

ELECTRICAL SYSTEM

SECTION **EL**

When you read wiring diagrams:

- Read GI section, “HOW TO READ WIRING DIAGRAMS”.

When you perform trouble diagnoses, read GI section, “HOW TO FOLLOW FLOW CHART IN TROUBLE DIAGNOSES” and “HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT”.

- Check for any service bulletins before servicing the vehicle.

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WIRING DIAGRAM REFERENCE CHART

ENGINE CONTROL SYSTEM	EC SECTION
A/T CONTROL, SHIFT LOCK CONTROL	AT SECTION
ANTI-LOCK BRAKE SYSTEM	BR SECTION
SRS "AIR BAG"	RS SECTION
HEATER AND AIR CONDITIONER	HA SECTION

PRECAUTIONS AND PREPARATION

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

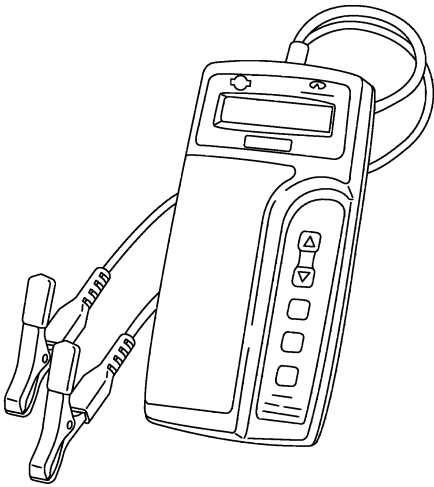
The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER” used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. The SRS composition which is available to NISSAN MODEL L30 is as follows (the composition varies according to the optional equipment):

- For a frontal collision
The Supplemental Restraint System consists of driver air bag module (located in the center of the steering wheel), front passenger air bag module (located on the instrument panel on passenger side), front seat belt pre-tensioners, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.
- For a side collision
The Supplemental Restraint System consists of front side air bag module (located in the outer side of front seat), side air bag (satellite) sensor, diagnosis sensor unit (one of components of air bags for a frontal collision), wiring harness, warning lamp (one of components of air bags for a frontal collision). Information necessary to service the system safely is included in the **RS section** of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance should be performed by an authorized NISSAN dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the RS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. Spiral cable and wiring harnesses (except “SEAT BELT PRE-TENSIONER”) covered with yellow insulation either just before the harness connectors or for the complete harness are related to the SRS.

Special Service Tool

Tool number Tool name	Description
J-44373 Model 620 Battery/Starting/Charging system tester	 <p style="margin-top: 10px;">SEL403X</p>

HARNESS CONNECTOR

Description

HARNESS CONNECTOR (TAB-LOCKING TYPE)

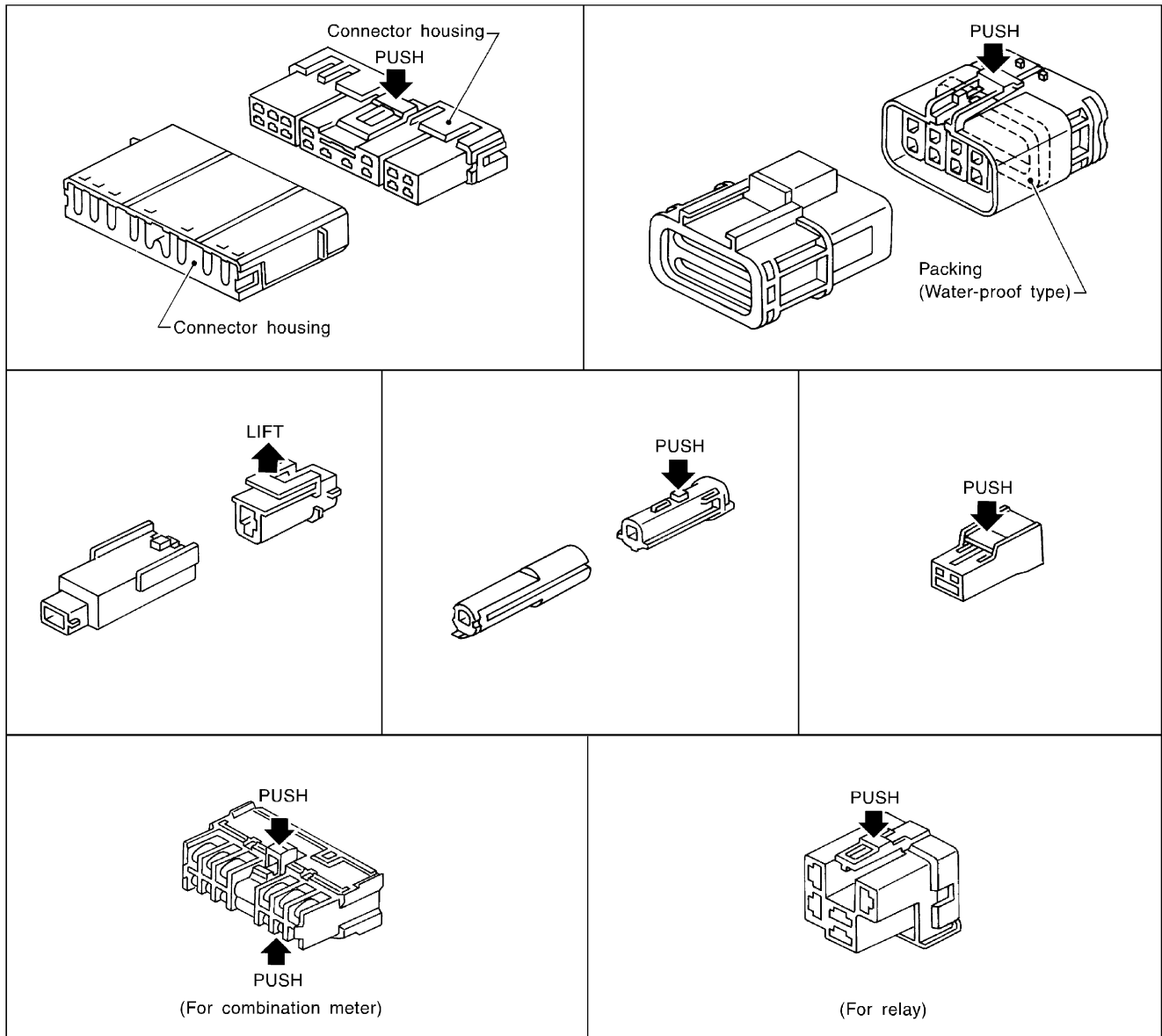
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to illustration below.

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

CAUTION:

Do not pull the harness when disconnecting the connector.

[Example]



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HARNESS CONNECTOR

Description (Cont'd)

HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

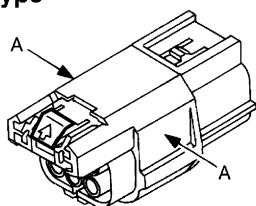
- A new style slide-locking type connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.
- The slide-locking type connectors are disconnected by pushing or pulling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

CAUTION:

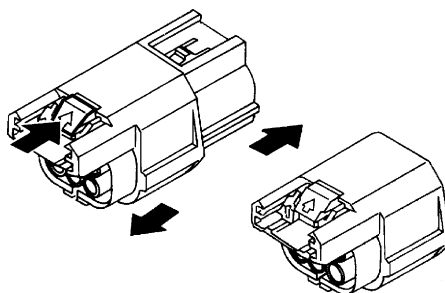
- Do not pull the harness or wires when disconnecting the connector.
- Be careful not to damage the connector support bracket when disconnecting the connector.

[Example]

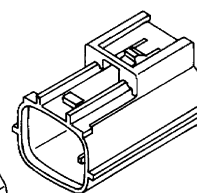
Waterproof type



- ① Firmly grasp shell of connector housing at A.

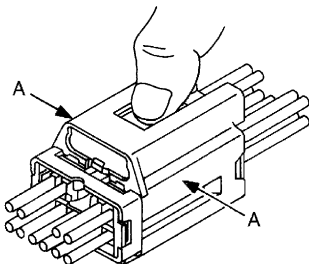


- ② Push slider until connector pops or snaps apart.

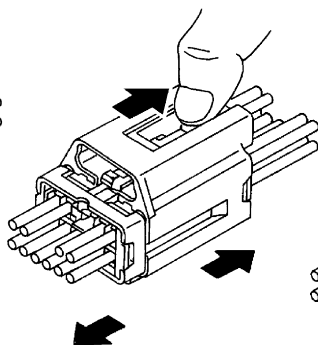


- ③ Disconnect harness connector.

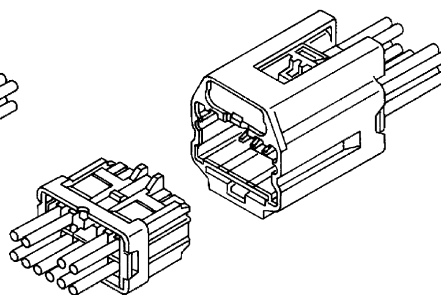
Non-waterproof type



- ① Firmly grasp shell of connector housing at A.



- ② Pull back on the slider while pulling apart male and female halves of connector.



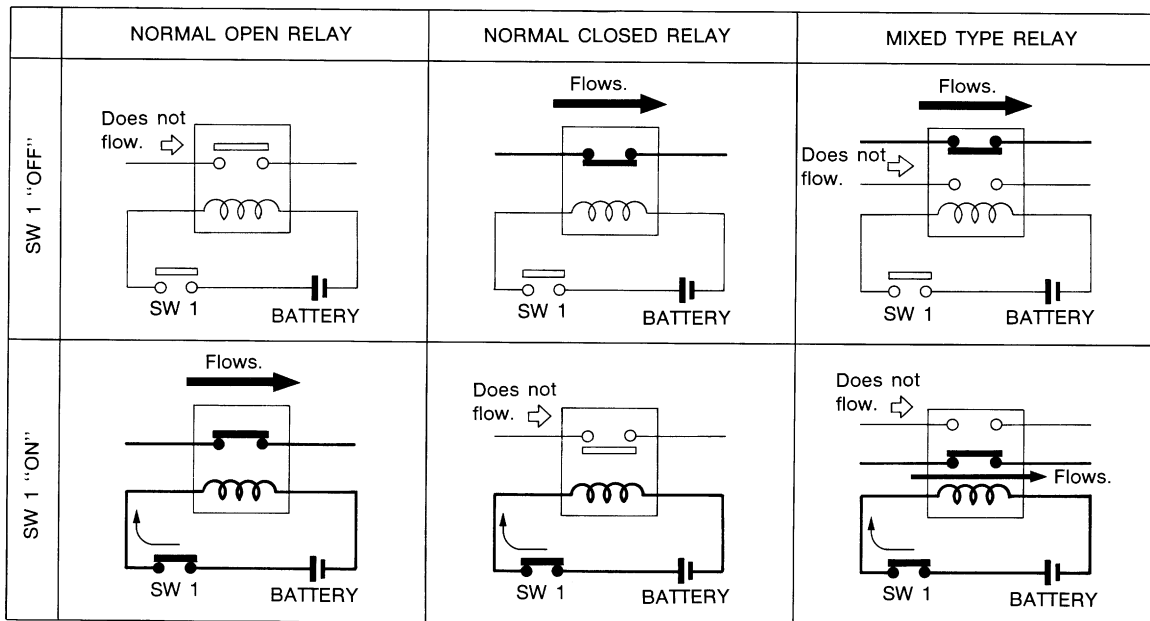
- ③ Disconnect harness connector.

STANDARDIZED RELAY

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

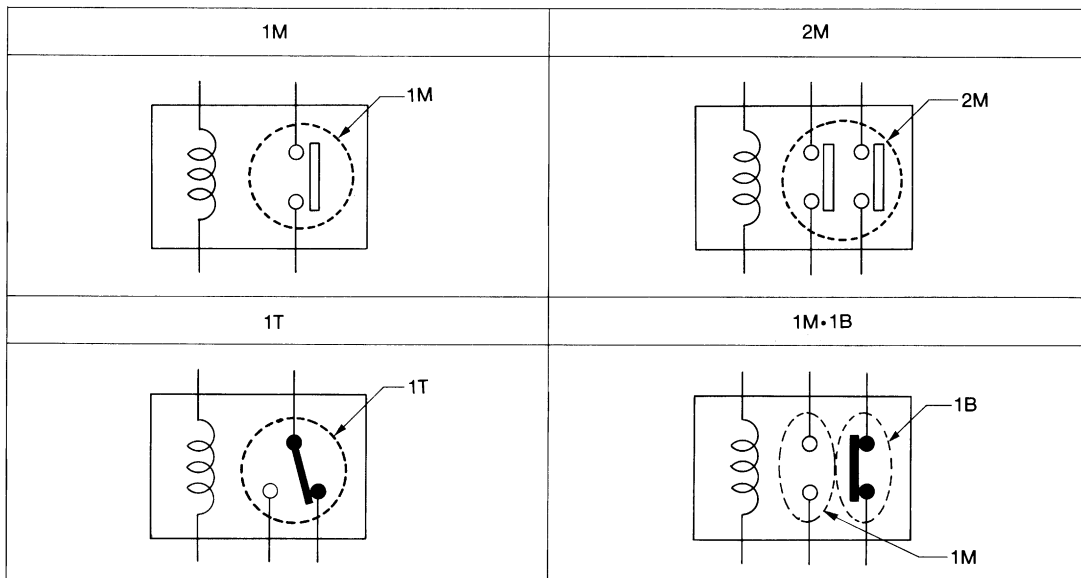
Relays can be divided into three main types: normal open, normal closed and mixed type relays.



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TYPES OF STANDARDIZED RELAYS

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

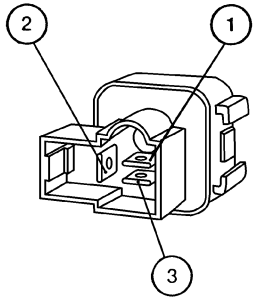
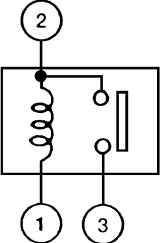
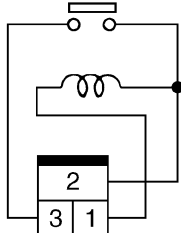
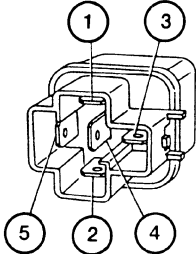
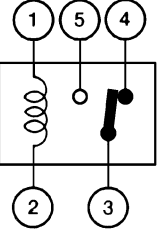
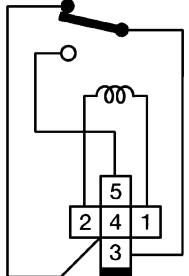
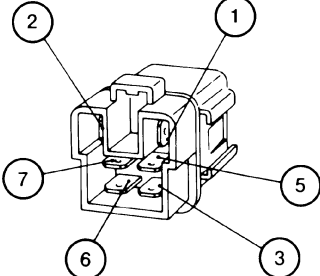
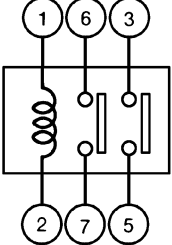
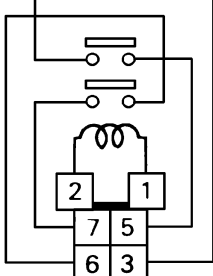
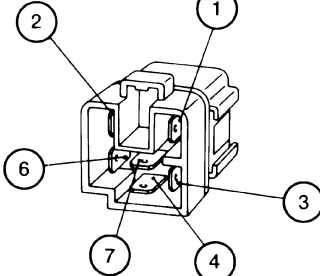
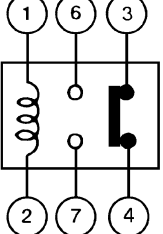
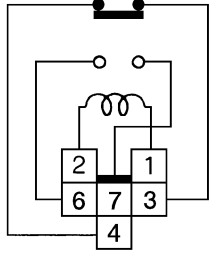
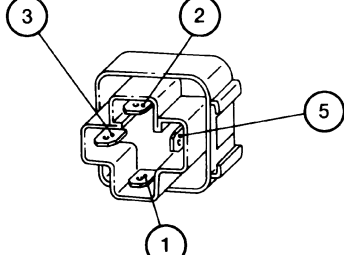
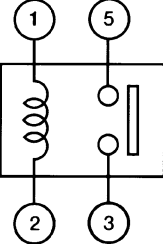
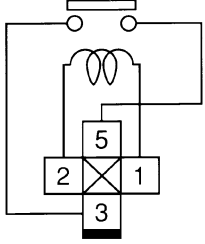


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STANDARDIZED RELAY

Description (Cont'd)

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

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

STANDARDIZED RELAY

NOTES

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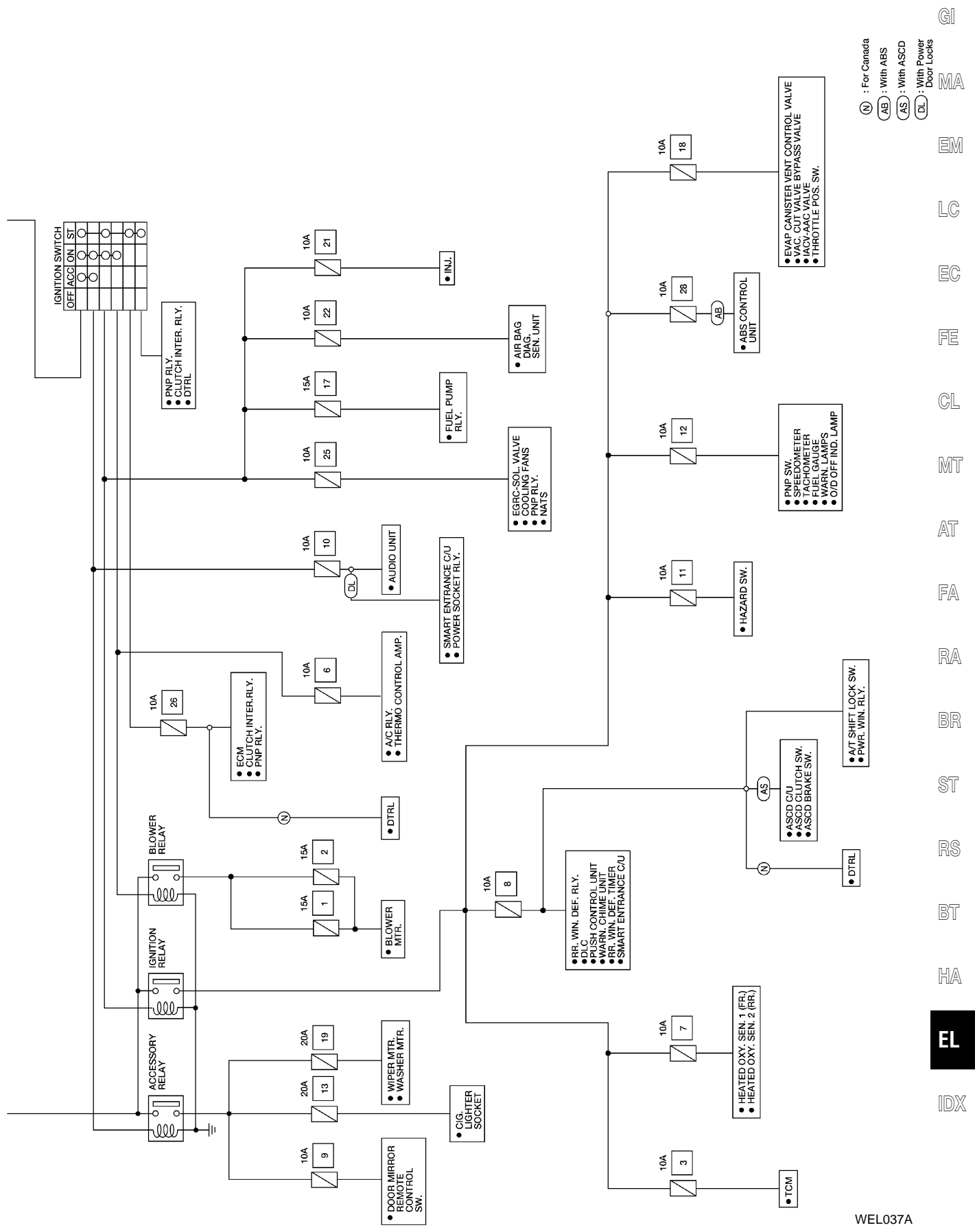
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POWER SUPPLY ROUTING Schematic (Cont'd)



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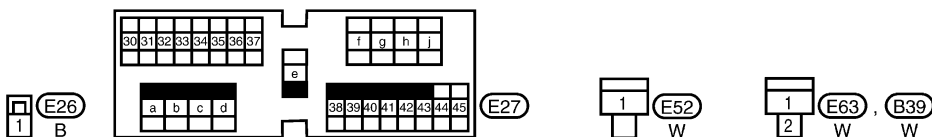
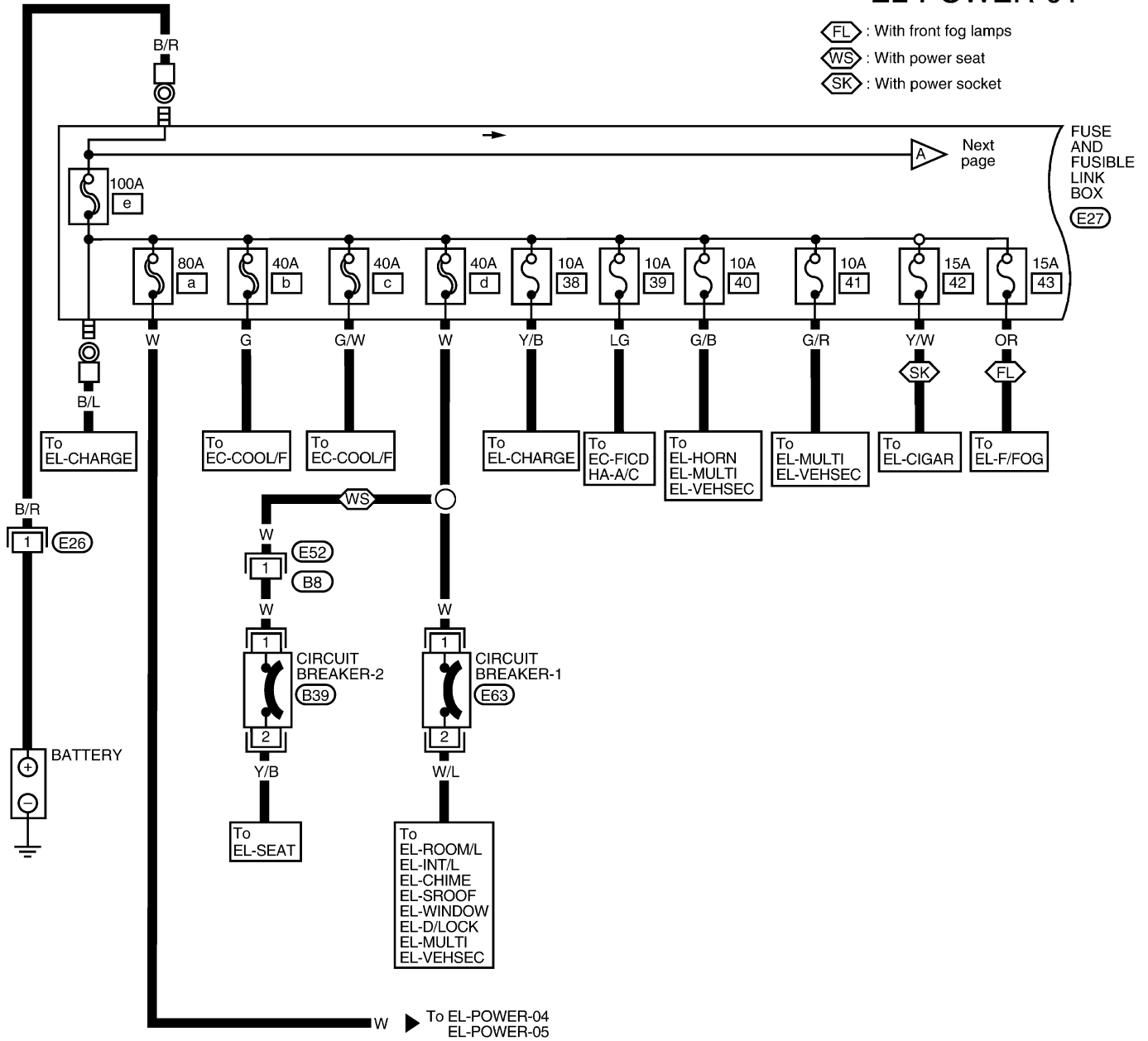
POWER SUPPLY ROUTING

Wiring Diagram — POWER —

BATTERY POWER SUPPLY – IGNITION SW. IN ANY POSITION

NOTE: For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-20.

EL-POWER-01

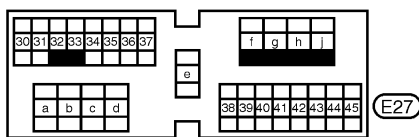
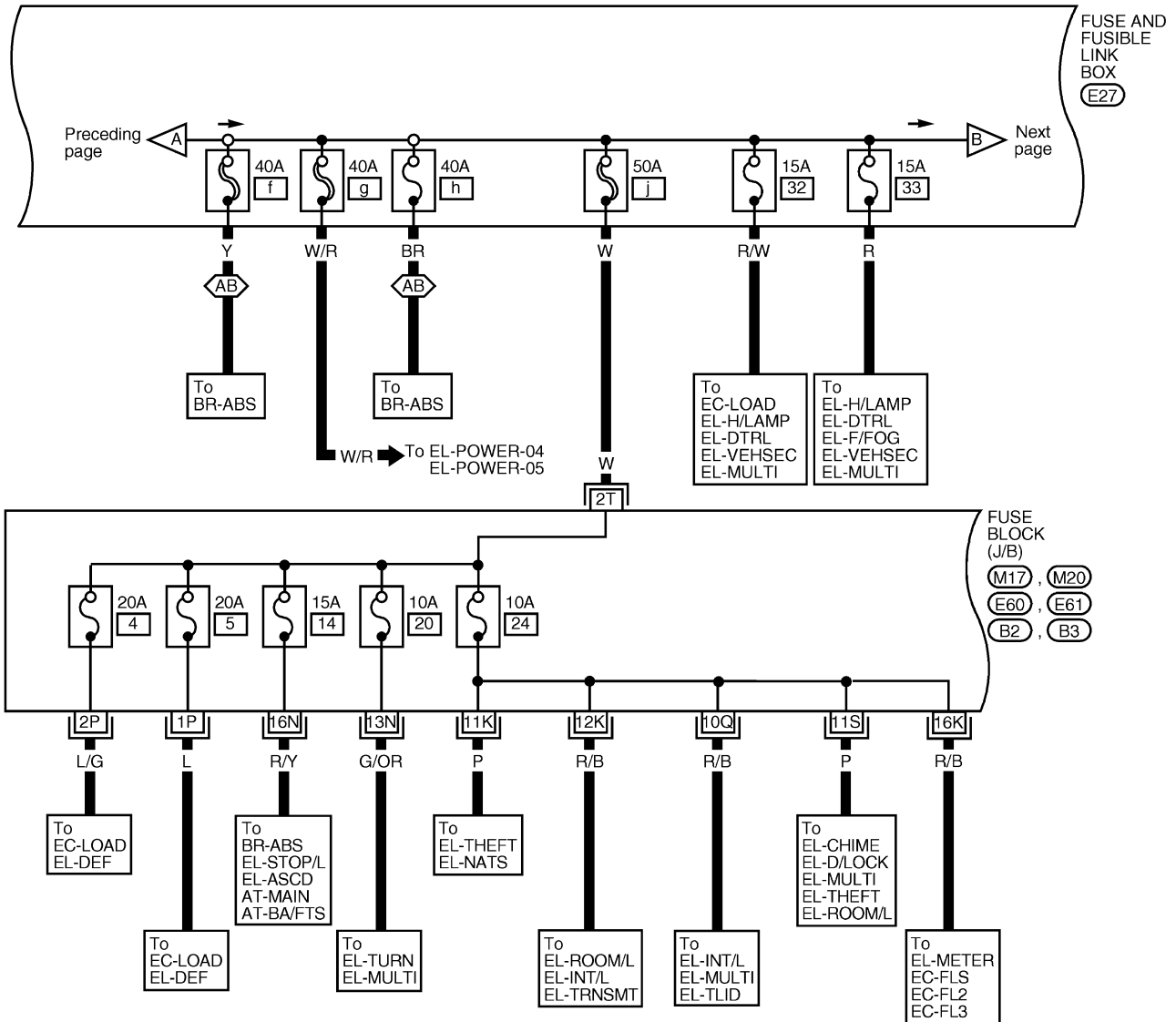


POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

EL-POWER-02

AB : With ABS



Refer to the following.

(M17), (M20), (E60),
(E61), (B2), (B3)

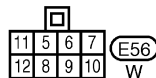
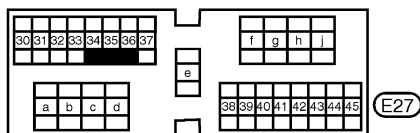
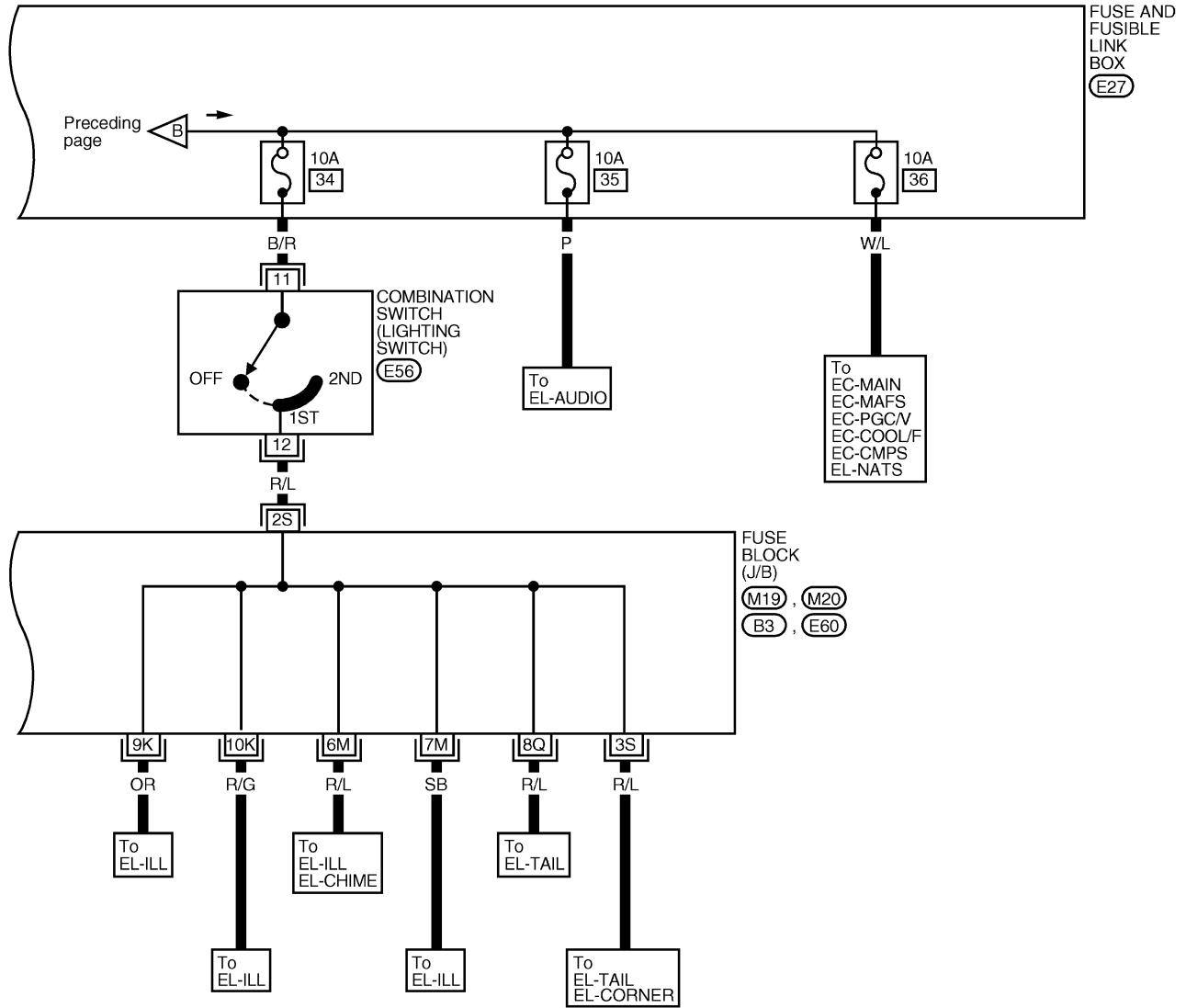
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23		
24	25	26		
27	28	29		

FUSE BLOCK- JUNCTION BOX (J/B)

POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

EL-POWER-03



Refer to the following.

(M19), (M20), (B3),
(E60)

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

FUSE BLOCK- JUNCTION BOX (J/B)

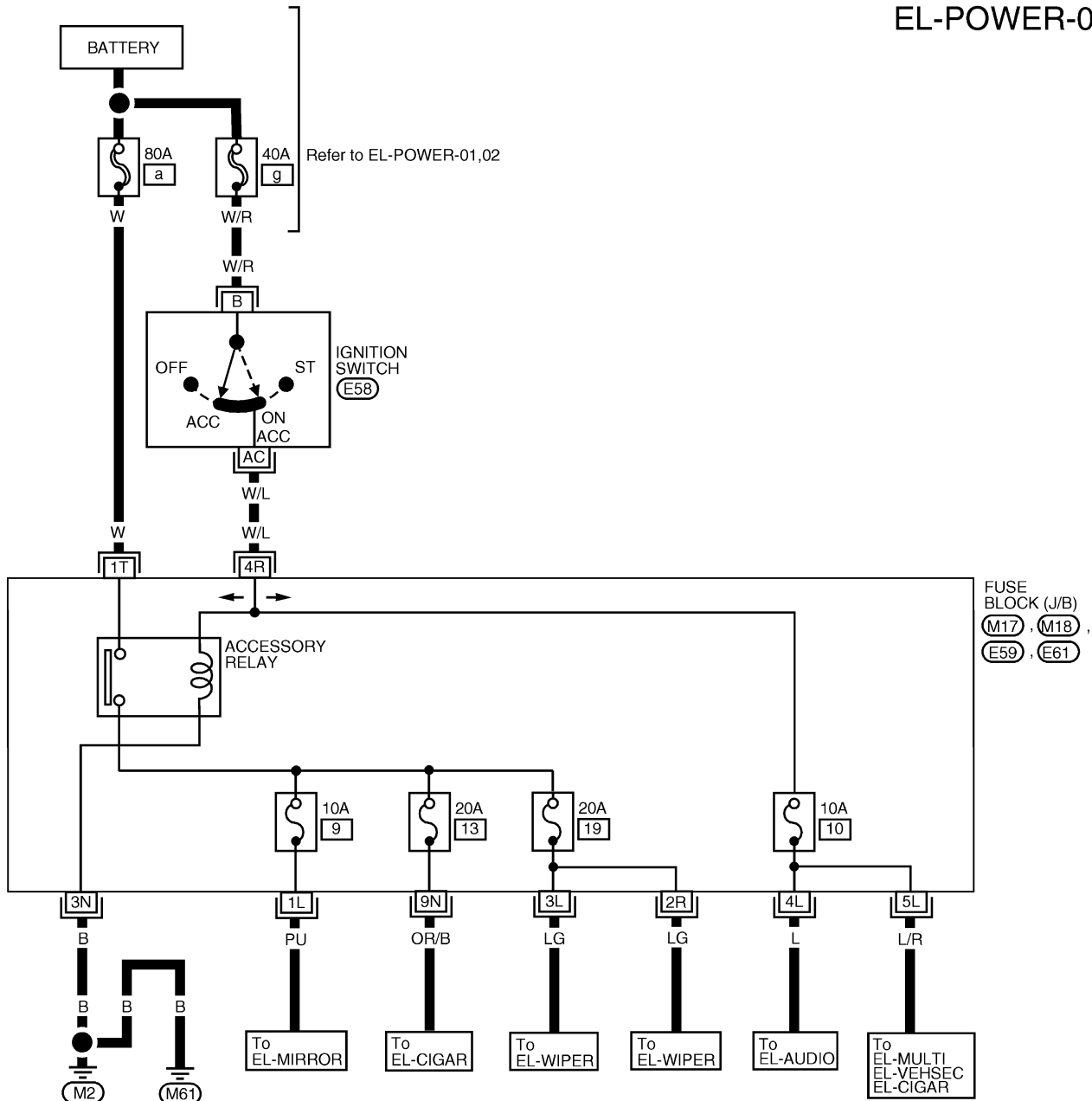
POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

ACCESSORY POWER SUPPLY – IGNITION SW. IN “ACC” OR “ON”

NOTE: For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-20.

