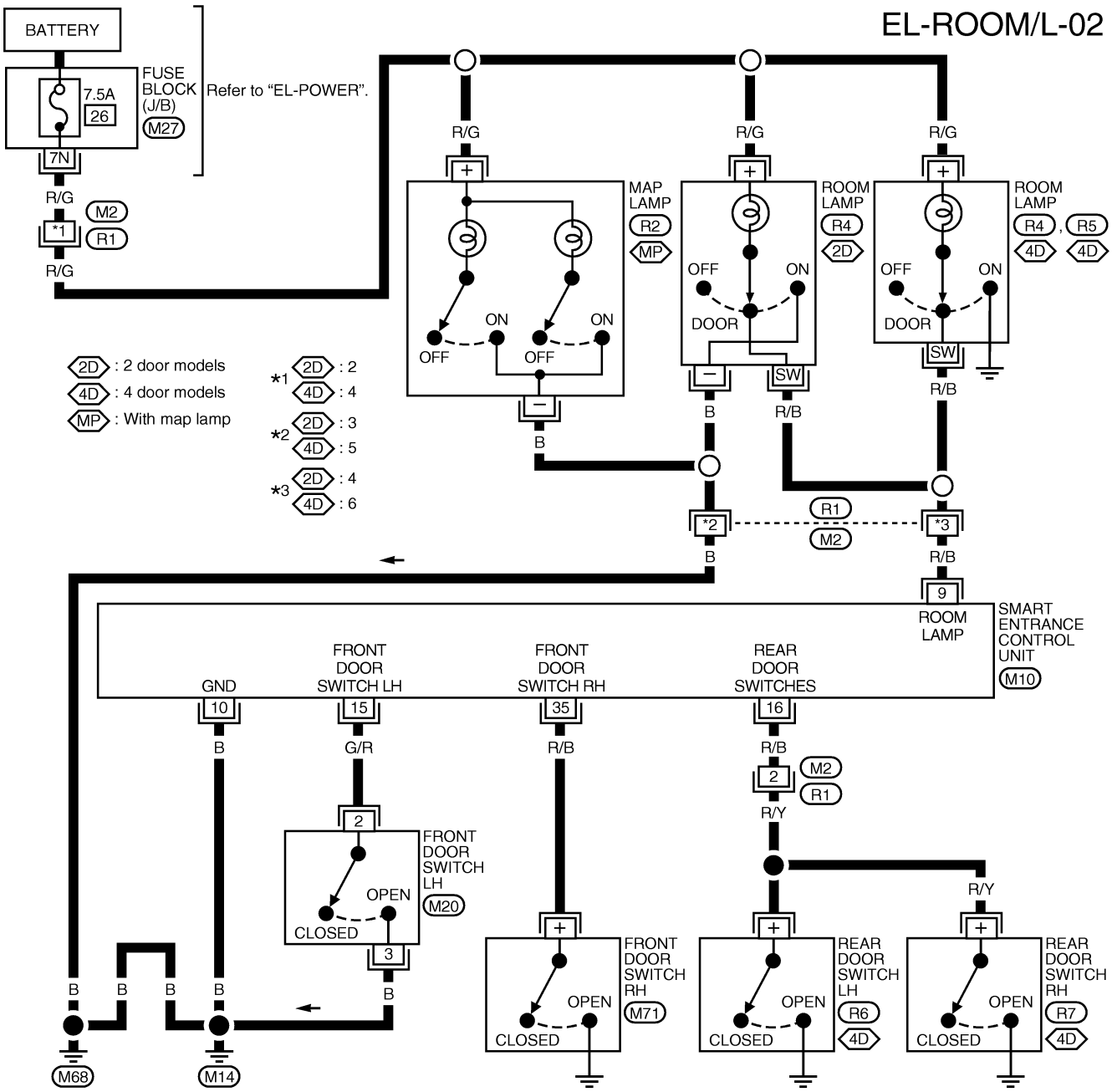


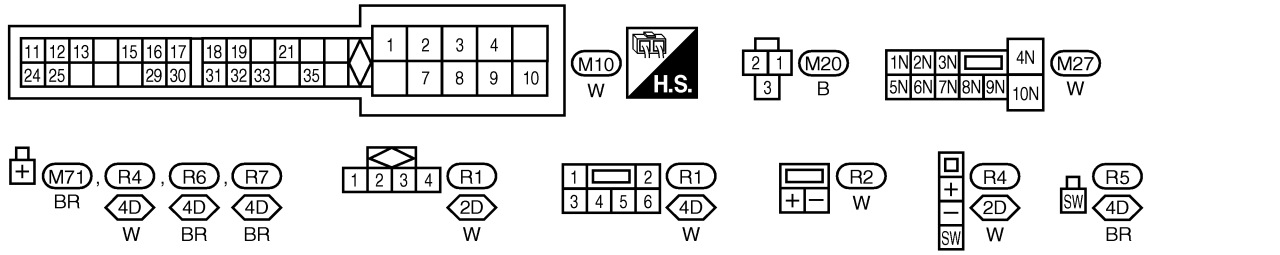
AEL483C

Wiring Diagram — ROOM/L — (Cont'd)

MODELS WITH POWER DOOR LOCKS

NEEL0040S02



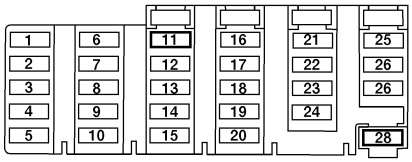


AEL484C

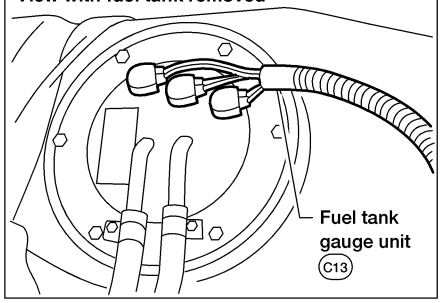
Component Parts and Harness Connector Location

NEEL0041

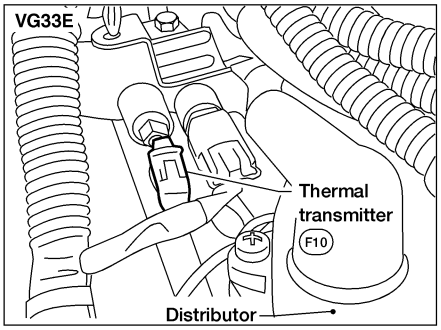
Fuse block (J/B)



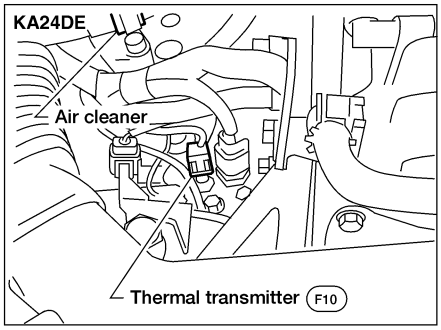
View with fuel tank removed



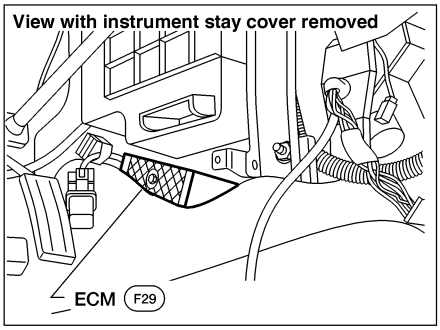
VG33E



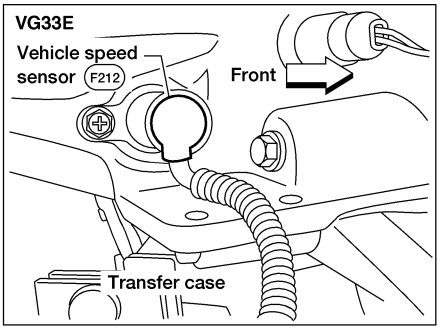
KA24DE



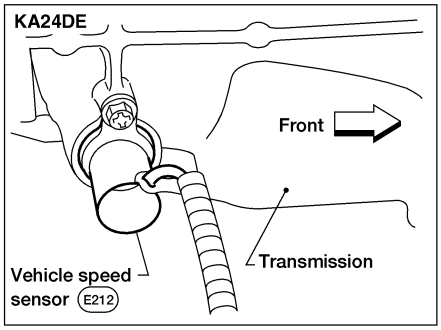
View with instrument stay cover removed



VG33E



KA24DE



AEL530C

System Description

NEEL0042

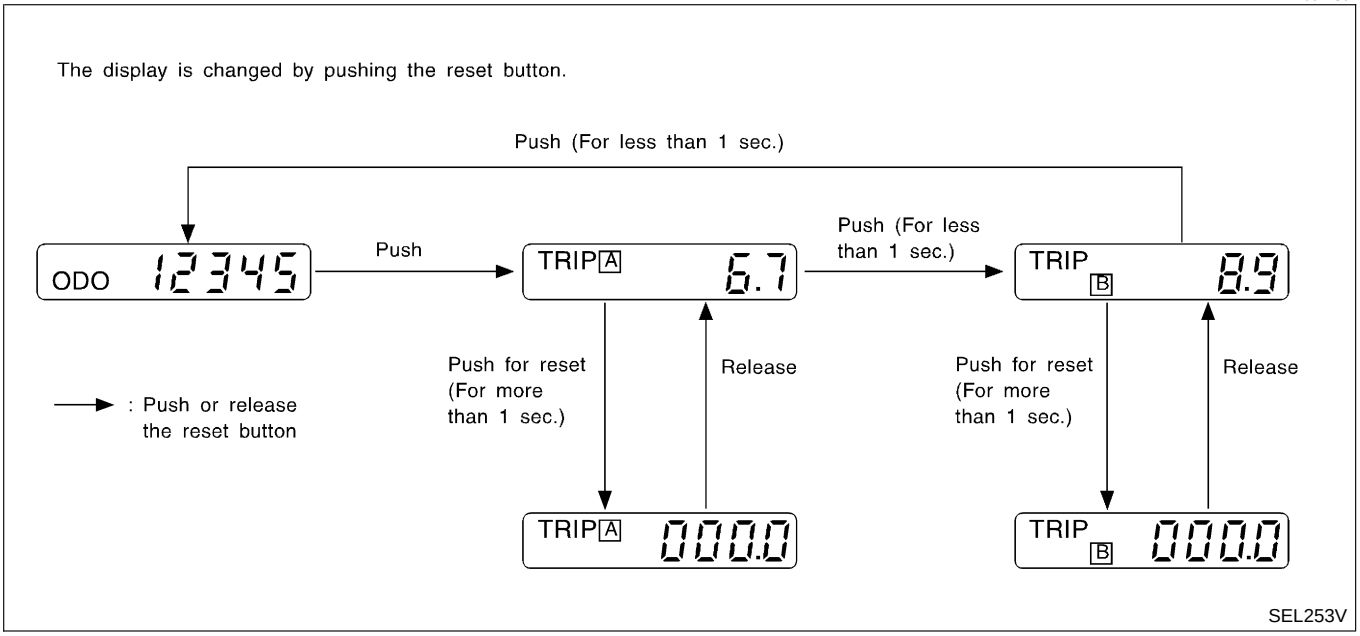
UNIFIED CONTROL METER

NEEL0042S06

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

NEEL0042S07



NOTE:
Turn ignition switch ON to operate odo/trip meter.

POWER SUPPLY AND GROUND CIRCUIT

NEEL0042S08

Power is supplied at all times

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to combination meter terminal 18.

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

- through 10A fuse [No. 11, located in the fuse block (J/B)]
- to combination meter terminal 17.

Ground is supplied

- to combination meter terminal 24
- through body grounds M14 and M68.

FUEL GAUGE

NEEL0042S03

The fuel gauge indicates the approximate fuel level in the fuel tank. The reading on the gauge is based on the resistance of the fuel tank gauge unit.
The fuel gauge is regulated by a variable ground signal supplied

- to combination meter terminal 20 for the fuel gauge
- through fuel tank gauge unit terminal G
- through fuel tank gauge unit terminal E
- through body grounds M14 and M68.

WATER TEMPERATURE GAUGE

NEEL0042S01

The water temperature gauge indicates the engine coolant temperature. The reading on the gauge is based on the resistance of the thermal transmitter.
The water temperature gauge is regulated by a variable ground signal supplied

- to combination meter terminal 19
- through thermal transmitter terminal 1.

As the temperature of the coolant increases, the resistance of the thermal transmitter decreases and the needle on the gauge moves from C to H.

TACHOMETER

NEEL0042S02

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

- to combination meter terminal 21 for the tachometer
- from ECM terminal 3.

SPEEDOMETER

NEEL0042S04

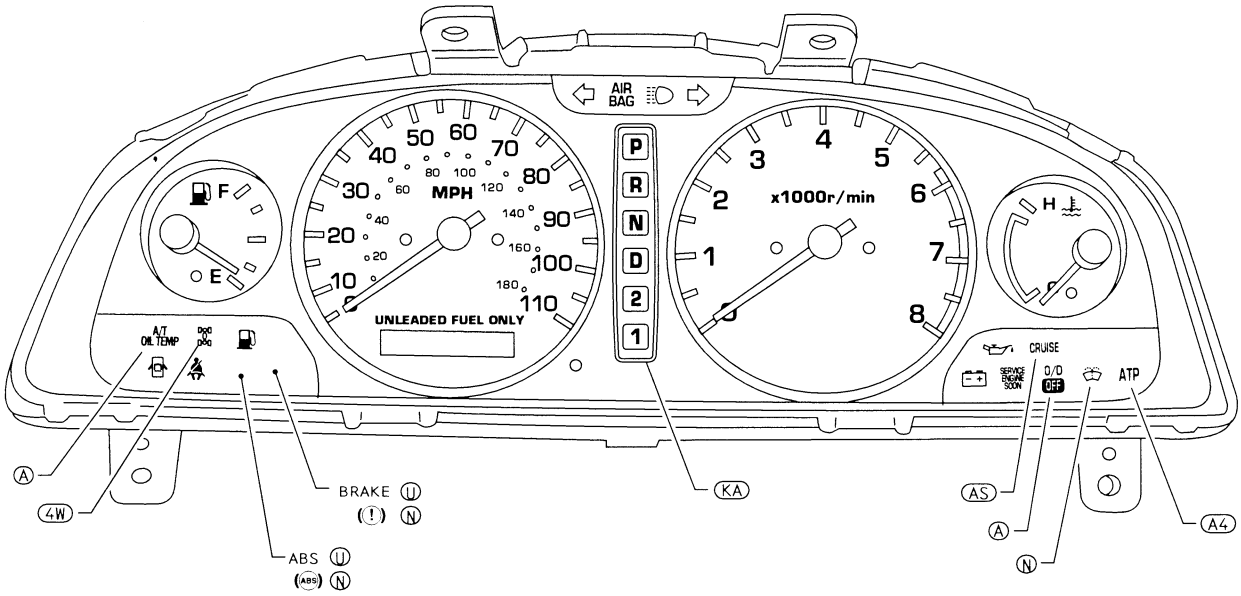
The vehicle speed sensor provides a voltage signal to the combination meter for the speedometer.
The voltage is supplied

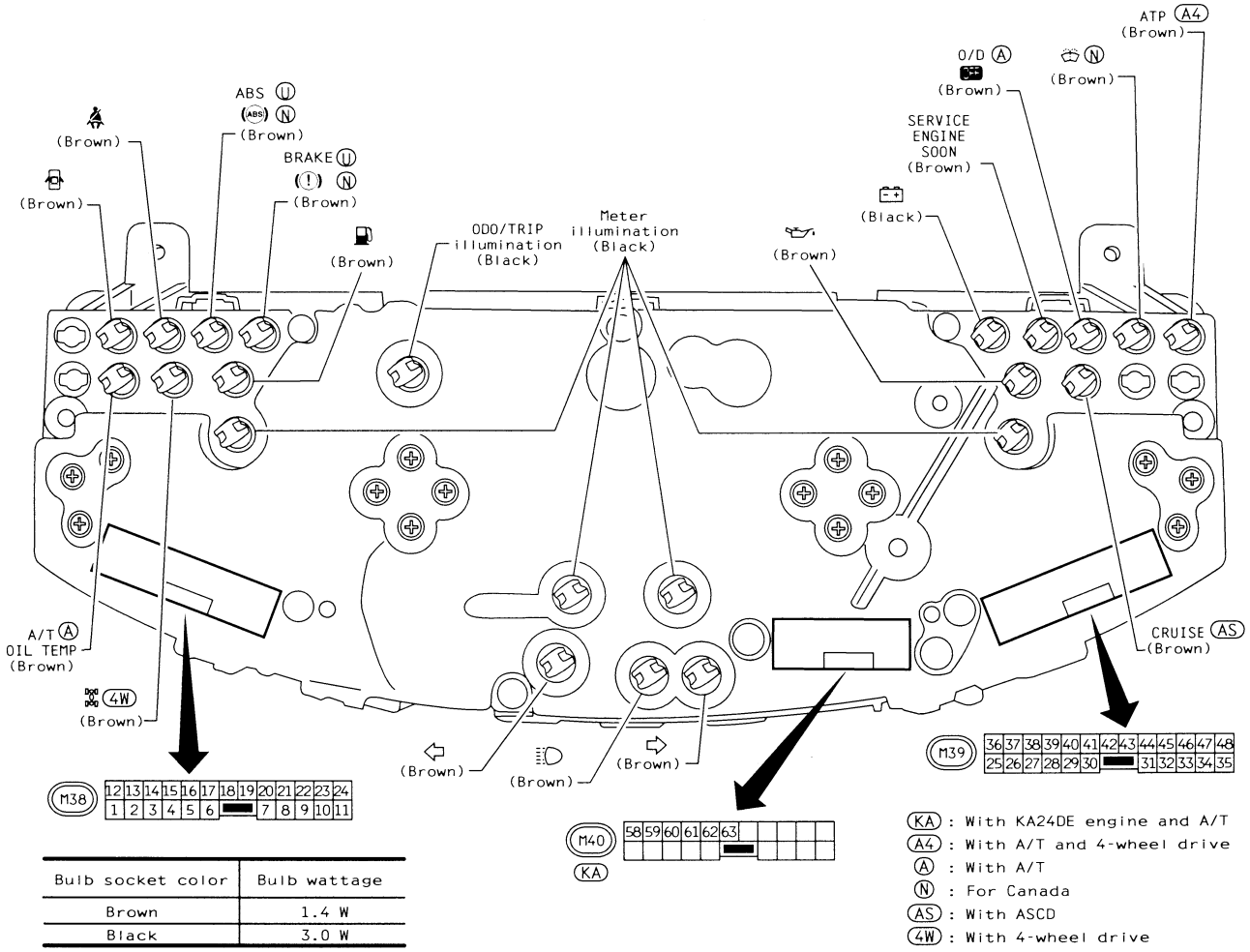
- to combination meter terminals 22 and 23 for the speedometer
- from vehicle speed sensor terminals 1 and 2.

The unified meter control unit converts the voltage to the vehicle speed and displays it on the speedometer.

Combination Meter

NEEL0043

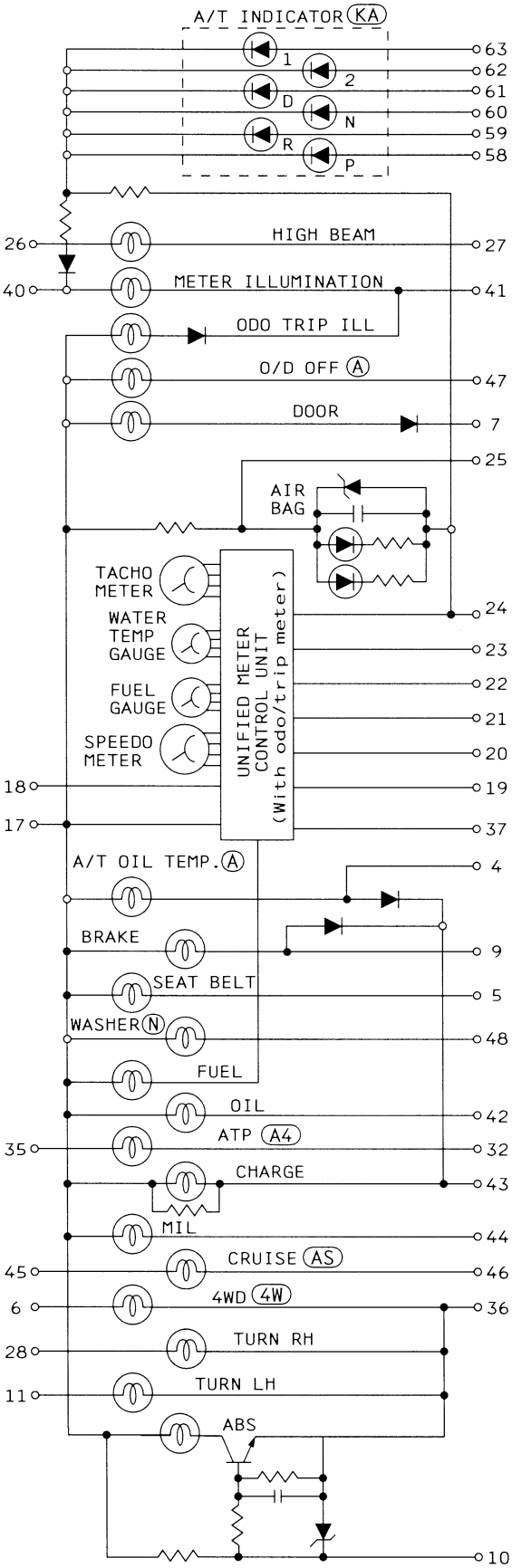




Bulb socket color	Bulb wattage
Brown	1.4 W
Black	3.0 W

( ) : Bulb socket color

AEL764C

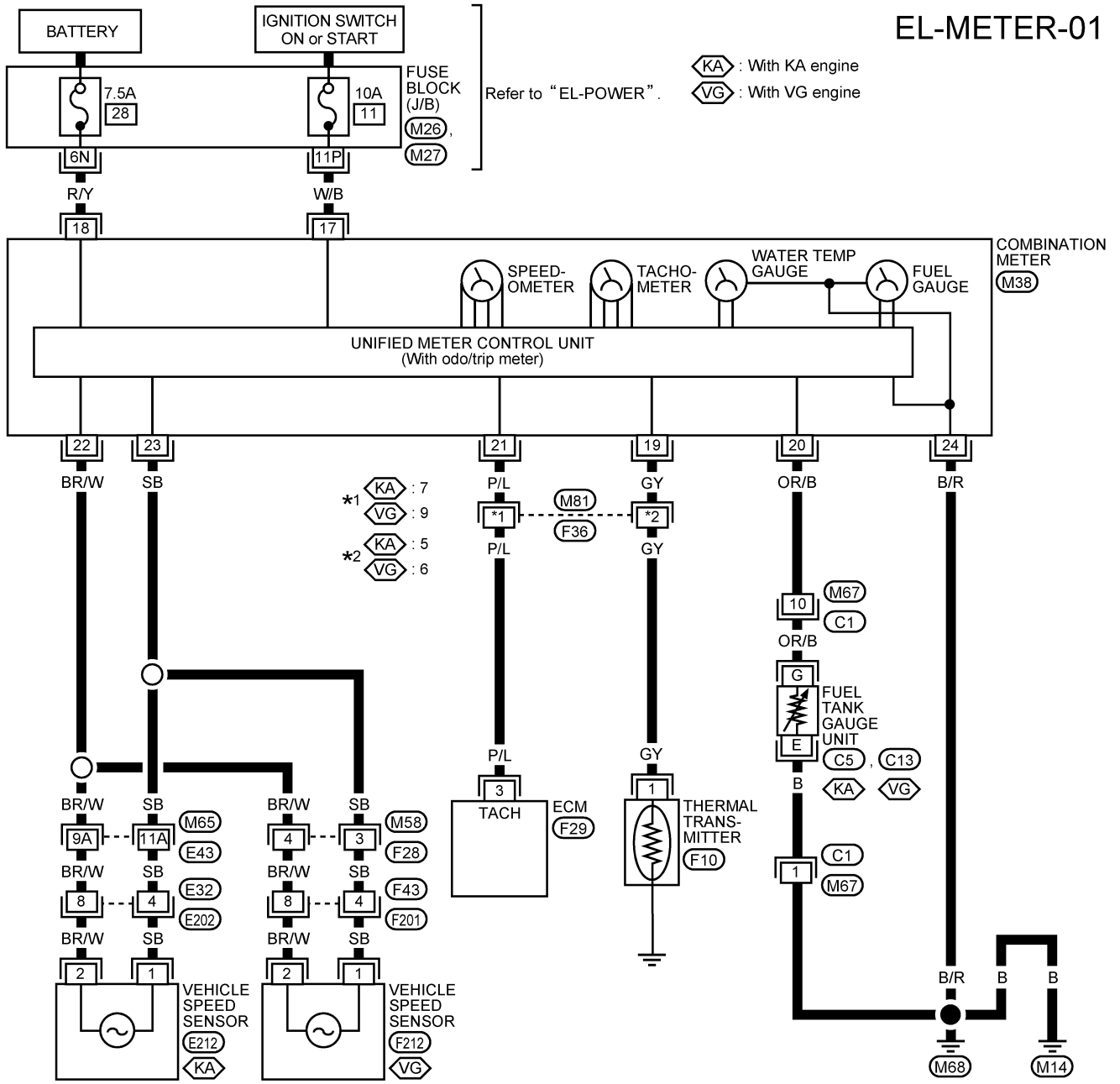


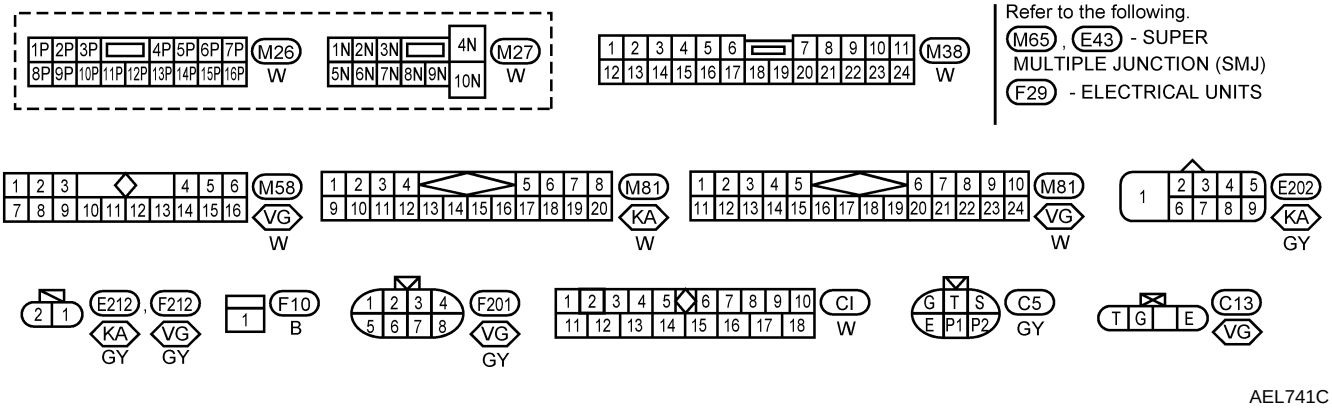
(KA) : With KA24DE engine and A/T
(A4) : With A/T and 4-wheel drive
(A) : With A/T
(N) : For Canada
(AS) : With ASCD
(4W) : With 4-wheel drive

AEL765C

Wiring Diagram — METER —

NEEL0045





AEL741C

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

NEEL0151

DIAGNOSIS FUNCTION

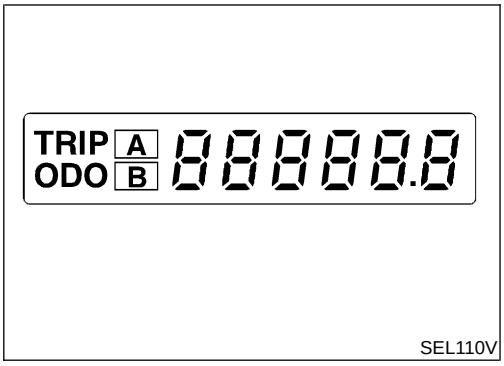
NEEL0151S01

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

HOW TO ALTERNATE DIAGNOSIS MODE

NEEL0151S02

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

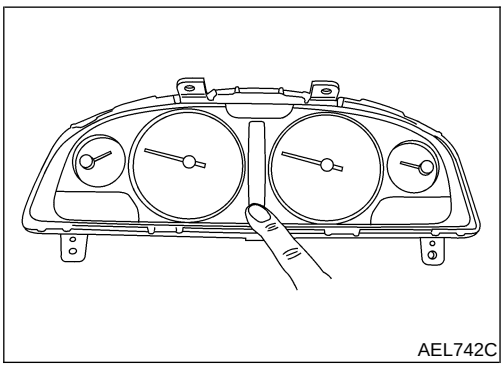


SEL110V

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

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

At this point, the unified meter control unit is in diagnosis mode.


AEL742C

7. Push odo/trip meter switch. Indication of each meter/gauge should be as shown in figure at left while pushing odo/trip meter switch if it is not malfunctioning.

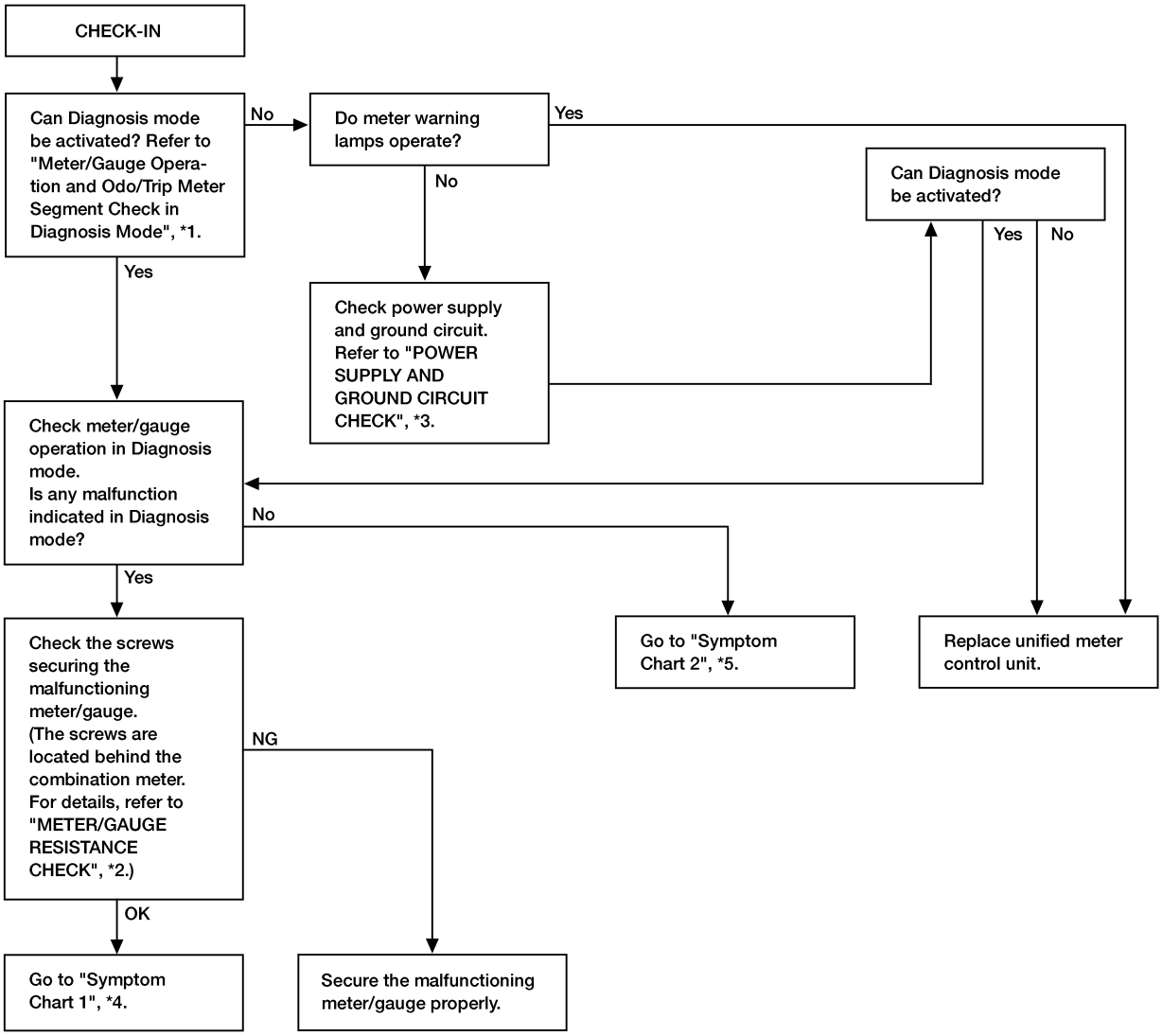
NOTE:
It takes about 1 minute for indication of fuel gauge to become stable.

Trouble Diagnoses

NEEL0046

PRELIMINARY CHECK

NEEL0046S04



AEL743C

*1: Meter/Gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode (EL-71)

*2: METER/GAUGE RESISTANCE CHECK (EL-78)

*3: POWER SUPPLY AND GROUND CIRCUIT CHECK (EL-74)

*4: Symptom Chart 1 (EL-73)

*5: Symptom Chart 2 (EL-73)

SYMPTOM CHART

NEEL0046S05

Symptom Chart 1 (Malfunction is Indicated in Diagnosis Mode)

NEEL0046S0501

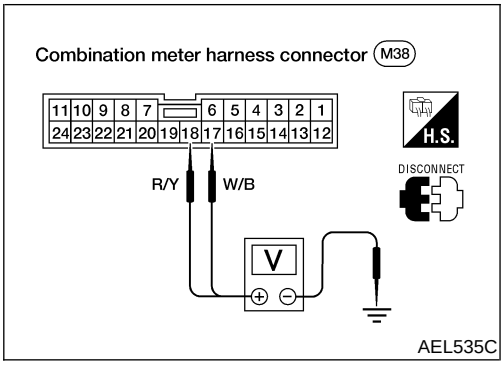
Symptom	Possible causes	Repair order
Odo/trip meter indicates malfunction in Diagnosis mode.	• Unified meter control unit	• Replace unified meter control unit.
Multiple meters/gauges indicate malfunction in Diagnosis mode.		
Speedometer, tachometer, fuel gauge or water temp. gauge indicates malfunction in Diagnosis mode.	1. Meter/Gauge 2. Unified meter control unit	1. Check resistance of meter/gauge indicating malfunction. If the resistance is NG, replace the meter/gauge. Refer to "METER/GAUGE RESISTANCE CHECK", EL-78. 2. If the resistance is OK, replace unified meter control unit.

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

NEEL0046S0502

Symptom	Possible causes	Repair order
One or more gauges (speedometer, tachometer, fuel gauge, water temp. gauge) are malfunctioning.	1. Sensor – - Vehicle speed signal – - Engine revolution signal – - Fuel gauge – - Water temp. gauge 2. Unified meter control unit	1. Check the sensor for malfunctioning meter/gauge. Refer to "INSPECTION/VEHICLE SPEED SENSOR", EL-75. Refer to "INSPECTION/ENGINE REVOLUTION SIGNAL", EL-76. Refer to "INSPECTION/FUEL TANK GAUGE UNIT", EL-77. Refer to "INSPECTION/THERMAL TRANSMITTER", EL-78. 2. Replace unified meter control unit.

Before starting trouble diagnoses above, perform PRELIMINARY CHECK, EL-72.



POWER SUPPLY AND GROUND CIRCUIT CHECK

=NEEL0046S07

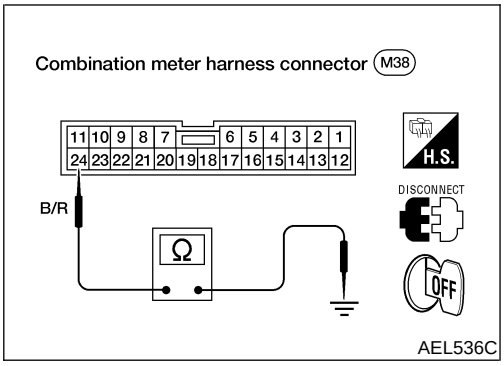
Power Supply Circuit Check

NEEL0046S0701

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

If NG, check the following.

- 7.5A fuse [No. 28, located in fuse block (J/B)]
- 10A fuse [No. 11, located in fuse block (J/B)]
- Harness for open or short between fuse and combination meter



Ground Circuit Check

NEEL0046S0702

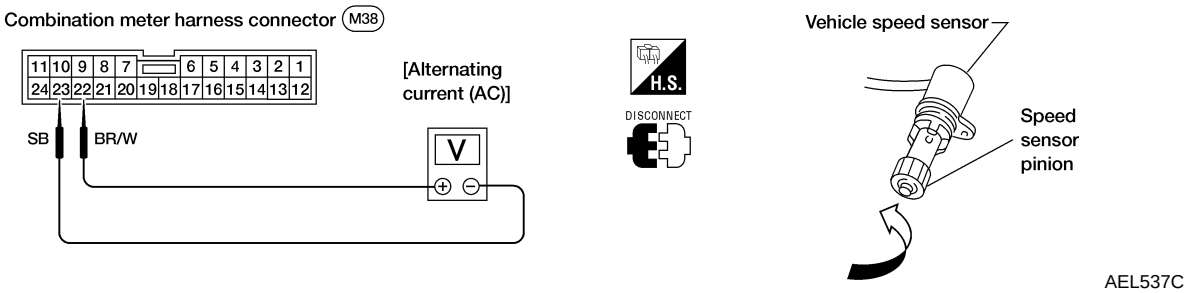
Terminals	Continuity
24 - Ground	Yes

INSPECTION/VEHICLE SPEED SENSOR

=NEEL0046S03

1	CHECK VEHICLE SPEED SENSOR OUTPUT

1. Remove vehicle speed sensor from transmission.
2. Check voltage between combination meter terminals 22 and 23 while quickly turning vehicle speed sensor pinion.



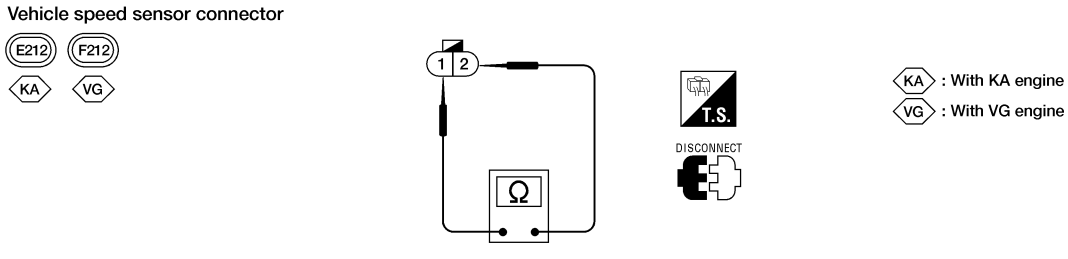
Voltage: Approx. 0.5V

OK or NG

OK	▶	Vehicle speed sensor is OK.
NG	▶	GO TO 2.

2	CHECK VEHICLE SPEED SENSOR

Check resistance between vehicle speed sensor terminals 1 and 2.



Resistance: Approx. 285Ω

OK or NG

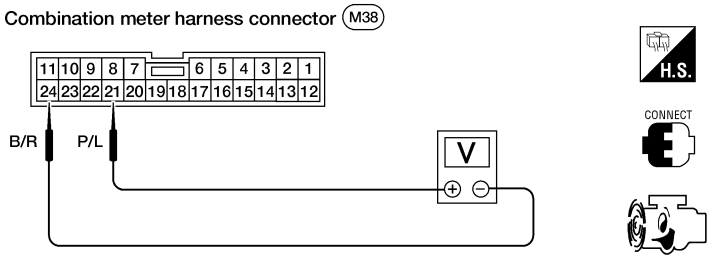
OK	▶	Check harness and connector between speedometer and vehicle speed sensor.
NG	▶	Replace vehicle speed sensor.

INSPECTION/ENGINE REVOLUTION SIGNAL

NEEL0046S02

1	CHECK ECM OUTPUT

1. Start engine.
2. Check voltage between combination meter terminals 21 and 24 at idle and 2,000 rpm.



AEL539C

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

OK or NG

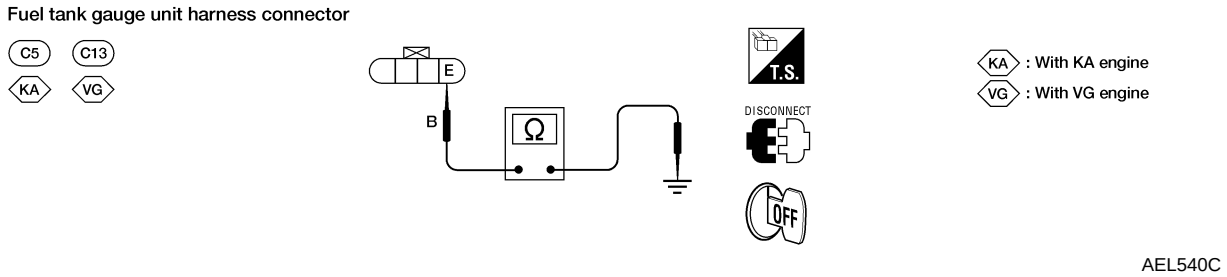
OK	▶	Engine revolution signal is OK.
NG	▶	Harness for open or short between ECM and combination meter

INSPECTION/FUEL TANK GAUGE UNIT

=NEEL0046S08

1	CHECK GROUND CIRCUIT FOR FUEL TANK GAUGE UNIT

Check harness continuity between fuel tank gauge unit harness connector terminal E and ground.



Does continuity exist?

Yes	▶	GO TO 2.
No	▶	Repair harness or connector.

2	CHECK GAUGE UNITS

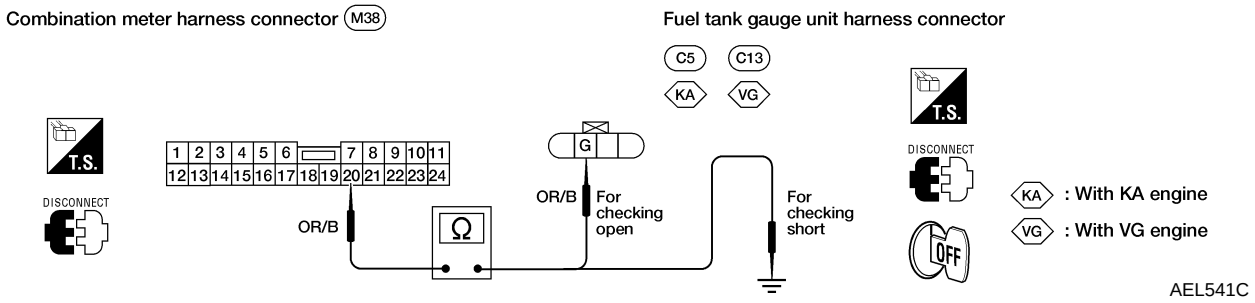
Refer to "FUEL TANK GAUGE UNIT CHECK", EL-79.

OK or NG

OK	▶	GO TO 3.
NG	▶	Replace fuel tank gauge unit.

3	CHECK HARNESS FOR OPEN OR SHORT

1. Disconnect combination meter harness connector M38 and fuel tank gauge unit harness connector.
2. Check continuity between combination meter harness connector terminal 20 and fuel tank gauge unit harness connector terminal G.
   Continuity should exist.
3. Check continuity between combination meter harness connector terminal 20 and ground.
   Continuity should not exist.



OK or NG

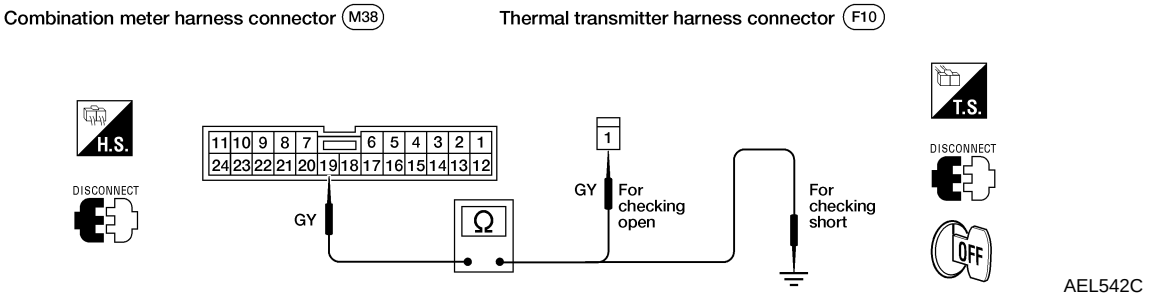
OK	▶	Fuel tank gauge unit is OK.
NG	▶	Repair harness or connector.

INSPECTION/THERMAL TRANSMITTER

NEEL0046S09

1	CHECK THERMAL TRANSMITTER	
Refer to "THERMAL TRANSMITTER CHECK", EL-79.		
OK or NG		
OK	▶	GO TO 2.
NG	▶	Replace thermal transmitter.

2	CHECK HARNESS FOR OPEN OR SHORT	
1. Disconnect combination meter harness connector M38 and thermal transmitter harness connector. 2. Check continuity between combination meter harness connector terminal 19 and thermal transmitter harness connector terminal 1. **Continuity should exist.** 3. Check continuity between combination meter harness connector terminal 19 and ground. **Continuity should not exist.**		
OK or NG		
OK	▶	Thermal transmitter is OK.
NG	▶	Repair harness or connector.



AEL542C

Electrical Components Inspection

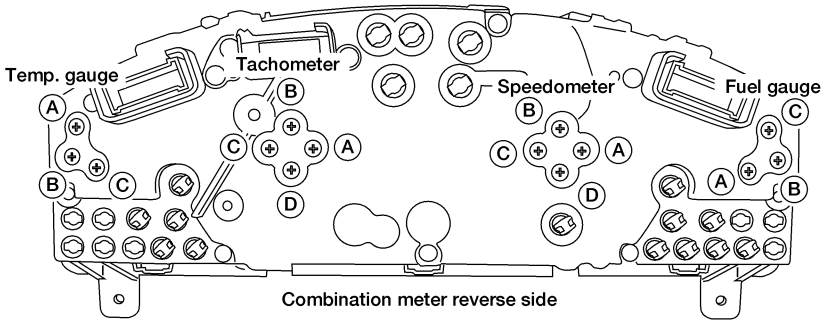
NEEL0047

METER/GAUGE RESISTANCE CHECK

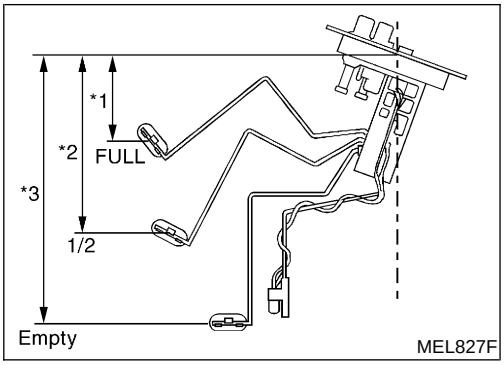
NEEL0047S04

- Check resistance between meter/gauge installation screws after removing meter/gauge.

Screws		Resistance (Approx.) Ω
Tachometer	Fuel/Temp. gauge	
A - C	A - C	190 - 260
B - D	B - C	230 - 310



LEL006A



FUEL TANK GAUGE UNIT CHECK

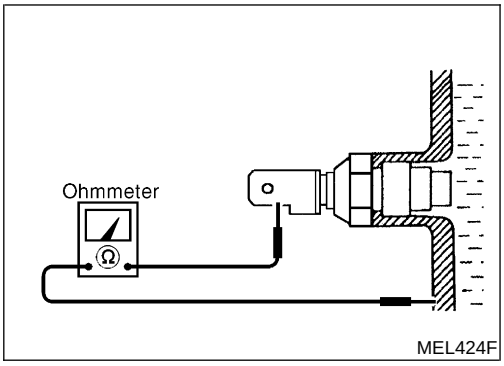
NEEL0047S01

- For removal, refer to ***FE-7***.

Check the resistance between fuel tank gauge unit terminals G and E.

Ohmmeter		Float position mm (in)			Resistance value (Ω)
(+)	(−)				
G	E	*1	Full	96 (3.78)	Approx. 4 - 6
		*2	1/2	188 (7.40)	30 - 34
		*3	Empty	257 (10.12)	80 - 83

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

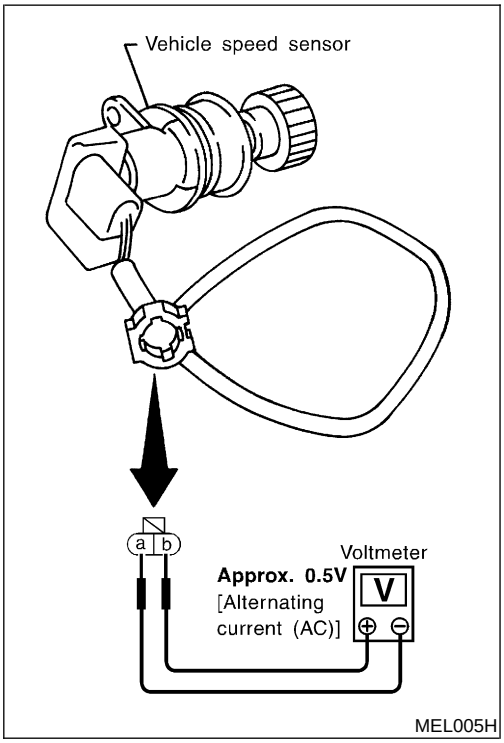


THERMAL TRANSMITTER CHECK

NEEL0047S02

Check the resistance between thermal transmitter terminal 1 and body ground.

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



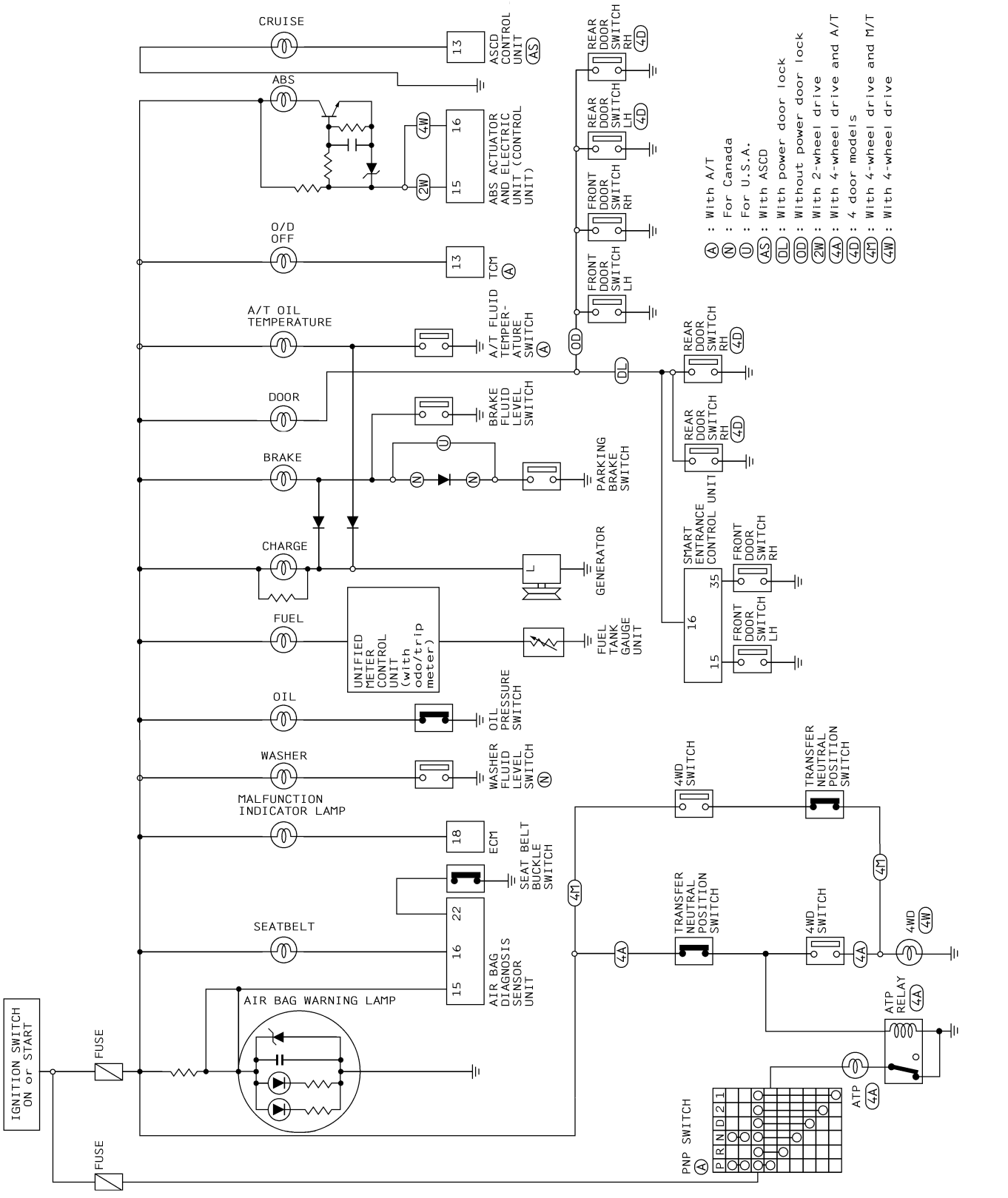
VEHICLE SPEED SENSOR SIGNAL CHECK

NEEL0047S03

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

Circuit Diagram

NEEL0049

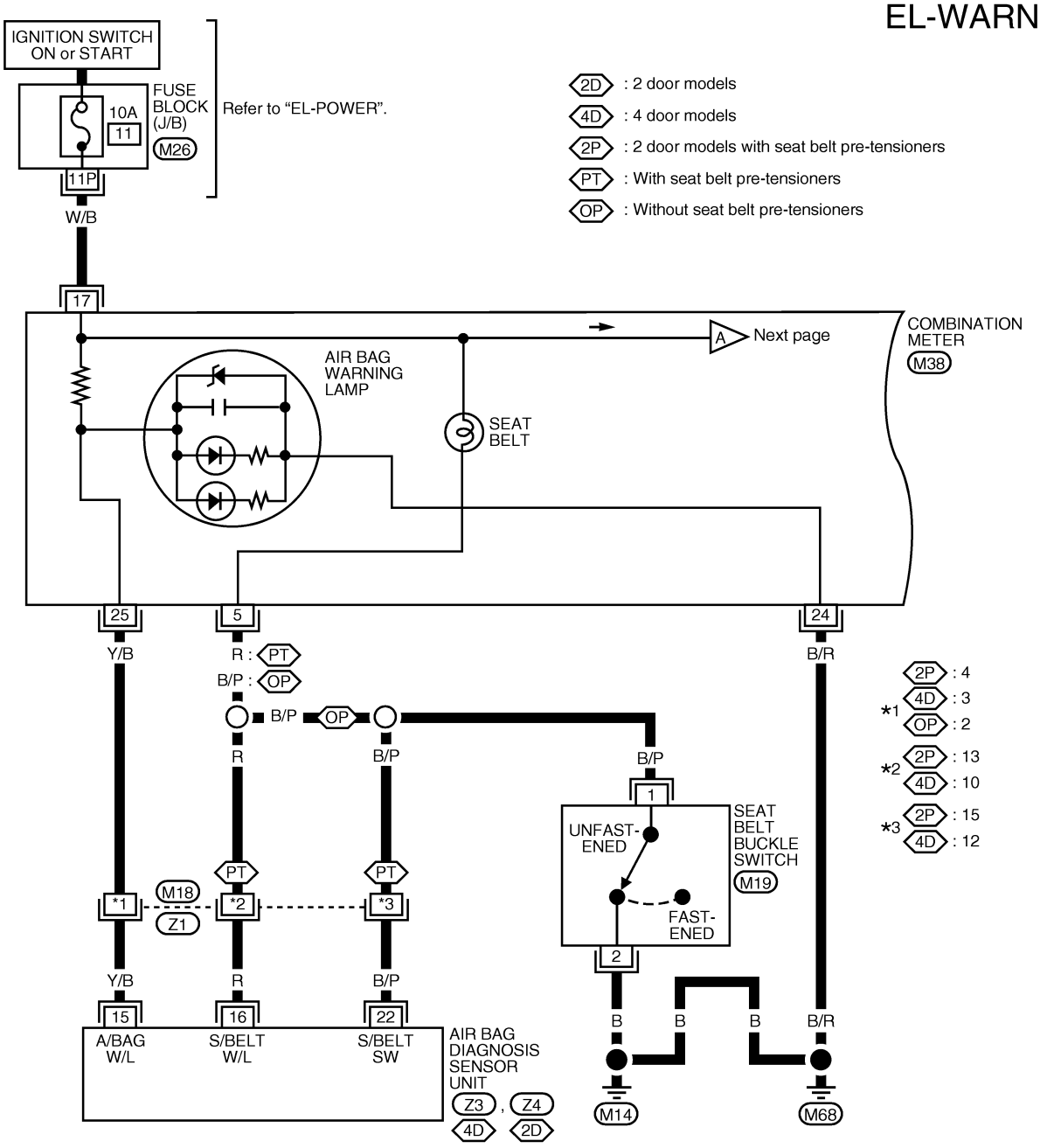


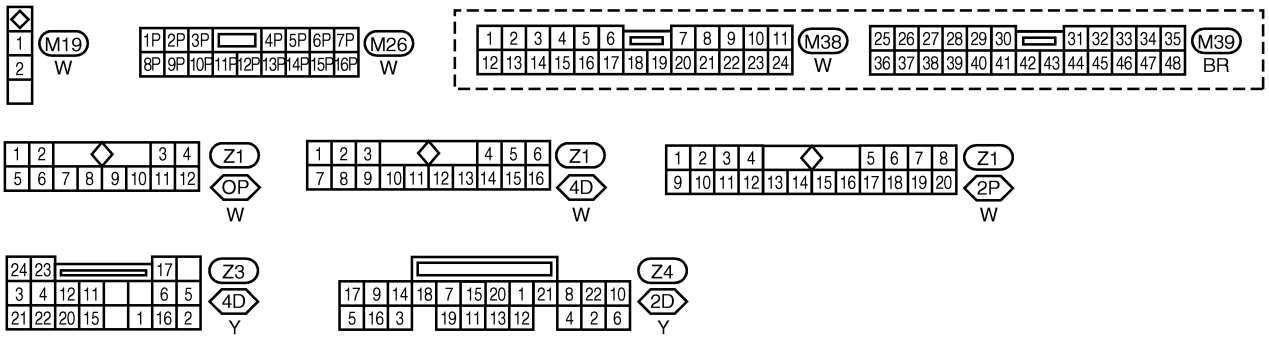
AEL770C

Wiring Diagram — WARN —

NEEL0050

EL-WARN-01

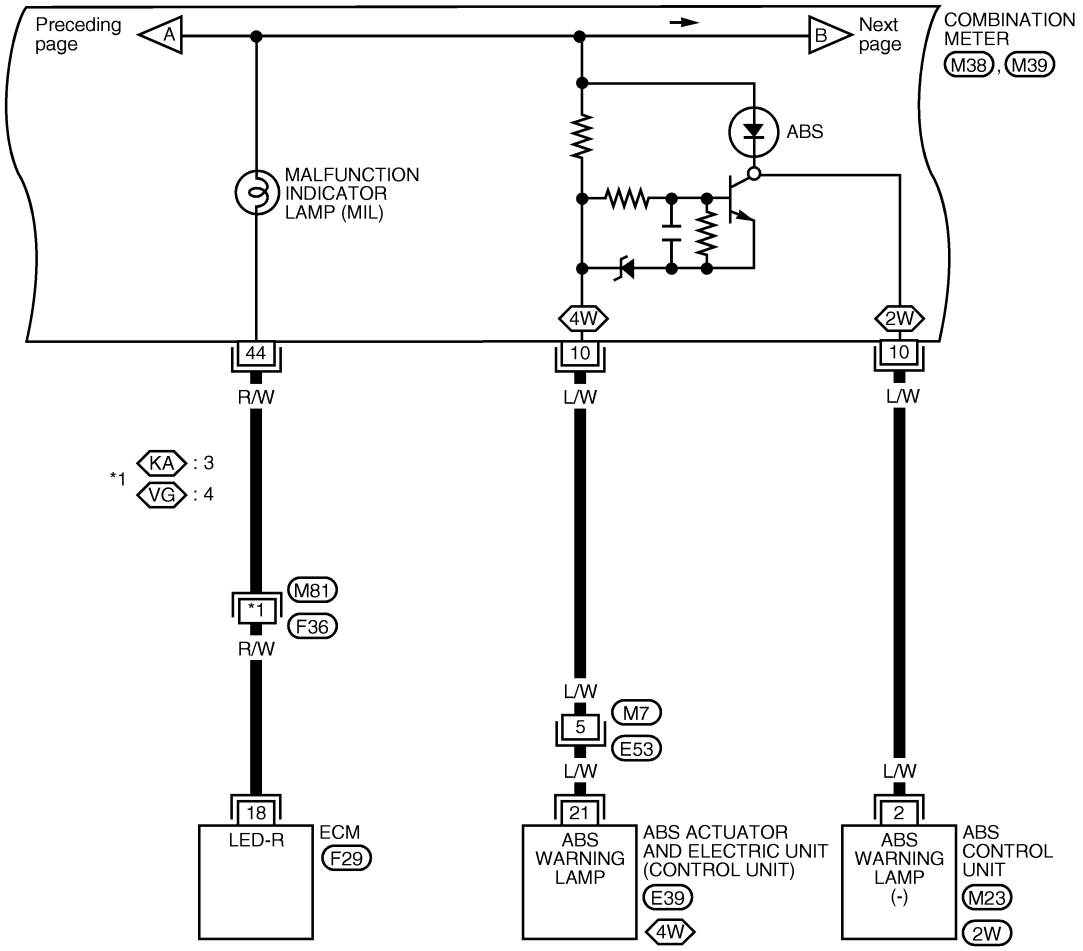




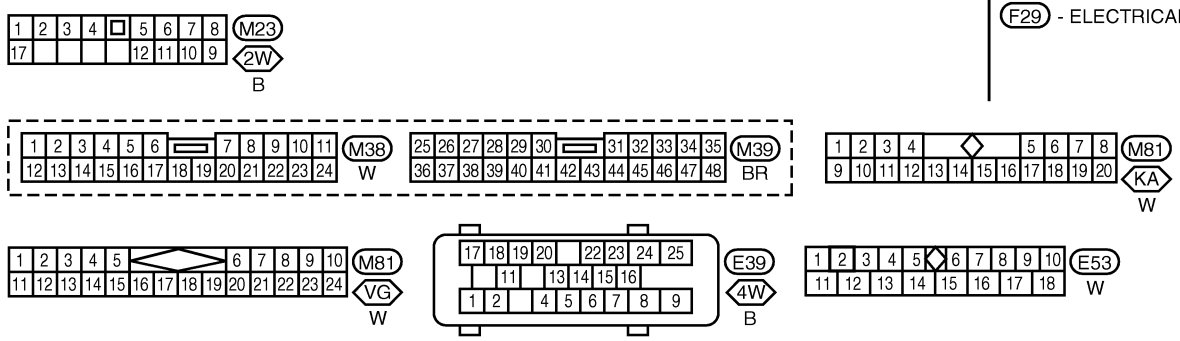
AEL465C

EL-WARN-02

KA : With KA engine
VG : With VG engine
2W : With 2-wheel drive
4W : With 4-wheel drive



