

ELECTRICAL SYSTEM

SECTION **EL**

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PRECAUTIONS

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

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

NEEL0001

The Supplemental Restraint System such as "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, 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 the RS section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow harness connectors.**
- **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:

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

When you perform trouble diagnosis, refer to the following:

- **GI-34**, "How to Follow Test Groups in Trouble Diagnoses"
- **GI-23**, "HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT"

Check for any Service bulletins before servicing the vehicle.

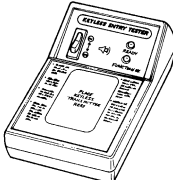
PREPARATION

Special Service Tools

Special Service Tools

=NEEL0234

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

Tool number (Kent-Moore No.) Tool name	Description	
(J-43241) Remote keyless entry tester	 LEL946A	GI MA EM LC EC

*: Special tool or commercial equivalent

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HARNESS CONNECTOR

Description

Description

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NEEL0003S01

HARNESS CONNECTOR (TAB-LOCKING TYPE)

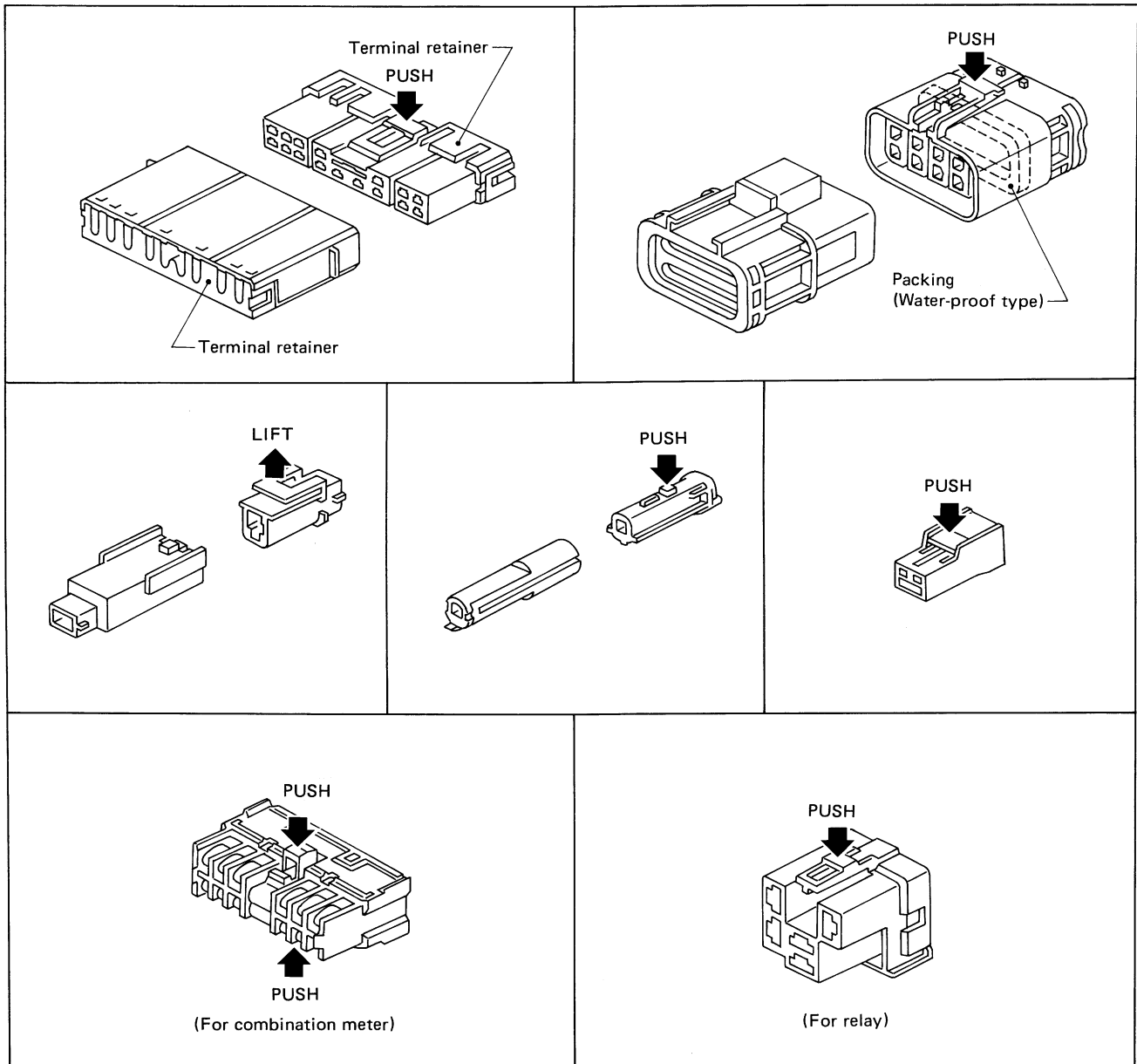
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to the illustration below.

Refer to EL-7 for description of the slide-locking type connector.

CAUTION:

Do not pull the harness when disconnecting the connector.

[Example]



SEL769D

HARNESS CONNECTOR

Description (Cont'd)

HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

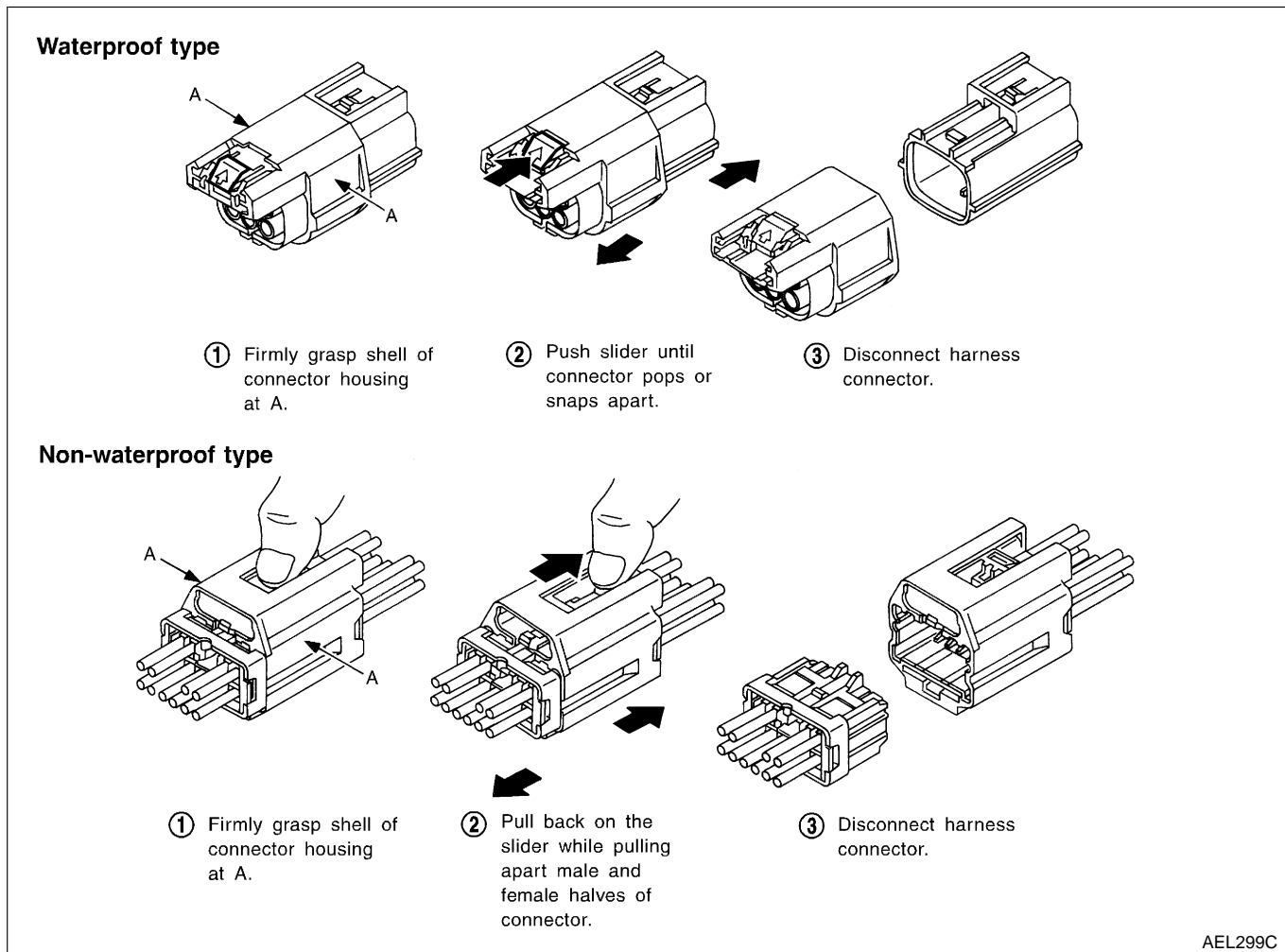
-NEEL0003S02

- 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.



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STANDARDIZED RELAY

Description

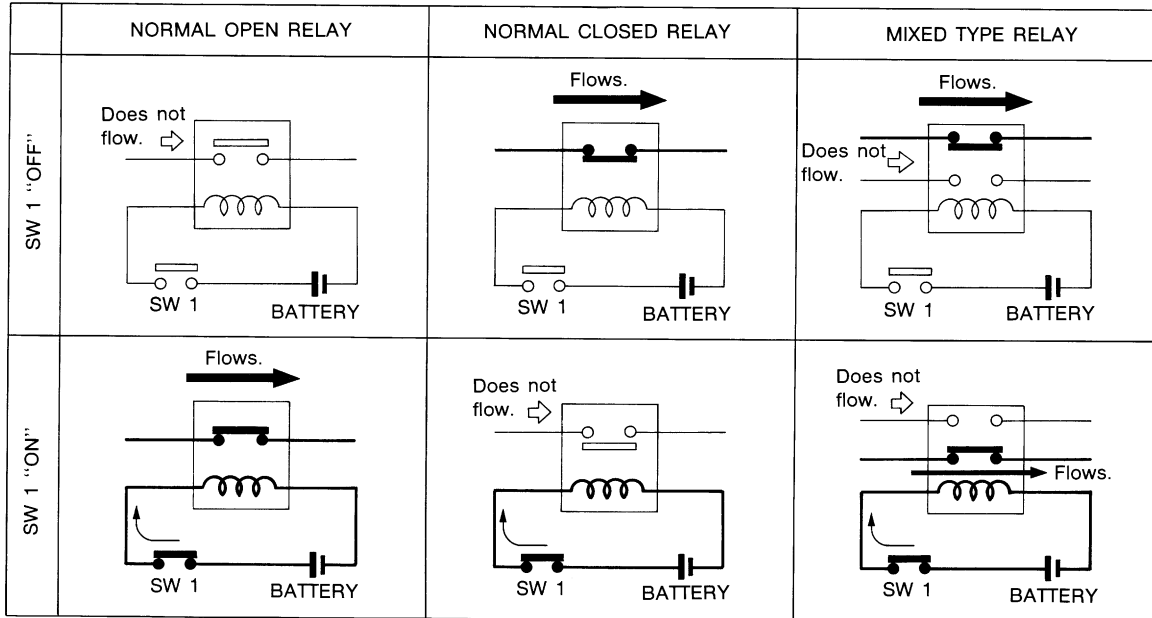
Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

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

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NEEL0004S01

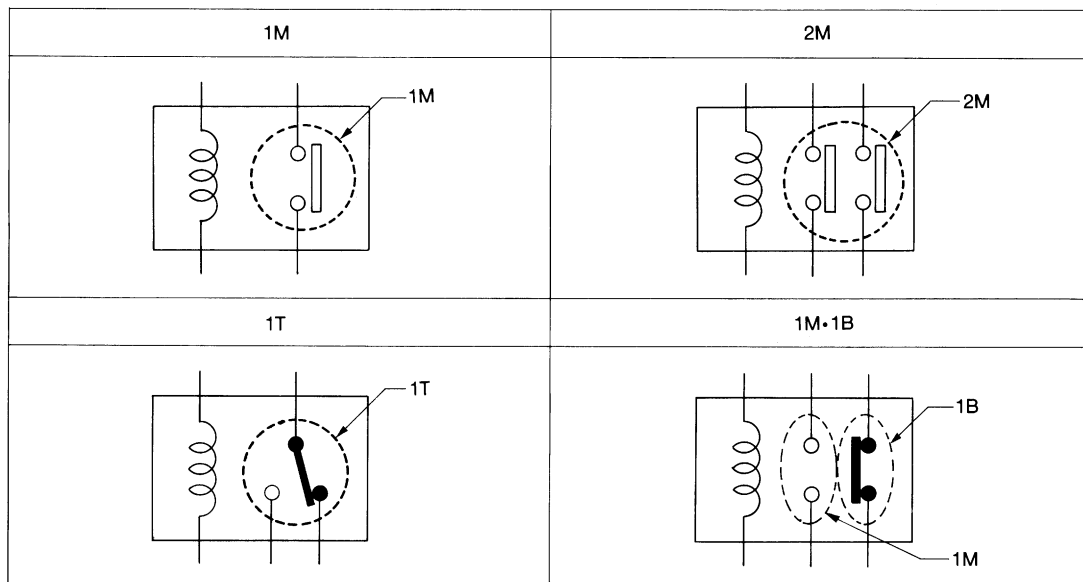


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TYPE OF STANDARDIZED RELAYS

NEEL0004S02

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



SEL882H

STANDARDIZED RELAY

Description (Cont'd)

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

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

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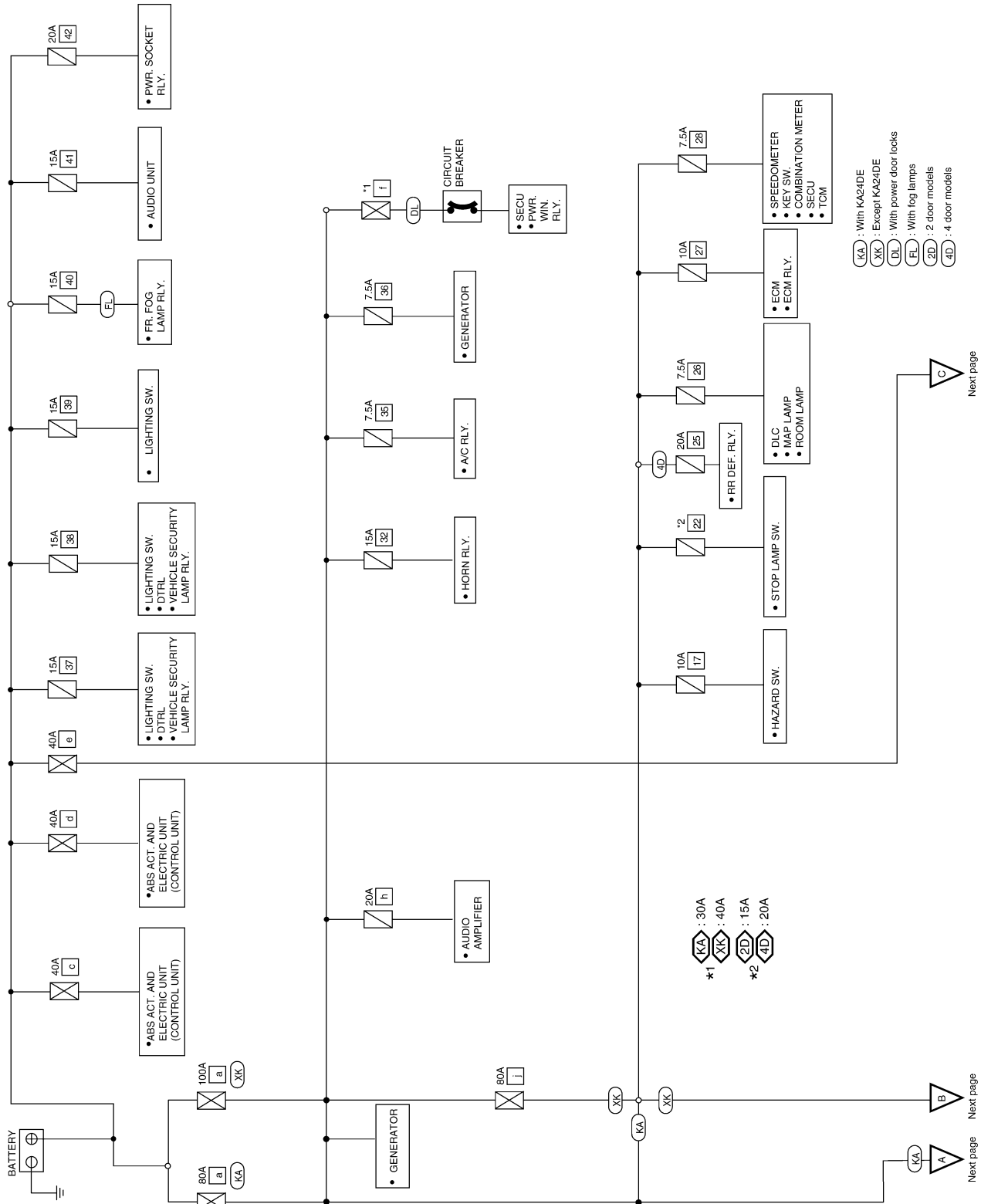
POWER SUPPLY ROUTING

Circuit Diagram

Circuit Diagram

NEEL0005

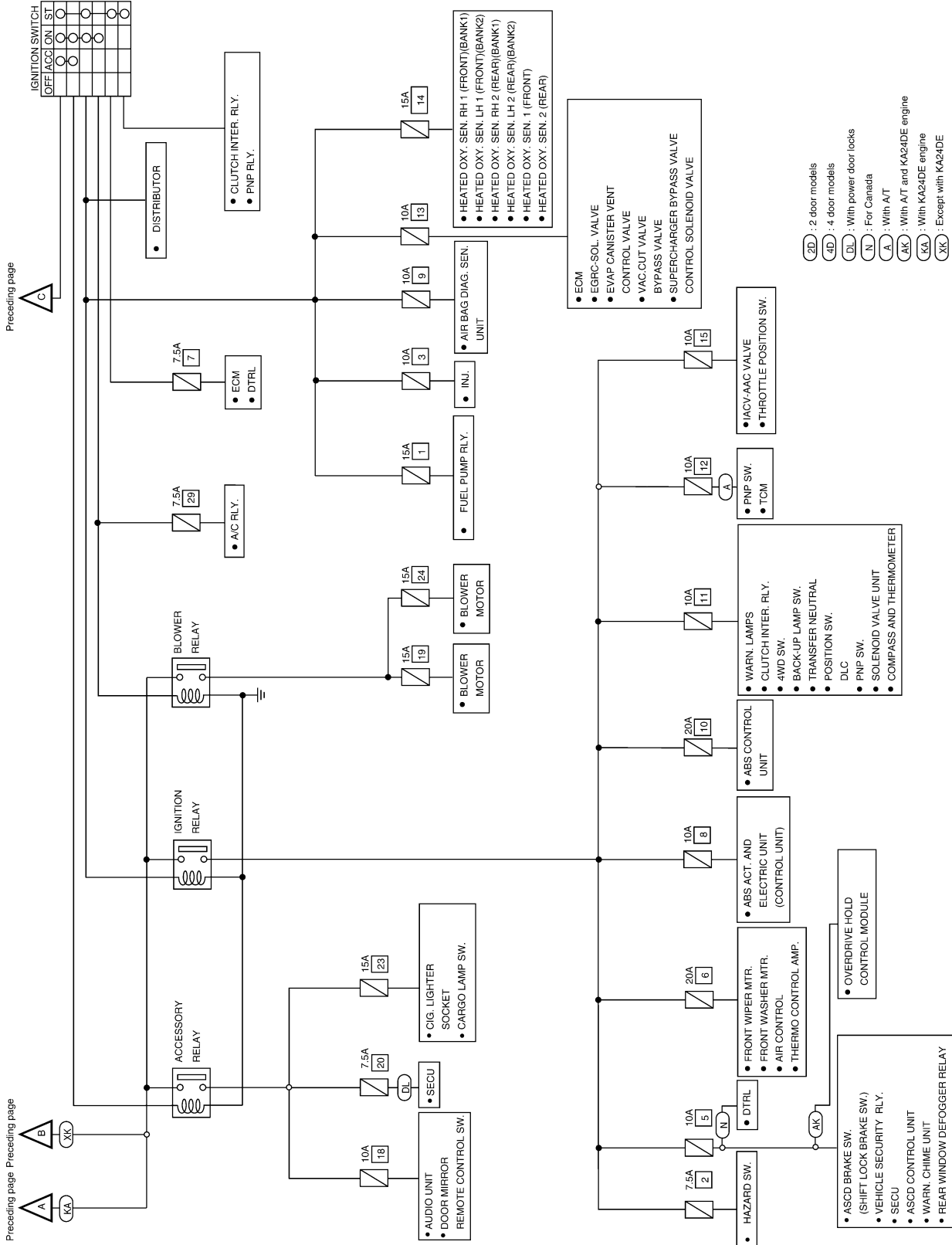
NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-18.



WEL091B

POWER SUPPLY ROUTING

Circuit Diagram (Cont'd)



WEL092B

POWER SUPPLY ROUTING

Wiring Diagram — POWER —

Wiring Diagram — POWER —

NEEL0006

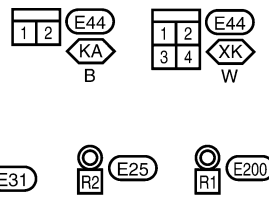
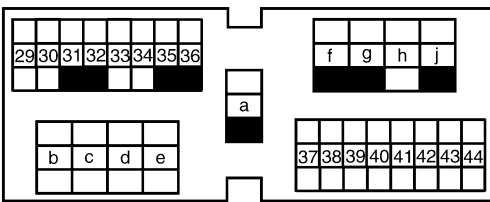
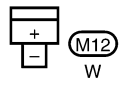
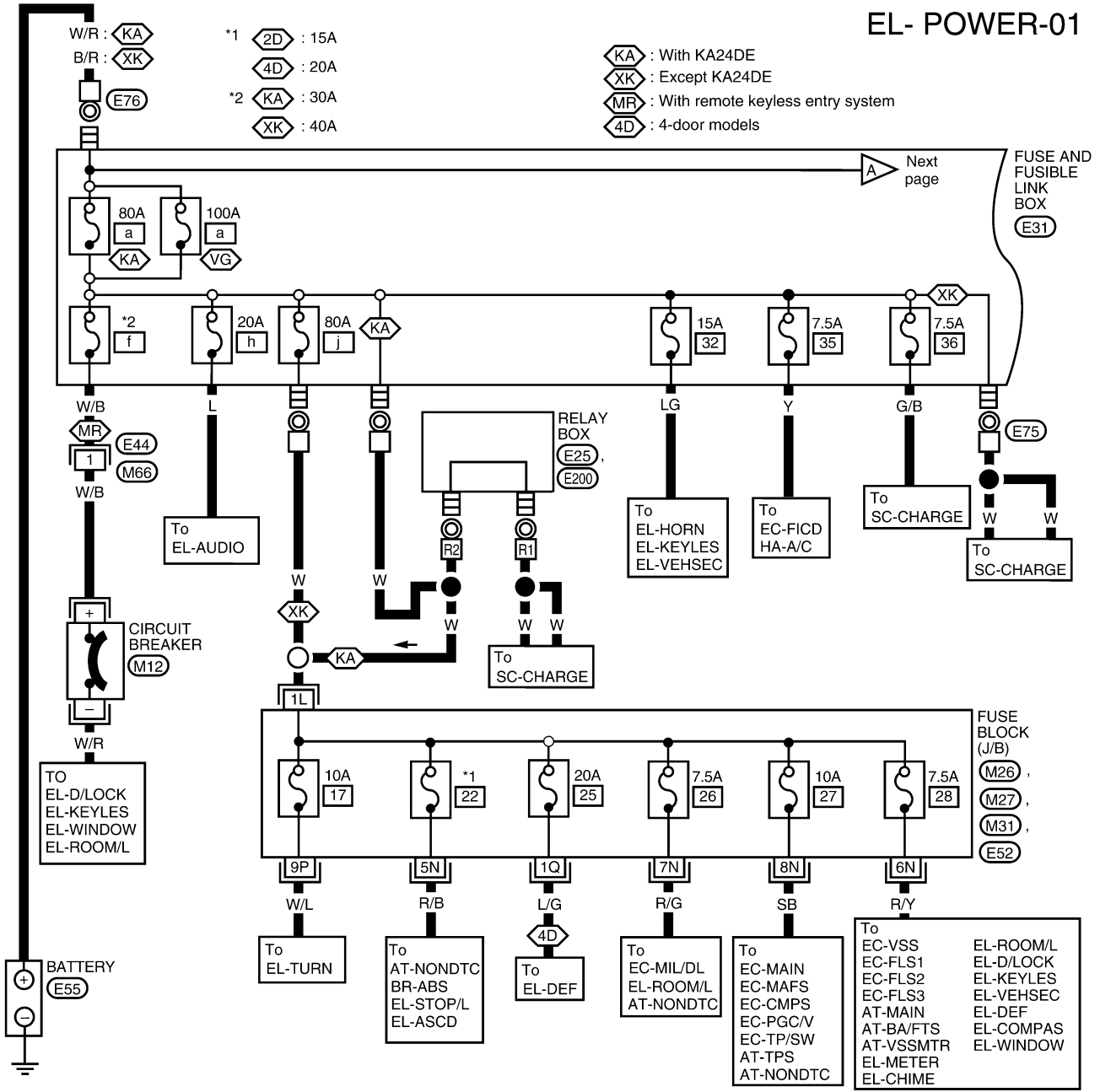
NEEL0006S01

BATTERY POWER SUPPLY — IGNITION SW. IN ANY POSITION

NOTE:

For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-18.

EL- POWER-01



Refer to the following.

(M26)	(M27)	(M31)	(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)

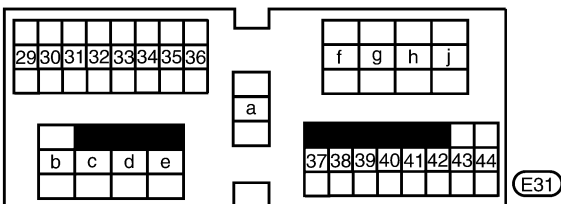
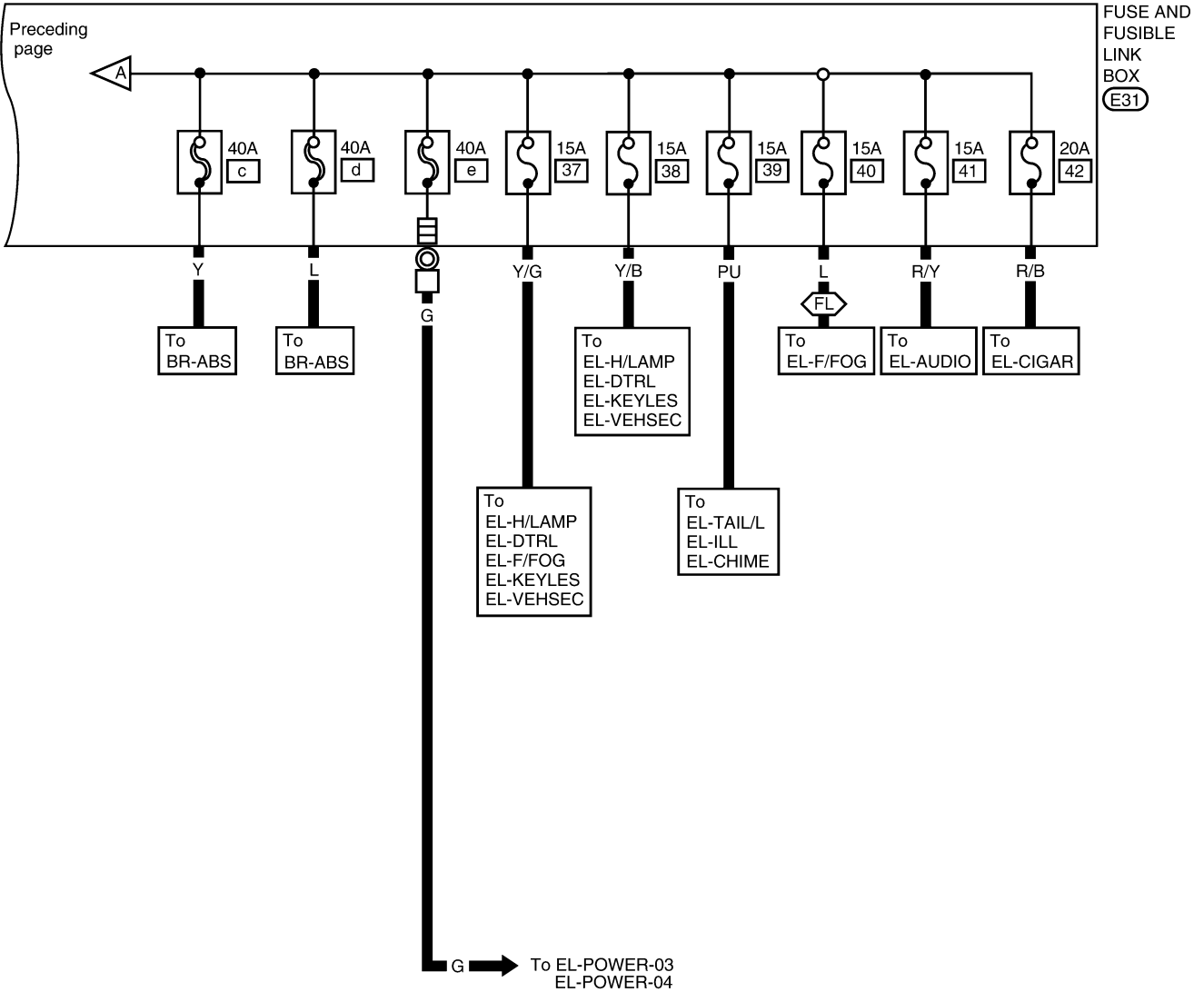
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POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

EL-POWER-02

: With fog lamps



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POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

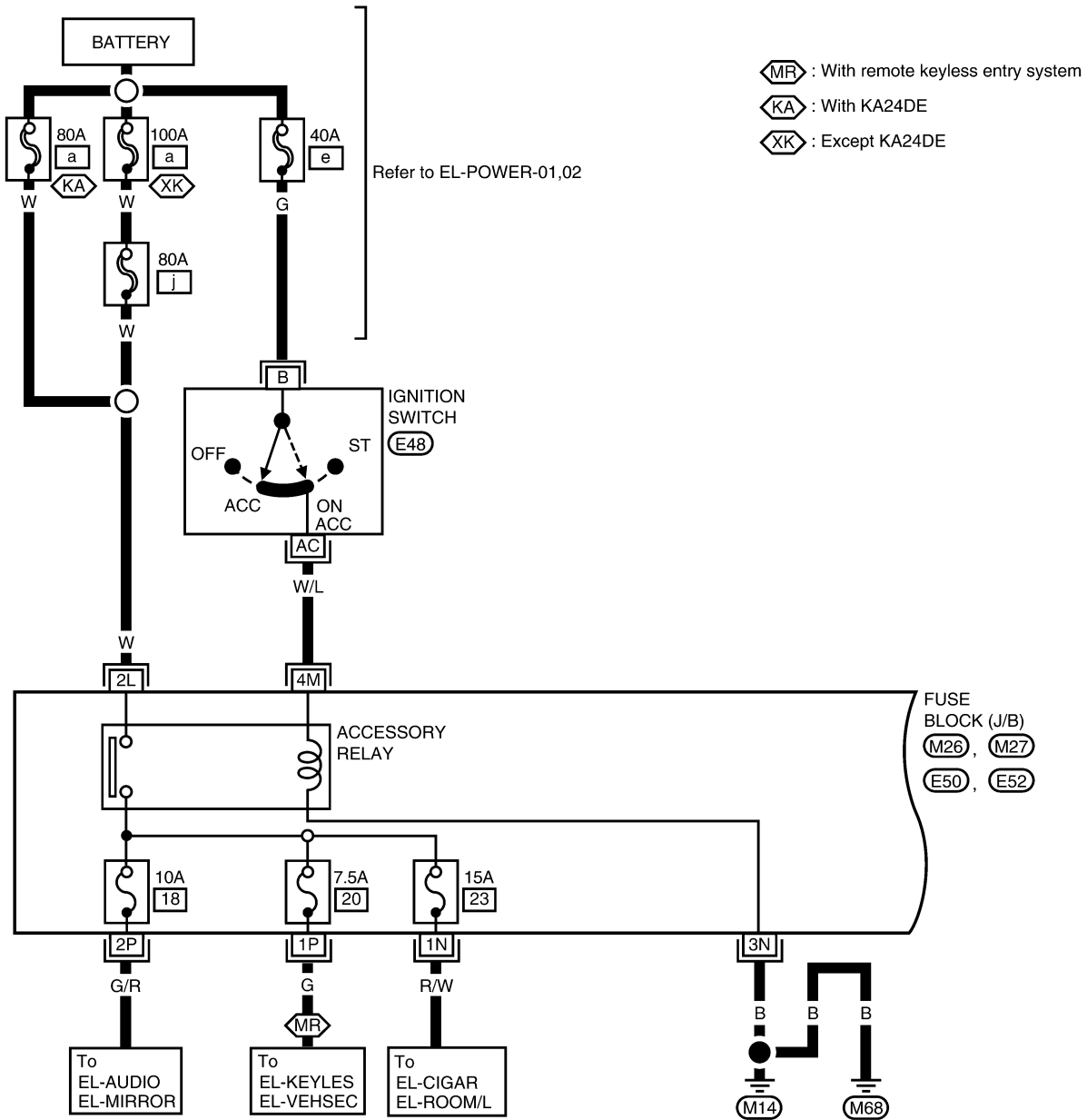
ACCESSORY POWER SUPPLY — IGNITION SW. IN ACC OR ON

-NEEL0006S02

NOTE:

For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-18.

EL-POWER-03



Refer to the following.

(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)

WEL841A

POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

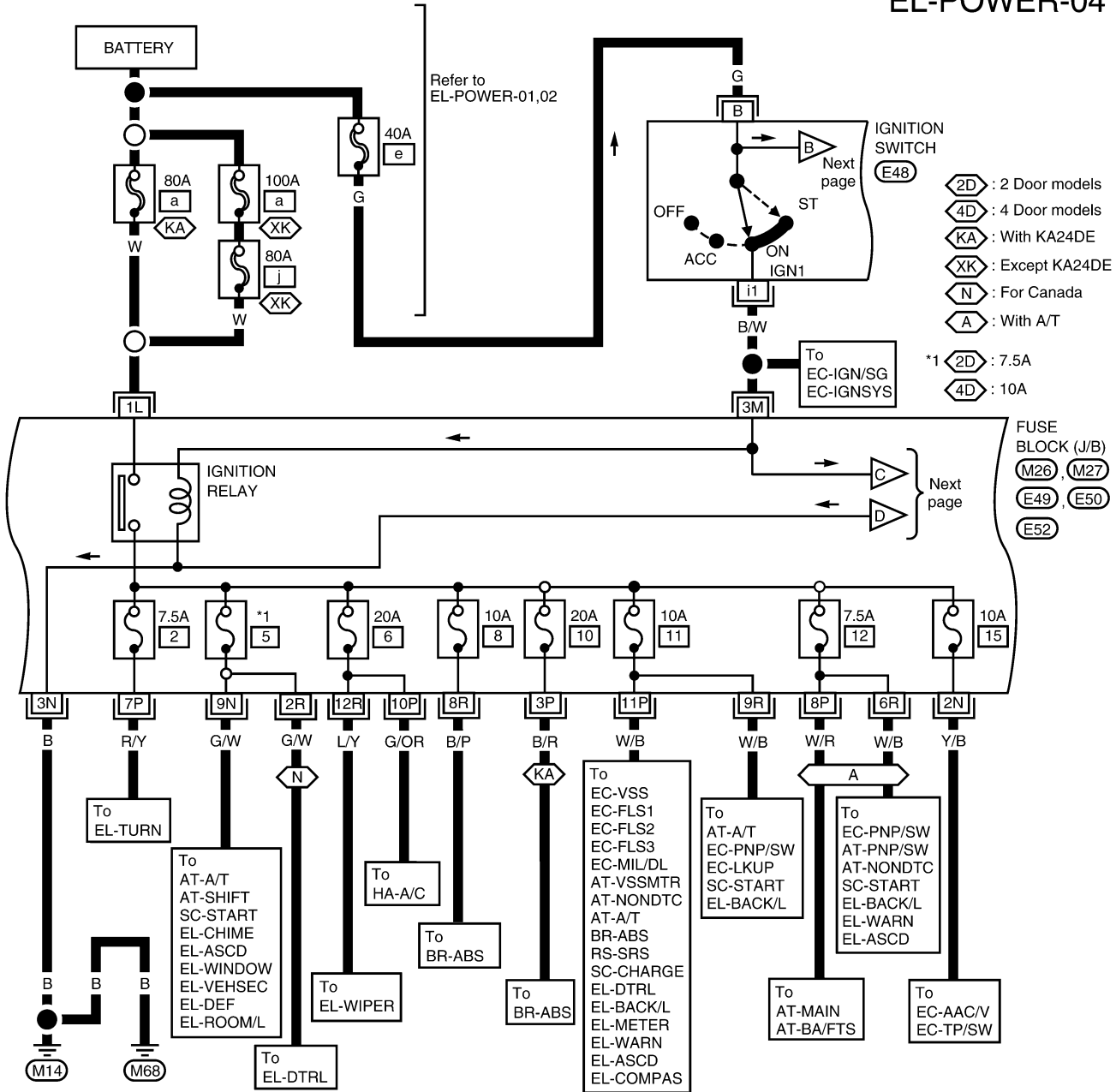
-NEEL0006S03

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

NOTE:

For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-18.

EL-POWER-04



Refer to the following.

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

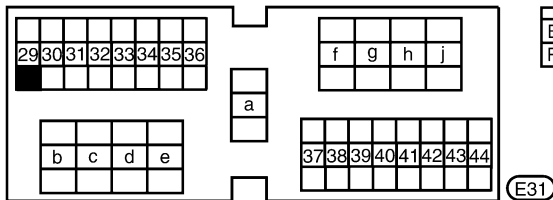
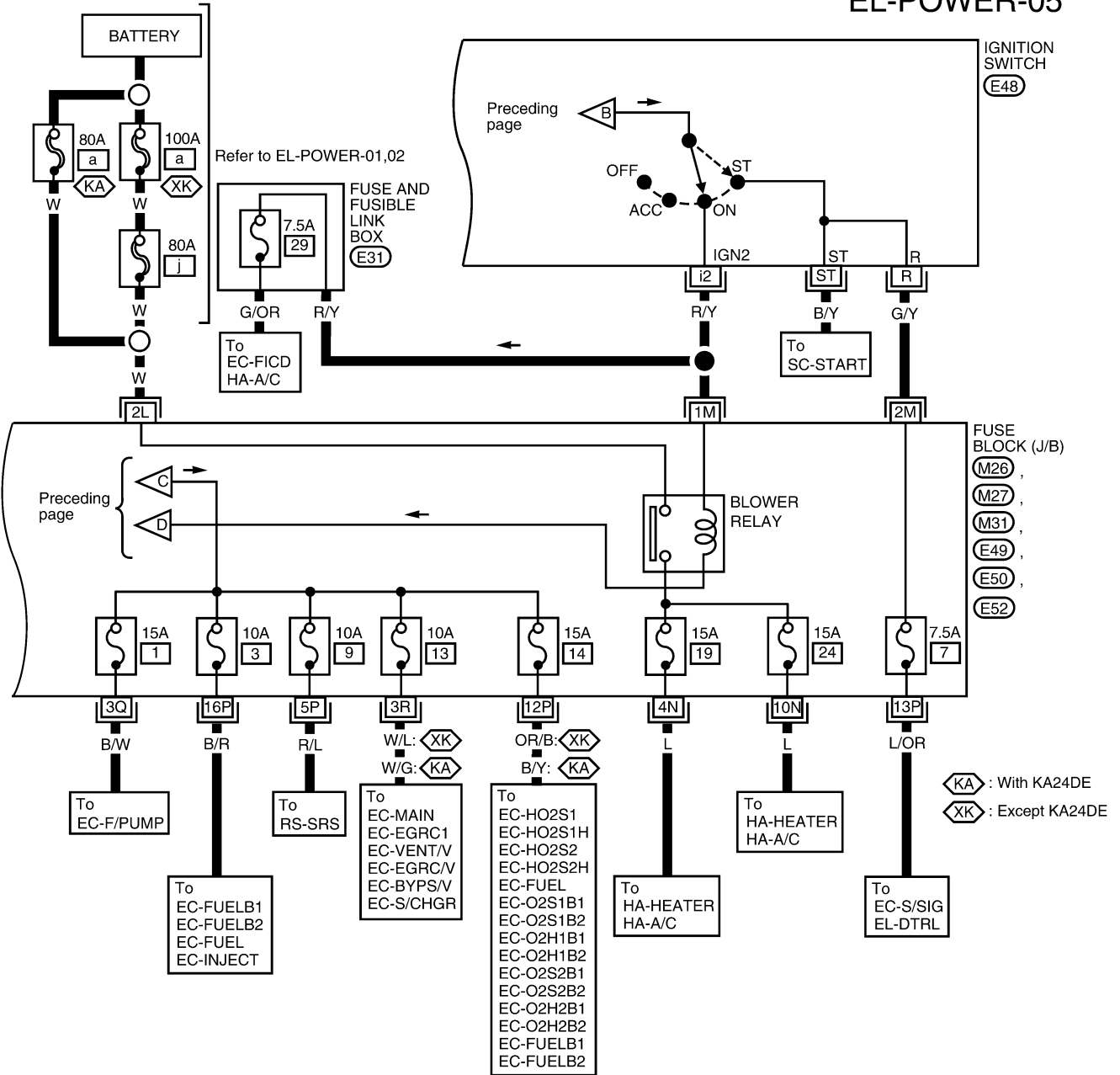
-FUSE BLOCK - JUNCTION BOX (J/B)

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POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

EL-POWER-05

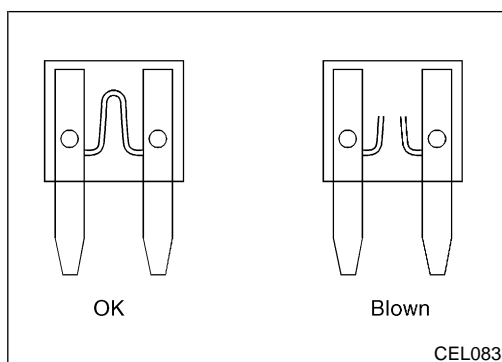


Refer to the following.

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)

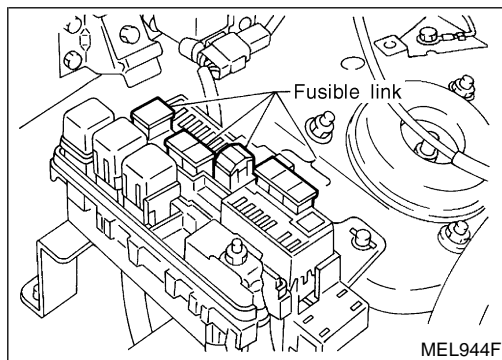
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Inspection

FUSE

- 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.

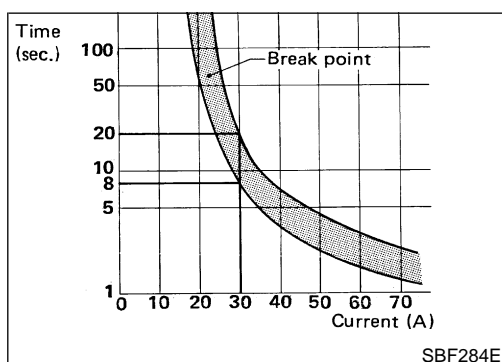


FUSIBLE LINK

A melted fusible link can be detected either by visual inspection or by feeling with fingertip. 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

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

Circuit breakers are used in the following systems:

- Power windows
- Power door locks
- Remote keyless entry.

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GROUND

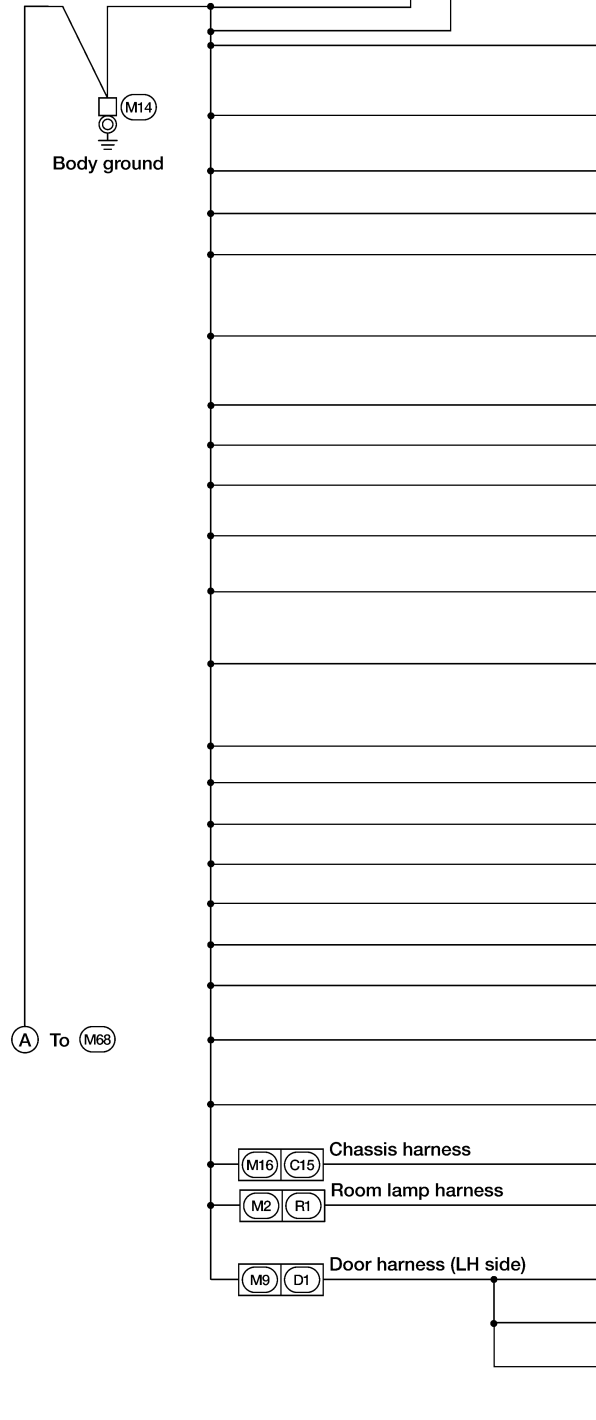
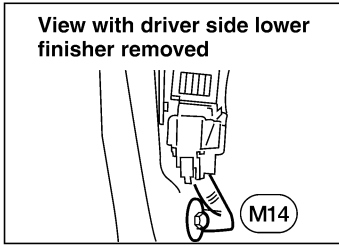
Ground Distribution

Ground Distribution MAIN HARNESS

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NEEL0171S01

Body ground



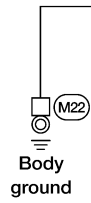
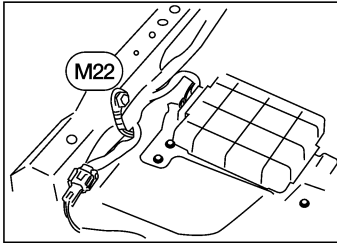
CONNECTOR NUMBER	CONNECT TO
M5	Clutch interlock switch (with M/T)
M6	Vehicle security relay (Terminal No. 3) (with vehicle security system) (except with KA24DE)
M11	Warning chime unit (Terminal No. 8) (without power door locks)
M13	Power window relay (Terminal No. 1) (with power windows)
M19	Seat belt buckle switch
M20	Front door switch LH
M25	ABS check connector (with 2-wheel ABS)
M27	Fuse block (J/B) (Terminal No. 3N) <ul style="list-style-type: none"> Accessory relay Blower relay Ignition relay
M28	Illumination control switch
M32	Data link connector (Terminal No. 4)
M35	A/T device (shift lock) (Terminal No. 1) (with A/T)
M35	A/T device (overdrive control switch) (Terminal No. 5) (with VG engine and A/T)
M36	Overdrive control switch (with KA engine and A/T)
M36	Combination meter (Terminal No. 13) <ul style="list-style-type: none"> ABS warning lamp Four wheel drive indicator Turn signal indicators
M76	ATP relay (Terminal No. 2) (with A/T)
M76	ATP relay (Terminal No. 4) (with A/T)
M112	Smart entrance control unit (Terminal No. 64)
M114	Air bag diagnosis sensor unit
M119	ASCD control unit (Terminal No. 17) (with ASCD)
M122	Rear window defogger timer (without power door locks)
M124	Passenger air bag deactivation switch (except Crew Cab)
M126	Passenger air bag deactivation switch indicator (except Crew Cab)
M130	Overdrive hold control module (Terminal No. 4) (with KA engine and A/T)
C4	ABS actuator (with 2-wheel ABS)
R4	Room lamp (2 door models)
D7	Main power window and door lock/unlock switch (with power door locks)
D9	Front door key cylinder switch LH (with power door locks)
D10	Door mirror remote control switch (Terminal No. 3)

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GROUND

Ground Distribution (Cont'd)

Body ground



CONNECTOR NUMBER	CONNECT TO
M23	ABS control unit (Terminal No. 11) (With 2-wheel ABS)

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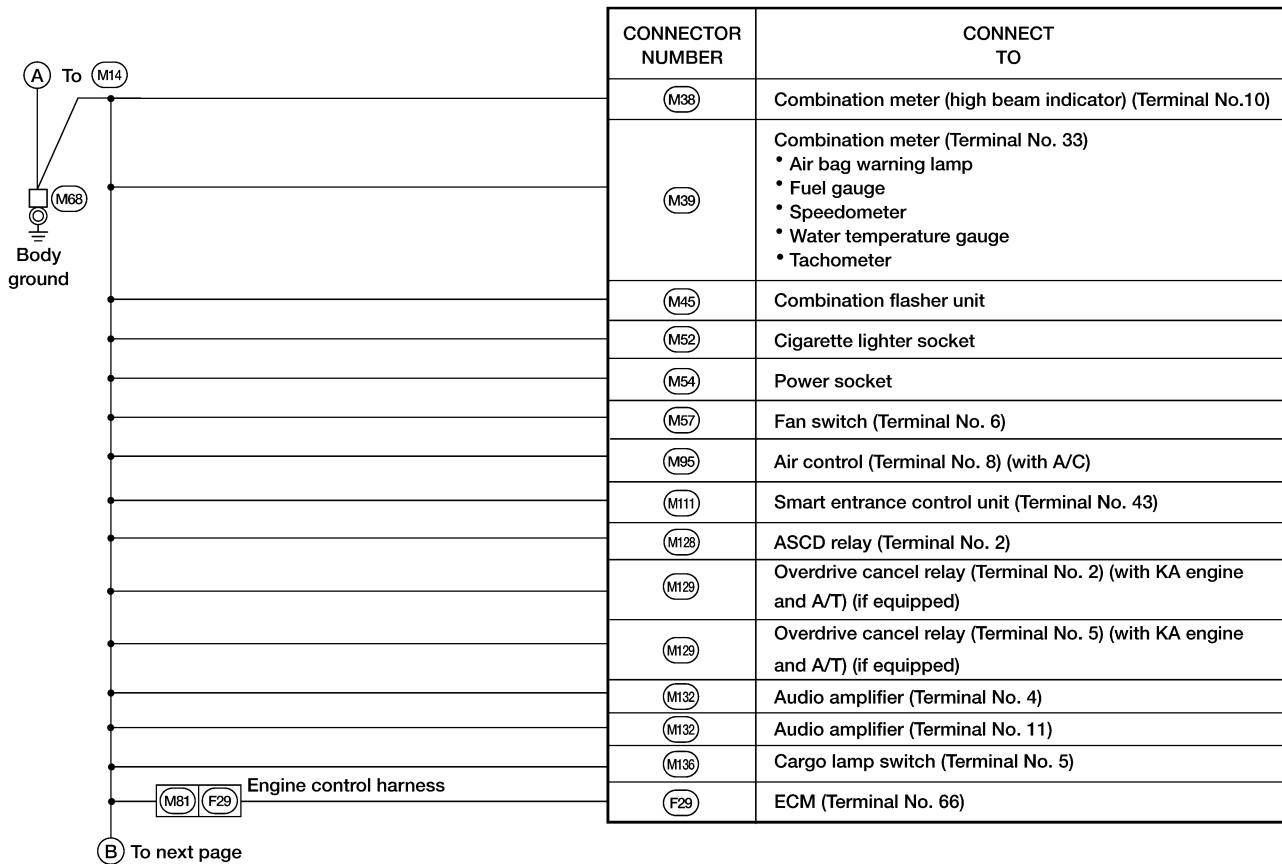
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GROUND

Ground Distribution (Cont'd)

Body ground

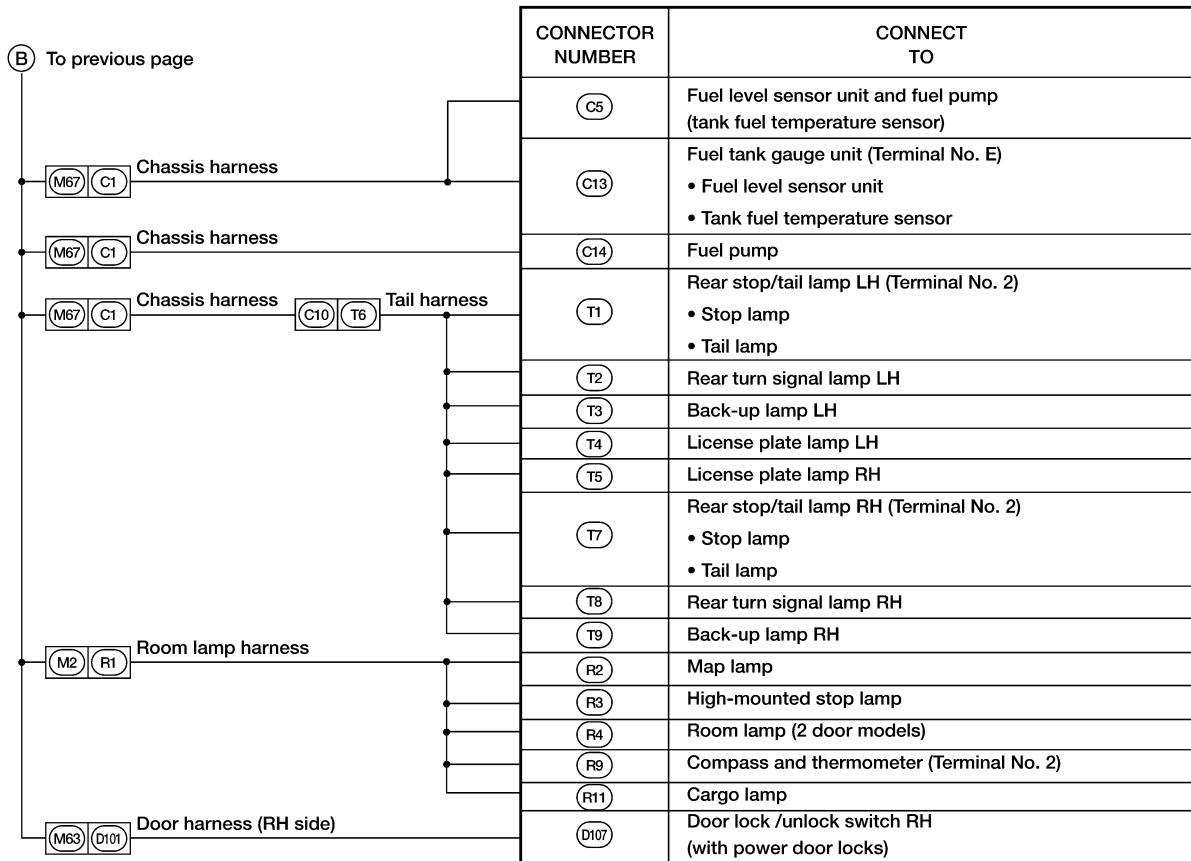
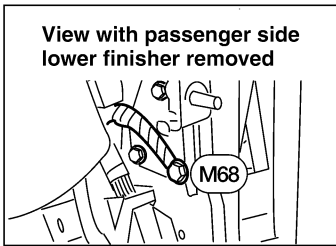


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GROUND

Ground Distribution (Cont'd)

Body ground



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GROUND

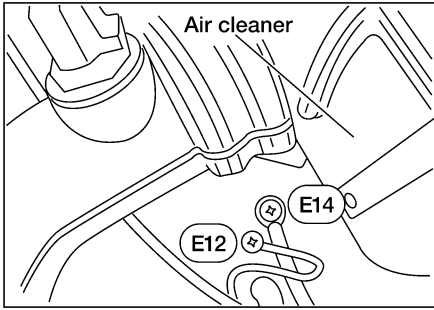
Ground Distribution (Cont'd)

ENGINE ROOM HARNESS KA24DE

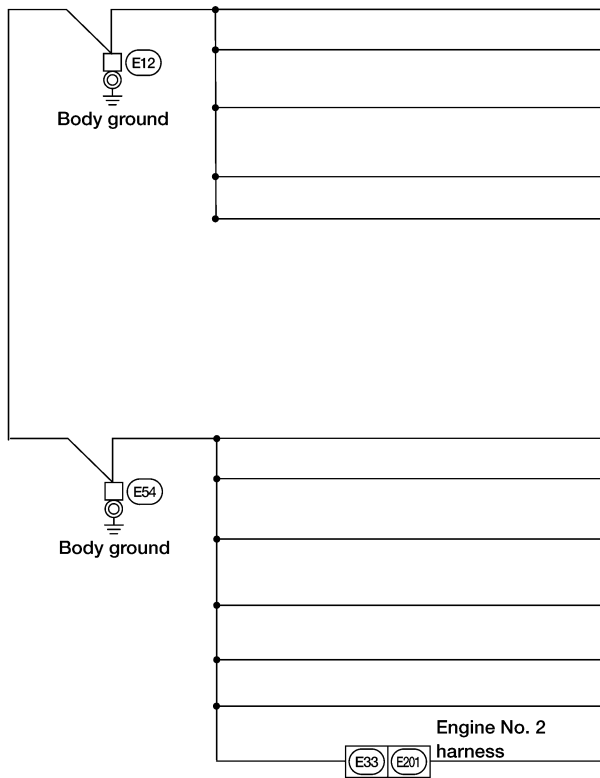
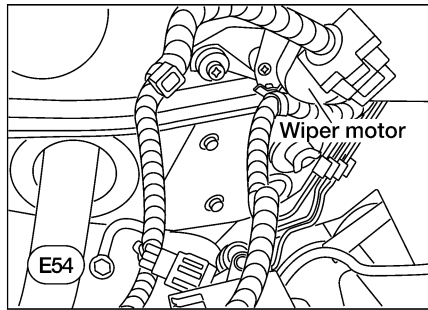
NEEL0171S02

NEEL0171S0203

Body ground



Body ground



CONNECTOR NUMBER	CONNECT TO
(E5)	Washer fluid level switch (for Canada)
(E7)	Headlamp LH
(E13)	Front combination lamp LH (Terminal No.2) • Parking lamp • Turn signal lamp
(E37)	Brake fluid level switch
(E46)	Front wiper switch (Terminal No. 17)

CONNECTOR NUMBER	CONNECT TO
(E1)	Headlamp RH
(E17)	Daytime light control unit (Terminal No. 9) (for Canada)
(E19)	Front combination lamp RH (Terminal No.2) • Parking lamp • Turn signal lamp
(E27)	Park neutral position (PNP) relay (Terminal No. 1)
(E27)	Park neutral position (PNP) relay (Terminal No. 6)
(E42)	Front wiper motor (Terminal No. E)
(E218)	Park neutral position (PNP) relay (Terminal No. 2)

WEL848A

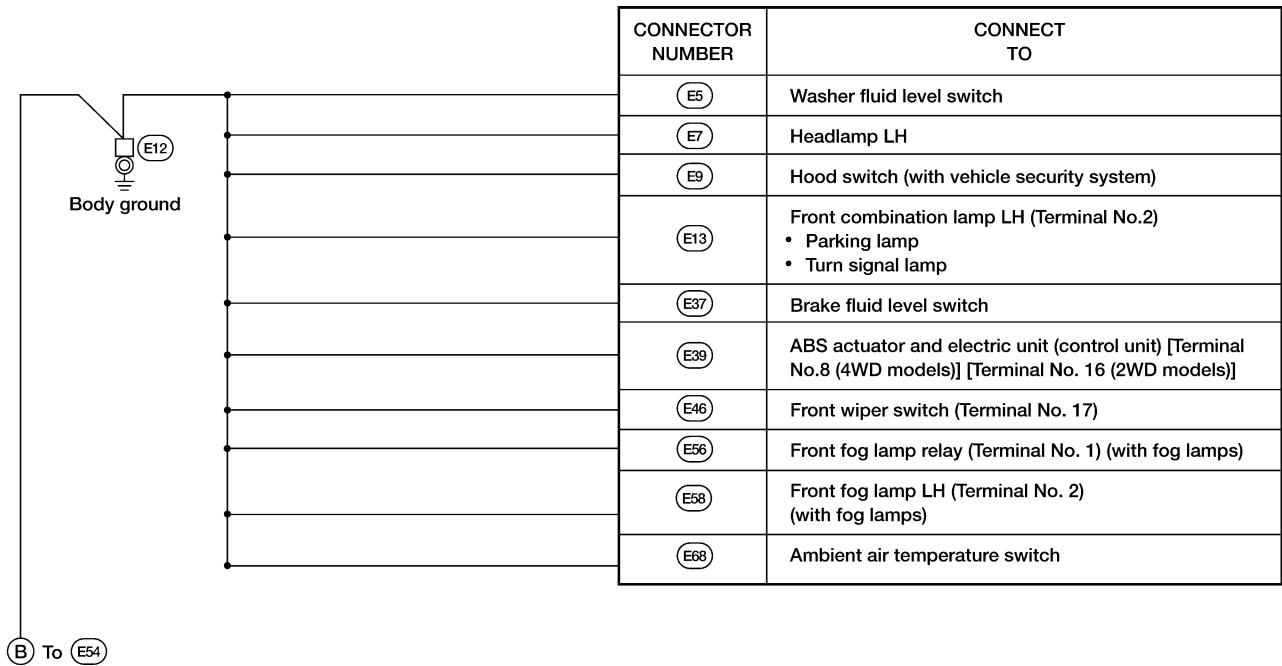
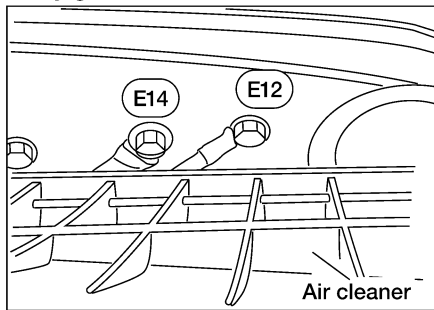
GROUND

Ground Distribution (Cont'd)

VG33E and VG33ER

NEEL0171S0204

Body ground



WEL849A

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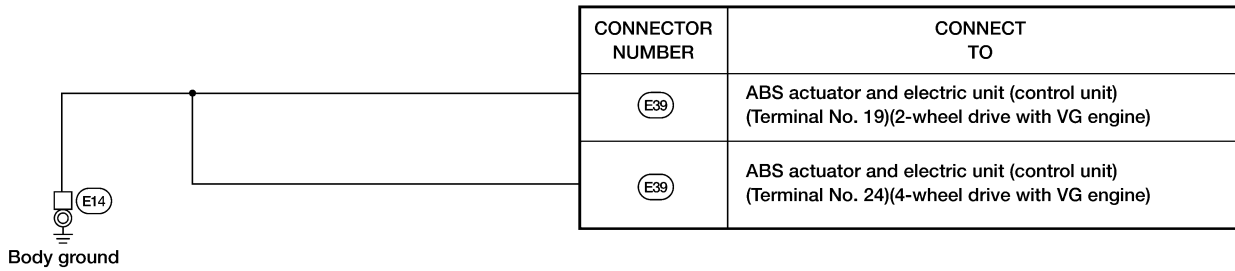
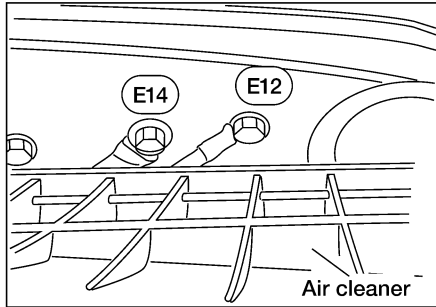
EL

IDX

GROUND

Ground Distribution (Cont'd)

Body ground

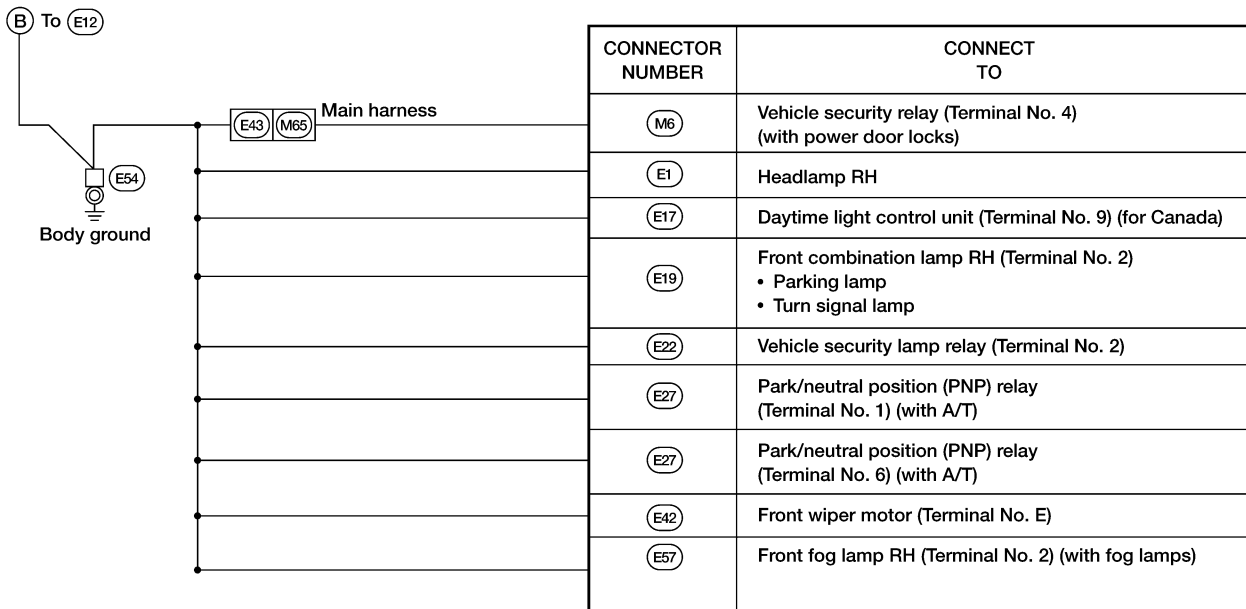
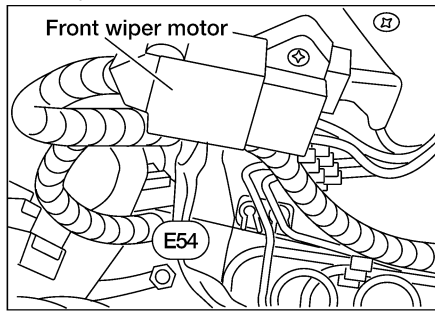


LEL799

GROUND

Ground Distribution (Cont'd)

Body ground



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WEL851A

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GROUND

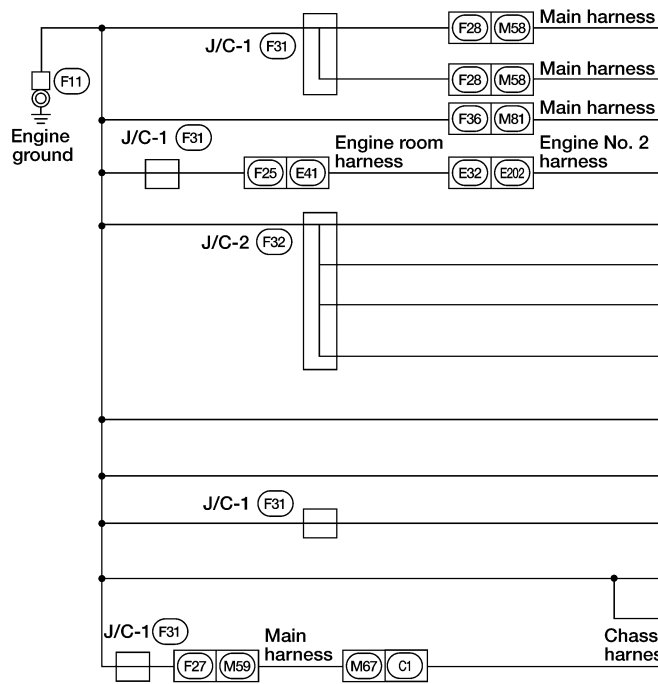
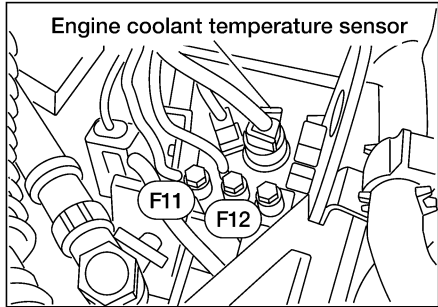
Ground Distribution (Cont'd)

ENGINE CONTROL HARNESS KA24DE

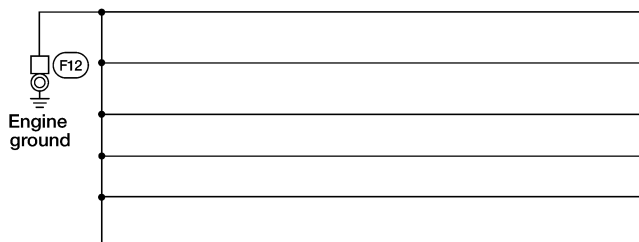
NEEL0171S09

NEEL0171S0901

Engine ground



CONNECTOR NUMBER	CONNECT TO
(M21)	Heated oxygen sensor 2 (rear) (Terminal No. 4)
(M21)	Heated oxygen sensor 2 (rear)(shield wire)
(M32)	Data link connector (Terminal No. 5)
(E21)	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)
(F13)	Distributor (camshaft position sensor) (Terminal No. 6)
(F14)	Resistor (ignition coil) (shield wire)
(F16)	Heated oxygen sensor 1 (front) (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)
(F29)	ECM (Terminal No. 10)
(F29)	ECM (Terminal No. 19)
(F29)	ECM (Terminal No. 116)
(F29)	ECM (Terminal No. 124)

WEL852A

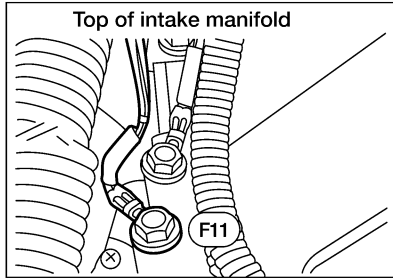
GROUND

Ground Distribution (Cont'd)

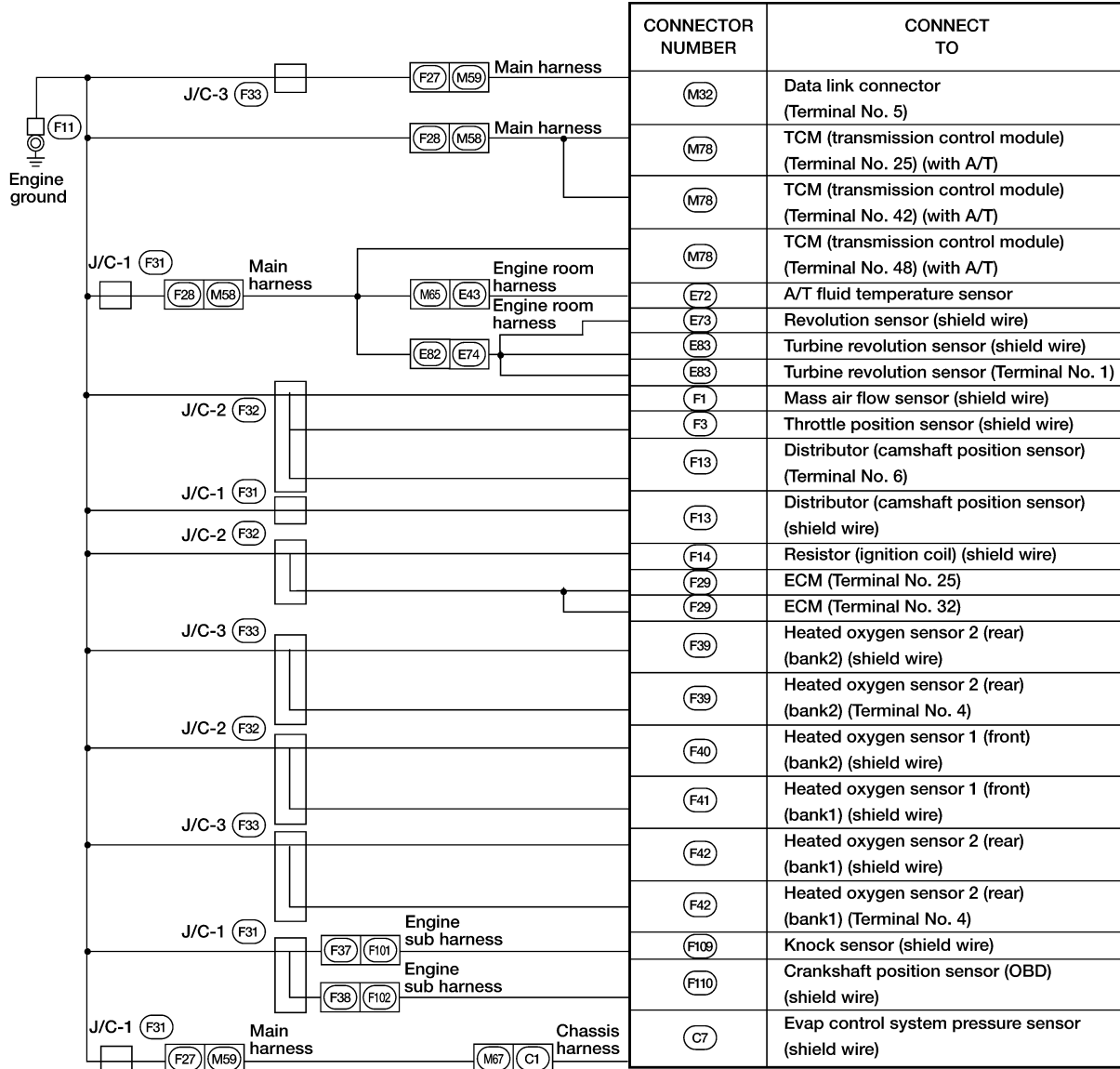
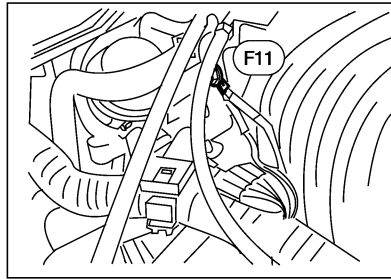
VG33E and VG33ER

NEEL0171S0902

Engine ground (VG33E)



Engine ground (VG33ER)



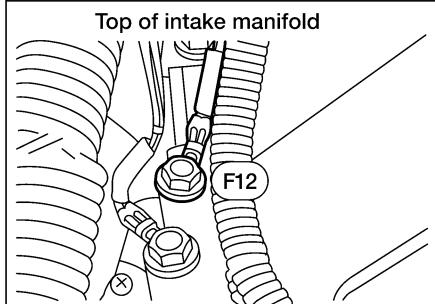
WEL853A

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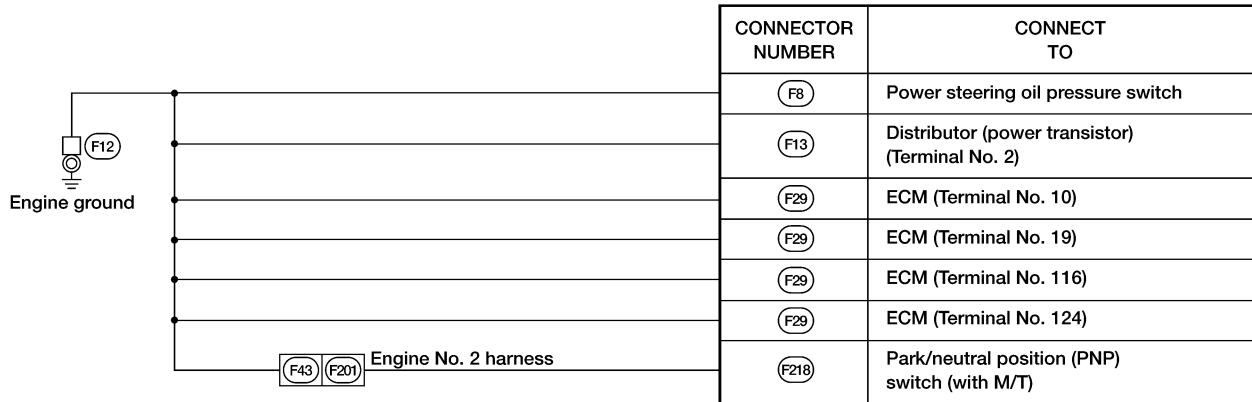
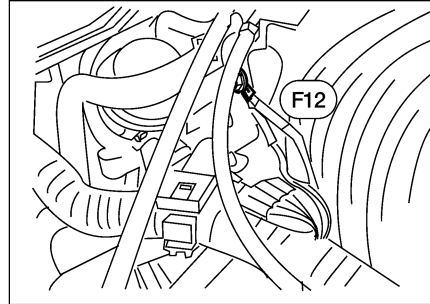
GROUND

Ground Distribution (Cont'd)

Engine ground (VG33E)



Engine ground (VG33ER)



LEL441A

GROUND

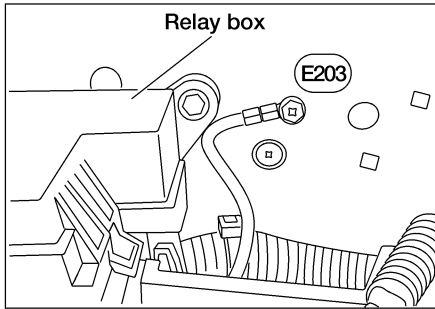
Ground Distribution (Cont'd)

ENGINE NO. 2 HARNESS KA24DE

NEEL0171S10

NEEL0171S1001

Body ground



CONNECTOR NUMBER	CONNECT TO
E206	Generator



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AEL710C

GROUND

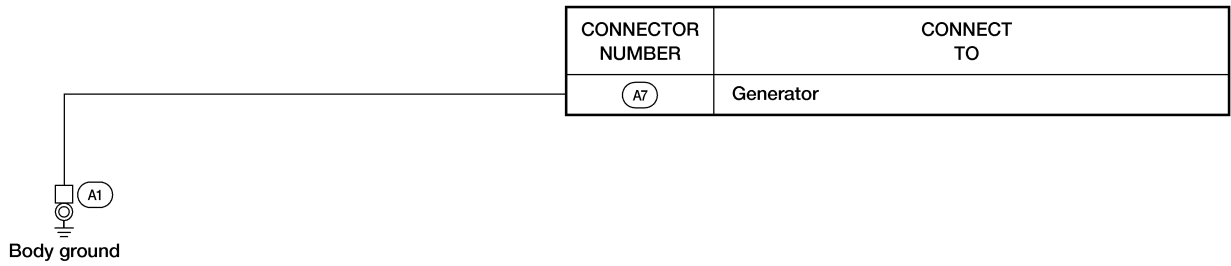
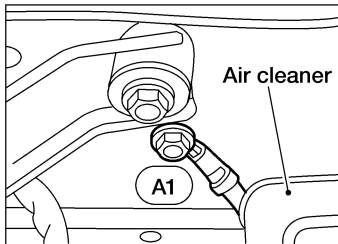
Ground Distribution (Cont'd)

GENERATOR HARNESS VG33E and VG33ER

NEEL0171S03

NEEL0171S0302

Body ground



AEL697C

GROUND

Ground Distribution (Cont'd)

ROOM LAMP HARNESS Crew Cab models

NEEL0171S08

NEEL0171S0801

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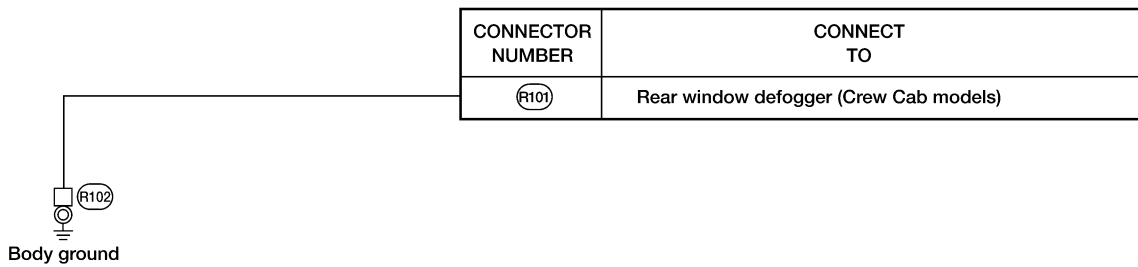
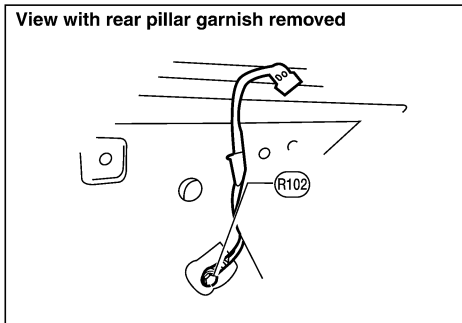
RS

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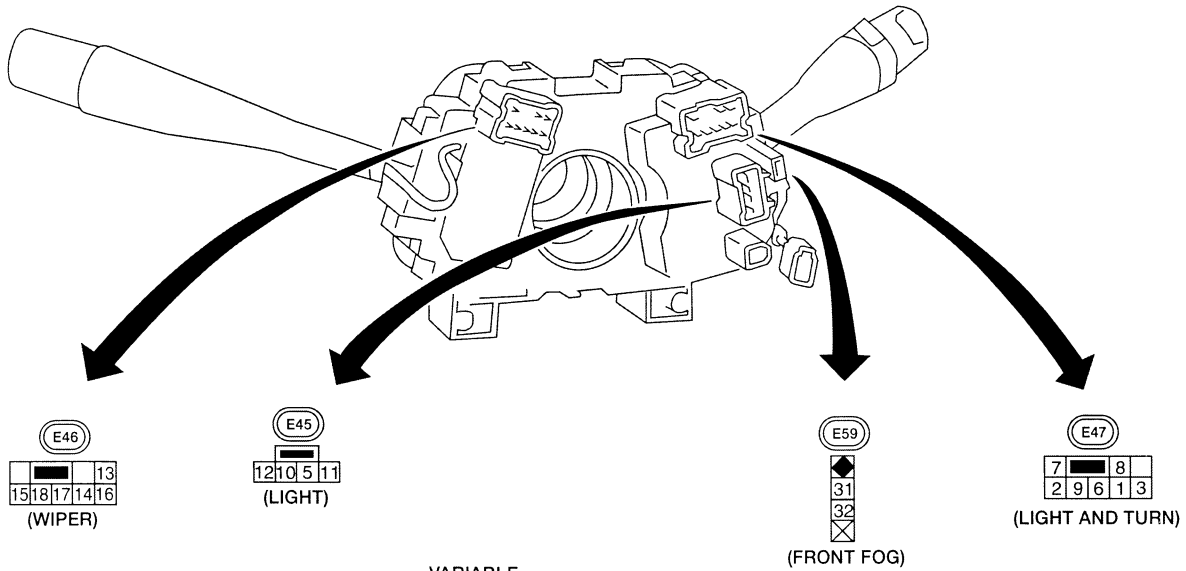
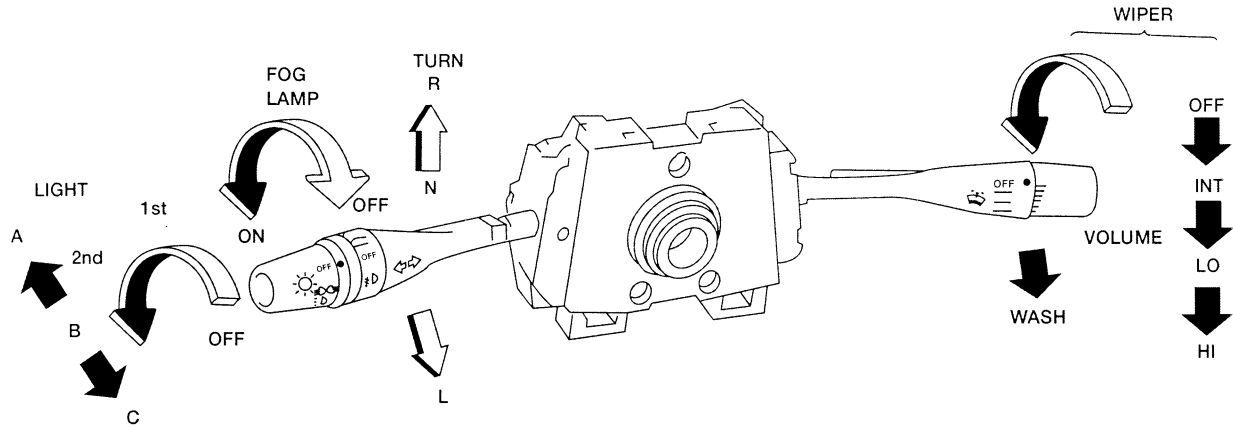
WEL453A

COMBINATION SWITCH

Check

Check

NEEL0009



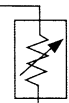
FRONT WIPER AND WASHER SWITCH (WITH INTERMITTENT OPERATION)

	LO	AUTO SHOP	AMP	WASH	HI	EARTH
OFF	<input type="checkbox"/>	<input type="checkbox"/>				
INT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
LO	<input type="checkbox"/>					<input type="checkbox"/>
HI					<input type="checkbox"/>	<input type="checkbox"/>
WASH				<input type="checkbox"/>		<input type="checkbox"/>

WIPER AMP.

14 15 13 16 17 18

VARIABLE INTERMITTENT WIPER VOLUME



WIPER SWITCH (WITHOUT INTERMITTENT OPERATION)

	OFF	LO	HI	WASH
13	<input type="checkbox"/>			
14	<input type="checkbox"/>	<input type="checkbox"/>		
16		<input type="checkbox"/>	<input type="checkbox"/>	
17		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18				<input type="checkbox"/>

LIGHTING SWITCH

	OFF			1ST			2ND		
	A	B	C	A	B	C	A	B	C
5							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7									<input type="checkbox"/>
8		<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>							<input type="checkbox"/>
10									<input type="checkbox"/>
11				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TURN SIGNAL LAMP SWITCH

	R	N	L
1	<input type="checkbox"/>		<input type="checkbox"/>
2	<input type="checkbox"/>		<input type="checkbox"/>
3			<input type="checkbox"/>

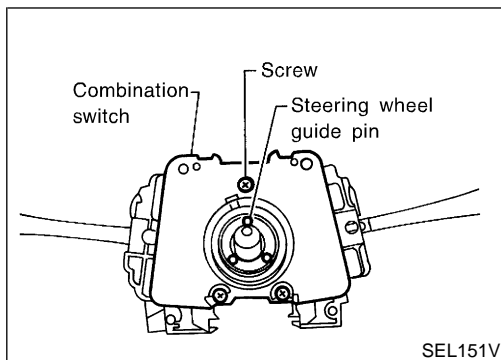
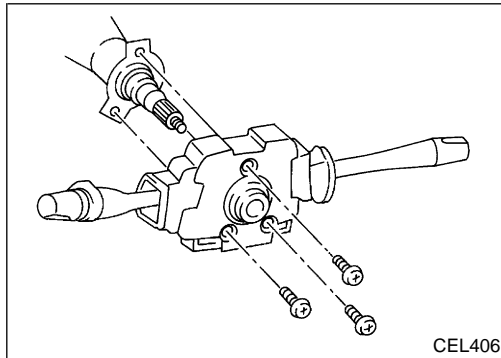
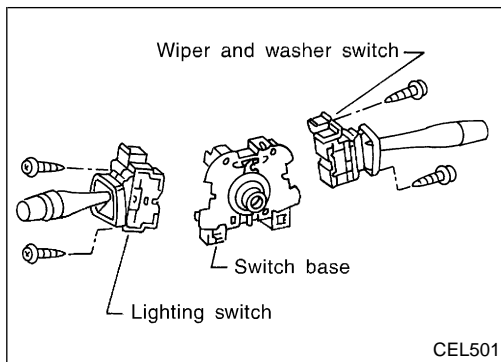
FRONT FOG LAMP SWITCH

	OFF	ON
31	<input type="checkbox"/>	<input type="checkbox"/>
32	<input type="checkbox"/>	<input type="checkbox"/>

WEL804A

COMBINATION SWITCH

Replacement



Replacement

For removal and installation of spiral cable, refer to ^{NEEL0010} **RS-19**, "Driver Air Bag Module and Spiral Cable".

- 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 **RS-19**, "Driver Air Bag Module and Spiral Cable".

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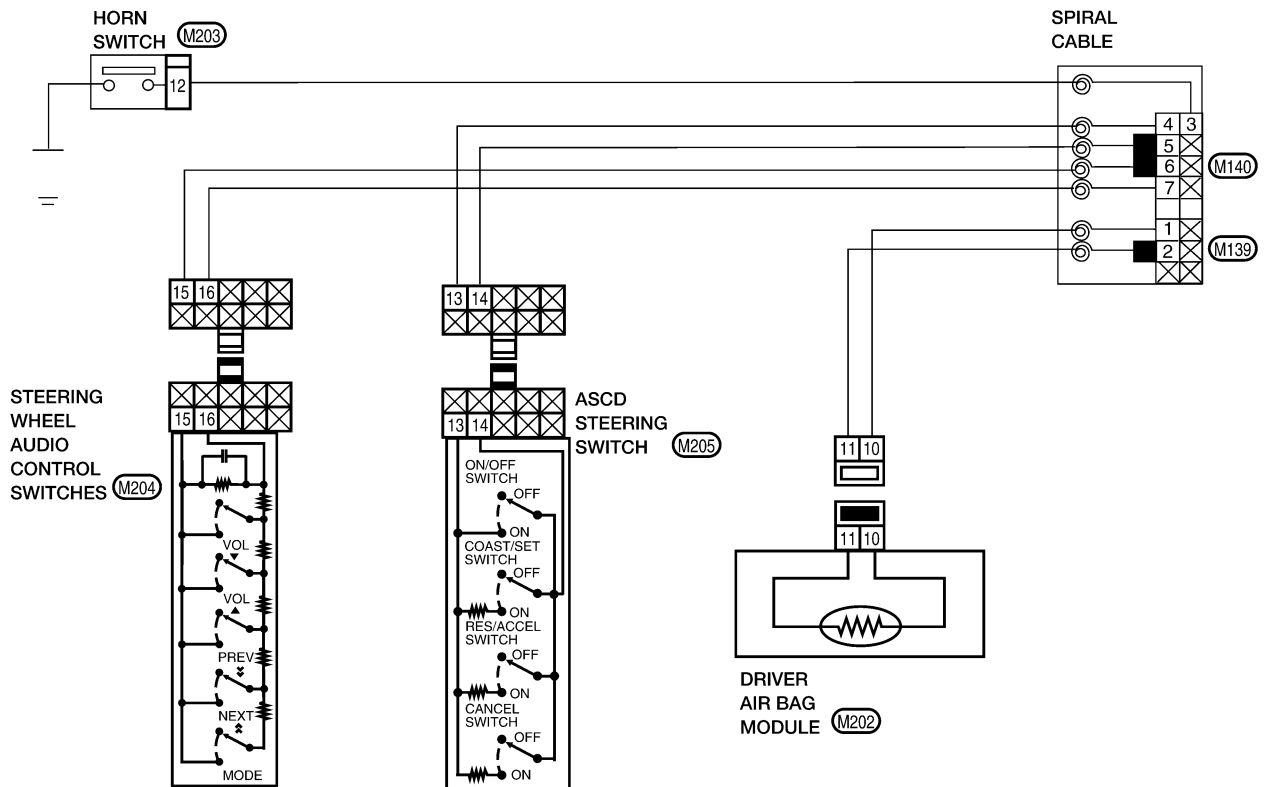
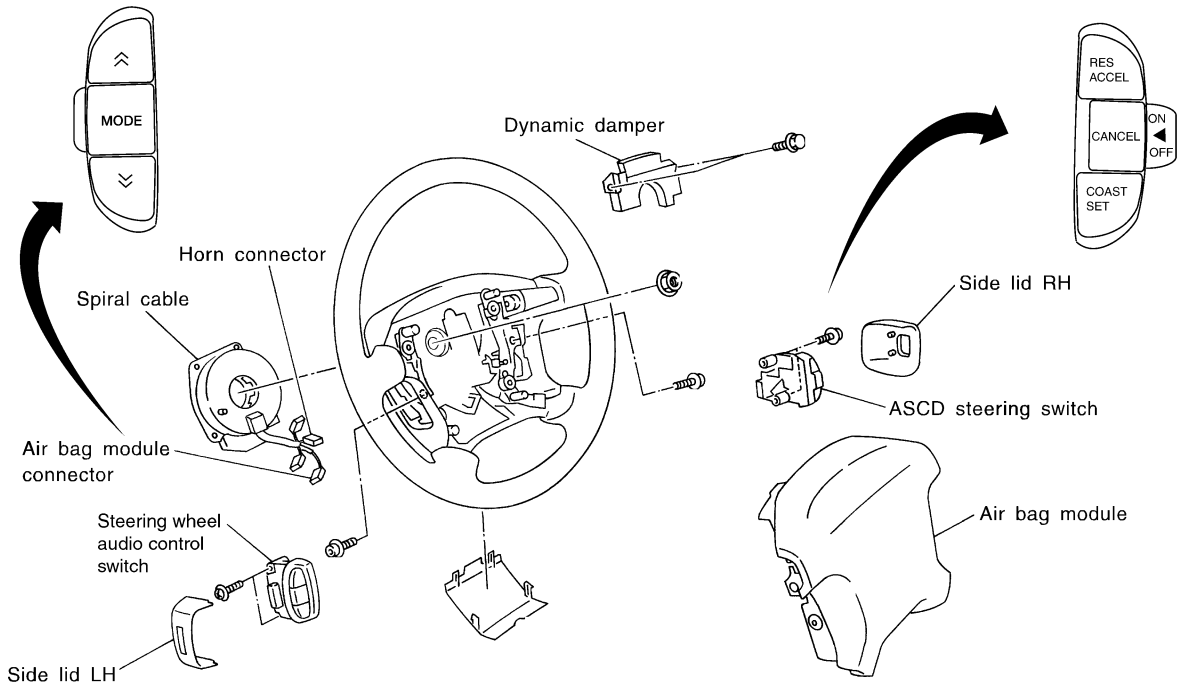
IDX

STEERING SWITCH

Check

Check

NEEL0011



WEL845A

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

GI

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LOW BEAM OPERATION

NEEL0012S01

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

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

LC

EC

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

With power and ground supplied, the low beams illuminate.

FE

HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

NEEL0012S02

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

- from lighting switch terminal 9
- to headlamp RH terminal M and
- from lighting switch terminal 6
- to headlamp LH terminal M and
- to combination meter terminal 11 for the high beam indicator.

CL

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AT

Ground is supplied to terminal 16 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.

TF

VEHICLE SECURITY SYSTEM

NEEL0012S03

The vehicle security system will flash the high beams if the system is triggered. Refer to "VEHICLE SECURITY (THEFT WARNING) SYSTEM", EL-219.

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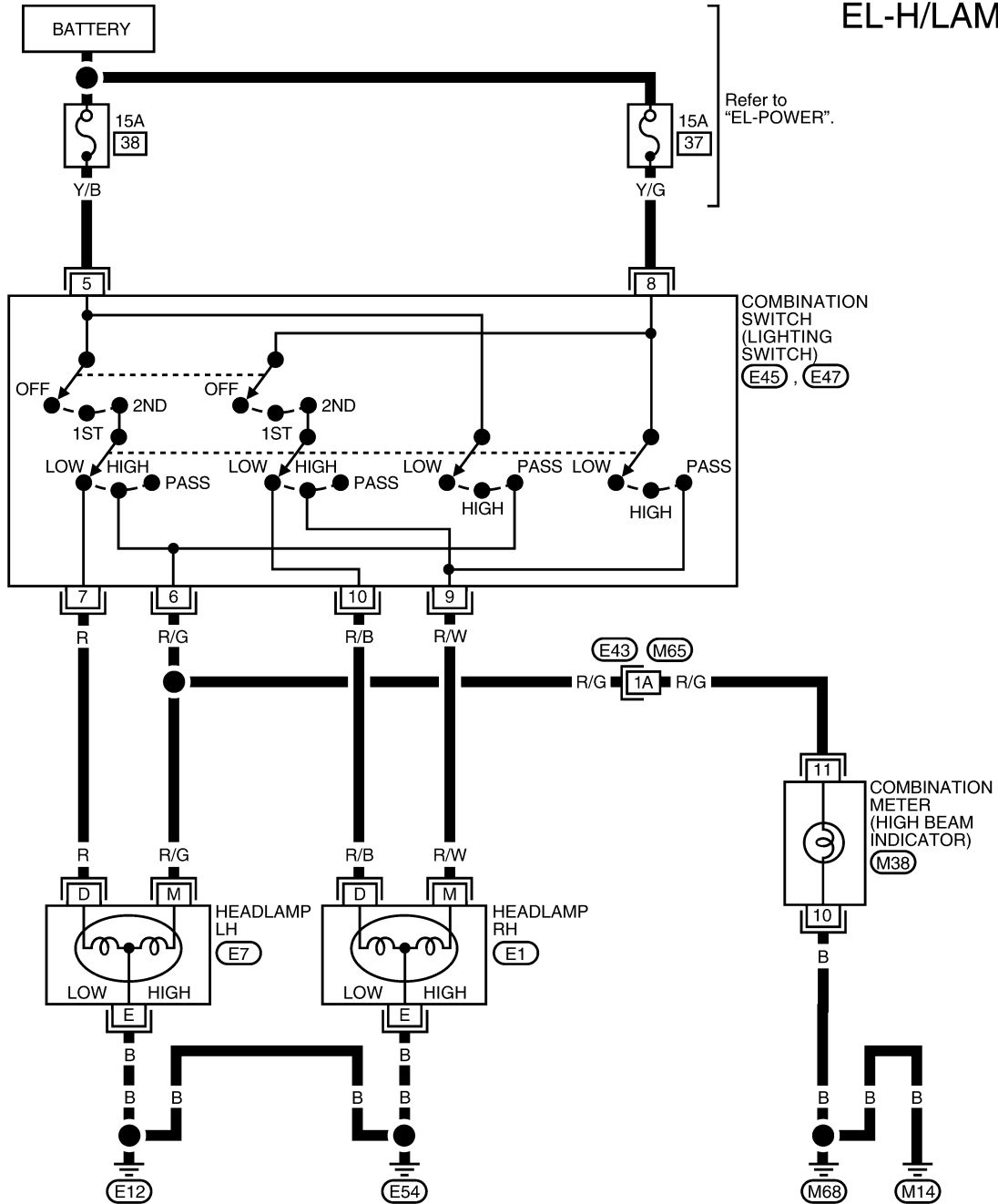
HEADLAMP (FOR USA)

Wiring Diagram — H/LAMP —

Wiring Diagram — H/LAMP —

NEEL0013

EL-H/LAMP-01

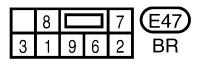
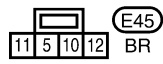
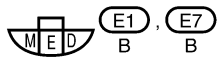
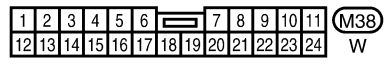


Refer to "EL-POWER".