EL-POWER-04



Refer to the following.

M17, M18, E59, E61				
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23		
24	25	26		
27	28	29		

FUSE BLOCK- JUNCTION BOX (J/B)

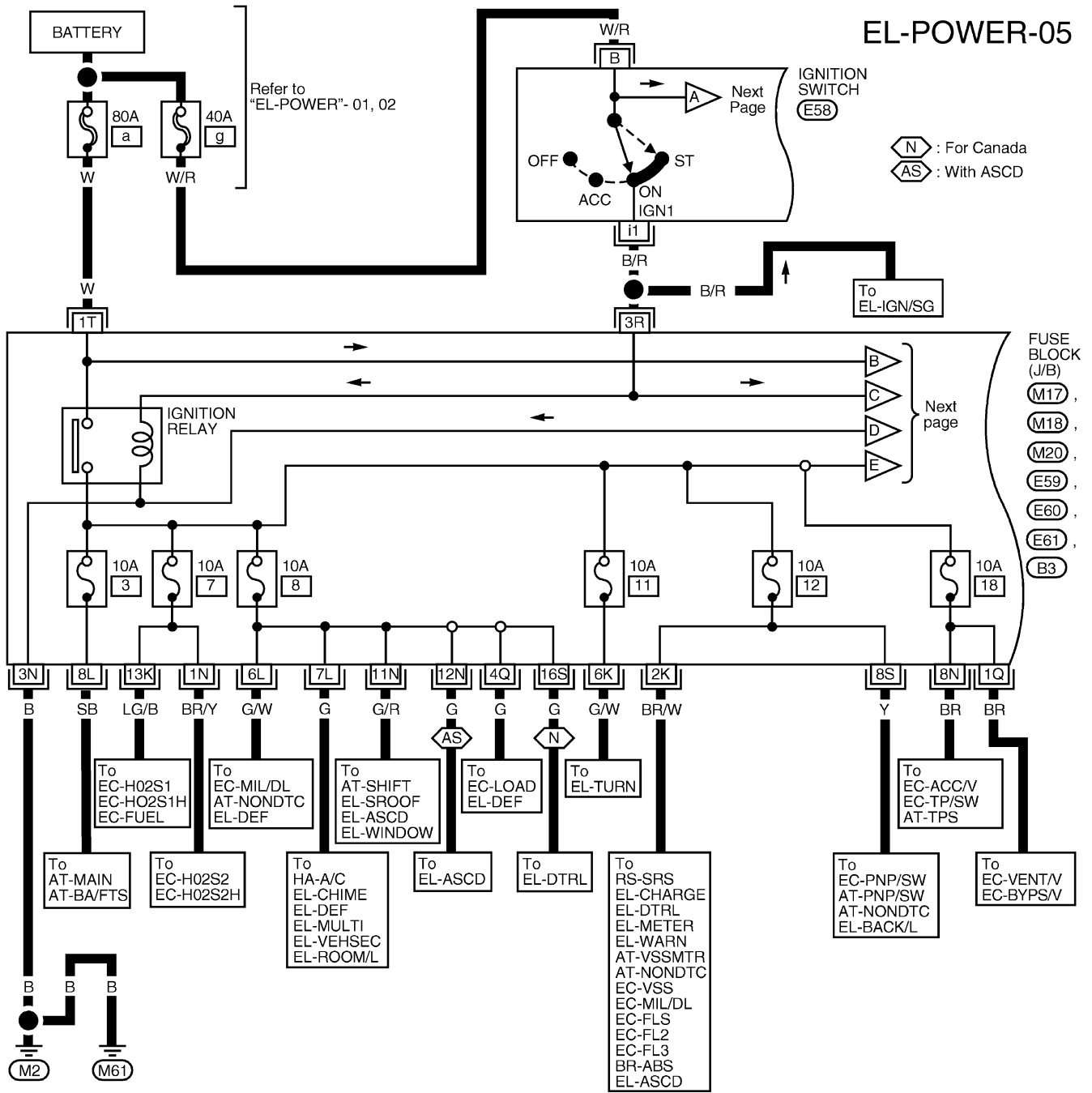
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POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

IGNITION POWER SUPPLY – IGNITION SW. IN “ON” AND/OR “START”

NOTE: For detailed ground distribution information, refer to “GROUND DISTRIBUTION”, EL-20.



Refer to the following.

(M17), (M18), (M20), (E59)

(E60), (E61), (B3)

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

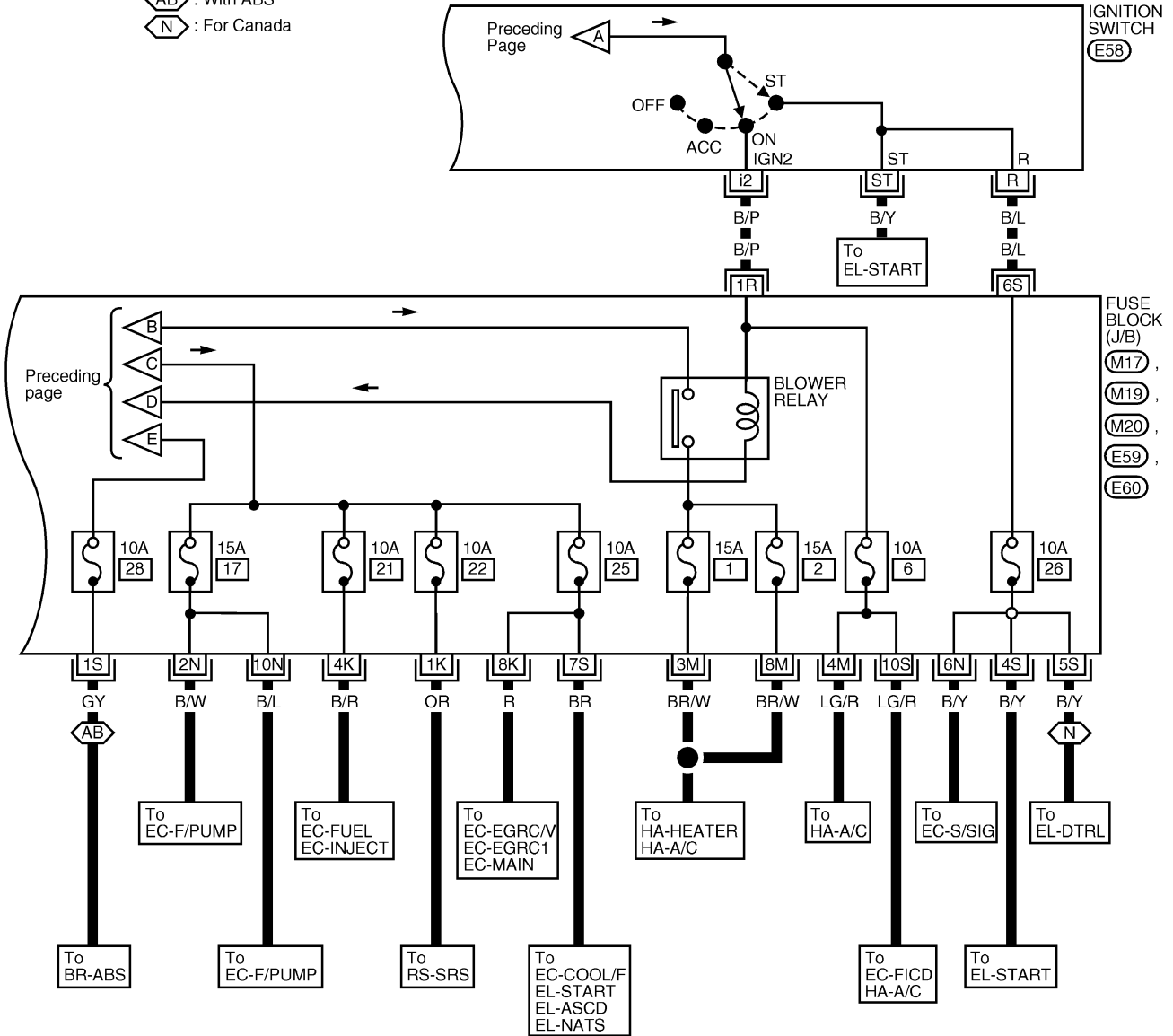
FUSE BLOCK- JUNCTION BOX (J/B)

POWER SUPPLY ROUTING

Wiring Diagram — POWER — (Cont'd)

EL-POWER-06

AB : With ABS
N : For Canada



Refer to the following.

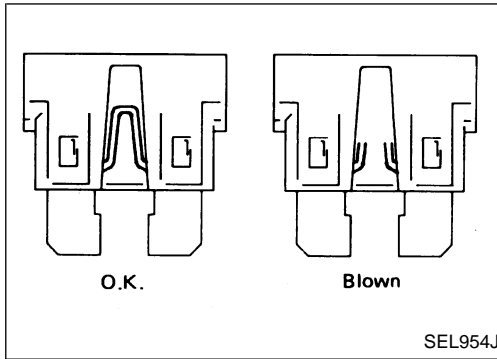
(M17), (M19), (M20), (E59), (E60)

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

FUSE BLOCK - JUNCTION BOX (J/B)

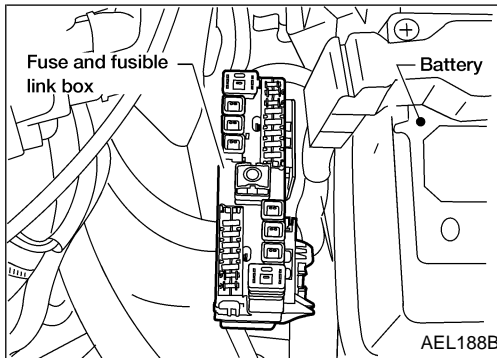
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POWER SUPPLY ROUTING



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.

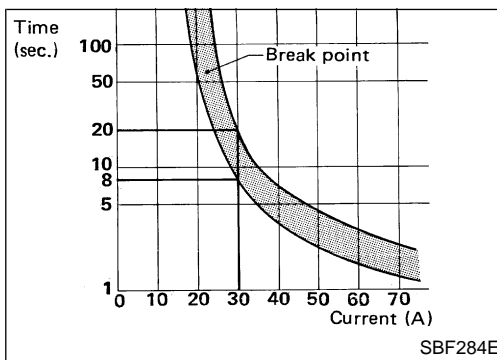


Fusible Link

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

CAUTION:

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



Circuit Breaker Inspection

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

POWER SUPPLY ROUTING

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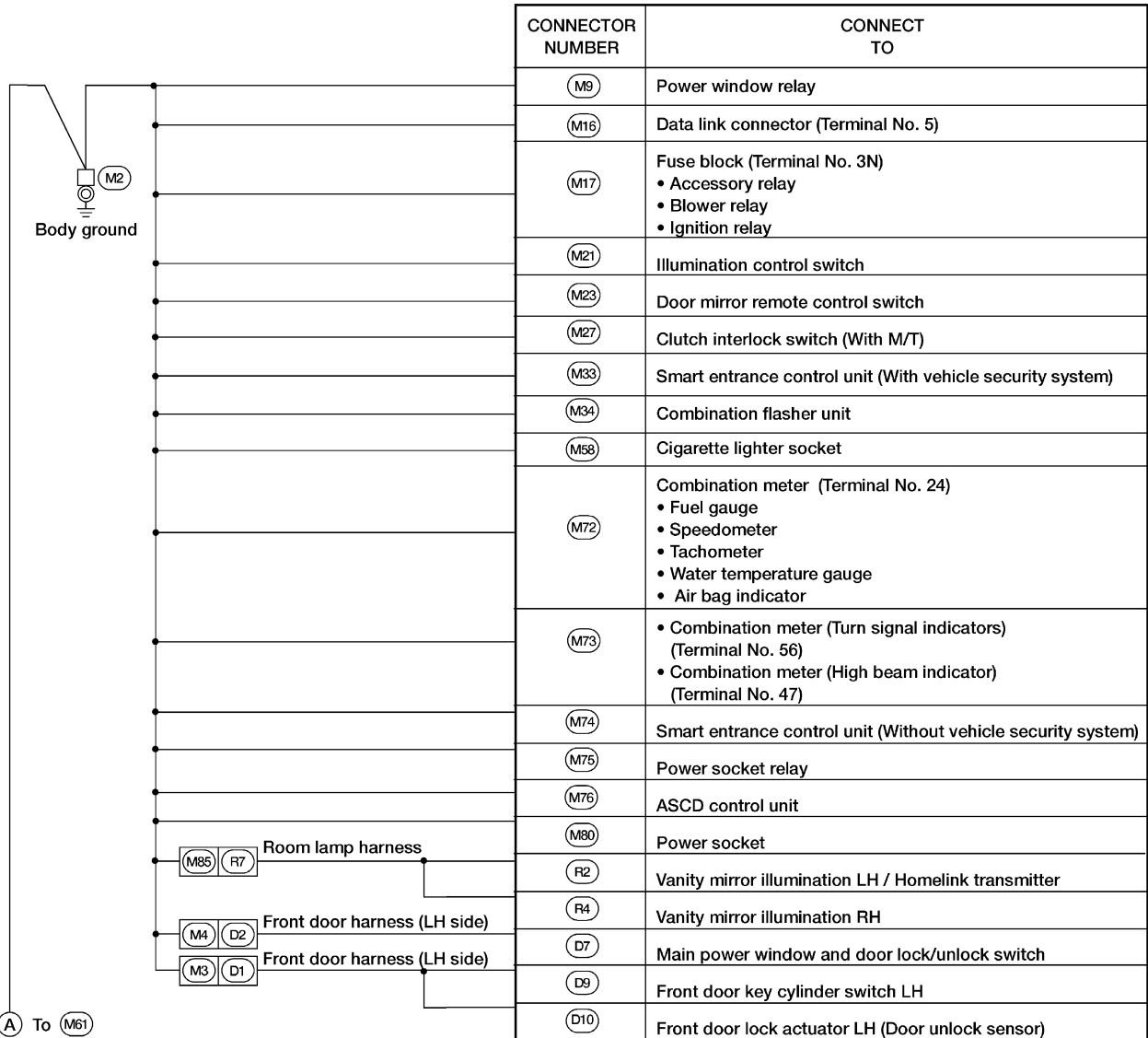
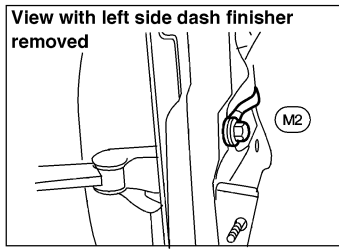
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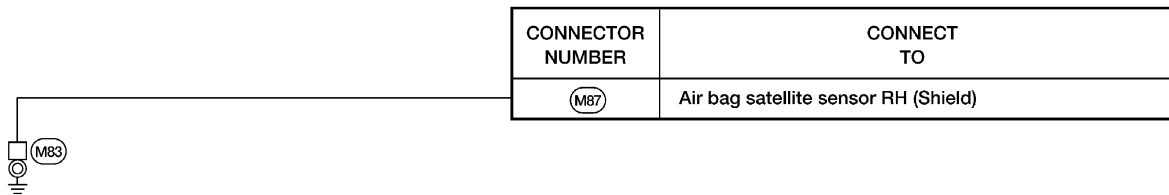
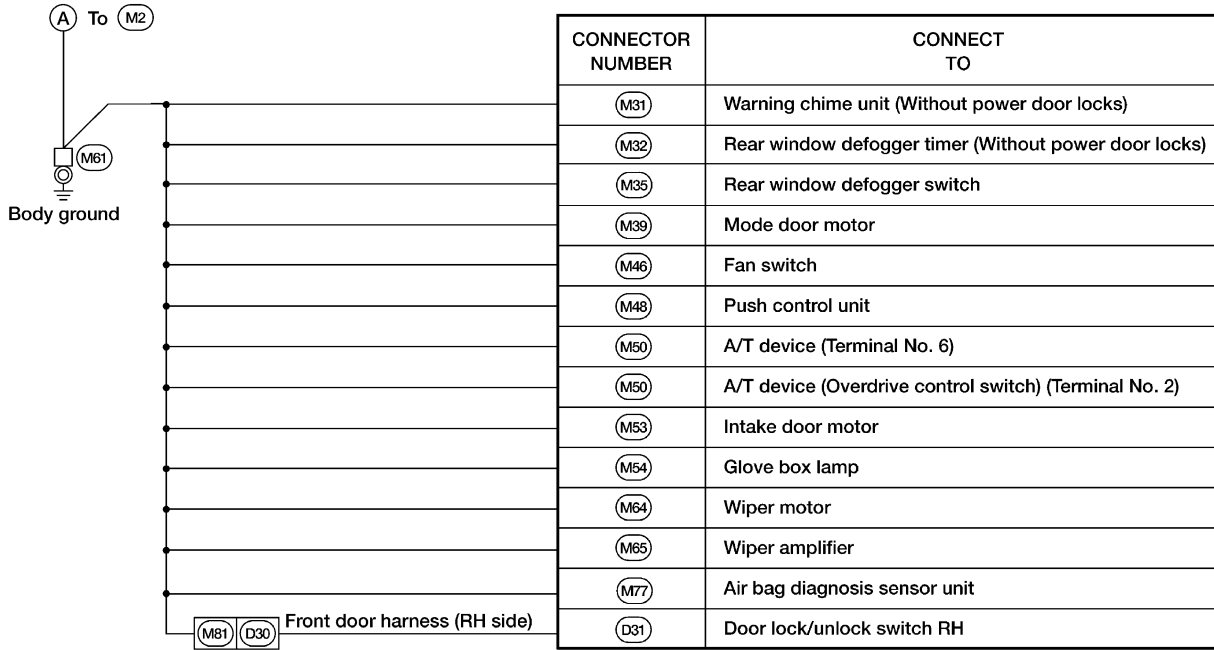
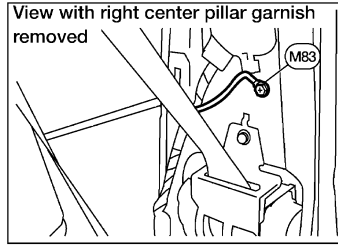
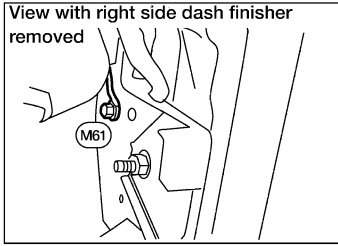
GROUND DISTRIBUTION

Main Harness



GROUND DISTRIBUTION

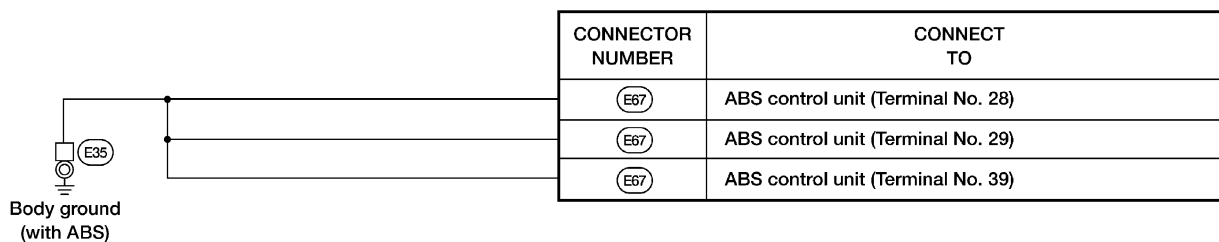
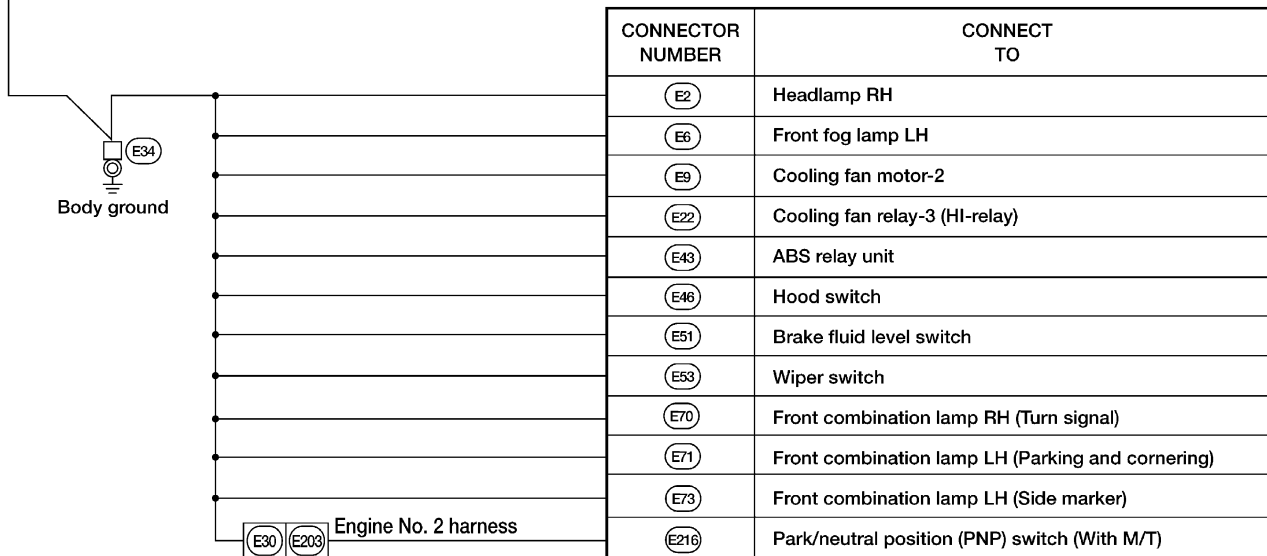
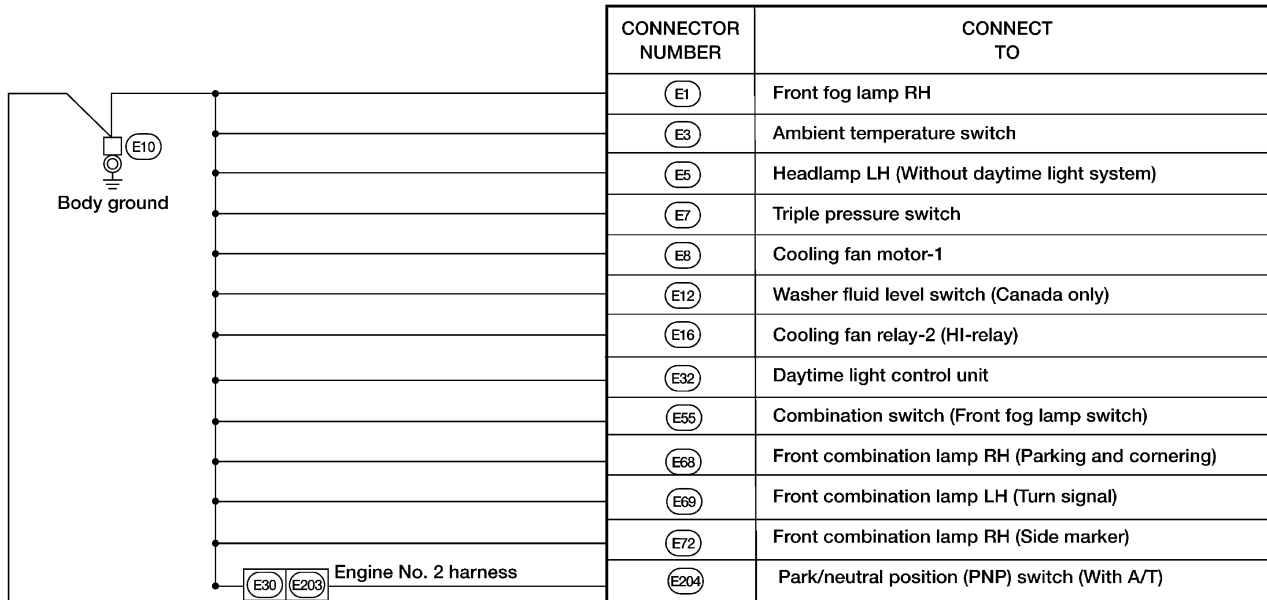
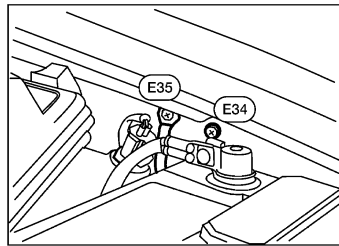
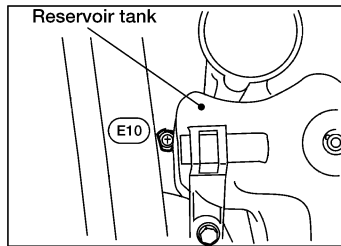
Main Harness (Cont'd)



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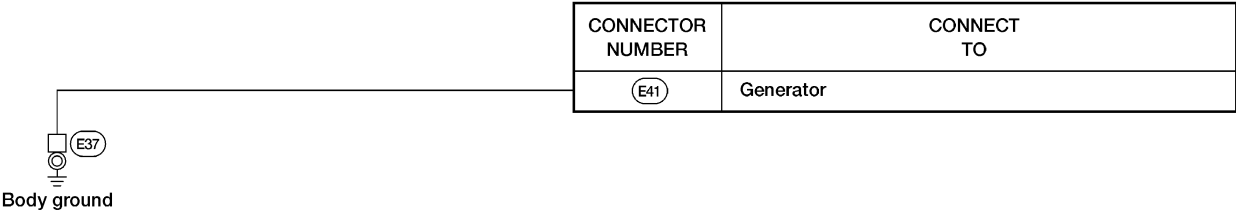
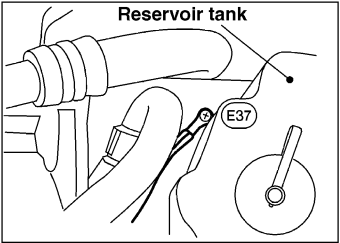
GROUND DISTRIBUTION

Engine Room Harness



GROUND DISTRIBUTION

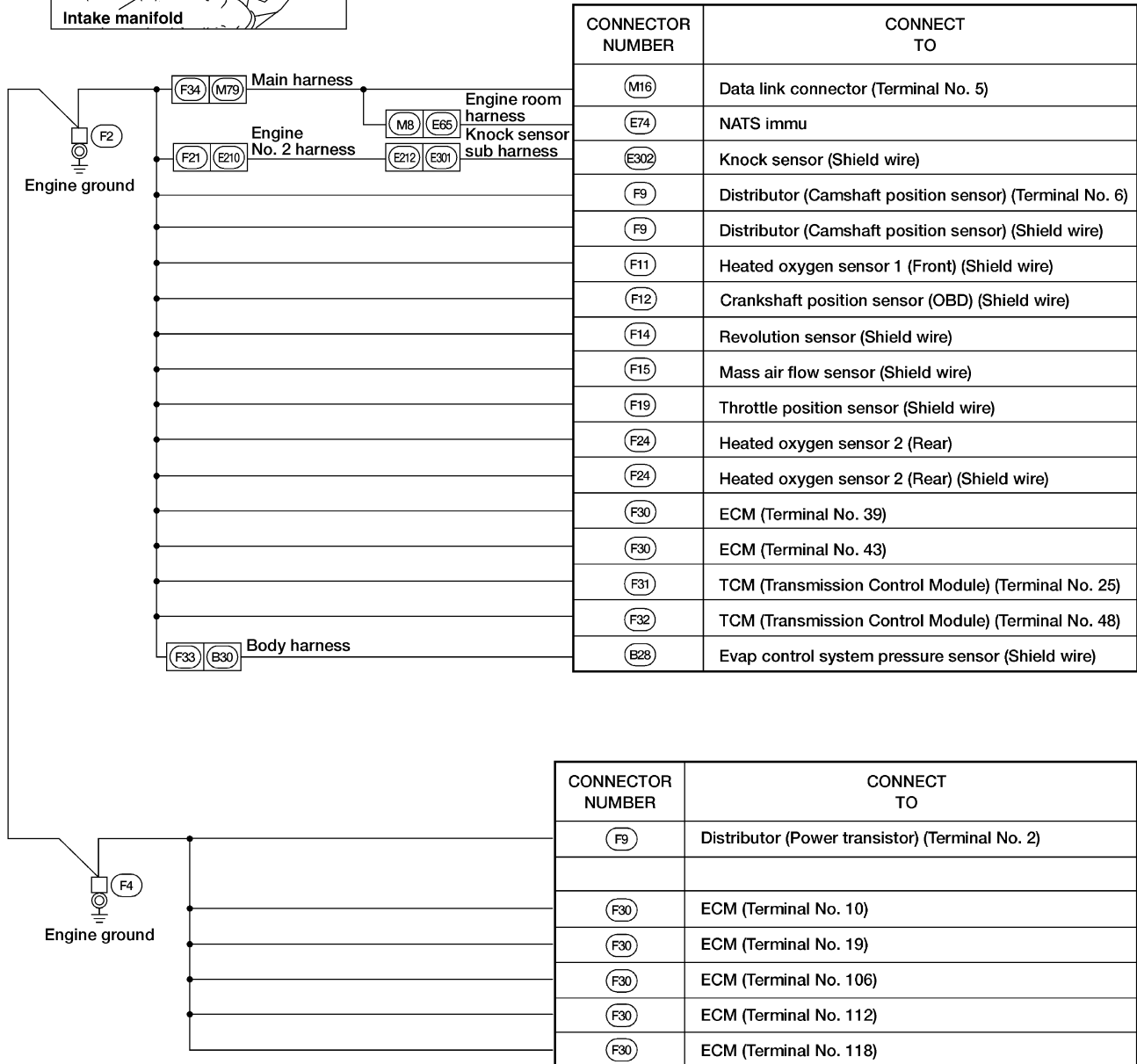
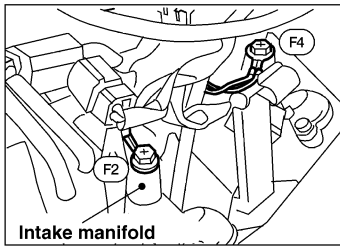
Engine Room Harness (Cont'd)



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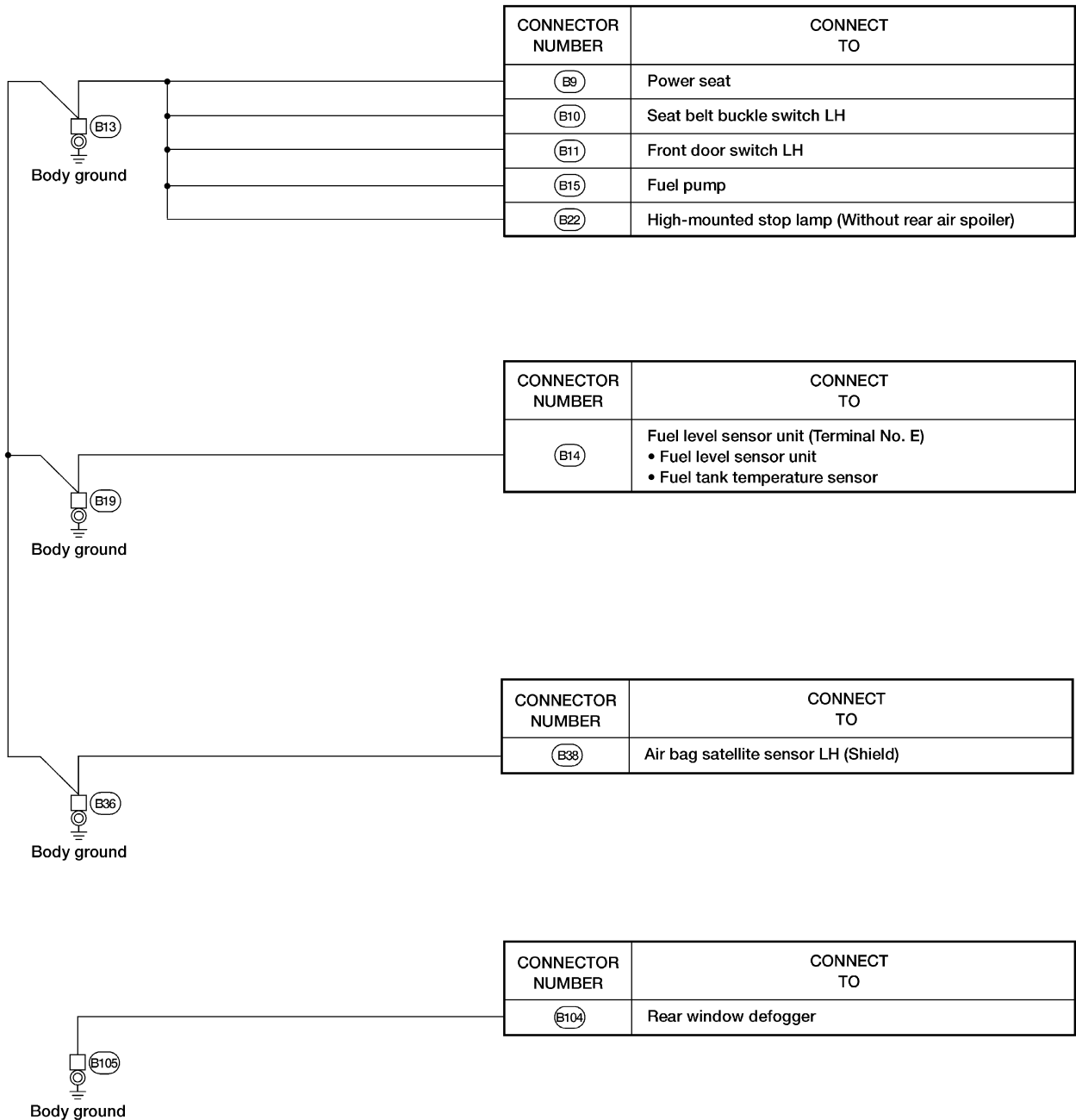
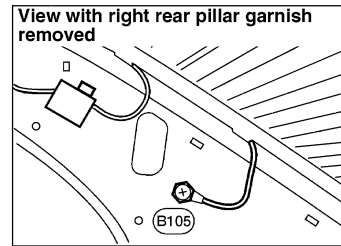
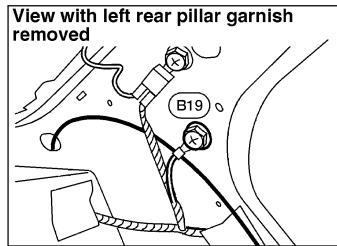
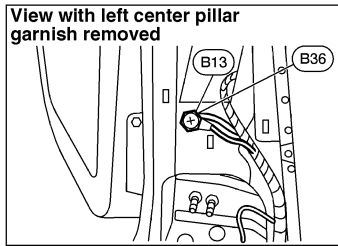
GROUND DISTRIBUTION

Engine Control Harness



GROUND DISTRIBUTION

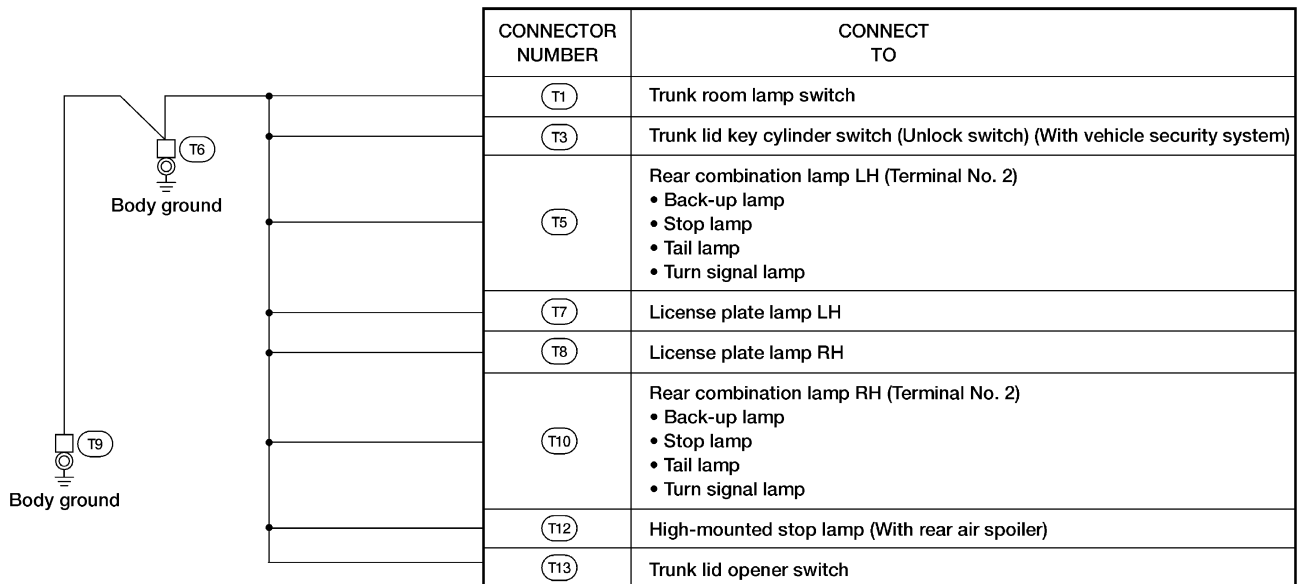
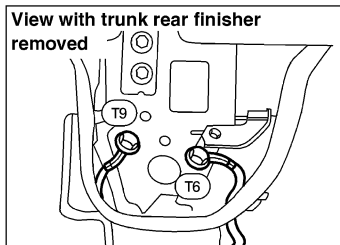
Body Harness



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GROUND DISTRIBUTION

Tail Harness



BATTERY

CAUTION:

If it becomes necessary to start the engine with a booster battery and jumper cables:

- Use a 12-volt booster battery.
- After connecting battery cables, ensure that they are tightly clamped to battery terminals for good contact.
- Never add distilled water through the hole used to check specific gravity.