Refer to the following.
F29 - ELECTRICAL UNITS



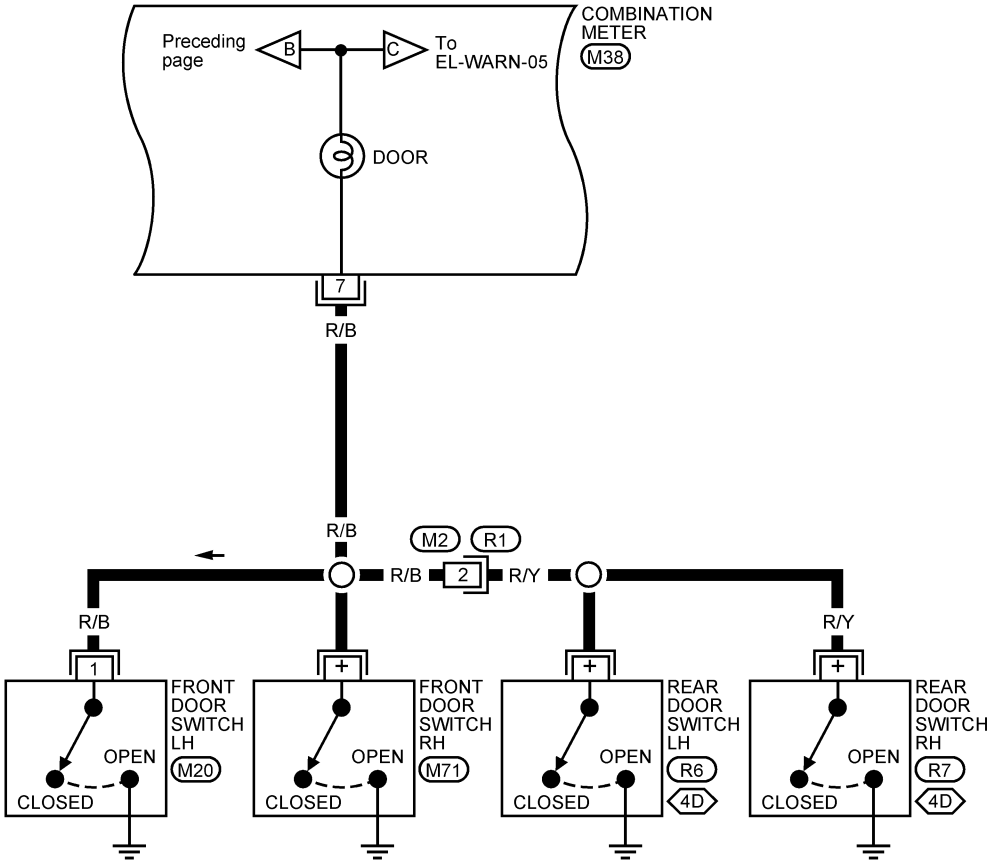
AEL514C

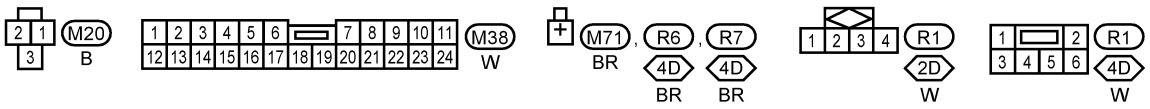
MODELS WITHOUT POWER DOOR LOCKS

NEEL0050S01

EL-WARN-03

2D : 2 door models
4D : 4 door models

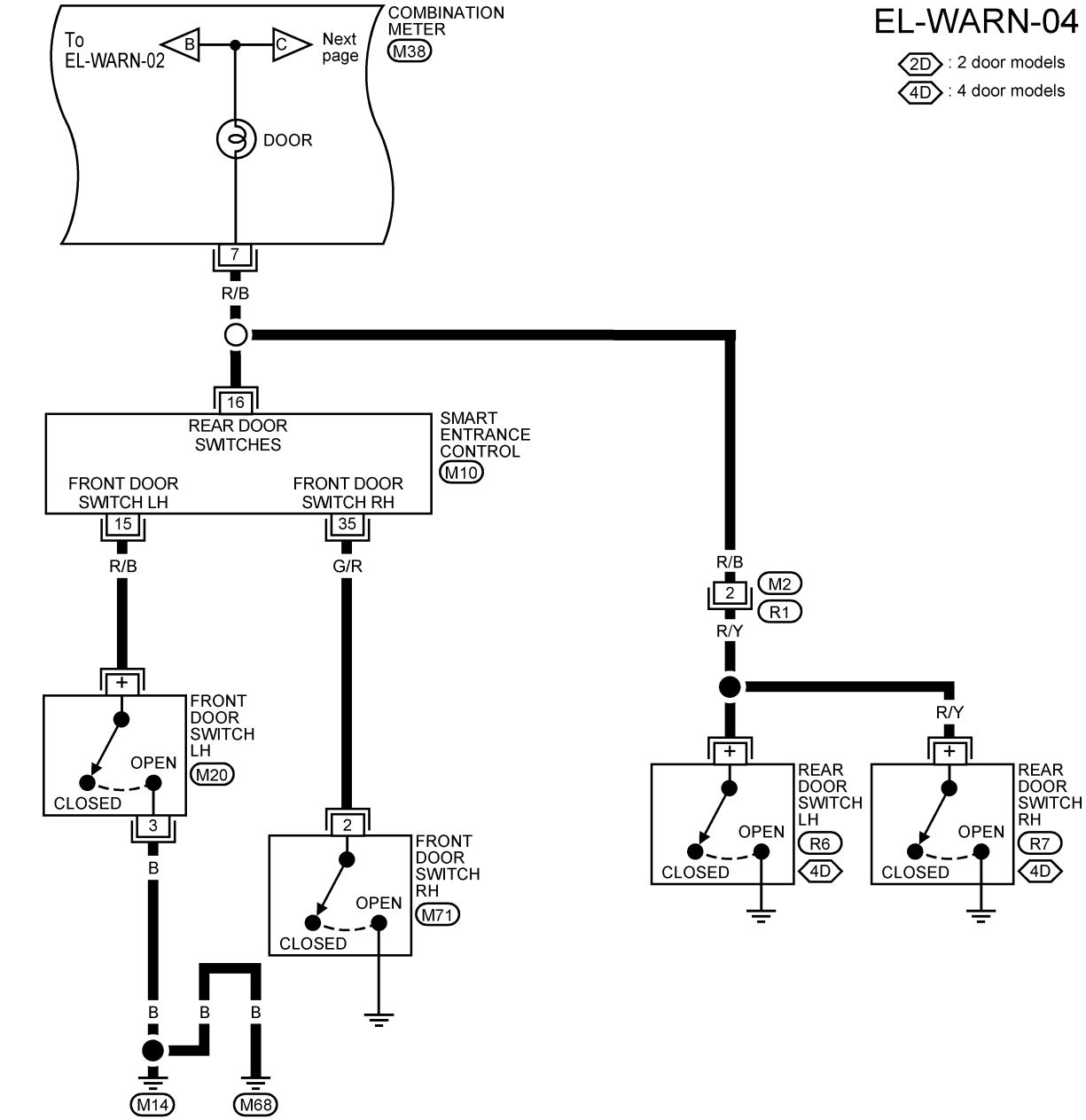


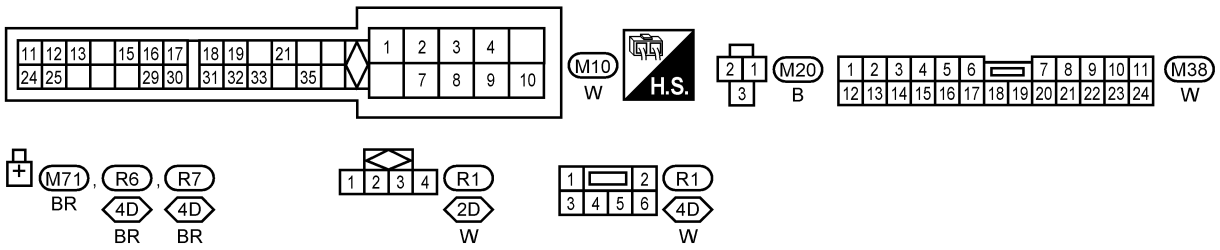


AEL767C

MODELS WITH POWER DOOR LOCKS

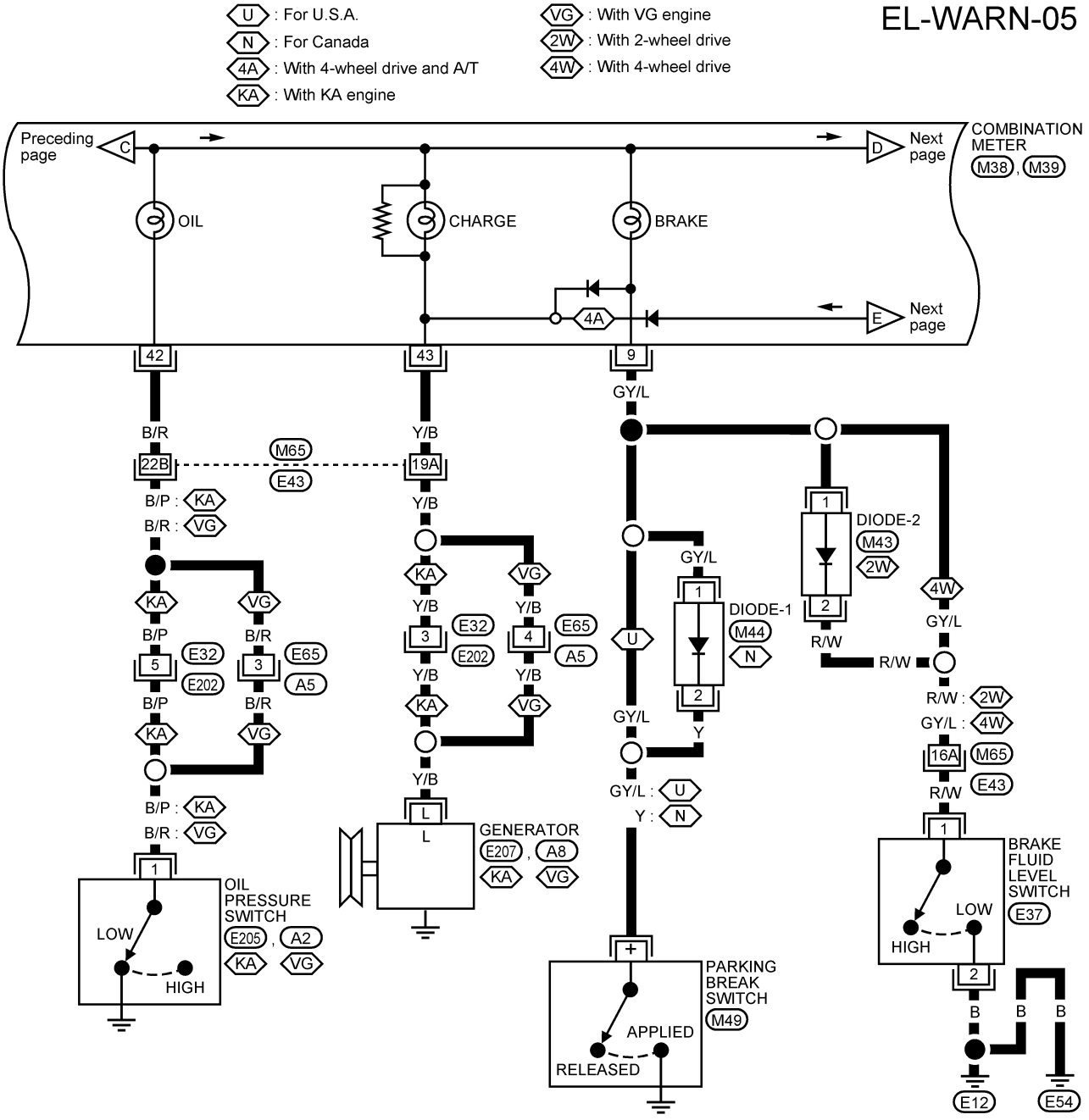
NEEL0050S02

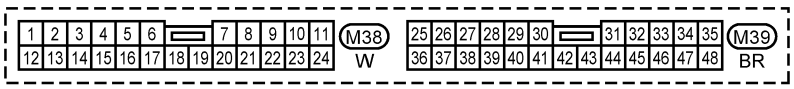


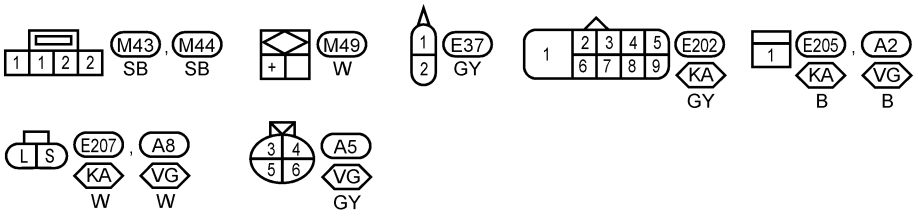


AEL768C

EL-WARN-05



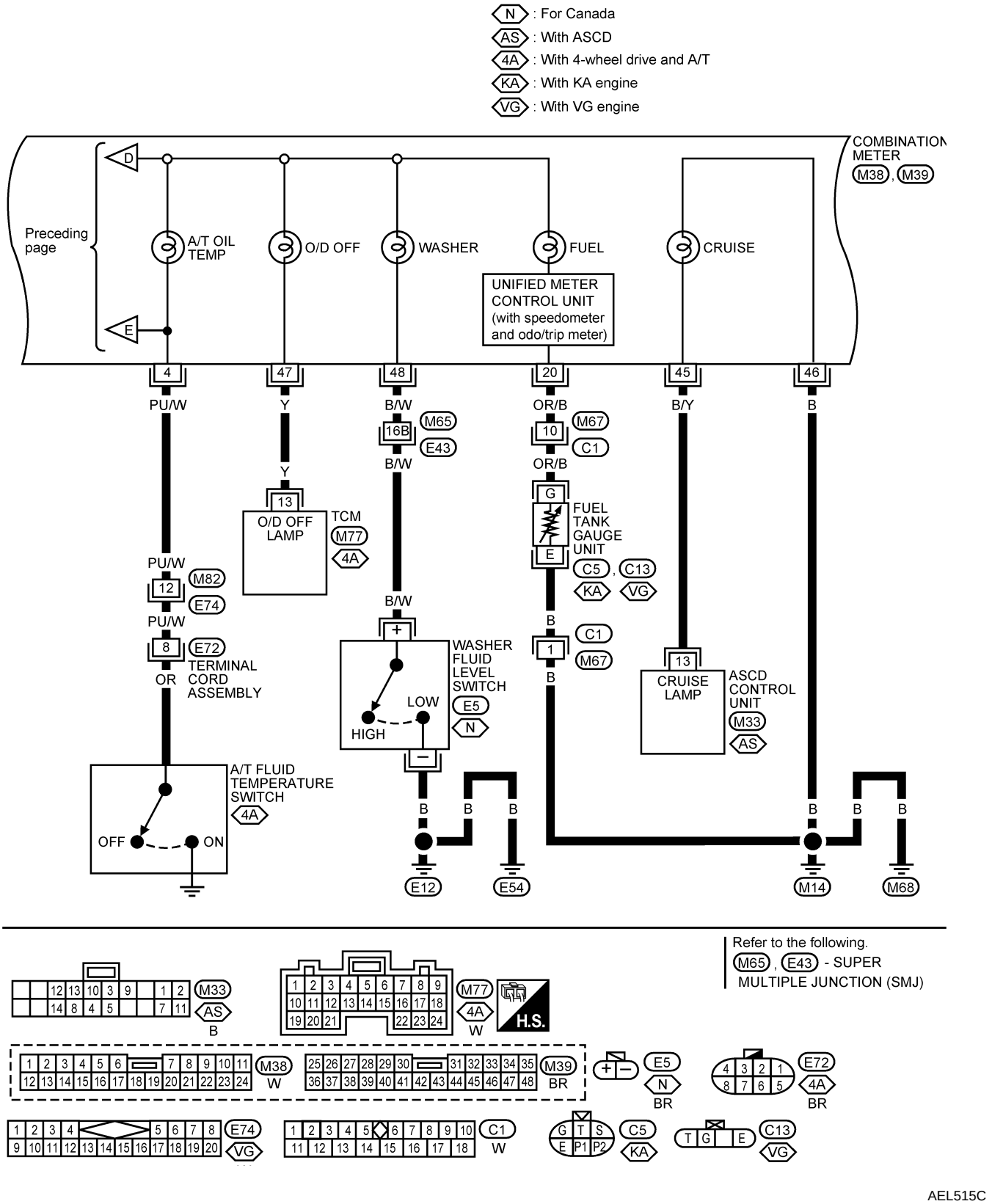




Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL466C

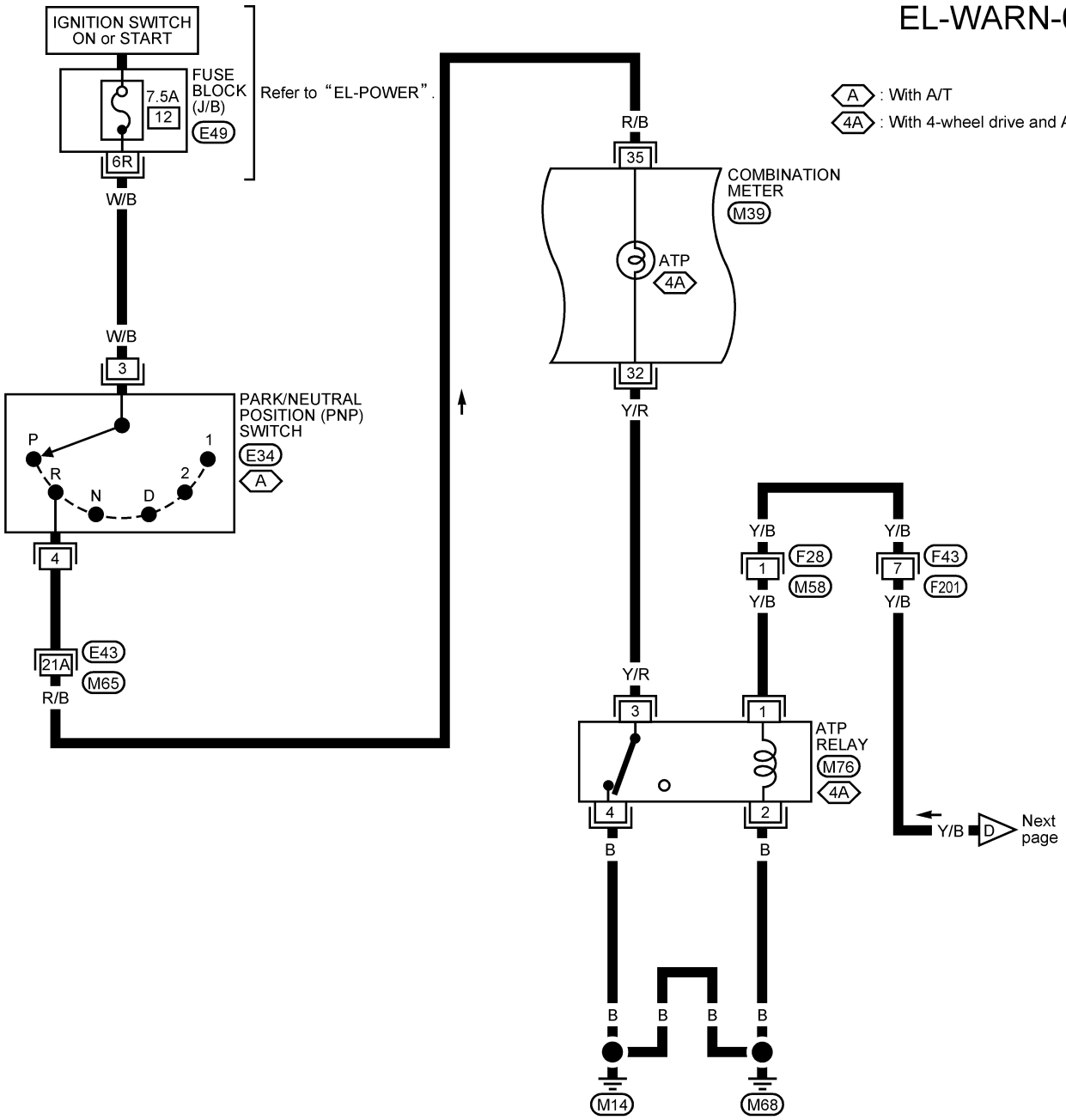
EL-WARN-06

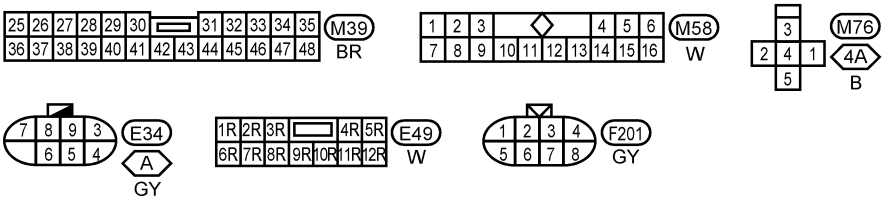


Refer to the following.
M65, E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL515C

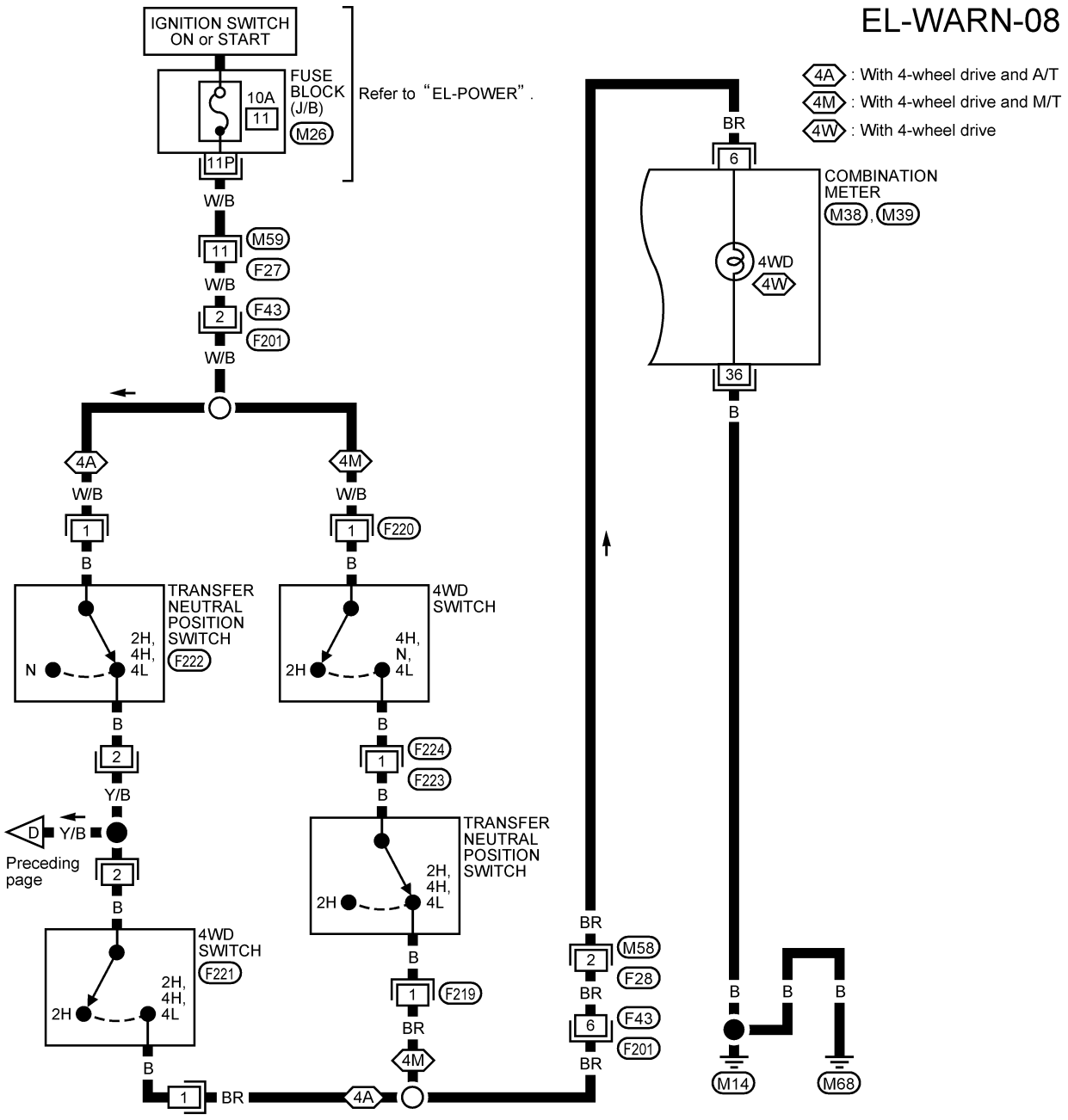
EL-WARN-07

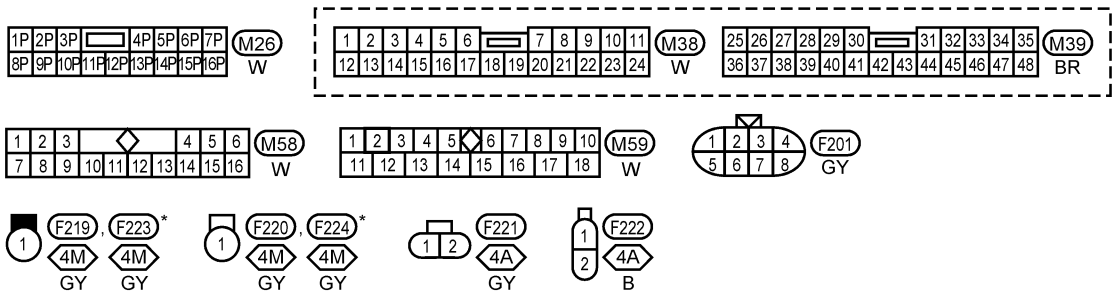




Refer to the following.
M65, E43 - SUPER MULTIPLE JUNCTION (SMJ)

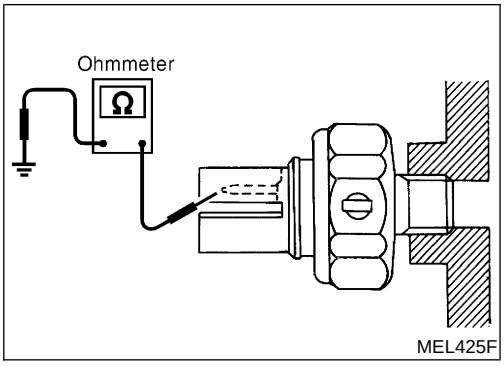
AEL516C





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

AEL517C



Electrical Components Inspection

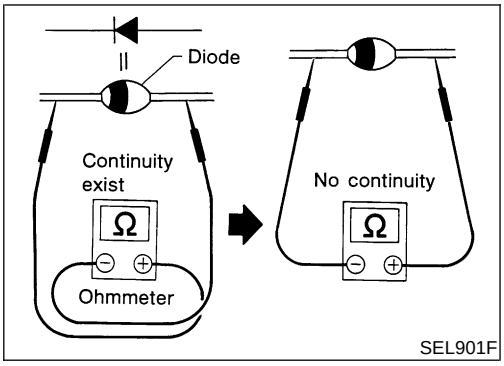
NEEL0051

OIL PRESSURE SWITCH CHECK

NEEL0051S02

	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 oil pressure switch terminal 1 and body ground.



DIODE CHECK

NEEL0051S03

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

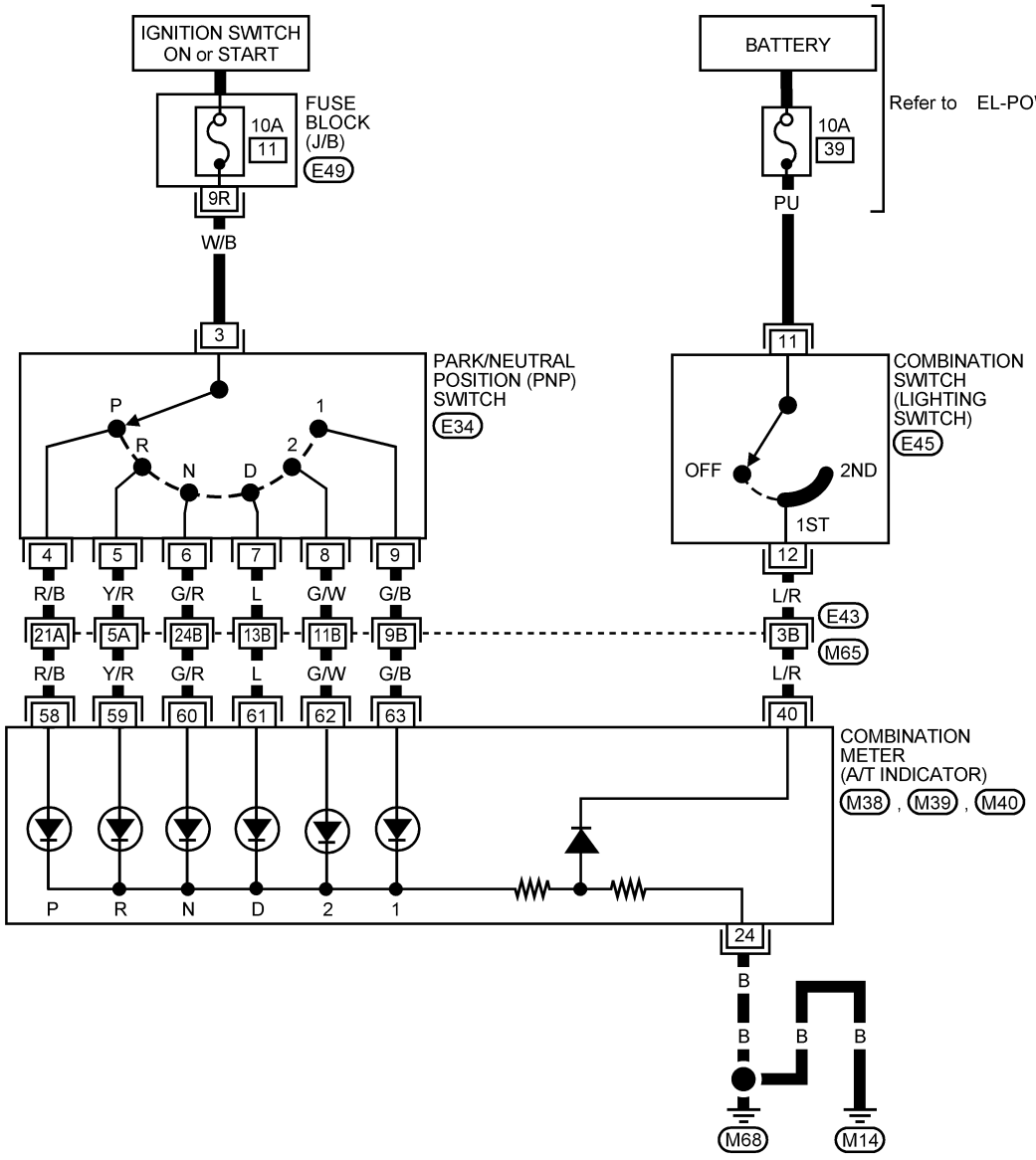
NOTE:
Specification may vary depending on the type of tester. Before performing this inspection, be sure to refer to the instruction manual of the tester to be used.

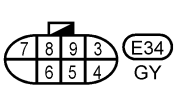
- Diodes for warning lamps are built into the combination meter printed circuit.
- For diode location, refer to Combination Meter, EL-68.

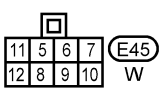
Wiring Diagram — AT/IND —

NEEL0214

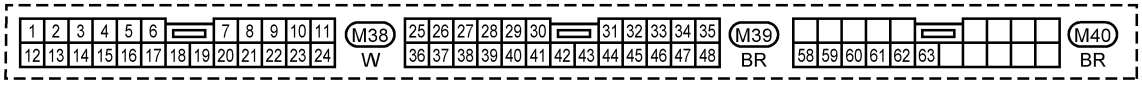
EL-AT/IND-01







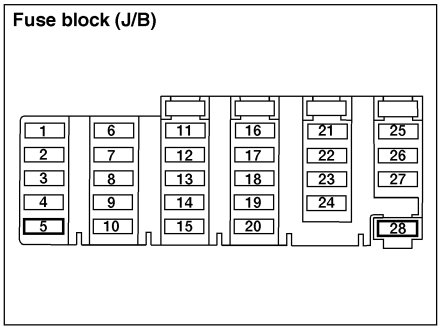
Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

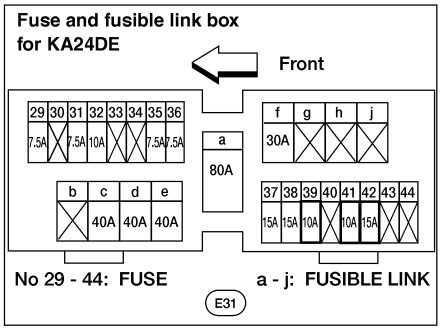


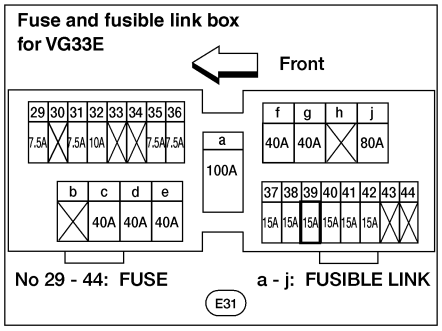
AEL769C

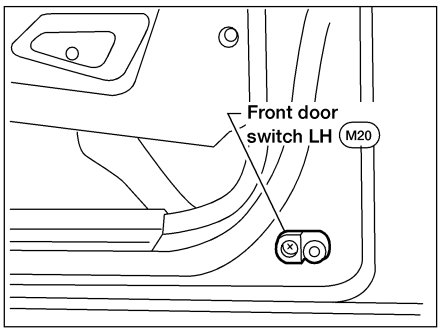
Component Parts and Harness Connector Location

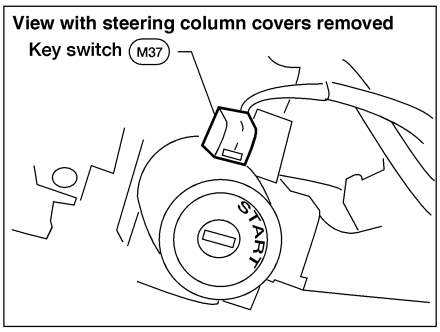
NEEL0052

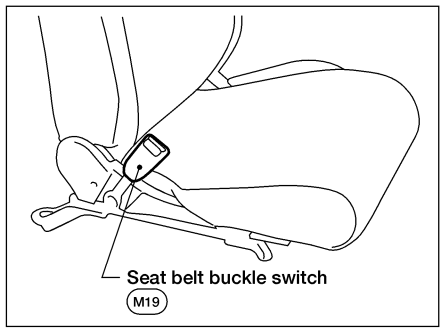


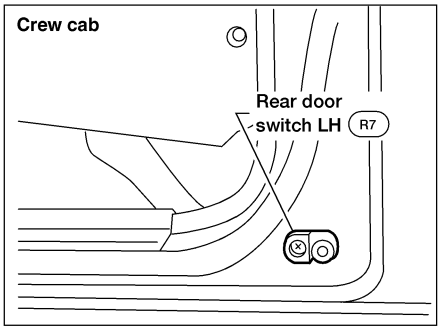


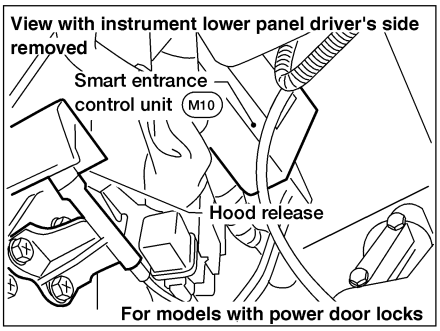


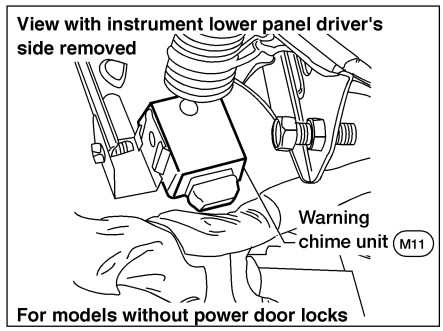












AEL448C

System Description

NEEL0053

MODELS WITHOUT POWER DOOR LOCKS

NEEL0053S04

The warning chime is integral with the warning chime unit, which controls its operation.
Power is supplied at all times

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to key switch terminal 1.

Power is supplied at all times

- through 10A fuse (with KA24DE engine) (No. 39, located in the fuse and fusible link box) or
- through 15A fuse (with VG33E engine) (No. 39, located in the fuse and fusible link box)
- to lighting switch terminal 11.

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

- through 7.5A fuse [No. 5, located in the fuse block (J/B)]
- to warning chime unit terminal 1.

Ground is supplied to warning chime unit terminal 8 through body grounds M14 and M68.
When a signal, or combination of signals, is received by the warning chime unit, the warning chime will sound.

Ignition Key Warning Chime

NEEL0053S0401

With the key switch in the INSERTED (key is in the ignition key cylinder) position, the ignition switch in the OFF or ACC position and the front door LH open, the warning chime will sound. A battery positive voltage is supplied

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

Ground is supplied

- to warning chime unit terminal 7
- through front door switch LH terminal 2.

Front door switch LH terminal 3 is grounded through body grounds M14 and M68.

Light Warning Chime

NEEL0053S0402

With the ignition switch in the OFF or ACC position, front door LH open and lighting switch in the parking and tail lamps ON (1ST) or headlamps ON (2ND) position, the warning chime will sound. A battery positive voltage is supplied

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

Ground is supplied

- to warning chime unit terminal 7
- through front door switch LH terminal 2.

Front door switch LH terminal 3 is grounded through body grounds M14 and M68.

Seat Belt Warning Chime

NEEL0053S0403

The warning chime will sound for approximately 6 seconds when the ignition switch is turned from OFF to ON with the driver's seat belt unfastened (seat belt buckle switch ON).
Ground is supplied

- to warning chime unit terminal 2
- through seat belt buckle switch terminal 1.

Seat belt buckle switch terminal 2 is grounded through body grounds M14 and M68.

MODELS WITH POWER DOOR LOCKS

NEEL0053S05

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

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to key switch terminal 1.

Power is supplied at all times

- through 10A fuse (with KA24DE engine) (No. 39, located in the fuse and fusible link box) or
- through 15A fuse (with VG33E engine) (No. 39, located in the fuse and fusible link box)
- to lighting switch terminal 11.

Power is supplied at all times

- through 30A fusible link (with KA24DE engine), 40A fusible link (with VG33E engine) (letter **f**, located in the fuse and fusible link box).
- to circuit breaker terminal +
- through circuit breaker terminal –
- to smart entrance control unit terminal 1.

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

- through 7.5A fuse [No. 5, located in the fuse block (J/B)]
- to smart entrance control unit terminal 11.

Ground is supplied to smart entrance control unit terminal 10 through body grounds M14 and M68.
When a signal, or combination of signals, is received by the smart entrance control unit, the warning chime will sound.

Ignition Key Warning Chime

NEEL0053S0501

With the key switch in the INSERTED (key is in the ignition key cylinder) position, the ignition switch in the OFF or ACC position and the front door LH open, the warning chime will sound. A battery positive voltage is supplied

- from key switch terminal 2
- to smart entrance control unit terminal 24.

Ground is supplied

- to smart entrance control unit terminal 15
- through front door switch LH terminal 2.

Front door switch LH terminal 3 is grounded through body grounds M14 and M68.

Light Warning Chime

NEEL0053S0502

With the ignition switch the OFF or ACC position, front door LH open and lighting switch in parking and tail lamps ON (1ST) or headlamps ON (2ND) position, the warning chime will sound. A battery positive voltage is supplied

- from lighting switch terminal 12
- to smart entrance control unit terminal 25.

Ground is supplied

- to smart entrance control unit terminal 15
- through front door switch LH terminal 2.

Front door switch LH terminal 3 is grounded through body grounds M14 and M68.

Seat Belt Warning Chime

NEEL0053S0503

The warning chime will sound for approximately 6 seconds when the ignition switch is turned from OFF to ON with the driver's seat belt unfastened (seat belt buckle switch ON).
Ground is supplied

- to smart entrance control unit terminal 21
- through seat belt buckle switch terminal 1.

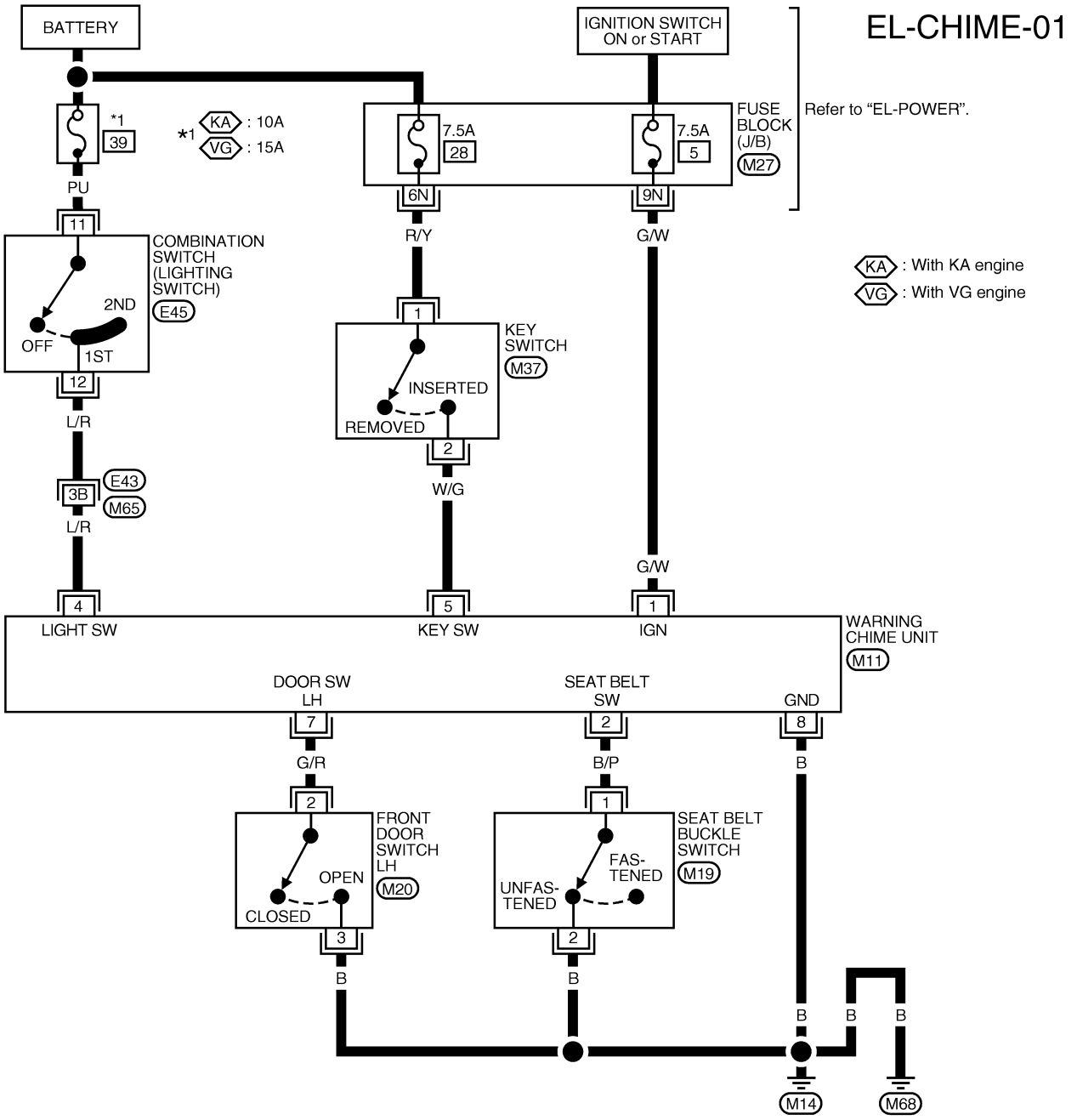
Seat belt buckle switch terminal 2 is grounded through body grounds M14 and M68.

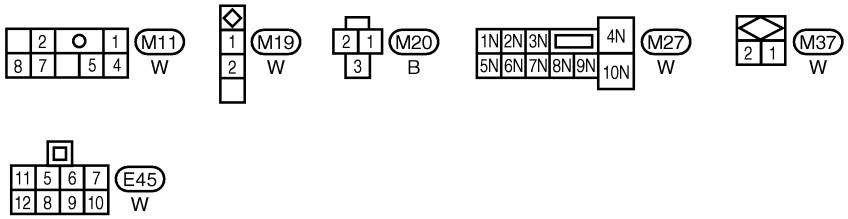
Wiring Diagram — CHIME —

NEEL0054

MODELS WITHOUT POWER DOOR LOCKS

NEEL0054S01





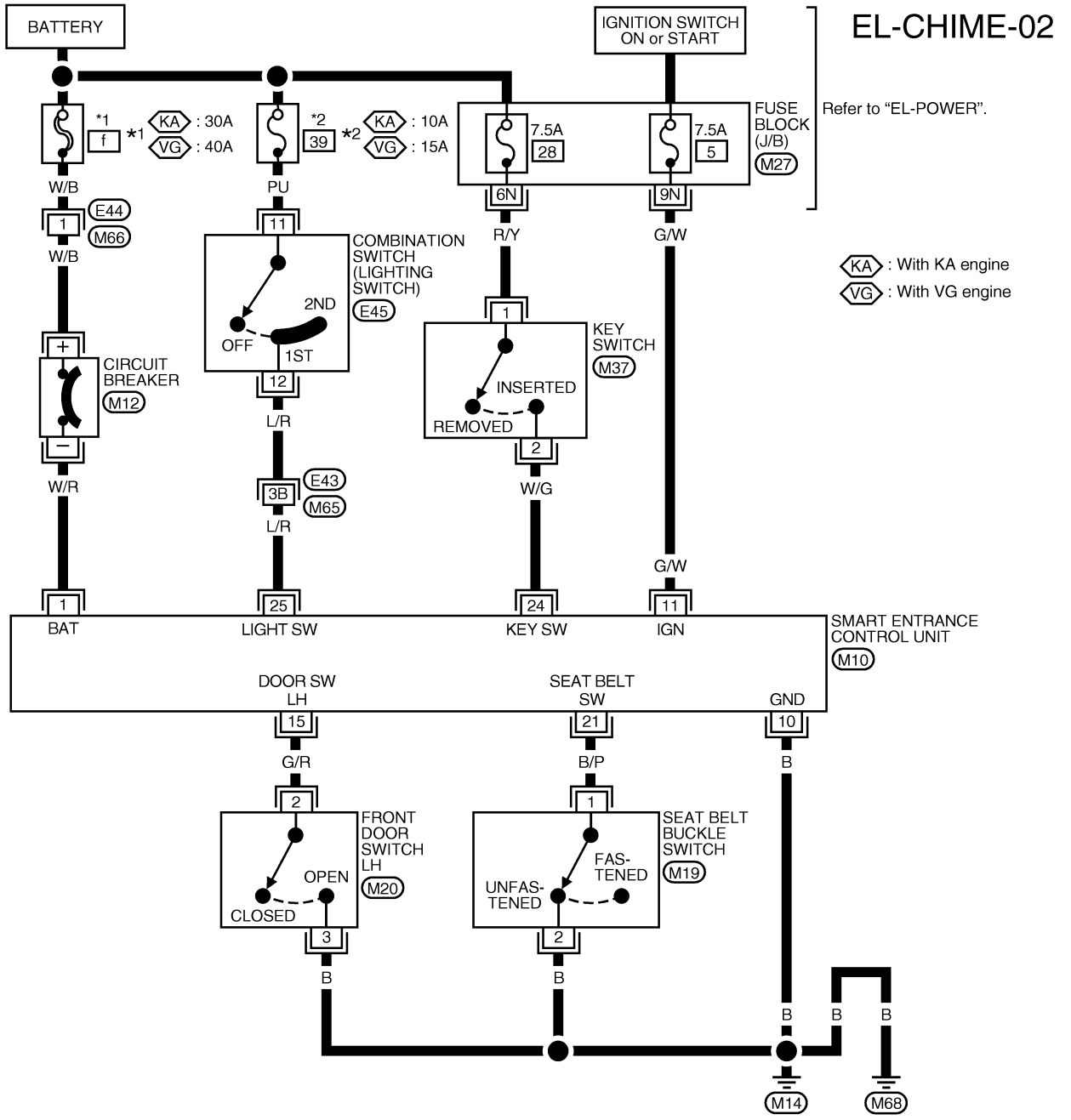
Refer to the following.

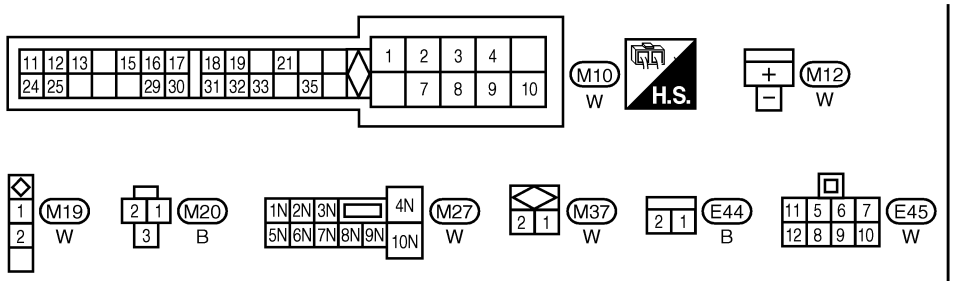
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL485C

MODELS WITH POWER DOOR LOCKS

NEEL0054S02





Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL486C

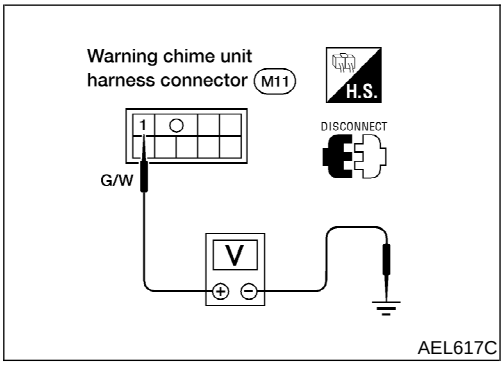
Trouble Diagnoses

NEEL0055

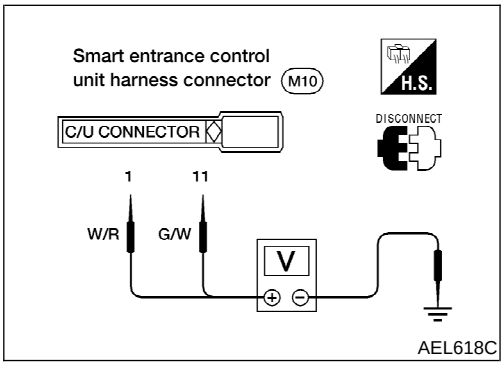
SYMPTOM CHART

NEEL0055S01

REFERENCE PAGE (EL-)		POWER SUPPLY AND GROUND CIRCUIT CHECK	LIGHTING SWITCH INPUT SIGNAL CHECK	KEY SWITCH (INSERTED) CHECK	SEAT BELT BUCKLE SWITCH CHECK	FRONT DOOR SWITCH LH CHECK
	Without power door locks	96	98	99	101	103
	With power door locks	96	98	100	102	104
SYMPTOM						
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	
All warning chimes do not activate.		X				



AEL617C



AEL618C

POWER SUPPLY AND GROUND CIRCUIT CHECK

NEEL0055S02

Main Power Supply Circuit Check

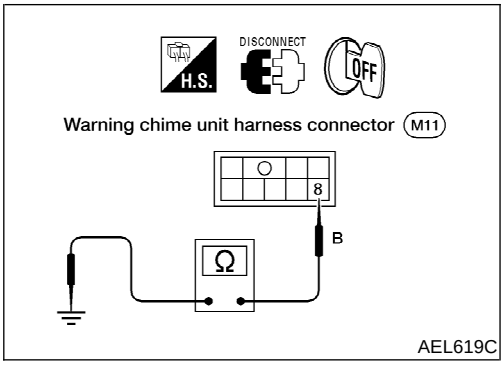
NEEL0055S0201

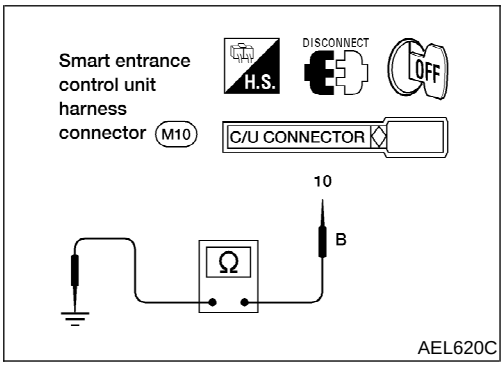
- **Models without power door locks**

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

- **Models with power door locks**

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





Ground Circuit Check

NEEL0055S0202

- **Models without power door locks**

Terminals	Continuity
8 - Ground	Yes

- **Models with power door locks**

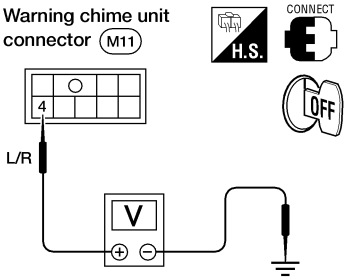
Terminals	Continuity
10 - Ground	Yes

LIGHTING SWITCH INPUT SIGNAL CHECK

=NEEL0055S03

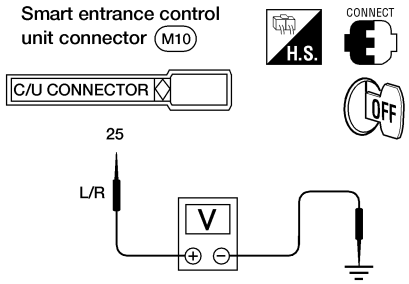
Models without Power Door Locks

NEEL0055S0301

1	CHECK LIGHTING SWITCH INPUT SIGNAL	
Check voltage between warning chime unit terminal 4 and ground. **Voltage [V]:** **Condition of lighting switch: 1ST or 2ND** **Approx. 12** **Condition of lighting switch: OFF** **0**  AEL372B **OK or NG**		
OK	▶	Lighting switch is OK.
NG	▶	**Check the following.** ● 10A fuse (with KA24DE engine), 15A fuse (with VG33E engine) (No. 39, located in the fuse and fusible link box) ● Harness for open or short between warning chime unit and lighting switch

Models with Power Door Locks

NEEL0055S0302

1	CHECK LIGHTING SWITCH INPUT SIGNAL	
Check voltage between smart entrance control unit terminal 25 and ground. **Voltage [V]:** **Condition of lighting switch: 1ST or 2ND** **Approx. 12** **Condition of lighting switch: OFF** **0**  AEL371B **OK or NG**		
OK	▶	Lighting switch is OK.
NG	▶	**Check the following.** ● 10A fuse (with KA24DE engine), 15A fuse (with VG33E engine) (No. 39, located in the fuse and fusible link box) ● Harness for open or short between smart entrance control unit and lighting switch

KEY SWITCH (INSERTED) CHECK
Models without Power Door Locks

NEEL0055S04

NEEL0055S0401

1	CHECK KEY SWITCH INPUT SIGNAL

Check voltage between warning chime unit terminal 5 and ground.

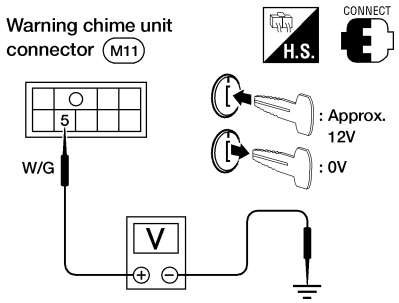
Voltage [V]:

Condition of key switch: Key is INSERTED.

Approx. 12

Condition of key switch: Key is REMOVED.

0



AEL374B

OK or NG

OK	▶	Key switch is OK.
NG	▶	GO TO 2.

2	CHECK KEY SWITCH (INSERTED)

Check continuity between terminals 1 and 2.

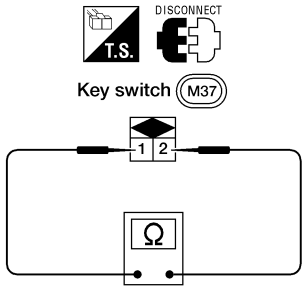
Continuity:

Condition of key switch: Key is INSERTED.

Yes

Condition of key switch: Key is REMOVED.

No



AEL416B

OK or NG

OK	▶	**Check the following.** ● 7.5A fuse [No. 28, located in fuse block (J/B)] ● Harness for open or short between key switch and fuse ● Harness for open or short between warning chime unit and key switch
NG	▶	Replace key switch.

Models with Power Door Locks

NEEL0055S0402

1	CHECK KEY SWITCH INPUT SIGNAL

Check voltage between smart entrance control unit terminal 24 and ground.

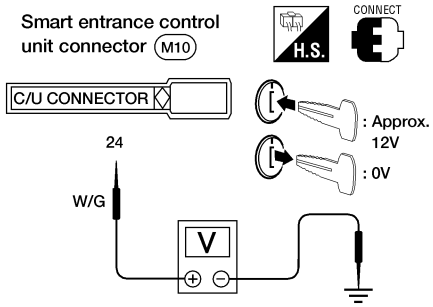
Voltage [V]:

Condition of key switch: Key is INSERTED.

Approx. 12

Condition of key switch: Key is REMOVED.

0



AEL373B

OK or NG

OK	▶	Key switch is OK.
NG	▶	GO TO 2.

2	CHECK KEY SWITCH (INSERTED)

Check continuity between terminals 1 and 2.

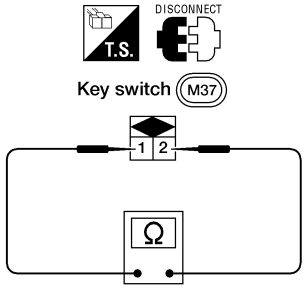
Continuity:

Condition of key switch: Key is INSERTED.

Yes

Condition of key switch: Key is REMOVED.

No



AEL416B

OK or NG

OK	▶	**Check the following.** ● 7.5A fuse [No. 28, located in fuse block (J/B)] ● Harness for open or short between key switch and fuse ● Harness for open or short between smart entrance control unit and key switch
NG	▶	Replace key switch.

SEAT BELT BUCKLE SWITCH CHECK

=NEEL0055S05

Models without Power Door Locks

NEEL0055S0501

1	CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between warning chime unit terminal 2 and ground.

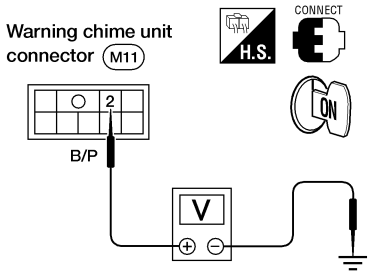
Voltage [V]:

Condition of seat belt buckle switch: FASTENED

Approx. 12

Condition of seat belt buckle switch: UNFASTENED

0



AEL376B

OK or NG

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

2	CHECK SEAT BELT BUCKLE SWITCH

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

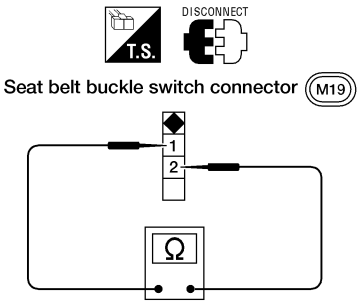
Continuity:

Seat belt is fastened.

No

Seat belt is unfastened.

Yes



AEL381B

OK or NG

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

Models with Power Door Locks

NEEL0055S0502

1	CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between smart entrance control unit terminal 21 and ground.

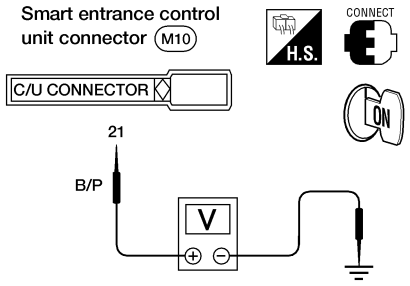
Voltage [V]:

Condition of seat belt buckle switch: FASTENED

Approx. 12

Condition of seat belt buckle switch: UNFASTENED

0



AEL375B

OK or NG

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

2	CHECK SEAT BELT BUCKLE SWITCH

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

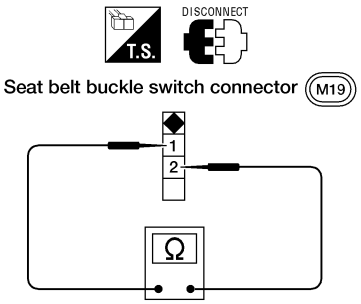
Continuity:

Seat belt is fastened.

No

Seat belt is unfastened.

Yes



AEL381B

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.

FRONT DOOR SWITCH LH CHECK
Models without Power Door Locks

NEEL0055S06

NEEL0055S0601

1	CHECK FRONT DOOR SWITCH LH INPUT SIGNAL

Check voltage between warning chime unit terminal 7 and ground.

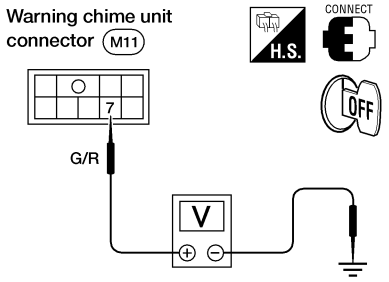
Voltage [V]:

Condition of front door LH: CLOSED

Approx. 12

Condition of front door LH: OPEN

0



AEL378B

OK or NG

OK	▶	Front door switch LH is OK.
NG	▶	GO TO 2.

2	CHECK FRONT DOOR SWITCH LH

Check continuity between front door switch LH terminals 2 and 3.

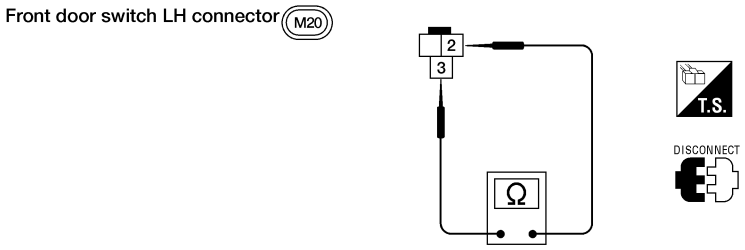
Continuity:

Front door switch LH is pressed.

No

Front door switch LH is released.

Yes



AEL543C

OK or NG

OK	▶	**Check the following.** ● Front door switch LH ground circuit ● Harness for open or short between warning chime unit and front door switch LH
NG	▶	Replace front door switch LH.

Models with Power Door Locks

NEEL0055S0602

1	CHECK FRONT DOOR SWITCH LH INPUT SIGNAL

Check voltage between smart entrance control unit terminal 15 and ground.

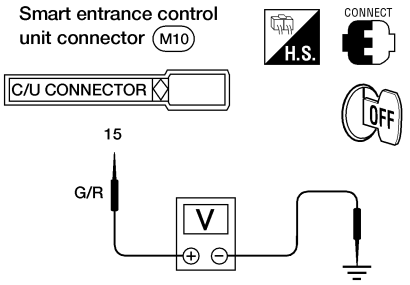
Voltage [V]:

Condition of front door LH: CLOSED

Approx. 12

Condition of front door LH: OPEN

0



AEL377B

OK or NG

OK	▶	Front door switch LH is OK.
NG	▶	GO TO 2.

2	CHECK FRONT DOOR SWITCH LH

Check continuity between front door switch LH terminals 2 and 3.

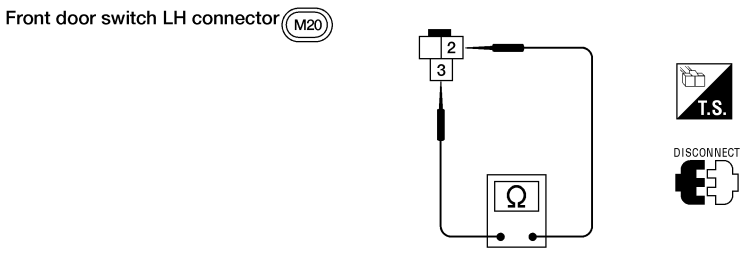
Continuity:

Front door switch LH is pressed.

No

Front door switch LH is released.

Yes



AEL543C

OK or NG

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

System Description

NEEL0057

WIPER OPERATION

NEEL0057S01

Models without Intermittent Wipers

NEEL0057S0104

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

- LO speed
- HI speed

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

- through 20A fuse [No. 6, located in the fuse block (J/B)]
- to front wiper motor terminal B.

Low and High Speed Wiper Operation

Ground is supplied to front wiper switch terminal 17 through body grounds E12 and E54.
With the front wiper switch in the LO position, ground is supplied

- to front wiper motor terminal L
- through front wiper switch terminal 14.

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

- to front wiper motor terminal H
- through front wiper switch terminal 16.

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

Auto Stop Operation

When the front wiper switch is turned OFF, the front wiper motor will continue to operate at low speed until wiper blades reach windshield base.
When wiper blades are not located at base of windshield with front wiper switch OFF, ground is supplied

- to front wiper motor terminal L
- through front wiper switch terminal 14
- through front wiper switch terminal 13
- through front wiper motor terminal P

Ground is supplied to front wiper motor terminal E through body grounds E12 and E54.

Models with Intermittent Wipers

NEEL0057S0105

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

- LO speed
- HI speed
- INT (Intermittent)

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

- through 20A fuse [No. 6, located in the fuse block (J/B)]
- to front wiper motor terminal B and
- to front wiper amplifier terminal 6.

Low and High Speed Wiper Operation

Ground is supplied to front wiper switch terminal 17 through body grounds E12 and E54
With the front wiper switch in the LO position, ground is supplied

- to front wiper motor terminal L
- through front wiper switch terminal 14.

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

- to front wiper motor terminal H
- through front wiper switch terminal 16.

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

Auto Stop Operation

When the front wiper switch is turned OFF, the front wiper motor will continue to operate at low speed until wiper blades reach windshield base.
When wiper blades are not located at base of windshield with front wiper switch OFF, ground is supplied

- to front wiper motor terminal L
- through front wiper switch terminal 14
- through front wiper switch terminal 13
- through front wiper amplifier terminal 4
- through front wiper amplifier terminal 7
- through body grounds E12 and E54.

Ground is also supplied

- to front wiper amplifier terminal 8
- through front wiper motor terminal P
- through front wiper motor terminal E
- through body grounds E12 and E54.

When wiper blades reach base of windshield, front wiper motor terminals B and P are connected instead of terminals P and E.
Battery power is then supplied

- through front wiper motor terminal P
- to front wiper amplifier terminal 8.

With battery voltage supplied to front wiper amplifier terminal 8, the front wiper amplifier will stop the front wiper motor with the wiper blades at the PARK position.

Intermittent Operation

The wiper blades perform a single wiping operation, followed by a delay interval which is adjustable from approximately 3 to 13 seconds, after which the cycle repeats. This feature is controlled by the front wiper amplifier.
When the front wiper switch is placed in the INT position, ground is supplied

- to front wiper amplifier terminal 1
- through front wiper switch terminal 15
- through front wiper switch terminal 17
- through body grounds E12 and E54.

Ground is supplied intermittently

- to front wiper motor terminal L
- through front wiper switch terminal 14
- through front wiper switch terminal 13
- through front wiper amplifier terminal 4
- through front wiper amplifier terminal 7
- through body grounds E12 and E54.

The delay interval time is input

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

Ground is supplied to front wiper switch terminal 20 through body grounds E12 and E54.
The wiper motor operates at low speed at the desired delay interval.

WASHER OPERATION

NEEL0057S02

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

- through 20A fuse [No. 6, located in the fuse block (J/B)]
- to front washer motor terminal +.

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

- to front washer motor terminal – and
- to front wiper amplifier terminal 5 (models with intermittent wipers)
- through front wiper switch terminal 18
- through front wiper switch terminal 17
- through body grounds E12 and E54.

With power and ground supplied, the front washer motor operates.

Models with Intermittent Wipers

NEEL0057S0201

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

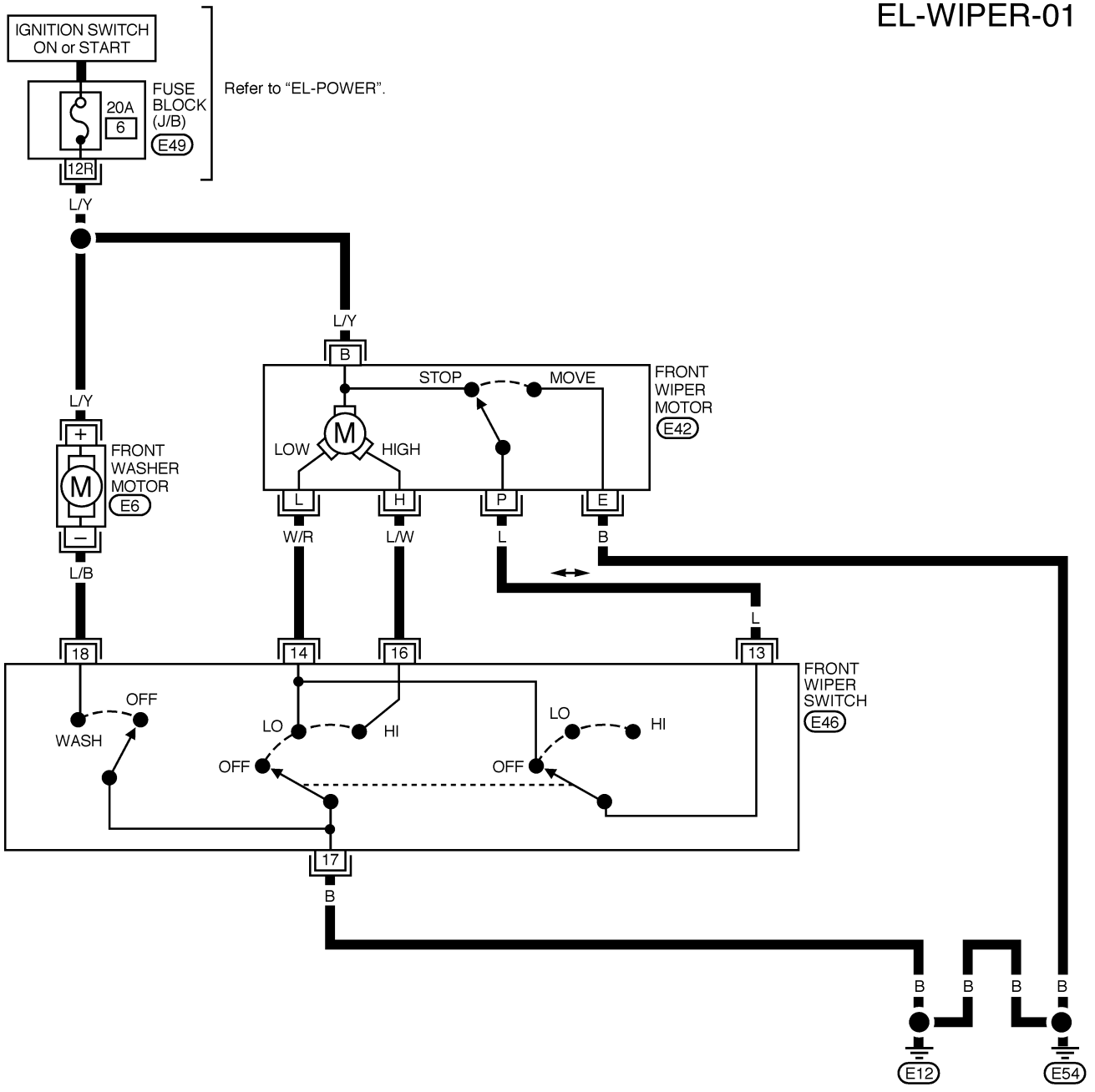
Wiring Diagram — WIPER —

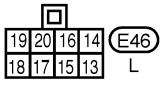
NEEL0058

MODELS WITHOUT INTERMITTENT WIPERS

NEEL0058S01

EL-WIPER-01



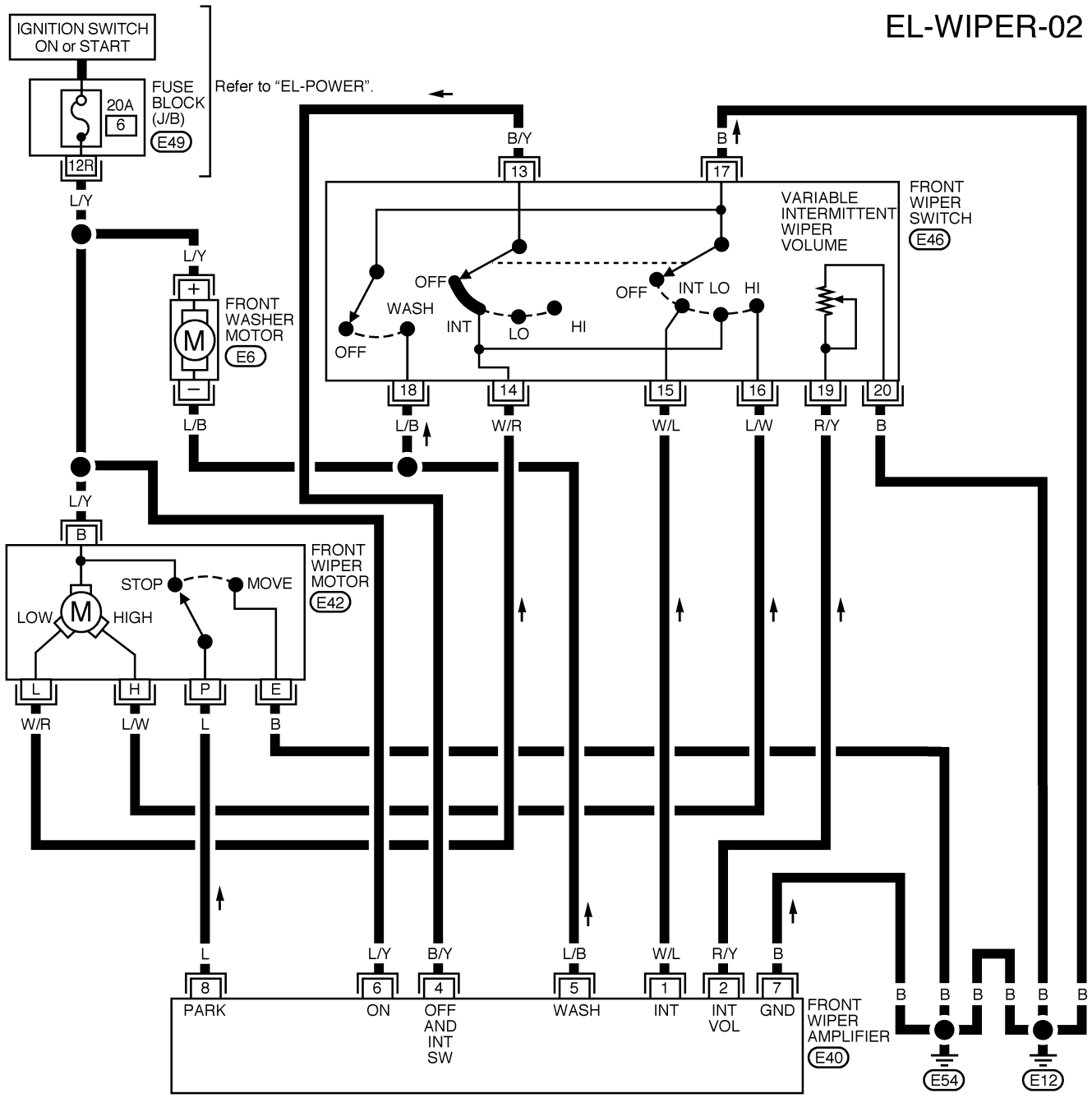


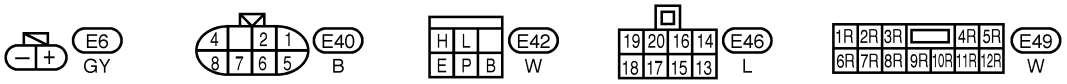
AEL369C

MODELS WITH INTERMITTENT WIPERS

NEEL0058S02

EL-WIPER-02





AEL370C

Trouble Diagnoses (With intermittent wipers)

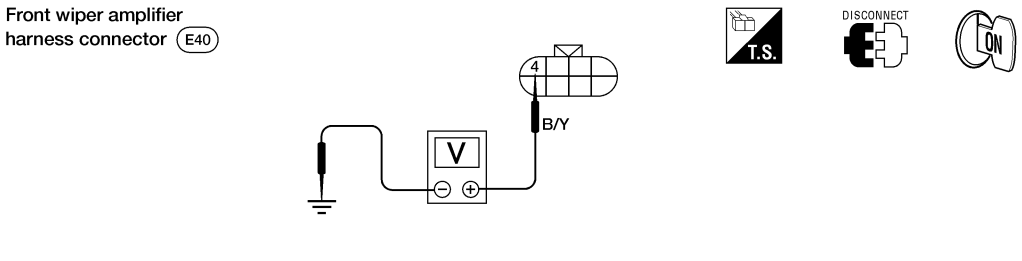
NEEL0059

DIAGNOSTIC PROCEDURE 1

NEEL0059S01

SYMPTOM: Intermittent wipers do not operate.

1	CHECK WIPER OPERATION	
Check whether wipers operate with the front wiper switch at LO position. **Do wipers operate at LO speed?**		
Yes	▶	GO TO 2.
No	▶	**Check the following.** ● 20A fuse [No. 6, located in fuse block (J/B)] ● Front wiper motor ● Front wiper switch ● Harness for open or short

2	CHECK FRONT WIPER AMPLIFIER OUTPUT	
1. Turn front wiper switch OFF. 2. Disconnect front wiper amplifier connector. 3. Check voltage between front wiper amplifier terminal 4 and ground.  AEL544C **Does battery voltage exist?**		
Yes	▶	GO TO 3.
No	▶	**Check the following.** ● Wiper switch ● Harness for open or short between front wiper amplifier terminal 4 and front wiper switch terminal 13

3	CHECK INTERMITTENT SWITCH INPUT SIGNAL

Check harness continuity between front wiper amplifier terminal 1 and ground.

Continuity:

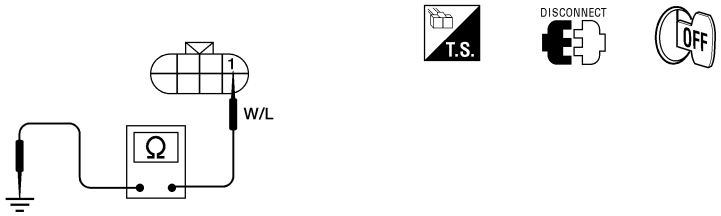
Condition of front wiper switch: OFF

No

Condition of front wiper switch: INT

Yes

Front wiper amplifier harness connector (E40)



AEL545C

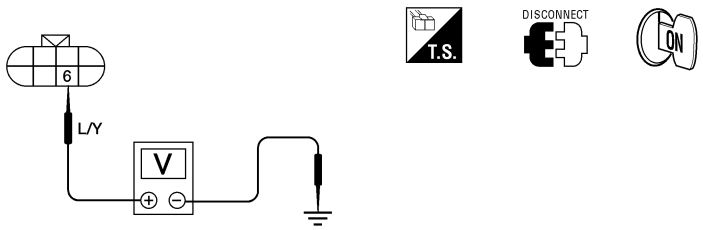
OK or NG

OK	▶	GO TO 4.
NG	▶	**Check the following.** ● Front wiper switch ● Harness for open or short between front wiper amplifier terminal 1 and front wiper switch terminal 15 ● Ground circuit for front wiper switch terminal 17

4	CHECK FRONT WIPER AMPLIFIER POWER SUPPLY CIRCUIT

Check voltage between front wiper amplifier terminal 6 and ground with ignition switch in the ON position.

Front wiper amplifier harness connector (E40)



AEL546C

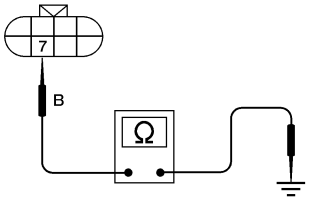
Does battery voltage exist?

Yes	▶	GO TO 5.
No	▶	**Check the following.** ● 20A fuse [No. 6, located in fuse block (J/B)] ● Harness for open or short between front wiper amplifier and fuse

5	CHECK FRONT WIPER AMPLIFIER GROUND CIRCUIT

Check harness continuity between front wiper amplifier terminal 7 and body ground.

Front wiper amplifier harness connector (E40)



AEL547C

Does continuity exist?

Yes	▶	Replace front wiper amplifier.
No	▶	Repair harness or connector.

DIAGNOSTIC PROCEDURE 2

NEEL0059S02

SYMPTOM: Intermittent time of wiper cannot be adjusted.

1	CHECK INTERMITTENT WIPER VOLUME INPUT SIGNAL

1. Disconnect front wiper amplifier connector.
2. Measure resistance between front wiper amplifier terminals 2 and 7 while turning intermittent wiper volume knob.