COMBINATION SWITCH (LIGHTING SWITCH) (E45), (E47)

COMBINATION METER (HIGH BEAM INDICATOR) (M38)

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



HEADLAMP (FOR USA)

Trouble Diagnoses

Trouble Diagnoses

NEEL0014

Symptom	Possible cause	Repair order	
Neither headlamp LH nor headlamp RH operate.	1. Lighting switch	1. Check lighting switch.	GI
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 5 of lighting switch. 4. Check lighting switch.	MA EM LC
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 8 of lighting switch. 4. Check lighting switch.	EC FE CL
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 terminal 6 and headlamp LH terminal M for an open circuit. 3. Check lighting switch.	MT
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 terminal 7 and headlamp LH terminal D for an open circuit. 3. Check lighting switch.	AT TF
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 terminal 9 and headlamp RH terminal M for an open circuit. 3. Check lighting switch.	PD
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 terminal 10 and headlamp RH terminal D for an open circuit. 3. Check lighting switch.	AX SU
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 10 and grounds M14 and M68. 3. Check R/G wire between lighting switch terminal 6 and combination meter terminal 11 for an open circuit.	BR ST

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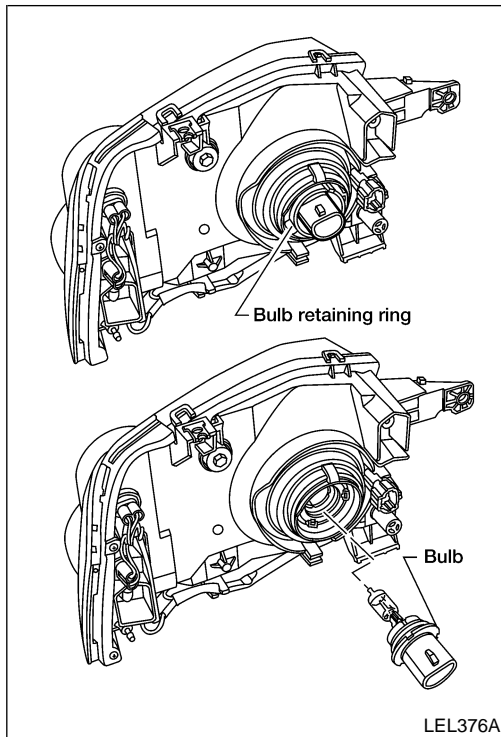
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HEADLAMP (FOR USA)

Bulb Replacement



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. Remove bulb retaining ring.
 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 wall screen.

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

Before performing aiming adjustment, check the following.

- 1) **Keep all tires inflated to correct pressures.**
- 2) **Place vehicle on flat surface.**
- 3) **See that the 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 the driver's seat.**

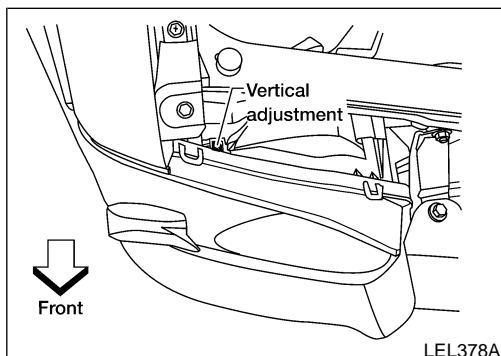
LOW BEAM

NEEL0016S02

NOTE:

The horizontal headlamp aim cannot be adjusted. Only vertical aim is adjustable.

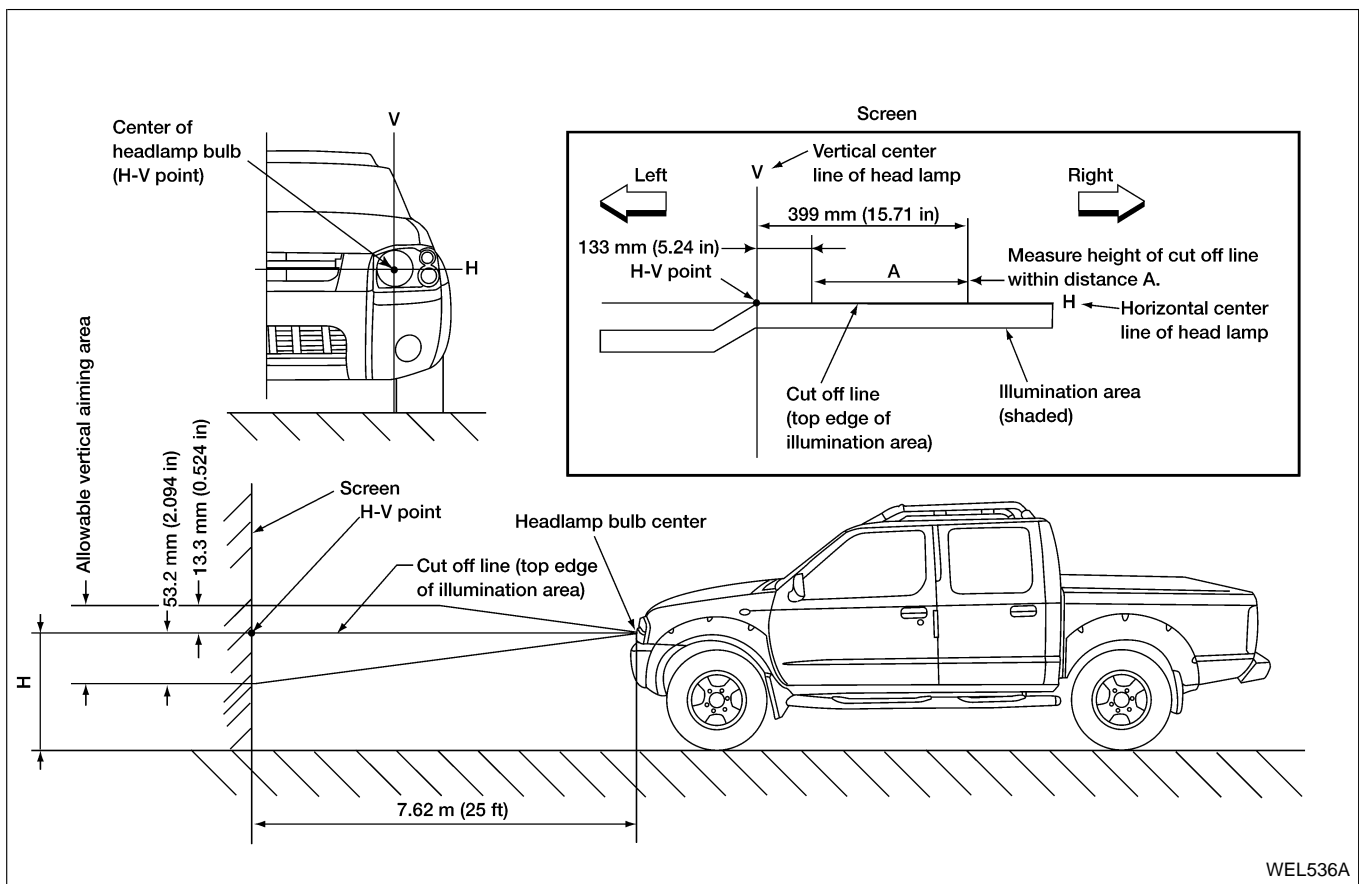
1. Turn headlamp low beam on.



2. Use adjusting screw to adjust the vertical aim of the lamp.
- **Cover the opposite lamp and ensure fog lamps, if equipped, are turned off.**
 - **Adjust beam pattern until cut-off line (top edge of illumination area) is positioned at same height off ground as bulb center (on H-line). Measure cut-off line within distance A on H-line. See aiming chart following.**

HEADLAMP (FOR USA)

Aiming Adjustment (Cont'd)



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

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

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HEADLAMP (FOR CANADA) — DAYTIME LIGHT SYSTEM —

System Description (For Canada)

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 5.

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 8.

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

- through 10A 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, power is supplied

- from lighting switch terminal 10
- 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, power is supplied

- from lighting switch terminal 7
- 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 or FLASH TO PASS position, power is supplied

- from lighting switch terminal 9
- 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 or FLASH TO PASS position, power is supplied

- from lighting switch terminal 6
- to combination meter terminal 11 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.

HEADLAMP (FOR CANADA) — DAYTIME LIGHT SYSTEM —

System Description (For Canada) (Cont'd)

Ground is supplied in the same manner as low beam operation.

Ground is supplied to combination meter terminal 10 through body grounds M14 and M68.

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

DAYTIME LIGHT OPERATION

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)

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.

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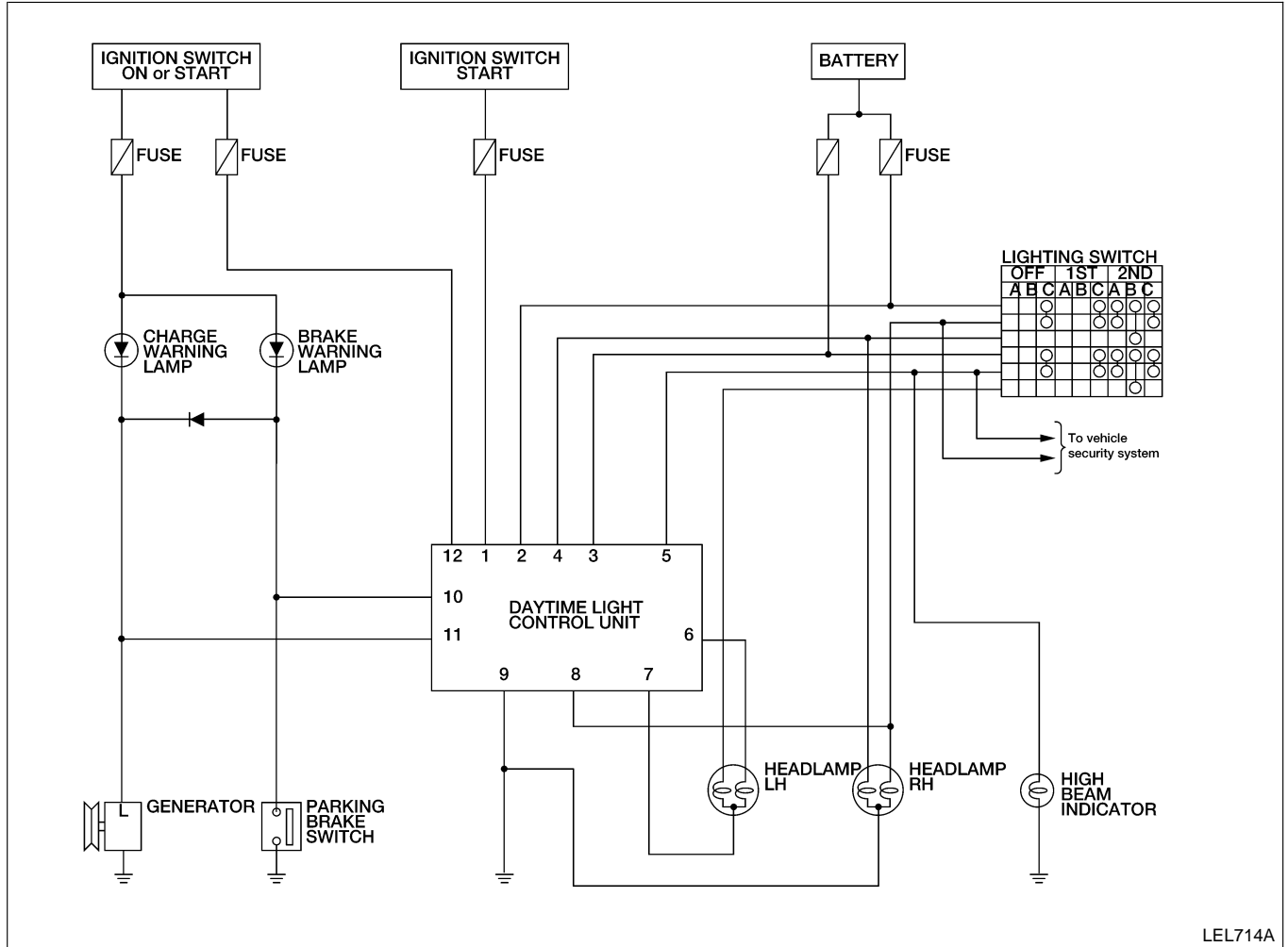
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HEADLAMP (FOR CANADA) — DAYTIME LIGHT SYSTEM —

Circuit Diagram

Circuit Diagram

NEEL0019



LEL714A

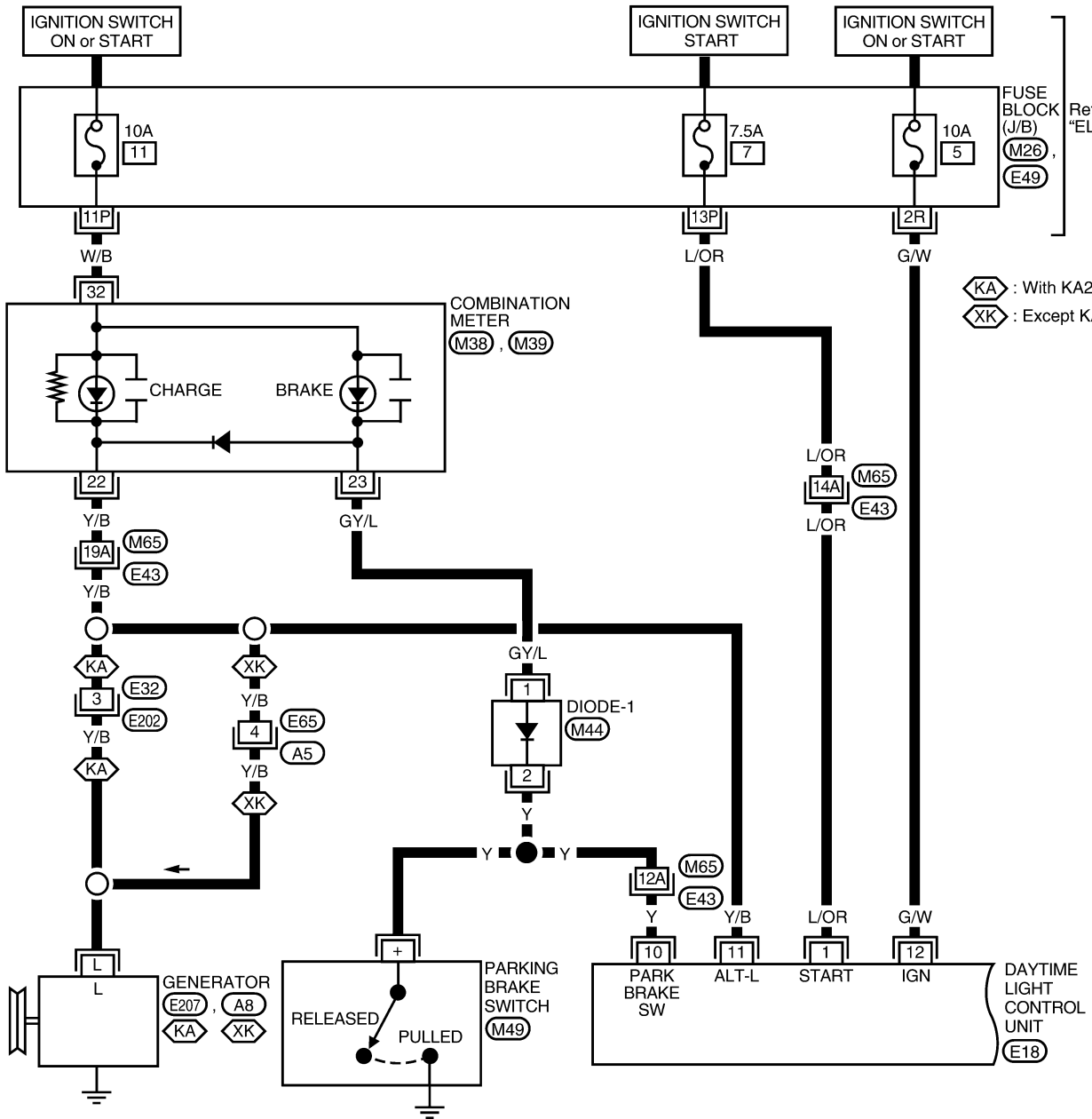
HEADLAMP (FOR CANADA) — DAYTIME LIGHT SYSTEM —

Wiring Diagram — DTRL —

Wiring Diagram — DTRL —

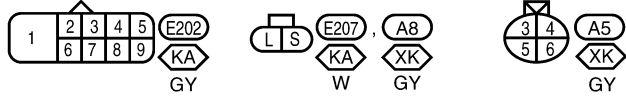
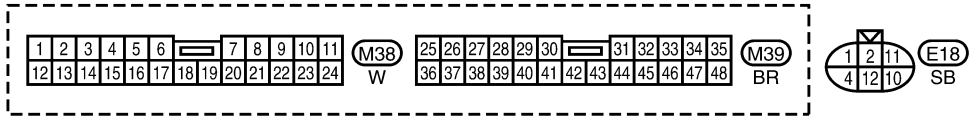
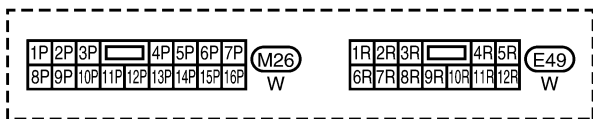
NEEL0020

EL-DTRL-01



KA : With KA24DE
XK : Except KA24DE

Refer to "EL-POWER".



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

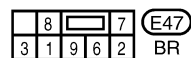
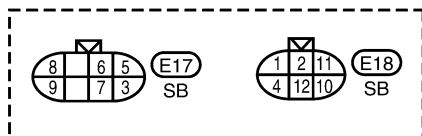
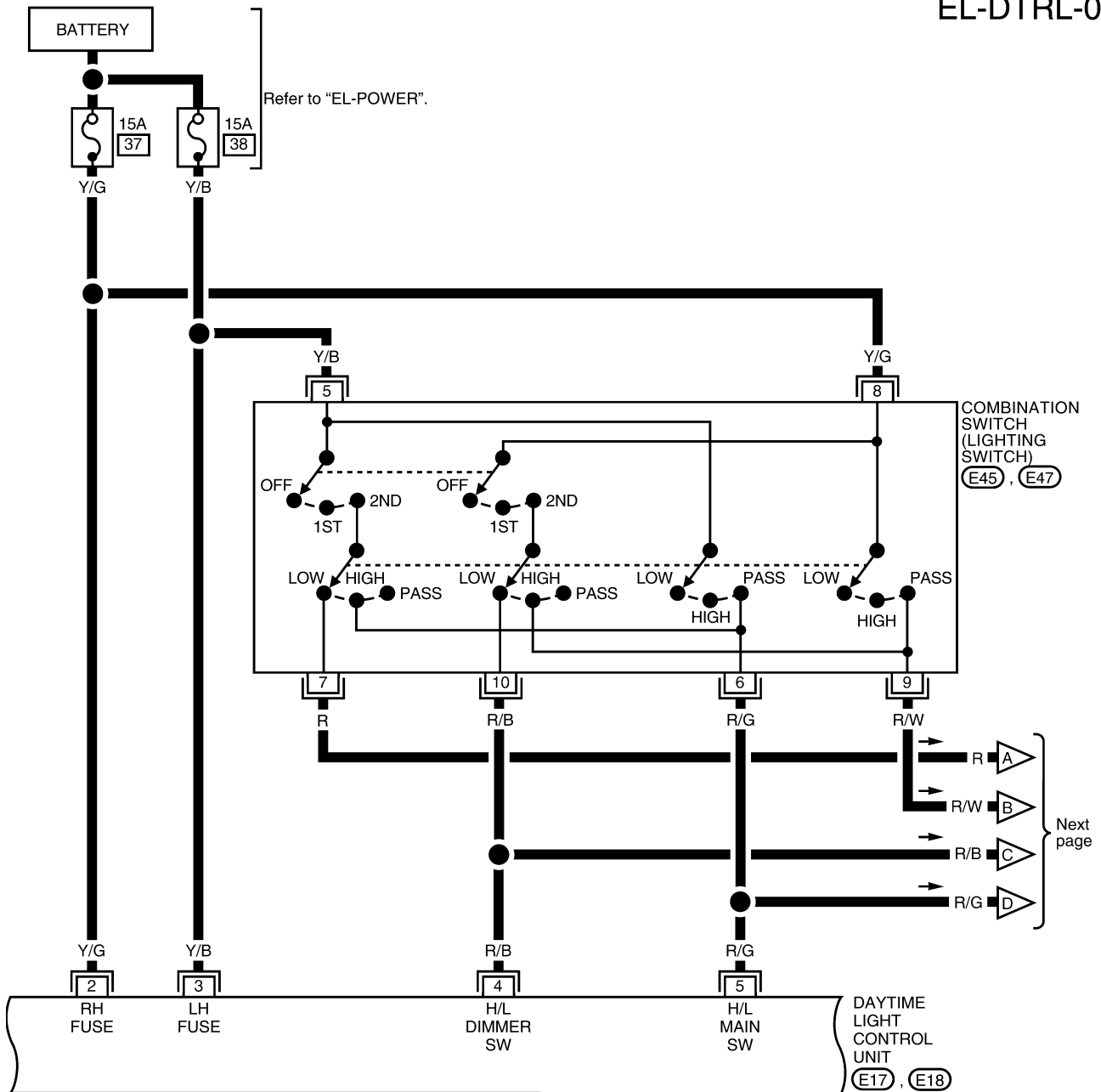
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WEL717A

HEADLAMP (FOR CANADA) — DAYTIME LIGHT SYSTEM —

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-02

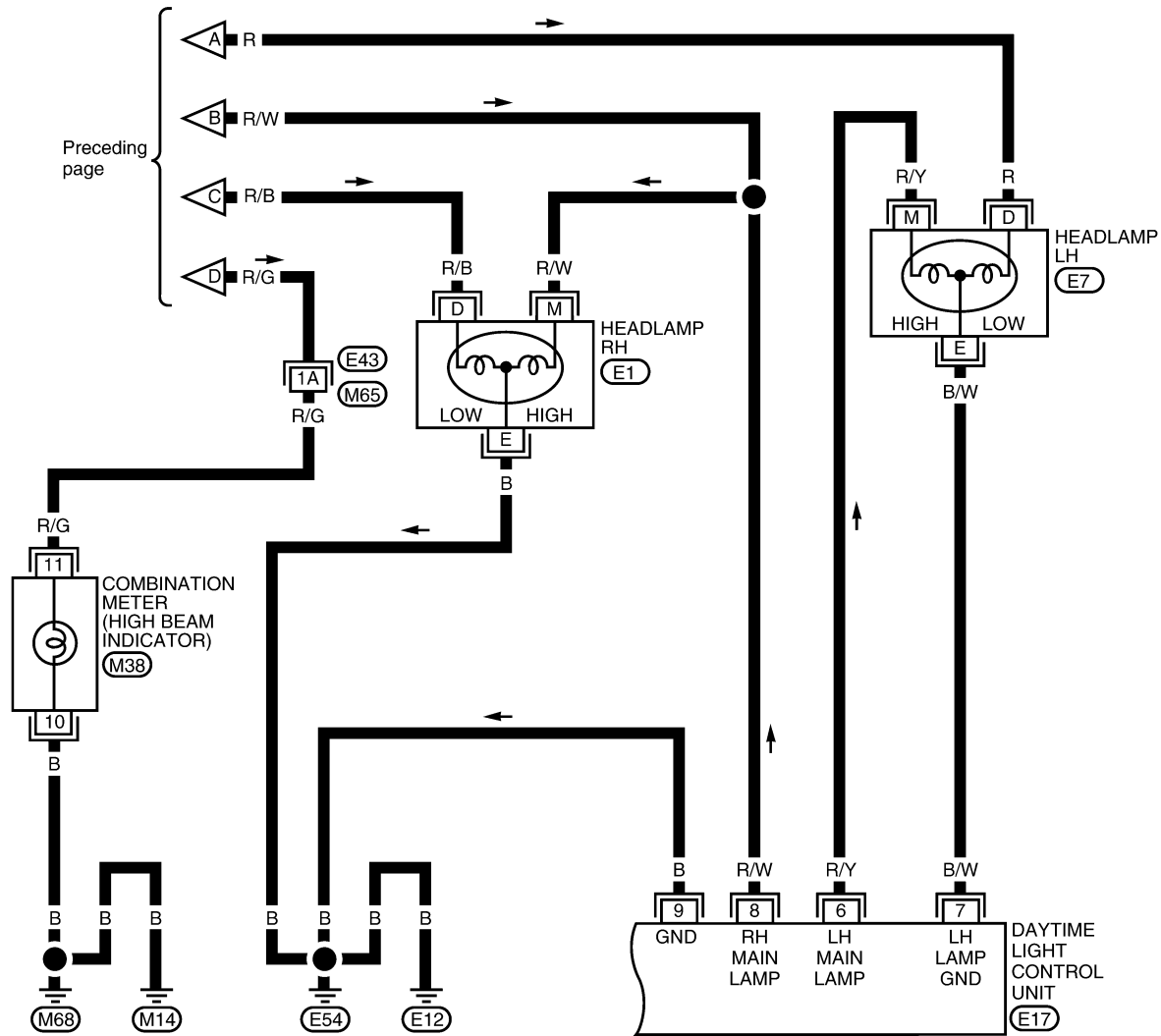


WEL718A

HEADLAMP (FOR CANADA) — DAYTIME LIGHT SYSTEM —

Wiring Diagram — DTRL — (Cont'd)

EL-DTRL-03



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

WEL719A

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HEADLAMP (FOR CANADA) — DAYTIME LIGHT SYSTEM —

Trouble Diagnoses

Trouble Diagnoses

NEEL0021

DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

NEEL0021S01

Terminal No.	Wire color	Item	Condition	Voltage (Approx.)
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

HEADLAMP (FOR CANADA) — DAYTIME LIGHT SYSTEM —

Trouble Diagnoses (Cont'd)

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

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Bulb Replacement

Refer to "Bulb Replacement", EL-38.

NEEL0022

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Aiming Adjustment

Refer to "Aiming Adjustment", EL-38.

NEEL0023

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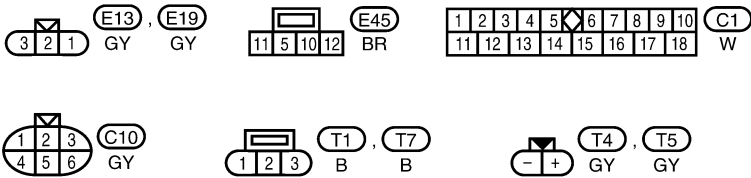
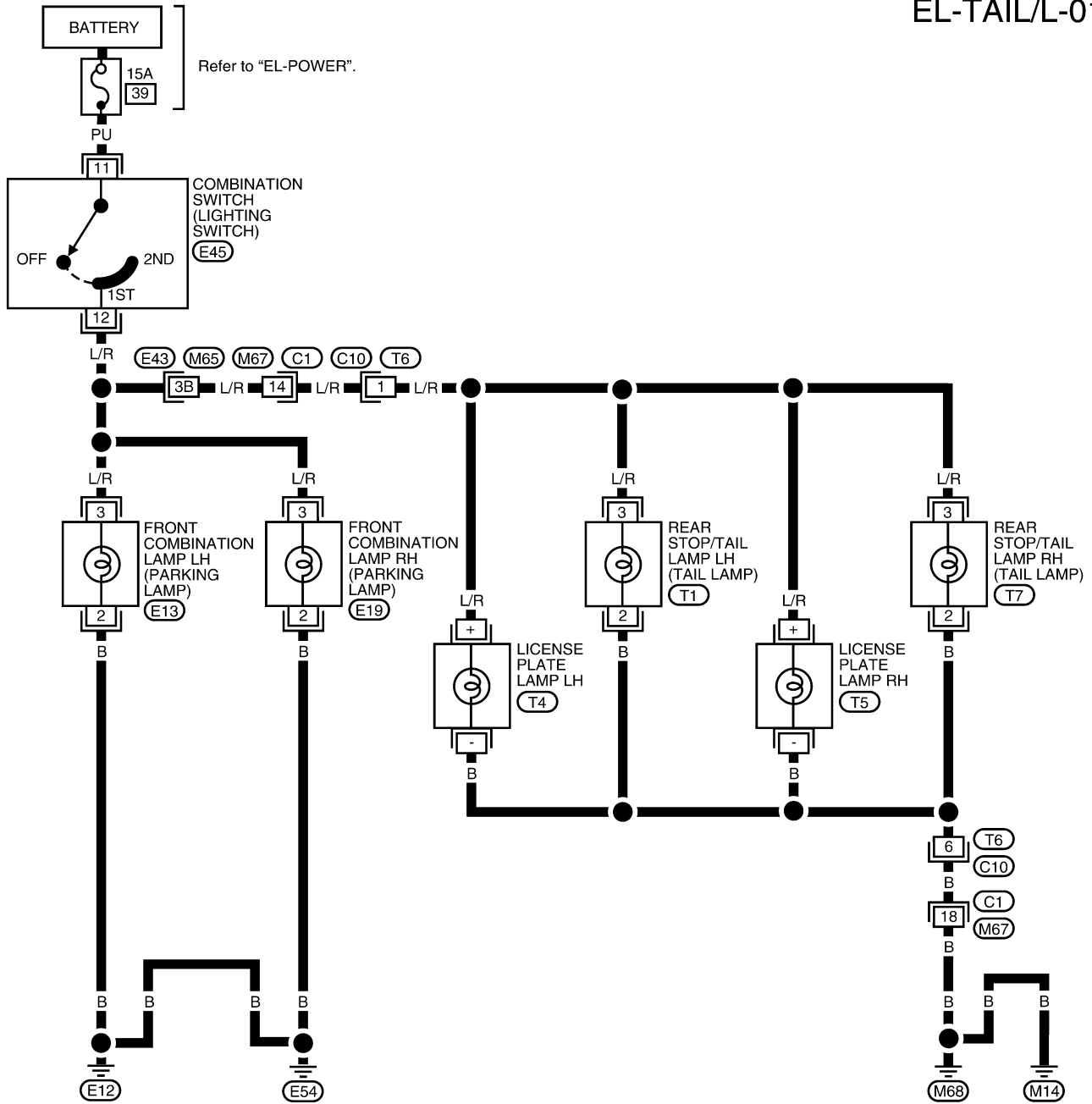
PARKING, LICENSE AND TAIL LAMPS

Wiring Diagram — TAIL/L —

Wiring Diagram — TAIL/L —

NEEL0024

EL-TAIL/L-01



Refer to the following.

M65, E43 - SUPER
MULTIPLE JUNCTION (SMJ)

WEL720A

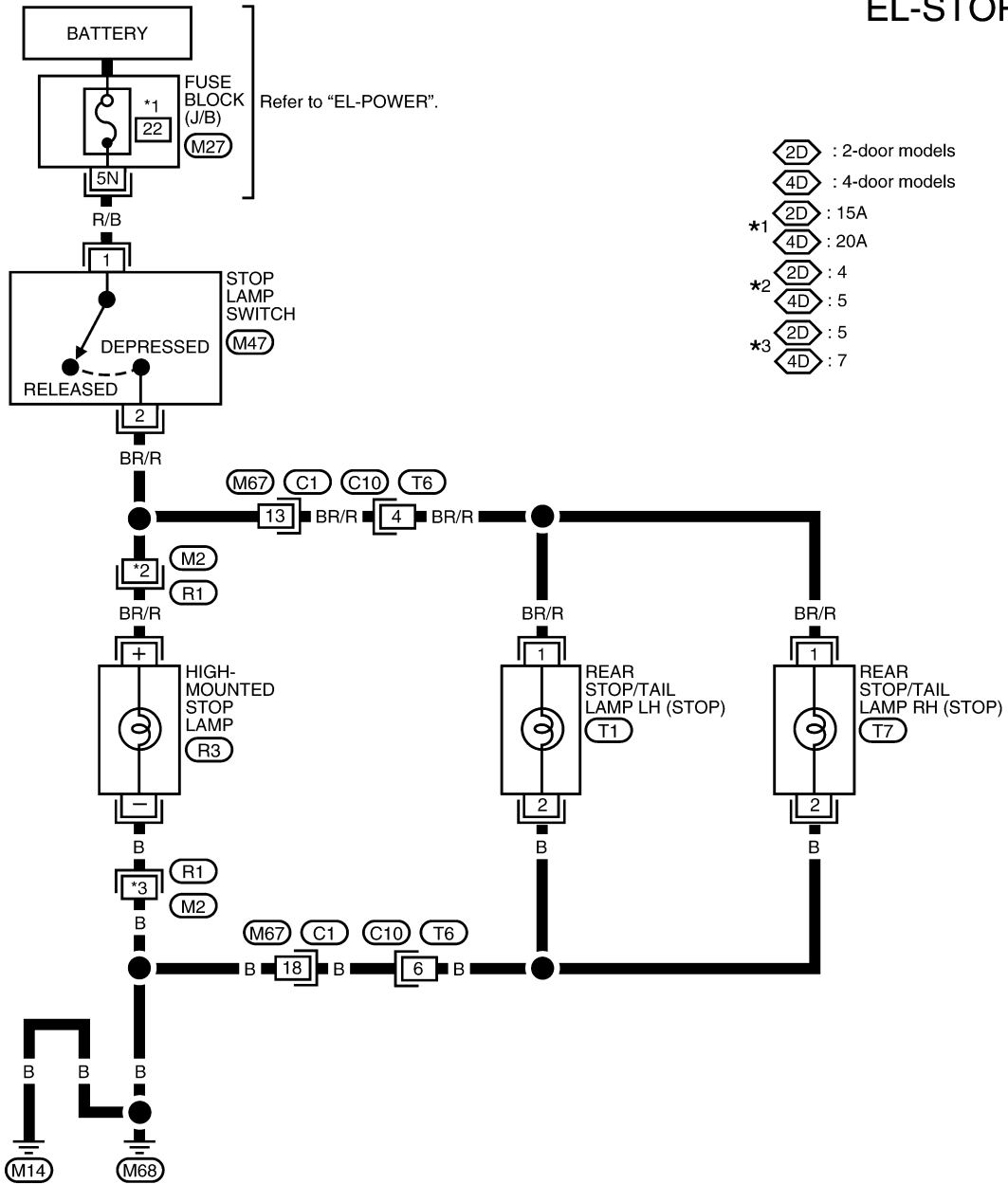
STOP LAMP

Wiring Diagram — STOP/L —

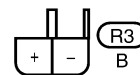
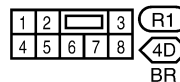
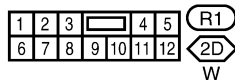
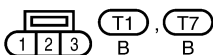
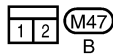
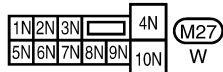
Wiring Diagram — STOP/L —

NEEL0025

EL-STOP/L-01



- 2D : 2-door models
- 4D : 4-door models
- *1 2D : 15A
- 4D : 20A
- *2 2D : 4
- 4D : 5
- *3 2D : 5
- 4D : 7



WEL721A

EL

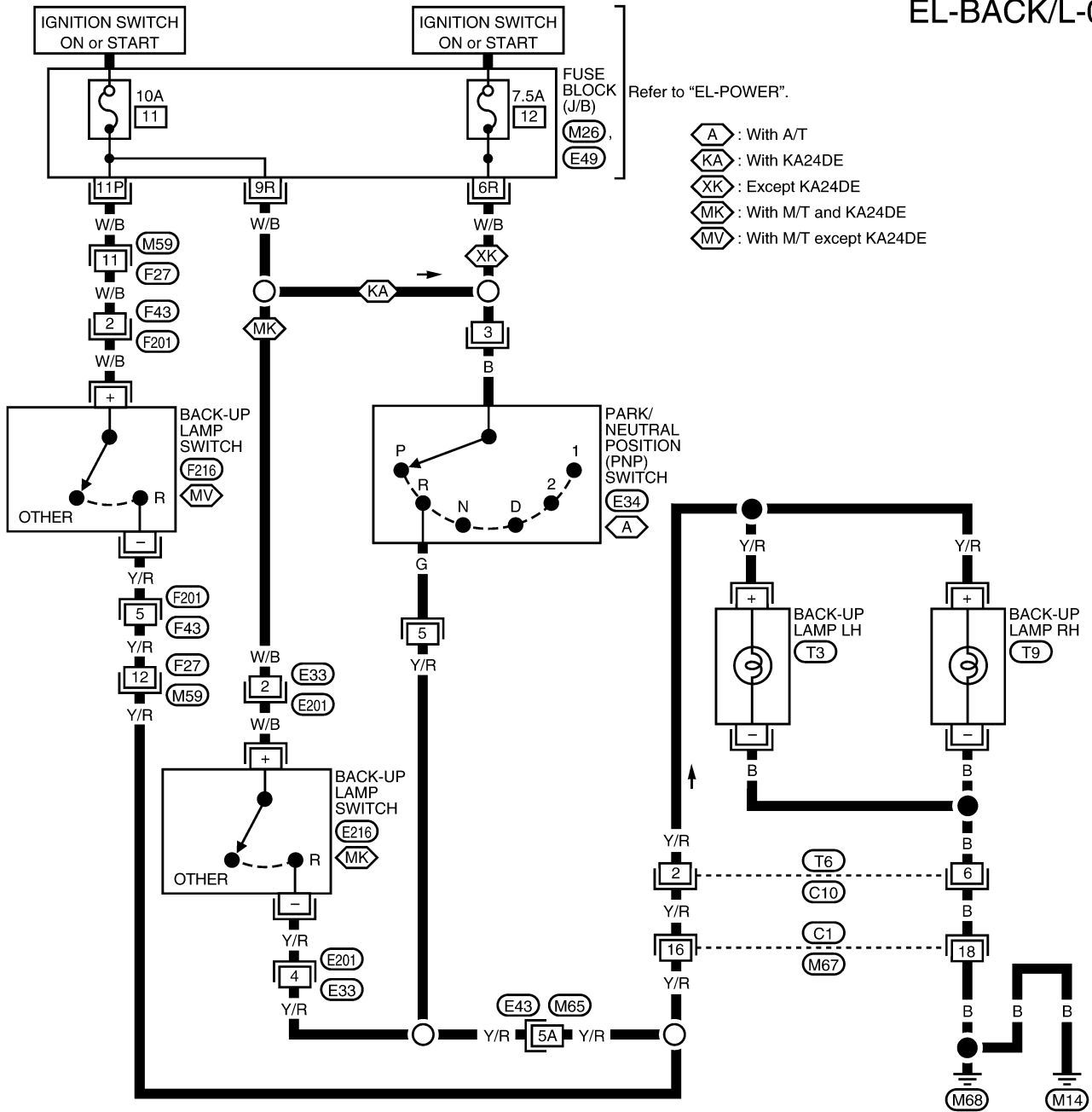
BACK-UP LAMP

Wiring Diagram — BACK/L —

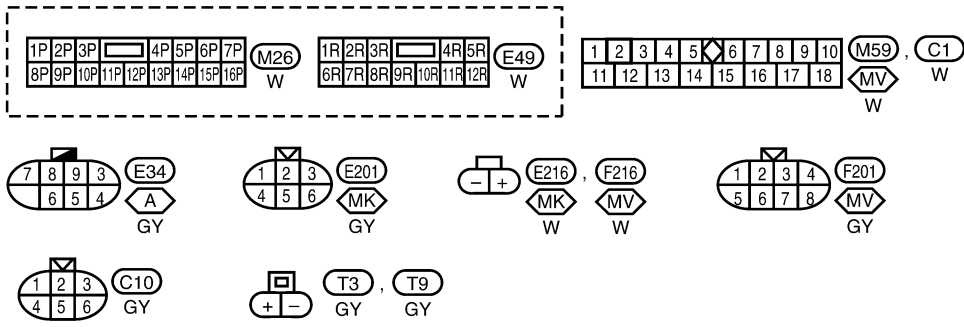
Wiring Diagram — BACK/L —

NEEL0026

EL-BACK/L-01



- Refer to "EL-POWER".
- ⬡ A : With A/T
 - ⬡ KA : With KA24DE
 - ⬡ XK : Except KA24DE
 - ⬡ MK : With M/T and KA24DE
 - ⬡ MV : With M/T except KA24DE



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

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 8.

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

- through lighting switch terminal 10
- to front fog lamp switch terminal 31.

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 position for front fog lamp operation.

With the front fog lamp switch in the ON position, power is supplied

- to front fog lamp relay terminal 2
- from front fog lamp switch terminal 32.

Ground is supplied

- to front fog lamp relay 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.

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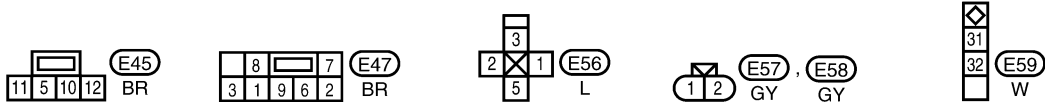
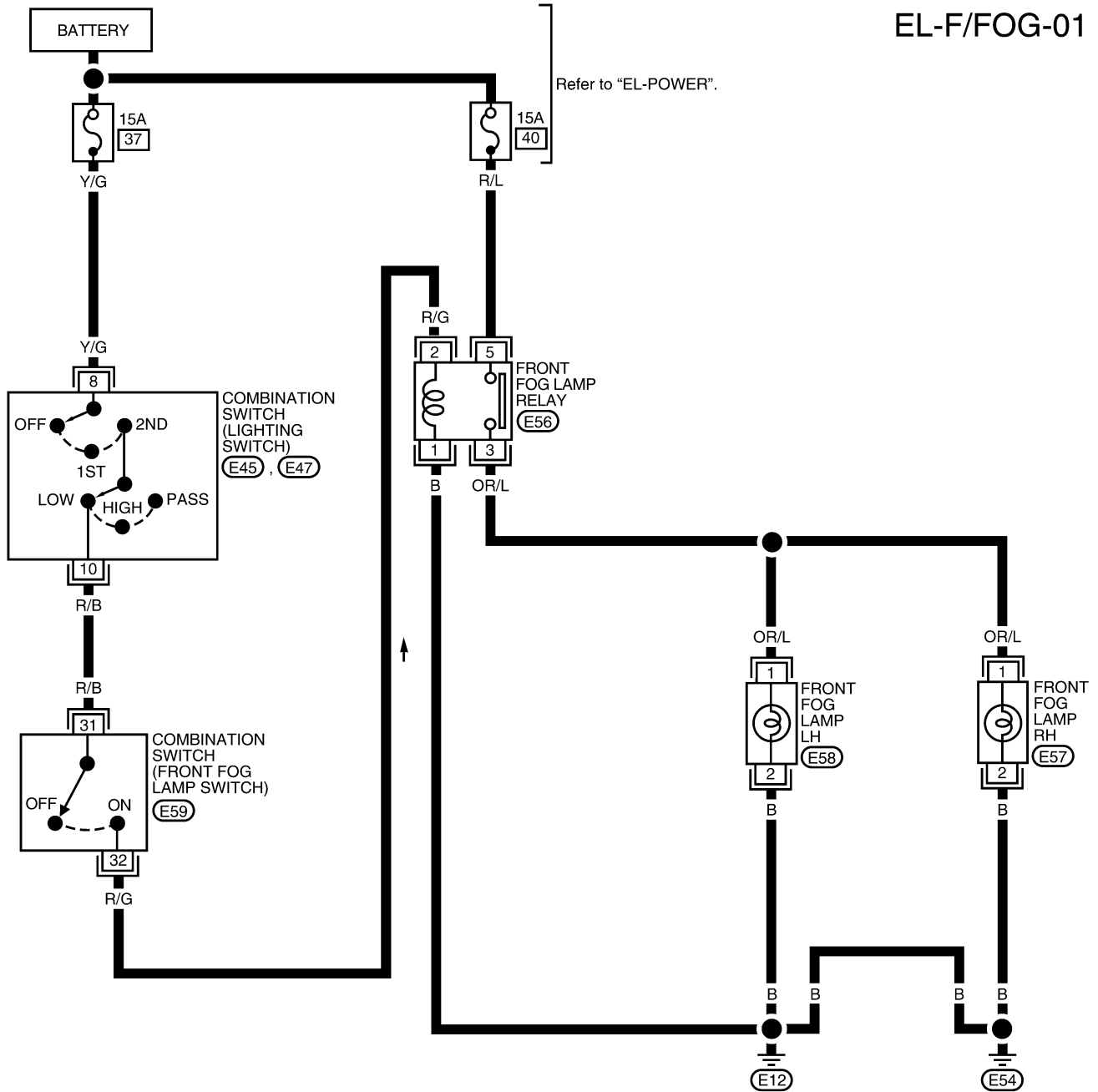
FRONT FOG LAMP

Wiring Diagram — F/FOG —

Wiring Diagram — F/FOG —

NEEL0028

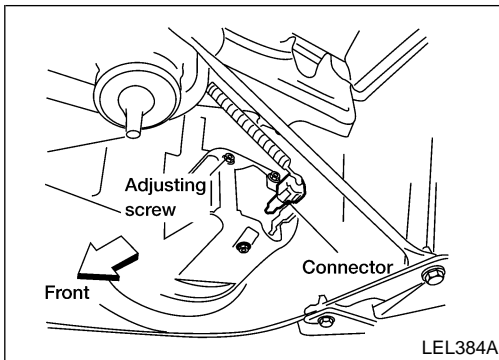
EL-F/FOG-01



WEL723A

FRONT FOG LAMP

Aiming Adjustment



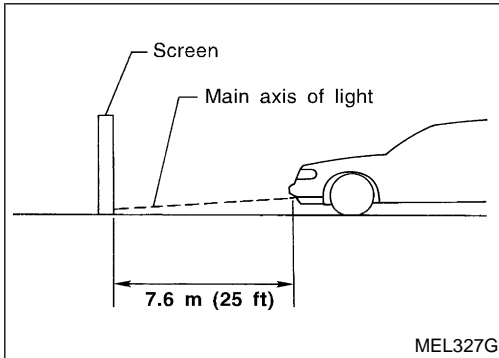
Aiming Adjustment

NEEL0029

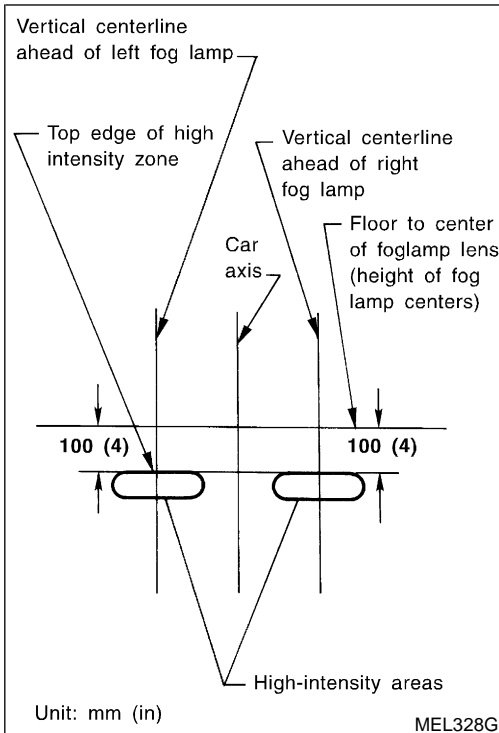
Before performing aiming adjustment, make sure of the following.

- 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 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.

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FRONT FOG LAMP

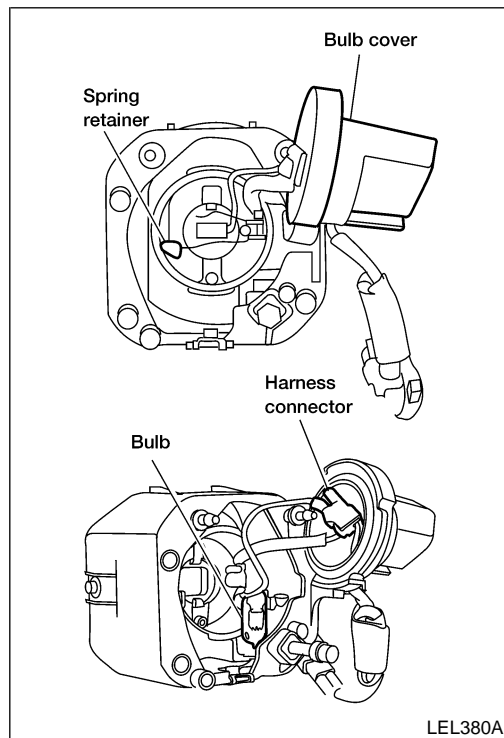
Removal and Installation

Removal and Installation

=NEEL0184

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

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



Bulb and Lens Replacement

NEEL0185

1. Remove front fog lamp. Refer to “Removal and Installation”, EL-54.
2. Remove bulb cover.
3. Release the spring retainer.
4. Disconnect fog lamp bulb connector.
5. Remove fog lamp bulb.
6. 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 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 12 and
- rear turn signal lamp LH terminal +.

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

Ground is supplied

- to rear turn signal lamp LH terminal – and
- to combination meter terminal 13
- 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 14 and
- rear turn signal lamp RH terminal +.

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

Ground is supplied

- to the rear turn signal lamp RH terminal – and
- to combination meter terminal 13
- 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 12 and
- rear turn signal lamp LH terminal +.

Power is supplied through hazard switch terminal 6 to

- front combination lamp RH terminal 1
- combination meter terminal 14 and
- rear turn signal lamp RH terminal +.

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TURN SIGNAL AND HAZARD WARNING LAMPS

System Description (Cont'd)

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

Ground is supplied to combination meter terminal 13 and rear turn signal lamp LH/RH terminal – through body grounds M14 and M68.

With power and ground supplied, the combination flasher unit controls the flashing of the hazard warning lamps.

REMOTE KEYLESS ENTRY SYSTEM OPERATION

NEEL0030S04

Power is supplied at all times to smart entrance control unit terminal 49

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

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

Refer to “REMOTE KEYLESS ENTRY SYSTEM”, EL-201.

When the smart entrance control unit receives LOCK or UNLOCK signal from keyfob with all doors closed, power is supplied through smart entrance control unit terminal 47

- to front combination lamp LH terminal 1
- to combination meter terminal 11
- to rear combination lamp LH terminal 3.

Power is supplied through smart entrance control unit terminal 48

- to front combination lamp RH terminal 1
- to combination meter terminal 28
- to rear combination lamp RH terminal 3.

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

Ground is supplied to terminal 2 of rear combination lamp LH through body grounds B6 and B10.

Ground is supplied to terminal 2 of rear combination lamp RH through body grounds B106 and B1116.

Ground is supplied to combination meter terminal 36 through body grounds M14 and M68.

With power and ground supplied, the smart entrance control unit controls the flashing of the hazard warning lamps.

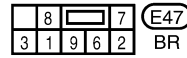
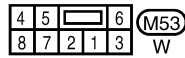
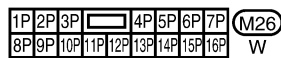
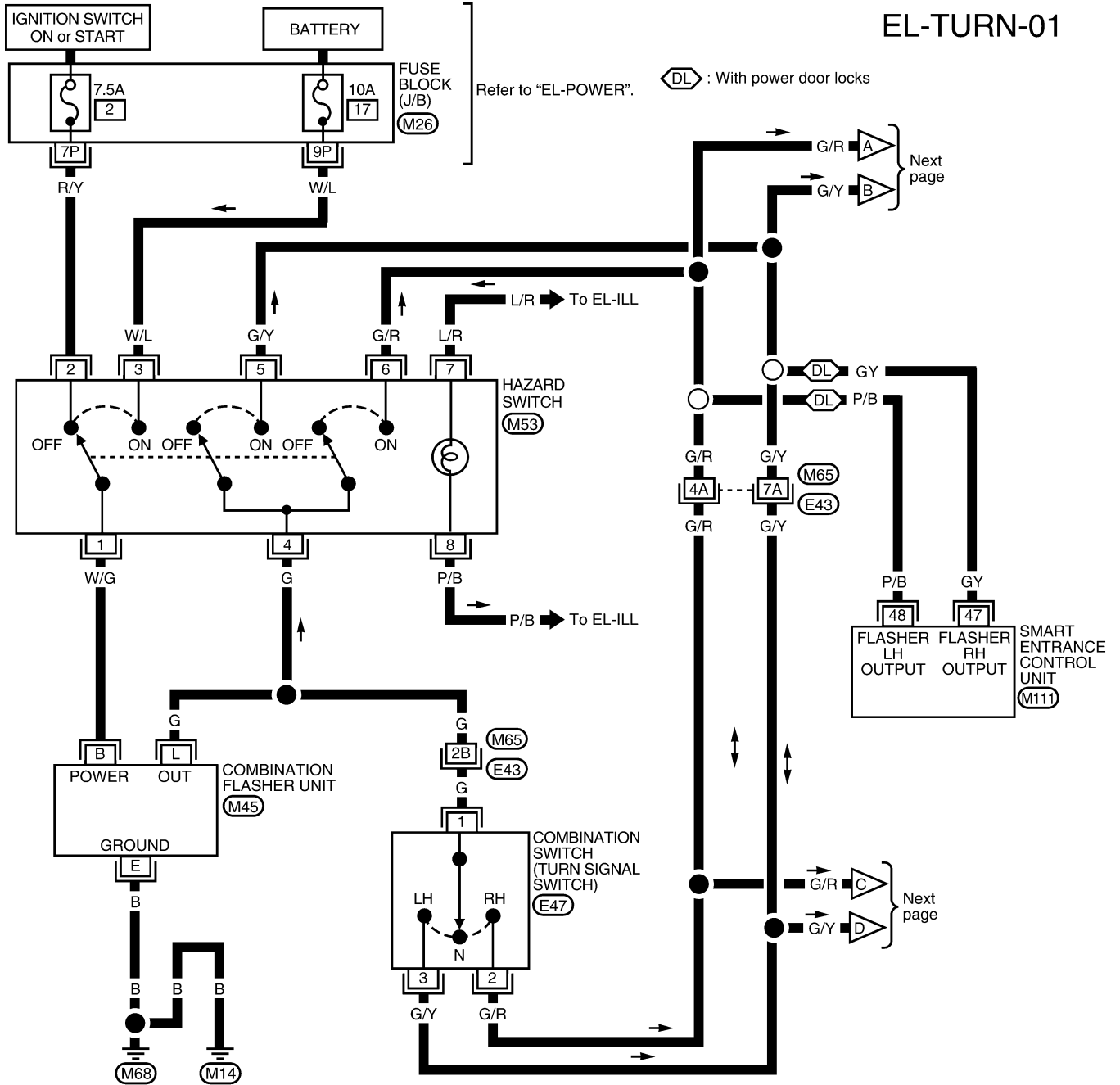
TURN SIGNAL AND HAZARD WARNING LAMPS

Wiring Diagram — TURN —

Wiring Diagram — TURN —

NEEL0032

EL-TURN-01



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

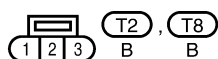
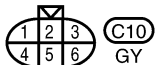
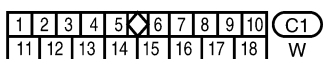
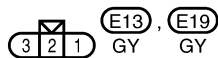
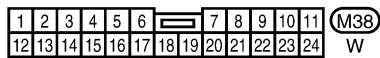
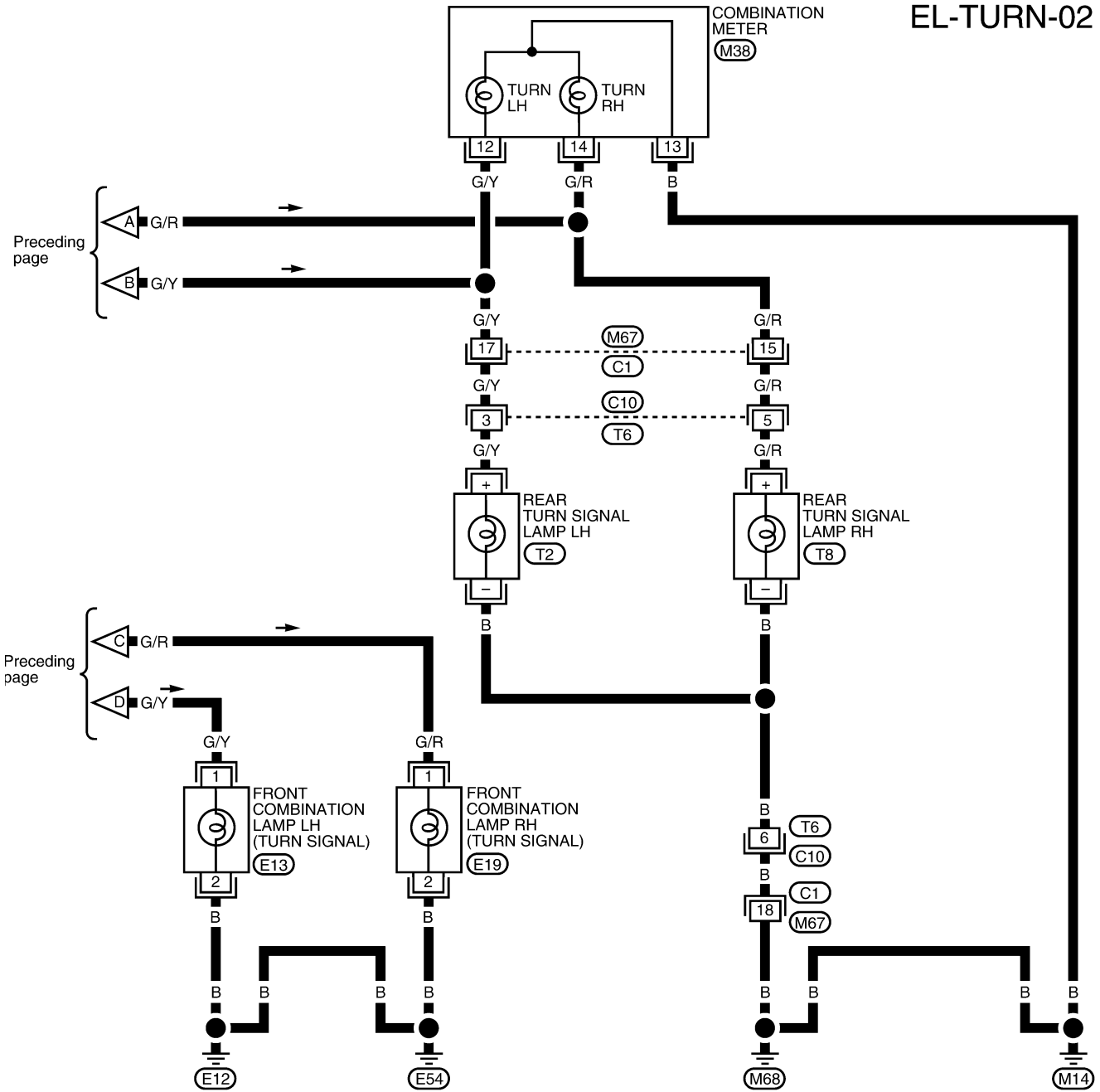
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TURN SIGNAL AND HAZARD WARNING LAMPS

Wiring Diagram — TURN — (Cont'd)

EL-TURN-02



WEL725A

TURN SIGNAL AND HAZARD WARNING LAMPS

Trouble Diagnoses

Trouble Diagnoses

NEEL0033

Symptom	Possible cause	Repair order
Turn signal and hazard warning lamps do not operate.	<ol style="list-style-type: none"> 1. 7.5A fuse 2. 10A fuse 3. Hazard switch 4. Combination flasher unit 5. Open in combination flasher unit circuit 	<ol style="list-style-type: none"> 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 10A fuse [No. 17, located in fuse block (J/B)]. Verify battery positive voltage is present at terminal 3 of hazard switch. 3. Check hazard switch. 4. Refer to combination flasher unit check. 5. Check wiring to combination flasher unit for open circuit.
Turn signal lamps do not operate but hazard warning lamps operate.	<ol style="list-style-type: none"> 1. 7.5A fuse 2. Hazard switch 3. Turn signal switch 4. Open in turn signal switch circuit 	<ol style="list-style-type: none"> 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. Check the harness between turn signal switch and front combination lamp for open circuit.
Hazard warning lamps do not operate but turn signal lamps operate.	<ol style="list-style-type: none"> 1. 10A fuse 2. Hazard switch 3. Open in hazard switch circuit 	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 1. Bulb 2. Front turn signal lamp ground circuit 	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 1. Bulb 2. Rear turn signal lamp LH ground circuit 	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 1. Bulb 2. Rear turn signal lamp RH ground circuit 	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 1. Ground circuit 	<ol style="list-style-type: none"> 1. Check grounds M14 and M68 and continuity between combination meter terminal 36 and grounds M14 and M68.
LH or RH turn indicator does not operate.	<ol style="list-style-type: none"> 1. Bulb 2. Turn indicator circuit 	<ol style="list-style-type: none"> 1. Check bulb in cluster lid A. 2. Check continuity between combination meter terminal 12, 14 and 13. 3. Check the wire between hazard switch and combination meter.

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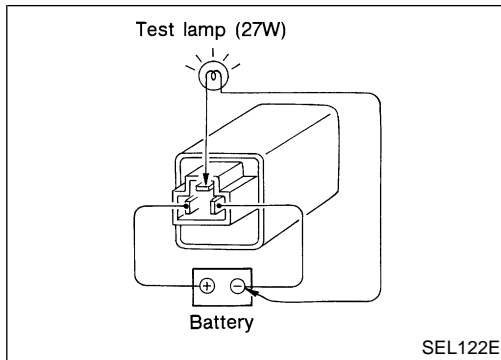
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TURN SIGNAL AND HAZARD WARNING LAMPS

Electrical Components Inspection



Electrical Components Inspection COMBINATION FLASHER UNIT CHECK

NEEL0034

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.

ILLUMINATION

System Description

System Description

NEEL0035

Power is supplied at all times

- through 15A fuse (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 VG engine)	M35	4	3
Hazard switch	M53	7	8
Air control	M95	10	9
Audio unit	M51	8	7
Combination meter	M39	30, 32	42
Main power window and door lock/unlock switch	D7	3	8
A/T (With A/T and KA engine)	M127	1	2
Illumination control switch	M28	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.

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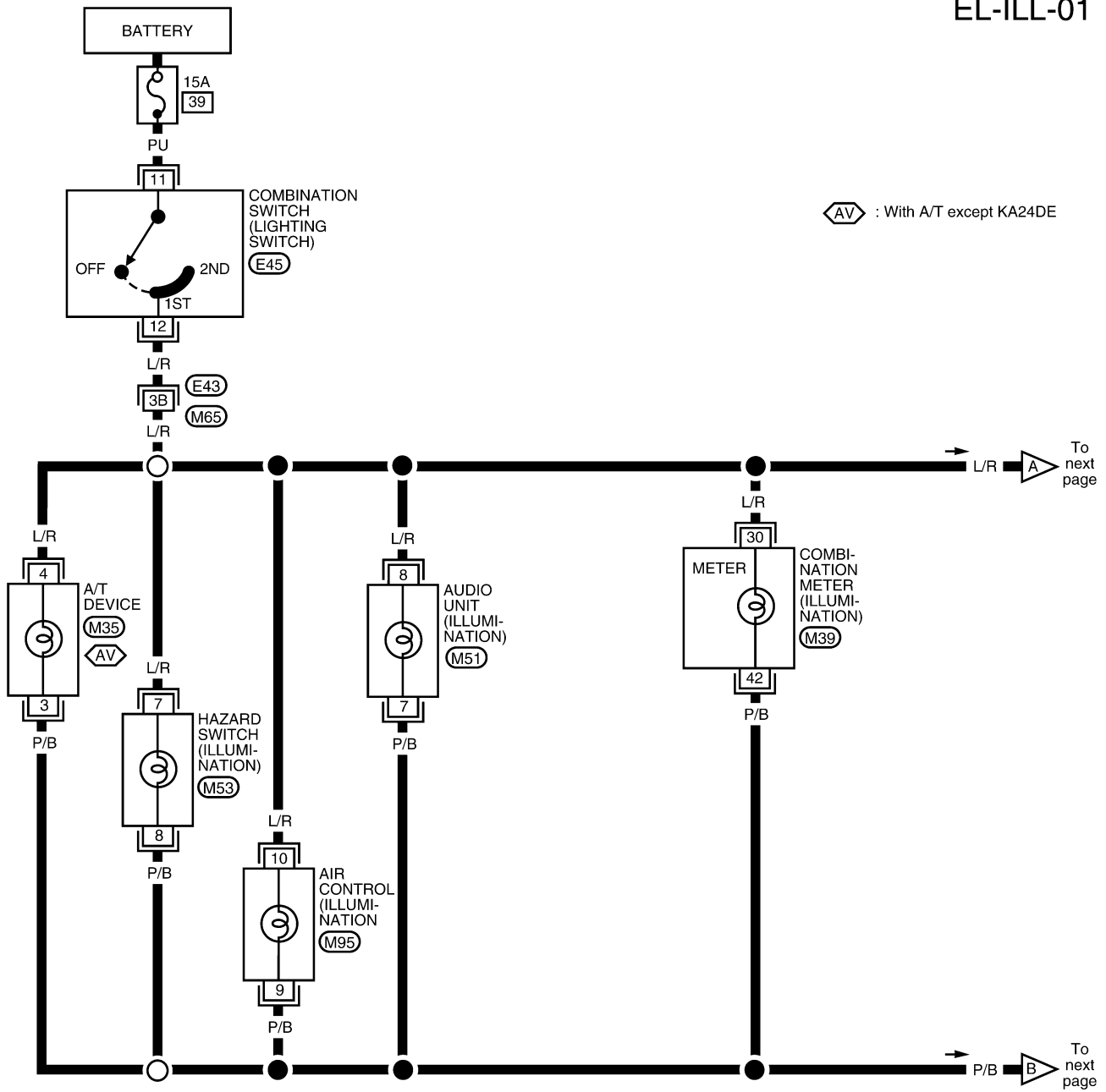
ILLUMINATION

Wiring Diagram — ILL —

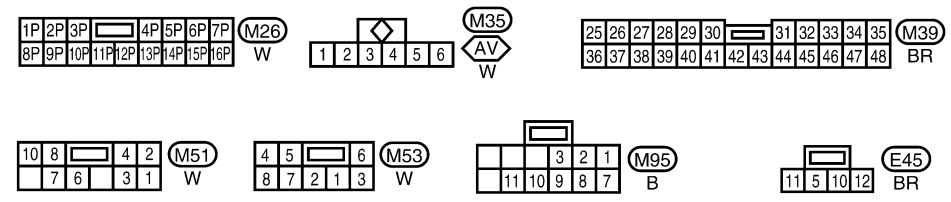
Wiring Diagram — ILL —

NEEL0037

EL-ILL-01



(AV) : With A/T except KA24DE







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

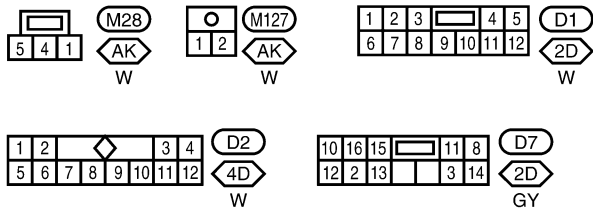
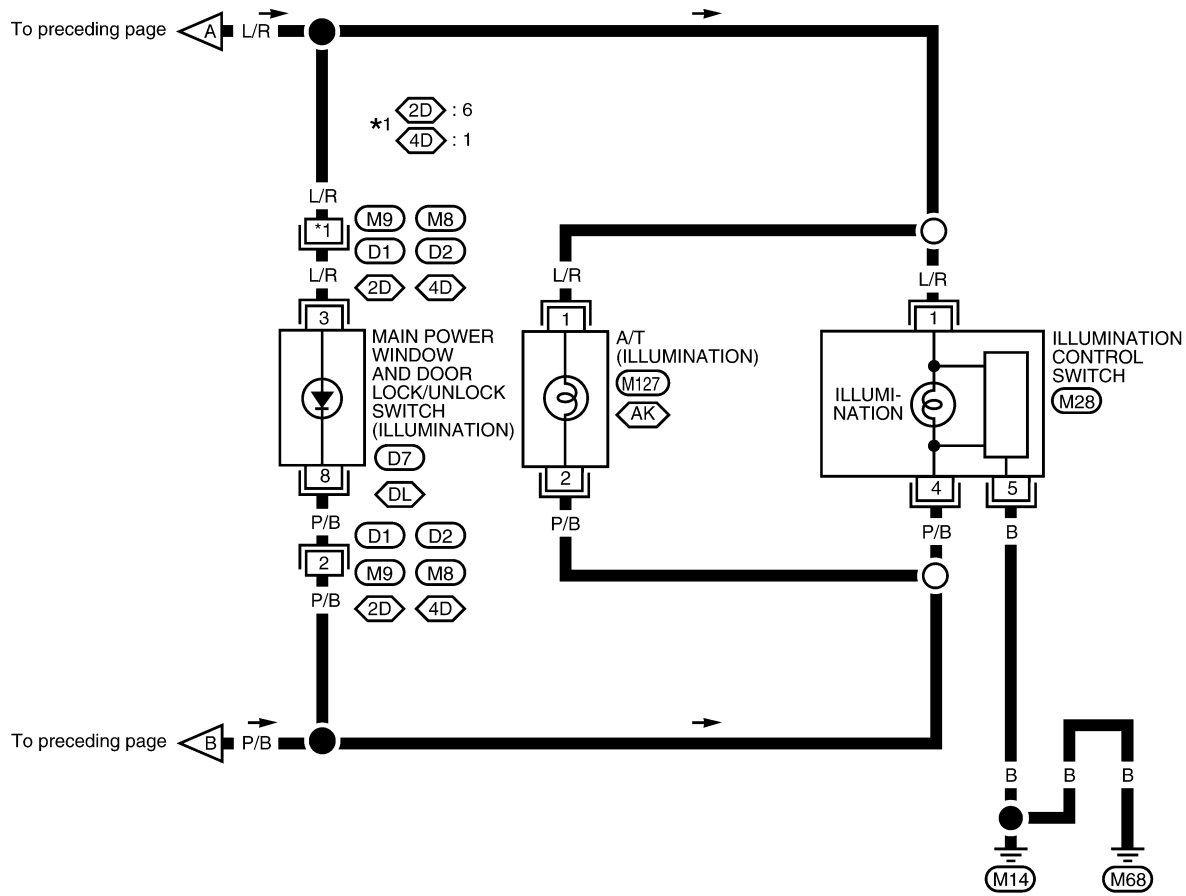
WEL095B

ILLUMINATION

Wiring Diagram — ILL — (Cont'd)

EL-ILL-02

-  : 2 door models
-  : 4 door models
-  : With A/T and KA engine
-  : With power door locks



LEL747

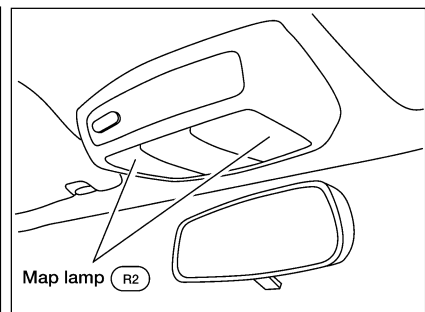
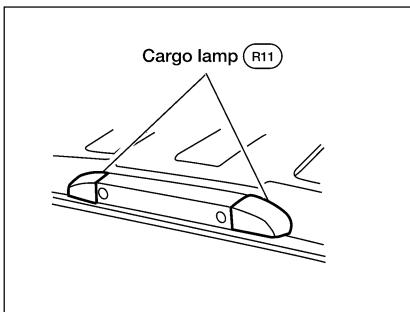
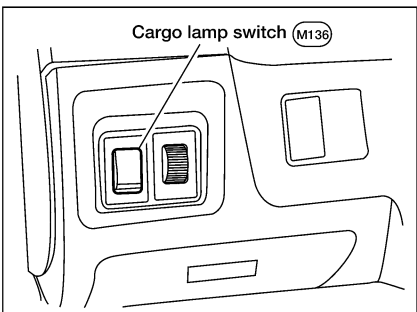
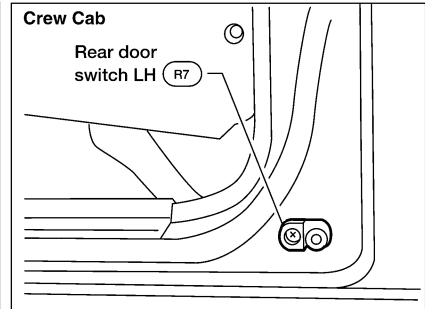
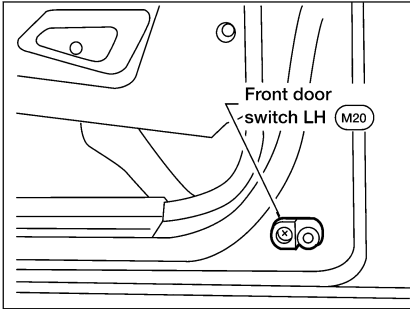
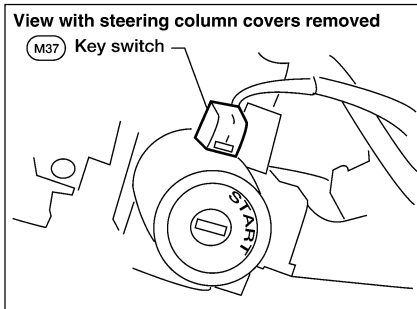
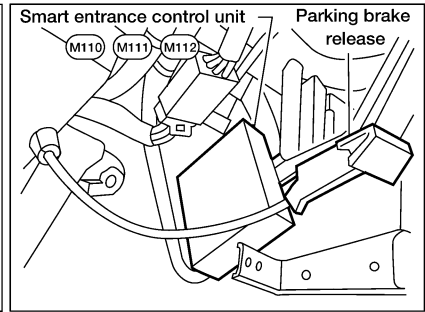
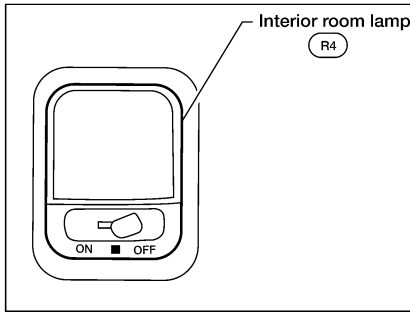
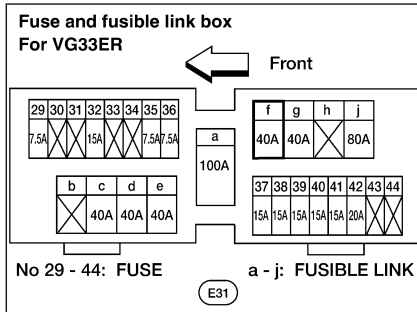
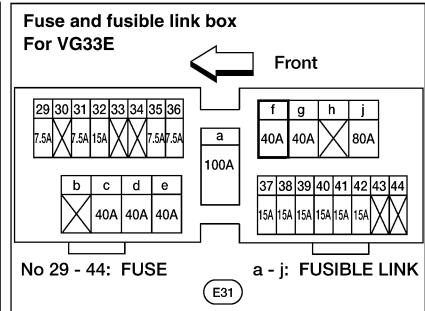
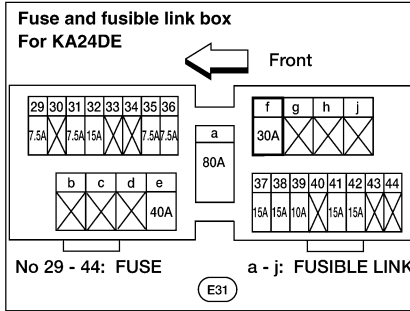
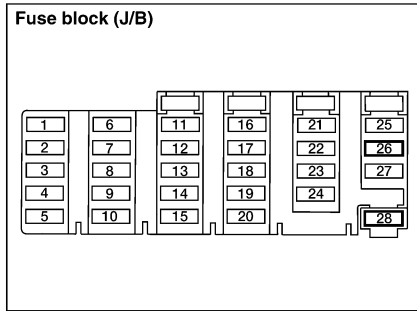
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INTERIOR ROOM LAMP

Component Parts and Harness Connector Location

Component Parts and Harness Connector Location

NEEL0194



WEL936A

System Description

MODELS WITHOUT POWER DOOR LOCKS

NEEL0038

Room Lamp

NEEL0038S09

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 +.

Cargo Lamp

NEEL0038S0902

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

- through 15A fuse [No. 23, located in fuse block (J/B)]
- to cargo lamp switch terminal 2.

When cargo lamp switch is ON, power is supplied

- through cargo lamp switch terminal 3
- to cargo lamp terminal +, and
- to cargo lamp switch terminal 4.

Ground is supplied

- to cargo lamp terminal –, and
- to cargo lamp switch terminal 5
- through body grounds M14 and M68.

Map Lamp

NEEL0038S0903

Power is supplied at all times

- through 7.5A fuse [No. 26, located in 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.

MODELS WITH POWER DOOR LOCKS

NEEL0038S07

Room Lamp

NEEL0038S0701

Power is supplied at all times

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to smart entrance control unit terminal 49.
- through smart entrance control unit terminal 50
- to room lamp terminal +.

Ground is supplied at all times to smart entrance control unit terminals 43 and 64 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 1
- through front door switch LH terminal 2

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INTERIOR ROOM LAMP

System Description (Cont'd)

- 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 31.

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

- to smart entrance control unit terminal 2
- through front door switch RH terminal + and
- to room lamp terminal SW
- through smart entrance control unit terminal 31.

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 3 (with vehicle security system), or
- to smart entrance control unit terminal 2 (without vehicle security system)
- through rear door switch LH/RH terminal + and
- to room lamp terminal SW
- through smart entrance control unit terminal 31.

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 door lock/unlock switch while all doors are closed and key is out of ignition key cylinder
- unlock signal is supplied from keyfob or door key cylinder while all doors are closed
- key is removed from ignition key cylinder while driver door is closed
- driver door is opened and then closed while key is out of the ignition key cylinder. (However, if the driver door is closed with the key inserted in the ignition key cylinder after the front door LH is opened with the key removed, the timer operates.)

The timer is canceled and room lamp turns off when

- front door LH is locked with keyfob, or
- front door LH is opened, or
- ignition switch is turned ON.

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

Cargo Lamp

NEEL0038S0703

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

- through 15A fuse [No. 23, located in the fuse block (J/B)]
- to cargo lamp switch terminal 2.

When cargo lamp switch is ON, power is supplied

- through cargo lamp switch terminal 3
- to cargo lamp terminal +, and
- to cargo lamp switch terminal 4.

Ground is supplied

- to cargo lamp terminal –, and
- to cargo lamp switch terminal 5
- through body grounds M14 and M68.

Map Lamp

NEEL0038S0704

Power is supplied at all times

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to smart entrance control unit terminal 49
- through smart entrance control unit terminal 50
- 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.

INTERIOR ROOM LAMP

System Description (Cont'd)

ON-OFF CONTROL

When the front door LH, front door RH, rear LH or rear RH door is opened, the interior room lamp turns on while the room lamp switch is in the "DOOR" position. NEEL0038S10

GI

BATTERY SAVER

On models with smart entrance control unit, the lamp turns off automatically when room lamp, map lamp and/or spot lamp is illuminated with the ignition key in OFF position, if the lamp remains lit by the door switch open signal or if the lamp switch in ON position for more than 30 minutes. NEEL0038S11

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INTERIOR ROOM LAMP

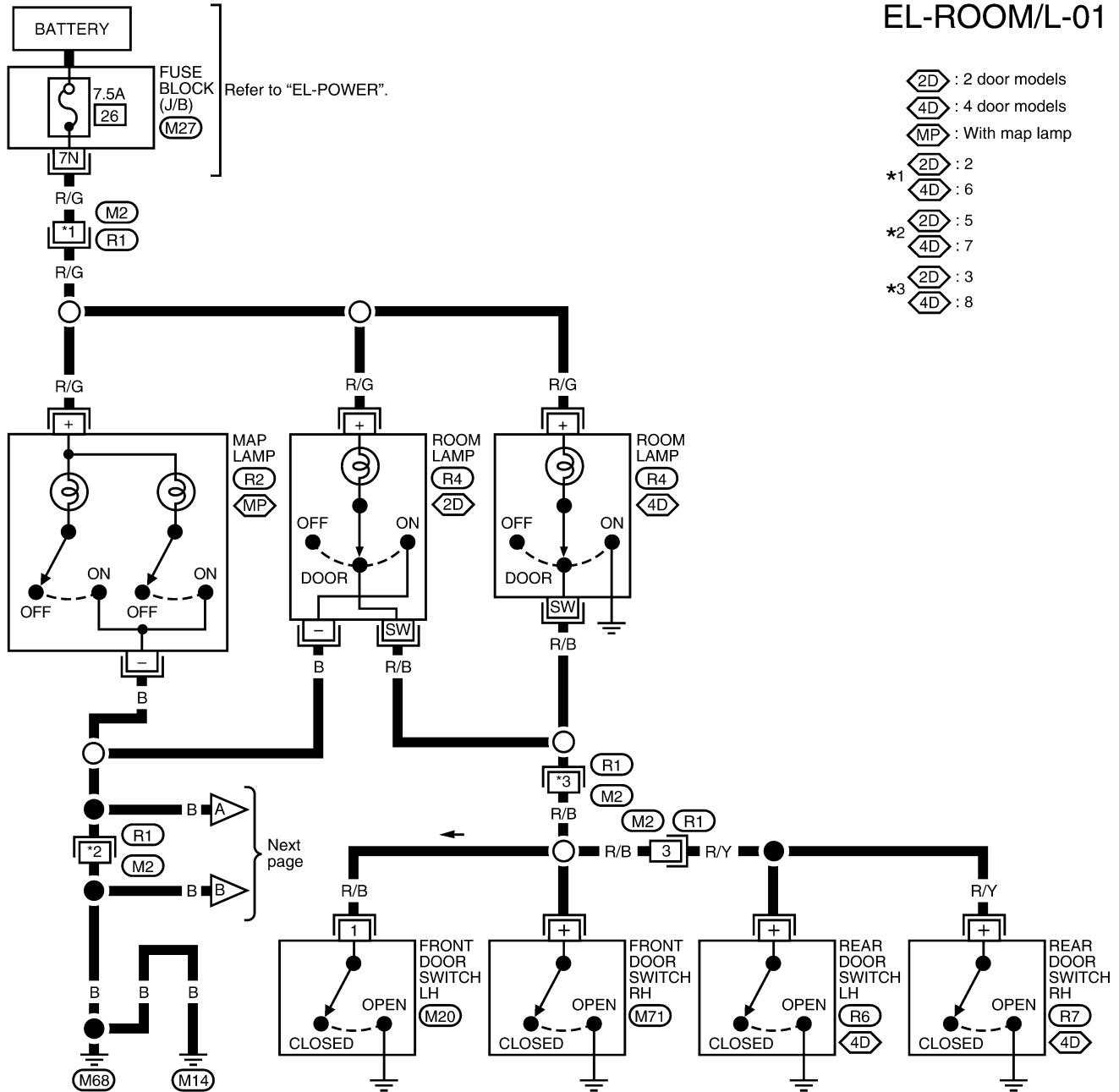
Wiring Diagram — ROOM/L —

Wiring Diagram — ROOM/L — MODELS WITHOUT POWER DOOR LOCKS

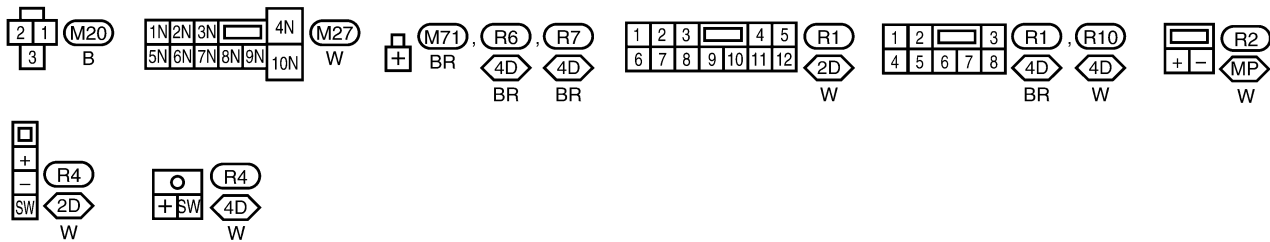
NEEL0040

NEEL0040S01

EL-ROOM/L-01



- ⬡2D : 2 door models
- ⬡4D : 4 door models
- ⬡MP : With map lamp
- *1 ⬡2D : 2
- ⬡4D : 6
- *2 ⬡2D : 5
- ⬡4D : 7
- *3 ⬡2D : 3
- ⬡4D : 8

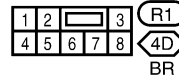
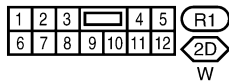
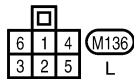
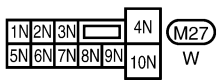
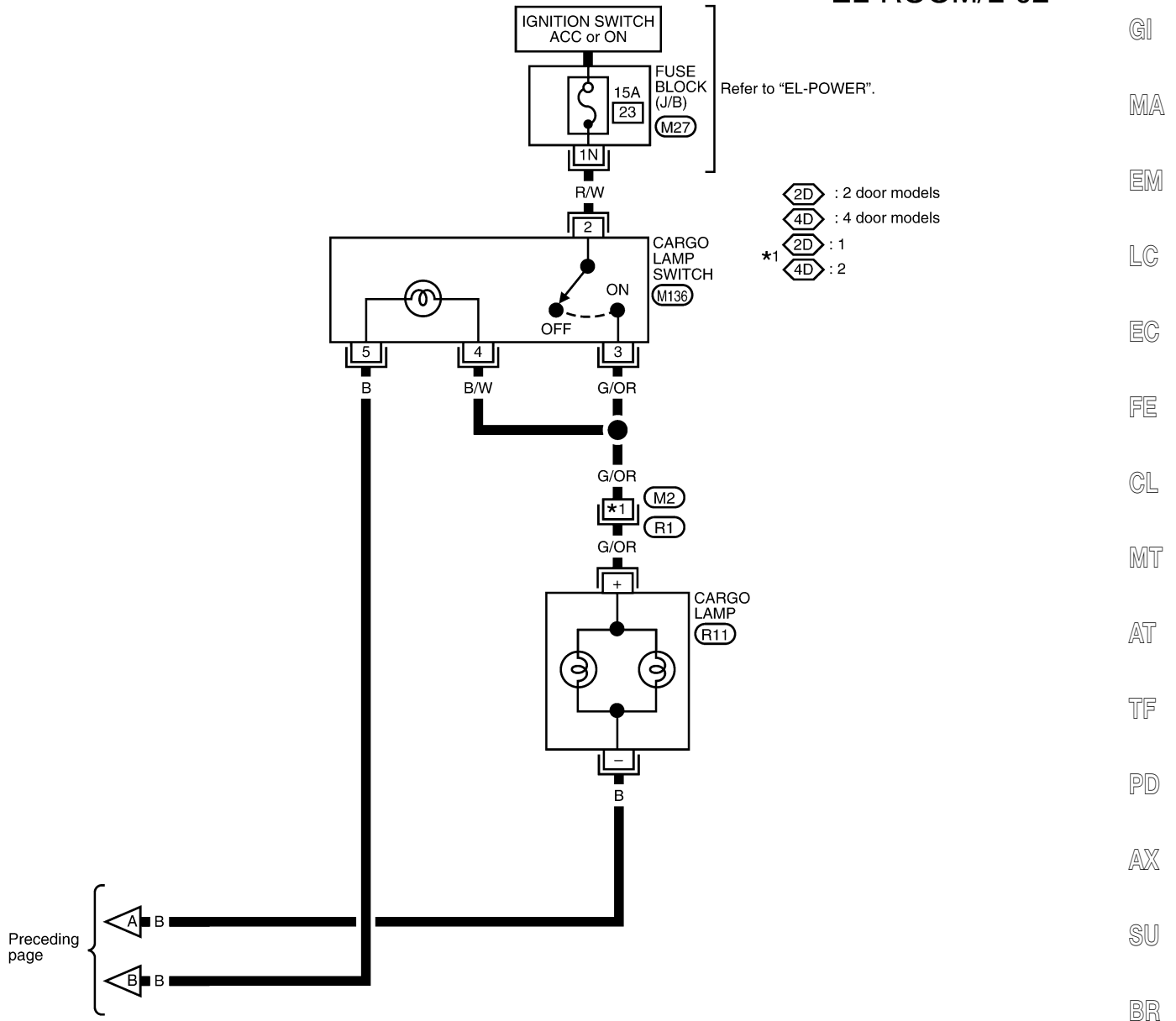


WEL727A

INTERIOR ROOM LAMP

Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-02



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INTERIOR ROOM LAMP

Wiring Diagram — ROOM/L — (Cont'd)

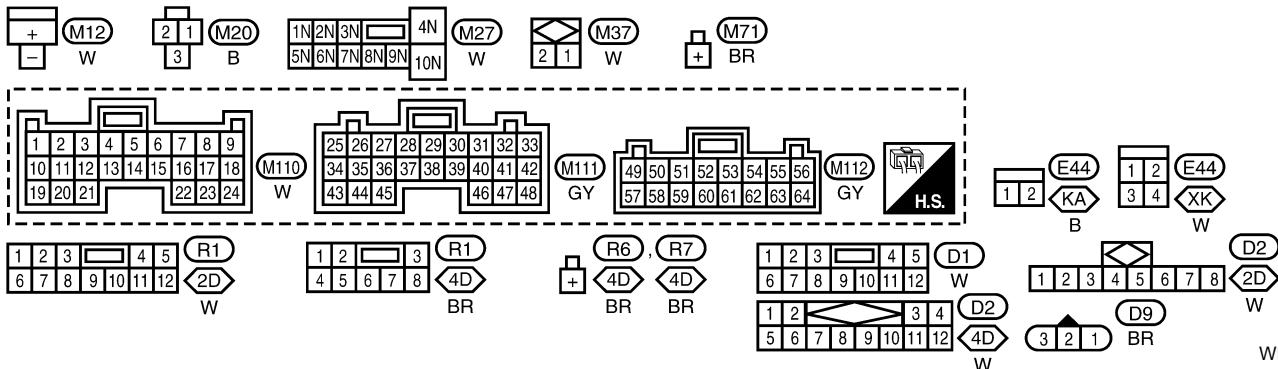
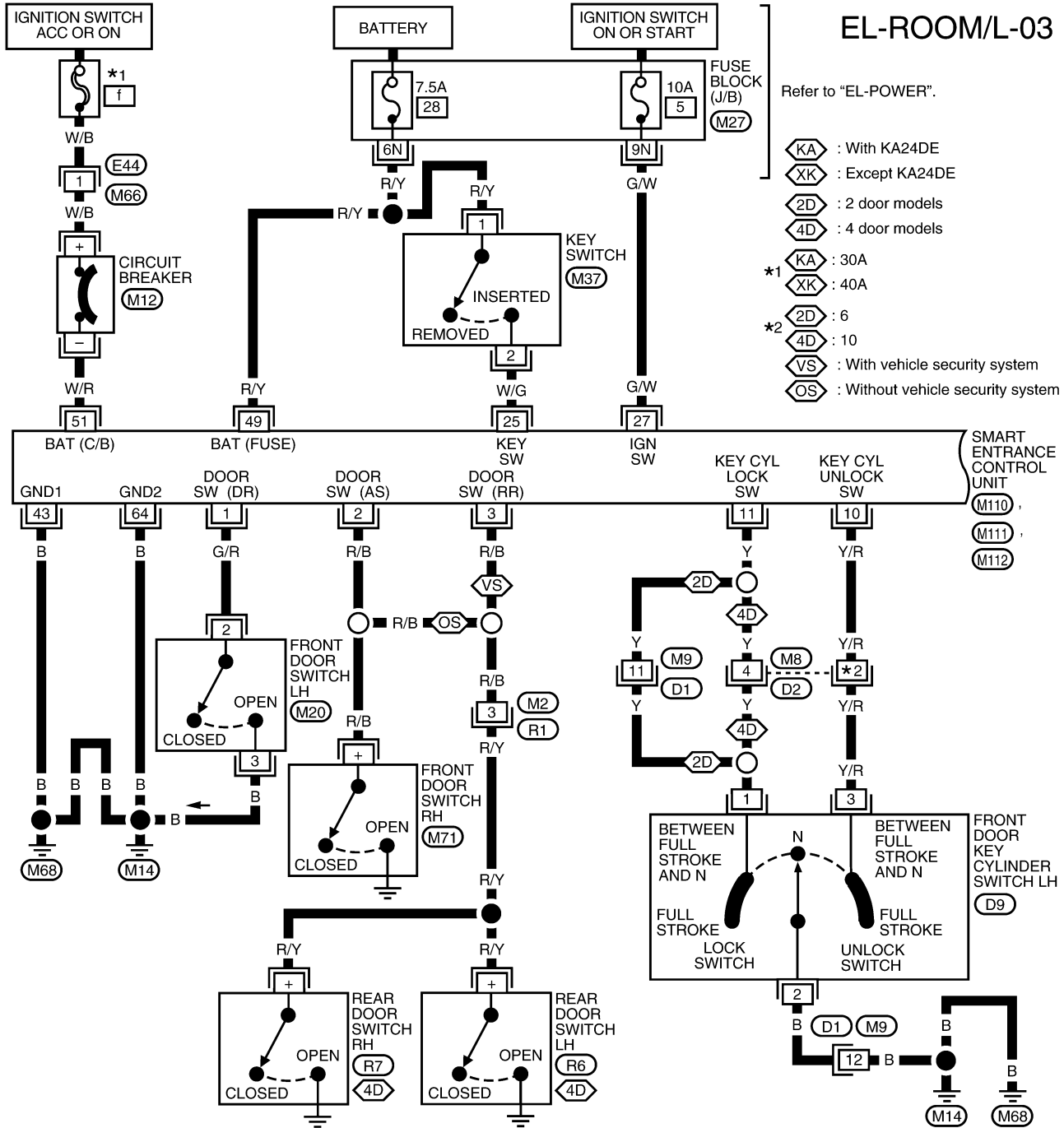
MODELS WITH POWER DOOR LOCKS

NEEL0040S02

EL-ROOM/L-03

Refer to "EL-POWER".

- ⊠ KA : With KA24DE
- ⊠ XK : Except KA24DE
- ⊠ 2D : 2 door models
- ⊠ 4D : 4 door models
- *1 ⊠ KA : 30A
- *1 ⊠ XK : 40A
- *2 ⊠ 2D : 6
- *2 ⊠ 4D : 10
- ⊠ VS : With vehicle security system
- ⊠ OS : Without vehicle security system

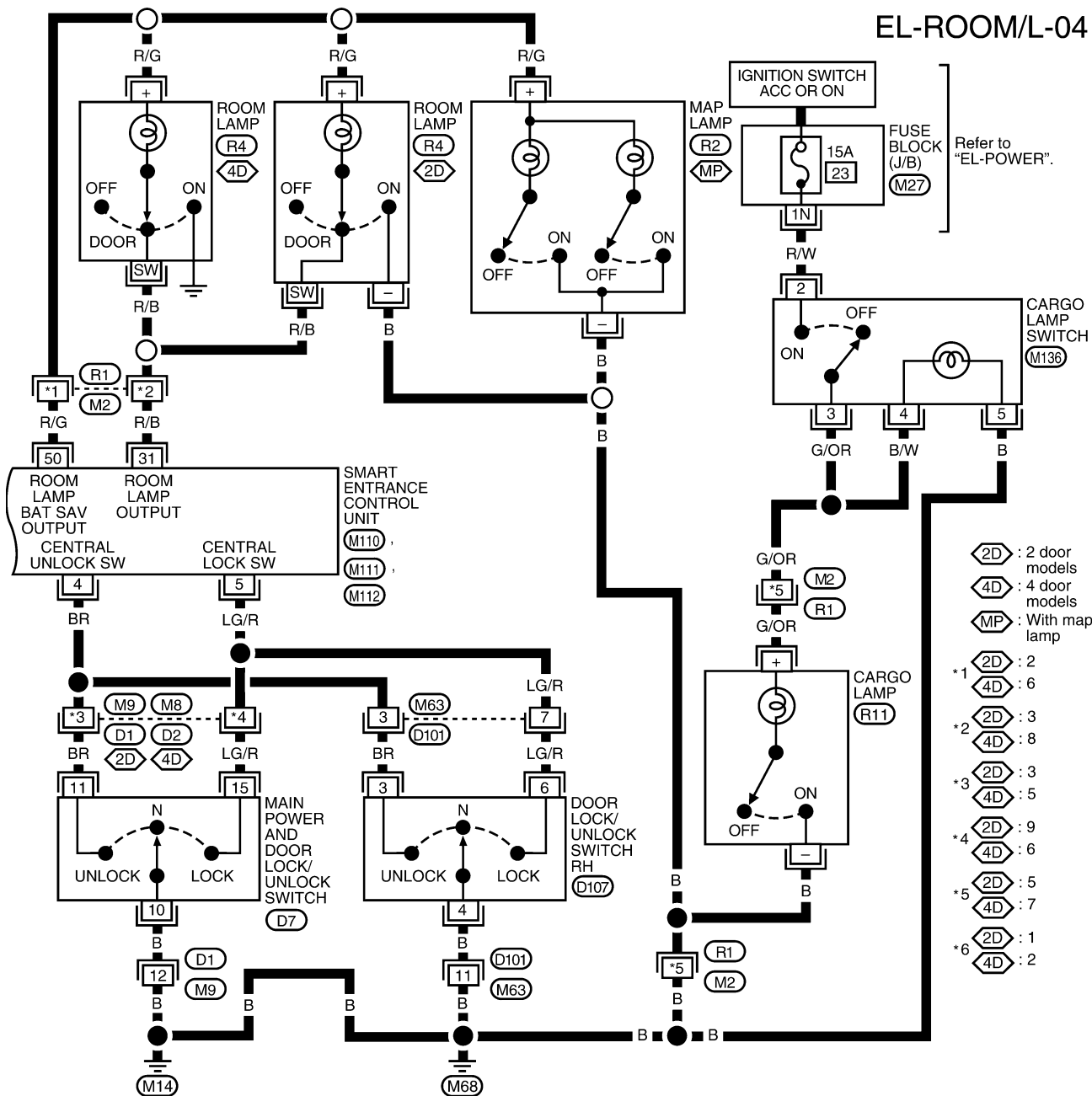


WEL096B

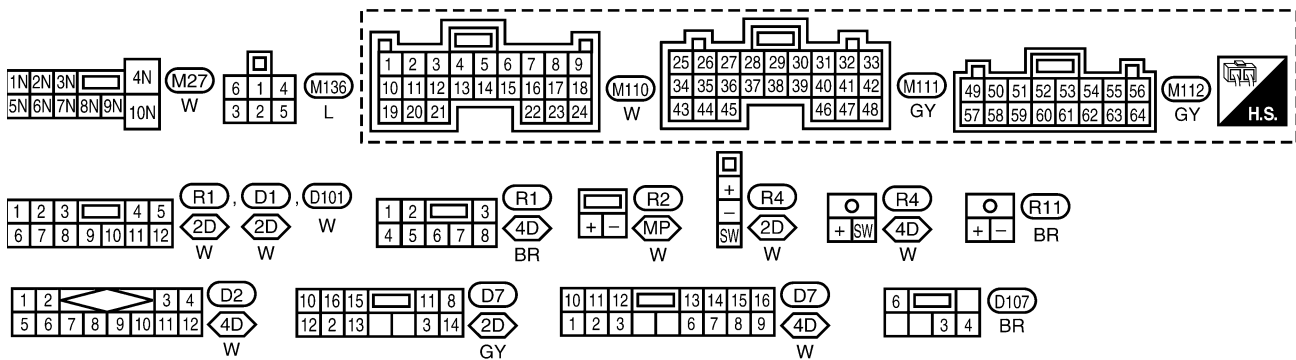
INTERIOR ROOM LAMP

Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-04



- ⬡ 2D : 2 door models
- ⬡ 4D : 4 door models
- ⬡ MP : With map lamp
- *1 ⬡ 2D : 2
- ⬡ 4D : 6
- *2 ⬡ 2D : 3
- ⬡ 4D : 8
- *3 ⬡ 2D : 3
- ⬡ 4D : 5
- *4 ⬡ 2D : 9
- ⬡ 4D : 6
- *5 ⬡ 2D : 5
- ⬡ 4D : 7
- *6 ⬡ 2D : 1
- ⬡ 4D : 2



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INTERIOR ROOM LAMP

Trouble Diagnosis

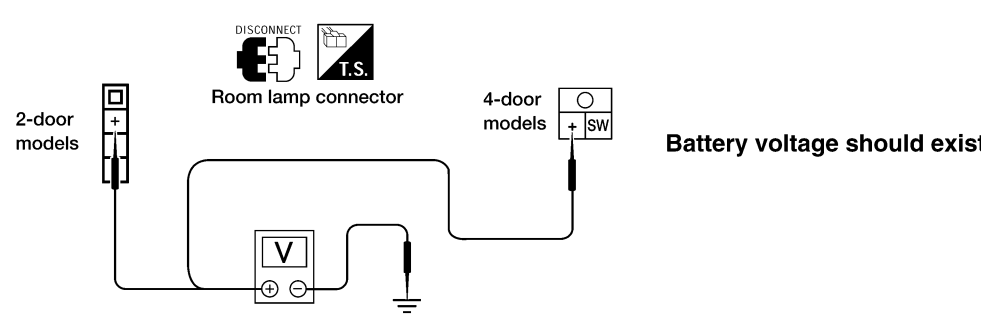
Trouble Diagnosis

NEEL0225

SYMPTOM: Room lamp does not turn on or off properly.