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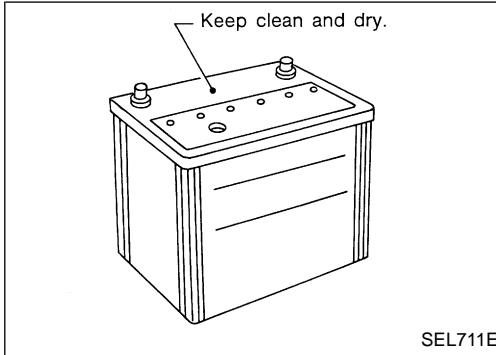
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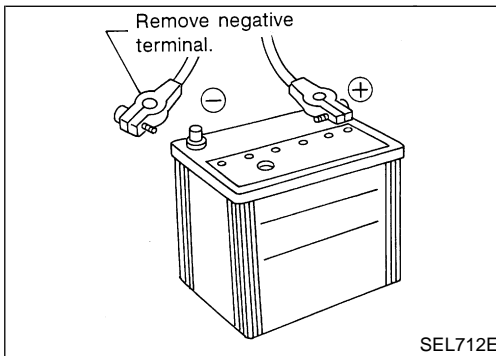


How to Handle Battery

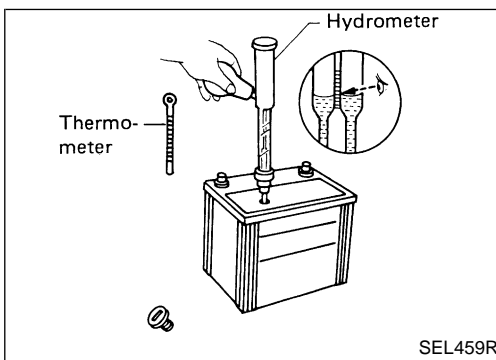
METHODS OF PREVENTING OVER-DISCHARGE

The following precautions must be taken to prevent over-discharging a battery.

- The battery surface (particularly its top) should always be kept clean and dry.
- The terminal connections should be clean and tight.
- At every routine maintenance, check the electrolyte level.



- When the vehicle is not going to be used over a long period of time, disconnect the negative battery terminal. (If the vehicle has an extended storage switch, turn it off.)



- Check the charge condition of the battery. Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent overdischarge.

BATTERY

How to Handle Battery (Cont'd)

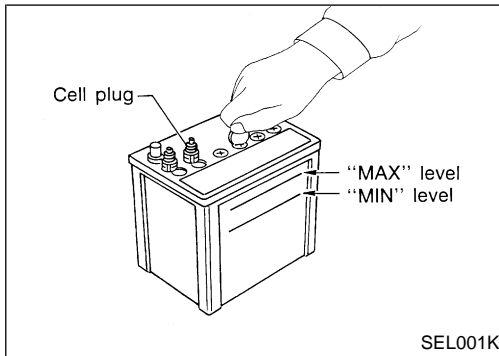
CHECKING ELECTROLYTE LEVEL

WARNING:

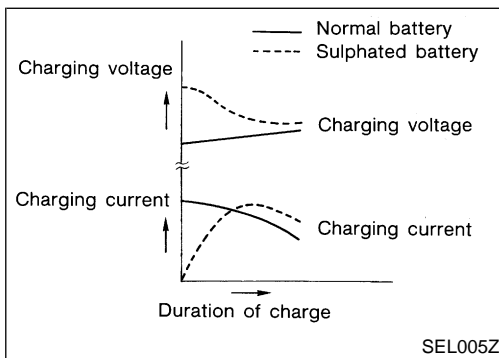
Do not allow battery fluid to come in contact with skin, eyes, fabrics, or painted surfaces. After touching a battery, do not touch or rub your eyes until you have thoroughly washed your hands. If the acid contacts the eyes, skin or clothing, immediately flush with water for 15 minutes and seek medical attention.

Normally the battery does not require additional water. However, when the battery is used under severe conditions, adding distilled water may be necessary during the battery life.

- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.



SEL001K



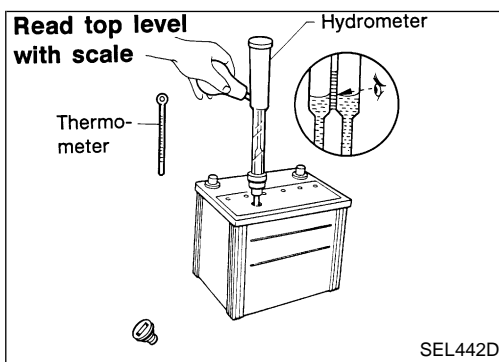
SEL005Z

SULPHATION

A battery will be completely discharged if it is left unattended for a long time and the specific gravity becomes less than 1.100. This may result in sulphation on the cell plates.

To determine if a battery has been "sulphated", note its voltage and current when charging it. As shown in the figure, less current and higher voltage are observed in the initial stage of charging sulphated batteries.

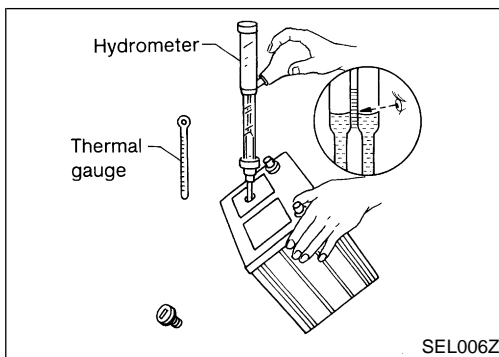
A sulphated battery may sometimes be brought back into service by means of a long, slow charge, 12 hours or more, followed by a battery capacity test.



SEL442D

SPECIFIC GRAVITY CHECK

1. Read hydrometer and thermometer indications at eye level.



SEL006Z

- When electrolyte level is too low, tilt battery case to raise it for easy measurement.

BATTERY

How to Handle Battery (Cont'd)

2. Use the chart below to correct your hydrometer reading according to electrolyte temperature.

Hydrometer temperature correction

Battery electrolyte temperature °C (°F)	Add to specific gravity reading
71 (160)	0.032
66 (150)	0.028
60 (140)	0.024
54 (129)	0.020
49 (120)	0.016
43 (110)	0.012
38 (100)	0.008
32 (90)	0.004
27 (80)	0
21 (70)	-0.004
16 (60)	-0.008
10 (50)	-0.012
4 (39)	-0.016
-1 (30)	-0.020
-7 (20)	-0.024
-12 (10)	-0.028
-18 (0)	-0.032

Corrected specific gravity	Approximate charge condition
1.260 - 1.280	Fully charged
1.230 - 1.250	3/4 charged
1.200 - 1.220	1/2 charged
1.170 - 1.190	1/4 charged
1.140 - 1.160	Almost discharged
1.110 - 1.130	Completely discharged

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BATTERY

How to Handle Battery (Cont'd)

CHARGING THE BATTERY

CAUTION:

- Do not “quick charge” a fully discharged battery.
- Keep the battery away from open flame while it is being charged.
- When connecting the charger, connect the leads first, then turn on the charger. Do not turn on the charger first, as this may cause a spark.
- If battery electrolyte temperature rises above 60°C (140°F), stop charging. Always charge battery at a temperature below 60°C (140°F).

Charging rates

Amps	Time
50	1 hour
25	2 hours
10	5 hours
5	10 hours

Do not charge at more than 50 ampere rate.

Note: The ammeter reading on your battery charger will automatically decrease as the battery charges. This indicates that the voltage of the battery is increasing normally as the state of charge improves. The charging amps indicated above refer to initial charge rate.

- If, after charging, the specific gravity of any two cells varies more than .050, the battery should be replaced.
- After the battery is charged, always perform a capacity test to assure that the battery is serviceable.

Service Data and Specifications (SDS)

Applied area		USA	Canada
Type		55D23R	65D26R
Capacity	V-AH	12-60	12-65
Cold cranking current (For reference value)	A	356	413

Trouble Diagnoses with Battery/Starting/Charging System Tester

CAUTION:

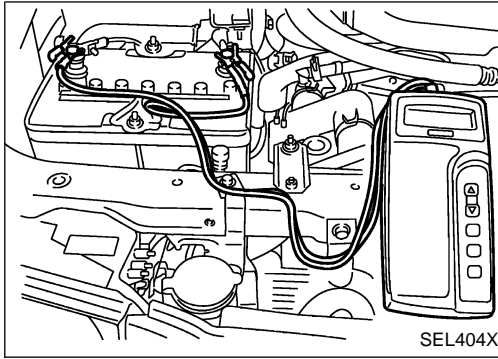
When working with batteries, always wear appropriate eye protection.

NOTE:

- To ensure a complete and thorough diagnosis, the battery, starter and generator test segments must be done as a set from start to finish.
- If battery surface charge is detected while testing, the tester will prompt you to turn on the headlights to remove the surface charge.
- If necessary, the tester will prompt you to determine if the battery temperature is above or below 0°C (32°F). Choose the appropriate selection by pressing the up or down arrow button, then press “ENTER” to make the selection.

BATTERY

Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

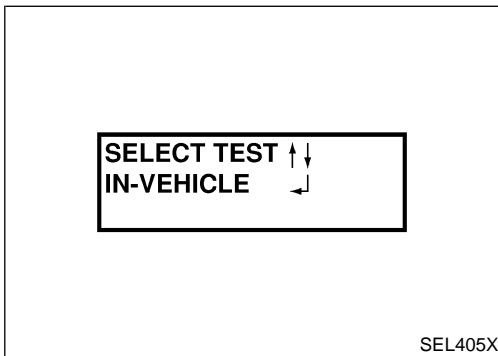


1. Turn off all loads on the vehicle electrical system. Clean or repair as necessary.
2. Visually inspect the battery, battery terminals and cable ends with ignition switch in "OFF" position.

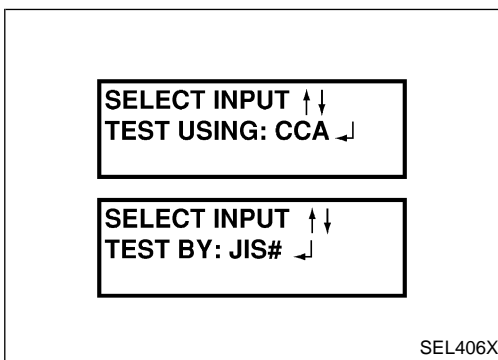
NOTE:

The contact surface between the battery terminals, cable ends and tester leads must be clean for a valid test. A poor connection will prevent testing and a "CHECK CONNECTION" message will appear during the test procedures. If this occurs clean the battery post and terminals, reconnect them and restart the test.

3. Connect the red tester lead clamp to the positive battery terminal, and the black to the negative terminal.



4. The tester will turn on automatically. Using the arrow keys, select "IN VEHICLE" on the tester and then press the "ENTER" key.



5. Locate the battery type and rating stamped or written on the top case of the battery to be tested.

NOTE:

The battery type and rating will have either of the following.

CCA: Cold Cranking Amps (490 CCA, 550 CCA, etc.)

JIS: Japanese Industrial Standard.

Battery is stamped with a number such as:

80D26L: 80 (rank of output), D (physical size-depth), 26 (width in cm). The last character L (post configuration) is not input into the tester.

The tester requires the rating for the battery be entered exactly as it is written or stamped on the battery. Do not attempt a CCA conversion for JIS stamped batteries. JIS must be input directly.

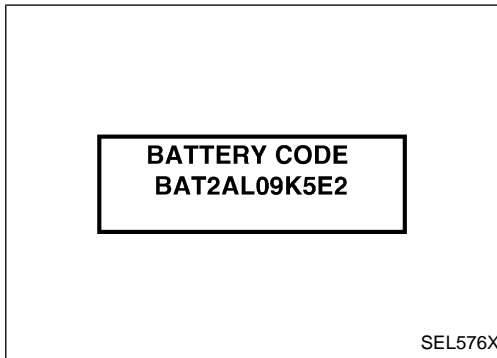
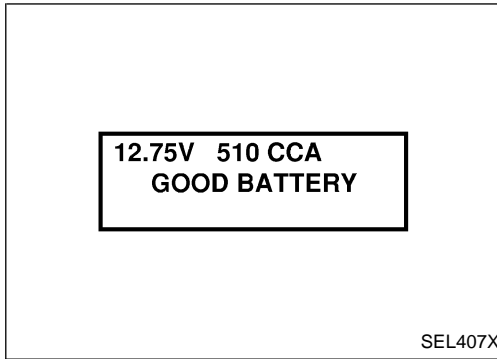
6. Using the arrow and "ENTER" keys alternately, select the battery type and rating.

NOTE:

The tester lists five choices; CCA, JIS, IEC, DIN, and EN. Only use CCA or JIS.

BATTERY

Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)



7. Press “ENTER” to begin the test. Diagnosis results are displayed on the tester. Refer to “DIAGNOSTIC RESULT ITEM CHART” EL-32.

8. Press “ENTER”, then test output code is displayed. Record the test output code on the repair order.

9. Toggle back to the “DIAGNOSTIC SCREEN” for test results.

NOTE:

- If necessary, the tester will ask the user to determine if the battery has just been charged. Choose the appropriate selection by pressing the up or down arrow button and then press the “ENTER” button to make the selection.
- When testing a battery installed in a vehicle that has recently been driven, select “BEFORE CHANGE”.
- If the battery has just been slow charged due to a “CHARGE & RETEST” decision by the tester, and the tester asks the user “BEFORE CHARGE/AFTER CHARGE”, select “AFTER CHARGE”.

DIAGNOSTIC RESULT ITEM CHART

Diagnostic Item	Service Procedure
GOOD BATTERY	Battery is OK, go to “Trouble Diagnoses with Battery/Starting/Charging System Tester”, EL-36.
REPLACE BATTERY	Replace battery. Before replacing battery, clean the battery cable clamps and battery posts. Perform battery test again with Battery/Starting/Charging system tester. If second test result is “Replace Battery”, then do so. Perform battery test again to confirm repair.
BAD CELL-REPLACE	Replace the battery. Perform battery test again with Battery/Starting/Charging system tester to confirm repair.
GOOD-RECHARGE	Perform the slow battery charging procedure. (Initial rate of charge is 10A for 12 hours.) Perform battery test again with Battery/Starting/Charging system tester.
CHARGE & RETEST	Perform the slow battery charging. (Initial rate of charge is 10A for 12 hours.) Perform battery test again with Battery/Starting/Charging system tester to confirm repair. NOTE: If the tester asks the user “BEFORE CHARGE/AFTER CHARGE”, select “AFTER CHARGE”.

STARTING SYSTEM

System Description

M/T MODELS

Power is supplied at all times:

- to ignition switch terminal **(B)**
- through 40A fusible link (letter **(g)**, located in the fuse and fusible link box).

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

- through terminal **(ST)** of the ignition switch
- to clutch interlock relay terminal **(3)**.

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

- through 10A fuse [No. **(26)**, located in the fuse block (J/B)]
- to clutch interlock relay terminal **(1)**.

Ground is supplied to clutch interlock relay terminal **(2)**, when the clutch pedal is depressed through the clutch interlock switch and body grounds **(M2)** and **(M61)**.

The clutch interlock relay is energized and power is supplied:

- from terminal **(5)** of the clutch interlock relay
- to terminal **(S)** of the starter motor windings.

The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

A/T MODELS

Power is supplied at all times:

- through 40A fusible link (letter **(g)**, located in the fuse and fusible link box)
- to ignition switch terminal **(B)**.

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

- through 10A fuse [No. **(25)**, located in the fuse block (J/B)]
- to PNP relay terminal **(1)**.

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

- from ignition switch terminal **(ST)**
- to PNP relay terminal **(6)**.

With the selector lever in the P or N position, ground is supplied:

- from PNP switch terminal **(1)**
- to PNP relay terminal **(2)**
- through PNP switch terminal **(2)**
- to body grounds **(E10)** and **(E34)**.

The PNP relay is energized and power is supplied:

- from PNP relay terminal **(7)**
- to terminal **(S)** of the starter motor windings.

The starter motor plunger closes and provides a closed circuit between the battery and starter motor. The starter motor is grounded to the engine block. With power and ground supplied, cranking occurs and the engine starts.

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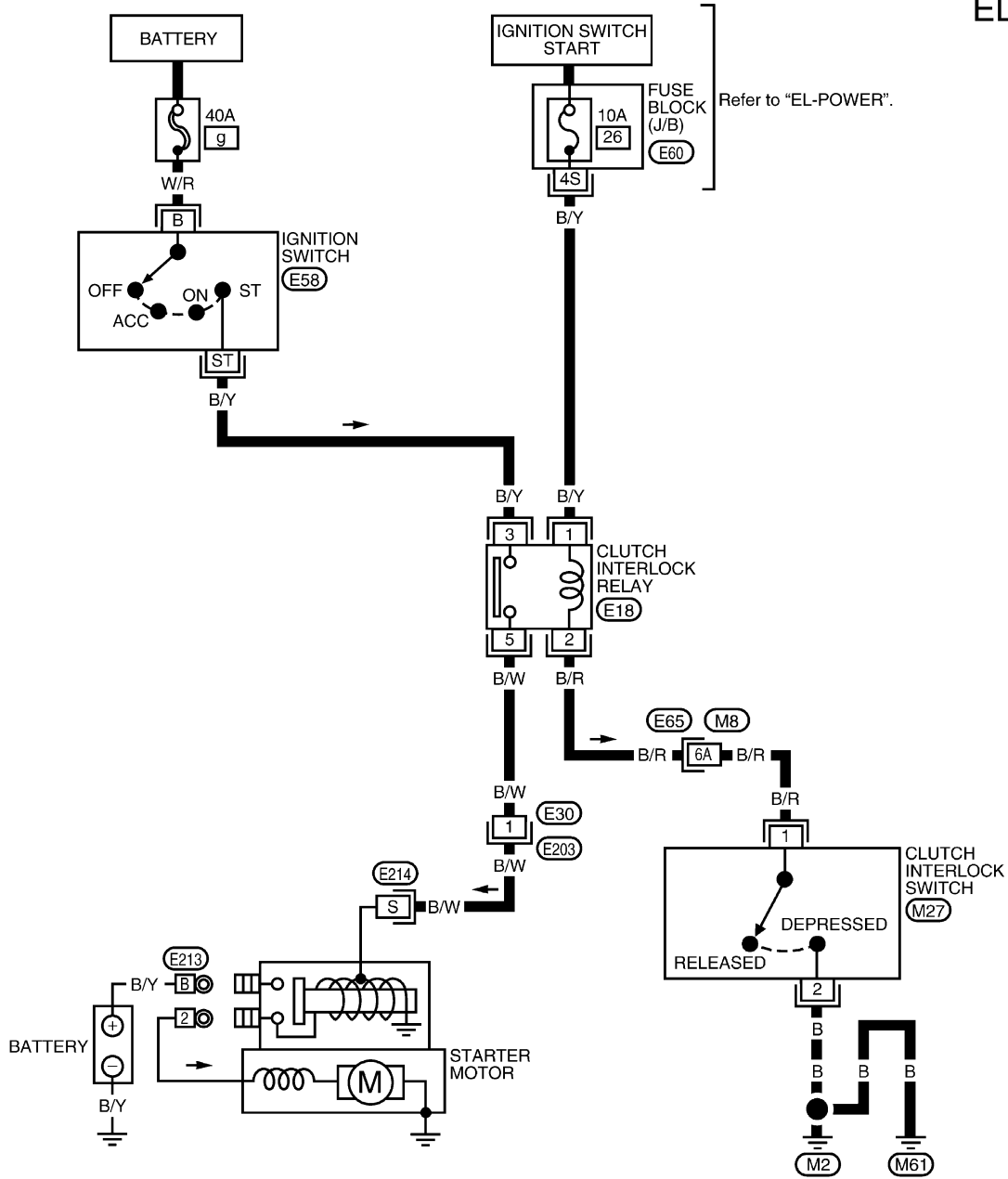
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STARTING SYSTEM

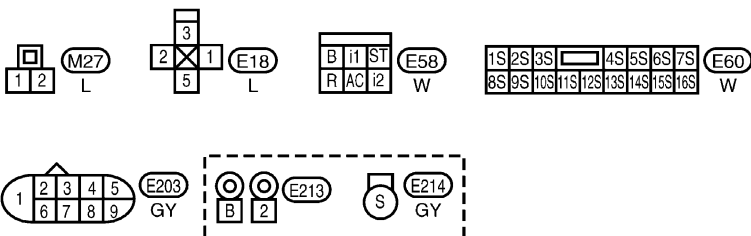
Wiring Diagram — START —

M/T MODELS

EL-START-01



Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)



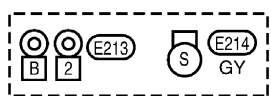
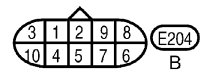
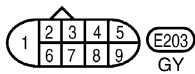
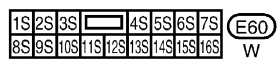
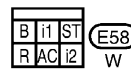
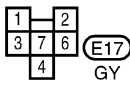
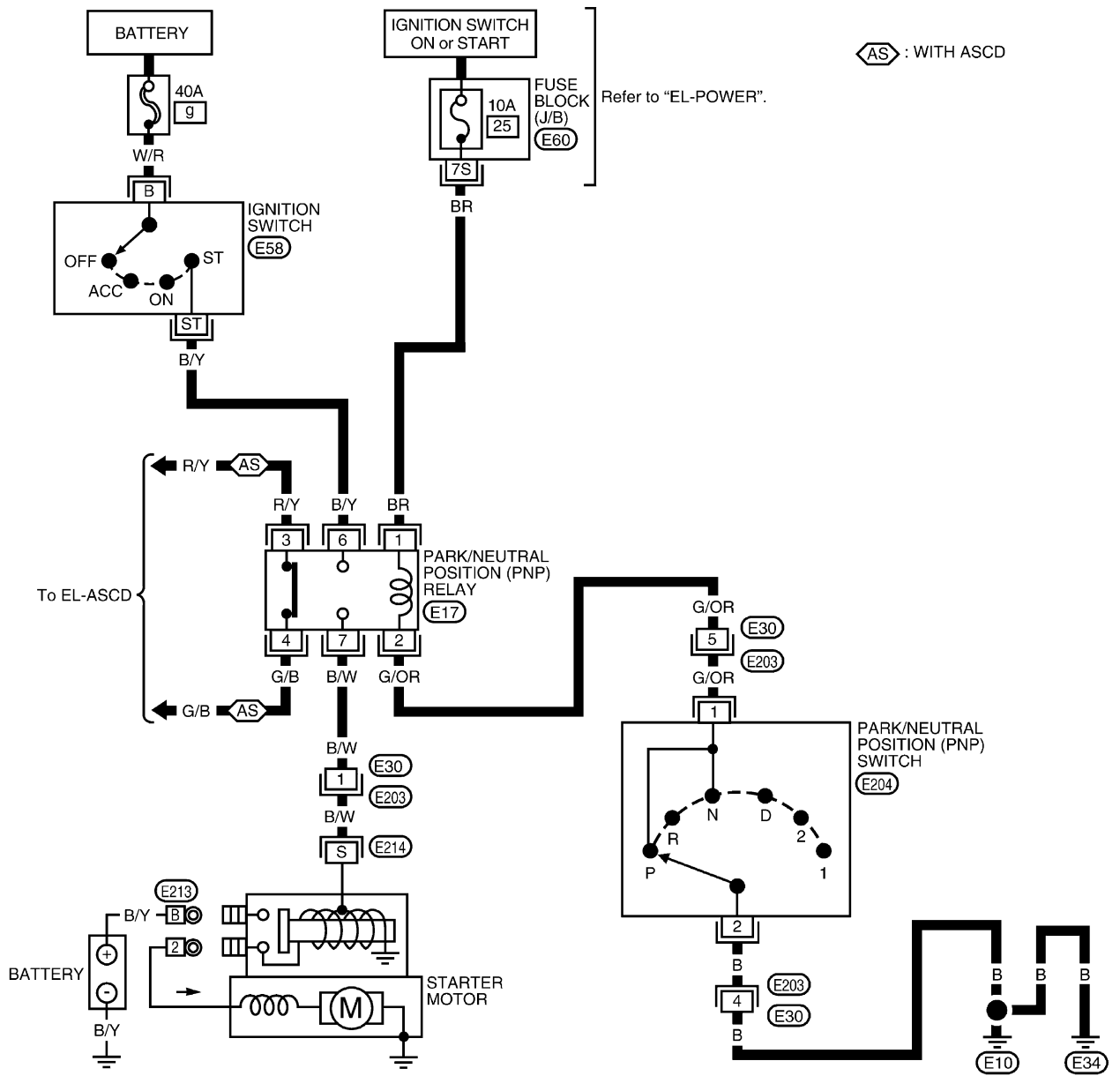
STARTING SYSTEM

Wiring Diagram — START — (Cont'd)

A/T MODELS

EL-START-02

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STARTING SYSTEM

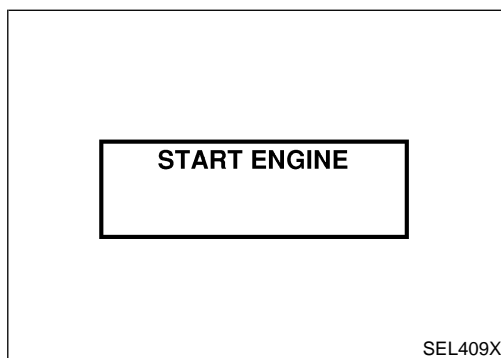
Trouble Diagnoses with Battery/Starting/Charging System Tester

NOTE:

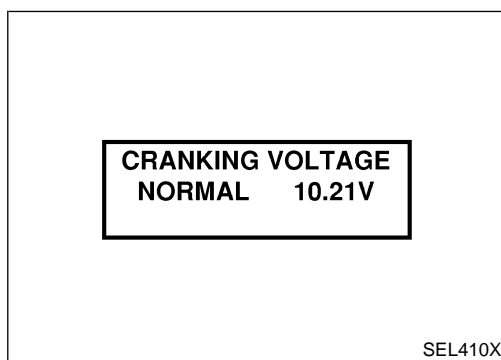
To ensure a complete and thorough diagnosis, the battery, starter and generator test segments must be done as a set from start to finish.



1. Turn off all loads on the vehicle electrical system.
2. Perform battery test with Battery/Starting/Charging system tester. Refer to "Trouble Diagnoses with Battery/Starting/Charging System Tester", EL-30.
3. Press "ENTER" to begin the starting system test.



4. Start the engine.



5. Diagnosis result is displayed on the tester. Refer to "DIAGNOSTIC RESULT ITEM CHART", EL-37.

NOTE:

- If the starter performs normally but the engine does not start, perform engine diagnosis.
- For intermittent "NO CRANK" or "NO STARTER OPERATION" incidents, go to "DIAGNOSTIC PROCEDURE 2", EL-40.

STARTING SYSTEM

Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

DIAGNOSTIC RESULT ITEM CHART

Diagnostic Item	Service Procedure
CRANKING VOLTAGE NORMAL	Go to "WORK FLOW", EL-38.
CRANKING VOLTAGE LOW	Go to "WORK FLOW", EL-38.
CHARGE BATTERY	Perform the slow battery charging procedure. (Initial rate of charge is 10A for 12 hours.) Perform battery test again with Battery/Starting/Charging system tester. Refer to "Trouble Diagnoses with Battery/Starting/Charging System Tester," EL-30.
REPLACE BATTERY	Before replacing battery, clean the battery cable clamps and battery posts. Perform battery test again with Battery/Starting/Charging system tester. Refer to "Trouble Diagnoses with Battery/Starting/Charging System Tester", EL-30. If second test result is "REPLACE BATTERY", then do so. Perform battery test again to confirm repair.

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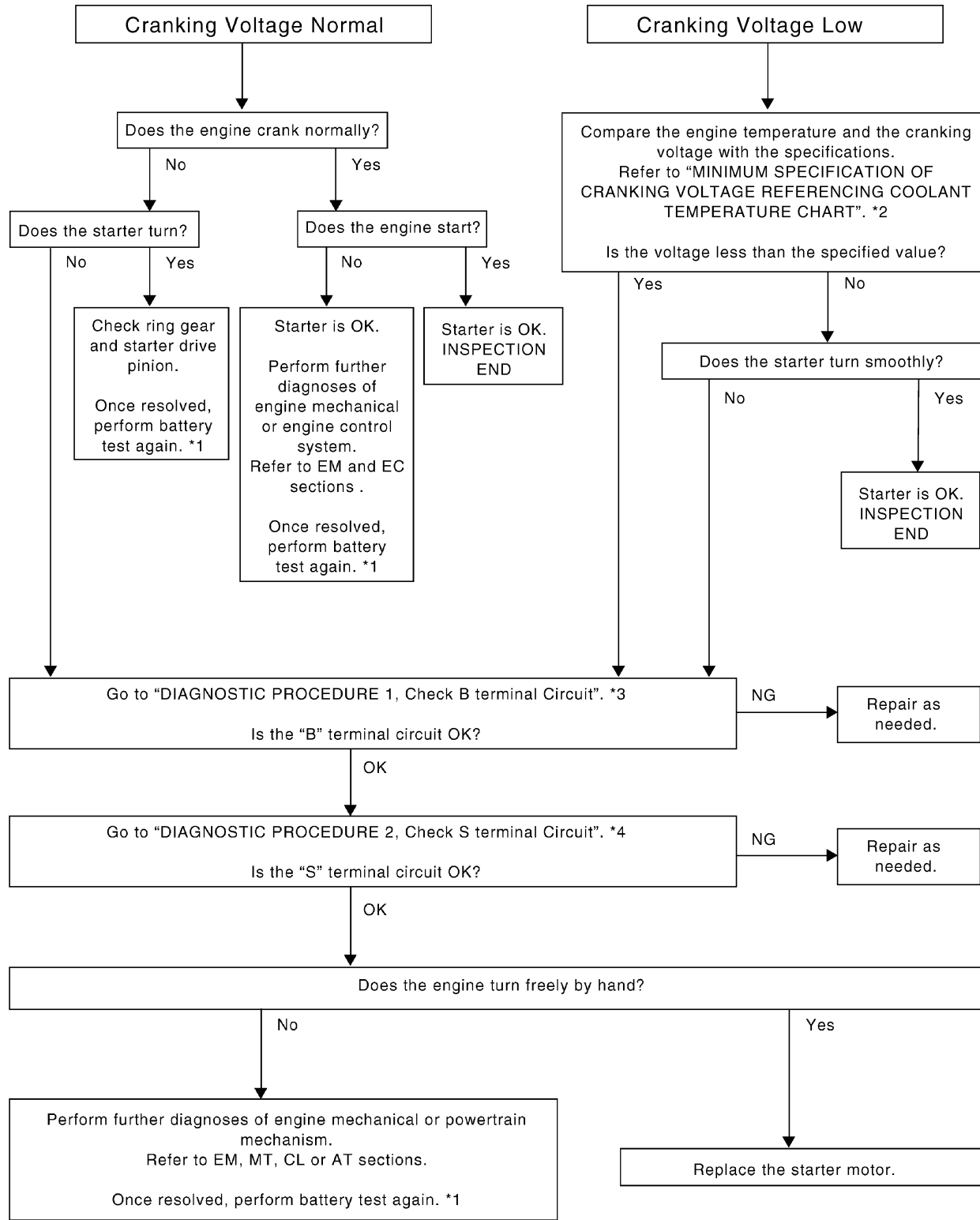
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STARTING SYSTEM

Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

WORK FLOW



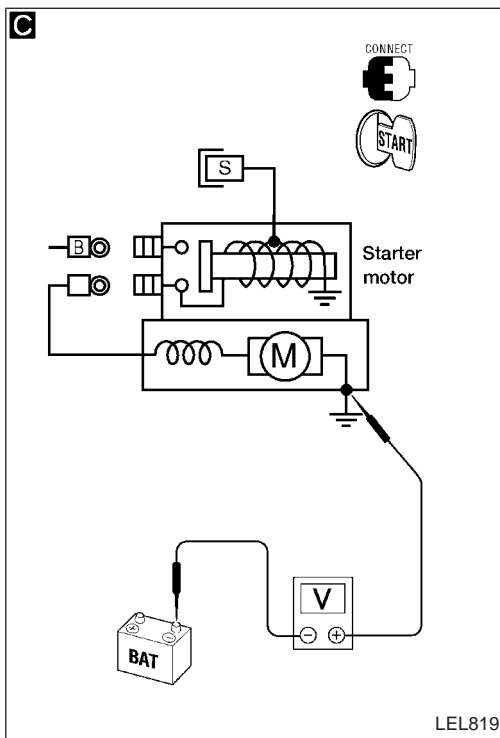
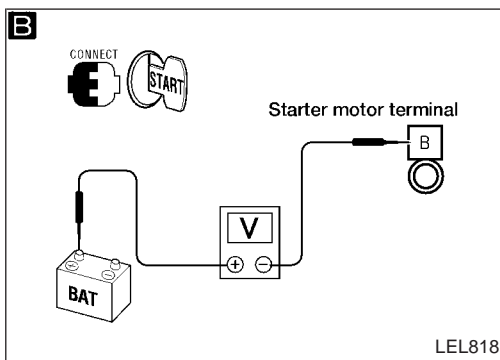
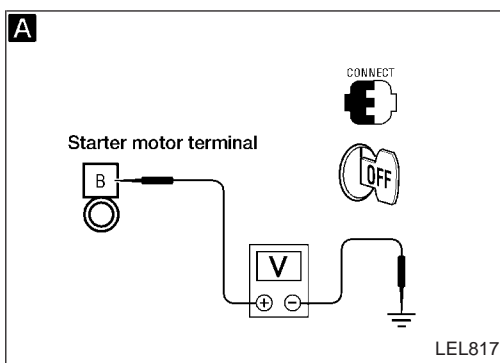
SEL411X

*1: EL-36
*2: EL-40

*3: EL-39

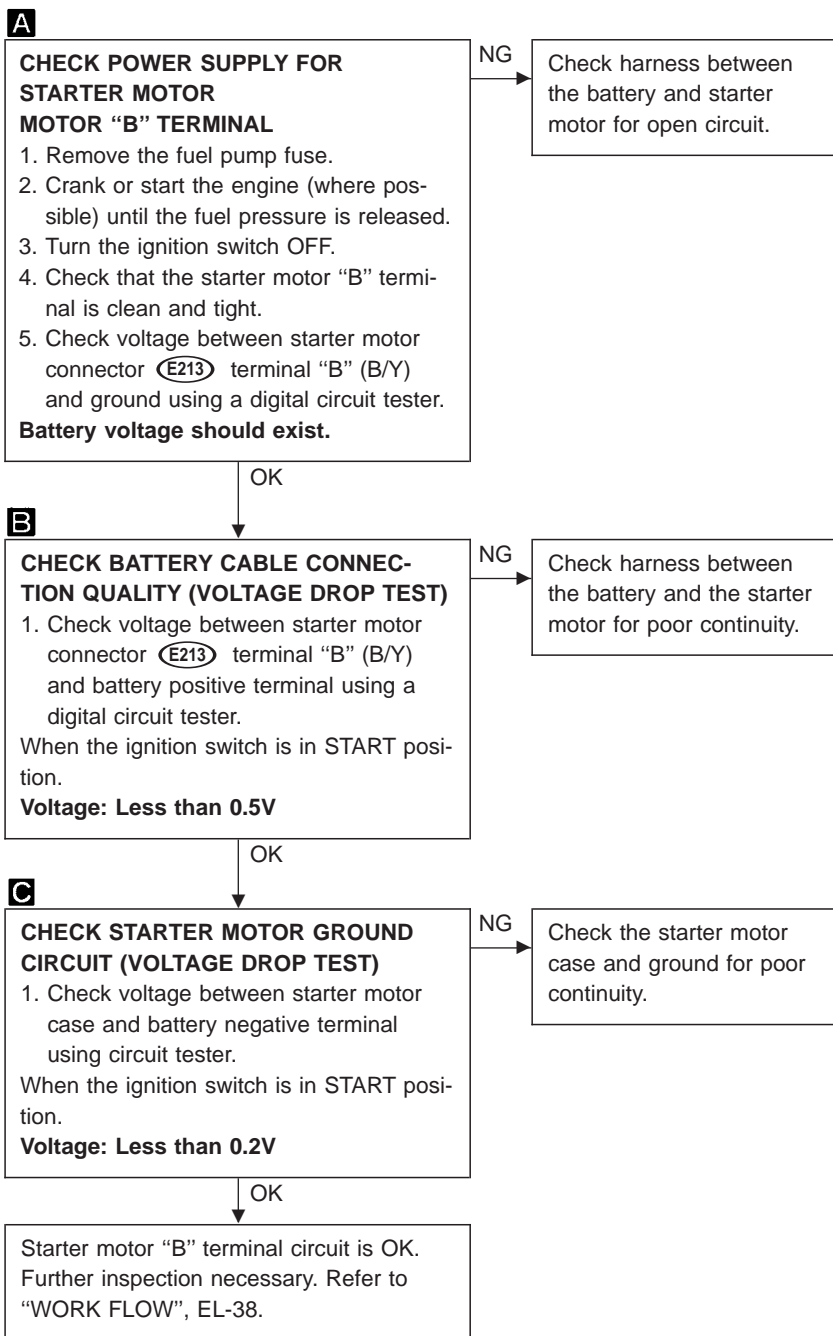
*4: EL-40

STARTING SYSTEM



Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1 ("B" terminal circuit check)



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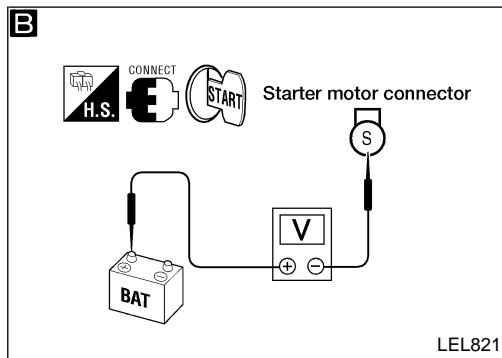
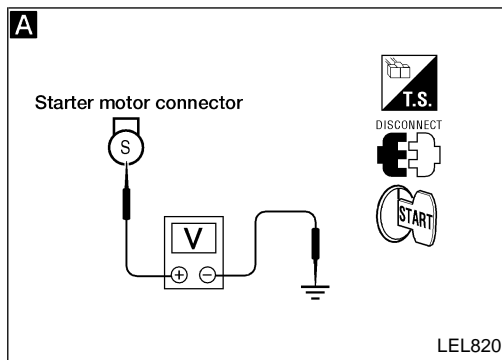
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STARTING SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

("S" terminal circuit check)



A

CHECK POWER SUPPLY FOR STARTER MOTOR "S" TERMINAL

1. Remove the fuel pump fuse.
2. Crank or start the engine (where possible) until the fuel pressure is released.
3. Turn the ignition switch OFF.
4. Disconnect starter motor "S" terminal.
5. Check voltage between starter motor connector (E214) terminal "S" (B/W) and ground using a digital circuit tester.