Resistance [Ω]:

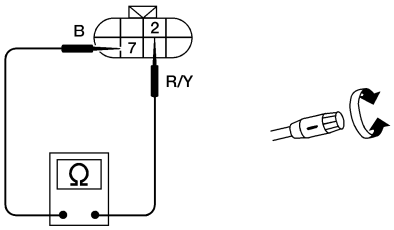
Position of intermittent wiper volume knob: S

0

Position of intermittent wiper volume knob: L

Approx. 1 k

Front wiper amplifier harness connector (E40)



AEL548C

OK or NG

OK	▶	Replace front wiper amplifier.
NG	▶	**Check the following.** ● Intermittent wiper volume ● Harness for open or short between front wiper amplifier terminal 2 and front wiper switch terminal 19 ● Ground circuit for front wiper switch terminal 20

DIAGNOSTIC PROCEDURE 3

=NEEL0059S03

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

1	CHECK FRONT WASHER SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front wiper amplifier connector.
3. Check harness continuity between front wiper amplifier terminal 5 and ground.

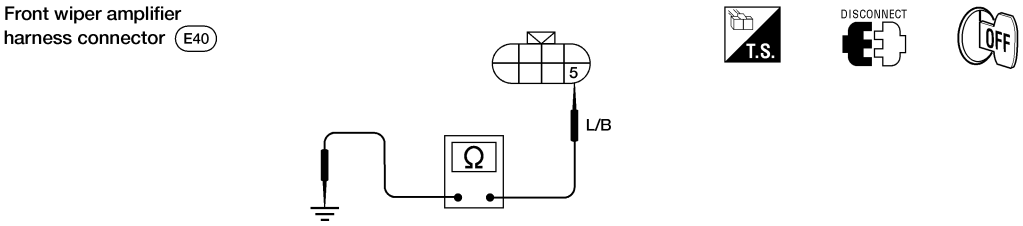
Continuity:

Condition of front washer switch: OFF

No

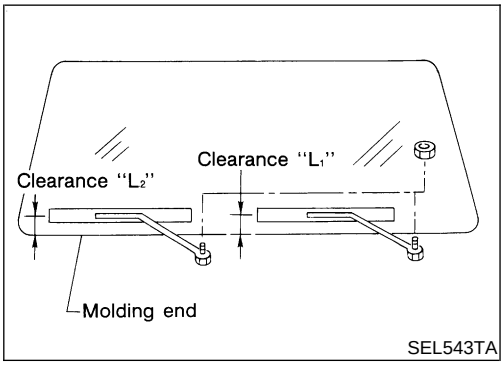
Condition of front washer switch: ON

Yes



OK or NG

OK	▶	Go to DIAGNOSTIC PROCEDURE 1.
NG	▶	Check harness for open or short between front wiper amplifier terminal 5 and front wiper switch terminal 18.



Removal and Installation

NEEL0060

WIPER ARMS

NEEL0060S01

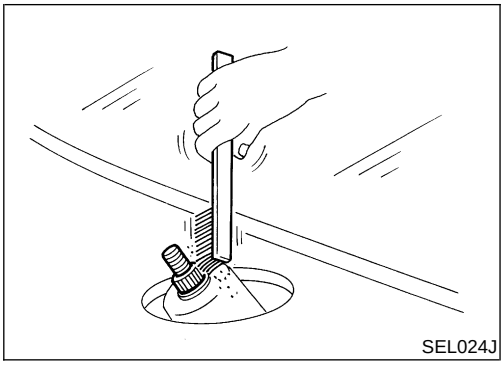
1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
2. Lift the blade up and then set it down onto glass surface to set the blade center to clearance "L_1" & "L_2" immediately before tightening nut.
3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
4. Ensure that wiper blades stop within clearance "L_1" & "L_2".

Clearance "L_1": 25 mm (.98 in)

Clearance "L_2": 25 mm (.98 in)

- Tighten wiper arm nuts to specified torque.

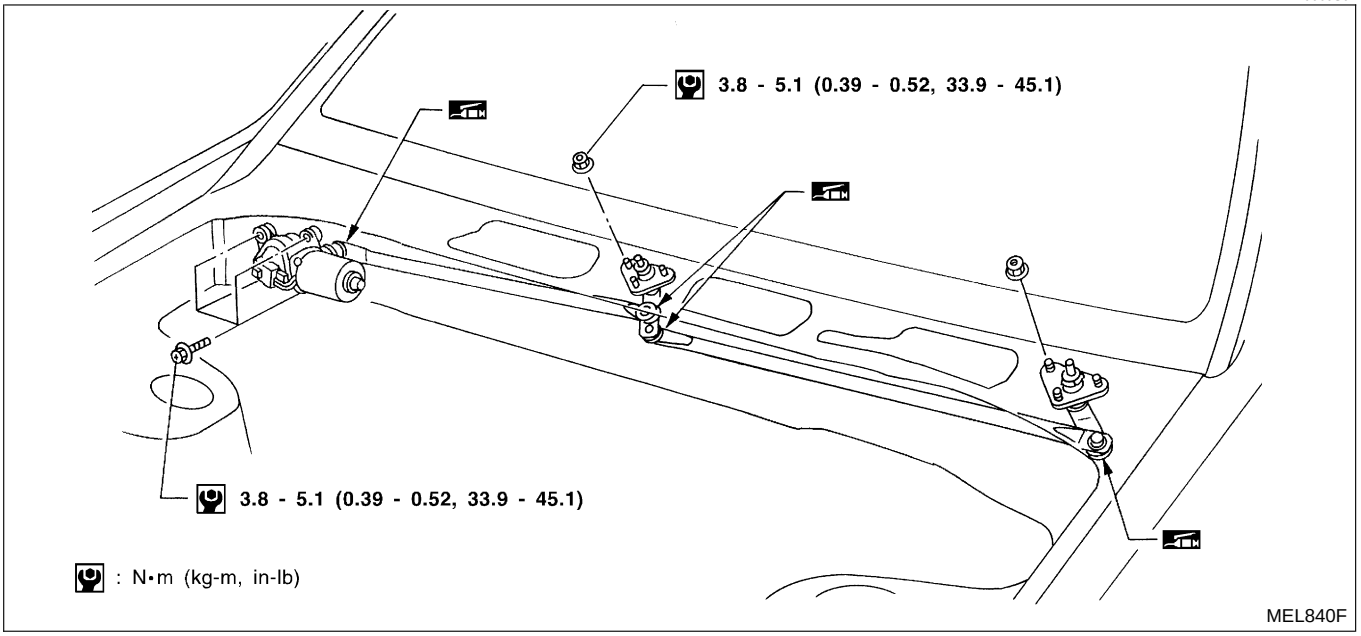
Front wiper: 13 - 18 N·m (1.3 - 1.8 kg-m, 9 - 13 ft-lb)


SEL024J

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

WIPER LINKAGE

NEEL0060S02



MEL840F

Removal

NEEL0060S0201

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

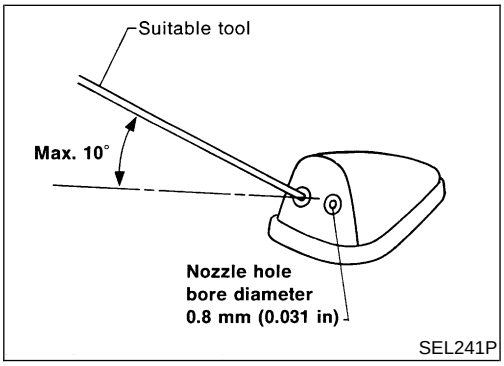
Be careful not to break ball joint rubber boot.

Installation

NEEL0060S0202

- Grease ball joint portion before installation.

1. Installation is the reverse order of removal.



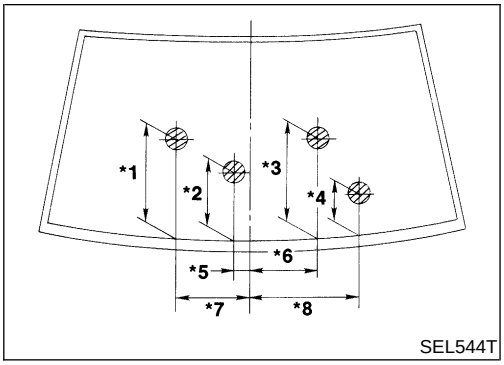
SEL241P

Washer Nozzle Adjustment

NEEL0061

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

Adjustable range: ±10°

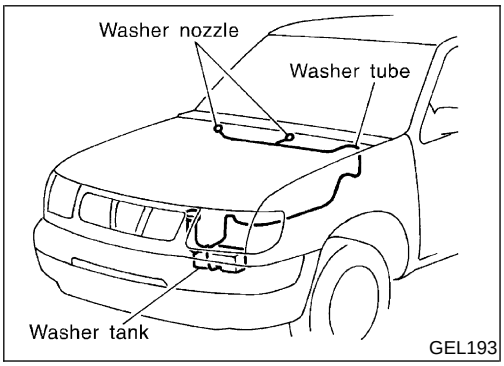


SEL544T

Unit: mm (in)

*1	390 (15.35)	*5	145 (5.71)
*2	160 (6.30)	*6	143 (5.63)
*3	379 (14.92)	*7	225 (8.86)
*4	140 (5.51)	*8	535 (21.06)

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



GEL193

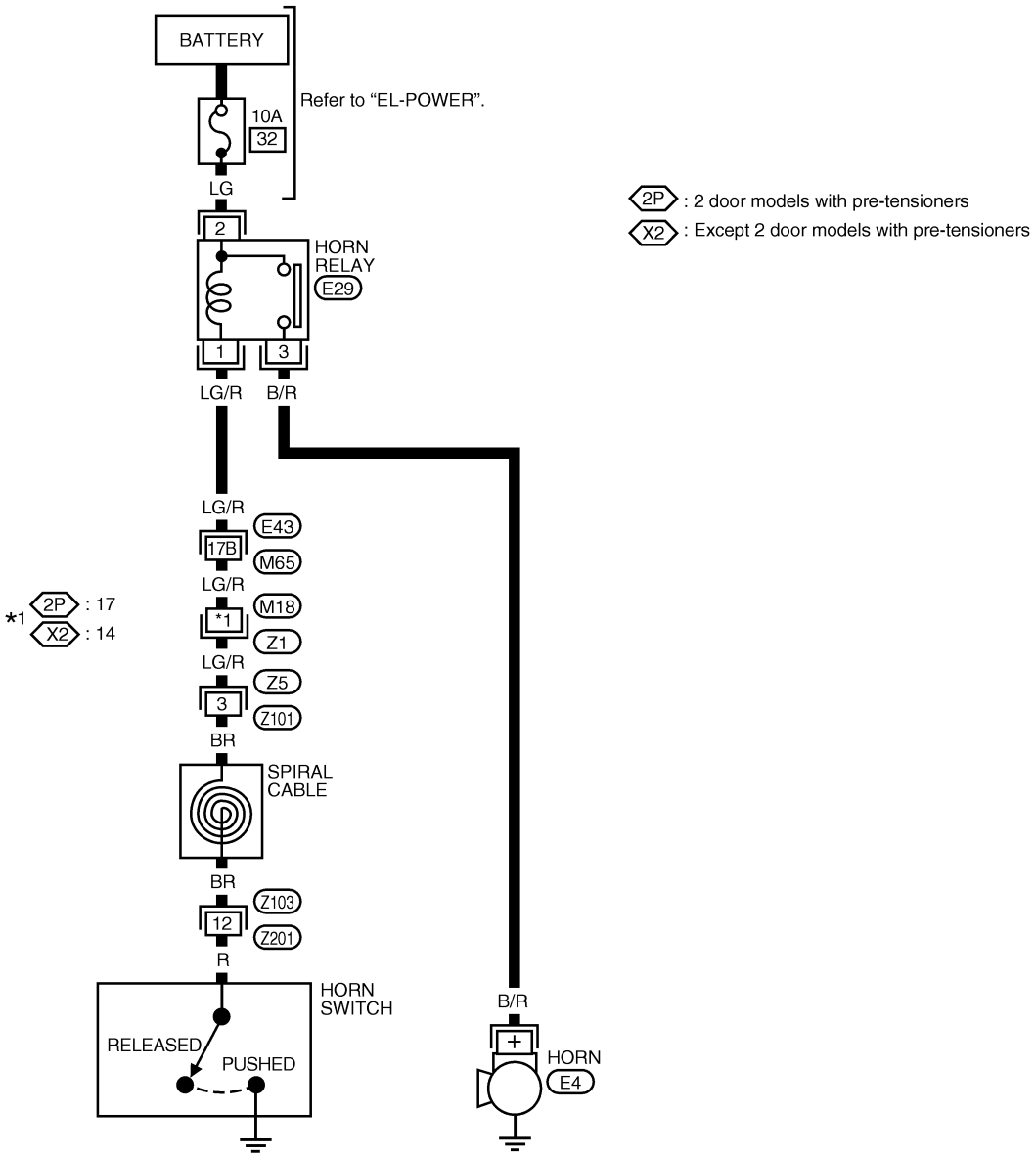
Washer Tube Layout

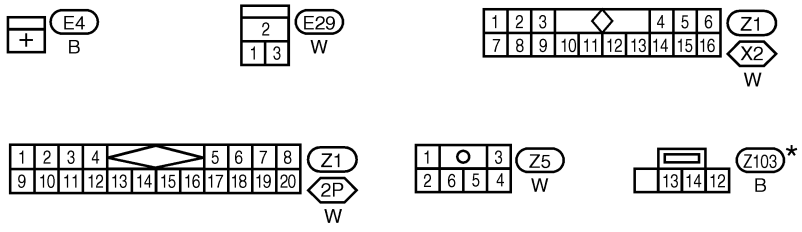
NEEL0062

Wiring Diagram — HORN —

NEEL0071

EL-HORN-01





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

Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION

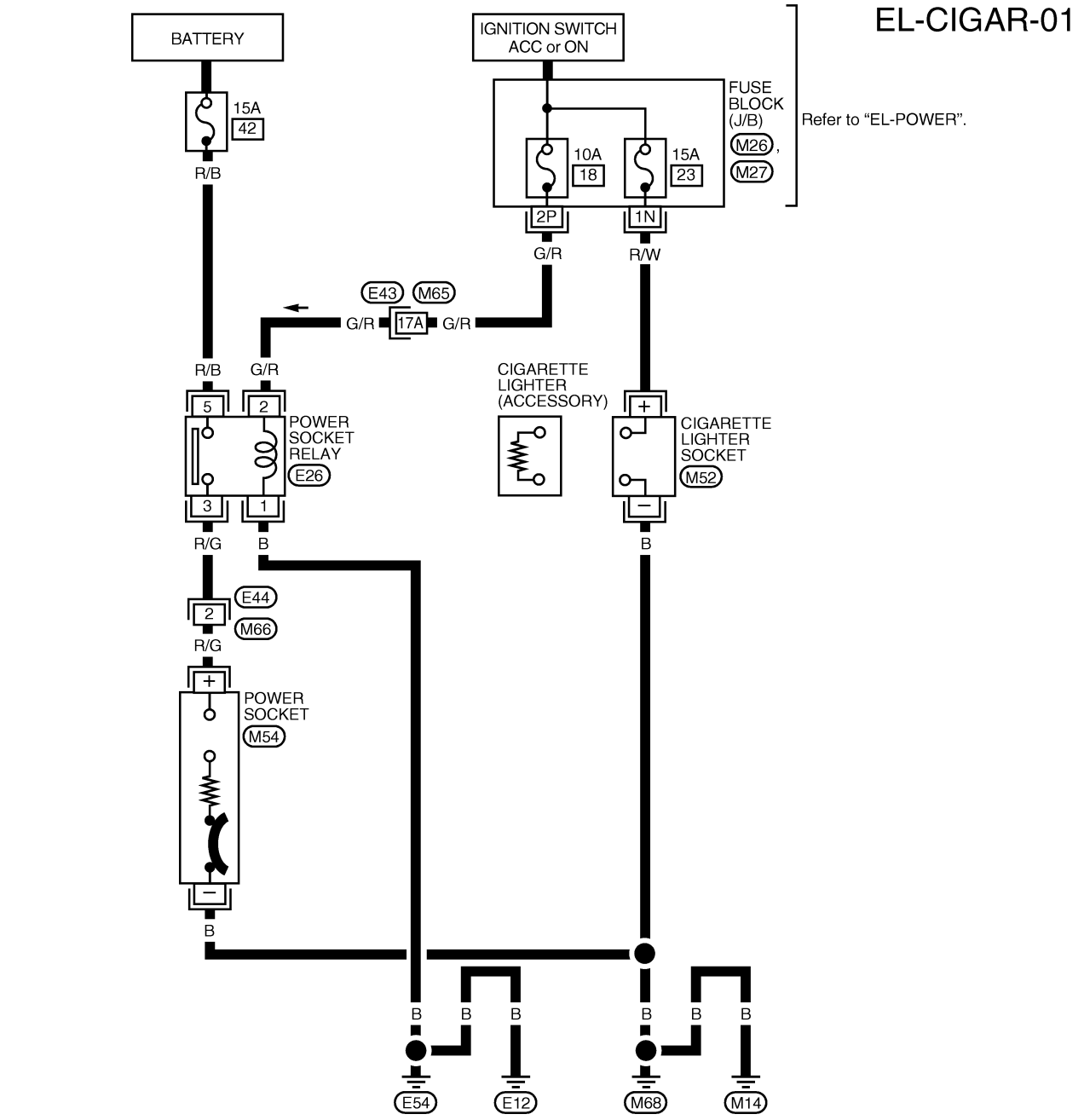
AEL468C

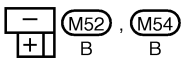
Wiring Diagram — CIGAR —

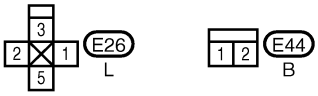
NEEL0156

KA24DE MODELS

NEEL0156S03







Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

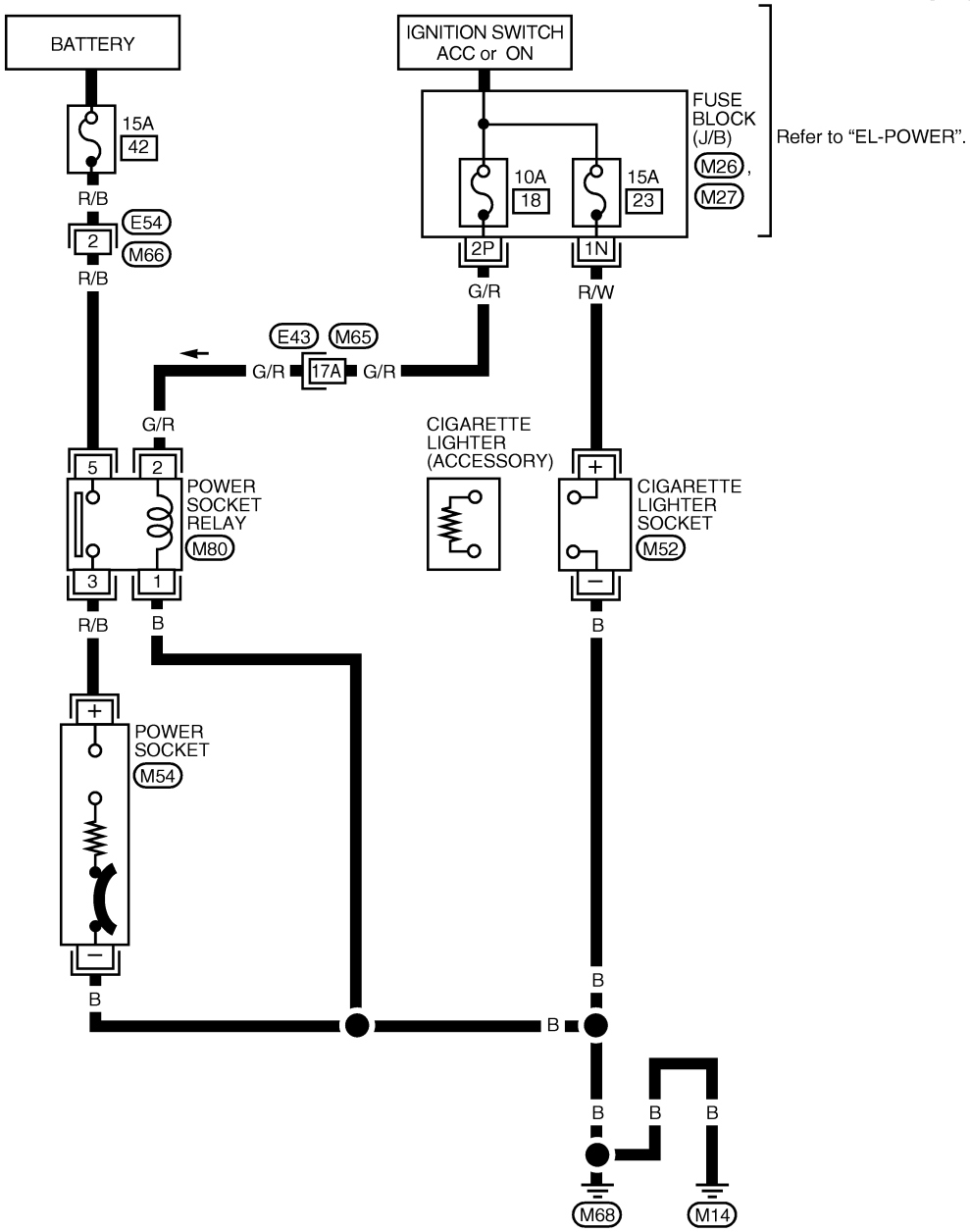
AEL469C

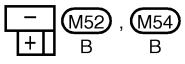
Wiring Diagram — CIGAR — (Cont'd)

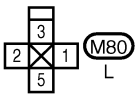
VG33E MODELS

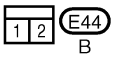
NEEL0156S04

EL-CIGAR-02









AEL470C

System Description

NEEL0079

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

REGULAR AND KING CAB WITH BASE AUDIO SYSTEM

NEEL0079S03

Power is supplied at all times
- through 15A fuse (No. 41, located in the fuse and fusible link box)
- to audio unit terminal 6.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 18, located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.
With the audio unit ON, audio signals are supplied
- through audio unit terminals 1, 2, 3, 4, 13, 14, 15 and 16
- to front door speakers and front door tweeters.

REGULAR AND KING CAB WITH PREMIUM AUDIO SYSTEM

NEEL0079S04

Power is supplied at all times
- through 15A fuse (No. 41, located in the fuse and fusible link box)
- to audio unit terminal 6 and
- to subwoofer amplifier terminal 8.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 18, located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.
Ground is supplied to subwoofer amplifier terminal 7 through body grounds M14 and M68.
With the audio unit ON, audio signals are supplied
- through audio unit terminals 1, 2, 3, 4, 13, 14, 15 and 16
- to front door speakers and front door tweeters and
- to subwoofer amplifier terminals 1, 2, 3 and 4.

With the audio unit ON, an "amplifier ON" signal is supplied
- from audio unit terminal 12
- to subwoofer amplifier terminal 6.

CREW CAB

NEEL0079S05

Power is supplied at all times
- through 15A fuse (No. 41, located in the fuse and fusible link box)
- to audio unit terminal 6.

With the ignition switch in the ACC or ON position, power is supplied
- through 10A fuse [No. 18, located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.
With the audio unit ON, audio signals are supplied
- through audio unit terminals 1, 2, 3, 4, 13, 14, 15 and 16
- to front door speakers, front door tweeters and rear door speakers.

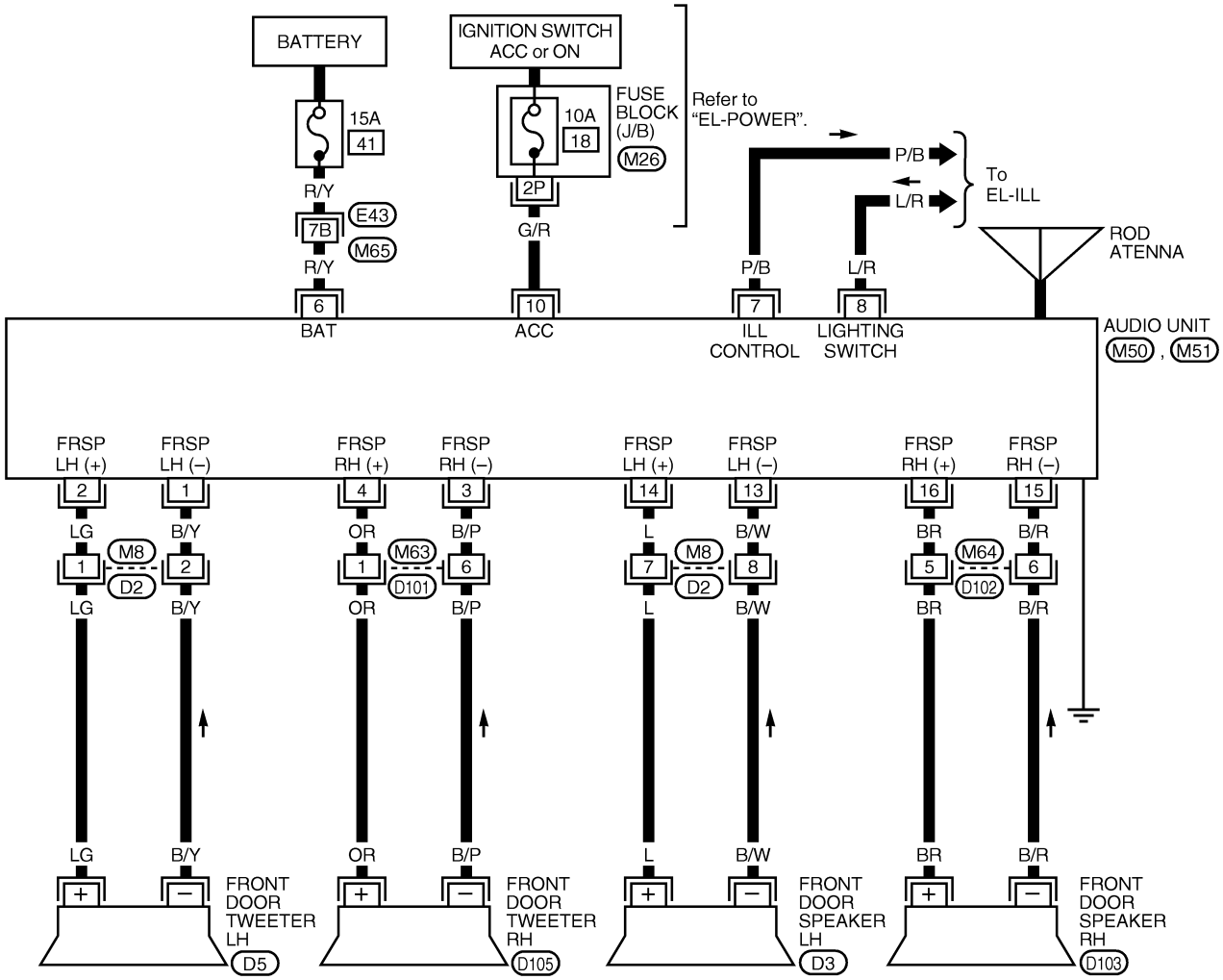
Wiring Diagram — AUDIO —

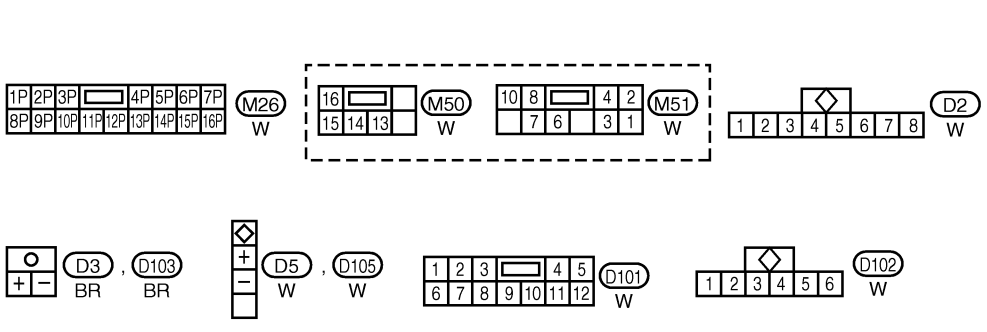
NEEL0157

REGULAR AND KING CAB WITH BASE AUDIO SYSTEM

NEEL0157S01

EL-AUDIO-01





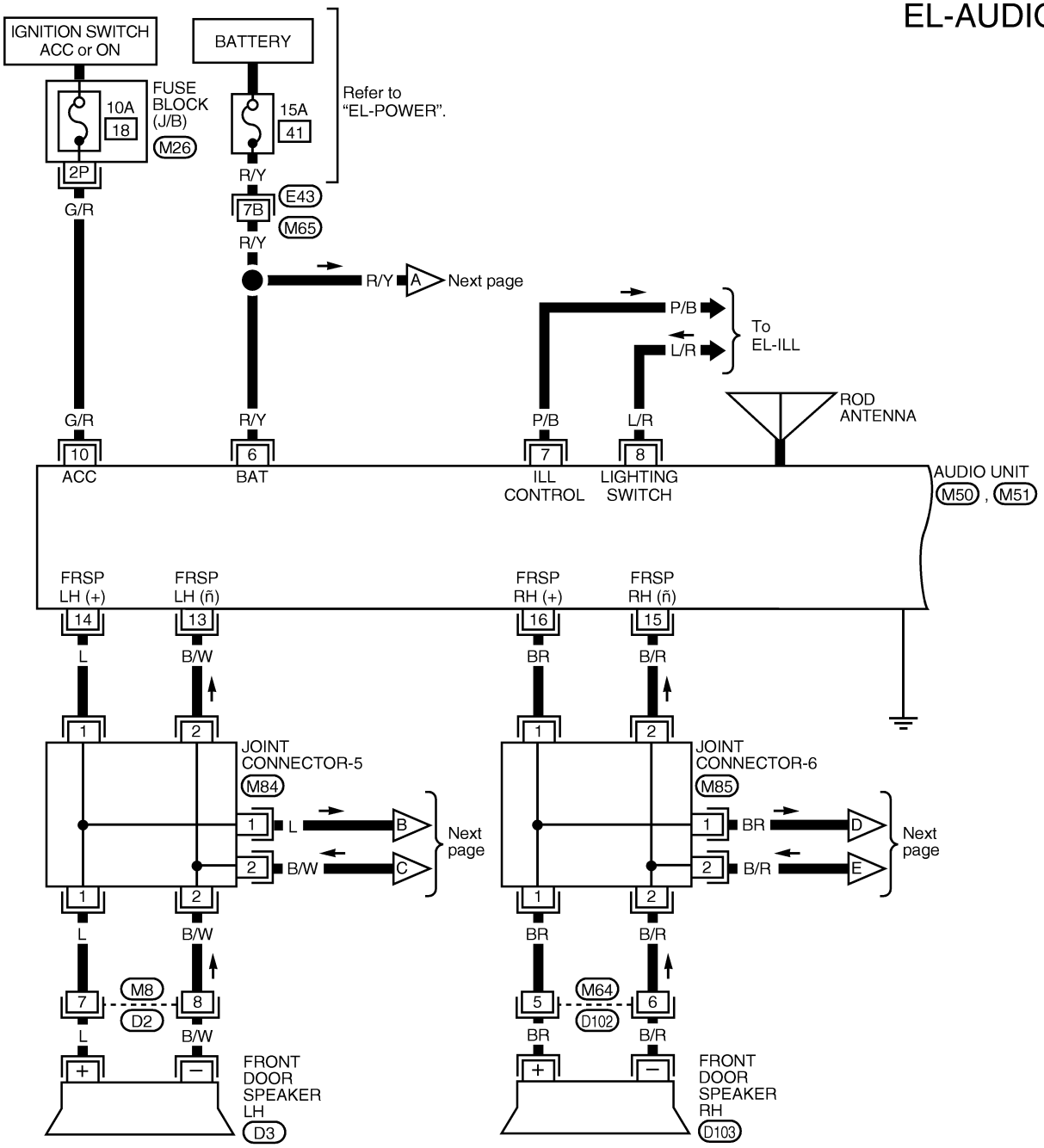
Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

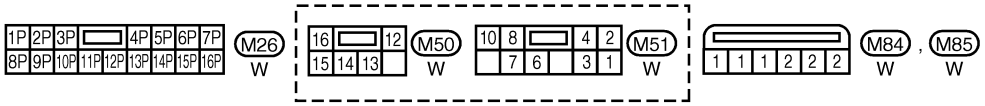
AEL471C

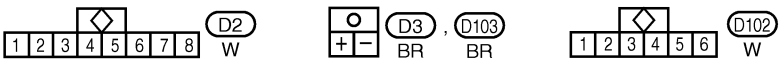
REGULAR AND KING CAB WITH PREMIUM AUDIO SYSTEM

NEEL0157S02

EL-AUDIO-02



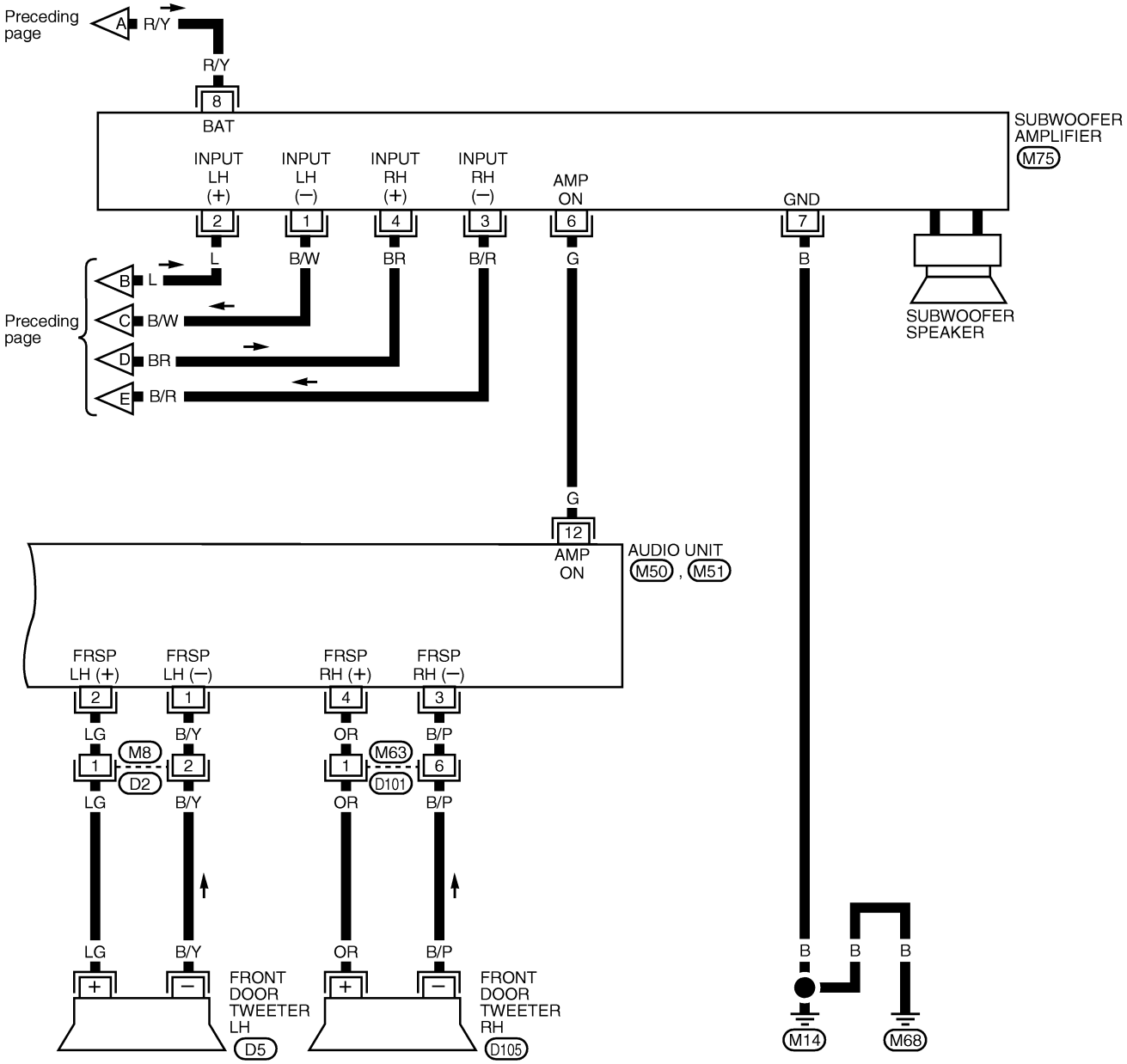


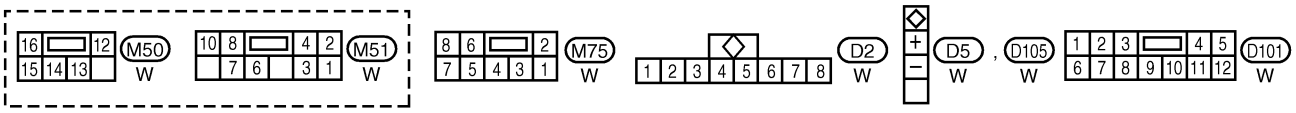


Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL472C

EL-AUDIO-03



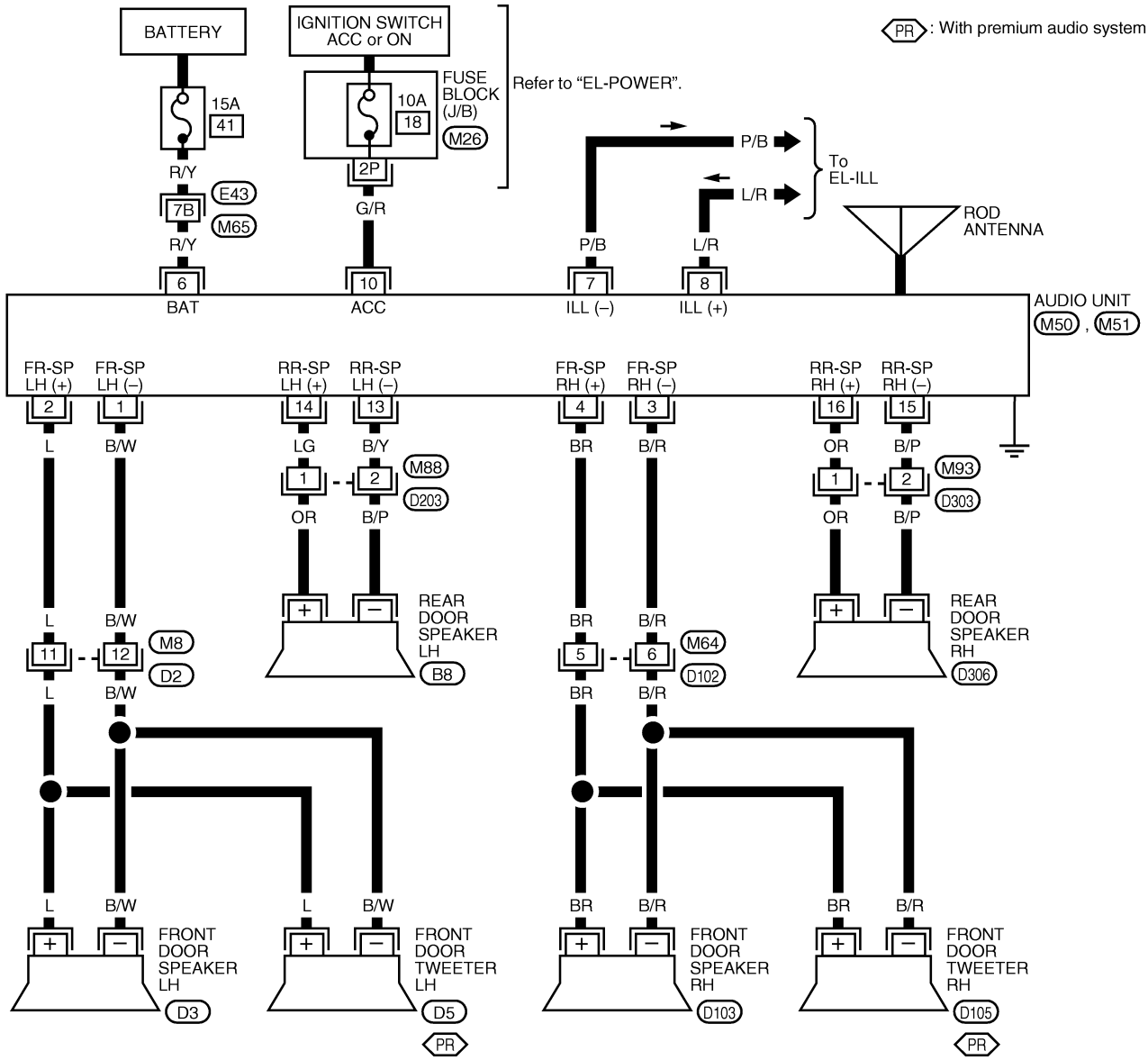


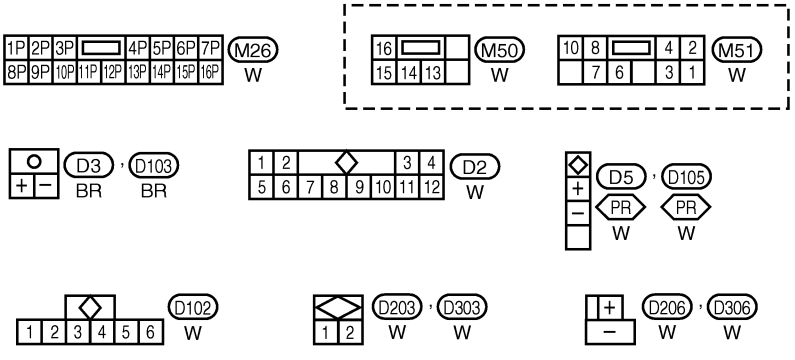
AEL473C

CREW CAB

NEEL0157S03

EL-AUDIO-04





Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL474C

Trouble Diagnoses

NEEL0082

AUDIO UNIT

NEEL0082S01

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. 18, 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 controls are operational, but no sound is heard from any speaker.	1. Audio unit output 2. Audio unit	1. Check audio unit output voltages. 2. 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. 41, located in fuse and fusible link box) and verify that battery positive voltage is present at terminal 6 of audio unit. 2. Remove audio unit for repair.
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.
Subwoofer speaker is noisy or inoperative (2 door models with premium audio system).	1. Speaker 2. Subwoofer amplifier output 3. Poor subwoofer amplifier ground 4. Audio unit “amplifier ON” signal 5. Audio unit “amplifier ON” circuit	1. Check speaker. 2. Verify that battery positive voltage is present at terminal 8 of subwoofer amplifier 3. Check subwoofer amplifier ground. 4. Turn audio unit ON and verify that approximately 10.5 volts are present at terminal 12 of audio unit. 5. Check wire for open or short between audio unit and subwoofer amplifier.
Audio unit stations are weak or noisy.	1. Antenna 2. Poor audio unit ground 3. Audio unit	1. Check antenna. 2. Check audio unit ground. 3. 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.

Inspection

NEEL0083

SPEAKER

NEEL0083S03

1. Disconnect speaker harness connector.
2. Measure the resistance between speaker terminals + and –.

- The resistance should be 2 - 4Ω.

3. Using jumper wires, momentarily connect a 9V battery between speaker terminals + and –.

- A momentary hum or pop should be heard.

ANTENNA

NEEL0083S02

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

NEEL0083S01

All voltage inspections are made with:

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

AUDIO UNIT VOLTAGES

NEEL0083S04

Terminal	Wire color		Voltage (V)		
	2 Door Models	4 Door Models	2 Door Models with Base Audio System	2 Door Models with Premium Audio System	4 Door Models
1	B/Y	B/Y	5 - 7.5	5 - 7.5	5 - 7.5
2	LG	L	5 - 7.5	5 - 7.5	5 - 7.5
3	B/P	B/R	5 - 7.5	5 - 7.5	5 - 7.5
4	OR	BR	5 - 7.5	5 - 7.5	5 - 7.5
5	—	—	—	—	—
6	R/Y	R/Y	10.8 - 15.6	10.8 - 15.6	10.8 - 15.6
7	P/B	P/B	0 (Illumination)	0 (Illumination)	0 (Illumination)
8	L/R	L/R	0 - 12 (Illumination)	0 - 12 (Illumination)	0 - 12 (Illumination)
9	—	—	—	—	—
10	G/R	G/R	10.8 - 15.6	10.8 - 15.6	10.8 - 15.6
11	—	—	—	—	—
12	G*	—	—	Approx. 10.5	—
13	B/W	B/Y	5 - 7.5	5 - 7.5	5 - 7.5
14	L	LG	5 - 7.5	5 - 7.5	5 - 7.5
15	B/R	B/P	5 - 7.5	5 - 7.5	5 - 7.5
16	BR	OR	5 - 7.5	5 - 7.5	5 - 7.5

* 2 door models with premium audio system only

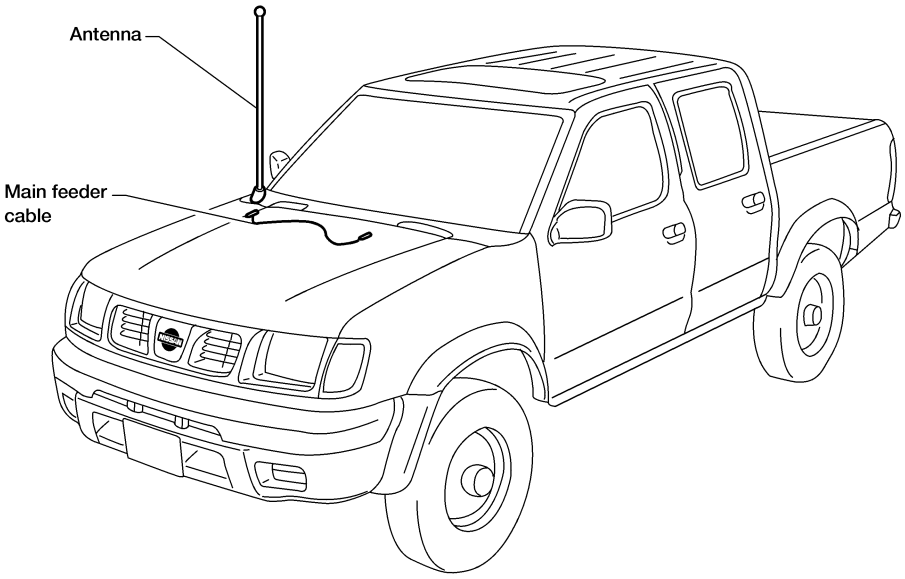
SUBWOOFER AMPLIFIER VOLTAGES

NEEL0083S05

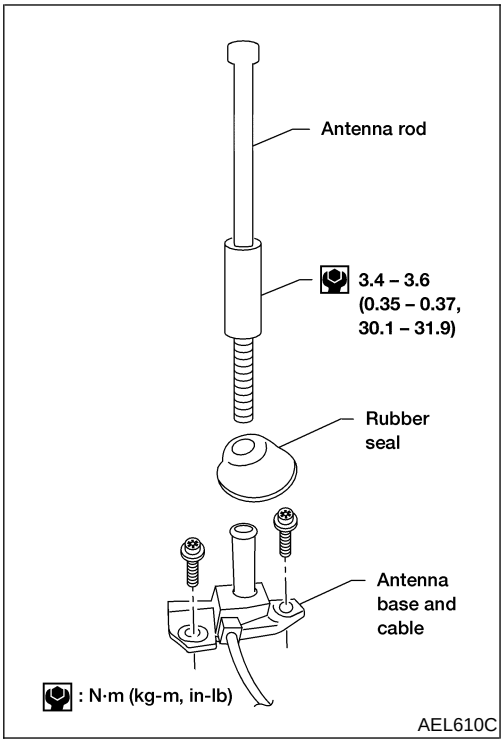
Terminal	Wire color	Voltage (V)
1	B/W	5 - 7.5
2	L	5 - 7.5
3	B/R	5 - 7.5
4	BR	5 - 7.5
5	—	—
6	G	Approx. 10.5
7	B	Body ground
8	R/Y	10.8 - 15.6

Location of Antenna

NEEL0204



AEL611C



AEL610C

Fixed Antenna Rod Replacement

NEEL0192

REMOVAL

NEEL0192S01

1. Remove antenna rod.
2. Remove rubber seal.
3. Remove cowl screen top seal.
4. Remove right wiper arm.
5. Remove right cowl to grille.
6. Remove antenna base bolts.
7. Remove right fender splash shield.
8. Remove audio unit.
9. Disconnect antenna cable from audio unit.
10. Remove attachment clip from fender apron.
11. Remove antenna base and cable.

INSTALLATION

NEEL0192S02

Install in reverse order of removal.

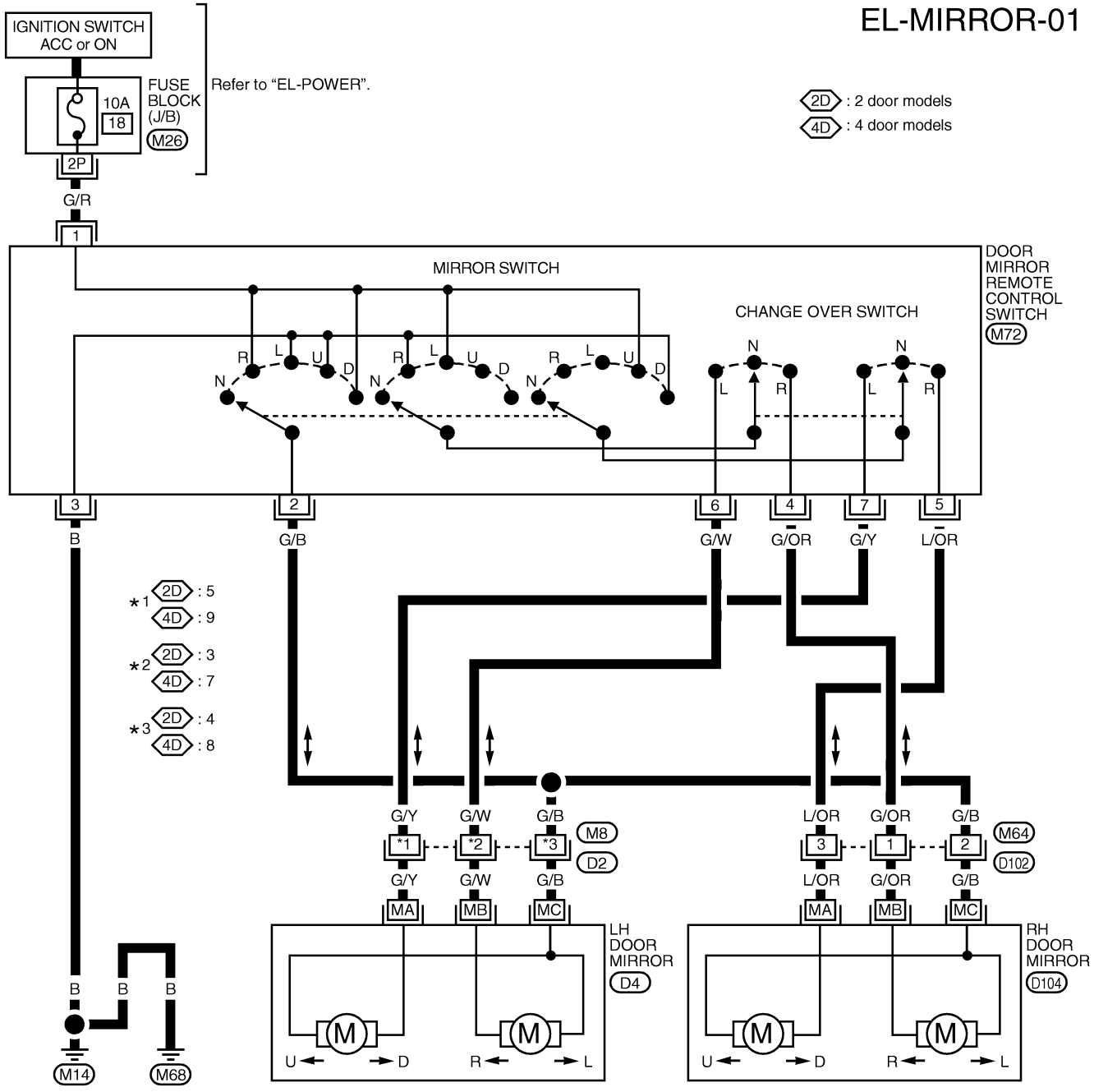
CAUTION:

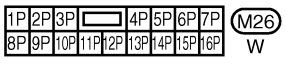
Always properly tighten the antenna rod during installation or the antenna rod may bend or break during vehicle operation.

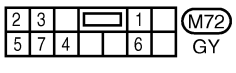
Wiring Diagram — MIRROR —

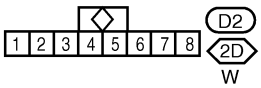
NEEL0090

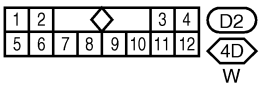
EL-MIRROR-01

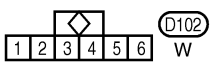








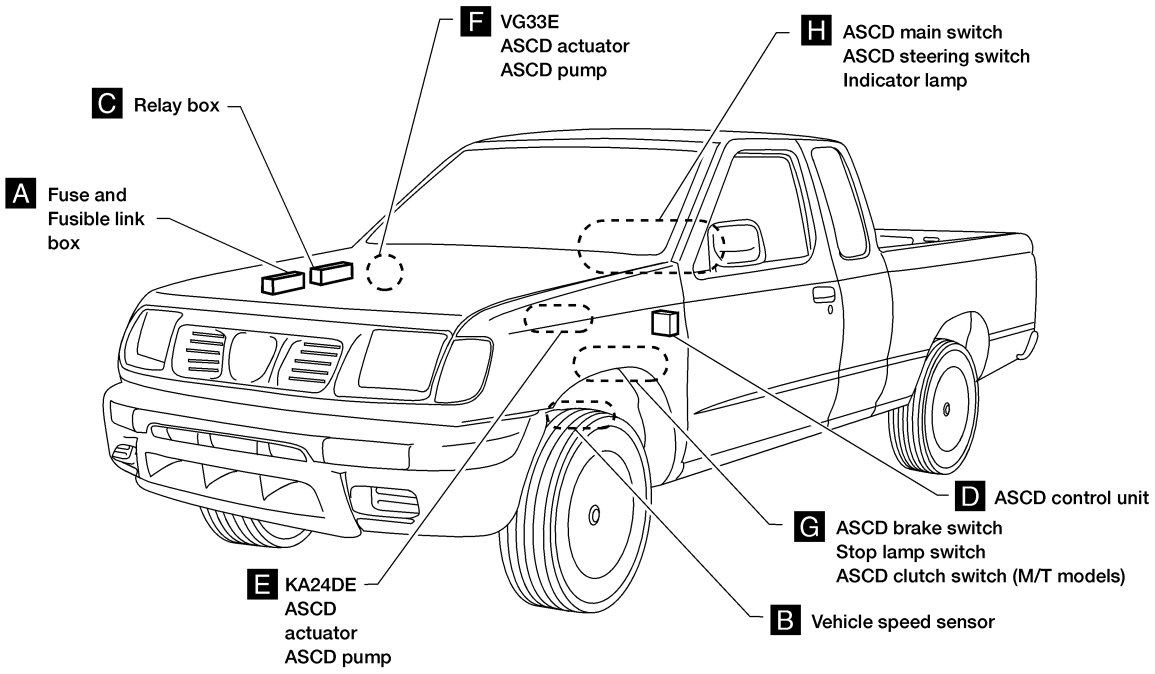




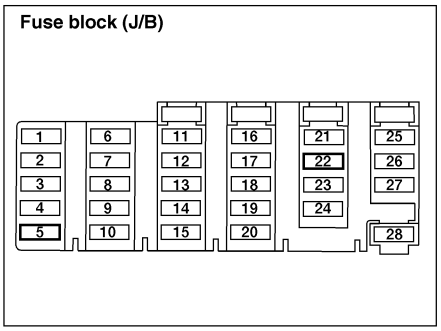
AEL475C

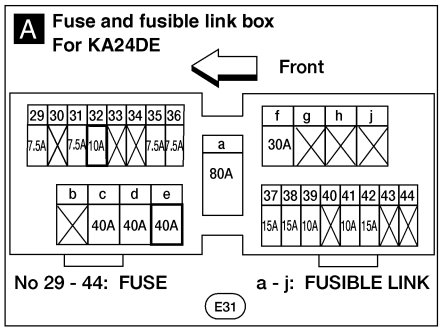
Component Parts and Harness Connector Location

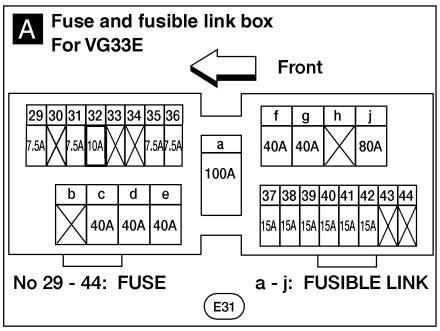
NEEL0094

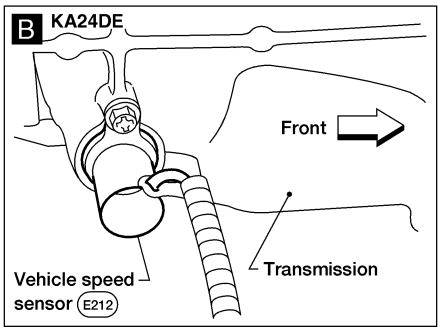


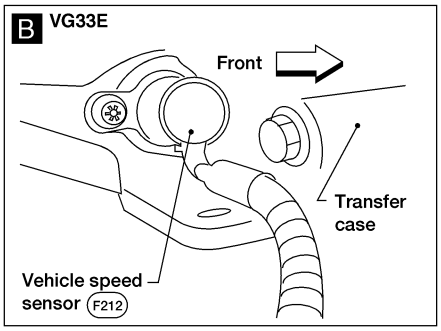
AEL449C

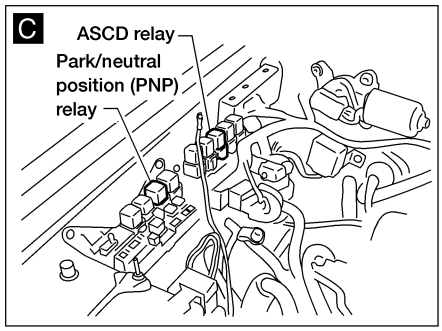

Fuse block (J/B)
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24
25 26 27 28

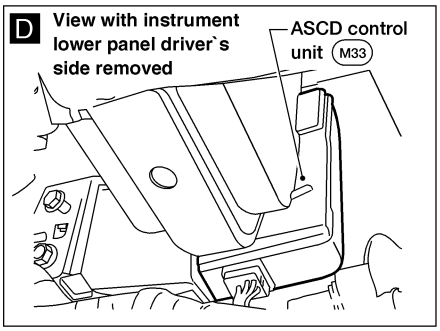

A
Fuse and fusible link box
For KA24DE
Front
29 30 31 32 33 34 35 36
7.5A 7.5A 10A 7.5A 7.5A
a
80A
f g h j
30A
b c d e
40A 40A 40A
37 38 39 40 41 42 43 44
15A 15A 10A 10A 15A
No 29 - 44: FUSE
a - j: FUSIBLE LINK
E31

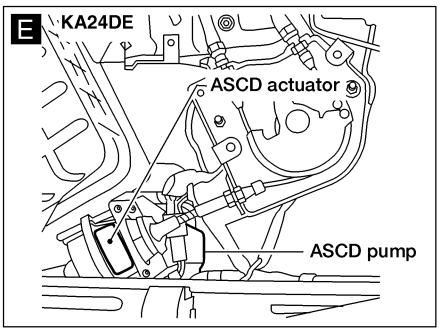

A
Fuse and fusible link box
For VG33E
Front
29 30 31 32 33 34 35 36
7.5A 7.5A 10A 7.5A 7.5A
a
100A
f g h j
40A 40A 80A
b c d e
40A 40A 40A
37 38 39 40 41 42 43 44
15A 15A 15A 15A 15A 15A 15A
No 29 - 44: FUSE
a - j: FUSIBLE LINK
E31

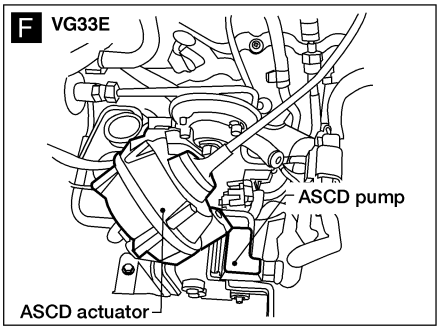

B
KA24DE
Front
Vehicle speed sensor E212
Transmission

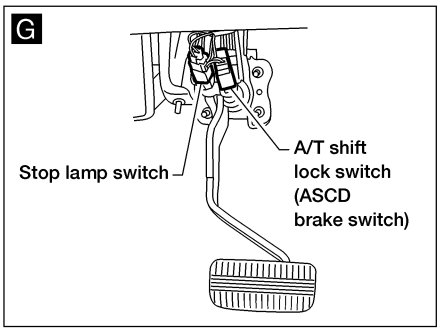

B
VG33E
Front
Transfer case
Vehicle speed sensor F212

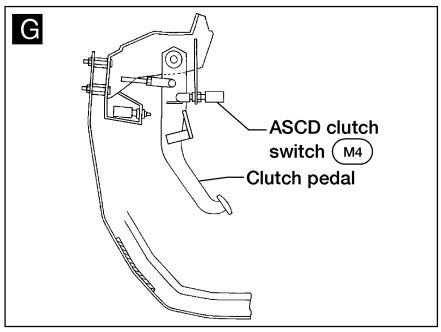

C
ASCD relay
Park/neutral position (PNP) relay

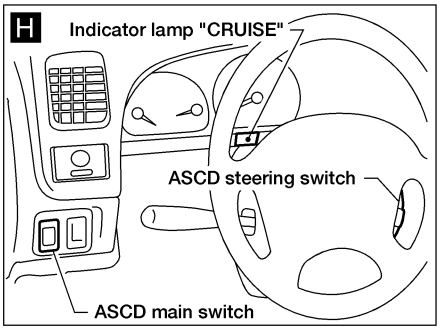

D
View with instrument lower panel driver`s side removed
ASCD control unit M33


E
KA24DE
ASCD actuator
ASCD pump


F
VG33E
ASCD pump
ASCD actuator


G
Stop lamp switch
A/T shift lock switch (ASCD brake switch)


G
ASCD clutch switch M4
Clutch pedal


H
Indicator lamp "CRUISE"
ASCD steering switch
ASCD main switch

AEL450C

System Description

NEEL0206

POWER SUPPLY AND GROUND CIRCUIT

NEEL0206S01

Refer to Owner's Manual for ASCD operating instructions.
With ignition switch in the ON or START position, power is supplied

- through 7.5A fuse [No. 5, located in the fuse block (J/B)]
- to ASCD main switch terminal 1,
- to ASCD hold relay terminal 5 and
- to ASCD brake switch terminal 1.

With ASCD main switch pressed to ON position, power is supplied

- from ASCD main switch terminal 3
- to ASCD hold relay terminal 2.

Ground is supplied

- to ASCD hold relay terminal 1
- through body grounds M14 and M68.

With power and ground supplied, ASCD hold relay is energized. Then power is supplied

- from ASCD hold relay terminal 3
- to ASCD control unit terminal 4 and
- to ASCD main switch terminal 2.

After the ASCD main switch is released, power remains supplied

- to the ASCD hold relay coil circuit
- through ASCD main switch terminals 2 and 3.

This power supply continues until one of the following conditions exists.

- Ignition switch is turned to ACC or OFF.
- ASCD main switch is pressed to OFF position.

While ASCD hold relay is energized, power is also supplied to ASCD control unit terminal 5

- through ASCD brake switch, ASCD hold relay and ASCD clutch switch (M/T models), or
- through ASCD brake switch, ASCD hold relay and ASCD relay (A/T models).

Ground is supplied

- to ASCD control unit terminal 3
- through body grounds M14 and M68.

OPERATION

NEEL0206S02

Set Operation

NEEL0206S0201

To activate the ASCD, all of the following conditions must exist:

- Power supply to ASCD control unit terminal 4 (ASCD main switch is or has been pressed to the ON position while ignition switch is ON)
- Power supply to ASCD control unit terminal 5 [Brake and clutch pedals are released (M/T models), or brake pedal is released and A/T selector lever is in a position other than P or N (A/T models)].
- Vehicle speed is greater than 48 km/h (30 MPH) (vehicle speed signal output from combination meter)

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

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

Then the ASCD actuator is activated to control throttle wire and ASCD control unit terminal 13 supplies power

- to combination meter terminal 45 to illuminate CRUISE indicator.

A/T Overdrive Control During Cruise Control Driving (A/T Models with KA24DE Engine)

NEEL0206S0202

When the vehicle speed is approximately 8 km/h (5 MPH) below set speed, ground is supplied

- from ASCD control unit terminal 12
- to solenoid valve unit terminal 2.

When this occurs, overdrive is canceled.
After vehicle speed is approximately 3 km/h (2 MPH) above set speed, overdrive is reactivated.

A/T Overdrive Control During Cruise Control Driving (A/T Models with VG33E Engine)

NEEL0206S0207

When the vehicle speed is approximately 8 km/h (5 MPH) below set speed, a signal is sent

- from ASCD control unit terminal 12
- to TCM (Transmission control module) terminal 24.

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

Coast Operation

NEEL0206S0203

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. Then the ASCD system will maintain the new set speed.

Accel Operation

NEEL0206S0204

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

- from ASCD steering switch terminal 1
- to ASCD control unit terminal 1.

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

Cancel Operation

NEEL0206S0205

When any of the following conditions exists, cruise operation will be cancelled (ASCD main switch indicator will remain illuminated.)

- CANCEL switch is depressed (Power is supplied to ASCD control unit terminals 1 and 2.)
- Brake pedal is depressed (Power is supplied to ASCD control unit terminal 11 from stop lamp switch and power to ASCD control unit terminal 5 is interrupted.)
- Clutch pedal is depressed (Power to ASCD control unit terminal 5 is interrupted.) (M/T models)
- A/T selector lever is shifted to P or N position (Power to ASCD control unit terminal 5 is interrupted.) (A/T models)

If ASCD main switch is pressed to OFF position while the ASCD is activated, all ASCD operation will be canceled and vehicle speed memory will be erased.

Resume Operation

NEEL0206S0206

When the RESUME/ACCEL switch is depressed after cancelling operation (other than pressing ASCD main switch to OFF position), vehicle speed will return to the last set speed. To resume vehicle set speed, vehicle conditions must meet the following:

- Brake pedal is released
- Clutch pedal is released (M/T models)
- A/T selector lever is in a position other than P or N (A/T models)
- Vehicle speed is greater than 48 km/h (30 MPH)..

ASCD PUMP OPERATION

NEEL0206S03

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

- through ASCD control unit terminal 8
- to ASCD pump terminal 1.

Ground is supplied to the vacuum motor, air valve, and release valve through the ASCD control unit depending on the operating condition as shown in the following table.
When the vacuum motor operates, vacuum is applied to the diaphragm of the ASCD actuator.

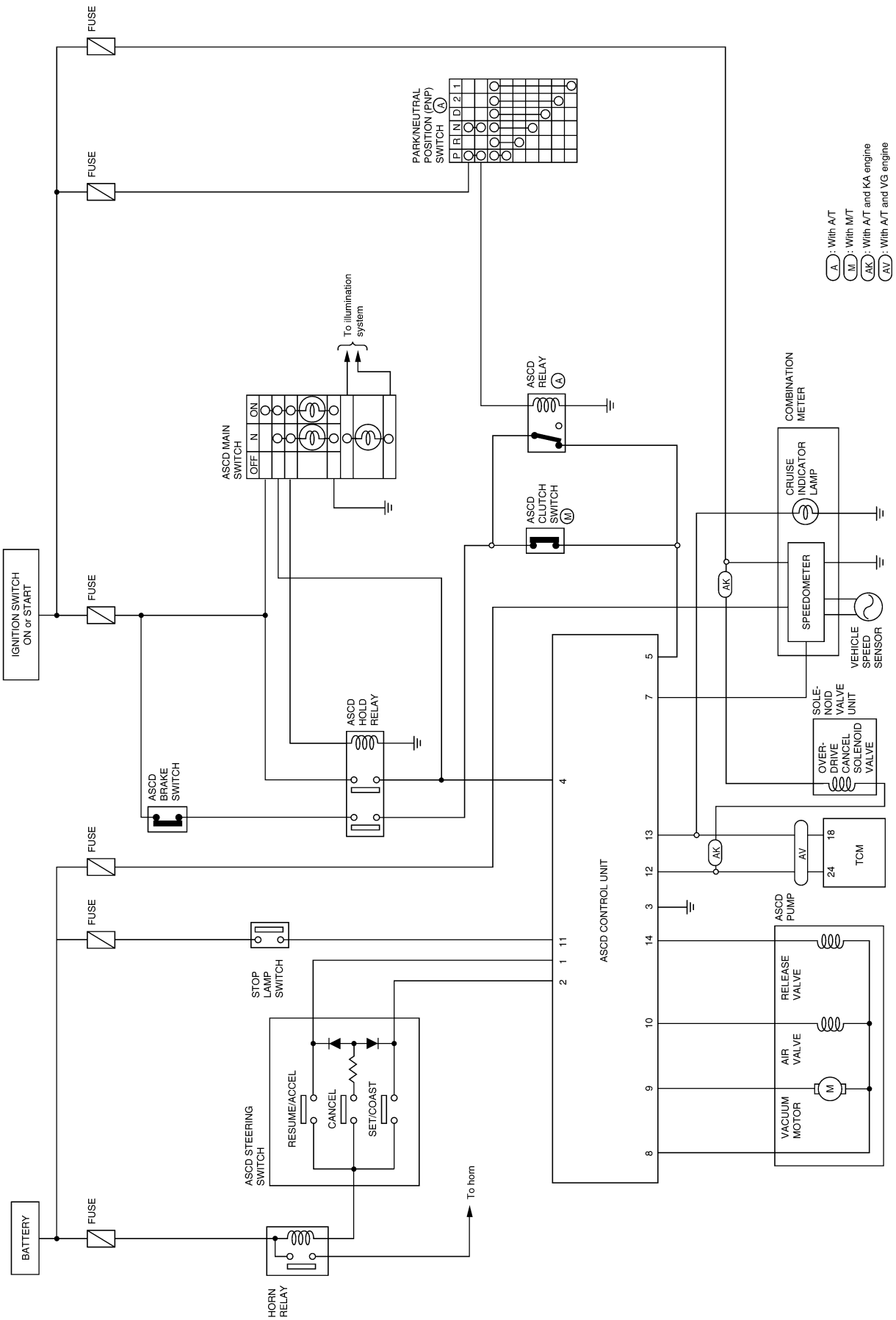
	Air valve*	Release valve*	Vacuum motor**	Actuator inner pressure
ASCD not operating	Open	Open	Stopped	Atmosphere

ASCD operating	Releasing throttle cable	Open	Closed	Stopped	Vacuum (decrease)
	Holding throttle position	Closed	Closed	Stopped	Vacuum (hold)
	Pulling throttle cable	Closed	Closed	Operating	Vacuum (increase)

*: With power and ground supplied, valve is closed.
**: With power and ground supplied, motor operates.