1	CHECK ROOM LAMP FUSE	
Check 7.5 A fuse [No. 26 (without power door locks), 28 (with power door locks), located in fuse block].		
OK or NG		
OK	▶	GO TO 2.
NG	▶	Replace fuse and check harness for short between fuse and room lamp.

2	CHECK ROOM LAMP SWITCH SIGNALS	
1. Close all doors, turn ON room lamp switch. Do room lamps turn on? 2. Turn off room lamp switch. Do room lamps turn off?		
OK or NG		
OK	▶	GO TO 3.
NG	▶	Check the following. <ul style="list-style-type: none"> ● Room lamp switch ● Room lamp switch ground circuit ● Harness for open or short between room lamp switch and smart entrance control unit (models with power door locks)

3	CHECK ROOM LAMP POWER SUPPLY	
Check voltage between room lamp connector R4 terminal + (R/G) and ground.		
		
OK or NG		
OK	▶	GO TO 4.
NG	▶	Check harness for open between fuse and room lamp.

4	CHECK INTERIOR ROOM LAMP BULB	
Check interior room lamp bulb.		
OK or NG		
OK	▶	<ul style="list-style-type: none"> ● For models without power door locks, inspection end. ● For models with power door locks, GO TO 5.
NG	▶	Replace bulb.

INTERIOR ROOM LAMP

Trouble Diagnosis (Cont'd)

5	CHECK KEY SWITCH (INSERTED) AND IGNITION ON SIGNAL	
1. Insert key into ignition key cylinder. 2. Open front door LH. Does warning chime sound? 3. Turn ignition key to ON position. Does warning chime stop sounding? <p style="text-align: center;">OK or NG</p>		
OK	▶	GO TO 6.
NG	▶	Check warning chime system. Refer to "WARNING CHIME", EL-104.

6	CHECK DOOR SWITCH INPUT SIGNAL	
Unlock doors using LH door key cylinder. Do the doors unlock? <p style="text-align: center;">OK or NG</p>		
OK	▶	Replace smart entrance control unit.
NG	▶	Refer to "DOOR KEY CYLINDER SWITCH CHECK", EL-198.

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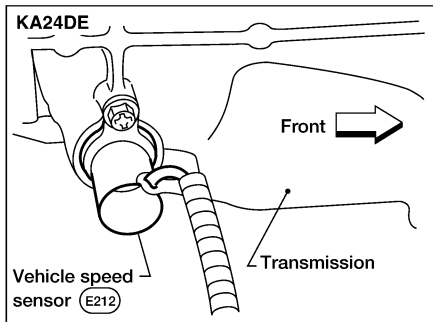
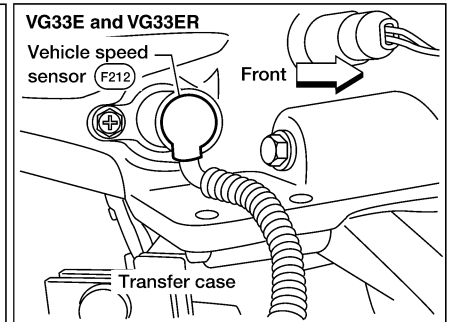
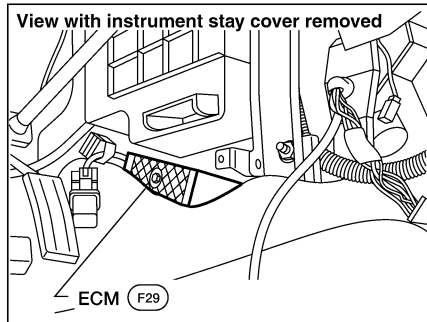
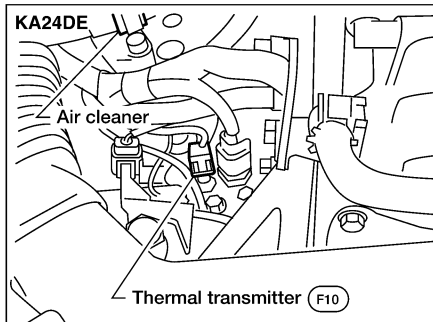
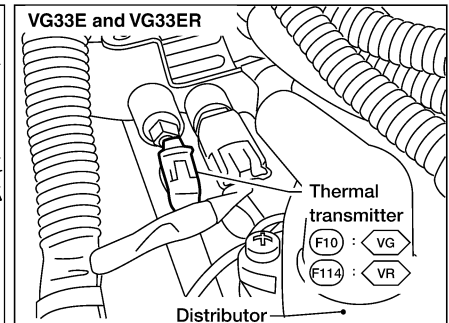
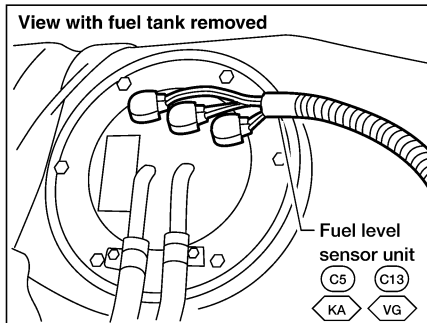
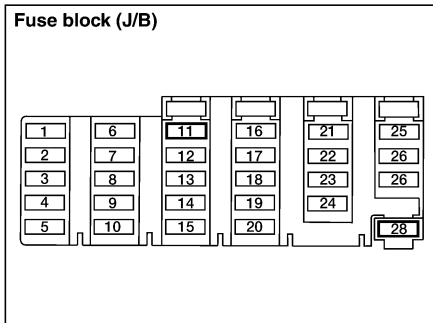
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METERS AND GAUGES

Component Parts and Harness Connector Location

Component Parts and Harness Connector Location

NEEL0041



- KA : With KA24DE
- VG : With VG33E
- VR : With VG33ER

System Description

NEEL0042

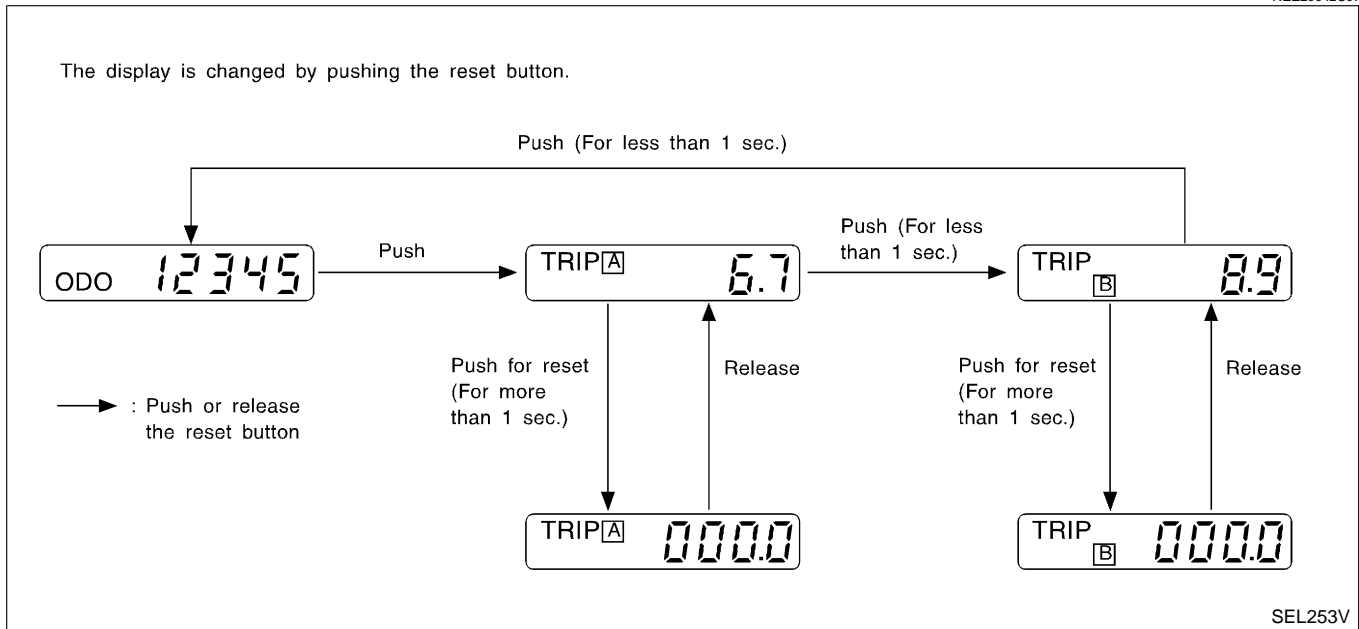
UNIFIED CONTROL METER

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 odometer 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 31.

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 32.

Ground is supplied

- to combination meter terminal 33
- 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 level sensor unit.

The fuel gauge is regulated by a variable ground signal supplied

- to combination meter terminal 47 for the fuel gauge
- through fuel level sensor unit terminal G (with VG33E and VG33ER) or 1 (with KA24DE)
- through fuel level sensor unit terminal E (with VG33E and VG33ER) or 4 (with KA24DE)
- through body grounds M14 and M68.

METERS AND GAUGES

System Description (Cont'd)

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 46
- 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 48 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 34 and 35 for the speedometer
- from vehicle speed sensor terminals 1 and 2.

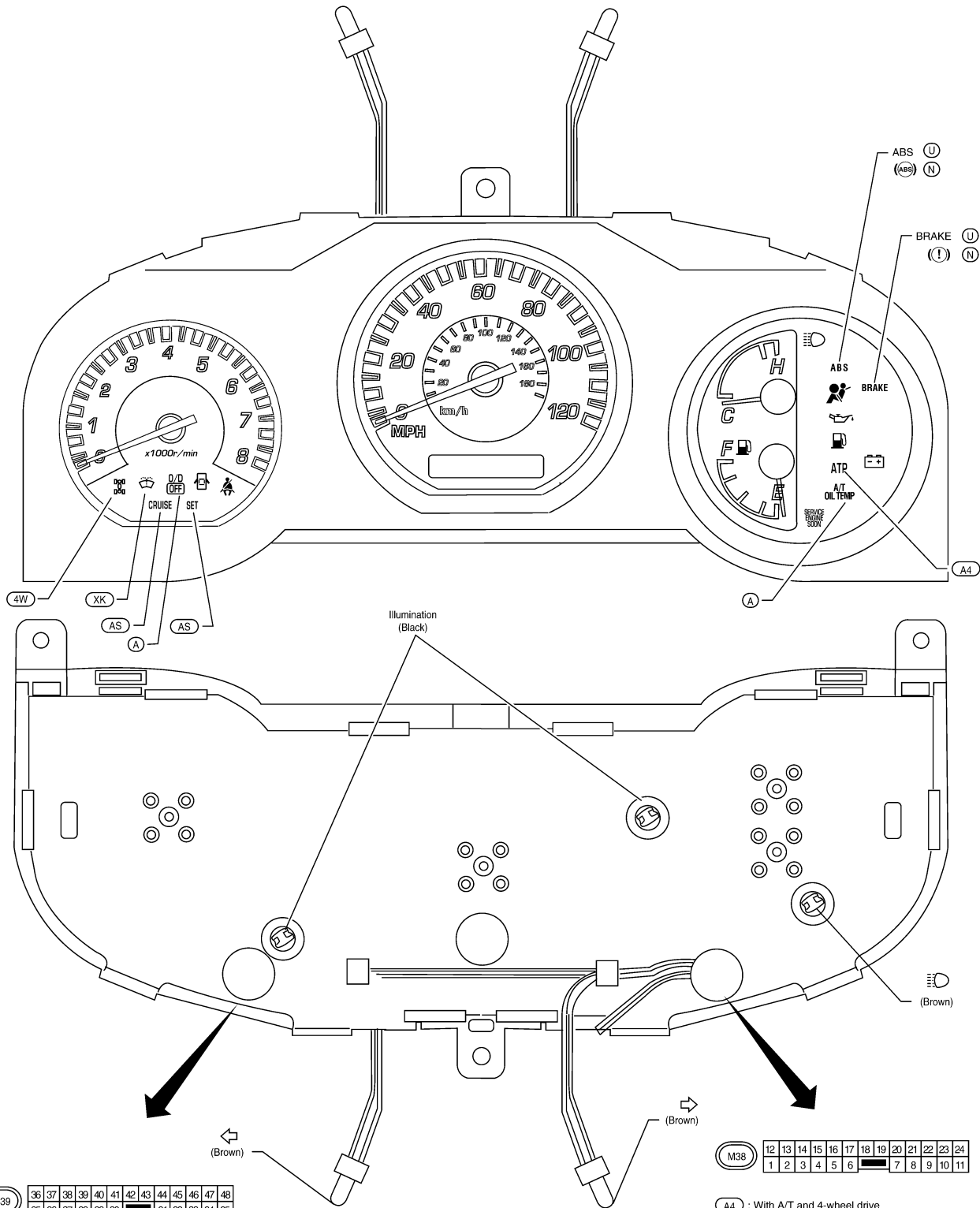
The unified meter control unit converts the voltage to the vehicle speed and displays it on the speedometer.

METERS AND GAUGES

Combination Meter

Combination Meter

NEEL0043



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M39	36	37	38	39	40	41	42	43	44	45	46	47	48
	25	26	27	28	29	30	31	32	33	34	35		

Bulb socket color	Bulb wattage
Brown	1.4 W
Black	3.0 W

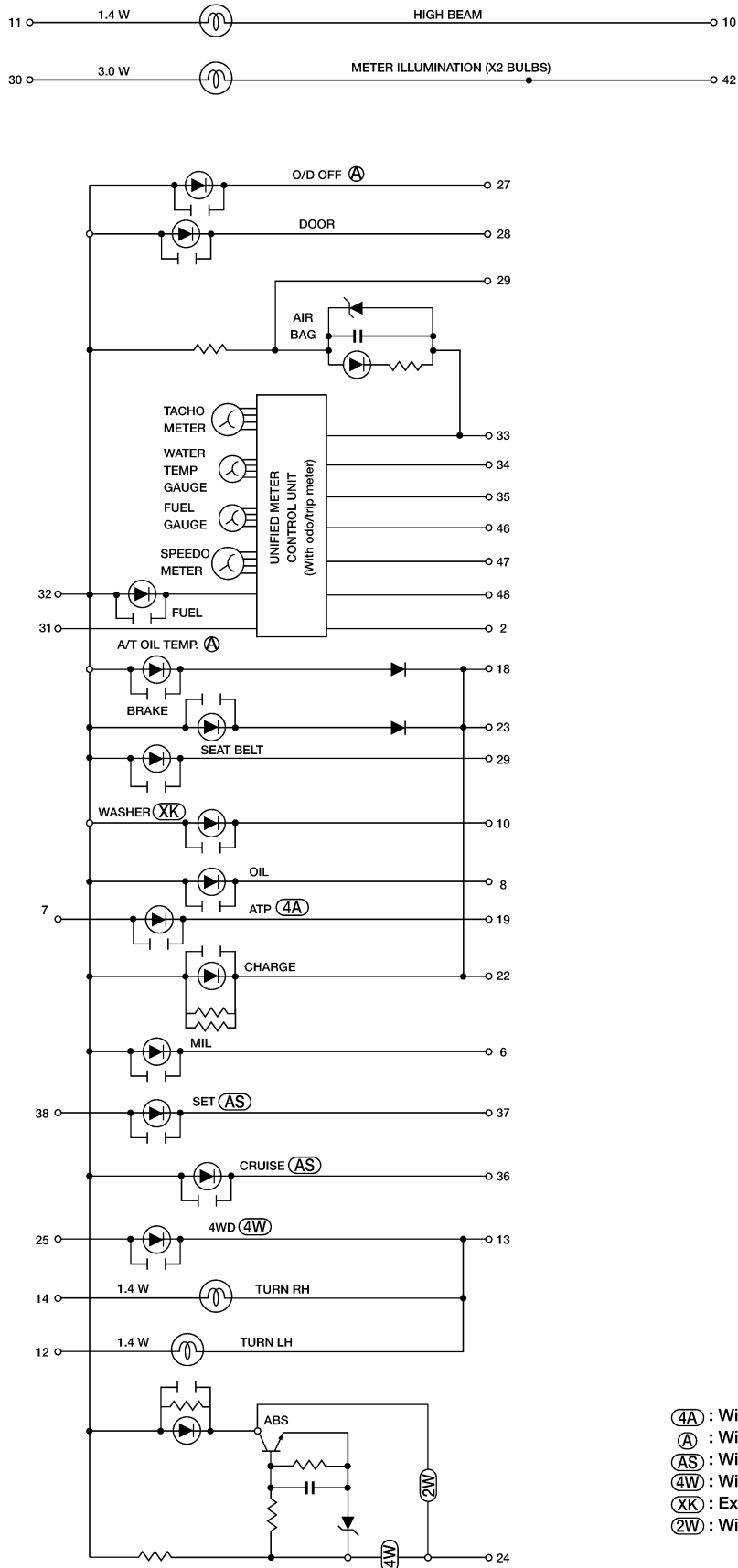
() : Bulb socket color

M38	12	13	14	15	16	17	18	19	20	21	22	23	24
	1	2	3	4	5	6	7	8	9	10	11		

- (A4) : With A/T and 4-wheel drive
- (A) : With A/T
- (N) : For Canada
- (U) : For USA
- (AS) : With ASCD
- (4W) : With 4-wheel drive
- (XK) : Except with KA24DE engine

METERS AND GAUGES

Combination Meter (Cont'd)



- (4A) : With A/T and 4-wheel drive
- (A) : With A/T
- (AS) : With ASCD
- (4W) : With 4-wheel drive
- (XK) : Except KA24DE
- (2W) : With 2-wheel drive

WEL097B

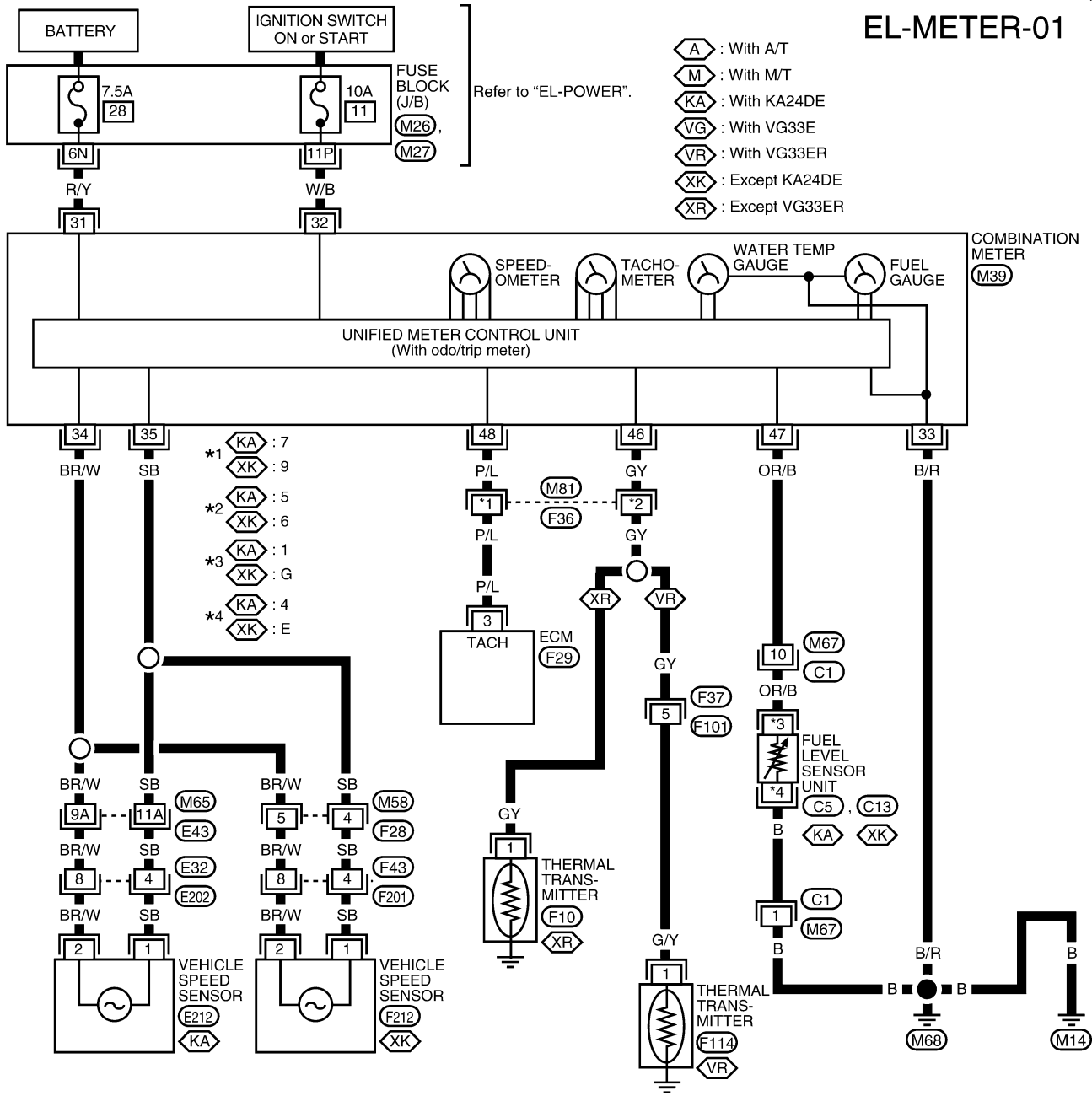
METERS AND GAUGES

Wiring Diagram — METER —

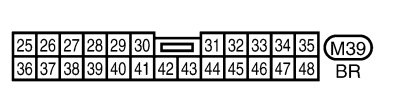
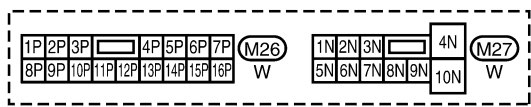
Wiring Diagram — METER —

NEEL0045

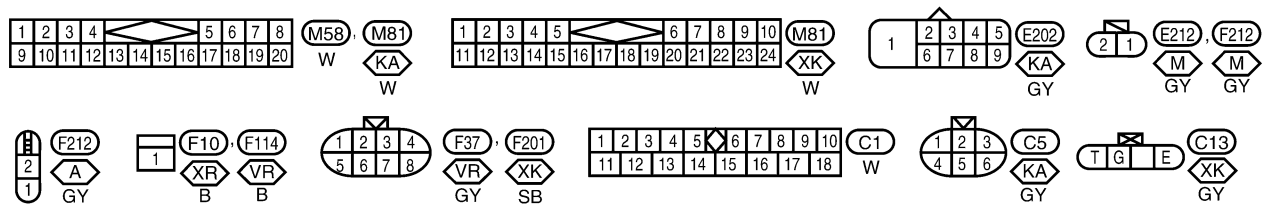
EL-METER-01



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HA
SC



Refer to the following.
 (M65), (E43) - SUPER
 MULTIPLE JUNCTION (SMJ)
 (F29) - ELECTRICAL UNITS



METERS AND GAUGES

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

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

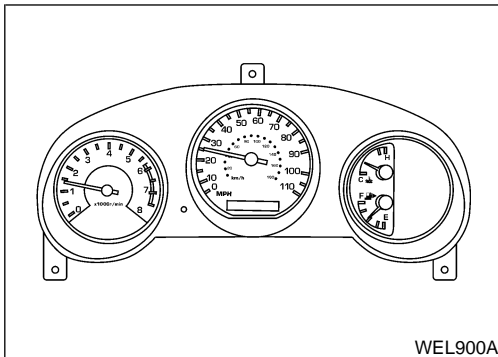
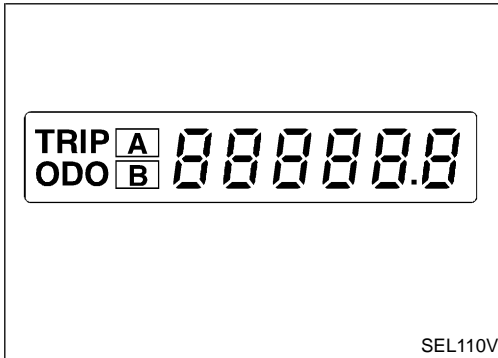
NEEL0151S02

1. Turn ignition switch ON, while pressing and holding the trip reset switch for 0.8 second.
2. Push trip reset switch 3 times within 7 seconds.
3. 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.



4. 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 PRELIMINARY CHECK

NEEL0046

NEEL0046S04

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WEL835A

BT

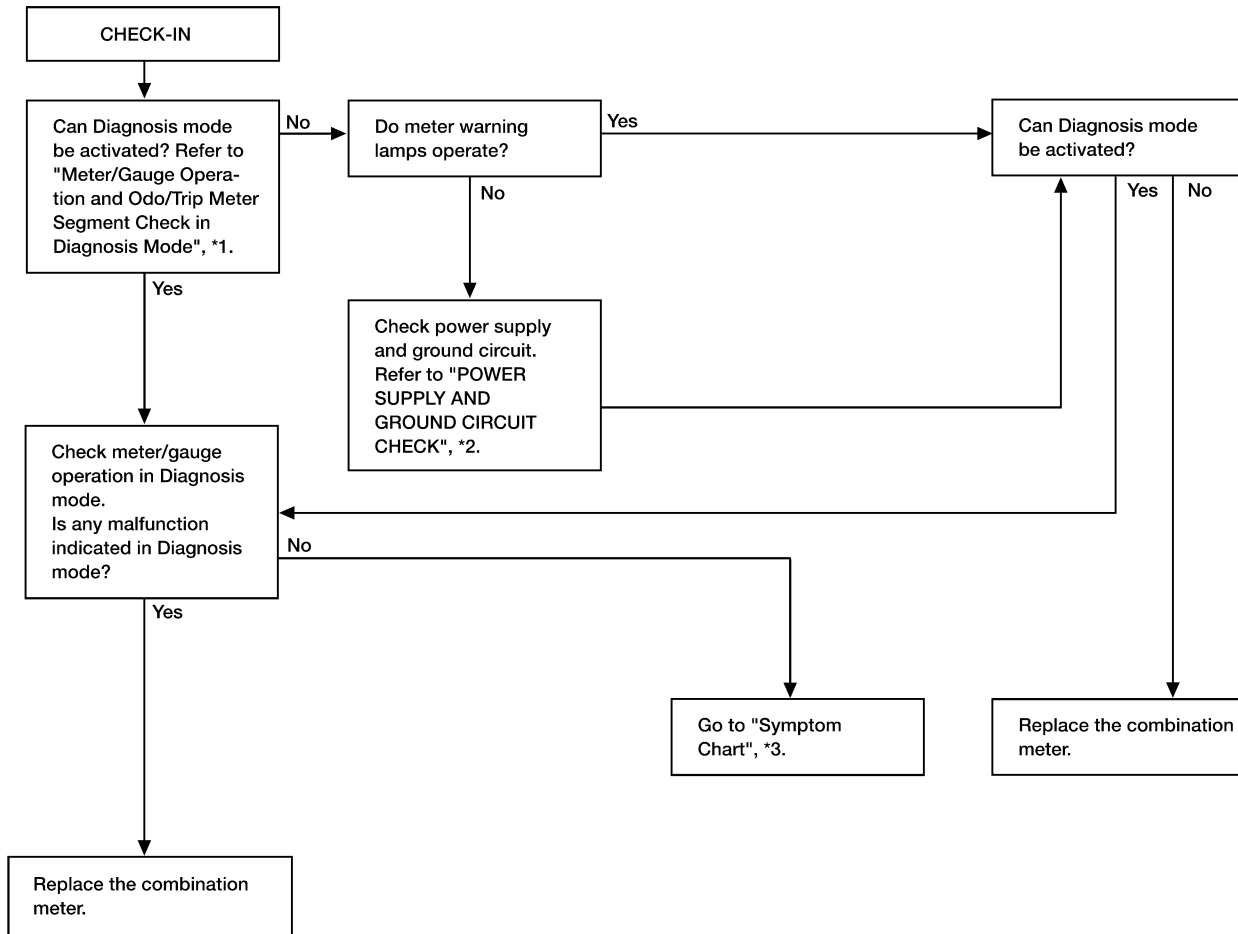
HA

NEEL0046S05

SC

EL

IDX



*1: EL-80

*2: EL-83

*3: EL-81

SYMPTOM CHART

Symptom	Possible causes	Repair order
Speedometer and odo/trip meter are malfunctioning.	<ol style="list-style-type: none"> Signal <ul style="list-style-type: none"> Speedometer and odo/trip meter Unified meter control unit 	<ol style="list-style-type: none"> Check vehicle speed sensor. Refer to "INSPECTION/VEHICLE SPEED SENSOR", EL-84. Replace combination meter.

METERS AND GAUGES

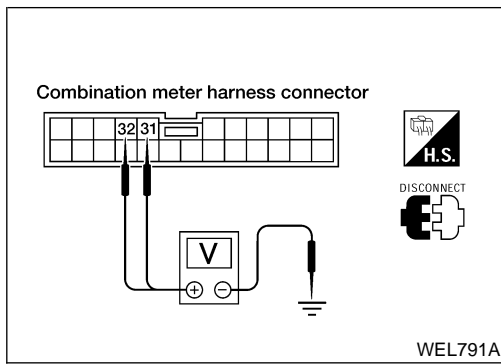
Trouble Diagnoses (Cont'd)

Symptom	Possible causes	Repair order
Multiple meters/gauges (except speedometer and odo/trip meter) are malfunctioning.	<ul style="list-style-type: none"> ● Unified meter control unit 	<ul style="list-style-type: none"> ● Replace combination meter.
Tachometer, fuel gauge, or water temp. gauge is malfunctioning.	<ol style="list-style-type: none"> 1. Sensor <ul style="list-style-type: none"> – Engine revolution signal – Fuel gauge – Water temp. gauge 2. Unified meter control unit 	<ol style="list-style-type: none"> 1. Check the sensor for malfunctioning meter/gauge. Refer to "INSPECTION/ENGINE REVOLUTION SIGNAL", EL-85. Refer to "INSPECTION/FUEL LEVEL SENSOR UNIT", EL-86. Refer to "INSPECTION/THERMAL TRANSMITTER", EL-87. 2. Replace combination meter.

Before starting trouble diagnoses above, perform "PRELIMINARY CHECK", EL-81.

METERS AND GAUGES

Trouble Diagnoses (Cont'd)



POWER SUPPLY AND GROUND CIRCUIT CHECK

=NEEL0046S07

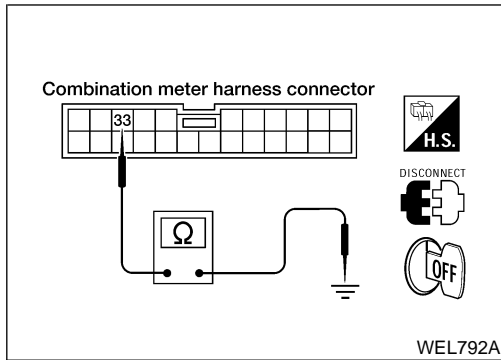
Power Supply Circuit Check

NEEL0046S0701

Terminals		(-)	Ignition switch position		
(+)			OFF	ACC	ON
Connector	Terminal (Wire color)	Ground			
M39	31 (R/Y)			Battery voltage	Battery voltage
M39	32 (W/B)		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
(+)			
Connector	Terminal (Wire color)		
M39	33 (B/R)	Ground	Yes

GI

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METERS AND GAUGES

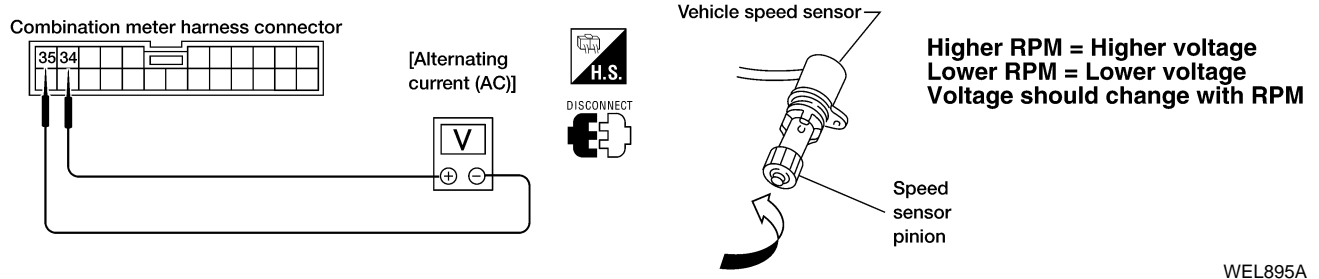
Trouble Diagnoses (Cont'd)

INSPECTION/VEHICLE SPEED SENSOR

=NEEL0046S03

1 CHECK VEHICLE SPEED SENSOR OUTPUT

1. Remove vehicle speed sensor from transmission.
2. Check voltage between combination meter harness connector M39 terminals 34 (BR/W) and 35 (SB) while quickly turning vehicle speed sensor pinion.

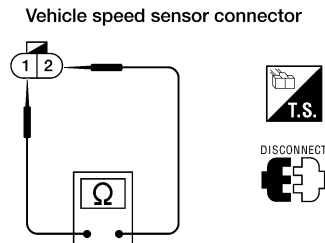


OK or NG

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

2 CHECK VEHICLE SPEED SENSOR

Check resistance between vehicle speed sensor connector E212 (KA24DE), F212 (VG33E/VG33ER) terminals 1 and 2.



Resistance: Approx. 285Ω

OK or NG

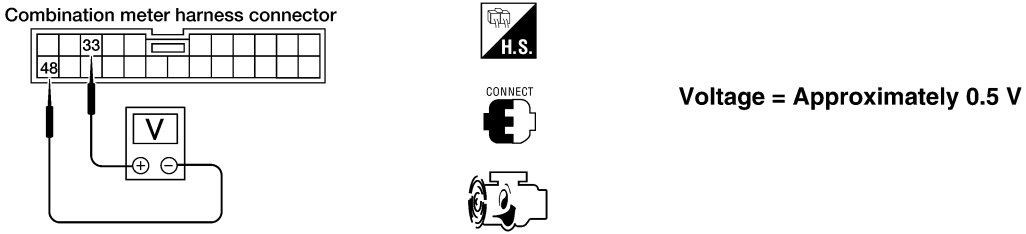
OK	▶	Check harness and connector between speedometer and vehicle speed sensor.
NG	▶	Replace vehicle speed sensor.

METERS AND GAUGES

Trouble Diagnoses (Cont'd)

INSPECTION/ENGINE REVOLUTION SIGNAL

NEEL0046S02

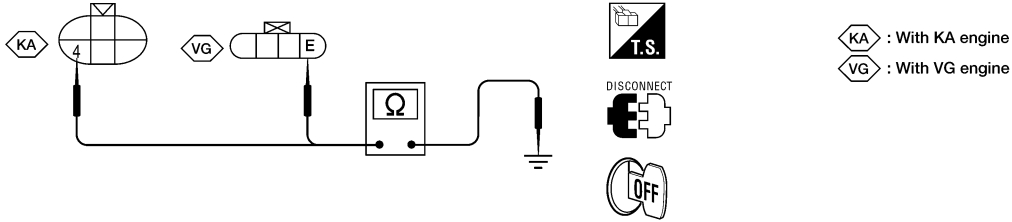
1	CHECK ECM OUTPUT		
<ol style="list-style-type: none"> 1. Start engine. 2. Check voltage between combination meter harness connector M39 terminals 48 (P/L) and 33 (B/R) at idle and 2,000 rpm. 		 <p style="text-align: center;">Voltage = Approximately 0.5 V</p>	<p>GI</p> <p>MA</p> <p>EM</p> <p>LC</p> <p>EC</p> <p>FE</p> <p>WEL896A</p>
OK or NG			
OK	▶	Engine revolution signal is OK.	<p>CL</p> <p>MT</p> <p>AT</p> <p>TF</p> <p>PD</p> <p>AX</p> <p>SU</p> <p>BR</p> <p>ST</p> <p>RS</p> <p>BT</p> <p>HA</p> <p>SC</p>
NG	▶	Harness for open or short between ECM and combination meter	<p>EL</p> <p>IDX</p>

METERS AND GAUGES

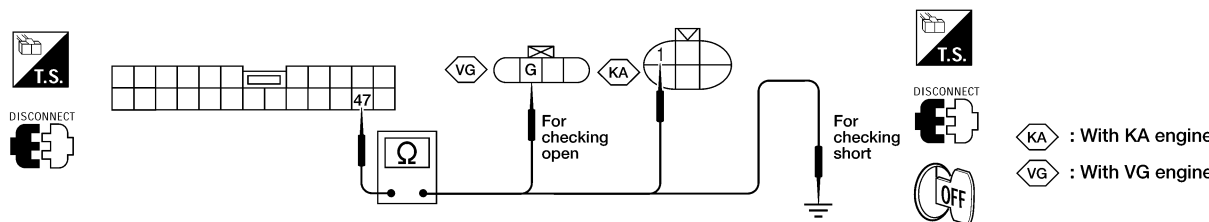
Trouble Diagnoses (Cont'd)

INSPECTION/FUEL LEVEL SENSOR UNIT

=NEEL0046S08

1	CHECK GROUND CIRCUIT FOR FUEL LEVEL SENSOR UNIT	
<p>With VG33E and VG33ER: Check harness continuity between fuel level sensor unit harness connector C13 terminal E (B) and ground. With KA24DE: Check harness continuity between fuel level sensor unit harness connector C5 terminal 4 (B) and ground.</p>		
<p>Fuel level sensor unit harness connector</p>  <p style="text-align: right;">LEL364A</p>		
Does continuity exist?		
Yes	▶	GO TO 2.
No	▶	Repair harness or connector.

2	CHECK GAUGE UNITS	
Refer to "FUEL LEVEL SENSOR UNIT CHECK", EL-87.		
OK or NG		
OK	▶	GO TO 3.
NG	▶	Replace fuel level sensor unit.

3	CHECK HARNESS FOR OPEN OR SHORT	
<p>1. Disconnect combination meter harness connector M39, ECM harness connector F29, and fuel level sensor unit harness connector.</p> <p>2. With VG33E and VG33ER: Check continuity between combination meter harness connector M39, terminal 47 (OR/B) and fuel level sensor unit harness connector C13 terminal G (OR/B). With KA24DE: Check continuity between combination meter harness connector M39, terminal 47 (OR/B) and fuel level sensor unit harness connector C5 terminal 1 (OR/B). Continuity should exist.</p> <p>3. Check continuity between combination meter harness connector M39, terminal 47 (OR/B) and ground. Continuity should not exist.</p>		
<p>Combination meter harness connector Fuel level sensor unit harness connector</p>  <p style="text-align: right;">WEL815A</p>		
OK or NG		
OK	▶	Fuel level sensor unit is OK.
NG	▶	Repair harness or connector.

METERS AND GAUGES

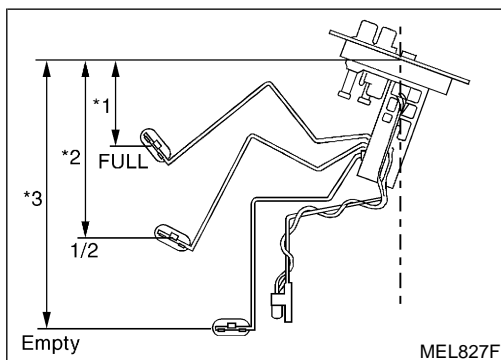
Trouble Diagnoses (Cont'd)

INSPECTION/THERMAL TRANSMITTER

NEEL0046S09

1	CHECK THERMAL TRANSMITTER
Refer to "THERMAL TRANSMITTER CHECK", EL-88.	
OK or NG	
OK	▶ GO TO 2.
NG	▶ Replace thermal transmitter.

2	CHECK HARNESS FOR OPEN OR SHORT
<p>1. Disconnect combination meter harness connector and thermal transmitter harness connector.</p> <p>2. Check continuity between combination meter harness connector M39 terminal 46 (GY) and thermal transmitter harness connector F10 (except VG33ER) terminal 1 (GY) or F114 (with VG33ER) terminal 1 (G/Y). Continuity should exist.</p> <p>3. Check continuity between combination meter harness connector M39 terminal 46 and ground. Continuity should not exist.</p>	
<p>Combination meter harness connector Thermal transmitter harness connector</p>	
WEL797A	
OK or NG	
OK	▶ Thermal transmitter is OK.
NG	▶ Repair harness or connector.



Electrical Components Inspection FUEL LEVEL SENSOR UNIT CHECK

NEEL0047

NEEL0047S01

- Refer to *FE-7*, "Removal".

With KA24DE

NEEL0047S0101

Check the resistance between fuel level sensor unit terminals 1 and 4.

Ohmmeter		Float position		mm (in)	Resistance value (Ω) (Approx.)
(+)	(-)				
1	4	*1	Full	96 (3.78)	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.

With VG33E and VG33ER

NEEL0047S0102

Check the resistance between fuel level sensor unit terminals G and E.

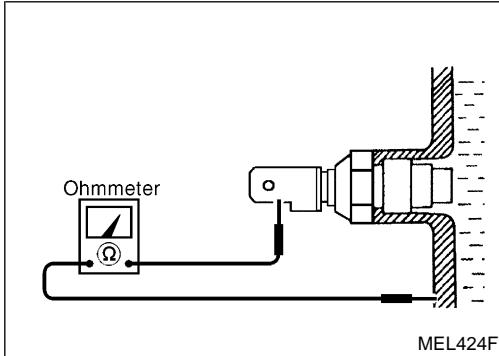
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METERS AND GAUGES

Electrical Components Inspection (Cont'd)

Ohmmeter		Float position mm (in)			Resistance value (Ω) (Approx.)
(+)	(-)				
G	E	*1	Full	96 (3.78)	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.

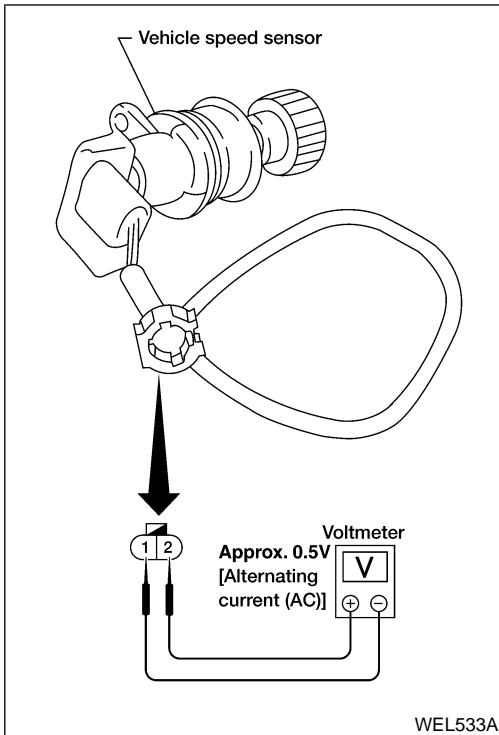


THERMAL TRANSMITTER CHECK

NEEL0047S02

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

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



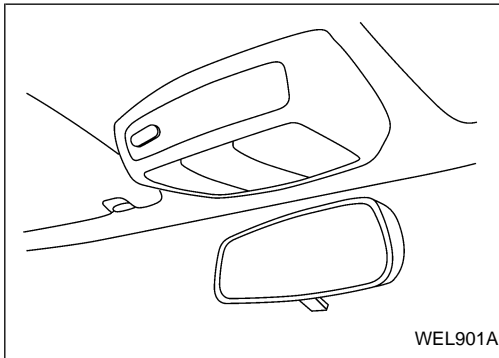
VEHICLE SPEED SENSOR SIGNAL CHECK

NEEL0047S03

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

System Description

NEEL0228



This unit displays following items:

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

OUTSIDE TEMPERATURE DISPLAY

Push the switch when the ignition is in the "ON" position. The outside temperature will be displayed in "°F".

- Selecting the indication range
Push the switch to change from "°F" to "°C".
- The indicated temperature on the thermometer is not readily affected by engine heat. It changes only when one of the following conditions is present.
 - a) The temperature detected by the ambient air temperature sensor is lower than the indicated temperature on the thermometer.
 - b) The vehicle speed is greater than 20 km/h (13 MPH).
(This is to prevent the indicated temperature from being affected by engine heat during low-speed driving.)
 - c) The ignition has been turned to the "OFF" position for more than 2 hours. (The engine is cold.)

DIRECTION DISPLAY

Push the switch when the ignition is in the "ON" position. The direction will be displayed.

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COMPASS AND THERMOMETER

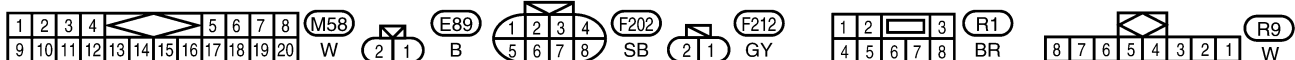
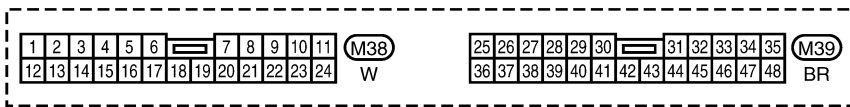
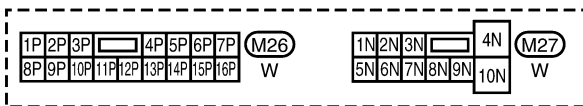
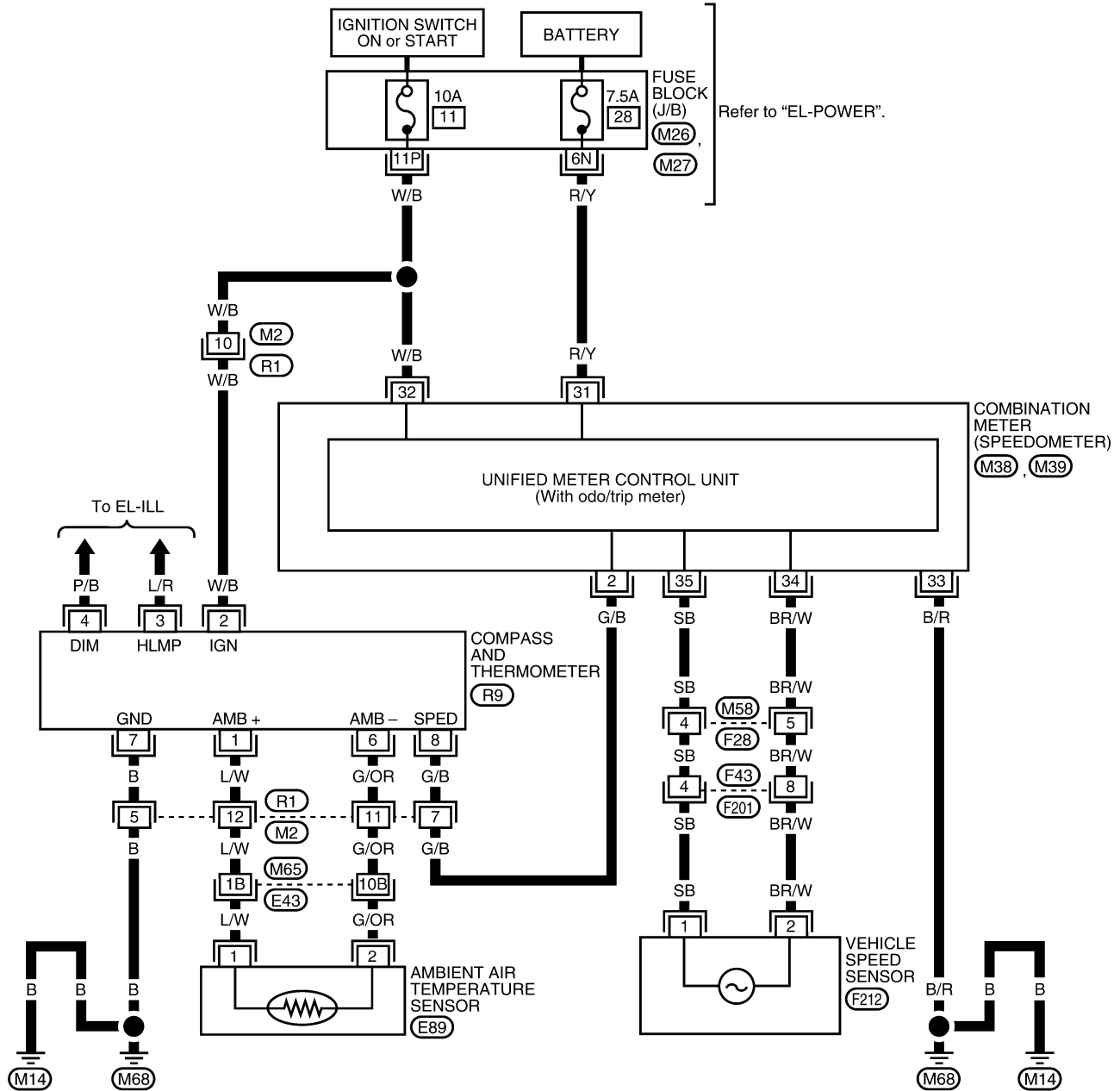
Wiring Diagram — COMPAS —

Wiring Diagram — COMPAS — KING CAB

NEEL0229

NEEL0229S01

EL-COMPAS-01



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

LEL762A

COMPASS AND THERMOMETER

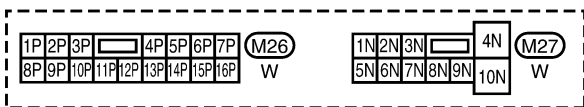
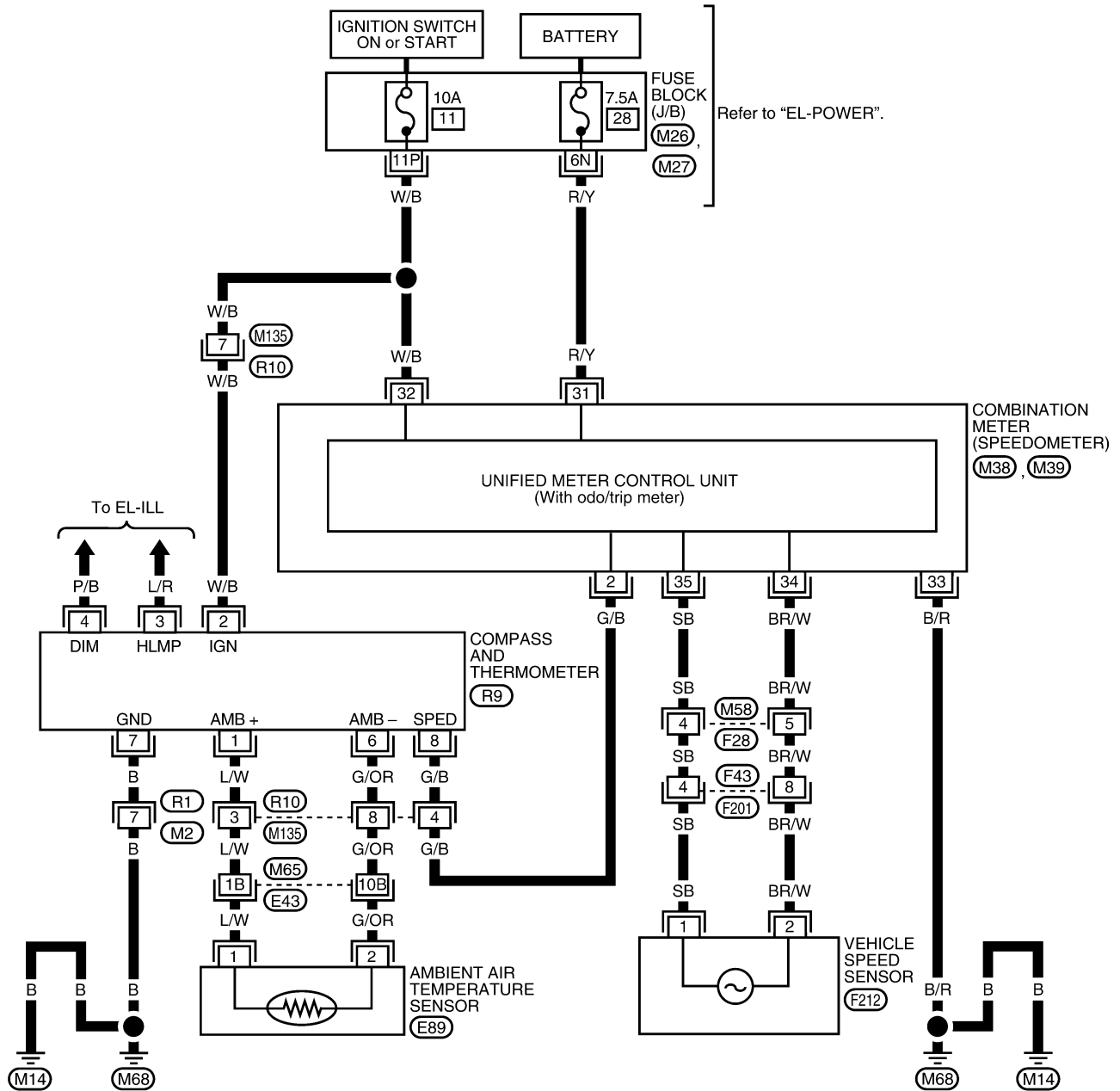
Wiring Diagram — COMPAS — (Cont'd)

CREW CAB

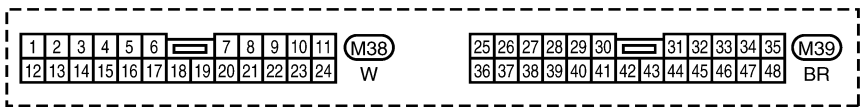
NEEL0229S02

EL-COMPAS-02

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



LEL763A

COMPASS AND THERMOMETER

Trouble Diagnoses

Trouble Diagnoses

NEEL0230

PRELIMINARY CHECK FOR THERMOMETER

NEEL0230S01

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

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

NOTE:

- The indicated temperature on the thermometer is not readily affected by engine heat. It changes only when one of the following conditions is present.
 - a) The temperature detected by the ambient air temperature sensor is lower than the indicated temperature on the thermometer.
 - b) The vehicle speed is greater than 20 km/h (13 MPH).
(This is to prevent the indicated temperature from being affected by engine heat during low-speed driving.)
 - c) The ignition key has been turned to the "OFF" position for more than 2 hours. (The engine is cold.)

INSPECTION/COMPASS AND THERMOMETER

NEEL0230S02

Symptom	Possible causes	Repair order
No display at all	1. 10A fuse 2. Ground circuit 3. Compass and thermometer	1. Check 10A fuse [No. 11, located in fuse block (J/B)]. Turn the ignition switch ON and verify that battery positive voltage is at terminal 7 of compass and thermometer. 2. Check ground circuit for compass and thermometer. 3. Replace compass and thermometer.
Forward direction indication slips off the mark or incorrect.	1. In manual correction mode (Bar and display vanish.) 2. Zone variation change is not done.	1. Drive the vehicle and turn at an angle of 90°. 2. Perform the zone variation change.
Compass reading remains unchanged.	1. Vehicle speed signal is not entered. 2. Compass and thermometer	1. Check harness for open or short between combination meter terminal 2 and compass and thermometer terminal 1. 2. Replace compass and thermometer.
Displays wrong temperature when ambient temperature is between -40°C (-40°F) and 55°C (130°F). (See NOTE above.)	1. Check operation 2. Ambient air temperature sensor circuit 3. Vehicle speed signal is not entered. 4. Ambient air temperature sensor 5. Compass and thermometer	1. Perform preliminary check shown above. 2. Check harness for open or short between ambient air temperature sensor and compass and thermometer. 3. Check harness for open or short between combination meter terminal 2 and compass and thermometer terminal 1. 4. Replace ambient air temperature sensor. 5. Replace compass and thermometer.
Displays SC or OC.	1. Ambient air temperature sensor circuit. 2. Ambient air temperature sensor. 3. Compass and thermometer.	1. Check harness for open or short between ambient air temperature sensor and compass and thermometer. 2. Replace ambient air temperature sensor. 3. Replace compass and thermometer.

COMPASS AND THERMOMETER

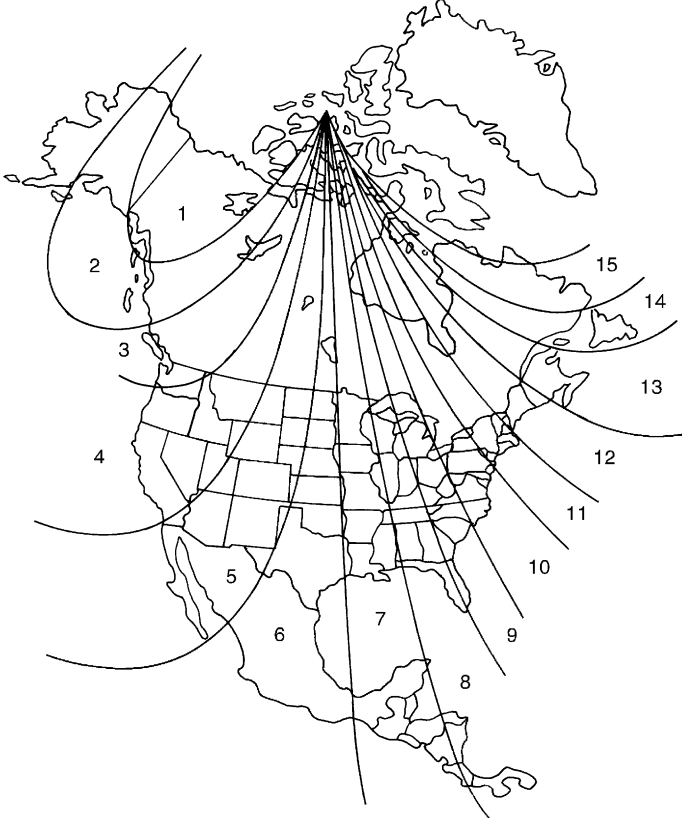
Calibration Procedure for Compass

Calibration Procedure for Compass

=NEEL0231

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

Zone Variation Chart



1. Determine your location on the zone map. Record your zone number.

2. Turn the ignition switch to the ON position.

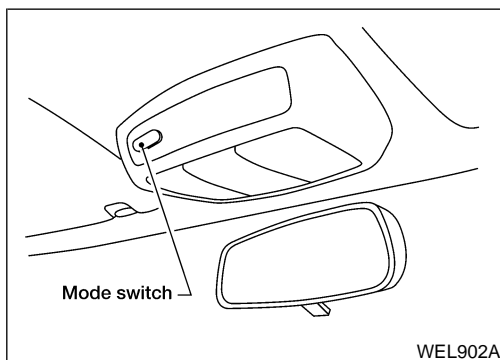
3. Push the "Mode" switch continuously for five seconds until the current zone entry number and the "VAR" icon is displayed.

4. Press the "Mode" switch repeatedly until the desired zone number is displayed.

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

NOTE: Use zone number 5 for Hawaii.

WEL859A



CORRECTION FUNCTIONS OF COMPASS

NEEL0231S01

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

INITIAL CORRECTION PROCEDURE FOR COMPASS

NEEL0231S02

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

NOTE:

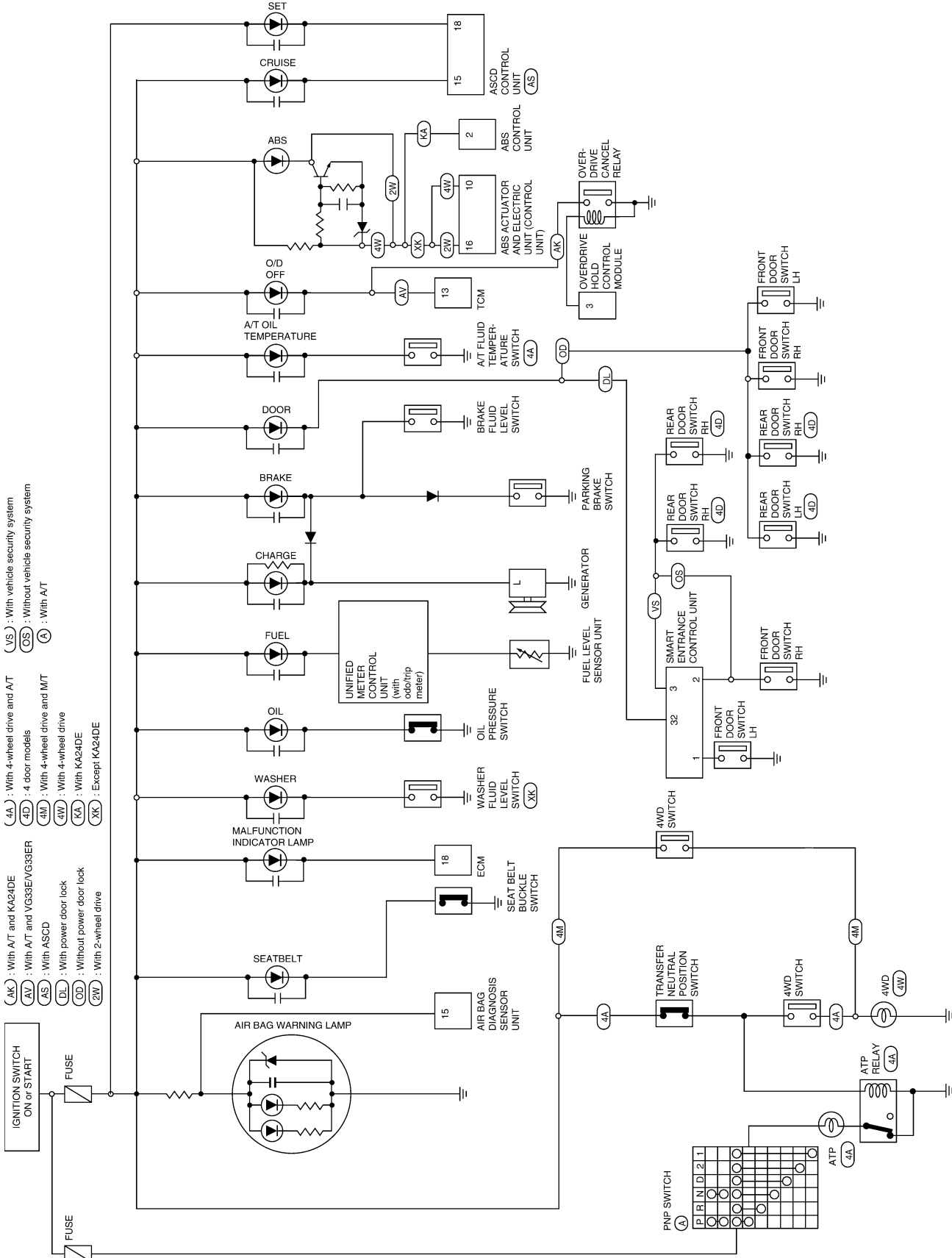
In places where the terrestrial magnetism is extremely disturbed, the initial correction may start automatically.

WARNING LAMPS

Circuit Diagram

NEEL0049

Circuit Diagram



WEL072B

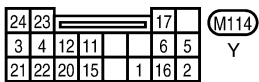
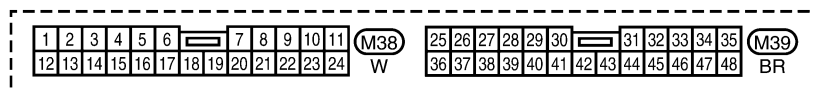
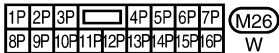
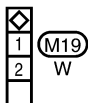
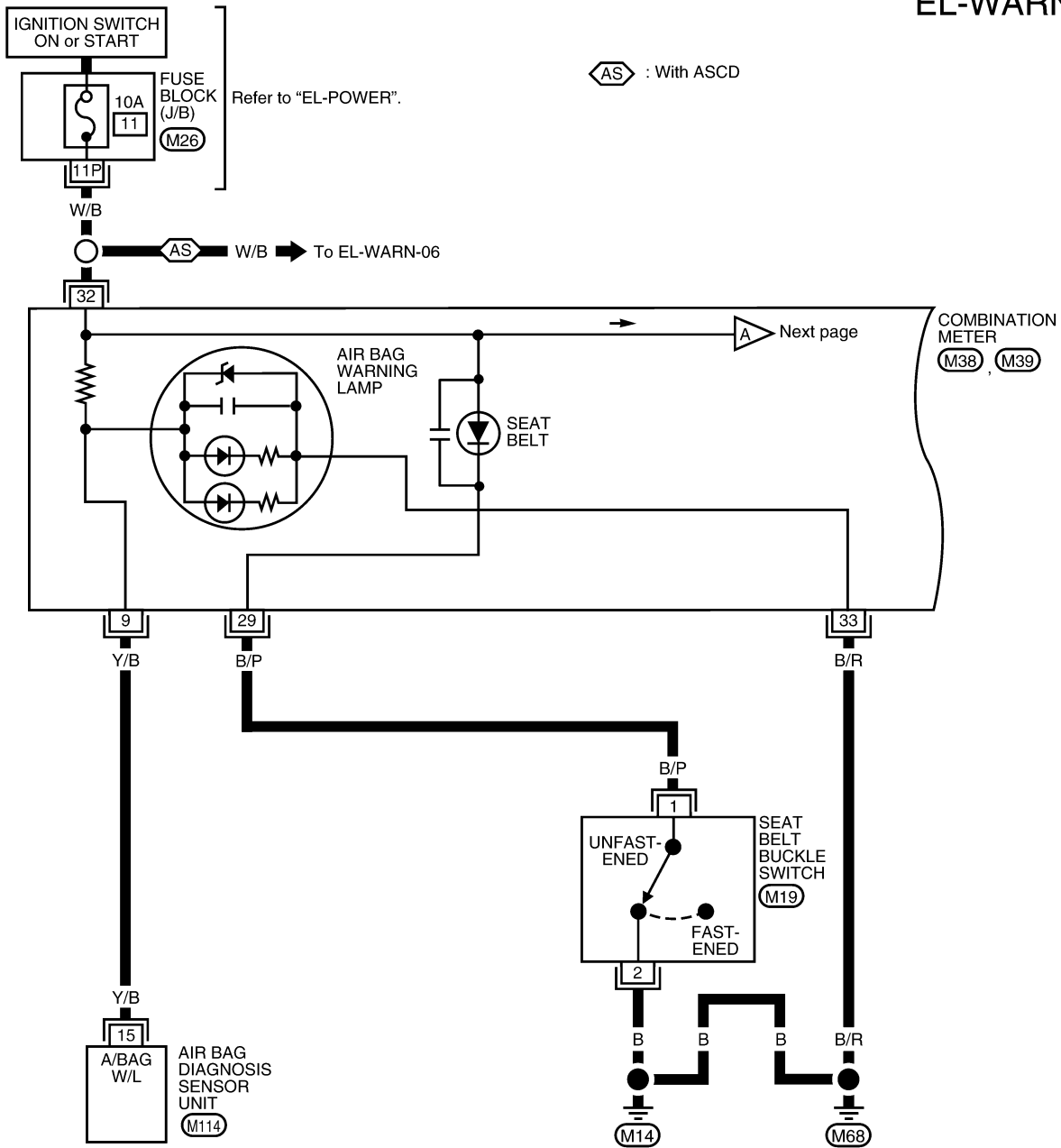
WARNING LAMPS

Wiring Diagram — WARN —

Wiring Diagram — WARN —

NEEL0050

EL-WARN-01



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WEL733A

EL

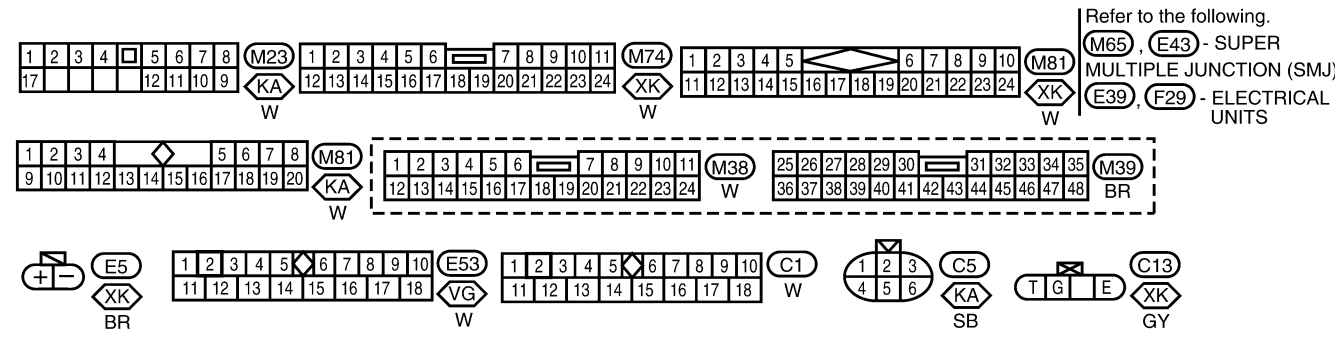
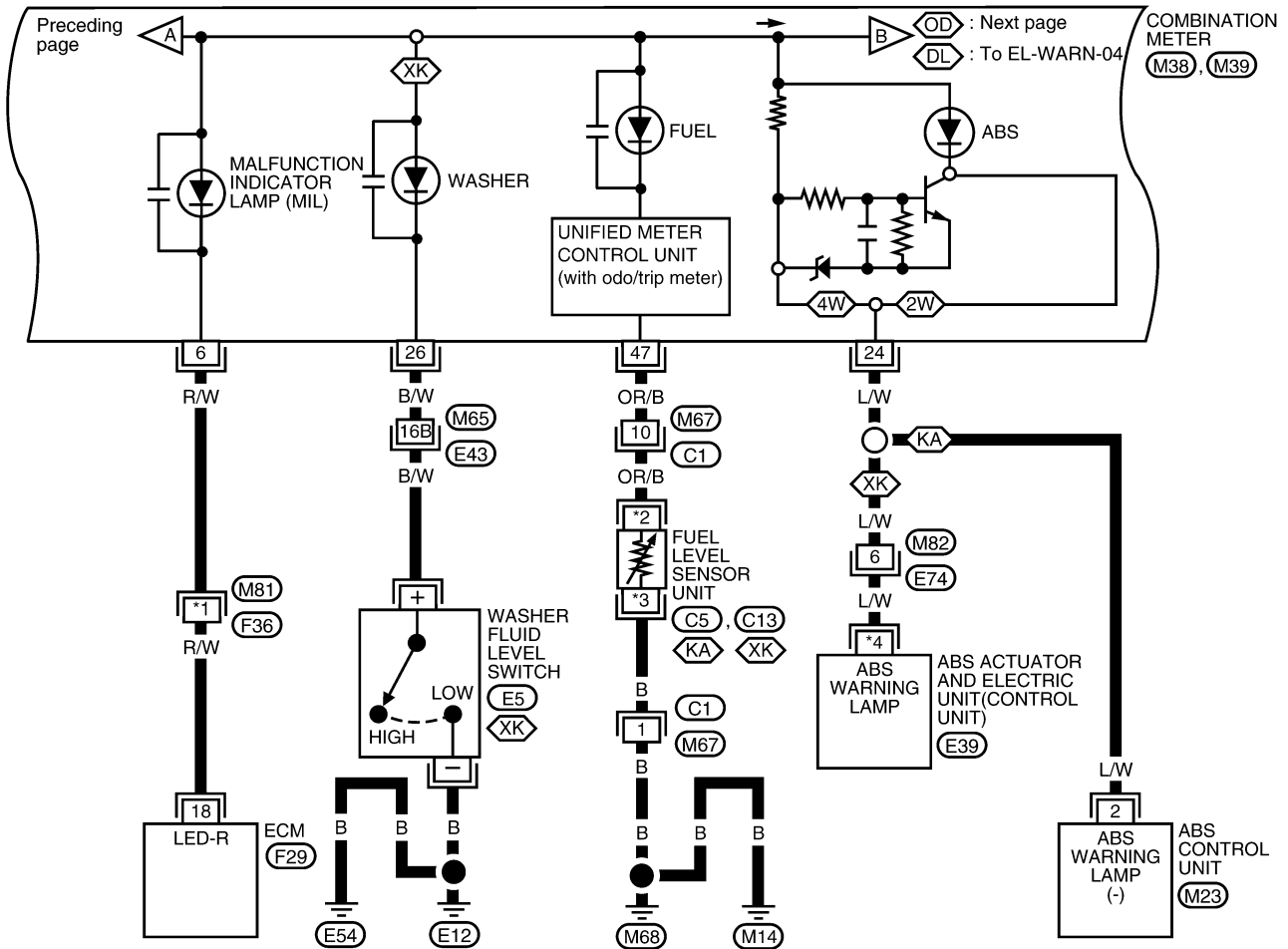
IDX

WARNING LAMPS

Wiring Diagram — WARN — (Cont'd)

EL-WARN-02

- | | | |
|--|--|--|
| <p>*1 KA : 3</p> <p> XK : 4</p> <p>*2 KA : 1</p> <p> XK : G</p> <p>*3 KA : 4</p> <p> XK : E</p> | <p>*4 2W : 10</p> <p> 4W : 16</p> | <p>XK : Except KA24DE</p> <p>KA : With KA24DE</p> <p>2W : With 2-wheel drive</p> <p>4W : With 4-wheel drive</p> <p>DL : With power door locks</p> <p>OD : Without power door locks</p> |
|--|--|--|



WEL734A

WARNING LAMPS

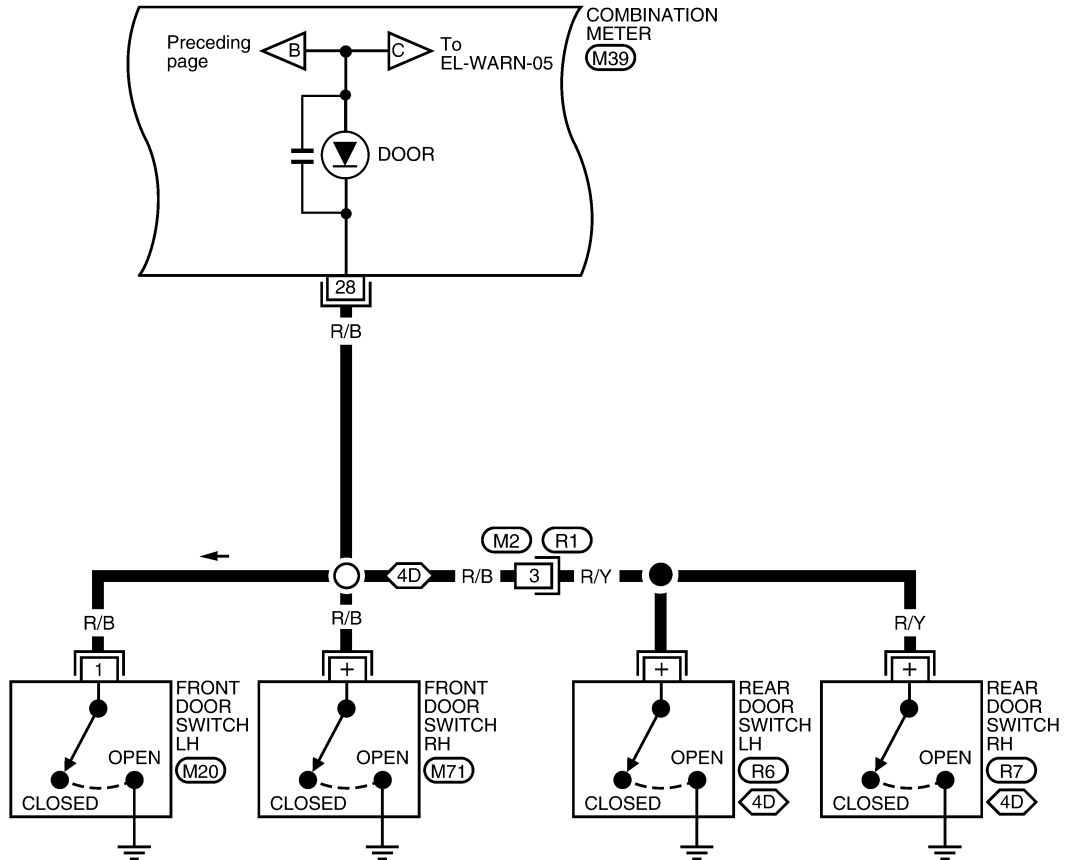
Wiring Diagram — WARN — (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

NEEL0050S01

EL-WARN-03

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



WEL735A

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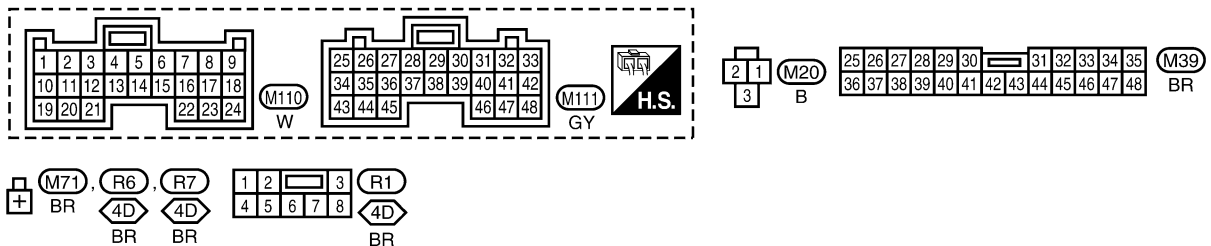
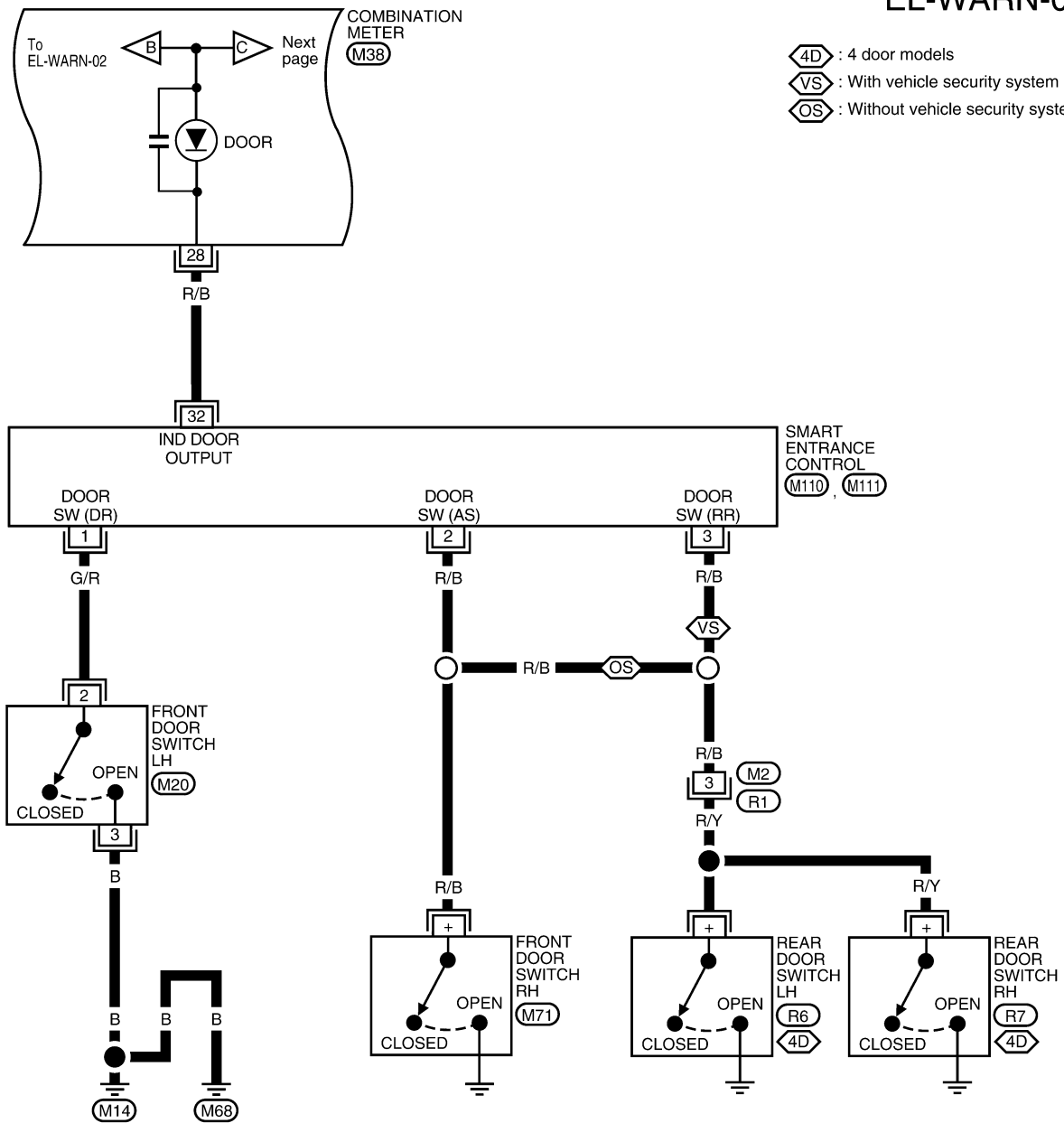
WARNING LAMPS

Wiring Diagram — WARN — (Cont'd)

MODELS WITH POWER DOOR LOCKS

NEEL0050S02

EL-WARN-04



WEL073B

WARNING LAMPS

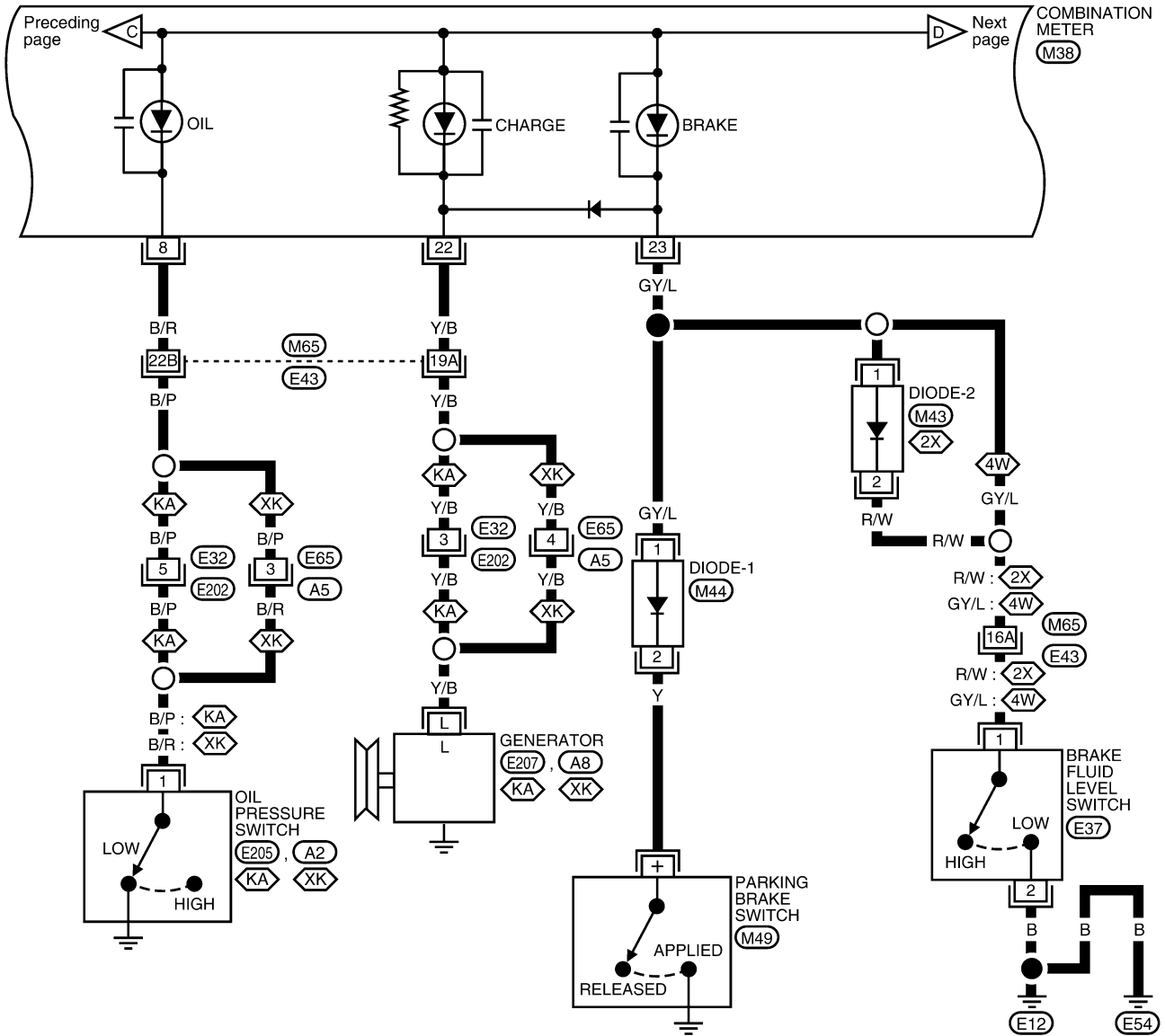
Wiring Diagram — WARN — (Cont'd)

EL-WARN-05

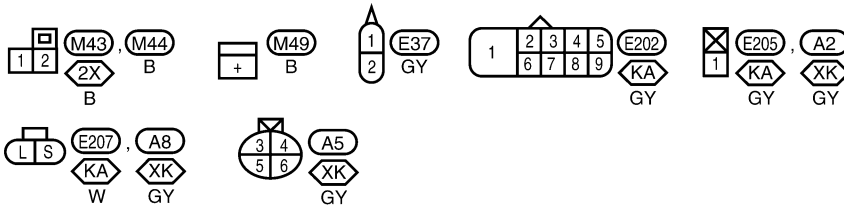
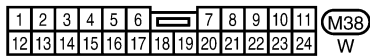
⬡KA : With KA24DE
⬡XK : Except KA24DE

⬡2X : With 2-wheel drive
except 4 door models

⬡4W : With 4-wheel drive and 4 door models and models with VG33ER engine



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

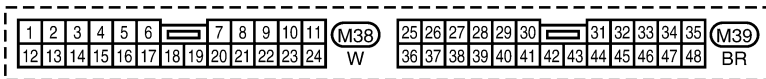
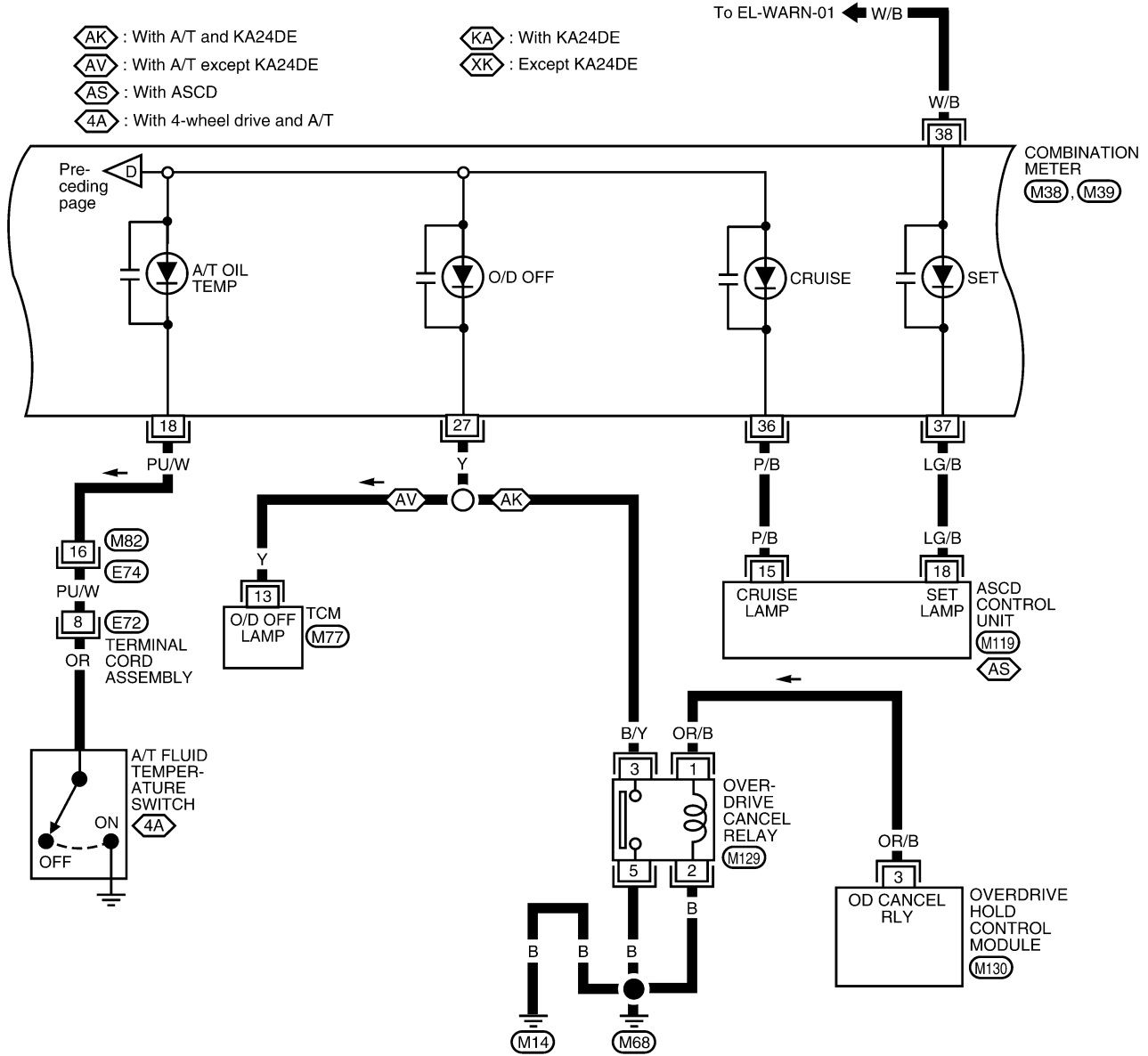
WEL162B

WARNING LAMPS

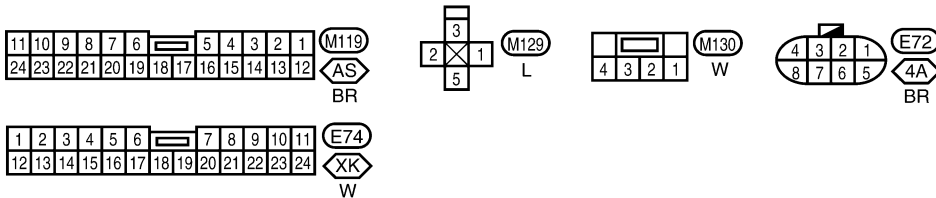
Wiring Diagram — WARN — (Cont'd)

EL-WARN-06

- AK : With A/T and KA24DE
- AV : With A/T except KA24DE
- AS : With ASCD
- 4A : With 4-wheel drive and A/T
- KA : With KA24DE
- XK : Except KA24DE



Refer to the following.
 (M77) - ELECTRICAL UNITS

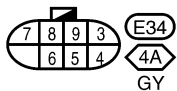
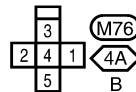
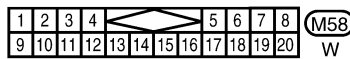
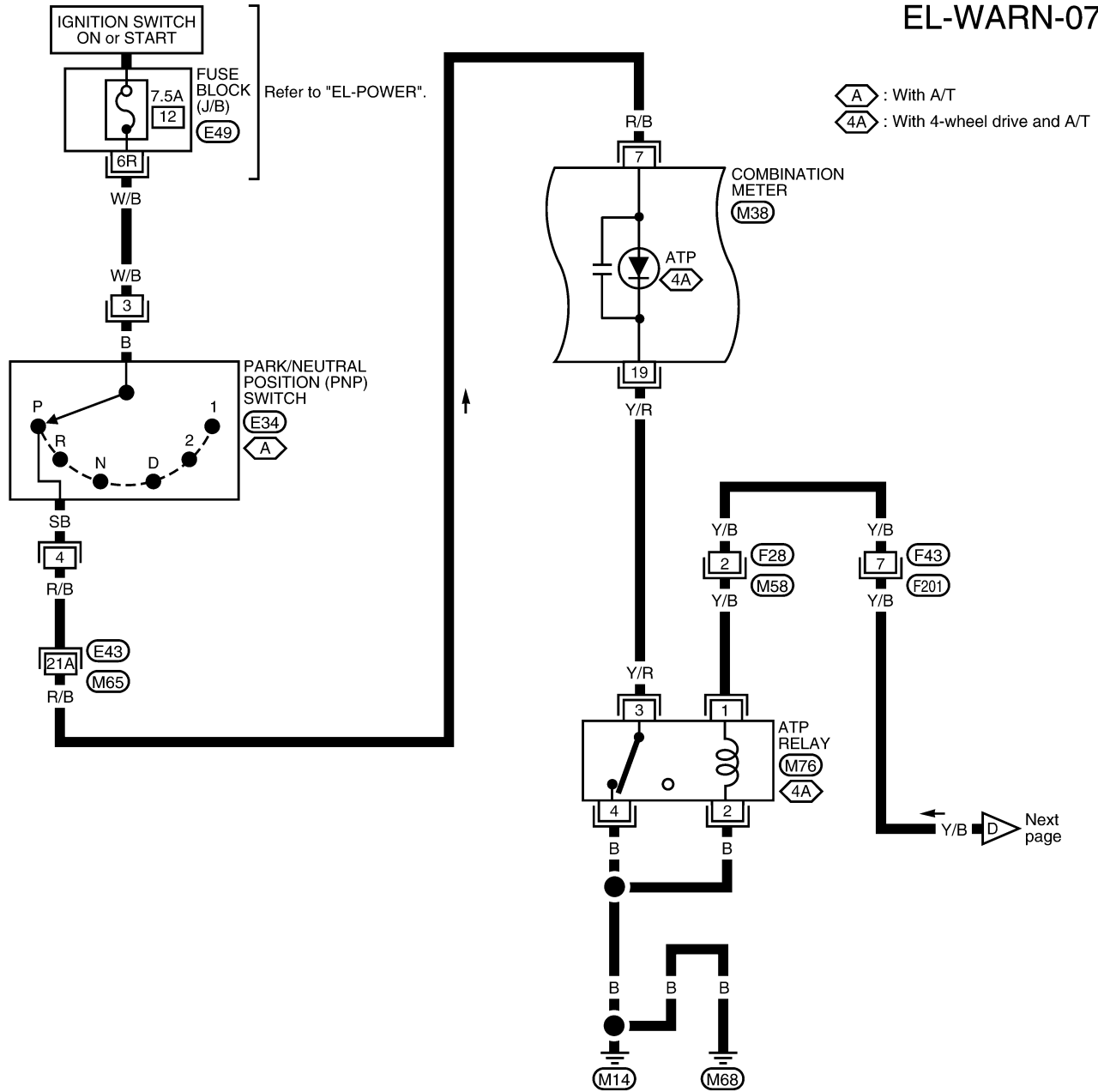


WEL163B

WARNING LAMPS

Wiring Diagram — WARN — (Cont'd)

EL-WARN-07



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

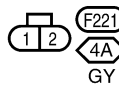
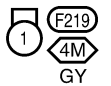
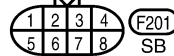
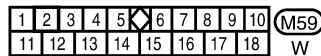
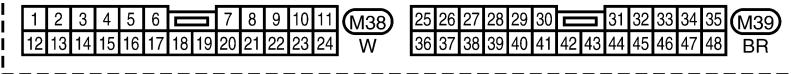
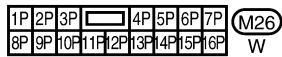
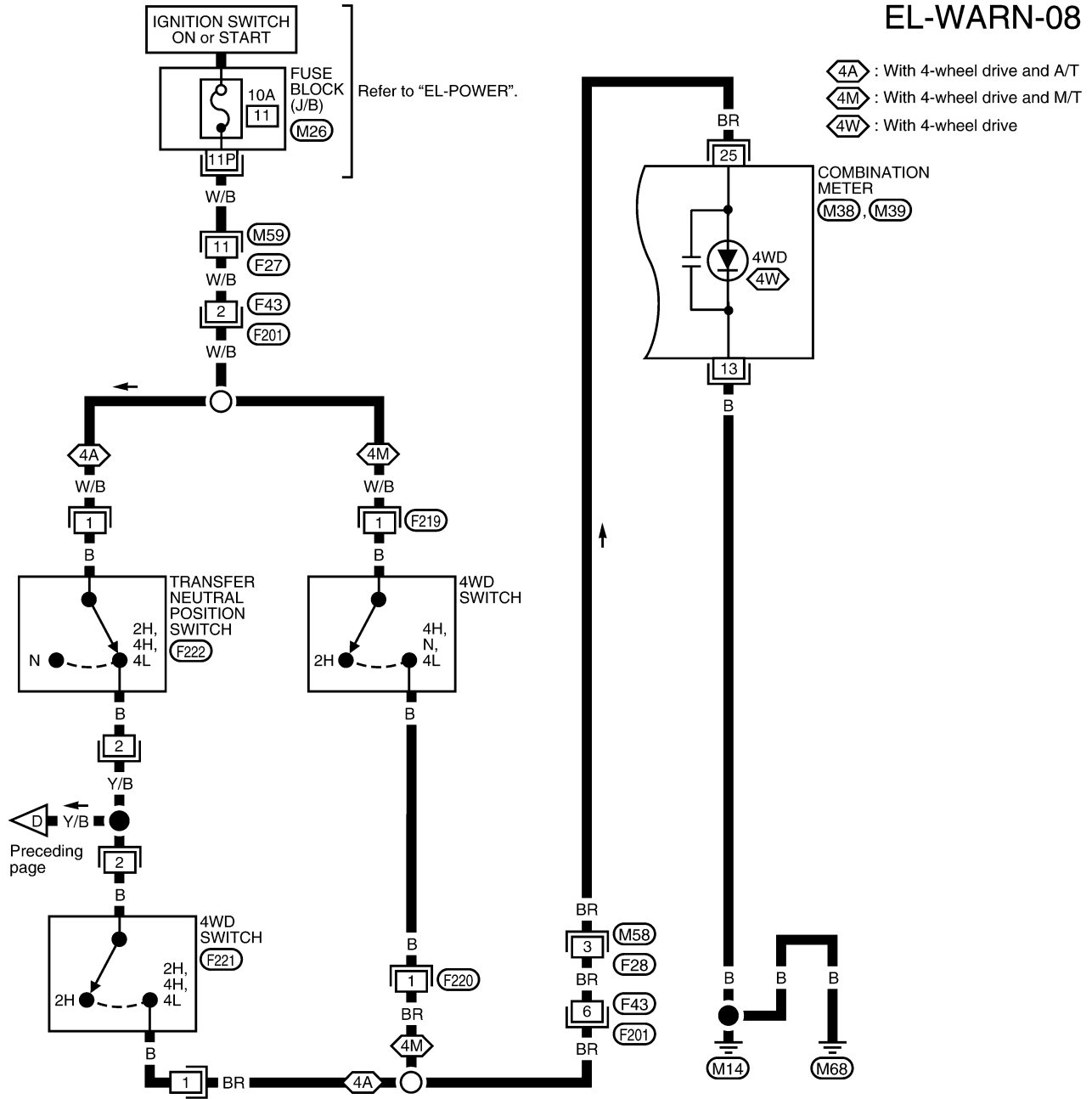
WEL739A

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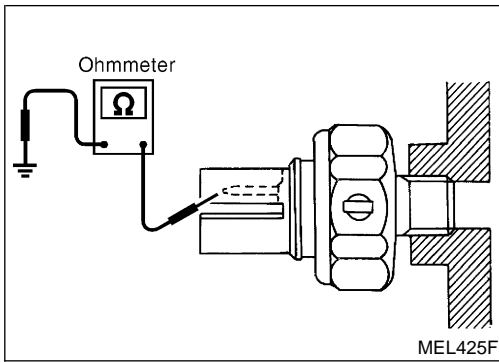
WARNING LAMPS

Wiring Diagram — WARN — (Cont'd)

EL-WARN-08



WEL740A



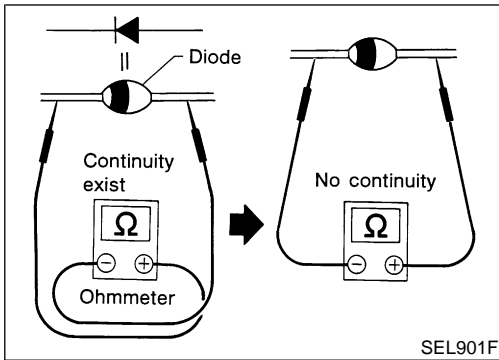
Electrical Components Inspection OIL PRESSURE SWITCH CHECK

NEEL0051

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.