When the ignition switch is in START position,
Battery voltage should exist.

NG →

Check the following.

- 40A fusible link (letter g, located in fuse and fusible link box)
- Park/neutral position relay (A/T models)
- Clutch interlock relay (M/T models)
- Harness for open or short

B

CHECK "S" TERMINAL CONNECTION QUALITY (VOLTAGE DROP TEST)

1. Connect starter motor "S" terminal.
2. Check voltage between starter motor connector (E214) terminal "S" (B/W) and battery position terminal using a digital tester.

When the ignition switch is in START position,
Voltage: Less than 1V

NG →

Check harness between the battery and the starter motor "S" terminal for poor continuity.

OK ↓

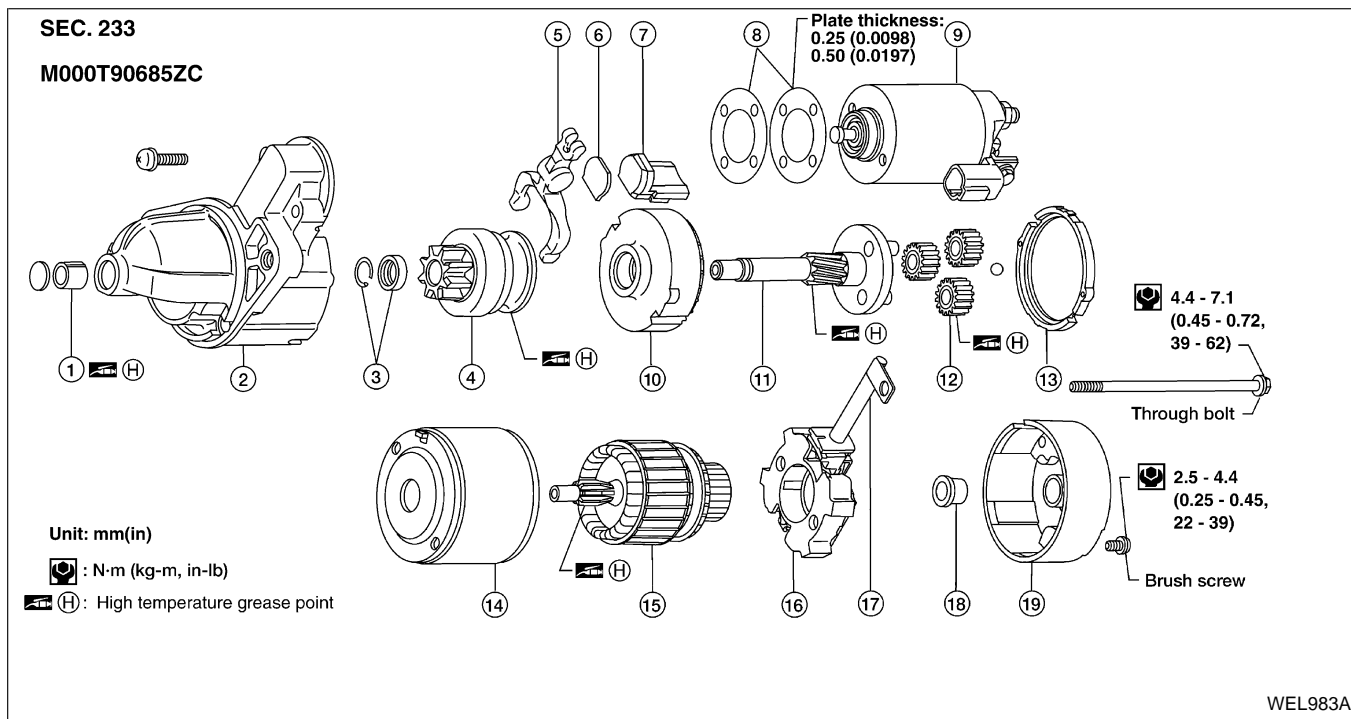
Starter motor "S" terminal circuit is OK.
Further inspection necessary.
Refer to "WORK FLOW", EL-38.

MINIMUM SPECIFICATION OF CRANKING VOLTAGE REFERENCING COOLANT TEMPERATURE

Engine coolant temperature	Voltage V
-30°C to -20°C (-22°F to -4°F)	8.8
-19°C to -10°C (-2°F to 14°F)	9.5
-9°C to 0°C (16°F to 32°F)	10.1
More than 1°C (More than 34°F)	10.2

STARTING SYSTEM

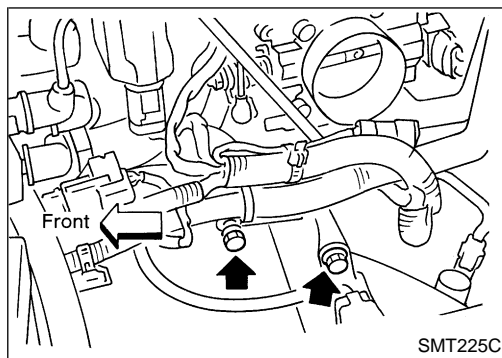
Construction



- ① Sleeve bearing
- ② Gear case
- ③ Pinion stopper
- ④ Pinion assembly
- ⑤ Shift lever
- ⑥ Plate
- ⑦ Packing

- ⑧ Adjusting plate
- ⑨ Magnetic switch assembly
- ⑩ Internal gear
- ⑪ Shaft
- ⑫ Planetary gear
- ⑬ Packing
- ⑭ Yoke

- ⑮ Armature
- ⑯ Connector brush holder assembly
- ⑰ Brush (+)
- ⑱ Brush spring
- ⑲ Rear cover



Removal and Installation

REMOVAL

1. Remove air inlet tube.
2. Remove harness bracket.
3. Disconnect starter.
4. Remove two bolts and starter.

INSTALLATION

To install, reverse the removal procedure.

- Tighten starter motor to transaxle.
: 30.40 - 41.29 N·m (3.1 - 4.2 kg-m, 22.4 - 30.5 ft-lb)

Pinion/Clutch Check

1. Inspect pinion teeth.
 - Replace pinion if teeth are worn or damaged. (Also check condition of ring gear teeth.)
2. Inspect reduction gear teeth.
 - Replace reduction gear if teeth are worn or damaged. (Also check condition of armature shaft gear teeth.)
3. Check to see if pinion locks in one direction and rotates smoothly in the opposite direction.
 - If it locks or rotates in both directions, or unusual resistance is evident, replace.

STARTING SYSTEM

Service Data and Specifications (SDS) STARTER

Type		M000T90685ZC
		MELMAC
		Reduction gear type
Applied model		All
System voltage	V	12
No-load		
Terminal voltage	V	11.0
Current	A	Less than 90
Revolution	rpm	More than 2,500
Minimum diameter of commutator	mm (in)	28.8 (1.134)
Minimum length of brush	mm (in)	12.0 (0.472)
Brush spring tension	N (kg, lb)	13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)
Clearance of bearing metal and armature shaft	mm (in)	—
Clearance “ℓ” between pinion front edge and pinion stopper	mm (in)	0.5 - 2.0 (0.020 - 0.079)
Installed current	A	140

CHARGING SYSTEM

System Description

The generator provides DC voltage to operate the vehicle's electrical system and to keep the battery charged. The voltage output is controlled by the IC regulator.

Power is supplied at all times to generator terminal **(S)** through:

- 100A fusible link (letter **(E)**, located in the fuse and fusible link box), and
- 10A fuse (No. **(38)**, located in the fuse and fusible link box).

Terminal **(B)** supplies power to charge the battery and operate the vehicle's electrical system. Output voltage is controlled by the IC regulator at terminal **(S)** detecting the input voltage. The charging circuit is protected by the 100A fusible link.

Terminal **(E)** of the generator supplies ground through body ground **(E37)**.

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

- through 10A fuse [No. **(12)**, located in the fuse block (J/B)]
- to combination meter terminal **(17)** for the charge warning lamp.

Ground is supplied to terminal **(63)** of the combination meter through terminal **(L)** of the generator. With power and ground supplied, the charge warning lamp will illuminate. When the generator is providing sufficient voltage with the engine running, the ground is opened and the charge warning lamp will go off. If the charge warning lamp illuminates with the engine running, a fault is indicated.

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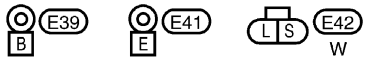
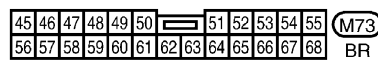
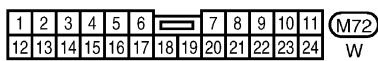
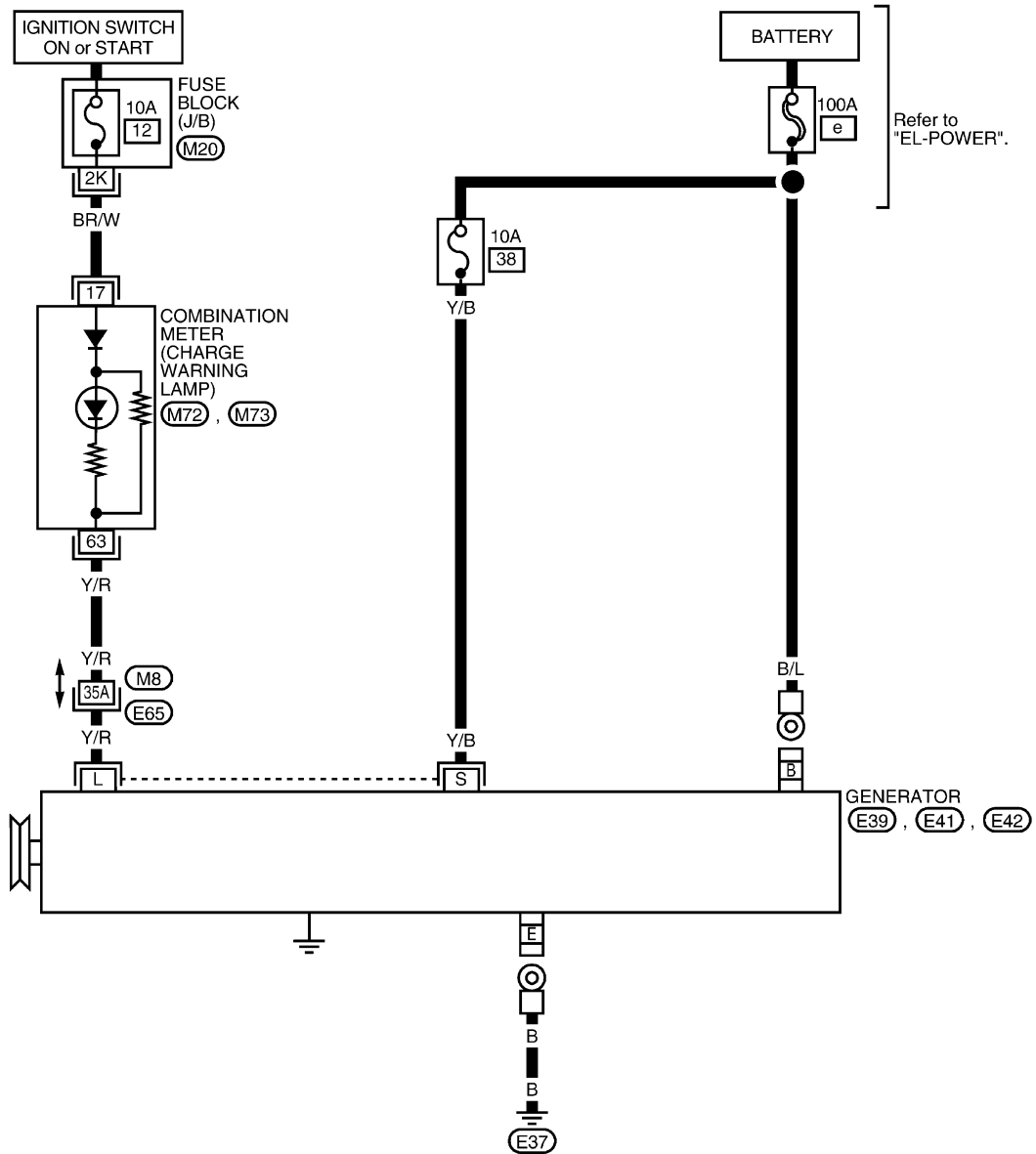
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CHARGING SYSTEM

Wiring Diagram — CHARGE —

EL-CHARGE-01



Refer to the following.

(M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

CHARGING SYSTEM

Trouble Diagnoses with Battery/Starting/Charging System Tester

NOTE:

To ensure a complete and thorough diagnosis, the battery, starter and generator test segments must be done as a set from start to finish.

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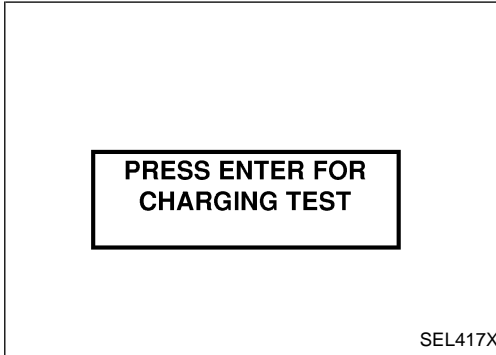
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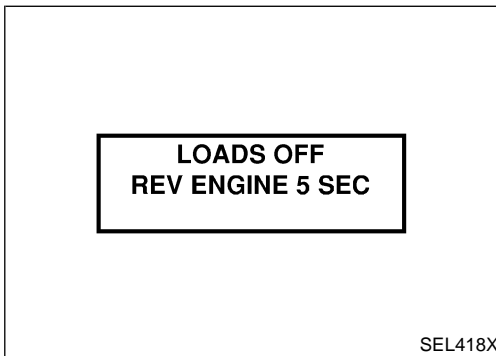
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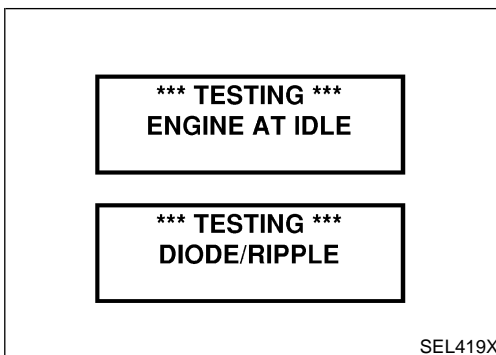
1. Turn off all loads on the vehicle electrical system.
2. Perform battery and starting system test with Battery/Starting/Charging system tester.
3. Press "ENTER" to begin the charging system test.
4. Start engine.



5. Press "ENTER" until "LOADS OFF REV ENGINE 5 SEC" is displayed.
6. Raise and hold the engine speed at 1,500 to 2,000 rpm for about 5 seconds, then return the engine to idle. Once the increase in engine rpm is detected, press "ENTER" to continue.

NOTE:

- If after 30 seconds an increase in engine idle speed is not detected, "RPM NOT DETECTED" will display.
- Some engines may have a higher idle initially after starting, particularly when the engine is cold. The tester may detect this without any other action being taken. If this occurs, continue on with the testing process. The final results will not be affected.



7. The tester now checks the engine at idle and performs the DIODE/RIPPLE check.
8. When complete, the tester will prompt you to turn on the following electrical loads.
 - Heater fan set to highest. Do not run the A/C or windshield defroster.
 - Headlamp high beam
 - Rear window defogger

NOTE:

Do not run the windshield wipers or any other cyclical loads.

CHARGING SYSTEM

Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

9. Press "ENTER" to continue.

TURN LOADS ON
ENTER TO CONT...

SEL420X

LOADS ON
REV ENGINE 5 SEC

SEL421X

CHARGING SYSTEM
NORMAL

SEL422X

CHARGING CODE
ALTSTD7HJ934

SEL577X

10. Raise and hold the engine speed at 1,500 to 2,000 rpm for about 5 seconds, then return the engine to idle. Once the increase in engine rpm is detected, press "ENTER" to continue.

NOTE:

If after 30 seconds an increase in engine idle speed is not detected, "RPM NOT DETECTED" will be displayed. Press "ENTER" to restart the test.

11. Diagnostic result is displayed on the tester. Refer to the following "DIAGNOSTIC RESULT ITEM CHART" EL-47.

12. Press "ENTER" then test output code is displayed. Record the test output code on the repair order.

13. Toggle back to the "DIAGNOSTIC SCREEN" for test results.

CHARGING SYSTEM

Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

DIAGNOSTIC RESULT ITEM CHART

Diagnostic Item	Service Procedure
CHARGING SYSTEM NORMAL	Charging system is normal and will also show DIODE RIPPLE test result.
NO CHARGING VOLTAGE	Go to "WORK FLOW", EL-48.
LOW CHARGING VOLTAGE	Go to "WORK FLOW", EL-48.
HIGH CHARGING VOLTAGE	Go to "WORK FLOW", EL-48.
DIODE RIPPLE NORMAL	Diode ripple is OK and will also show CHARGING VOLTAGE test result.
EXCESS RIPPLE DETECTED	Replace the generator. Perform "DIODE RIPPLE" test again using Battery/Starting/Charging system tester to confirm repair.
DIODE RIPPLE NOT DETECTED	Go to "WORK FLOW", EL-48.

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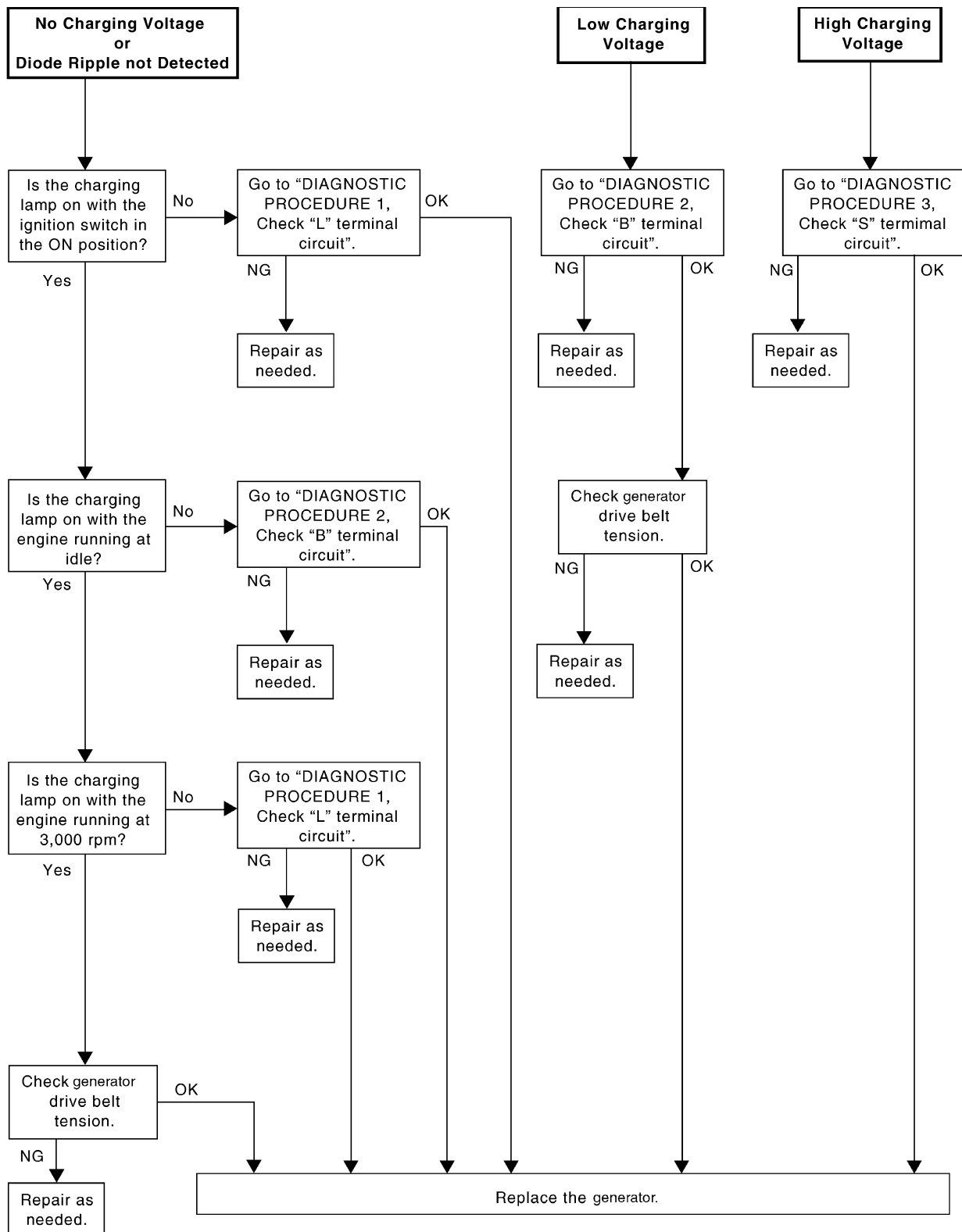
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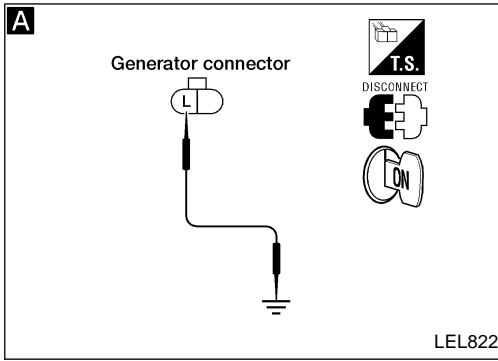
CHARGING SYSTEM

Trouble Diagnoses with Battery/Starting/Charging System Tester (Cont'd)

WORK FLOW



CHARGING SYSTEM



Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1 ("L" terminal circuit check)

CHECK "L" TERMINAL CONNECTION

Check to see if generator connector (E42) terminal "L" is clean and tight.

NG

Repair "L" terminal connection. Confirm repair by performing complete Battery/Starting/Charging system test. Refer to "Trouble Diagnoses with Battery/Starting/Charging System Tester", EL-45.

OK

A

CHECK "L" TERMINAL CIRCUIT

1. Disconnect generator connector (E42) .
 2. Apply ground to generator connector (E42) terminal "L" (Y/R) with the ignition switch in the ON position.
- CHARGE lamp should light up.**

NG

Check the following:

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

OK

Replace the generator.
Confirm repair by performing complete Battery/Starting/Charging system test.
Refer to "Trouble Diagnoses with Battery/Starting/Charging System Tester", EL-45.

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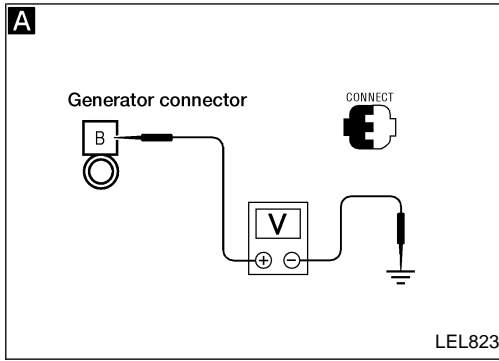
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CHARGING SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 2 ("B" terminal circuit check)

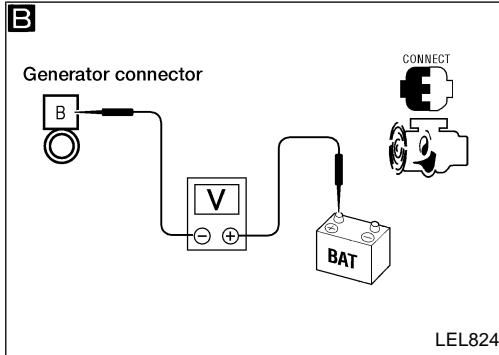


CHECK "B" TERMINAL CONNECTION
Check to see if generator connector
E39 terminal "B" is clean and tight.

NG

Repair "B" terminal connection

OK



A

CHECK GENERATOR "B" TERMINAL CIRCUIT
Check voltage between generator connector
E39 terminal "B" (B/L) and ground
using a digital circuit tester.
Battery voltage should exist.

NG

Check the following.

- 100A fusible link (letter e, located in fuse and fusible link box)
- Harness for open or short between generator and fusible link

OK

B

CHECK "B" TERMINAL CONNECTION QUALITY (VOLTAGE DROP TEST)
Check voltage between generator connector
E39 terminal "B" (B/L) and battery
positive terminal using a digital tester.
When the engine is running at idle and
warm,
Voltage: Less than 0.2V

NG

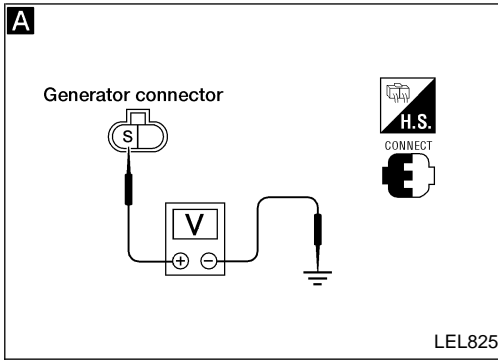
Check harness between the battery and the generator for poor continuity.

OK

Replace the generator. Confirm repair by performing complete Battery/Starting/Charging system test. Refer to "Trouble Diagnoses with Battery/Starting/Charging Tester", EL-45.

CHARGING SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 3 ("S" terminal circuit check)

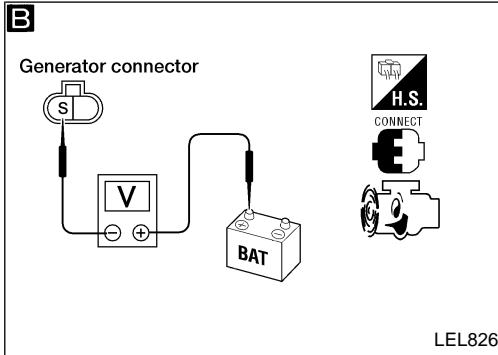


CHECK "S" TERMINAL CONNECTION
Check to see if generator connector (E42) terminal "S" is clean and tight.

NG

Repair "S" terminal connection. Confirm repair by performing complete Battery/Starting/Charging system test. Refer to "Trouble Diagnoses with Battery/Starting/Charging System Tester", EL-45.

OK



A

CHECK GENERATOR "S" TERMINAL CIRCUIT
Check voltage between generator connector (E42) terminal "S" (Y/B) and ground using a digital circuit tester.
Battery voltage should exist.

NG

Check the following.

- 100A fusible link (letter e, located in fuse and fusible link box)
- 10A fuse (No. 38, located in fuse and fusible link box)
- Harness for open or short between generator and fuse

OK

B

CHECK "S" TERMINAL CONNECTION QUALITY (VOLTAGE DROP TEST)
Check voltage between generator connector (E42) terminal "S" (Y/B) and battery positive terminal using a digital tester.
When the engine is running at idle and warm,
Voltage: Less than 0.2V

NG

Check harness between the battery and the generator for poor continuity.

OK

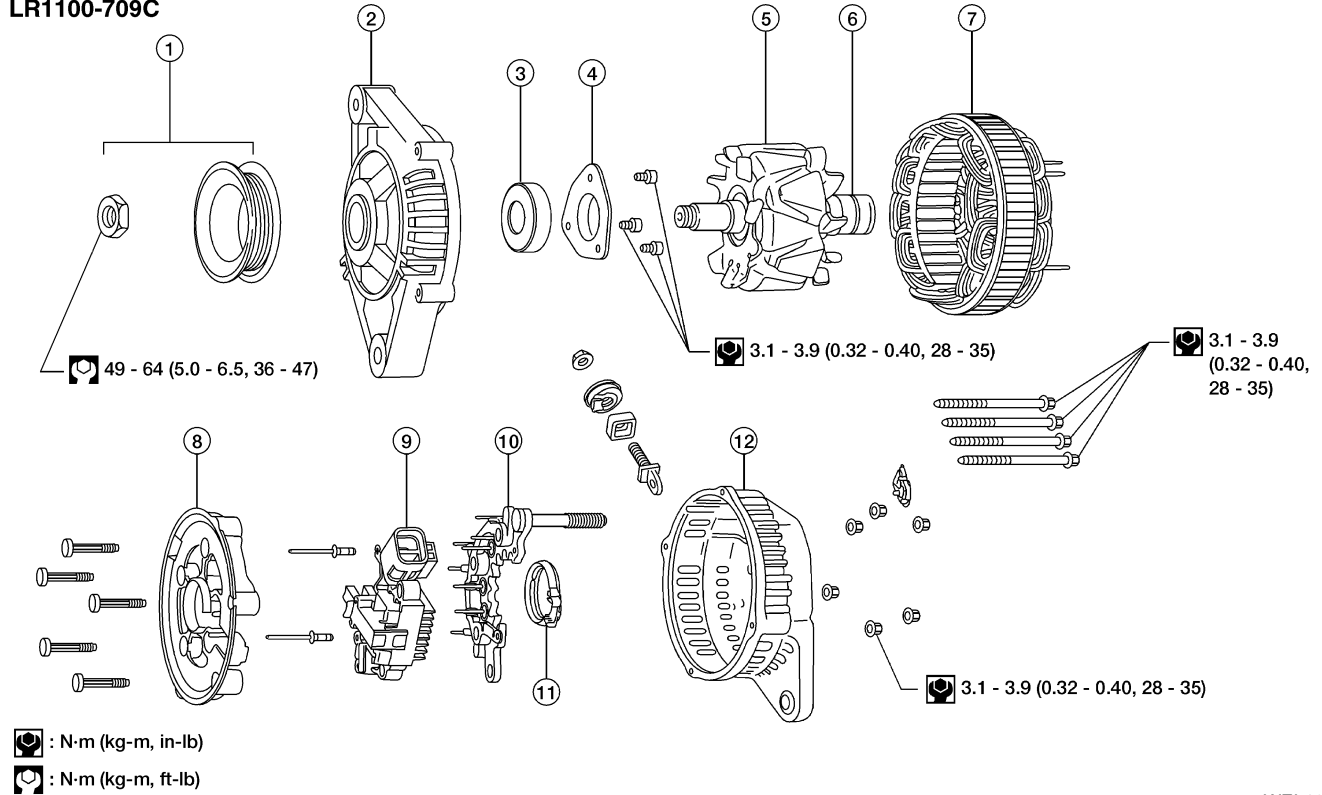
Replace the generator.
Confirm repair by performing complete Battery/Starting/Charging system test.
Refer to "Trouble Diagnoses with Battery/Starting/Charging Tester", EL-45.

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CHARGING SYSTEM

Construction

SEC. 231
LR1100-709C



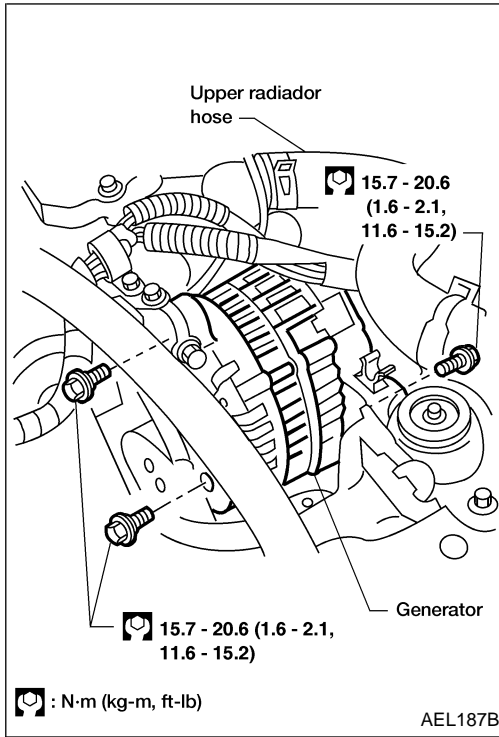
WEL189

- ① Pulley assembly
- ② Front cover
- ③ Front bearing
- ④ Retainer

- ⑤ Rotor
- ⑥ Slip ring
- ⑦ Stator
- ⑧ Fan guide

- ⑨ IC regulator assembly
- ⑩ Diode assembly
- ⑪ Packing
- ⑫ Rear cover

CHARGING SYSTEM



Removal and Installation

REMOVAL

1. Drain the cooling system.
Refer to MA section, "Changing Engine Coolant".
2. Remove upper radiator hose.
3. Disconnect harness connectors, harness stay and harness to A/C compressor.
4. Release accelerator wire.
5. Back off adjustment bolt, remove belt.
6. Remove three generator bolts and generator.

INSTALLATION

To install, reverse the removal procedure.

When filling radiator with coolant, refer to MA section, "Changing Engine Coolant".