Circuit Diagram

NEEL0096



LEL526A

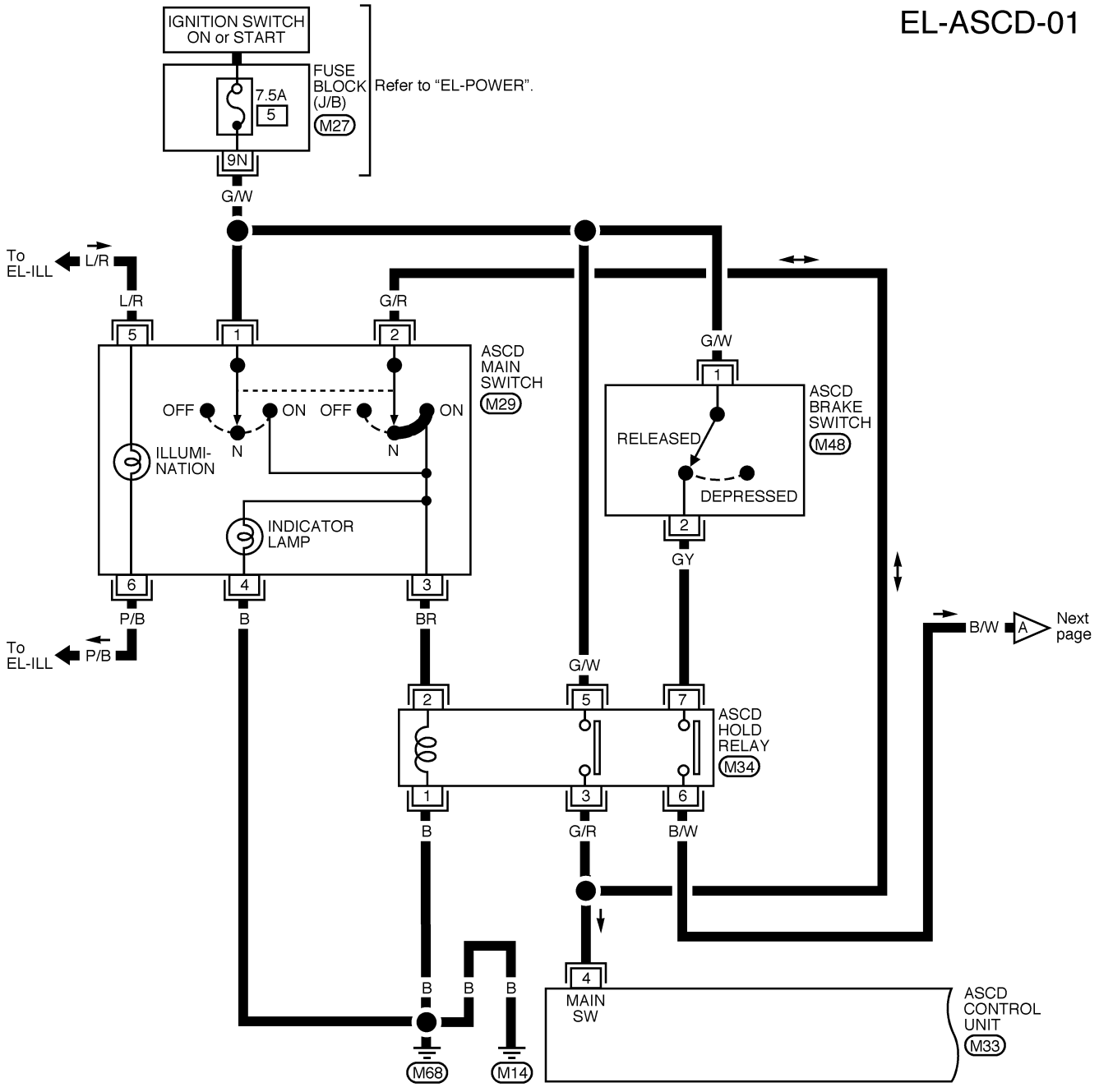
Wiring Diagram — ASCD —

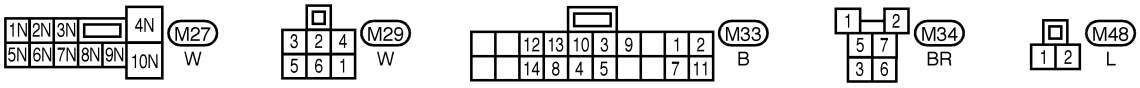
NEEL0097

FIG. 1

NEEL0097S01

EL-ASCD-01

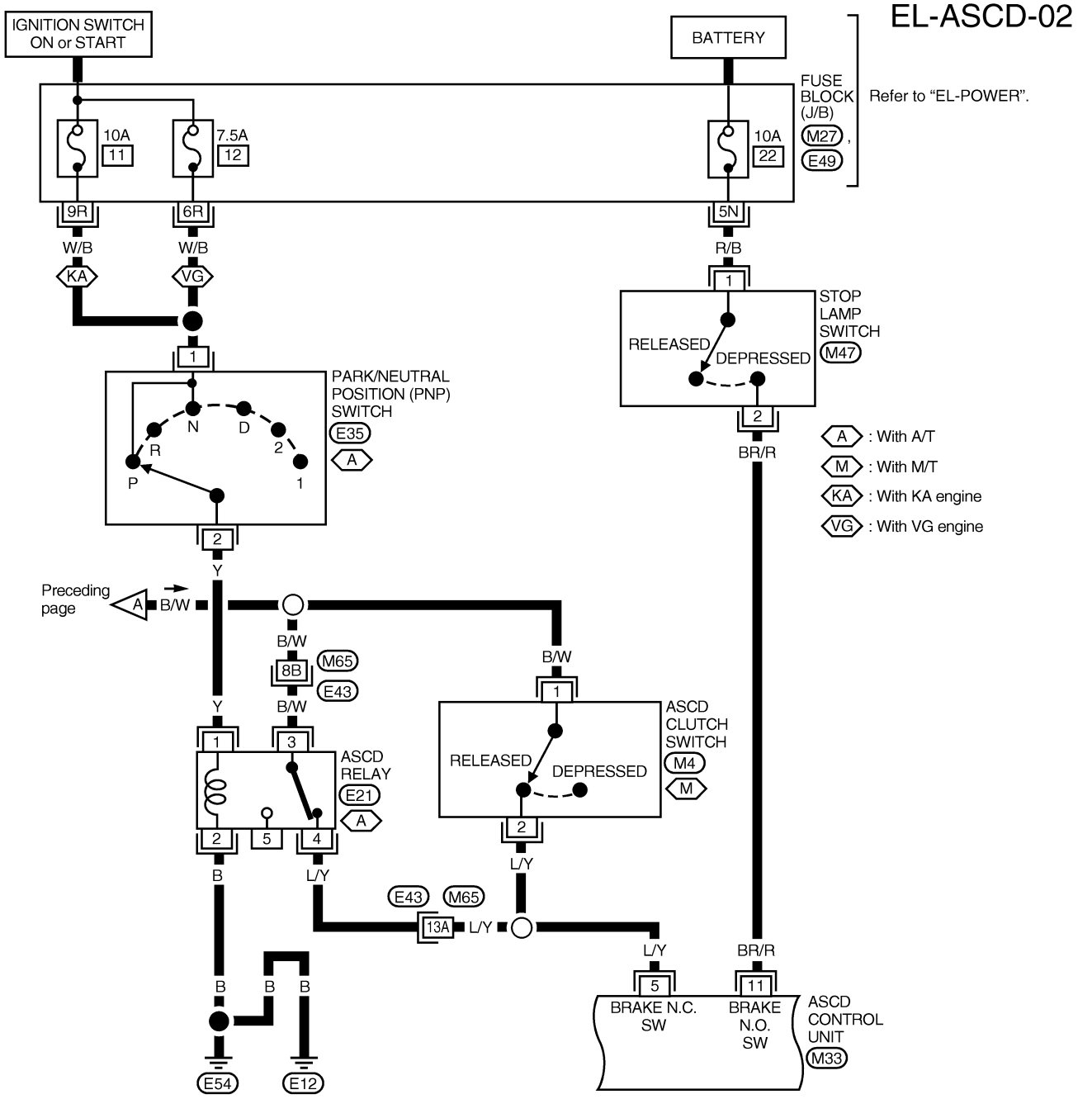


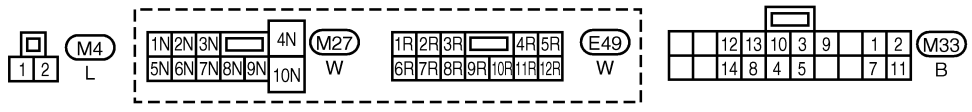


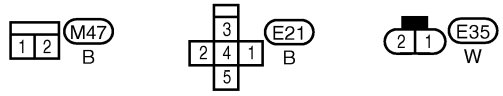
AEL377C

FIG. 2

NEEL0097S02







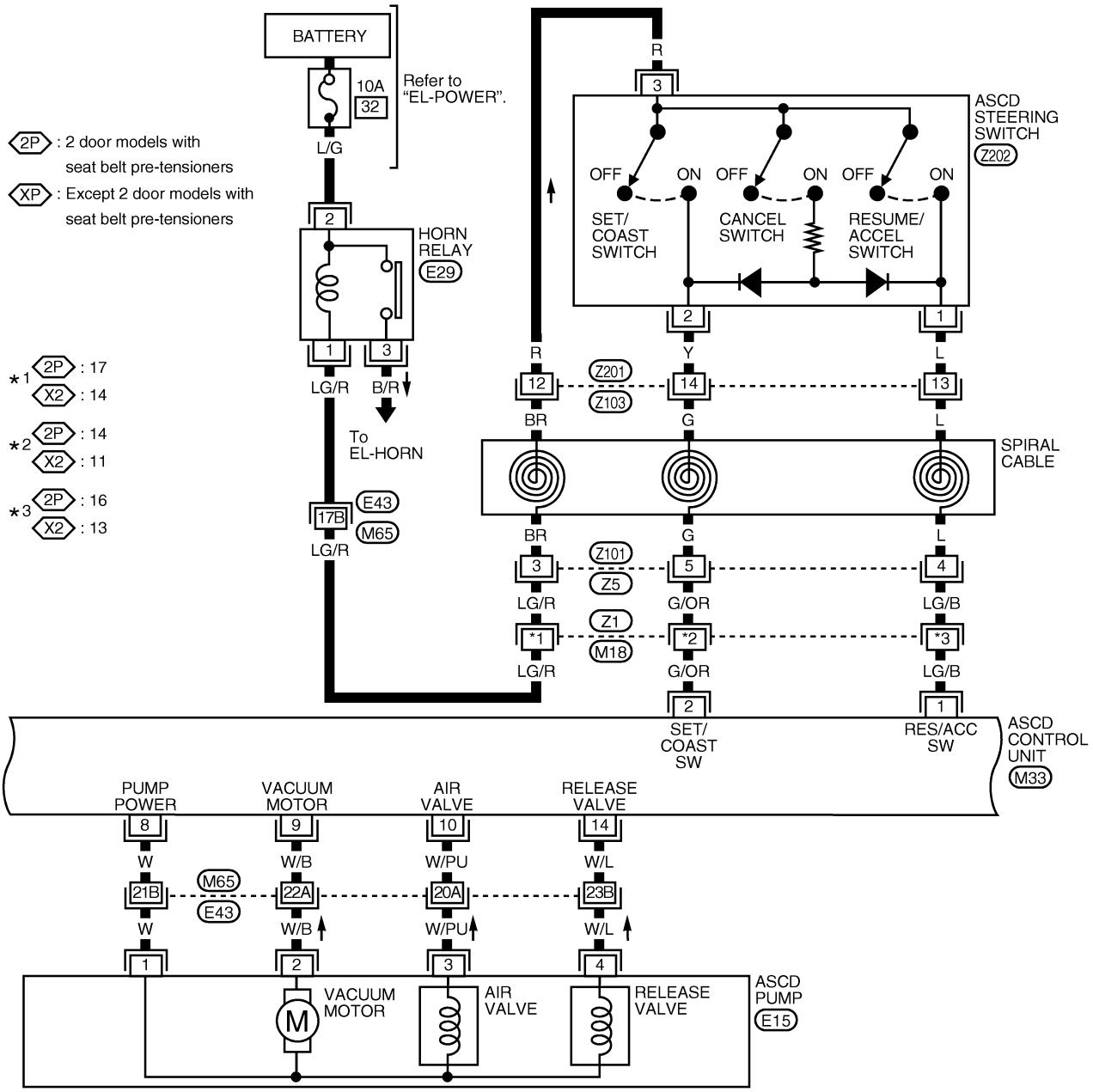
Refer to the following.
M65, E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL519C

FIG. 3

NEEL0097S03

EL-ASCD-03

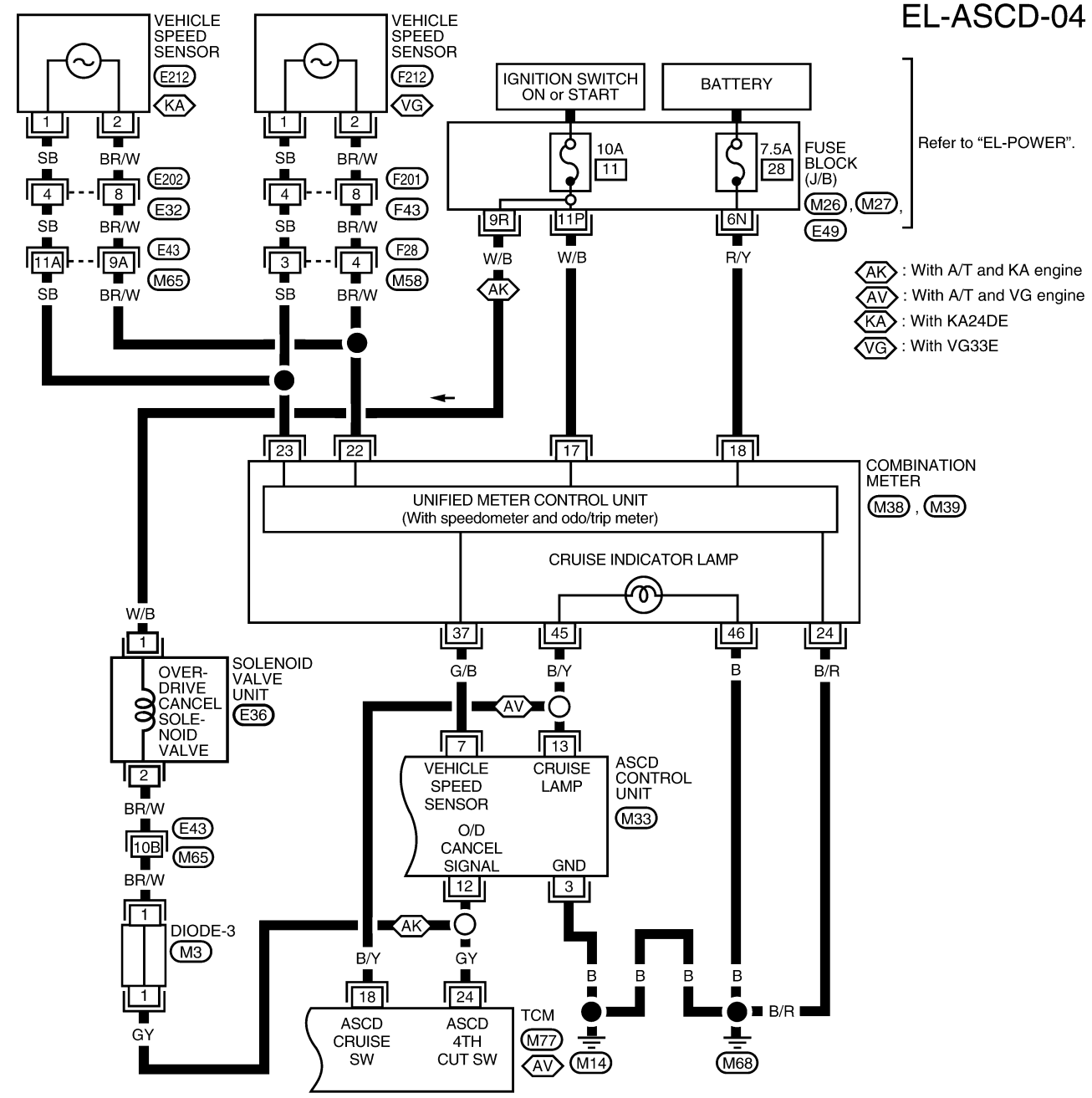


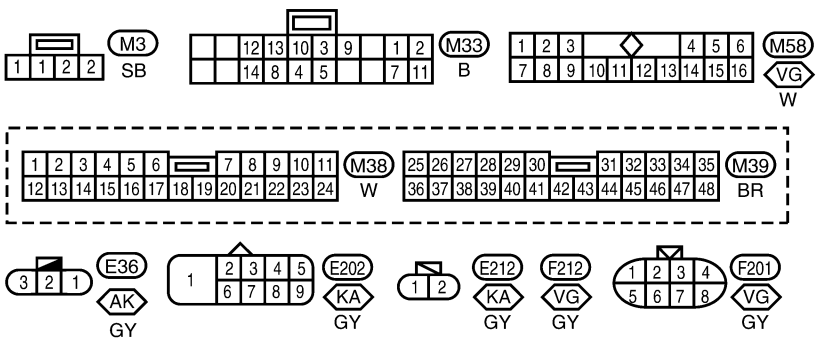
AEL476C

FIG. 4

NEEL0097S04

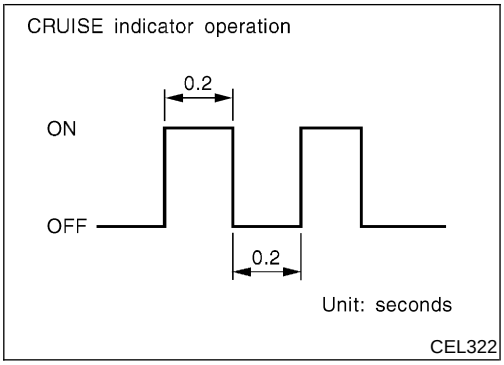
EL-ASCD-04





Refer to the following.
M65, E43 - SUPER MULTIPLE JUNCTION (SMJ)
M77 - ELECTRICAL UNITS
M26, M27, E49 - FUSE BLOCK-JUNCTION BOX (J/B)

LEL527A



Fail-safe System

NEEL0098

DESCRIPTION

NEEL0098S01

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

MALFUNCTION DETECTION CONDITIONS

NEEL0098S02

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

SYMPTOM CHART

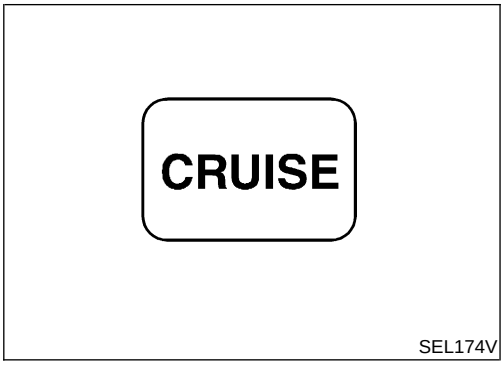
NEEL0099

NEEL0099S01

REFERENCE PAGE (EL-)	140	141	142	143	145	147	149	150	151
SYMPTOM	FAIL-SAFE SYSTEM CHECK	POWER SUPPLY AND GROUND CIRCUIT CHECK	ASCD MAIN SWITCH CHECK	ASCD HOLD RELAY 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 blink.).		X	X	X		X	X		
ASCD cannot be set (CRUISE 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
Deceleration is greatest immediately after ASCD has been set.									X

★1: It indicates that system is in fail-safe. After completing diagnostic procedures, perform “FAIL-SAFE SYSTEM CHECK”, EL-140, to verify repairs.

★2: If vehicle speed is greater than 48 km/h (30 MPH) after system has been canceled, pressing RESUME/ACCEL switch returns vehicle speed to the set speed previously achieved. However, doing so when the ASCD main switch is OFF, vehicle speed will not return to the set speed since the memory is canceled.



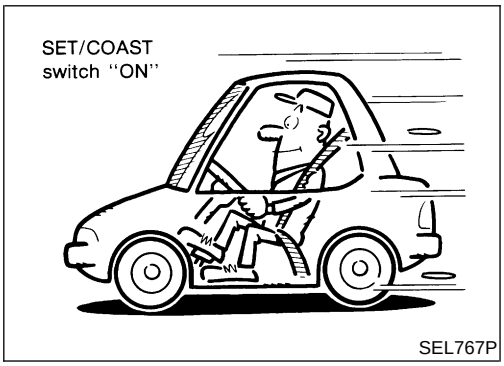
SEL174V

FAIL-SAFE SYSTEM CHECK

=NEEL0099S02

1. Turn ignition switch ON.
2. Press ASCD main switch to ON position and check if the CRUISE indicator lamp blinks.
   If the CRUISE indicator lamp blinks, check the following.

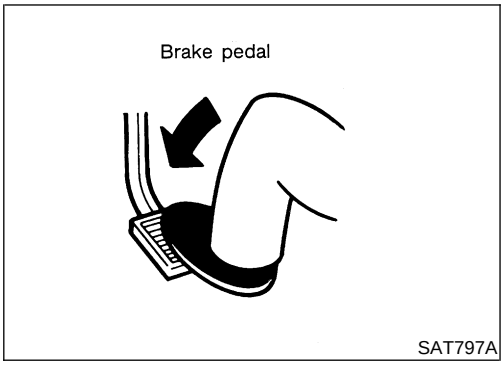
- ASCD STEERING SWITCH CHECK. Refer to EL-147.



SEL767P

3. Drive the vehicle at more than 48 km/h (30 MPH) and press SET/COAST switch.
   If the CRUISE indicator lamp blinks, check the following.

- VEHICLE SPEED SENSOR CHECK. Refer to EL-149.
- ASCD PUMP CIRCUIT CHECK. Refer to EL-150.
- Replace ASCD control unit.



SAT797A

4. Depress brake pedal slowly. (Brake pedal should be depressed longer than 5 seconds.)
   If the CRUISE indicator lamp blinks, check the following.

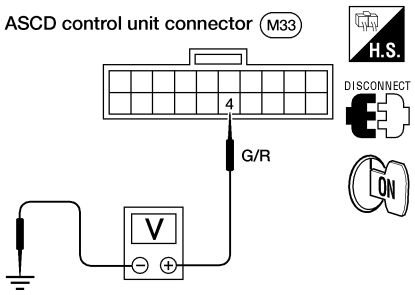
- ASCD BRAKE/STOP LAMP SWITCH CHECK. Refer to EL-145.

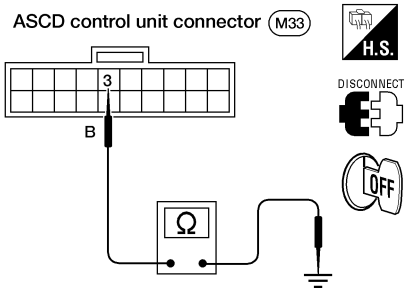
5. END. (System is OK.)

POWER SUPPLY AND GROUND CIRCUIT CHECK

=NEEL0099S03

1	OPERATION CHECK	
1. Turn ignition switch ON. 2. Turn ASCD main switch ON. **Does ASCD indicator illuminate?**		
Yes	▶	GO TO 2.
No	▶	Go to ASCD MAIN SWITCH CHECK. Refer to EL-142.

2	CHECK POWER SUPPLY CIRCUIT FOR ASCD CONTROL UNIT	
1. Disconnect ASCD control unit harness connector. 2. Turn ignition switch ON. 3. Turn ASCD main switch ON. 4. Check voltage between ASCD control unit harness connector terminal 4 and ground.		
 AEL264B		
Refer to wiring diagram on EL-134. **Does battery voltage exist?**		
Yes	▶	GO TO 3.
No	▶	Go to ASCD HOLD RELAY CHECK. Refer to EL-143.

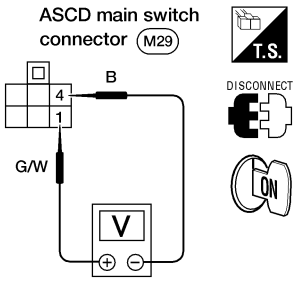
3	CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT	
Check continuity between ASCD control unit harness connector terminal 3 and body ground.		
 AEL265B		
Refer to wiring diagram on EL-137. **Does continuity exist?**		
Yes	▶	Power supply and ground circuit are OK.
No	▶	Repair harness.

ASCD MAIN SWITCH CHECK

=NEEL0099S04

1	CHECK POWER SUPPLY FOR ASCD MAIN SWITCH

1. Disconnect ASCD main switch harness connector.
2. Check voltage between ASCD main switch harness connector terminals 1 and 4.



AEL266B

Refer to wiring diagram on EL-134.

Does battery voltage exist?

Yes	▶	GO TO 2.
No	▶	**Check the following.** ● 7.5A fuse [No. 5, located in the fuse block (J/B)] ● Harness for open or short between fuse and ASCD main switch ● Ground circuit for ASCD main switch

2	CHECK ASCD MAIN SWITCH

Refer to "Electrical Component Inspection", EL-152.

OK or NG

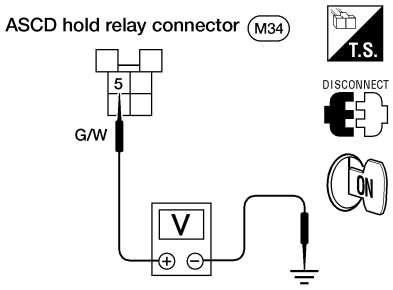
OK	▶	Go to ASCD HOLD RELAY CHECK. Refer to EL-143.
NG	▶	Replace ASCD main switch.

ASCD HOLD RELAY CHECK

=NEEL0099S05

1	CHECK POWER SUPPLY CIRCUIT FOR ASCD HOLD RELAY

1. Disconnect ASCD hold relay.
2. Check voltage between ASCD hold relay harness connector terminal 5 and body ground.



AEL267B

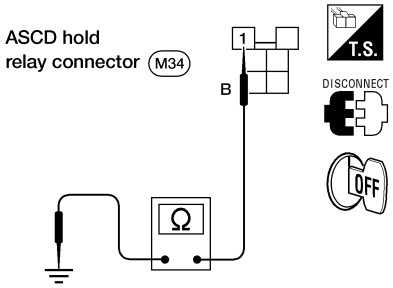
Refer to wiring diagram on EL-134.

Does battery voltage exist?

Yes	▶	GO TO 2.
No	▶	**Check the following.** ● 7.5A fuse [No. 5, located in the fuse block (J/B)] ● Harness for open or short between fuse and ASCD hold relay

2	CHECK GROUND CIRCUIT FOR ASCD HOLD RELAY

Check continuity between ASCD hold relay harness connector terminal 1 and ground.



AEL268B

Does continuity exist?

Yes	▶	GO TO 4.
No	▶	Repair harness.

4	CHECK ASCD MAIN SWITCH

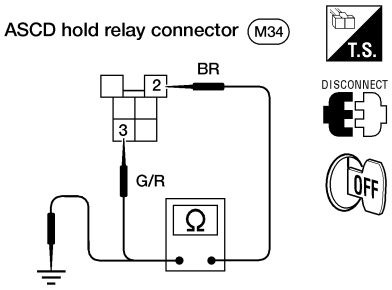
Refer to "Electrical Component Inspection", EL-152.

OK or NG

OK	▶	GO TO 5.
NG	▶	Replace ASCD main switch.

5	CHECK ASCD HOLD RELAY CIRCUIT

1. Connect ASCD main switch.
2. Check continuity between ASCD hold relay harness connector terminals 2 and 3.
   Continuity should exist.
3. Check continuity between ASCD hold relay harness connector terminal 2 and ground.
   Continuity should not exist.



AEL269B

OK or NG

OK	▶	GO TO 3.
NG	▶	Repair harness.

3	CHECK ASCD HOLD RELAY

Check ASCD hold relay.

OK or NG

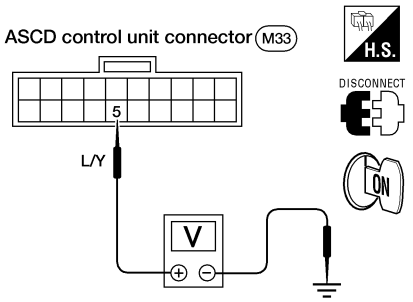
OK	▶	ASCD hold relay circuit is OK.
NG	▶	Replace ASCD hold relay.

ASCD BRAKE/STOP LAMP SWITCH CHECK

=NEEL0099S06

1	CHECK ASCD BRAKE SWITCH CIRCUIT

1. Disconnect ASCD control unit harness connector.
2. Turn ignition switch ON.
3. Turn ASCD main switch ON.
4. Check voltage between ASCD control unit harness connector terminal 5 and ground.
   When brake pedal is depressed, clutch pedal is depressed (with M/T) or A/T selector lever is in P or N position (with A/T):
   Approx. 0V
   When brake pedal is released and clutch pedal is released (with M/T) or A/T selector lever is not in P or N position (with A/T):
   Battery voltage should exist.



AEL270B

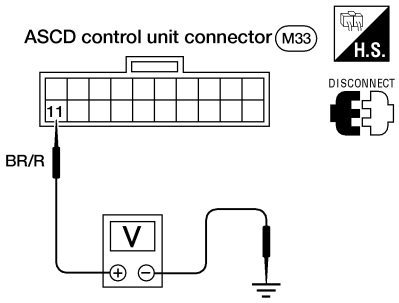
Refer to wiring diagram on EL-134, 135.

OK or NG

OK	▶	GO TO 2.
NG	▶	**Check the following.** ● ASCD brake switch, ASCD clutch switch (with M/T), PNP switch (with A/T), ASCD relay (with A/T) Refer to "Electrical Component Inspection", EL-153. ● ASCD hold relay ● Harness for open or short

2	CHECK STOP LAMP SWITCH CIRCUIT

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



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

Refer to wiring diagram on EL-135.

OK or NG

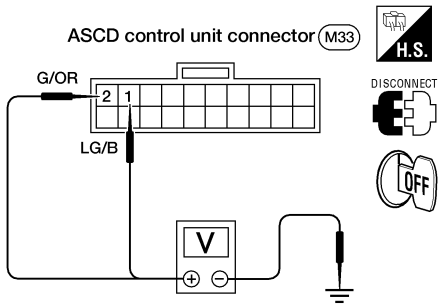
OK	▶	ASCD brake/stop lamp switch is OK.
NG	▶	**Check the following.** ● 15A fuse [No. 22, located in the fuse block (J/B)] ● Harness for open or short between ASCD control unit and stop lamp switch ● Stop lamp switch Refer to "Electrical Component Inspection", EL-153.

ASCD STEERING SWITCH CHECK

=NEEL0099S07

1 CHECK ASCD STEERING SWITCH CIRCUIT FOR ASCD CONTROL UNIT

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



AEL272B

	Terminal No.		Switch condition	
	(+)	(−)	Pressed	Released
SET/COAST SW	2	ground	12V	0V
RESUME/ACC SW	1	ground	12V	0V
CANCEL SW	2	ground	12V	0V
	1	ground	12V	0V

MTBL0002

Refer to wiring diagram on EL-136.

OK or NG

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

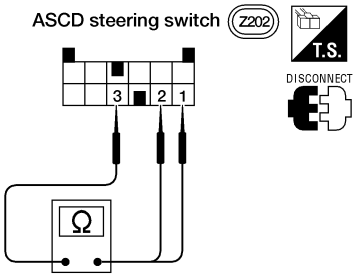
2 CHECK POWER SUPPLY FOR ASCD STEERING SWITCH

Does horn work?

Yes	▶	GO TO 3.
No	▶	**Check the following.** ● 10A fuse (No. 32, located in the fuse and fusible link box) ● Horn relay ● Harness for open or short between horn and fuse

3	CHECK ASCD STEERING SWITCH

1. Disconnect ASCD steering switch.
2. Check continuity between terminals by pressing each switch.



AEL126B

Switch	Terminals		
	3	2	1
RESUME/ACCEL	○		○
SET/COAST	○	○	
CANCEL	○	▶ ○	
	○	▶	○

AEL550C

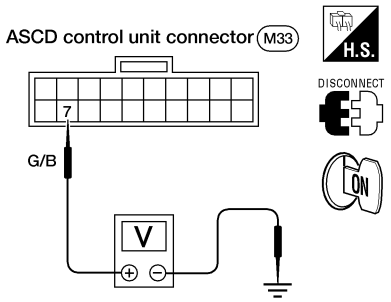
OK or NG

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

VEHICLE SPEED SENSOR CHECK

=NEEL0099S08

1	CHECK SPEEDOMETER OPERATION	
Refer to wiring diagram on EL-137. **Does speedometer operate normally?**		
Yes	▶	GO TO 2.
No	▶	Check speedometer and vehicle speed sensor circuit. Refer to EL-72.

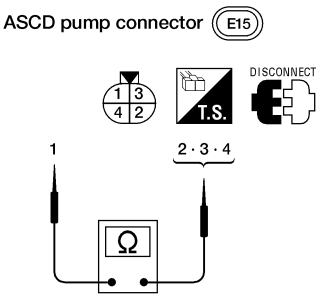
2	CHECK VEHICLE SPEED INPUT	
1. Apply wheel chocks and jack up drive wheels. 2. Disconnect ASCD control unit harness connector. 3. Check voltage between ASCD control unit harness connector terminal 7 and ground while turning drive wheels slowly.		
 AEL273B		
Does voltmeter pointer deflect?		
Yes	▶	Vehicle speed sensor is OK.
No	▶	Check harness for open or short between ASCD control unit terminal 7 and combination meter terminal 37.

ASCD PUMP CIRCUIT CHECK

NEEL0099S09

1 CHECK ASCD PUMP

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



AEL752C

Terminals		Resistance [Ω]
1	2	Approx. 18.2
	3	Approx. 65.5
	4	Approx. 65.5

AEL551C

Refer to wiring diagram on EL-136.

OK or NG

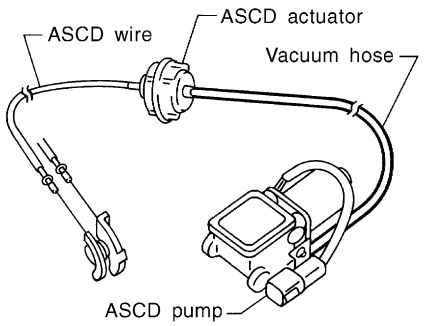
OK	▶	Check harness for open or short between ASCD pump and ASCD control unit.
NG	▶	Replace ASCD pump.

ASCD ACTUATOR/PUMP CHECK

=NEEL0099S10

1	CHECK VACUUM HOSE

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



MEL402G

OK or NG

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

2	CHECK ASCD WIRE

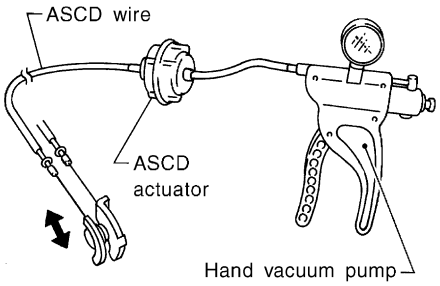
Check wire for improper installation, rust formation and breaks.

OK or NG

OK	▶	GO TO 3.
NG	▶	Repair or replace wire. Refer to "ASCD Wire Adjustment", EL-154.

3	CHECK ASCD ACTUATOR

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



MEL403G

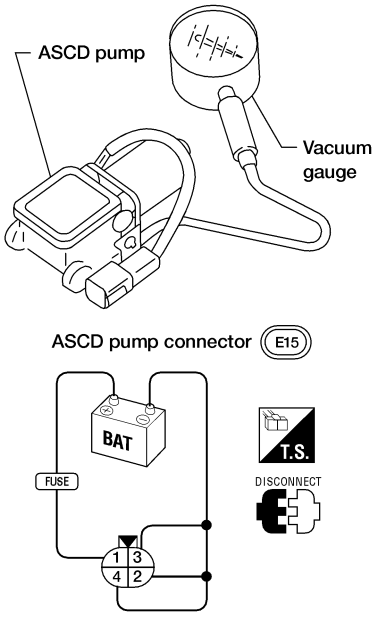
Vacuum pressure decrease:
Less than 2.7 kPa (0.028 kg/cm^2, 0.39 psi)

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.



AEL745C

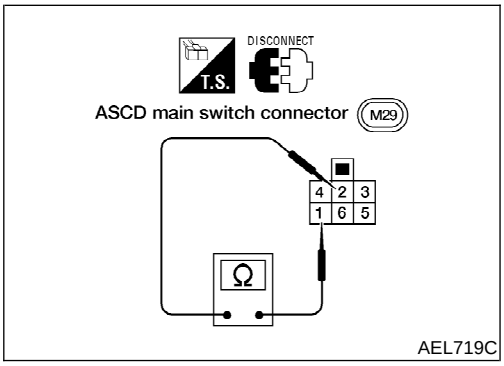
	12V direct current suply terminals		Operation
	(+)	(–)	
Air valve	1	3	Close
Release valve		4	Close
Vacuum motor		2	Operate

MTBL0004

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

OK or NG

OK	▶	ASCD actuator/pump is OK.
NG	▶	Replace ASCD pump.



AEL719C

Electrical Component Inspection

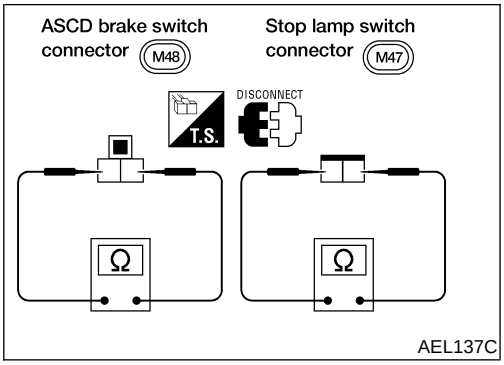
NEEL0100

ASCD MAIN SWITCH

NEEL0100S01

Check continuity between terminals by pushing switch to each position.

Switch position	Terminals	Illumination
ON	1 - 2 - 3 - 4	5 - 6
N	2 - 3 - 4	
OFF		

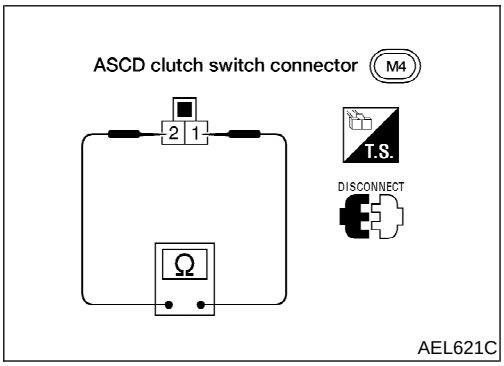


ASCD BRAKE SWITCH AND STOP LAMP SWITCH

NEEL0100S02

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

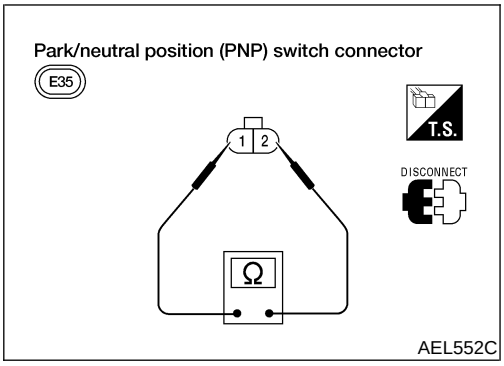
Check each switch after adjusting brake pedal — refer to BR section.



ASCD CLUTCH SWITCH (WITH M/T)

NEEL0100S04

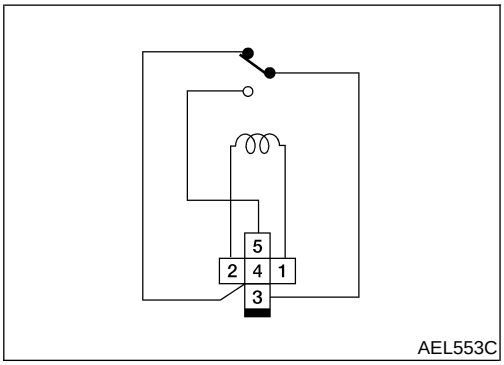
Condition	Continuity
When clutch pedal is depressed	No
When clutch pedal is released	Yes



PNP SWITCH (WITH A/T)

NEEL0100S03

Selector lever position	Continuity
	Between terminals 1 and 2
P	Yes
N	Yes
Except P and N	No



ASCD RELAY (WITH A/T)

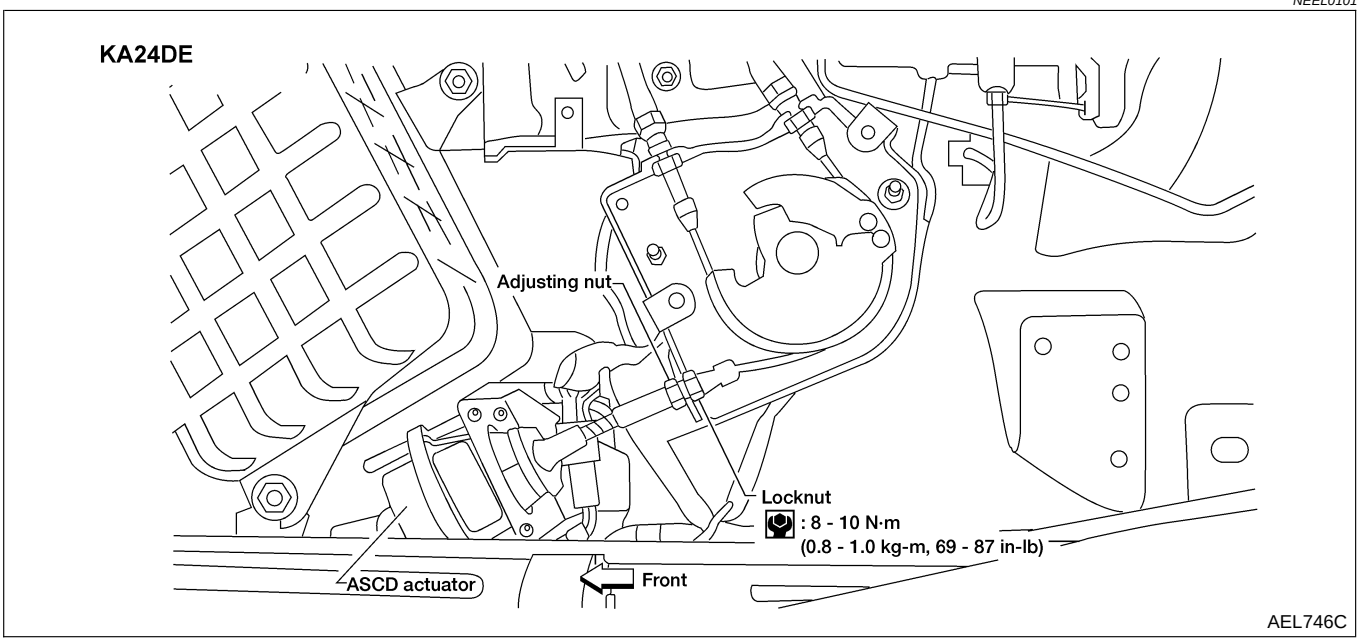
NEEL0100S05

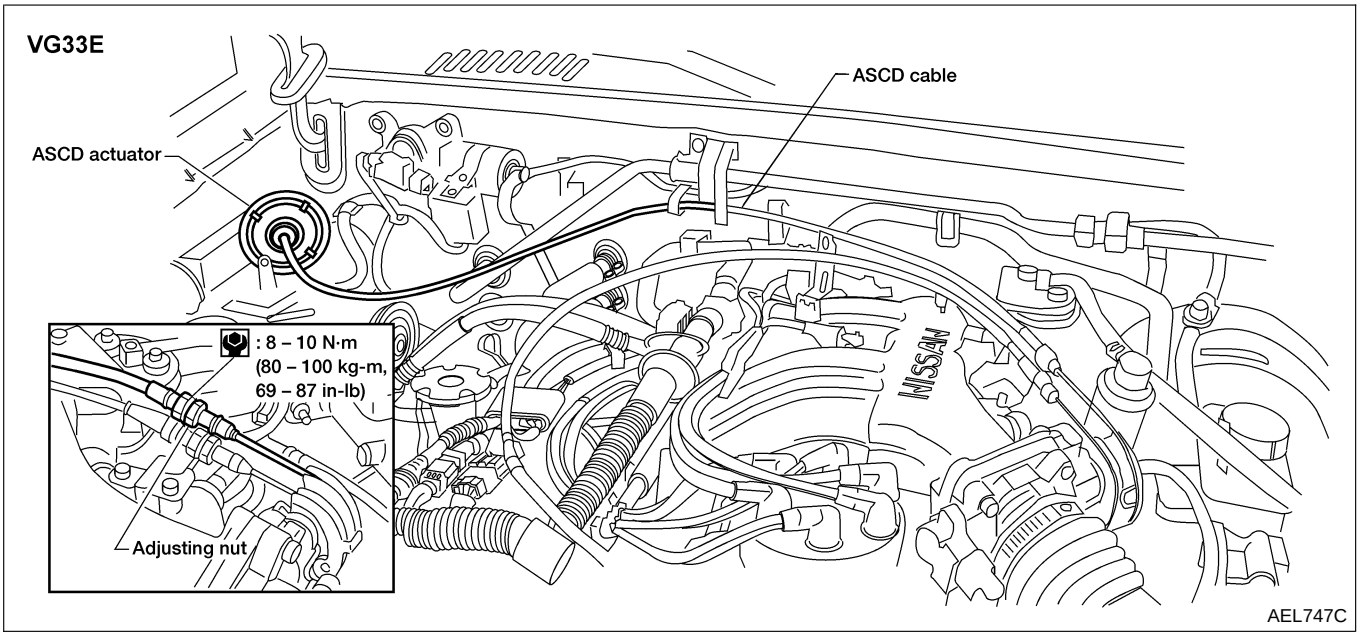
Check continuity between terminals 3 and 4.

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

ASCD Wire Adjustment

NEEL0101





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 “ACCELERATOR CONTROL SYSTEM”, ***FE-3***.
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

NEEL0102

Power is supplied at all times
- from 30A fusible link (with KA24DE engine), 40A fusible link (with VG33E engine) (letter **f**, located in the fuse and fusible link box)
- to circuit breaker terminal +
- through circuit breaker terminal –
- to power window relay terminal 5.

With the ignition switch in the ON or START position, power is supplied
- through 7.5A fuse [No. 5, located in the fuse block (J/B)]
- to power window relay terminal 2.

Ground is supplied to power window relay terminal 1
- through body grounds M14 and M68.

The power window relay is energized and power is supplied
- through power window relay terminal 3
- to main power window and door lock/unlock switch terminal 2
- to front power window switch RH terminal 4
- to rear power window switch LH terminal 5 (crew cab)
- to rear power window switch RH terminal 5 (crew cab).

Ground is supplied
- to main power window and door lock/unlock switch terminal 10
- through body grounds M14 and M68.

MANUAL OPERATION

NEEL0102S01

NOTE:
Numbers in parentheses are terminal numbers which apply with switch pressed in the UP and DOWN positions respectively.

Front Door LH

NEEL0102S0101

Power is supplied
- through main power window and door lock/unlock switch terminal (12, 16)
- to front power window motor LH terminal (UP, DN).

Ground is supplied
- to front power window motor LH terminal (DN, UP)
- through main power window and door lock/unlock switch terminal (16, 12).

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

Front Door RH

NEEL0102S0102

MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH OPERATION
With front RH switch pressed, power is supplied
- through main power window and door lock/unlock switch (14, 13)
- to front power window switch RH (5, 2).

The following description is the same as the front power window switch RH description.
FRONT POWER WINDOW SWITCH RH OPERATION
Power is supplied
- through front power window switch RH (6, 3)
- to front power window motor RH (UP, DN).

Ground is supplied
- to front power window motor RH (DN, UP)
- through front power window switch RH (3, 6)
- to front power window switch RH (2, 5)
- through main power window and door lock/unlock switch (13, 14).

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

Rear Door LH (Crew Cab)

NEEL0102S0103

MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH OPERATION
With rear LH switch pressed, power is supplied

- through main power window and door lock/unlock switch (1, 6)
- to rear power window switch LH (4, 3).

The following description is the same as the rear power window switch LH description.
REAR POWER WINDOW SWITCH LH OPERATION
Power is supplied

- through rear power window switch LH (1, 2)
- to rear power window motor LH (UP, DN).

Ground is supplied

- to rear power window motor LH (DN, UP)
- through rear power window switch LH (2, 1)
- to rear power window switch LH (3, 4)
- through main power window and door lock/unlock switch (6, 1).

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

Rear Door RH (Crew Cab)

NEEL0102S0104

MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH OPERATION
With rear RH switch pressed, power is supplied

- through main power window and door lock/unlock switch (7, 9)
- to rear power window switch RH (4, 3).

The following description is the same as the rear power window switch RH description.
REAR POWER WINDOW SWITCH RH OPERATION
Power is supplied

- through rear power window switch RH (1, 2)
- to rear power window motor RH (UP, DN).

Ground is supplied

- to rear power window motor RH (DN, UP)
- through rear power window switch RH (2, 1)
- to rear power window switch RH (3, 4)
- through main power window and door lock/unlock switch (9, 7).

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

AUTO OPERATION

NEEL0102S02

The power window AUTO feature enables the driver to lower the driver's window without holding the switch in the DOWN position.
The AUTO feature is activated by pressing the switch beyond the DOWN position to the AUTO position.
The AUTO feature only operates on the downward movement of the driver's window.
The window can be stopped before it is fully open by pressing the window switch to the UP position.

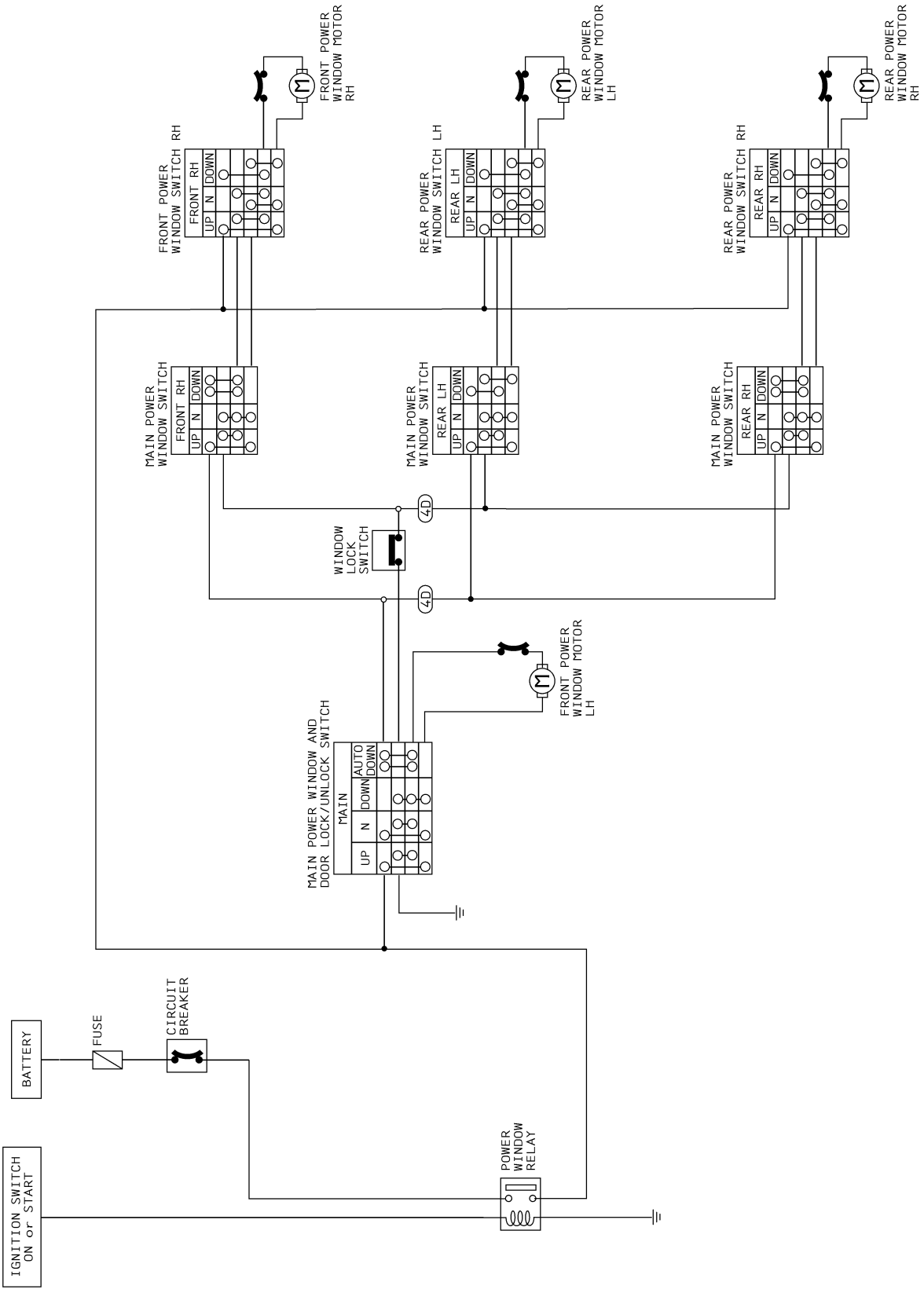
POWER WINDOW LOCK

NEEL0102S03

The power window lock prevents operation of all windows except the driver's window.
When the lock switch is pressed to lock position, ground of the front power window switch RH and the rear power window switch LH and RH (crew cab) is disconnected in the main power window and door lock/unlock switch. This prevents the front power window motor RH and the rear power window motor LH and RH (crew cab) from operating.

Circuit Diagram

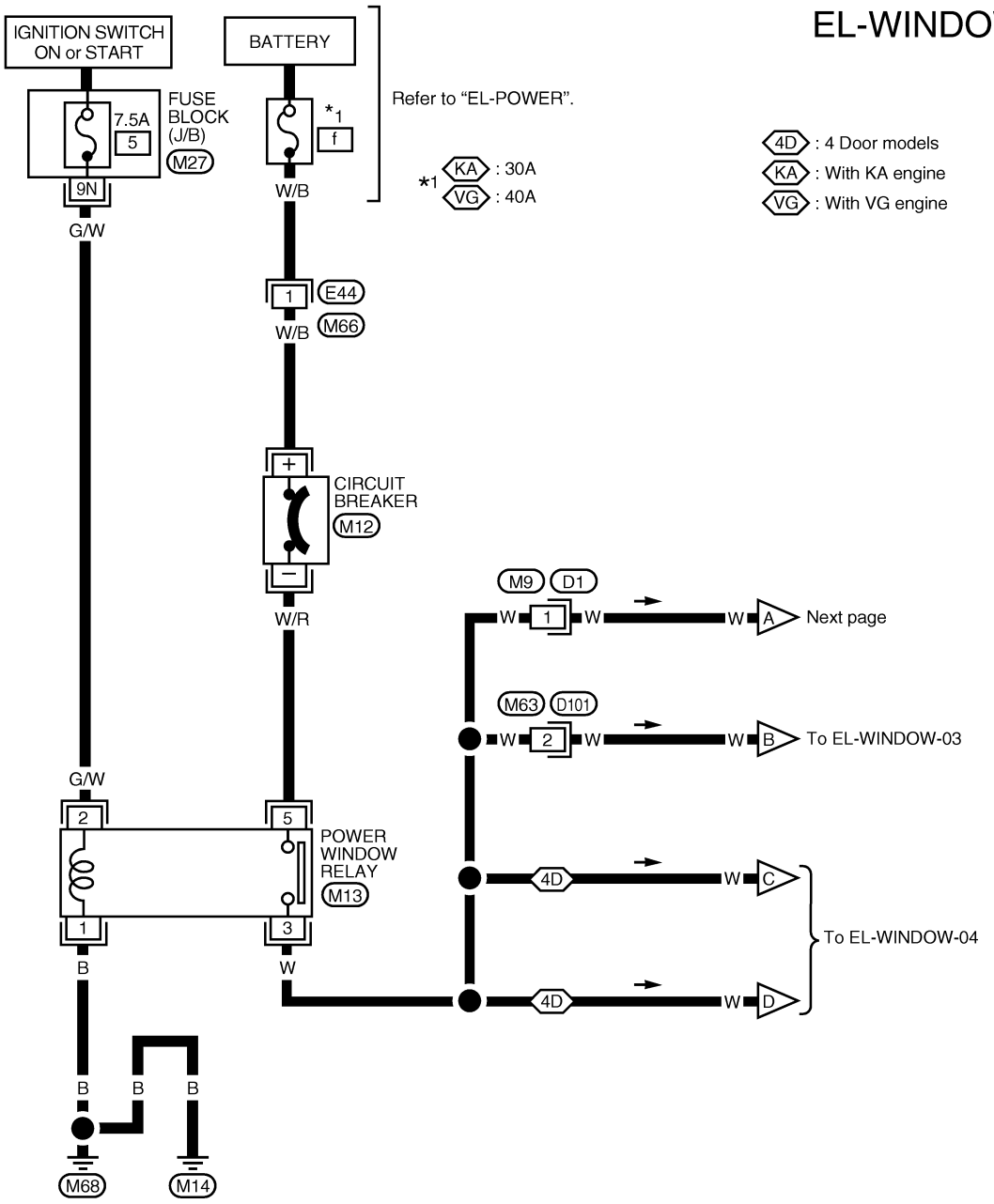
NEEL0201

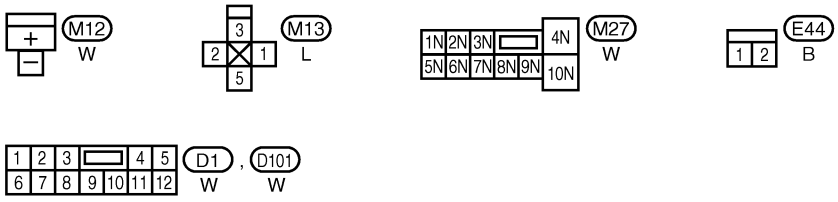


AEL478C

Wiring Diagram — WINDOW —

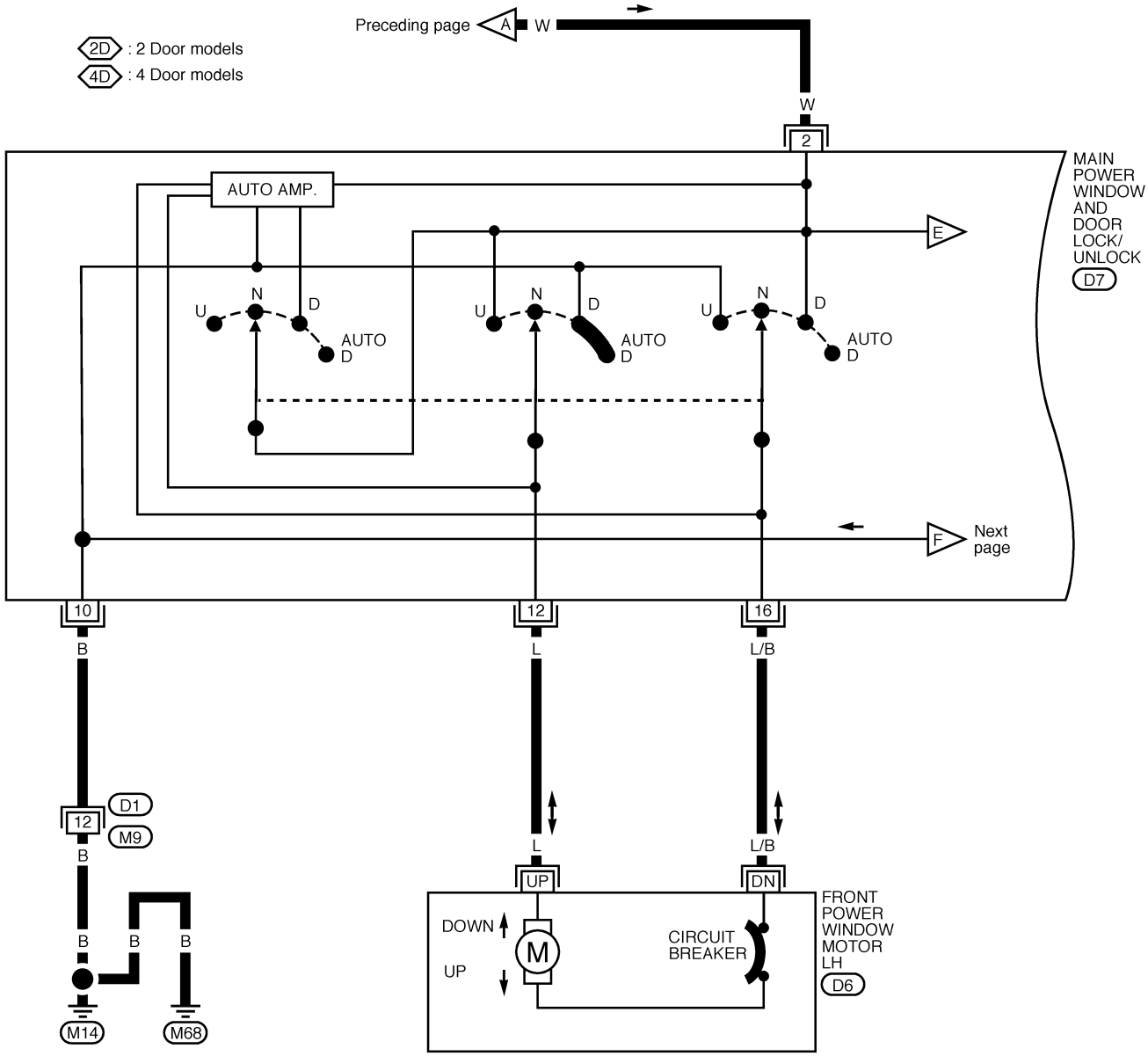
NEEL0104

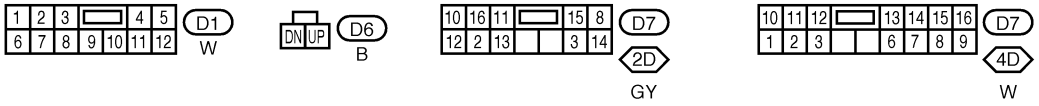




AEL479C

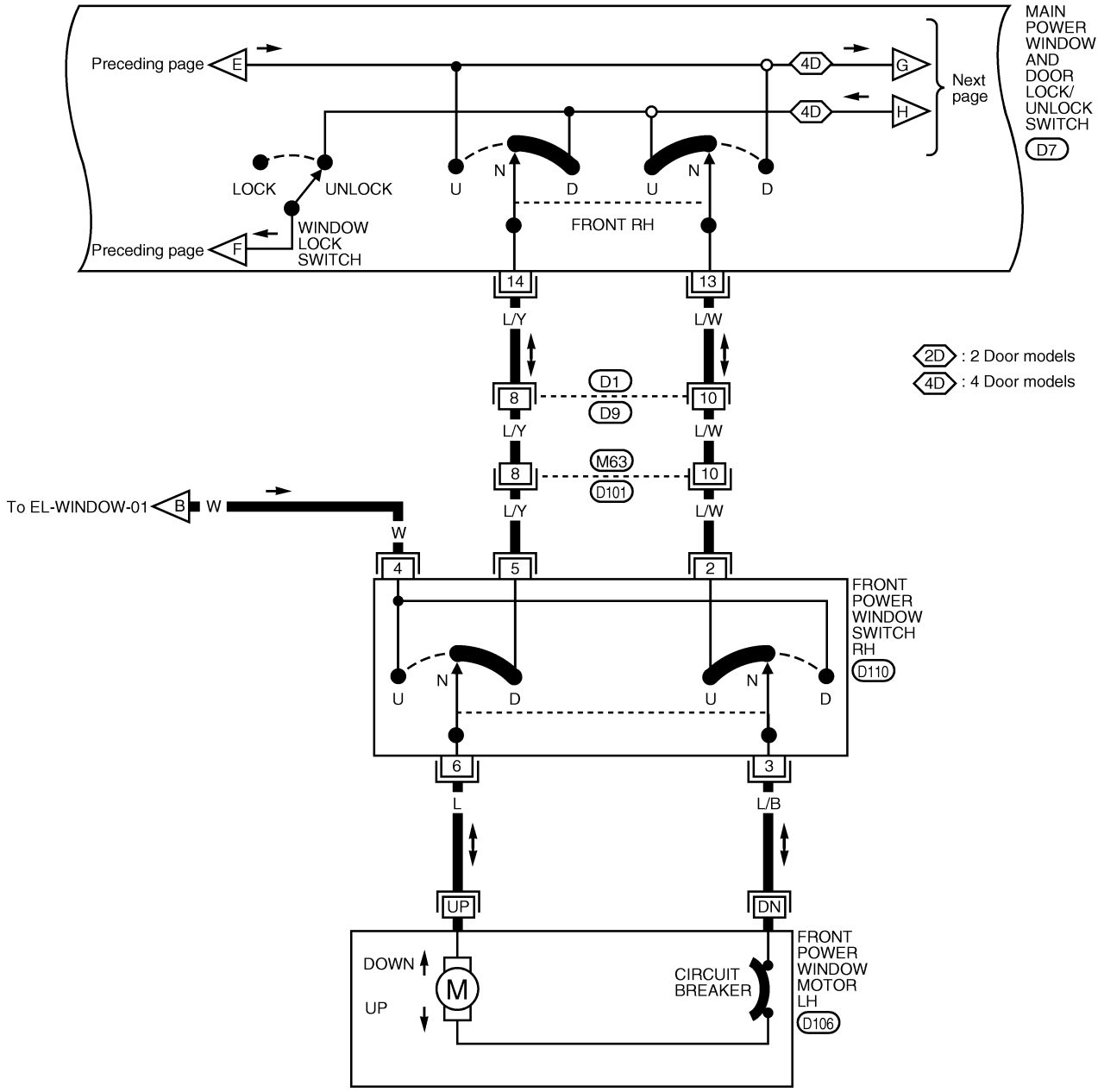
EL-WINDOW-02

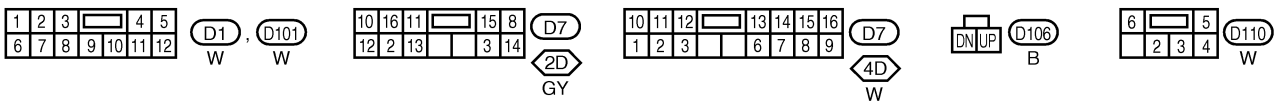




AEL480C

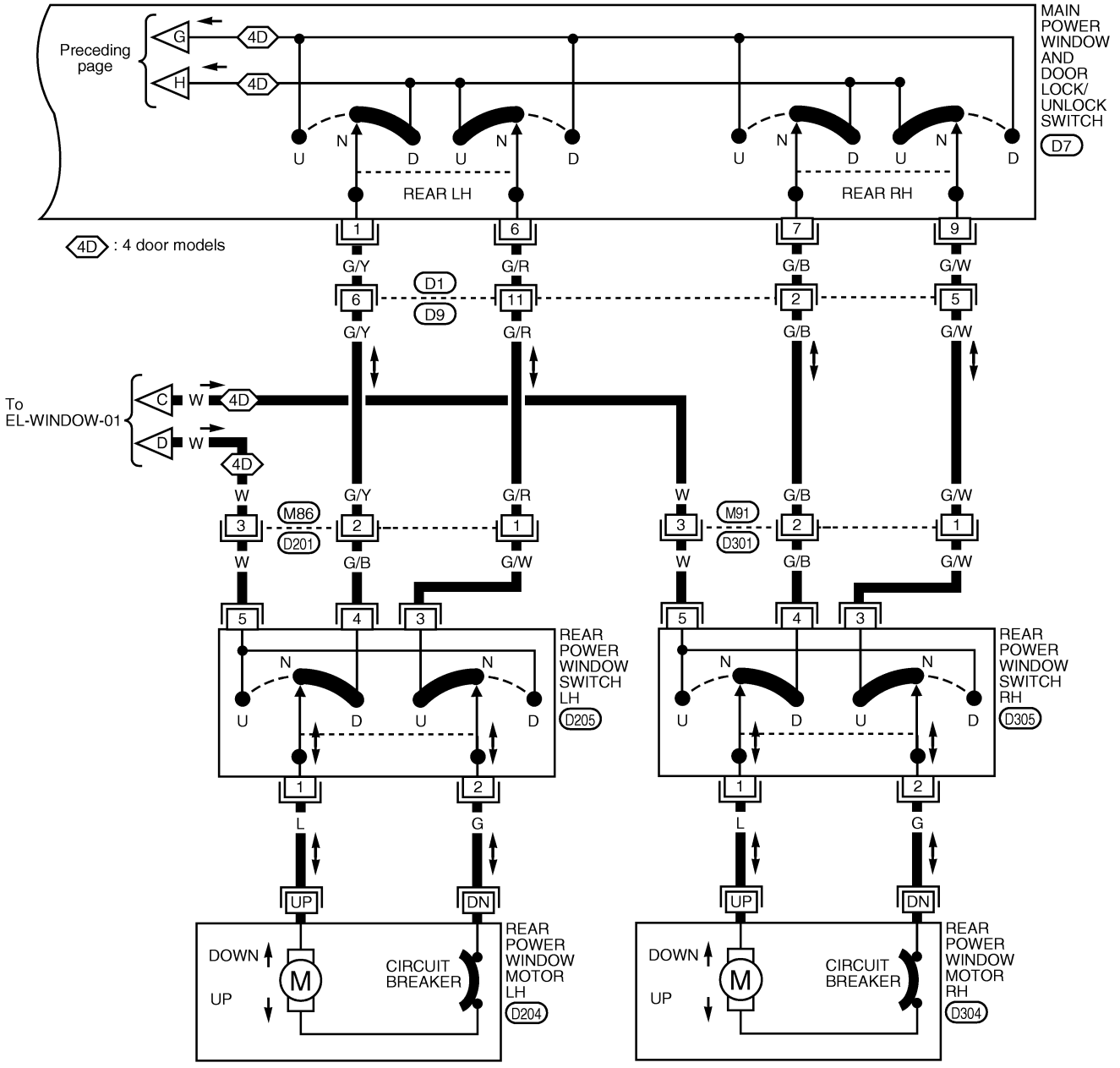
EL-WINDOW-03

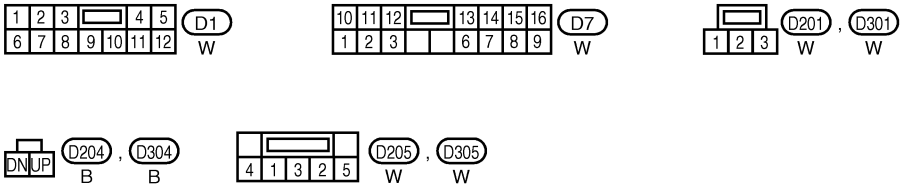




AEL481C

EL-WINDOW-04





AEL482C

Trouble Diagnoses

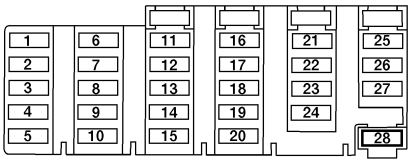
NEEL0105

Symptom	Possible cause	Repair order
None of the power windows can be operated using any switch.	1. 7.5A fuse, 30A fusible link (with KA24DE engine), 40A fusible link (with VG33E engine) and M12 circuit breaker 2. Power window relay ground circuit 3. Power window relay 4. Open/short in main power window and door lock/unlock switch circuit	1. Check 7.5A fuse (No. 5, located in fuse block [J/B]), 30A fusible link (with KA24DE engine), 40A fusible link (with VG33E engine) (letter **f**, located in fuse and fusible link box) and M12 circuit breaker. Turn ignition switch ON and verify battery positive voltage is present at main power window and door lock/unlock switch terminal 2, front power window switch RH terminal 4 and rear power window switch LH and RH terminal 5 (crew cab). 2. Check power window relay ground circuit. 3. Check power window relay. 4. Check circuit between power window relay and main power window and door lock/unlock switch for open/short circuit.
Front power window LH cannot be operated but other windows can be operated.	1. Front power window motor LH circuit 2. Front power window motor LH 3. Main power window and door lock/unlock switch	1. Check harness between main power window and door lock/unlock switch and front power window motor LH for open or short circuit. 2. Check front power window motor LH. 3. Check main power window and door lock/unlock switch.
Passenger power window cannot be operated.	1. Passenger power window switch 2. Passenger power window motor 3. Main power window and door lock/unlock switch 4. Power window circuit	1. Check passenger power window switch. 2. Check passenger power window motor. 3. Check main power window and door lock/unlock switch. 4. Check the following. a. Check harnesses between main power window and door lock/unlock switch and passenger power window switch for open/short circuit. b. Check harnesses between passenger power window switch and passenger power window motor for open/short circuit.
Passenger power window cannot be operated using main power window and door lock/unlock switch but can be operated by passenger power window switch.	1. Main power window and door lock/unlock switch	1. Check main power window and door lock/unlock switch.
Driver's window AUTO function cannot be operated using main power window and door lock/unlock switch.	1. Main power window and door lock/unlock switch	1. Check main power window and door lock/unlock switch.