- Check diodes at the combination meter harness connector instead of the combination meter assembly. Refer to "Wiring Diagrams — WARN —", EL-95.

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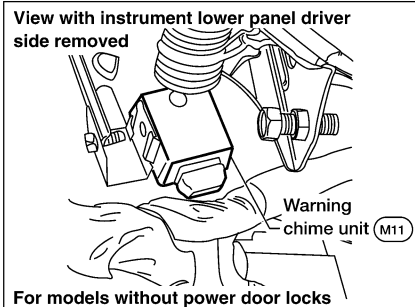
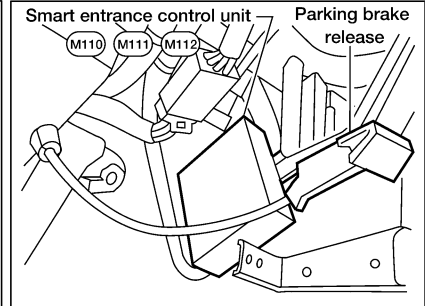
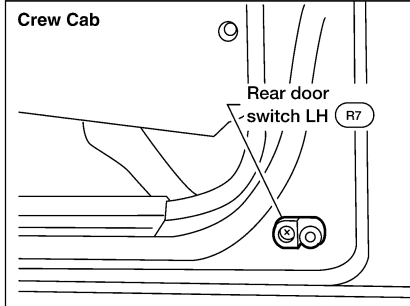
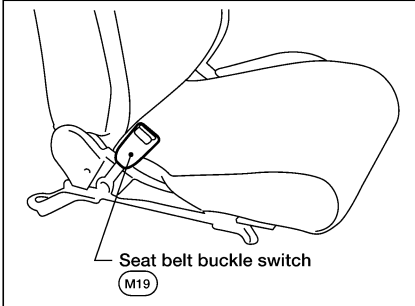
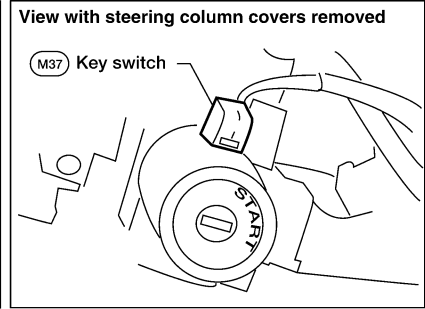
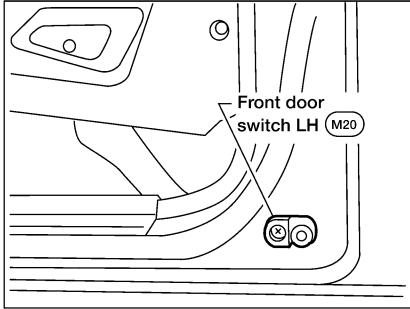
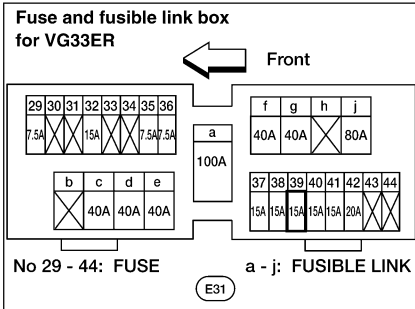
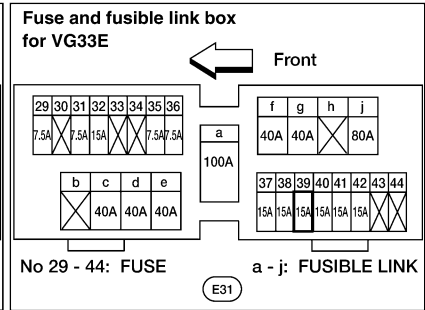
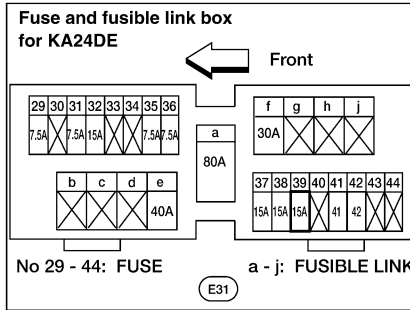
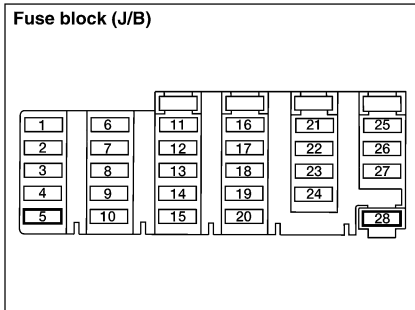
IDX

WARNING CHIME

Component Parts and Harness Connector Location

Component Parts and Harness Connector Location

NEEL0052



WEL937A

System Description

MODELS WITHOUT POWER DOOR LOCKS

NEEL0053

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 15A fuse (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 10A 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 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 and
- to smart entrance control unit terminal 49.

Power is supplied at all times

- through 15A fuse (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

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WARNING CHIME

System Description (Cont'd)

- through 10A fuse [No. 5, located in the fuse block (J/B)]
- to smart entrance control unit terminal 27.

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

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. Power is supplied

NEEL0053S0501

- from key switch terminal 2
- to smart entrance control unit terminal 25.

Ground is supplied

- to smart entrance control unit terminal 1
- through front door switch LH terminal 2.

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

Light Warning Chime

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

NEEL0053S0502

- from lighting switch terminal 12
- to smart entrance control unit terminal 58.

Ground is supplied

- to smart entrance control unit terminal 1
- 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

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

NEEL0053S0503

Ground is supplied

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

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

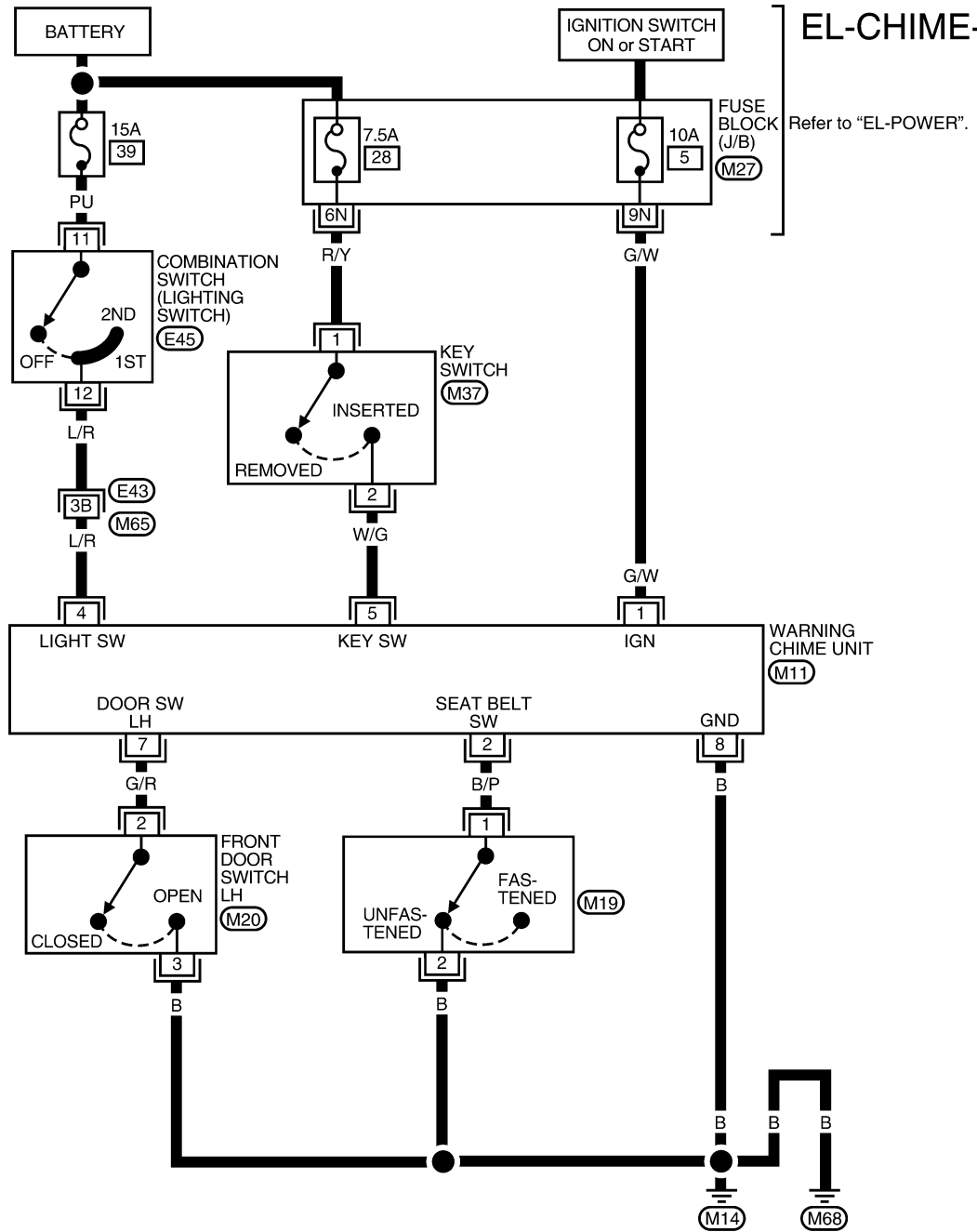
WARNING CHIME

Wiring Diagram — CHIME —

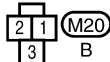
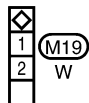
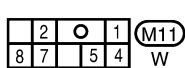
Wiring Diagram — CHIME — MODELS WITHOUT POWER DOOR LOCKS

NEEL0054

NEEL0054S01



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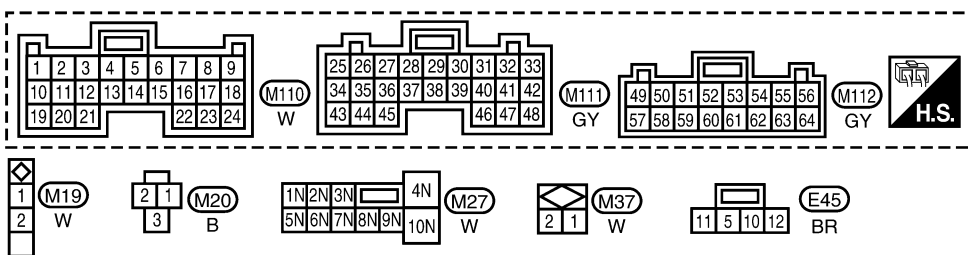
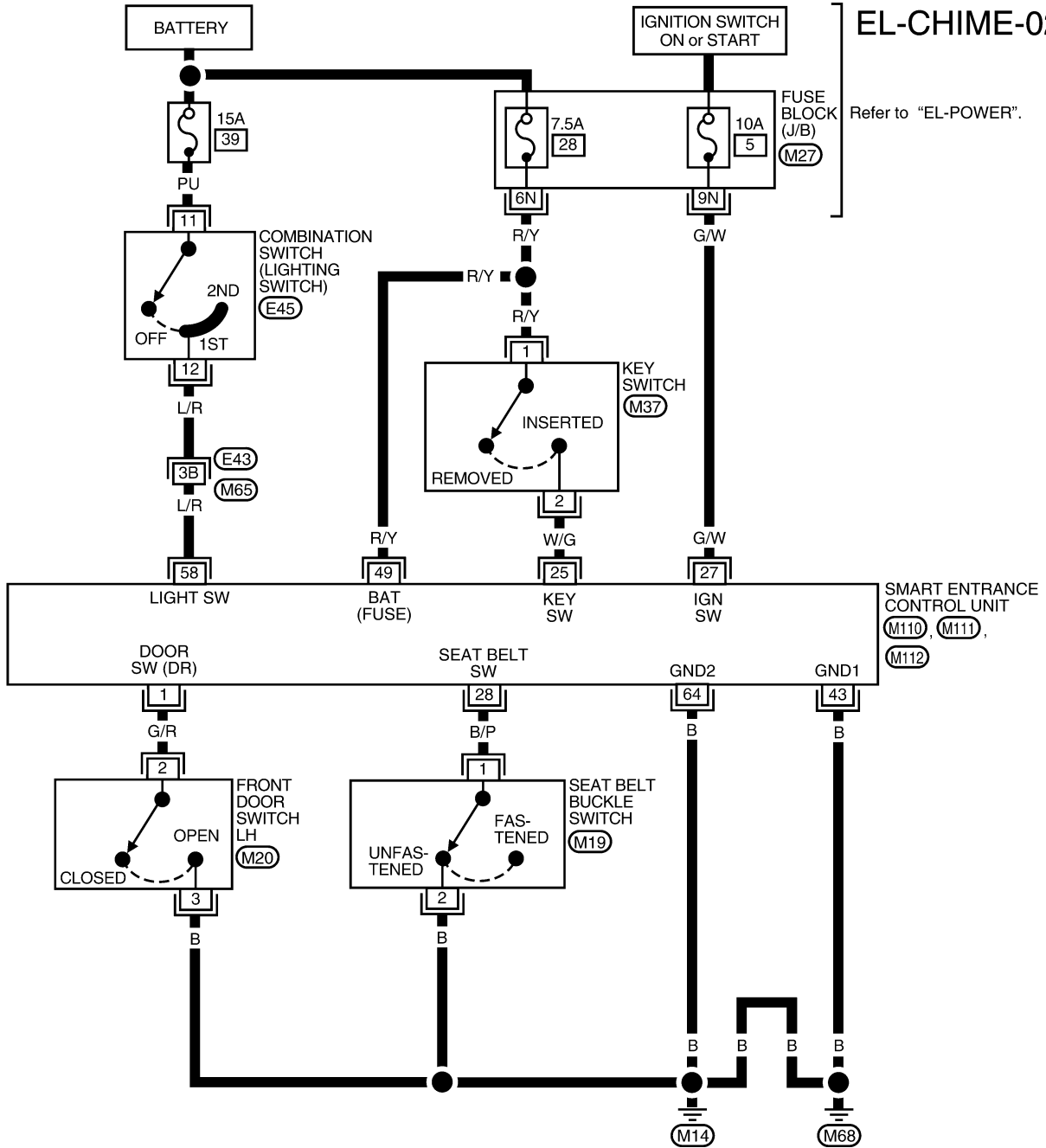
Refer to the following.
(M65), **(E43)** - SUPER
 MULTIPLE JUNCTION (SMJ)

WARNING CHIME

Wiring Diagram — CHIME — (Cont'd)

MODELS WITH POWER DOOR LOCKS

NEEL0054S02



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

WEL742A

WARNING CHIME

Trouble Diagnoses

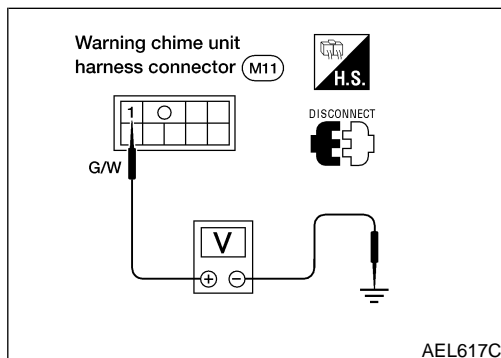
Trouble Diagnoses SYMPTOM CHART

NEEL0055

NEEL0055S01

REFERENCE PAGE (EL-)	Without power door locks	109	111	112	114	116
	With power door locks	109	111	113	115	117
SYMPTOM	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	
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					

X: Applicable



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

If NG, check the following.

- 10A fuse [No. 5, located in the fuse block (J/B)]

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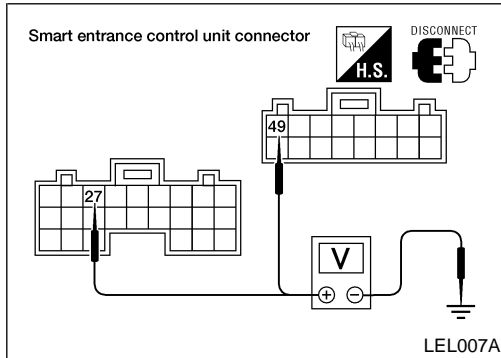
EL

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WARNING CHIME

Trouble Diagnoses (Cont'd)

- Harness for open or short between smart entrance control unit and fuse

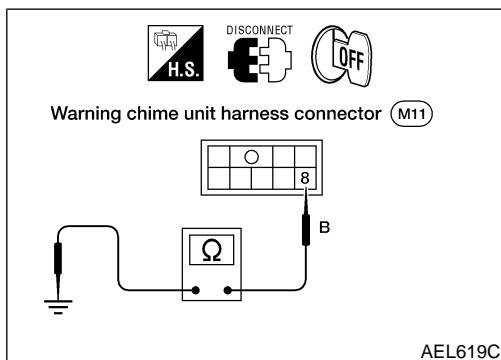


● Models with power door locks

Terminals		Ignition switch position		
(+)	(-)	OFF	ACC	ON
M112 - 49 (R/Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M111 - 27 (G/W)	Ground	0V	0V	Battery voltage

If NG, check the following.

- 7.5A fuse [No. 28, located in the fuse block (J/B)]
- 10A fuse [No. 5, located in the fuse block (J/B)]
- Harness for open or short between smart entrance control unit and fuse(s)

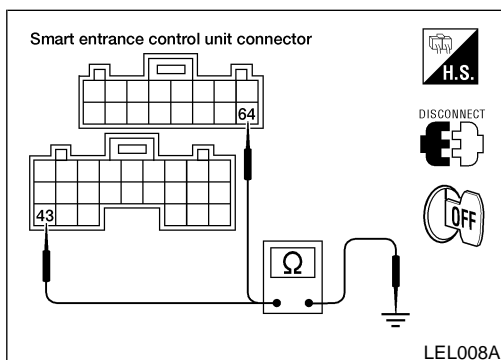


Ground Circuit Check

NEEL0055S0202

● Models without power door locks

Terminals	Continuity
8 - Ground	Yes



● Models with power door locks

Terminals	Continuity
M111 - 43 (B) - Ground	Yes
M112 - 64 (B) - Ground	Yes

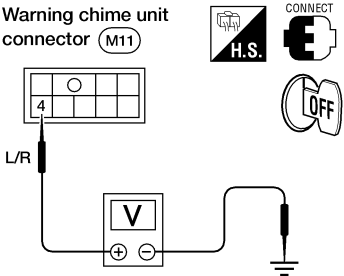



WARNING CHIME

Trouble Diagnoses (Cont'd)

LIGHTING SWITCH INPUT SIGNAL CHECK Models without Power Door Locks

-NEEL0055S03

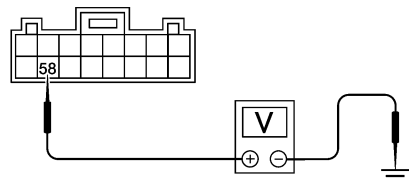
NEEL0055S0301

1	CHECK LIGHTING SWITCH INPUT SIGNAL	
<p>Check voltage between warning chime unit terminal 4 and ground.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Warning chime unit connector (M11)</p>  </div> <div style="text-align: center;">    </div> </div> <p>Voltage [V]: Condition of lighting switch: 1ST or 2ND Approx. 12 Condition of lighting switch: OFF 0</p> <p style="text-align: right;">AEL372B</p>		
OK or NG		
OK	▶	Lighting switch is OK.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 15A fuse (No. 39, located in the fuse and fusible link box) ● Harness for open or short between warning chime unit and lighting switch

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Models with Power Door Locks

NEEL0055S0302

1	CHECK LIGHTING SWITCH INPUT SIGNAL	
<p>Check voltage between smart entrance control unit connector M112 terminal 58 (L/R) and ground.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Smart entrance control unit connector</p>  </div> <div style="text-align: center;"> <p>Voltage [V]: Condition of lighting switch: 1ST or 2ND Approx. 12 Condition of lighting switch: OFF Approx. 0</p> </div> </div> <p style="text-align: right;">WEL492A</p>		
OK or NG		
OK	▶	Lighting switch is OK.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 15A fuse (No. 39, located in the fuse and fusible link box) ● Harness for open or short between smart entrance control unit and lighting switch

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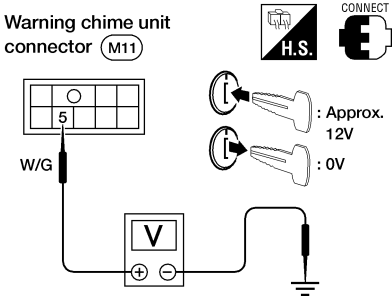
WARNING CHIME

Trouble Diagnoses (Cont'd)

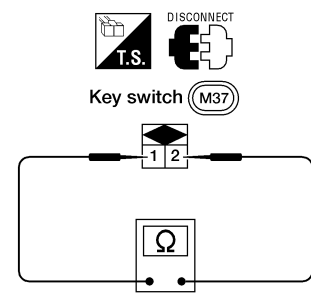
KEY SWITCH (INSERTED) CHECK Models without Power Door Locks

NEEL0055S04

NEEL0055S0401

1	CHECK KEY SWITCH INPUT SIGNAL
<p>Check voltage between warning chime unit terminal 5 and ground.</p> <div style="text-align: center;">  </div> <p>Voltage [V]: Condition of key switch: Key is INSERTED. Approx. 12 Condition of key switch: Key is REMOVED. 0</p> <p style="text-align: center;">OK or NG</p>	
OK	▶ Key switch is OK.
NG	▶ GO TO 2.

AEL374B

2	CHECK KEY SWITCH (INSERTED)
<p>Check continuity between terminals 1 and 2.</p> <div style="text-align: center;">  </div> <p>Continuity: Condition of key switch: Key is INSERTED. Yes Condition of key switch: Key is REMOVED. No</p> <p style="text-align: center;">OK or NG</p>	
OK	<p>▶ Check the following.</p> <ul style="list-style-type: none"> ● 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.





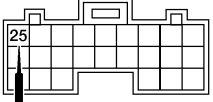

AEL416B



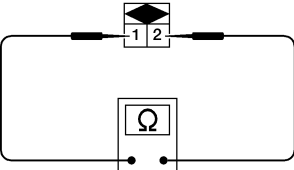
WARNING CHIME

Trouble Diagnoses (Cont'd)

Models with Power Door Locks

NEEL005SS0402

1	CHECK KEY SWITCH INPUT SIGNAL	<p>Check voltage between smart entrance control unit connector M111 terminal 25 (W/G) and ground.</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 30%;">  <p>CONNECT</p>  <p>  : Approx. 12V  : Approx. 0V </p> </div> <div style="width: 30%; text-align: center;"> <p>Smart entrance control unit connector</p>  </div> <div style="width: 30%;"> <p>Voltage [V]: Condition of key switch: Key is INSERTED. Approx. 12 Condition of key switch: Key is REMOVED. Approx. 0</p>  </div> </div> <p style="text-align: right;">LEL010A</p>	
OK or NG			
OK	▶	Key switch is OK.	
NG	▶	GO TO 2.	

2	CHECK KEY SWITCH (INSERTED)	<p>Check continuity between terminals 1 and 2.</p> <div style="display: flex; justify-content: center; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  <p>DISCONNECT</p>  </div> <div style="text-align: center;"> <p>Key switch (M37)</p>  </div> </div> <p style="text-align: right;">AEL416B</p>	
		<p>Continuity: Condition of key switch: Key is INSERTED. Yes Condition of key switch: Key is REMOVED. No</p> <p style="text-align: center;">OK or NG</p>	
OK	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 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.	

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WARNING CHIME

Trouble Diagnoses (Cont'd)

SEAT BELT BUCKLE SWITCH CHECK Models without Power Door Locks

=NEEL0055S05

NEEL0055S0501

1	CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL	
<p>1. Turn ignition switch ON. 2. Check voltage between warning chime unit terminal 2 and ground.</p> <div style="text-align: center;"> </div> <p>Voltage [V]: Condition of seat belt buckle switch: FASTENED Approx. 12 Condition of seat belt buckle switch: UNFASTENED 0</p> <p style="text-align: center;">OK or NG</p>		
OK	▶	Seat belt buckle switch is OK.
NG	▶	GO TO 2.

AEL376B

2	CHECK SEAT BELT BUCKLE SWITCH	
<p>Check continuity between terminals 1 and 2 when seat belt is fastened and unfastened.</p> <div style="text-align: center;"> </div> <p>Continuity: Seat belt is fastened. No Seat belt is unfastened. Yes</p> <p style="text-align: center;">OK or NG</p>		
OK	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 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.

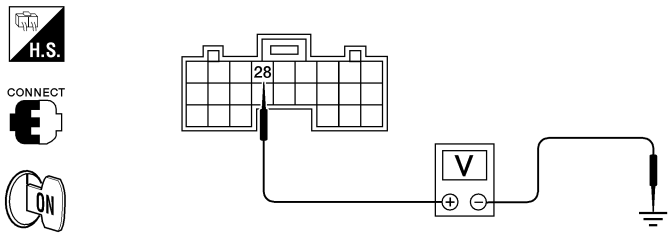
AEL381B

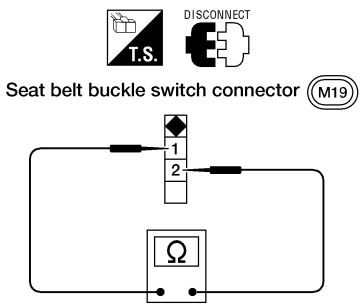
WARNING CHIME

Trouble Diagnoses (Cont'd)

Models with Power Door Locks

NEEL0055S0502

1	CHECK SEAT BELT BUCKLE SWITCH INPUT SIGNAL	
<p>1. Turn ignition switch ON. 2. Check voltage between smart entrance control unit connector M111 terminal 28 (B/P) and ground.</p>		
		
<p>Voltage [V]: Condition of seat belt buckle switch: FASTENED Approx. 12 Condition of seat belt buckle switch: UNFASTENED Approx. 0</p>		
LEL011A		
OK or NG		
OK	▶	Seat belt buckle switch is OK.
NG	▶	GO TO 2.

2	CHECK SEAT BELT BUCKLE SWITCH	
<p>Check continuity between terminals 1 and 2 when seat belt is fastened and unfastened.</p>		
		
AEL381B		
OK or NG		
OK	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 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.

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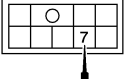


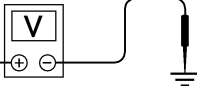
WARNING CHIME

Trouble Diagnoses (Cont'd)



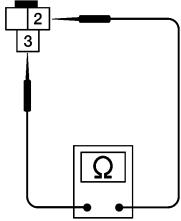
FRONT DOOR SWITCH LH CHECK Models without Power Door Locks

NEEL0055S06

NEEL0055S0601

1	CHECK FRONT DOOR SWITCH LH INPUT SIGNAL	
<p>Check voltage between warning chime unit terminal 7 and ground.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Warning chime unit connector (M11)</p>  <p>G/R</p> </div> <div style="text-align: center;">  <p>CONNECT</p>  <p>OFF</p> </div> </div> <div style="text-align: center; margin-top: 10px;">  </div> <p>Voltage [V]: Condition of front door LH: CLOSED Approx. 12 Condition of front door LH: OPEN 0</p> <p style="text-align: center;">OK or NG</p>		
OK	▶	Front door switch LH is OK.
NG	▶	GO TO 2.

AEL378B

2	CHECK FRONT DOOR SWITCH LH	
<p>Check continuity between front door switch LH terminals 2 and 3.</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>Front door switch LH connector</p>  <p>DISCONNECT</p>  </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p>Contiunity: Front door switch LH is pressed. No Front door switch LH is released. Yes</p> </div> </div> <p>Continuity: Front door switch LH is pressed. No Front door switch LH is released. Yes</p> <p style="text-align: center;">OK or NG</p>		
OK	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 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.




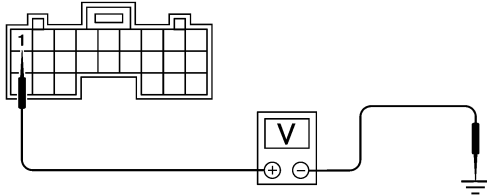
LEL366A

WARNING CHIME

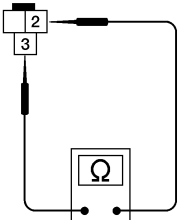


Trouble Diagnoses (Cont'd)

Models with Power Door Locks

NEEL0055S0602

1	CHECK FRONT DOOR SWITCH LH INPUT SIGNAL	
Check voltage between smart entrance control unit connector M110 terminal 1 (G/R) and ground.		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 20%;">    </div> <div style="width: 40%; text-align: center;">  </div> <div style="width: 30%;"> <p>Voltage [V]: Condition of front door LH: CLOSED Approx. 5 Condition of front door LH: OPEN Approx. 0</p> </div> </div>		
WEL515A		
OK or NG		
OK	▶	Front door switch LH is OK.
NG	▶	GO TO 2.

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2	CHECK FRONT DOOR SWITCH LH	
Check continuity between front door switch LH connector M20 terminals 2 and 3.		
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 30%;"> <p>Front door switch LH connector (M20)</p>  </div> <div style="width: 30%; text-align: center;">   </div> </div>		
AEL543C		
OK or NG		
OK	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 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.

FRONT WIPER AND WASHER

System Description

System Description

NEEL0057

NEEL0057S01

NEEL0057S0104

WIPER OPERATION

Models without Intermittent Wipers

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

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 switch terminal 15.

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

NEEL0057S0105

FRONT WIPER AND WASHER

System Description (Cont'd)

- from wiper switch terminal 14
- to wiper motor L.
- to front wiper switch terminal 13
- through front wiper motor terminal P
- through front wiper motor terminal E
- through body grounds E12 and E54.

GI

MA

When wiper blades reach base of windshield, front wiper motor terminals B and P are connected instead of terminals P and E. Wiper motor will then stop wiper arms at the stop position.

EM

Intermittent Operation

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

LC

Ground is supplied intermittently

EC

- to front wiper motor terminal L
- through front wiper switch terminal 14
- through front wiper amplifier OUTPUT (located within the front wiper switch)
- through front wiper amplifier GND (located within the front wiper switch)
- through front wiper switch terminal 17
- through body grounds E12 and E54.

FE

CL

WASHER OPERATION

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 +.

MT

NEEL0057S02

AT

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

- to front washer motor terminal -, and
- from front wiper switch terminal 18
- through front wiper switch terminal 17
- through body grounds E12 and E54.

TF

PD

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

AX

Models with Intermittent Wipers

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.

NEEL0057S0201

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FRONT WIPER AND WASHER

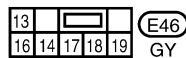
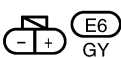
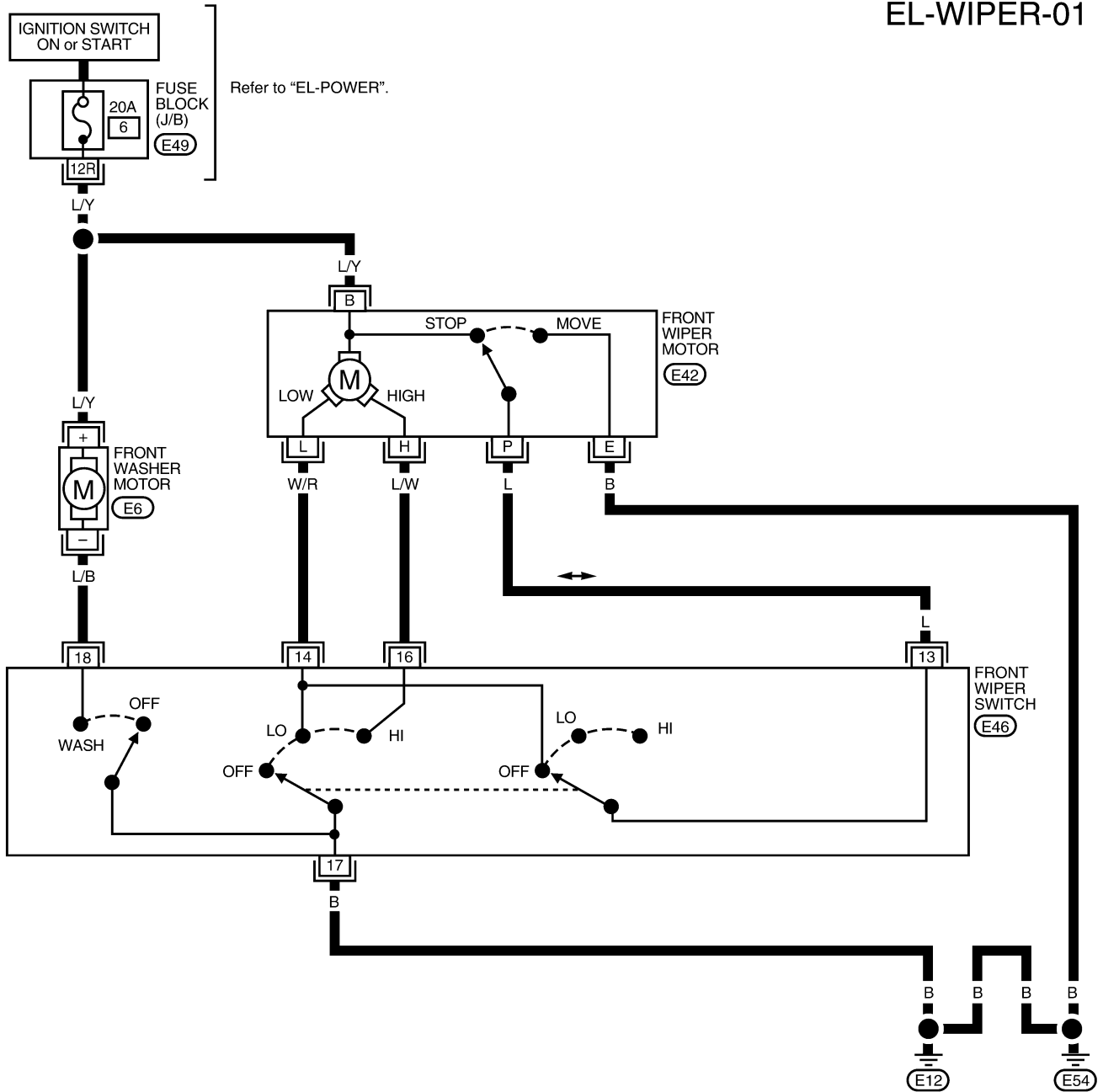
Wiring Diagram — WIPER —

Wiring Diagram — WIPER — MODELS WITHOUT INTERMITTENT WIPERS

NEEL0058

NEEL0058S01

EL-WIPER-01



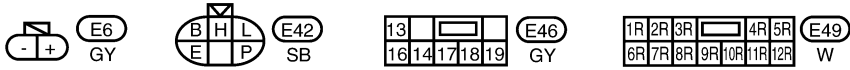
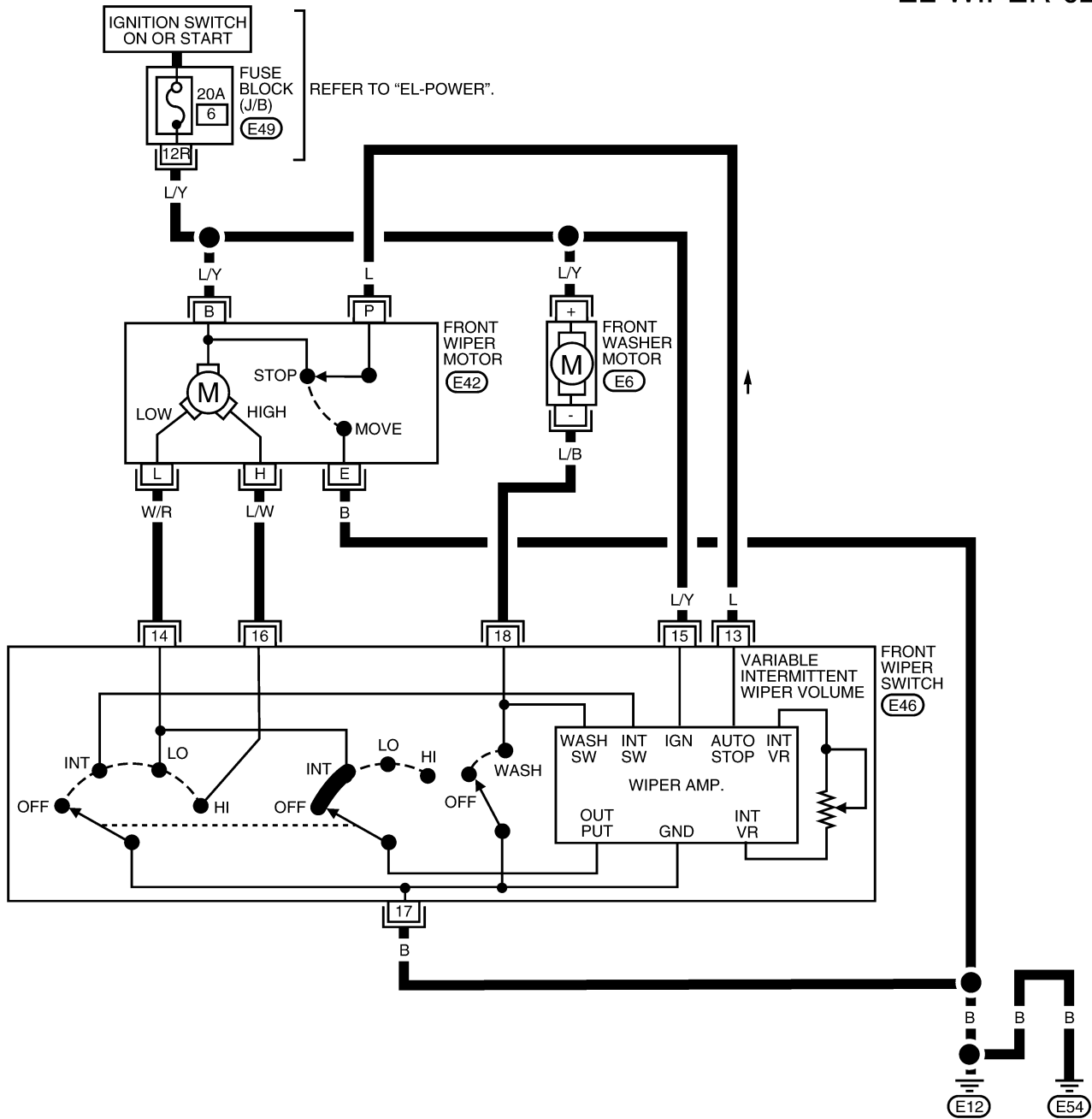
FRONT WIPER AND WASHER

Wiring Diagram — WIPER — (Cont'd)

MODELS WITH INTERMITTENT WIPERS

NEEL0058S02

EL-WIPER-02

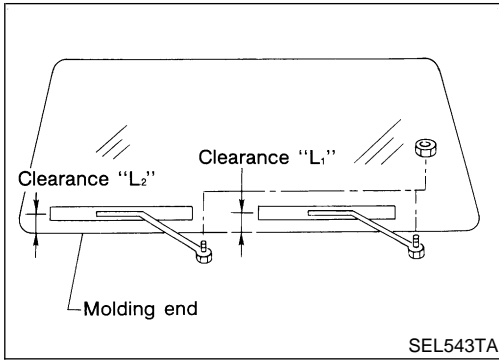


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FRONT WIPER AND WASHER

Removal and Installation



Removal and Installation

NEEL0060

WIPER ARMS

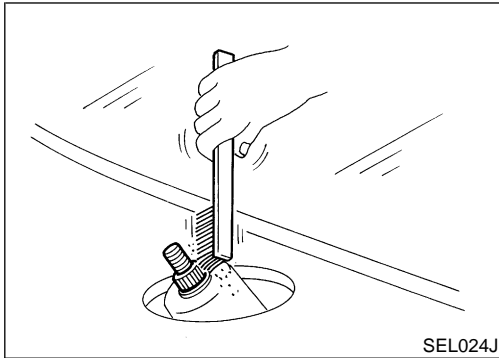
NEEL0060S01

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 "L₁" & "L₂" 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 "L₁" & "L₂".

Clearance "L₁": 25 mm (.98 in)

Clearance "L₂": 25 mm (.98 in)

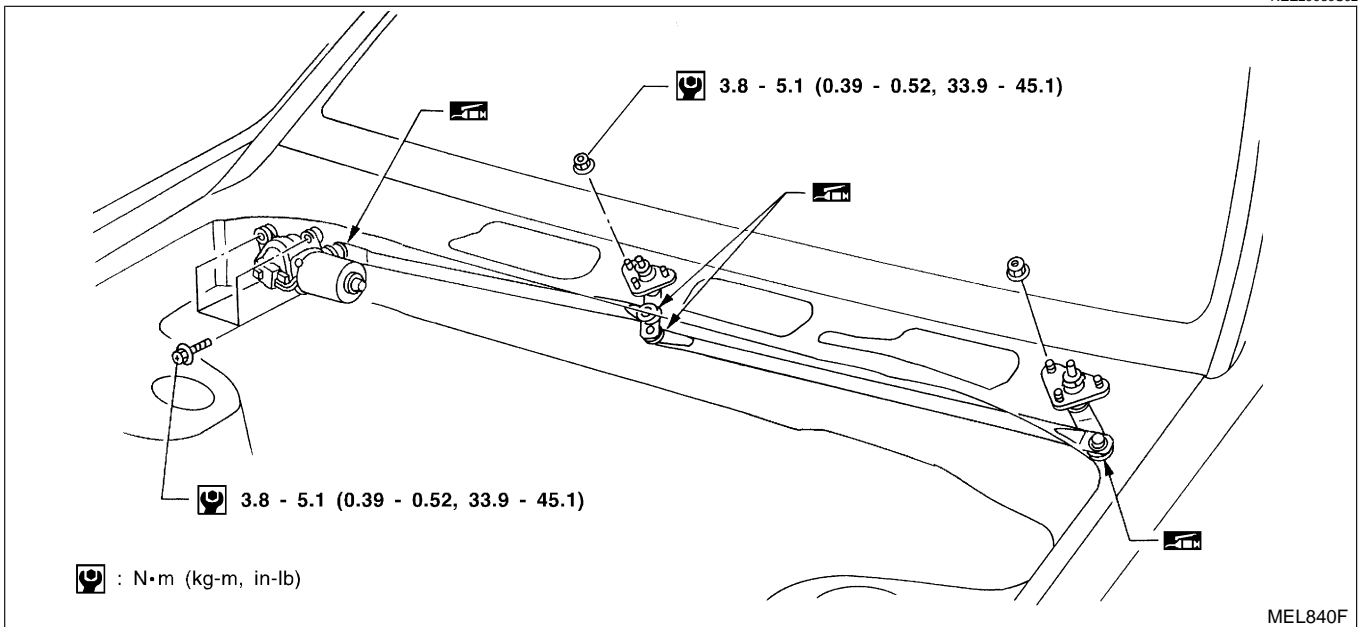
- Tighten wiper arm nuts to specified torque.
Front wiper: 13 - 18 N·m (1.3 - 1.8 kg·m, 9 - 13 ft·lb)



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

WIPER LINKAGE

NEEL0060S02



FRONT WIPER AND WASHER

Removal and Installation (Cont'd)

Removal

NEEL0060S0201

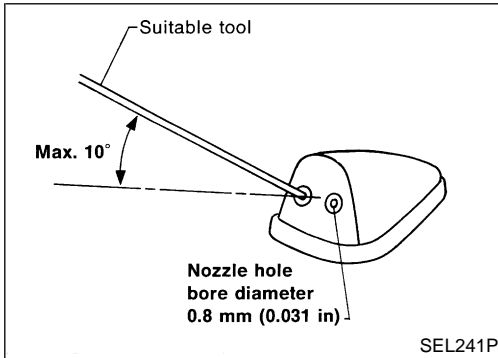
1. Remove 4 bolts that secure wiper motor.
2. Detach wiper motor from wiper linkage at ball joint.
3. Remove wiper linkage.

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.

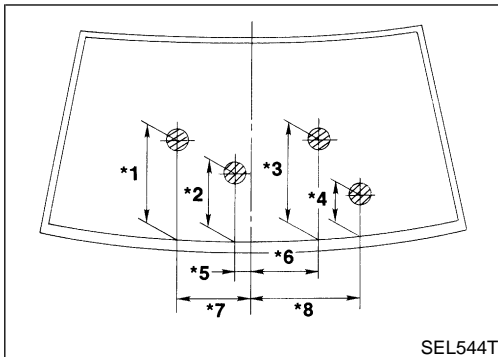


Washer Nozzle Adjustment

NEEL0061

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

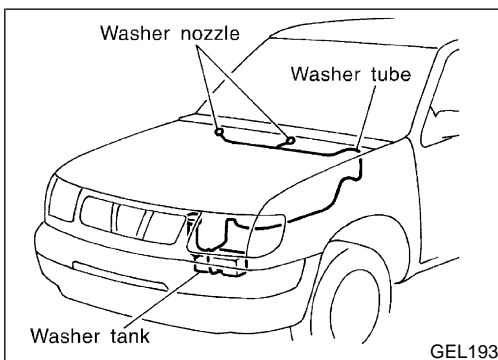
Adjustable range: ±10°



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).



Washer Tube Layout

NEEL0062

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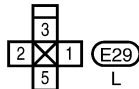
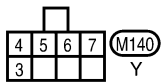
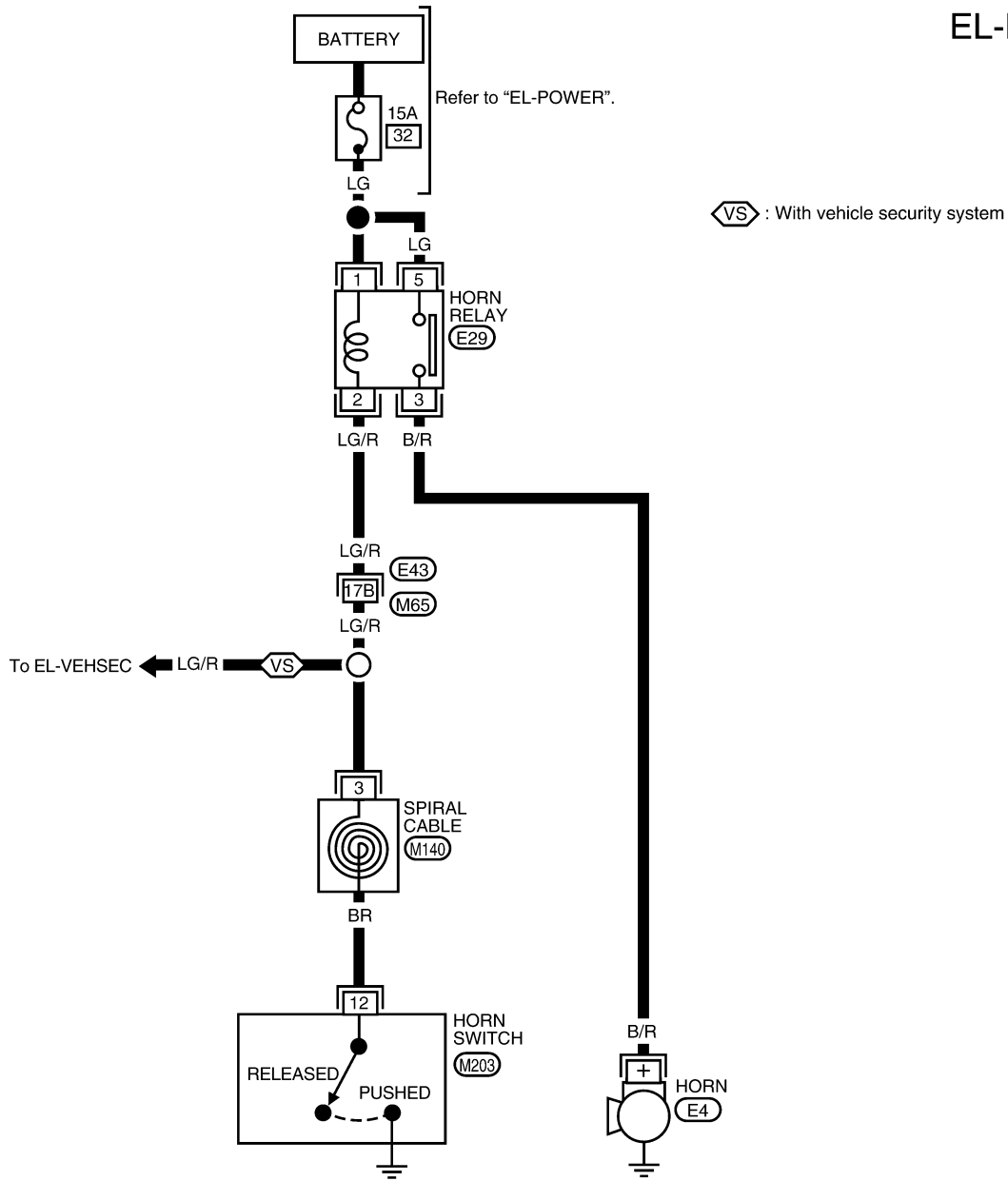
HORN

Wiring Diagram — HORN —

Wiring Diagram — HORN —

NEEL0071

EL-HORN-01



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

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

WEL099B

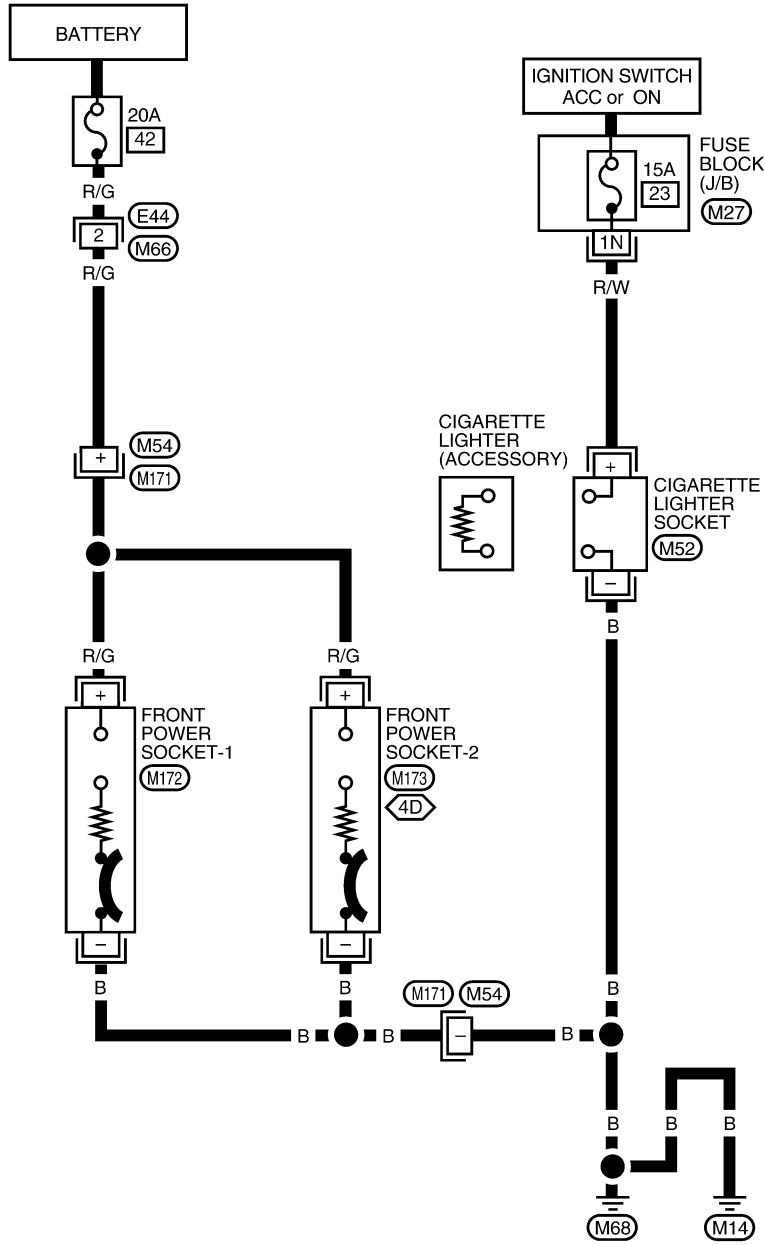
CIGARETTE LIGHTER

Wiring Diagram — CIGAR —

Wiring Diagram — CIGAR —

NEEL0156

EL-CIGAR-01



- ⬡KA : With KA24DE
- ⬡XK : Except KA24DE
- ⬡4D : 4 door models

Refer to "EL-POWER".

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WEL100B

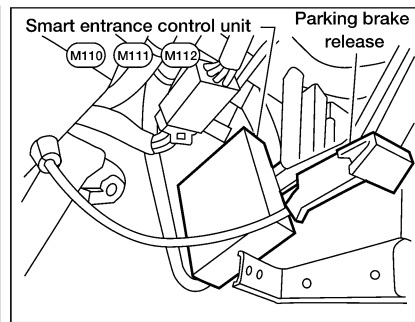
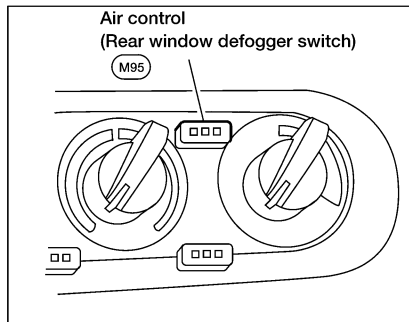
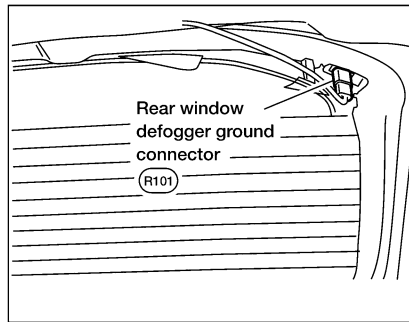
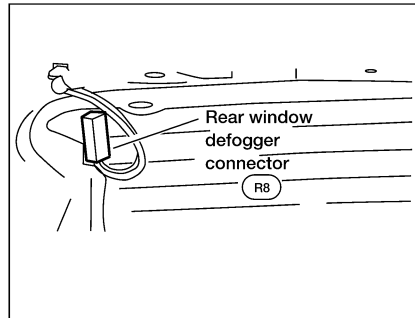
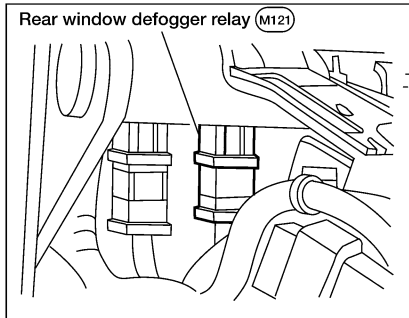
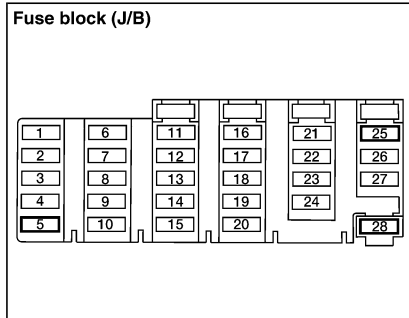
EL

REAR WINDOW DEFOGGER

Component Parts and Harness Connector Location

Component Parts and Harness Connector Location

NEEL0215



WEL938A

System Description

NEEL0216

MODELS WITHOUT POWER DOOR LOCKS

NEEL0216S01

The rear window defogger system is controlled by the rear window defogger timer. The rear window defogger operates only for approximately 15 minutes. The rear window defogger switch is integral to the air control. Power is supplied at all times

- to rear window defogger relay terminal 5
- through 20A fuse [No. 25, located in the fuse block (J/B)].

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

- through 10A fuse [No. 5, located in the fuse block (J/B)]
- to rear window defogger relay terminal 1, and
- to rear window defogger timer terminal 1.

Ground is supplied to air control (rear window defogger switch) terminal 8 and rear window defogger timer terminal 4 through body grounds M14 and M68.

With the rear window defogger switch (located in air control) ON, ground is supplied

- to rear window defogger timer terminal 3
- through air control (rear window defogger switch) terminal 8.

Rear window defogger timer terminal 2 then supplies ground to the rear window defogger relay terminal 2.

With power and ground supplied, the rear window defogger relay is energized.

Power is supplied

- through terminal 3 of the rear window defogger relay
- to rear window defogger terminal +.

Rear window defogger terminal – is grounded through body ground R102.

With power and ground supplied, the rear window defogger filaments heat and defog the rear window.

When the system is activated, the rear window defogger indicator illuminates in the air control.

Power is supplied

- from rear window defogger relay terminal 3
- to air control (rear window defogger switch) terminal 4.

Air control terminal 8 is grounded through body grounds M14 and M68.

MODELS WITH POWER DOOR LOCKS

NEEL0216S02

The rear window defogger system is controlled by the smart entrance control unit. The rear window defogger operates only for approximately 15 minutes. The rear window defogger switch is integral to the air control. Power is supplied at all times

- to rear window defogger relay terminal 5
- through 20A fuse [No. 25, located in the fuse block (J/B)] and
- to smart entrance control unit terminal 49
- through 7.5A fuse [No. 28, located in the fuse block (J/B)].

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

- through 10A fuse [No. 5, located in the fuse block (J/B)]
- to rear window defogger relay terminal 1 and
- to smart entrance control unit terminal 27.

Ground is supplied to air control (rear window defogger switch) terminal 8 and smart entrance control unit terminals 43 and 64 through body grounds M14 and M68.

With the rear window defogger switch (located in air control) ON, ground is supplied

- to smart entrance control unit terminal 14
- through air control (rear window defogger switch) terminal 1.

Smart entrance control unit terminal 37 then supplies ground to the rear window defogger relay terminal 2.

With power and ground supplied, the rear window defogger relay is energized.

Power is supplied

- through terminal 3 of the rear window defogger relay
- to rear window defogger terminal +.

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REAR WINDOW DEFOGGER

System Description (Cont'd)

Rear window defogger terminal – is grounded through body ground R102.

With power and ground supplied, the rear window defogger filaments heat and defog the rear window.

When the system is activated, the rear window defogger indicator illuminates in the air control.

Power is supplied

- from rear window defogger relay terminal 3
- to air control (rear window defogger switch) terminal 4.

Air control (rear window defogger switch) terminal 8 is grounded through body grounds M14 and M68.

REAR WINDOW DEFOGGER

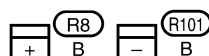
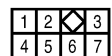
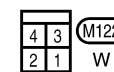
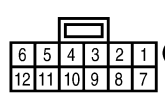
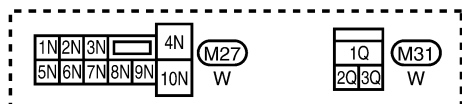
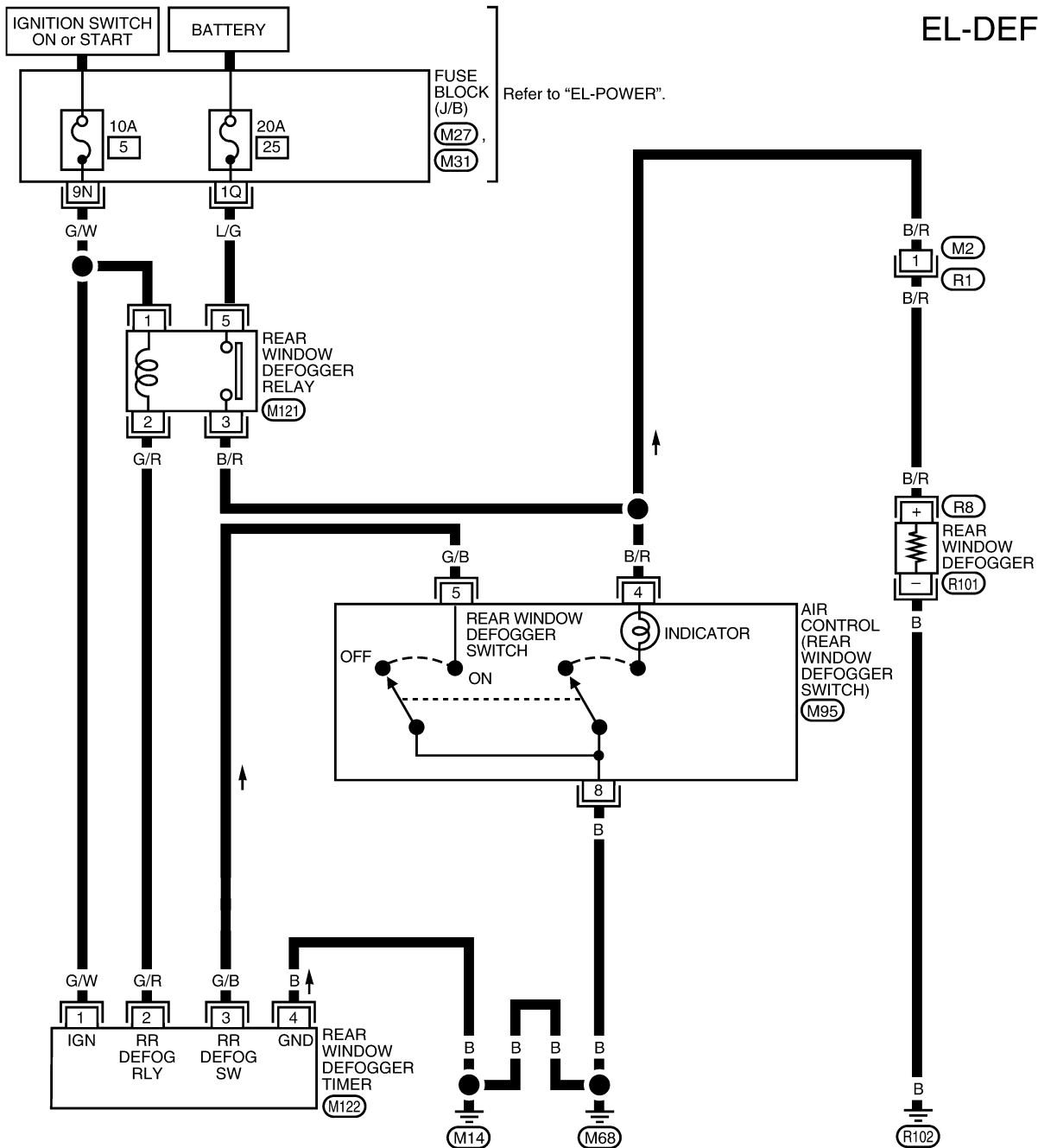
Wiring Diagram — DEF —

Wiring Diagram — DEF — WITHOUT POWER DOOR LOCKS

NEEL0217

NEEL0217S01

EL-DEF-01



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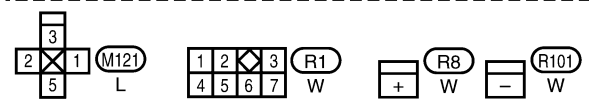
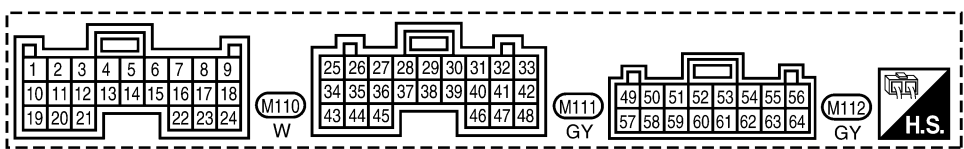
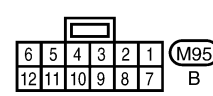
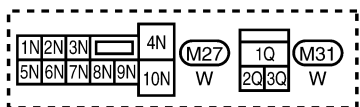
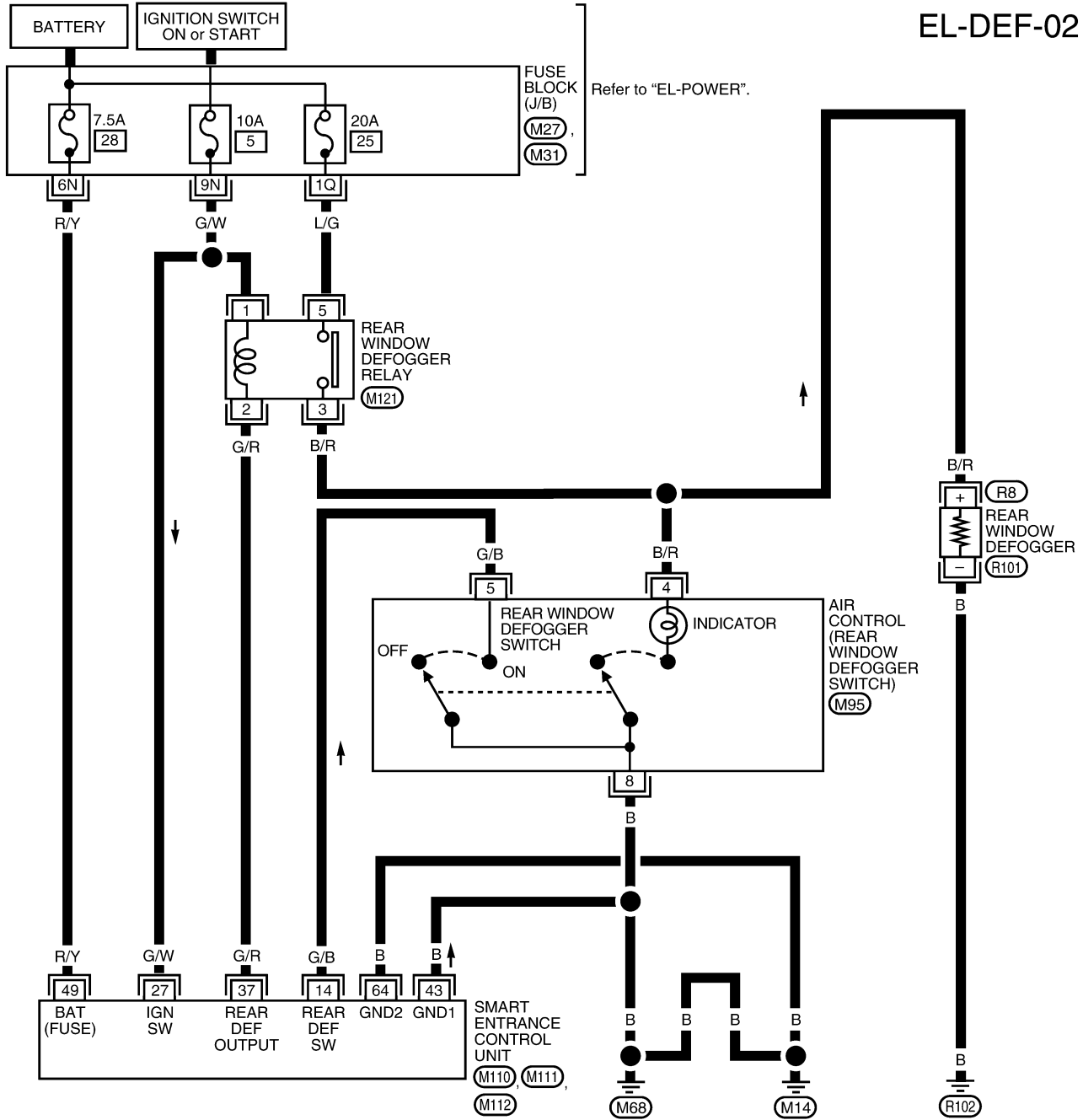
REAR WINDOW DEFOGGER

Wiring Diagram — DEF — (Cont'd)

WITH POWER DOOR LOCKS

NEEL0217S02

EL-DEF-02



WEL748A

REAR WINDOW DEFOGGER

Trouble Diagnoses

Trouble Diagnoses

NEEL0218




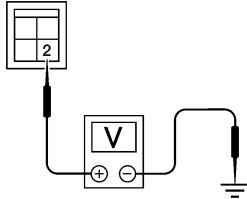
NEEL0218S01




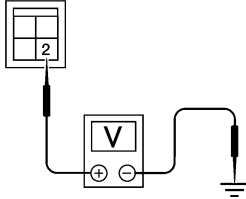
DIAGNOSTIC PROCEDURE

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

Models without Power Door Locks

NEEL0218S0101

1	CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL	
<p>1. Turn ignition switch ON. 2. Check voltage between rear window defogger timer harness connector M122 terminal 2 (G/R) and ground.</p>		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 15%;">    </div> <div style="width: 30%; text-align: center;"> <p>Rear window defogger timer harness connector</p>  </div> <div style="width: 40%;"> <p>Voltage [V]: Rear window defogger switch is OFF. Approx. 12 Rear window defogger switch is ON 0</p> </div> </div> <p style="text-align: right;">LEL257A</p>		
OK or NG		
OK	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● Rear window defogger relay (Refer to "REAR WINDOW DEFOGGER RELAY", EL-135) ● Rear window defogger circuit ● Rear window defogger filament (Refer to "Filament Check", EL-136)
NG	▶	GO TO 2.

2	CHECK DEFOGGER RELAY COIL SIDE CIRCUIT	
<p>1. Disconnect rear window defogger timer harness connector. 2. Turn ignition switch ON. 3. Check voltage between rear window defogger timer harness connector M122 terminal 2 (G/R) and ground.</p>		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 15%;">    </div> <div style="width: 30%; text-align: center;"> <p>Rear window defogger timer harness connector</p>  </div> <div style="width: 40%;"> <p>Battery voltage should exist.</p> </div> </div> <p style="text-align: right;">LEL256A</p>		
OK or NG		
OK	▶	GO TO 3.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 10A fuse [No. 5, located in the fuse block (J/B)] ● Rear window defogger relay ● Harness for open or short between rear window defogger relay and rear window defogger timer ● Harness for open or short between rear window defogger relay and fuse

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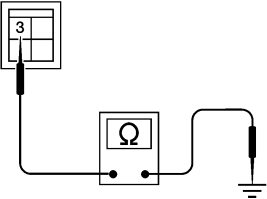
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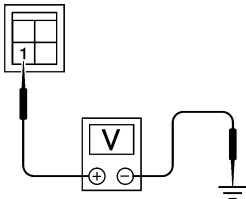
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REAR WINDOW DEFOGGER

Trouble Diagnoses (Cont'd)

3	CHECK REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL	
Check continuity between rear window defogger timer harness connector M122 terminal 3 (G/B) and ground.		
  	<p>Rear window defogger timer harness connector</p> 	<p>Continuity:</p> <p>Rear window defogger switch is pressed. Yes</p> <p>Rear window defogger switch is released. No</p>
LEL260A		
OK or NG		
OK	▶	GO TO 4.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● Rear window defogger switch (within the air control) (Refer to "REAR WINDOW DEFOGGER SWITCH", EL-136) ● Harness for open or short between rear window defogger timer and air control (rear window defogger switch) ● Air control (rear window defogger switch) ground circuit

4	CHECK IGNITION INPUT SIGNAL	
Check voltage between rear window defogger timer harness connector M122 terminal 1 (G/W) and ground.		
 	<p>Rear window defogger timer harness connector</p> 	<p>Voltage [V]:</p> <p>Ignition switch is ON. Approx. 12</p> <p>Ignition switch is OFF. 0</p>
LEL259A		
OK or NG		
OK	▶	GO TO 5.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 10A fuse [No. 5, located in the fuse block (J/B)] ● Harness for open or short between rear window defogger timer and fuse

REAR WINDOW DEFOGGER

Trouble Diagnoses (Cont'd)

5	CHECK CONTROL UNIT GROUND CIRCUIT	
Check continuity between rear window defogger timer harness connector M122 terminal 4 (B) and ground.		
<p style="text-align: center;">Rear window defogger timer harness connector</p> <p style="text-align: center;">Continuity should exist.</p> <p style="text-align: right;">LEL258A</p>		
OK or NG		
OK	▶	Replace rear window defogger timer.
NG	▶	Repair harness or connectors.

Models with Power Door Locks

NEEL0218S0102

1	CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL	
<p>1. Turn ignition switch ON.</p> <p>2. Check voltage between smart entrance control unit harness connector M111 terminal 37 (G/R) and ground.</p>		
<p style="text-align: center;">Smart entrance control unit connector</p> <p style="text-align: center;">Voltage [V]: Rear window defogger switch is OFF. Approx. 12 Rear window defogger switch is ON. 0</p> <p style="text-align: right;">LEL013A</p>		
OK or NG		
OK	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● Rear window defogger relay (Refer to "REAR WINDOW DEFOGGER RELAY", EL-135) ● Rear window defogger circuit ● Rear window defogger filament (Refer to "Filament Check", EL-136)
NG	▶	GO TO 2.

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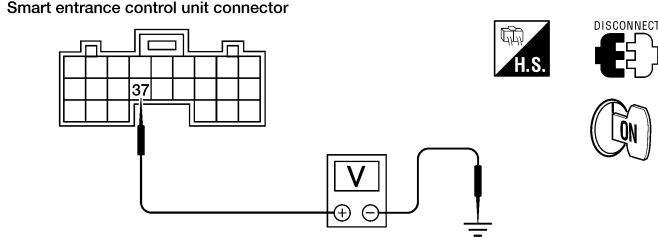
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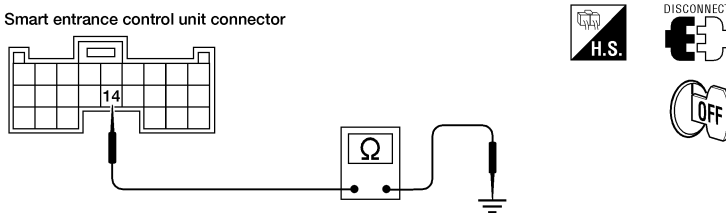
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REAR WINDOW DEFOGGER

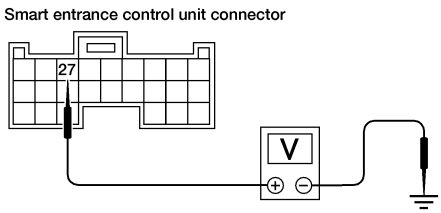


Trouble Diagnoses (Cont'd)

2	CHECK DEFOGGER RELAY COIL SIDE CIRCUIT	
<p>1. Disconnect smart entrance control unit harness connector. 2. Turn ignition switch ON. 3. Check voltage between smart entrance control unit harness connector M111 terminal 37 (G/R) and ground.</p>		
 <p style="text-align: right;">Battery voltage should exist.</p>		
WEL516A		
OK or NG		
OK	▶	GO TO 3.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 10A fuse [No. 5, located in the fuse block (J/B)] ● Rear window defogger relay ● Harness for open or short between rear window defogger relay and smart entrance control unit ● Harness for open or short between rear window defogger relay and fuse

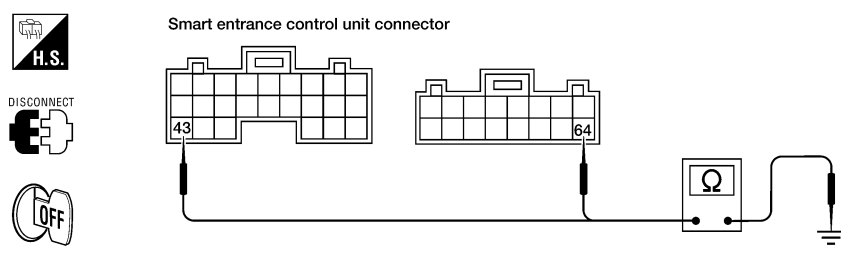
3	CHECK REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL	
<p>Check continuity between smart entrance control unit harness connector M110 terminal 14 (G/B) and ground.</p>		
 <p style="text-align: right;">Continuity: Rear window defogger switch is pressed Yes Rear window defogger switch is released No</p>		
LEL015A		
OK or NG		
OK	▶	GO TO 4.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● Rear window defogger switch (within air control) (Refer to "REAR WINDOW DEFOGGER SWITCH", EL-136) ● Harness for open or short between smart entrance control unit and air control (rear window defogger switch) ● Air control (rear window defogger switch) ground circuit

REAR WINDOW DEFOGGER

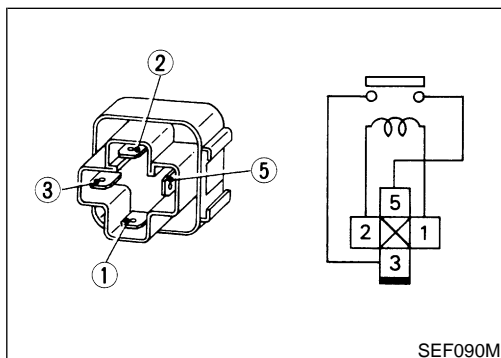
Trouble Diagnoses (Cont'd)

4	CHECK IGNITION INPUT SIGNAL	
<p>Check voltage between smart entrance control unit harness connector M111 terminal 27 (G/W) and ground.</p>		
		<div style="display: flex; align-items: center; gap: 10px;">   </div> <p>Voltage [V]: Ignition switch is ON. Approx. 12 Ignition switch is OFF. 0</p>
LEL016A		
OK or NG		
OK	▶	GO TO 5.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 10A fuse [No. 5, located in the fuse block (J/B)] ● Harness for open or short between smart entrance control unit and fuse

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5	CHECK CONTROL UNIT GROUND CIRCUIT	
<p>Check continuity between smart entrance control unit harness connector M111 terminals 43 (B), 64 (B) and ground.</p>		
		<p>Continuity should exist.</p>
WEL484A		
OK or NG		
OK	▶	Replace smart entrance control unit.
NG	▶	Repair harness or connectors.

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Electrical Components Inspection REAR WINDOW DEFOGGER RELAY

NEEL0219

NEEL0219S01

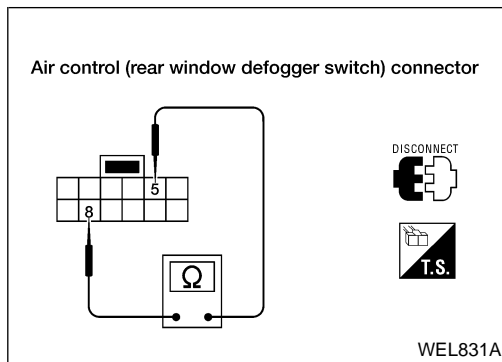
Check continuity between terminals 3 and 5.

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

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REAR WINDOW DEFOGGER

Electrical Components Inspection (Cont'd)

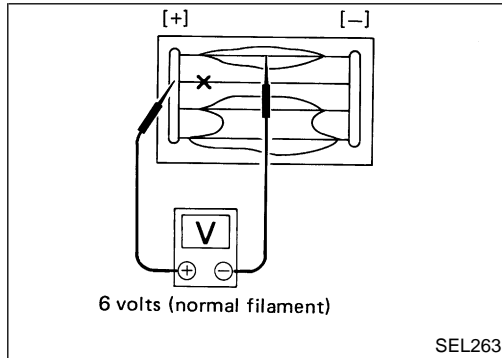


REAR WINDOW DEFOGGER SWITCH

NEEL0219S02

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

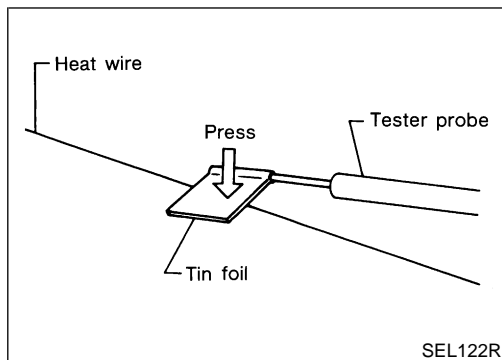
Connector	Terminal	Condition	Continuity
M95	5-8	Rear window defogger switch is pushed	Yes
		Rear window defogger switch is released	No



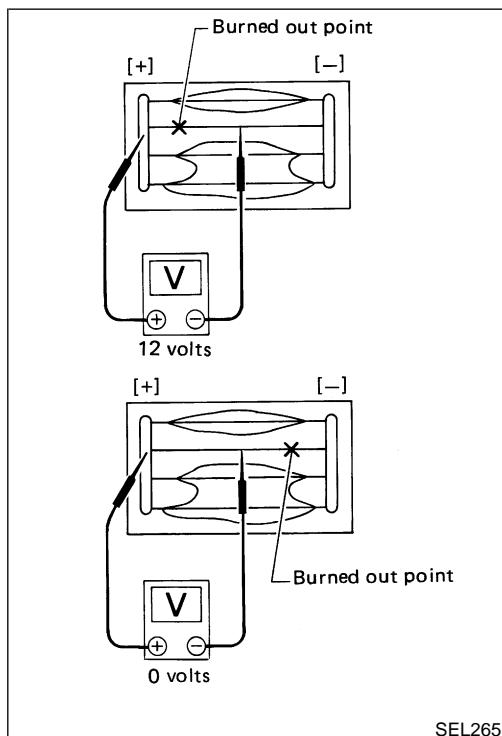
Filament Check

NEEL0220

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



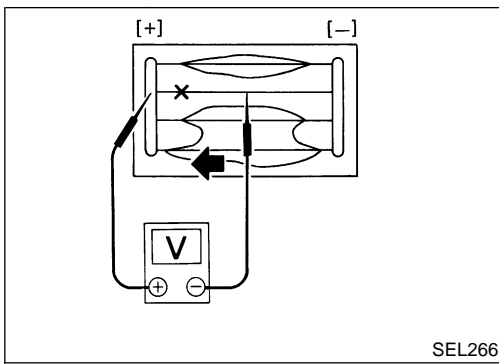
- When measuring voltage, wrap tin foil around the top of the negative probe. Then press the foil against the wire with your finger.



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

REAR WINDOW DEFOGGER

Filament Check (Cont'd)



- To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.

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Filament Repair

REPAIR EQUIPMENT

NEEL0221

NEEL0221S01

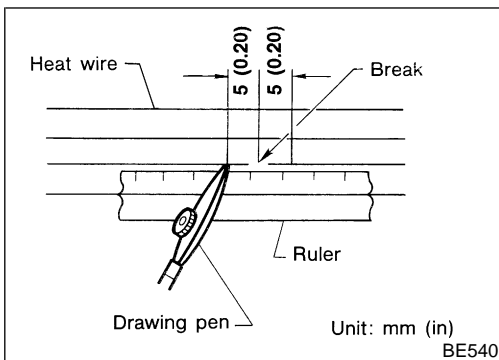
- Conductive silver composition (Dupont No. 4817 or equivalent)
- Ruler 30 cm (11.8 in) long
- Drawing pen
- Heat gun
- Alcohol
- Cloth

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REPAIRING PROCEDURE

NEEL0221S02

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

AT

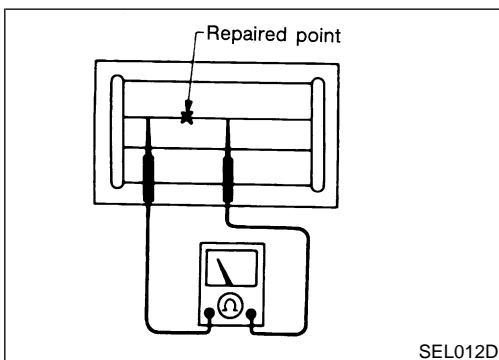
TF

Shake silver composition container before use.

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

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

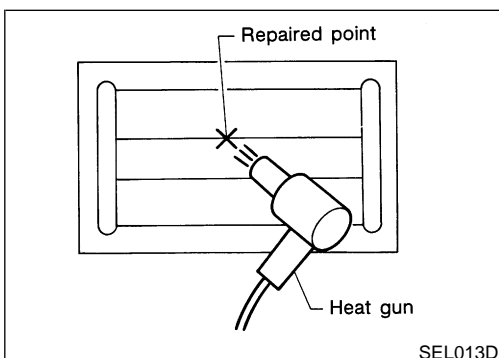
SU

Do not touch repaired area while test is being conducted.

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

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AUDIO

System Description

System Description

NEEL0079

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

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 2, 4, 14 and 16
- to front door speakers and pillar tweeters.

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

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 2, 4, 14 and 16
- to door speakers and pillar tweeters and
- to subwoofer amplifier terminals 2 and 4.

When the steering wheel audio control switches are pushed, audio signals are supplied

- through audio unit terminal 23
- to steering wheel audio control switch terminal 15 and
- through steering audio control switch terminal 16
- to audio unit terminal 9.

CREW CAB WITHOUT AMPLIFIER

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 2, 4, 14 and 16
- to front door speakers, pillar tweeters and rear door speakers.

When the steering wheel audio control switches are pushed, audio signals are supplied

- through audio unit terminal 23
- to steering wheel audio control switch terminal 15 and
- through steering audio control switch terminal 16
- to audio unit terminal 24.

CREW CAB WITH AMPLIFIER

NEEL0079S06

Power is supplied at all times

- through 15A fuse (No. 41, located in fuse and fusible link box)
- to audio unit terminal 6 and

AUDIO

System Description (Cont'd)

- through 30A fusible link (letter h, located in fuse and fusible link box)
- to audio amplifier terminals 5 and 12.

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

- through 10A fuse [No. 18, located in fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.

Ground is also supplied

- through audio amplifier terminals 4 and 11
- to body grounds M14 and M68.

With the audio unit ON, audio signals are supplied

- through audio unit terminals 1, 2, 3, 4, 12, 13, 14, 15 and 16
- to audio amplifier terminals 13, 15, 16, 17, 20, 21, 22, 23, and 24
- through amplifier terminals 1, 2, 3, and 9
- to front door speakers, pillar tweeters, rear speakers and subwoofer.

When the steering wheel audio control switches are pushed, audio signals are supplied

- through audio unit terminal 23
- to steering wheel audio control switch terminal 15 and
- through steering audio control switch terminal 16
- to audio unit terminal 24.