Service Data and Specifications (SDS)

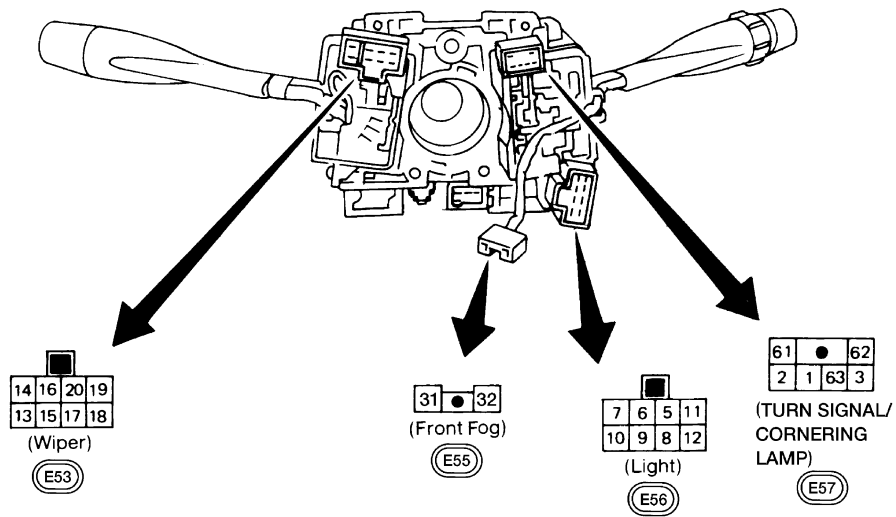
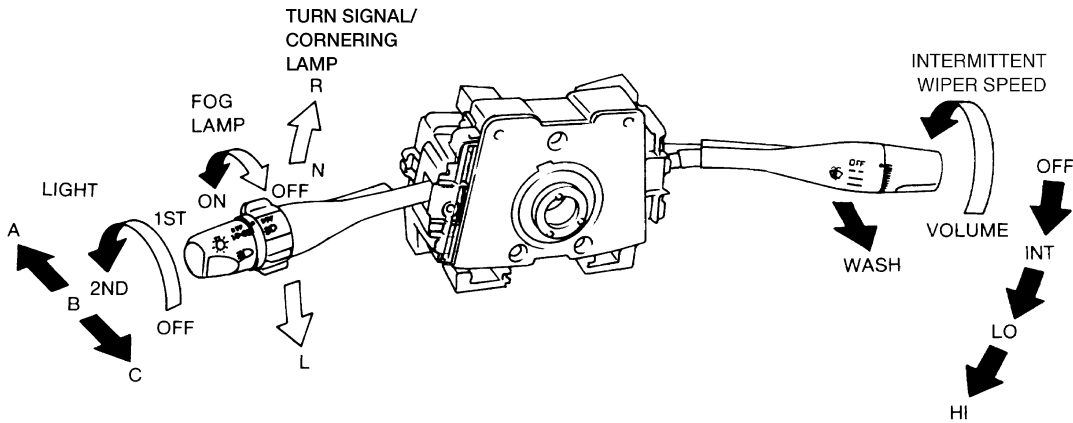
GENERATOR

Type		LR1100-709C
		HAP
Nominal rating	V-A	12-100
Ground polarity		Negative
Minimum revolution under no-load (When 13.5 volts is applied)	rpm	Less than 1,000
Hot output current (When 13.5 volts is applied)	A/rpm	More than 24/1,300 More than 71/2,500 More than 98/5,000
Regulated output voltage	V	14.1 - 14.7
Minimum length of brush	mm (in)	6.00 (0.236)
Brush spring pressure	N (g, oz)	1.000 - 2.432 (102 - 250, 3.60 - 8.82)
Slip ring minimum diameter	mm (in)	26.0 (1.024)
Rotor (field coil) resistance	Ω	2.05

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COMBINATION SWITCH

Combination Switch/Check



LIGHTING SWITCH

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

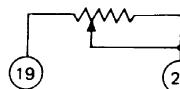
WIPER SWITCH

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

TURN SIGNAL/CORNERING LAMP SWITCH

	R	N	L
	1	○	
2	○		
3			○
61			○
62	○		○
63			○

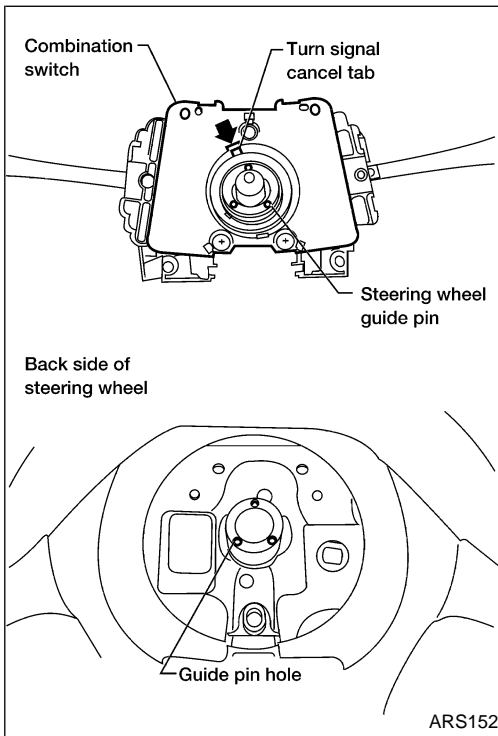
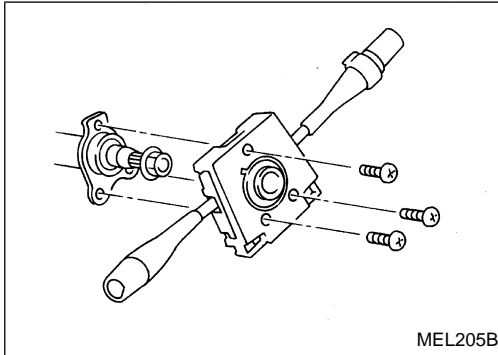
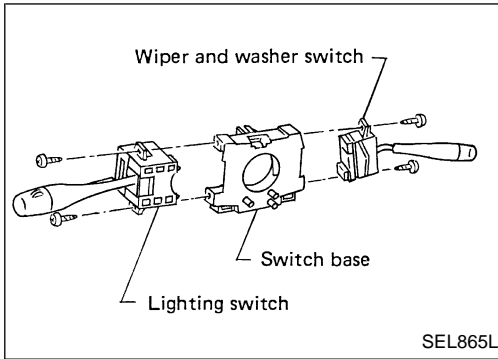
INTERMITTENT WIPER VOLUME



FRONT FOG LAMP SWITCH

	OFF	ON
	31	
32		○

COMBINATION SWITCH



Replacement

For removal and installation of spiral cable, refer to RS section [“Driver — Air Bag Module and Spiral Cable”, “SUPPLEMENTAL RESTRAINT SYSTEM (SRS)”].

- 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 combination switch. Refer to RS section (“INSTALLATION”, “Driver Air Bag Module and Spiral Cable”).

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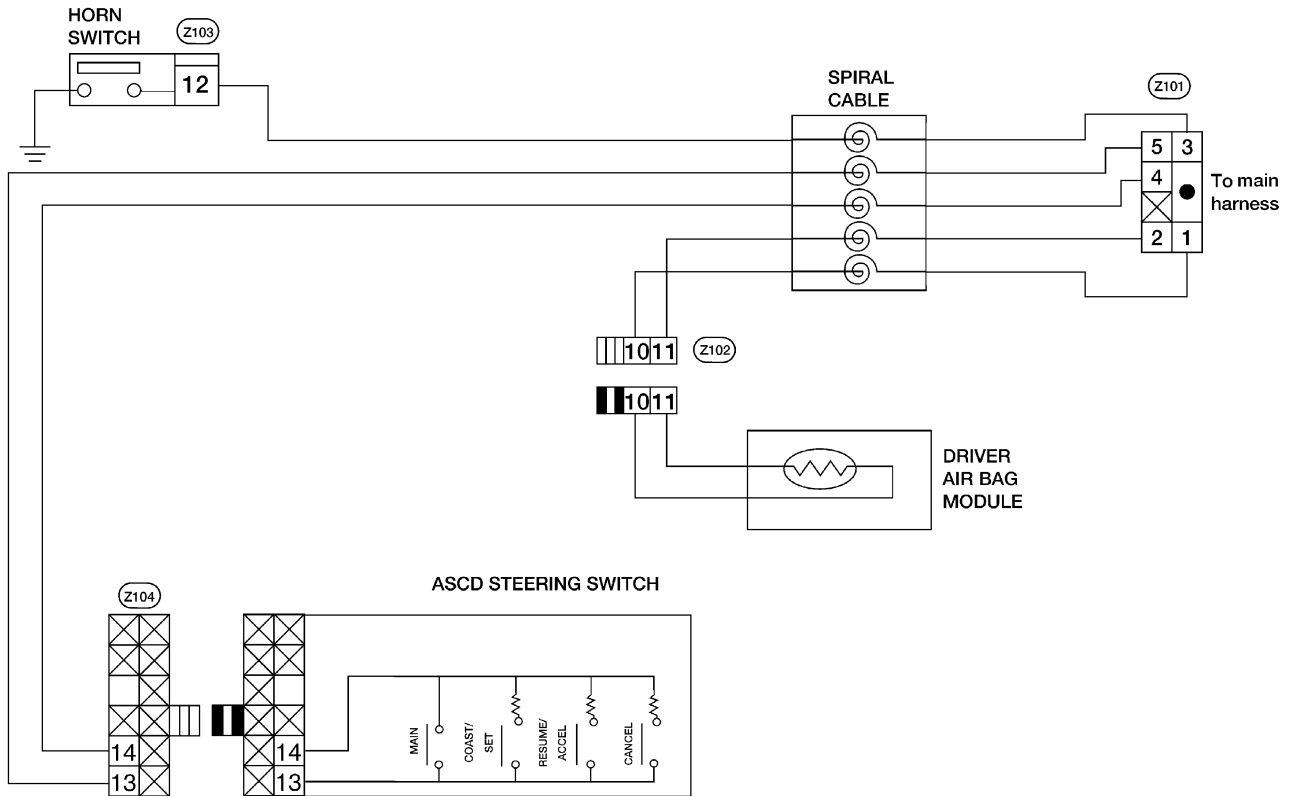
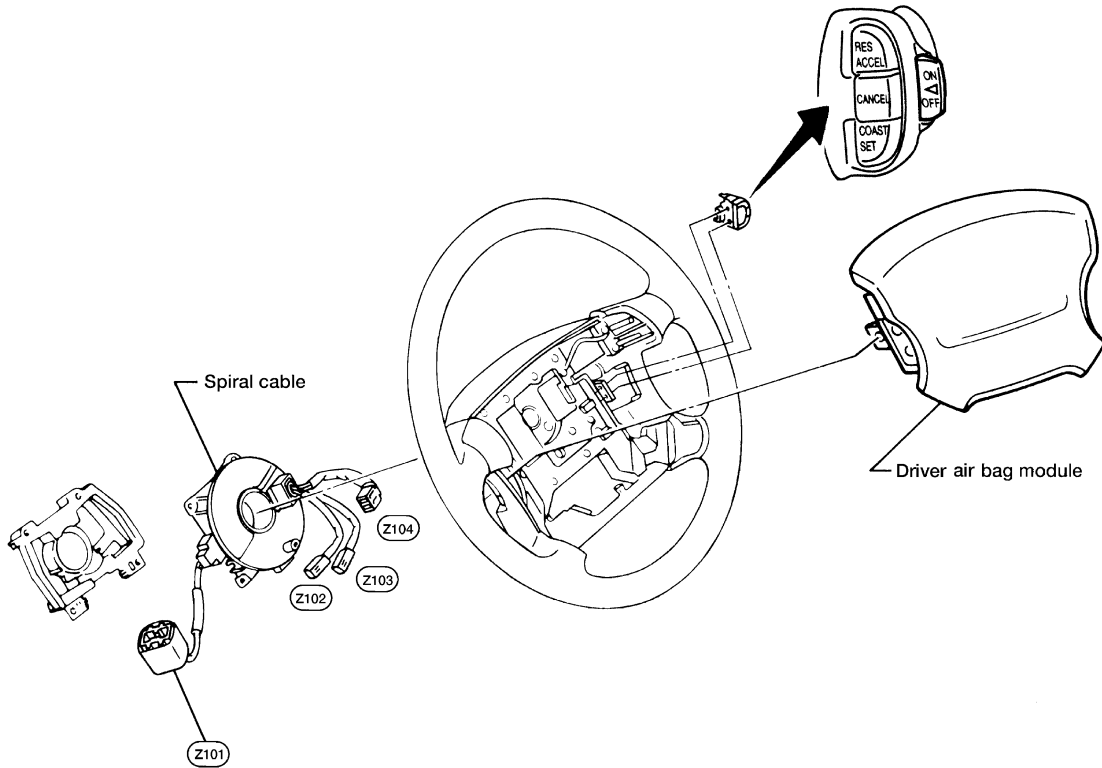
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COMBINATION SWITCH

Steering Switch/Check



HEADLAMP

System Description (For USA)

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

- to lighting switch terminal ⑤
- through 15A fuse (No. ③③, located in the fuse and fusible link box), and
- to lighting switch terminal ⑧
- through 15A fuse (No. ③②, located in the fuse and fusible link box).

Low beam operation

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

- from lighting switch terminal ⑩
- to terminal ⑨ of the LH headlamp, and
- from lighting switch terminal ⑦
- to terminal ⑨ of the RH headlamp.

Terminal ⑤ of each headlamp supplies ground through body grounds ①⑩ and ①③④ .

With power and ground supplied, the headlamps will illuminate.

High beam operation/flash-to-pass operation

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

- from lighting switch terminal ⑥
- to terminal ①① of RH headlamp, and
- from lighting switch terminal ⑨
- to terminal ①① of LH headlamp, and
- to combination meter terminal ④⑥ for the high beam indicator.

Ground is supplied to terminal ④⑦ of the combination meter through body grounds ①② and ①⑥① .

Terminal ⑤ of each headlamp supplies ground through body grounds ①⑩ and ①③④ .

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

Vehicle security system

The vehicle security system will flash the high beams if the system is triggered. Refer to "VEHICLE SECURITY SYSTEM", EL-228.

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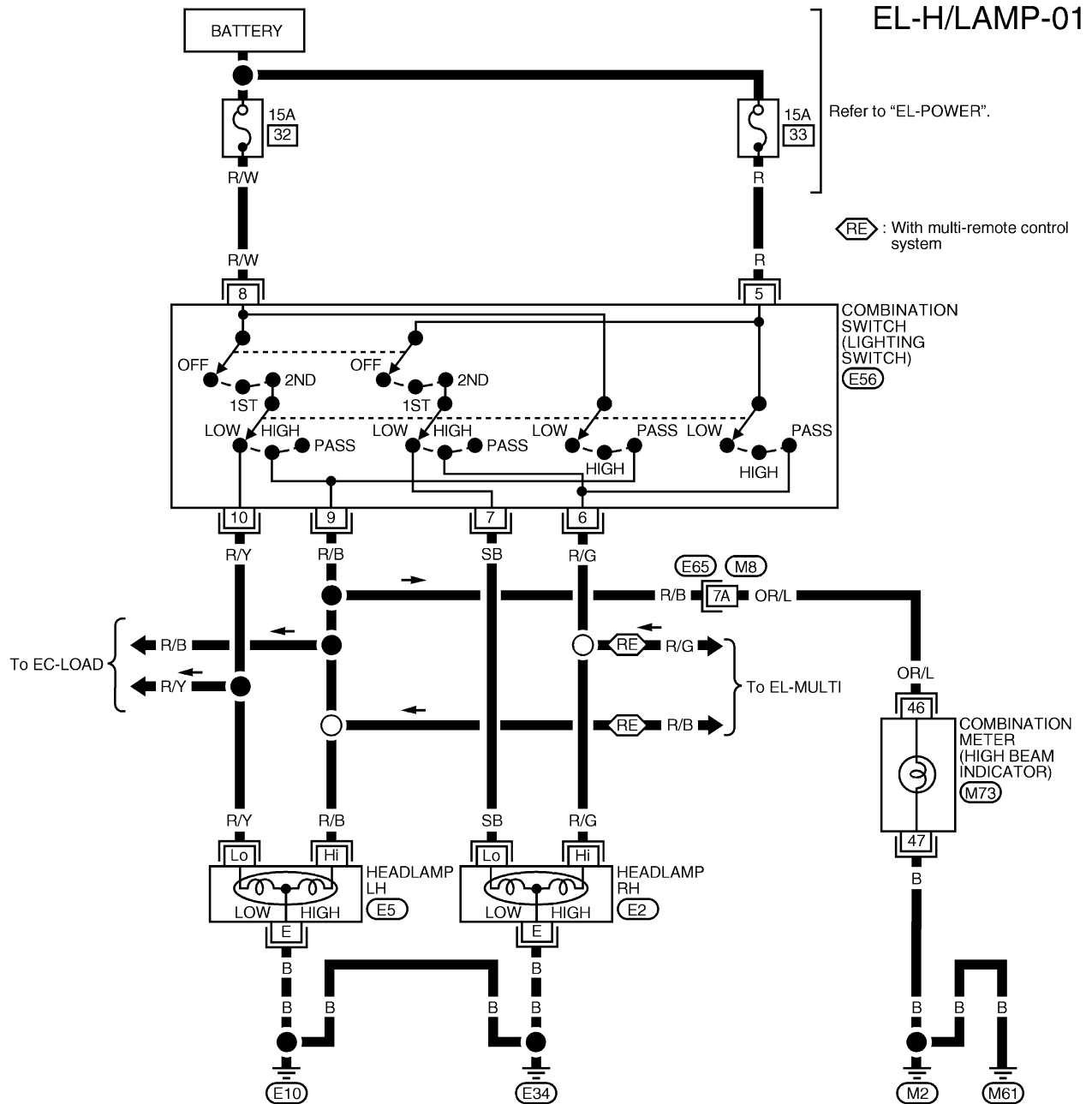
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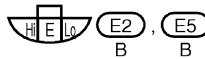
IDX

HEADLAMP

Wiring Diagram (For USA) — H/LAMP —



45	46	47	48	49	50	51	52	53	54	55	(M73)		
56	57	58	59	60	61	62	63	64	65	66	67	68	BR



11	5	6	7	(E56)
12	8	9	10	W

Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

HEADLAMP

Trouble Diagnoses

Symptom	Possible cause	Repair order
LH headlamp (low and high beam) does not operate.	<ol style="list-style-type: none"> 1. Bulb 2. Grounds (E10) and (E34) 3. 15A fuse 4. Lighting switch 	<ol style="list-style-type: none"> 1. Check bulb. 2. Check grounds (E10) and (E34). 3. Check 15A fuse (No. 32, located in fuse and fusible link box). Verify battery positive voltage is present at terminal (8) of lighting switch. 4. Check lighting switch.
RH headlamp (low and high beam) does not operate.	<ol style="list-style-type: none"> 1. Bulb 2. Grounds (E10) and (E34) 3. 15A fuse 4. Lighting switch 	<ol style="list-style-type: none"> 1. Check bulb. 2. Check grounds (E10) and (E34). 3. Check 15A fuse (No. 33, located in fuse and fusible link box). Verify battery positive voltage is present at terminal (5) of lighting switch. 4. Check lighting switch.
LH high beams do not operate, but LH low beam operates.	<ol style="list-style-type: none"> 1. Bulbs 2. Open in LH high beams circuit 3. Lighting switch 	<ol style="list-style-type: none"> 1. Check bulbs. 2. Check R/B wire between lighting switch and LH headlamps for an open circuit. 3. Check lighting switch.
LH low beam does not operate, but LH high beam operates.	<ol style="list-style-type: none"> 1. Bulb 2. Open in LH low beam circuit 3. Lighting switch 	<ol style="list-style-type: none"> 1. Check bulb. 2. Check R/Y wire between lighting switch and LH headlamp for an open circuit. 3. Check lighting switch.
RH high beams do not operate, but RH low beam operates.	<ol style="list-style-type: none"> 1. Bulbs 2. Open in RH high beams circuit 3. Lighting switch 	<ol style="list-style-type: none"> 1. Check bulbs. 2. Check R/G wire between lighting switch and RH headlamps for an open circuit. 3. Check lighting switch.
RH low beam does not operate, but RH high beam operates.	<ol style="list-style-type: none"> 1. Bulb 2. Open in RH low beam circuit 3. Lighting switch 	<ol style="list-style-type: none"> 1. Check bulb. 2. Check SB wire between lighting switch and RH headlamp for an open circuit. 3. Check lighting switch.
High beam indicator does not work.	<ol style="list-style-type: none"> 1. Bulb 2. Grounds (M2) and (M61) 3. Open in high beam circuit 	<ol style="list-style-type: none"> 1. Check bulb in combination meter. 2. Check grounds (M2) and (M61). 3. Check OR/L wire between lighting switch and combination meter for an open circuit.

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HEADLAMP

Bulb Replacement

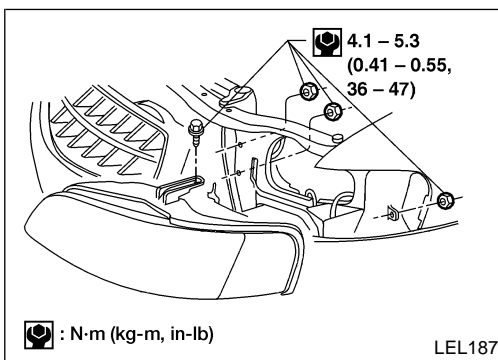
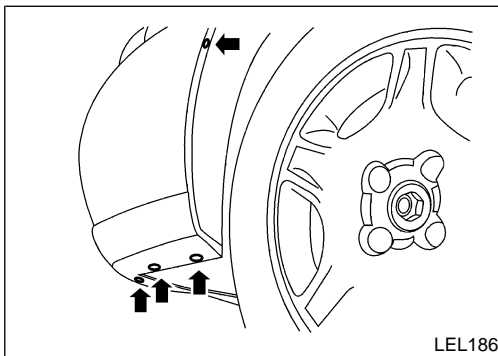
The headlamp is a semi-sealed beam type which uses a replaceable halogen bulb. The headlamp assembly must be removed to replace the headlamp bulb, front parking and cornering lamp bulb or front side marker bulb.

CAUTION:

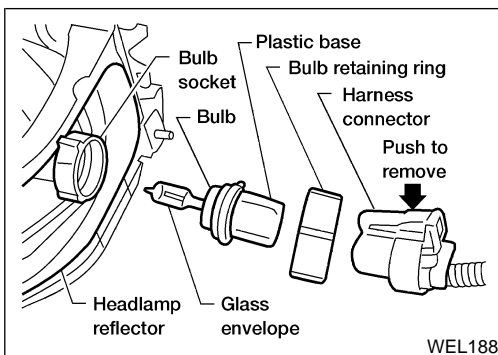
- Do not leave headlamp assembly without bulb for a long period of time. Dust, moisture, smoke, etc. entering the headlamp body may affect the performance. Remove the bulb from the headlamp assembly just before a replacement bulb is installed.
- Grasp only the plastic base when handling the bulb. Never touch the glass envelope. Touching the glass could significantly affect the bulb life and/or headlamp performance.

HEADLAMP BULB

1. Disconnect the battery negative (-) cable.



2. Remove the four screws from the bottom of the front fender protector and position the front fender protector aside to access the headlamp mounting nut.



3. Remove the three headlamp mounting nuts and one headlamp mounting bolt.
4. Pull the headlamp assembly evenly away from the front of the vehicle to access the bulb sockets.

5. Disconnect the harness connector from the back side of the headlamp bulb.
6. Turn the bulb retaining ring counter clockwise and remove.
7. Remove the bulb by pulling it straight out of the headlamp assembly. Do not shake the bulb when removing it.
8. Install in the reverse order of removal.

HEADLAMP

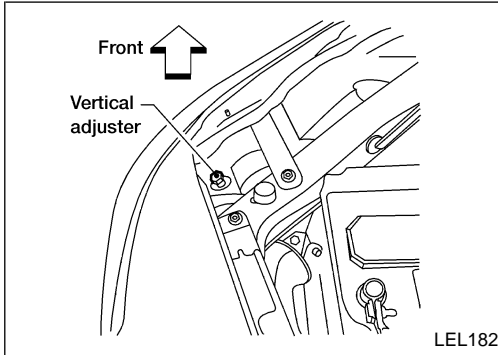
Aiming Adjustment

When performing headlamp aiming adjustment, use an aiming wall screen.

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

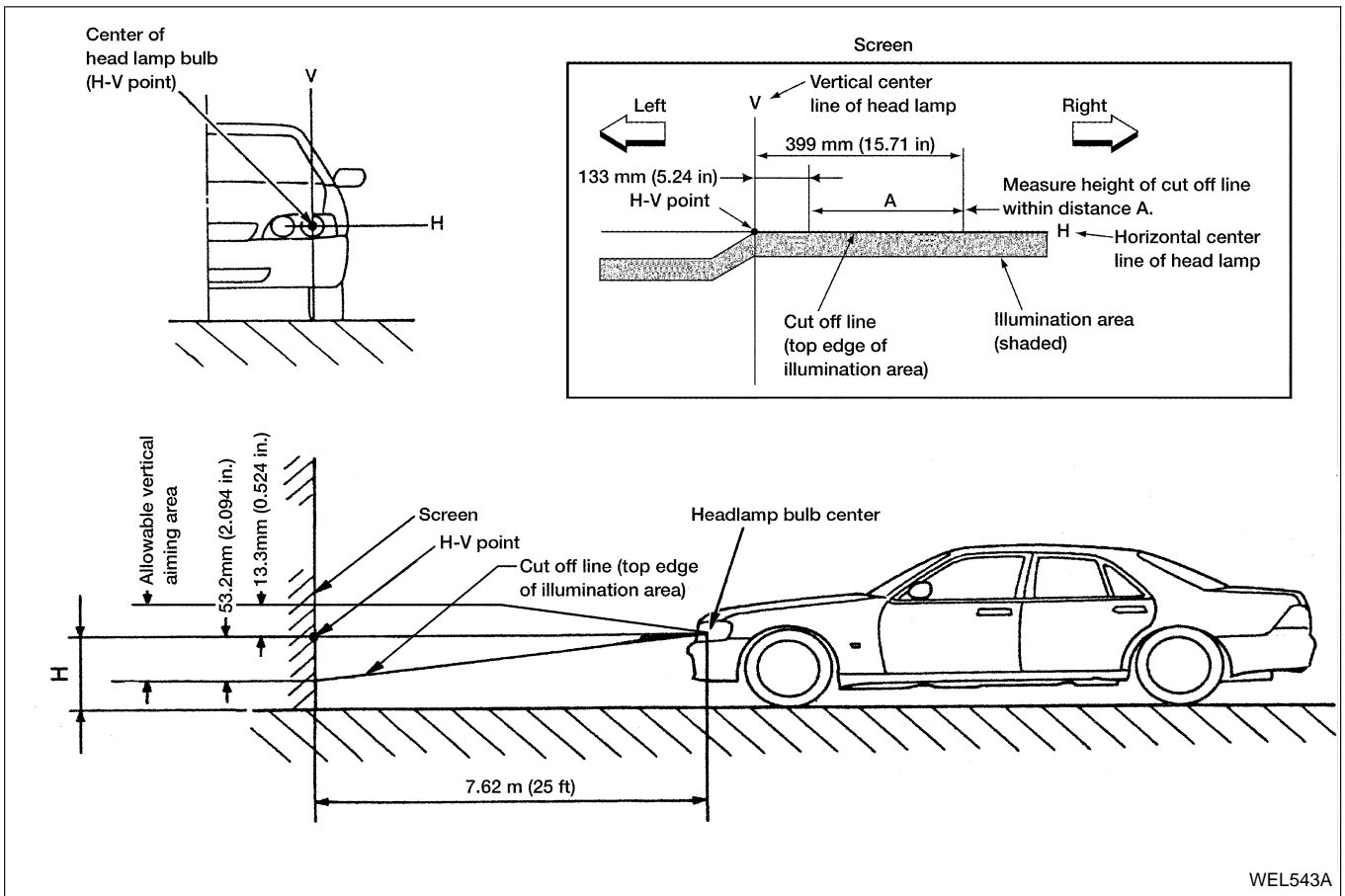
- Keep all tires inflated to correct pressures.
- Place vehicle and screen on one and same flat surface.
- See that there is no-load in vehicle (coolant, engine oil filled up to correct level and full fuel tank) other than the driver (or equivalent weight placed in driver's position).

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LOW BEAM

- Turn headlamp low beam on.
 - 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 cutoff line is positioned at same height off ground as bulb center (on H-Line).



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 should be within the range shown. Adjust headlamps accordingly.

System Description (For Canada)

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 (L) terminal, 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. 32, located in the fuse and fusible link box)
- to daytime light control unit terminal (3) and
- to lighting switch terminal (8).

Power is also supplied at all times:

- through 15A fuse (No. 33, located in the fuse and fusible link box)
- to daytime light control unit terminal (2) and
- to lighting switch terminal (5).

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

- through 10A fuse [No. 8, 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 10A fuse [No. 26, 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 (E10) and (E34).

HEADLAMP OPERATION

Low beam operation

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

- from lighting switch terminal (7)
- to RH headlamp terminal (L9)
- to daytime light control unit terminal (4).

Ground is supplied to RH headlamp terminal (E) through body grounds (E10) and (E34).

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

- from lighting switch terminal (10)
- to LH headlamp terminal (L9).

Ground is supplied:

- to LH headlamp terminal (E)
- from daytime light control unit terminal (7)
- through daytime light control unit terminal (9)
- through body grounds (E10) and (E34).

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

High beam operation/flash-to-pass operation

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

- from lighting switch terminal (6)
- to terminal (Hi) of RH headlamp.

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

- from lighting switch terminal (9)
- to daytime light control unit terminal (5)
- to combination meter terminal (46) for the high beam indicator
- through daytime light control unit terminal (6)
- to terminal (Hi) of LH headlamp.

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

Ground is supplied to terminal (47) of the combination meter through body grounds (M2) and (M61).

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

HEADLAMP — Daytime Light System —

System Description (For Canada) (Cont'd)

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 terminal ④ of LH headlamp
- through terminal ⑤ of LH headlamp
- to daytime light control unit terminal ⑦
- through daytime light control unit terminal ⑧
- to terminal ④ of RH headlamp.

Ground is supplied to terminal ⑤ of RH headlamp through body grounds (E10) and (E34). 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 1ST position, the headlamp high beam automatically turns on. Lighting switch operations other than the above are the same as conventional light systems.

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

A : HIGH BEAM position

B : LOW BEAM position

C : FLASH TO PASS position

○ : Lamp ON

X : Lamp OFF

△ : Lamp on at half brightness.

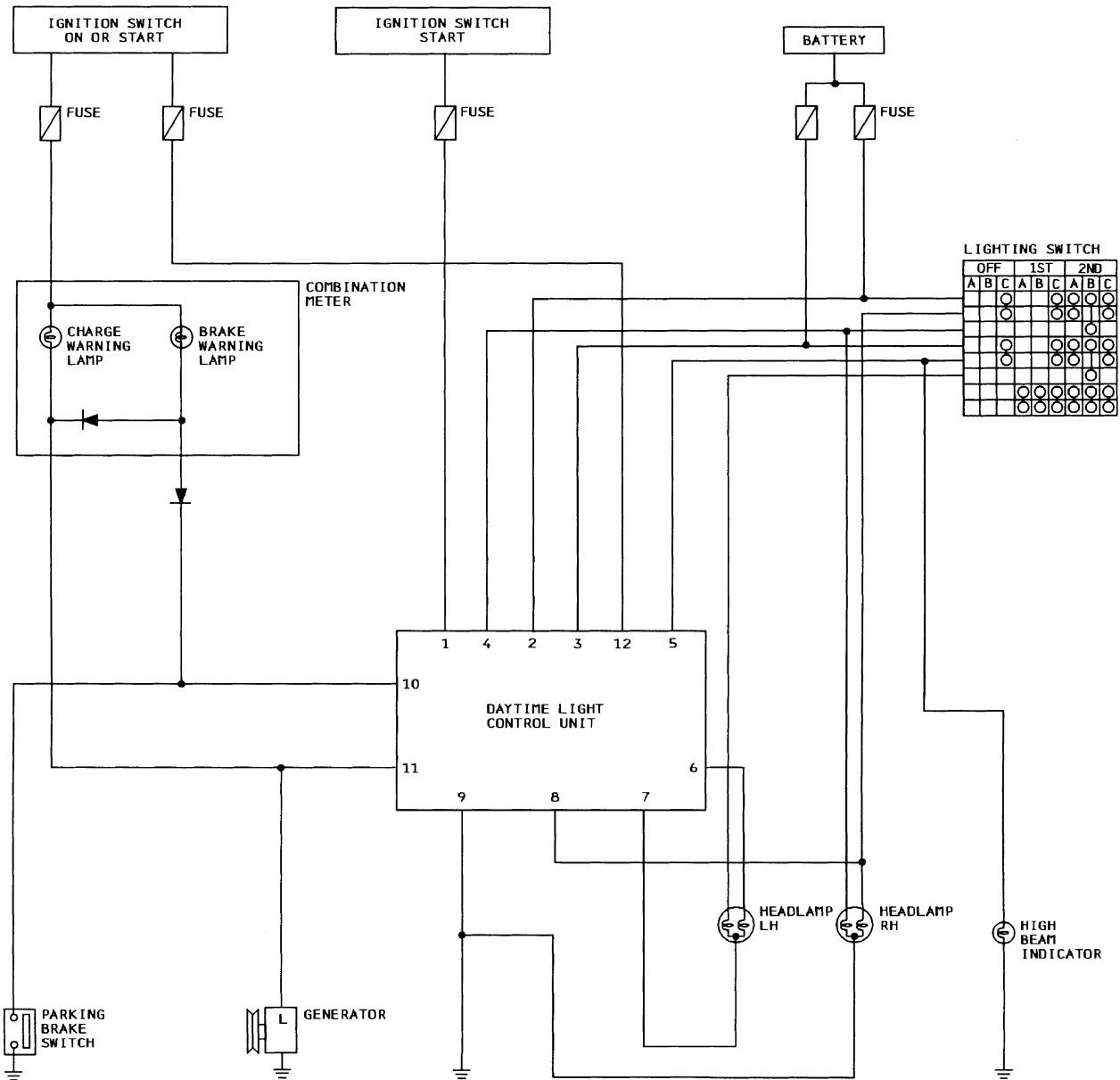
□ : Added functions

*: When starting the engine with the parking brake released, the daytime light will come ON.

When starting the engine with the parking brake pulled, the daytime light won't come ON.