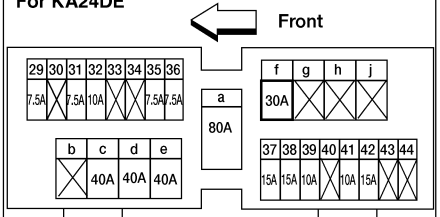
Component Parts and Harness Connector Location

NEEL0106

Fuse block (J/B)

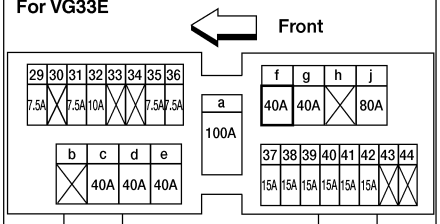


Fuse and fusible link box
For KA24DE

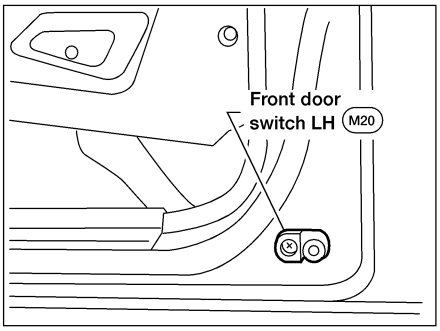


No 29 - 44: FUSE
a - j: FUSIBLE LINK
E31

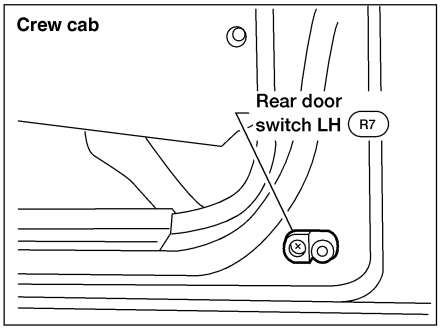
Fuse and fusible link box
For VG33E



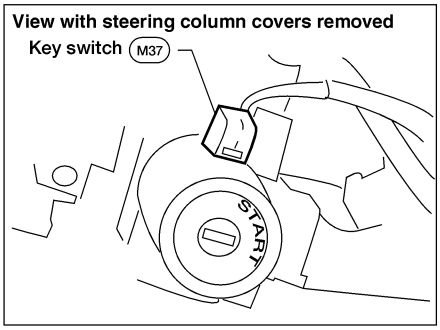
No 29 - 44: FUSE
a - j: FUSIBLE LINK
E31



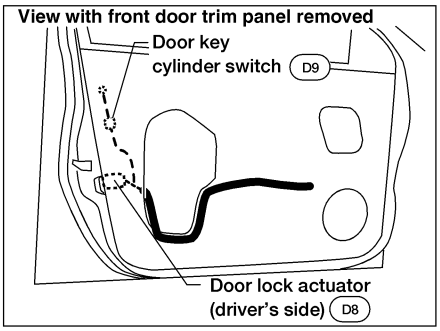
Crew cab



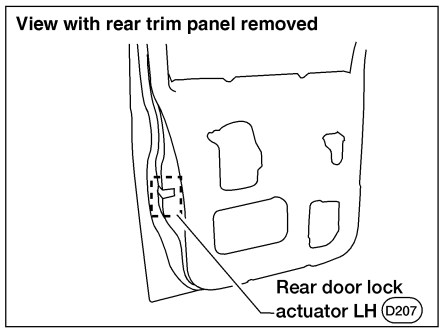
View with steering column covers removed

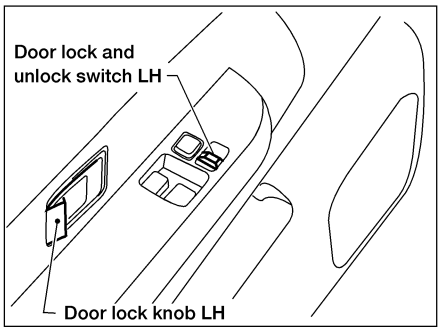


View with front door trim panel removed

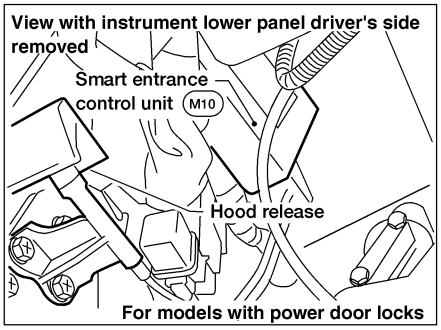


View with rear trim panel removed





View with instrument lower panel driver's side removed



AEL452C

System Description

NEEL0107

Power is supplied at all times
- through 30A fusible link [letter **f**, located in the fuse and fusible link box (with KA24DE engine)] or
- through 40A fusible link [letter **f**, located in the fuse and fusible link box (with VG33E engine)]
- to circuit breaker terminal +
- through circuit breaker terminal –
- to smart entrance control unit terminal 1.

Power is supplied at all times
- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to key switch terminal 1.

Ground is supplied
- to smart entrance control unit terminal 10
- through body grounds M14 and M68.

INPUT

NEEL0107S01

With the key in the ignition key cylinder, power is supplied
- through key switch terminal 2
- to smart entrance control unit terminal 24.

With front door LH open, ground is supplied
- to smart entrance control unit terminal 15
- through front door switch LH terminal 2
- through front door switch LH terminal 3
- through body grounds M14 and M68.

With front door RH open, ground is supplied
- to smart entrance control unit terminal 35
- through front door switch RH terminal +.

With the key inserted in the front door key cylinder switch LH or RH and turned to LOCK, ground is supplied
- to smart entrance control unit terminal 30
- through front door key cylinder switch LH terminal 1 or front door key cylinder switch RH terminal 3
- through front door key cylinder switch LH or RH terminal 2
- through body grounds M14 and M68.

With the key inserted in the front door key cylinder switch LH or RH and turned to UNLOCK, ground is supplied
- to smart entrance control unit terminal 31
- through front door key cylinder switch LH terminal 3 or front door key cylinder switch RH terminal 1
- through front door key cylinder switch LH or RH terminal 2
- through body grounds M14 and M68.

With the front door lock actuator LH (door unlock sensor) in the UNLOCKED position, ground is supplied
- to smart entrance control unit terminal 12
- through front door lock actuator LH (door unlock sensor) terminal 2
- through front door lock actuator LH (door unlock sensor) terminal 4
- through body grounds M14 and M68.

With the front door lock actuator RH (door unlock sensor) (2 door early production models) in the UNLOCKED position, ground is supplied
- to smart entrance control unit terminal 13
- through front door lock actuator RH (door unlock sensor) terminal 2
- through front door lock actuator RH (door unlock sensor) terminal 4
- through body grounds M14 and M68.

With the main power window and door lock/unlock switch pressed to LOCK, ground is supplied
- to smart entrance control unit terminal 18
- through main power window and door lock/unlock switch terminal 11
- through main power window and door lock/unlock switch terminal 10

- through body grounds M14 and M68.

With the door lock/unlock switch RH pressed to LOCK, ground is supplied
- to smart entrance control unit terminal 18
- through door lock/unlock switch RH terminal 3
- through door lock/unlock switch RH terminal 4
- through body grounds M14 and M68.

With the main power window and door lock/unlock switch pressed to UNLOCK, ground is supplied
- to smart entrance control unit terminal 19
- through main power window and door lock/unlock switch terminal 15
- through main power window and door lock/unlock switch terminal 10
- through body grounds M14 and M68.

With the door lock/unlock switch RH pressed to UNLOCK, ground is supplied
- to smart entrance control unit terminal 19
- through door lock/unlock switch RH terminal 6
- through door lock/unlock switch RH terminal 4
- through body grounds M14 and M68.

OUTPUT

NEEL0107S02

Unlock

NEEL0107S0201

Ground is supplied
- to front door lock actuator LH and RH and rear door lock actuator LH and RH (crew cab) terminal 3
- through smart entrance control unit terminal 4.

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

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

REAR DOOR LH AND RH (CREW CAB)
Power is supplied
- to rear door lock actuator LH and RH terminal 1
- through smart entrance control unit terminal 2.

Then, the doors are unlocked.

Lock

NEEL0107S0202

Ground is supplied
- to front door lock actuator LH terminal 1
- through smart entrance control unit terminal 3 and
- to front door lock actuator RH and rear door lock actuator LH and RH (crew cab) terminal 1
- through smart entrance control unit terminal 2.

Power is supplied
- to front door lock actuator LH and RH and rear door lock actuator LH and RH (crew cab) terminal 3
- through smart entrance control unit terminal 4.

Then, the doors are locked.

System Description (Cont'd)

OPERATION

=NEEL0107S03

- The main power window and door lock/unlock switch on front door LH trim and door lock/unlock switch RH on front door RH trim can lock and unlock all doors.
- With the front door LH or RH (regular and king cab) lock knob pressed to LOCK, all doors are locked (signal from door unlock sensor).
- With the key inserted in the front door key cylinder LH or RH, turning it to LOCK locks all doors; turning it to UNLOCK once unlocks the corresponding door; turning it to UNLOCK again within 5 seconds of the first unlock operation unlocks all other doors (signal from door key cylinder switch).

Key Reminder

NEEL0107S0301

When performing a door locking operation (early production models) using either the main power window and door lock/unlock switch, the door lock/unlock switch RH, the front door LH lock knob or a multi-remote controller, all the doors will lock and then will immediately unlock if the

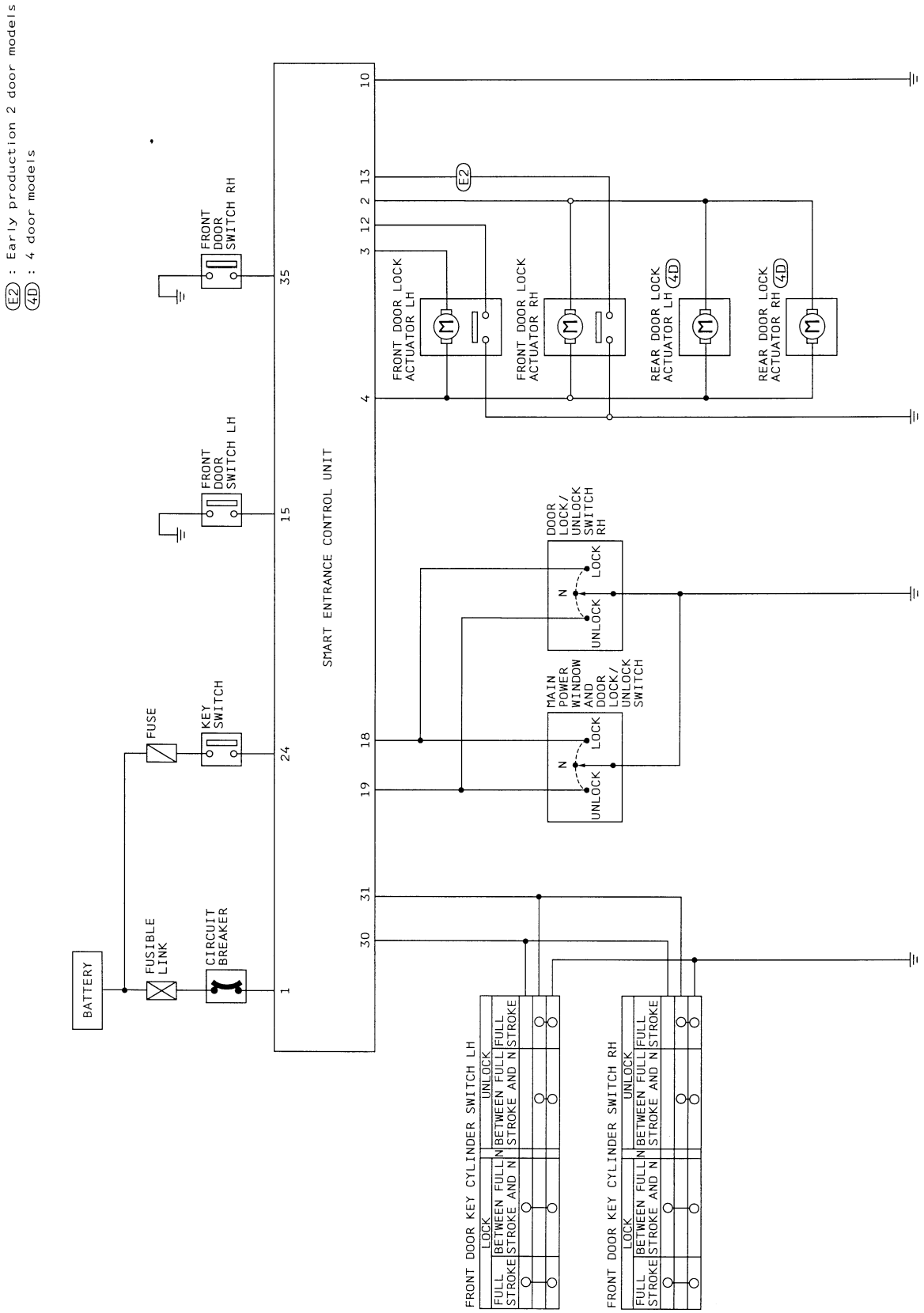
- key switch is in INSERTED position (key is in ignition key cylinder) and
- ignition switch is in the OFF position and
- either front door switch LH or RH is in OPEN position (door is open).

When performing a door locking operation (late production models) using either the main power window and door lock/unlock switch, the door lock/unlock switch RH, the front door LH lock knob or a multi-remote controller, all the doors will lock and then the front door LH will immediately unlock if the

- key switch is in INSERTED position (key is in ignition key cylinder) and
- ignition switch is in the OFF position and
- either front door switch LH or RH is in OPEN position (door is open).

Circuit Diagram

NEEL0108



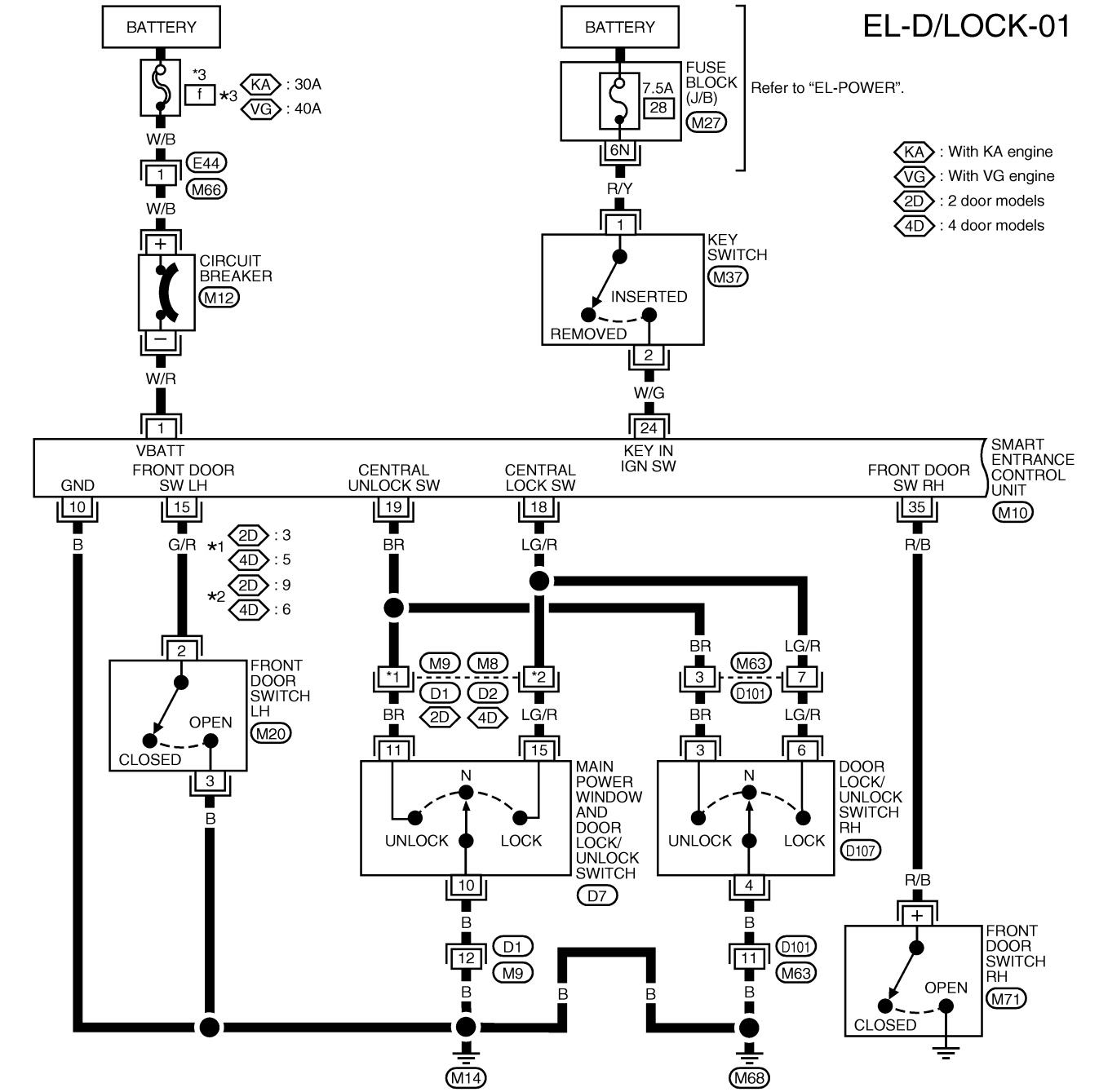
AEL487C

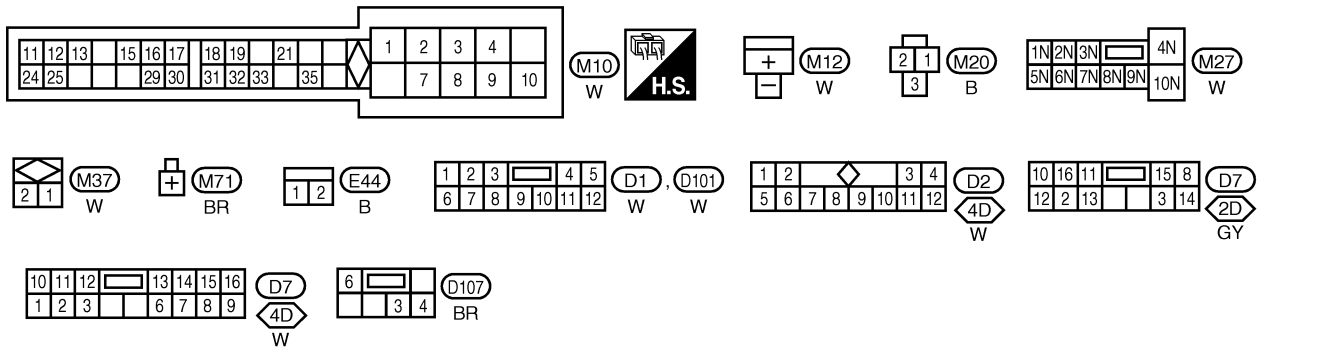
Wiring Diagram — D/LOCK —

NEEL0109

FIG. 1

NEEL0109S01



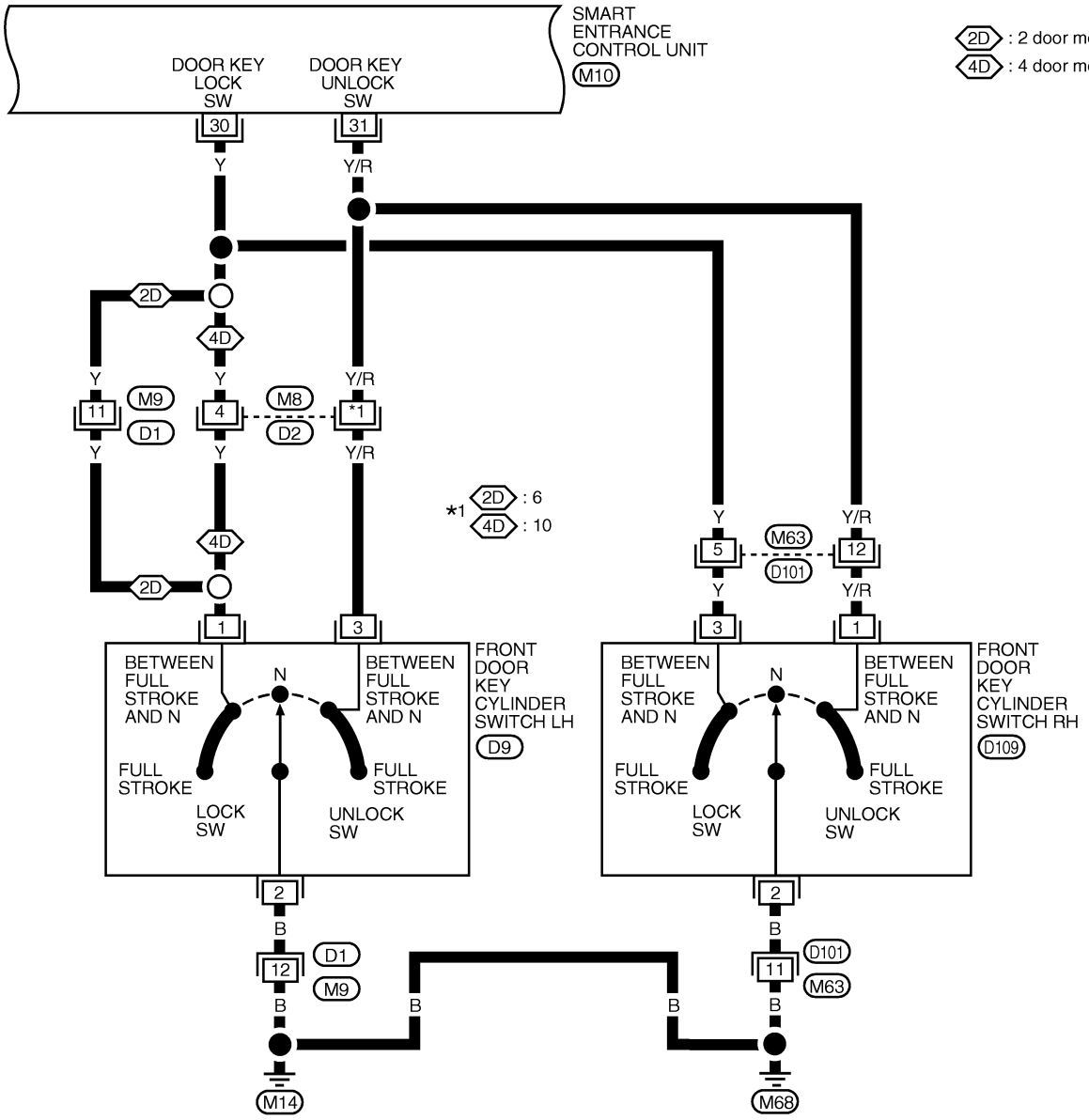


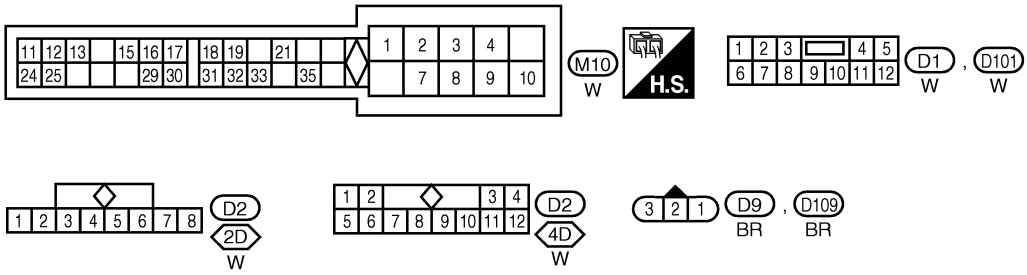
AEL488C

FIG. 2

NEEL0109S02

EL-D/LOCK-02



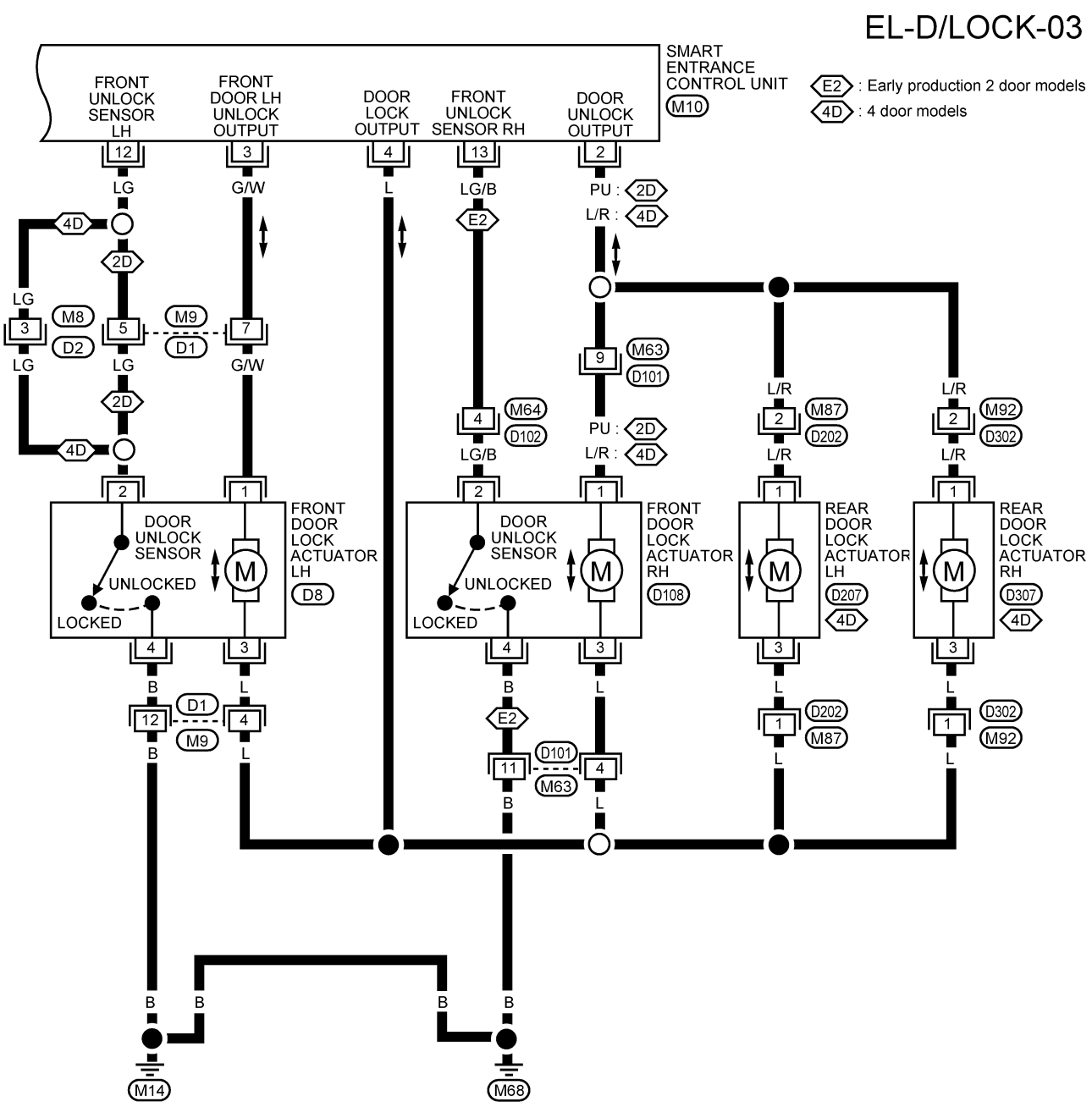


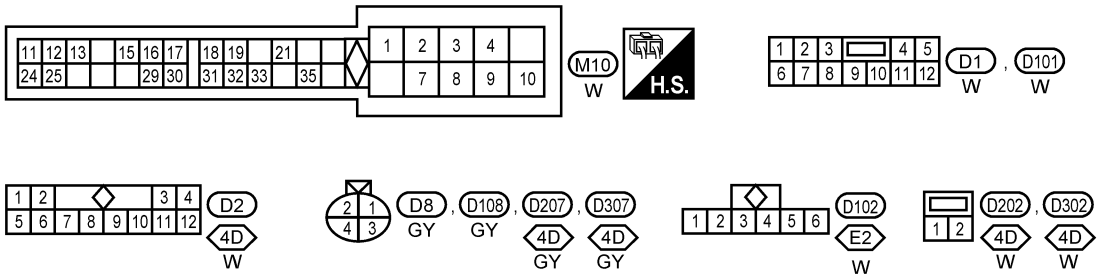
AEL492C

Wiring Diagram — D/LOCK — (Cont'd)

FIG. 3

NEEL0109S03





AEL493C

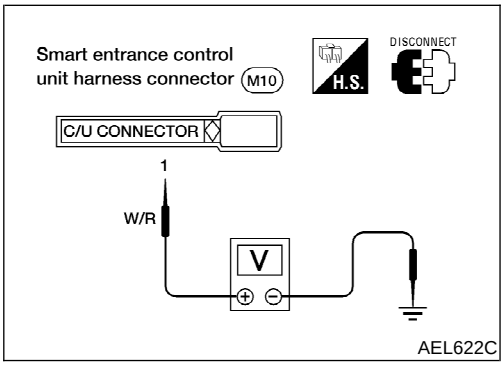
Trouble Diagnoses

SYMPTOM CHART

NEEL0110

NEEL0110S01

PROCEDURE	MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK		Diagnostic procedure					
REFERENCE PAGE (EL-)	171	172	172	173	175	177	179	181
SYMPTOM	Main power supply circuit check	Ground circuit check	DOOR SWITCH CHECK	KEY SWITCH (INSERTED) CHECK	DOOR LOCK/UNLOCK SWITCH CHECK	DOOR KEY CYLINDER SWITCH CHECK	DOOR UNLOCK SENSOR CHECK	DOOR LOCK ACTUATOR CHECK
Key reminder door system does not operate properly.	X	X	X	X			X	X
One or more doors are not locked and/or unlocked.	X	X						X
Lock/unlock switch does not operate.	X	X			X			
None of the doors lock/unlock when operating door key cylinder switch.	X	X				X		
None of the doors lock when operating the door knob lock switch.	X	X					X	



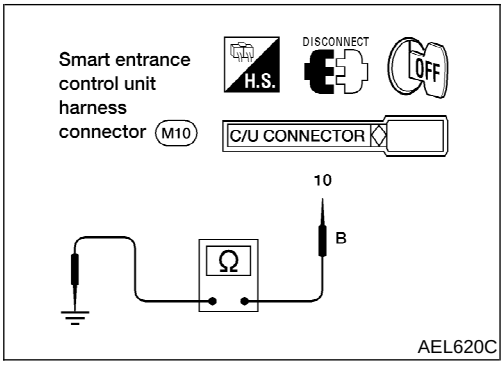
MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

NEEL0110S02

Main Power Supply Circuit Check

NEEL0110S0201

Terminal		Ignition switch		
(+)	(−)	OFF	ACC	ON
1	Ground	Battery voltage	Battery voltage	Battery voltage



Ground Circuit Check

NEEL0110S0202

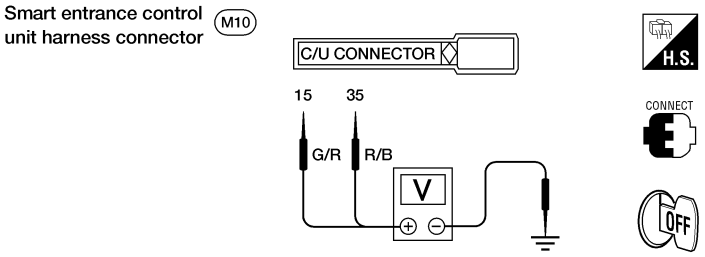
Terminals	Continuity
10 - Ground	Yes

DOOR SWITCH CHECK

NEEL0110S05

1	CHECK FRONT DOOR SWITCH INPUT SIGNAL

Check voltage between smart entrance control unit harness connector terminal 15 or 35 and ground.



Voltage [V]:

Door is closed - Approx. 12

Door is open - 0

Refer to wiring diagram on EL-168.

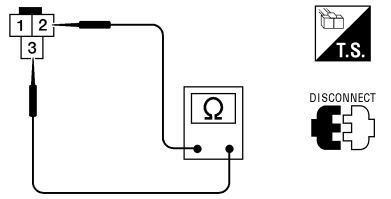
OK or NG

OK	▶	Door switch is OK.
NG	▶	GO TO 2.

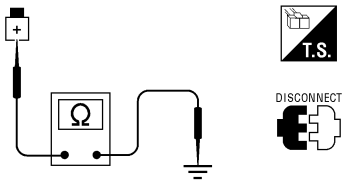
2	CHECK FRONT DOOR SWITCH

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

Front door switch LH (M20)



Front door switch RH (M71)



AEL554C

Continuity:

Front door switch LH terminals 2 - 3

Door switch is pressed - No

Door switch is released - Yes

Front door switch RH terminal + - ground

Door switch is pressed - No

Door switch is released - Yes

OK or NG

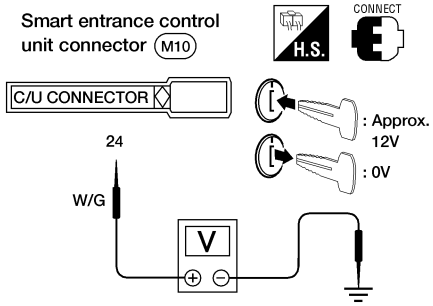
OK	▶	**Check the following** ● Front door switch LH ground circuit or front door switch RH ground condition ● Harness for open or short between smart entrance control unit and door switch
NG	▶	Replace door switch.

KEY SWITCH (INSERTED) CHECK

NEEL0110S06

1	CHECK KEY SWITCH INPUT SIGNAL

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector terminal 24 and ground.



AEL414B

Voltage [V]:

Key is inserted - Approx. 12

Key is removed - 0

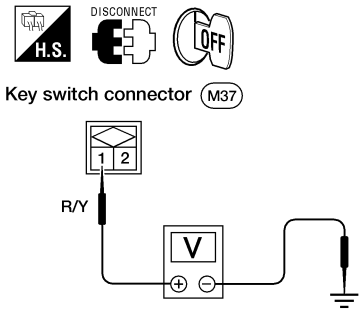
Refer to wiring diagram on EL-168.

OK or NG

OK	▶	Key switch is OK.
NG	▶	GO TO 2.

2	CHECK KEY SWITCH POWER SUPPLY

1. Disconnect key switch harness connector.
2. Check voltage between key switch harness connector terminal 1 and ground.



AEL415B

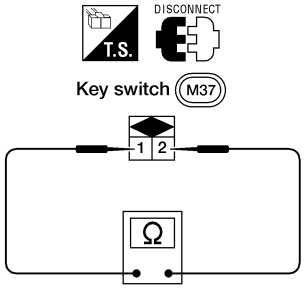
Battery voltage should exist.
Refer to wiring diagram on EL-168.

OK or NG

OK	▶	GO TO 3.
NG	▶	**Check the following** ● 7.5A fuse [No. 28, located in the fuse block (J/B)] ● Harness for open or short between key switch and fuse

3	CHECK KEY SWITCH

Check continuity between key switch terminals 1 and 2.



AEL416B

Continuity
Condition of key switch: Key is inserted.
Yes
Condition of key switch: Key is removed.
No

OK or NG

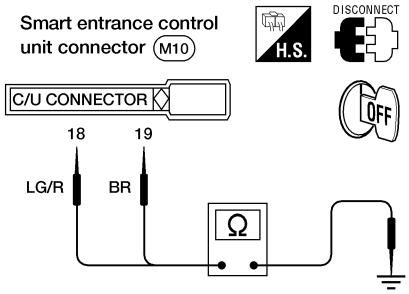
OK	▶	Check harness for open or short between smart entrance control unit and key switch.
NG	▶	Replace key switch.

DOOR LOCK/UNLOCK SWITCH CHECK

=NEEL0110S03

1 **CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL**

1. Disconnect smart entrance control unit harness connector.
2. Check continuity between smart entrance control unit harness connector terminal 18 or 19 and ground.



AEL417B

Terminals	Door lock/unlock switch (LH or RH) condition	Continuity
18 - ground	Lock	Yes
	N and Unlock	No
19 - ground	Unlock	Yes
	N and Lock	No

MTBL0005

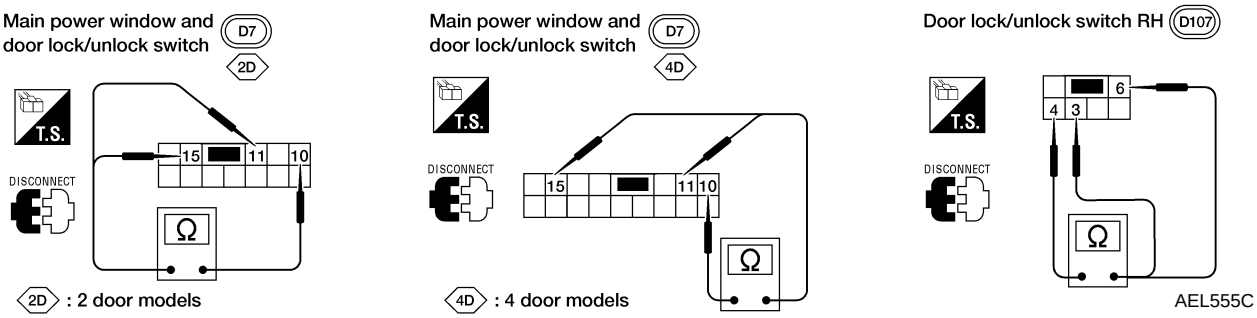
Refer to wiring diagram on EL-168.

OK or NG

OK	▶	Door lock/unlock switch is OK.
NG	▶	GO TO 2.

2 CHECK DOOR LOCK/UNLOCK SWITCH

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



Main power window and door lock/unlock switch

Condition	Terminals		
	10	11	15
Lock	○		○
N	No continuity		
Unlock	○	○	

Door lock/unlock switch RH

Condition	Terminals		
	3	4	6
Lock		○	○
N	No continuity		
Unlock	○	○	

AEL556C

OK or NG

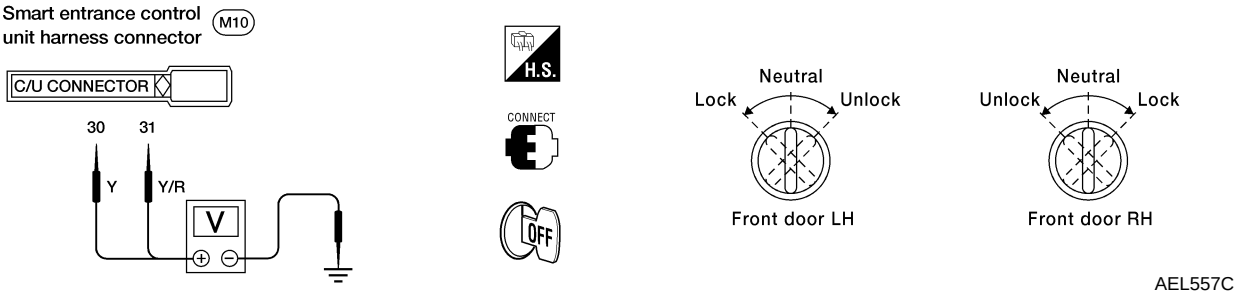
OK	▶	**Check the following.** ● Ground circuit for door lock/unlock switch ● Harness for open or short between door lock/unlock switch and smart entrance control unit
NG	▶	Replace door lock/unlock switch.

DOOR KEY CYLINDER SWITCH CHECK

NEEL0110S07

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

Check voltage between smart entrance control unit harness connector terminal 30 or 31 and ground.



AEL557C

Terminals		Key position	Voltage [V]
+	–		
30	Ground	Neutral	Approx. 12
		Lock	0
31	Ground	Neutral	Approx. 12
		Unlock	0

AEL559C

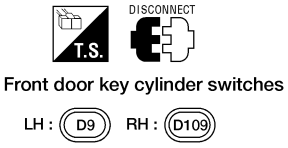
Refer to wiring diagram on EL-169.

OK or NG

OK	▶	Door key cylinder switch is OK.
NG	▶	GO TO 2.

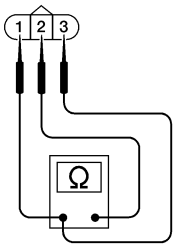
2 CHECK DOOR KEY CYLINDER SWITCH

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



Front door key cylinder switches

LH : D9 RH : D109



① : Door unlock switch terminal (RH)
Door lock switch terminal (LH)

② : Ground terminal

③ : Door lock switch terminal (RH)
Door unlock switch terminal (LH)

AEL558C

Terminals	Key position	Continuity
LH: 1 – 2 RH: 3 – 2	Neutral	No
	Lock	Yes
LH: 3 – 2 RH: 1 – 2	Neutral	No
	Unlock	Yes

AEL560C

OK or NG

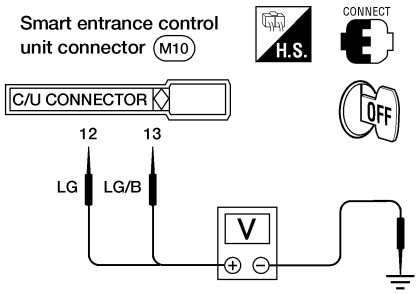
OK	▶	**Check the following** ● Door key cylinder switch ground circuit ● Harness for open or short between smart entrance control unit and door key cylinder switch
NG	▶	Replace door key cylinder switch.

DOOR UNLOCK SENSOR CHECK

NEEL0110S08

1 **CHECK DOOR UNLOCK SENSOR INPUT SIGNAL**

Check voltage between smart entrance control unit connector M10, terminal 12 or 13 (2 door early production models) and ground.



AEL399B

	Terminals		Condition	Voltage [V]
	+	−		
LH door	12	Ground	Locked	Approx. 12
			Unlocked	0
RH door (2 door models)	13	Ground	Locked	Approx. 12
			Unlocked	0

AEL562C

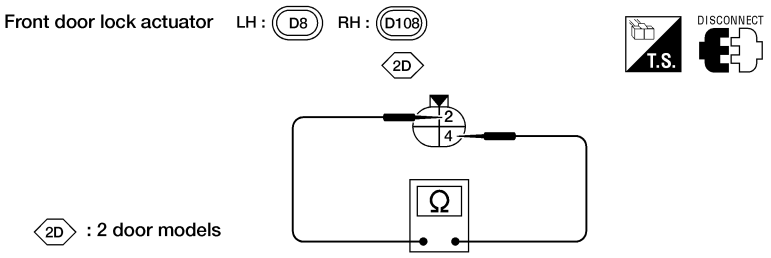
NOTE:
Door lock actuator (door unlock sensor) RH applies to 2 door early production models.
Refer to wiring diagram on EL-170.

OK or NG

OK	▶	Door unlock sensor is OK.
NG	▶	GO TO 2.

2	CHECK DOOR UNLOCK SENSOR

1. Disconnect front door lock actuator (door unlock sensor) LH, or RH (2 door early production models) harness connector.
2. Check continuity between door unlock sensor terminals 2 and 4.



AEL565C

NOTE:
Door lock actuator (door unlock sensor) RH applies to 2 door early production models.
Continuity:
Locked condition - No
Unlocked condition - Yes

OK or NG

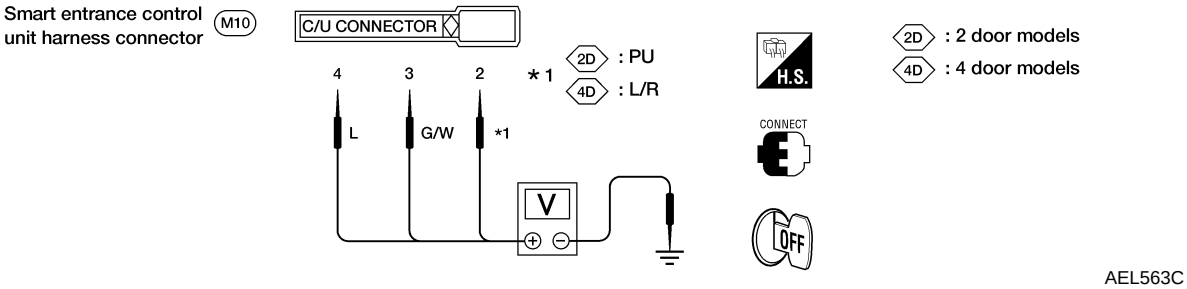
OK	▶	**Check the following** ● Door unlock sensor ground circuit ● Harness for open or short between smart entrance control unit and door unlock sensor
NG	▶	Replace door unlock sensor.

DOOR LOCK ACTUATOR CHECK

=NEEL0110S04

1 **CHECK DOOR LOCK ACTUATOR CIRCUIT**

Check voltage for door lock actuator.



AEL563C

Door lock/unlock switch condition	Terminals		Voltage [V]
	+	–	
Lock	4	Ground	Battery voltage
Unlock	3, 2	Ground	

AEL564C

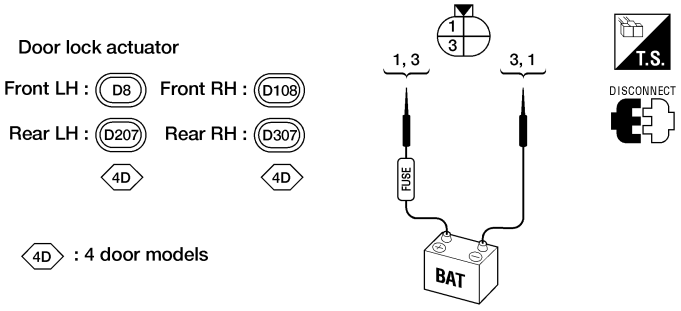
Refer to wiring diagram on EL-170.

OK or NG

OK	▶	GO TO 2.
NG	▶	Replace smart entrance control unit. (Before replacing smart entrance control unit, perform other procedures indicated in "SYMPTOM CHART".)

2 CHECK DOOR LOCK ACTUATOR

1. Disconnect door lock actuator harness connector.
2. Apply 12V direct current to door lock actuator and check operation.



AEL574C

Door lock actuator operation	Terminals	
	+	−
Unlocked → Locked	3	1
Locked → Unlocked	1	3

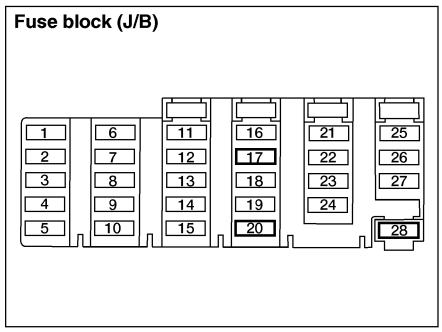
AEL575C

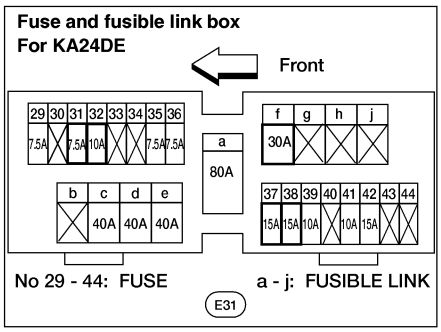
OK or NG

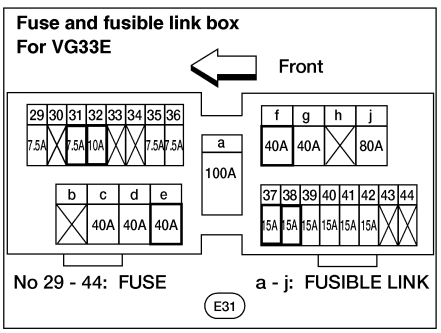
OK	▶	Check harness for open or short between smart entrance control unit and door lock actuator.
NG	▶	Replace door lock actuator.

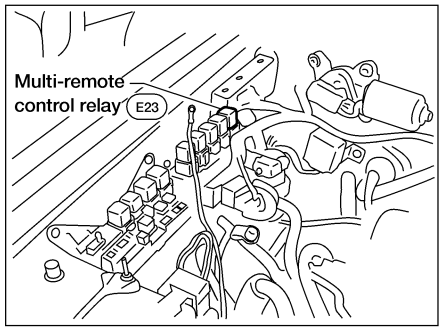
Component Parts and Harness Connector Location

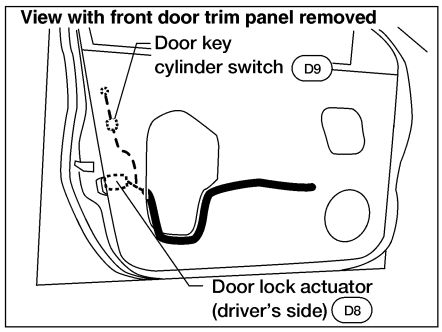
NEEL0111

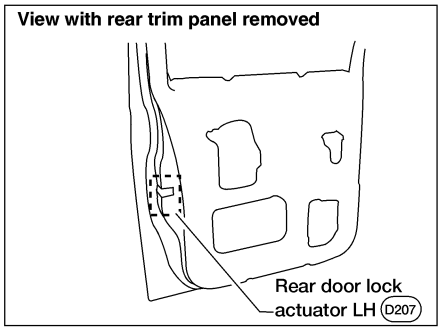


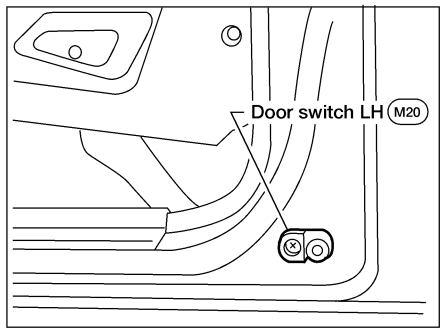


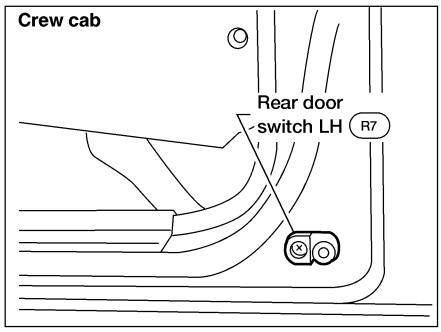


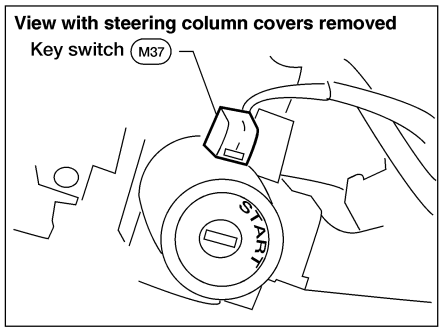


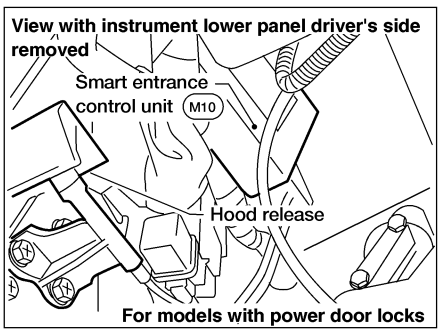












AEL453C

System Description

NEEL0112

POWER SUPPLY AND GROUND

NEEL0112S03

Power is supplied at all times
- through 30A fusible link [letter **f**, located in the fuse and fusible link box (with KA24DE engine)] or
- through 40A fusible link [letter **f**, located in the fuse and fusible link box (with VG33E engine)]
- to circuit breaker terminal +
- through circuit breaker terminal –
- to smart entrance control unit terminal 1.

With the ignition switch in the ACC or ON position, power is supplied
- through 7.5A fuse [No. 20, located in the fuse block (J/B)]
- to smart entrance control unit terminal 17.

Power is supplied at all times
- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to key switch terminal 1.

Power is supplied at all times
- through 10A fuse [No. 17, located in the fuse block (J/B)]
- to multi-remote control relay terminals 2, 5 and 7.

Power is supplied at all times
- through 15A fuse (No. 37, located in the fuse and fusible link box)
- to theft warning lamp relay terminal 7.

Power is supplied at all times
- through 15A fuse (No. 38, located in the fuse and fusible link box)
- to theft warning lamp relay terminal 5.

Power is supplied at all times
- through 7.5A fuse (No. 31, located in the fuse and fusible link box)
- to theft warning lamp relay terminal 2 and
- to theft warning horn relay terminals 2 and 7.

Power is supplied at all times
- through 10A fuse (No. 32, located in the fuse and fusible link box)
- to horn relay terminal 2
- through horn relay terminal 1
- to theft warning horn relay terminal 5.

Ground is supplied
- to smart entrance control unit terminal 10
- through body grounds M14 and M68.

INPUTS

NEEL0112S01

With the key switch in the INSERTED (key is in ignition key cylinder) position, power is supplied
- through key switch terminal 2
- to smart entrance control unit terminal 24.

With front door LH open, ground is supplied
- to smart entrance control unit terminal 15
- through front door switch LH terminal 2
- through front door switch LH terminal 3
- through body grounds M14 and M68.

With front door RH open, ground is supplied
- to smart entrance control unit terminal 35
- through front door switch RH terminal +.

With rear door LH or RH (crew cab) open, ground is supplied
- to smart entrance control unit terminal 16
- through rear door switch LH or RH terminal +.

With the front door lock actuator LH (door unlock sensor) in the UNLOCKED position, ground is supplied
- to smart entrance control unit terminal 12
- through front door lock actuator LH (door unlock sensor) terminal 2
- through front door lock actuator LH (door unlock sensor) terminal 4
- through body grounds M14 and M68.

With the front door lock actuator RH (door unlock sensor) (2 door early production models) in the UNLOCKED position, ground is supplied
- to smart entrance control unit terminal 13
- through front door lock actuator RH (door unlock sensor) terminal 2
- through front door lock actuator RH (door unlock sensor) terminal 4
- through body grounds M14 and M68.

Remote controller signal input
- through internal antenna.

The multi-remote control system controls operation of the
- power door locks
- panic alarm
- hazard reminder

OPERATION PROCEDURE

NEEL0112S02

Power Door Lock Operation

NEEL0112S0201

When the remote controller sends a LOCK signal with the key switch in the REMOVED position (key is not in ignition key cylinder), the smart entrance control unit locks all doors.
When the remote controller sends an UNLOCK signal once, the smart entrance control unit unlocks the front door LH.
Then, if the remote controller sends another UNLOCK signal within 5 seconds, the smart entrance control unit unlocks all other doors.

Key Reminder

NEEL0112S0207

When performing a door locking operation (early production models) using either the main power window and door lock/unlock switch, the door lock/unlock switch RH, the front door LH lock knob or a multi-remote controller, all the doors will lock and then will immediately unlock if the
- key switch is in INSERTED position (key is in ignition key cylinder) and
- ignition switch is in the OFF position
- and either front door switch LH or RH is in OPEN position (door is open).

When performing a door locking operation (late production models) using either the main power window and door lock/unlock switch, the door lock/unlock switch RH, the front door LH lock knob or a multi-remote controller, all the doors will lock and then the front door LH will immediately unlock if the
- key switch is in INSERTED position (key is in ignition key cylinder) and
- ignition switch is in the OFF position
- and either front door switch LH or RH is in OPEN position (door is open).

Hazard Reminder

NEEL0112S0204

Power is supplied at all times
- to multi-remote control relay terminals 2, 5 and 7
- through 10A fuse [No. 17, located in the fuse block (J/B)].

When remote controller sends a LOCK signal with all door switches in CLOSED (when all doors are closed) position, ground is supplied
- to multi-remote control relay terminal 1
- through smart entrance control unit terminal 7.

Multi-remote control relay is energized, and hazard warning lamps flash twice as a reminder.
For detailed description, refer to "System Description", " TURN SIGNAL AND HAZARD WARNING LAMPS", EL-52.

Interior Lamp Operation

NEEL0112S0205

When both of the following signals are supplied:
- key switch in the REMOVED (key is not in ignition key cylinder) position

- all door switches in CLOSED (when all doors are closed) position

multi-remote control system turns on the front and rear room lamps for 30 seconds with input of UNLOCK signal from multi-remote controller.
For detailed description, refer to "INTERIOR ROOM LAMP", EL-60.

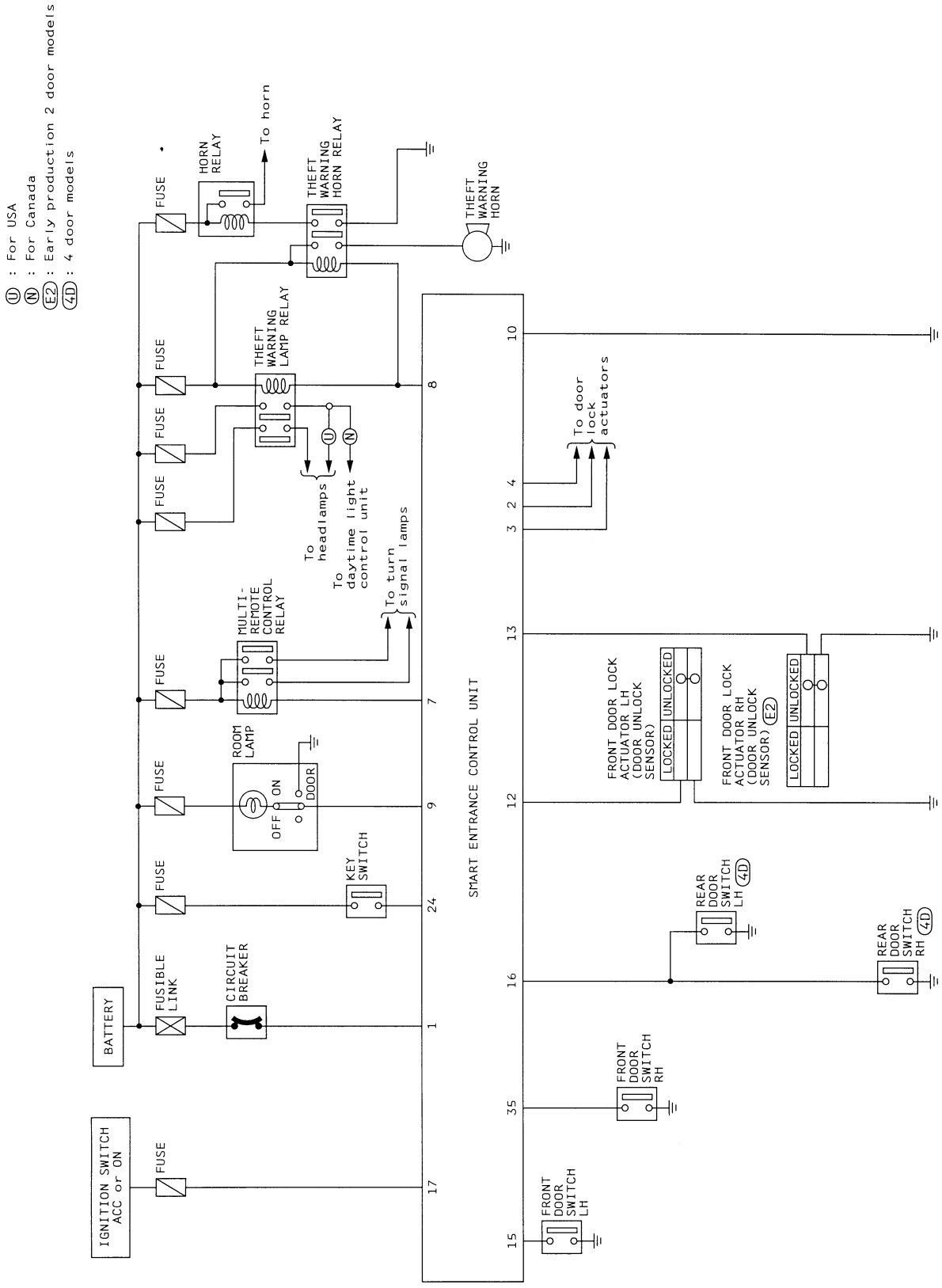
Panic Alarm Operation

NEEL0112S0203

When remote controller sends a PANIC ALARM signal with key switch in the REMOVED (key is not in ignition key cylinder) position, multi-remote control system operates the horn, theft warning horn and headlamps intermittently.
For detailed description, refer to "System Description", "THEFT WARNING SYSTEM", EL-207.

Circuit Diagram

NEEL0113



AEL494C

Wiring Diagram — MULTI —

NEEL0114

FIG. 1

NEEL0114S01

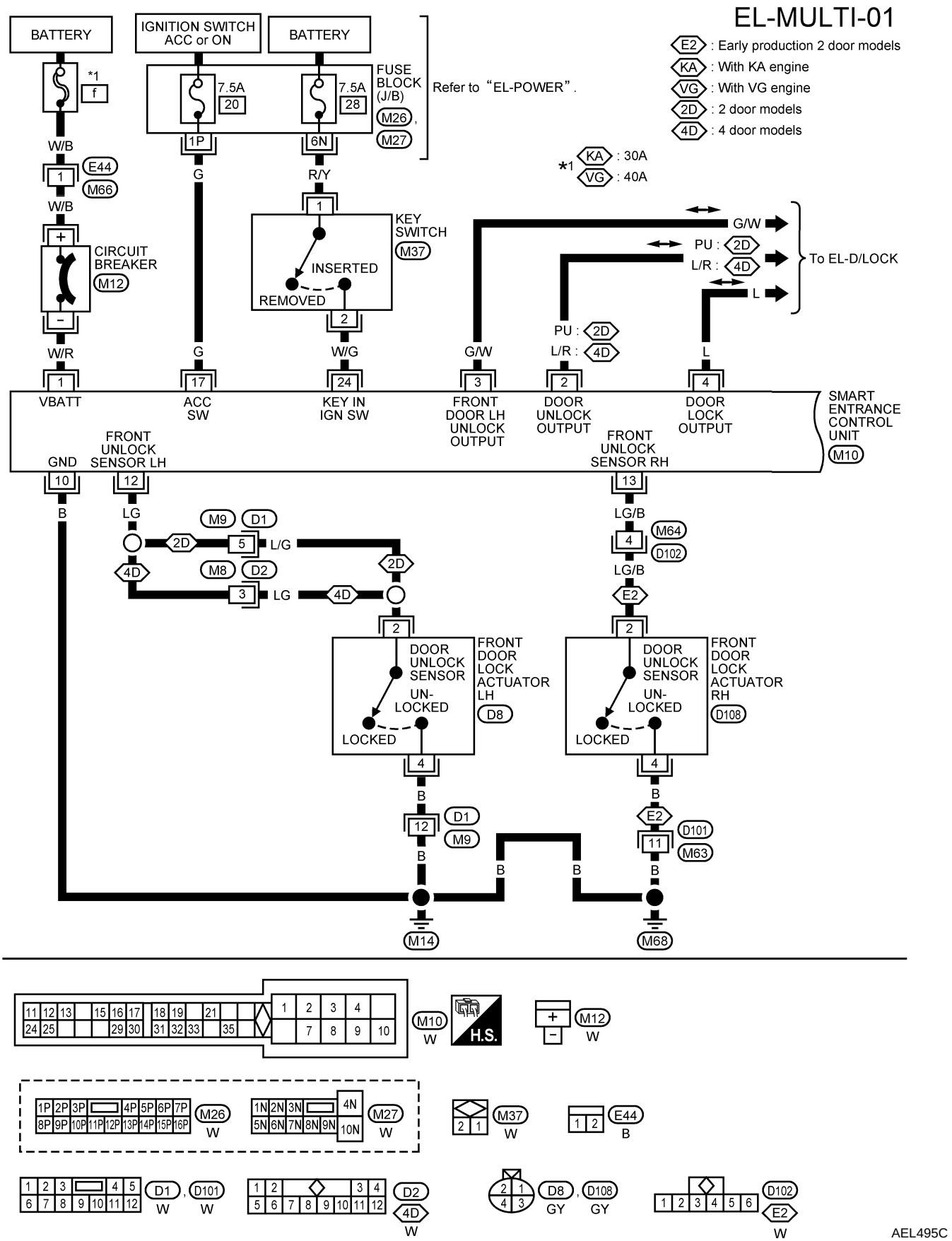
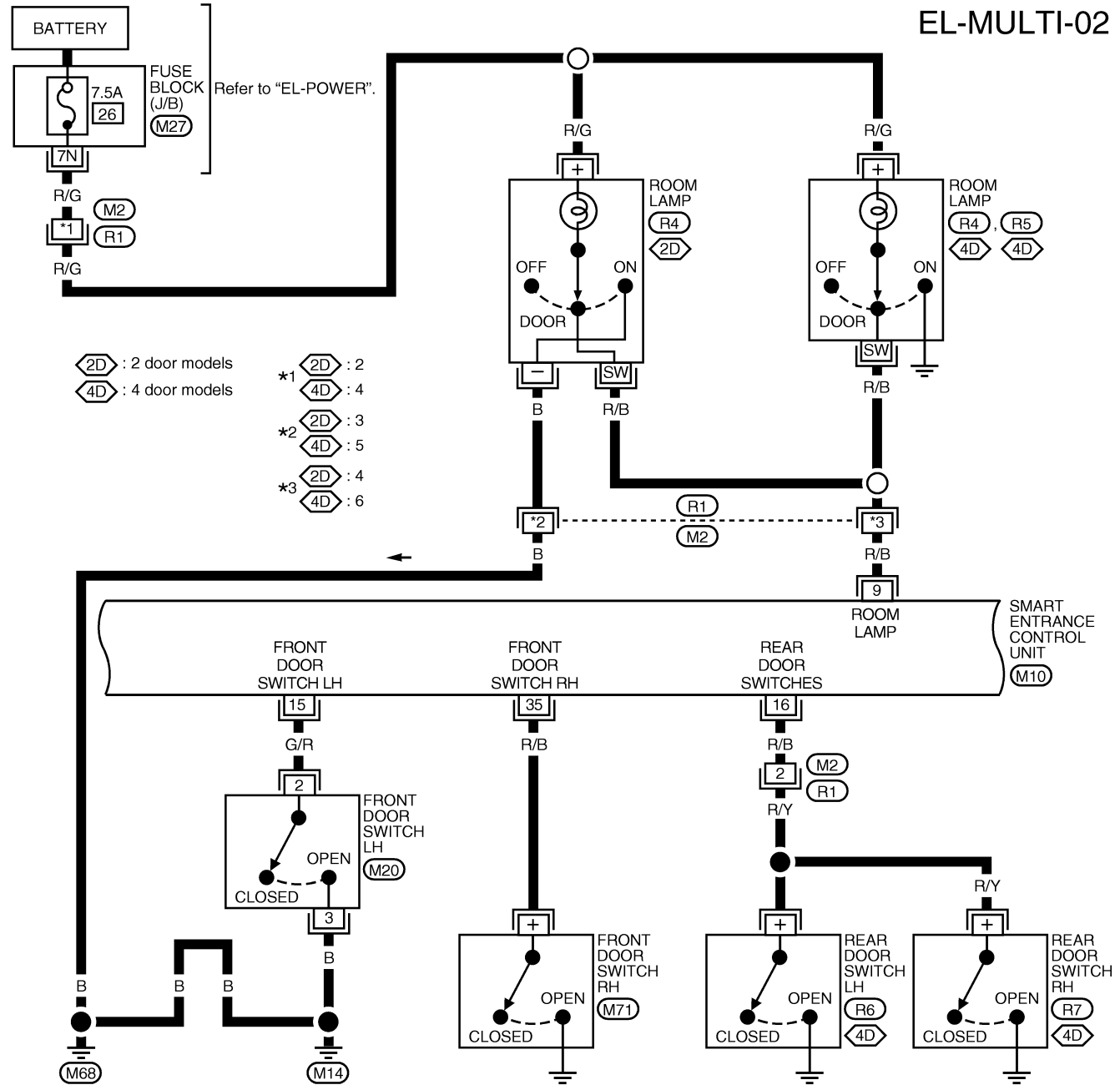
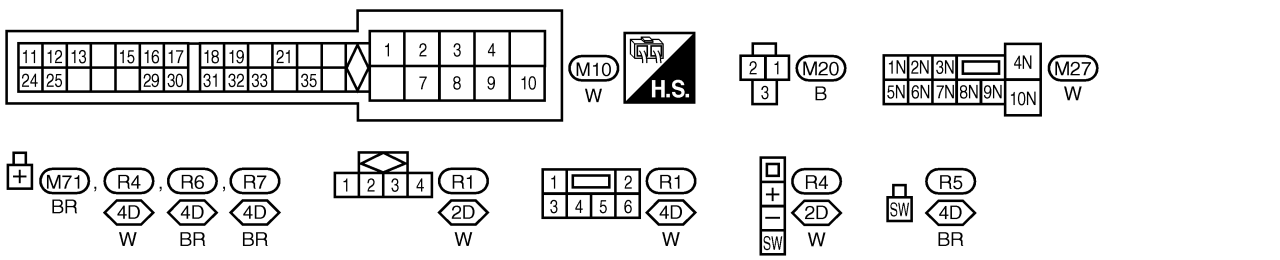


FIG. 2

NEEL0114S02

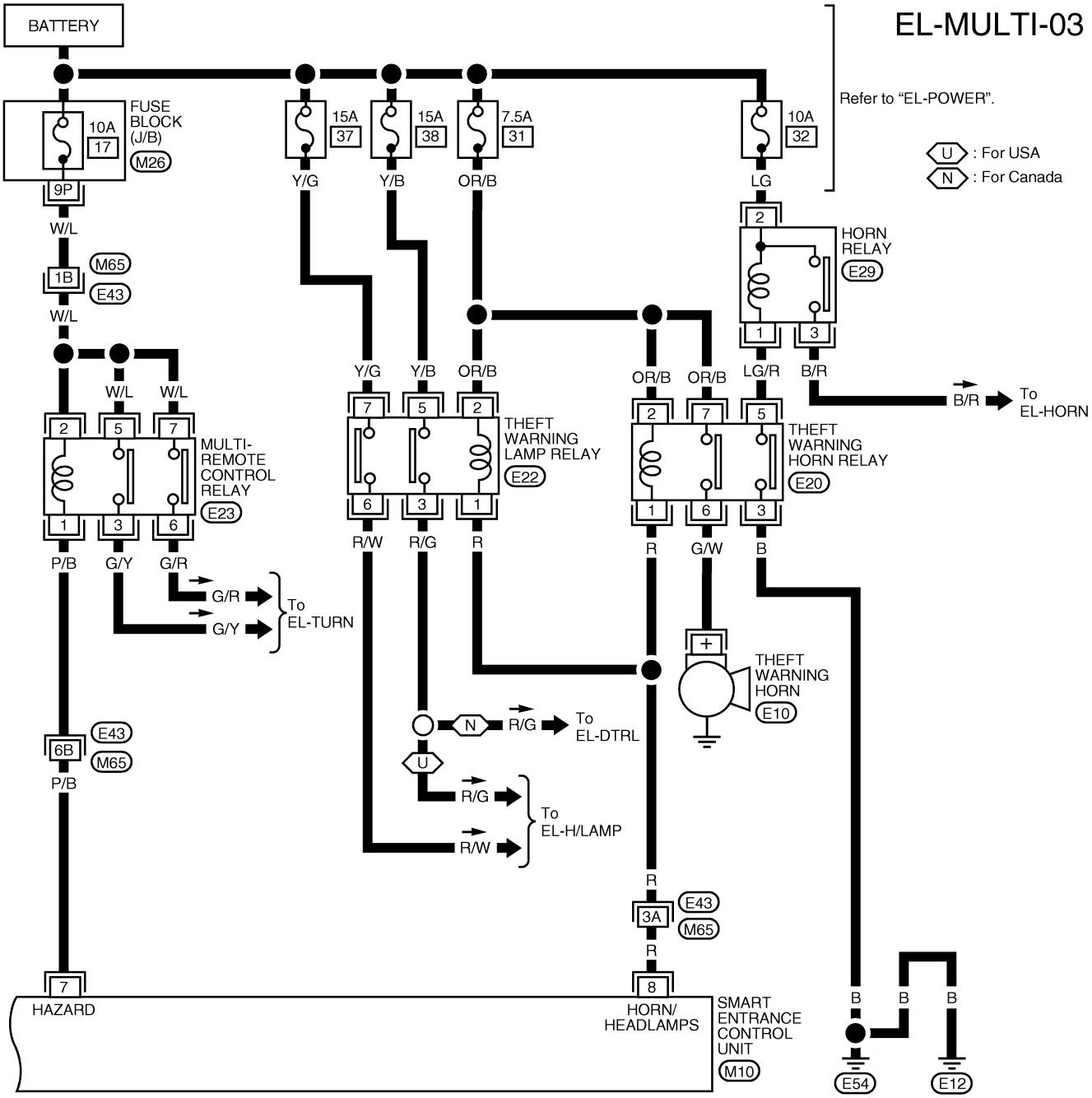


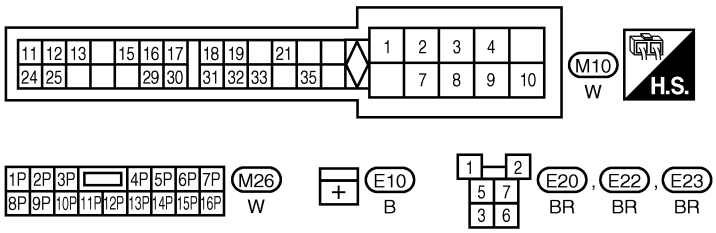


AEL497C

FIG. 3

NEEL0114S03





Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL496C

Trouble Diagnoses

=NEEL0115

SYMPTOM CHART

NEEL0115S01

NOTE:

- Always check remote controller battery before replacing remote controller

Symptom	Diagnoses/service procedure	Reference page (EL-)
All functions of multi-remote control system do not operate.	1. Remote controller battery check	192
	2. Power supply and ground circuit check	193
	3. Key switch (inserted) check	196
	4. Door switch check	195
	5. Replace remote controller. Refer to ID Code Entry Procedure.	203
The new ID of remote controller cannot be entered.	1. Remote controller battery check	192
	2. Power supply and ground circuit check	193
	3. Key switch (inserted) check	196
	4. Door switch check	195
	5. Door unlock sensor check	198
	6. Replace remote controller. Refer to ID Code Entry Procedure.	203
Door lock or unlock does not function (If the power door lock system does not operate manually, check power door lock system. Refer to “Trouble Diagnoses”, “POWER DOOR LOCK”, EL-171.).	1. Key switch (inserted) check	196
	2. Door switch check	195
	3. Door unlock sensor check	198
	4. Replace remote controller. Refer to ID Code Entry Procedure.	203
Hazard indicator does not flash twice when pressing lock button of remote controller.	1. Hazard reminder check	202
	2. Replace remote controller. Refer to ID Code Entry Procedure.	203
Room lamp does not turn on for 30 seconds when pressing unlock button of multi-remote controller	1. Room lamp circuit check	202
Panic alarm (horn, theft warning horn and headlamps) does not activate when panic alarm button is pressed continuously for more than 1.5 seconds.	1. Theft warning operation check. Refer to “PRELIMINARY CHECK”, “THEFT WARNING SYSTEM”.	215
	2. Replace remote controller. Refer to ID Code Entry Procedure.	203

NOTE:

When performing a door locking operation (with early production models) using either the main power window and door lock/unlock switch, the door lock/unlock switch RH, the front door LH lock knob or a multi-remote controller, all the doors will lock and then will immediately unlock if the

- **key switch is in INSERTED position (key is in ignition key cylinder) and**
- **ignition switch is in the OFF position and**
- **either front door switch LH or RH is in OPEN position (door is open).**

When performing a door locking operation (with late production models) using either the main power window and door lock/unlock switch, the door lock/unlock switch RH, the front door LH lock knob or a multi-remote controller, all the doors will lock and then the front door LH will immediately unlock if

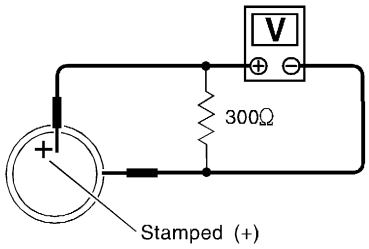
- **the key switch is in INSERTED position (key is in ignition key cylinder) and**
- **ignition switch is in the OFF position and**
- **either front door switch LH or RH is in OPEN position (door is open).**

REMOTE CONTROLLER BATTERY CHECK

=NEEL0115S02

1	CHECK REMOTE CONTROLLER BATTERY

Remove battery (refer to EL-204) and measure voltage across battery positive and negative terminals, (+) and (−).