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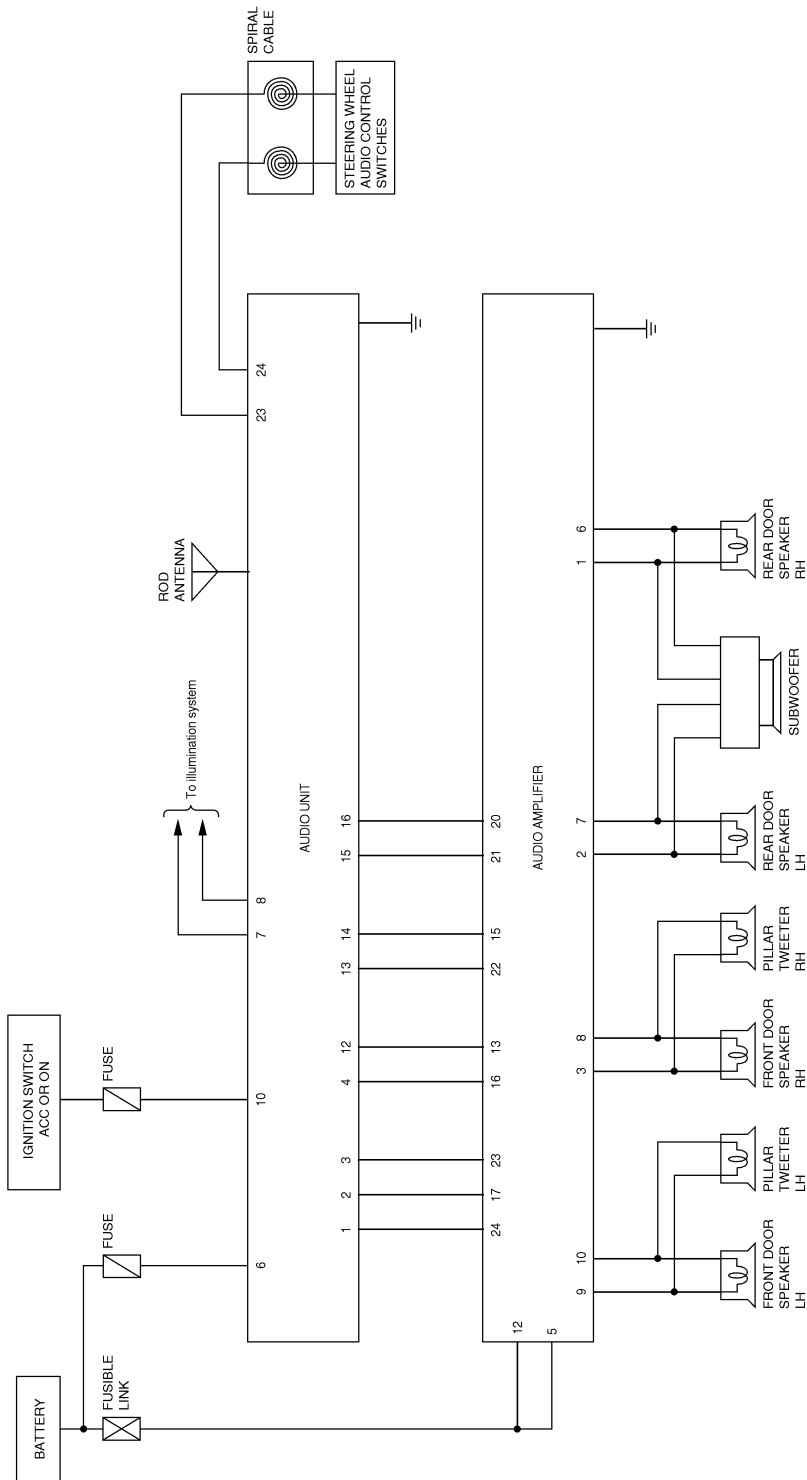
IDX

AUDIO

Schematic — With Audio Amplifier

Schematic — With Audio Amplifier

NEEL0232



LEL749A

AUDIO

Wiring Diagram — AUDIO —

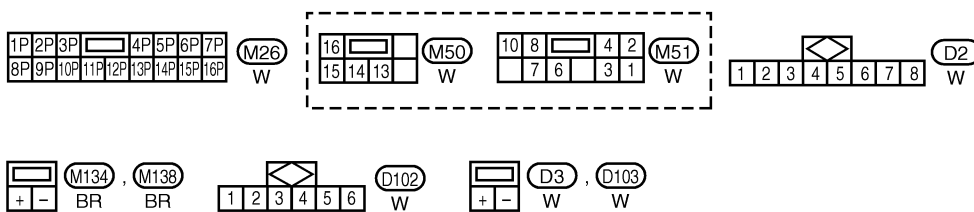
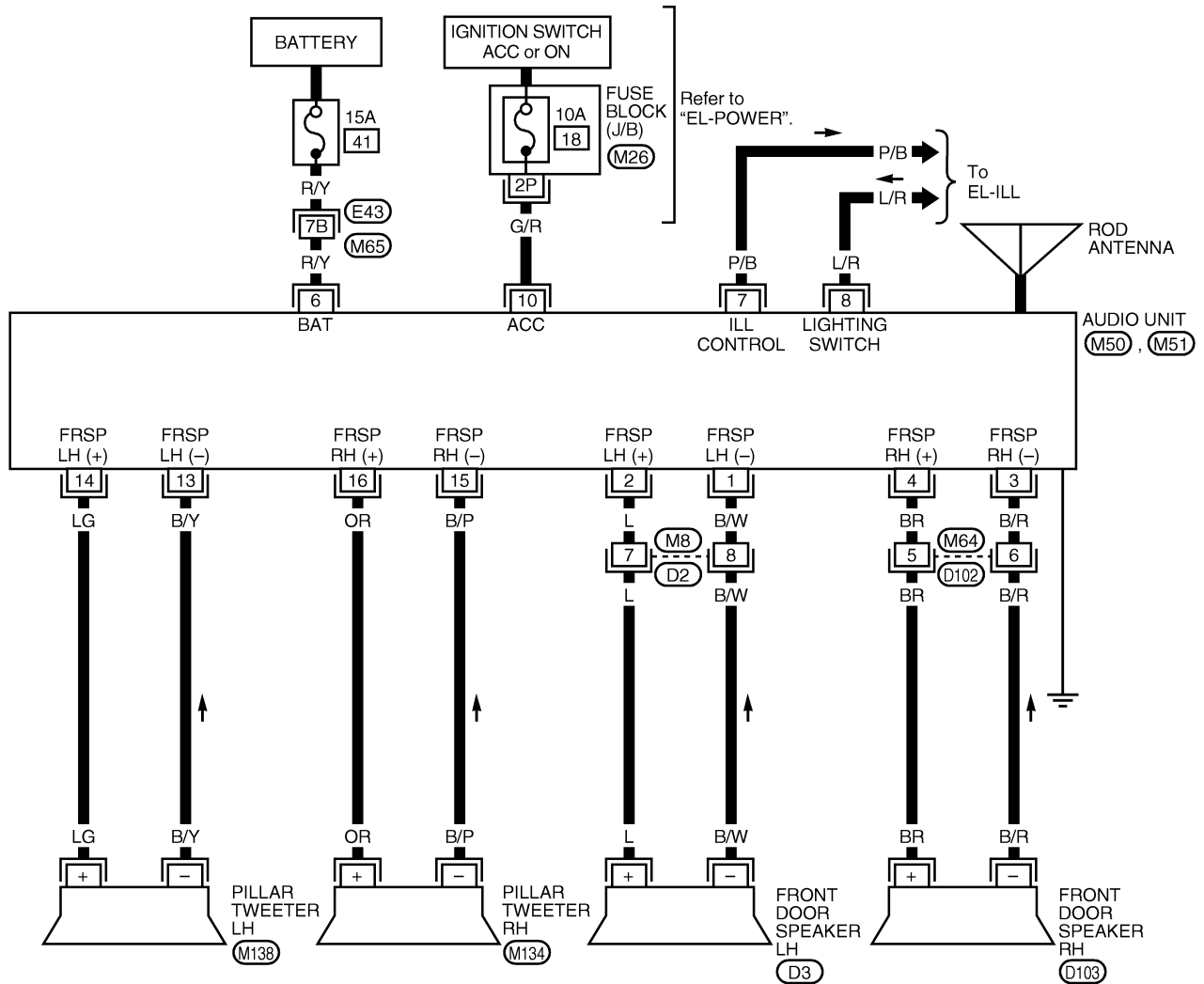
Wiring Diagram — AUDIO —

KING CAB WITH BASE AUDIO SYSTEM

NEEL0157

NEEL0157S01

EL-AUDIO-01



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

WEL750A

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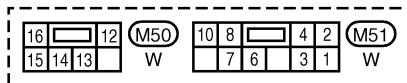
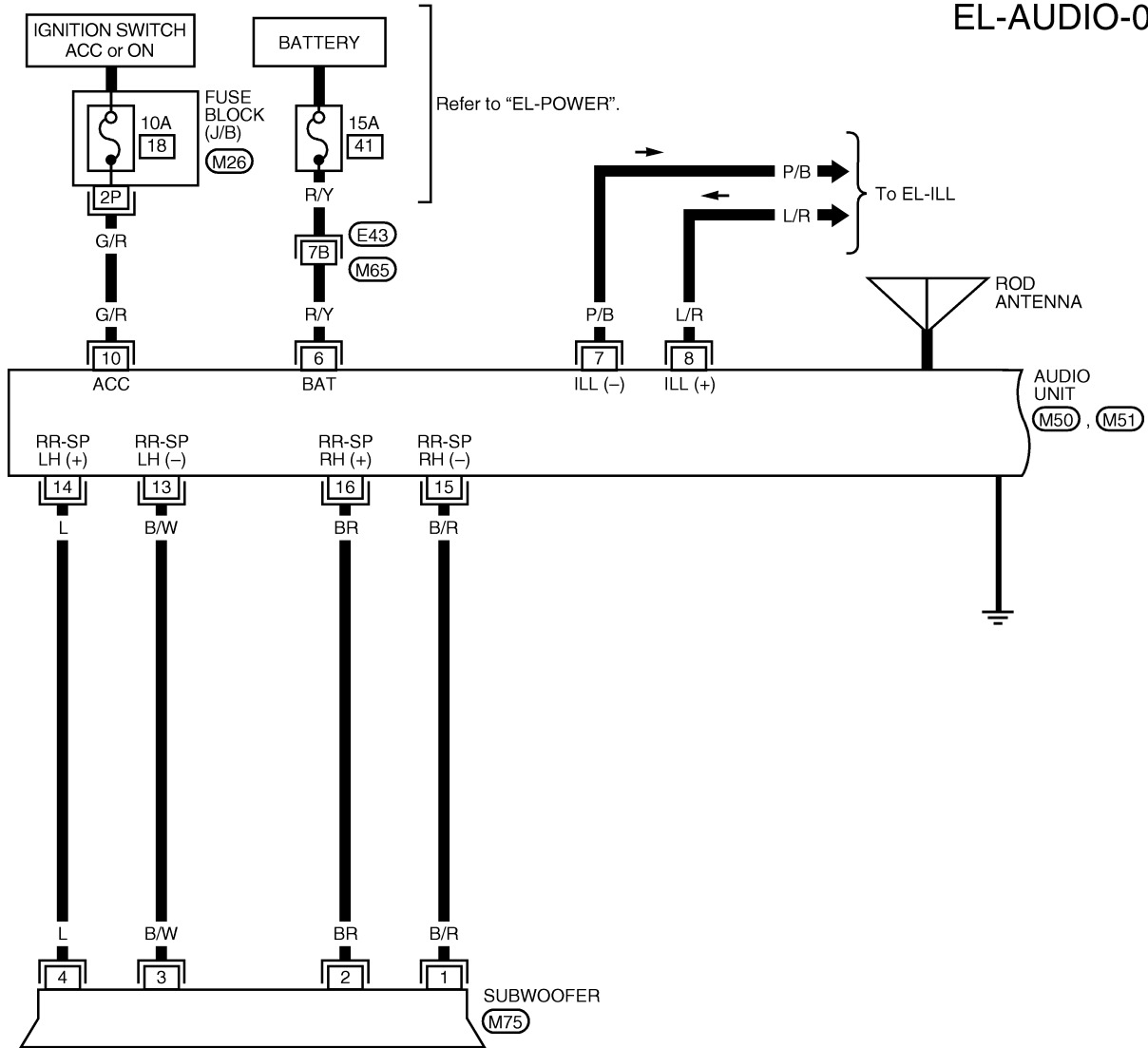
AUDIO

Wiring Diagram — AUDIO — (Cont'd)

KING CAB WITH PREMIUM AUDIO SYSTEM

NEEL0157S02

EL-AUDIO-02



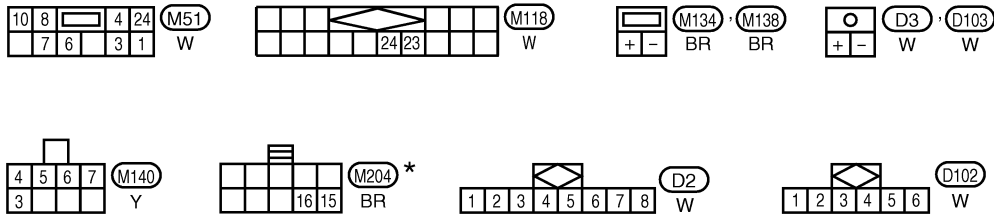
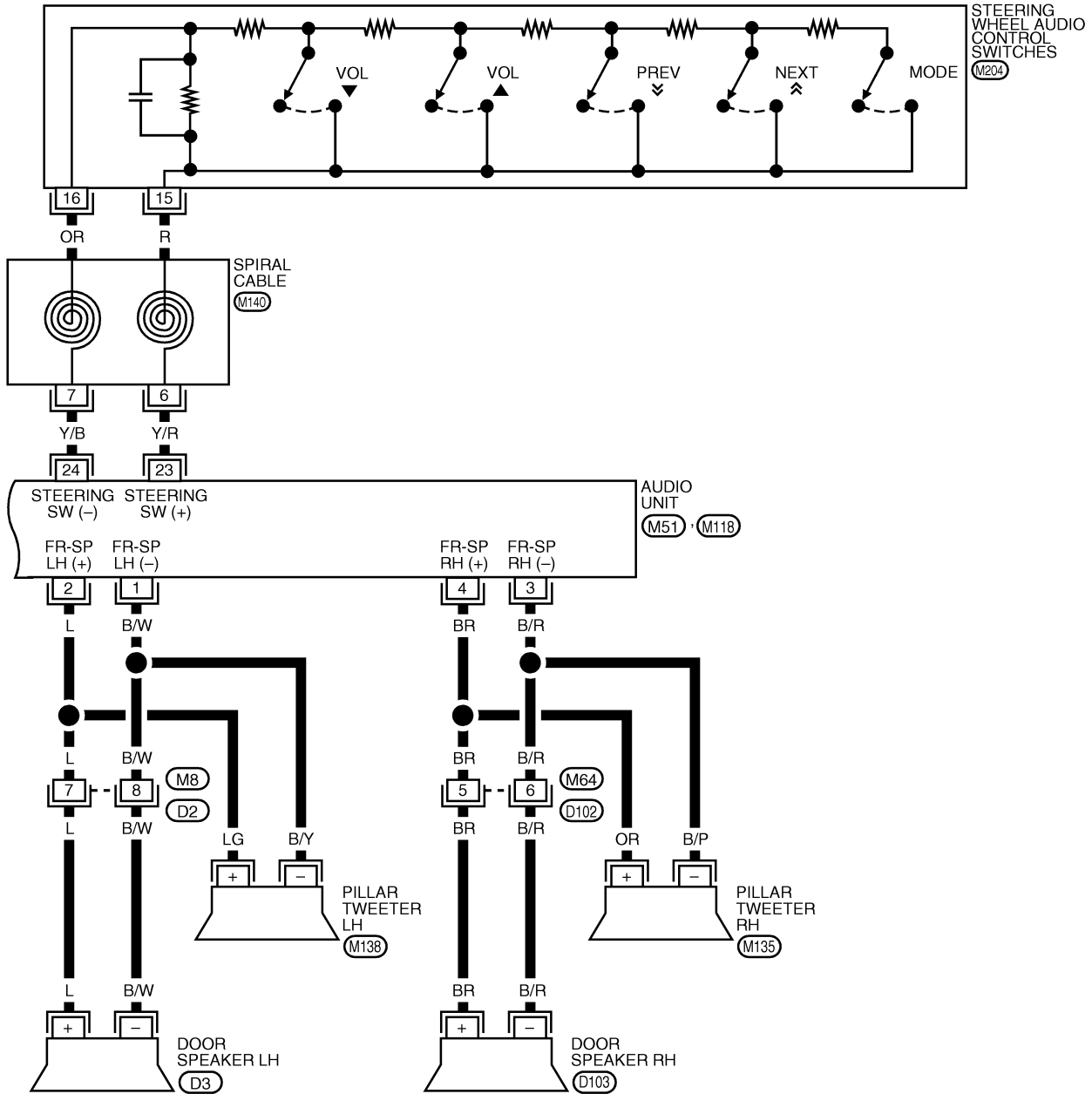
Refer to the following.
 (M65), (E43) - SUPER
 MULTIPLE JUNCTION (SMJ)

WEL751A

AUDIO

Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-03



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

LEL752A

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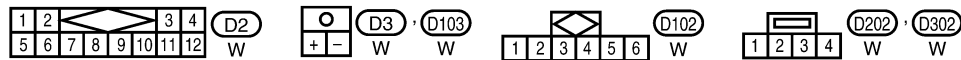
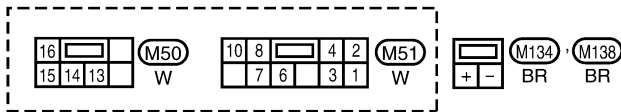
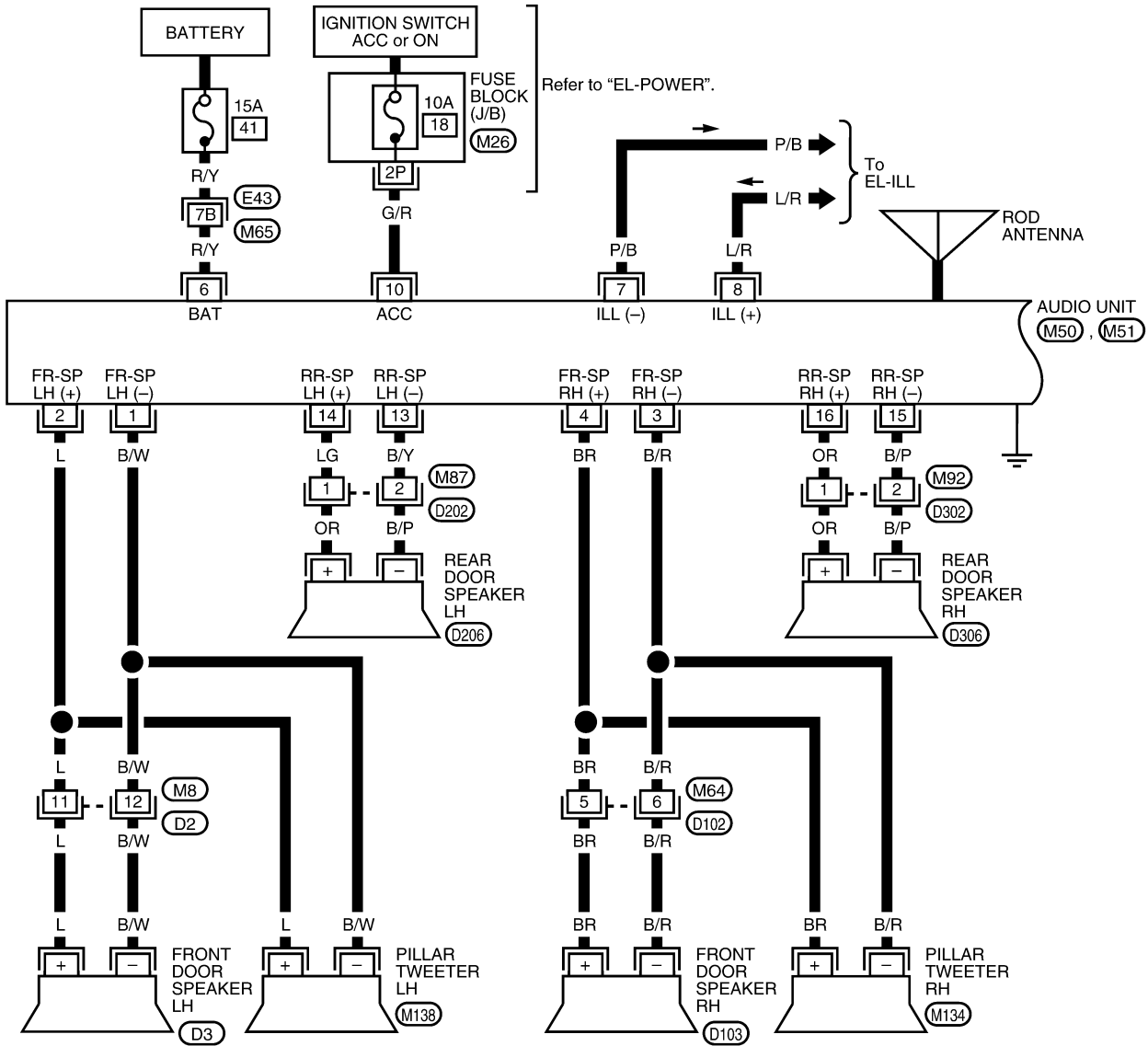
AUDIO

Wiring Diagram — AUDIO — (Cont'd)

CREW CAB WITHOUT AMPLIFIER

NEEL0157S03

EL-AUDIO-04



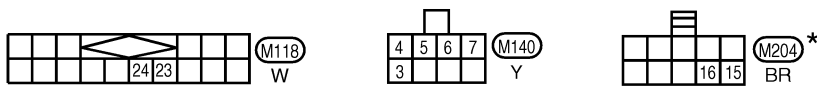
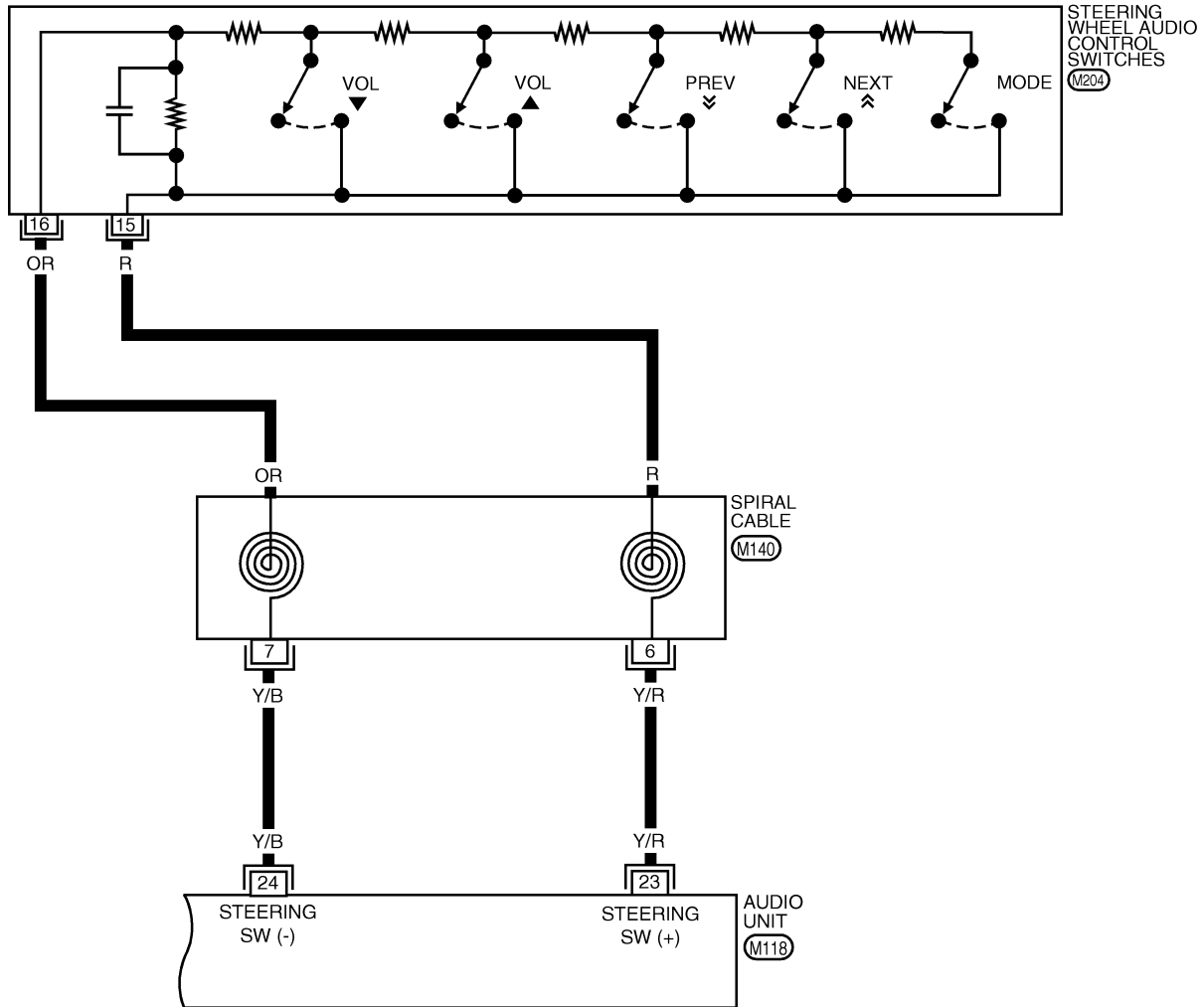
Refer to the following.
 (M65), (E43) - SUPER
 MULTIPLE JUNCTION (SMJ)

WEL753A

AUDIO

Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-05



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

WEL754A

GI

MA

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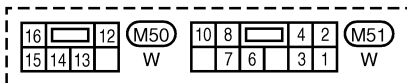
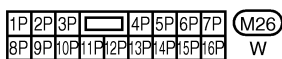
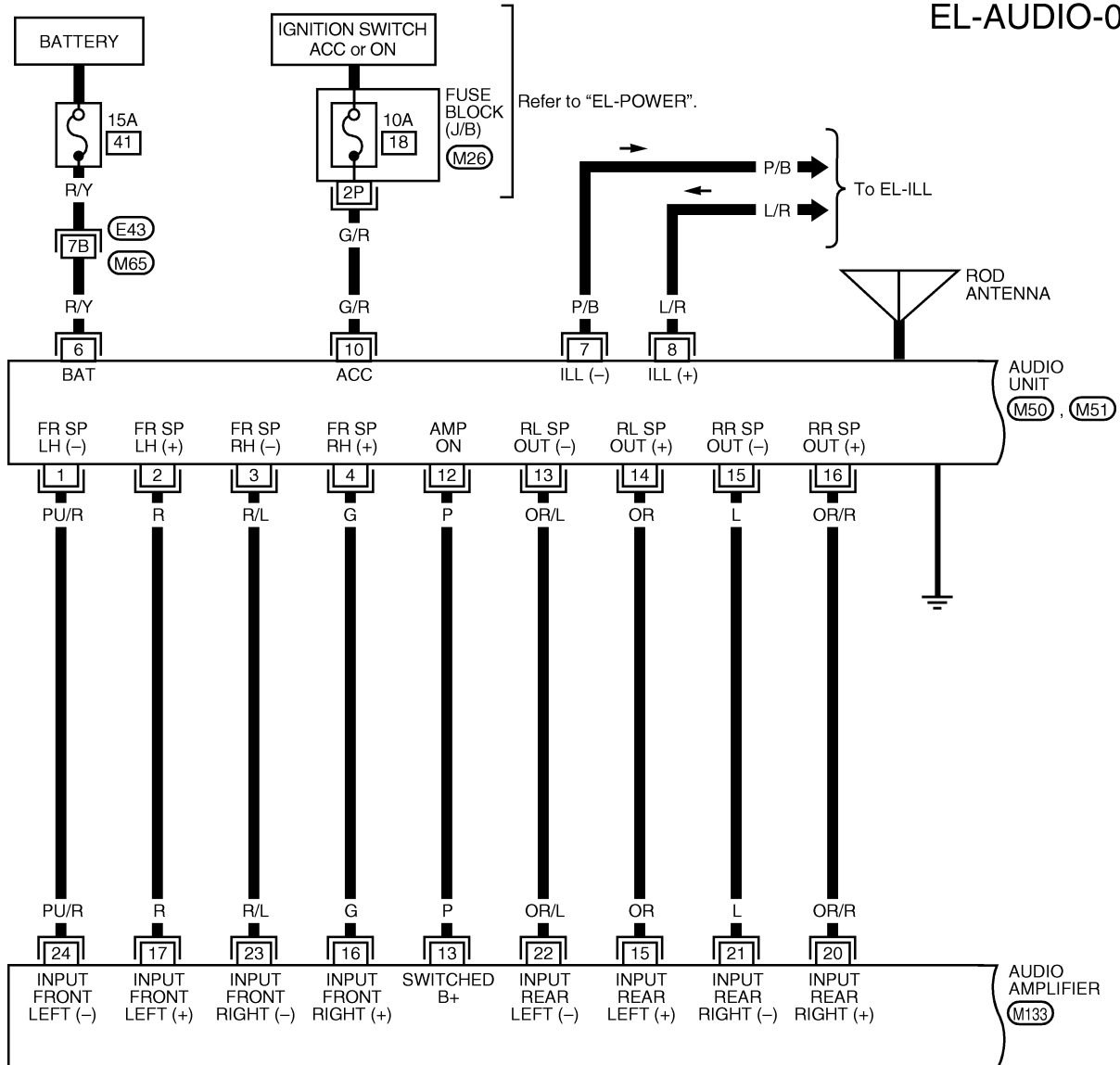
AUDIO

Wiring Diagram — AUDIO — (Cont'd)

CREW CAB WITH AMPLIFIER

NEEL0157S04

EL-AUDIO-06

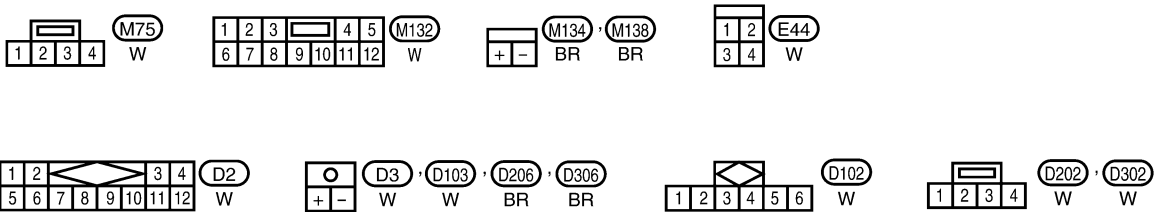
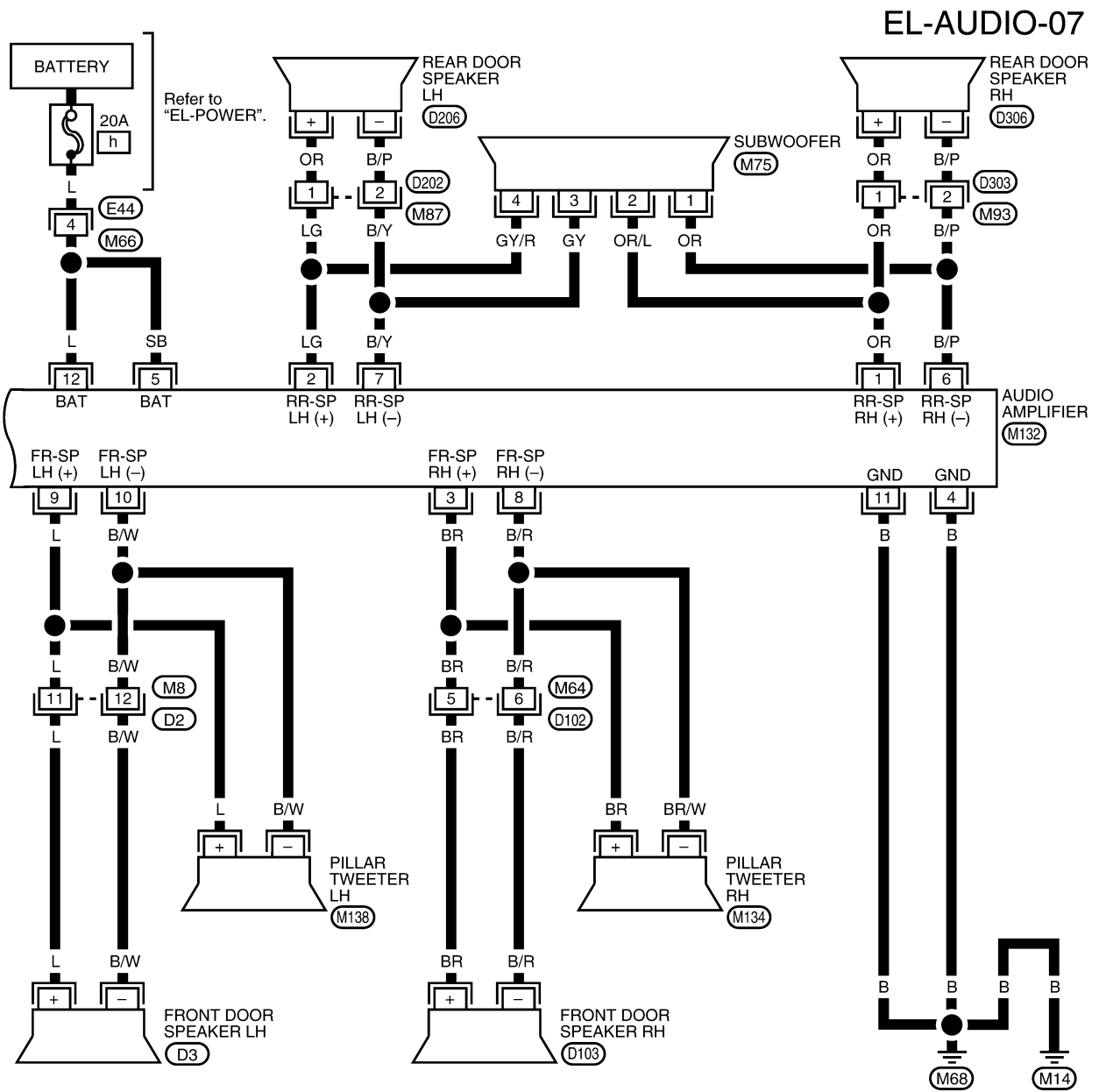


Refer to the following.
 M65, E43 - SUPER
 MULTIPLE JUNCTION (SMJ)

LEL755A

AUDIO

Wiring Diagram — AUDIO — (Cont'd)



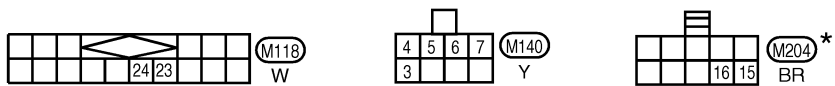
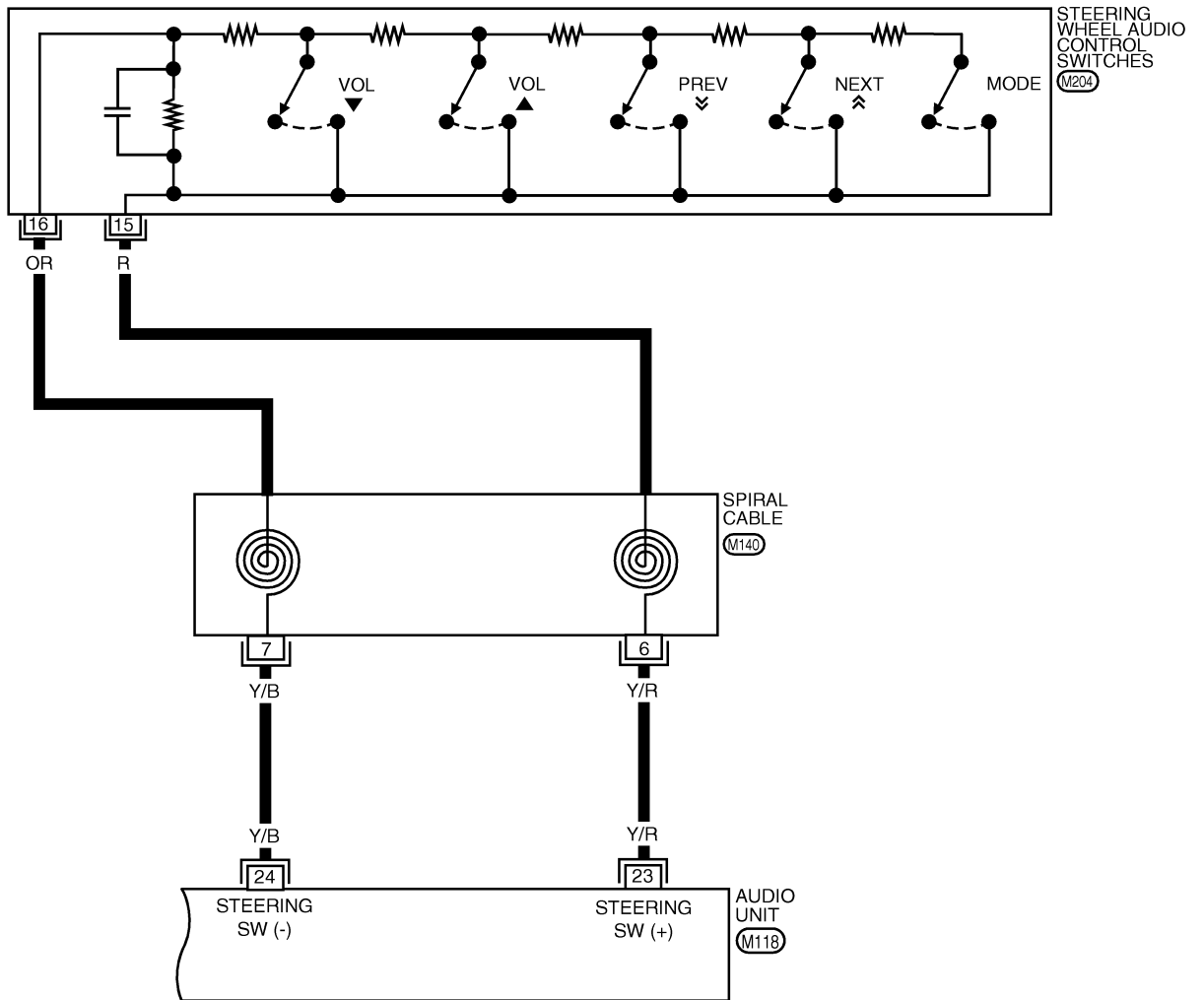
WEL101B

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AUDIO

Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-08



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

WEL757A

AUDIO

Trouble Diagnoses

Trouble Diagnoses

NEEL0082

AUDIO UNIT (EXCEPT CREW CAB WITH AMPLIFIER)

NEEL0082S01

Symptom	Possible causes	Repair order	
Audio unit inoperative (no digital display and no sound from speakers).	<ol style="list-style-type: none"> 10A fuse Poor audio unit case ground Audio unit 	<ol style="list-style-type: none"> 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. Check audio unit case ground. Remove audio unit for repair. 	GI MA EM
Audio unit controls are operational, but no sound is heard from any speaker.	<ol style="list-style-type: none"> Audio unit output Audio unit 	<ol style="list-style-type: none"> Check audio unit output voltages. Remove audio unit for repair. 	LC
Audio unit presets are lost when ignition switch is turned OFF.	<ol style="list-style-type: none"> 15A fuse Audio unit 	<ol style="list-style-type: none"> 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. Remove audio unit for repair. 	EC FE
Individual speaker is noisy or inoperative.	<ol style="list-style-type: none"> Speaker Audio unit output Speaker circuit Audio unit 	<ol style="list-style-type: none"> Check speaker. Check audio unit output voltages. Check wires for open or short between audio unit and speaker. Remove audio unit for repair. 	CL
Subwoofer speaker is noisy or inoperative (king cab models with premium audio system).	<ol style="list-style-type: none"> Speaker Speaker circuit Audio unit output 	<ol style="list-style-type: none"> Check speaker. Check wires for open or short between audio unit and speaker. Check audio unit output voltages to speaker. 	MT AT
Audio unit stations are weak or noisy.	<ol style="list-style-type: none"> Antenna Poor audio unit ground Audio unit 	<ol style="list-style-type: none"> Check antenna. Check audio unit ground. Remove audio unit for repair. 	TF
Audio unit generates noise in AM and FM modes with engine running.	<ol style="list-style-type: none"> Poor audio unit ground Loose or missing ground bonding straps Ignition condenser or rear window defogger noise suppressor condenser (Crew Cab models) Generator Ignition coil or secondary wiring Audio unit 	<ol style="list-style-type: none"> Check audio unit ground. Check ground bonding straps. Replace ignition condenser or rear window defogger noise suppressor condenser (Crew Cab models). Check generator. Check ignition coil and secondary wiring. Remove audio unit for repair. 	PD AX
Audio unit generates noise in AM and FM modes with accessories on (switch pops and motor noise).	<ol style="list-style-type: none"> Poor audio unit ground Antenna Accessory ground Faulty accessory 	<ol style="list-style-type: none"> Check audio unit ground. Check antenna. Check accessory ground. Replace accessory. 	SU BR
Steering wheel audio control switch does not operate (except base audio system).	<ol style="list-style-type: none"> Steering wheel audio control switch Audio unit output Steering wheel audio control switch circuit Audio unit 	<ol style="list-style-type: none"> Check steering wheel audio control switch, refer to "STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE CHECK", EL-152. Check audio unit output voltage. Check harness between audio unit and steering switch. Remove audio unit for repair. 	ST RS

AUDIO UNIT (CREW CAB WITH AMPLIFIER)

NEEL0082S04

Symptom	Possible causes	Repair order	
Audio unit inoperative (no digital display and no sound from speakers).	<ol style="list-style-type: none"> 10A fuse Poor audio unit case ground Audio unit 	<ol style="list-style-type: none"> 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. Check audio unit case ground. Remove audio unit for repair. 	HA SC EL

AUDIO

Trouble Diagnoses (Cont'd)

Symptom	Possible causes	Repair order
Audio unit controls are operational, but no sound is heard from any speaker.	<ol style="list-style-type: none"> 20A fusible link Audio amplifier ground Audio amplifier 	<ol style="list-style-type: none"> Check 20A fusible link (letter h. located in fuse and fusible link box). Verify battery positive voltage is present at terminal 5 and 12. Check harness continuity between audio amplifier terminals 4 and 11, and ground. Remove audio amplifier for repair.
Audio unit presets are lost when ignition switch is turned OFF.	<ol style="list-style-type: none"> 15A fuse Audio unit 	<ol style="list-style-type: none"> 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. Remove audio unit for repair.
Individual speaker is noisy or inoperative.	<ol style="list-style-type: none"> Each speaker Output circuit to each speaker 	<ol style="list-style-type: none"> Check speaker. Check the output circuit to each speaker <ul style="list-style-type: none"> between audio unit and audio amplifier between audio amplifier and each speaker
Audio unit stations are weak or noisy.	<ol style="list-style-type: none"> Antenna Poor audio unit ground Audio unit 	<ol style="list-style-type: none"> Check antenna. Check audio unit ground. Remove audio unit for repair.
Audio unit generates noise in AM and FM modes with engine running.	<ol style="list-style-type: none"> Poor audio unit ground Loose or missing ground bonding straps Ignition condenser or rear window defogger noise suppressor condenser Generator Ignition coil or secondary wiring Audio unit 	<ol style="list-style-type: none"> Check audio unit ground. Check ground bonding straps. Replace ignition condenser or rear window defogger noise suppressor condenser. Check generator. Check ignition coil and secondary wiring. Remove audio unit for repair.
Audio unit generates noise in AM and FM modes with accessories on (switch pops and motor noise).	<ol style="list-style-type: none"> Poor audio unit ground Antenna Accessory ground Faulty accessory 	<ol style="list-style-type: none"> Check audio unit ground. Check antenna. Check accessory ground. Replace accessory.
Steering wheel audio control switch does not operate.	<ol style="list-style-type: none"> Steering wheel audio control switch Audio unit output Steering wheel audio control switch circuit Audio unit 	<ol style="list-style-type: none"> Check steering wheel audio control switch, refer to "STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE CHECK", EL-152. Check audio unit output voltage. Check harness between audio unit and steering switch. Remove audio unit for repair.

Inspection

SPEAKER

NEEL0083

NEEL0083S03

- Disconnect speaker harness connector.
- Measure the resistance between speaker terminals + and -.
 - The resistance should be 2 - 4Ω.
- Using jumper wires, momentarily connect a 9V battery between speaker terminals + and -.
 - A momentary hum or pop should be heard.

ANTENNA

NEEL0083S02

- 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

Inspection (Cont'd)

AUDIO UNIT VOLTAGES

NEEL0083S04

Terminal	Wire color		Voltage (V) (Approx.)		
	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/W	B/W	5 - 7.5	5 - 7.5	5 - 7.5
2	L	L	5 - 7.5	5 - 7.5	5 - 7.5
3	B/R	B/R	5 - 7.5	5 - 7.5	5 - 7.5
4	BR	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	P*	—	—	10.5	—
13	B/Y	B/Y	5 - 7.5	5 - 7.5	5 - 7.5
14	LG	LG	5 - 7.5	5 - 7.5	5 - 7.5
15	B/P	B/P	5 - 7.5	5 - 7.5	5 - 7.5
16	OR	OR	5 - 7.5	5 - 7.5	5 - 7.5

*: With amplifier only.

AMPLIFIER VOLTAGES

NEEL0083S05

Terminal	Wire color	Voltage (V) (Approx.)
1	OR	5 - 7.5
2	LG	5 - 7.5
3	BR	5 - 7.5
4	B	Body ground
5	SB	Battery
6	B/P	5 - 7.5
7	B/Y	5 - 7.5
8	R/R	5 - 7.5
9	L	5 - 7.5
10	B/W	5 - 7.5
11	B	Body ground
12	L	Battery
13	P	10.5
15	OR	5 - 7.5
16	G	5 - 7.5
17	R	5 - 7.5

AUDIO

Inspection (Cont'd)

20	OR/R	5 - 7.5
21	L	5 - 7.5
22	OR/L	5 - 7.5
23	R/L	5 - 7.5
24	PU/R	5 - 7.5

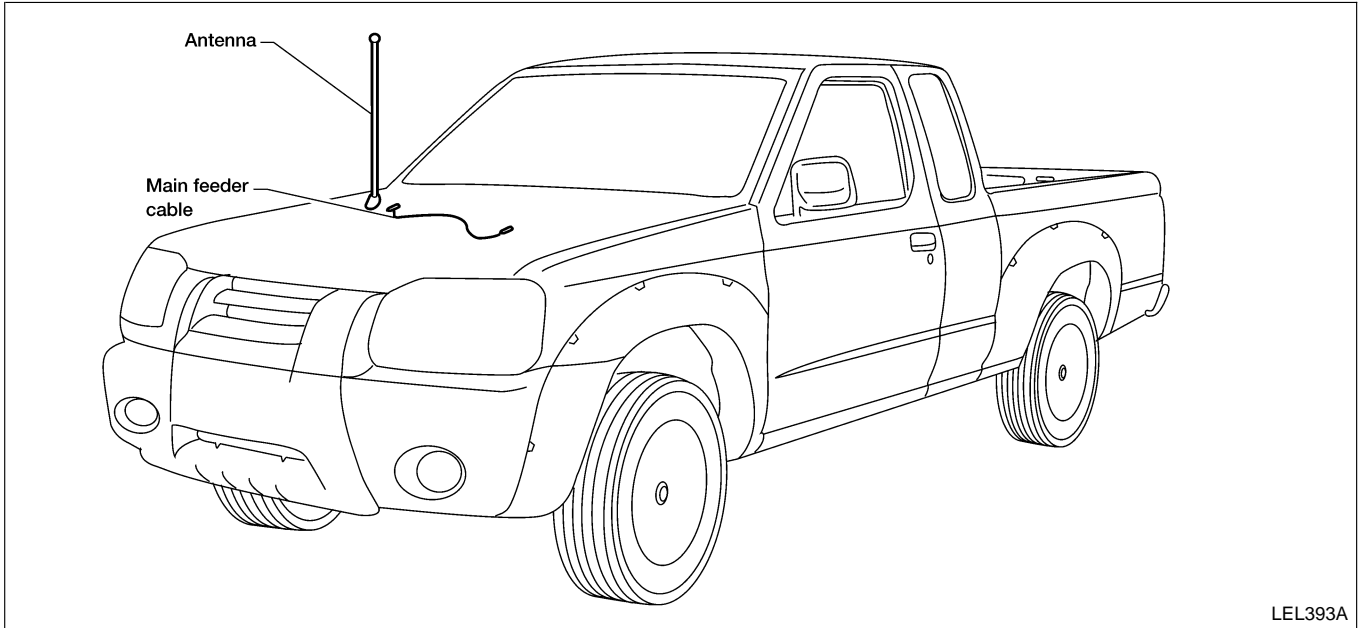
STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE CHECK

NEEL0083S06

	Terminal No.	Resistance (Ω) (Approx.)
VOLUM (DOWN) SW	15 - 16	21.7 - 22.2
VOLUM (UP) SW		69.3 - 70.7
PREVIOUS SW		108.9 - 111.1
NEXT SW		158.4 - 161.6
MODE SW		326.7 - 333.3

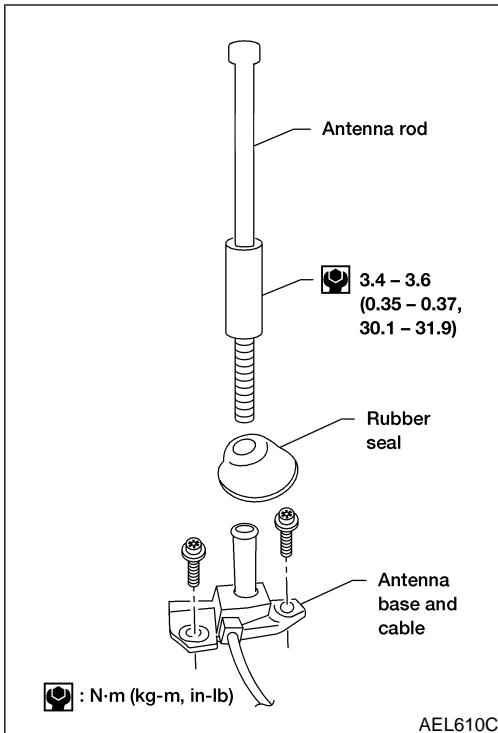
Location of Antenna

NEEL0204



LEL393A

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Fixed Antenna Rod Replacement REMOVAL

NEEL0192

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.

AT
TF
PD
AX
SU
BR

INSTALLATION

Install in reverse order of removal.

NEEL0192S02

CAUTION:

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

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IDX

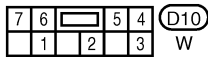
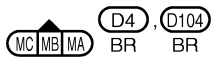
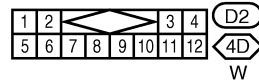
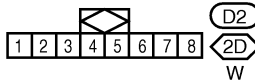
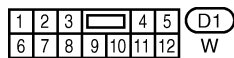
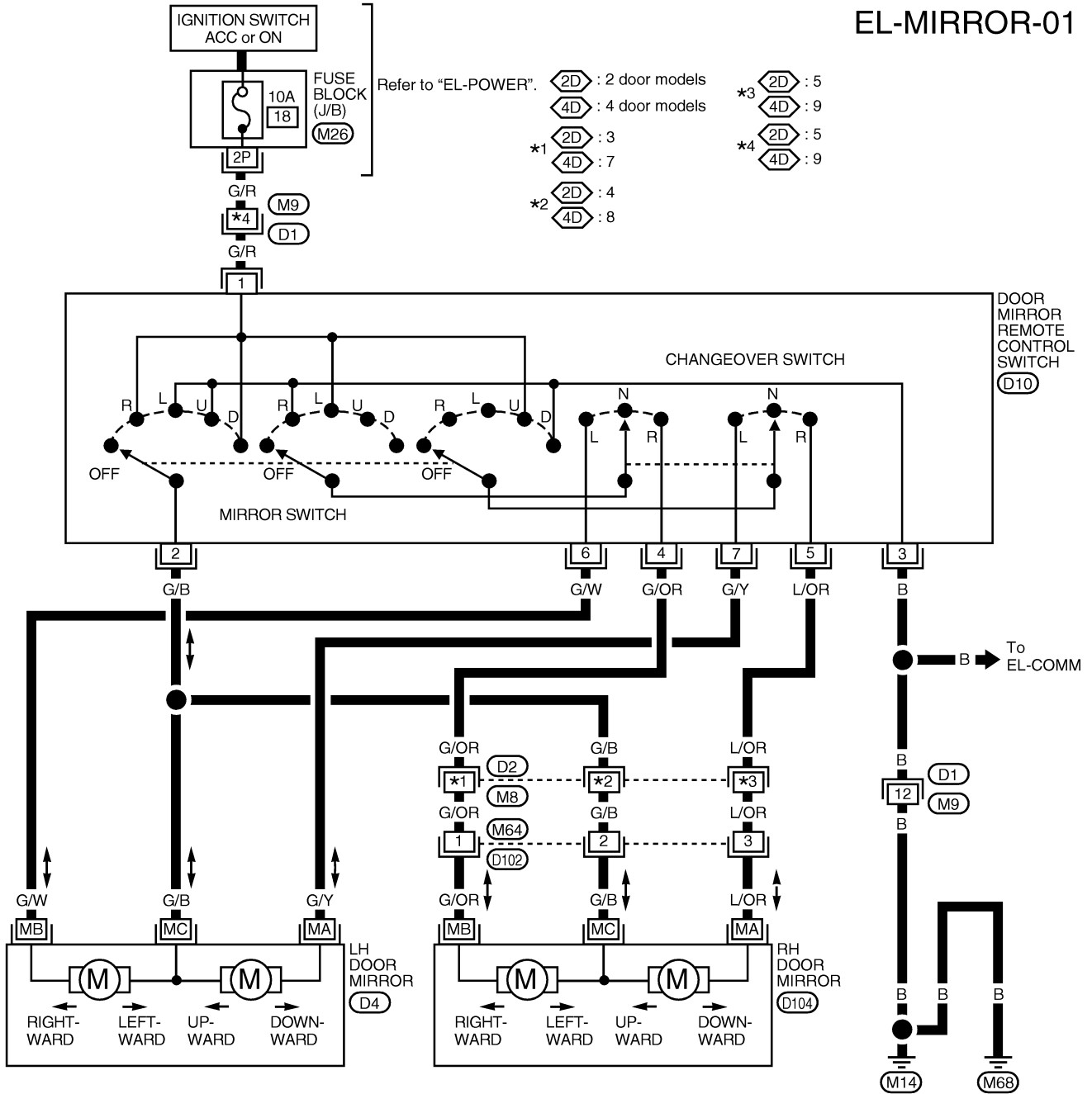
DOOR MIRROR

Wiring Diagram — MIRROR —

Wiring Diagram — MIRROR —

NEEL0090

EL-MIRROR-01

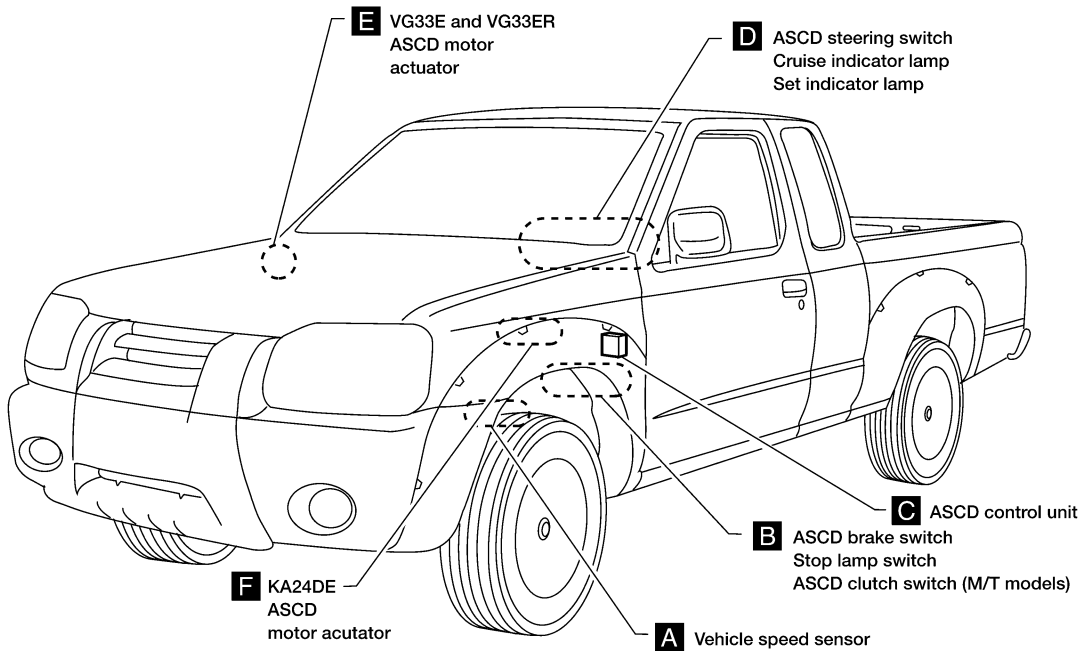


AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Component Parts and Harness Connector Location

Component Parts and Harness Connector Location

NEEL0094



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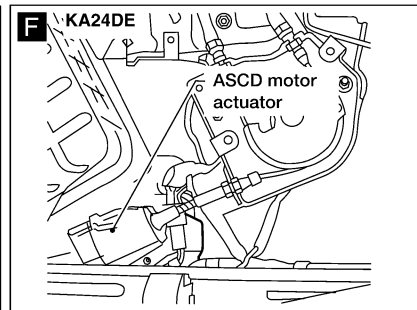
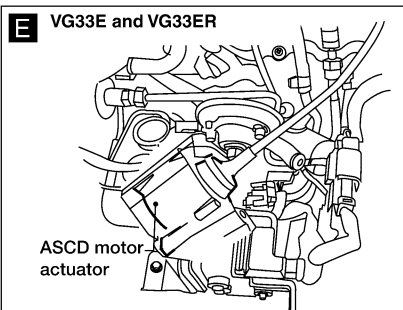
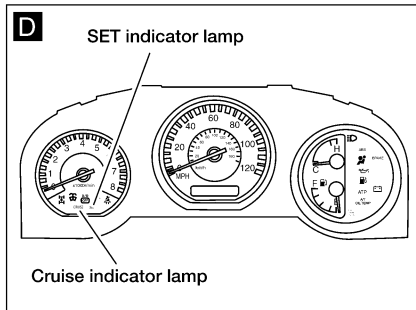
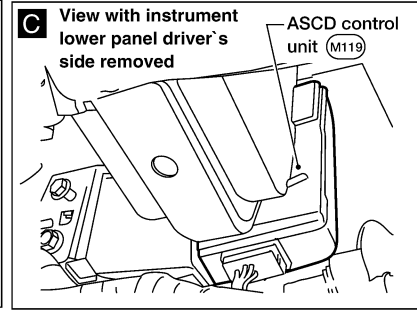
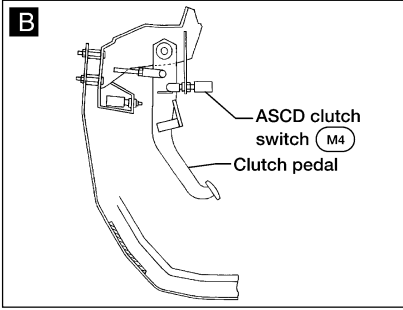
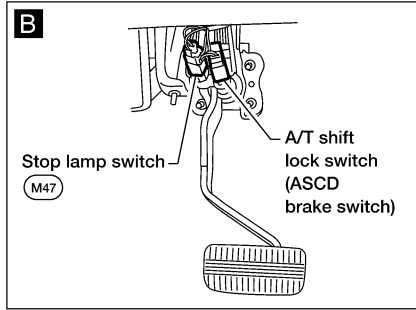
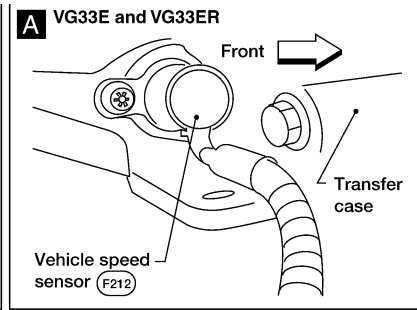
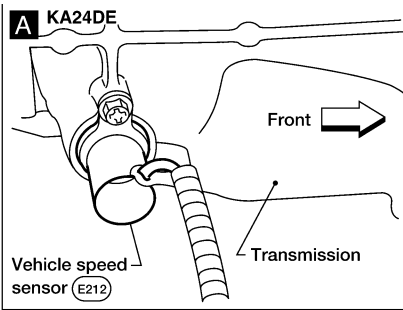
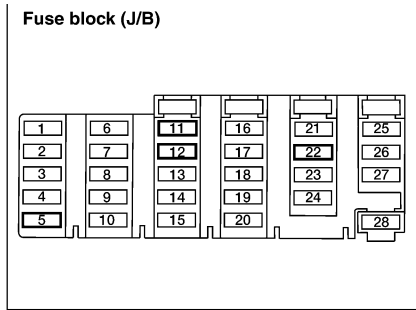
SC

EL

WEL948A

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Component Parts and Harness Connector Location (Cont'd)



System Description

Refer to Owner's Manual for ASCD operating instructions.

NEEL0206

POWER SUPPLY AND GROUND

Power is supplied at all times

- through 15A fuse [No. 22, located in the fuse block (J/B)] (2-door models) or
- through 20A fuse [No. 22, located in the fuse block (J/B)] (4-door models)
- to the stop lamp switch terminal 1

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

- through 10A fuse [No. 5, located in the fuse block (J/B)]
- to ASCD control unit terminal 5.
- through 7.5A fuse [No. 12, located in the fuse block (J/B)]
- to park/neutral position switch terminal 1,
- through 10A fuse [No. 11, located in the fuse block (J/B)]
- to combination meter terminals 32 and 38.

When park/neutral position switch (A/T) is in the P or N position, ground is supplied

- to park/neutral position switch terminal 2
- through ASCD relay terminal 1
- to ASCD relay terminal 2
- through body grounds M14 and M68.

When ON●OFF switch is depressed (ON), ground is supplied

- to ASCD control unit terminal 11
- from ASCD steering switch terminal 14
- to ASCD steering switch terminal 13
- from ASCD control unit terminal 24

Then ASCD control unit illuminates CRUISE indicator.

Ground is supplied

- to combination meter terminal 36
- from ASCD control unit terminal 15.

Ground is supplied

- to ASCD control unit terminal 17
- through body grounds M14 and M68.

OPERATION

Set Operation

To activate the ASCD, all of following conditions must exist

- ASCD control unit receives ON●OFF switch ON signal
- Power supply to ASCD control unit terminal 8 [Brake and clutch pedal is released (M/T), and brake pedal is released and A/T selector lever is in other than P and N position (A/T)].
- Vehicle speed is between 40 km/h (25 MPH) and 144 km/h (89 MPH). (Signal from combination meter.)

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

- to ASCD control unit terminal 11,
- from ASCD steering switch terminal 14.

Then ASCD motor actuator is activated to control throttle wire and ASCD control unit supplies ground

- to combination meter terminal 37 to illuminate SET indicator
- from ASCD control unit terminal 18.

A/T Overdrive Control during Cruise Control Driving (A/T)

KA24DE MODELS

When the vehicle speed is approximately 5 km/h (3 MPH) below set speed, ground is supplied

- from ASCD control unit terminal 10
- to solenoid valve unit terminal 2.

NEEL0206S01

MA

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NEEL0206S02

NEEL0206S0201

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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

System Description (Cont'd)

When this occurs, overdrive is canceled.

When vehicle speed returns to approximately 0.6 km/h (0.4 MPH) below set speed, overdrive is reactivated.

VG33E AND VG33ER MODELS

When the vehicle speed is approximately 5 km/h (3 MPH) below set speed, a signal is sent

- from ASCD control unit terminal 10
- to TCM terminal 24.

When this occurs, the TCM cancels overdrive.

When vehicle speed returns to approximately 0.6 km/h (0.4 MPH) below set speed, overdrive is reactivated.

Coast Operation

NEEL0206S0203

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

If COAST/SET switch is pressed and released quickly during cruise control driving, vehicle set speed will be reduced by 1.6 km/h (1.0 MPH).

Accel Operation

NEEL0206S0204

When the RES/ACCEL switch is depressed, ground is supplied

- from ASCD steering switch terminal 14
- to ASCD control unit terminal 11.

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

If RES/ACCEL switch is pressed and released quickly during cruise control driving, vehicle set speed will be increased by 1.6 km/h (1.0 MPH).

Cancel Operation

NEEL0206S0205

When any of following conditions exist, cruise operation will be canceled

- CANCEL switch is depressed. (Ground is supplied to ASCD control unit terminal 11)
- Brake pedal is depressed. (Power is supplied to ASCD control unit terminal 23 from stop lamp switch)
- Brake or clutch pedal is depressed (M/T), brake pedal is depressed or A/T selector lever is shifted to P or N position (A/T). (Power supply to ASCD control unit terminal 8 is interrupted.)

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

Resume Operation

NEEL0206S0206

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

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

ASCD MOTOR ACTUATOR OPERATION

NEEL0206S03

When the ASCD activates, power is supplied

- from terminal 7 of ASCD control unit
- to ASCD motor actuator terminal 1, and
- from terminal 12 of ASCD control unit
- to ASCD motor actuator terminal 6.

Ground is supplied

- from ASCD control unit terminals 1, 13, and 14
- to terminals 3, 5, and 2 of ASCD motor actuator.

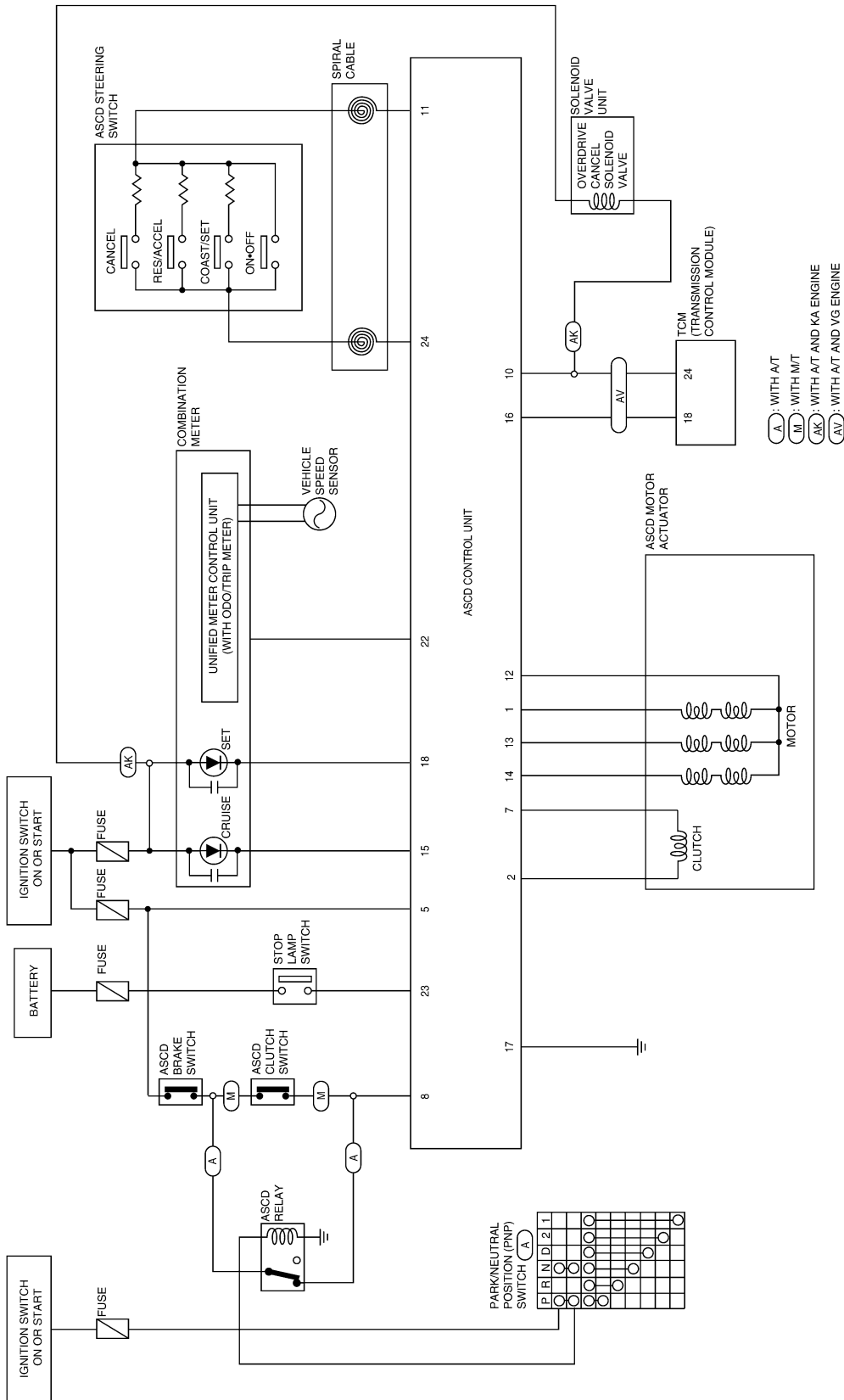
Power to the actuator motor is supplied constantly from the ASCD control unit. The ASCD control unit then switches the actuator motor ground signals ON and OFF to control actuator motor operation and vehicle speed.

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Circuit Diagram

Circuit Diagram

NEEL0096



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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Wiring Diagram — ASCD —

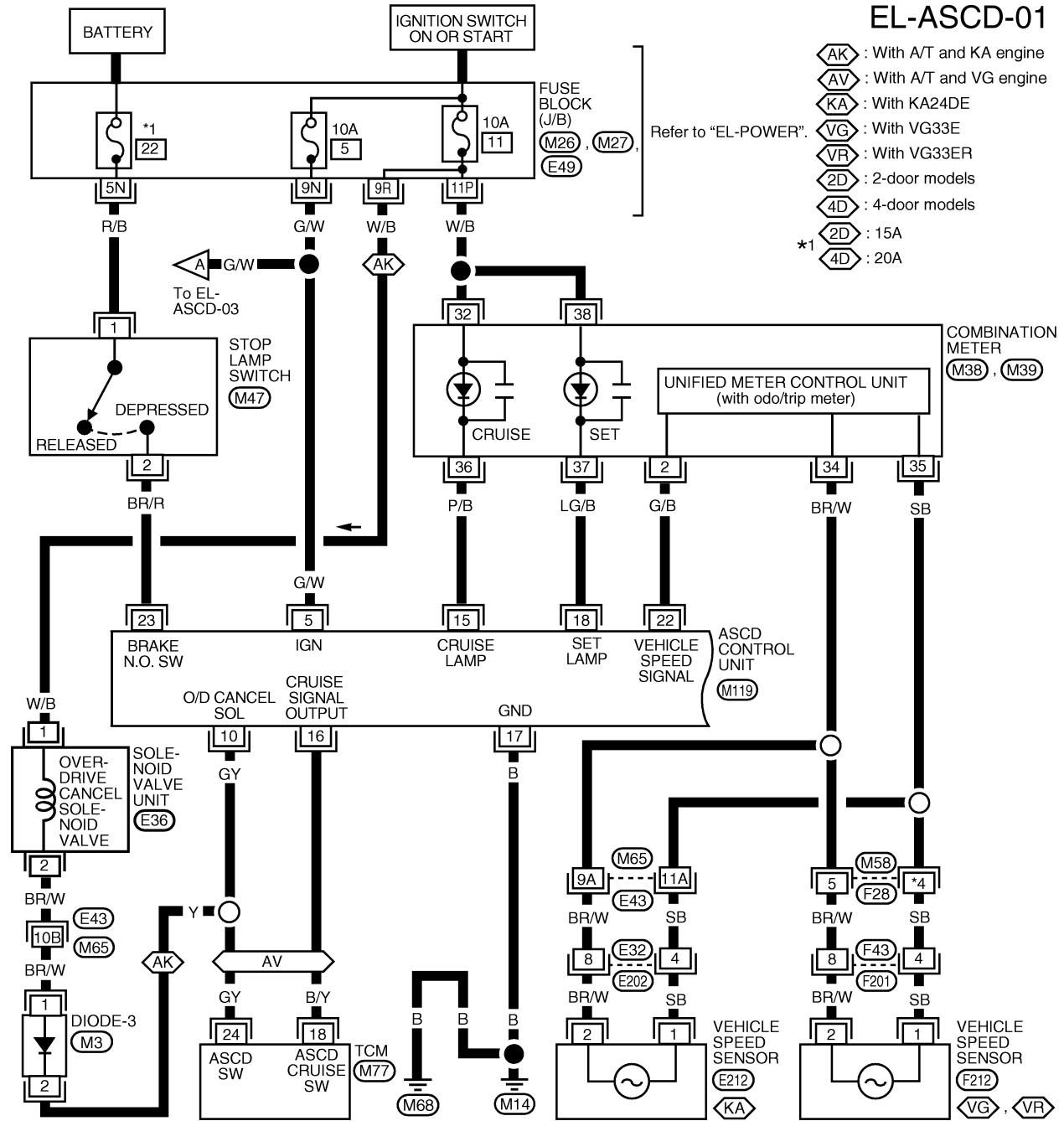
Wiring Diagram — ASCD —

NEEL0097

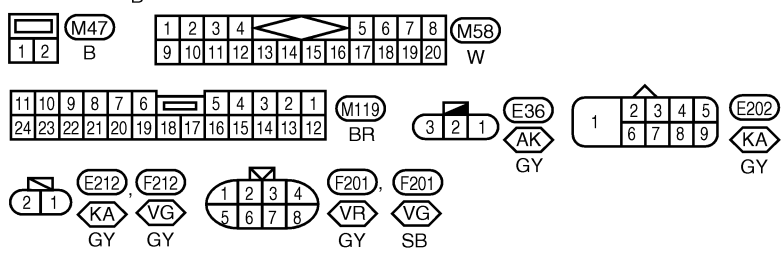
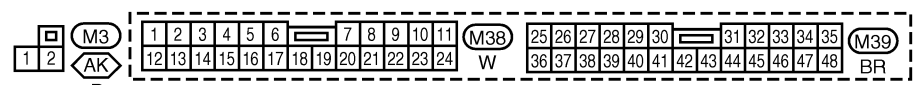
NEEL0097S01

FIG. 1

EL-ASCD-01



- AK : With A/T and KA engine
- AV : With A/T and VG engine
- KA : With KA24DE
- VG : With VG33E
- VR : With VG33ER
- 2D : 2-door models
- 4D : 4-door models
- *1 2D : 15A
- 4D : 20A



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

WEL759A

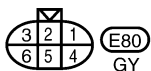
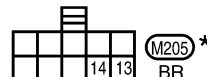
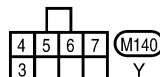
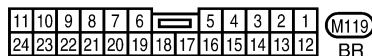
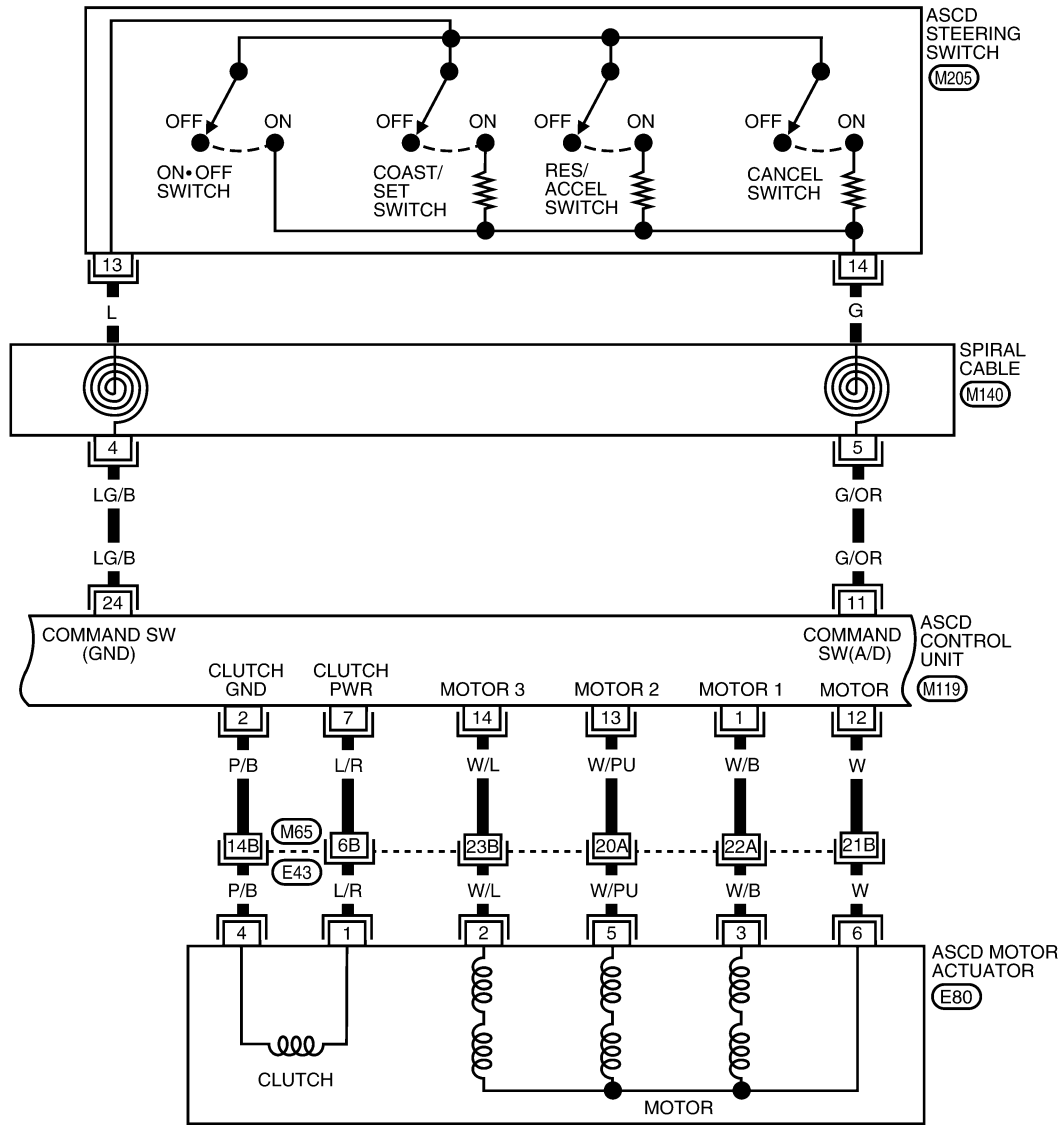
AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Wiring Diagram — ASCD — (Cont'd)

FIG. 2

NEEL0097S02

EL-ASCD-02



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

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

WEL102B

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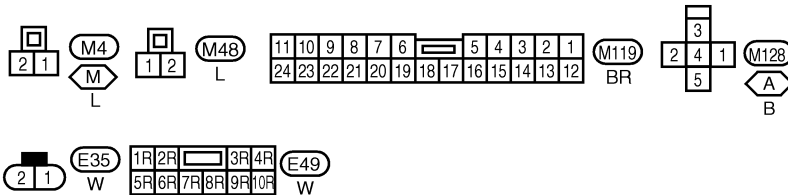
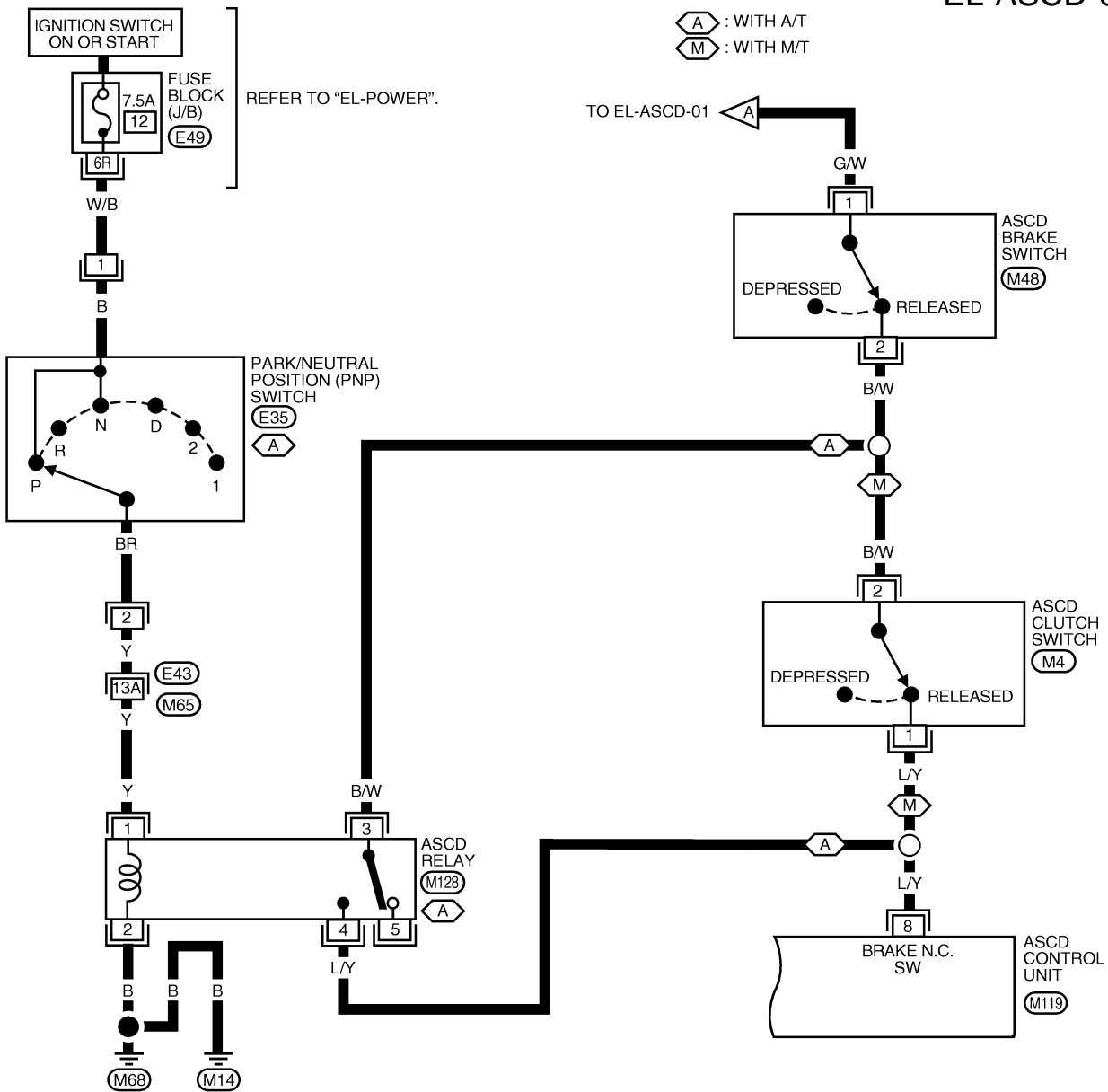
AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Wiring Diagram — ASCD — (Cont'd)

FIG. 3

NEEL0097S03

EL-ASCD-03

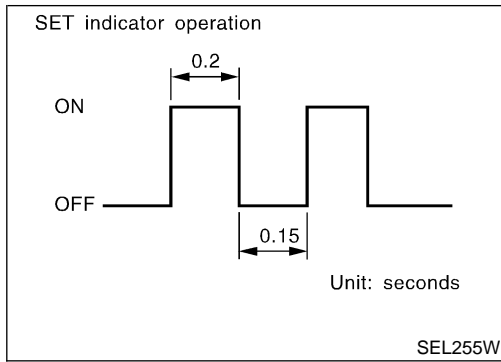


Refer to the following.
 (M65), (E43) - SUPER MULTIPLE
 JUNCTION (SMJ)

WEL761A

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Fail-safe System



Fail-safe System

DESCRIPTION

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

NEEL0098

NEEL0098S01

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MALFUNCTION DETECTION CONDITIONS

NEEL0098S02

Detection conditions	ASCD operation during malfunction detection
<ul style="list-style-type: none"> ASCD steering (RES/ACCEL, CANCEL, COAST/SET) switch is stuck. ASCD motor actuator ground circuit or power circuit is open or shorted. ASCD motor actuator has internal malfunction. Vehicle speed sensor is faulty. ASCD control unit internal circuit is malfunctioning. 	<ul style="list-style-type: none"> ASCD is deactivated. Vehicle speed memory is canceled.
<ul style="list-style-type: none"> ASCD brake switch or stop lamp switch is faulty. 	<ul style="list-style-type: none"> ASCD is deactivated. Vehicle speed memory is not canceled.

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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses

Trouble Diagnoses SYMPTOM CHART

=NEEL0222

NEEL0222S01

PROCEDURE	Diagnostic procedure						
REFERENCE PAGE (EL-)	165	166	167	168	169	169	171
SYMPTOM	FAIL-SAFE SYSTEM CHECK	POWER SUPPLY AND GROUND CIRCUIT CHECK	ASCD BRAKE/STOP LAMP SWITCH CHECK	ASCD STEERING SWITCH CHECK	VEHICLE SPEED SENSOR CHECK	ASCD MOTOR ACTUATOR CIRCUIT CHECK	ASCD MOTOR ACTUATOR CHECK
ASCD cannot be set. ("CRUISE" indicator lamp does not turn ON.)		X		X★3			
ASCD cannot be set. ("SET" indicator lamp does not turn ON.)			X	X	X		
ASCD cannot be set. ("SET" indicator lamp blinks.★1)	X		X	X	X	X	
Vehicle speed does not decrease after COAST/SET switch has been pressed.				X			X
Vehicle speed does not return to the set speed after RES/ACCEL switch has been pressed.★2				X			X
Vehicle speed does not increase after RES/ACCEL switch has been pressed.				X			X
System is not released after CANCEL switch (steering) has been pressed.				X			X
Large difference between set speed and actual vehicle speed.					X	X	X
Deceleration is greatest immediately after ASCD has been set.					X	X	X

X: Applicable

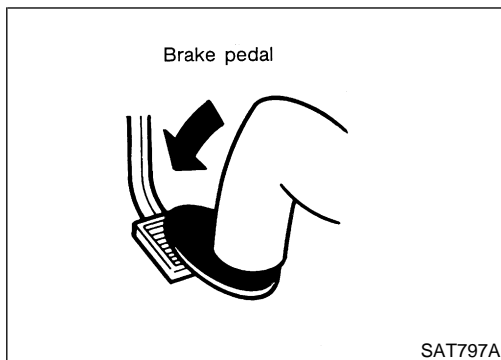
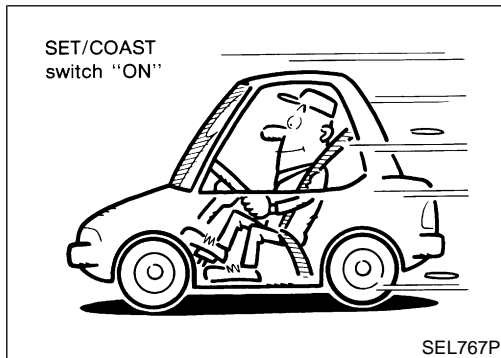
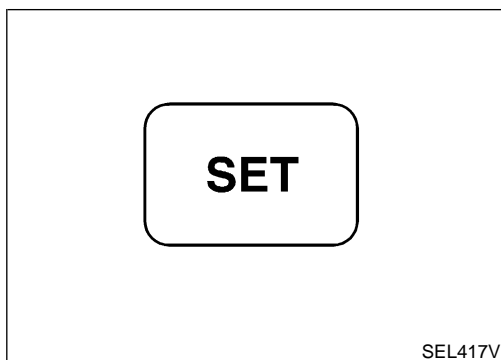
★1: It indicates that system is in fail-safe. After completing diagnostic procedures, perform "FAIL-SAFE SYSTEM CHECK", (EL-165) to verify repairs.

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

★3: Check only ON●OFF switch built-in steering switch.

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)



FAIL-SAFE SYSTEM CHECK

-NEEL0222S02

1. Turn ignition switch to ON position.
2. Turn CRUISE ON●OFF switch to ON and check if the "SET" indicator blinks.

If the indicator lamp blinks, check the following.

- ASCD steering switch. Refer to "ASCD STEERING SWITCH CHECK", EL-168.

3. Drive the vehicle at more than 40 km/h (25 MPH) and push SET/COAST switch.

If the indicator lamp blinks, check the following.

- Vehicle speed sensor. Refer to "VEHICLE SPEED SENSOR CHECK", EL-169.
- ASCD motor actuator circuit. Refer to "ASCD MOTOR ACTUATOR CIRCUIT CHECK", EL-169.
- Replace control unit.

4. Drive the vehicle at more than 20 km/h (12 MPH).

If the indicator lamp blinks, check the following.

- Replace ASCD motor actuator.
5. Depress brake pedal slowly (brake pedal should be depressed more than 5 seconds).
- If the indicator lamp blinks, check the following.**
- ASCD brake/stop lamp switch. Refer to "ASCD BRAKE/STOP LAMP SWITCH CHECK", EL-167.

6. END. (System is OK.)

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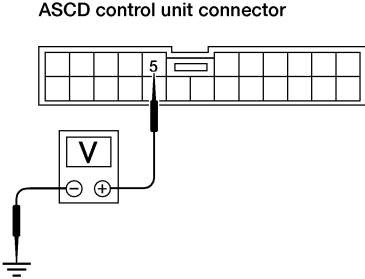

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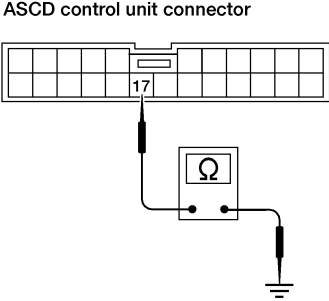

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK

=NEEL0222S03

1	CHECK POWER SUPPLY CIRCUIT FOR ASCD CONTROL UNIT	
<p>1. Disconnect ASCD control unit harness connector. 2. Turn ignition switch ON. 3. Check voltage between ASCD control unit harness connector M119 terminal 5 (G/W) and ground.</p>		
		
		
		Does battery voltage exist?
WEL018A		
Refer to "Wiring Diagram —ASCD—", EL-160.		
Yes	▶	GO TO 2.
No	▶	Check the following. <ul style="list-style-type: none"> ● 10A fuse (No. 5 located in the fuse block) ● Harness for open or short

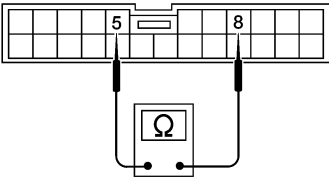



2	CHECK GROUND CIRCUIT FOR ASCD CONTROL UNIT	
Check continuity between ASCD control unit harness connector M119 terminal 17 (B) and ground.		
		
		
		Does continuity exist?
WEL019A		
Refer to "Wiring Diagram —ASCD—", EL-160.		
Yes	▶	Power supply and ground circuit is OK.
No	▶	Repair harness.

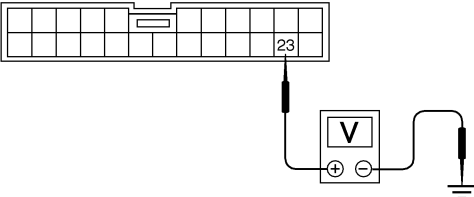


AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

ASCD BRAKE/STOP LAMP SWITCH CHECK

=NEEL0222S04

1	CHECK ASCD BRAKE SWITCH CIRCUIT	<p>1. Turn ignition switch OFF. 2. Disconnect ASCD control unit harness connector. 3. Check continuity between ASCD control unit harness connector M119 terminal 8 (L/Y) and terminal 5 (G/W).</p> <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p>ASCD control unit connector</p>  </div> <div style="flex: 1; padding-left: 20px;">  <p>When brake or clutch pedal is depressed (M/T), or when brake pedal is depressed or A/T selector lever is in "N" or "P" range (A/T): Continuity should not exist.</p>  <p>When brake and clutch pedal are released (M/T), or when both brake pedal is released and A/T selector lever is not in "N" or "P" range (A/T): Continuity should exist.</p>  </div> </div> <p style="text-align: right;">WEL020A</p> <p style="text-align: center;">OK or NG</p>	GI MA EM LC EC FE
OK	▶	GO TO 2.	CL
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● ASCD brake switch Refer to "ASCD BRAKE SWITCH AND STOP LAMP SWITCH", EL-172. ● Park/neutral position switch (A/T) Refer to "PARK/NEUTRAL POSITION SWITCH (A/T)", EL-172. ● Park/neutral position relay (A/T) Refer to "ASCD RELAY (A/T)", EL-173. ● ASCD clutch switch (M/T) Refer to "ASCD CLUTCH SWITCH (M/T)", EL-172. ● Harness for open or short ● ASCD control unit 	MT AT TF PD

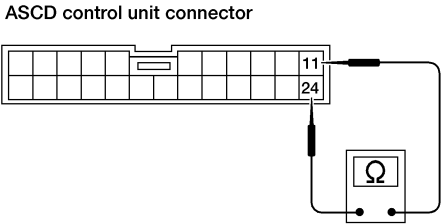



2	CHECK STOP LAMP SWITCH CIRCUIT	<p>1. Disconnect ASCD control unit harness connector. 2. Check voltage between ASCD control unit harness connector M119 terminal 23 (BR/R) and ground.</p> <div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p>ASCD control unit connector</p>  </div> <div style="flex: 1; padding-left: 20px;">  <p>Voltage [V]; Stop lamp switch: Depressed Approx. 12 Stop lamp switch: Released 0</p>  </div> </div> <p>Refer to "Wiring Diagram —ASCD—", EL-160.</p> <p style="text-align: right;">WEL035A</p> <p style="text-align: center;">OK or NG</p>	AX SU BR ST RS BT HA SC
OK	▶	ASCD brake/stop lamp switch is OK.	EL
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 15A fuse (2-door models) or 20A fuse (4-door models) [No. 22, located in the fuse block (J/B)] ● Harness for open or short between ASCD control unit and stop lamp switch ● Harness for open or short between fuse and stop lamp switch ● Stop lamp switch Refer to "ASCD BRAKE SWITCH AND STOP LAMP SWITCH", EL-172. 	EL IDX

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

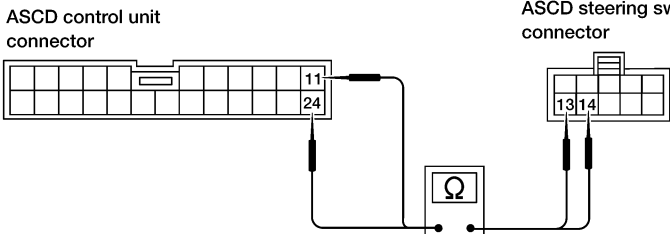


Trouble Diagnoses (Cont'd)

ASCD STEERING SWITCH CHECK

=NEEL0222S05

1	CHECK ASCD STEERING SWITCH CIRCUIT FOR ASCD CONTROL UNIT													
Check resistance between ASCD control unit harness connector M119 terminals 11 (G/OR) and 24 (LG/B).														
 <p>ASCD control unit connector</p>	  	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Terminal No.</th> <th>Resistance (kΩ)</th> </tr> </thead> <tbody> <tr> <td>CRUISE/ON-OFF SW</td> <td rowspan="4" style="text-align: center;">11 - 24</td> <td>Approx. 0</td> </tr> <tr> <td>SET/COAST SW</td> <td>1.47 - 1.53</td> </tr> <tr> <td>ACCEL/RES SW</td> <td>3.24 - 3.36</td> </tr> <tr> <td>CANCEL SW</td> <td>5.00 - 5.20</td> </tr> </tbody> </table>		Terminal No.	Resistance (kΩ)	CRUISE/ON-OFF SW	11 - 24	Approx. 0	SET/COAST SW	1.47 - 1.53	ACCEL/RES SW	3.24 - 3.36	CANCEL SW	5.00 - 5.20
	Terminal No.	Resistance (kΩ)												
CRUISE/ON-OFF SW	11 - 24	Approx. 0												
SET/COAST SW		1.47 - 1.53												
ACCEL/RES SW		3.24 - 3.36												
CANCEL SW		5.00 - 5.20												
Refer to "Wiring Diagram —ASCD—", EL-161.														
OK or NG														
OK	▶	ASCD steering switch is OK.												
NG	▶	GO TO 2.												

WEL022A

2	CHECK CIRCUIT CONTINUITY	
<ol style="list-style-type: none"> 1. Disconnect ASCD steering switch and ASCD control unit connector. 2. Check continuity between ASCD steering switch connector M205 terminal 14 (G) and ASCD control unit connector M119, terminal 11 (G/OR). 3. Check continuity between ASCD steering switch connector M205 terminal 13 (L) and ASCD control unit connector M119, terminal 24 (LG/B). 		
 <p>ASCD control unit connector</p> <p>ASCD steering switch connector</p>	 	Continuity should exist.
Refer to "Wiring Diagram —ASCD—", EL-161.		
OK or NG		
OK	▶	Replace ASCD steering switch.
NG	▶	Repair or replace harness or connectors.

WEL345A

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

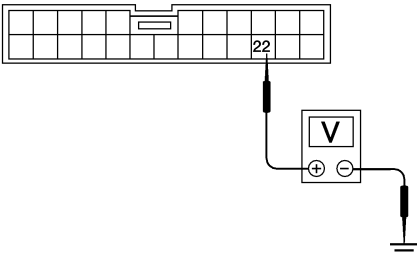



Trouble Diagnoses (Cont'd)

VEHICLE SPEED SENSOR CHECK

-NEEL0222S06

1	CHECK SPEEDOMETER OPERATION	
Refer to "Wiring Diagram —ASCD—", EL-160.		
Does speedometer operate normally?		
Yes	▶	GO TO 2.
No	▶	Check speedometer and vehicle speed sensor circuit. Refer to "Trouble Diagnoses", EL-81.



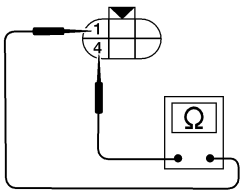
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2	CHECK VEHICLE SPEED INPUT	
<ol style="list-style-type: none"> Apply wheel chocks and jack up drive wheel. Disconnect ASCD control unit harness connector. Check voltage between control unit connector M119 terminal 22 (G/B) and ground while turning drive wheel slowly by hand. 		
<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;"> <p>ASCD control unit connector</p>  </div> <div style="text-align: center;">  <p>DISCONNECT</p>   </div> <div style="text-align: center;"> <p>Does voltage pointer deflect?</p> </div> </div>		
WEL023A		
Yes or No?		
Yes	▶	Vehicle speed sensor is OK.
No	▶	Check harness for open or short between ASCD control unit connector M119 terminal 22 (G/B) and combination meter connector M39 terminal 37 (G/B).

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ASCD MOTOR ACTUATOR CIRCUIT CHECK

NEEL0222S07

1	CHECK ASCD MOTOR ACTUATOR (CLUTCH)							
<ol style="list-style-type: none"> Disconnect ASCD motor actuator connector. Measure resistance between ASCD motor actuator connector E80 terminals 1 and 4. 								
<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;">  <p>DISCONNECT</p>  </div> <div style="text-align: center;"> <p>ASCD motor actuator connector</p>  </div> <div style="text-align: center;"> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Terminals</th> <th>Resistance (Ω)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">4</td> <td style="text-align: center;">Approx. 38.5</td> </tr> </tbody> </table> </div> </div>			Terminals		Resistance (Ω)	1	4	Approx. 38.5
Terminals		Resistance (Ω)						
1	4	Approx. 38.5						
WEL024A								
Refer to "Wiring Diagram —ASCD—", EL-161.								
OK or NG								
OK	▶	GO TO 2.						
NG	▶	Replace ASCD motor actuator.						


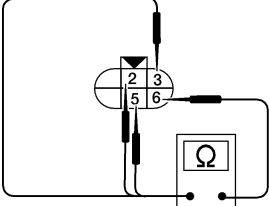
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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

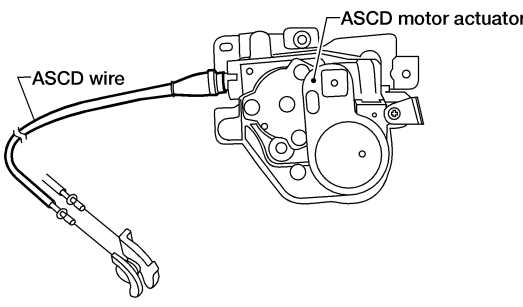
2	CHECK ASCD MOTOR ACTUATOR (MOTOR)											
<p>1. Disconnect ASCD motor actuator connector. 2. Measure resistance between ASCD motor actuator connector E80 terminal 6 and terminals 2, 3, and 5.</p>												
<p>ASCD motor actuator connector</p>												
		<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">Terminals</th> <th style="text-align: center;">Resistance (Ω)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; width: 10%;">6</td> <td style="text-align: center; width: 10%;">2</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">Approx. 2.5</td> </tr> <tr> <td></td> <td style="text-align: center;">3</td> </tr> <tr> <td></td> <td style="text-align: center;">5</td> </tr> </tbody> </table>	Terminals		Resistance (Ω)	6	2	Approx. 2.5		3		5
Terminals		Resistance (Ω)										
6	2	Approx. 2.5										
	3											
	5											
WEL025A												
OK or NG												
OK	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● Harness for open or short between ASCD motor actuator and ASCD control unit ● ASCD motor actuator (clutch) ground circuit 										
NG	▶	Replace ASCD motor actuator.										

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

ASCD MOTOR ACTUATOR CHECK

-NEEL0222S08

1	CHECK ASCD WIRE
Check wire for improper installation, rust formation or breaks.	
 <p>The diagram shows a mechanical assembly labeled 'ASCD motor actuator' with a cable labeled 'ASCD wire' connected to it. The wire has a connector at the end.</p> <p style="text-align: right;">LEL620</p> <p style="text-align: center;">OK or NG</p>	
OK	▶ Replace ASCD motor actuator.
NG	▶ Repair or replace wire. Refer to "ASCD Wire Adjustment", EL-174.

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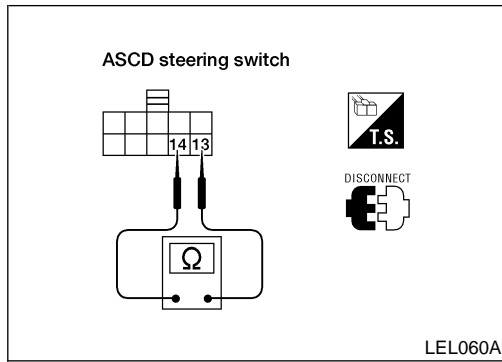
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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Electrical Component Inspection



Electrical Component Inspection

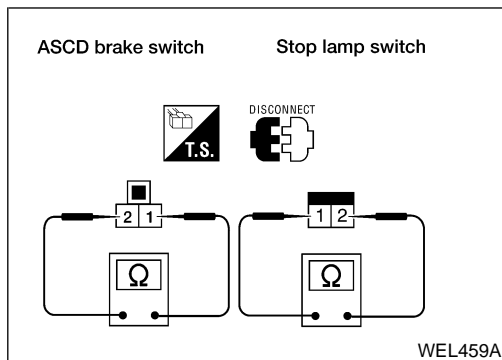
ASCD STEERING SWITCH

=NEEL0223

NEEL0223S01

Check continuity between ASCD steering switch connector M205, terminals 14 and 13 by pushing each button.

Button	Terminals	Resistance (k Ω) (Approx.)
ON•OFF	13 - 14	0
COAST/SET		1.47 - 1.53
RES/ACCEL		3.24 - 3.36
CANCEL		5.00 - 5.20

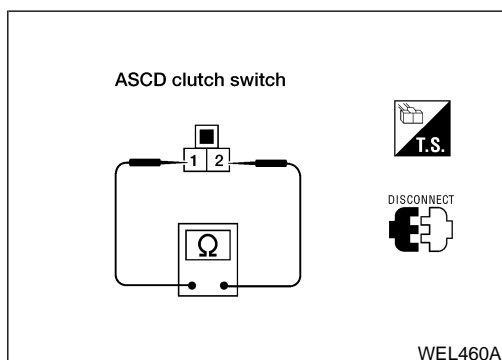


ASCD BRAKE SWITCH AND STOP LAMP SWITCH

NEEL0223S02

Condition	Continuity	
	ASCD brake switch (M48)	Stop lamp switch (M47)
When brake pedal is depressed	No	Yes
When brake pedal is released	Yes	No

Check brake pedal adjustment after checking each switch. Refer to *BR-18*, "Adjustment".

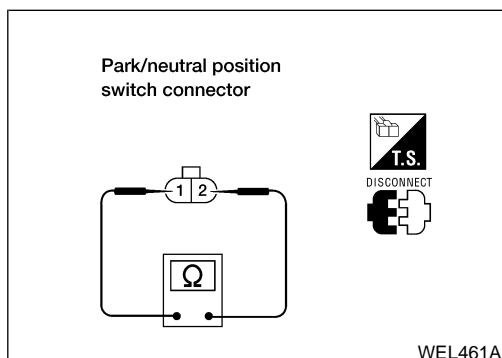


ASCD CLUTCH SWITCH (M/T)

NEEL0223S03

Check continuity between ASCD clutch switch M4 terminals 1 and 2.

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



PARK/NEUTRAL POSITION SWITCH (A/T)

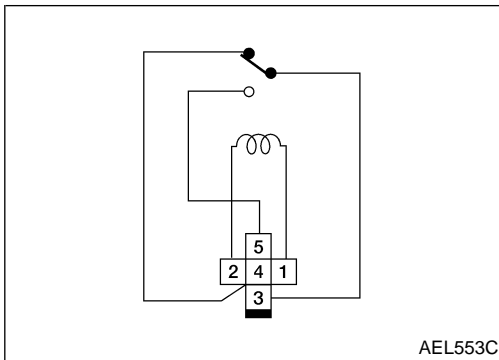
NEEL0223S04

Check continuity between PNP switch E35 terminals 1 and 2.

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

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Electrical Component Inspection (Cont'd)



ASCD RELAY (A/T)

NEEL0223S05

Check continuity between ASCD relay harness connector M128 terminals 3 and 4, 3 and 5.

Condition	Continuity
12V direct current supply between terminals 1 and 2	Between terminals 3 and 5
No current supply	Between terminals 3 and 4

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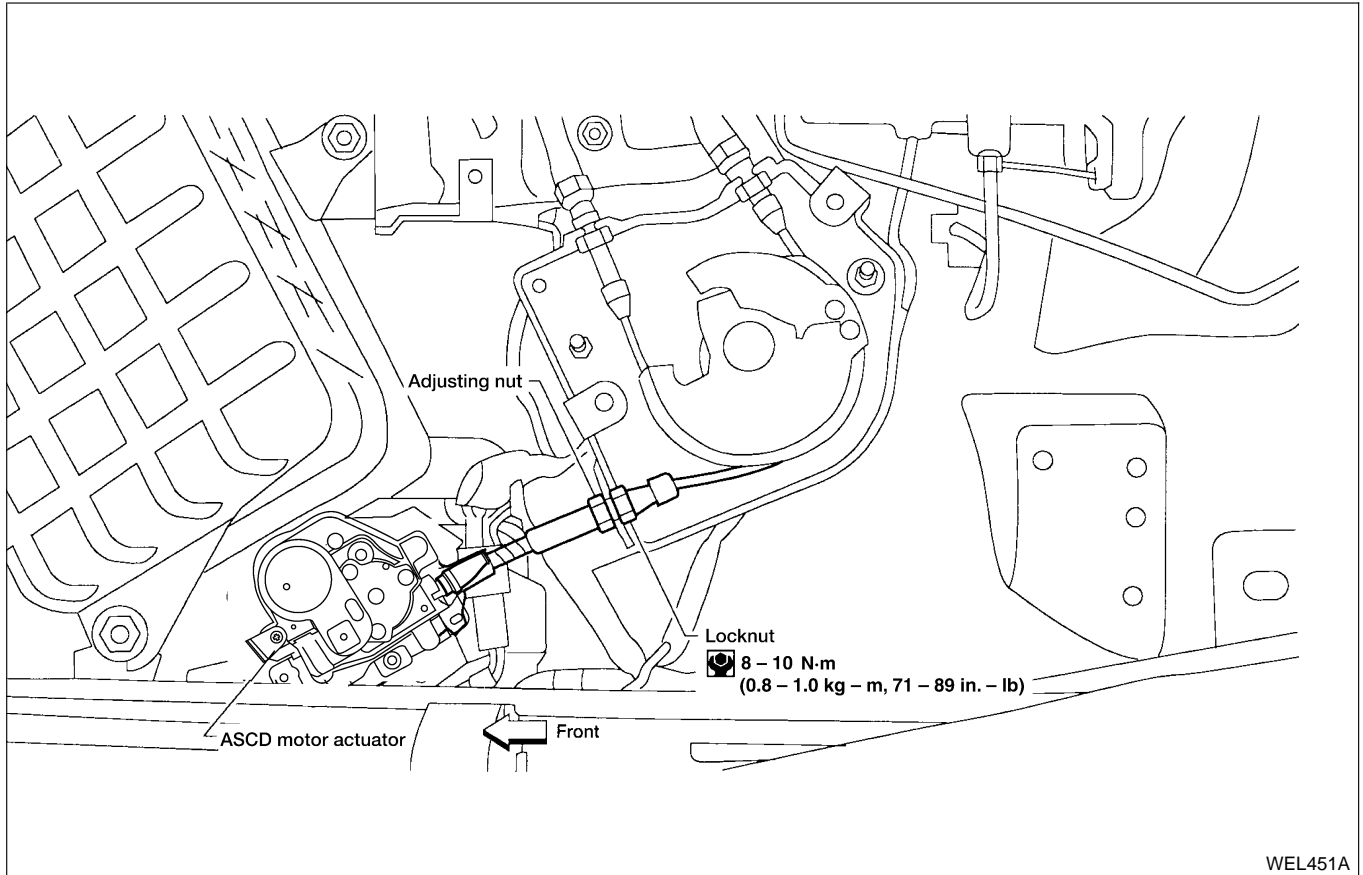
AUTOMATIC SPEED CONTROL DEVICE (ASCD)

ASCD Wire Adjustment

ASCD Wire Adjustment WITH KA24DE

=NEEL0224

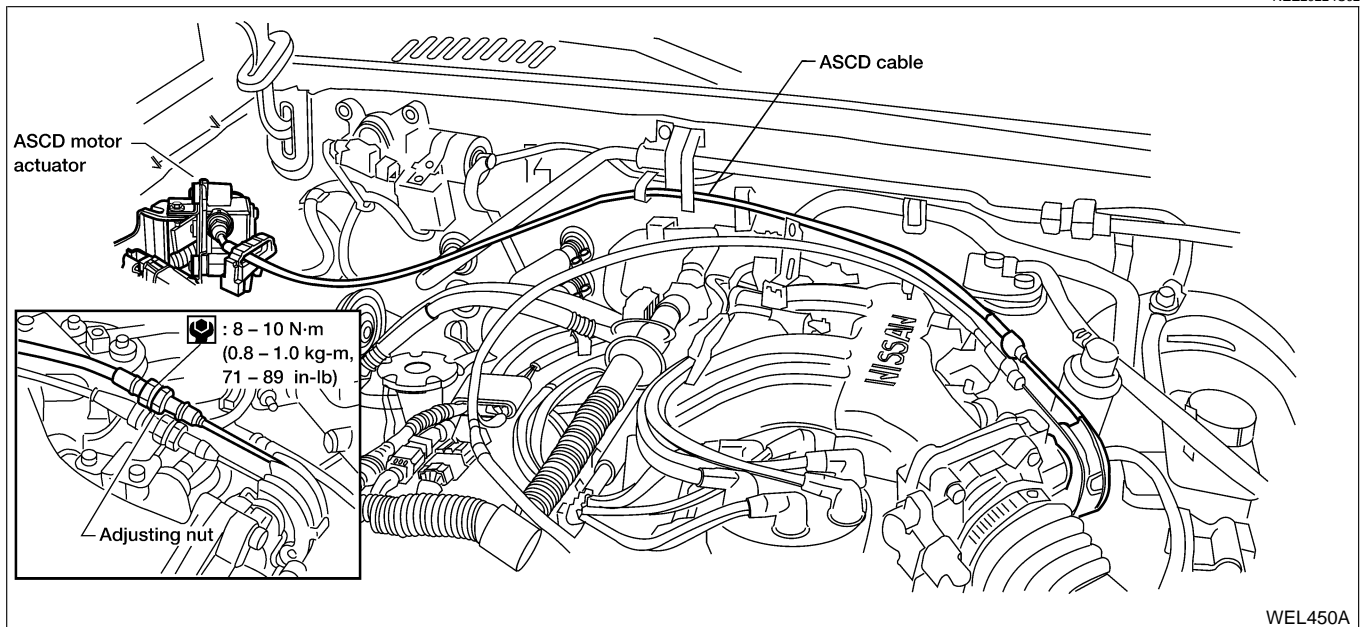
NEEL0224S01



WEL451A

WITH VG33E

NEEL0224S02



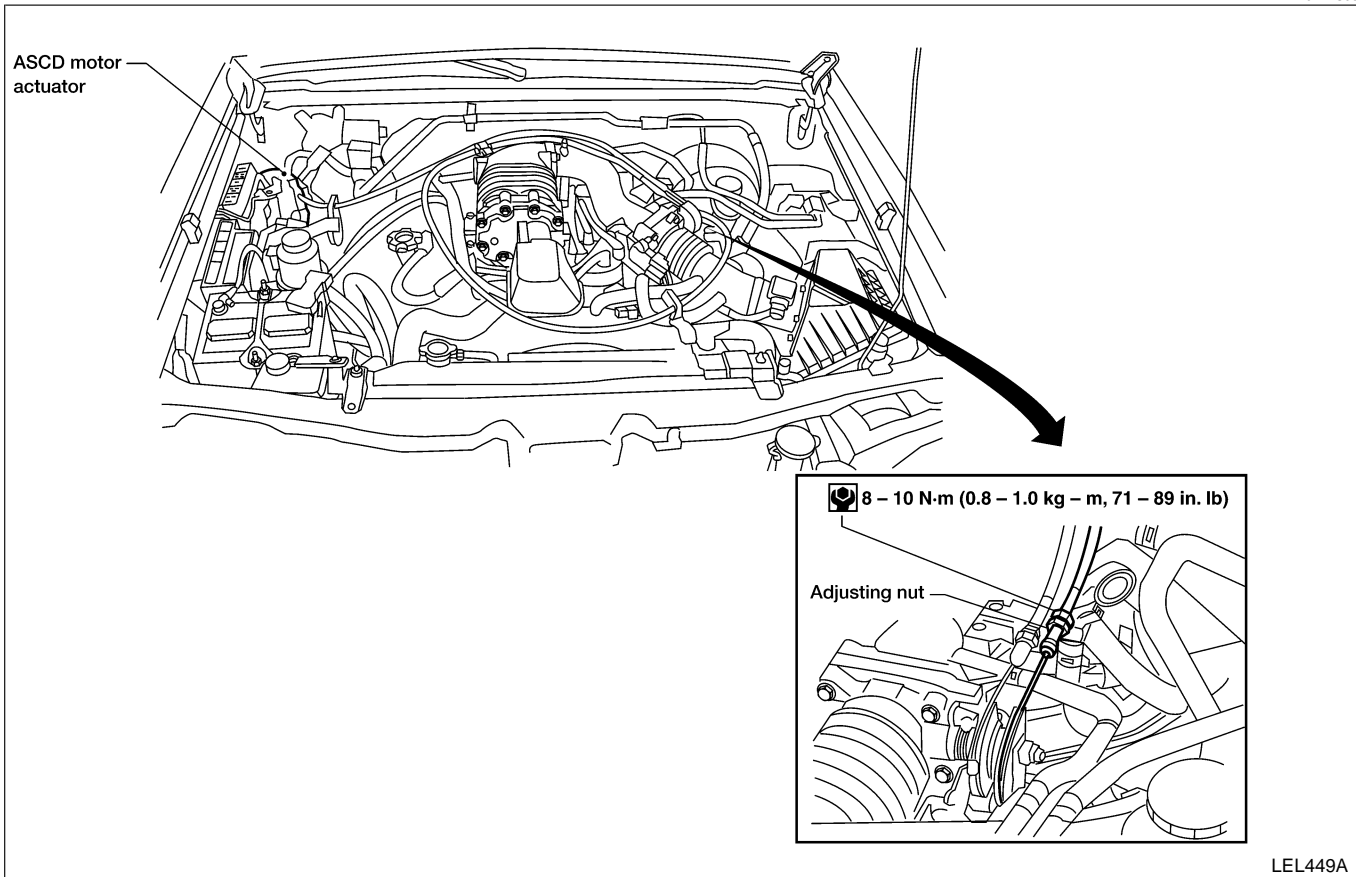
WEL450A

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

ASCD Wire Adjustment (Cont'd)

WITH VG33ER

NEEL0224S03



CAUTION:

- Be careful not to twist ASCD wire when removing it.
 - Do not tense ASCD wire excessively during adjustment.
- Adjust the tension of ASCD wire in the following manner.
1. Loosen lock nut and adjusting nut.
 2. Make sure that accelerator wire is properly adjusted. Refer to **FE-3**, "Adjusting Accelerator Wire".
 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.