HEADLAMP — Daytime Light System —

Schematic (For Canada)

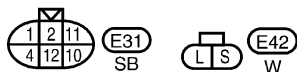
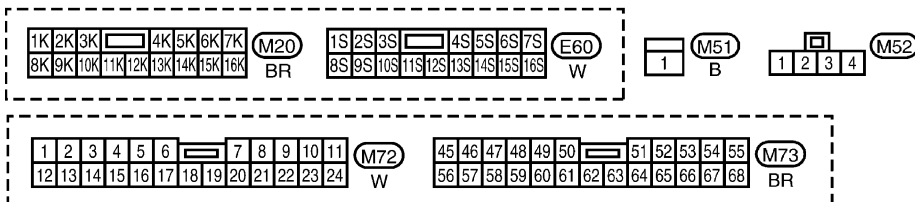
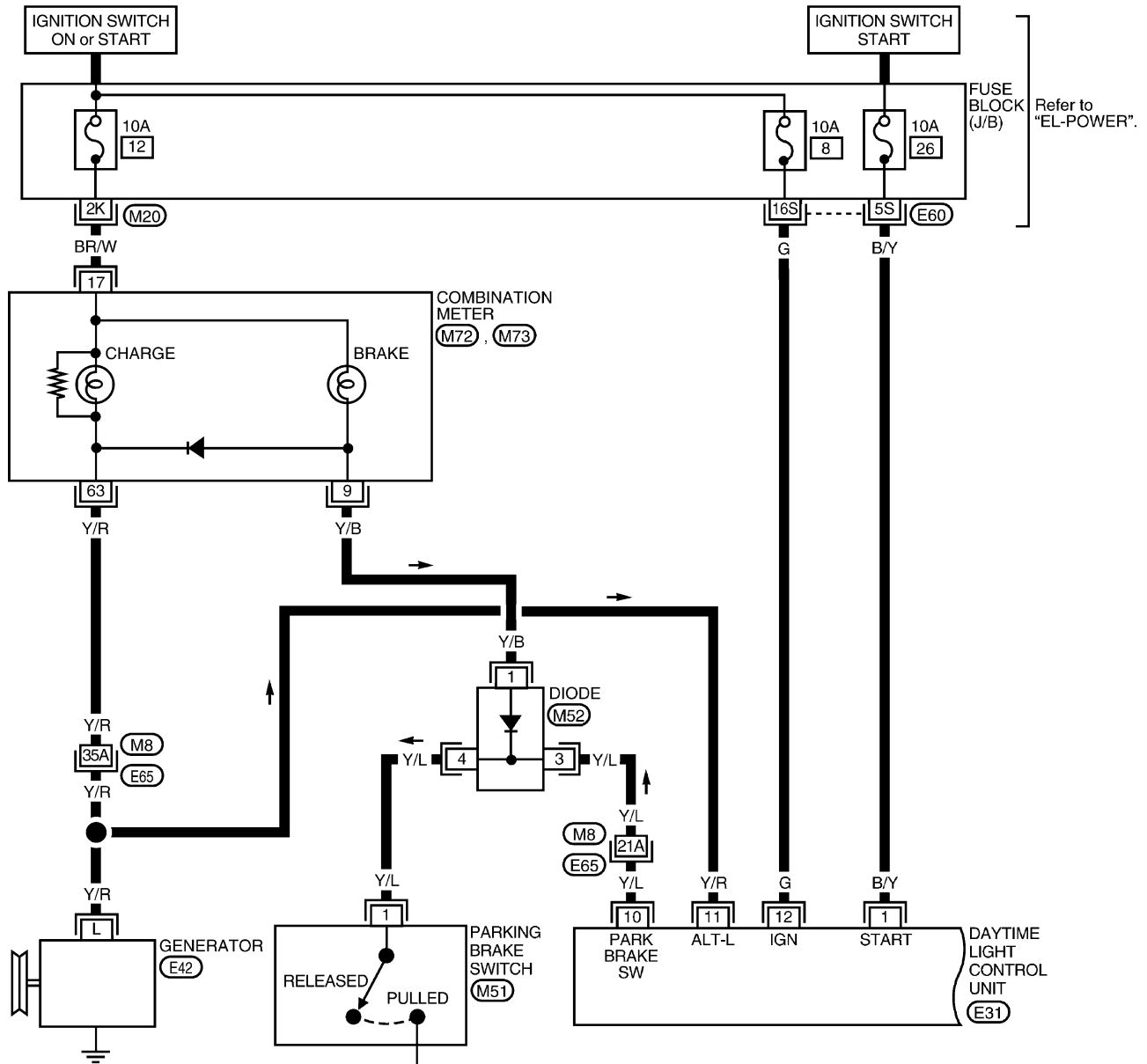


WEL003

HEADLAMP — Daytime Light System —

Wiring Diagram (For Canada) — DTRL —

EL-DTRL-01



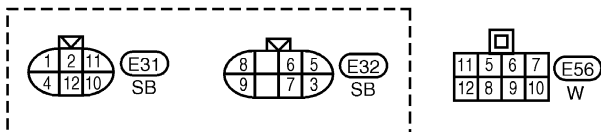
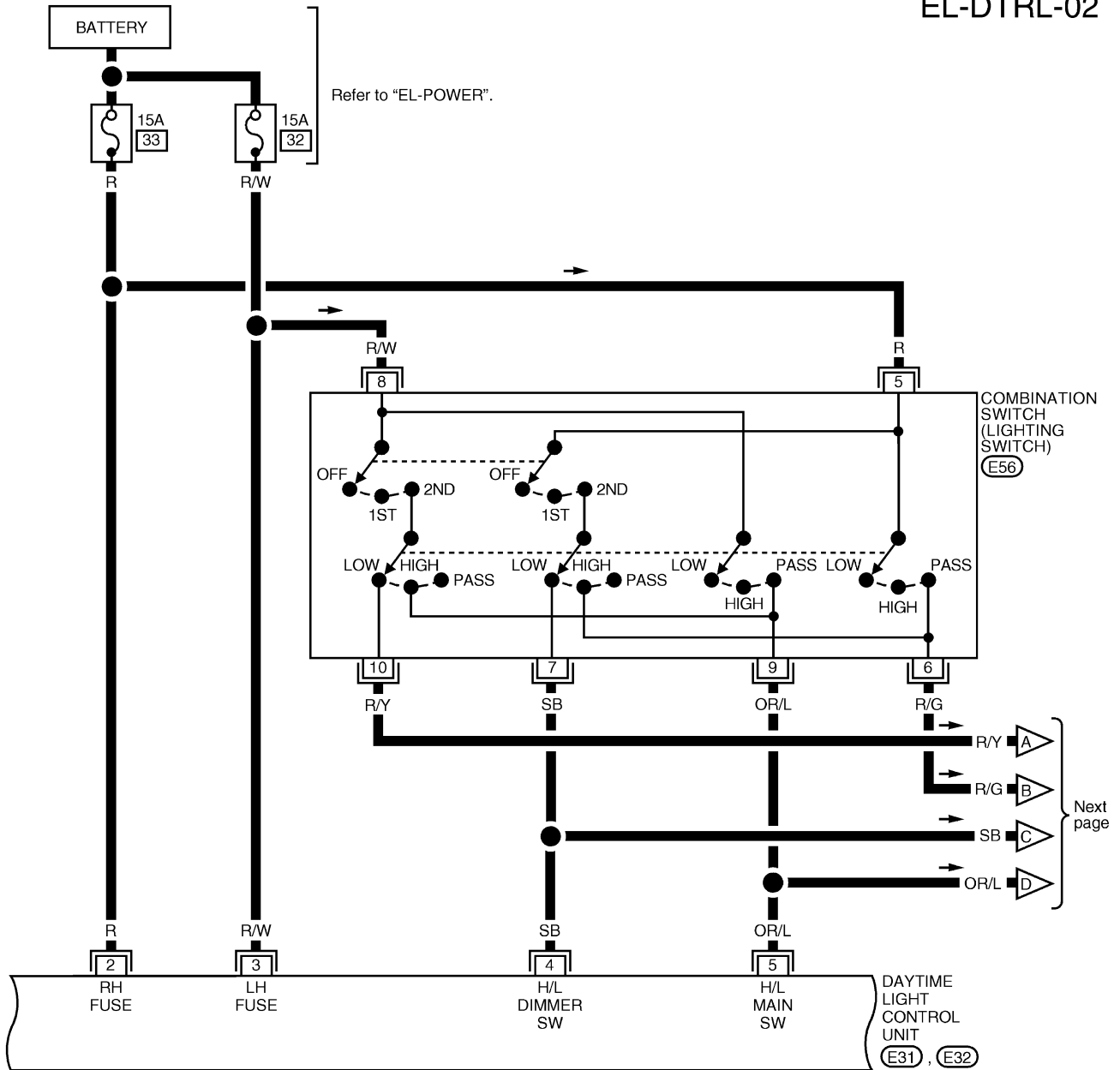
Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

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HEADLAMP — Daytime Light System —

Wiring Diagram (For Canada) — DTRL — (Cont'd)

EL-DTRL-02

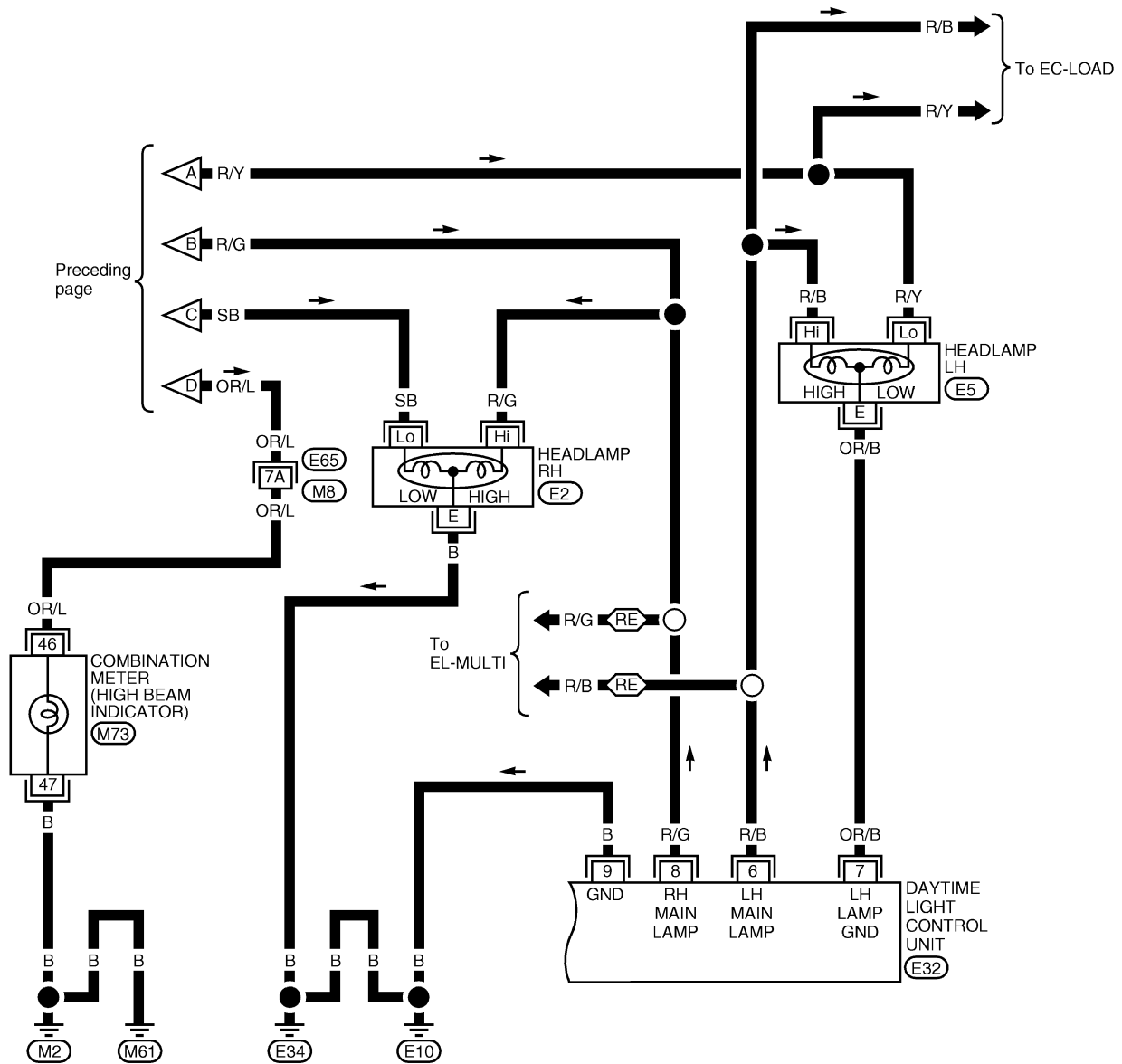


HEADLAMP — Daytime Light System —

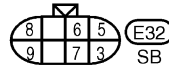
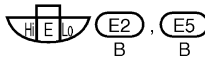
Wiring Diagram (For Canada) — DTRL — (Cont'd)

EL-DTRL-03

: With multi-remote control system



45	46	47	48	49	50	51	52	53	54	55			
56	57	58	59	60	61	62	63	64	65	66	67	68	BR











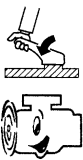
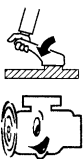
Refer to the following.
 , - SUPER MULTIPLE JUNCTION (SMJ)

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HEADLAMP — Daytime Light System —








Trouble Diagnoses (For Canada)

DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE

Terminal No.	Wire color	Item	Condition		Voltage (Approx. values)
1	B/Y	Start signal		When turning ignition switch to ST	Battery voltage
				When turning ignition switch to ON from ST	Less than 1V
				When turning ignition switch to OFF	Less than 1V
2	R	Power source		When turning ignition switch to ON	Battery voltage
				When turning ignition switch to OFF	Battery voltage
3	R/W	Power source		When turning ignition switch to ON	Battery voltage
				When turning ignition switch to OFF	Battery voltage
4	SB	Lighting switch (Lo beam)		When turning lighting switch to headlamp ON (2ND) position, LOW BEAM	Battery voltage
5	OR/L	Lighting switch (Hi beam)		When turning lighting switch to HI BEAM	Battery voltage
				When turning lighting switch to FLASH TO PASS	Battery voltage
6	R/B	LH hi beam		When turning lighting switch to HI BEAM	Battery voltage
				When releasing parking brake with engine running and turning lighting switch to OFF (daytime light operation) CAUTION: Block wheels and ensure selector lever is in N or P position.	Battery voltage
7	OR/B	LH headlamp control (ground)		When lighting switch is turned to headlamp ON (2ND) position, LOW BEAM	Less than 1V
				When releasing parking brake with engine running and turning lighting switch to OFF (daytime light operation) CAUTION: Block wheels and ensure selector lever is in N or P position.	Half battery voltage
8	R/G	RH hi beam		When turning lighting switch to HI BEAM	Battery voltage
				When releasing parking brake with engine running and turning lighting switch to OFF (daytime light operation) CAUTION: Block wheels and ensure selector lever is in N or P position.	Half battery voltage
9	B	Ground		—	—

HEADLAMP — Daytime Light System —

Trouble Diagnoses (For Canada) (Cont'd)

Terminal No.	Wire color	Item	Condition		Voltage (Approx. values)
10	Y/L	Parking brake switch		When parking brake is released	Battery voltage
				When parking brake is set	Less than 1.5V
11	Y/R	Generator		When turning ignition switch to ON	Less than 4.6V
				When engine is running	Battery voltage
				When turning ignition switch to OFF	Less than 1V
12	G	Power source		When turning ignition switch to ON	Battery voltage
				When turning ignition switch to ST	Battery voltage
				When turning ignition switch to OFF	Less than 1V

Bulb Replacement

Refer to “Bulb Replacement”, EL-60.

Aiming Adjustment

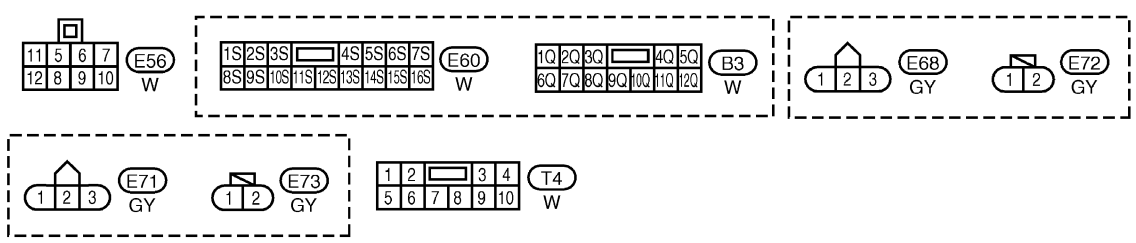
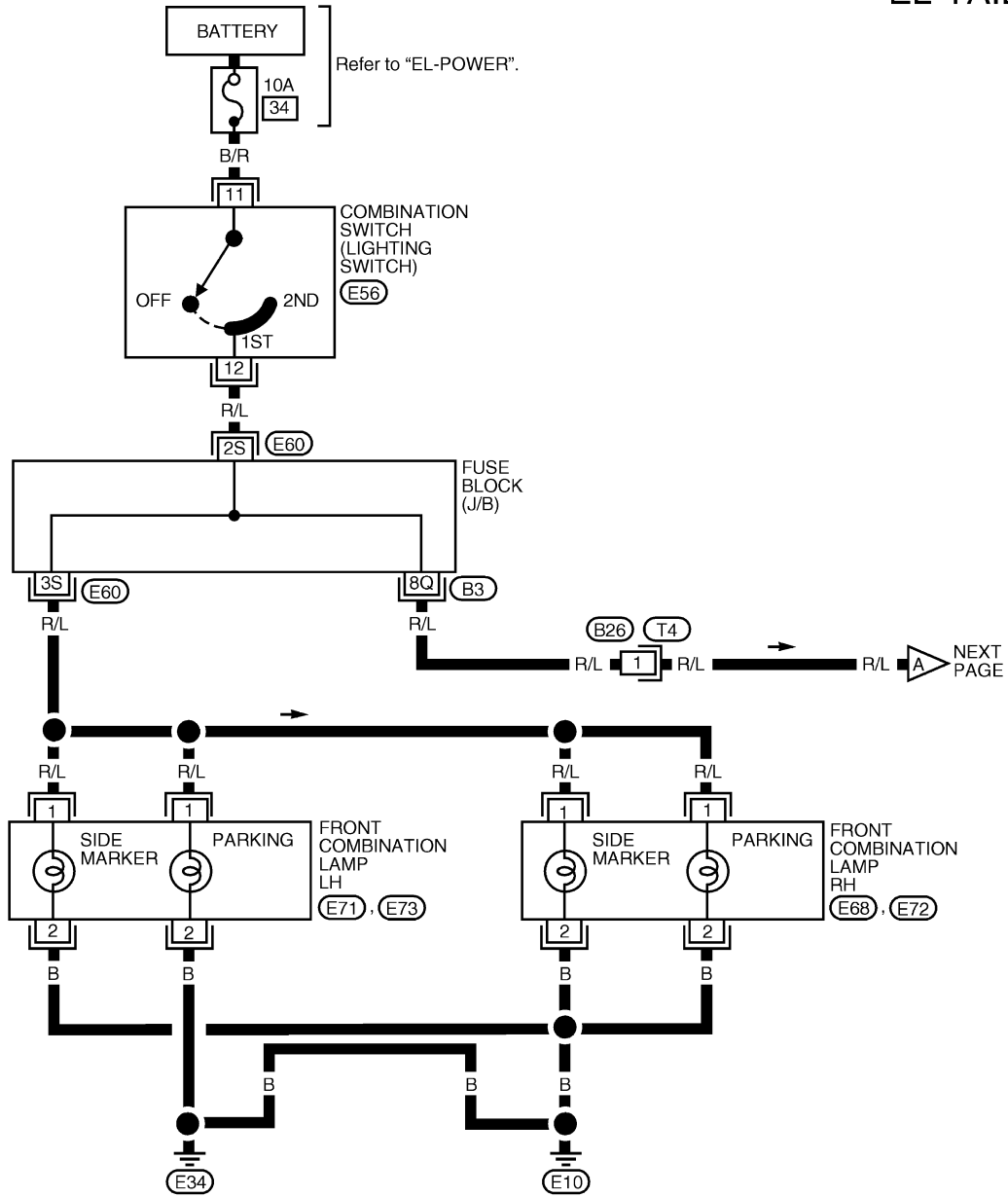
Refer to “Aiming Adjustment”, EL-61.

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PARKING, LICENSE AND TAIL LAMPS

Wiring Diagram — TAIL/L —

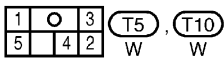
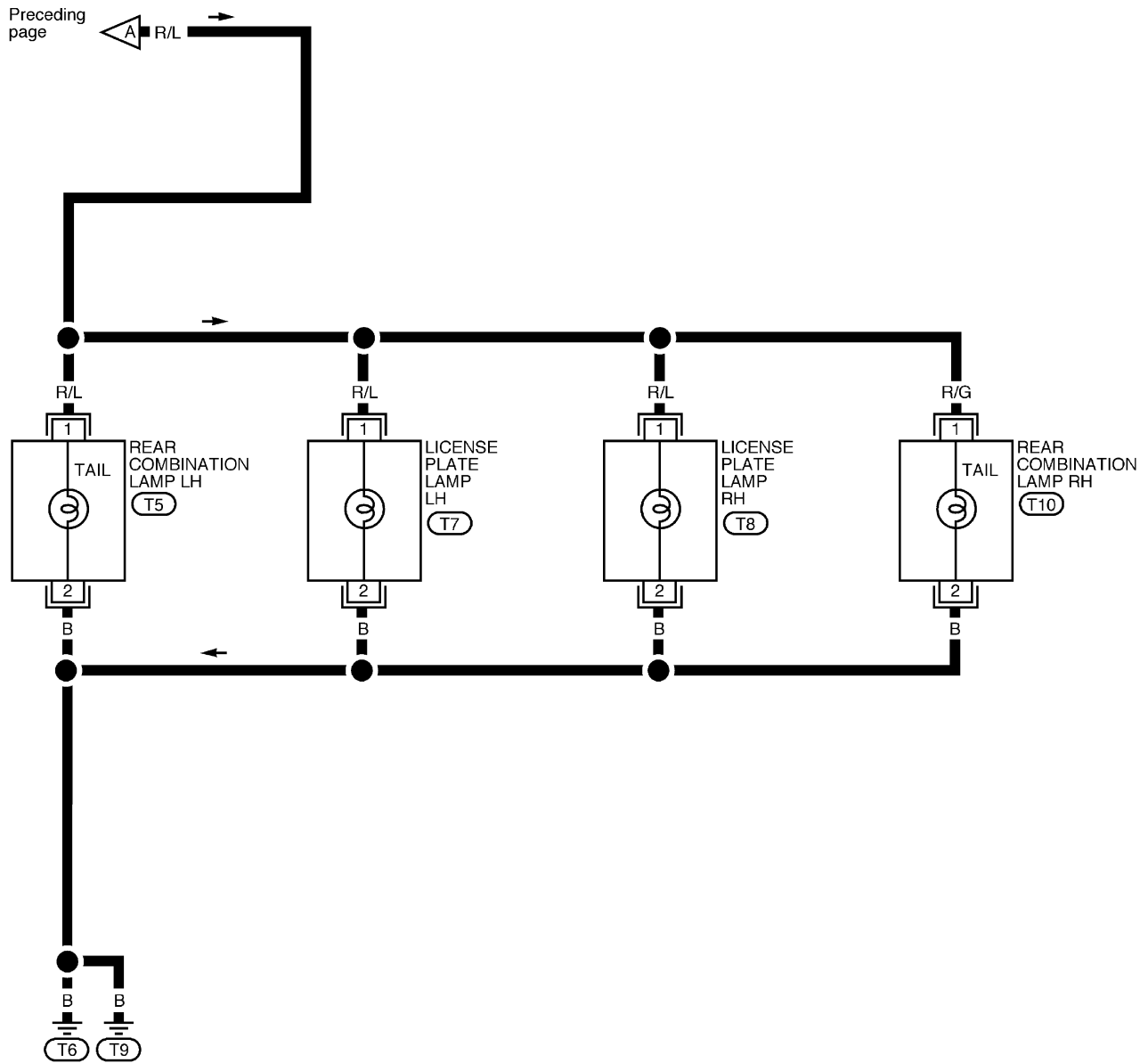
EL-TAIL/L-01



PARKING, LICENSE AND TAIL LAMPS

Wiring Diagram — TAIL/L — (Cont'd)

EL-TAIL/L-02



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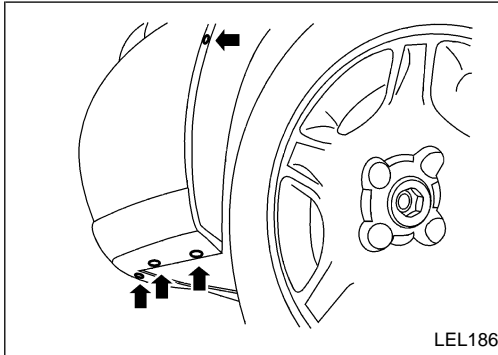
PARKING, LICENSE AND TAIL LAMPS

Bulb Replacement

The headlamp assembly must be removed to replace the headlamp bulb, front parking and cornering lamp bulb or front side marker bulb.

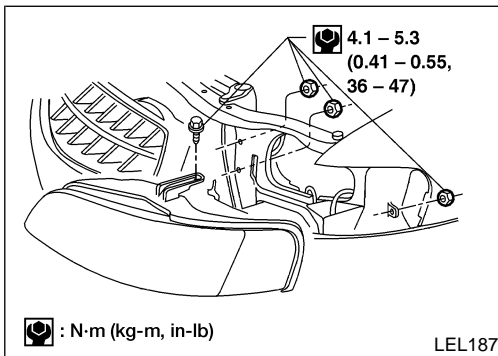
FRONT PARKING AND SIDE MARKER LAMP

1. Disconnect the battery negative (-) cable.



LEL186

2. Remove the four screws from the bottom of the front fender protector and position the front fender protector aside to access the headlamp mounting nut.



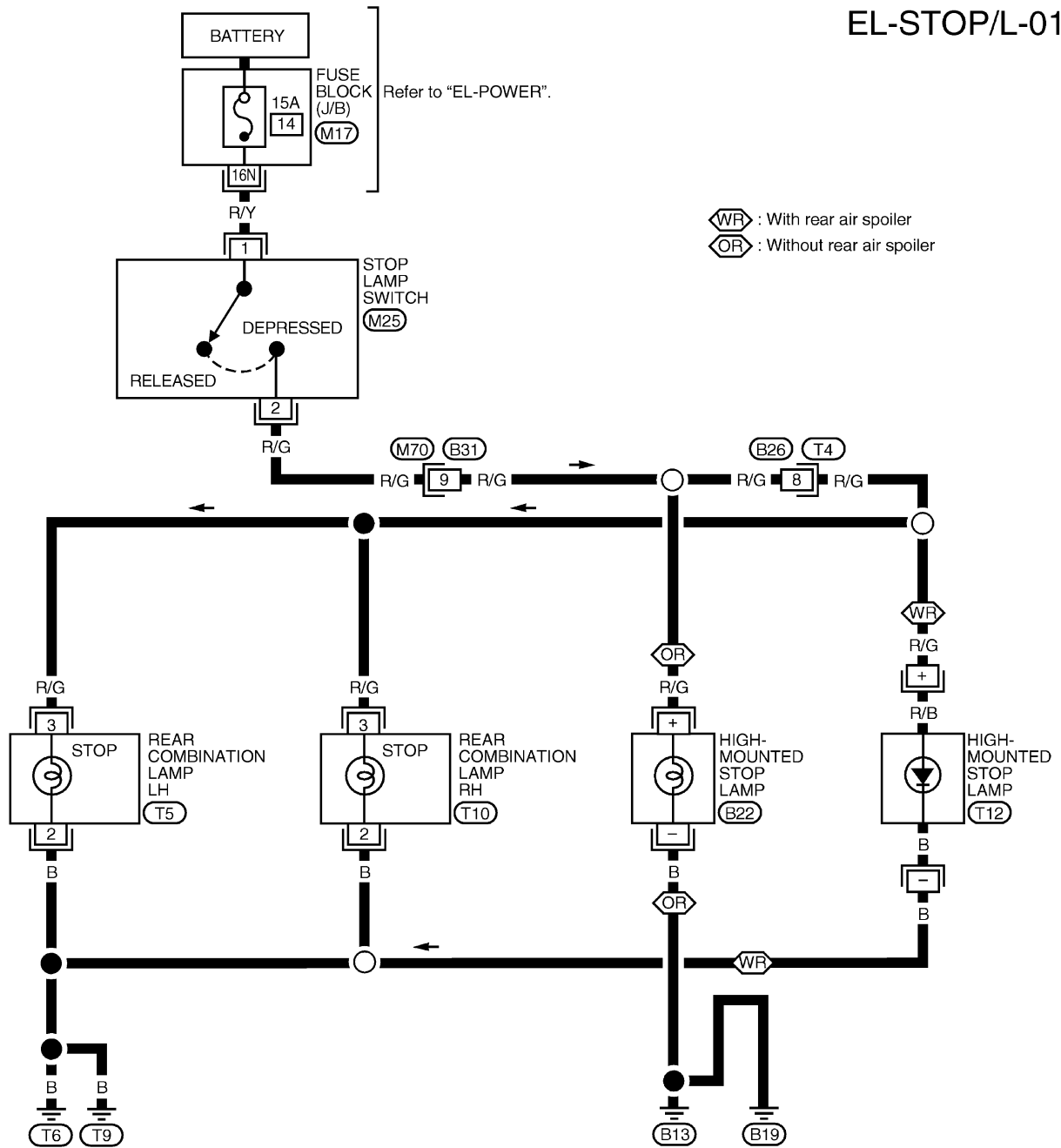
LEL187

3. Remove the three headlamp mounting nuts and one headlamp mounting bolt.
4. Pull the headlamp assembly evenly away from the front of the vehicle to access the bulb sockets.
5. Rotate the bulb socket counter clockwise and remove it from the assembly.
Do not shake the bulb socket when removing it.
6. Pull the bulb out of the socket and replace.
7. Install in the reverse order of removal.

STOP LAMP

Wiring Diagram — STOP/L —

EL-STOP/L-01



1N	2N	3N	4N	5N	6N	7N	(M17)		
8N	9N	10N	11N	12N	13N	14N	15N	16N	GY

1	2	(M25)
		B

1	2	3	4	(M70)	(T4)	(B22)		
5	6	7	8	9	10	W	W	W

1	3	(T5)	(T10)
5	4	W	W

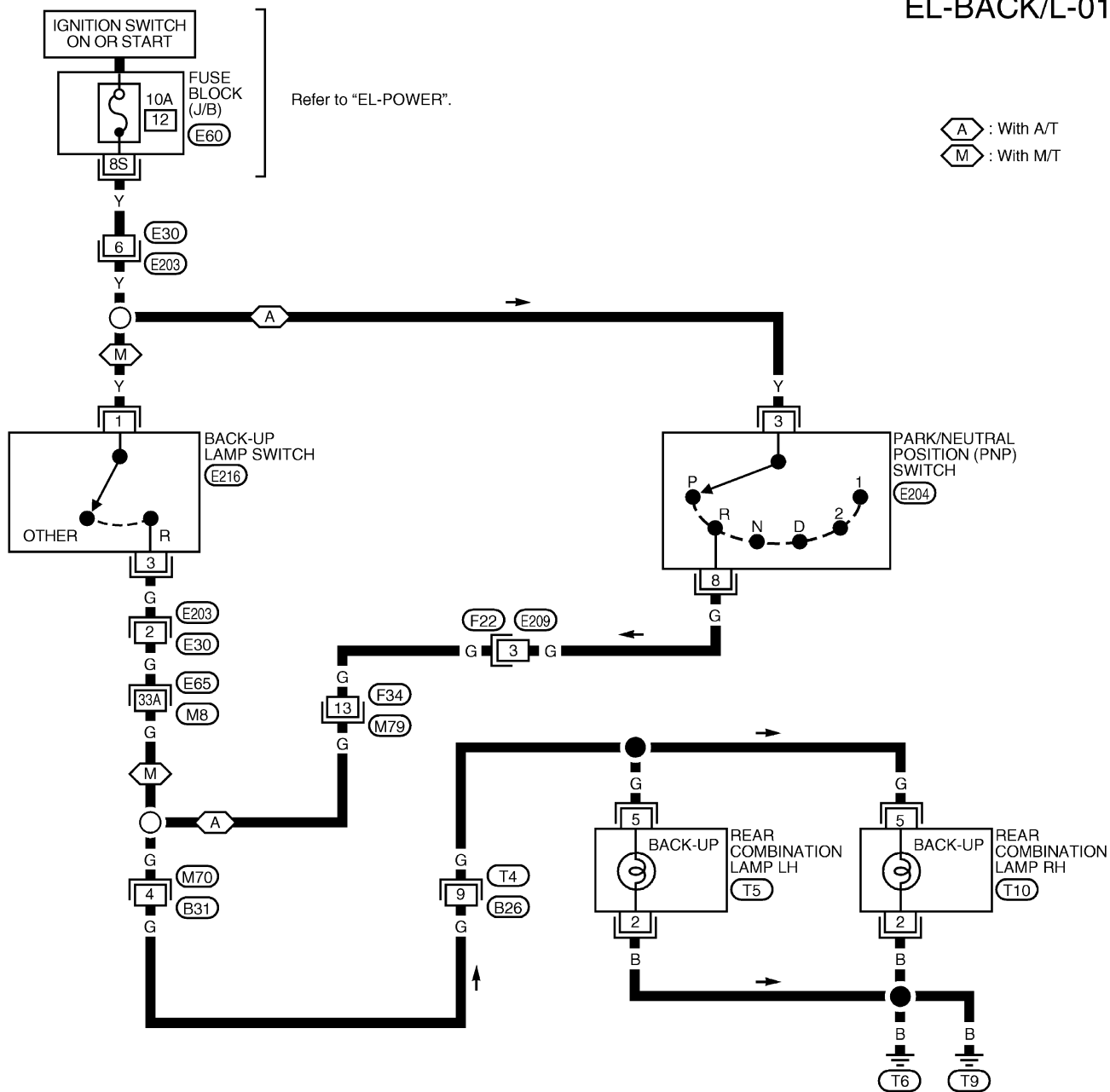
+	-	(T12)
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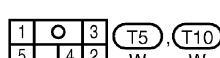
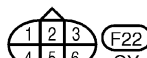
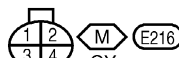
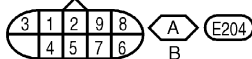
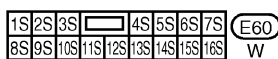
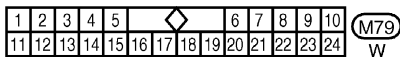
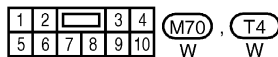
BACK-UP LAMP

Wiring Diagram — BACK/L —

EL-BACK/L-01



⬡ : With A/T
⬢ : With M/T



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

FRONT FOG LAMP

System Description

Power is supplied at all times to front fog lamp relay terminal ③ through:

- 15A fuse (No. 43, located in the fuse and fusible link box).

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

- through 15A fuse (No. 33, located in the fuse and fusible link box)
- to lighting switch terminal ⑤
- through terminal ⑦ of the lighting switch
- to front fog lamp relay terminal ①.

Fog lamp operation

The fog lamp switch is built into the combination switch. The lighting switch must be in headlamp ON (2ND) position, LOW BEAM (B) for fog lamp operation.

With the front fog lamp switch in the ON position:

- ground is supplied to front fog lamp relay terminal ② through the front fog lamp switch and body grounds E10 and E34.

The fog lamp relay is energized and power is supplied:

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

Ground is supplied to terminal ② of each front fog lamp through body grounds E10 and E34.

With power and ground supplied, the front fog lamps illuminate.

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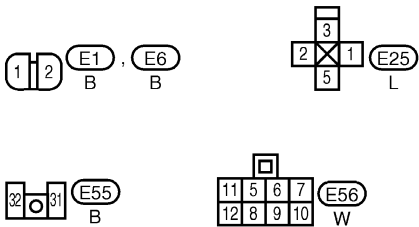
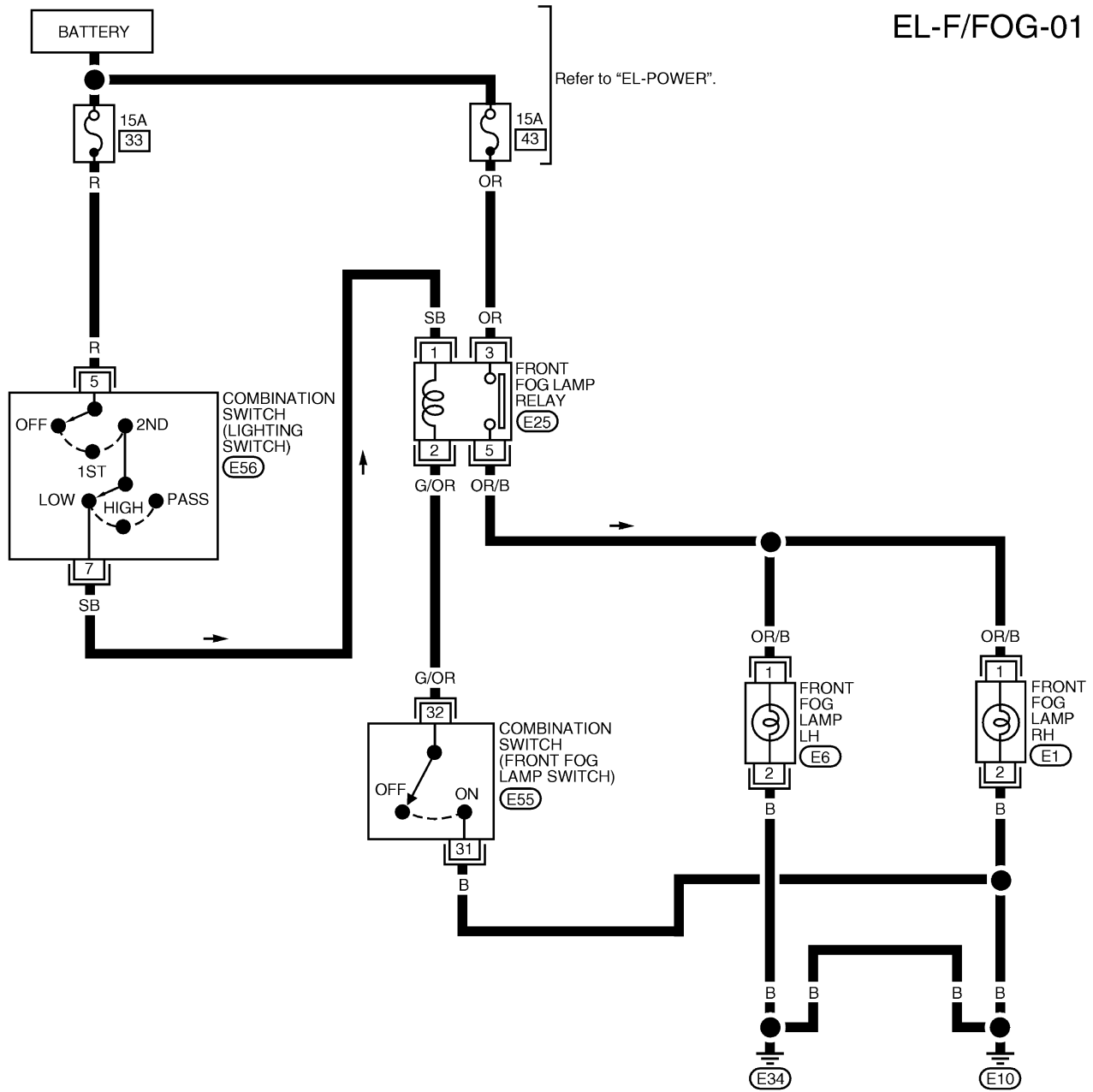
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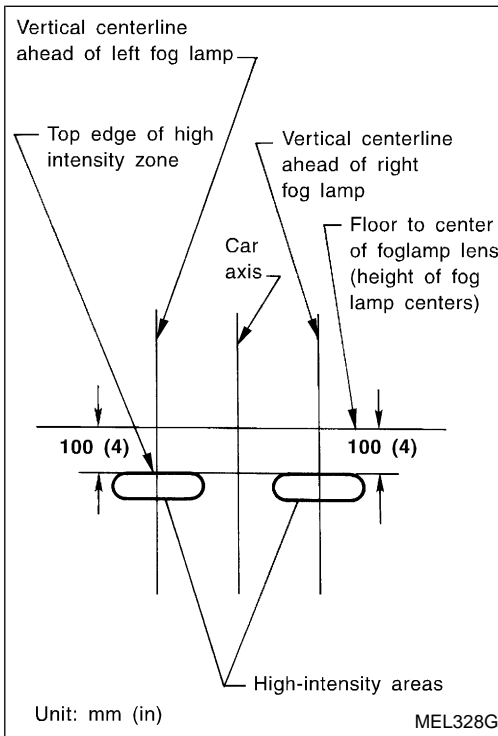
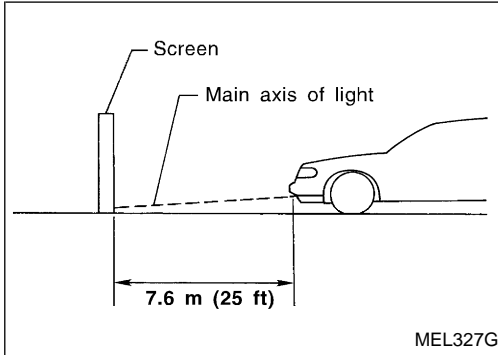
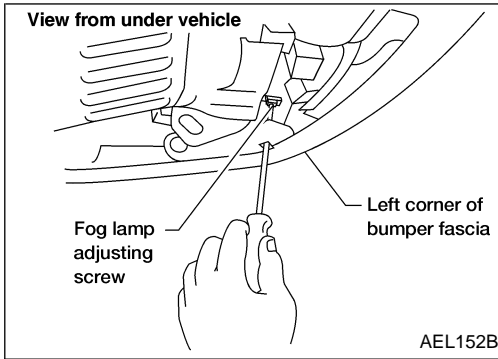
FRONT FOG LAMP

Wiring Diagram — F/FOG —

EL-F/FOG-01



FRONT FOG LAMP



Aiming Adjustment

Before performing aiming adjustment, make sure of the following.