SEL277V

Voltage [V]:
2.5 - 3.0

NOTE:
Remote controller does not function if battery is not installed correctly.

OK or NG

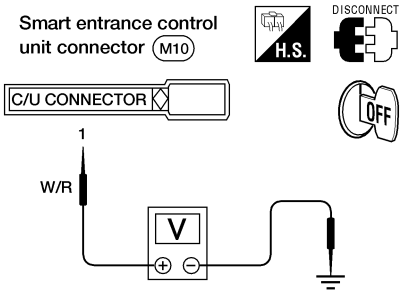
OK	▶	Check remote controller battery terminals for corrosion and damage.
NG	▶	Replace battery.

POWER SUPPLY AND GROUND CIRCUIT CHECK

=NEEL0115S04

1	CHECK MAIN POWER SUPPLY CIRCUIT FOR CONTROL UNIT

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



AEL396B

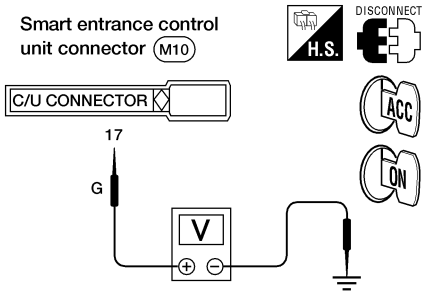
Refer to wiring diagram on EL-188.

Does battery voltage exist?

Yes	▶	GO TO 2.
No	▶	**Check the following.** ● 30A fusible link (with KA24DE engine), 40A fusible link (with VG33E engine) (letter **f**, located in fuse and fusible link box) ● M12 circuit breaker ● Harness for open or short between smart entrance control unit and circuit breaker

2	CHECK IGNITION SWITCH ACC CIRCUIT

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector terminal 17 and ground while ignition switch is in ACC or ON position.



AEL400B

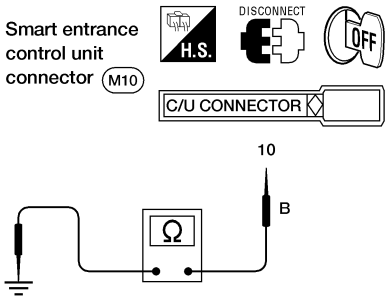
Refer to wiring diagram on EL-188.

Does battery voltage exist?

Yes	▶	GO TO 3.
No	▶	**Check the following.** ● 7.5A fuse [No. 20, located in fuse block (J/B)] ● Harness for open or short between smart entrance control unit and fuse

3	CHECK GROUND CIRCUIT FOR CONTROL UNIT

Check continuity between smart entrance control unit harness connector terminal 10 and ground.



AEL397B

Refer to wiring diagram on EL-188.

Does continuity exist?

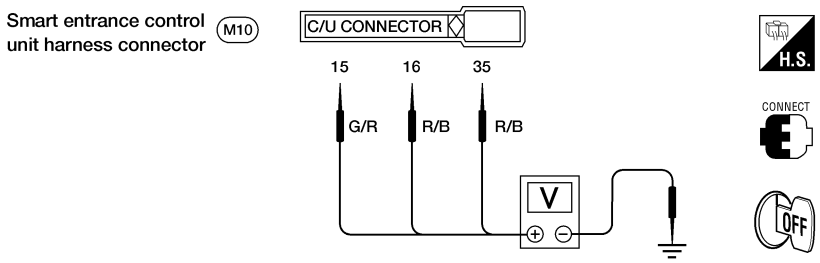
Yes	▶	Power supply and ground circuits are OK.
No	▶	Check ground harness.

DOOR SWITCH CHECK

=NEEL0115S05

1	CHECK DOOR SWITCH INPUT SIGNAL

Check voltage between smart entrance control unit terminals 15, 16 (crew cab) or 35 and ground.



AEL576C

Voltage [V]:
Door is closed - Approx. 12
Door is open - 0

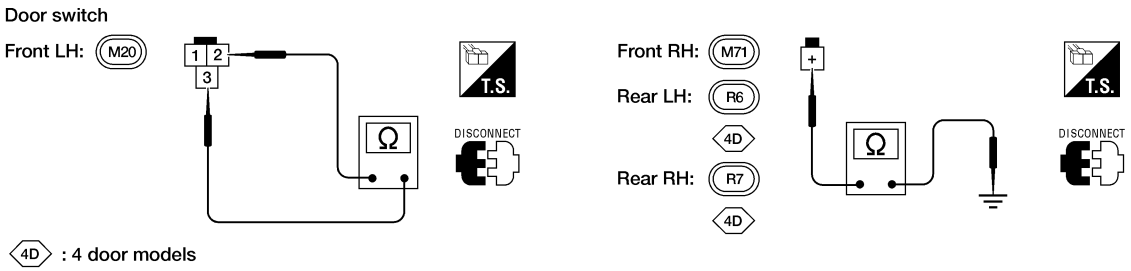
Refer to wiring diagram on EL-189.

OK or NG

OK	▶	Door switch is OK.
NG	▶	GO TO 2.

2	CHECK DOOR SWITCH

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



AEL577C

Continuity:
Front door switch LH terminals 2 - 3
Door switch is pressed - No
Door switch is released - Yes
Front door switch RH, rear door switch LH or RH terminal + - ground
Door switch is pressed - No
Door switch is released - Yes

OK or NG

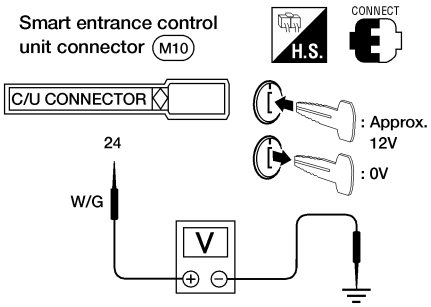
OK	▶	**Check the following.** ● Front door switch LH ground circuit or door switch ground condition ● Harness for open or short between smart entrance control unit and door switch
NG	▶	Replace door switch.

KEY SWITCH (INSERTED) CHECK

=NEEL0115S07

1	CHECK KEY SWITCH INPUT SIGNAL

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector terminal 24 and ground.



AEL414B

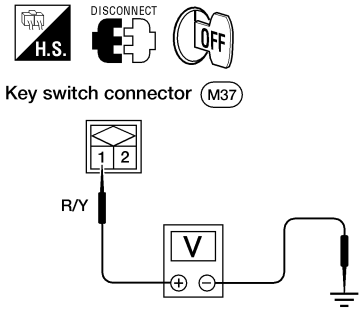
Voltage [V]:
Key is inserted - Approx. 12
Key is removed - 0
Refer to wiring diagram on EL-188.

OK or NG

OK	▶	Key switch is OK.
NG	▶	GO TO 2.

2	CHECK KEY SWITCH POWER SUPPLY

1. Disconnect key switch harness connector.
2. Check voltage between key switch harness connector terminal 1 and ground.

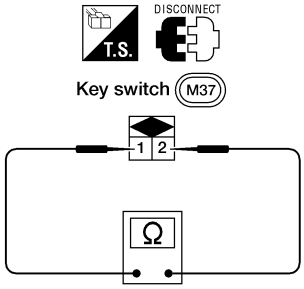


AEL415B

Battery voltage should exist.
Refer to wiring diagram on EL-188.

OK or NG

OK	▶	GO TO 3.
NG	▶	**Check the following** ● 7.5A fuse [No. 28, located in the fuse block (J/B)] ● Harness for open or short between key switch and fuse

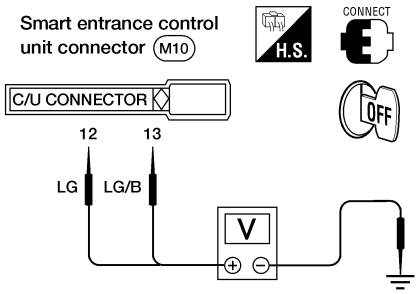
3	CHECK KEY SWITCH (INSERTED)	
Check continuity between terminals 1 and 2.  AEL416B **Continuity:** **Condition of key switch: Key is inserted.** **Yes** **Condition of key switch: Key is removed.** **No** **OK or NG**		
OK	▶	Check harness for open or short between smart entrance control unit and key switch.
NG	▶	Replace key switch.

DOOR UNLOCK SENSOR CHECK

=NEEL0115S06

1	CHECK DOOR UNLOCK SENSOR INPUT SIGNAL

Check voltage between smart entrance control unit connector M10 terminal 12 or 13 (2 door early production models) and ground.



AEL399B

	Terminals		Condition	Voltage [V]
	+	−		
LH door	12	Ground	Locked	Approx. 12
			Unlocked	0
RH door (2 door models)	13	Ground	Locked	Approx. 12
			Unlocked	0

AEL562C

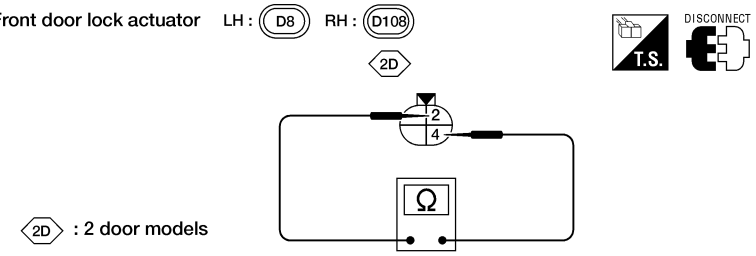
NOTE:
Door lock actuator (door unlock sensor) RH applies to 2 door early production models.
Refer to wiring diagram on EL-188.

OK or NG

OK	▶	Door unlock sensor is OK.
NG	▶	GO TO 2.

2	CHECK DOOR UNLOCK SENSOR

1. Disconnect front door lock actuator (door unlock sensor) LH harness connector.
2. Check continuity between door unlock sensor terminals 2 and 4.



AEL565C

NOTE:
Door lock actuator (door unlock sensor) RH applies to 2 door early production models.
Continuity:
Locked condition - No
Unlocked condition - Yes

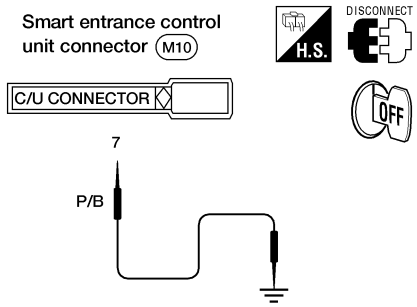
OK or NG

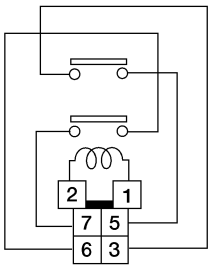
OK	▶	**Check the following.** ● Door unlock sensor ground circuit ● Harness for open or short between smart entrance control unit and door unlock sensor
NG	▶	Replace door unlock sensor.

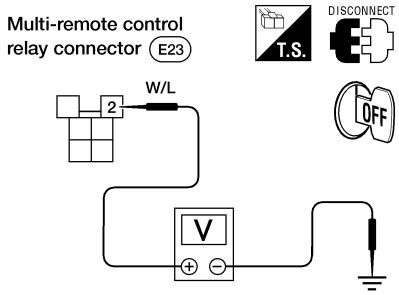
HAZARD REMINDER CHECK

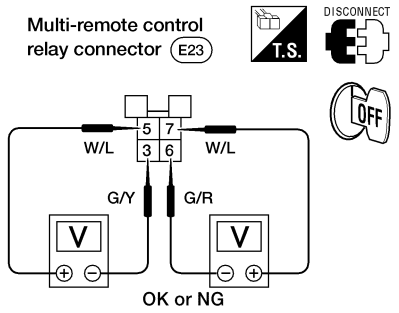
=NEEL0115S09

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. Refer to "Trouble Diagnoses", "TURN SIGNAL AND HAZARD WARNING LAMPS", EL-56.

2	CHECK HAZARD REMINDER OPERATION	
1. Disconnect smart entrance control unit harness connector. 2. Apply ground to smart entrance control unit harness connector terminal 7.  AEL404B Refer to wiring diagram on EL-190. **Does hazard indicator illuminate?**		
Yes	▶	Hazard indicator is OK.
No	▶	GO TO 3.

3	CHECK MULTI-REMOTE CONTROL RELAY	
Check multi-remote control relay.  AEL578C **Continuity** **Condition: 12V applied across multi-remote control relay terminals 1 and 2.** **Terminals 3 - 5, 6 - 7: Yes** **Condition: 0V applied across multi-remote control relay terminals 1 and 2.** **Terminals 3 - 5, 6 - 7: No** **OK or NG**		
OK	▶	GO TO 4.
NG	▶	Replace.

4	CHECK POWER SUPPLY FOR MULTI-REMOTE CONTROL RELAY	
1. Disconnect multi-remote control relay harness connector. 2. Check voltage between multi-remote control relay harness connector terminal 2 and ground.  AEL405B **Does battery voltage exist?**		
Yes	▶	GO TO 5.
No	▶	**Check the following.** ● 10A fuse [No. 17, located in fuse block (J/B)] ● Harness for open or short between multi-remote control relay and fuse

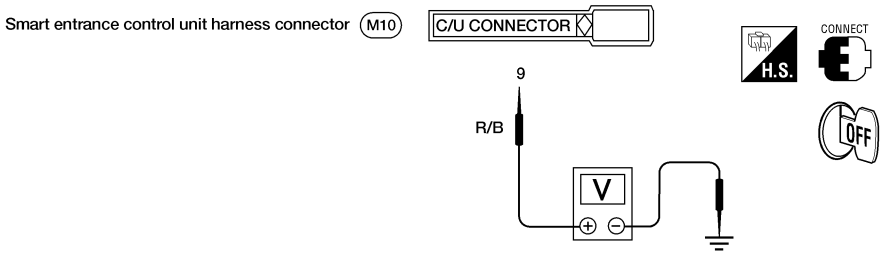
5	CHECK MULTI-REMOTE CONTROL RELAY CIRCUIT	
1. Disconnect multi-remote control relay harness connector. 2. Check voltage between multi-remote control relay harness connector terminals 3 and 5. **Battery voltage should exist.** 3. Check voltage between multi-remote control relay harness connector terminals 6 and 7. **Battery voltage should exist.**  AEL748C **OK or NG**		
OK	▶	Check harness for open or short between smart entrance control unit and multi-remote control relay.
NG	▶	**Check the following.** ● Harness for open or short between multi-remote control relay and fuse ● Harness for open or short between multi-remote control relay and turn signal lamps

ROOM LAMP CIRCUIT CHECK

NEEL0115S08

1	CHECK ROOM LAMP SUPPLY VOLTAGE

With room lamp switch in DOOR position, check voltage across smart entrance control unit harness connector terminal 9 and ground.



AEL654C

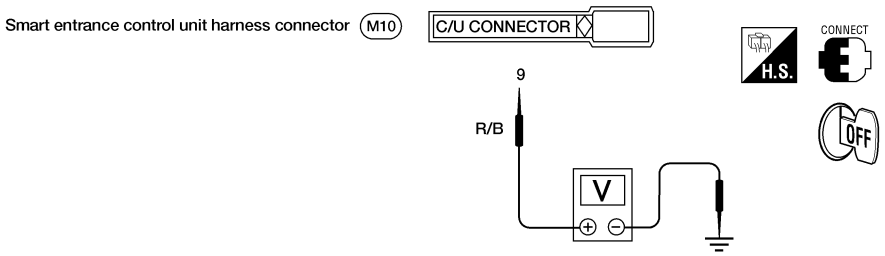
Refer to wiring diagram on EL-189.

Does battery voltage exist?

Yes	▶	GO TO 2.
No	▶	Repair harness between smart entrance control unit and room lamps.

2	CHECK ROOM LAMP GROUND CONTROL OPERATION

Press unlock button of multi-remote controller and check voltage across smart entrance control unit terminal 9 and ground.



AEL654C

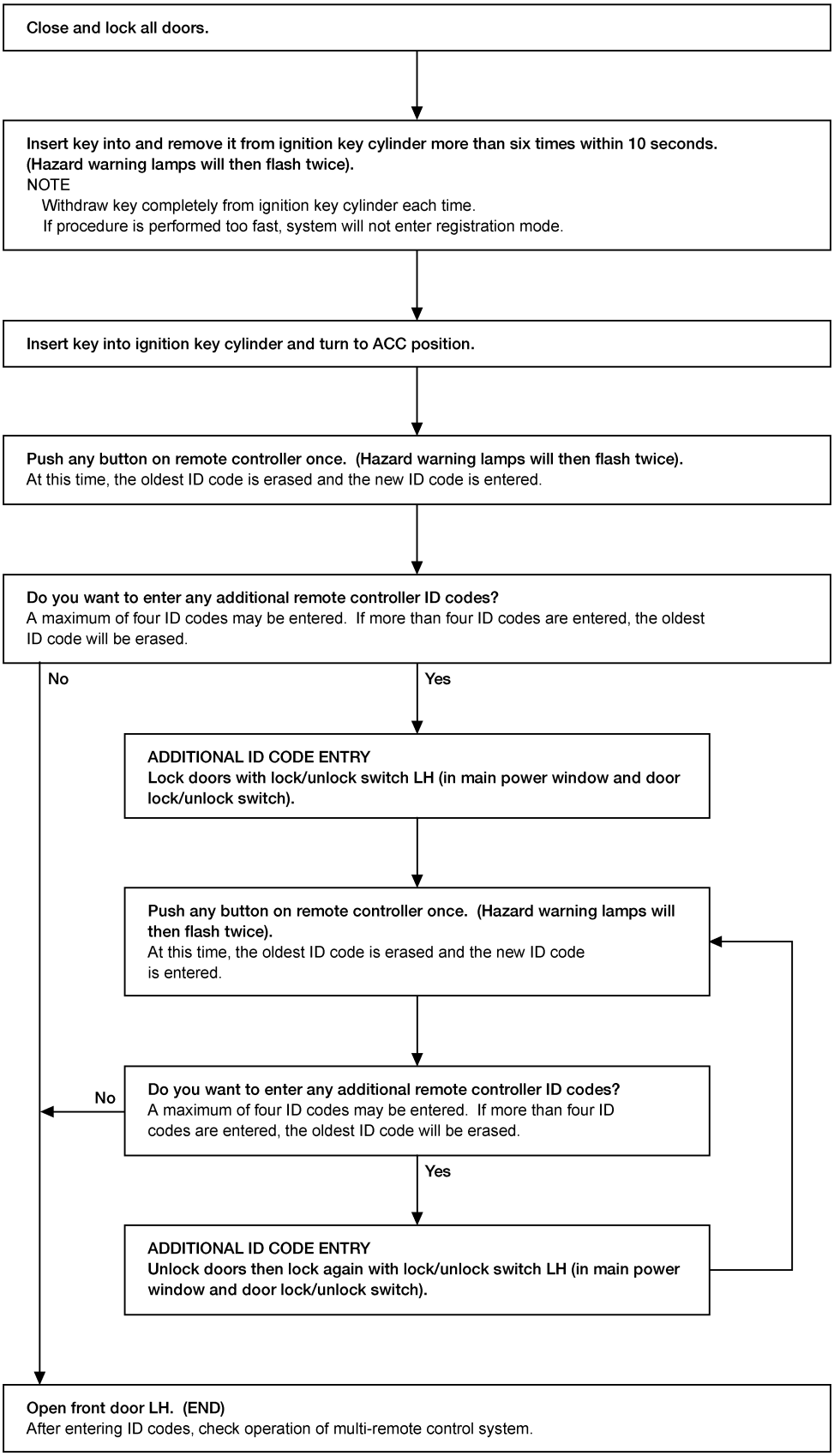
Voltage [V]:
Condition: Unlock button is pressed
0
Condition: Unlock button is not pressed
Battery voltage

OK or NG

OK	▶	Check system again.
NG	▶	Check harness for open or short between room lamps and smart entrance control unit.

ID Code Entry Procedure

NEEL0117



AEL753C

NOTE:

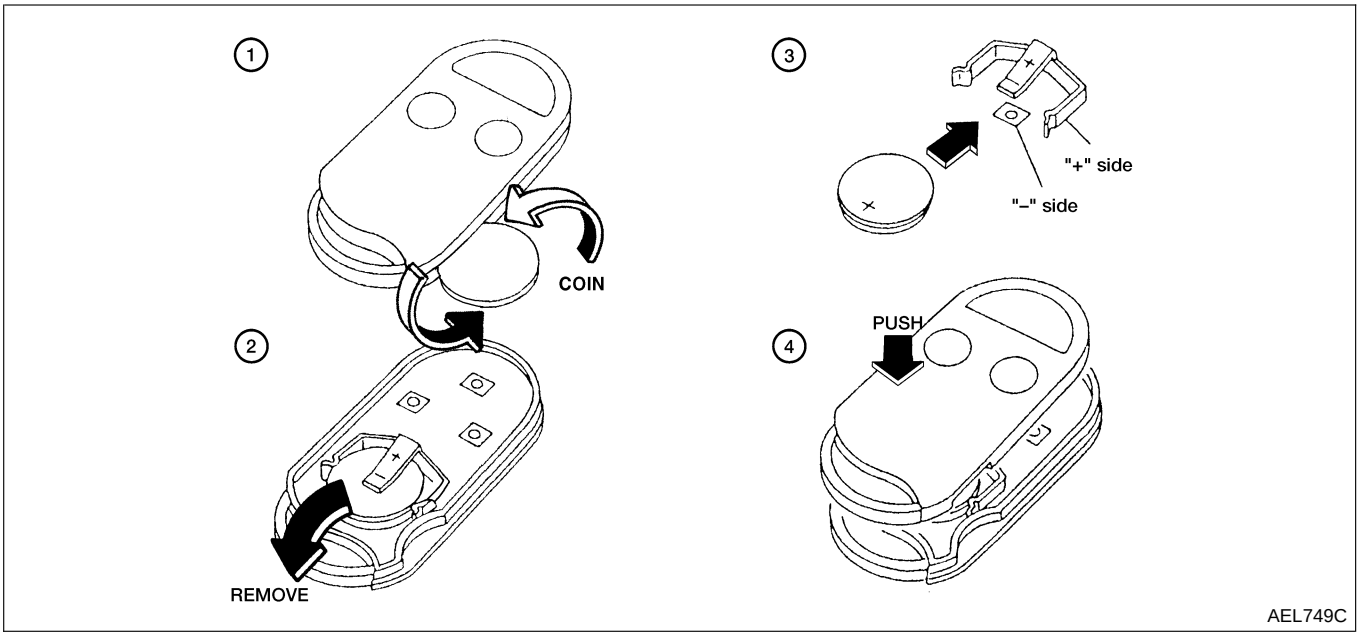
- If a remote controller is lost, the ID code of the lost remote controller must be erased to prevent unauthorized use. However, when the ID code of a lost remote controller is not known, all remote controller ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new remote controllers must be re-registered.
  To erase all ID codes in memory, register one ID code (remote controller) four times. After all ID codes are erased, the ID codes of all remaining and/or new remote controllers must be re-registered.
- When registering an additional remote controller, the existing ID codes in memory may or may not be erased. If four ID codes are stored in memory when an additional code is registered, only the oldest code is erased. If less than four ID codes are stored in memory when an additional ID code is registered, the new ID code is added and no ID codes are erased.
- If you need to activate more than two additional new remote controllers, repeat the procedure "ADDITIONAL ID CODE ENTRY" for each new remote controller.
- Entry of a maximum of four ID codes is allowed. When more than four ID codes are entered, the oldest ID code will be erased.
- If an ID code has already been registered in the memory, the same ID code can be entered in the memory again. Each registration of an ID code counts as an additional code.

Remote Controller Battery Replacement

NEEL0118

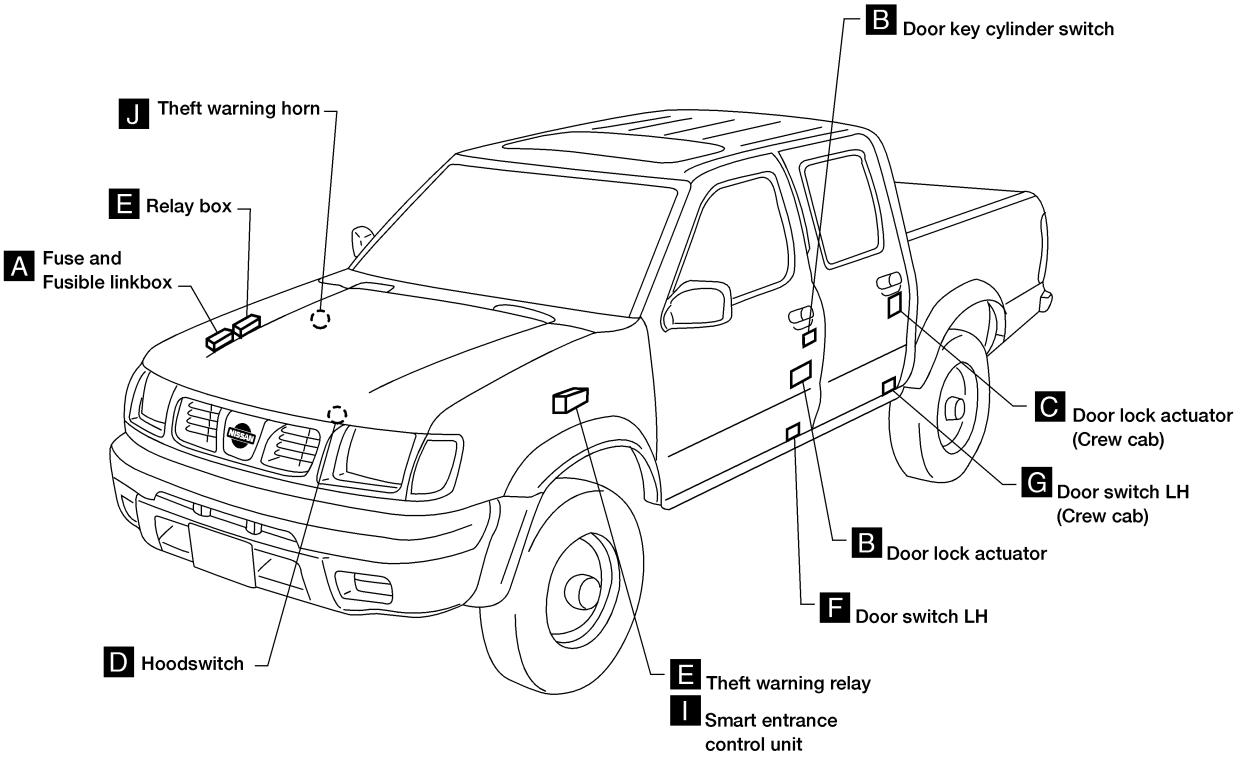
NOTE:

- Be careful not to touch the circuit board or battery terminal.
- The remote controller is water-resistant. However, if it does get wet, wipe it dry immediately.
- After battery replacement, press the remote controller buttons two or three times to check their operation.

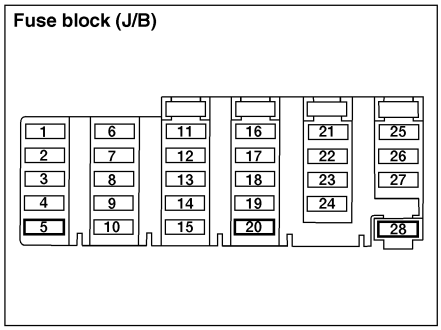


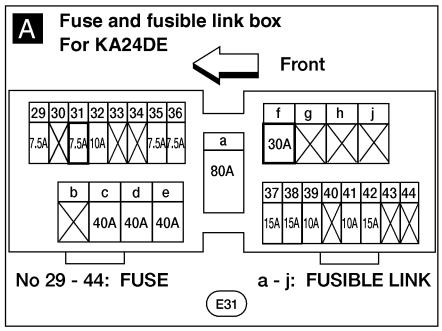
Component Parts and Harness Connector Location

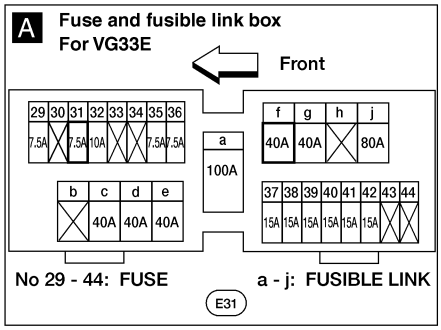
NEEL0196

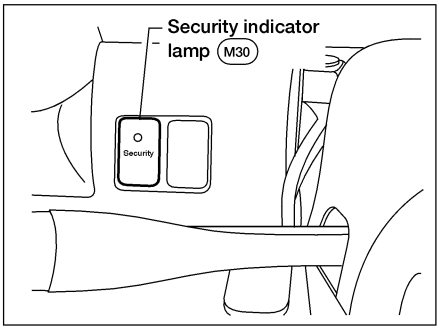


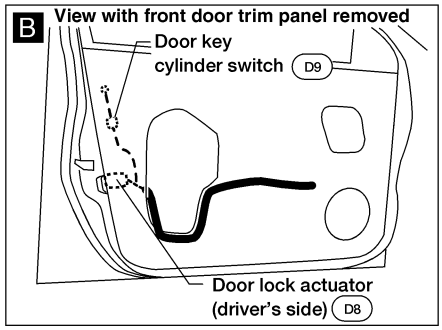
AEL454C

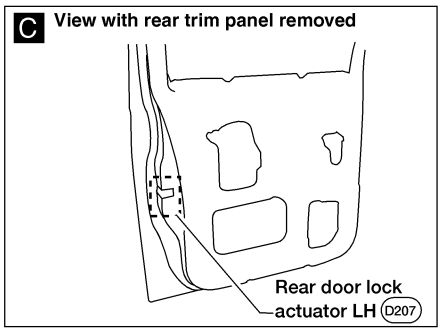

Fuse block (J/B)
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24
25 26 27 28

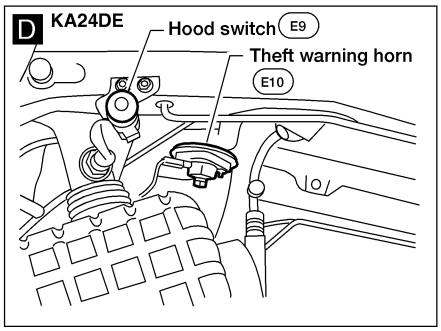

A
Fuse and fusible link box
For KA24DE
Front
29 30 31 32 33 34 35 36
7.5A 7.5A 10A 7.5A 7.5A
a
80A
f g h j
30A
b c d e
40A 40A 40A
37 38 39 40 41 42 43 44
15A 15A 10A 10A 15A
No 29 - 44: FUSE
a - j: FUSIBLE LINK
E31


A
Fuse and fusible link box
For VG33E
Front
29 30 31 32 33 34 35 36
7.5A 7.5A 10A 7.5A 7.5A
a
100A
f g h j
40A 40A 80A
b c d e
40A 40A 40A
37 38 39 40 41 42 43 44
15A 15A 15A 15A 15A 15A
No 29 - 44: FUSE
a - j: FUSIBLE LINK
E31

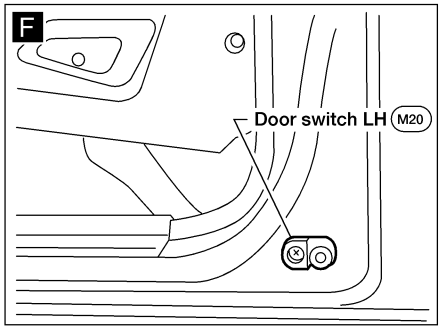

Security indicator lamp M30
Security

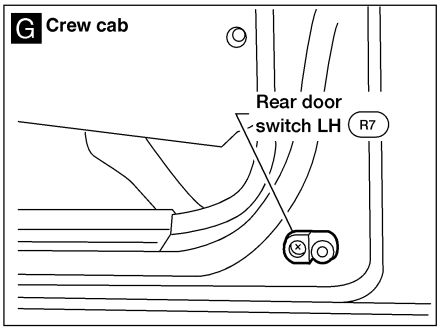

B
View with front door trim panel removed
Door key cylinder switch D9
Door lock actuator (driver's side) D8

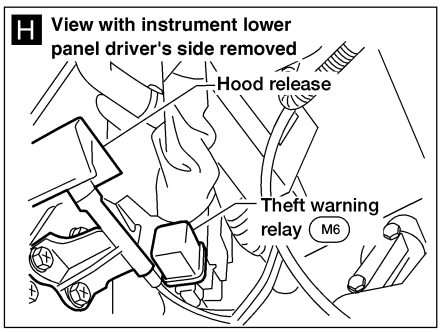

C
View with rear trim panel removed
Rear door lock actuator LH D207

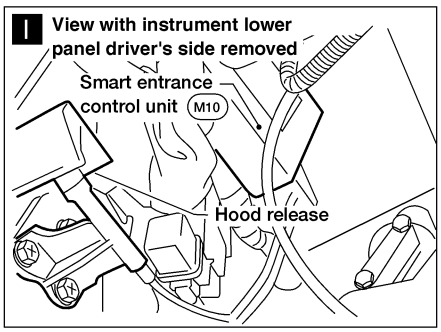

D
KA24DE
Hood switch E9
Theft warning horn E10

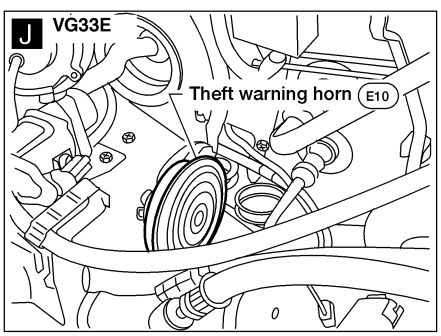

E
Theft warning lamp relay
Theft warning horn relay


F
Door switch LH M20


G
Crew cab
Rear door switch LH R7


H
View with instrument lower panel driver's side removed
Hood release
Theft warning relay M6


I
View with instrument lower panel driver's side removed
Smart entrance control unit M10
Hood release


J
VG33E
Theft warning horn E10

AEL455C

System Description

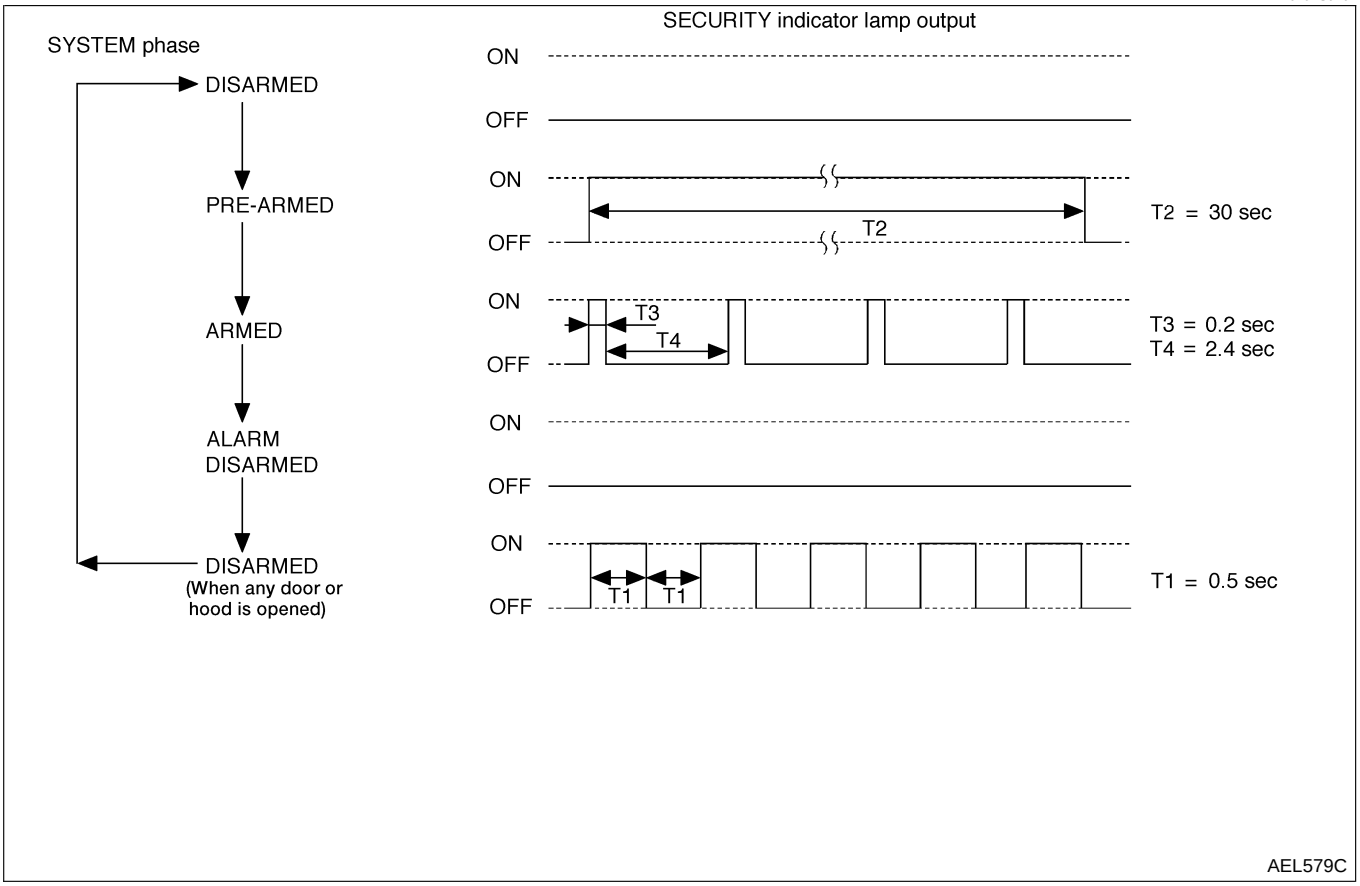
NEEL0197

DESCRIPTION

NEEL0197S01

1. Operation Flow

NEEL0197S0101



2. Setting the Theft Warning System

NEEL0197S0102

Initial condition

1) Close all doors.
2) Close hood.

Disarmed phase

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

Pre-armed phase and armed phase

The theft warning system turns into the “pre-armed” phase when hood and all doors are closed and the doors are locked by key or multi-remote controller. (The security indicator lamp illuminates.)
After about 30 seconds, the system automatically shifts into the “armed” phase (the system is set). (The security indicator lamp blinks every 2.6 seconds.)

3. Canceling the Set Theft Warning System

NEEL0197S0103

When the doors are unlocked with the key or multi-remote controller, the armed phase is canceled.

4. Activating the Alarm Operation of the Theft Warning System

NEEL0197S0104

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 horn, theft warning horn and headlamps operate intermittently for about 2.5 minutes. (At the same time, the system disconnects the starting system circuit.)

1) Engine hood or any door is opened before unlocking door with key or multi-remote controller.
2) Door is opened without first using key or multi-remote controller.

POWER SUPPLY AND GROUND

NEEL0197S02

Power is supplied at all times

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]

- to security indicator lamp terminal 1.

Power is supplied at all times

- through 30A fusible link [letter **f**, located in the fuse and fusible link box (with KA24DE engine)] or
- through 40A fusible link [letter **f**, located in the fuse and fusible link box (with VG33E engine)]
- to circuit breaker terminal +
- through circuit breaker terminal –
- to smart entrance control unit terminal 1.

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

- through 7.5A fuse [No. 20, located in the fuse block (J/B)]
- to smart entrance control unit terminal 17.

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

- through 7.5A fuse [No. 5, located in the fuse block (J/B)]
- to smart entrance control unit terminal 11.

Ground is supplied

- to smart entrance control unit terminal 10
- through body grounds M14 and M68.

INITIAL CONDITION TO ACTIVATE THE SYSTEM

NEEL0197S03

To activate the theft warning system, the smart entrance control unit must receive signals indicating the doors and hood are closed and the doors are locked.
When a door is open, smart entrance control unit terminal 15, 16 (crew cab) or 35 receives a ground signal from the corresponding door switch.
When the front door LH is unlocked, smart entrance control unit terminal 12 receives a ground signal from the front door lock actuator LH (door unlock sensor).
When the front door RH is unlocked, smart entrance control unit terminal 13 (2 door early production models) receives a ground signal from the front door lock actuator RH (door unlock sensor).
When the hood is open, ground is supplied

- to smart entrance control unit terminal 29
- through hood switch terminal +
- through hood switch terminal –
- through body grounds E12 and E54.

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

THEFT WARNING SYSTEM ACTIVATION (WITH KEY OR REMOTE CONTROLLER USED TO LOCK DOORS)

NEEL0197S04

If the key is used to lock doors, ground is supplied to smart entrance control unit terminal 30

- through front door key cylinder switch LH terminal 1 or
- through front door key cylinder switch RH terminal 3
- through front door key cylinder switch LH or RH terminal 2
- through body grounds M14 and M68.

If this signal or lock signal from remote controller is received by the smart entrance control unit, the theft warning system will activate automatically.
Once the theft warning system has been activated, smart entrance control unit terminal 33 supplies ground to security indicator lamp terminal 2.
The security lamp will illuminate for approximately 30 seconds and then blink.
The theft warning system is now in armed phase.

THEFT WARNING SYSTEM ALARM OPERATION

NEEL0197S05

The theft warning system is triggered by

- opening a door
- opening the hood

Once the theft warning system is in armed phase, if the smart entrance control unit receives a ground signal at terminal 12 (door unlock sensor) 13 (door unlock sensor, 2 door early production models) 15, 16 (crew cab), 35 (door switch) or 29 (hood switch), the theft warning system will be triggered. The horn, theft warning horn and headlamps operate intermittently and the starting system is interrupted.
With the ignition switch in the ON or START position, power is supplied

- through 7.5A fuse [No. 5, located in the fuse block (J/B)].
- to theft warning relay terminal 2.

If the theft warning system is triggered, ground is supplied

- to theft warning relay terminal 1
- through smart entrance control unit terminal 32.

With power and ground supplied, starter motor circuit is interrupted. The starter motor will not crank and the engine will not start.
Power is supplied at all times

- through 7.5A fuse (No. 31, located in fuse and fusible link box)
- to theft warning lamp relay terminal 2 and
- to theft warning horn relay terminals 2 and 7.

When the theft warning system is triggered, ground is supplied intermittently

- to theft warning lamp relay terminal 1 and
- to theft warning horn relay terminal 1
- through smart entrance control unit terminal 8.

The horn, theft warning horn and headlamps operate intermittently.
The alarm automatically turns off after 2 or 3 minutes but will reactivate if the vehicle is tampered with again.

THEFT WARNING SYSTEM DEACTIVATION

NEEL0197S06

To deactivate the theft warning system, a door must be unlocked with the key or remote controller.
When the key is used to unlock the door, smart entrance control unit terminal 31 receives a ground signal

- through front door key cylinder switch LH terminal 3 or
- through front door key cylinder switch RH terminal 1
- through front door key cylinder switch LH or RH terminal 2
- through body grounds M14 and M68.

When the smart entrance control unit receives this signal or an unlock signal from remote controller, the theft warning system is deactivated (disarmed phase).

PANIC ALARM OPERATION

NEEL0197S07

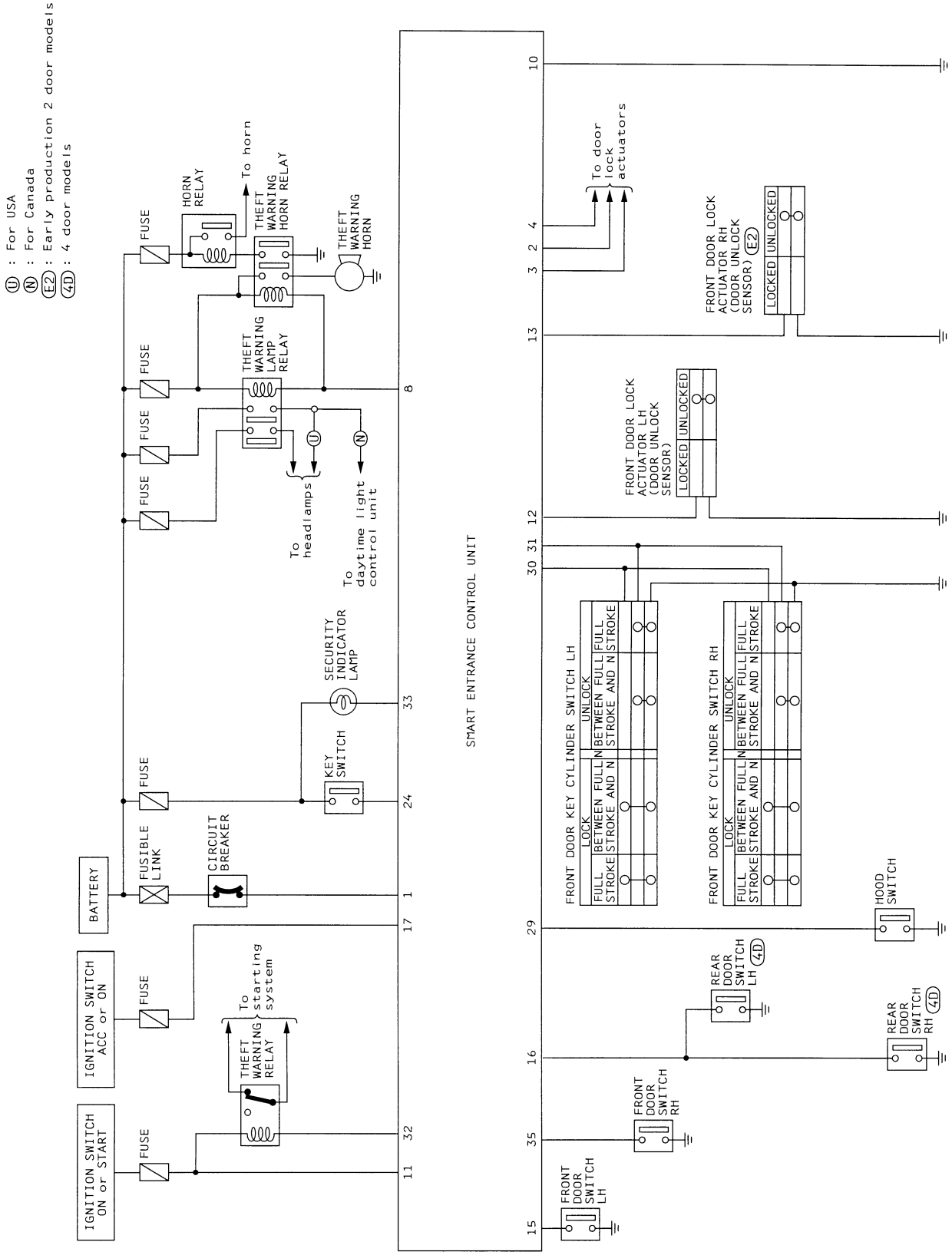
Multi-remote control system may or may not operate theft warning system (horn, theft warning horn and headlamps) as required.
When the multi-remote control system is triggered, ground is supplied intermittently

- to theft warning lamp relay terminal 1 and
- to theft warning horn relay terminal 1
- through smart entrance control unit terminal 8.

The horn, theft warning horn and headlamps operate intermittently.
The alarm automatically turns off after 30 seconds or when smart entrance control unit receives any signal from multi-remote controller.

Circuit Diagram

NEEL0198



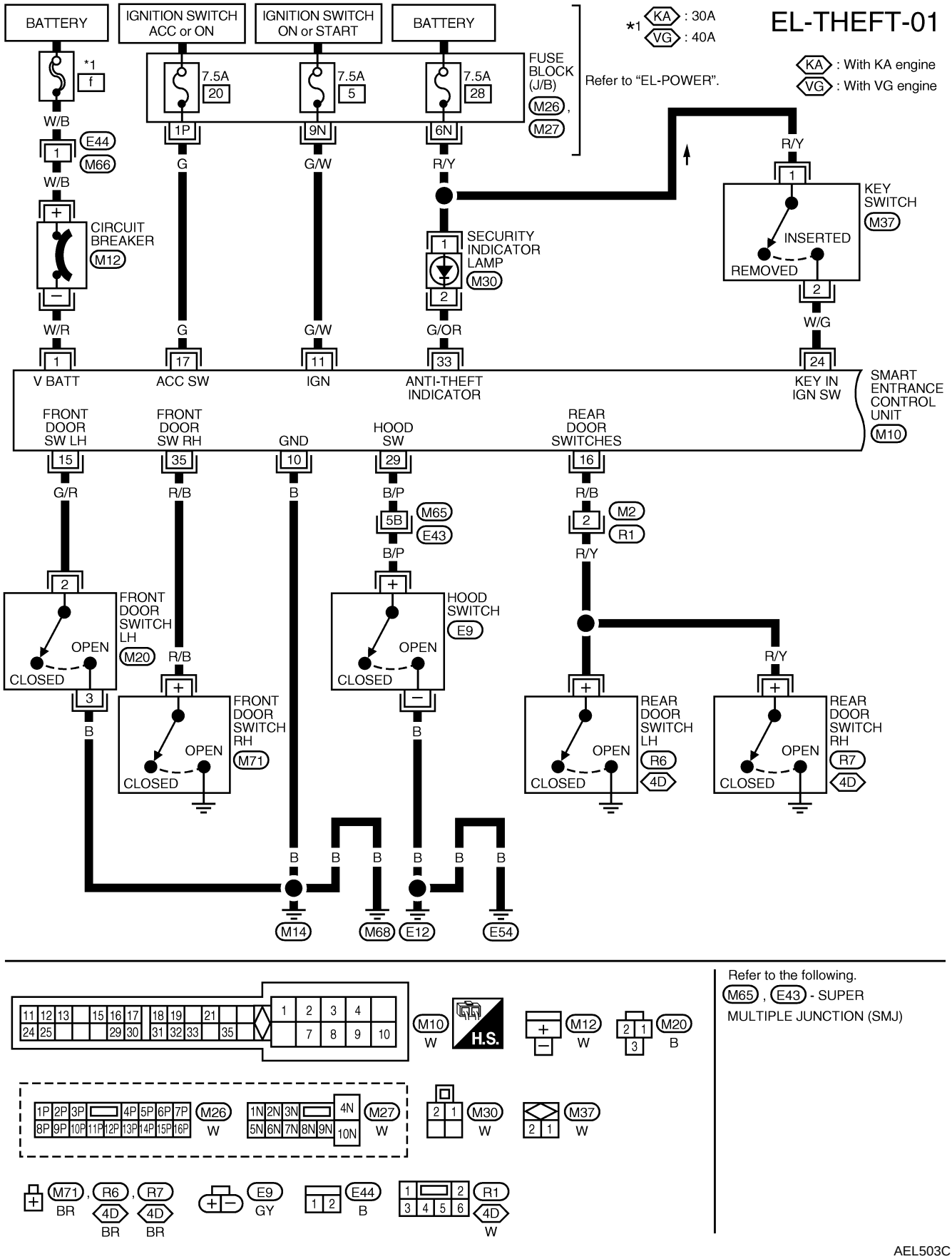
AEL499C

Wiring Diagram — THEFT —

NEEL0199

FIG. 1

NEEL0199S01



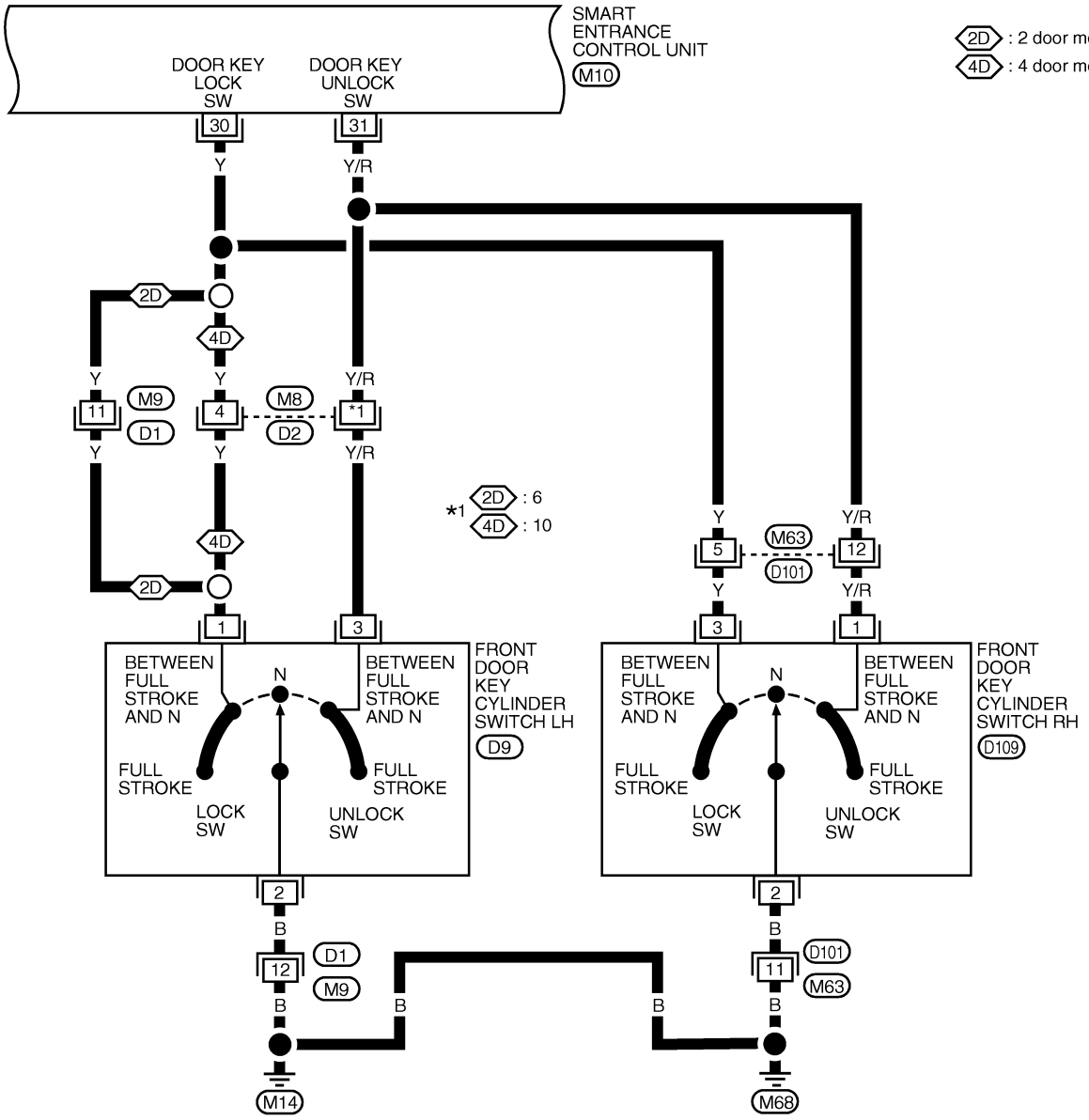
Refer to the following.
M65, E43 - SUPER MULTIPLE JUNCTION (SMJ)

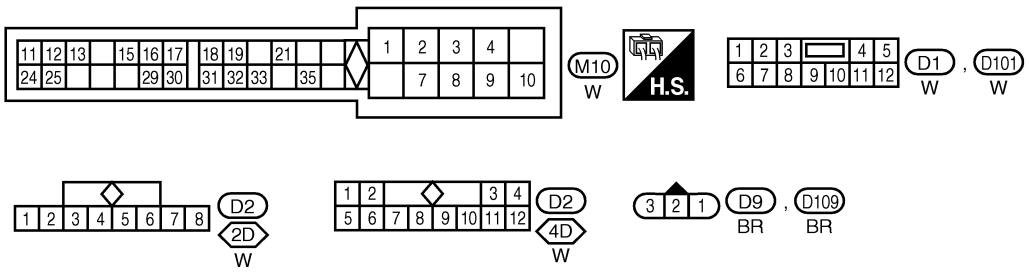
AEL503C

FIG. 2

NEEL0199S02

EL-THEFT-02

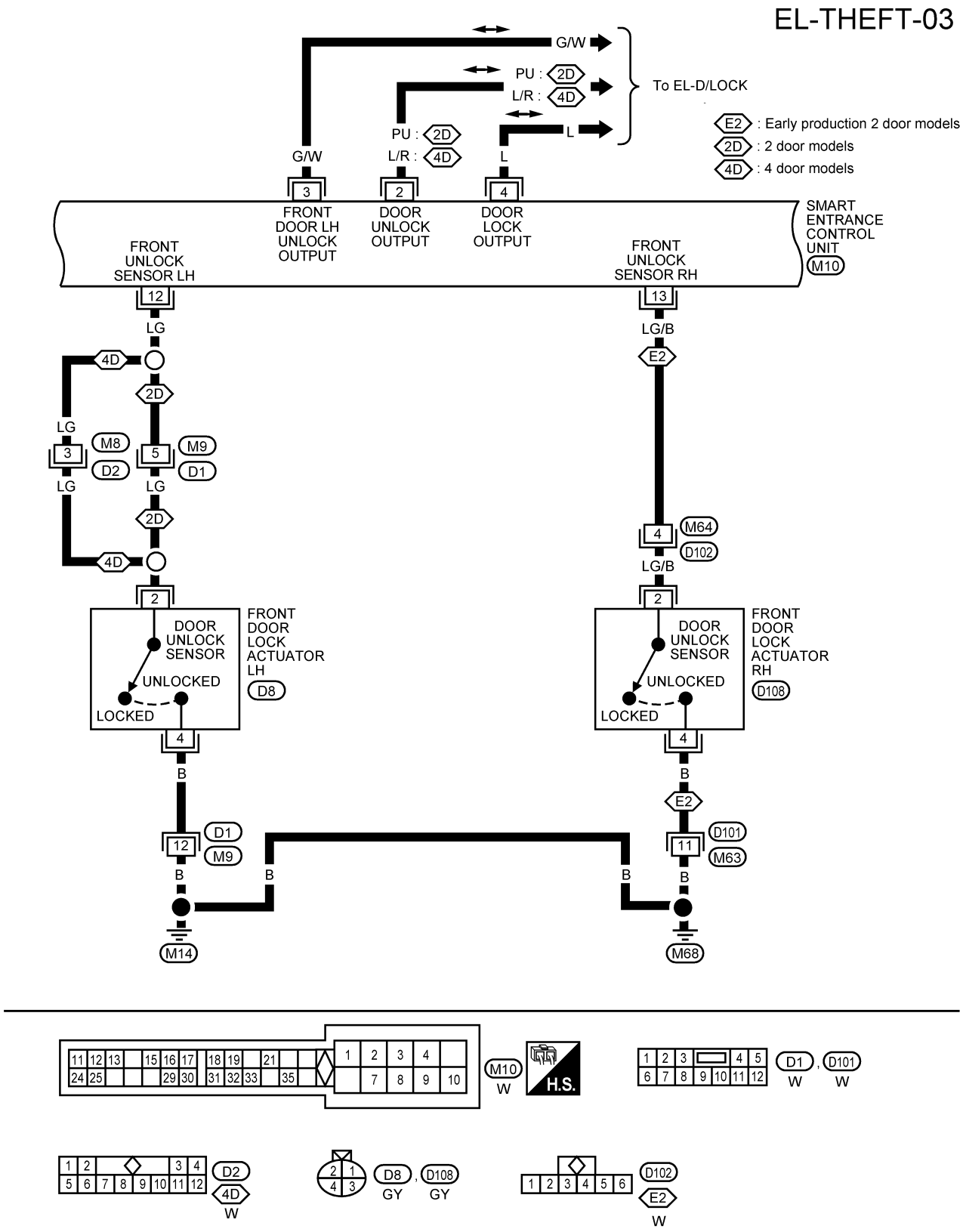




AEL504C

FIG. 3

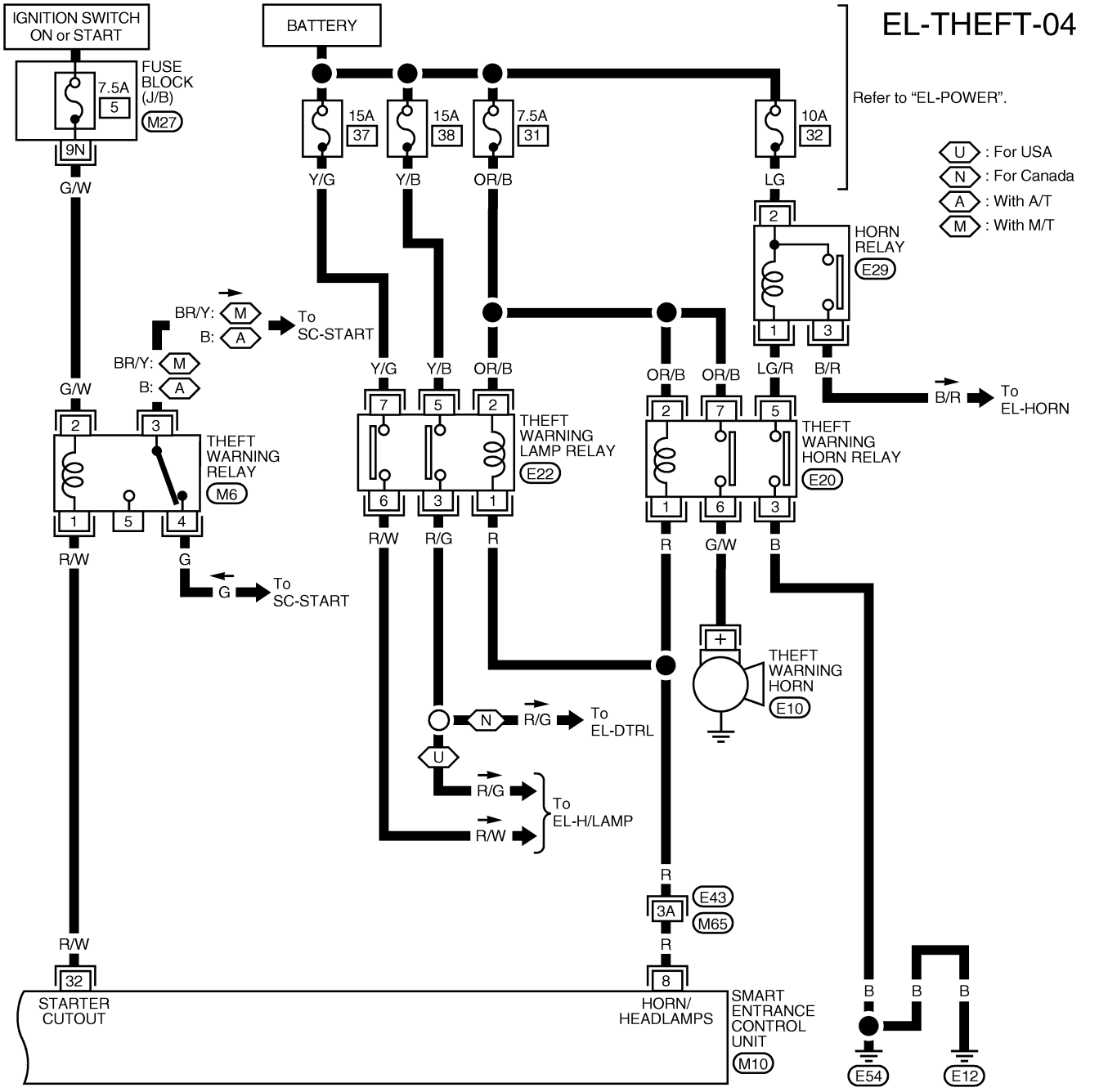
NEEL0199S03

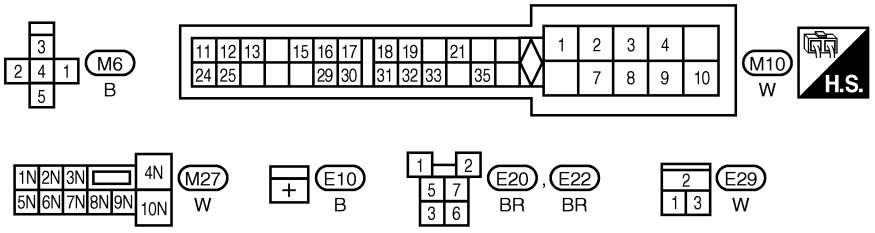


AEL502C

FIG. 4

NEEL0199S04





Refer to the following.
M65 , E43 - SUPER MULTIPLE JUNCTION (SMJ)

AEL505C

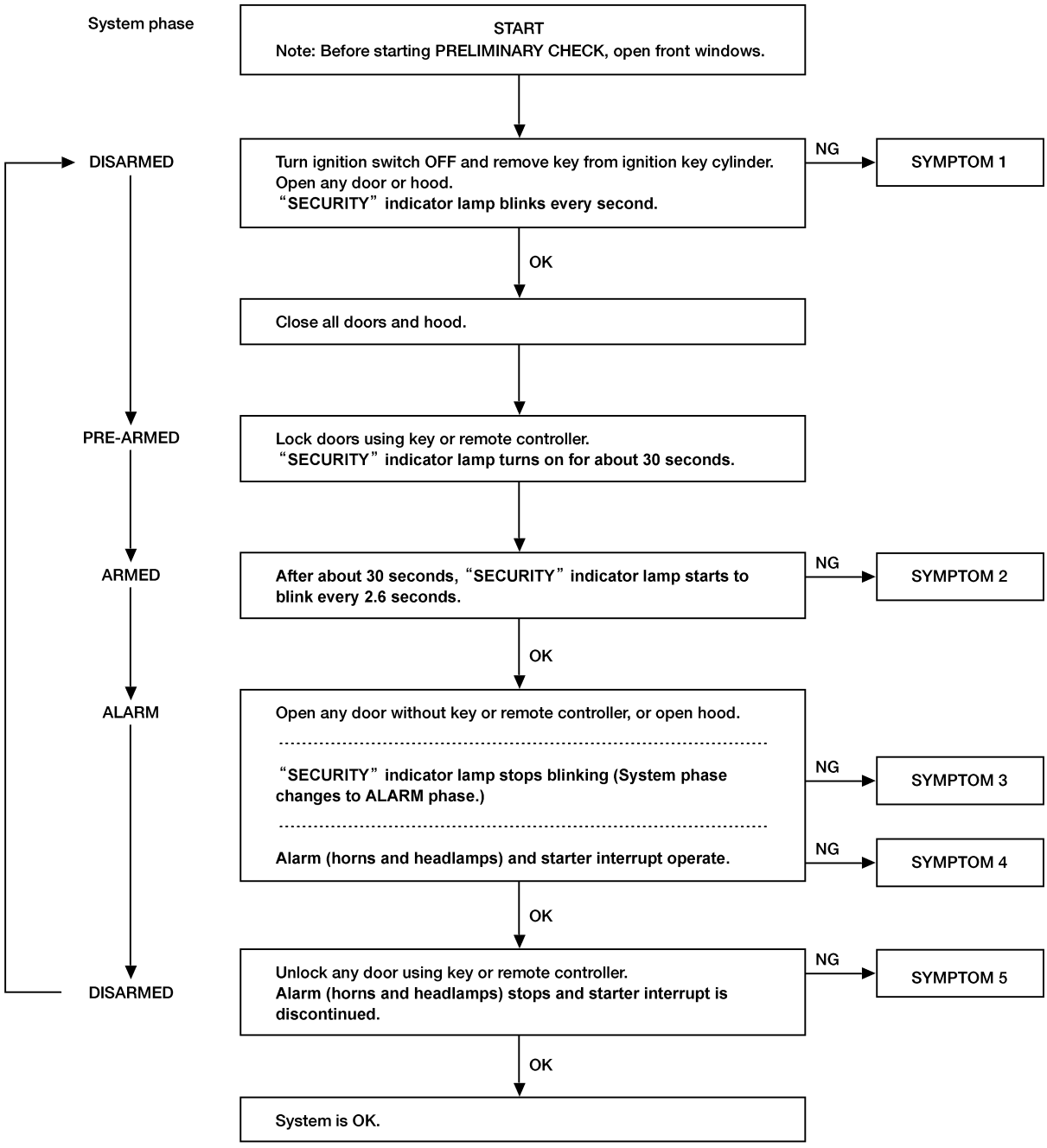
Trouble Diagnoses

NEEL0200

PRELIMINARY CHECK

NEEL0200S01

The system operation is canceled by turning ignition switch to ACC at any step between START and ARMED in the following flow chart.



AEL763C

After performing "PRELIMINARY CHECK", go to "SYMPTOM CHART", EL-216.

SYMPTOM CHART

NEEL0200S02

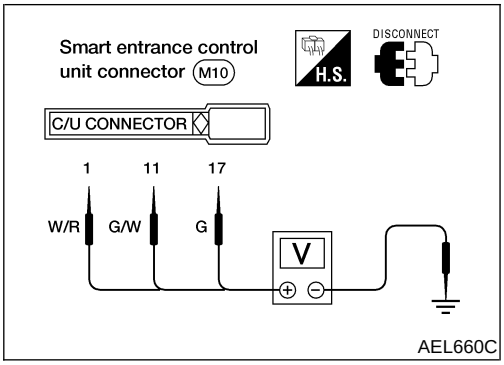
REFERENCE PAGE (EL-)			215	217	218	222	223	225	227	229	231	191
SYMPTOM			PRELIMINARY CHECK	POWER SUPPLY AND GROUND CIRCUIT CHECK	DOOR AND HOOD SWITCH CHECK	SECURITY INDICATOR LAMP CHECK	DOOR UNLOCK SENSOR CHECK	DOOR KEY CYLINDER SWITCH CHECK	THEFT WARNING HORN ALARM CHECK	THEFT WARNING HEADLAMP ALARM CHECK	STARTER INTERRUPT SYSTEM CHECK	Check "MULTI-REMOTE CONTROL" system.
1	Theft warning indicator does not turn ON or blink.		X	X		X						
2	Theft warning system cannot be set by	All items	X	X	X		X					
		Door outside key	X					X				
		Multi-remote controller	X									X
3	*1 Theft warning system does not alarm when ...	Any door is opened.	X		X							
		Front door LH or RH (regular and king cab) is unlocked without using key or multi-remote controller.	X				X					
4	Theft warning alarm does not activate.	All function	X	X	X		X					
		Horn alarm	X						X			
		Headlamp alarm	X							X		
		Starter interrupt	X								X	
5	Theft warning system cannot be canceled by	Door outside key	X					X				
		Multi-remote controller	X									X

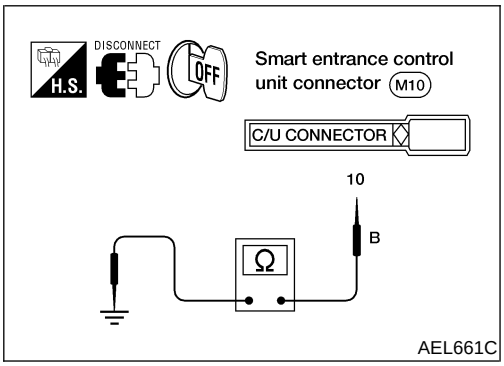
X : Applicable

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

Before starting trouble diagnoses above, perform "PRELIMINARY CHECK", EL-215.