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POWER WINDOW

System Description

System Description

NEEL0102

Power is supplied at all times

- from 30A fusible link (with KA24DE) (letter f, located in the fuse and fusible link box) or
- from 40A fusible link (with VG33E and VG33ER) (letter f, located in the fuse and fusible link box)
- to circuit breaker terminal +
- through circuit breaker terminal –
- to power window relay terminal 5
- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to smart entrance control unit terminal 49.

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

- through 7.5A fuse [No. 5, located in the fuse block (J/B)]
- to smart entrance control unit terminal 27
- through smart entrance control unit terminal 46
- 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)

POWER WINDOW

System Description (Cont'd)

- 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 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 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 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.

RETAINED POWER OPERATION (WITH POWER DOOR LOCKS)

NEEL0102S04

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

- to power window relay terminal 2
- from smart entrance control unit terminal 46.

Ground is supplied

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POWER WINDOW

System Description (Cont'd)

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

When power and ground are supplied, the power window relay continues to be energized, and the power window can be operated.

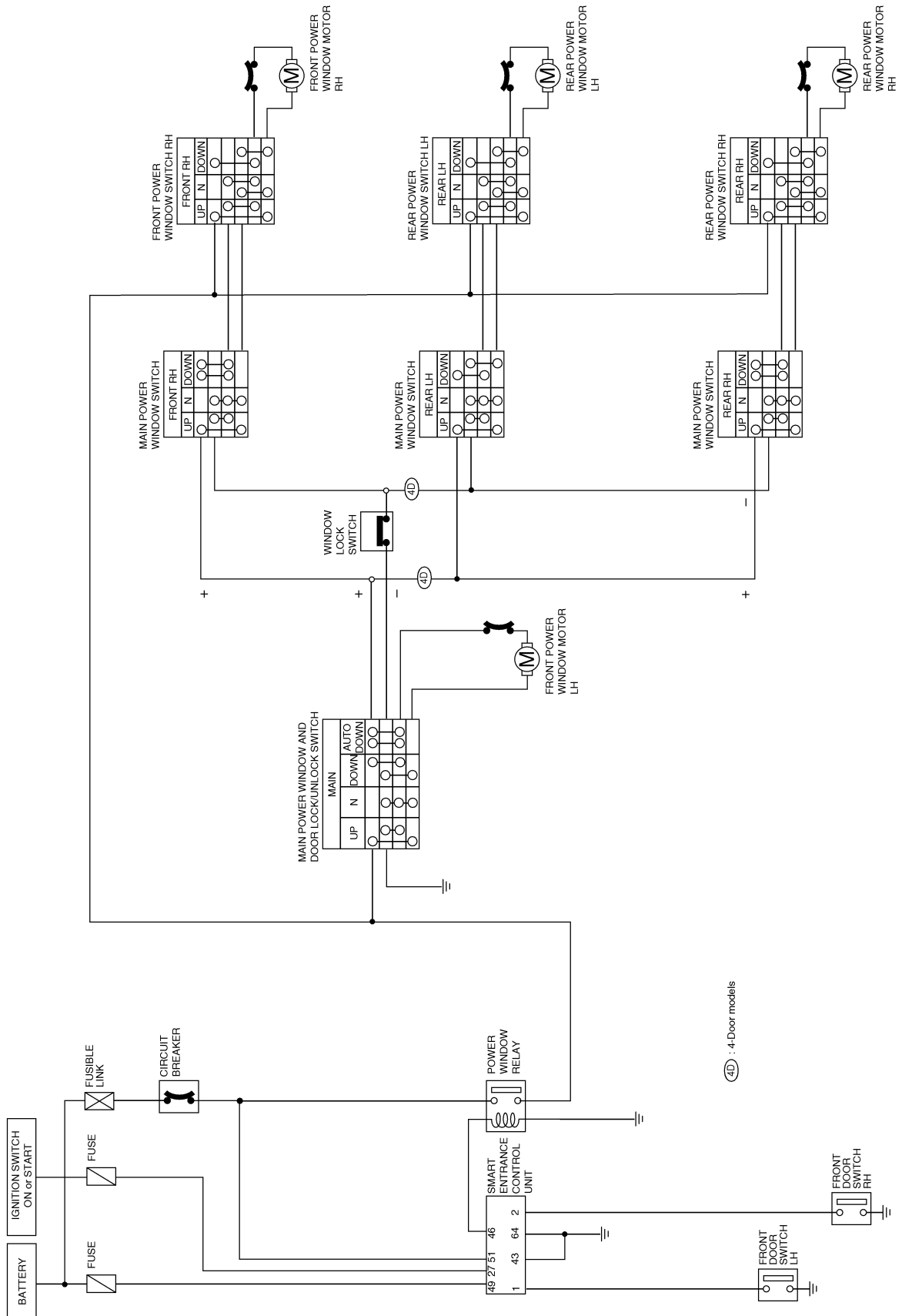
The retained power operation is cancelled when the driver or passenger side door is opened.

POWER WINDOW

Circuit Diagram

Circuit Diagram

NEEL0201



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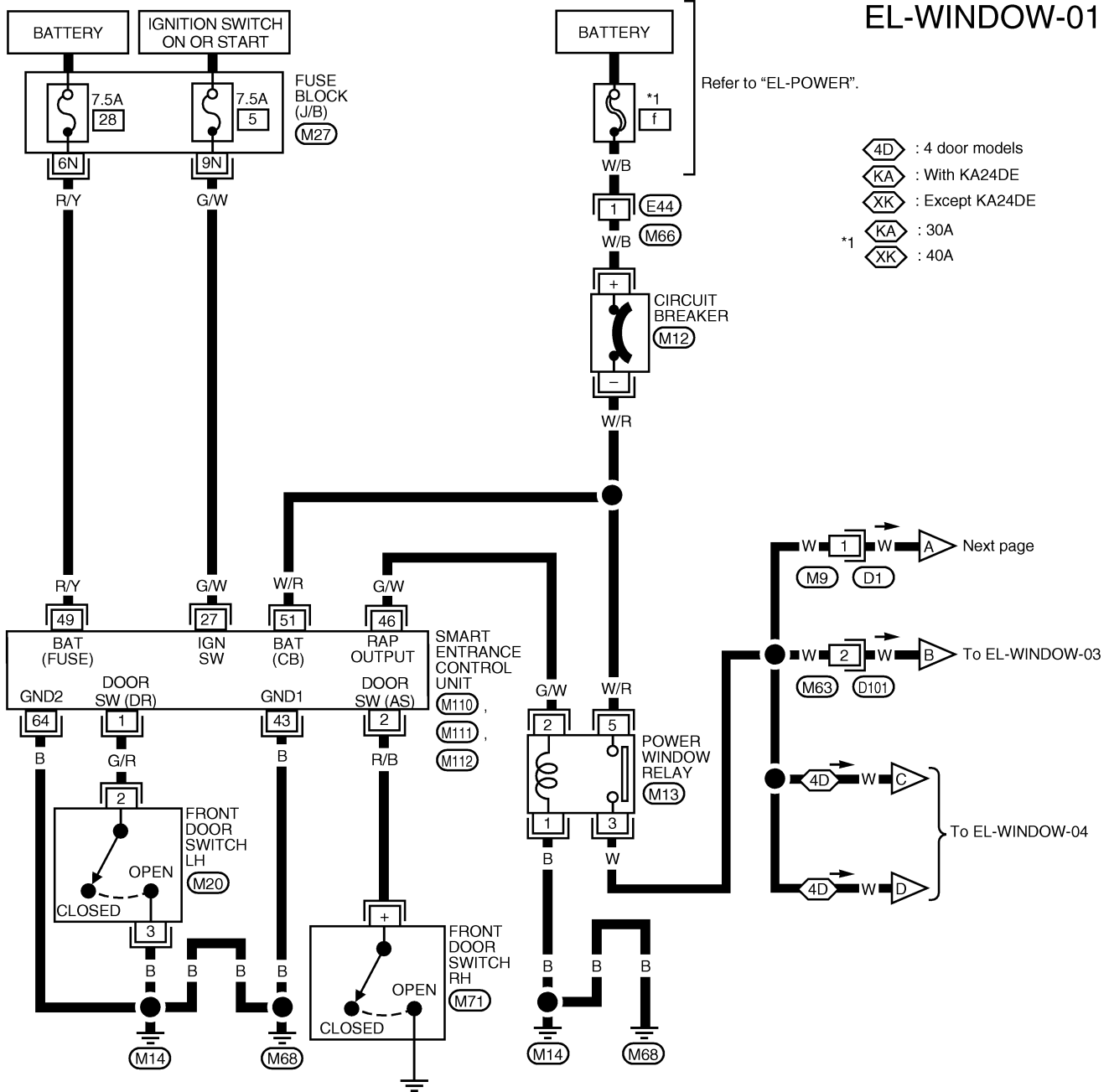
POWER WINDOW

Wiring Diagram — WINDOW —

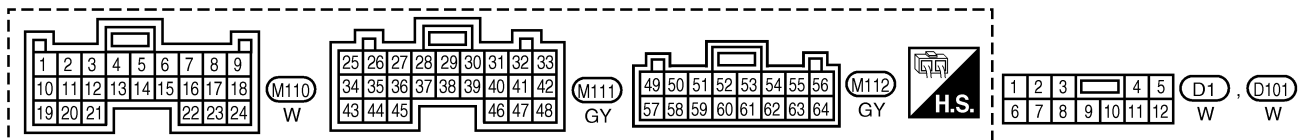
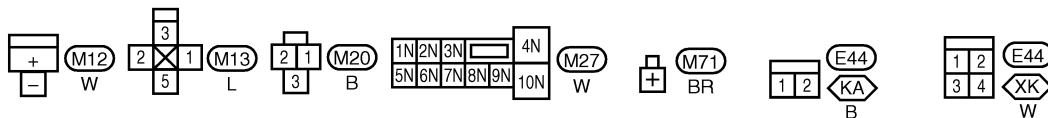
Wiring Diagram — WINDOW —

NEEL0104

EL-WINDOW-01



- ⬡4D : 4 door models
- ⬡KA : With KA24DE
- ⬡XK : Except KA24DE
- *1 ⬡KA : 30A
- *1 ⬡XK : 40A

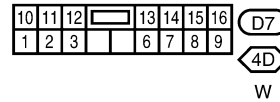
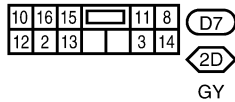
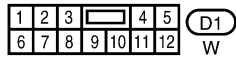
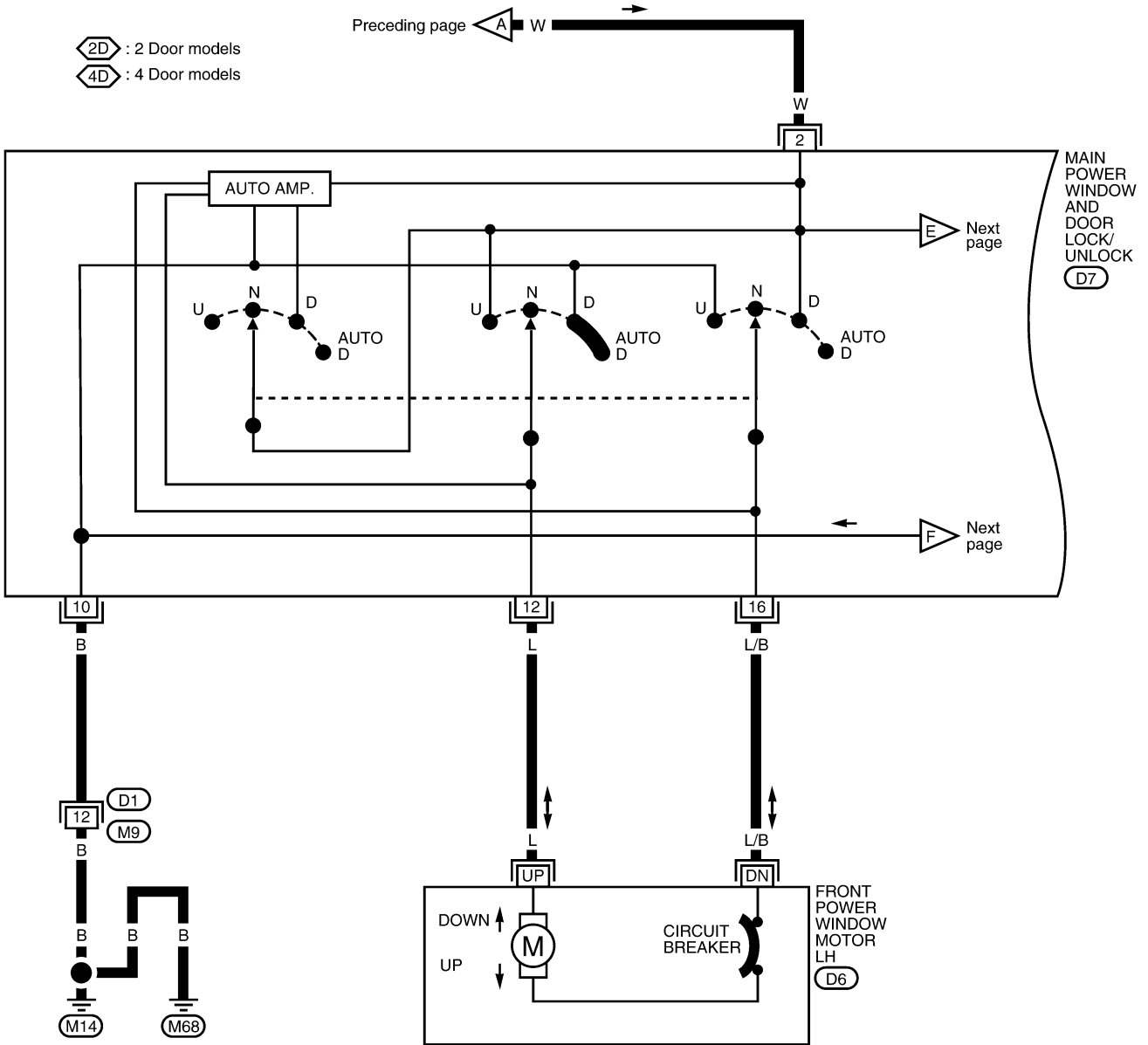


WEL765A

POWER WINDOW

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02



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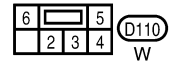
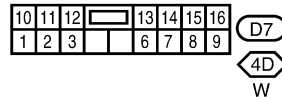
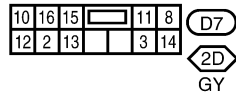
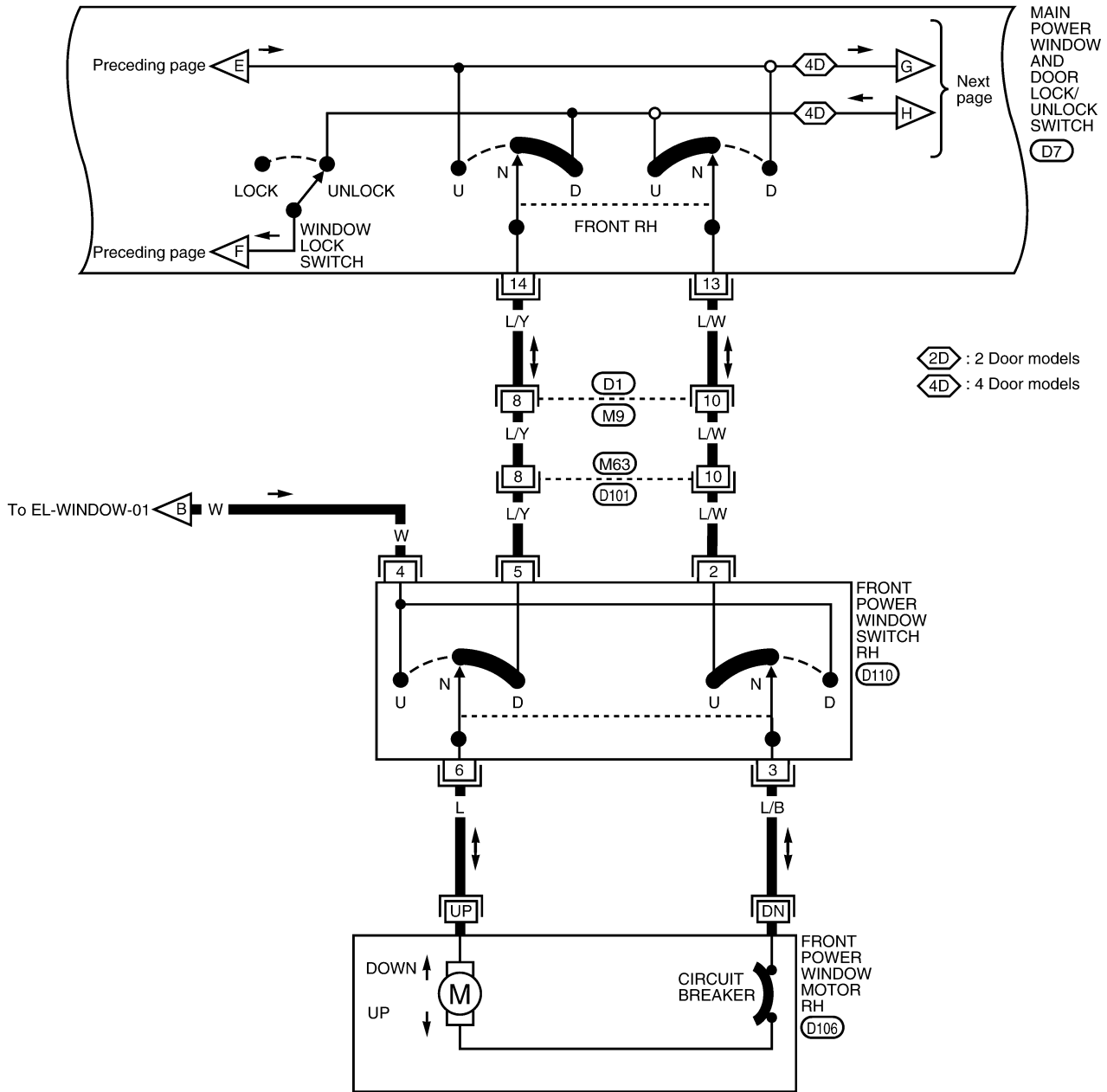
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POWER WINDOW

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-03

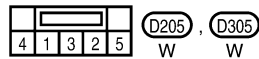
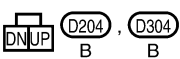
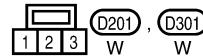
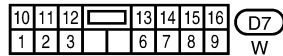
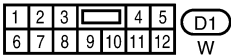
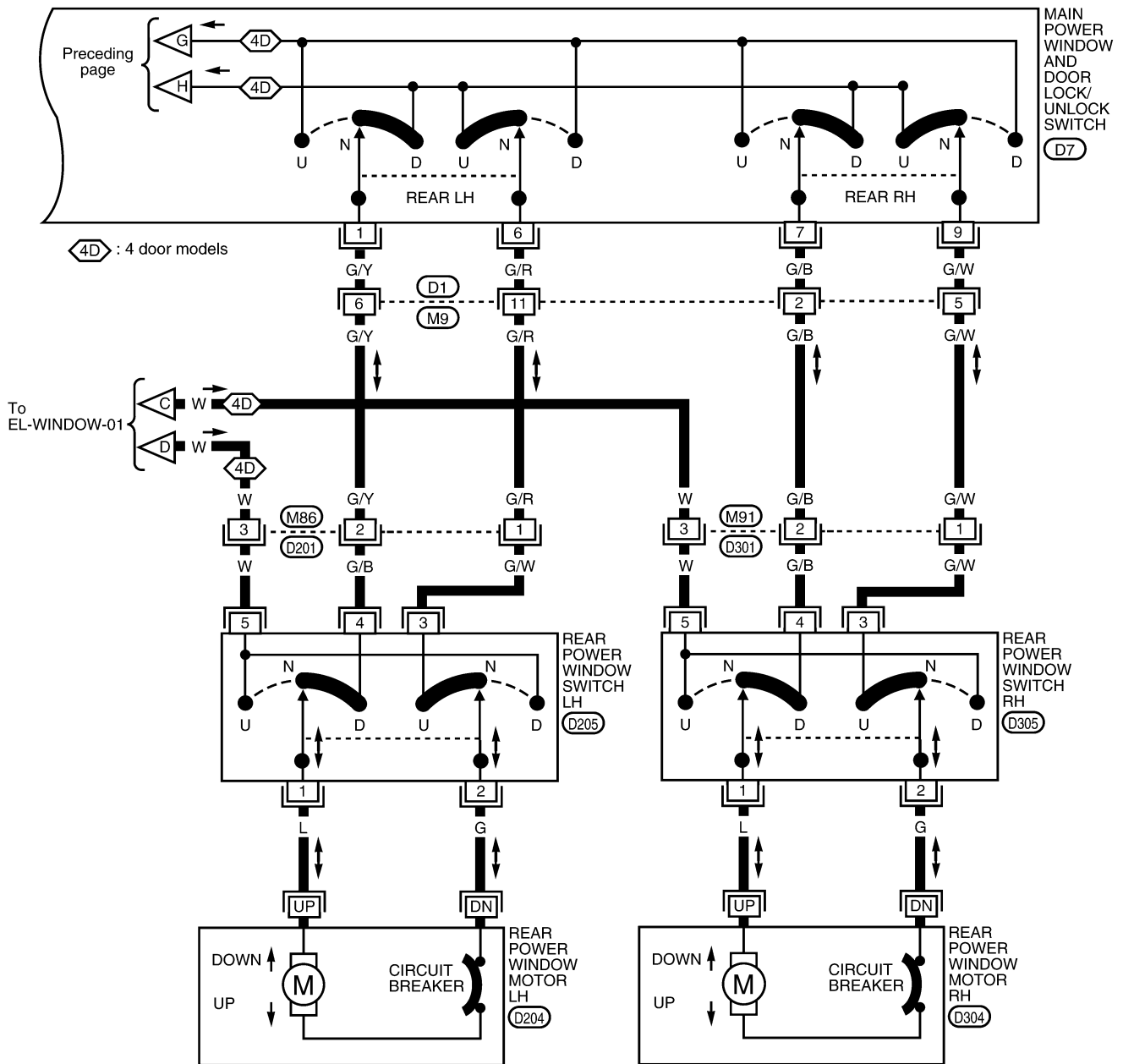


LEL771

POWER WINDOW

Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-04



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POWER WINDOW

Trouble Diagnoses

Trouble Diagnoses

NEEL0105

Symptom	Possible cause	Repair order
None of the power windows can be operated using any switch.	<ol style="list-style-type: none"> 7.5A fuse, 30A fusible link (with KA24DE), or 40A fusible link (with VG33E and VG33ER) and M12 circuit breaker Power window relay ground circuit Power window relay Open/short in main power window and door lock/unlock switch circuit Open/short in power window relay control circuit Smart entrance control unit 	<ol style="list-style-type: none"> Check 7.5A fuse (No. 5, located in fuse block [J/B]), 30A fusible link (with KA24DE) (letter f, located in fuse and fusible link box), 40A fusible link (with VG33E and VG33ER) (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 smart entrance control unit terminal 27, 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). Check power window relay ground circuit. Check power window relay. Check circuit between power window relay and main power window and door lock/unlock switch for open/short circuit. Check circuit between smart entrance control unit and power window relay for open/short circuit. Check smart entrance control unit.
Front driver side power window cannot be operated but other windows can be operated.	<ol style="list-style-type: none"> Front power window motor LH circuit Front power window motor LH Main power window and door lock/unlock switch 	<ol style="list-style-type: none"> Check harness between main power window and door lock/unlock switch and front power window motor LH for open or short circuit. Check front power window motor LH. Check main power window and door lock/unlock switch.
Front passenger power window cannot be operated.	<ol style="list-style-type: none"> Front power window switch RH Front power window motor RH Main power window and door lock/unlock switch Power window circuit 	<ol style="list-style-type: none"> Check passenger power window switch. Check passenger power window motor. Check main power window and door lock/unlock switch. Check the following. <ol style="list-style-type: none"> Check harnesses between main power window and door lock/unlock switch and front power window switch RH for open/short circuit. Check harnesses between front power window switch RH and front power window motor RH for open/short circuit.
Front passenger side power window cannot be operated using main power window and door lock/unlock switch but can be operated by front power window switch RH.	<ol style="list-style-type: none"> Main power window and door lock/unlock switch 	<ol style="list-style-type: none"> Check main power window and door lock/unlock switch.
One or more rear power windows cannot be operated.	<ol style="list-style-type: none"> Rear power window switches Rear power window regulators Main power window and door lock/unlock switch Rear power window circuit 	<ol style="list-style-type: none"> Check rear power window switches. Check rear power window regulator. Check main power window and door lock/unlock switch. Check the following. <ol style="list-style-type: none"> Harnesses between rear power window switches terminal 5 and power window relay. Harnesses between main power window and door lock/unlock switch and rear power window switches for open/short circuit. Harnesses between rear power window switches and rear power window regulators for open/short circuit.

POWER WINDOW

Trouble Diagnoses (Cont'd)

Symptom	Possible cause	Repair order
Power windows, except front driver's side window, cannot be operated using main power window and door lock/unlock switch, but can be operated by power window switch.	1. Main power window and door lock/unlock switch	1. Check main power window and door lock/unlock switch.
Driver 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.
Retained power operation does not operate.	1. Retained power signal circuit 2. Driver or passenger side door switch circuit 3. Smart entrance control unit	1. Check harness between power window relay terminal 2 and smart entrance control unit terminal 46 for open circuit. 2. Check the following a. Harness between smart entrance control unit and driver or passenger side door switch for short circuit b. Driver or passenger side door switch ground circuit c. Driver or passenger side door switch 3. Check smart entrance control unit. Refer to "SMART ENTRANCE CONTROL UNIT", EL-240.

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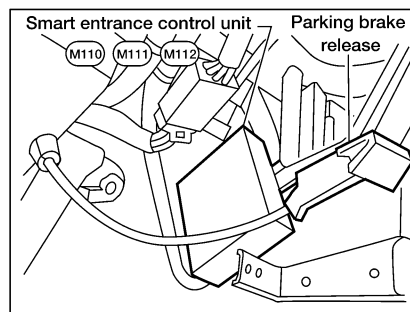
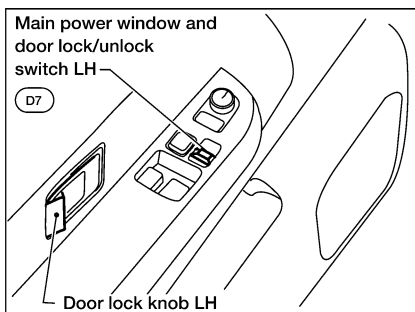
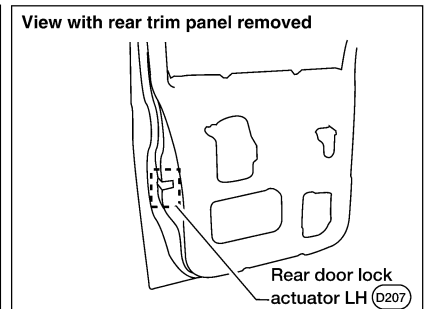
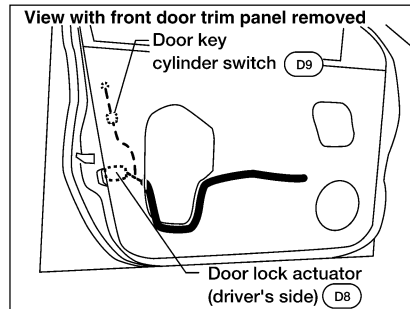
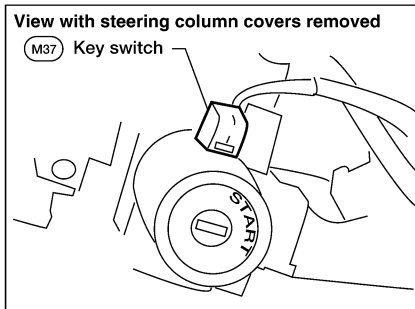
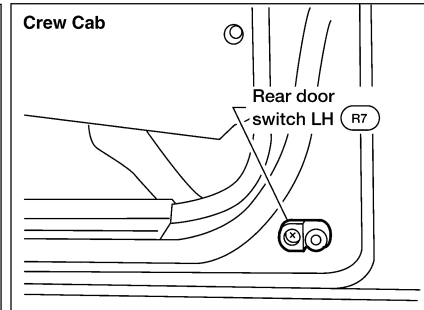
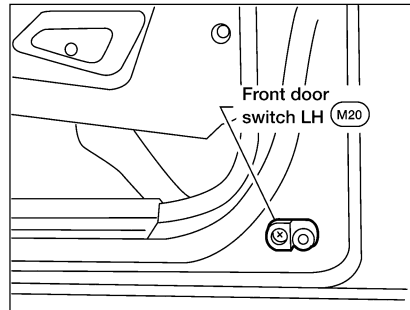
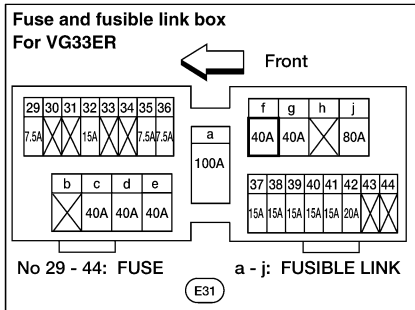
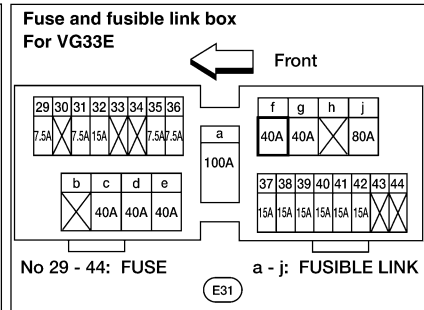
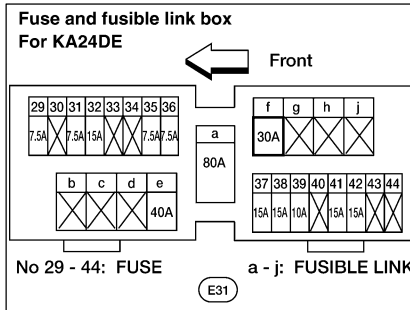
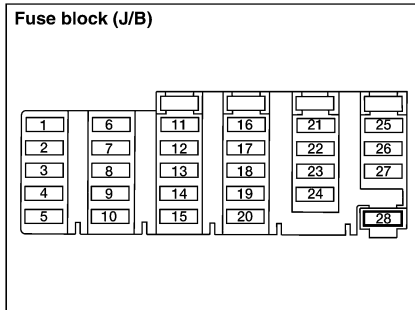
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POWER DOOR LOCK

Component Parts and Harness Connector Location

Component Parts and Harness Connector Location

NEEL0106



WEL940A

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)] or
- through 40A fusible link [letter f, located in the fuse and fusible link box (with VG33E and VG33ER)]
- to circuit breaker terminal +
- through circuit breaker terminal –
- to smart entrance control unit terminal 51.

Power is supplied at all times

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to smart entrance control unit terminal 49 and
- to key switch terminal 1.

Ground is supplied

- to smart entrance control unit terminals 43 and 64
- through body grounds M14 and M68.

INPUT

With the key in the ignition key cylinder, power is supplied

- through key switch terminal 2
- to smart entrance control unit terminal 25.

With front door LH open, ground is supplied

- to smart entrance control unit terminal 1
- 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 2
- through front door switch RH terminal +.

With rear door LH and RH (Crew Cab) open, ground is supplied

- to smart entrance control unit terminal 3
- through rear door switch LH and RH terminals +.

With the key inserted in the front door key cylinder switch LH and turned to LOCK, ground is supplied

- to smart entrance control unit terminal 11
- 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 terminal 2
- through body grounds M14 and M68.

With the key inserted in the front door key cylinder switch LH and turned to UNLOCK, ground is supplied

- to smart entrance control unit terminal 10
- 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 terminal 2
- 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 5
- 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 LOCK, ground is supplied

- to smart entrance control unit terminal 5
- through door lock/unlock switch RH terminal 6
- 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 4

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POWER DOOR LOCK

System Description (Cont'd)

- 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 UNLOCK, ground is supplied

- to smart entrance control unit terminal 4
- through door lock/unlock switch RH terminal 3
- through door lock/unlock switch RH terminal 4
- through body grounds M14 and M68.

OUTPUT

Unlock

NEEL0107S02

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 54.

FRONT DOOR LH

Power is supplied

- to front door lock actuator LH terminal 1
- through smart entrance control unit terminal 55.

FRONT DOOR RH

Power is supplied

- to front door lock actuator RH terminal 1
- through smart entrance control unit terminal 56.

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 56.

Then, the doors are unlocked.

Lock

NEEL0107S0202

Ground is supplied

- to front door lock actuator LH terminal 1
- through smart entrance control unit terminal 55 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 56.

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 54.

Then, the doors are locked.

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 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 using the main power window and door lock/unlock switch, the door lock/unlock switch RH, the front door LH lock knob or a keyfob, 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
- either front door switch LH or RH is in OPEN position (door is open).

POWER DOOR LOCK

Circuit Diagram

NEEL0108

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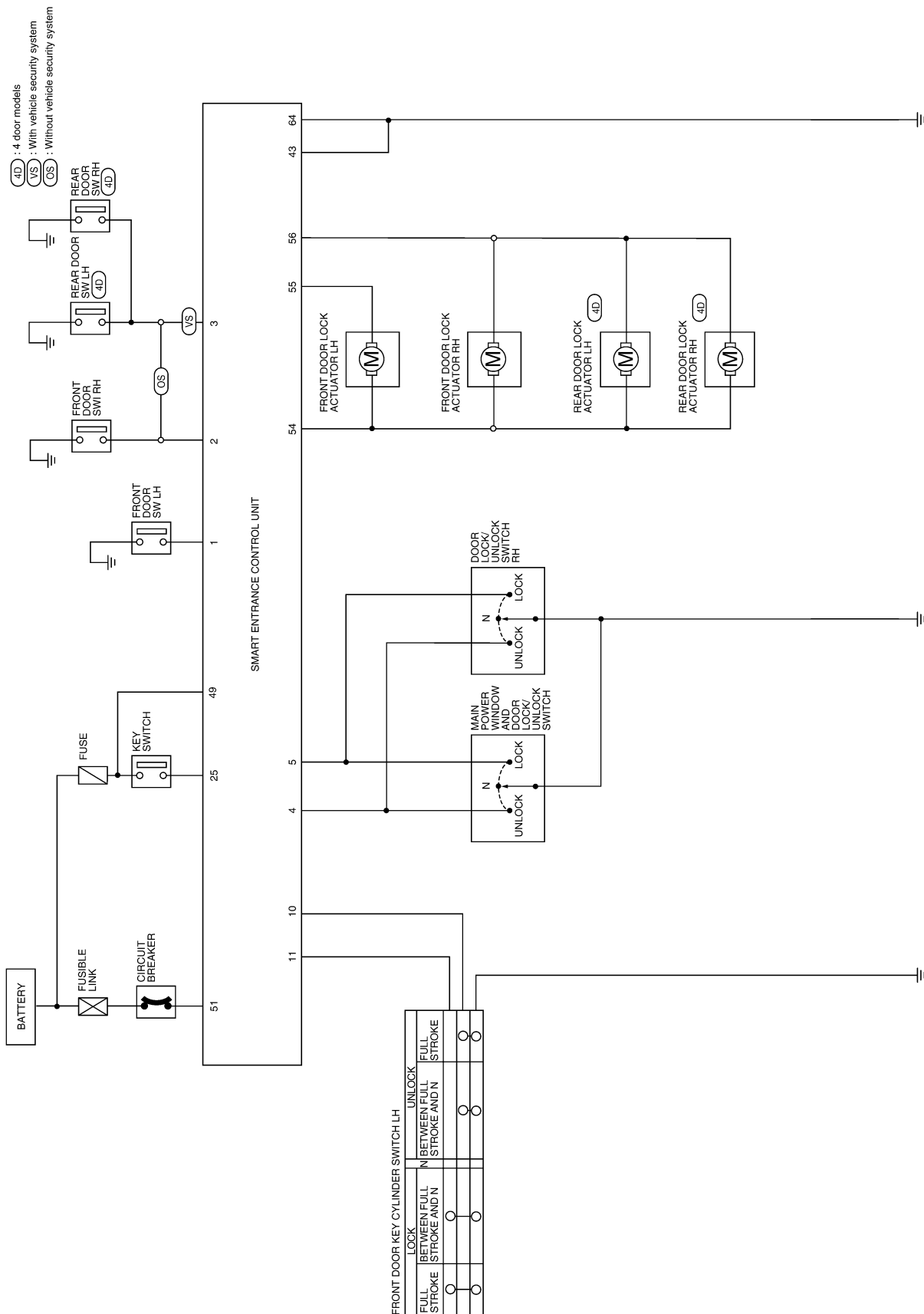
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Circuit Diagram



WEL074B

POWER DOOR LOCK

Wiring Diagram — D/LOCK —

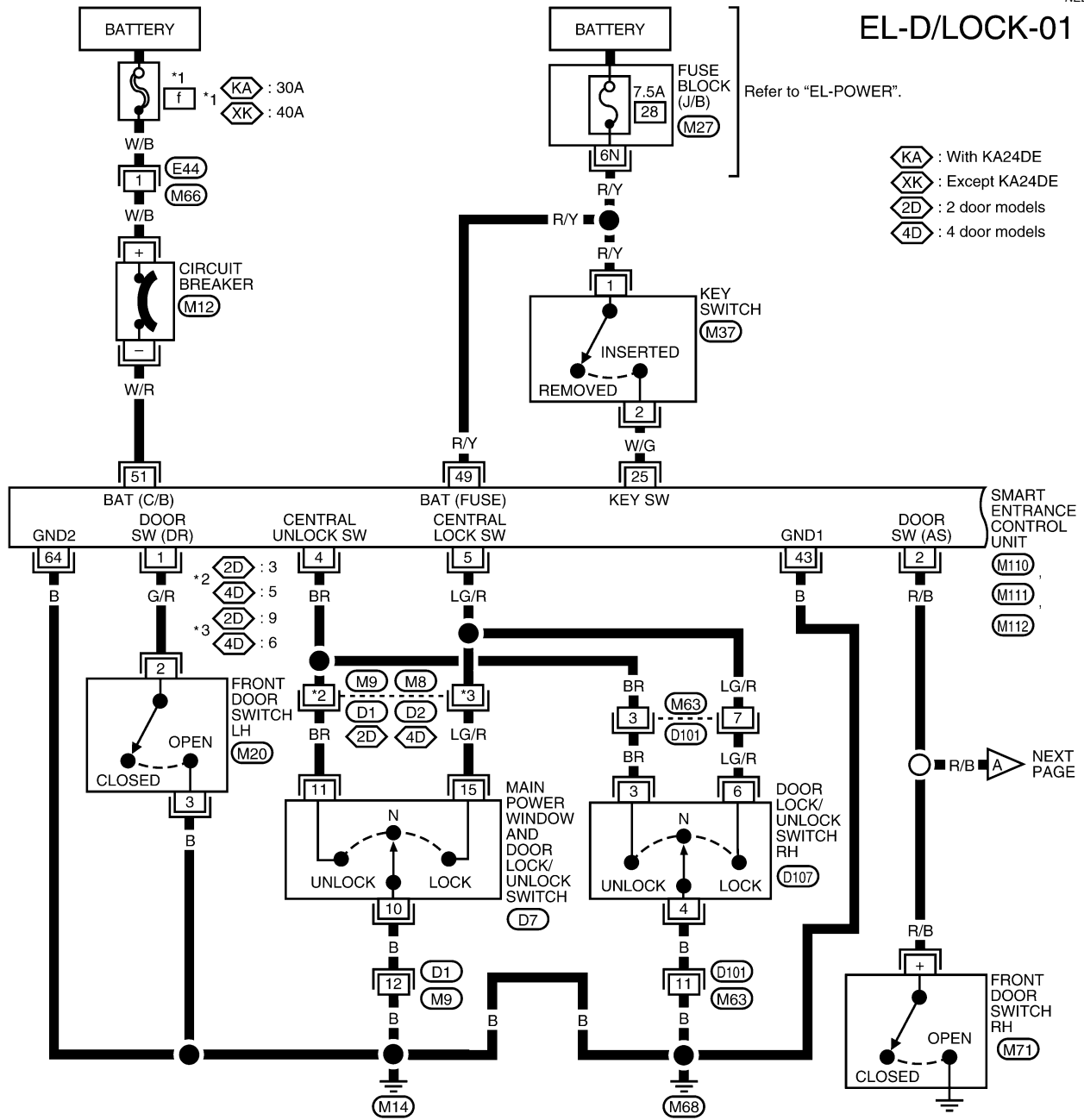
Wiring Diagram — D/LOCK —

NEEL0109

NEEL0109S01

FIG. 1

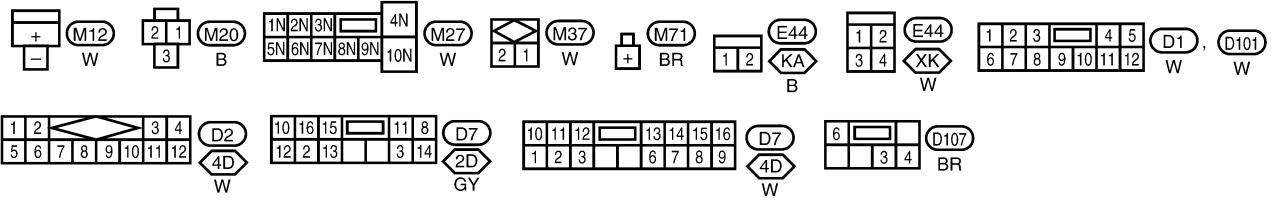
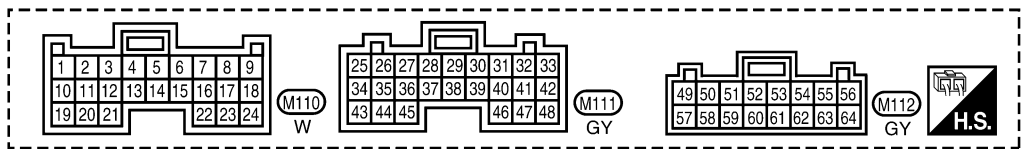
EL-D/LOCK-01



- ⬡ KA : With KA24DE
- ⬡ XK : Except KA24DE
- ⬡ 2D : 2 door models
- ⬡ 4D : 4 door models

- ⬡ M110
- ⬡ M111
- ⬡ M112

▶ NEXT PAGE



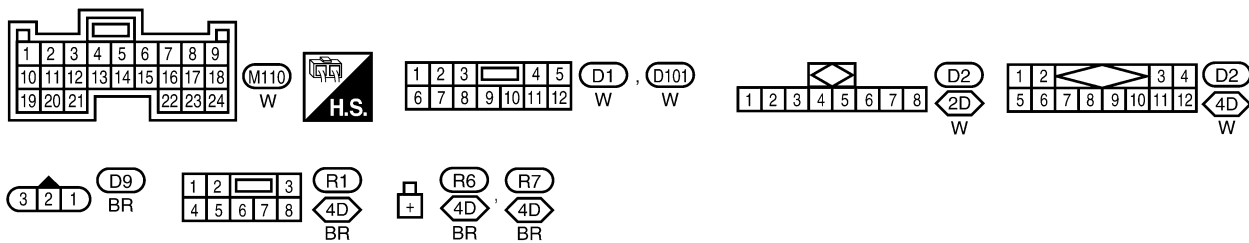
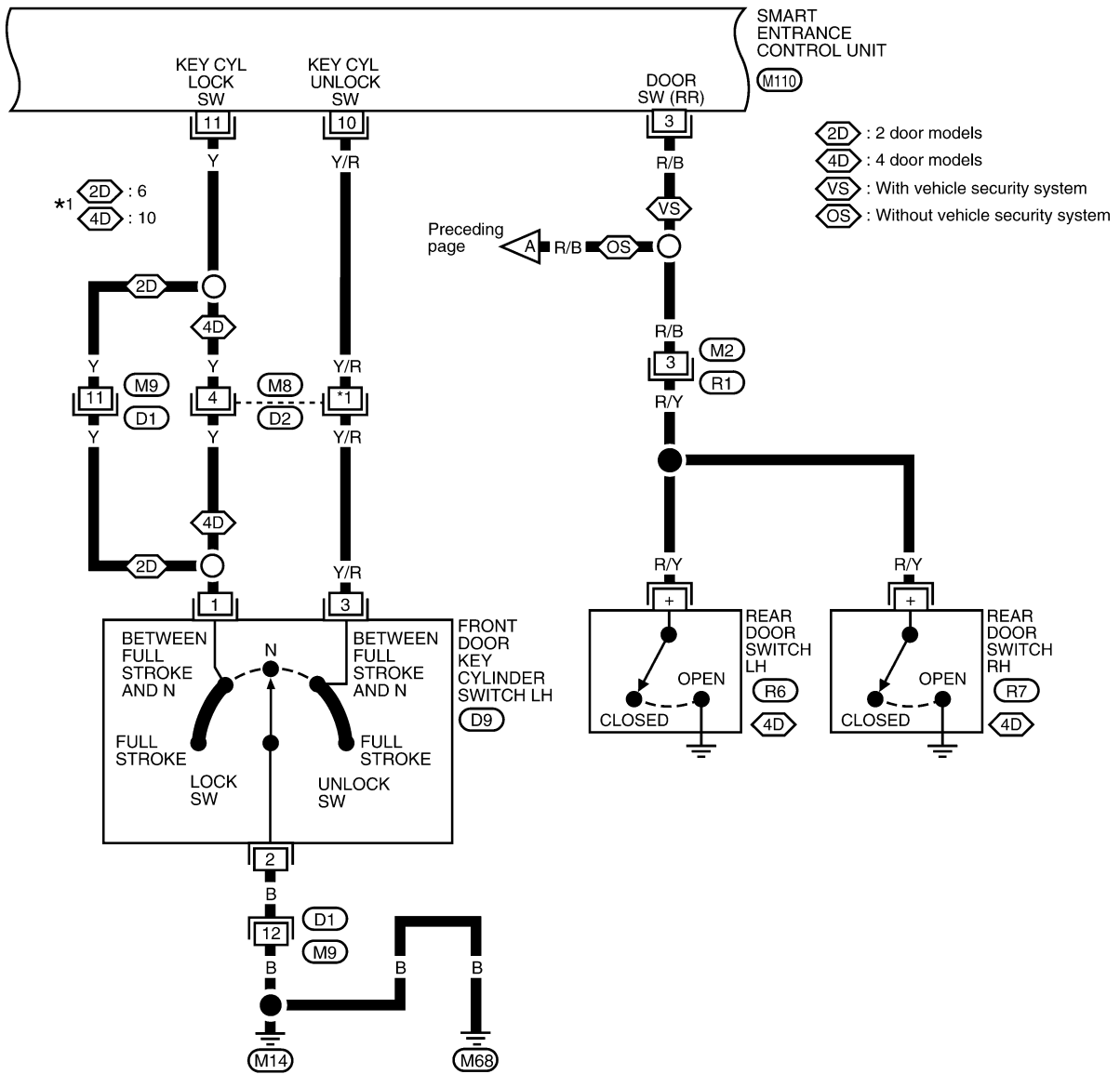
POWER DOOR LOCK

Wiring Diagram — D/LOCK — (Cont'd)

FIG. 2

NEEL0109S02

EL-D/LOCK-02



WEL076B

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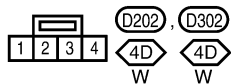
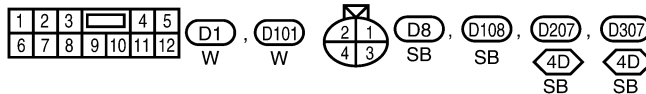
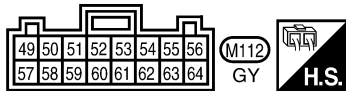
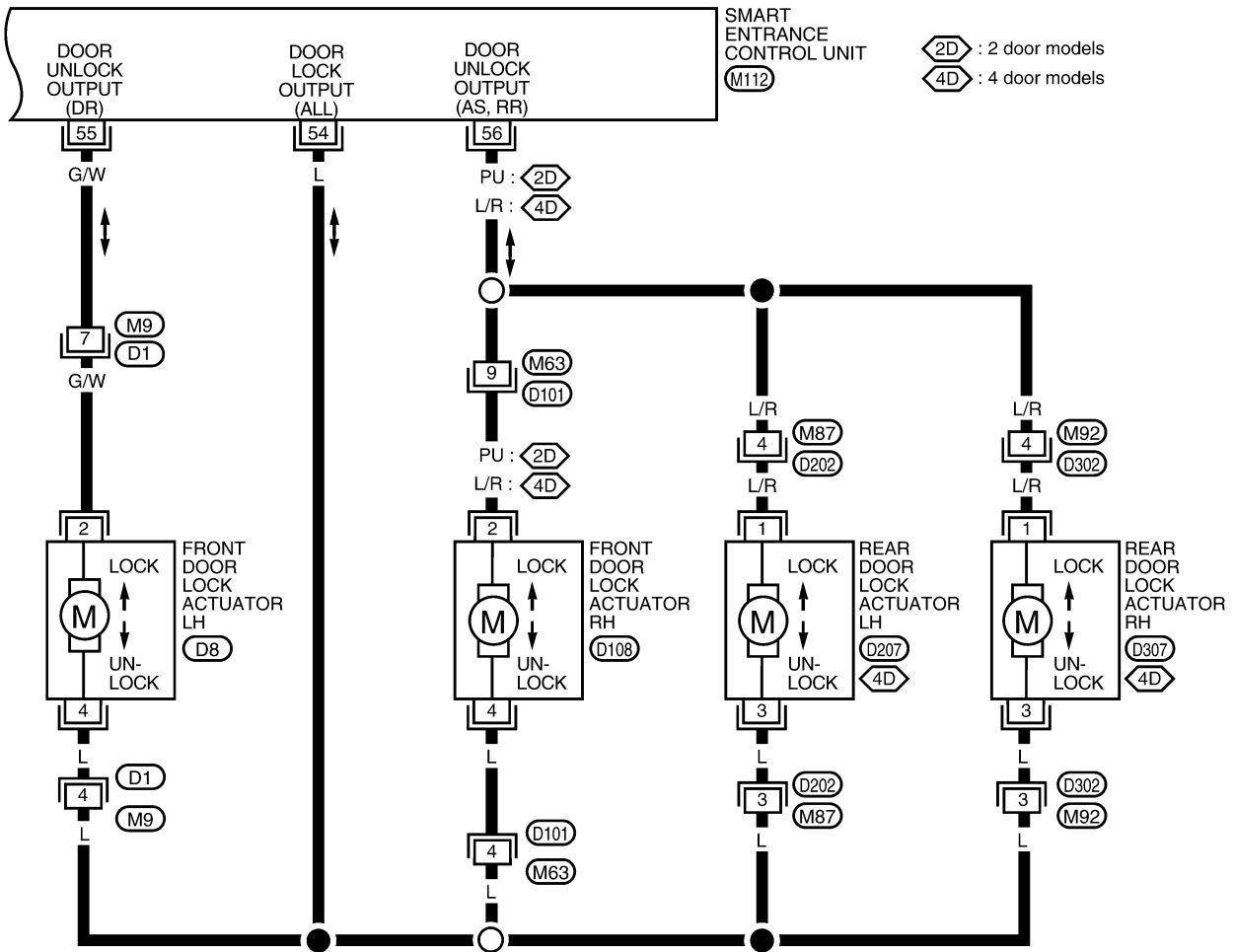
POWER DOOR LOCK

Wiring Diagram — D/LOCK — (Cont'd)

FIG. 3

NEEL0109S03

EL-D/LOCK-03



WEL768A

POWER DOOR LOCK

Trouble Diagnoses

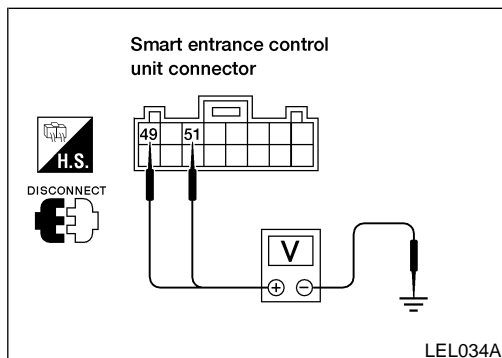
Trouble Diagnoses SYMPTOM CHART

NEEL0110

NEEL0110S01

REFERENCE PAGE (EL-)	193	194	195	197	198	199
SYMPTOM	MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK	DOOR SWITCH CHECK	KEY SWITCH (INSERT) CHECK	DOOR LOCK/UNLOCK SWITCH CHECK	FRONT DOOR KEY CYLINDER SWITCH CHECK	DOOR LOCK ACTUATOR CHECK
Key reminder door system does not operate properly.	X	X	X			X
Specific door lock actuator does not operate.	X					X
Power door lock does not operate with door lock and unlock switch (LH and RH) on door trim.	X			X		
Power door lock does not operate with front door key cylinder operation.	X				X	
Power door lock does not operate with back door key cylinder operation.	X					

X: Applicable



MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

NEEL0110S02

Main Power Supply Circuit Check

NEEL0110S0201

Terminal		Ignition switch			
(+)		(-)	OFF	ACC	ON
Connector	Terminal (wire color)	Ground	Battery voltage	Battery voltage	Battery voltage
M112	49 (R/Y)				
M112	51 (W/R)				

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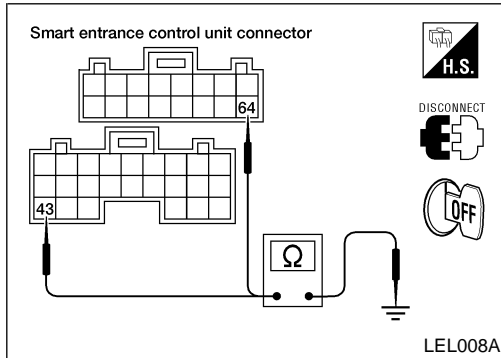
IDX

POWER DOOR LOCK

Trouble Diagnoses (Cont'd)

If NG, check the following.

- 30A fusible link (letter f, located in the fuse and fusible link box)
- 40A fusible link (letter f, located in the fuse and fusible link box)
- 7.5A fuse [No. 28, located in the fuse block (J/B)]
- Circuit breaker
- Harness for open or short between circuit breaker and fuse
- Harness for open or short between circuit breaker and smart entrance control unit
- Harness for open or short between smart entrance control unit and fuse



Ground Circuit Check

NEEL0110S0202

Terminals	Continuity
M111 - 43 (B) - Ground	Yes
M112 - 64 (B) - Ground	

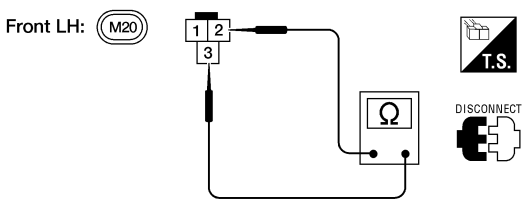
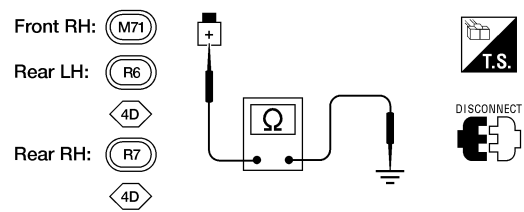
DOOR SWITCH CHECK

NEEL0110S05

1	CHECK FRONT DOOR SWITCH INPUT SIGNAL
<p>Check voltage between smart entrance control unit harness connector M111 terminals 1 (G/R), 2 (R/B) or 3 (R/B) and ground.</p>	
<p>Smart entrance control unit connector</p> <p>WEL517A</p>	
<p>Refer to "Wiring Diagram", EL-190.</p>	
OK or NG	
OK	▶ Door switch is OK.
NG	▶ GO TO 2.

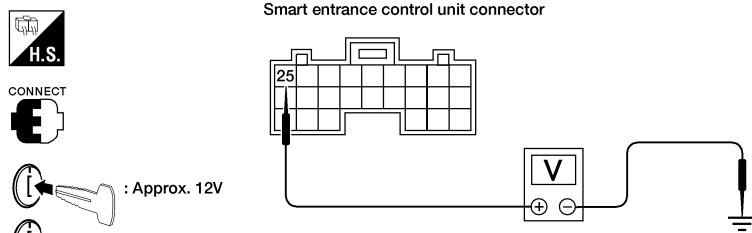
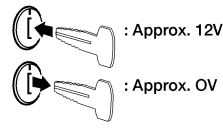
POWER DOOR LOCK

Trouble Diagnoses (Cont'd)

2	CHECK FRONT DOOR SWITCH	<p>1. Disconnect door switch harness connector. 2. Check continuity between door switch terminals.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Door switch</p> <p>Front LH: (M20)</p>  <p>4D : 4 door models</p> </div> <div style="text-align: center;"> <p>Front RH: (M71)</p> <p>Rear LH: (R6)</p> <p>Rear RH: (R7)</p>  </div> </div> <p style="text-align: right;">AEL577C</p>
OK or NG		
OK	▶	<p>Check the following</p> <ul style="list-style-type: none"> ● 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	<p>1. Disconnect smart entrance control unit harness connector. 2. Check voltage between smart entrance control unit harness connector M111 terminal 25 (W/G) and ground.</p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 30%;"> <p style="text-align: center;">Smart entrance control unit connector</p>  <p>CONNECT</p>  <p>: Approx. 12V</p> <p>: Approx. 0V</p> <p>Refer to "Wiring Diagram", EL-190.</p> </div> <div style="width: 65%;"> <p>Voltage [V]: Condition of key switch: Key is INSERTED. Approx. 12 Condition of key switch: Key is REMOVED. Approx. 0</p> <p style="text-align: right;">LEL010A</p> </div> </div> <p style="text-align: center;">OK or NG</p>
OK	▶	Key switch is OK.
NG	▶	GO TO 2.

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POWER DOOR LOCK

Trouble Diagnoses (Cont'd)

2	CHECK KEY SWITCH POWER SUPPLY	
<p>1. Disconnect key switch harness connector. 2. Check voltage between key switch harness connector terminal 1 and ground.</p> <div style="text-align: center;"> <p>Key switch connector (M37)</p> </div> <p>Battery voltage should exist. Refer to "Wiring Diagram", EL-190.</p> <p style="text-align: right;">AEL415B</p>		
OK or NG		
OK	▶	GO TO 3.
NG	▶	<p>Check the following</p> <ul style="list-style-type: none"> ● 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	
<p>Check continuity between key switch terminals 1 and 2.</p> <div style="text-align: center;"> <p>Key switch (M37)</p> </div> <p style="text-align: right;">AEL416B</p>		
<p>Continuity</p> <p>Condition of key switch: Key is inserted. Yes</p> <p>Condition of key switch: Key is removed. No</p> <p style="text-align: center;">OK or NG</p>		
OK	▶	Check harness for open or short between smart entrance control unit and key switch.
NG	▶	Replace key switch.

POWER DOOR LOCK

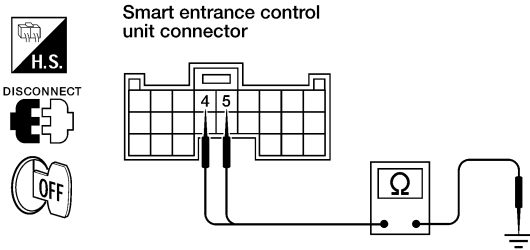
Trouble Diagnoses (Cont'd)

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 M110 terminal 4 (BR) or 5 (LG/R) and ground.



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

Refer to "Wiring Diagram", EL-190.

WEL829A

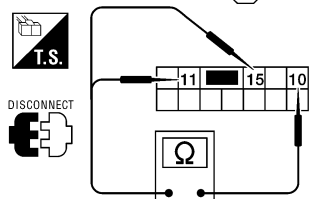
OK or NG

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

2 CHECK DOOR LOCK/UNLOCK SWITCH

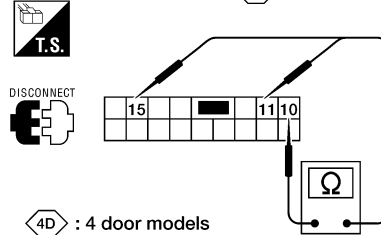
1. Disconnect door lock/unlock switch harness connector.
2. Check continuity between door lock/unlock switch terminals.

Main power window and door lock/unlock switch (D7) (2D)



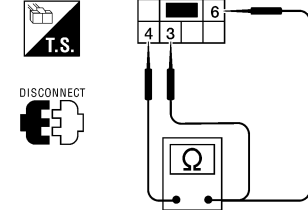
(2D) : 2 door models

Main power window and door lock/unlock switch (D7) (4D)



(4D) : 4 door models

Door lock/unlock switch RH (D107)



WEL865A

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	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 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.

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POWER DOOR LOCK

Trouble Diagnoses (Cont'd)

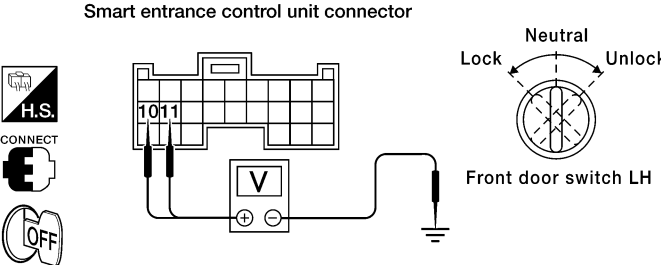
DOOR KEY CYLINDER SWITCH CHECK

NEEL0110S07

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

Check voltage between smart entrance control unit harness connector M110 terminal 10 (Y/R) or 11 (Y) and ground.

Smart entrance control unit connector



Terminals		Key position	Voltage [V]
(+)	(-)		
11	Ground	Neutral	Approx. 5
		Lock	0
10	Ground	Neutral	Approx. 5
		Unlock	0

Refer to "Wiring diagram", EL-191.

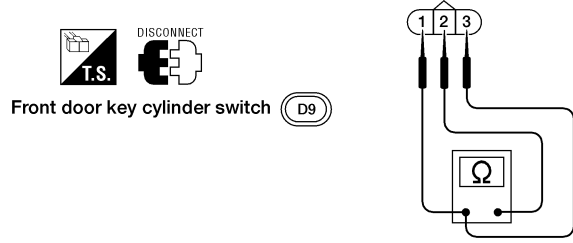
WEL518A

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.



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

LEL032A

OK or NG

OK	▶	<p>Check the following</p> <ul style="list-style-type: none"> • 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.

POWER DOOR LOCK

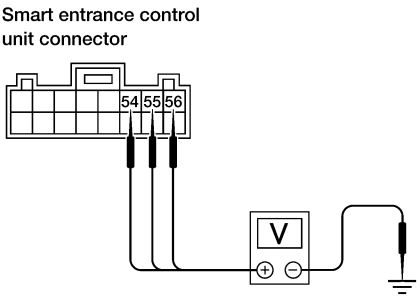
Trouble Diagnoses (Cont'd)

DOOR LOCK ACTUATOR CHECK

=NEEL0110S04

1 CHECK DOOR LOCK ACTUATOR CIRCUIT

Check voltage for door lock actuator circuits on smart entrance control unit connector M112 terminal 54 (L), 55 (G/W) or 56 (L/R) and ground.



Door lock/unlock switch condition	Terminals		Voltage [V]
	+	-	
Lock	54	Ground	Approx. 12
Unlock (front door LH)	55	Ground	
Unlock (front door RH, rear door LH and RH)	56	Ground	

Refer to "Wiring Diagram", EL-192.

WEL368A

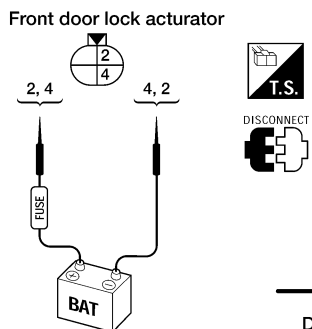
OK or NG

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

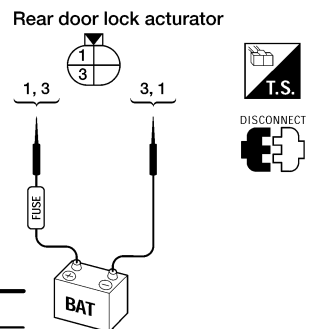
2 CHECK DOOR LOCK ACTUATOR

- Disconnect door lock actuator harness connector.
 - D8 Front door lock actuator LH
 - D108 Front door lock actuator RH
 - D207 Rear door lock actuator LH (4 door models)
 - D307 Rear door lock actuator RH (4 door models)
- Apply 12V direct current to door lock actuator and check operation.

Front door lock actuator



Rear door lock actuator



Door lock actuator	Operation	Terminals	
		+	-
Front	Unlocked → Locked	4	2
	Locked → Unlocked	2	4
Rear	Unlocked → Locked	3	1
	Locked → Unlocked	1	3

LEL830A

OK or NG

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

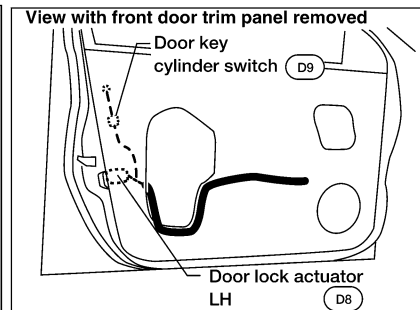
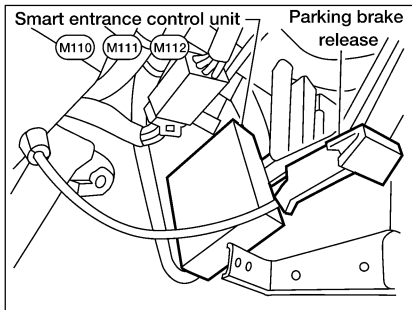
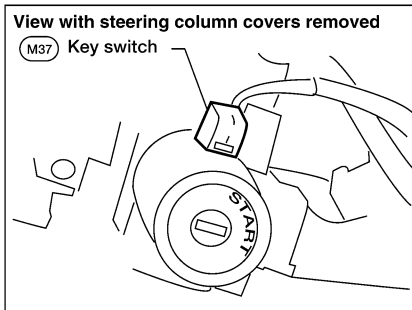
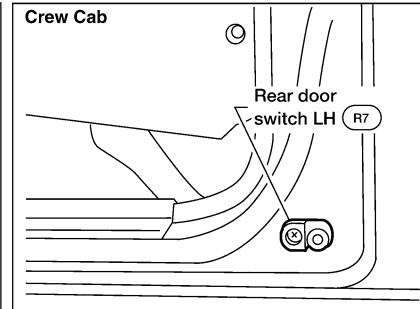
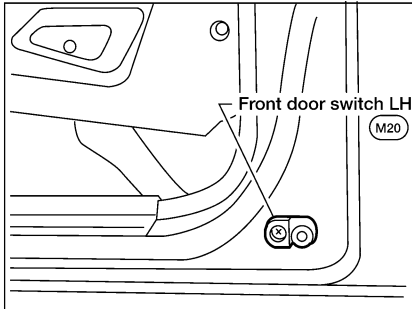
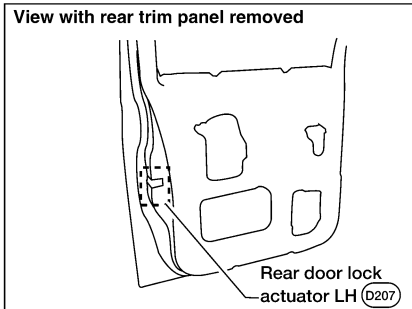
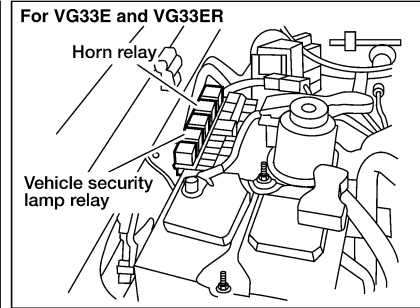
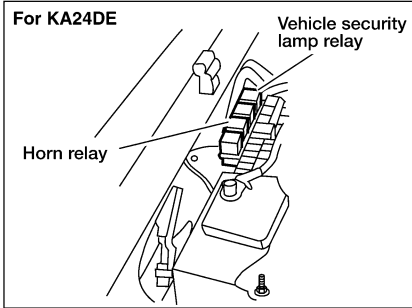
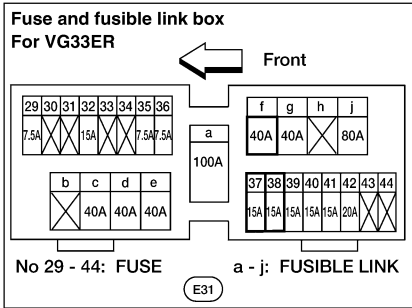
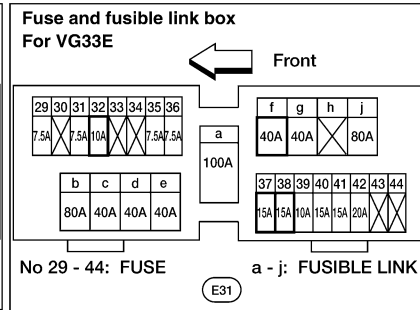
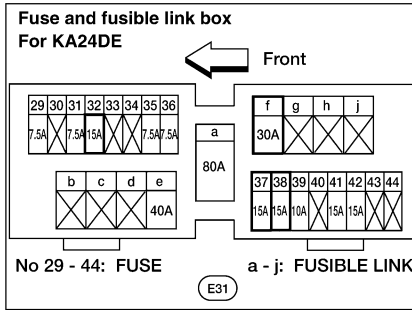
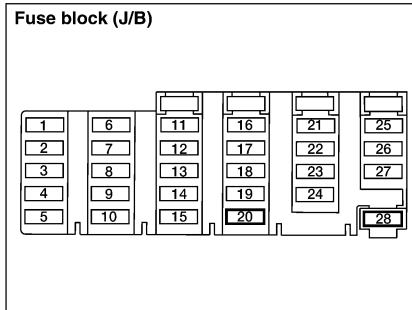
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REMOTE KEYLESS ENTRY SYSTEM

Component Parts and Harness Connector Location

Component Parts and Harness Connector Location

NEEL0111



WEL941A

System Description

POWER SUPPLY AND GROUND

NEEL0112

NEEL0112S03

Power is supplied at all times

- through 30A fusible link [letter f, located in the fuse and fusible link box (with KA24DE)] or
- through 40A fusible link [letter f, located in the fuse and fusible link box (with VG33E and VG33ER)]
- to circuit breaker terminal +
- through circuit breaker terminal –
- to smart entrance control unit terminal 51.

GI

MA

EM

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 26.

LC

Power is supplied at all times

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to key switch terminal 1 and
- to smart entrance control unit terminal 49.

EC

FE

Power is supplied at all times

- through 15A fuse (No. 37, located in the fuse and fusible link box)
- to vehicle security lamp relay terminal 7.

CL

Power is supplied at all times

- through 15A fuse (No. 38, located in the fuse and fusible link box)
- to vehicle security lamp relay terminal 5.

MT

Power is supplied at all times

- through 15A fuse (No. 32, located in the fuse and fusible link box)
- to horn relay terminal 1
- through horn relay terminal 2

AT

TF

Ground is supplied

- to smart entrance control unit terminals 43 and 64
- through body grounds M14 and M68.

PD

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 25.

AX

SU

With front door LH open, ground is supplied

- to smart entrance control unit terminal 1
- through front door switch LH terminal 2
- through front door switch LH terminal 3
- through body grounds M14 and M68.

BR

ST

With front door RH open, ground is supplied

- to smart entrance control unit terminal 2
- through front door switch RH terminal +.

RS

With rear door LH or RH (Crew Cab) open, ground is supplied

- to smart entrance control unit terminal 3 (with vehicle security system), or
- to smart entrance control unit terminal 2 (without vehicle security system)
- through rear door switch LH or RH terminal +.

BT

HA

Keyfob signal input

- through internal antenna.

SC

The remote keyless entry system controls operation of the

- power door locks
- interior lamp
- panic alarm

EL

IDX

REMOTE KEYLESS ENTRY SYSTEM

System Description (Cont'd)

- hazard and horn reminder

OPERATION PROCEDURE

Power Door Lock Operation

NEEL0112S02

When the keyfob 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 keyfob sends an UNLOCK signal once, the smart entrance control unit unlocks the front door LH. Then, if the keyfob sends another UNLOCK signal within 5 seconds, the smart entrance control unit unlocks all other doors.

Key Reminder

When performing a door locking operation 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 keyfob, 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 and Horn Reminder

When smart entrance control unit receives LOCK or UNLOCK signal from keyfob with all doors closed, power is supplied

- through smart entrance control unit terminals 47 and 48
- to the hazard warning lamps.

Ground is supplied

- to horn relay terminal 2
- through smart entrance control unit terminal 42.

Horn relay is now energized, and hazard warning lamp flashes and horn sounds as a reminder.

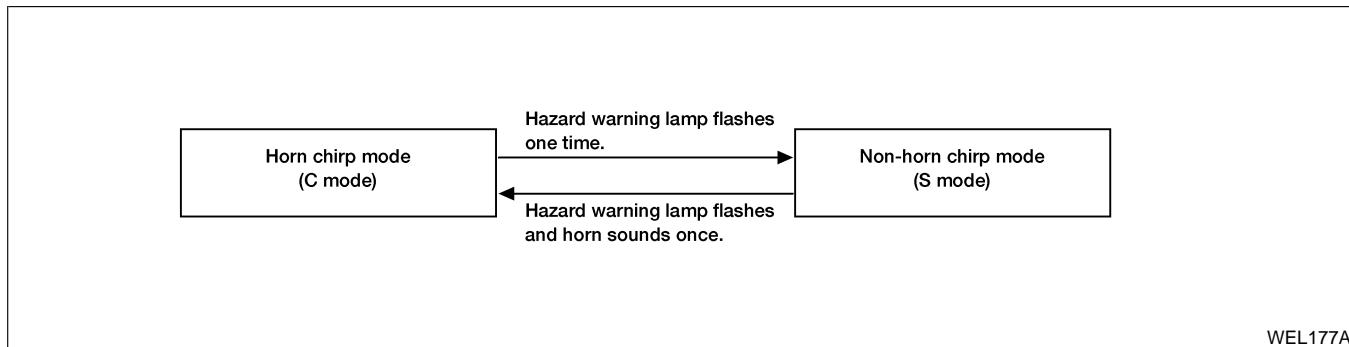
The hazard and horn reminder has a horn chirp mode (C mode) and a non-horn chirp mode (S mode).

Operating function of hazard and horn reminder

	Horn chirp mode (C mode)		Non-horn chirp mode (S mode)	
	Hazard warning lamp flash	Horn sound	Hazard warning lamp flash	Horn sound
Lock	Twice	Once	Twice	—
Unlock	Once	—	—	—

How to change hazard and horn reminder mode

When LOCK and UNLOCK signals are sent from the keyfob for more than 2 seconds at the same time, the hazard and horn reminder mode is changed and hazard warning lamp flashes and horn sounds as follows:



WEL177A

Interior Lamp Operation

When all door switches are in CLOSED position, the remote keyless entry system turns on the room lamp for 30 seconds with input of UNLOCK signal from a keyfob.

For detailed description, refer to "INTERIOR ROOM LAMP", EL-64.

NEEL0112S0205

REMOTE KEYLESS ENTRY SYSTEM

System Description (Cont'd)

Panic Alarm Operation

When keyfob sends a PANIC ALARM signal with key switch in the REMOVED (key is not in ignition key cylinder) position, remote keyless entry system operates the horn and headlamps intermittently. For detailed description, refer to "VEHICLE SECURITY (THEFT WARNING) SYSTEM", EL-219.

NEEL0112S0203

GI

Auto Relock Operation

All the doors will automatically lock again unless any one of the doors is opened or ignition switch is turned from OFF to ON within 5 minutes after the keyfob unlocks all the doors under the following conditions

NEEL0112S0208

MA

- key switch is in INSERTED position (key is in ignition key cylinder) and
- ignition switch is in the OFF position and
- all door switches are in CLOSED position (doors are closed)
- all doors are locked.

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REMOTE KEYLESS ENTRY SYSTEM

Wiring Diagram — KEYLES —

Wiring Diagram — KEYLES —

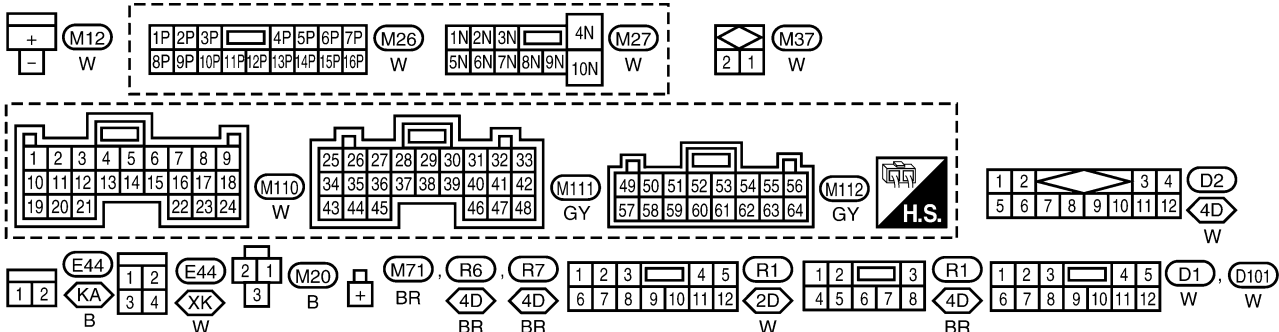
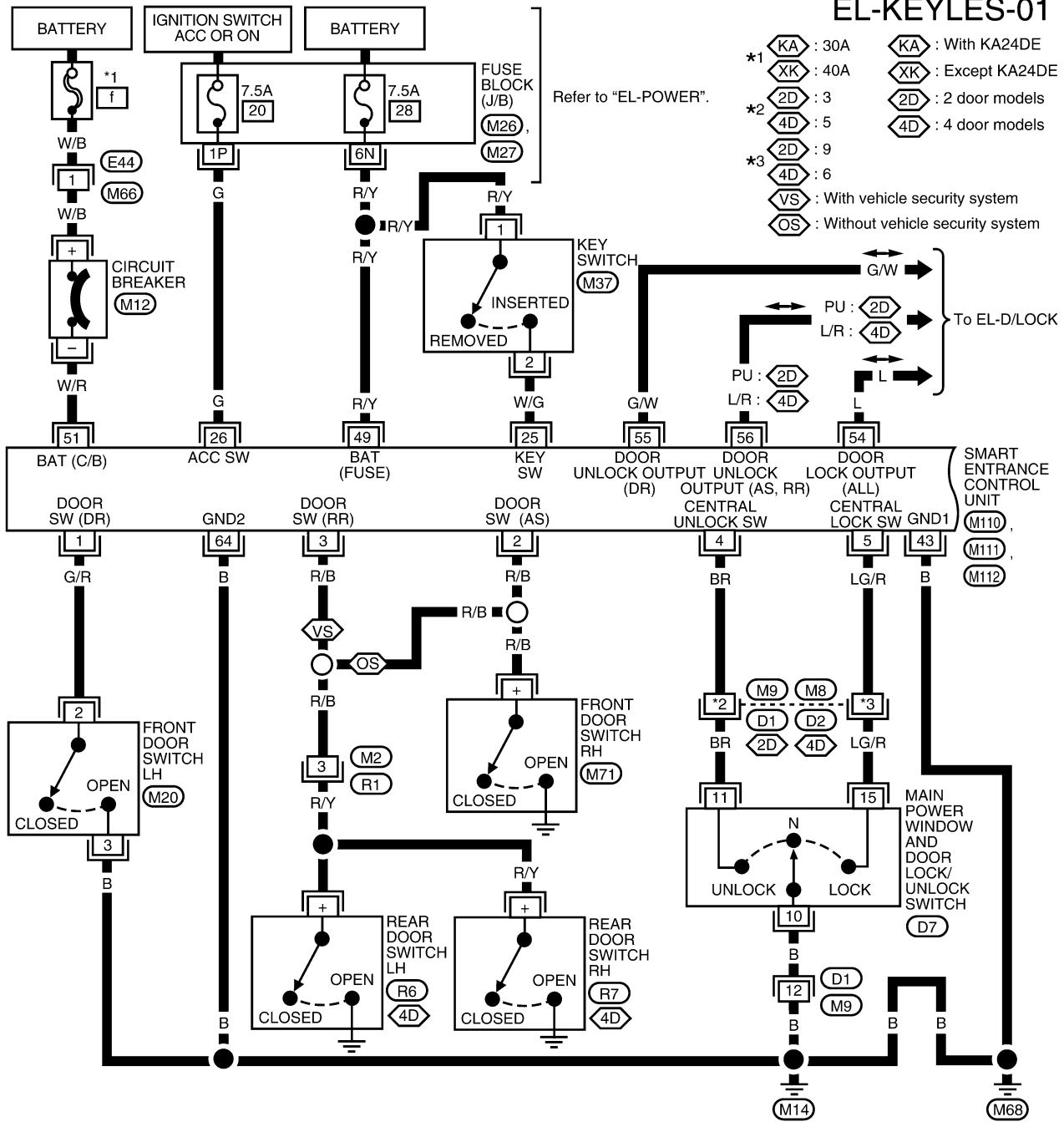
NEEL0114

NEEL0114S01

FIG. 1

EL-KEYLES-01

- *1 KA : 30A KA : With KA24DE
- XK : 40A XK : Except KA24DE
- *2 2D : 3 2D : 2 door models
- 4D : 5 4D : 4 door models
- *3 2D : 9
- 4D : 6
- VS : With vehicle security system
- OS : Without vehicle security system



WEL077B

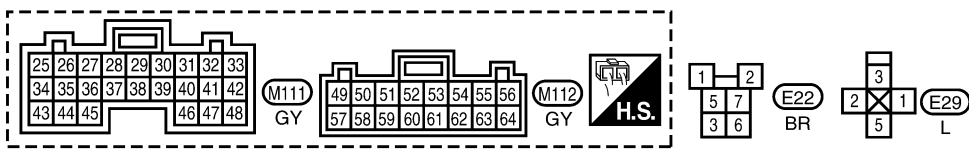
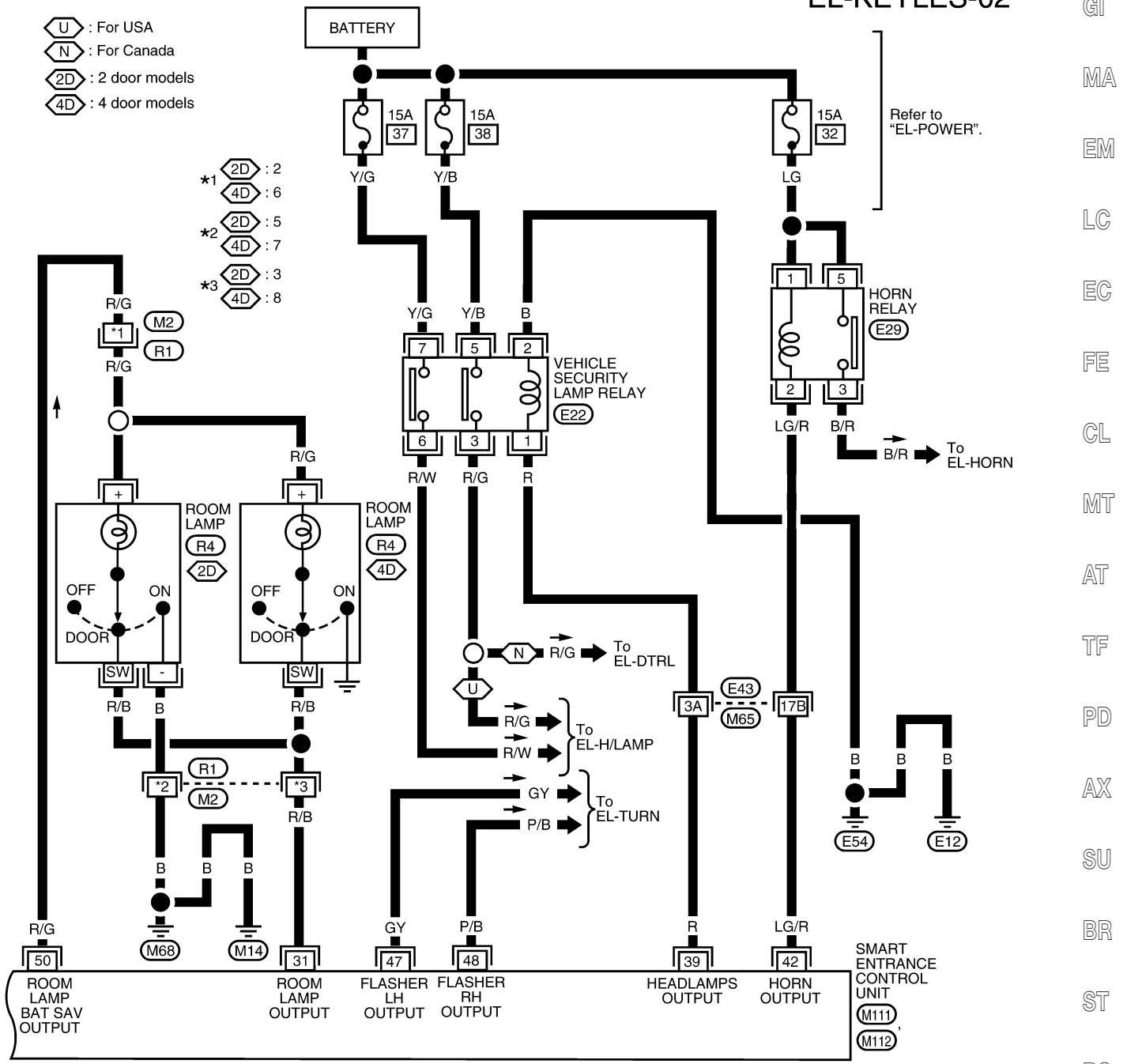
REMOTE KEYLESS ENTRY SYSTEM

Wiring Diagram — KEYLES — (Cont'd)

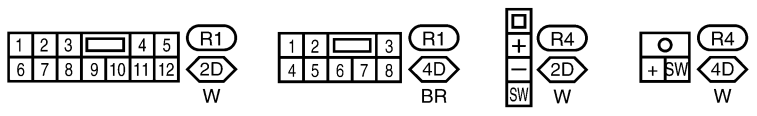
FIG. 2

NEEL0114S02

EL-KEYLES-02



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



REMOTE KEYLESS ENTRY SYSTEM

Trouble Diagnoses

Trouble Diagnoses

=NEEL0115

NEEL0115S01

SYMPTOM CHART

NOTE:

- Always check keyfob battery before replacing keyfob
- Use Remote Keyless Entry Tester J-43241 (follow instructions on tester) to check operation of keyfob before replacing keyfob.

Symptom	Diagnoses/service procedure	Reference page (EL-)
All functions of remote keyless entry system do not operate.	1. Keyfob battery check	207
	2. Keyfob check (use Remote Keyless Entry Tester J-43241).	—
	3. Power supply and ground circuit check	208
	4. Replace keyfob. Refer to ID Code Entry Procedure.	215
The new ID of keyfob cannot be entered.	1. Keyfob battery check	207
	2. Keyfob check (use Remote Keyless Entry Tester J-43241).	—
	3. Power supply and ground circuit check	208
	4. Key switch (inserted) check	211
	5. Door switch check	210
	6. Replace keyfob. Refer to ID Code Entry Procedure.	215
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-193).	1. Key switch (inserted) check	211
	2. Keyfob check (use Remote Keyless Entry Tester J-43241).	—
	3. Door switch check	210
	4. Replace keyfob. Refer to ID Code Entry Procedure.	215
Hazard indicator does not flash twice when pressing lock button of keyfob.	1. Hazard reminder check	214
	2. Keyfob check (use Remote Keyless Entry Tester J-43241).	—
	3. Replace keyfob. Refer to ID Code Entry Procedure.	215
Room lamp does not activate properly.	1. Room lamp operation check	214
	2. Door switch check	210
Panic alarm (horn and headlamps) does not activate when panic alarm button is pressed continuously for more than 1.5 seconds.	1. Vehicle security operation check. Refer to "PRELIMINARY CHECK", "VEHICLE SECURITY SYSTEM".	226
	2. Keyfob check (use Remote Keyless Entry Tester J-43241).	—
	3. Replace keyfob. Refer to ID Code Entry Procedure.	215

NOTE:

The panic alarm functions of the remote keyless entry system do not activate when the key switch is in INSERTED position (key is in ignition key cylinder).

When performing a door locking operation using the main power window and door lock/unlock switch, the door lock/unlock switch RH, the front door LH lock knob or a keyfob, all the doors will lock and then the front door LH will immediately unlock if

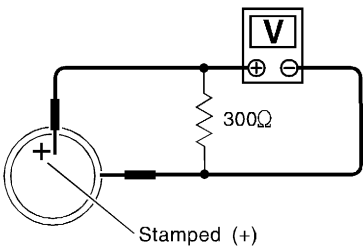
- the key switch is in INSERTED position (key is in ignition key cylinder) and
- either front door switch LH or RH is in OPEN position (door is open).

REMOTE KEYLESS ENTRY SYSTEM

Trouble Diagnoses (Cont'd)

KEYFOB BATTERY CHECK

-NEEL0115S02

1	CHECK KEYFOB BATTERY		GI
<p>Remove battery (refer to "Keyfob Battery Replacement", EL-216) and measure voltage across battery positive and negative terminals, (+) and (-).</p>			MA
			EM
<p>Voltage [V]: 2.5 - 3.0</p>			LC
<p>NOTE: Keyfob does not function if battery is not installed correctly.</p>			EC
OK or NG			FE
OK	▶	Check keyfob battery terminals for corrosion and damage.	CL
NG	▶	Replace battery.	MT

SEL277V

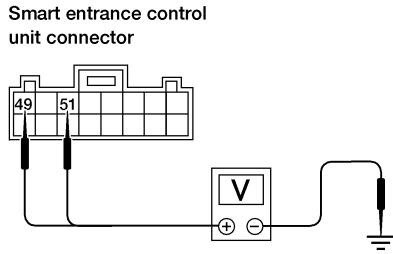


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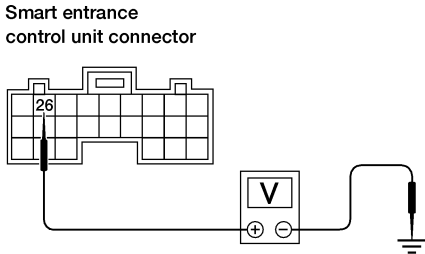


REMOTE KEYLESS ENTRY SYSTEM

Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK

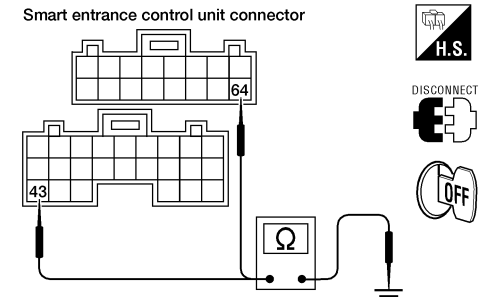
=NEEL0115S04

1	CHECK MAIN POWER SUPPLY CIRCUIT FOR CONTROL UNIT	
<p>1. Disconnect smart entrance control unit harness connector. 2. Check voltage between smart entrance control unit harness connector M112 terminals 49 (R/Y), 51 (W/R) and ground.</p>		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;"> <p>Smart entrance control unit connector</p>  </div> <div style="text-align: center;">  <p>DISCONNECT</p>  </div> <div style="text-align: center;"> <p>Battery voltage should exist.</p> </div> </div>		
LEL051A		
Refer to "Wiring Diagram", EL-204.		
OK or NG		
OK	▶	GO TO 2.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 30A fusible link (with KA24DE), 40A fusible link (with VG33E and VG33ER) (letter f, located in fuse and fusible link box) ● 7.5A fuse [No. 28, located in fuse block (J/B)] ● M12 circuit breaker ● Harness for open or short between smart entrance control unit and circuit breaker ● Harness for open or short between smart entrance control unit and fuse.

2	CHECK IGNITION SWITCH ACC CIRCUIT	
<p>1. Disconnect smart entrance control unit harness connector. 2. Check voltage between smart entrance control unit harness connector M111 terminal 26 (G) and ground while ignition switch is in ACC or ON position.</p>		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;"> <p>Smart entrance control unit connector</p>  </div> <div style="text-align: center;">  <p>DISCONNECT</p>  <p>ACC</p> <p>ON</p> </div> <div style="text-align: center;"> <p>Battery voltage should exist.</p> </div> </div>		
LEL052A		
Refer to "Wiring Diagram", EL-204.		
OK or NG		
OK	▶	GO TO 3.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 7.5A fuse [No. 20, located in fuse block (J/B)] ● Harness for open or short between smart entrance control unit and fuse

REMOTE KEYLESS ENTRY SYSTEM

Trouble Diagnoses (Cont'd)

3	CHECK GROUND CIRCUIT FOR CONTROL UNIT	
<p>Check continuity between smart entrance control unit harness connectors M111 and M112 terminals 43 (B) and 64 (B) and ground.</p>		GI
<div style="text-align: center;">  <p>Smart entrance control unit connector</p> </div> <p>Refer to "Wiring Diagram", EL-204.</p> <p style="text-align: right;">LEL008A</p>		MA EM LC EC FE
OK or NG		
OK	▶ Power supply and ground circuits are OK.	CL
NG	▶ Check ground harness.	MT AT TF PD AX SU BR ST RS BT HA SC

REMOTE KEYLESS ENTRY SYSTEM

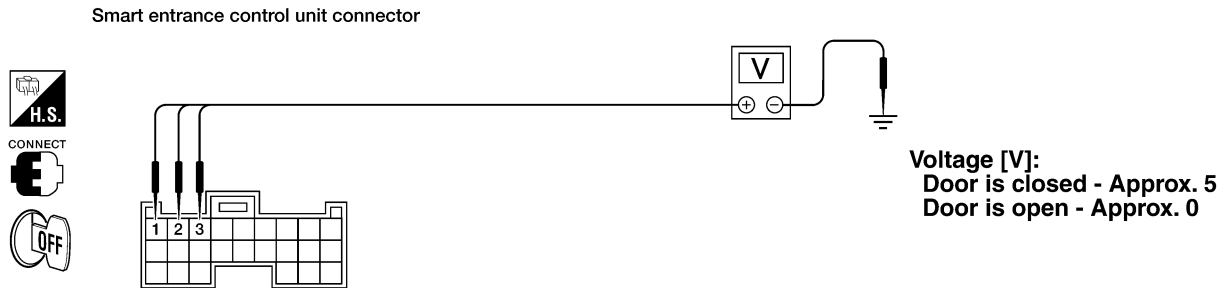
Trouble Diagnoses (Cont'd)

DOOR SWITCH CHECK

=NEEL0115S05

1 CHECK DOOR SWITCH INPUT SIGNAL

Check voltage between smart entrance control unit connector M110 terminals 1 (G/R), 2 (R/B) or 3 (R/B) (Crew Cab with vehicle security system) and ground.