- Keep all tires inflated to correct pressure.
- Place vehicle on level ground.
- Check that vehicle is unloaded (except for full levels of coolant, washer fluid, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver's seat.

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

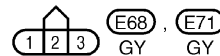
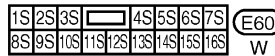
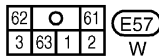
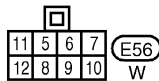
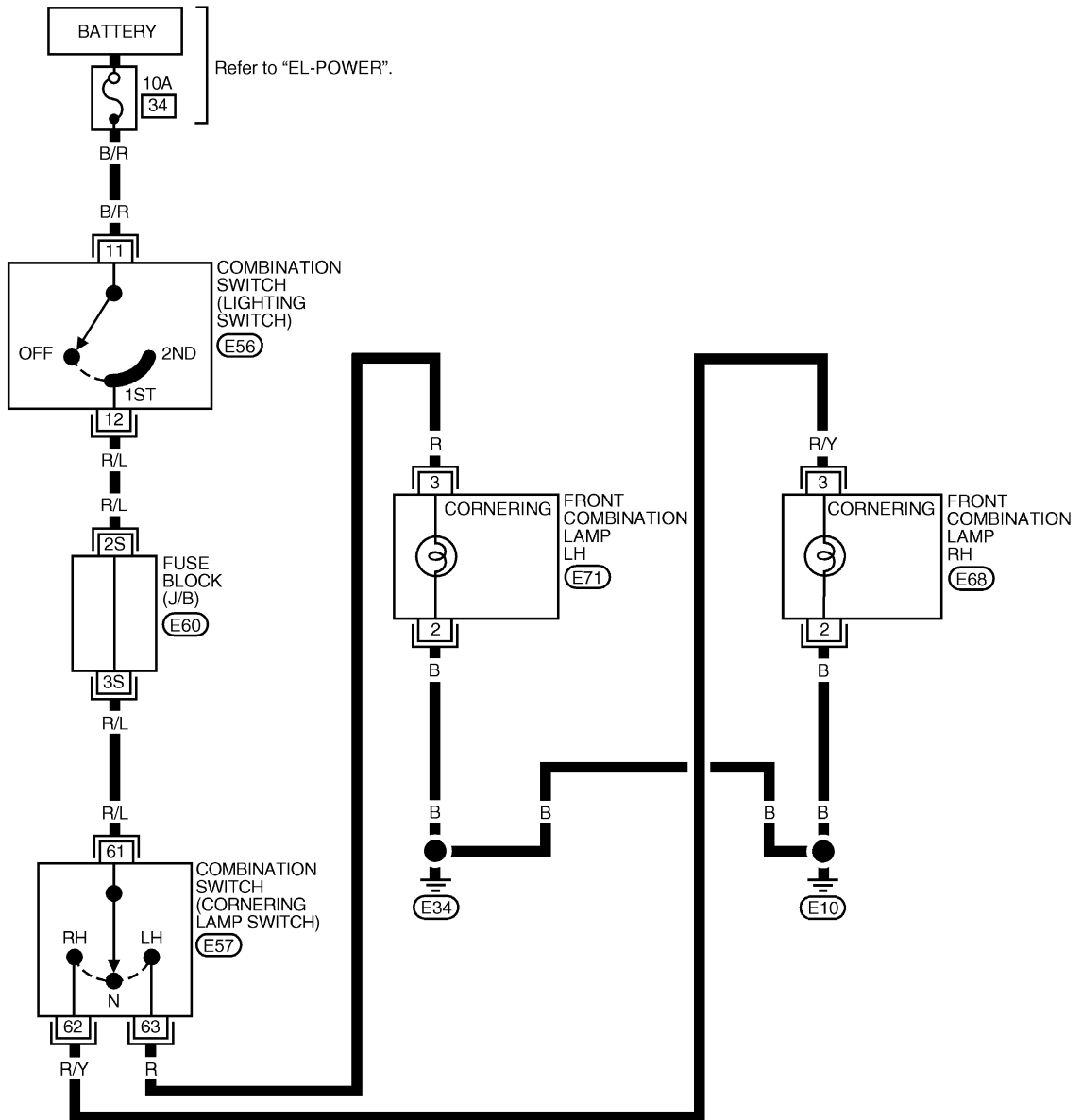
- Adjust front fog lamps so that the top edge of the high intensity zone is 100 mm (4 in) below the height of the fog lamp centers as shown at left.
 - When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.**

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CORNERING LAMPS

Wiring Diagram — CORNER —

EL-CORNER-01



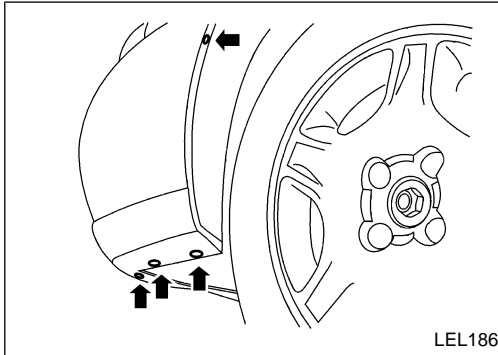
CORNERING LAMPS

Bulb Replacement

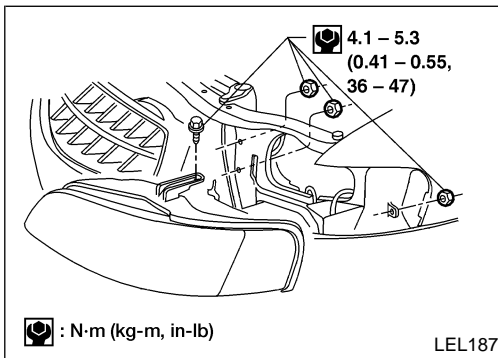
The headlamp assembly must be removed to replace the headlamp bulb, front parking and cornering lamp bulb or front side marker bulb.

CORNERING LAMP

1. Disconnect the battery negative (-) cable.



2. Remove the four screws from the bottom of the front fender protector and position the front fender protector aside to access the headlamp mounting nut.



3. Remove the three headlamp mounting nuts and one headlamp mounting bolt.
4. Pull the headlamp assembly evenly away from the front of the vehicle to access the bulb sockets.
5. Rotate the bulb socket counter clockwise and remove it from the assembly.
Do not shake the bulb socket when removing it.
6. Pull the bulb out of the socket and replace.
7. Install in the reverse order of removal.

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TURN SIGNAL AND HAZARD WARNING LAMPS

System Description

TURN SIGNAL OPERATION

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

- through 10A fuse [No. 11], located in the fuse block (J/B)
- to hazard switch terminal ②
- through terminal ① of the hazard switch
- to combination flasher unit terminal ①
- through terminal ③ of the combination flasher unit
- to turn signal switch terminal ①.

Ground is supplied to combination flasher unit terminal ② through body grounds M2 and M61.

LH turn

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

- front turn signal lamp LH terminal ③
- combination meter terminal 11
- rear combination lamp LH terminal ④.

Ground is supplied to the front turn signal lamp LH terminal ② through body grounds E10 and E34.

Ground is supplied to the rear combination lamp LH terminal ② through body grounds T6 and T9.

Ground is supplied to combination meter terminal 56 through body grounds M2 and M61.

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

RH turn

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

- front turn signal lamp RH terminal ③
- combination meter terminal 48
- rear combination lamp RH terminal ④.

Ground is supplied to the front turn signal lamp RH terminal ② through body grounds E10 and E34.

Ground is supplied to the rear combination lamp RH terminal ② through body grounds T6 and T9.

Ground is supplied to combination meter terminal 56 through body grounds M2 and M61.

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

HAZARD LAMP OPERATION

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

- 10A fuse [No. 20], located in the fuse block (J/B)].

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

- through terminal ① of the hazard switch
- to combination flasher unit terminal ①
- through terminal ③ of the combination flasher unit
- to hazard switch terminal ④.

Ground is supplied to combination flasher unit terminal ② through body grounds M2 and M61.

Power is supplied through terminal ⑤ of the hazard switch to:

- front turn signal lamp LH terminal ③
- combination meter terminal 11
- rear combination lamp LH terminal ④.

Power is supplied through terminal ⑥ of the hazard switch to:

- front turn signal lamp RH terminal ③
- rear combination lamp RH terminal ④
- combination meter terminal 48.

Ground is supplied to terminal ② of each front turn signal lamp through body grounds E10 and E34.

Ground is supplied to terminal ② of each rear combination lamp through body grounds T6 and T9.

Ground is supplied to combination meter terminal 56 through body grounds M2 and M61.

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

TURN SIGNAL AND HAZARD WARNING LAMPS

System Description (Cont'd)

WITH MULTI-REMOTE CONTROL SYSTEM

Power is supplied at all times:

- through 10A fuse [No. 20, located in the fuse block (J/B)]
- to multi-remote control relay-1 terminals ①, ③ and ⑥.

Ground is supplied to multi-remote control relay-1 terminal ②, when the multi-remote control system is triggered through the smart entrance control unit.

Refer to "MULTI-REMOTE CONTROL SYSTEM", EL-205.

When multi-remote control relay-1 is energized.

Power is supplied through terminal ⑤ of the multi-remote control relay-1:

- to front turn signal lamp LH terminal ③
- to combination meter terminal ⑪
- to rear combination lamp LH terminal ④.

Power is supplied through terminal ⑦ of the multi-remote control relay-1:

- to front turn signal lamp RH terminal ③
- to combination meter terminal ④⑧
- to rear combination lamp RH terminal ④.

Ground is supplied to terminal ② of each front turn signal lamp through body grounds E10 and E34.

Ground is supplied to terminal ② of each rear combination lamp through body grounds T6 and T9.

Ground is supplied to combination meter terminal ⑤⑥ through body grounds M2 and M61.

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

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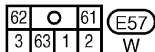
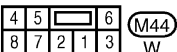
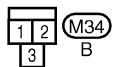
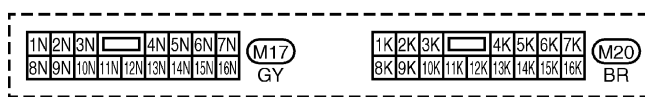
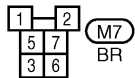
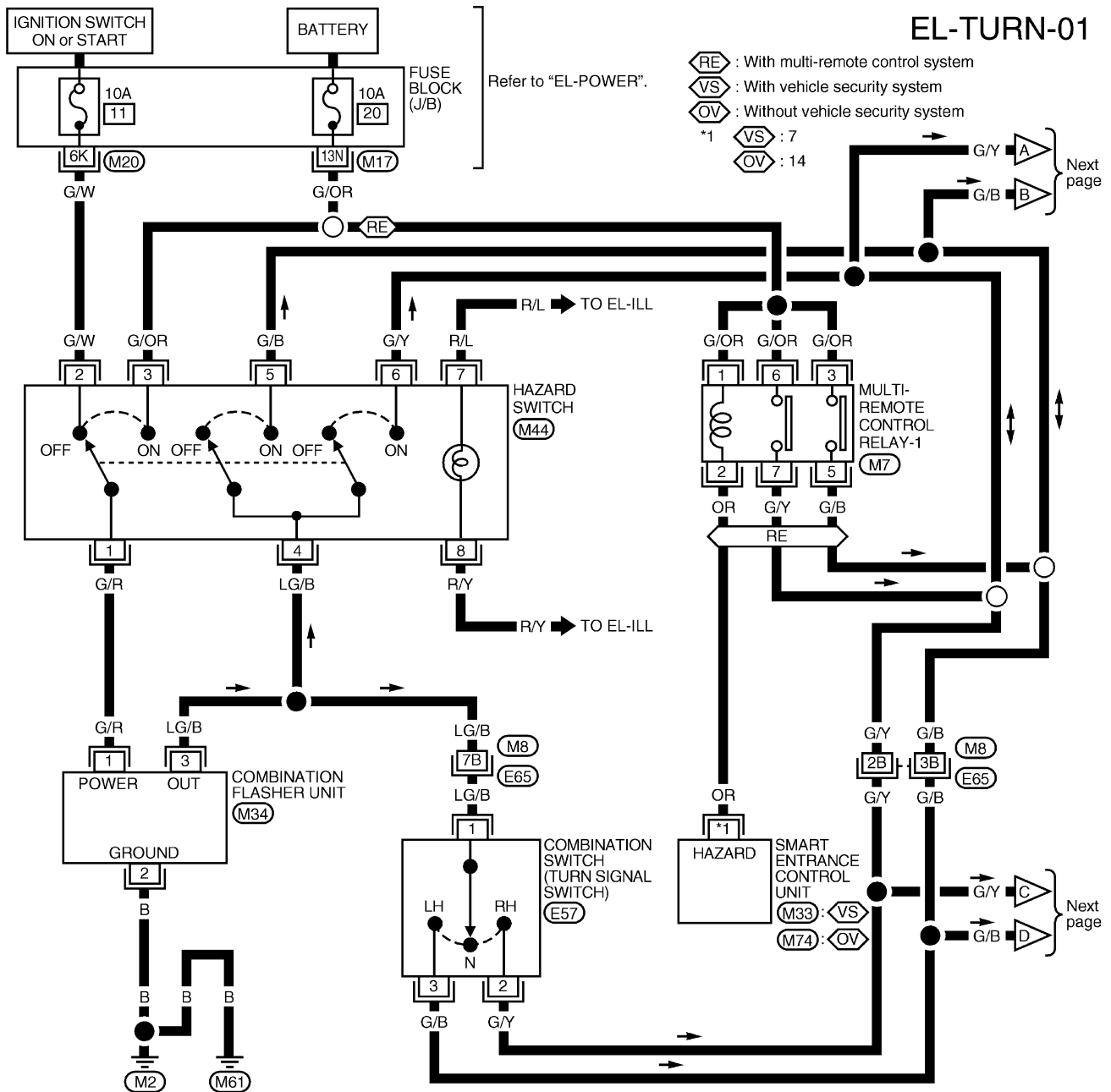
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TURN SIGNAL AND HAZARD WARNING LAMPS

Wiring Diagram — TURN —



Refer to the following.

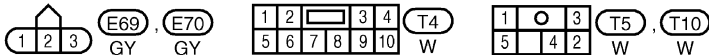
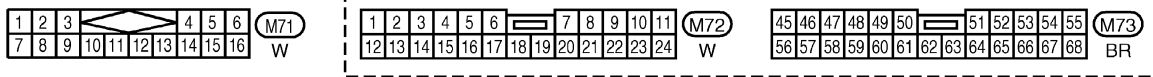
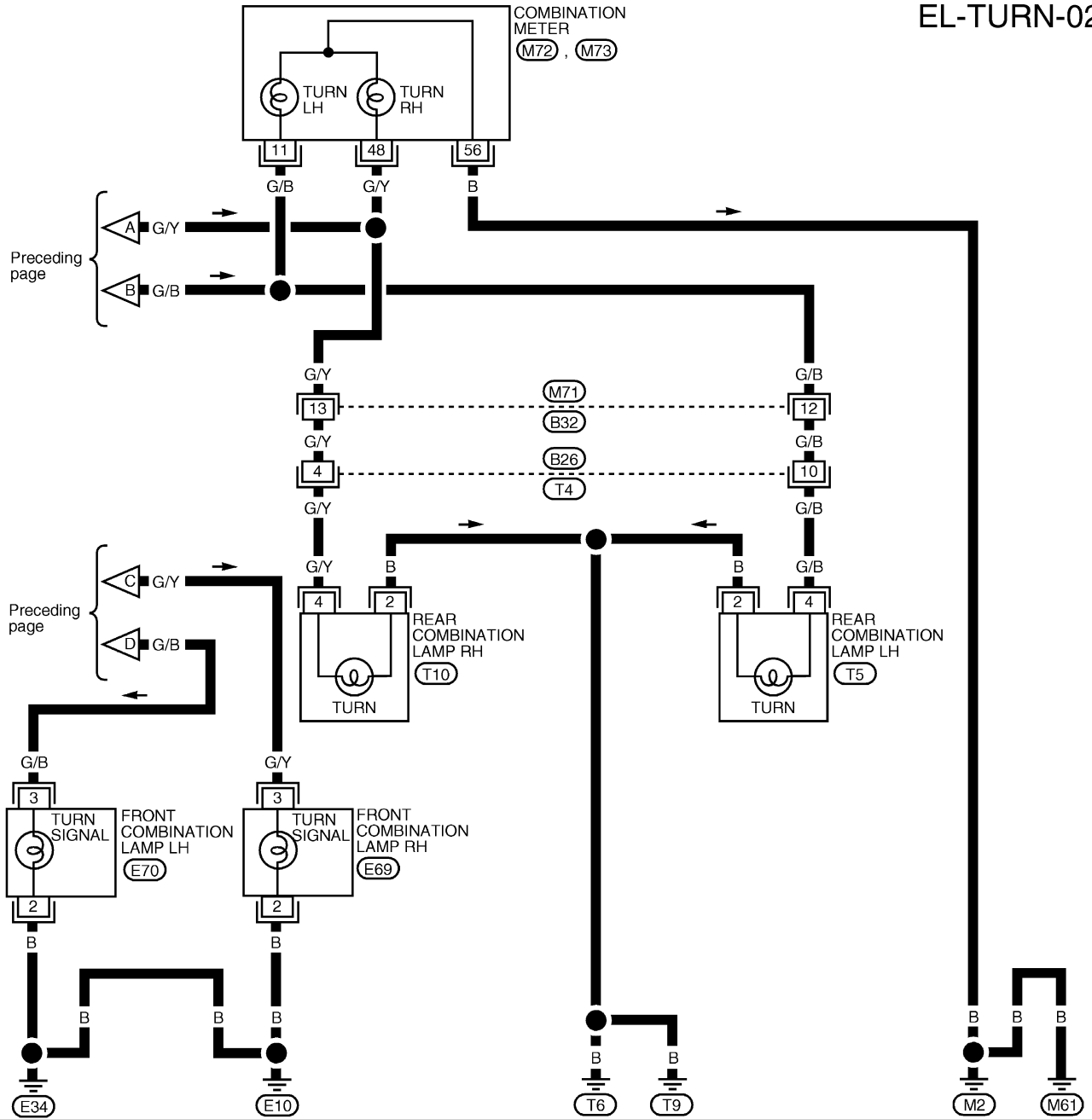
(M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

(M33), (M74) - ELECTRICAL UNITS

TURN SIGNAL AND HAZARD WARNING LAMPS

Wiring Diagram — TURN — (Cont'd)

EL-TURN-02

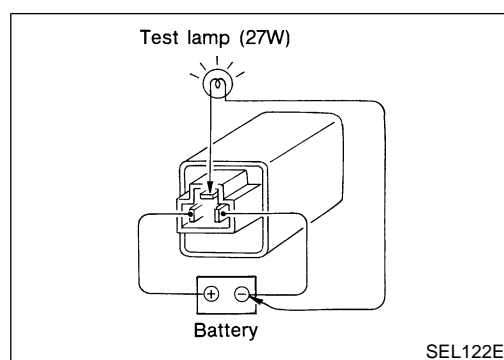


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TURN SIGNAL AND HAZARD WARNING LAMPS

Trouble Diagnoses

Symptom	Possible cause	Repair order
Turn signal and hazard warning lamps do not operate.	<ol style="list-style-type: none"> 1. Hazard switch 2. Combination flasher unit 3. Open in combination flasher unit circuit 	<ol style="list-style-type: none"> 1. Check hazard switch. 2. Refer to combination flasher unit check. 3. Check wiring to combination flasher unit for open circuit.
Turn signal lamps do not operate but hazard warning lamps operate.	<ol style="list-style-type: none"> 1. 10A fuse 2. Hazard switch 3. Turn signal switch 4. Open in turn signal switch circuit 	<ol style="list-style-type: none"> 1. Check 10A fuse [No. 11], 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 LG/B wire between combination flasher unit and turn signal switch 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. 20], located in fuse block (J/B)]. Verify battery positive voltage is present at terminal ③ of hazard switch. 2. Check hazard switch. 3. Check LG/B 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. Grounds (E10) and (E34) 3. Open in front turn signal circuit. 	<ol style="list-style-type: none"> 1. Check bulb. 2. Check grounds (E10) and (E34). 3. Check harness between turn signal switch and front turn signal lamp.
Rear turn signal lamp LH does not operate.	<ol style="list-style-type: none"> 1. Bulb 2. Grounds (T6) and (T9) 3. Open in rear turn signal lamp LH circuit. 	<ol style="list-style-type: none"> 1. Check bulb. 2. Check grounds (T6) and (T9). 3. Check G/B wire between rear combination lamp LH and turn signal switch for open circuit.
Rear turn signal lamp RH does not operate.	<ol style="list-style-type: none"> 1. Bulb 2. Grounds (T6) and (T9) 3. Open in rear turn signal lamp RH circuit. 	<ol style="list-style-type: none"> 1. Check bulb. 2. Check grounds (T6) and (T9). 3. Check G/Y wire between rear combination lamp RH and turn signal switch for open circuit.
LH and RH turn indicators do not operate.	<ol style="list-style-type: none"> 1. Ground 2. Combination meter. 	<ol style="list-style-type: none"> 1. Check grounds (M2) and (M61). 2. Check combination meter.
LH or RH turn indicator does not operate.	<ol style="list-style-type: none"> 1. Bulb 2. Combination meter. 3. Open in turn indicator circuit. 	<ol style="list-style-type: none"> 1. Check bulb in combination meter. 2. Check combination meter. 3. Check harness between combination meter and turn signal switch.



Electrical Components Inspection

COMBINATION FLASHER UNIT CHECK

- 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

Power is supplied at all times:

- through 10A fuse (No. 34, located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

The lighting switch must be in parking lamp (1ST) or headlamp 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
Illumination control switch	M21	①	⑤
Combination meter	M73	⑥⑩	⑥⑪
Hazard switch	M44	⑦	⑧
Rear window defogger switch	M35	⑤	⑥
Glove box lamp	M54	⊕	⊖
Push control unit	M47, M48	⑮	⑯
A/T device indicator	M50	③	④
Audio unit	M40	⑧	⑦
Main power window and door lock/unlock switch	D7	③	⑧

The ground for all of the components except for the glove box lamp is controlled through terminal ④ of the illumination control switch and body grounds ② and ⑥⑪.

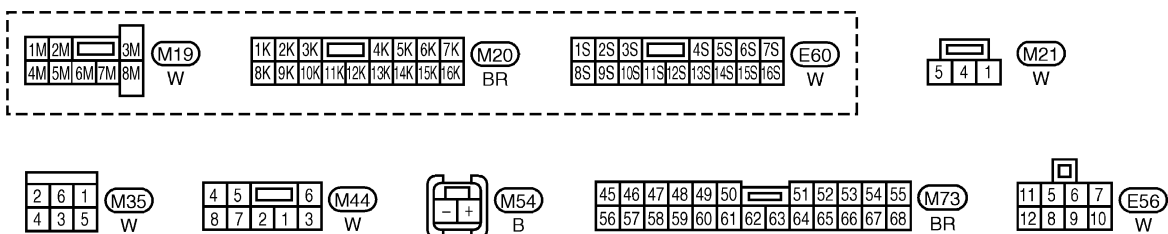
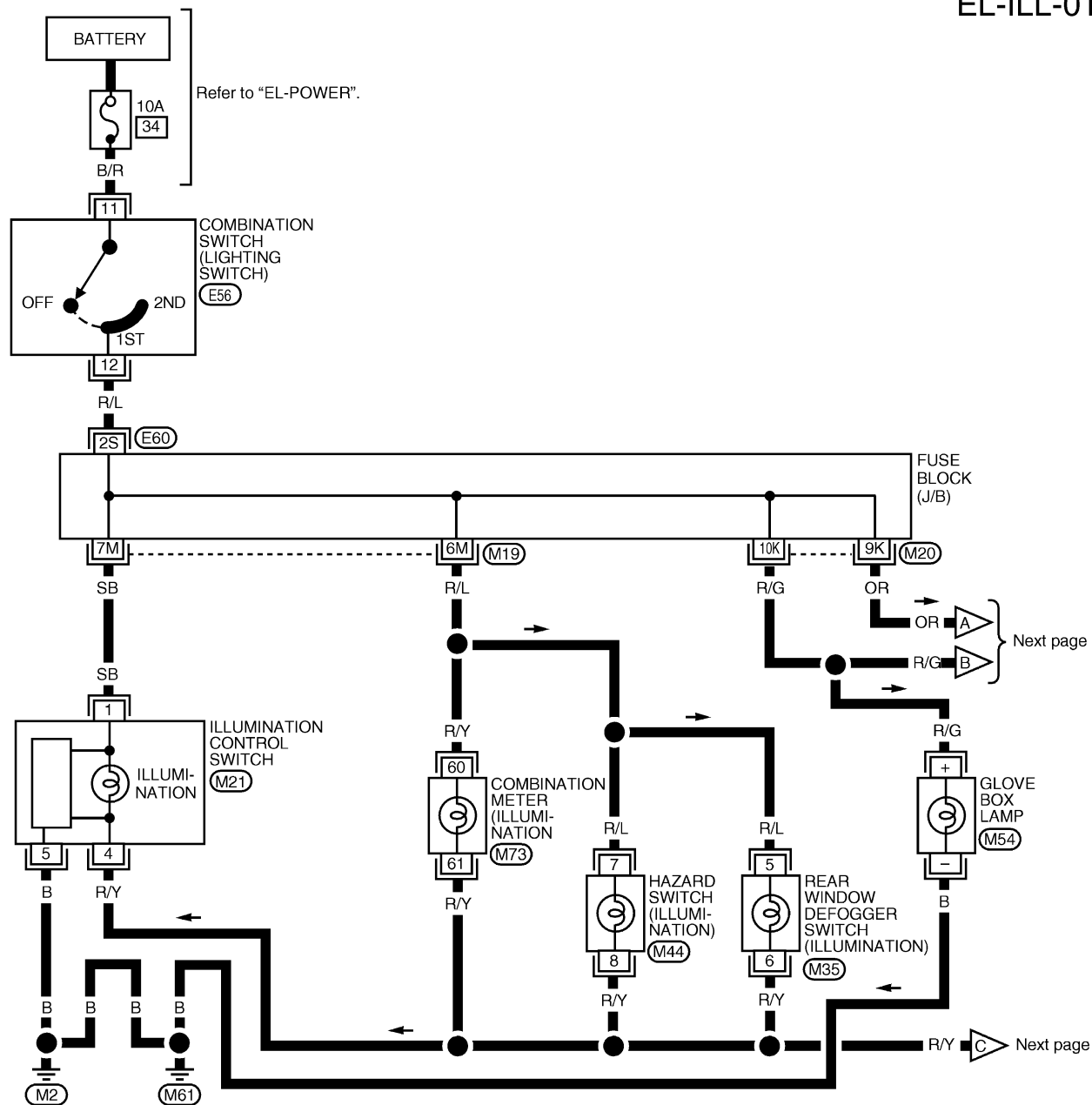
The ground for the glove box lamp is supplied directly through body grounds ② and ⑥⑪.

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ILLUMINATION

Wiring Diagram — ILL —


EL-ILL-01

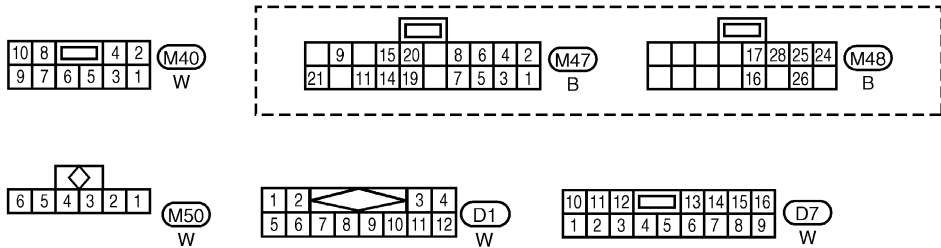
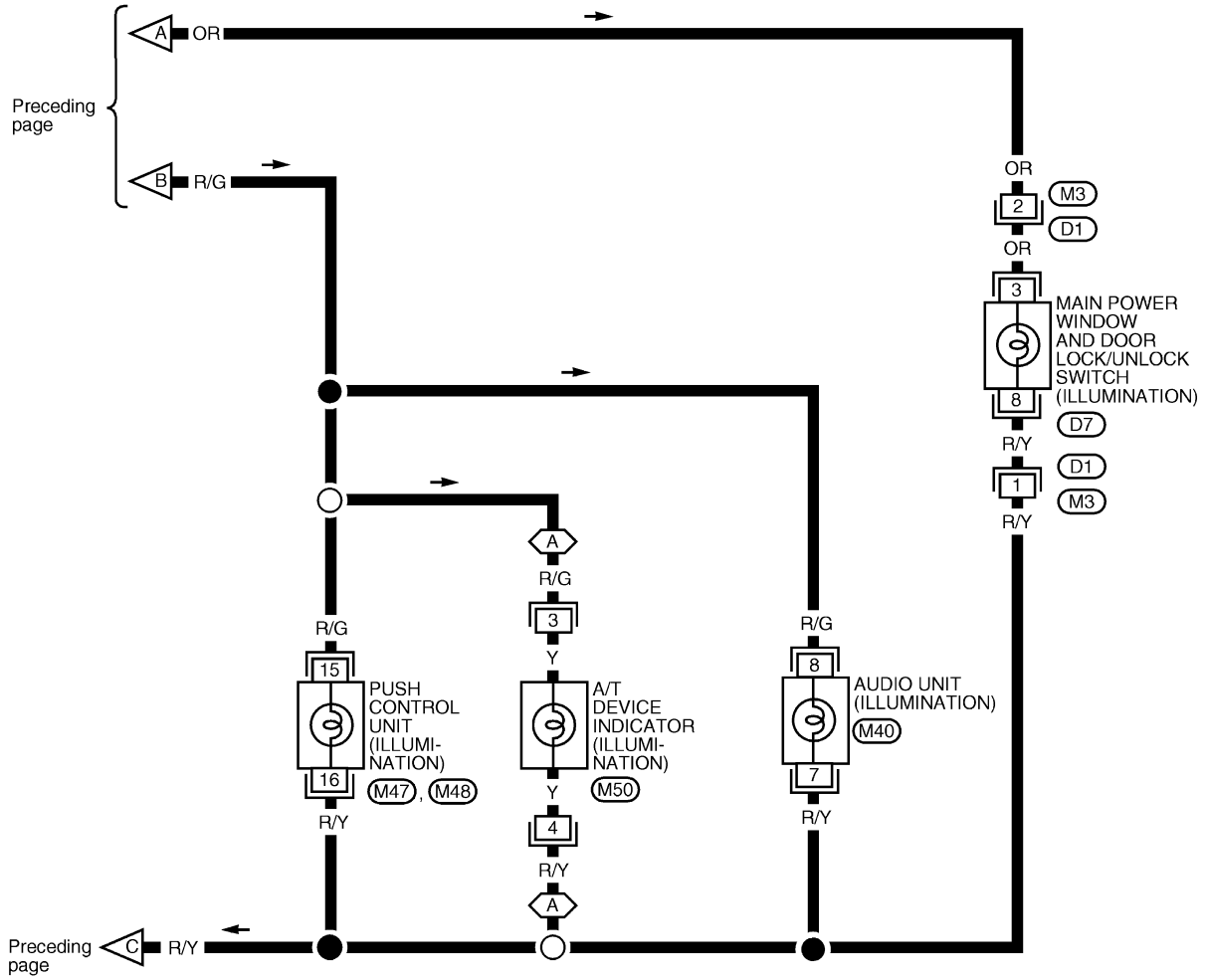


ILLUMINATION

Wiring Diagram — ILL — (Cont'd)

EL-ILL-02

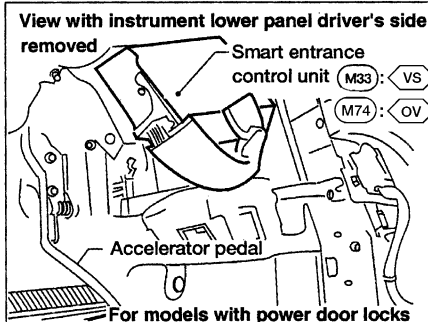
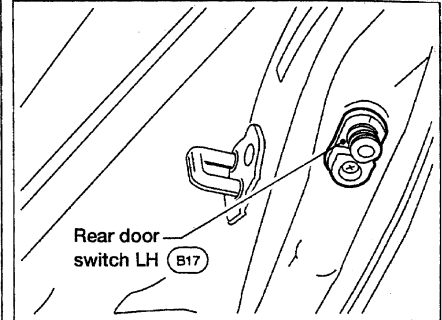
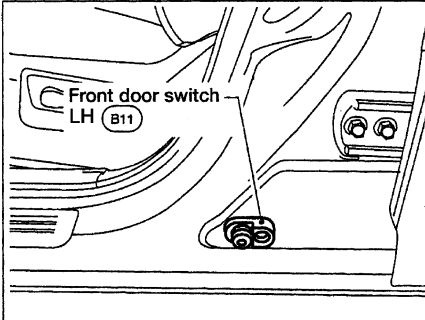
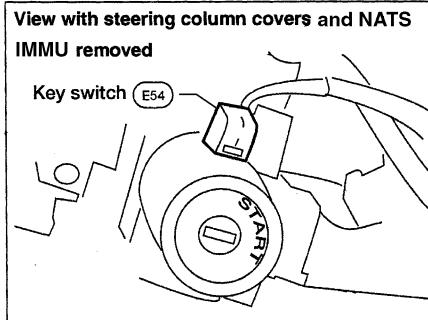
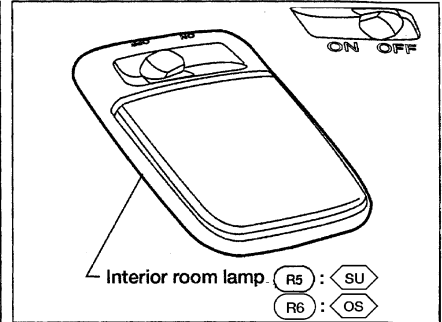
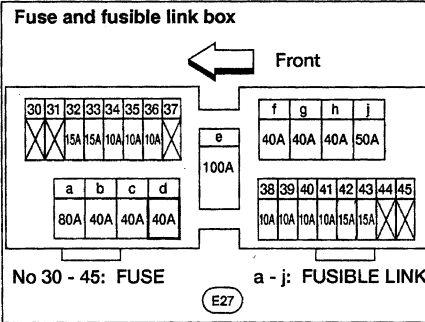
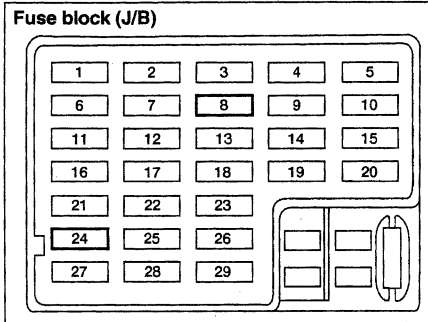
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INTERIOR ROOM LAMP

Component Parts and Harness Connector Location



- <SU> : With sunroof
- <OS> : Without sunroof
- <VS> : With vehicle security system
- <OV> : Without vehicle security system

INTERIOR ROOM LAMP

System Description

MODELS WITH POWER DOOR LOCKS

Power supply and ground

Power is supplied at all times:

- through 40A fusible link (Letter **d**, located in the fuse and fusible link box)
- to circuit breaker-1 terminal **①**
- through circuit breaker-1 terminal **②**
- to smart entrance control unit terminal **①** (with vehicle security system), **⑥** (without vehicle security system).

Power is supplied at all times:

- through 10A fuse [No. **24**, located in the fuse block (J/B)]
- to key switch terminal **②**.