Symptom numbers in the symptom chart correspond with those of "PRELIMINARY CHECK".





POWER SUPPLY AND GROUND CIRCUIT CHECK

NEEL0200S03

Power Supply Circuit Check

NEEL0200S0301

Terminals		Ignition switch position		
(+)	(−)	OFF	ACC	ON
1	Ground	Battery voltage	Battery voltage	Battery voltage
11	Ground	0V	0V	Battery voltage
17	Ground	0V	Battery voltage	Battery voltage

Ground Circuit Check

NEEL0200S0302

Terminals	Continuity
10 - Ground	Yes

DOOR AND HOOD SWITCH CHECK

=NEEL0200S04

Door Switch Check

NEEL0200S0401

1	PRELIMINARY CHECK

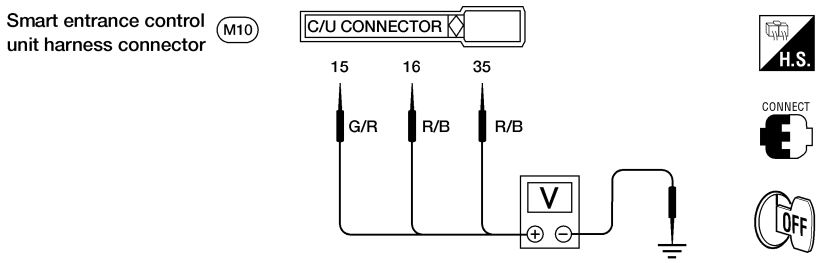
1. Turn ignition switch OFF and remove key from ignition key cylinder.
2. Close all doors and hood.
   "SECURITY" indicator lamp should turn off.
3. Open any passenger door.
   "SECURITY" indicator lamp should blink every second.

OK or NG

OK	▶	Door switch is OK.
NG	▶	GO TO 2.

2	CHECK DOOR SWITCH INPUT SIGNAL

Check voltage between smart entrance control unit terminals 15, 16 (crew cab) or 35 and ground.



AEL576C

Voltage [V]:
Door is closed - Approx. 12
Door is open - 0

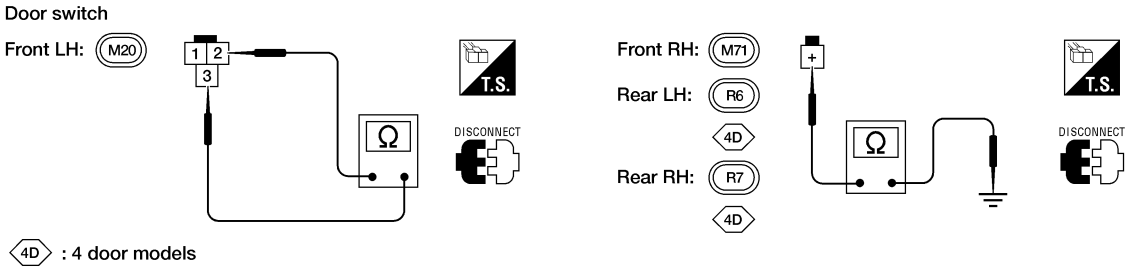
Refer to wiring diagram on EL-211.

OK or NG

OK	▶	Door switch is OK.
NG	▶	GO TO 3.

3	CHECK DOOR SWITCH

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



AEL577C

Continuity:

Front door switch LH terminals 2 - 3

Door switch is pressed - No

Door switch is released - Yes

Front door switch RH, rear door switch LH or RH terminal + - ground

Door switch is pressed - No

Door switch is released - Yes

OK or NG

OK	▶	**Check the following.** ● Front door switch LH ground circuit 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

=NEEL0200S0402

1	PRELIMINARY CHECK

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

OK or NG

OK	▶	Hood switch is OK.
NG	▶	GO TO 2.

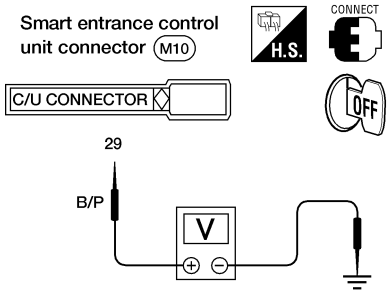
2	CHECK HOOD SWITCH FITTING CONDITION

OK or NG

OK	▶	GO TO 3.
NG	▶	Adjust installation of hood switch or hood.

3	CHECK HOOD SWITCH INPUT SIGNAL

Check voltage between smart entrance control unit terminal 29 and ground.



AEL429B

Voltage [V]:
Hood is open.
0
Hood is closed.
Approx. 12

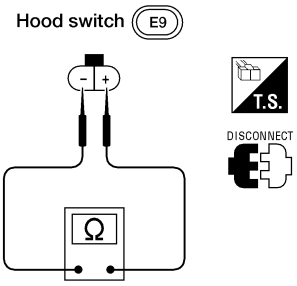
Refer to wiring diagram on EL-211.

OK or NG

OK	▶	Hood switch is OK.
NG	▶	GO TO 4.

4	CHECK HOOD SWITCH

1. Disconnect hood switch harness connector.
2. Check continuity between hood switch terminals + and –.



AEL430B

Continuity:
Condition: Pressed
No
Condition: Released
Yes

OK or NG

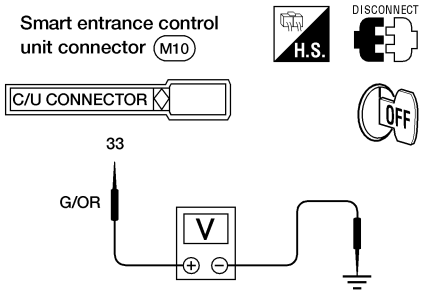
OK	▶	**Check the following.** ● Hood switch ground circuit ● Harness for open or short between smart entrance control unit and hood switch
NG	▶	Replace hood switch.

SECURITY INDICATOR LAMP CHECK

=NEEL0200S05

1	CHECK INDICATOR LAMP OUTPUT SIGNAL

1. Disconnect smart entrance control unit harness connector.
2. Check voltage between smart entrance control unit harness connector terminal 33 and ground.



AEL431B

Refer to wiring diagram on EL-211.

Does battery voltage exist?

Yes	▶	Security indicator lamp is OK.
No	▶	GO TO 2.

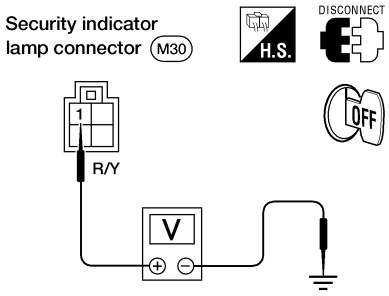
2	CHECK INDICATOR LAMP

OK or NG

OK	▶	GO TO 3.
NG	▶	Replace indicator lamp.

3	CHECK POWER SUPPLY CIRCUIT FOR INDICATOR LAMP

1. Disconnect security indicator lamp harness connector.
2. Check voltage between security indicator lamp harness connector terminal 1 and ground.



AEL145C

Does battery voltage exist?

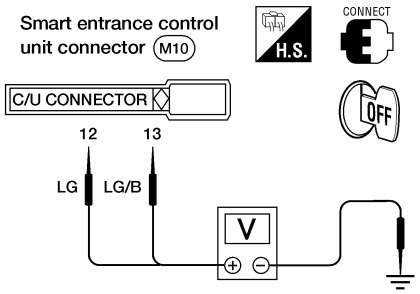
Yes	▶	Check harness for open or short between security indicator lamp and smart entrance control unit.
No	▶	**Check the following.** ● 7.5A fuse [No. 28, located in fuse block (J/B)] ● Harness for open or short between security indicator lamp and fuse

DOOR UNLOCK SENSOR CHECK

=NEEL0200S06

1 **CHECK DOOR UNLOCK SENSOR INPUT SIGNAL**

Check voltage between smart entrance control unit connector M10 terminal 12 or 13 (2 door early production models) and ground.



AEL399B

	Terminals		Condition	Voltage [V]
	+	−		
LH door	12	Ground	Locked	Approx. 12
			Unlocked	0
RH door (2 door models)	13	Ground	Locked	Approx. 12
			Unlocked	0

AEL562C

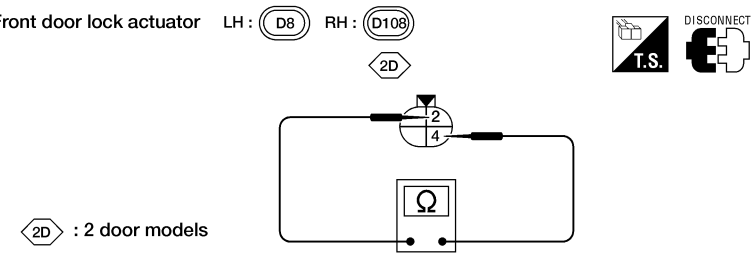
NOTE:
Door lock actuator (door unlock sensor) RH applies to 2 door early production models.
Refer to wiring diagram on EL-213.

OK or NG

OK	▶	Door unlock sensor is OK.
NG	▶	GO TO 2.

2	CHECK DOOR UNLOCK SENSOR

1. Disconnect front door lock actuator (door unlock sensor) LH, or RH (2 door early production models) harness connector.
2. Check continuity between door unlock sensor terminals 2 and 4.



AEL565C

NOTE:
Door lock actuator (door unlock sensor) RH applies to 2 door early production models.
Continuity:
Condition: Locked
No
Condition: Unlocked
Yes

OK or NG

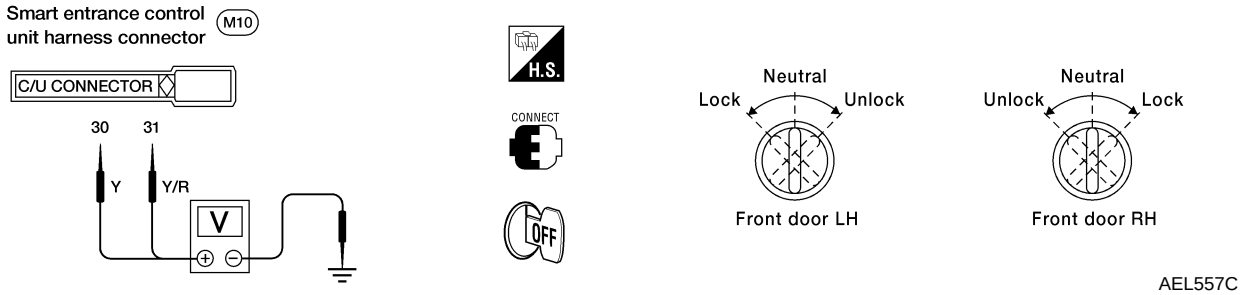
OK	▶	**Check the following.** ● Door unlock sensor ground circuit ● Harness for open or short between smart entrance control unit and door unlock sensor
NG	▶	Replace door unlock sensor.

DOOR KEY CYLINDER SWITCH CHECK

=NEEL0200S07

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

Check voltage between smart entrance control unit harness connector terminal 30 or 31 and ground.



AEL557C

Terminals		Key position	Voltage [V]
+	–		
30	Ground	Neutral	Approx. 12
		Lock	0
31	Ground	Neutral	Approx. 12
		Unlock	0

AEL559C

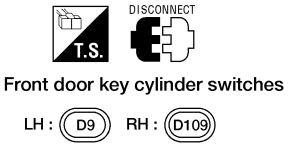
Refer to wiring diagram on EL-212.

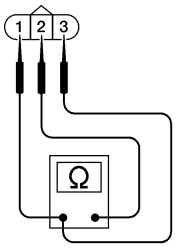
OK or NG

OK	▶	Door key cylinder switch is OK.
NG	▶	GO TO 2.

2 CHECK DOOR KEY CYLINDER SWITCH

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





① : Door unlock switch terminal (RH)
Door lock switch terminal (LH)

② : Ground terminal

③ : Door lock switch terminal (RH)
Door unlock switch terminal (LH)

AEL558C

Terminals	Key position	Continuity
LH: 1 – 2 RH: 3 – 2	Neutral	No
	Lock	Yes
LH: 3 – 2 RH: 1 – 2	Neutral	No
	Unlock	Yes

AEL560C

OK or NG

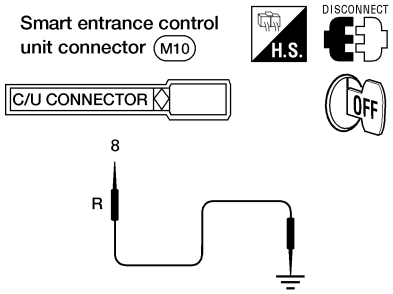
OK	▶	**Check the following.** ● Door key cylinder switch ground circuit ● Harness for open or short between smart entrance control unit and door key cylinder switch
NG	▶	Replace door key cylinder switch.

THEFT WARNING HORN ALARM CHECK

=NEEL0200S09

1	CHECK THEFT WARNING HORN ALARM OPERATION

1. Disconnect smart entrance control unit harness connector.
2. Apply ground to smart entrance control unit harness connector terminal 8.



AEL437B

Refer to wiring diagram on EL-214.

Does horn alarm activate?

Yes	▶	Horn alarm is OK.
No	▶	GO TO 2.

2	CHECK THEFT WARNING HORN RELAY

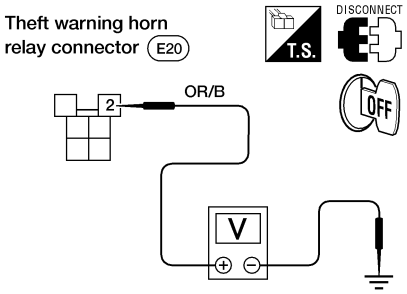
Check theft warning horn relay.

OK or NG

OK	▶	GO TO 3.
NG	▶	Replace.

3	CHECK POWER SUPPLY FOR THEFT WARNING HORN RELAY

1. Disconnect theft warning horn relay harness connector.
2. Check voltage between theft warning horn relay harness connector terminal 2 and ground.



AEL438B

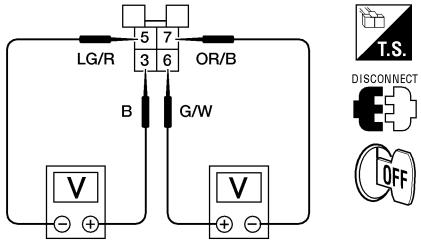
Does battery voltage exist?

Yes	▶	GO TO 4.
No	▶	**Check the following.** ● 7.5A fuse (No. 31, located in the fuse and fusible link box) ● Harness for open or short between theft warning horn relay and fuse

4	CHECK THEFT WARNING HORN RELAY CIRCUIT

1. Disconnect theft warning horn relay harness connector.
2. Check voltage between theft warning horn relay harness connector terminals 3 and 5.
   Battery voltage should exist.
3. Check voltage between theft warning horn relay harness connector terminals 6 and 7.
   Battery voltage should exist.

Theft warning horn relay connector (E20)



AEL439B

OK or NG

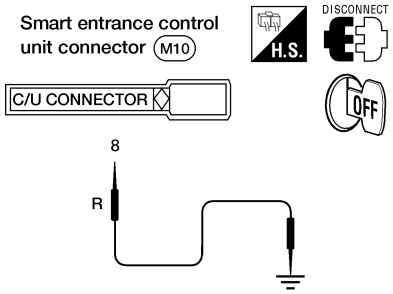
OK	▶	Check harness for open or short between theft warning horn relay and smart entrance control unit.
NG	▶	Check harness for open or short.

THEFT WARNING HEADLAMP ALARM CHECK

=NEEL0200S10

1	CHECK THEFT WARNING HEADLAMP ALARM OPERATION

1. Disconnect smart entrance control unit harness connector.
2. Apply ground to smart entrance control unit harness connector terminal 8.



AEL437B

Refer to wiring diagram on EL-214.

Does headlamp alarm activate?

Yes	▶	Headlamp alarm is OK.
No	▶	GO TO 2.

2	CHECK HEADLAMP OPERATION

Do headlamps come on when turning lighting switch ON?

Yes	▶	GO TO 3.
No	▶	Check headlamp system. Refer to "HEADLAMP", EL-32.

3	CHECK THEFT WARNING LAMP RELAY

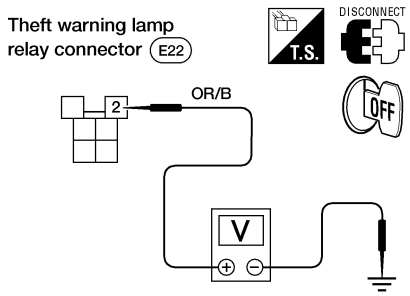
Check theft warning lamp relay.

OK or NG

OK	▶	GO TO 4.
NG	▶	Replace.

4	CHECK POWER SUPPLY FOR THEFT WARNING LAMP RELAY

1. Disconnect theft warning lamp relay harness connector.
2. Check voltage between theft warning lamp relay harness connector terminal 2 and ground.



AEL441B

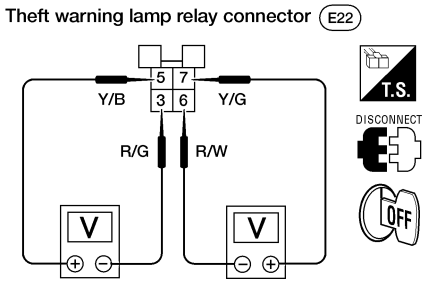
Refer to wiring diagram on EL-214.

Does battery voltage exist?

Yes	▶	GO TO 5.
No	▶	**Check the following.** ● 7.5A fuse (No. 31, located in the fuse and fusible link box) ● Harness for open or short between theft warning lamp relay and fuse

5	CHECK THEFT WARNING LAMP RELAY CIRCUIT

1. Disconnect theft warning lamp relay harness connector.
2. Check voltage between theft warning lamp relay harness connector terminals 3 and 5.
   Battery voltage should exist.
3. Check voltage between theft warning lamp relay harness connector terminals 6 and 7.
   Battery voltage should exist.



AEL750C

OK or NG

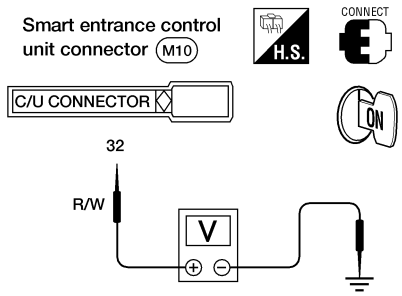
OK	▶	Check harness for open or short between theft warning lamp relay and smart entrance control unit.
NG	▶	**Check the following.** ● Harness for open or short between fuse and theft warning lamp relay ● Harness for open or short between theft warning lamp relay and headlamps

STARTER INTERRUPT SYSTEM CHECK

=NEEL0200S11

1	CHECK STARTER MOTOR INTERRUPT SIGNAL

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



AEL443B

Voltage [V]:
Except starter interrupted phase
Approx. 12
Starter interrupted phase
0

Refer to wiring diagram on EL-214.

OK or NG

OK	▶	GO TO 2.
NG	▶	**Check the following.** ● 7.5A fuse [No. 5, located in fuse block (J/B)] ● Harness for open or short between theft warning relay and fuse ● Harness for open or short between smart entrance control unit and theft warning relay

2	CHECK THEFT WARNING RELAY

Check theft warning relay.

OK or NG

OK	▶	Check system again.
NG	▶	Replace relay.

Description

NEEL0124

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

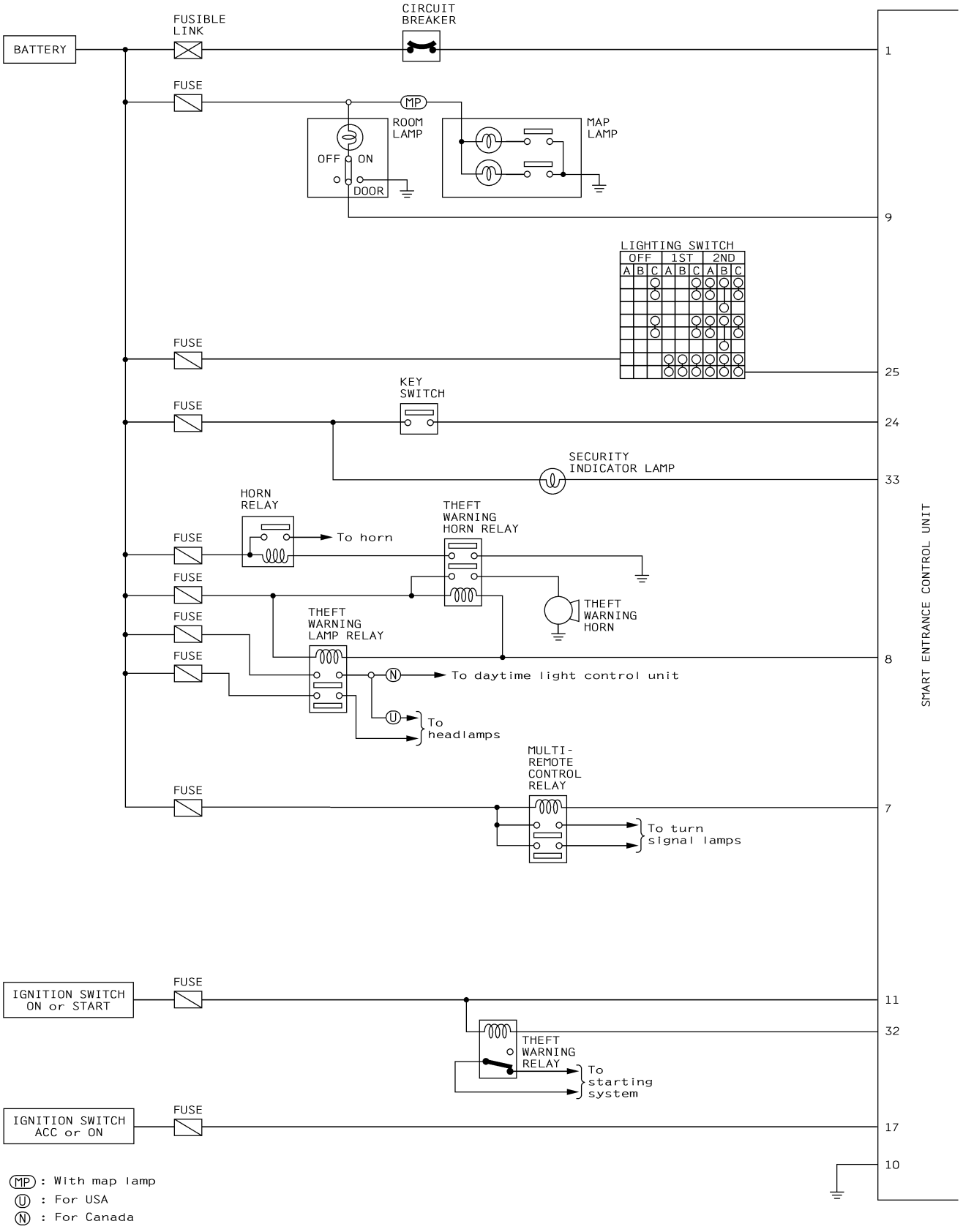
- Warning chime
- Power door lock
- Multi-remote control system
- Theft warning system

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

System	Input	Output
Warning chime	Key switch (Insert) Ignition switch (ON) Lighting switch (1st) Seat belt buckle switch Front door switch LH	Warning chime
Power door lock	Door lock/unlock switch	Door lock actuator
Multi-remote control	Key switch (Insert) Ignition switch (ACC) Door switch Door unlock sensor Antenna (remote controller signal)	Theft warning horn relay Theft warning lamp relay Multi-remote control relay Door lock actuator
Theft warning	Ignition switch (ACC, ON) Door switch Hood switch Door key cylinder switch (lock/unlock) Door unlock sensor	Theft warning horn relay Theft warning lamp relay Theft warning relay (Starter interrupt) Security indicator

Circuit Diagram

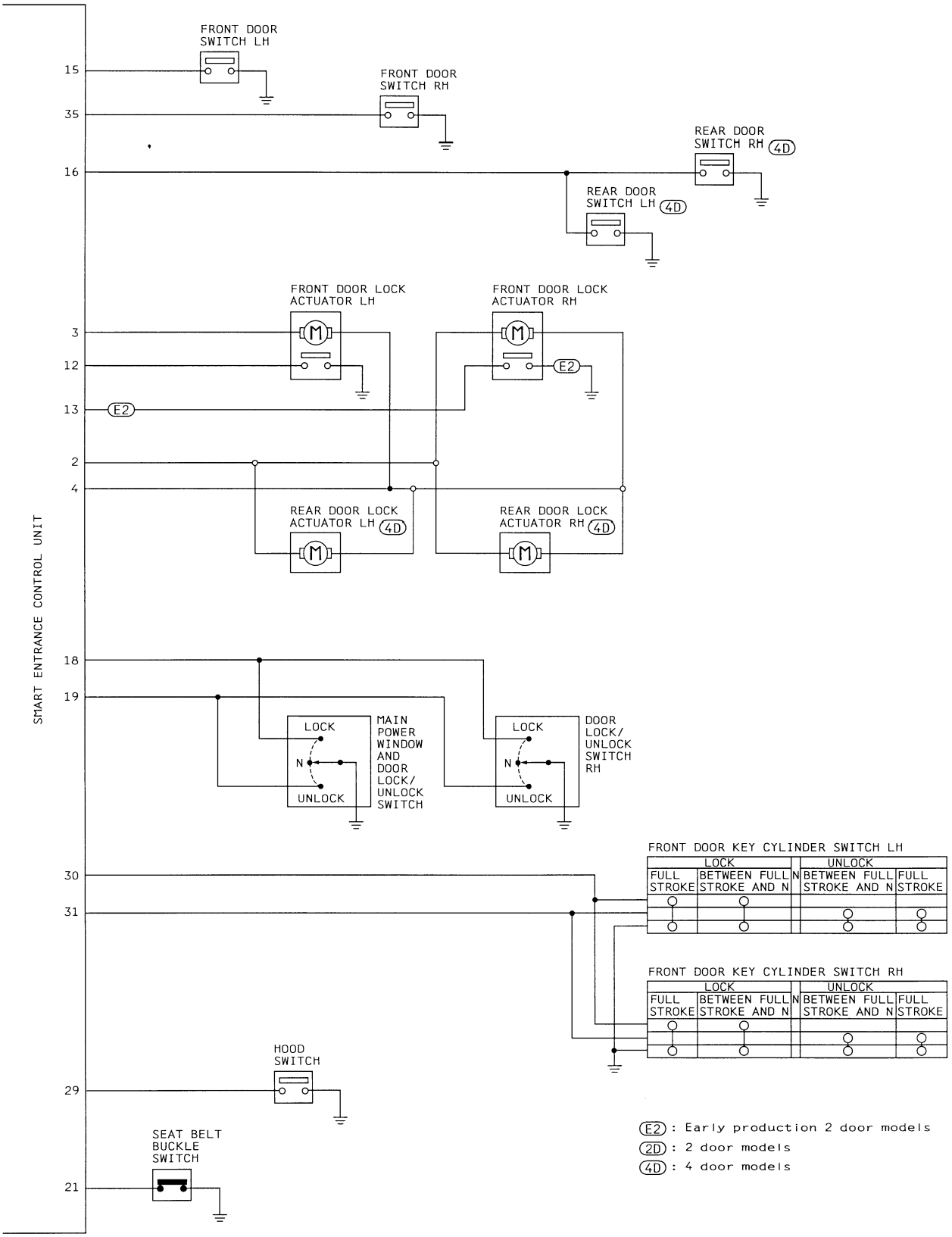
NEEL0125



MP : With map lamp
U : For USA
N : For Canada

AEL506C

Circuit Diagram (Cont'd)



AEL507C

Smart Entrance Control Unit Inspection Table

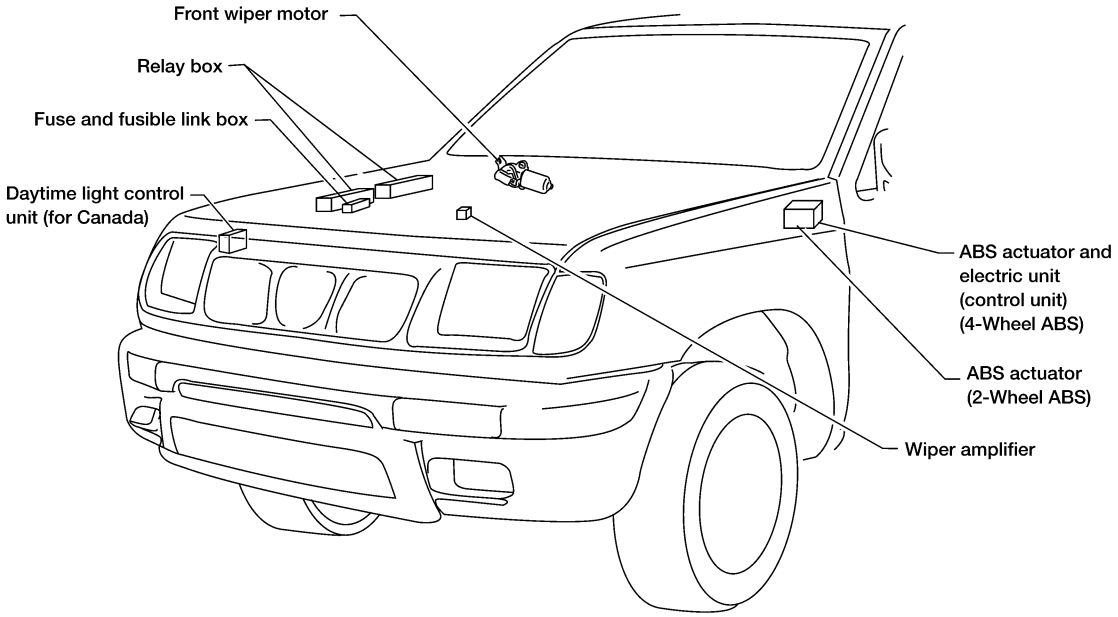
NEEL0126

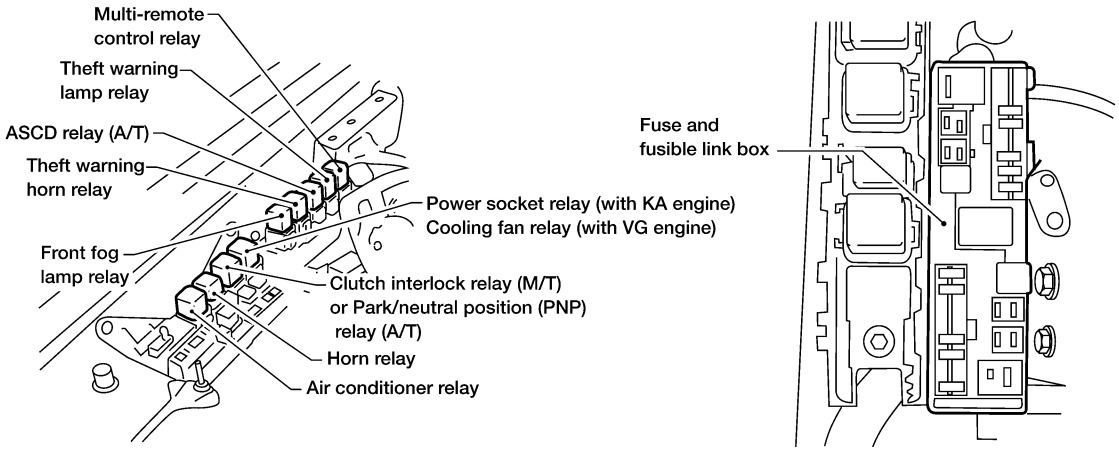
Terminal No.	Wire color	Connections	Operated condition		Voltage (Approximate values)
1	W/R	Power source (C/B)	—		12V
2	PU* L/R**	Front door lock actuator RH, rear door lock actuator LH and RH (crew cab)	Main power window and door lock/unlock switch, door lock/unlock switch RH	Unlock	12V
				Neutral, lock	0V
3	G/W	Front door lock actuator LH	Main power window and door lock/unlock switch, door lock/unlock switch RH	Unlock	12V
				Neutral, lock	0V
4	L	Front door lock actuator LH and RH, rear door lock actuator LH and RH (crew cab)	Main power window and door lock/unlock switch, door lock/unlock switch RH	Lock	12V
				Neutral, unlock	0V
7	P/B	Multi-remote control relay	When doors are locked using remote controller		12V → 0V
8	R	Theft warning horn relay, theft warning lamp relay	When panic alarm is operated using remote controller		12V → 0V
9	R/B	Room lamp	When any door switch is in OPEN (door is open) position (Interior lamp switch in DOOR position)		12V → 0V
10	B	Ground	—		—
11	G/W	Ignition switch (ON)	Ignition key is in ON position		12V
12	LG	Front door unlock sensor LH	Front door LH: Locked → Unlocked		12V → 0V
†13	LG/B	Front door unlock sensor RH	Front door RH: Locked → Unlocked		12V → 0V
15	G/R	Front door switch LH	OFF (Closed) → ON (Open)		12V → 0V
16	R/B	Rear door switch LH and RH (crew cab)	OFF (Closed) → ON (Open)		12V → 0V
17	G	Ignition switch (ACC)	ACC position		12V
18	LG/R	Main power window and door lock/unlock switch, door lock/unlock switch RH	Neutral → Lock		12V → 0V
19	BR	Main power window and door lock/unlock switch, door lock/unlock switch RH	Neutral → Unlock		12V → 0V
21	B/P	Seat belt buckle switch	Unfastened → Fastened (Ignition key is in ON position)		0V → 12V
24	W/G	Ignition key switch (Insert)	Key inserted → Key removed from ignition key cylinder		12V → 0V
25	L/R	Lighting switch	1ST, 2ND positions: ON → OFF		12V → 0V
29	B/P	Hood switch	ON (Open) → OFF (Closed)		0V → 12V
30	Y	Front door key cylinder lock switch LH or RH	OFF (Neutral) → ON (Lock)		12V → 0V
31	Y/R	Front door key cylinder unlock switch LH or RH	OFF (Neutral) → ON (Unlock)		12V → 0V
32	R/W	Theft warning relay (Starter cut)	OFF → ON (Ignition key is in ON position)		12V → 0V
33	G/OR	Security indicator lamp	Turns off → Turns on		12V → 0V
35	R/B	Front Door Switch RH	OFF (Closed) → ON (Open)		12V → 0V

† 2 door early production models
* Regular cab and king cab
** Crew cab

Engine Compartment

NEEL0129

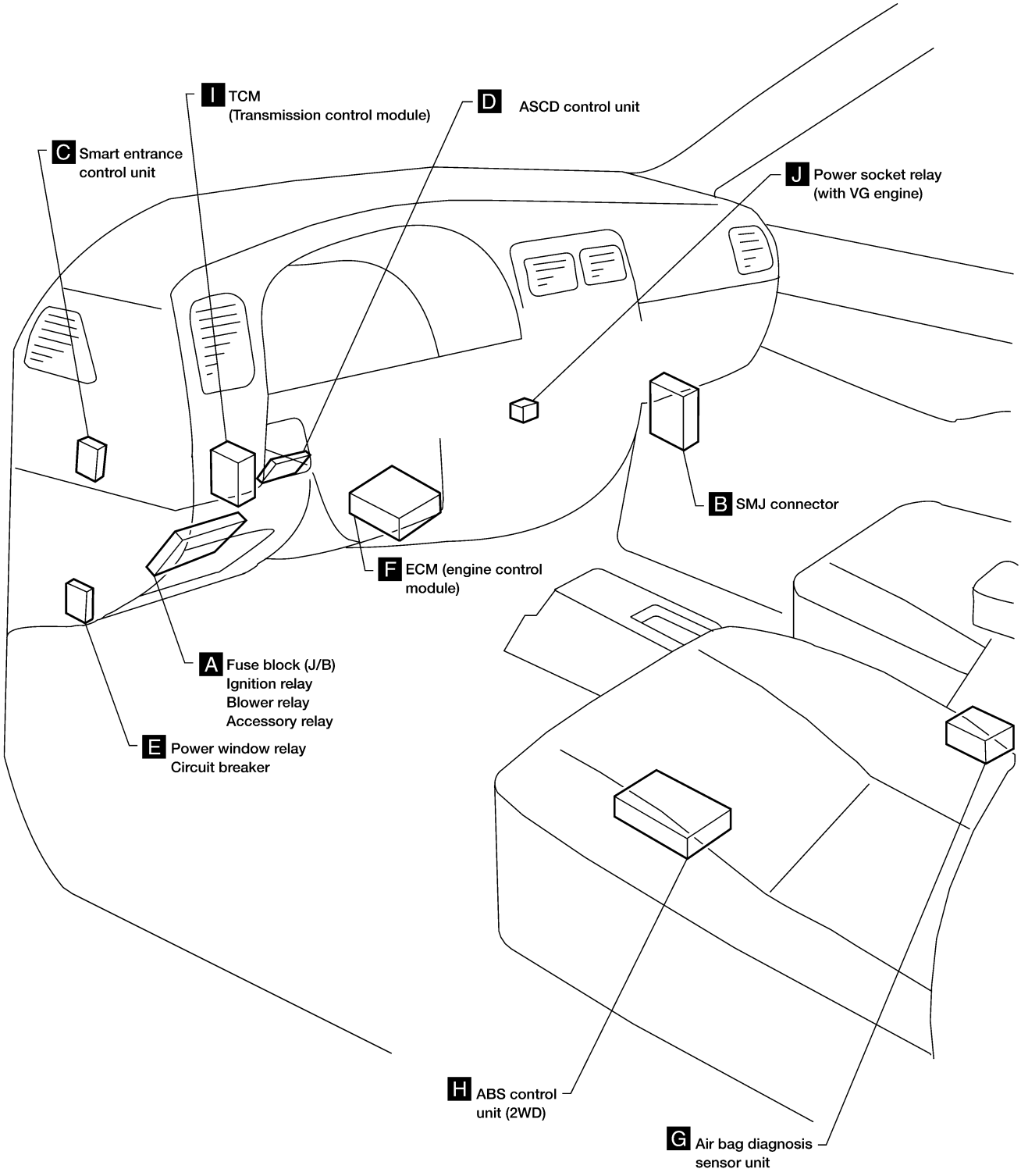




LEL522A

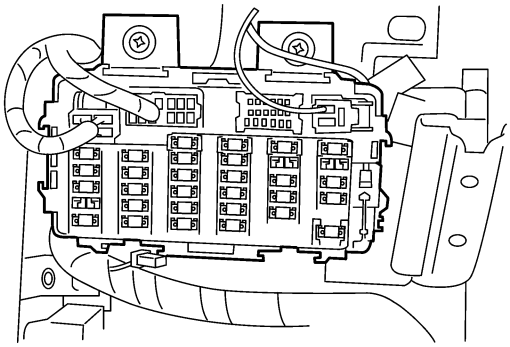
Passenger Compartment

NEEL0130

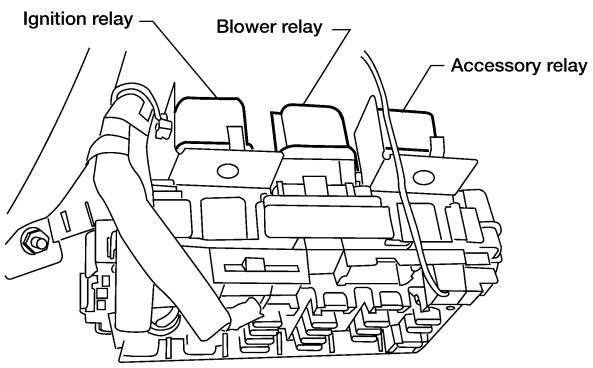


LEL521A

A



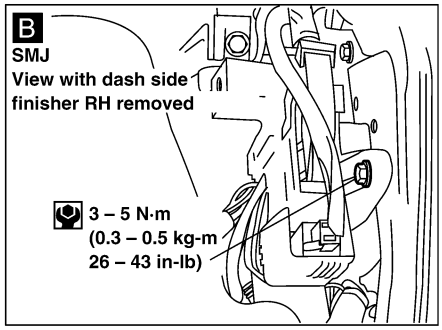
Rear view of fuse block (J/B)



B

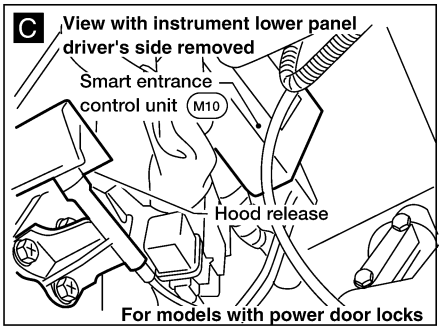
SMJ
View with dash side finisher RH removed

3 – 5 N·m
(0.3 – 0.5 kg-m
26 – 43 in-lb)



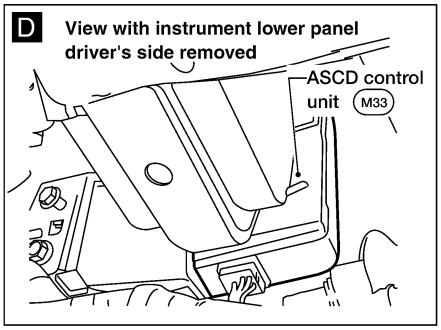
C

View with instrument lower panel driver's side removed



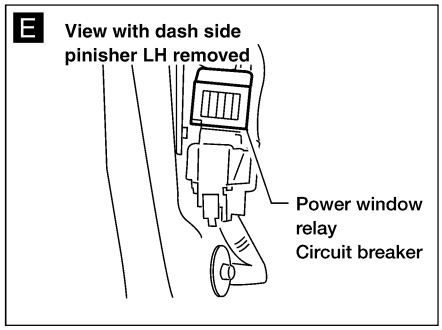
D

View with instrument lower panel driver's side removed



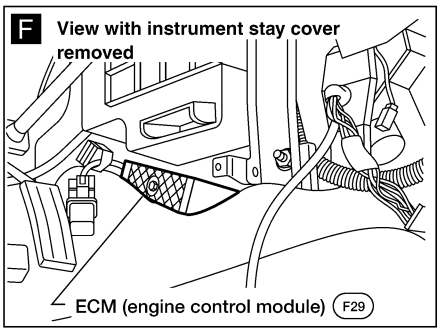
E

View with dash side pinisher LH removed

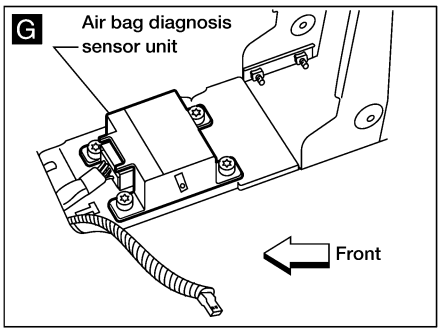


F

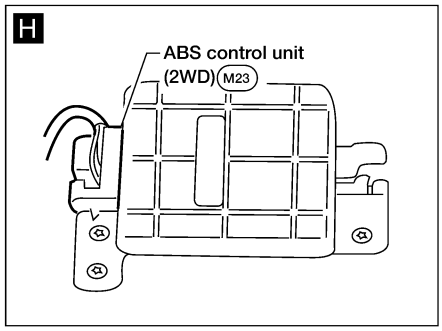
View with instrument stay cover removed



G

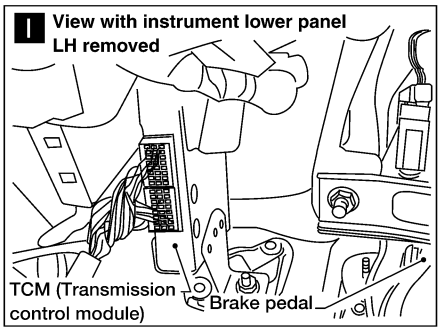


H

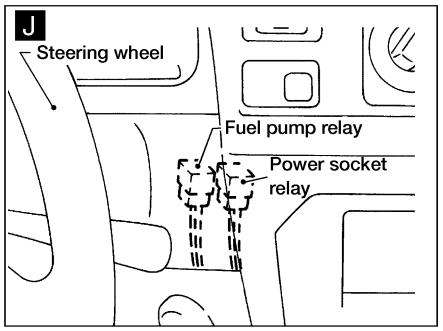


I

View with instrument lower panel LH removed



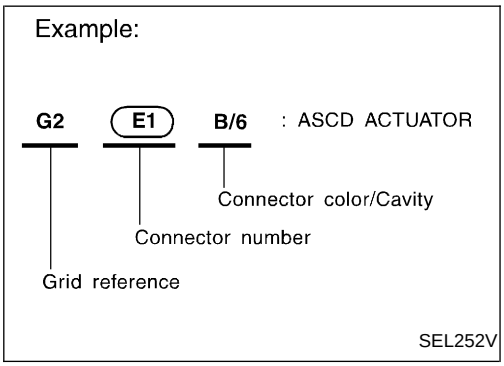
J



LEL523A

How to Read Harness Layout

NEEL0172



The following Harness Layouts use a map style grid to help locate connectors on the drawings:

- Main Harness and Body No. 2 Harness
- Engine Room Harness (Engine Compartment)

TO USE THE GRID REFERENCE

NEEL0172S01

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

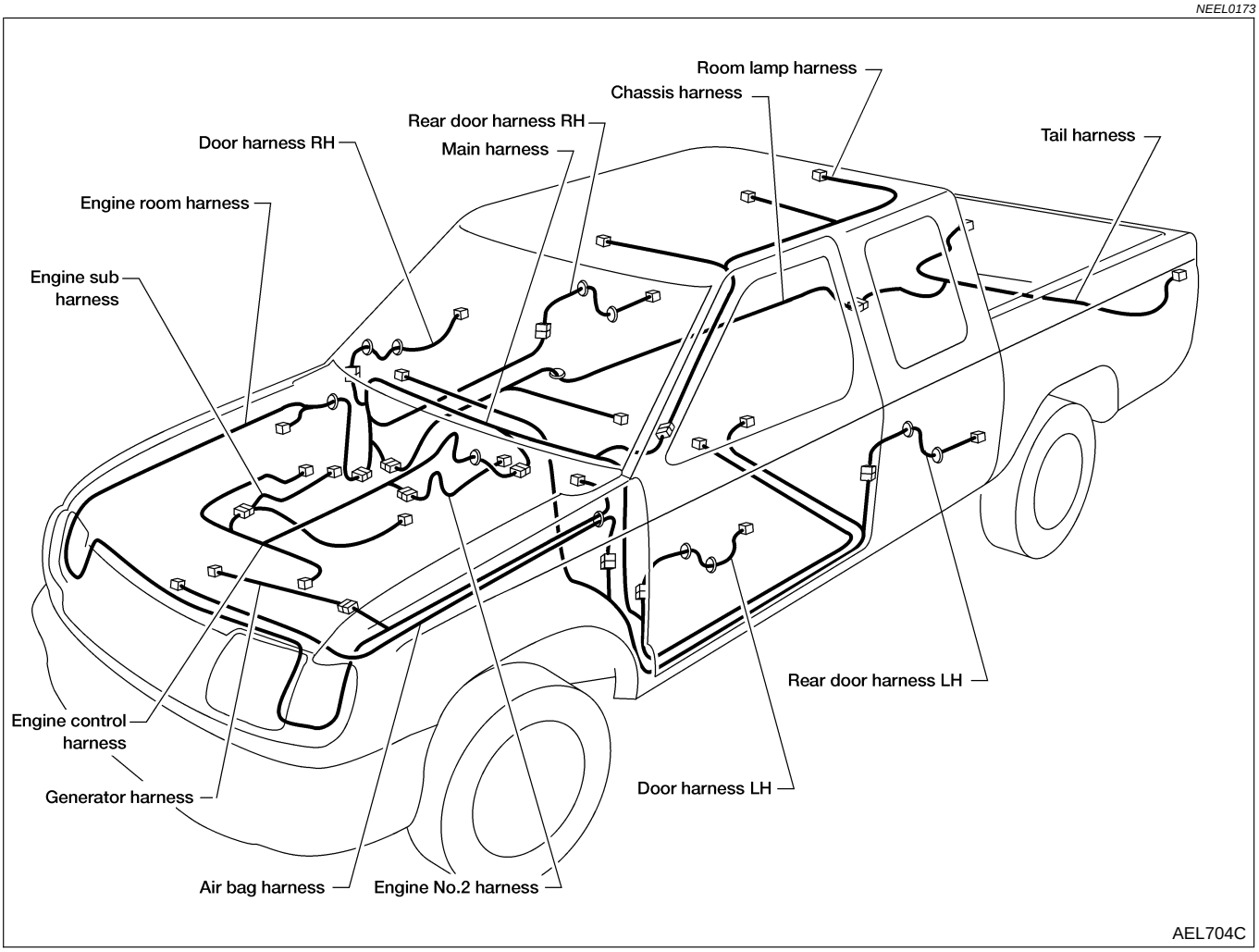
NEEL0172S02

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

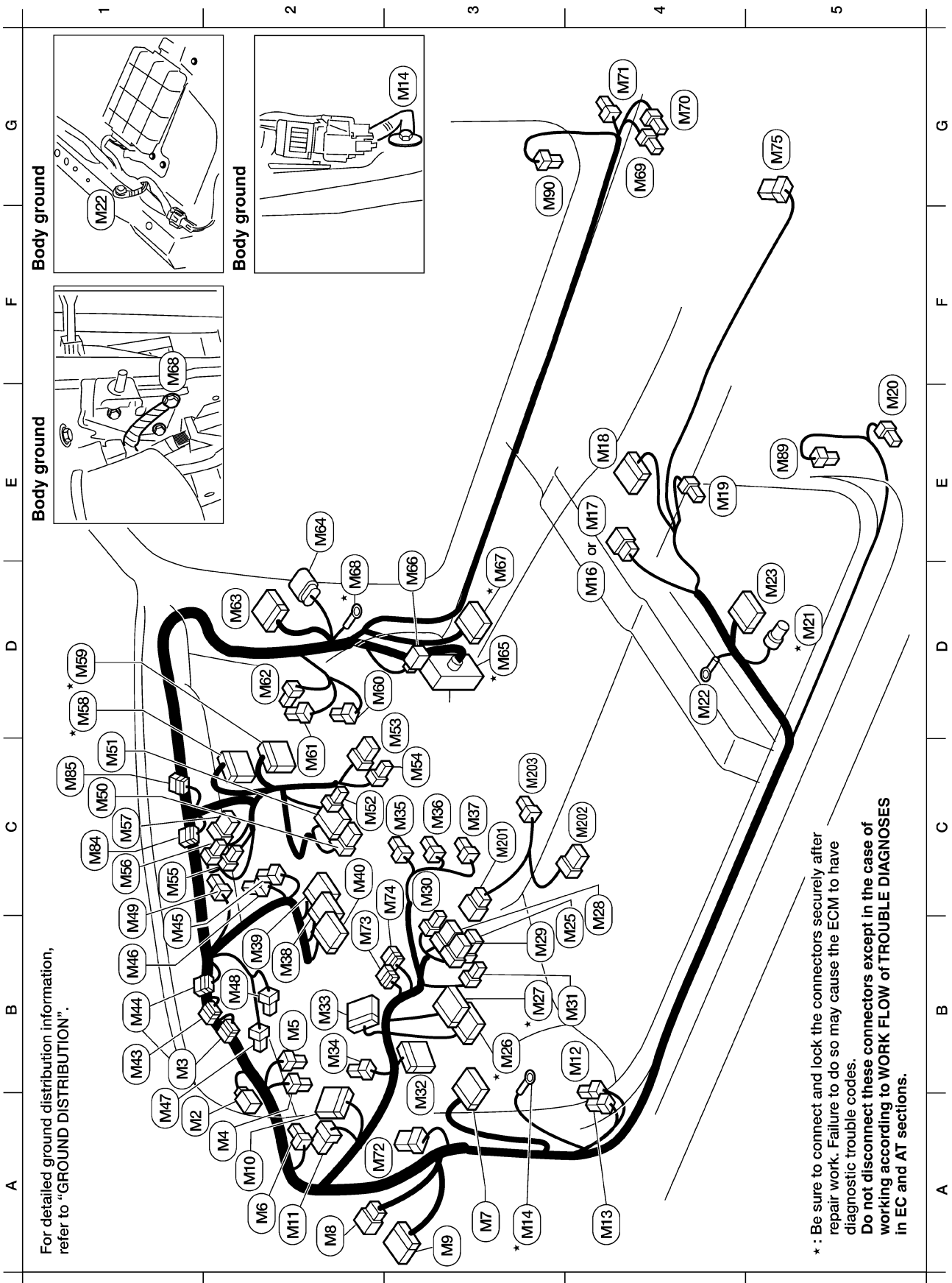
NEEL0173



NOTE:
For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-16.

Main Harness (KA24DE Models)

NEEL0215



LEL528A

A1 (M2) W/4 : To (R1)
B1 (M3) GY/4 : Diode
A2 (M4) L/2 : ASCD clutch switch (with M/T)
B2 (M5) L/2 : Clutch interlock switch (with M/T)
A2 (M6) B/5 : Theft warning relay
A3 (M7) W/18 : To (E53) (with 4-wheel ABS)
A2 (M8) W/8 : To (D2)
A3 (M9) W/12 : To (D1)
A3 (M10) W/36 : Smart entrance control unit (with power door locks)
A2 (M11) W/8 : Warning chime unit (without power door locks)
B4 (M12) W/2 : Circuit breaker
A4 (M13) L/4 : Power window relay
A3 ★(M14) — : Body ground
D4 (M16) W/6 : To (C11) (with 4-wheel ABS)
E4 (M17) W/8 : To (C2) (with 2-wheel ABS)
E4 (M18) W/16 : To (Z7)
E4 (M19) W/3 : Seat belt buckle switch
E5 (M20) B/3 : Door switch LH
D5 ★(M21) GY/4 : Rear heated oxygen sensor
D4 (M22) — : Body ground (with 2-wheel ABS)
D5 (M23) GY/17 : ABS control unit (with 2-wheel ABS)
B3 (M26) L/6 : ABS check connector
Diode (M3)

Solenoid valve unit — Overdrive control switch
ASCD control unit — Combination meter

B3 ★(M26) W/16 : Fuse block (J/B)
B3 ★(M27) W/10 : Fuse block (J/B)
C4 (M28) W/6 : To (M201)
B3 (M29) W/6 : ASCD main switch
C3 (M30) W/4 : Security indicator lamp
B3 (M31) W/3 : Fuse block (J/B)
B3 (M32) W/16 : Data link connector
B2 (M33) B/20 : ASCD control unit
B2 (M34) BR/6 : ASCD hold relay
C3 (M35) W/3 : A/T device (with A/T)
C3 (M36) W/3 : Overdrive control switch (with A/T)
C3 (M37) W/2 : Key switch
B2 (M38) W/24 : Combination meter
B2 (M39) BR/20: Combination meter
B2 (M40) BR/20: Combination meter (A/T indicator)
B1 (M43) L/4 : Diode
B1 (M44) L/4 : Diode
B1 (M45) B/3 : Combination flasher unit
B1 (M46) L/4 : Fuel pump relay
A1 (M47) B/2 : Stop lamp switch
B2 (M48) L/2 : ASCD brake switch (A/T shift lock switch)
C1 (M49) W/2 : Parking brake switch
C1 (M50) W/6 : Audio unit
C1 (M51) W/10 : Audio unit
C2 (M52) B/2 : Cigarette lighter socket
D3 (M53) W/8 : Hazard switch
C3 (M54) B/2 : Power socket

Diode (M43)

Combination meter — Combination meter
ABS control unit (2-wheel ABS) — ABS Control unit (2-wheel ABS)

Diode (M44)

Combination meter — DTRL control unit
Parking brake switch

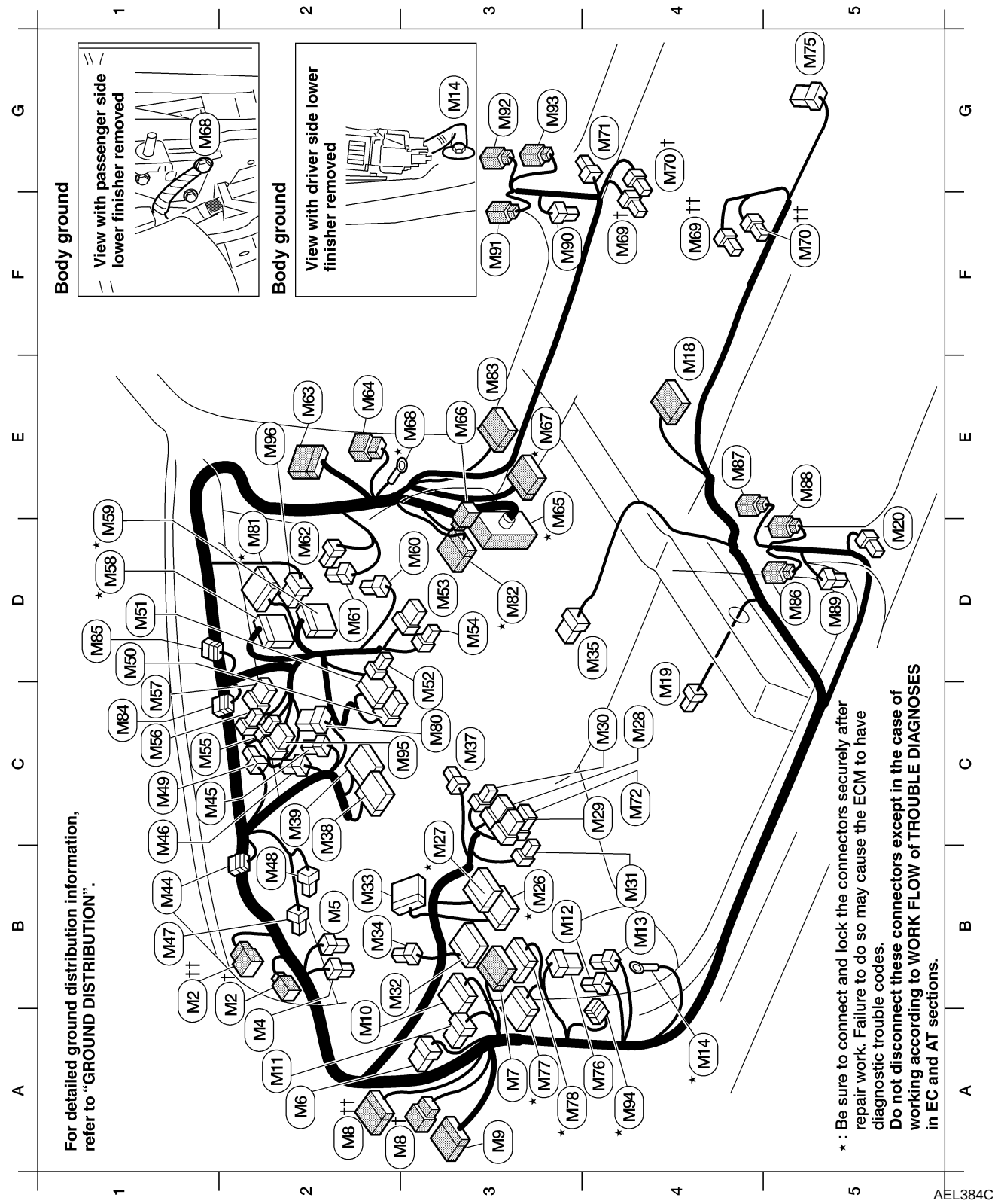
C1 (M55) W/3 : Air conditioner switch
C1 (M56) W/3 : Fan switch illumination
C1 (M57) W/6 : Fan switch
D1 (M58) W/16 : To (F28)
D1 (M59) W/18 : To (F27)
D2 (M60) W/3 : Thermo control amplifier
C2 ★(M61) BR/4 : Fan resistor
D2 ★(M62) W/2 : Blower motor
D2 (M63) W/12 : To (D15)
E2 (M64) W/6 : To (D16)
D3 (M65) SMJ : To (E43)
D3 (M66) B/2 : To (E44)
D3 (M67) W/18 : To (C1)
D2 ★(M68) — : Body ground
G4 (M69) GY/2 : G-sensor (with 4-wheel ABS)
G4 ★(M70) GY/2 : G-sensor (with 4-wheel ABS)
G4 ★(M71) BR/1 : Door switch RH
A3 (M72) GY/12: Door mirror remote control switch
B2 (M73) W/6 : Joint connector-8
C3 (M74) W/6 : Joint connector-7
G5 (M75) W/8 : Subwoofer amplifier
C1 (M84) W/6 : Joint connector-5
C1 (M85) W/6 : Joint connector-6
E5 (M89) Y/2 : Driver seatbelt pre-tensioner
G3 (M90) Y/2 : Passenger seatbelt pre-tensioner
C3 (M201) W/6 : To (M28)
C4 (M202) W/6 : Illumination control switch
C3 (M203) W/2 : A/T Illumination

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

LEL529A

Main Harness (VG33E Models)

NEEL0174



B2 (M2)† W/4 : To (R1) (except crewcab)
B1 (M2)†† W/6 : To (R1) (crewcab)
A2 (M4) L/2 : ASCD clutch switch (with M/T)
B2 (M5) L/2 : Clutch interlock switch (with M/T)
A2 (M6) B/5 : Theft warning relay (with power door locks)
A3 (M7) W/18 : To (E53)
A2 (M8)† W/8 : To (D2) (except crewcab)
A2 (M8)†† W/12 : To (D2) (crewcab)
A3 (M9) W/12 : To (D1)
A2 (M10) W/36 : Smart entrance control unit (with power door locks)
A2 (M11) W/8 : Warning chime unit (without power door locks)
B3 (M12) W/2 : Circuit breaker
B4 (M13) L/4 : Power window relay (with power windows)
A4★(M14) — : Body ground
E4 (M18) W/16 : To (Z1) (crewcab)
E4 (M18) W/12 : To (Z1) (except crewcab w/o pretensioners)
E4 (M18) W/20 : To (Z1) (except crewcab with pretensioners)
C4 (M19) W/3 : Seat belt buckle switch
E5 (M20) B/3 : Front door switch LH
B3★(M26) W/16 : Fuse block (J/B)
B3★(M27) W/10 : Fuse block (J/B)
C4 (M28) W/6 : Illumination control switch
C4 (M29) W/6 : ASCD main switch (with ASCD)
C4 (M30) W/4 : Security indicator lamp (with power door locks)
B4 (M31) W/3 : Fuse block (J/B)
A2 (M32) W/16 : Data link connector
B2 (M33) B/20 : ASCD control unit (with ASCD)
Diode-1 (M44)

B2 (M34) BR/6 : ASCD hold relay (with ASCD)
D4 (M35) W/6 : A/T device (with A/T)
C3 (M37) W/2 : Key switch
B2 (M38) W/24 : Combination meter
C2 (M39) BR/24: Combination meter
B1 (M44) SB/4 : Diode-1
C1 (M45) B/3 : Combination flasher unit
B1 (M46) L/4 : Fuel pump relay
B1 (M47) B/2 : Stop lamp switch
B2 (M48) L/2 : ASCD brake switch (A/T shift lock brake switch)
C1 (M49) W/2 : Parking brake switch
C1 (M50) W/6 : Audio unit
D1 (M51) W/10 : Audio unit
C3 (M52) B/2 : Cigarette lighter socket
D3 (M53) W/8 : Hazard switch
D3 (M54) B/2 : Front power socket
C1 (M55) W/3 : To (M10) (except crewcab)
C1 (M56) W/3 : Fan switch illumination (except crewcab)
C1 (M57) W/6 : Fan switch
D1★(M58) W/16 : To (F26)
D1★(M59) W/18 : To (F27)
D3 (M60) W/3 : Thermo control amplifier
D2 (M61) BR/4 : Fan resistor
D2 (M62) W/2 : Blower motor
E2 (M63) W/12 : To (D101)
E2 (M64) W/6 : To (D102)
D3★(M65) SMJ : To (E43)
E3 (M66) B/2 : To (E44)
E3★(M67) W/18 : To (C1)

E2★(M68) — : Body ground
F4 (M69)† GY/2 : G-sensor (except crewcab)
F4 (M69)†† GY/2 : G-sensor (crewcab)
F4 (M70)† GY/2 : G-sensor (except crewcab)
F5 (M70)†† GY/2 : G-sensor (crewcab)
G4 (M71) BR/1 : Front door switch RH
C4 (M72) GY/12: Door mirror remote control switch
G5 (M75) W/8 : Subwoofer amplifier (except crewcab)
A4 (M76) B/5 : ATP relay (with A/T)
A3★(M77) W/24 : TCM (with A/T)
A3★(M78) GY/24: TCM (with A/T))
C3 (M80) L/4 : Power socket relay
D2 (M81) W/24 : To (F36)
D3★(M82) W/20 : To (E74)
E3★(M83) W/10 : To (C11)
C1 (M84) W/6 : Joint connector-5 (except crewcab)
D1 (M85) W/6 : Joint connector-6 (except crewcab)
D5 (M86) W/3 : To (D201) (crewcab with power door locks)
E4 (M87) W/2 : To (D202) (crewcab with power door locks)
E5 (M88) W/2 : To (D203) (crewcab with power door locks)
D5 (M89) Y/2 : Driver seatbelt pretensioner (crewcab)
F3 (M90) Y/2 : Passenger seatbelt pretensioner (crewcab)
F3 (M91) W/3 : To (D301) (crewcab with power door locks)
G3 (M92) W/2 : To (D302) (crewcab with power door locks)
G3 (M93) W/2 : To (D303) (crewcab with power door locks)
A4 (M94) W/2 : Diode (with A/T)
C3 (M95) W/8 : Air control
E2 (M96) B/6 : Intake door motor (with A/C)

Diode (M94)

Combination meter ——— DTRL control unit, Parking brake switch
PNP (park/neutral position switch) ——— TCM (transmission control module)

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

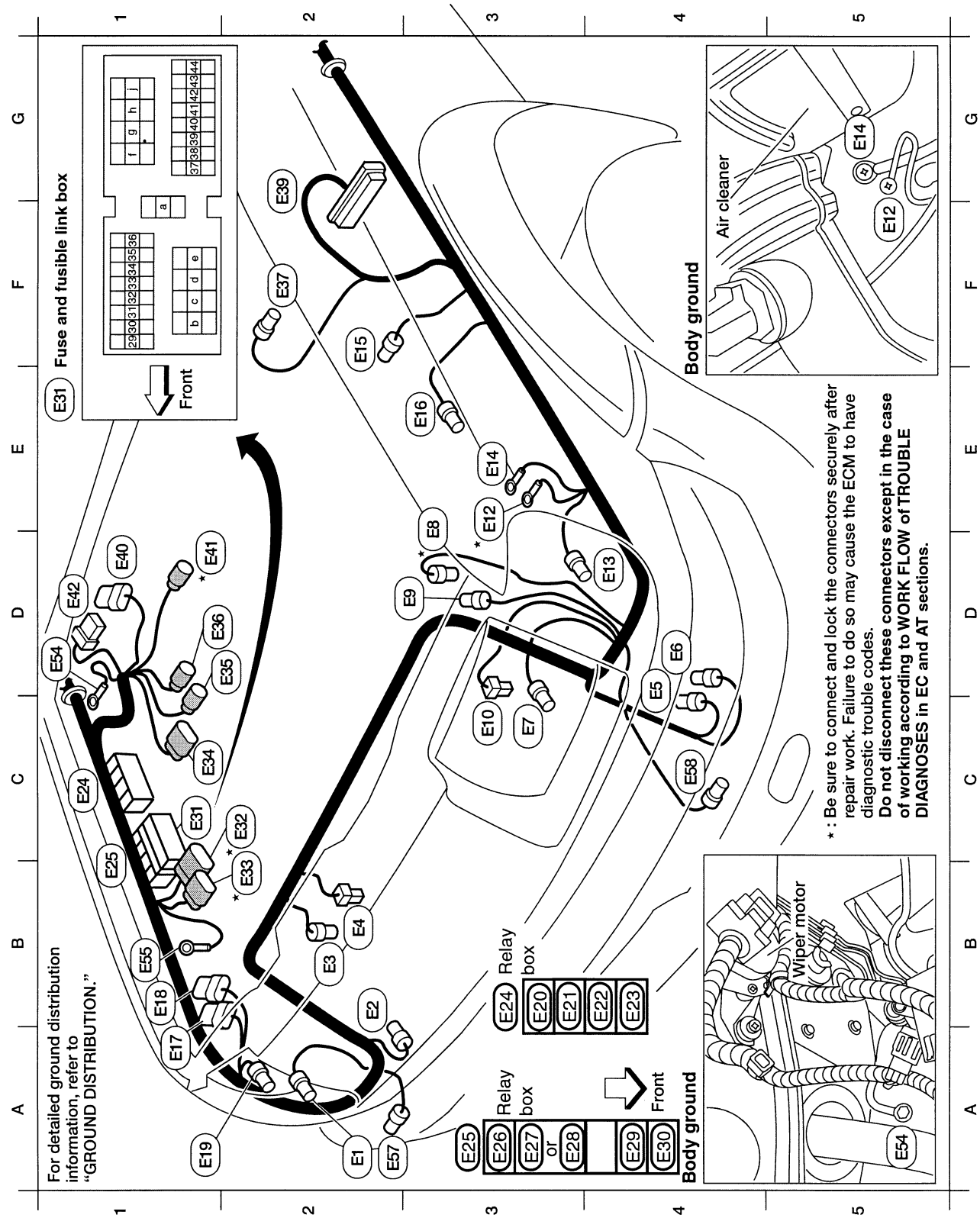
AEL683C

Engine Room Harness (KA24DE Models)