WEL517A

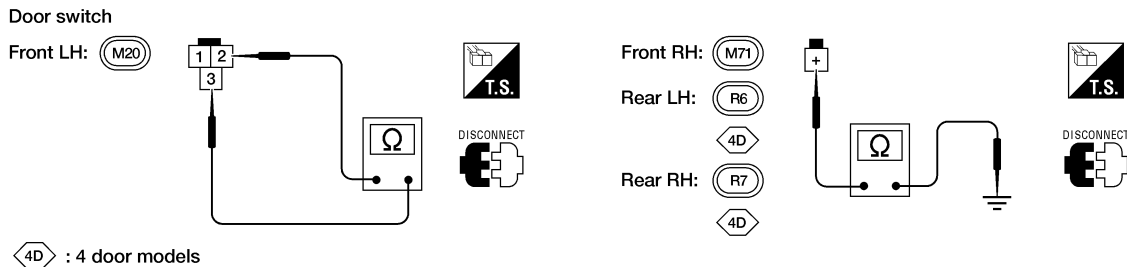
Refer to "Wiring Diagram", EL-204.

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

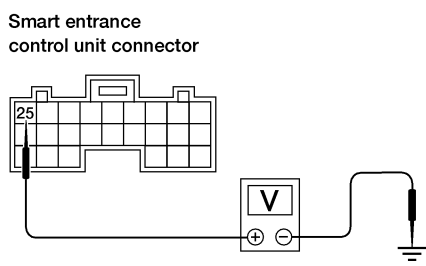
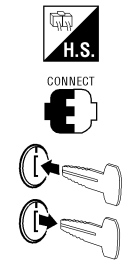
OK	▶	Check the following. <ul style="list-style-type: none"> ● Front door switch LH ground circuit or door switch ground condition ● Harness for open or short between smart entrance control unit and door switch
NG	▶	Replace door switch.

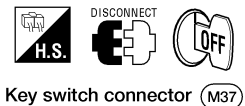
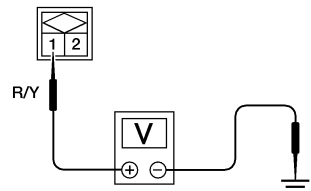
REMOTE KEYLESS ENTRY SYSTEM

Trouble Diagnoses (Cont'd)

KEY SWITCH (INSERTED) CHECK

-NEEL0115S07

1	CHECK KEY SWITCH INPUT SIGNAL	<p>1. Disconnect smart entrance control unit harness connector. 2. Check voltage between smart entrance control unit harness connector M111 terminal 25 (W/G) and ground.</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>Smart entrance control unit connector</p>  </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p>Voltage [V]: Key is inserted - Approx. 12 Key is removed - Approx. 0</p> </div> </div> <p style="text-align: right;">LEL053A</p> <p style="text-align: center;">Refer to "Wiring Diagram", EL-204.</p> <p style="text-align: center;">OK or NG</p>	GI MA EM LC EC FE
OK	▶	Key switch is OK.	CL
NG	▶	GO TO 2.	MT

2	CHECK KEY SWITCH POWER SUPPLY	<p>1. Disconnect key switch harness connector. 2. Check voltage between key switch harness connector terminal 1 and ground.</p> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <p style="text-align: right;">AEL415B</p> <p>Battery voltage should exist. Refer to "Wiring Diagram", EL-204.</p> <p style="text-align: center;">OK or NG</p>	AT TF PD AX SU
OK	▶	GO TO 3.	BR
NG	▶	<p>Check the following</p> <ul style="list-style-type: none"> ● 7.5A fuse [No. 28, located in the fuse block (J/B)] ● Harness for open or short between key switch and fuse 	ST RS BT HA SC

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REMOTE KEYLESS ENTRY SYSTEM

Trouble Diagnoses (Cont'd)

3	CHECK KEY SWITCH (INSERTED)
<p>Check continuity between terminals 1 and 2.</p> <div data-bbox="662 247 961 529" data-label="Diagram"></div> <p data-bbox="1386 512 1471 529">AEL416B</p> <p data-bbox="185 537 695 676">Continuity: Condition of key switch: Key is inserted. Yes Condition of key switch: Key is removed. No</p> <p data-bbox="753 697 870 718" style="text-align: center;">OK or NG</p>	
OK	▶ Check harness for open or short between smart entrance control unit and key switch.
NG	▶ Replace key switch.

REMOTE KEYLESS ENTRY SYSTEM

Trouble Diagnoses (Cont'd)

HAZARD REMINDER CHECK

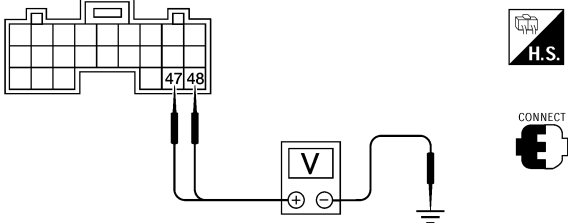
-NEEL0115S09

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-59.

GI
MA
EM

2	CHECK KEYFOB OPERATION	
Check door lock/unlock operation with keyfob.		
Does door lock/unlock operate?		
Yes	▶	GO TO 3.
No	▶	Check keyfob battery. Refer to "Keyfob Battery Check", EL-207.

LC
EC
FE

3	CHECK HAZARD REMINDER OUTPUT SIGNAL	
Measure voltage between smart entrance control unit connector M111 terminals 47 (GY) and 48 (P/B), and ground with CONSULT-II or voltmeter when hazard reminder is operated.		
<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="text-align: center;"> <p>Smart entrance control unit connector</p>  </div> <div style="text-align: center;"> <p>Voltage should be greater than 5 volts.</p> </div> </div> <p style="text-align: right; margin-top: 10px;">WEL816A</p>		
OK or NG		
OK	▶	Check harness for open or short between smart entrance control unit and turn signal lamps.
NG	▶	Replace smart entrance control unit.

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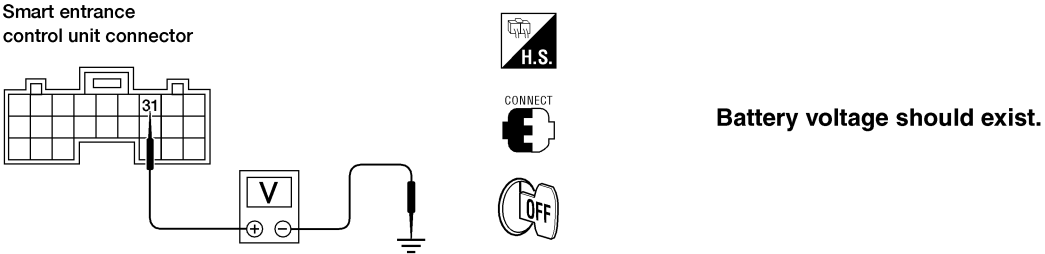
REMOTE KEYLESS ENTRY SYSTEM

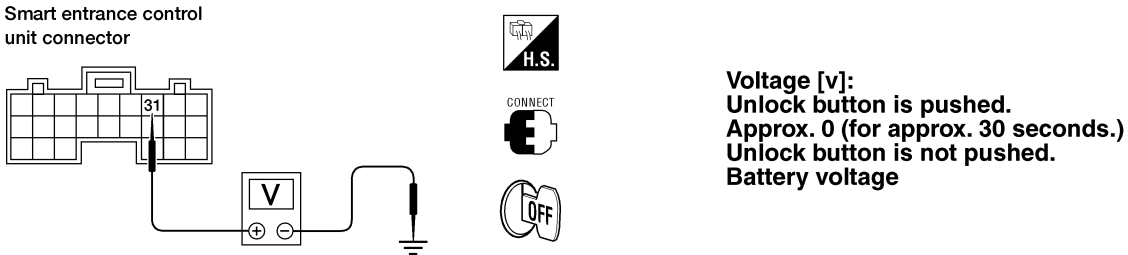
Trouble Diagnoses (Cont'd)

INTERIOR ROOM LAMP OPERATION CHECK

-NEEL0115S08

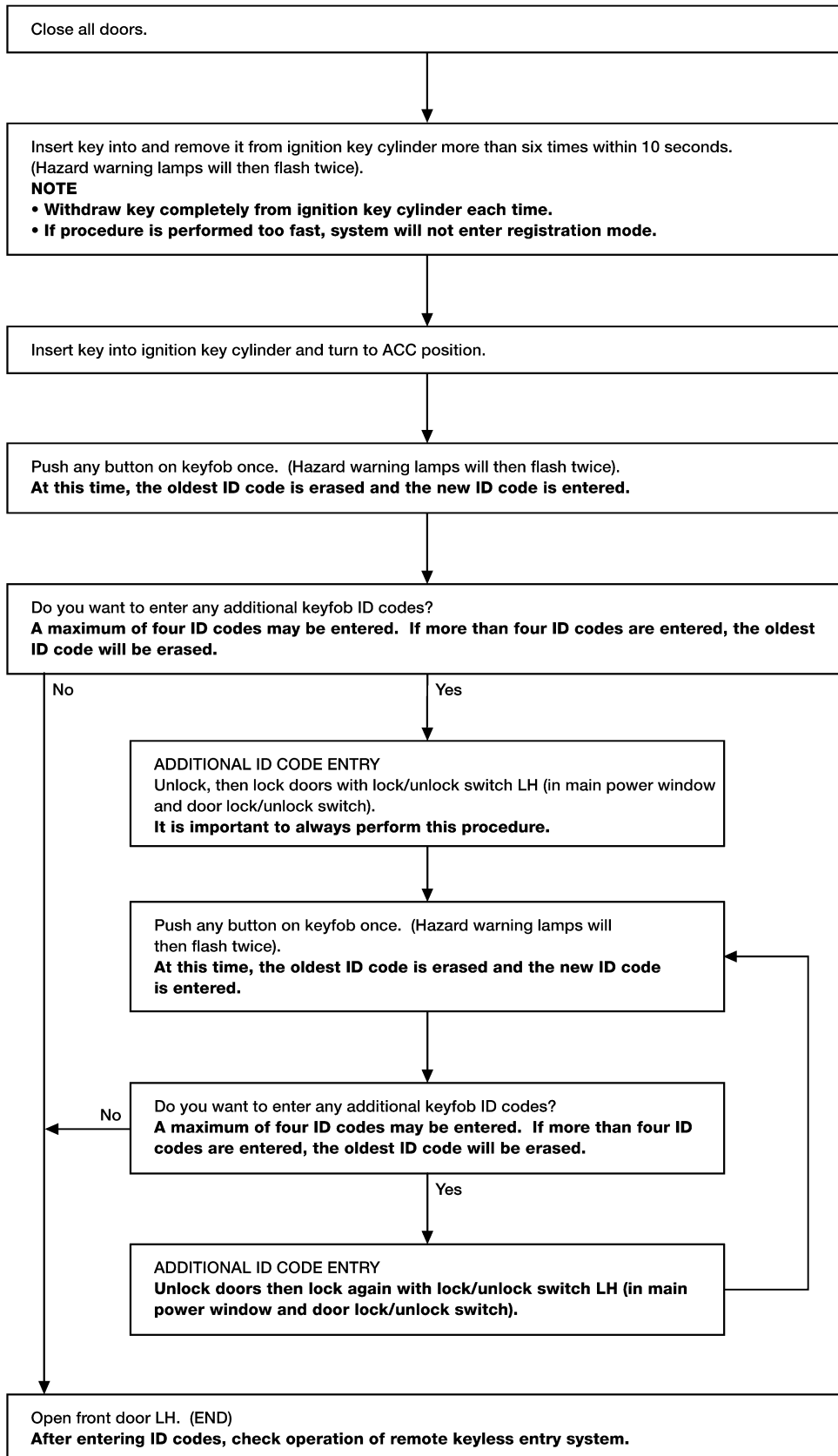
1	CHECK INTERIOR ROOM LAMP	
Check if the interior room lamp switch is in the "ON" position and the lamp illuminates.		
Does interior room lamp illuminate?		
Yes	▶	GO TO 2.
No	▶	Check the following. <ul style="list-style-type: none"> ● Harness for open or short between smart entrance control unit and interior room lamp ● Interior room lamp

2	CHECK INTERIOR ROOM LAMP CIRCUIT	
When interior room lamp switch is in "DOOR" position, check voltage across smart entrance control unit connector M111 terminal 31 (R/B) and ground.		
		
LEL055A		
OK or NG		
OK	▶	GO TO 3.
NG	▶	Repair harness between smart entrance control unit and interior room lamp.

3	CHECK CONTROL UNIT OUTPUT	
Push unlock button of keyfob with key removed and all doors closed, and check voltage across smart entrance control unit connector M111 terminal 31 (R/B) and ground.		
		
LEL056A		
OK or NG		
OK	▶	Check system again.
NG	▶	Replace smart entrance control unit.

ID Code Entry Procedure

NEEL0117



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REMOTE KEYLESS ENTRY SYSTEM

ID Code Entry Procedure (Cont'd)

NOTE:

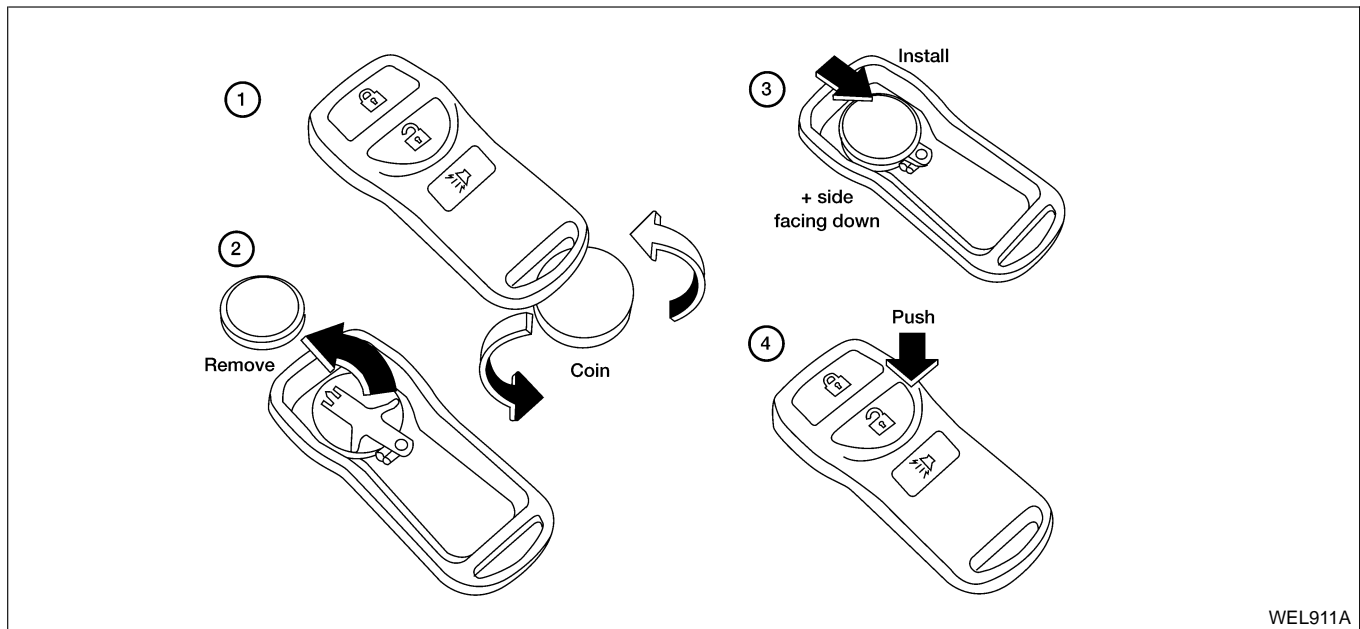
- If a keyfob is lost, the ID code of the lost keyfob must be erased to prevent unauthorized use. To erase all ID codes in memory, register one ID code (keyfob) four times. After all ID codes are erased, the ID codes of all remaining and/or new keyfobs must be re-registered.
- When registering an additional keyfob, the existing ID codes in memory may or may not be erased. If four ID codes are stored in memory when an additional code is registered, only the oldest code is erased. If less than four ID codes are stored in memory when an additional ID code is registered, the new ID code is added and no ID codes are erased.
- If you need to activate more than two additional new keyfobs, repeat the procedure "ADDITIONAL ID CODE ENTRY" for each new keyfob.
- Entry of 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.

Keyfob Battery Replacement

NEEL0118

NOTE:

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



VEHICLE SECURITY (THEFT WARNING) SYSTEM

Component Parts and Harness Connector Location

Component Parts and Harness Connector Location

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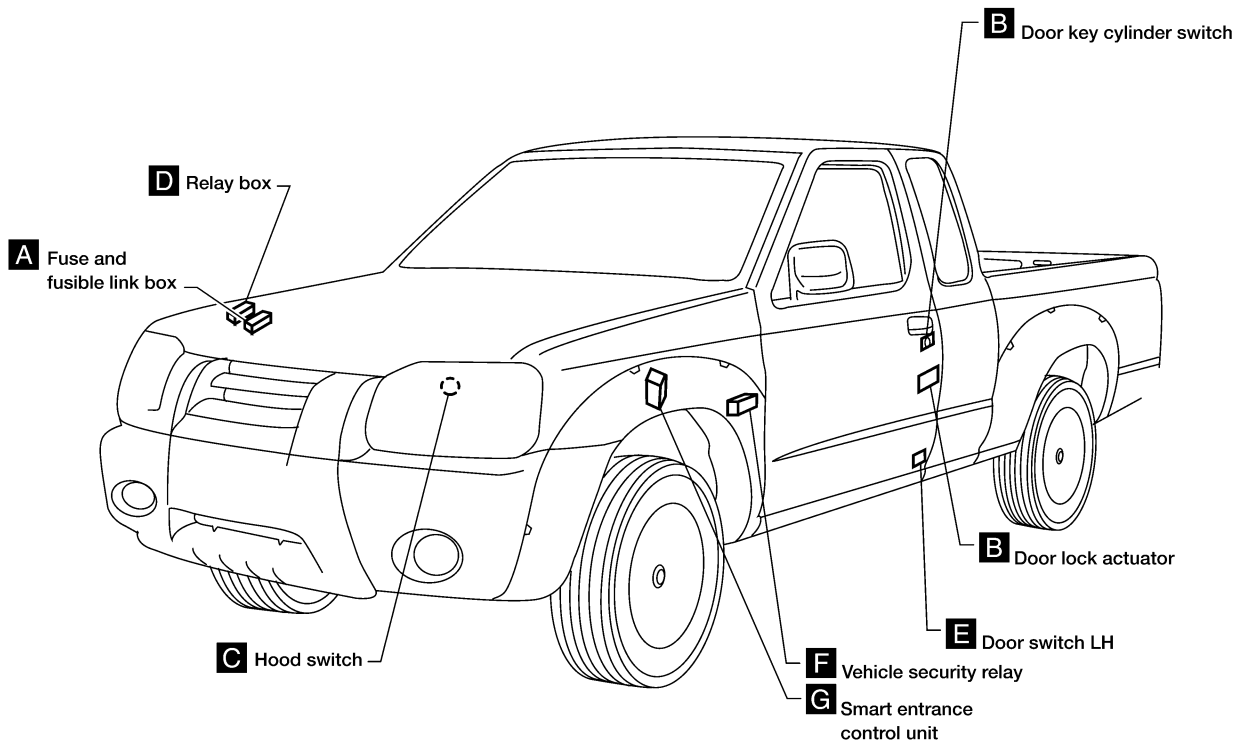
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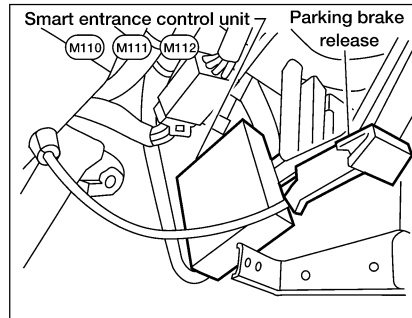
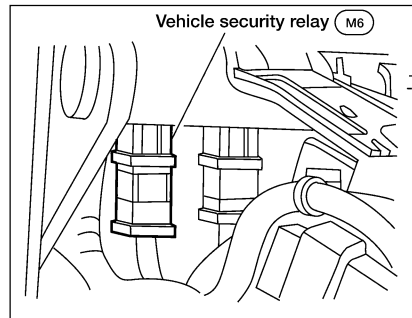
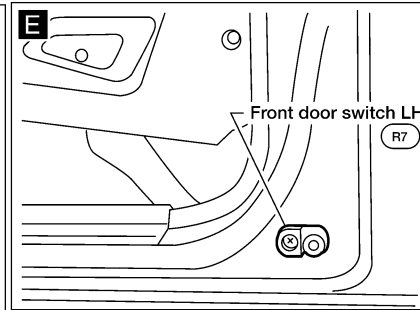
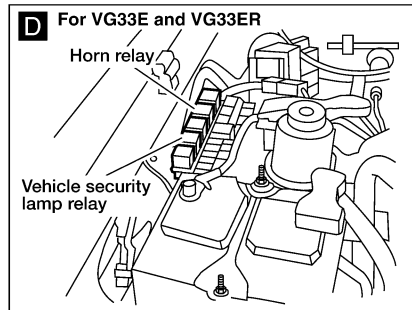
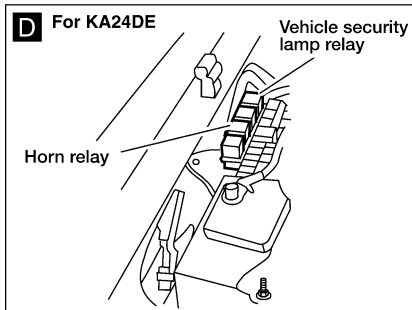
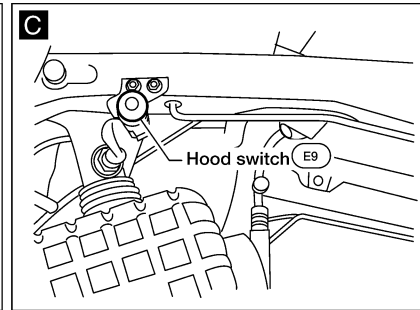
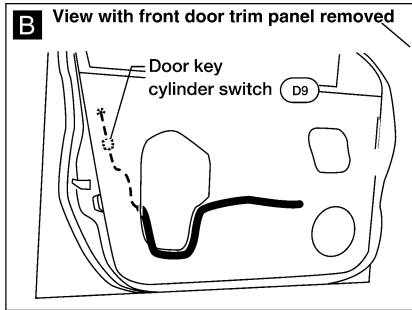
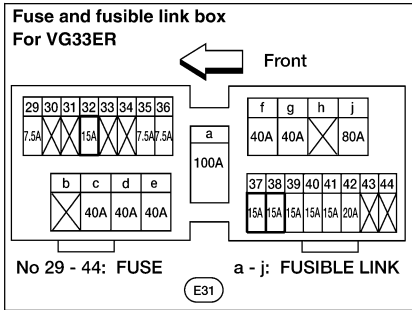
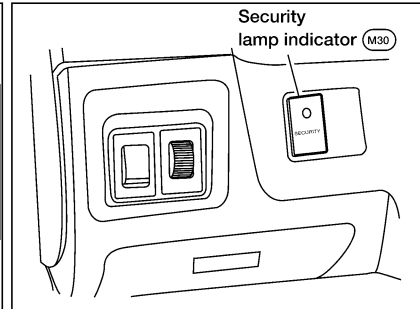
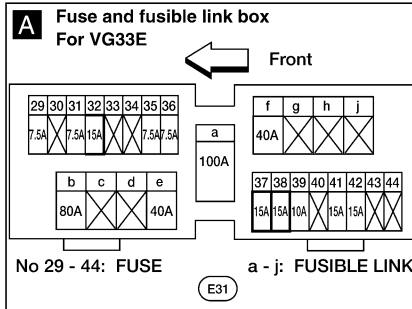
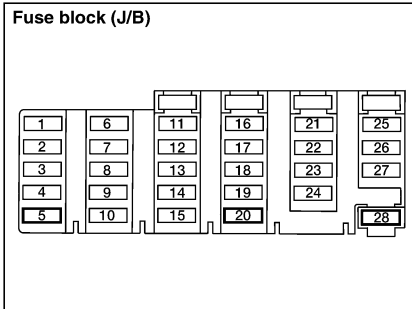
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WEL973A

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Component Parts and Harness Connector Location (Cont'd)



WEL942A

System Description

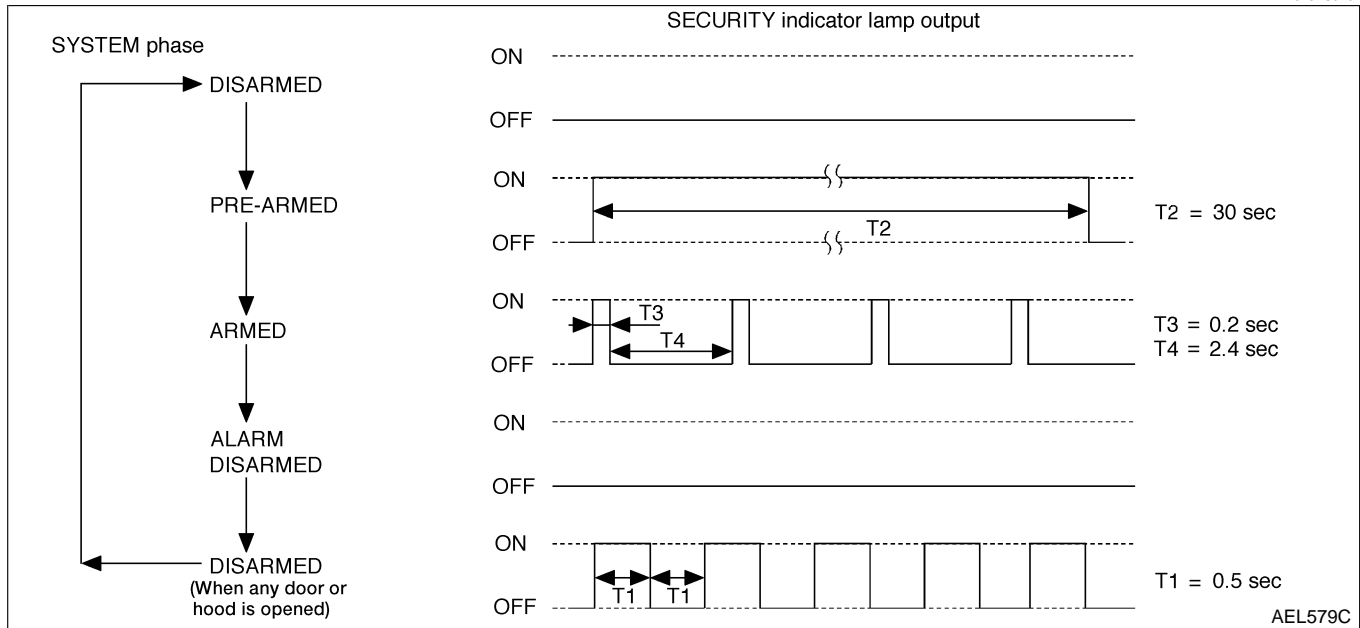
DESCRIPTION

NEEL0197

1. Operation Flow

NEEL0197S01

NEEL0197S0101



2. Setting the Vehicle Security System

Initial condition

- 1) Close all doors.
- 2) Close hood.

Disarmed phase

The vehicle security 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 vehicle security system turns into the "pre-armed" phase when hood and all doors are closed and the doors are locked by key or keyfob. (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 Vehicle Security System

When the doors are unlocked with the key or keyfob, the armed phase is canceled.

4. Activating the Alarm Operation of the Vehicle Security System

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 and headlamps operate intermittently for about 50 seconds. (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 keyfob.
- 2) Door is opened without first using key or keyfob.

POWER SUPPLY AND GROUND

Power is supplied at all times

- through 7.5A fuse [No. 28, located in the fuse block (J/B)]
- to smart entrance control unit terminal 49
- to key switch terminal 1 and
- to security indicator lamp 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 26.

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

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

System Description (Cont'd)

- through 10A fuse [No. 5, located in the fuse block (J/B)]
- to smart entrance control unit terminal 27.

Ground is supplied

- to smart entrance control unit terminals 43 and 64
- through body grounds M14 and M68.

INITIAL CONDITION TO ACTIVATE THE SYSTEM

To activate the vehicle security system, the smart entrance control unit must receive signals indicating the doors and hood are closed and the doors are locked. NEEL0197S03

When a door is open, smart entrance control unit terminal 1, 2, or 3 (Crew Cab) receives a ground signal from the corresponding door switch.

When the hood is open, ground is supplied

- to smart entrance control unit terminal 6
- through hood switch terminal +
- through hood switch terminal –
- through body grounds E12 and E54.

When the doors are locked with key or keyfob and none of the described conditions exist, the vehicle security system will automatically shift to armed phase.

VEHICLE SECURITY SYSTEM ACTIVATION (WITH KEY OR KEYFOB USED TO LOCK DOORS)

If the key is used to lock doors, ground is supplied to smart entrance control unit terminal 11 NEEL0197S04

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

If this signal or lock signal from keyfob is received by the smart entrance control unit, the vehicle security system will activate automatically.

Once the vehicle security system has been activated, smart entrance control unit terminal 38 supplies ground to security indicator lamp terminal 2.

The security lamp will illuminate for approximately 30 seconds and then blink.

The vehicle security system is now in armed phase.

VEHICLE SECURITY SYSTEM ALARM OPERATION

The vehicle security system is triggered by NEEL0197S05

- opening a door
- opening the hood

Once the vehicle security system is in armed phase, if the smart entrance control unit receives a ground signal at terminal 1, 2, or 3 (Crew Cab) or 6 (hood switch), the vehicle security system will be triggered. The 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 10A fuse [No. 5, located in the fuse block (J/B)].
- to vehicle security relay terminal 2.

If the vehicle security system is triggered, ground is supplied

- to vehicle security relay terminal 1
- through smart entrance control unit terminal 40.

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 15A fuse (No. 32, located in fuse and fusible link box)
- to horn relay terminal 1.

When the vehicle security system is triggered, power is supplied intermittently

- to vehicle security lamp relay terminal 1
- through smart entrance control unit terminal 39

Ground is supplied

- to vehicle security lamp relay terminal 2
- through body grounds E54 and E12.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

System Description (Cont'd)

When the vehicle security system is triggered, ground is supplied intermittently

- to horn relay terminal 2
- through smart entrance control unit terminal 42.

GI

The horn and headlamps operate intermittently.

The alarm automatically turns off after 50 seconds but will reactivate if the vehicle is tampered with again.

MA

VEHICLE SECURITY SYSTEM DEACTIVATION

NEEL0197S06

To deactivate the vehicle security system, a door must be unlocked with the key or keyfob.

When the key is used to unlock the door, smart entrance control unit terminal 10 receives a ground signal

EM

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

LC

When the smart entrance control unit receives this signal or an unlock signal from keyfob, the vehicle security system is deactivated (disarmed phase).

EC

PANIC ALARM OPERATION

NEEL0197S07

Remote keyless entry system may or may not operate vehicle security system (horn and headlamps) as required.

FE

When the remote keyless entry system is triggered, power is supplied intermittently

- to vehicle security lamp relay terminal 1
- through smart entrance control unit terminal 39

CL

When the remote keyless entry system is triggered, ground is supplied intermittently

MT

- to horn relay terminal 2
- through smart entrance control unit terminal 42.

AT

The horn and headlamps operate intermittently.

The alarm automatically turns off after 30 seconds or when smart entrance control unit receives any signal from keyfob.

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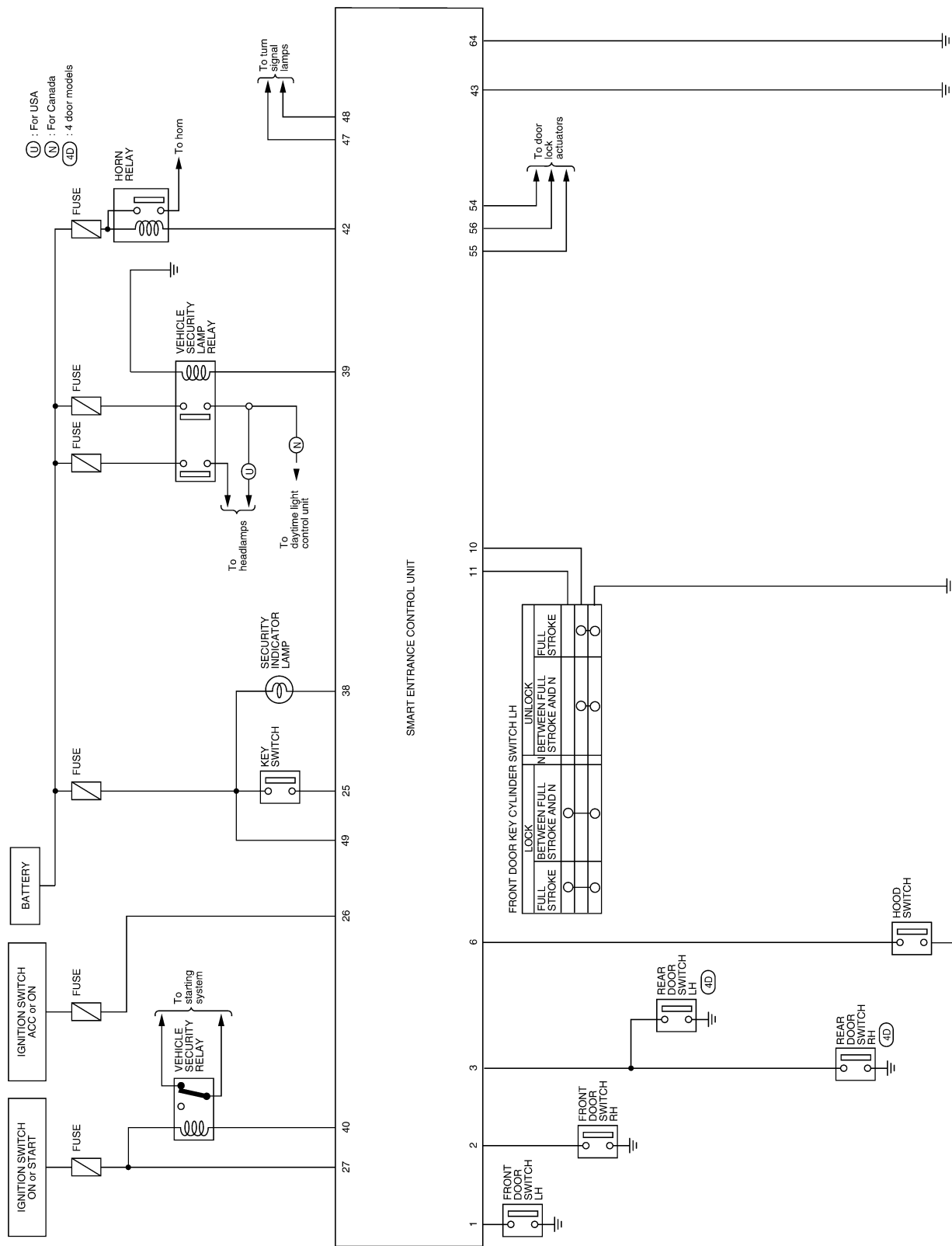
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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Circuit Diagram

Circuit Diagram

NEEL0198



WEL771A

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Wiring Diagram — VEHSEC —

Wiring Diagram — VEHSEC —

FIG. 1

NEEL0199

NEEL0199S01

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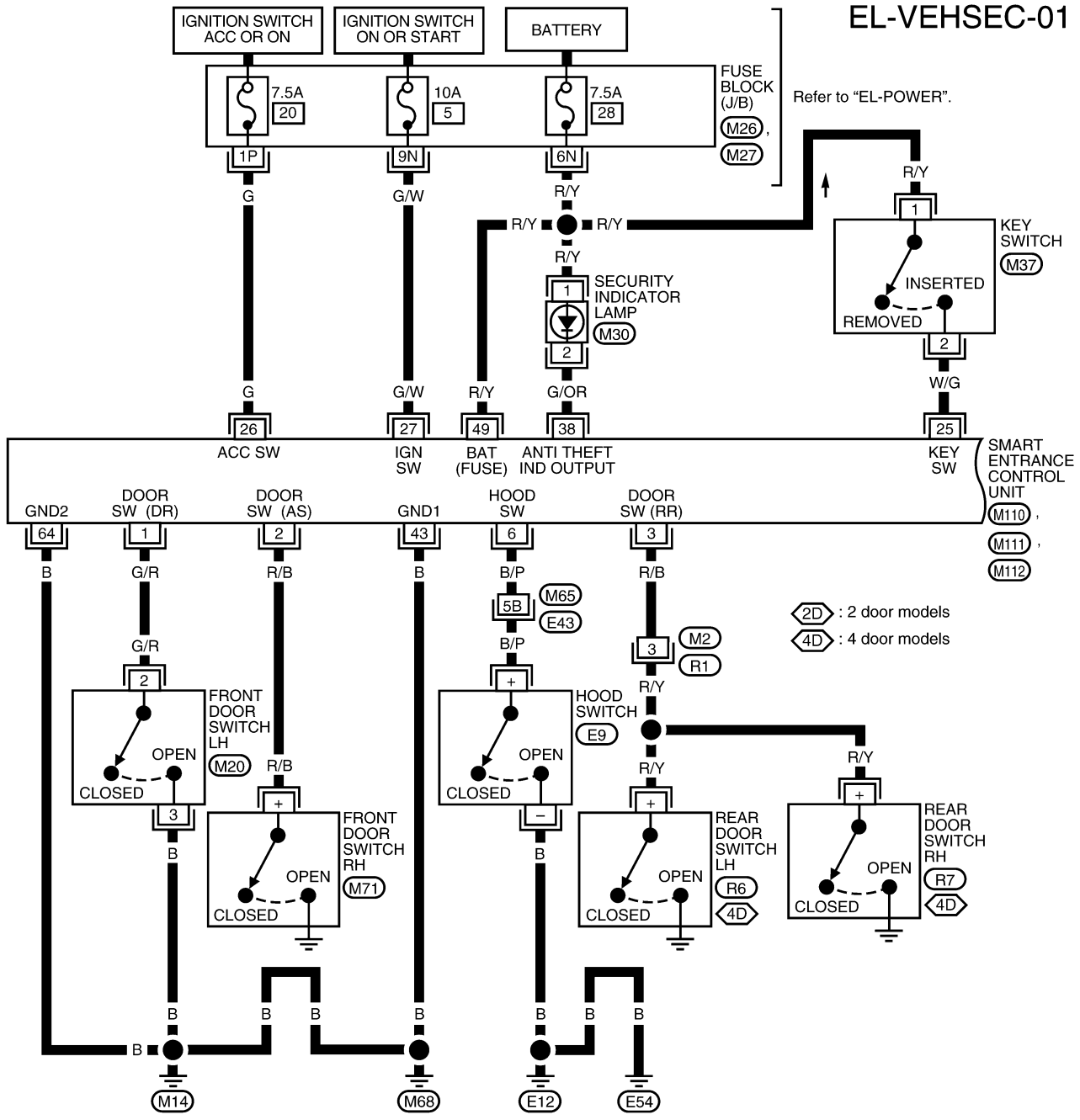
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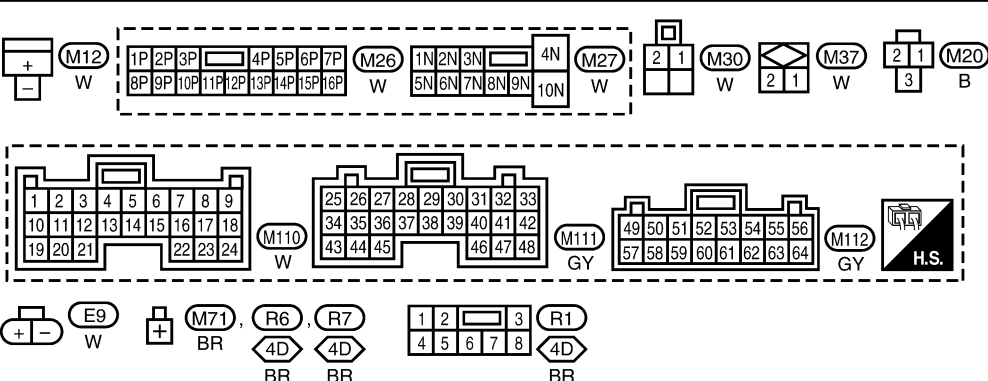
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2D : 2 door models
4D : 4 door models



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

WEL772A

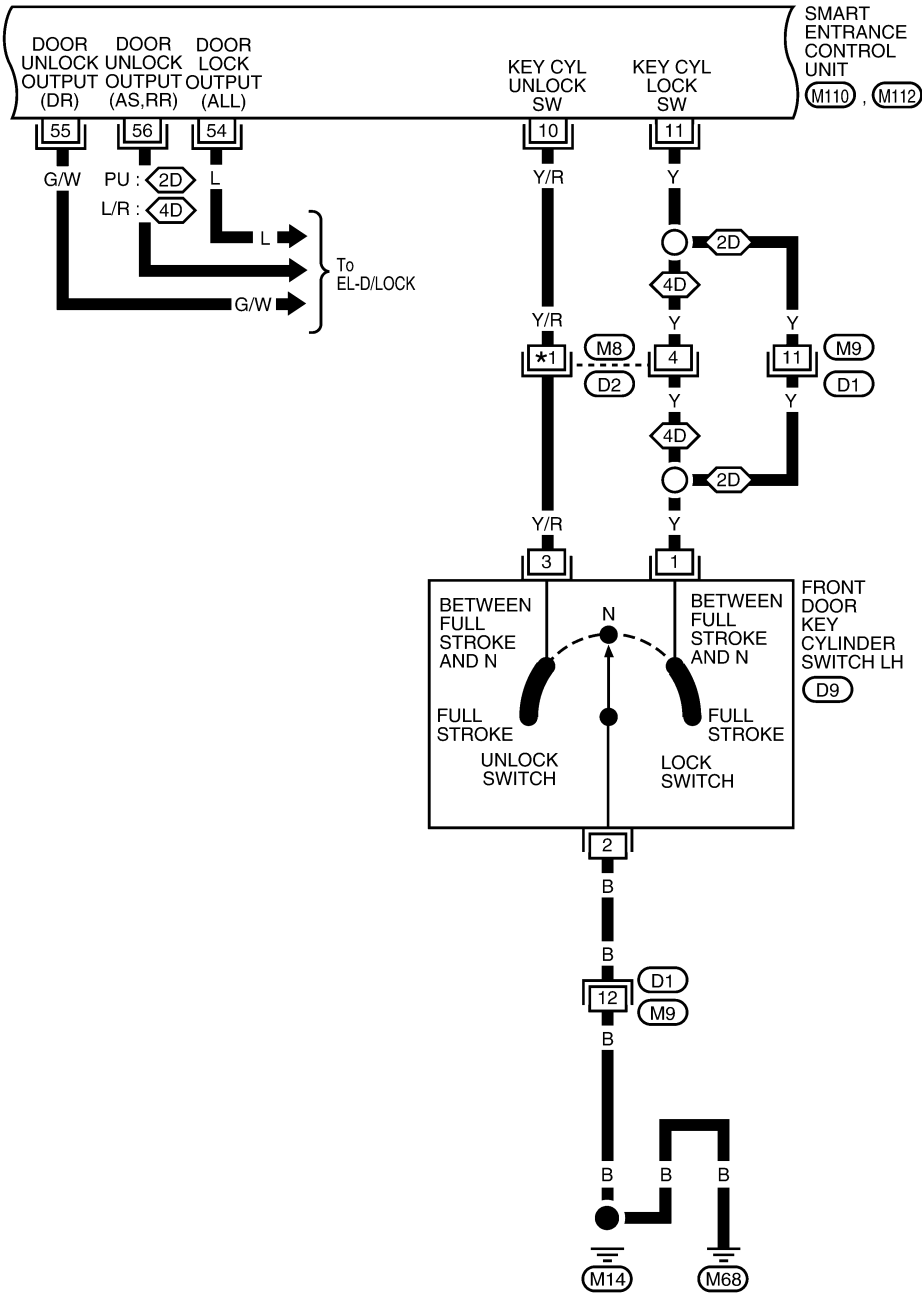
VEHICLE SECURITY (THEFT WARNING) SYSTEM

Wiring Diagram — VEHSEC — (Cont'd)

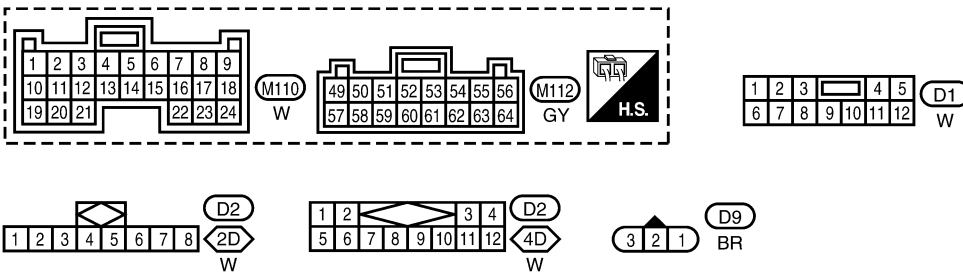
FIG. 2

NEEL0199S02

EL-VEHSEC-02



- 2D : 2 door models
- 4D : 4 door models
- *1 2D : 6
- 4D : 10



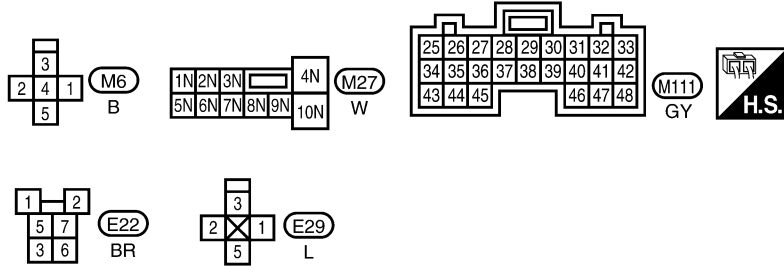
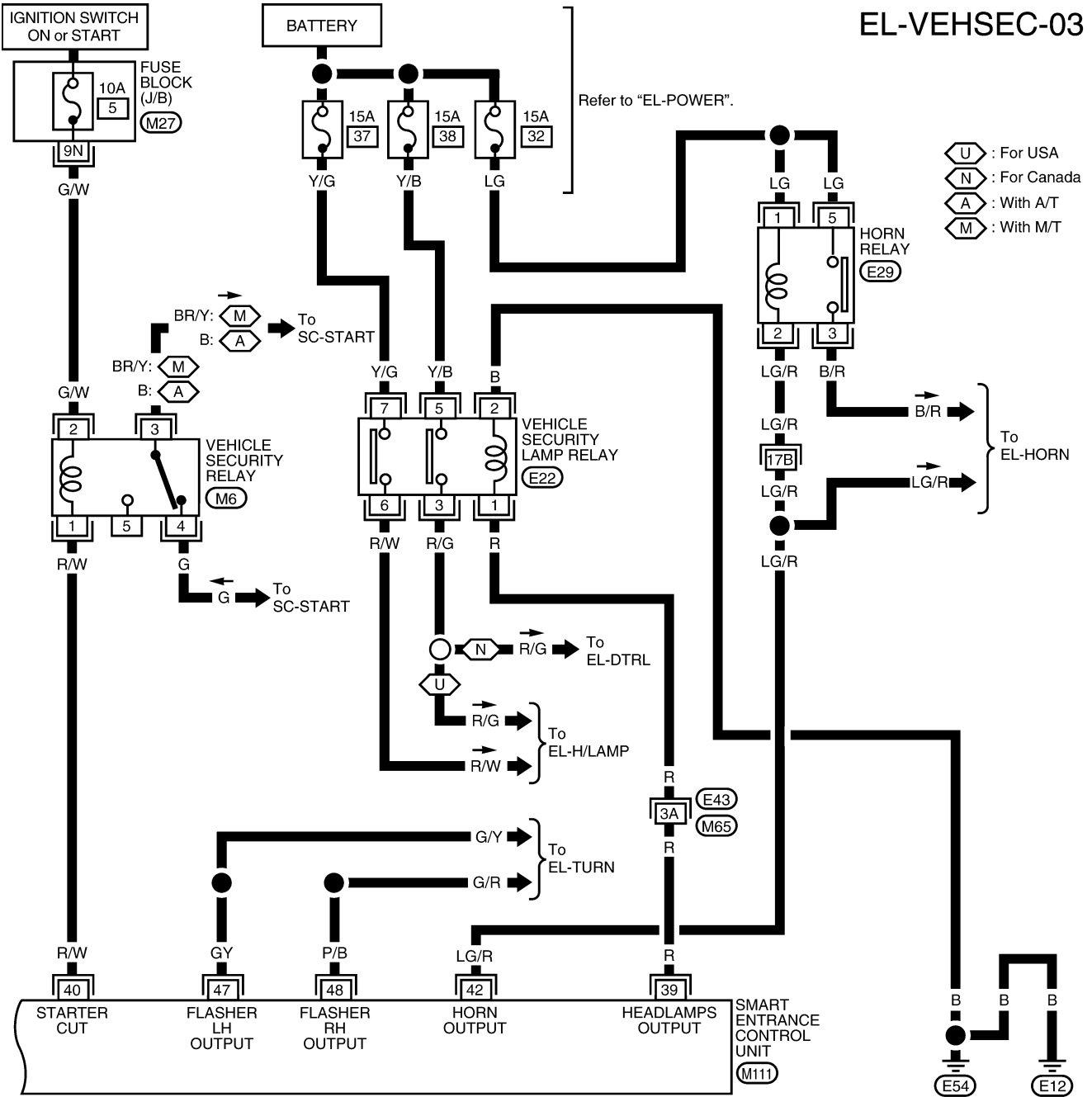
VEHICLE SECURITY (THEFT WARNING) SYSTEM

Wiring Diagram — VEHSEC — (Cont'd)

FIG. 3

NEEL0199S03

EL-VEHSEC-03



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

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

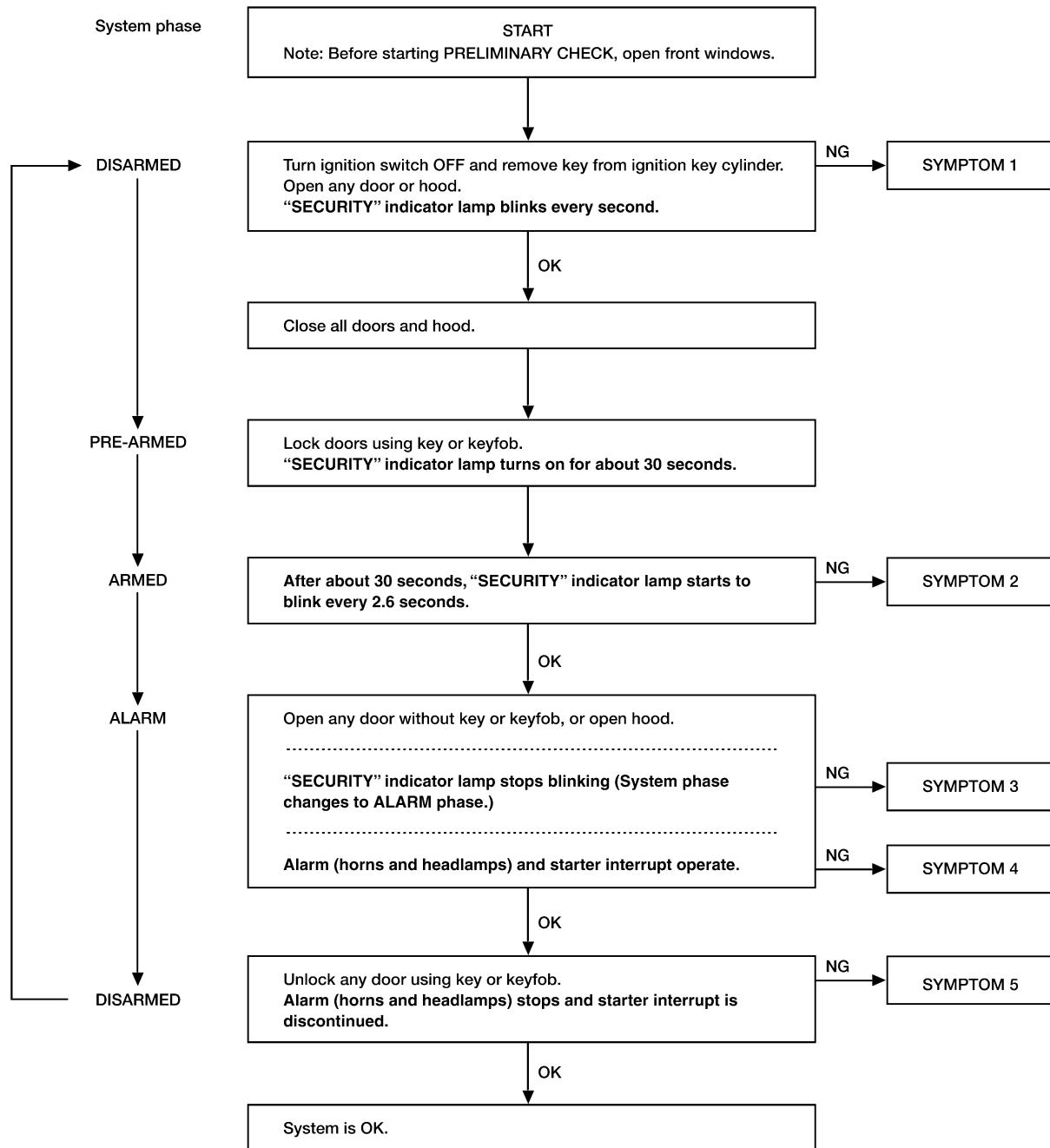
Trouble Diagnoses

Trouble Diagnoses PRELIMINARY CHECK

NEEL0200

NEEL0200S01

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



WEL907A

After performing "PRELIMINARY CHECK", go to "SYMPTOM CHART", EL-227.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

SYMPTOM CHART

NEEL0200S02

REFERENCE PAGE (EL-)	226	228	229	233	234	235	237	238	206		
SYMPTOM	PRELIMINARY CHECK	POWER SUPPLY AND GROUND CIRCUIT CHECK	DOOR AND HOOD SWITCH CHECK	SECURITY INDICATOR LAMP CHECK	DOOR KEY CYLINDER SWITCH CHECK	VEHICLE SECURITY HORN ALARM CHECK	VEHICLE SECURITY HEADLAMP ALARM CHECK	STARTER INTERRUPT SYSTEM CHECK	Check "REMOTE KEYLESS ENTRY" system.	GI MA EM LC EC FE CL	
1	Vehicle security indicator does not turn ON or blink.	X	X		X					MT	
2	Vehicle security system cannot be set by ...	All items	X	X	X					AT	
		Door outside key	X				X			TF	
		Keyfob	X							X	PD
3	*1 Vehicle security system does not alarm when ...	Any door is opened.	X		X					AX	
		Front door LH or RH (King Cab) is unlocked without using key or keyfob.	X								SU
4	Vehicle security alarm does not activate.	All function	X	X	X					BR	
		Horn alarm	X					X		ST	
		Headlamp alarm	X						X		RS
		Starter interrupt	X							X	BT
5	Vehicle security system cannot be canceled by ...	Door outside key	X							HA	
		Keyfob	X							X	SC

X : Applicable

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

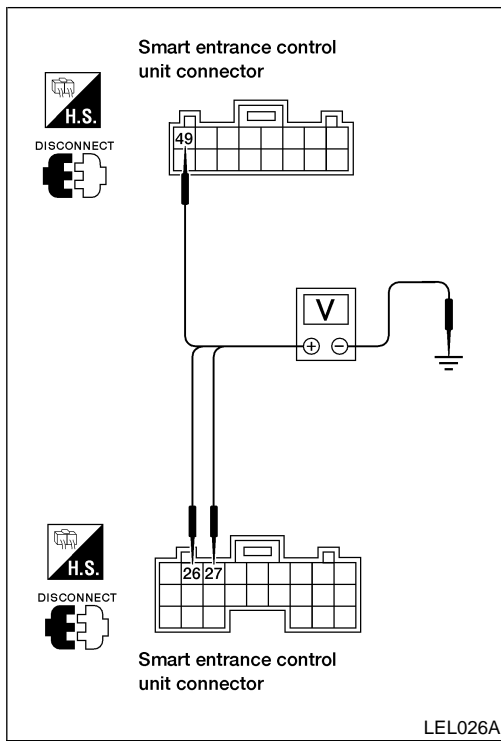
Before starting trouble diagnoses above, perform "PRELIMINARY CHECK", EL-226.

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

EL

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)



POWER SUPPLY AND GROUND CIRCUIT CHECK

NEEL0200S03

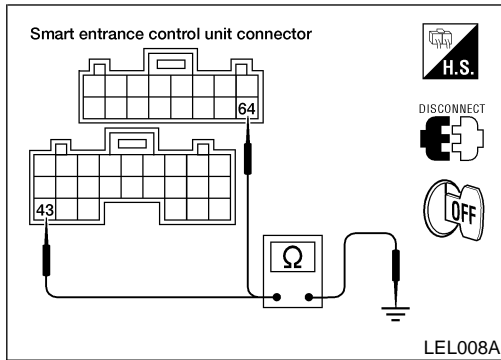
Power Supply Circuit Check

NEEL0200S0301

Terminals		Ignition switch position		
(+)	(-)	OFF	ACC	ON
M112 - 49 (R/Y)	Ground	Battery voltage	Battery voltage	Battery voltage
M111 - 26 (G)	Ground	0V	Battery voltage	Battery voltage
M111 - 27 (G/W)	Ground	0V	0V	Battery voltage

If NG, check the following.

- 7.5A fuse [No. 28, located in the fuse block (J/B)]
- 10A fuse [No. 5, located in the fuse block (J/B)]
- 7.5A fuse [No. 20, located in the fuse block (J/B)]
- Harness for open or short between smart entrance control unit and fuse



Ground Circuit Check

NEEL0200S0302

Terminals	Continuity
M111 - 43 (B) - Ground	Yes
M112 - 64 (B) - Ground	

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

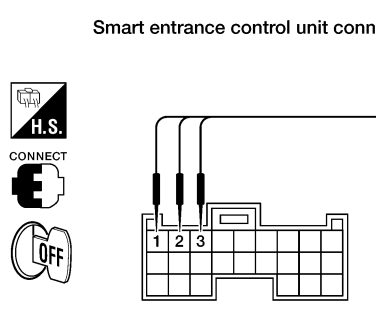

DOOR AND HOOD SWITCH CHECK

-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 2.6 seconds. <p style="text-align: center;">OK or NG</p>	
OK	▶	Door switch is OK. Check hood switch. Refer to "Hood Switch Check", EL-231.
NG	▶	GO TO 2.

2	CHECK DOOR SWITCH INPUT SIGNAL	
	Check voltage between smart entrance control unit connector M110 terminals 1 (G/R), 2 (R/B), and 3 (R/B) (Crew Cab) and ground.	
	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Smart entrance control unit connector</p>  </div> <div style="margin-right: 20px;">  </div> <div> <p>Voltage [V]: Door is closed - Approx. 5 Door is open - Approx. 0</p> </div> </div>	
	Refer to "Wiring Diagram", EL-223.	
	OK or NG	
OK	▶	Door switch is OK. Check hood switch. Refer to "Hood Switch Check", EL-231.
NG	▶	GO TO 3.

WEL517A

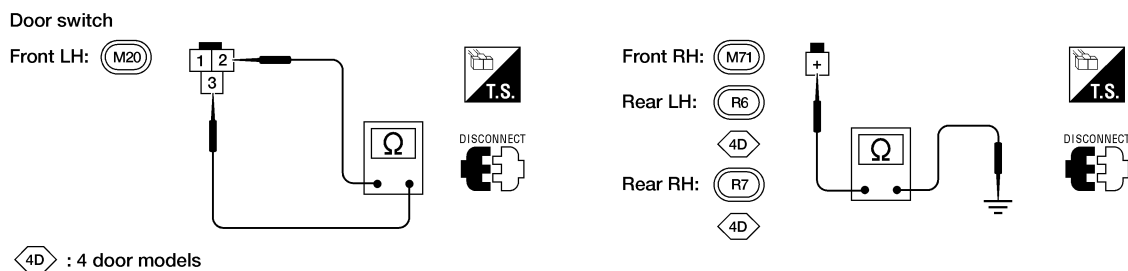
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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

3 CHECK DOOR SWITCH

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



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. <ul style="list-style-type: none"> ● 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.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

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 2.6 seconds. <p style="text-align: center;">OK or NG</p>		
OK	▶	Hood switch is OK.
NG	▶	GO TO 2.

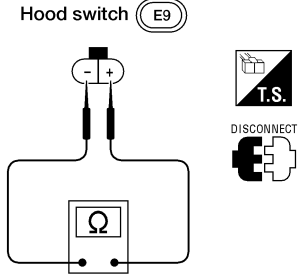
2	CHECK HOOD SWITCH FITTING CONDITION	
OK or NG		
OK	▶	GO TO 3.
NG	▶	Adjust installation of hood switch or hood.

3	CHECK HOOD SWITCH INPUT SIGNAL	
Check voltage between smart entrance control unit connector M110 terminal 6 (B/P) and ground.		
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>Smart entrance control unit connector</p> </div> <div style="margin-left: 20px;"> <p>Voltage [V]: Hood is open - Approx. 0 Hood is closed - Approx. 12</p> </div> </div> <p style="text-align: right; margin-top: 10px;">LEL029A</p>		
OK or NG		
OK	▶	Hood switch is OK.
NG	▶	GO TO 4.

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

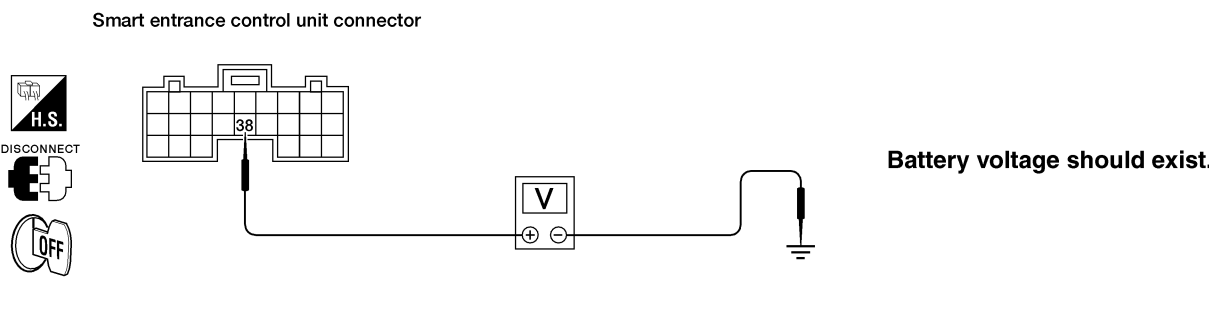
4	CHECK HOOD SWITCH
<p>1. Disconnect hood switch harness connector. 2. Check continuity between hood switch terminals + and -.</p> <div style="text-align: center;">  </div> <p>Continuity: Condition: Pressed No Condition: Released Yes</p> <p style="text-align: right;">AEL430B</p> <p style="text-align: center;">OK or NG</p>	
OK	<p>▶ Check the following.</p> <ul style="list-style-type: none"> ● Hood switch ground circuit ● Harness for open or short between smart entrance control unit and hood switch
NG	<p>▶ Replace hood switch.</p>

VEHICLE SECURITY (THEFT WARNING) SYSTEM

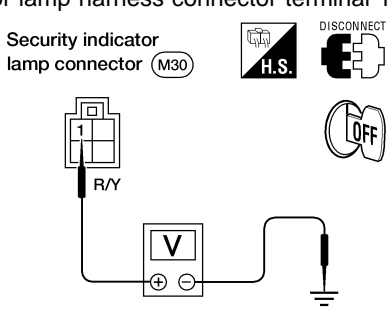
Trouble Diagnoses (Cont'd)

SECURITY INDICATOR LAMP CHECK

-NEEL0200S05

1	CHECK INDICATOR LAMP OUTPUT SIGNAL	
<p>1. Disconnect smart entrance control unit harness connector. 2. Check voltage between smart entrance control unit harness connector M111 terminal 38 (G/OR) and ground.</p>		
<p>Smart entrance control unit connector</p> 		
OK or NG		
OK	▶	Security indicator lamp is OK.
NG	▶	GO TO 2.

2	CHECK INDICATOR LAMP	
OK or NG		
OK	▶	GO TO 3.
NG	▶	Replace indicator lamp.

3	CHECK POWER SUPPLY CIRCUIT FOR INDICATOR LAMP	
<p>1. Disconnect security indicator lamp harness connector. 2. Check voltage between security indicator lamp harness connector terminal 1 and ground.</p>		
<p>Security indicator lamp connector (M30)</p> 		
Does battery voltage exist?		
Yes	▶	Check harness for open or short between security indicator lamp and smart entrance control unit.
No	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 7.5A fuse [No. 28, located in fuse block (J/B)] ● Harness for open or short between security indicator lamp and fuse

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

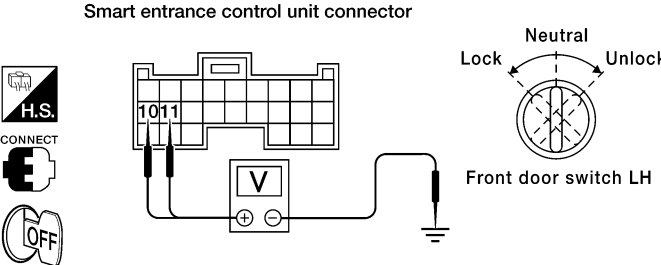
DOOR KEY CYLINDER SWITCH CHECK

-NEEL0200S07

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

Check voltage between smart entrance control unit harness connector M111 terminal 11 (Y) or 10 (Y/R) and ground.

Smart entrance control unit connector



Terminals		Key position	Voltage [V]
(+)	(-)		
11	Ground	Neutral	Approx. 5
		Lock	0
10	Ground	Neutral	Approx. 5
		Unlock	0

Refer to "Wiring Diagram", EL-224.

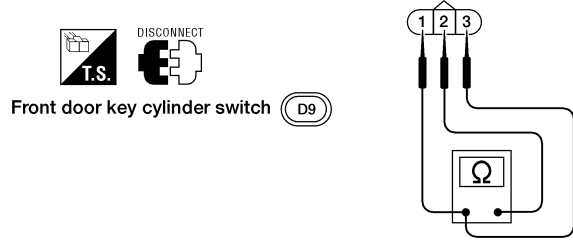
WEL518A

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.



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

LEL032A

OK or NG

OK	▶	Check the following. <ul style="list-style-type: none"> • 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.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

HORN ALARM CHECK

-NEEL0200S09

1	CHECK HORN ALARM OPERATION	
<p>1. Disconnect smart entrance control unit harness connector. 2. Apply ground to smart entrance control unit harness connector M111 terminal 42 (LG/R).</p>		
OK or NG		
OK	▶	Horn alarm is OK.
NG	▶	GO TO 2.

2	CHECK HORN RELAY	
<p>Check horn relay. Refer to "Horn Relay", EL-238.</p>		
OK or NG		
OK	▶	GO TO 3.
NG	▶	Replace.

3	CHECK POWER SUPPLY FOR HORN RELAY	
<p>1. Disconnect horn relay harness connector. 2. Check voltage between horn relay harness connector E29 terminal 1 (LG) and ground.</p>		
Does battery voltage exist?		
Yes	▶	GO TO 4.
No	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 15A fuse (No. 32, located in the fuse and fusible link box) ● Harness for open or short between vehicle security horn relay and fuse

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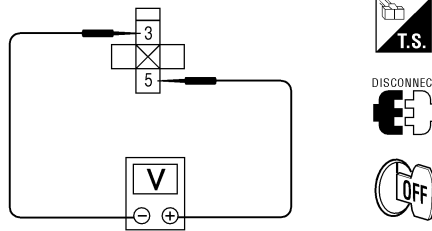
VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

4 CHECK HORN RELAY CIRCUIT

1. Disconnect horn relay harness connector.
2. Check voltage between horn relay harness connector E29 terminals 3 (B) and 5 (LG/R).
Battery voltage should exist.

Horn relay connector



WEL372A

OK or NG

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

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

VEHICLE SECURITY HEADLAMP ALARM CHECK

-NEEL0200S10

1	CHECK VEHICLE SECURITY LAMP CIRCUIT	
	<p>1. Disconnect smart entrance control unit harness connector. 2. Check continuity between smart entrance control unit M111 terminal 39 (R) and ground.</p> <p style="text-align: center;">Smart entrance control unit connector</p> <p style="text-align: right;">Continuity should exist.</p> <p style="text-align: right;">LEL363A</p> <p>Refer to "Wiring Diagram", EL-225.</p> <p style="text-align: center;">OK or NG</p>	
OK	▶	GO TO 2.
NG	▶	<p>Check the following</p> <ul style="list-style-type: none"> ● Harness for open or short between smart entrance control unit and vehicle security lamp relay ● Vehicle security lamp relay ground circuit ● Vehicle security lamp relay.

2	CHECK VEHICLE SECURITY LAMP RELAY CIRCUIT	
	<p>1. Check voltage between vehicle security lamp relay harness connector E22 terminal 3 (R/G) and 5 (Y/B). Battery voltage should exist.</p> <p>2. Check voltage between vehicle security lamp relay harness connector E22 terminal 6 (R/W) and 7 (Y/G). Battery voltage should exist.</p> <p style="text-align: center;">Vehicle security lamp relay connector</p> <p style="text-align: right;">LEL068A</p> <p style="text-align: center;">OK or NG</p>	
OK	▶	GO TO 3.
NG	▶	<p>Check the following</p> <ul style="list-style-type: none"> ● Harness for open or short between vehicle security lamp relay and headlamps ● Harness for open or short between vehicle security lamp relay and fuse

3	CHECK VEHICLE SECURITY LAMP RELAY	
	<p>Check vehicle security lamp relay. Refer to "Vehicle Security Lamp Relay", EL-239.</p> <p style="text-align: center;">OK or NG</p>	
OK	▶	Replace smart entrance control unit.
NG	▶	Replace vehicle security lamp relay.

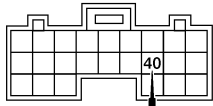



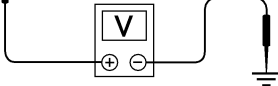
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VEHICLE SECURITY (THEFT WARNING) SYSTEM

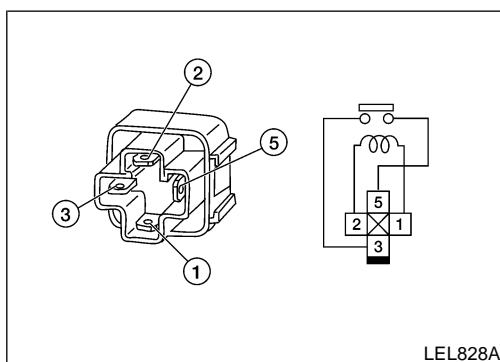
Trouble Diagnoses (Cont'd)

STARTER INTERRUPT SYSTEM CHECK

=NEEL0200S11

1	CHECK STARTER MOTOR INTERRUPT SIGNAL	<p>1. Turn ignition switch ON. 2. Check voltage between smart entrance control unit connector M111 terminal 40 (R/W) and ground.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Smart entrance control unit connector</p>  </div> <div style="text-align: center;">    </div> <div style="text-align: center;">  </div> </div> <div style="margin-top: 20px;"> <p>Voltage [V]: Except starter interrupted phase - Approx. 12 Starter interrupted phase - Approx. 0</p> </div>
Refer to "Wiring Diagram", EL-225.		LEL057A
OK or NG		
OK	▶	GO TO 2.
NG	▶	<p>Check the following.</p> <ul style="list-style-type: none"> ● 10A fuse [No. 5, located in fuse block (J/B)] ● Harness for open or short between vehicle security relay and fuse ● Harness for open or short between smart entrance control unit and vehicle security relay

2	CHECK VEHICLE SECURITY RELAY	<p>Check vehicle security relay. Refer to "Vehicle Security Relay", EL-238.</p> <p style="text-align: center;">OK or NG</p>
OK	▶	Check system again.
NG	▶	Replace relay.



ELECTRICAL COMPONENTS INSPECTION

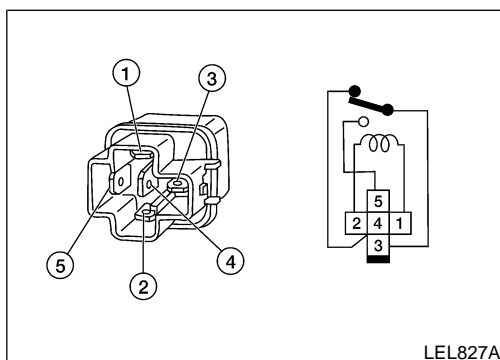
NEEL0200S12

Horn Relay

NEEL0200S1201

Check continuity between terminals 3 and 5.

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



Vehicle Security Relay

NEEL0200S1202

Check continuity between terminals 3 and 5.

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

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

Vehicle Security Lamp Relay

=NEEL0200S1203

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

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

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SMART ENTRANCE CONTROL UNIT

Description

Description

NEEL0124

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

- Warning chime
- Power window retained power
- Power door lock
- Remote keyless entry system
- Vehicle security system
- Room lamp timer
- Rear window defogger timer
- Battery saver

For detailed description and wiring diagrams, refer to the relevant pages for the each system.

The smart entrance control unit receives data from the switches and sensors to control their corresponding system relays and actuators.

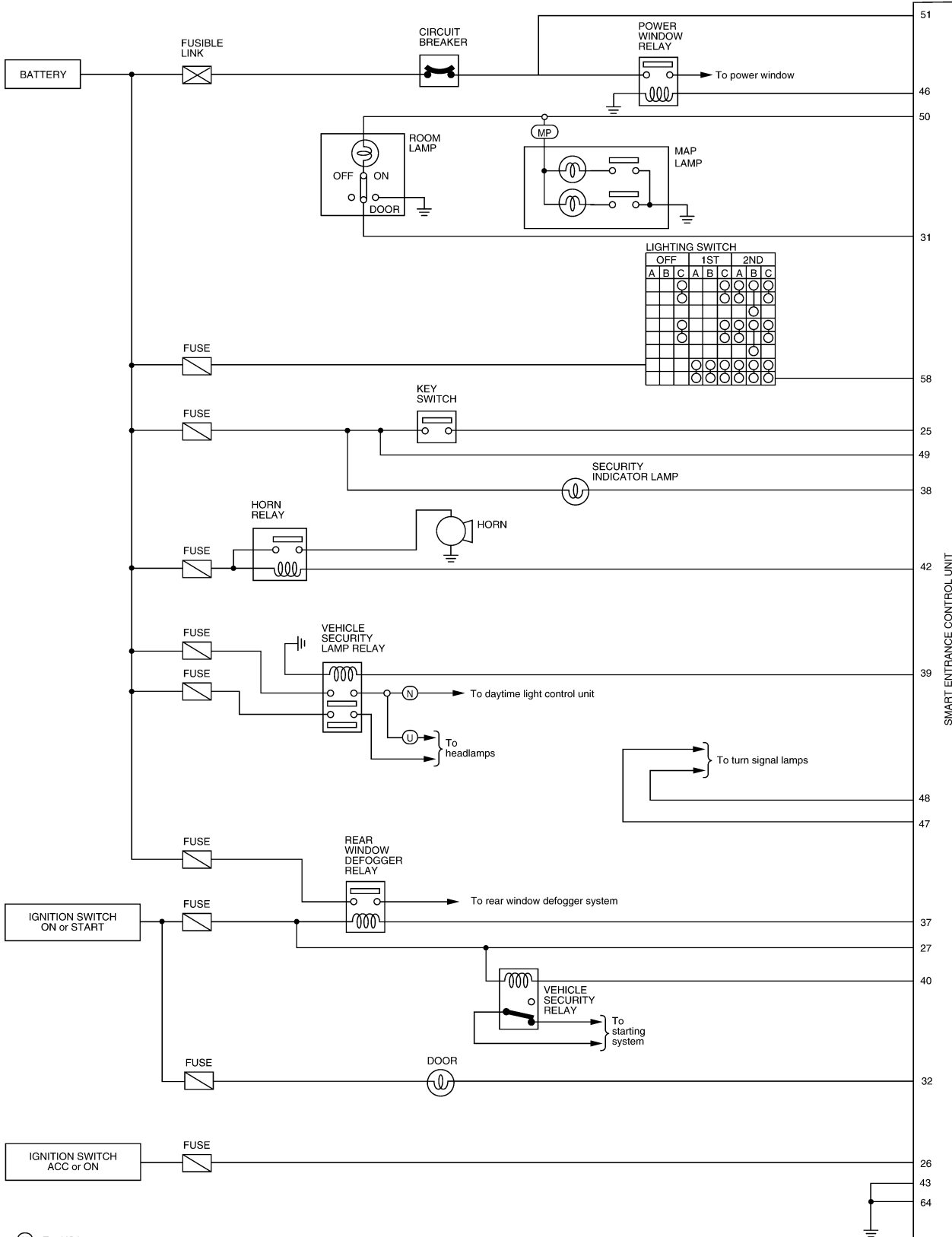
System	Input	Output
Warning chime	Key switch (insert) Ignition switch (ON) Lighting switch (1st) Seat belt buckle switch Front door switch LH	Warning chime (located in smart entrance control unit)
Power window retained power	Ignition switch Front door switch LH	Power window relay
Power door lock	Door lock/unlock switch Key switch (insert) Door switches Door key cylinder switch (lock/unlock)	Door lock actuator
Keyfob	Key switch (insert) Ignition switch (ACC) Door switch Door lock/unlock switches Antenna (keyfob signal)	Horn relay Vehicle security lamp relay Door lock actuator
Vehicle security	Ignition switch (ACC, ON) Door switch Hood switch Door lock/unlock switches Door key cylinder switch (lock/unlock)	Horn relay Vehicle security lamp relay Vehicle security relay (Starter interrupt) Security indicator
Room lamp timer	Door switches Ignition switch Key switch (insert) Door lock/unlock switches Door key cylinder switch (lock/unlock)	Room lamp
Rear window defogger timer	Ignition switch (ON) Rear window defogger switch (within air control)	Rear window defogger relay
Battery saver	Ignition switch (ON) Door switches Key switch (insert)	Room lamp Map lamp

SMART ENTRANCE CONTROL UNIT

Circuit Diagram

Circuit Diagram

NEEL0125



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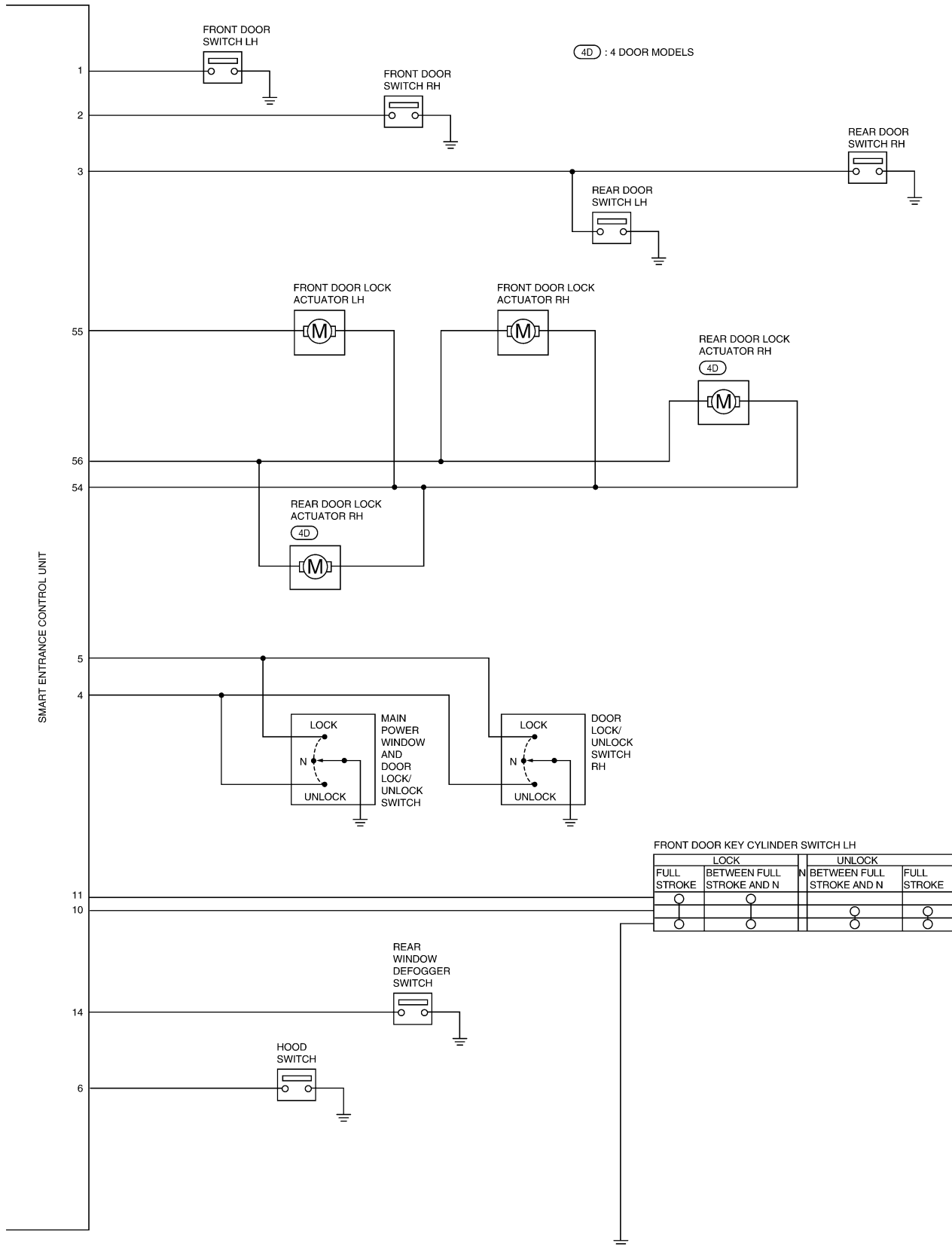
Ⓢ : For USA
Ⓝ : For Canada
ⓂⓅ : With map lamps

WEL776A

EL

SMART ENTRANCE CONTROL UNIT

Circuit Diagram (Cont'd)



WEL777A

SMART ENTRANCE CONTROL UNIT

Smart Entrance Control Unit Inspection Table

Smart Entrance Control Unit Inspection Table

NEEL0126

Terminal No.	Wire color	Connections	Operated condition	Voltage (Approx.)
1	G/R	Front door switch LH	OFF (Closed) → ON (Open)	5V → 0V
2*	R/B	Front door switch RH	OFF (Closed) → ON (Open)	5V → 0V
2**	R/B	Front door switch RH, and rear door switch LH and RH (without vehicle security system)	OFF (Closed) → ON (Open)	5V → 0V
3**	R/B	Rear door switch LH and RH (with vehicle security system)	OFF (Closed) → ON (Open)	5V → 0V
4	BR	Main power window and door lock/unlock switch, door lock/unlock switch RH	Neutral → Unlock	5V → 0V
5	LG/R	Main power window and door lock/unlock switch, door lock/unlock switch RH	Neutral → Lock	5V → 0V
6	B/P	Hood switch	ON (Open) → OFF (Closed)	0V → 12V
10	Y/R	Front door key cylinder unlock switch LH	OFF (Neutral) → ON (Unlock)	5V → 0V
11	Y	Front door key cylinder lock switch LH	OFF (Neutral) → ON (Lock)	5V → 0V
14	G/B	Air control (rear window defogger switch)	OFF → ON	12V → 0V
25	W/G	Ignition key switch (Insert)	Key inserted → Key removed from ignition key cylinder	12V → 0V
26	G	Ignition switch (ACC)	ACC position	12V
27	G/W	Ignition switch (ON)	Ignition key is in ON position	12V
28	B/P	Seat belt buckle switch	Unfastened → Fastened (Ignition key is in ON position)	0V → 12V
31	R/B	Room lamp	When any door switch is in OPEN (door is open) position (Interior lamp switch in DOOR position)	12V → 0V
32	R/B	Door ajar indicator lamp	OFF → ON (Ignition key is in ON position)	12V → 0V
37	G/R	Rear window defogger relay	OFF → ON (Ignition key is in ON position)	12V → 0V
38	G/OR	Security indicator lamp	Turns OFF → Turns ON	12V → 0V
39	R	Vehicle security lamp relay	When panic alarm is operated using keyfob or when alarm is activated	12V → 0V
40	R/W	Vehicle security relay (Starter cut)	OFF → ON (Ignition key is in ON position)	12V → 0V
42	LG/R	Horn relay	When panic alarm is operated using keyfob or when alarm is activated	12V → 0V
43	B	Ground	—	—
46	G/W	Power window relay	Ignition key is in ON position → 45 seconds after ignition key is turned to OFF position	12V → 0V
47	GY	Turn signal lamp LH	When doors are locked using keyfob	12V → 0V
48	P/B	Turn signal lamp RH	When doors are locked using keyfob	12V → 0V
49	R/Y	Power source (Fuse)	—	12V
50	R/G	Battery saver (Room lamp)	Turns OFF → Turns ON	12V → 0V

SMART ENTRANCE CONTROL UNIT

Smart Entrance Control Unit Inspection Table (Cont'd)

Terminal No.	Wire color	Connections	Operated condition		Voltage (Approx.)
51	W/R	Power source (C/B)	—		12V
54	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
55	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
56	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
58	L/R	Lighting switch	1ST, 2ND positions: ON → OFF		12V → 0V
64	B	Ground	—		—

* King Cab

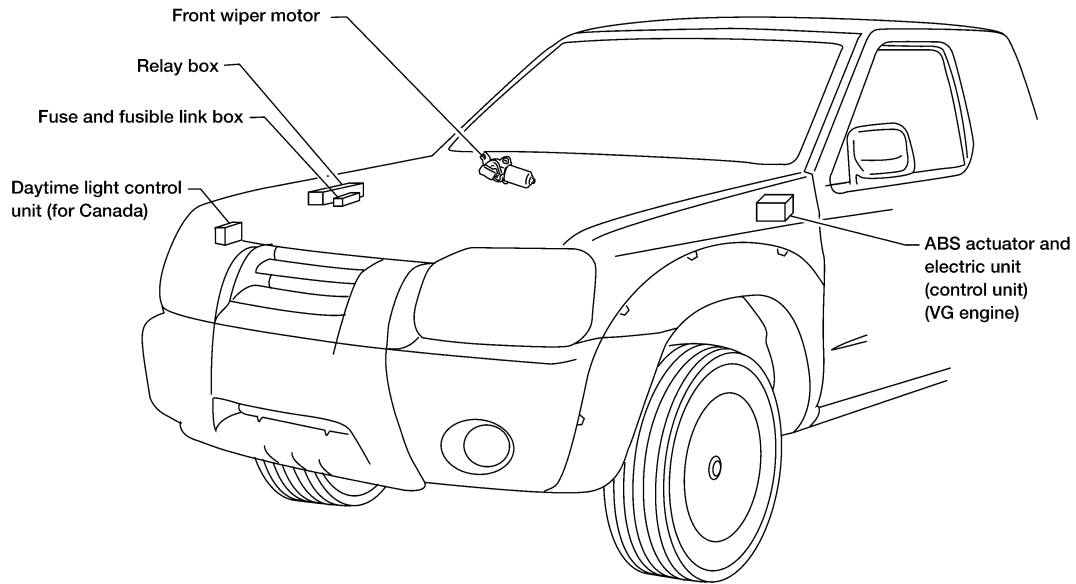
** Crew Cab

ELECTRICAL UNITS LOCATION

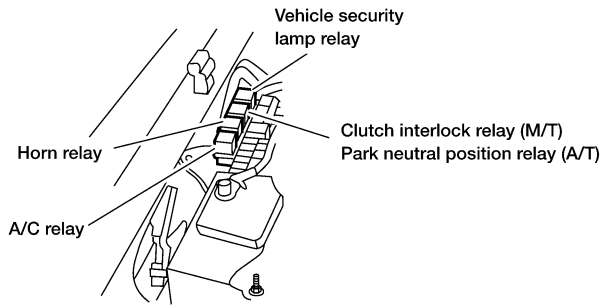
Engine Compartment

Engine Compartment

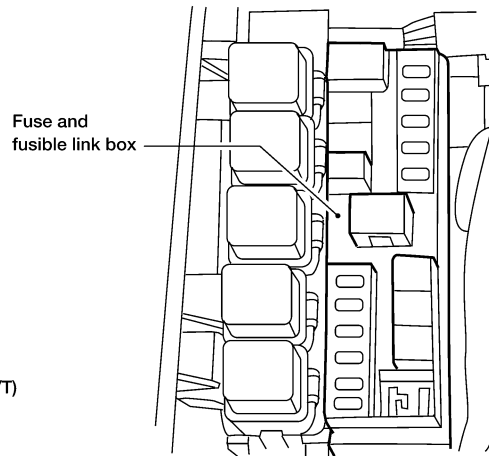
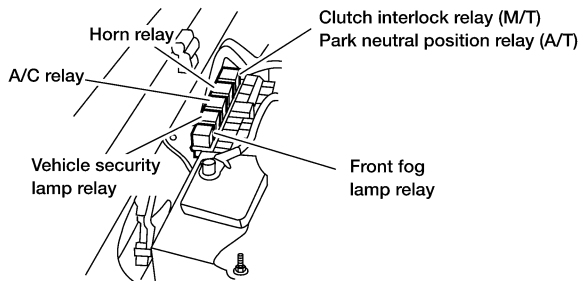
NEEL0129



KA24DE



VG33E and VG33ER



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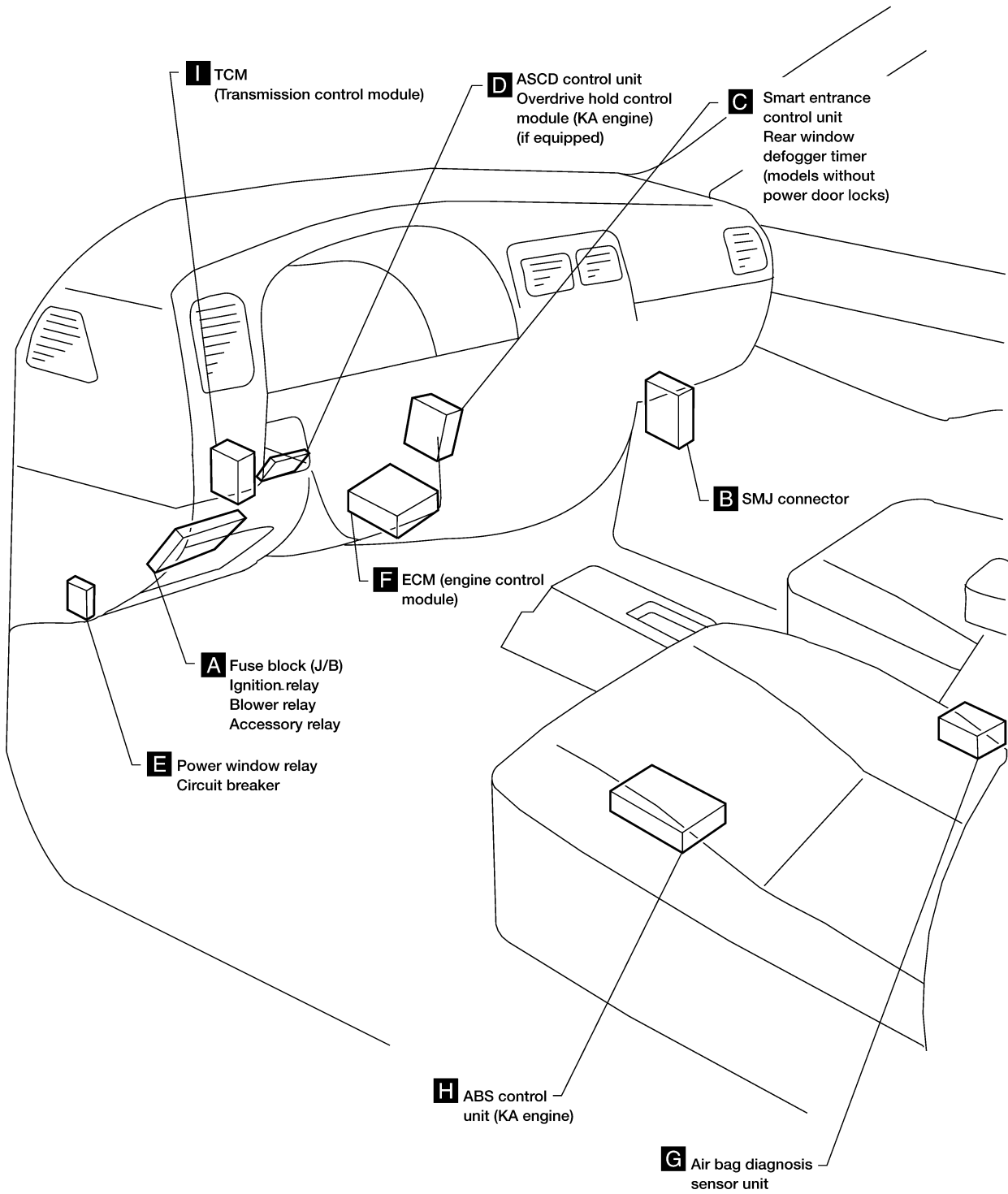
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ELECTRICAL UNITS LOCATION

Passenger Compartment

Passenger Compartment

NEEL0130

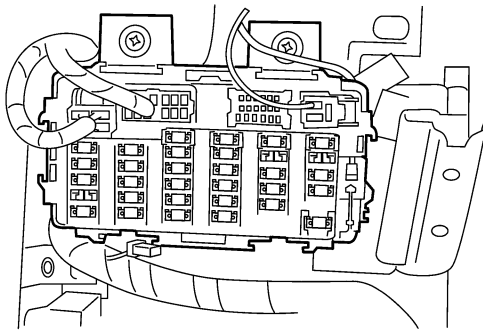


WEL944A

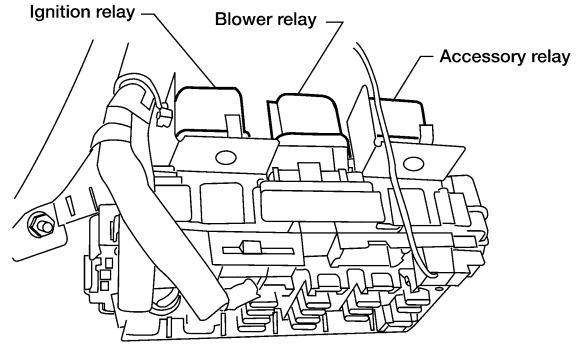
ELECTRICAL UNITS LOCATION

Passenger Compartment (Cont'd)

A



Rear view of fuse block (J/B)



GI

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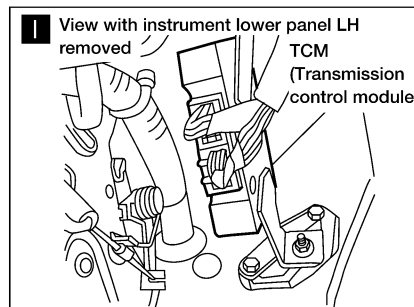
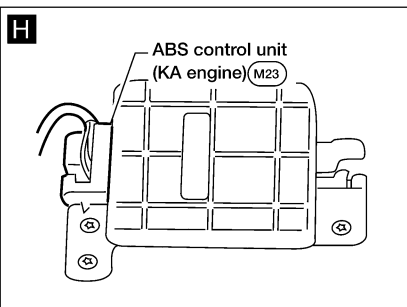
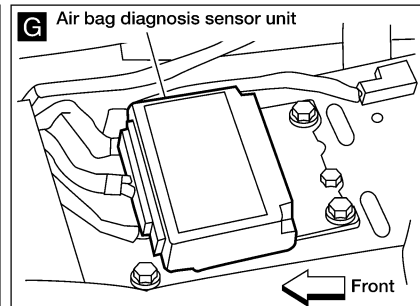
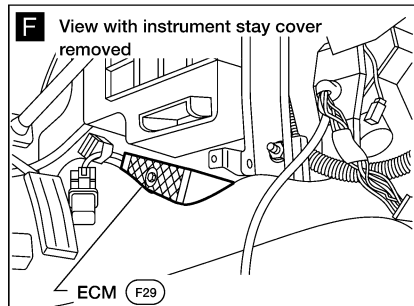
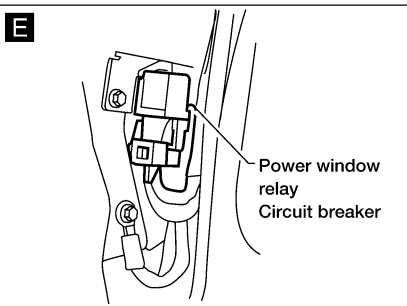
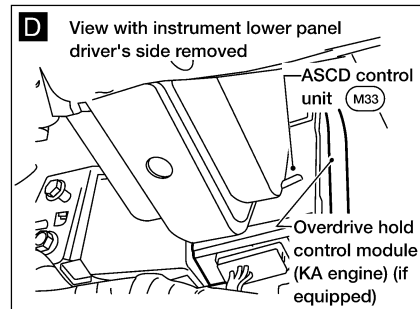
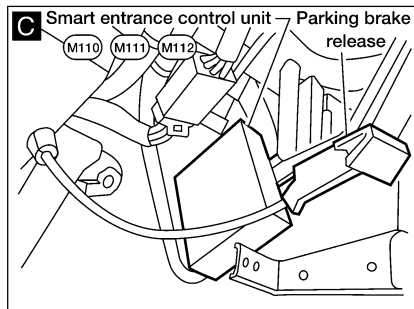
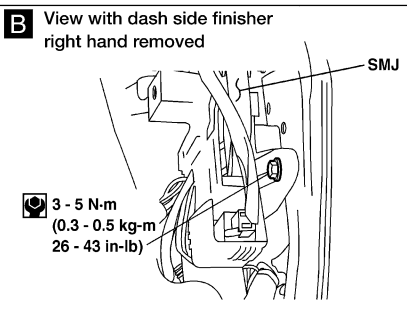
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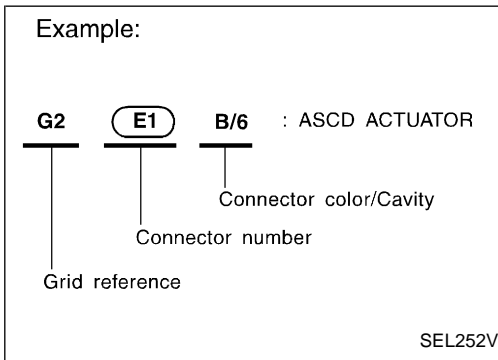
WEL945A

HARNESS LAYOUT

How to Read Harness Layout

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 below.