NEEL0175

ENGINE COMPARTMENT

NEEL0175S06



AEL725C

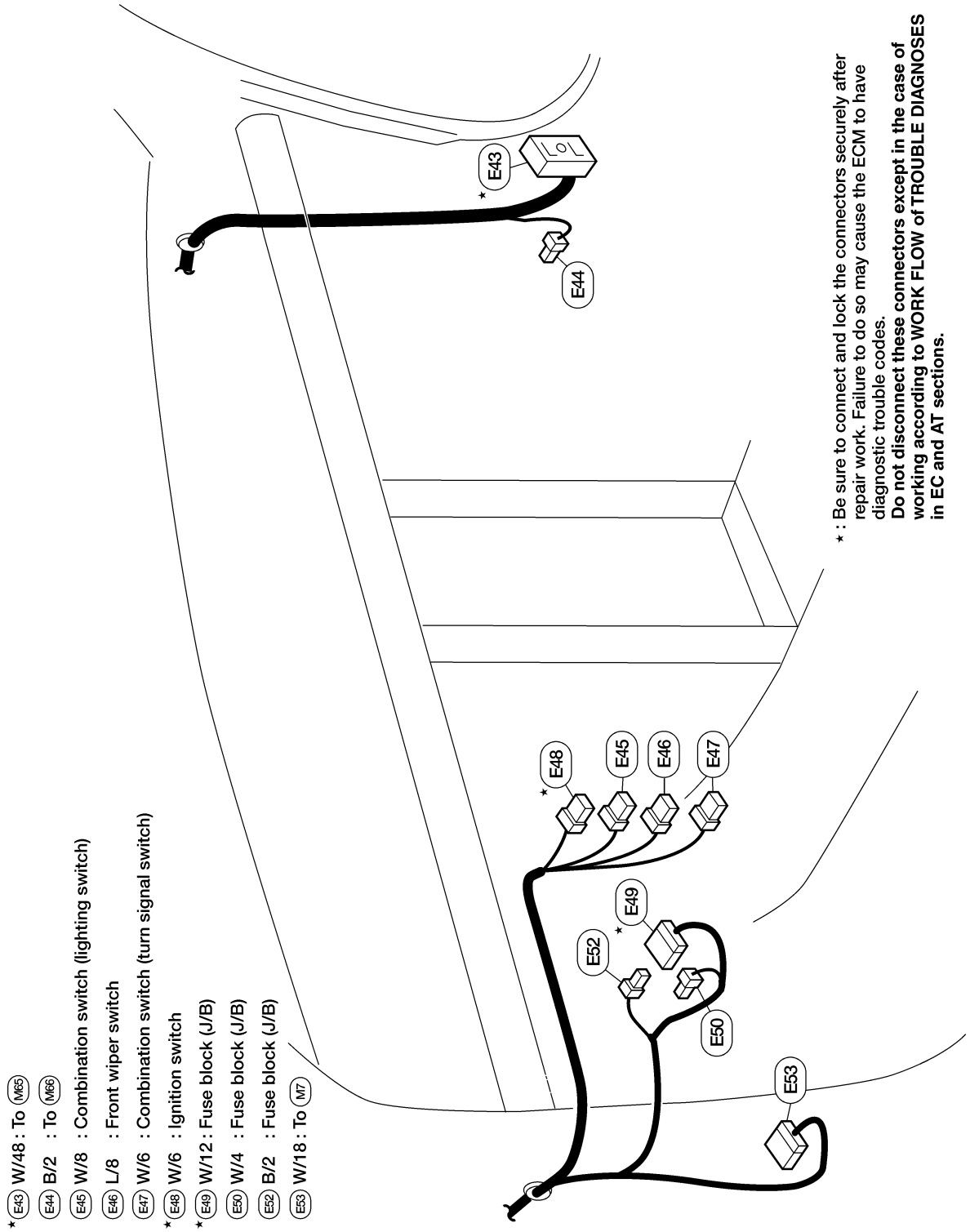
A2 (E1) B/3 : Head lamp RH
B2 (E2) GY/2 : Front wheel sensor RH
B2 (E3) B/2 : Dual-pressure switch (with A/C)
B2 (E4) B/1 : Horn
C4 (E5) BR/2 : Washer fluid level switch (for Canada)
D4 (E6) GY/2 : Front washer motor
C3 (E7) B/3 : Headlamp LH
D3 *(E8) B/2 : Intake air temperature sensor
D3 (E9) GY/2 : Hood switch (with multi-remote)
D3 (E10) B/1 : Theft warning horn (with multi-remote)
D3 *(E12) — : Body ground
D4 (E13) GY/3 : Front combination lamp LH
E3 (E14) — : Body ground
F2 (E15) GY/4 : ASCD pump (with ASCD)
E3 (E16) BR/2 : Front wheel sensor LH
A1 (E17) GY/8 : Daytime light control unit (with DTRL)
B1 (E18) GY/6 : Daytime light control unit (with DTRL)
A1 (E19) GY/3 : Front combination lamp RH
B3 (E20) BR/6 : Theft warning horn relay (with multi-remote)
B3 (E21) B/5 : ASCD relay (with ASCD)
B4 (E22) BR/6 : Theft warning lamp relay (with multi-remote)
B4 (E23) BR/6 : Multi-remote control relay (with multi-remote)
C1 (E24) — : Relay box
B1 (E25) — : Relay box
A3 (E26) L/4 : Power socket relay
A3 (E27) BR/6 : Park/neutral position (PNP) relay (with A/T)
A3 (E28) L/4 : Clutch interlock relay (with M/T)
A4 (E29) W/3 : Horn relay
A4 (E30) L/4 : Air conditioner relay (with A/C)
C1 (E31) — : Fuse and fusible link box
C2 *(E32) GY/9 : To (E202)
B2 *(E33) GY/6 : To (E201)
C1 (E34) GY/8 : Park/neutral position (PNP) switch (A/T)
C1 (E35) W/2 : Park/neutral position (PNP) switch (A/T)
D1 (E36) GY/3 : Solenoid valve unit
F2 (E37) GY/2 : Brake fluid level switch
F2 (E39) B/31 : ABS actuator and electric unit (control unit)
D1 (E40) B/8 : Front wiper amplifier (with intermittent wipers)
D1 *(E41) GY/3 : To (F25)
D1 (E42) W/6 : Front wiper motor
C1 (E54) — : Body ground
B1 (E55) — : Battery
A2 (E57) B/1 : Front fog lamp RH
C4 (E58) B/1 : Front fog lamp LH
A3 (E66) L/4 : Cooling fan relay

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

LEL524A

PASSENGER COMPARTMENT

NEEL0175S05



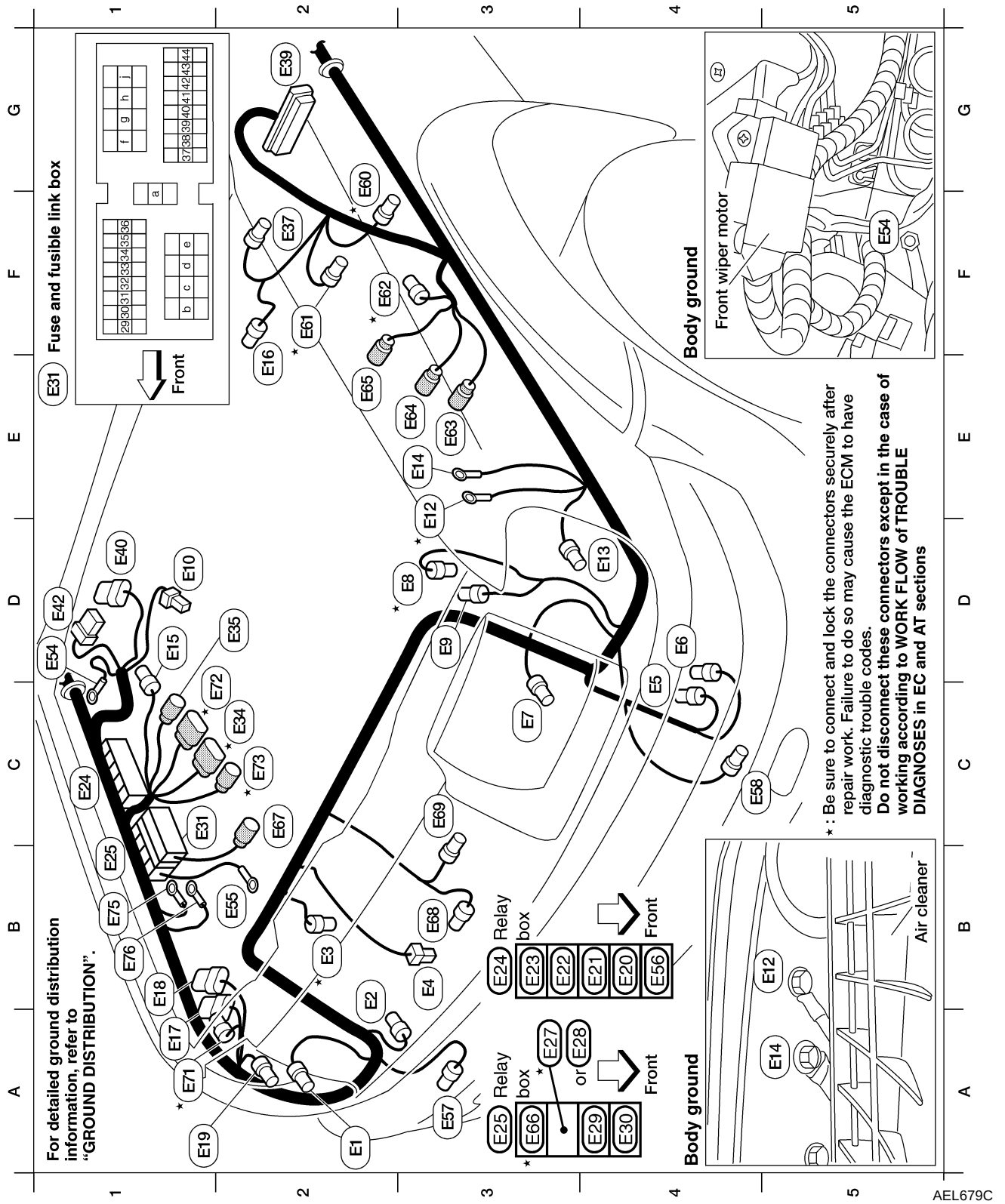
AEL670C

Engine Room Harness (VG33E Models)

NEEL0213

ENGINE COMPARTMENT

NEEL0213S01



A2 (E1) B/3 : Head lamp RH
B2 (E2) GY/2 : Front wheel sensor RH
B2 (E3) B/2 : Dual-pressure switch (with A/C)
B2 (E4) B/1 : Horn
C4 (E5) BR/2 : Washer fluid level switch (for Canada)
D4 (E6) GY/2 : Front washer motor
C3 (E7) B/3 : Headlamp LH
D3 *(E8) B/2 : Intake air temperature sensor
D3 (E9) GY/2 : Hood switch (with multi-remote)
D3 (E10) B/1 : Theft warning horn (with multi-remote)
D3 *(E12) — : Body ground
D4 (E13) GY/3 : Front combination lamp LH
E3 (E14) — : Body ground
F2 (E15) GY/4 : ASCD pump (with ASCD)

E3 (E16) BR/2 : Front wheel sensor LH
A1 (E17) GY/8 : Daytime light control unit (with DTRL)
B1 (E18) GY/6 : Daytime light control unit (with DTRL)
A1 (E19) GY/3 : Front combination lamp RH
B3 (E20) BR/6 : Theft warning horn relay (with multi-remote)
B3 (E21) B/5 : ASCD relay (with ASCD)
B4 (E22) BR/6 : Theft warning lamp relay (with multi-remote)
B4 (E23) BR/6 : Multi-remote control relay (with multi-remote)
C1 (E24) — : Relay box
B1 (E25) — : Relay box
A3 (E26) L/4 : Power socket relay
A3 (E27) BR/6 : Park/neutral position (PNP) relay (with A/T)
A3 (E28) L/4 : Clutch interlock relay (with M/T)
A4 (E29) W/3 : Horn relay

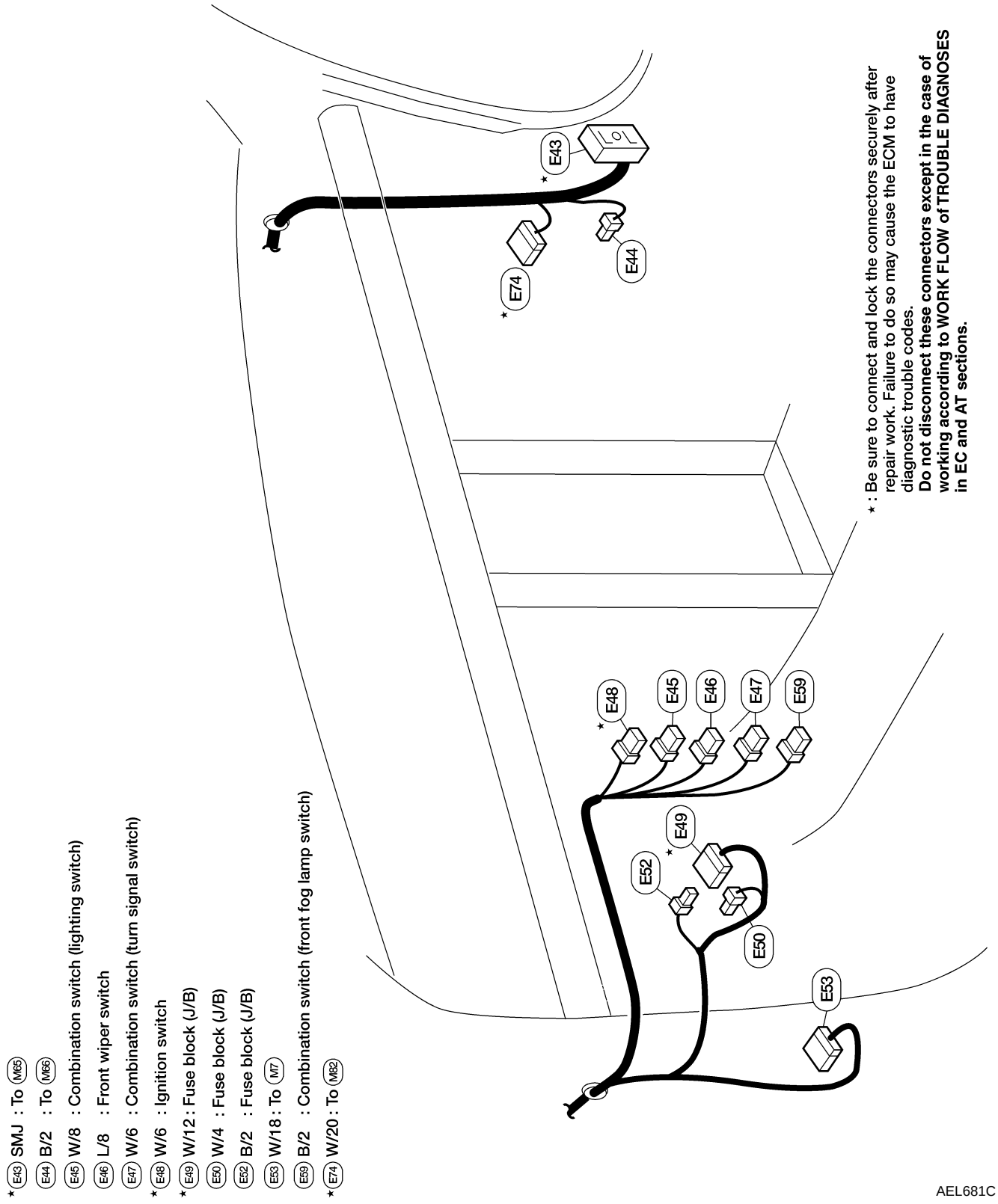
A4 (E30) L/4 : Air conditioner relay (with A/C)
C1 (E31) — : Fuse and fusible link box
C2 *(E32) GY/9 : To (E202)
B2 *(E33) GY/6 : To (E201)
C1 (E34) GY/8 : Park/neutral position (PNP) switch (A/T)
C1 (E35) W/2 : Park/neutral position (PNP) switch (A/T)
D1 (E36) GY/3 : Solenoid valve unit
F2 (E37) GY/2 : Brake fluid level switch
F2 (E39) B/31 : ABS actuator and electric unit (control unit)
D1 (E40) B/8 : Front wiper amplifier (with intermittent wipers)
D1 *(E41) GY/3 : To (F25)
D1 (E42) W/6 : Front wiper motor
C1 (E54) — : Body ground
B1 (E55) — : Battery
A2 (E57) B/1 : Front fog lamp RH
C4 (E58) B/1 : Front fog lamp LH

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

AEL726C

PASSENGER COMPARTMENT

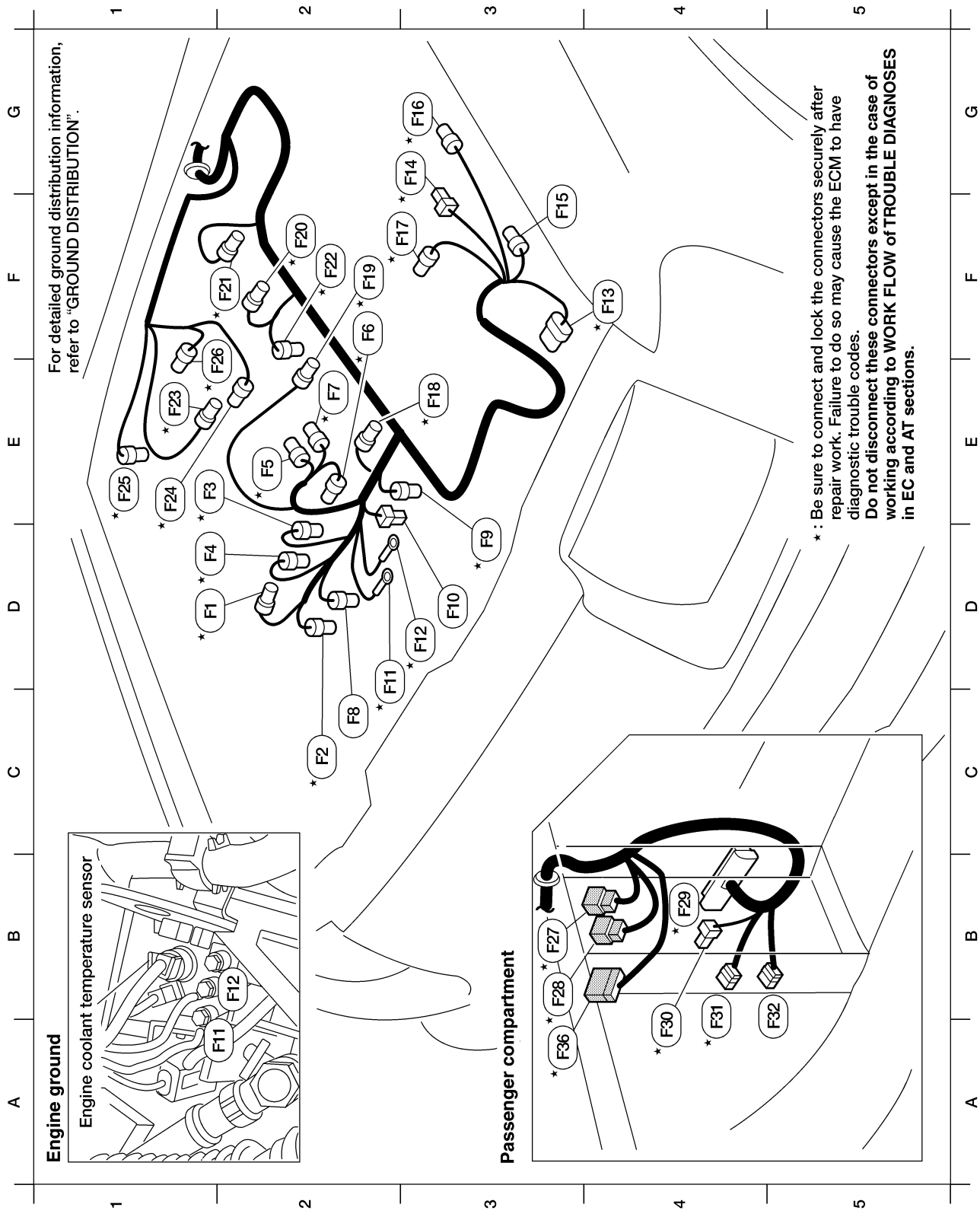
NEEL0213S02



AEL681C

Engine Control Harness (KA24DE Models)

NEEL0209



AEL657C

D2 *F1 BR/4 : Mass air flow sensor
C2 *F2 GY/2 : Knock sensor
D2 *F3 BR/3 : Throttle position sensor
D2 *F4 GY/3 : Throttle position switch (closed throttle position switch and wide open throttle position switch)
E2 *F5 GY/2 : EGR temperature sensor
F2 *F6 BR/2 : IACV-AAC valve
E2 *F7 PU/2 : IACV-FICD solenoid valve
C2 F8 B/1 : Power steering oil pressure switch
D3 *F9 GY/2 : Engine coolant temperature sensor
D3 F10 B/1 : Thermal transmitter
D2 *F11 — : Engine ground
D3 *F12 — : Engine ground
F4 *F13 GY/6 : Distributor (camshaft position sensor)
G3 *F14 GY/2 : Resistor
F3 F15 B/1 : A/C compressor
G3 *F16 GY/3 : Front heated oxygen sensor
F3 *F17 GY/2 : Distributor (ignition coil)
E3 *F18 B/2 : Injector No. 1
F2 *F19 B/2 : Injector No. 2
F2 *F20 B/2 : Injector No. 3
F2 *F21 B/2 : Injector No. 4
F2 *F22 G/2 : EGRC-solenoid valve
E1 *F23 GY/3 : Absolute pressure sensor
E1 *F24 B/2 : MAP/BARO switch solenoid valve
E1 *F25 GY/3 : To E41
E2 *F26 L/2 : EVAP canister purge volume control solenoid valve
B3 *F27 W/8 : To M59
B3 *F28 W/6 : To M58
B4 *F29 GY/104 : ECM
A4 *F30 L/4 : ECM relay
A4 *F31 GY/6 : Joint connector-1
A5 F32 GY/6 : Joint connector-2
A3 *F36 W/20 : To M81

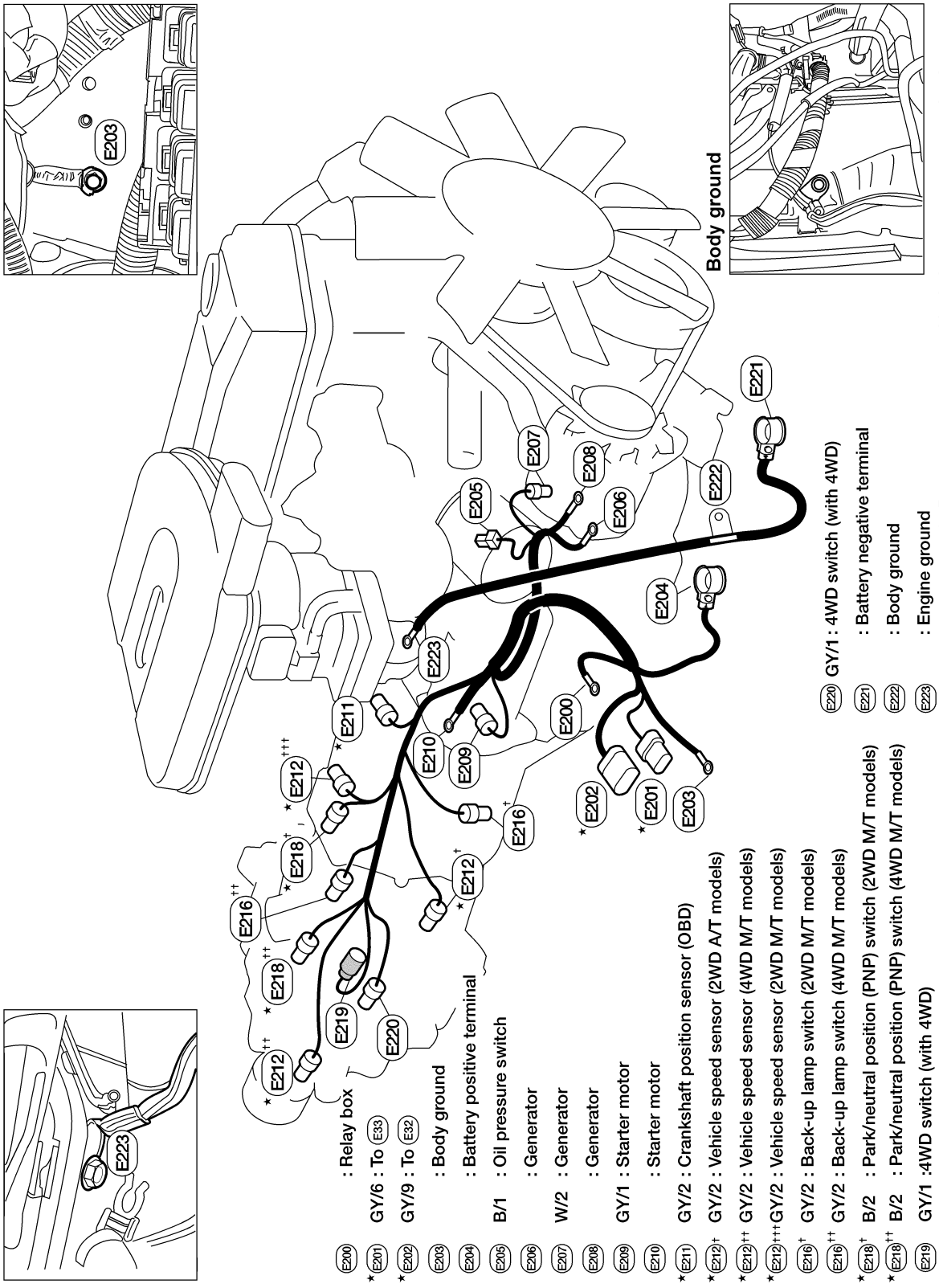
*: Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

AEL658C

Engine No. 2 Harness (KA24DE Models)

NEEL0211

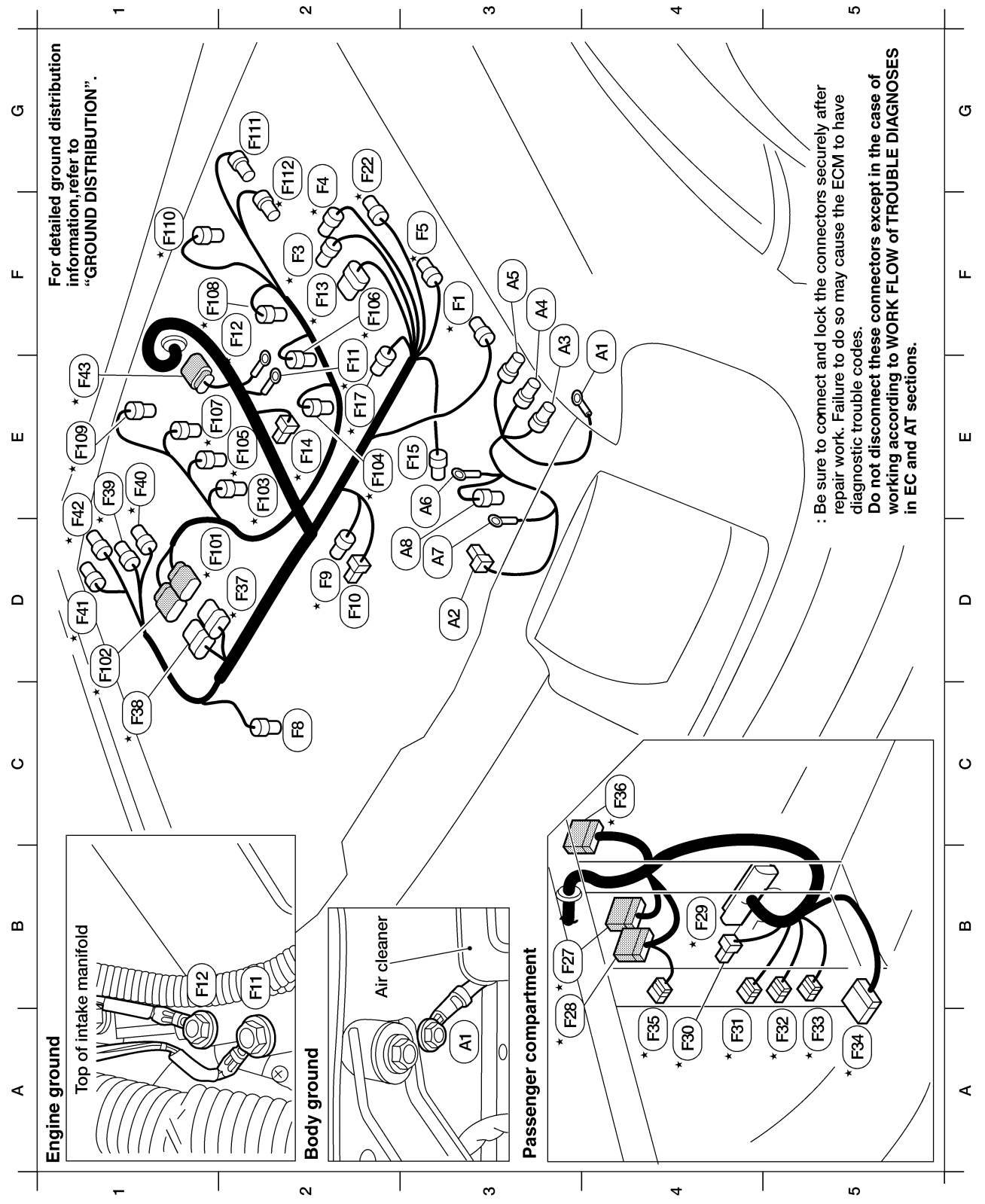
For detailed ground distribution information, refer to "GROUND DISTRIBUTION".



AEL727C

Engine Control Harness (VG33E Models)

NEEL0176



AEL663C

Engine control harness

F3 ★ (F1) BR/4 : Mass air flow sensor
F2 ★ (F3) BR/3 : Throttle position sensor
F2 ★ (F4) GY/3 : Throttle position switch (closed throttle position switch and wide open throttle position switch)
F3 ★ (F5) GY/2 : EGR temperature sensor
C2 (F8) B/2 : Power steering oil pressure switch
D2 ★ (F9) GY/2 : Engine coolant temperature sensor
D2 (F10) B/1 : Thermal transmitter
E2 ★ (F11) — : Engine ground
F2 ★ (F12) — : Engine ground
F2 ★ (F13) GY/6 : Distributor (camshaft position sensor)
E2 ★ (F14) GY/2 : Resistor
E3 (F15) B/1 : A/C compressor
E2 ★ (F17) GY/2 : Distributor (ignition coil)
G2 ★ (F22) B/2 : EGRC solenoid valve
B3 ★ (F27) W/18 : To (M59)
A3 ★ (F28) W/16 : To (M58)
B4 ★ (F29) GY/104 : ECM
A4 ★ (F30) L/4 : ECM relay
A4 ★ (F31) GY/6 : Joint connector-1
A5 ★ (F32) GY/6 : Joint connector-2
A5 ★ (F33) GY/6 : Joint connector-3
A5 ★ (F34) L/12 : Joint connector-4
A4 ★ (F35) SB/2 : Diode
C4 ★ (F36) W/24 : To (M81)
D2 ★ (F37) B/8 : To (F101)
C1 ★ (F38) GY/8 : To (F102)
E1 ★ (F39) GY/4 : Rear heated oxygen sensor LH
E1 ★ (F40) GY/3 : Front heated oxygen sensor LH

Engine control harness (continued)

D1 ★ (F41) GY/3 : Front heated oxygen sensor RH
D1 ★ (F42) GY/4 : Rear heated oxygen sensor RH
E1 ★ (F43) GY/8 : To (F201)

Engine sub harness

D2 ★ (F101) B/8 : To (F37)
D1 ★ (F102) GY/8 : To (F38)
E2 ★ (F103) B/2 : Injector No. 1
E2 ★ (F104) B/2 : Injector No. 2
E2 ★ (F105) B/2 : Injector No. 3
F2 ★ (F106) B/2 : Injector No. 4
E2 ★ (F107) B/2 : Injector No. 5
F1 ★ (F108) B/2 : Injector No. 6
E1 ★ (F109) GY/2 : Knock sensor
F1 ★ (F110) GY/2 : Crankshaft position sensor (OBD)
G2 (F111) GY/2 : IACV-FICD solenoid valve
G2 ★ (F112) BR/2 : IACV-AAC valve

Generator harness

F4 (A1) — : Body ground
D3 (A2) B/1 : Oil pressure switch
F3 (A3) GY/1 : To (E63)
F3 (A4) GY/1 : To (E64)
F3 (A5) GY/4 : To (E65)
E3 (A6) — : Generator
D3 (A7) — : Generator
D3 (A8) GY/2 : Generator

Diode (F35)

IACV-FICD solenoid valve

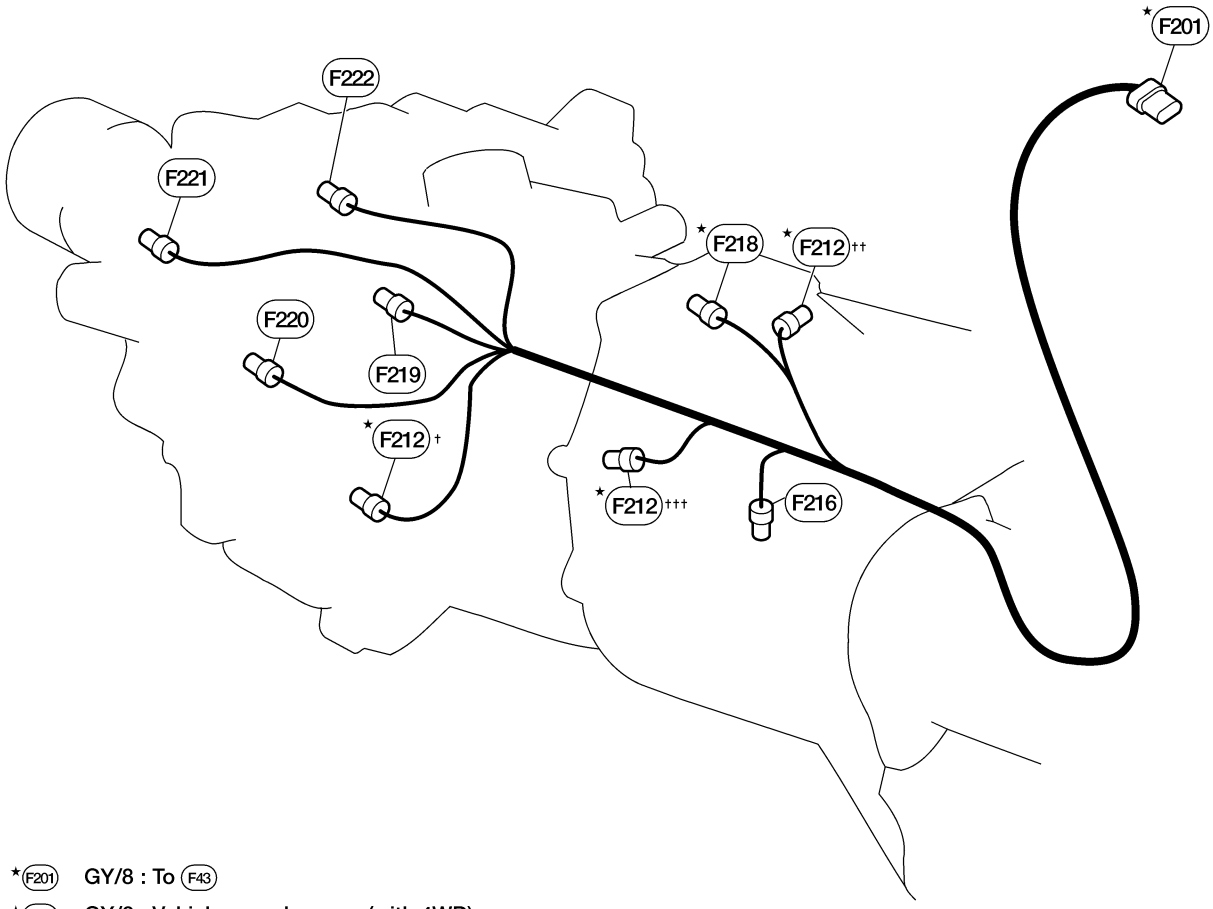
ECM

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

AEL664C

Engine No. 2 Harness (VG33E Models)

NEEL0207



★(F201) GY/8 : To (F43)
★(F212)† GY/2 : Vehicle speed sensor (with 4WD)
★(F212)†† GY/2 : Vehicle speed sensor (with 2WD M/T)
★(F212)††† GY/2 : Vehicle speed sensor (with 2WD A/T)
(F216) GY/2 : Back-up lamp switch (with M/T)
★(F218) B/2 : Park/neutral position (PNP) switch (with M/T)
(F219) GY/1 : Transfer neutral position switch (with M/T)
(F220) GY/1 : 4WD switch (with M/T)
(F221) GY/2 : 4WD switch (with A/T)
(F222) B/2 : Transfer neutral position switch (with A/T)

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

AEL662C

Chassis and Tail Harness (KA24DE Models)

NEEL0212

Chassis harness
- ★(C1) W/18 : To (M67)
- (C2) W/8 : To (M7)
- (C3) W/3 : To (M15) (with 2WD and KA24 engine)
- (C4) GY/4 : ABS actuator (with 2WD and KA24 engine)
- (C5) GY/6 : Fuel tank gauge unit
- (C6) GY/2 : Rear wheel sensor
- ★(C7) GY/3 : EVAP control system pressure sensor
- ★(C8) B/2 : EVAP canister vent control valve
- ★(C9) G/2 : Vacuum cut valve bypass valve
- (C10) GY/6 : To (M83)
- (C11) W/10 : To

Chassis harness
- (C12) GY/4 : To (C101)
- ★(C13) GY/4 : Fuel tank gauge unit
- (C14) GY/2 : Fuel pump
- (C15) W/6 : To (M16)
- (C101) GY/4 : To (C12)
- (C102) GY/4 : To rear wheel sensors

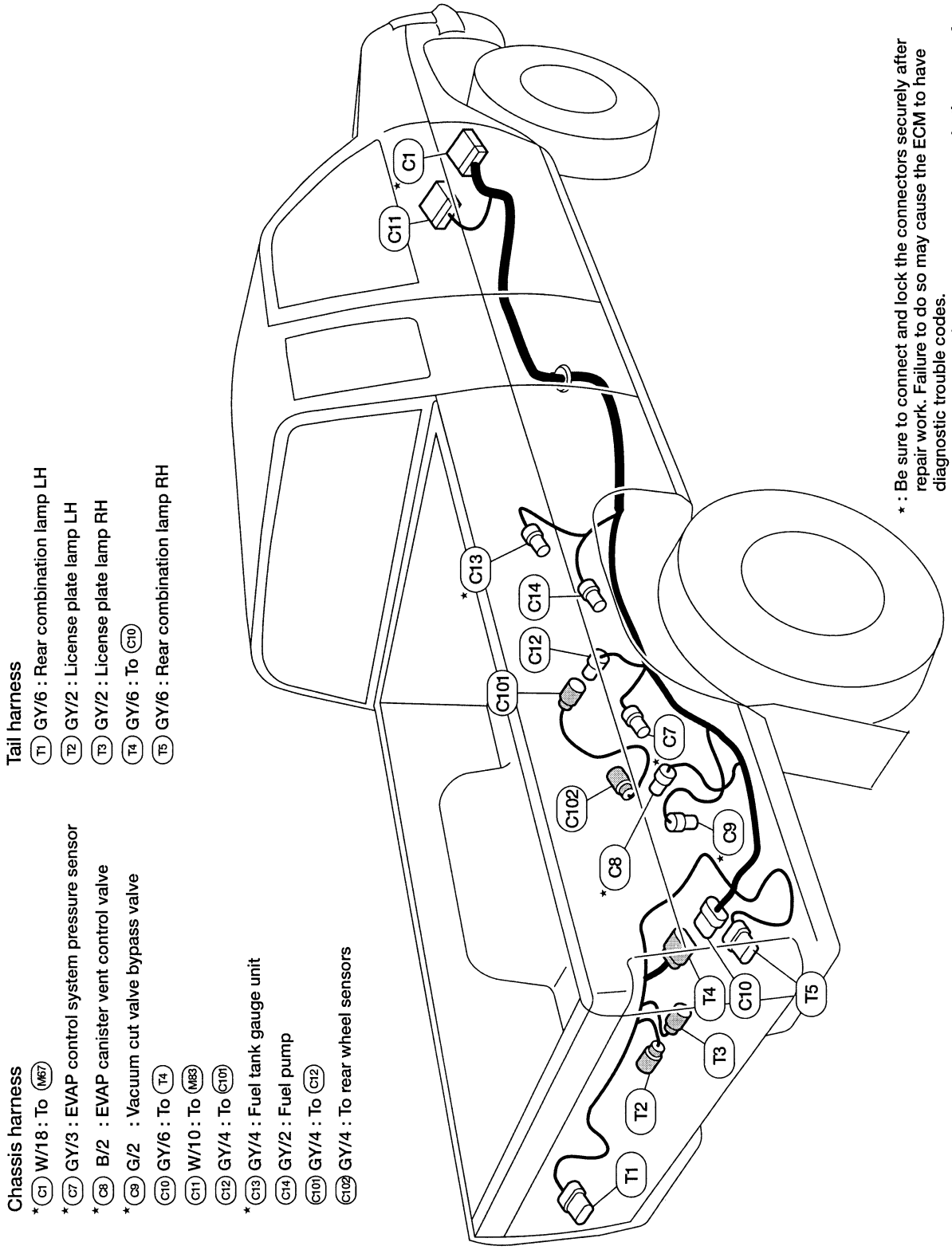
Tail harness
- (T1) GY/6 : Rear combination lamp LH
- (T2) GY/2 : License plate lamp LH
- (T3) GY/2 : License plate lamp RH
- (T4) GY/6 : To (C10)
- (T5) GY/6 : Rear combination lamp RH

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

AEL728C

Chassis and Tail Harness (VG33E Models)

NEEL0177

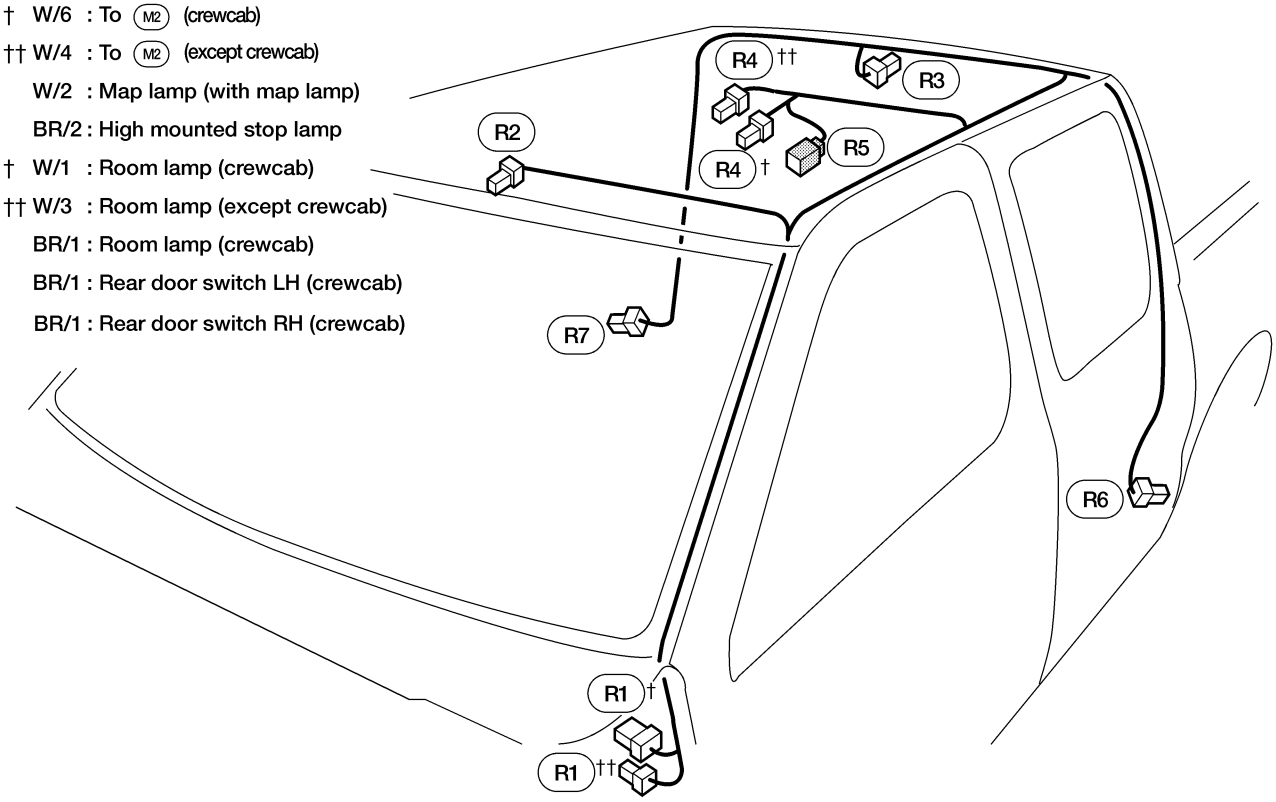


AEL751C

Room Lamp Harness

NEEL0180

(R1)† W/6 : To (M2) (crewcab)
(R1)†† W/4 : To (M2) (except crewcab)
(R2) W/2 : Map lamp (with map lamp)
(R3) BR/2 : High mounted stop lamp
(R4)† W/1 : Room lamp (crewcab)
(R4)†† W/3 : Room lamp (except crewcab)
(R5) BR/1 : Room lamp (crewcab)
(R6) BR/1 : Rear door switch LH (crewcab)
(R7) BR/1 : Rear door switch RH (crewcab)



AEL383C

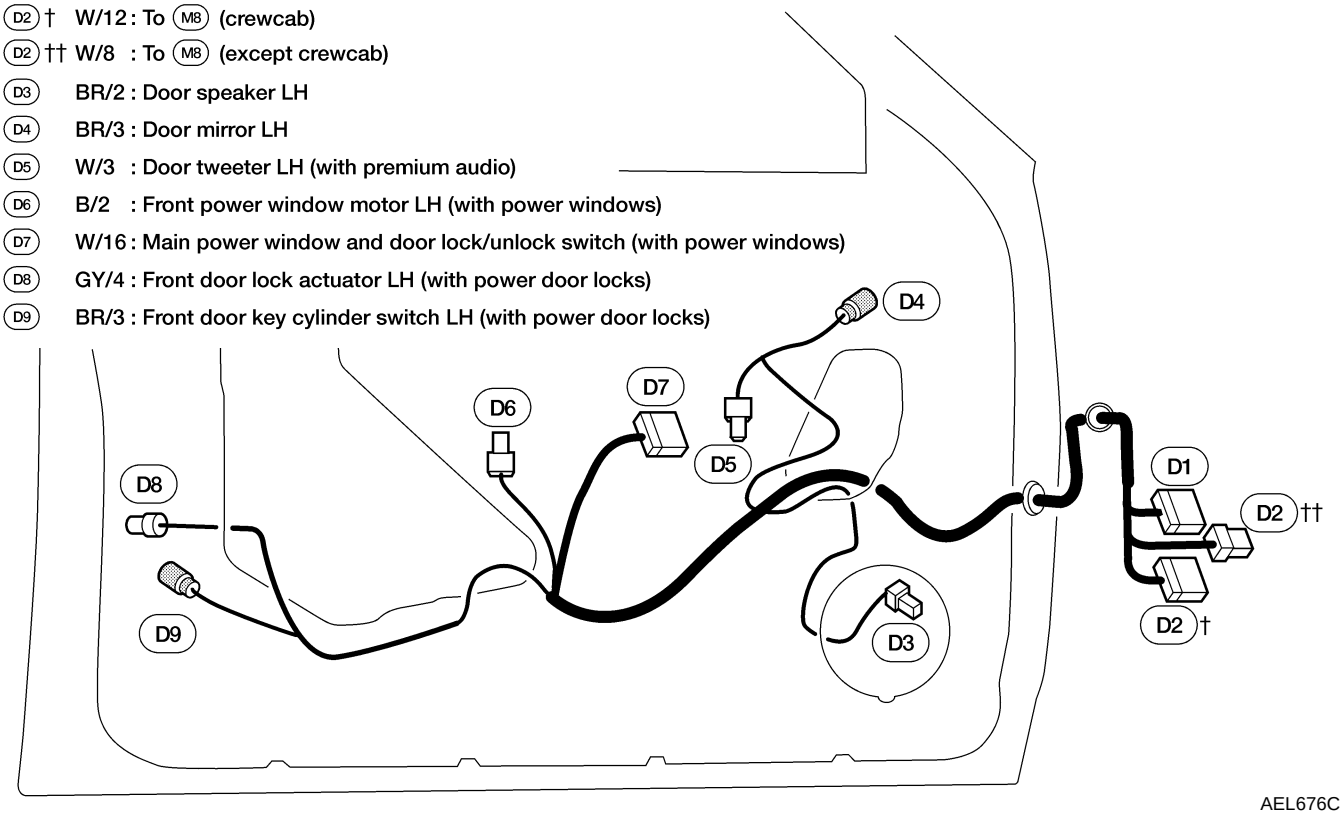
Front Door Harness

NEEL0182

LH SIDE

NEEL0182S01

(D1) W/12 : To (M9)
(D2)† W/12 : To (M8) (crewcab)
(D2)†† W/8 : To (M8) (except crewcab)
(D3) BR/2 : Door speaker LH
(D4) BR/3 : Door mirror LH
(D5) W/3 : Door tweeter LH (with premium audio)
(D6) B/2 : Front power window motor LH (with power windows)
(D7) W/16 : Main power window and door lock/unlock switch (with power windows)
(D8) GY/4 : Front door lock actuator LH (with power door locks)
(D9) BR/3 : Front door key cylinder switch LH (with power door locks)

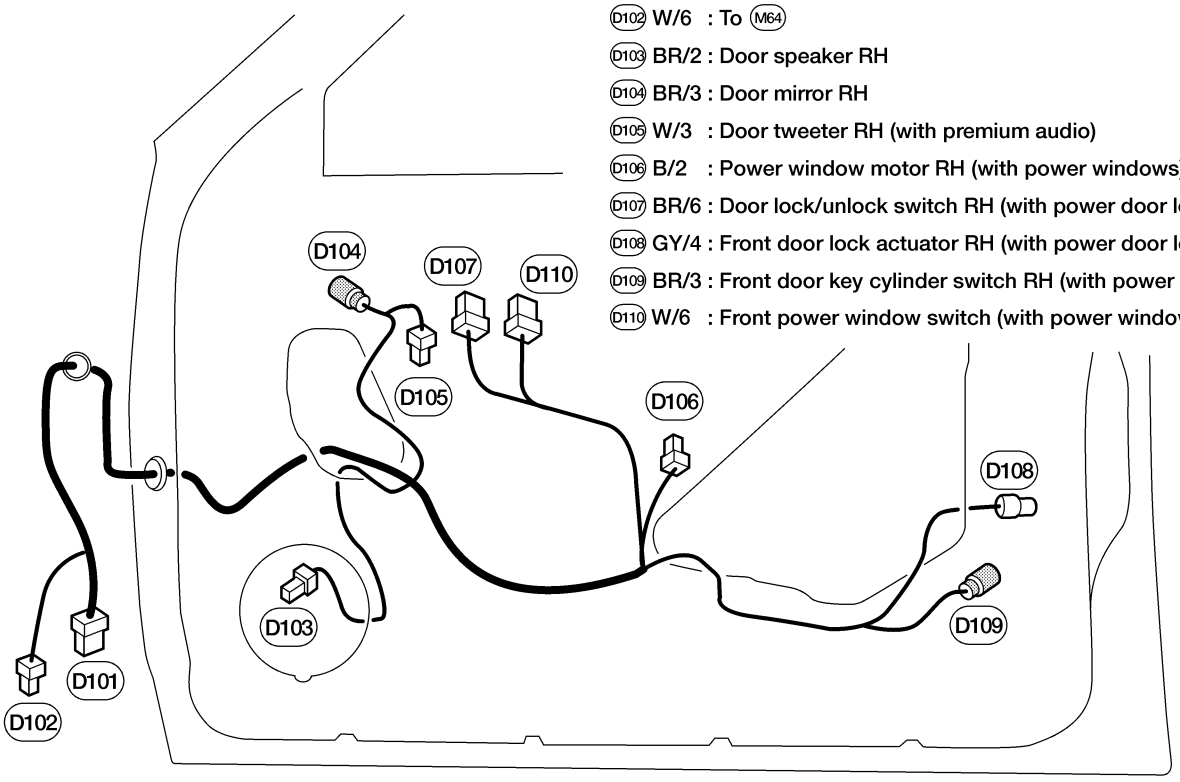


AEL676C

RH SIDE

NEEL0182S02

D101 W/12 : To M63
D102 W/6 : To M64
D103 BR/2 : Door speaker RH
D104 BR/3 : Door mirror RH
D105 W/3 : Door tweeter RH (with premium audio)
D106 B/2 : Power window motor RH (with power windows)
D107 BR/6 : Door lock/unlock switch RH (with power door locks)
D108 GY/4 : Front door lock actuator RH (with power door locks)
D109 BR/3 : Front door key cylinder switch RH (with power door locks)
D110 W/6 : Front power window switch (with power windows)



AEL571C

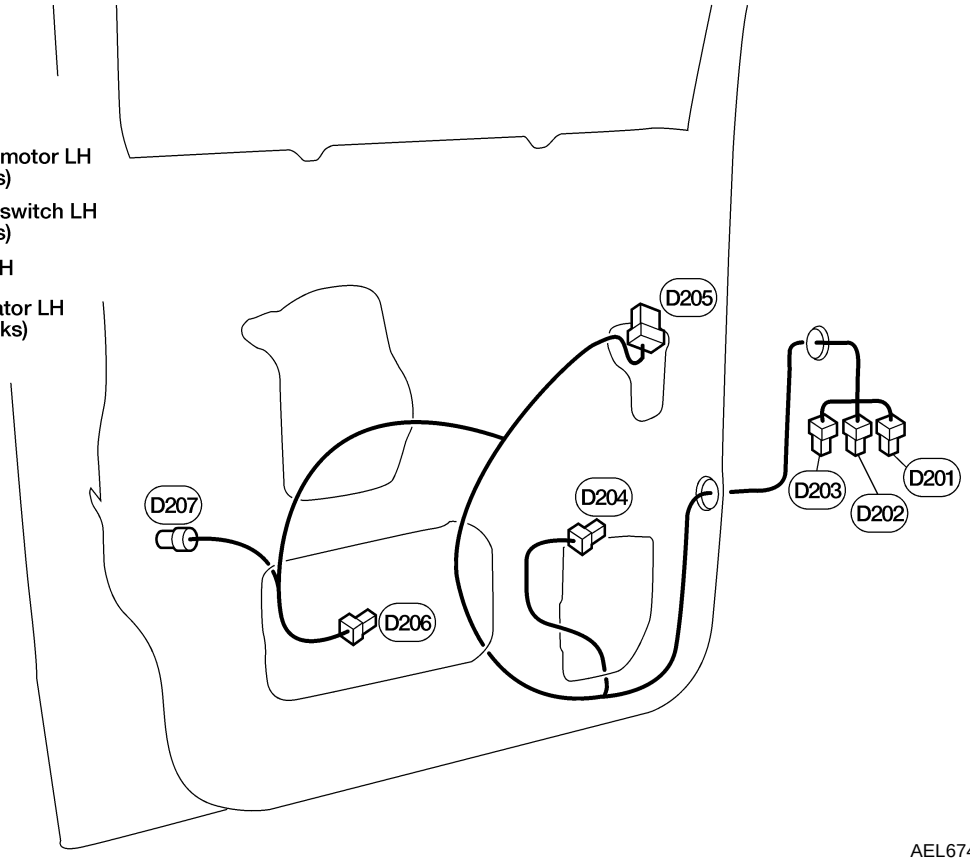
Rear Door Harness

NEEL0183

LH SIDE

NEEL0183S01

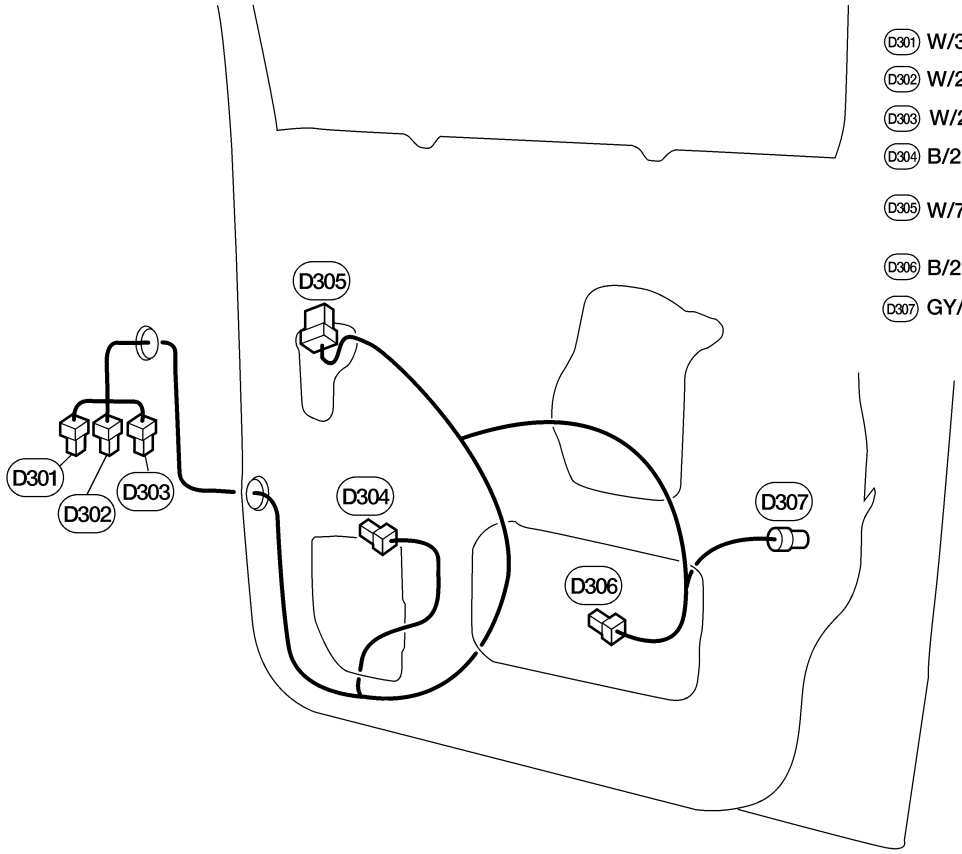
(D201) W/3 : To (M86)
(D202) W/2 : To (M87)
(D203) W/2 : To (M88)
(D204) B/2 : Rear power window motor LH (with power windows)
(D205) W/7 : Rear power window switch LH (with power windows)
(D206) B/2 : Rear door speaker LH
(D207) GY/4 : Rear door lock actuator LH (with power door locks)



AEL674C

RH SIDE

NEEL0183S02



D301 W/3 : To M91
D302 W/2 : To M92
D303 W/2 : To M93
D304 B/2 : Rear power window motor RH (with power windows)
D305 W/7 : Rear power window switch RH (with power windows)
D306 B/2 : Rear door speaker RH
D307 GY/4 : Rear door lock actuator RH (with power door locks)

AEL675C

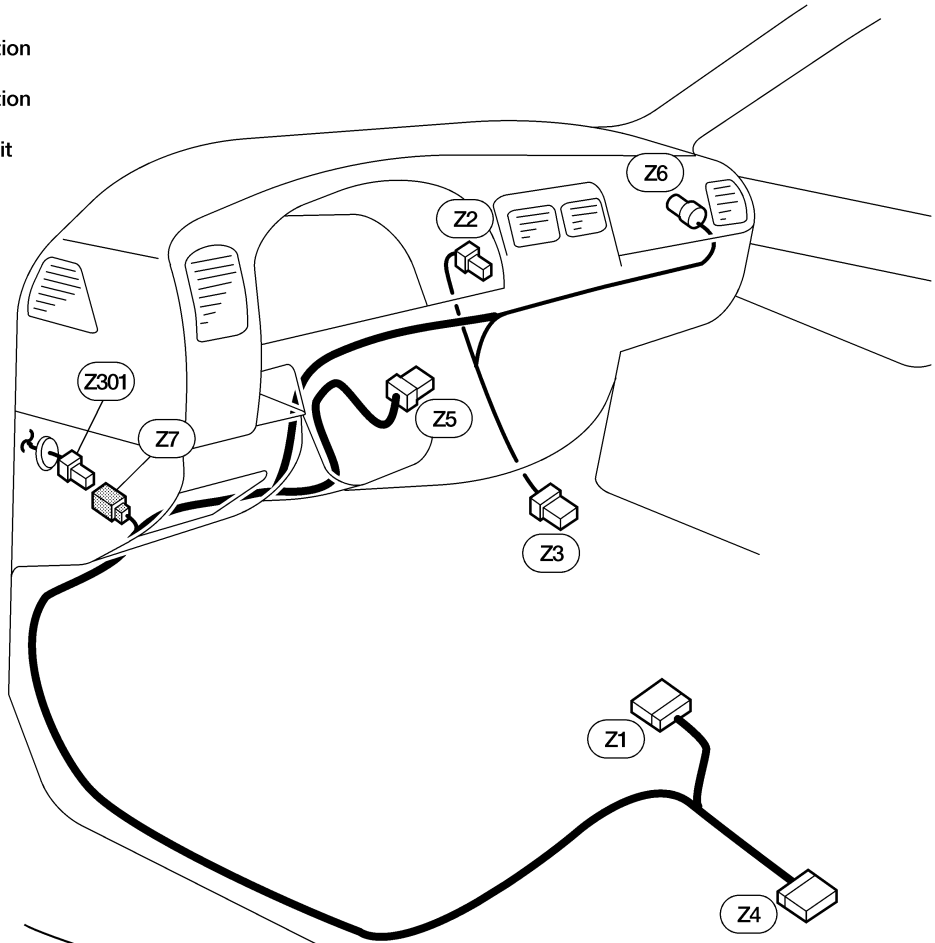
Air Bag Harness

NEEL0181

WITHOUT SEAT BELT PRE-TENSIONERS

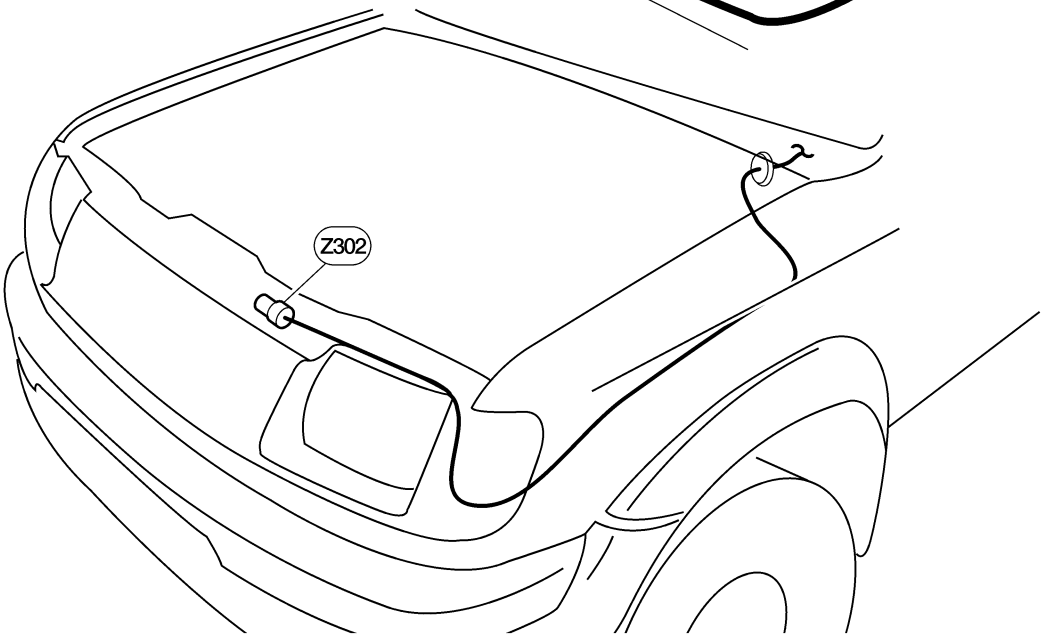
NEEL0181S01

(Z1) W/12 : To (M18)
(Z2) W/2 : Passenger air bag deactivation switch indicator
(Z3) W/6 : Passenger air bag deactivation switch
(Z4) Y/22 : Air bag diagnosis sensor unit
(Z5) W/6 : Spiral cable
(Z6) B/2 : Passenger air bag module
(Z7) W/4 : To (Z301) (with 4 wheel drive)
(Z301) W/4 : To (Z7) (with 4 wheel drive)



4-wheel drive models

(Z302) GY/4 : Crash zone sensor



AEL677C

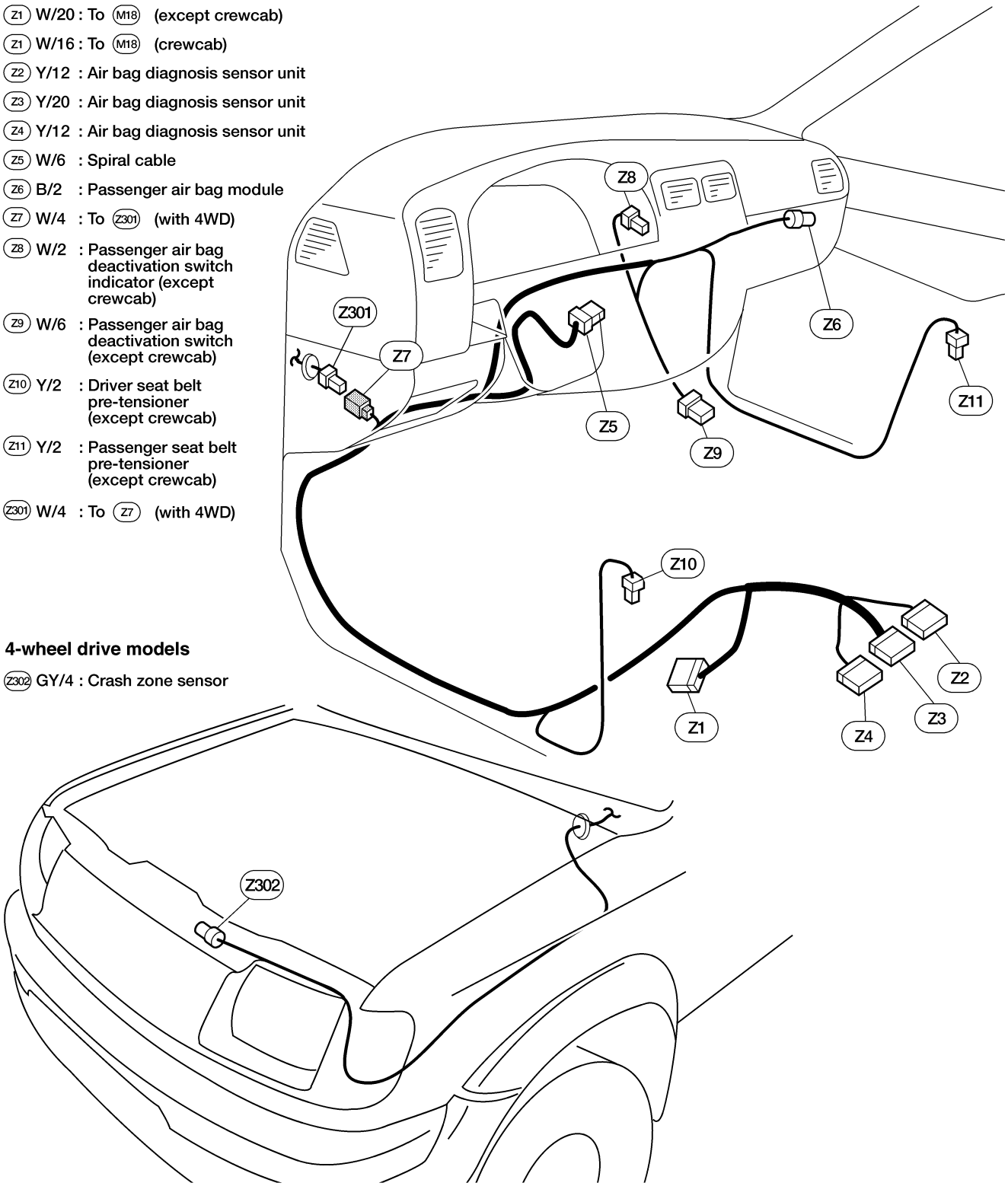
WITH SEAT BELT PRE-TENSIONERS

=NEEL0181S02

(Z1) W/20 : To (M18) (except crewcab)
(Z1) W/16 : To (M18) (crewcab)
(Z2) Y/12 : Air bag diagnosis sensor unit
(Z3) Y/20 : Air bag diagnosis sensor unit
(Z4) Y/12 : Air bag diagnosis sensor unit
(Z5) W/6 : Spiral cable
(Z6) B/2 : Passenger air bag module
(Z7) W/4 : To (Z301) (with 4WD)
(Z8) W/2 : Passenger air bag deactivation switch indicator (except crewcab)
(Z9) W/6 : Passenger air bag deactivation switch (except crewcab)
(Z10) Y/2 : Driver seat belt pre-tensioner (except crewcab)
(Z11) Y/2 : Passenger seat belt pre-tensioner (except crewcab)
(Z301) W/4 : To (Z7) (with 4WD)

4-wheel drive models

(Z302) GY/4 : Crash zone sensor



AEL678C

BULB SPECIFICATIONS

Headlamp

Headlamp

NEEL0144S03

	Wattage (W)
High/Low	65/45 (HB1)

Exterior Lamp

NEEL0144S01

		Wattage (W)	Bulb No.*
Front combination lamp	Turn signal light	27	1156NA
	Parking light	3.8	194
Fog light		35	H3
Rear combination lamp	Turn signal	27	3157
	Stop/Tail	27/7	3157NA
	Back-up	27	3156
Map light		8	578
License plate lamp		3.8	168
High-mounted stop lamp		2.3	2723

*: Always check with the Parts Department at an authorized NISSAN dealer for the latest parts information.

Interior Lamp

NEEL0144S02

	Wattage (W)
Room lamp (Dome lamp)	10
Map lamp	8

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	HA	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
AT/IND	EL	A/T Indicator Lamp
AUDIO	EL	Audio
BA/FTS	AT	A/T Fluid Temperature Sensor Circuit and Transmission Control Module (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
CKPS	EC	Crankshaft Position Sensor (OBD)
CMPS	EC	Camshaft Position Sensor
COOL/F	EC	Cooling fan control
D/LOCK	EL	Power Door Lock
DTRL	EL	Headlamp - With Daytime Light System
ECTS	EC	Engine Coolant Temperature Sensor
EGR/TS	EC	EGR Temperature Sensor
EGRC/V	EC	EGRC-solenoid Valve
EGRC1	EC	EGR Function
ENGSS	AT	Engine Speed Signal
F/FOG	EL	Front Fog Lamp
F/PUMP	EC	Fuel Pump
FICD	EC	IACV-FICD Valve
FO2H-L	EC	Front Heated Oxygen Sensor (Front HO2S) Heater (Left Bank) (VG33E)
FO2H-R	EC	Front Heated Oxygen Sensor (Front HO2S) Heater (Right Bank) (VG33E)
FRO2	EC	Front Heated Oxygen Sensor (Front HO2S) (KA24DE)
FRO2/H	EC	Front Heated Oxygen Sensor (Front HO2S) Heater (KA24DE)
FRO2LH	EC	Front Heated Oxygen Sensor (Front HO2S) (Left Bank) (VG33E)
FRO2RH	EC	Front Heated Oxygen Sensor (Front HO2S) (Right Bank) (VG33E)
FTS	AT	A/T Fluid Temperature Sensor
FUEL	EC	Fuel Injection System Function (KA24DE)
FUELLH	EC	Fuel Injection System Function (Left Bank) (VG33E)
FUELRH	EC	Fuel Injection System Function (Right Bank) (VG33E)
H/LAMP	EL	Headlamp
HEATER	HA	Heater System
HORN	EL	Horn
IATS	EC	Intake Air Temperature Sensor
IGN/SG	EC	Ignition Signal
ILL	EL	Illumination
INJECT	EC	Injector
KS	EC	Knock Sensor
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 Connector
MIRROR	EL	Door Mirror
MULTI	EL	Multi-remote Control System
NONDTC	AT	Non-detectable Items

Code	Section	Wiring Diagram Name
OVRCSV	AT	Overrun Clutch Solenoid Valve
PGC/V	EC	EVAP Canister Purge Volume Control Solenoid Valve
PNP/SW	AT	Park/Neutral Position Switch
PNP/SW	EC	Park/Neutral Position Switch
POWER	EL	Power Supply Routing
PRE/SE	EC	EVAP Control System Pressure Sensor
PST/SW	EC	Power Steering Oil Pressure Switch
RO2H-L	EC	Rear Heated Oxygen Sensor (Rear HO2S) Heater (Left Bank) (VG33E)
RO2H-R	EC	Rear Heated Oxygen Sensor (Rear HO2S) Heater (Right Bank) (VG33E)
ROOM/L	EL	Interior Room Lamp
RRO2	EC	Rear Heated Oxygen Sensor (Rear HO2S) (KA24DE)
RRO2/H	EC	Rear Heated Oxygen Sensor (Rear HO2S) Heater (KA24DE)
RRO2LH	EC	Rear Heated Oxygen Sensor (Rear HO2S) (Left Bank) (VG33E)
RRO2RH	EC	Rear Heated Oxygen Sensor (Rear HO2S) (Right Bank) (VG33E)
S/SIG	EC	Start Signal
SHIFT	AT	A/T Shift Lock System
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
SW/V	EC	MAP/BARO Switch Solenoid Valve
TAIL/L	EL	Parking, License and Tail Lamps
TCCSIG	AT	A/T TCC Signal (Lock Up)
TCV	AT	Torque Converter Clutch Sole-noid Valve
TFTS	EC	Tank Fuel Temperature Sensor
THEFT	EL	Theft Warning System
TP/SW	EC	Throttle Position Switch
TPS	AT	Throttle Position Sensor

Code	Section	Wiring Diagram Name
TPS	EC	Throttle Position Sensor
TURN	EL	Turn Signal and Hazard Warning Lamps
VENT/V	EC	EVAP Canister Vent Control Valve
VSS	EC	Vehicle Speed Sensor
VSSAT	AT	Vehicle Speed Sensor A/T (Revolution Sensor)
VSSMTR	AT	Vehicle Speed Sensor MTR
WARN	EL	Warning Lamps
WINDOW	EL	Power Window
WIPER	EL	Front Wiper and Washer