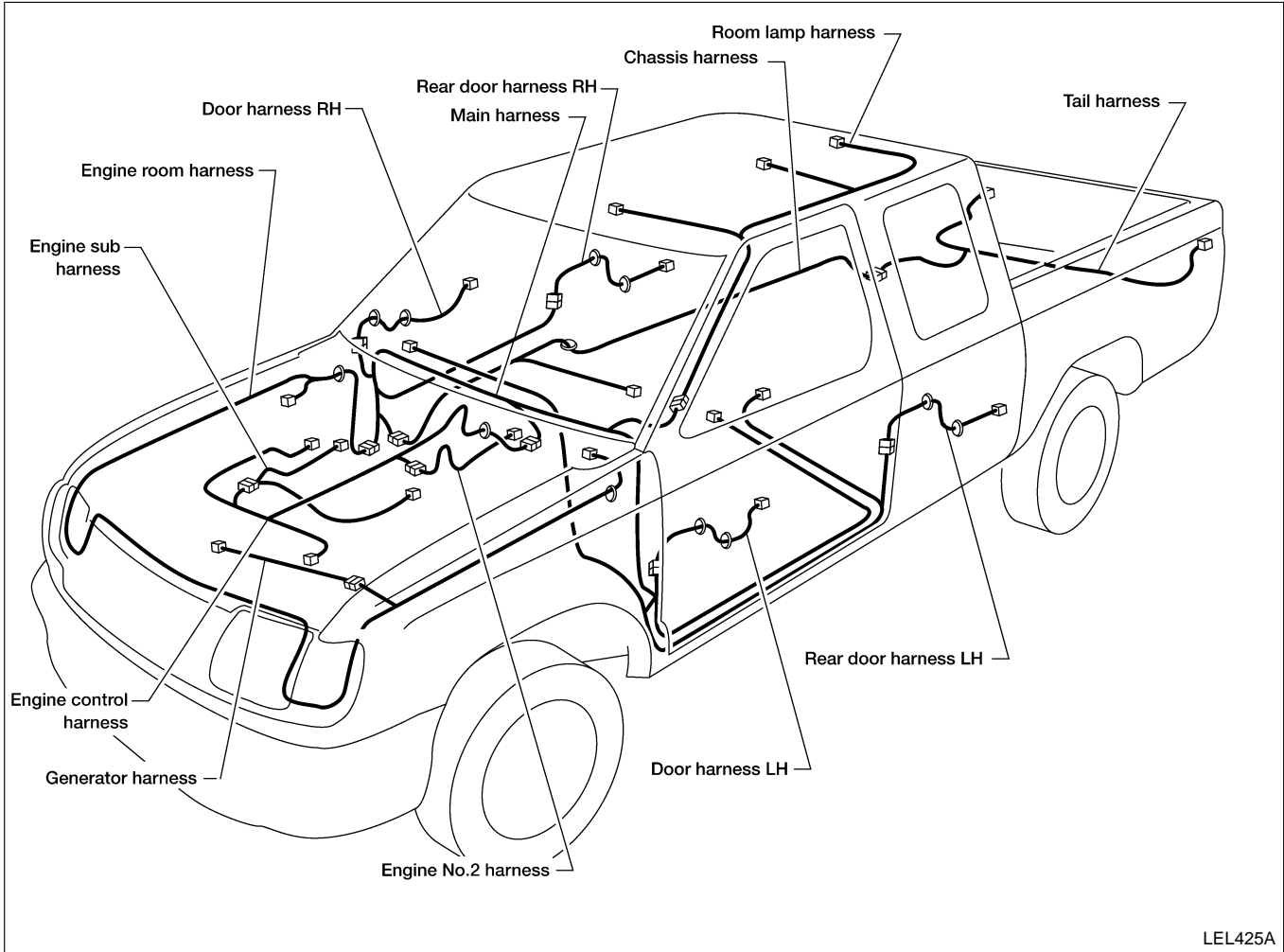
Connector type	Water proof type		Standard type	
	Male	Female	Male	Female
<ul style="list-style-type: none"> ● Cavity: Less than 4 ● Relay connector 				
<ul style="list-style-type: none"> ● Cavity: From 5 to 8 				
<ul style="list-style-type: none"> ● Cavity: More than 9 				
<ul style="list-style-type: none"> ● Ground terminal etc. 	—			

HARNES LAYOUT

Outline

Outline

NEEL0173



NOTE:

For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-18.

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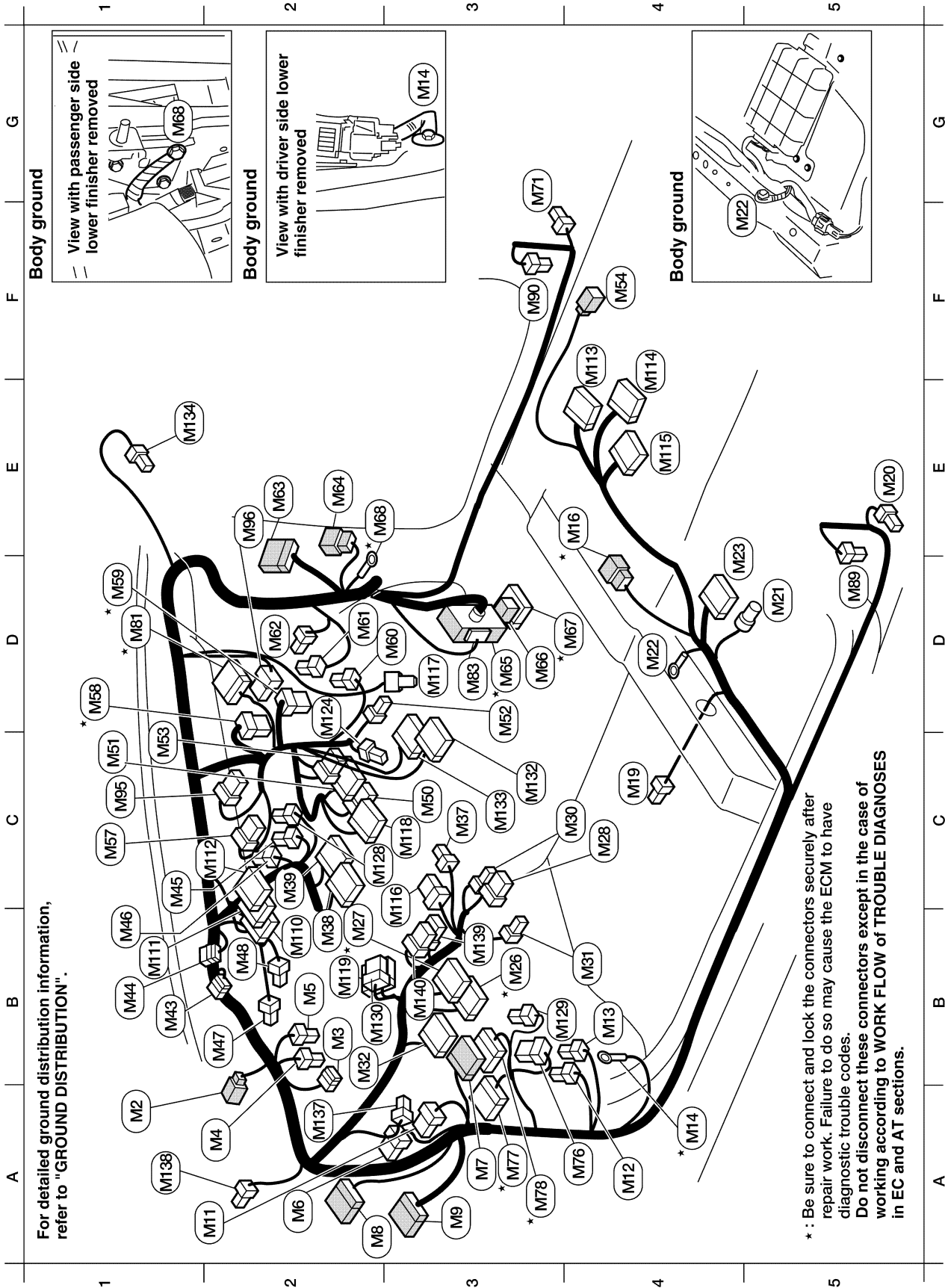
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HARNES LAYOUT

Main Harness (KA24DE Models)

Main Harness (KA24DE Models)

NEEL0174



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

* : 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.

WEL921A

HARNES LAYOUT

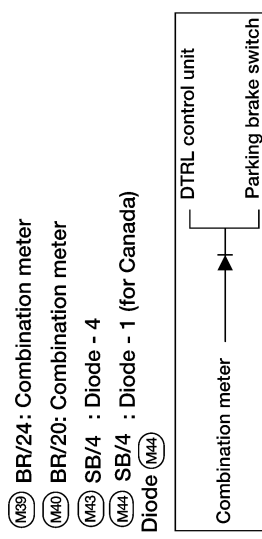
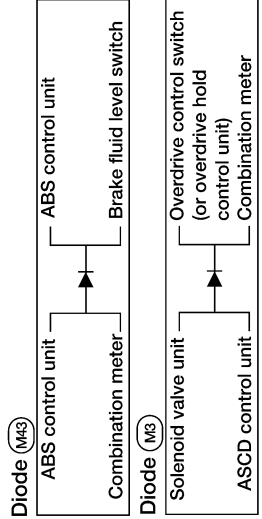
Main Harness (KA24DE Models) (Cont'd)

A1 (M2) W/4 : To (F1) B2 (M3) GY/4 : Diode -3 (with A/T and ASCD) B1 (M4) L/2 : ASCD clutch switch (with M/T) B2 (M5) L/2 : Clutch interlock switch (with M/T) A2 (M6) B/5 : Vehicle security relay (with vehicle security system) A3 (M7) BR/12: To (E33) A2 (M8) W/8 : To (D2) A3 (M9) W/12 : To (D1) A2 (M11) W/8 : Warning chime unit (without power door locks) A4 (M12) W/2 : Circuit breaker (with power door locks) B4 (M13) L/4 : Power window relay (with power windows) A4 (M14) - : Body ground D4* (M16) W/6 : To (C15) C4 (M19) W/3 : Seatbelt buckle switch E5 (M20) B/3 : Front door switch LH D5* (M21) GY/4 : Heated oxygen sensor 2 (rear) D4 (M22) - : Body ground D5 (M23) GY/17 : ABS control unit B3 (M25) L/6 : ABS check connector B3* (M26) W/16 : Fuse block (J/B) B2* (M27) W/10 : Fuse block (J/B) C4 (M28) W/3 : Illumination control switch C4 (M30) W/4 : Security indicator lamp (with vehicle security system)	C1 (M45) B/3 : Combination flasher unit B1 (M46) L/4 : Fuel pump relay B2 (M47) B/2 : Stop lamp switch B2 (M48) L/2 : ASCD brake switch (A/T shift lock brake switch) B4 (M49) W/2 : Parking brake switch C3 (M60) W/6 : Audio unit C1 (M61) W/10 : Audio unit D3 (M62) W/2 : Cigarette lighter socket C1 (M63) W/8 : Hazard switch F4 (M64) W/2 : To (M17) C1 (M67) W/6 : Fan switch D1* (M68) W/6 : To (F28) E1* (M69) W/8 : 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 (D10) E2 (M64) W/6 : To (D12) D3* (M65) SMJ : To (E43) E3 (M66) B/2 : To (E44) E3* (M67) W/18 : To (C1) E3* (M68) - : Body ground	G4 (M71) BR/1 : Front door switch RH A4* (M76) B/5 : ATP relay (with A/T) A3* (M77) W/24 : TCM (with A/T) A3* (M79) GY/24 : TCM (with A/T) D1* (M81) W/20 : To (F36) E3 (M83) W/10 : To (C1) D5 (M88) Y/2 : Driver seatbelt pre-tensioner F3 (M90) Y/2 : Passenger seatbelt pre-tensioner B1 (M94) SB/4 : Diode-2 C1 (M95) B/12 : Air control E2 (M96) B/6 : Intake door motor B2 (M10) W/24 : Smart entrance control unit B1 (M11) GY/24 : Smart entrance control unit C2 (M12) GY/16 : Smart entrance control unit E4 (M13) Y/12 : Air bag diagnosis sensor unit E4 (M14) Y/20 : Air bag diagnosis sensor unit E4 (M15) Y/12 : Air bag diagnosis sensor unit B3 (M16) Y/7 : To (M20) D3 (M17) Y/2 : Passenger air bag module C3 (M18) W/16 : Audio unit B2 (M19) BR/24 : ASCD control unit C3 (M20) W/6 : Passenger air bag deactivation switch D2 (M20) W/2 : Passenger air bag deactivation indicator C3 (M20) B/5 : ASCD relay B4 (M20) L/4 : Overdrive cancel relay (with A/T) B2 (M30) W/6 : Overdrive hold control module (with A/T) D3 (M32) W/12 : Audio amplifier D3 (M33) W/12 : Audio amplifier E1 (M34) BR/2 : Pillar tweeter RH A1 (M35) BR/2 : Pillar tweeter LH B3 (M36) W/6 : To (M27) B3 (M40) W/8 : To (M26)
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Console sub-harness

(M17) W/2 : To (M54)
 (M12) B/2 : Front power socket-1

* : 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.



CI MA EM LC EC FE CL MT AT TF PD AX SU BR ST RS BT HA SC EL IDX

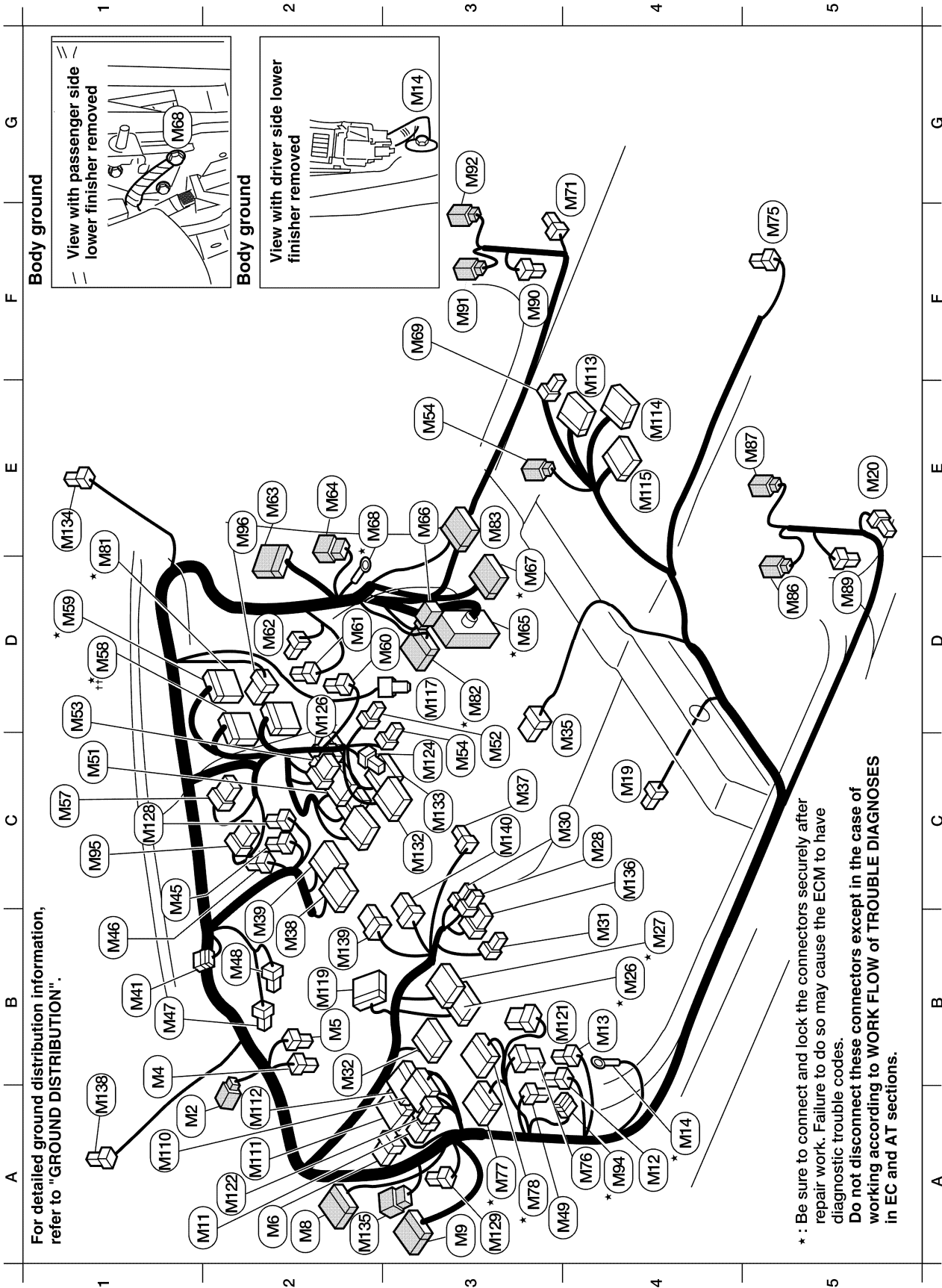
WEL103B

HARNESS LAYOUT

Main Harness (VG33E and VG33ER Models)

Main Harness (VG33E and VG33ER Models)

NEEL0226



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

* : 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.

WEL951A

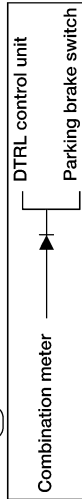
HARNESS LAYOUT

Main Harness (VG33E and VG33ER Models) (Cont'd)

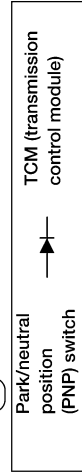
A1	(M42) BR/8 : To (RT) (Crew Cab)	C1	(M49) B/2 : Parking brake switch	D5	(M86) W/3 : To (D201) (Crew Cab)
B1	(M44) L/2 : ASCD clutch switch (with M/T)	C3	(M50) W/6 : Audio unit	E5	(M87) W/4 : To (D202) (Crew Cab)
B2	(M45) L/2 : Clutch interlock switch (with M/T)	C1	(M51) W/10 : Audio unit	D5	(M89) Y/2 : Driver seatbelt pre-tensioner
A2	(M46) B/5 : Vehicle security relay (with power door locks)	D3	(M52) W/3 : Cigarette lighter socket	F3	(M90) Y/2 : Passenger seatbelt pre-tensioner
A2	(M48) W/8 : To (D2) (except Crew Cab)	C3	(M53) W/8 : Hazard switch	F3	(M91) W/3 : To (D201) (Crew Cab)
A2	(M48) W/12 : To (D2) (Crew Cab)	E4	(M54) BR/2 : Front power socket (with power socket)	G3	(M92) W/4 : To (D202) (Crew Cab)
A3	(M49) W/12 : To (D1)	E4	(M54) BR/2 : Front power socket (with power socket)	A4	(M94) W/2 : Diode-2 (with A/T)
A2	(M41) W/8 : Warning chime unit (without power door locks)	C1	(M57) W/6 : Fan switch	C1	(M95) B/12 : Air control
A4	(M42) W/2 : Circuit breaker (with power door locks)	D1 *	(M58) W/16 : To (F28) (Crew Cab w/o power door locks and King Cab)	E2	(M96) B/6 : Intake door motor
B4	(M43) L/4 : Power window relay (with power windows)	D1 *	(M58) W/20 : To (F28) (Crew Cab with power door locks)	A1	(M100) W/24 : Smart entrance control unit
A4 *	(M44) - : Body ground	D1 *	(M59) W/18 : To (F27)	A2	(M111) GY/24 : Smart entrance control unit
C4 *	(M49) W/3 : Seat belt buckle switch	D1 *	(M60) W/3 : Thermo control amplifier	A2	(M112) GY/16 : Smart entrance control unit
E5	(M20) B/3 : Front door switch LH	D3	(M61) BR/4 : Fan resistor	E4	(M113) Y/12 : Air bag unit
B3 *	(M26) W/16 : Fuse block (J/B)	D2	(M62) W/2 : Blower motor	E4	(M114) Y/20 : Air bag unit
B2 *	(M27) W/10 : Fuse block (J/B)	D2	(M63) W/12 : To (D10)	E4	(M115) Y/12 : Air bag unit
C4	(M28) W/3 : Illumination control switch	E2	(M64) W/6 : To (D102)	D3	(M117) Y/2 : Passenger air bag module
C4	(M30) W/4 : Security indicator lamp (with theft warning)	E2 *	(M65) SMJ : To (E43)	C3	(M118) W/3 : Audio unit
B4	(M31) W/3 : Fuse block (J/B)	E3	(M66) W/4 : To (E44)	B2	(M119) BR/24 : ASCD control unit
B2	(M32) W/16 : Data link connector	D3 *	(M67) W/18 : To (C1)	B4	(M121) L/4 : Rear window defogger relay (Crew Cab)
C4	(M35) W/6 : A/T device (with A/T)	D3 *	(M68) - : Body ground	A2	(M122) W/4 : Rear window defogger timer (Crew Cab)
C3	(M37) W/2 : Key switch	E3 *	(M69) W/3 : G-sensor (4-wheel drive Crew Cab)	C3	(M124) W/3 : Passenger air bag deactivation switch (except Crew Cab)
B2	(M38) W/24 : Combination meter	F4	(M71) BR/1 : Front door switch RH	D2	(M128) W/3 : Passenger air bag deactivation indicator (except Crew Cab)
B2	(M39) BR/24 : Combination meter	G5	(M75) W/4 : Subwoofer amplifier	C3	(M129) B/5 : ASCD relay
B1	(M41) SB/2 : Diode - 1 (for Canada)	A4 *	(M76) B/5 : ATP relay (with A/T)	A3	(M132) L/4 : Overdrive cancel relay (King Cab)
C1	(M45) B/3 : Combination flasher unit	A3 *	(M77) W/24 : TCM (with A/T)	C3	(M133) W/12 : Audio amplifier
B1	(M46) L/4 : Fuel pump relay	A3 *	(M78) GY/24 : TCM (with A/T)	C3	(M133) W/12 : Audio amplifier
B2	(M47) B/2 : Stop lamp switch	D1 *	(M81) W/24 : To (F36)	E1	(M134) BR/2 : Pillar tweeter RH
B2	(M48) L/2 : ASCD brake switch (A/T shift lock brake switch)	D3 *	(M82) W/24 : To (E74)	A3	(M135) W/8 : To (F10) (Crew Cab)

* : 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.

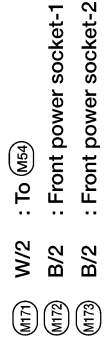
Diode (M44)



Diode (M64)



Console sub-harness



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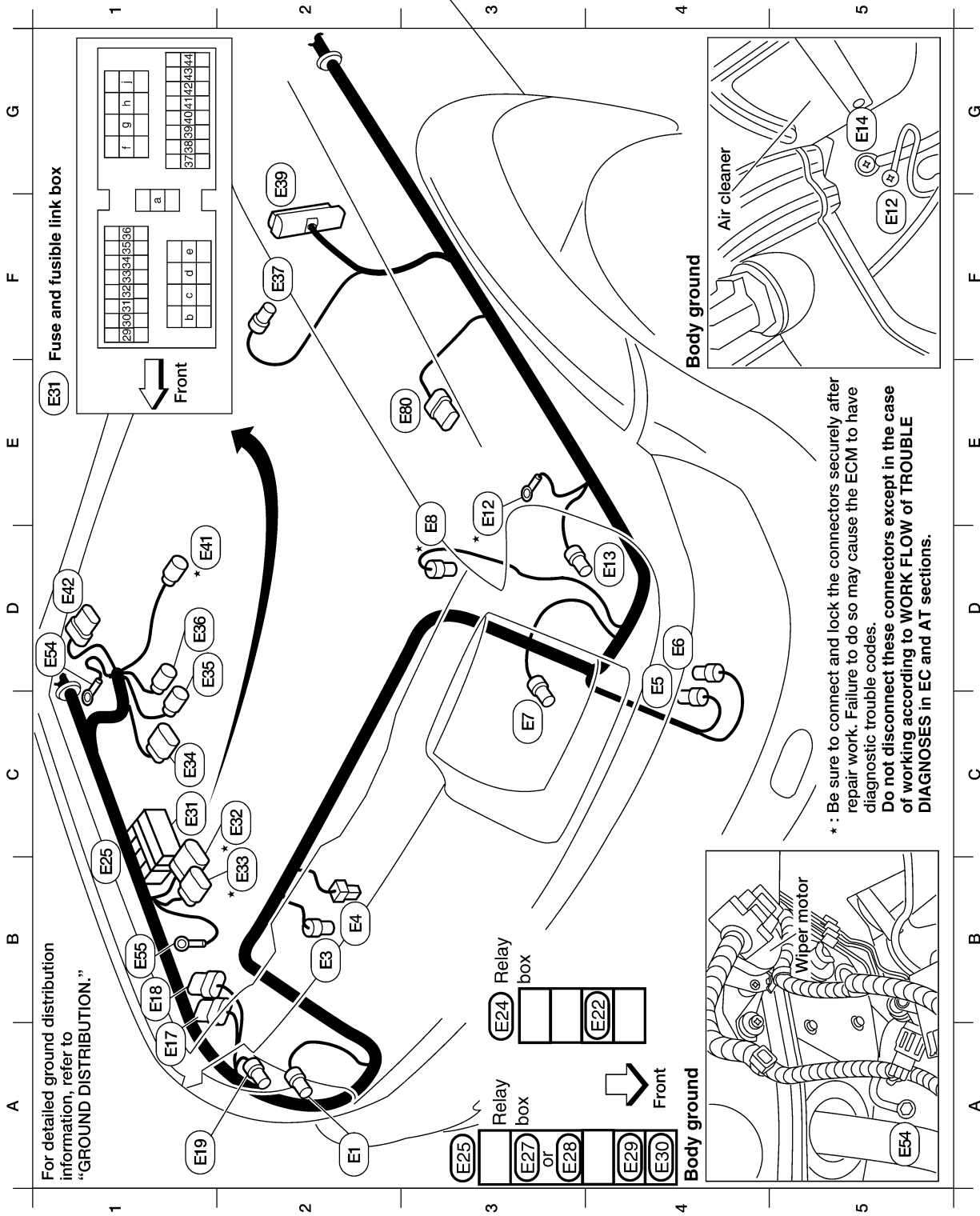
HARNES LAYOUT

Engine Room Harness (KA24DE Models)

Engine Room Harness (KA24DE Models) ENGINE COMPARTMENT

NEEL0175

NEEL0175S06



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

* : 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.

WEL953A

HARNESS LAYOUT

Engine Room Harness (KA24DE Models) (Cont'd)

A2	(E1) B/3 : Head lamp RH	A1	(E17) GY/8 : Daytime light control unit (with DTRL)	A4	(E30) L/4 : Air conditioner relay (with A/C)
B2	(E3) B/2 : Dual-pressure switch (with A/C)	B1	(E18) GY/6 : Daytime light control unit (with DTRL)	C1	(E31) — : Fuse and fusible link box
B2	(E4) B/1 : Horn	A1	(E19) GY/3 : Front combination lamp RH	C2	* (E32) GY/9 : To (E202)
C4	(E5) BR/2 : Washer fluid level switch	B4	(E22) BR/6 : Vehicle security lamp relay (with remote keyless entry)	B2	* (E33) GY/6 : To (E201)
D4	(E6) GY/2 : Front washer motor	B1	(E25) — : Relay box	C1	(E34) GY/8 : Park/neutral position (PNP) switch (A/T)
C3	(E7) B/3 : Headlamp LH	A3	(E27) BR/6 : Park/neutral position (PNP) relay (with A/T)	C1	(E35) W/2 : Park/neutral position (PNP) switch (A/T)
D3	(E8) B/2 : Intake air temperature sensor	A3	(E28) L/4 : Clutch interlock relay (with M/T)	D1	(E36) GY/3 : Solenoid valve unit
D3	* (E9) GY/2 : Hood switch (with remote keyless entry)	A4	(E29) L/4 : Horn relay	F2	(E37) GY/2 : Brake fluid level switch
D3	* (E12) — : Body ground			F2	(E38) B/31 : ABS actuator and electric unit (control unit)
D4	(E13) GY/3 : Front combination lamp LH			D1	* (E41) GY/3 : To (E25)
				D1	(E42) GY/6 : Front wiper motor
				C1	(E54) — : Body ground
				B1	(E55) — : Battery
				E3	(E80) GY/6 : ASCD motor actuator

* : 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.

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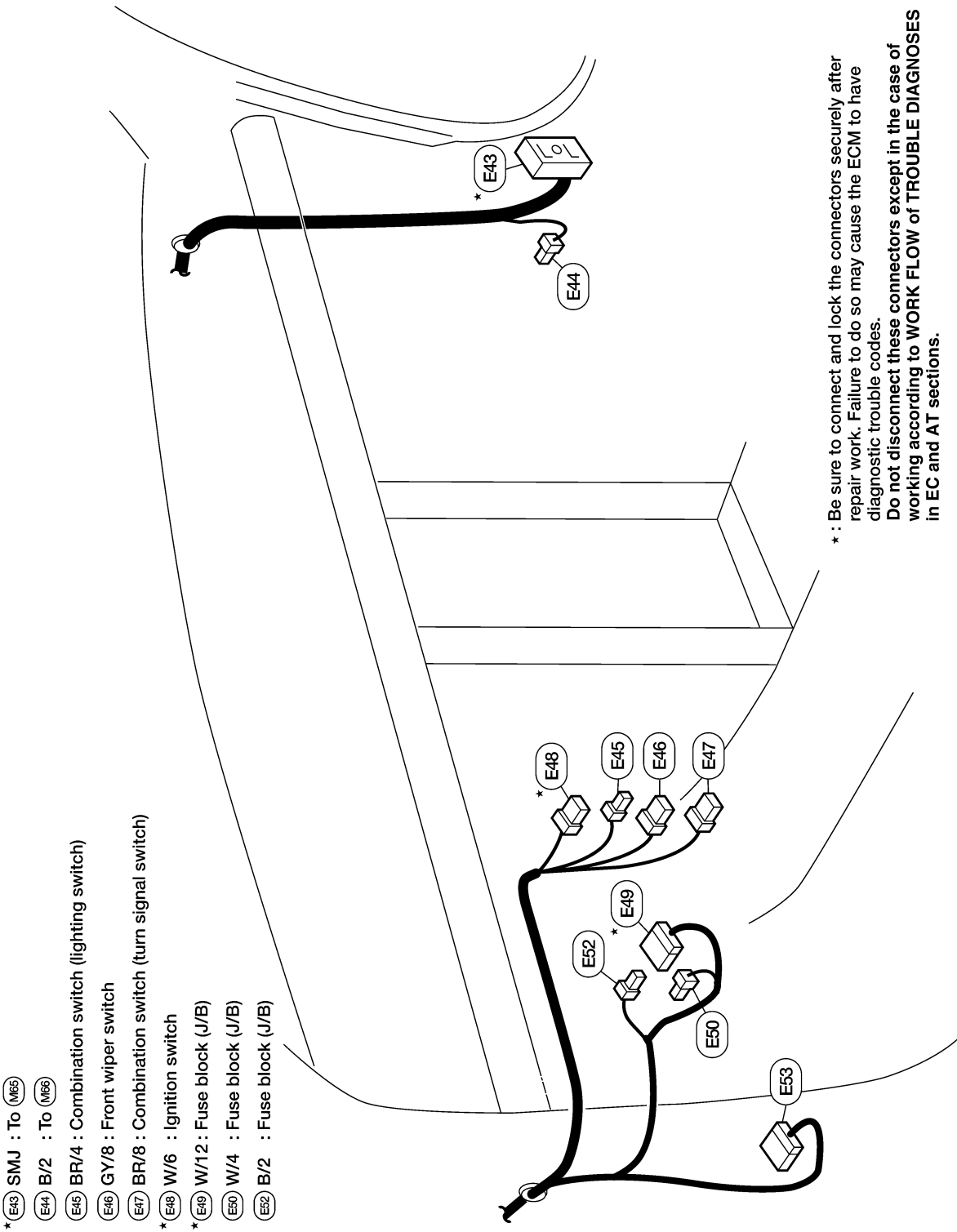
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HARNESS LAYOUT

Engine Room Harness (KA24DE Models) (Cont'd)

PASSENGER COMPARTMENT

NEEL0175S05



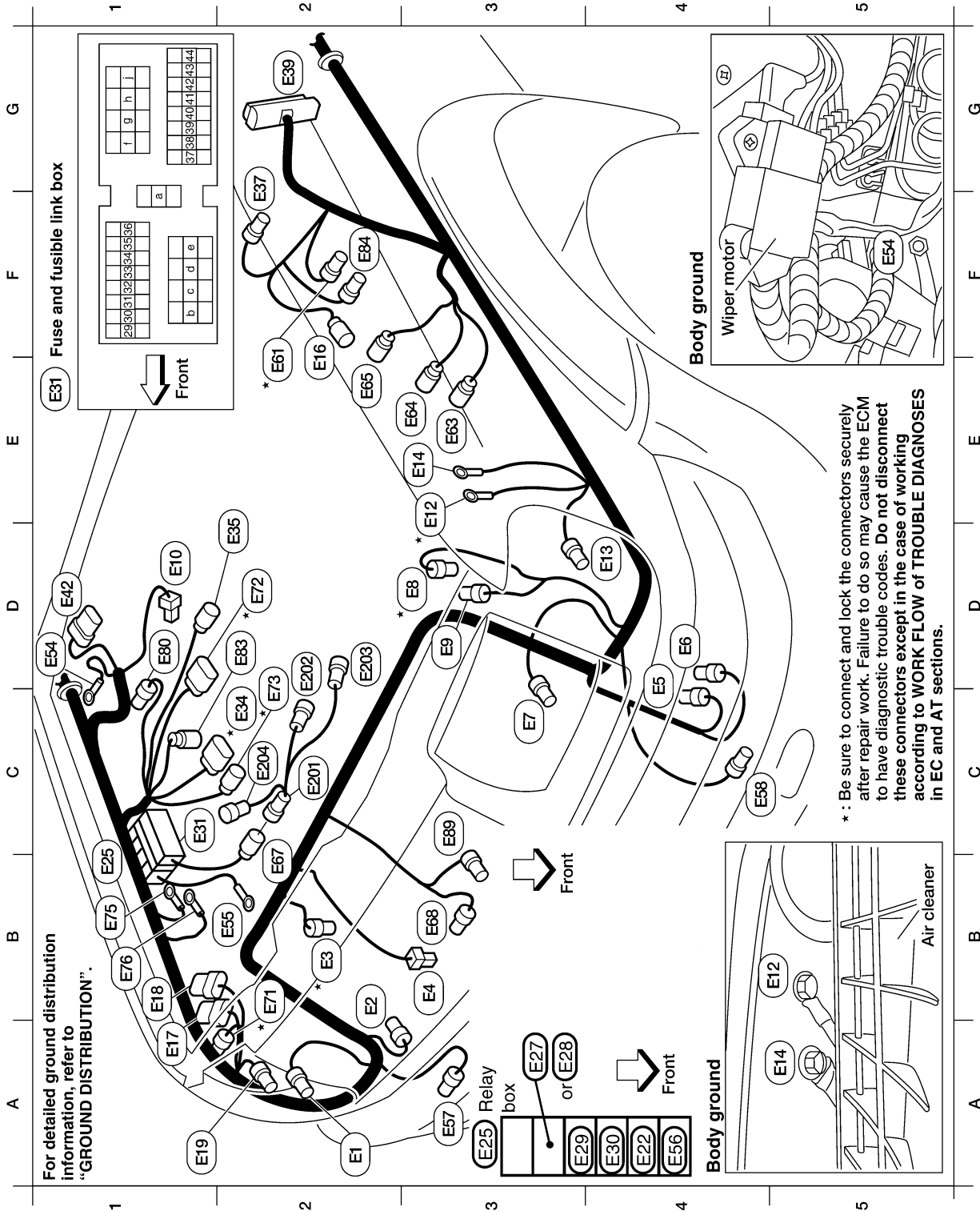
HARNESS LAYOUT

Engine Room Harness (VG33E and VG33ER Models)

Engine Room Harness (VG33E and VG33ER Models) ENGINE COMPARTMENT

NEEL0213

NEEL0213S01



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

* : 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.

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HARNESS LAYOUT

Engine Room Harness (VG33E and VG33ER Models) (Cont'd)

A2	(E1)	B/3	: Head lamp RH	C1	(E26)	-	: Relay box	A3	(E27)	GY/2:	Front fog lamp RH
B2	(E2)	GY/2	: Front wheel sensor RH	A3*	(E27)	BR/6	: Park/neutral position (PNP) relay (with A/T)	C4	(E28)	GY/2:	Front fog lamp LH
B2*	(E3)	B/2	: Dual-pressure switch	A4	(E28)	L/4	: Clutch interlock relay (with M/T)	E2	(E31)	L/2	: EVAP canister purge volume control solenoid valve
B3	(E4)	B/1	: Horn	A4	(E29)	L/4	: Horn relay	E3	(E63)	GY/1:	To (A3)
C4	(E5)	BR/2	: Washer fluid level switch	A4	(E30)	L/4	: A/C relay	E3	(E64)	GY/1:	To (A4)
D4	(E6)	GY/2	: Front washer motor	C1	(E31)	-	: Fuse and fusible link box	E2	(E65)	GY/4:	To (A5)
C3	(E7)	B/3	: Headlamp LH	C2*	(E34)	GY/8	: Park/neutral position (PNP) switch (with A/T)	C2	(E67)	GY/2:	To (E201)
D3*	(E8)	B/2	: Intake air temperature sensor	E2	(E35)	GY/2	: Park/neutral position (PNP) switch (with A/T)	B3	(E68)	GY/2:	Ambient air temperature switch
D3	(E9)	GY/2	: Hood switch (with power door locks)	G2	(E37)	GY/2	: Brake fluid level switch	B2	(E71)	GY/2:	Dropping resistor
D3*	(E12)	-	: Body ground	G2	(E39)	B/31	: ABS actuator and electric unit (control unit) (2WD models)	D2	(E72)	BR/8:	Terminal cord assembly
D4	(E13)	GY/3	: Front combination lamp LH	G2	(E39)	B/25	: ABS actuator and electric unit (control unit) (4WD models)	C2	(E73)	GY/3:	Revolution sensor
E3	(E14)	-	: Body ground	D1	(E42)	SB/6	: Front wiper motor	B1	(E75)	-	To (E31)
E2	(E16)	BR/2	: Front wheel sensor LH	D1*	(E44)	-	: Body ground	B1	(E76)	-	To (E31)
A1	(E17)	GY/8	: Daytime light control unit (with DTRL)	B2	(E45)	-	: Battery	D1	(E80)	GY/6:	ASCD motor actuator
B1	(E18)	GY/6	: Daytime light control unit (with DTRL)	A3	(E46)	L/4	: Front fog lamp relay (relay box)	D2	(E83)	BR/4:	Turbine revolution sensor (with VG33ER and A/T)
A1	(E19)	GY/3	: Front combination lamp RH					F3	(E84)	B/2	: Supercharger bypass valve control solenoid valve (VG33ER models)
A3	(E22)	BR/6	: Vehicle security lamp relay (w/ power door locks)					B3	(E89)	B/2	: Ambient air temperature sensor
								C2	(E201)	GY/1:	To (E67)
								D2	(E202)	GY/1:	Starter motor
								D2	(E203)	-	: Starter motor
								C2	(E204)	-	: Battery

* : 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.

WEL957A

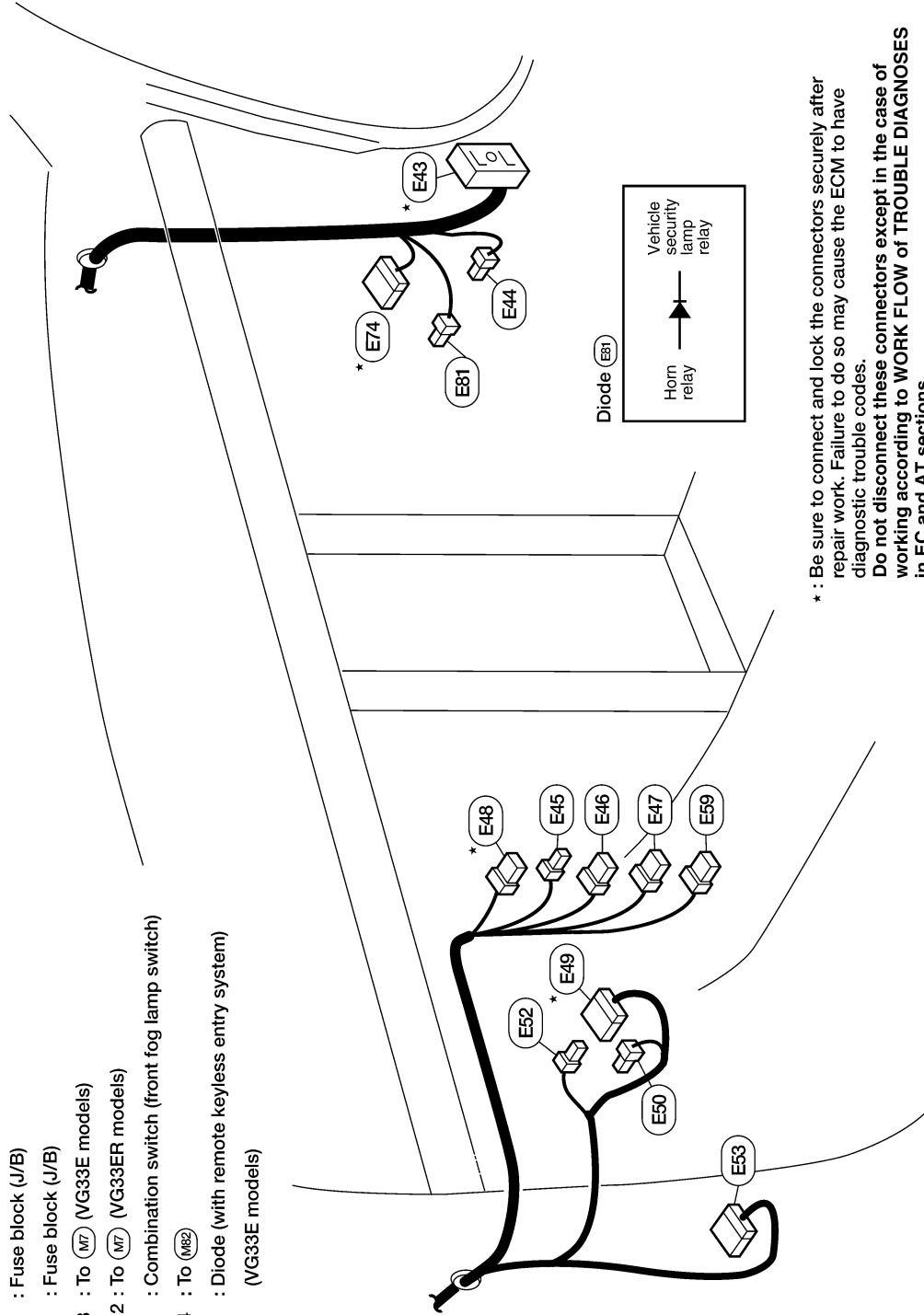
HARNESS LAYOUT

Engine Room Harness (VG33E and VG33ER Models) (Cont'd)

PASSENGER COMPARTMENT

NEEL0213S02

- * E43 SMJ : To (M65)
- E44 B/2 : To (M66)
- E45 BR/4 : Combination switch (lighting switch)
- E46 GY/8 : Front wiper switch
- E47 BR/8 : Combination switch (turn signal switch)
- * E48 W/6 : Ignition switch
- * E49 W/12 : Fuse block (J/B)
- E50 W/4 : Fuse block (J/B)
- E52 B/2 : Fuse block (J/B)
- E53 W/18 : To (M7) (VG33E models)
- E53 BR/12 : To (M7) (VG33ER models)
- E59 W/3 : Combination switch (front fog lamp switch)
- * E74 W/24 : To (M82)
- E81 SB/2 : Diode (with remote keyless entry system)
(VG33E models)



* : 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.

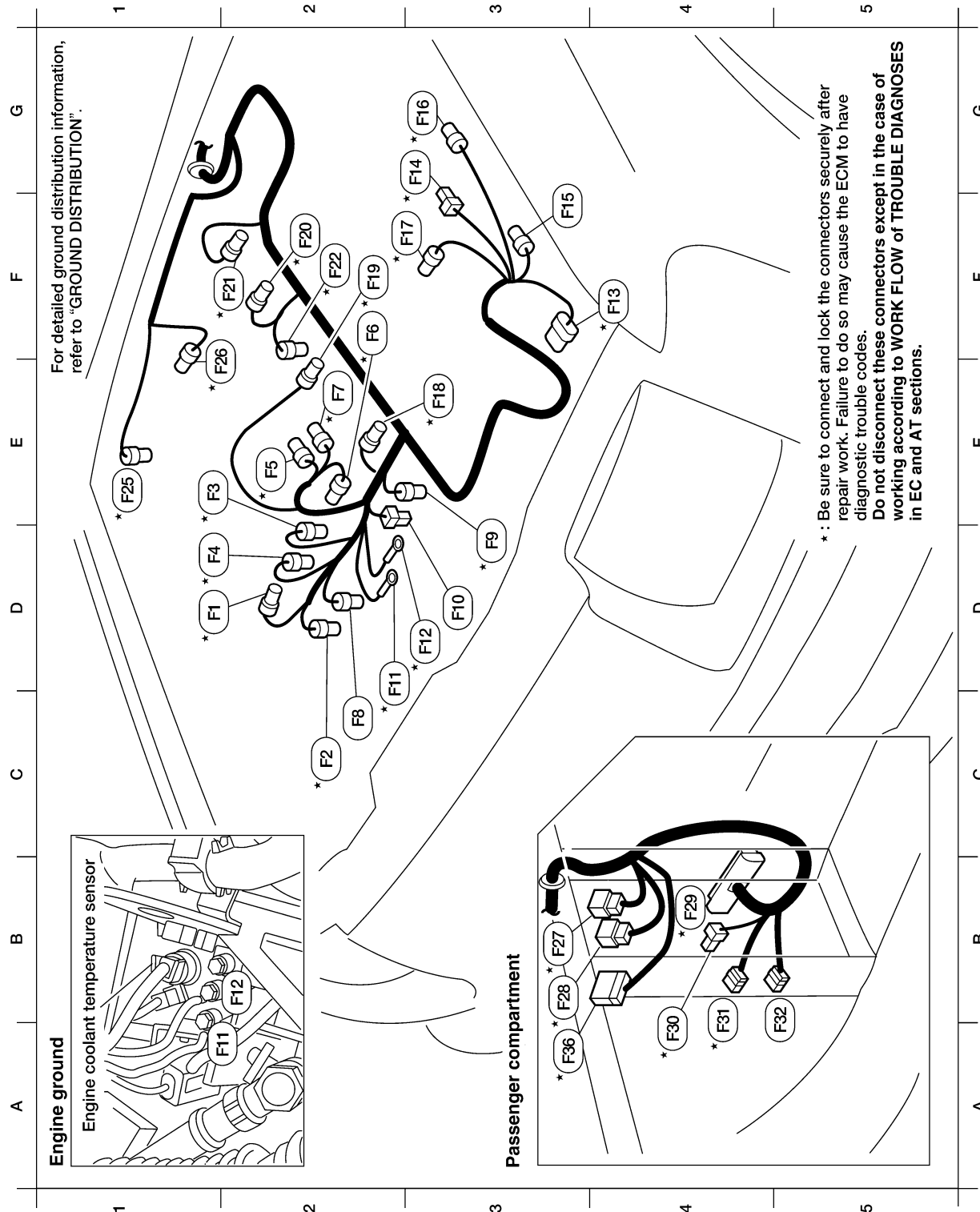
WEL958A

HARNES LAYOUT

Engine Control Harness (KA24DE Models)

Engine Control Harness (KA24DE Models)

NEEL0209



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HARNES LAYOUT

Engine Control Harness (KA24DE Models) (Cont'd)

D2	* (F1)	BR/4 : Mass air flow sensor	F3	* (F17)	GY/2	: Distributor (ignition coil)
C2	* (F2)	GY/2 : Knock sensor	E3	* (F18)	B/2	: Injector No. 1
D2	* (F3)	BR/3 : Throttle position sensor	F2	* (F19)	B/2	: Injector No. 2
D2	* (F4)	GY/3 : Throttle position switch (closed throttle position switch and wide open throttle position switch)	F2	* (F20)	B/2	: Injector No. 3
E2	* (F5)	GY/2 : EGR temperature sensor	F2	* (F21)	B/2	: Injector No. 4
F2	* (F6)	BR/2 : IACV-AAC valve	F2	* (F22)	G/2	: EGRC-solenoid valve
E2	* (F7)	PU/2 : IACV-FICD solenoid valve	E1	* (F25)	GY/3	: To (E41)
C2	(F8)	B/1 : Power steering oil pressure switch	E2	* (F26)	L/2	: EVAP canister purge volume control solenoid valve
D3	* (F9)	GY/2 : Engine coolant temperature sensor	B3	* (F27)	W/8	: To (M59)
D3	(F10)	B/1 : Thermal transmitter	B3	* (F28)	W/6	: To (M58)
D2	* (F11)	— : Engine ground	B4	* (F29)	GY/104	: ECM
D3	* (F12)	— : Engine ground	A4	* (F30)	L/4	: ECM relay
F4	* (F13)	GY/6 : Distributor (camshaft position sensor)	A4	* (F31)	GY/6	: Joint connector-1
G3	* (F14)	GY/2 : Resistor	A5	(F32)	GY/6	: Joint connector-2
F3	(F15)	B/1 : A/C compressor	A3	* (F36)	W/20	: To (M61)
G3	* (F16)	GY/3 : Heated oxygen sensor 1 (front)				
G3	* (F16)	SB/3 : Heated oxygen sensor 1 (front)				

* : 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.

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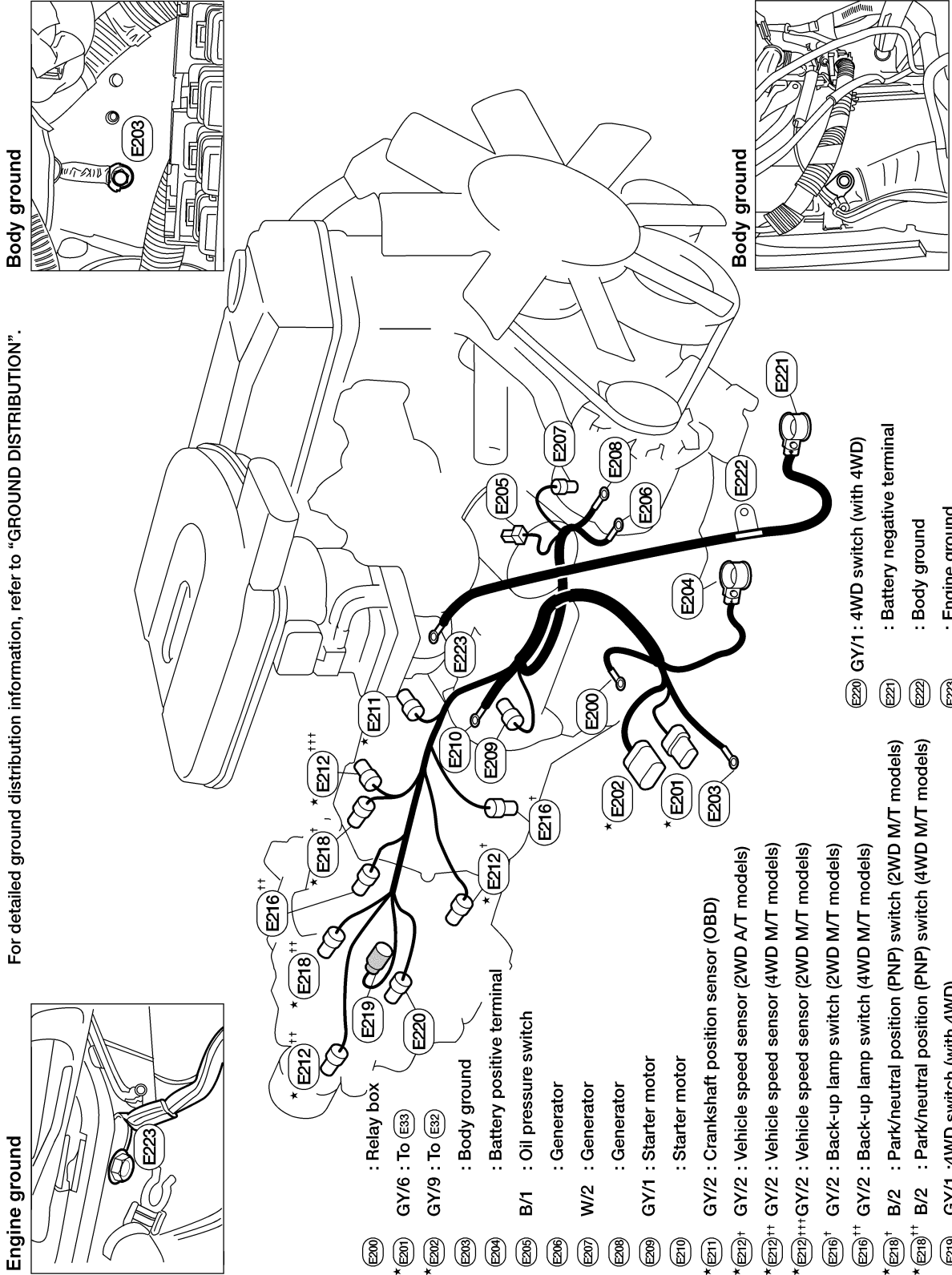
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HARNES LAYOUT

Engine No. 2 Harness (KA24DE Models)

Engine No. 2 Harness (KA24DE Models)

NEEL0211

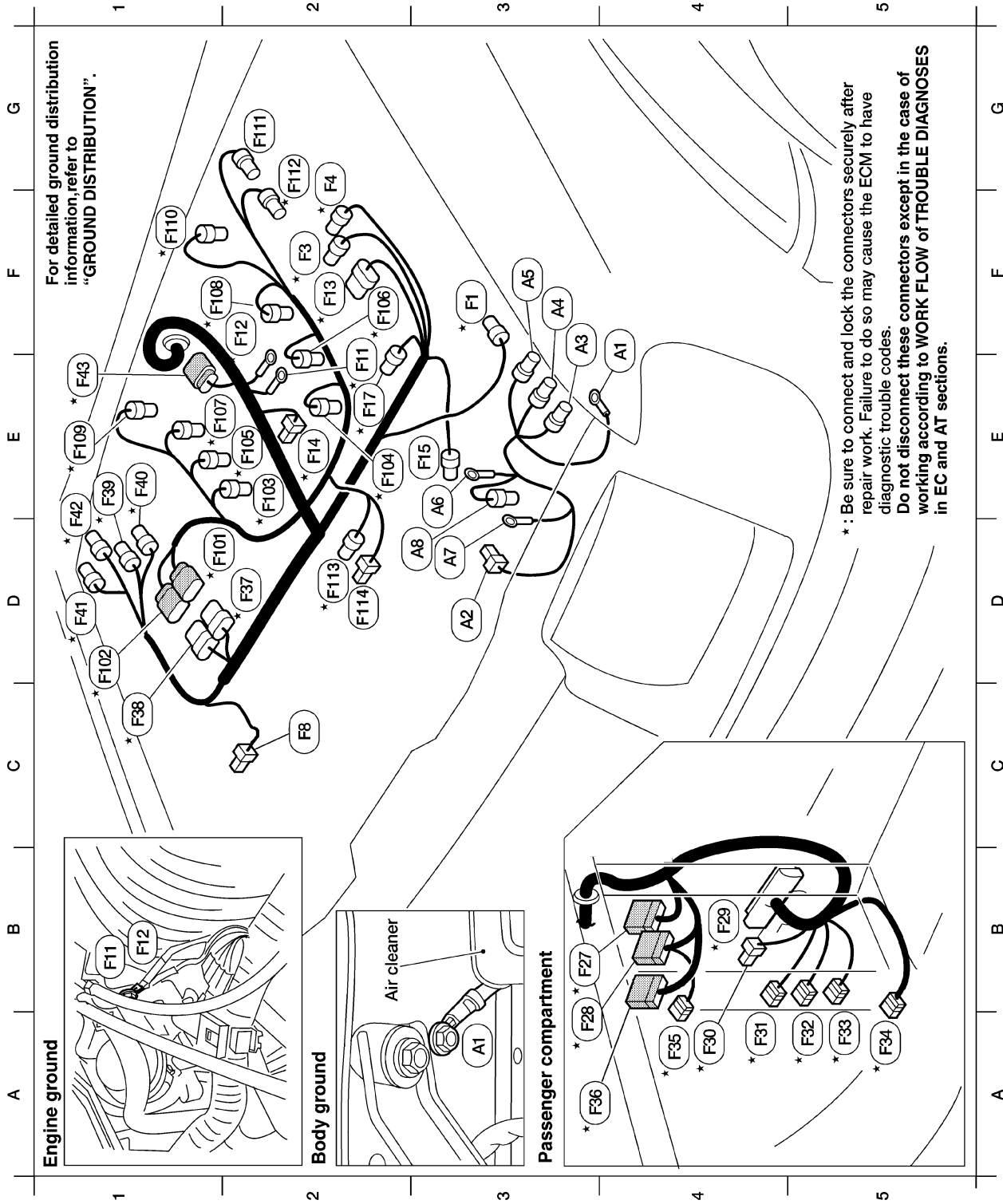


HARNESS LAYOUT

Engine Control Harness (VG33E Models)

Engine Control Harness (VG33E Models)

NEEL0176



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HARNESS LAYOUT

Engine Control Harness (VG33E Models) (Cont'd)

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)
C2 (F6) 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)
B3 * (F27) W/18	: To (M59)
A3 * (F28) W/20	: 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) GY/6	: Joint connector-4
A4 * (F35) SB/2	: Diode
C4 * (F36) W/24	: To (M61)
D2 * (F37) B/8	: To (F101)
C1 * (F38) GY/8	: To (F102)
E1 * (F39) GY/4	: Heated oxygen sensor 2 (rear) (bank 2)
E1 * (F40) GY/3	: Heated oxygen sensor 1 (front) (bank 2)

Engine control harness (continued)

D1 * (F41) GY/3	: Heated oxygen sensor 1 (front) (bank 1)
D1 * (F42) GY/4	: Heated oxygen sensor 2 (rear) (bank 1)
E1 * (F43) GY/8	: To (F201)

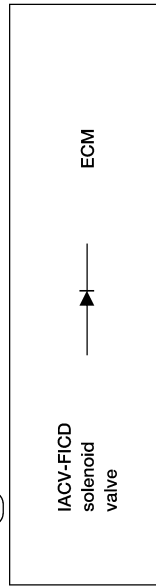
Engine sub harness

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)



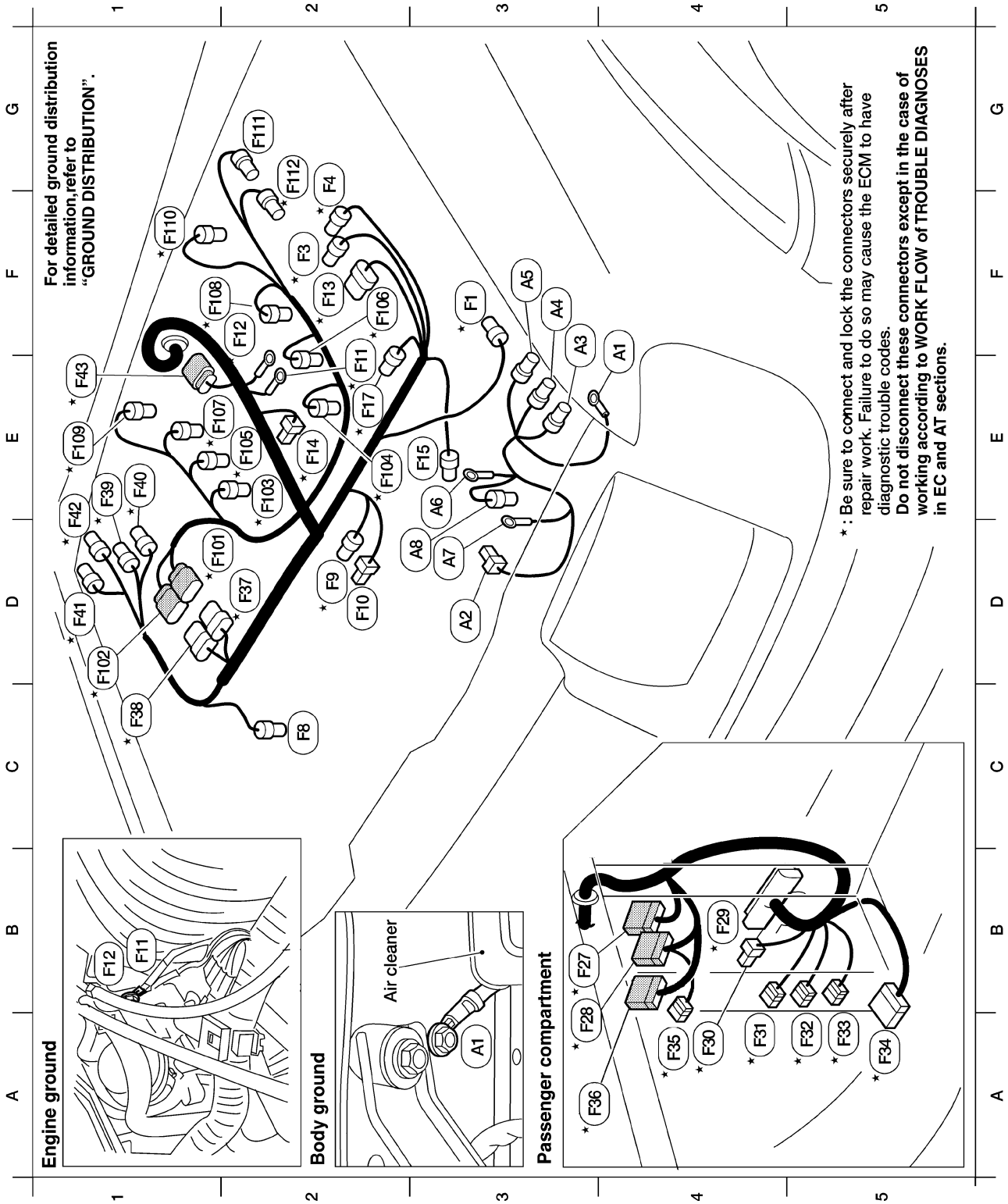
* : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

HARNESS LAYOUT

Engine Control Harness (VG33ER Models)

Engine Control Harness (VG33ER Models)

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HARNESS LAYOUT

Engine Control Harness (VG33ER Models) (Cont'd)

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)
- C2 (F8) B/2 : Power steering oil pressure switch
- 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)
- B3 * (F27) W/18 : To (M58)
- A3 * (F28) W/20 : 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) GY/6 : Joint connector-4
- A4 * (F35) SB/2 : Diode
- C4 * (F36) W/24 : To (M81)
- D2 * (F37) G/10 : To (F101)
- C1 * (F38) GY/10 : To (F102)
- E1 * (F39) GY/4 : Heated oxygen sensor 2 (rear) (bank 2)
- E1 * (F40) GY/3 : Heated oxygen sensor 1 (front) (bank 2)

Engine control harness (continued)

- D1 * (F41) GY/3 : Heated oxygen sensor 1 (front) (bank 1)
- D1 * (F42) GY/4 : Heated oxygen sensor 2 (rear) (bank 1)
- E1 * (F43) GY/8 : To (F201)

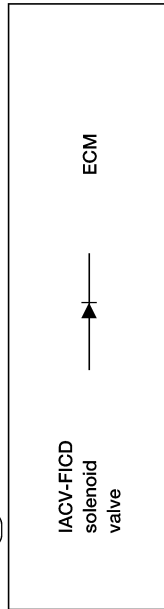
Engine sub harness

- D2 * (F101) B/8 : To (F37)
- D1 * (F102) GY/10 : 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
- D2 * (F113) GY/2 : Engine coolant temperature sensor
- D2 * (F114) B/1 : Thermal transmitter

Generator harness

- F4 (A1) - : Body ground
- D3 (A2) B/1 : Oil pressure switch
- F3 (A3) GY/1 : To (E83)
- F3 (A4) GY/1 : To (E84)
- F3 (A5) GY/4 : To (E85)
- E3 (A6) - : Generator
- D3 (A7) - : Generator
- D3 (A8) GY/2 : Generator

Diode (F35)



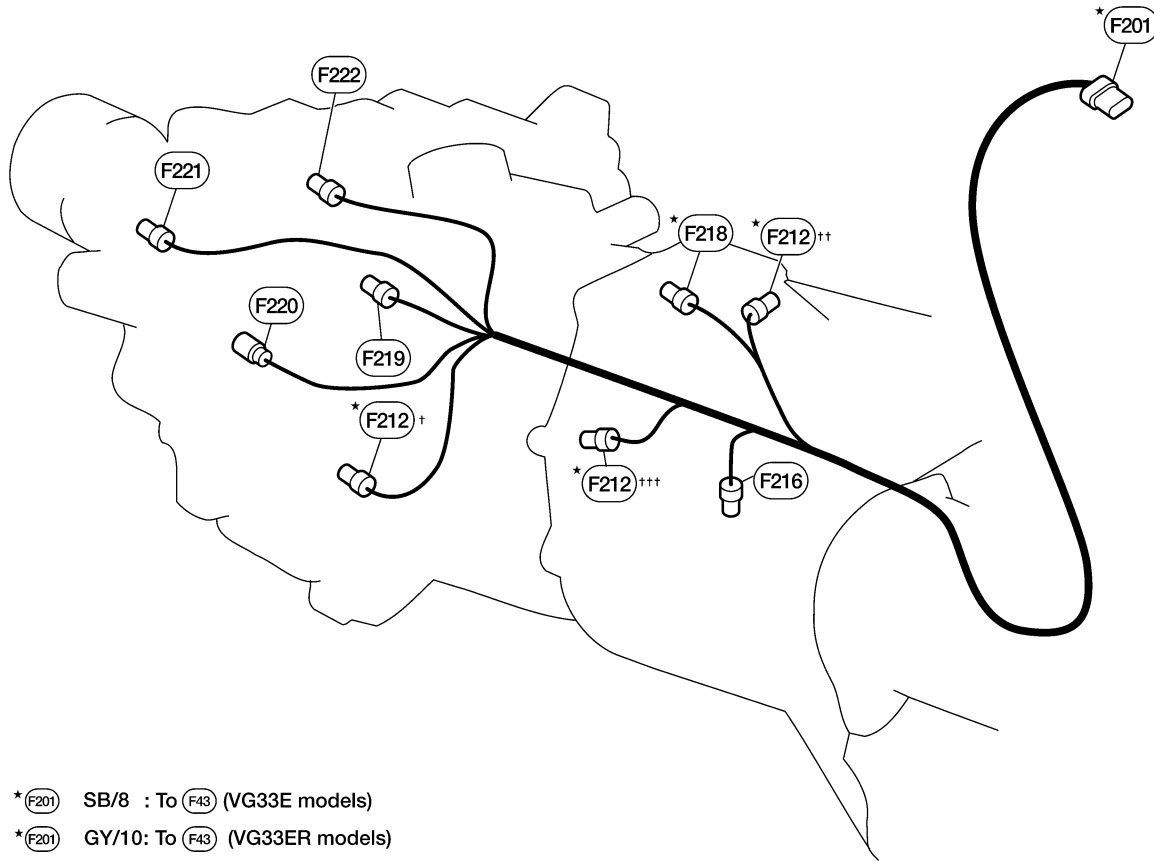
* : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

HARNESS LAYOUT

Engine No. 2 Harness (VG33E and VG33ER Models)

Engine No. 2 Harness (VG33E and VG33ER Models)

NEEL0207



- * (F201) SB/8 : To (F43) (VG33E models)
- * (F201) GY/10: To (F43) (VG33ER models)
- * (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 : 4WD 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.

WEL964A

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HARNESS LAYOUT

Chassis and Tail Harness (KA24DE Models)

Chassis and Tail Harness (KA24DE Models)

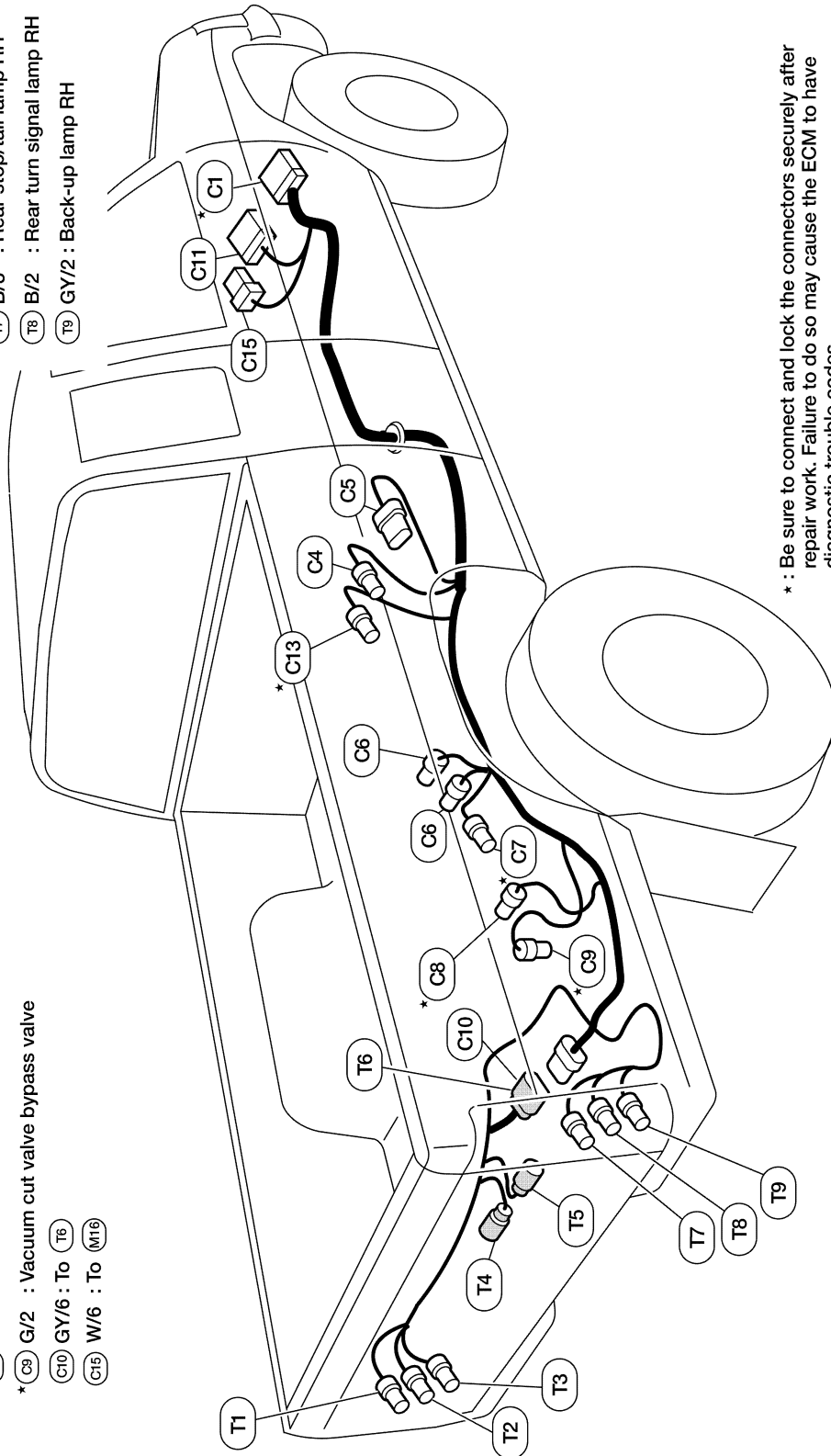
NEEL0212

Chassis harness

- * (C1) W/18 : To (M67)
- (C4) GY/4 : ABS actuator (2WD)
- (C5) GY/6 : Fuel level sensor unit and fuel pump
- (C6) GY/2 : Rear wheel sensor (2WD)
- (C) GY/4 : Rear wheel sensor (4WD)
- * (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 (T6)
- (C15) W/6 : To (M16)

Tail harness

- (T1) B/3 : Rear stop/tail lamp LH
- (T2) B/2 : Turn signal lamp LH
- (T3) GY/2 : Back-up lamp LH
- (T4) GY/2 : License plate lamp LH
- (T5) GY/2 : License plate lamp RH
- (T6) GY/6 : To (C10)
- (T7) B/3 : Rear stop/tail lamp RH
- (T8) B/2 : Rear turn signal lamp RH
- (T9) GY/2 : Back-up 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.

HARNESS LAYOUT

Chassis and Tail Harness (VG33E and VG33ER Models)

Chassis and Tail Harness (VG33E and VG33ER Models)

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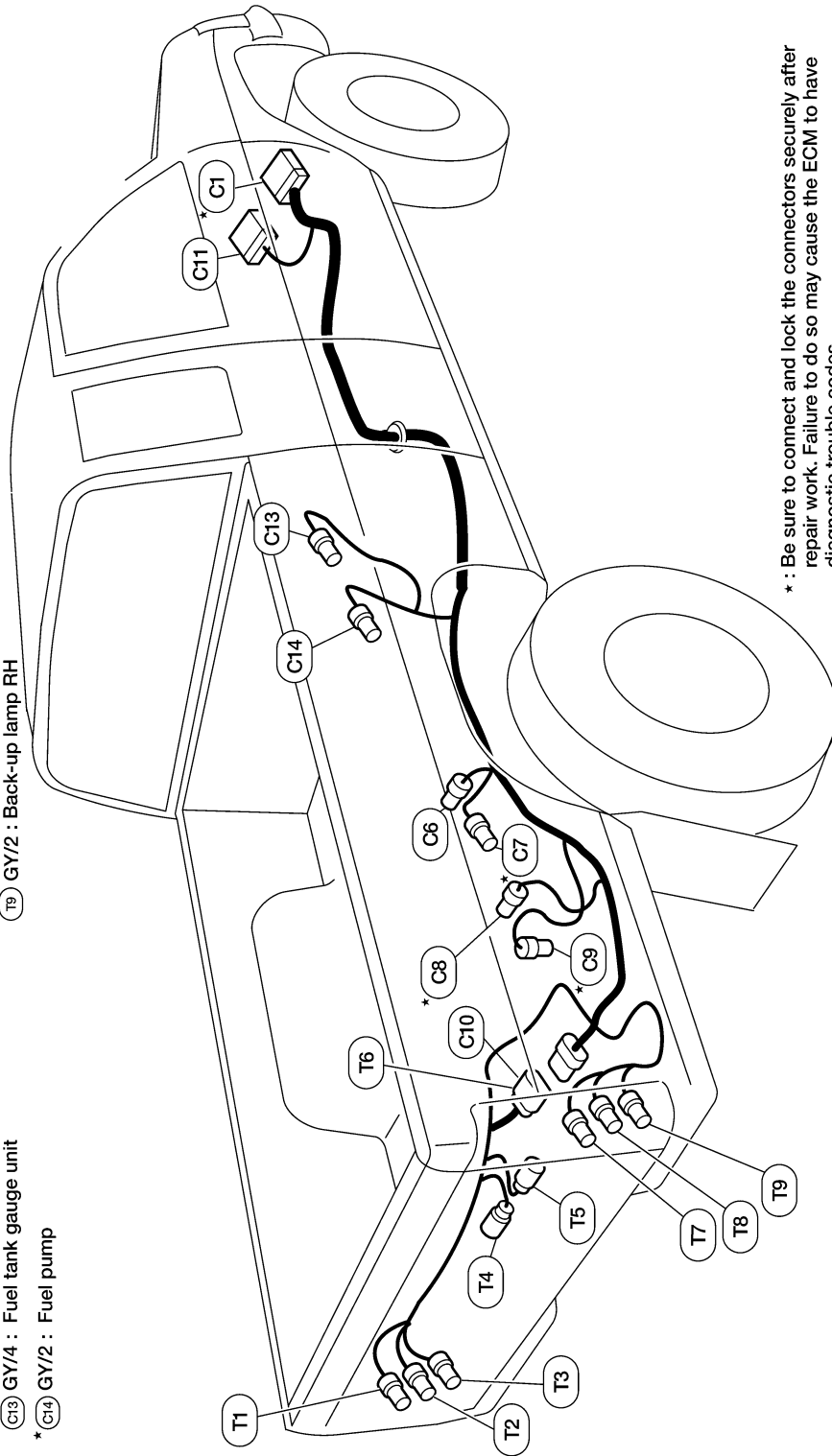
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- Chassis harness**
- * C1 W/18 : To (M67)
 - C6 GY/2 : Rear wheel sensor (2WD)
 - C6 GY/4 : Rear wheel sensor (4WD)
 - C7 GY/2 : EVAP control system pressure sensor
 - * C8 GY/3 : EVAP canister vent control valve
 - * C9 G/2 : Vacuum cut valve bypass valve
 - C10 GY/6 : To (T6)
 - C11 W/10 : To (M63)
 - C13 GY/4 : Fuel tank gauge unit
 - * C14 GY/2 : Fuel pump
- Tail harness**
- T1 B/3 : Rear stop/tail lamp LH
 - T2 B/2 : Turn signal lamp LH
 - T3 GY/2 : Back-up lamp LH
 - T4 GY/2 : License plate lamp LH
 - T5 GY/2 : License plate lamp RH
 - T6 GY/6 : To (C10)
 - T7 B/3 : Rear stop/tail lamp RH
 - T8 B/2 : Rear turn signal lamp RH
 - T9 GY/2 : Back-up 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.

WEL966A

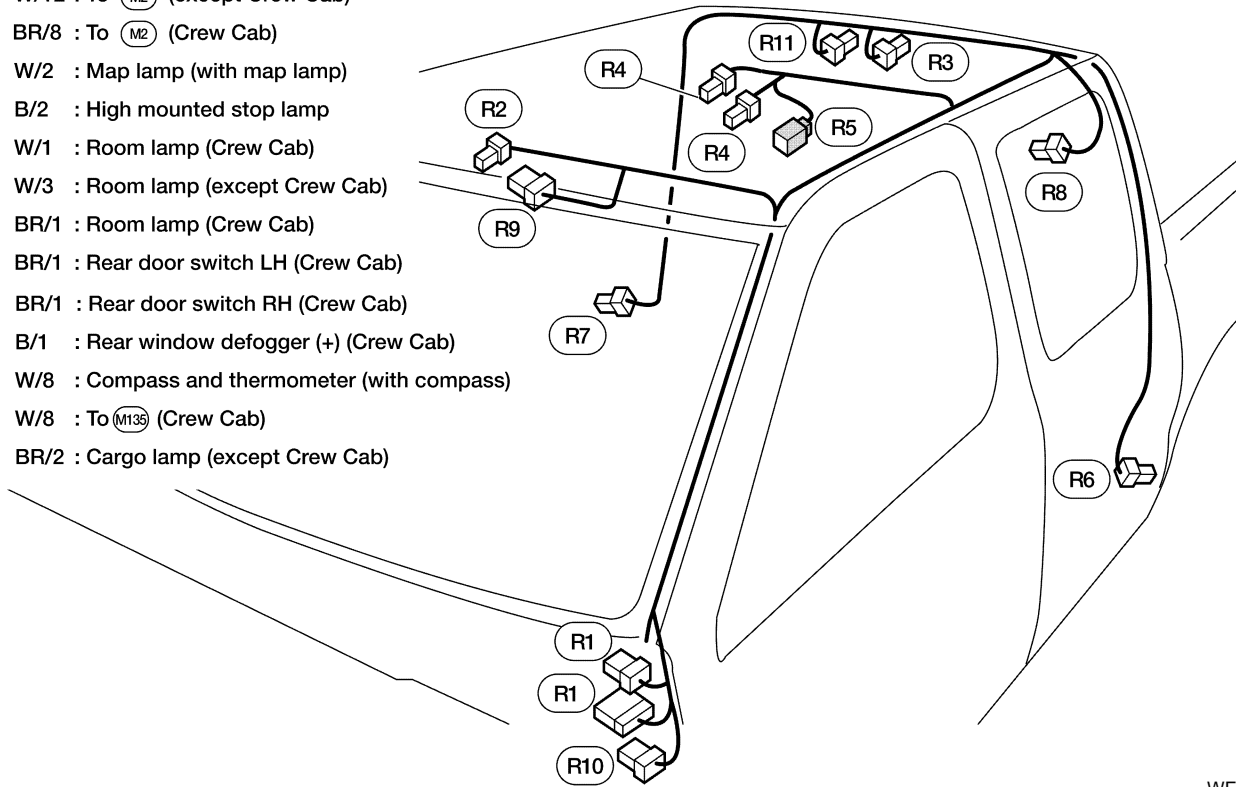
HARNESS LAYOUT

Room Lamp Harness

Room Lamp Harness

NEEL0180

- (R1) W/12 : To (M2) (except Crew Cab)
- (R1) BR/8 : To (M2) (Crew Cab)
- (R2) W/2 : Map lamp (with map lamp)
- (R3) B/2 : High mounted stop lamp
- (R4) W/1 : Room lamp (Crew Cab)
- (R4) W/3 : Room lamp (except Crew Cab)
- (R5) BR/1 : Room lamp (Crew Cab)
- (R6) BR/1 : Rear door switch LH (Crew Cab)
- (R7) BR/1 : Rear door switch RH (Crew Cab)
- (R8) B/1 : Rear window defogger (+) (Crew Cab)
- (R9) W/8 : Compass and thermometer (with compass)
- (R10) W/8 : To (M13S) (Crew Cab)
- (R11) BR/2 : Cargo lamp (except Crew Cab)



WEL106B

HARNESS LAYOUT

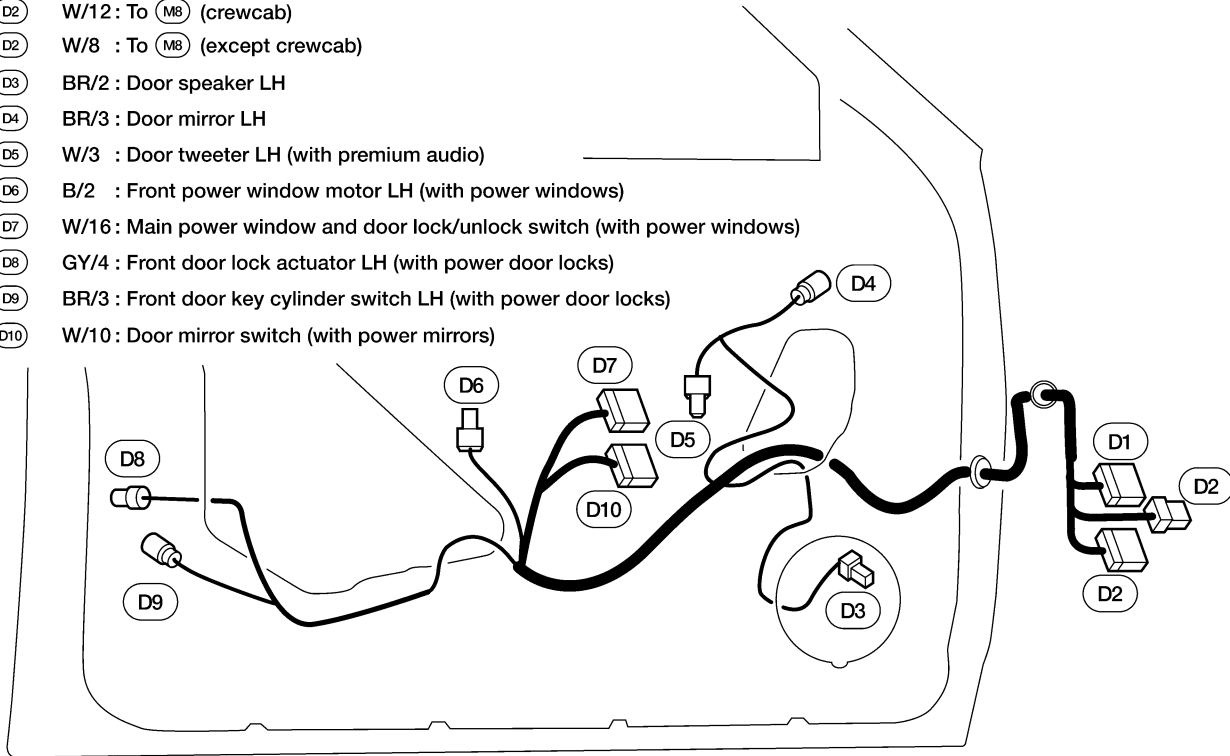
Front Door Harness

Front Door Harness LH SIDE

NEEL0182

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)
- (D10) W/10 : Door mirror switch (with power mirrors)



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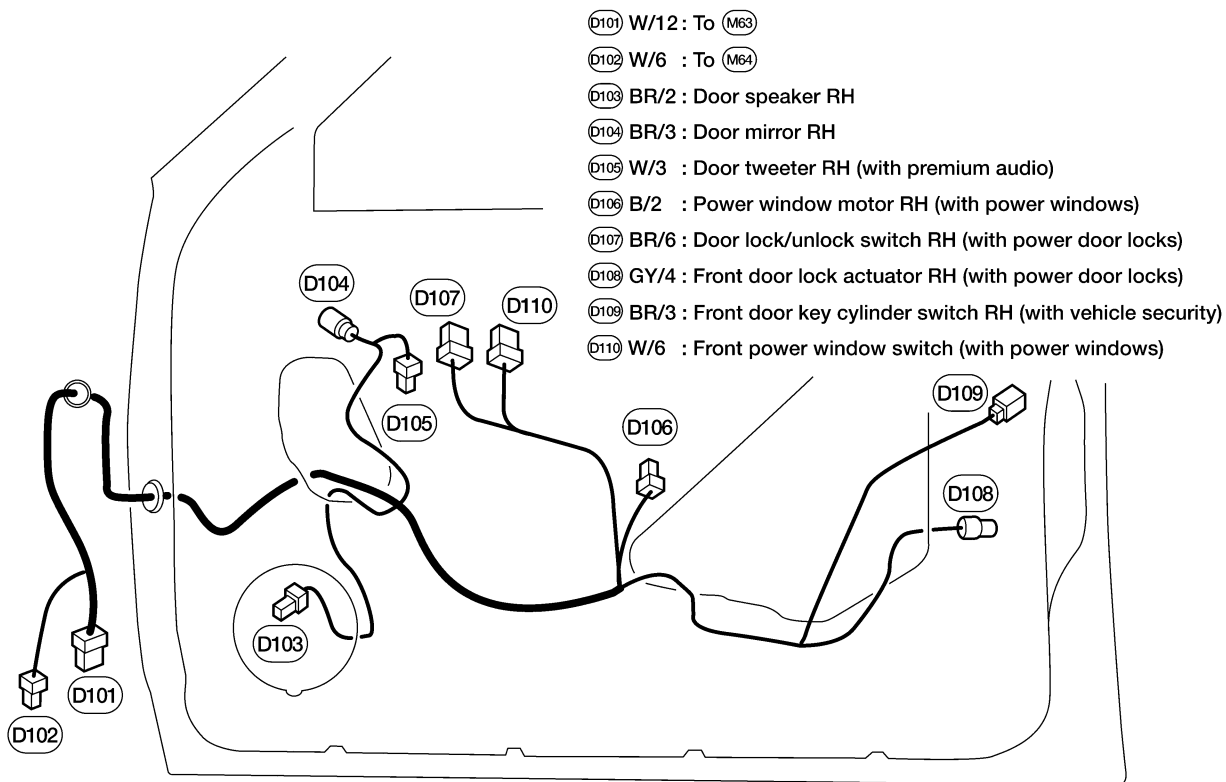
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HARNESS LAYOUT

Front Door Harness (Cont'd)

RH SIDE

NEEL0182S02



WEL969A

HARNESS LAYOUT

Rear Door Harness

Rear Door Harness LH SIDE

NEEL0183

NEEL0183S01

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(D201) W/3 : To (M86)

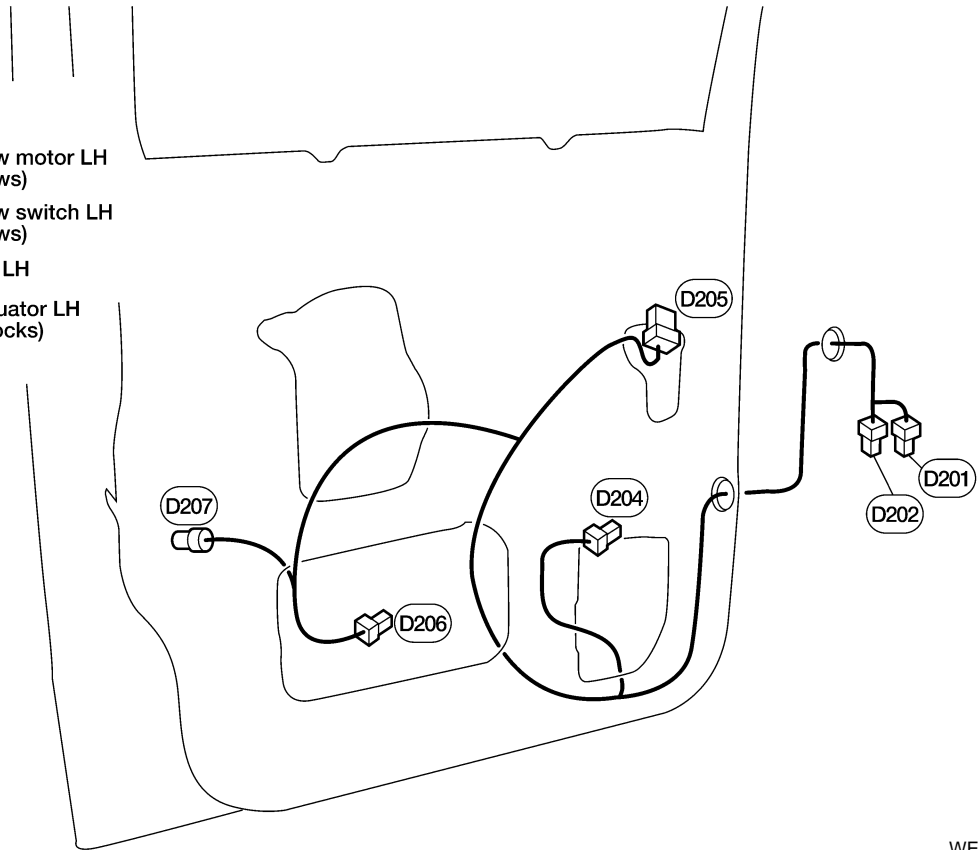
(D202) W/4 : To (M87)

(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)

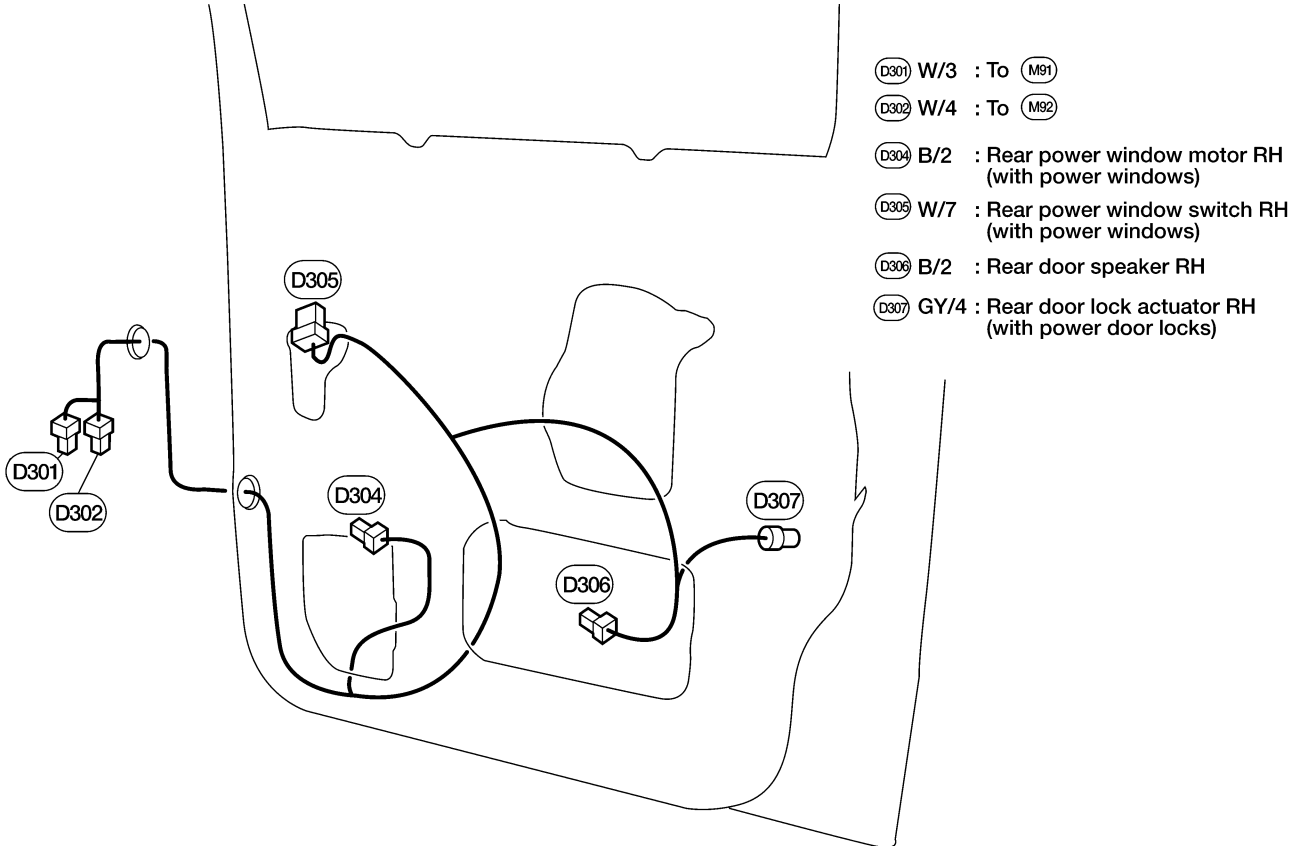


HARNESS LAYOUT

Rear Door Harness (Cont'd)

RH SIDE

NEEL0183S02



WEL971A

BULB SPECIFICATIONS**Headlamp****Headlamp**

NEEL0144S03

	Wattage (W)	Bulb No.*
High/Low	65/55	9007

*: Always check with the Parts Department for the latest parts information.

Exterior Lamp

NEEL0144S01

	Wattage (W)	Bulb No.*
Front combination lamp	Turn signal	28.5
	Parking	5
	Side marker	5
Fog lamp	55	H3
Rear combination lamp	Turn signal	27
	Stop/Tail	27/7
	Back-up	27
Cargo lamp	10	*
High-mounted stop lamp	*	*
License plate lamp	3.8	194

*: Always check with the Parts Department for the latest parts information.

Interior Lamp

NEEL0144S02

	Wattage (W)	Bulb No.*
Room lamp (Dome lamp)	10	*
Map lamp	8	578

*: Always check with the Parts Department for the latest parts information.

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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
ASCD	EL	Automatic Speed Control Device
A/T	AT	A/T
AT/C	EC	A/T Control
ATDIAG	EC	A/T Diagnosis Communication Line
AUDIO	EL	Audio
BA/FTS	AT	A/T Fluid Temperature Sensor 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
COMPAS	EL	Compass and Thermometer
COOL/F	EC	Cooling Fan Control [VG33E (if equipped) and VG33ER]
D/LOCK	EL	Power Door Lock
DEF	EL	Rear Window Defogger
DTRL	EL	Headlamp - With Daytime Light System
ECTS	EC	Engine Coolant Temperature Sensor
EGR/TS	EC	EGR Temperature Sensor (KA24DE)
EGRC/V	EC	EGRC-solenoid Valve (KA24DE)
EGRC1	EC	EGR Function (KA24DE)
ENGSS	AT	Engine Speed Signal

Code	Section	Wiring Diagram Name
F/FOG	EL	Front Fog Lamp
F/PUMP	EC	Fuel Pump
FLS1	EC	Fuel Level Sensor Unit
FLS2	EC	Fuel Level Sensor Unit
FLS3	EC	Fuel Level Sensor Unit
FICD	EC	IACV-FICD Solenoid Valve
FTTS	EC	Fuel Tank Temperature Sensor
FTS	AT	A/T Fluid Temperature Sensor
FUEL	EC	Fuel Injection System Function (KA24DE)
FUELB1	EC	Fuel Injection System Function (Bank 1) (VG33E and VG33ER)
FUELB2	EC	Fuel Injection System Function (Bank 2) (VG33E and VG33ER)
H/LAMP	EL	Headlamp
HEATER	HA	Heater System
HO2S1	EC	Heated Oxygen Sensor 1 (Front) (KA24DE)
HO2S2	EC	Heated Oxygen Sensor 2 (Rear) (KA24DE)
HO2S2H	EC	Heated Oxygen Sensor 2 (Rear) Heater (KA24DE)
HO2S1H	EC	Heated Oxygen Sensor 1 (Front) Heater (KA24DE)
HORN	EL	Horn
IATS	EC	Intake Air Temperature Sensor
IGN/SG	EC	Ignition Signal (KA24DE and VG33E)
IGNSYS	EC	Ignition Signal (VG33ER)
ILL	EL	Illumination
INJECT	EC	Injector
KEYLES	EL	Remote keyless entry system
KS	EC	Knock Sensor
LKUP	EC	Torque Converter Clutch Solenoid Valve (KA24DE)
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

WIRING DIAGRAM CODES (CELL CODES)

Code	Section	Wiring Diagram Name	Code	Section	Wiring Diagram Name	
MIL/DL	EC	MIL and Data Link Connector	TCCSIG	AT	A/T TCC Signal (Lock Up)	GI
MIRROR	EL	Door Mirror	TCV	AT	Torque Converter Clutch Solenoid Valve	MA
NONDTC	AT	Non-detectable Items	TP/SW	EC	Throttle Position Switch	
O2H1B1	EC	Heated Oxygen Sensor 1 (Front) Heater (Bank 1) (VG33E and VG33ER)	TPS	AT	Throttle Position Sensor	EM
O2H1B2	EC	Heated Oxygen Sensor 1 (Front) Heater (Bank 2) (VG33E and VG33ER)	TPS	EC	Throttle Position Sensor	
O2H2B1	EC	Heated Oxygen Sensor 2 (Rear) Heater (Bank 1) (VG33E and VG33ER)	TRSA/T	AT	Turbine Revolution Sensor	LC
O2H2B2	EC	Heated Oxygen Sensor 2 (Rear) Heater (Bank 2) (VG33E and VG33ER)	TURN	EL	Turn Signal and Hazard Warning Lamps	EC
O2S1B1	EC	Heated Oxygen Sensor 1 (Front) (Bank 1) (VG33E and VG33ER)	VEHSEC	EL	Vehicle Security System	
O2S1B2	EC	Heated Oxygen Sensor 1 (Front) (Bank 2) (VG33E and VG33ER)	VENT/V	EC	EVAP Canister Vent Control Valve	FE
O2S2B1	EC	Heated Oxygen Sensor 2 (Rear) (Bank 1) (VG33E and VG33ER)	VSS	EC	Vehicle Speed Sensor	CL
O2S2B2	EC	Heated Oxygen Sensor 2 (Rear) (Bank 2) (VG33E and VG33ER)	VSSAT	AT	Vehicle Speed Sensor A/T (Revolution Sensor)	MT
OVRCSV	AT	Overrun Clutch Solenoid Valve	VSSMTR	AT	Vehicle Speed Sensor MTR	
PGC/V	EC	EVAP Canister Purge Volume Control Solenoid Valve	WARN	EL	Warning Lamps	AT
PNP/SW	AT	Park/Neutral Position Switch	WINDOW	EL	Power Window	TF
PNP/SW	EC	Park/Neutral Position Switch	WIPER	EL	Front Wiper and Washer	
POWER	EL	Power Supply Routing				PD
PRE/SE	EC	EVAP Control System Pressure Sensor				AX
PST/SW	EC	Power Steering Oil Pressure Switch				SU
ROOM/L	EL	Interior Room Lamp				BR
S/CHGR	EC	Supercharger bypass valve control solenoid valve (VG33ER)				ST
S/SIG	EC	Start Signal				RS
SHIFT	AT	A/T Shift Lock System				BT
SRS	RS	Supplemental Restraint System				HA
SSV/A	AT	Shift Solenoid Valve A				SC
SSV/B	AT	Shift Solenoid Valve B				
START	SC	Starting System				
STOP/L	EL	Stop lamp				
TAIL/L	EL	Parking, License and Tail Lamps				

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NOTES