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

- through key switch terminal **①**
- to smart entrance control unit terminal **②4** (with vehicle security system), **⑫** (without vehicle security system).

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

- through 10A fuse [No. **8**, located in the fuse block (J/B)]
- to smart entrance control unit terminal **⑪** (with vehicle security system), **⑳** (without vehicle security system)

Ground is supplied:

- to smart entrance control unit terminal **⑩** (with vehicle security system), **①** (without vehicle security system)
- through body grounds terminal **M2** and **M61**.

When the front LH door is opened, ground is supplied:

- from front door switch LH terminal **①**
- to smart entrance control unit terminal **⑮** (with vehicle security system), **⑳** (without vehicle security system).

When any other door is opened, ground is supplied to smart entrance control unit terminal **⑮** (with vehicle security system), **⑳** (without vehicle security system) in the same manner as the front door switch LH.

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

- through smart entrance control unit terminal **⑨** (with vehicle security system), **⑤** (without vehicle security system)
- to room lamp terminal **D**.

With power and ground supplied, the room lamp illuminates.

Switch operation

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

- to room lamp
- through case ground of room lamp.

With power and ground supplied, the room lamp illuminates.

Room lamp timer operation

When the room lamp switch is in the DOOR position, the smart entrance control unit slowly (about 3 seconds) illuminates the room lamp then keeps the room lamp illuminated for about 30 seconds then slowly turns off when:

- unlock signal is supplied from multi-remote controller (Models with multi-remote control system)
- key is removed from ignition key cylinder while any door is closed
- any door is opened and then closed while ignition switch is not in the ON position (However, room lamp timer operation is OFF when any door is opened with ignition key in cylinder).

The timer is canceled, and room lamp turns off when:

- lock signal is supplied from multi-remote controller, or
- ignition switch is turned ON.

ON-OFF control

When any door is opened, the room lamp turns on while the room lamp switch is in the DOOR position.

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INTERIOR ROOM LAMP

System Description (Cont'd)

Room lamp battery saver

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

MODELS WITHOUT POWER DOOR LOCKS

Power is supplied at all times:

- through 10A fuse [No. 24], located in the fuse block (J/B)
- to room lamp terminal (+).

With the room lamp switch ON, ground is supplied to turn room lamp ON.

When any door is opened with the room lamp switch in DOOR position, ground is supplied:

- to room lamp switch terminal (D)
- through front door switch LH or RH terminal (1), rear door switch LH or RH terminal (1).

With power and ground supplied, the room lamp illuminates.

INTERIOR ROOM LAMP

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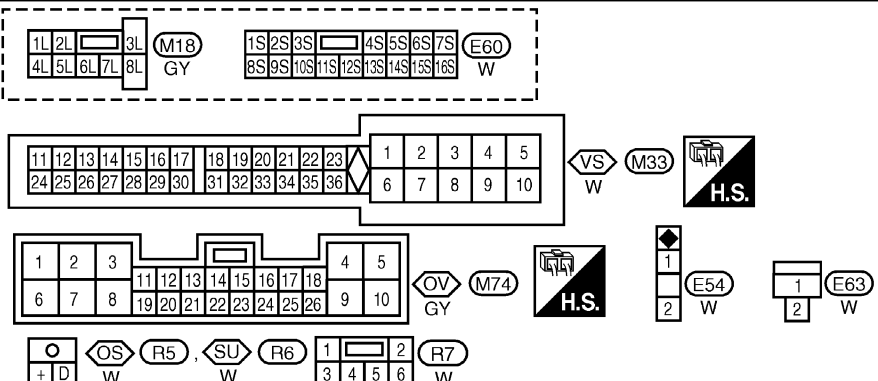
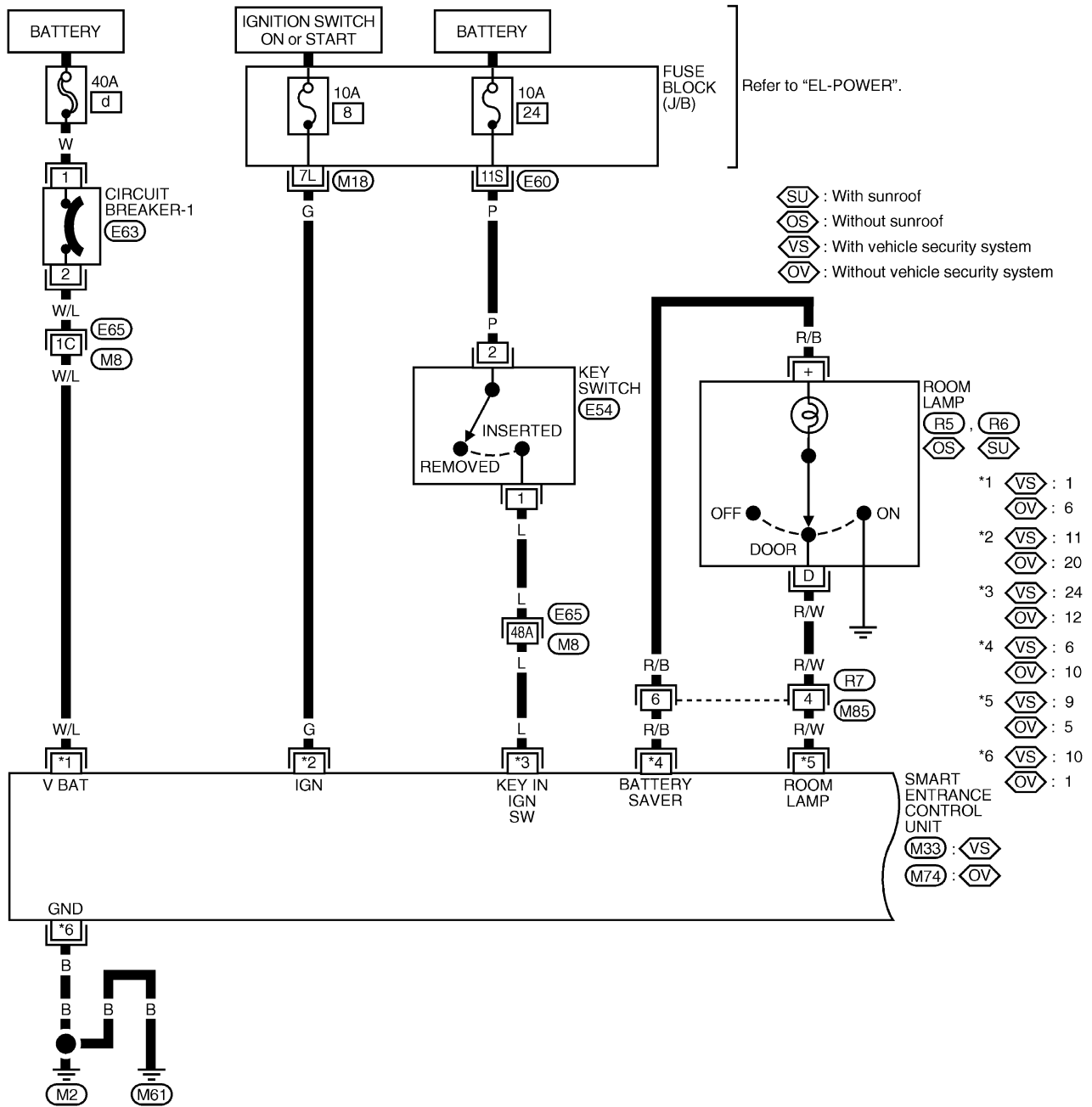
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INTERIOR ROOM LAMP

Wiring Diagram — ROOM/L —

MODELS WITH POWER DOOR LOCKS

EL-ROOM/L-01

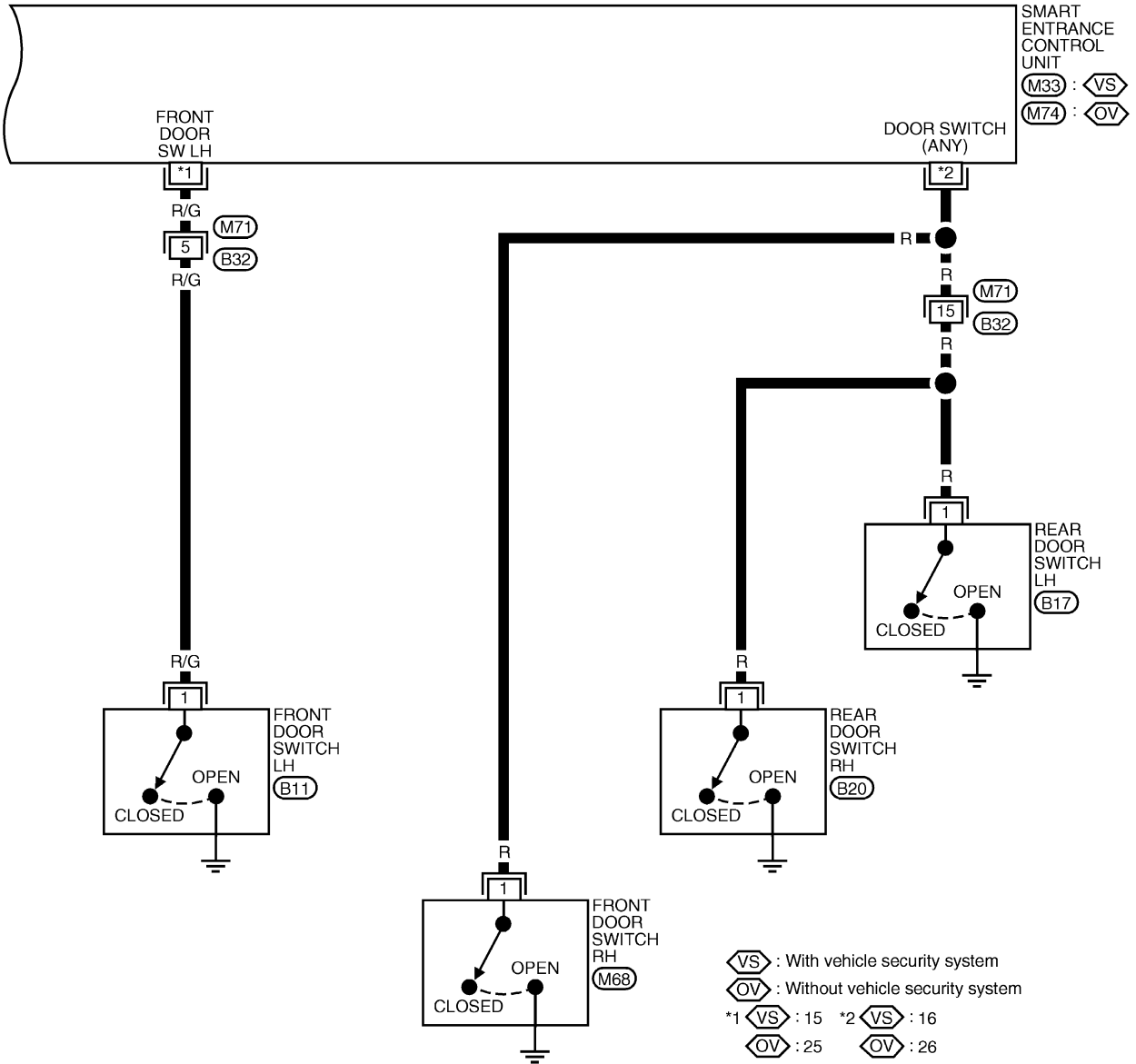


Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

INTERIOR ROOM LAMP

Wiring Diagram — ROOM/L — (Cont'd)

EL-ROOM/L-02



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1	2	3	4	5	6	(M71)				
7	8	9	10	11	12	13	14	15	16	W

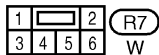
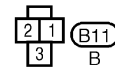
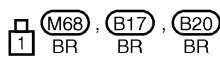
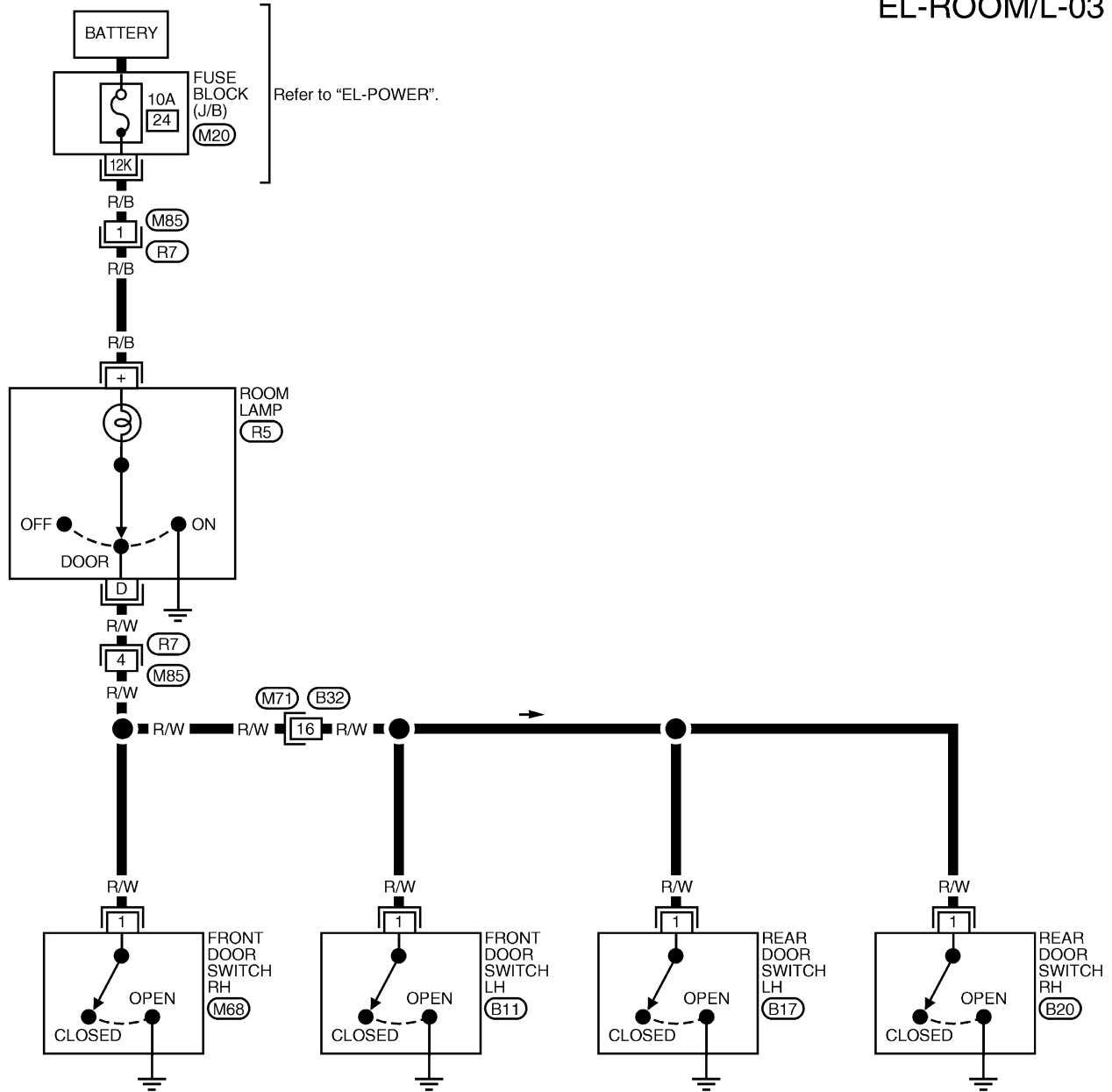
Refer to the following.
 (M33) , (M74) - ELECTRICAL UNITS

INTERIOR ROOM LAMP

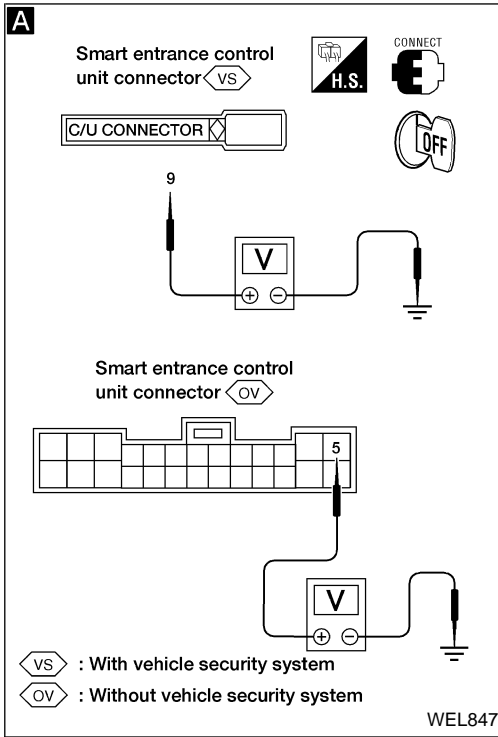
Wiring Diagram — ROOM/L — (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

EL-ROOM/L-03

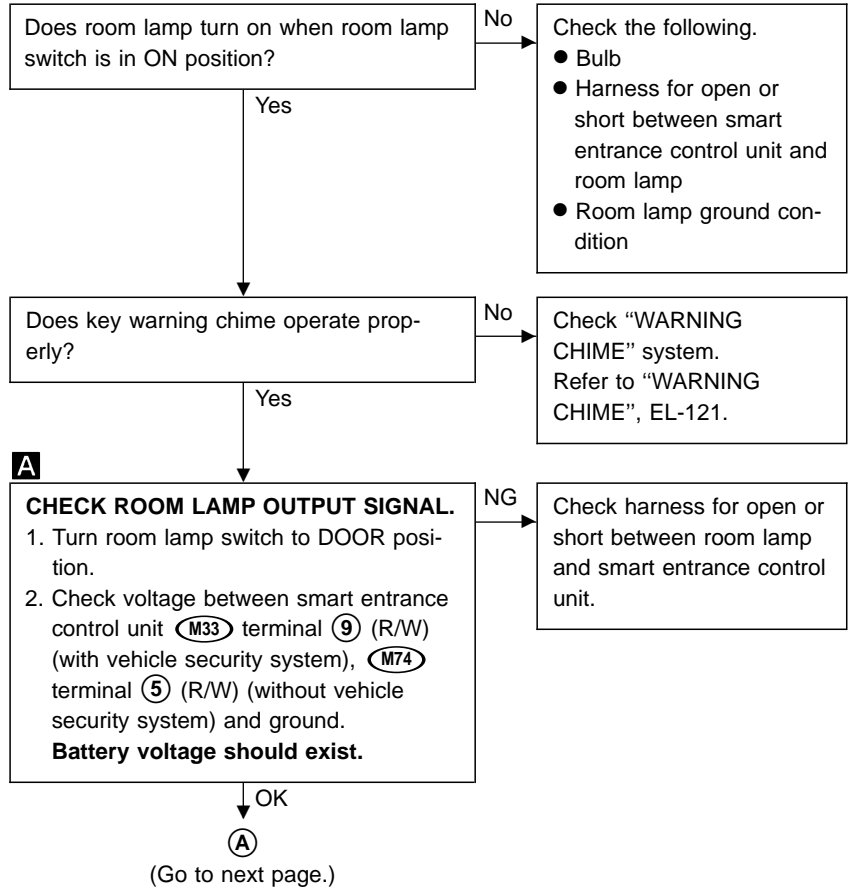


INTERIOR ROOM LAMP



Trouble Diagnoses (For models with power door lock)

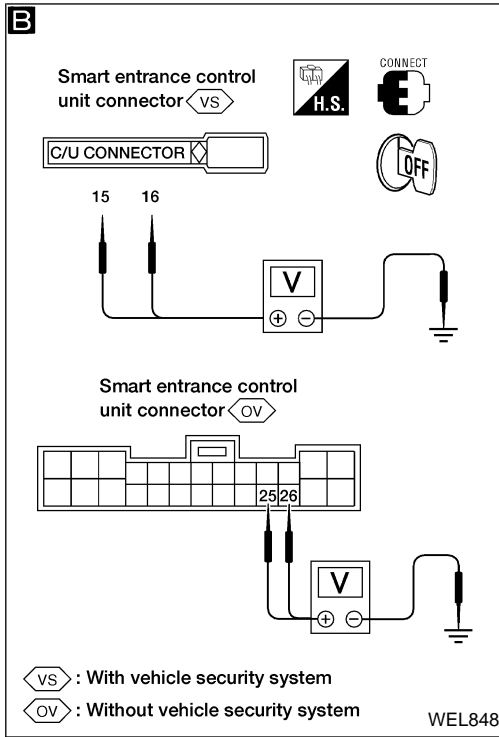
DIAGNOSTIC PROCEDURE SYMPTOM: Room lamp does not turn on when any door is opened, or timer does not operate properly.



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INTERIOR ROOM LAMP

Trouble Diagnosis (For models with power door lock) (Cont'd)



A

B

CHECK DOOR SWITCH INPUT SIGNAL.
 Check voltage between smart entrance control unit terminals and ground.

- With vehicle security system.

	Con- nector	Terminals		Condi- tion	Volt- age [V]
		⊕ Termi- nal (Wire color)	⊖		
Front LH door switch	M33	⓫ (R/G)	Ground	Open	0
				Closed	12
Front RH door and rear door switches	M33	⓬ (R)	Ground	Open	0
				Closed	12

- Without vehicle security system.

	Con- nector	Terminals		Condi- tion	Volt- age [V]
		⊕ Termi- nal (Wire color)	⊖		
Front LH door switch	M74	⓫ (R/G)	Ground	Open	0
				Closed	12
Front RH door and rear door switches	M74	⓬ (R)	Ground	Open	0
				Closed	12

NG → Check the following.

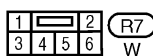
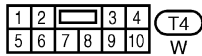
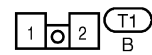
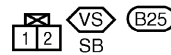
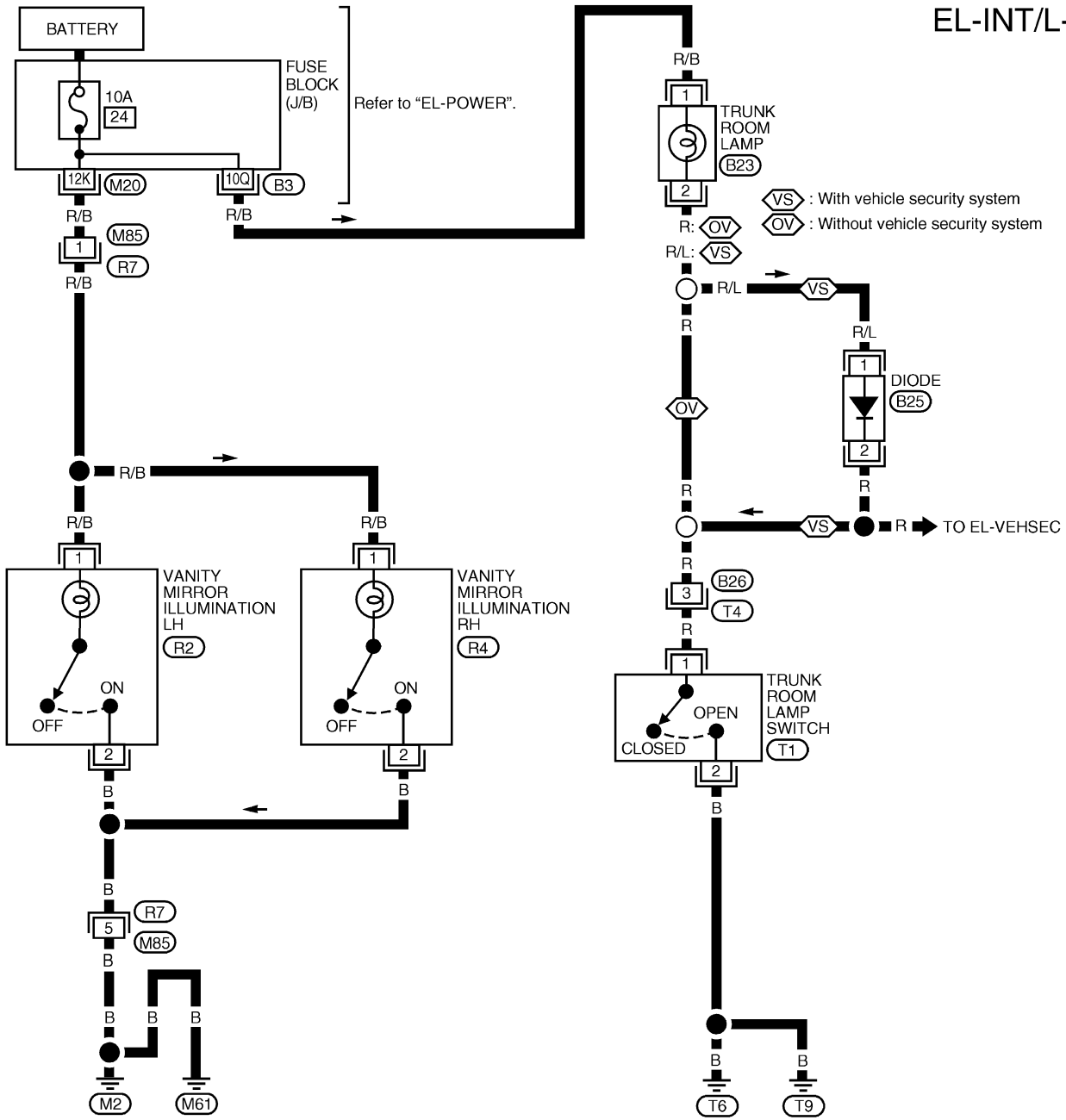
- Door switch
- Door switch ground circuit (Front LH) or door switch ground condition
- Harness for open or short between control unit and door switch

OK → Replace smart entrance control unit.

SPOT, TRUNK ROOM AND VANITY MIRROR LAMPS

Wiring Diagram — INT/L —

EL-INT/L-01

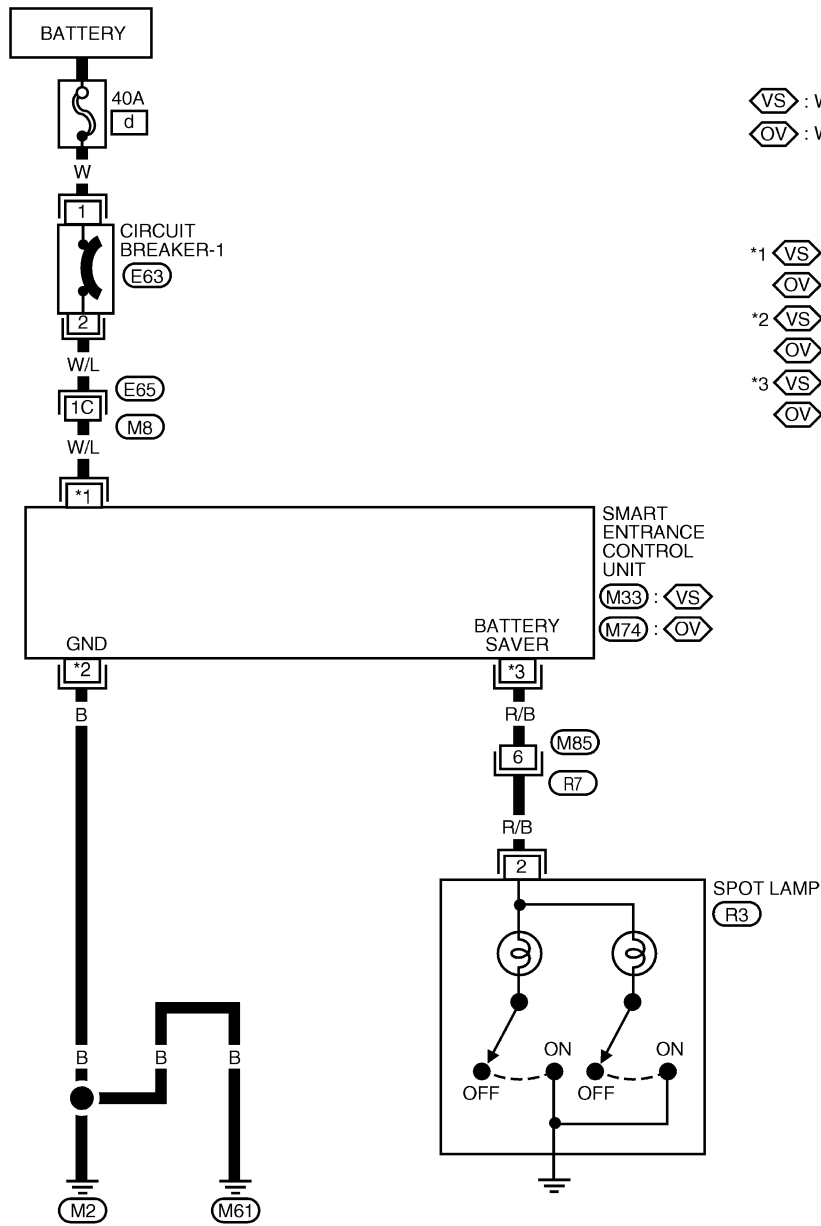


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SPOT, TRUNK ROOM AND VANITY MIRROR LAMPS

Wiring Diagram — INT/L — (Cont'd)

EL-INT/L-02



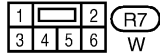
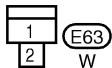
VS : With vehicle security system
 OV : Without vehicle security system

*1 VS : 1
 OV : 6
 *2 VS : 10
 OV : 1
 *3 VS : 6
 OV : 10

SMART
 ENTRANCE
 CONTROL
 UNIT
 M33 : VS
 M74 : OV

BATTERY
 SAVER
 *3

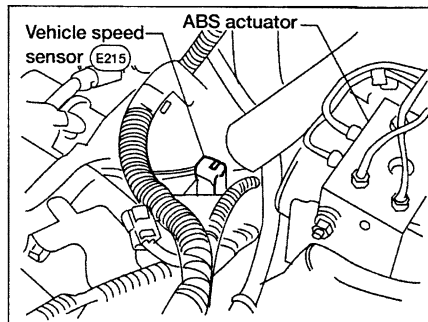
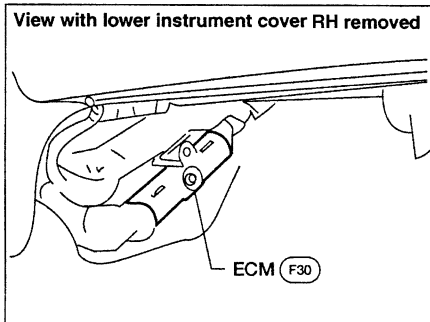
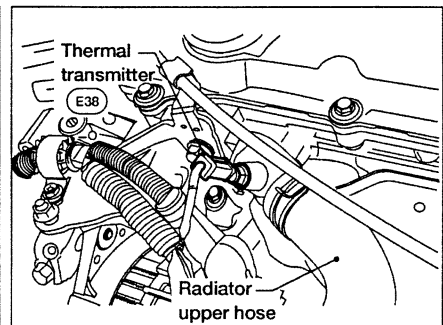
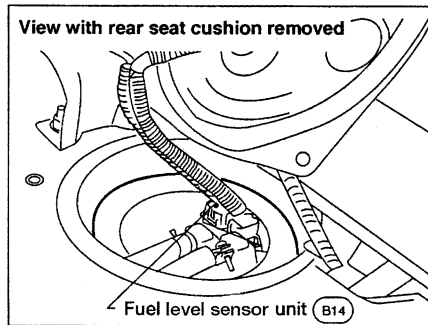
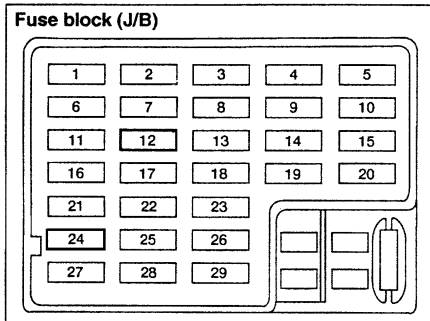
SPOT LAMP
 R3



Refer to the following.
 M8 , E65 - SUPER MULTIPLE
 JUNCTION (SMJ)
 M33 , M74 - ELECTRICAL UNITS

METER AND GAUGES

Component Parts and Harness Connector Location



WEL161

System Description

UNIFIED CONTROL METER

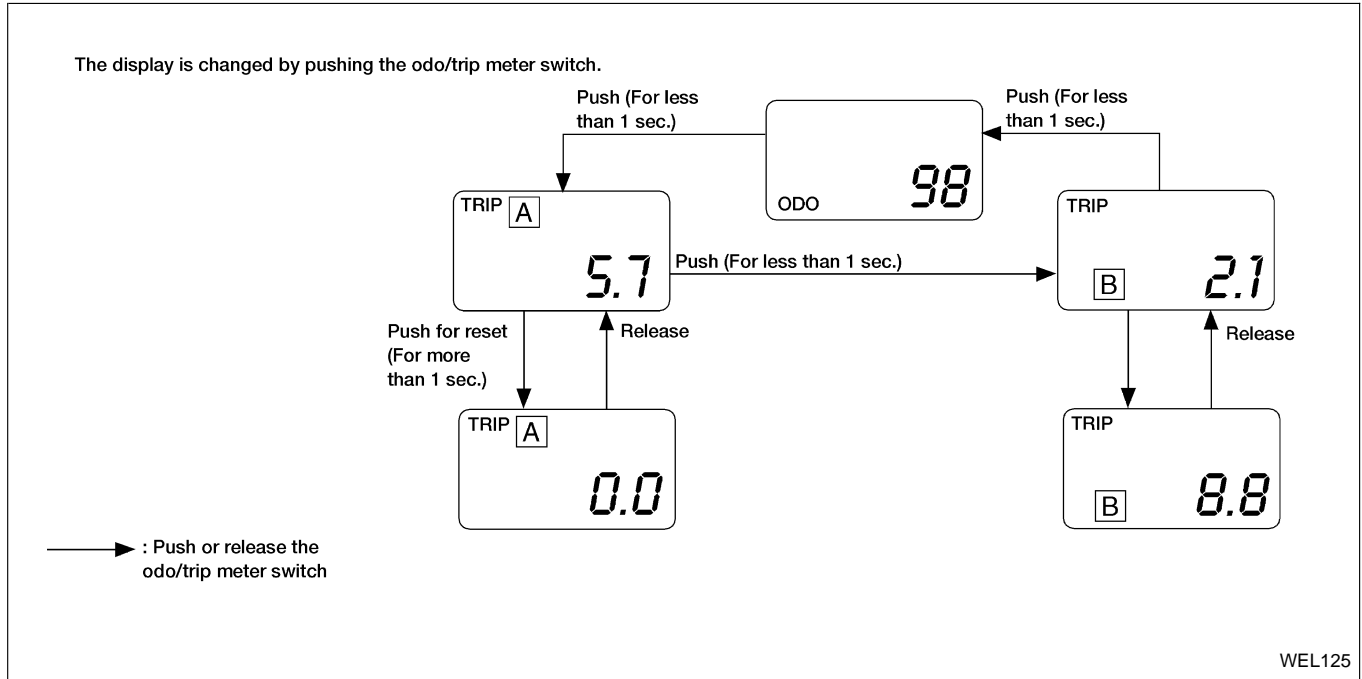
- Speedometer, odo/trip meter, tachometer, fuel gauge and water temperature gauge are controlled totally by control unit built-in combination meter.
- Digital meter is adopted for odo/trip meter.*
*The record of the odometer is kept even if the battery cable is disconnected. The record of the trip meter is erased when the battery cable is disconnected.
- Odo/trip meter is indicated for about 30 seconds after ignition switch has been turned OFF.
- Odo/trip meter segment can be checked in diagnosis mode.
- Meter/gauge can be checked in diagnosis mode.

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METER AND GAUGES

System Description (Cont'd)

HOW TO CHANGE THE DISPLAY FOR ODO/TRIP METER



NOTE:

Turn ignition switch to the "ON" position to operate odo/trip meter.

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times:

- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to combination meter terminal ⑱.

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

- through 10A fuse [No. 12, located in the fuse block (J/B)]
- to combination meter terminal ⑰.

Ground is supplied:

- to combination meter terminals ⑳
- through body grounds ② and ⑥.

WATER TEMPERATURE GAUGE

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

As the temperature of the coolant increases, the resistance of the thermal transmitter decreases. A variable ground is supplied to terminal ⑲ of the combination meter for the water temperature gauge. The needle on the gauge moves from "C" to "H".

TACHOMETER

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

The tachometer is regulated by a signal:

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

FUEL GAUGE

The fuel gauge indicates the approximate fuel level in the fuel tank.

The fuel gauge is regulated by a variable ground signal supplied:

- to combination meter terminal ㉒ for the fuel gauge
- from terminal ⑦ of the fuel level sensor unit
- through terminal ⑤ of the fuel level sensor unit and
- through body ground ② and ⑥.

METER AND GAUGES

System Description (Cont'd)

SPEEDOMETER

The combination meter receives a voltage signal from the vehicle speed sensor for the speedometer. The voltage is supplied:

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

The speedometer converts the voltage into the vehicle speed displayed.

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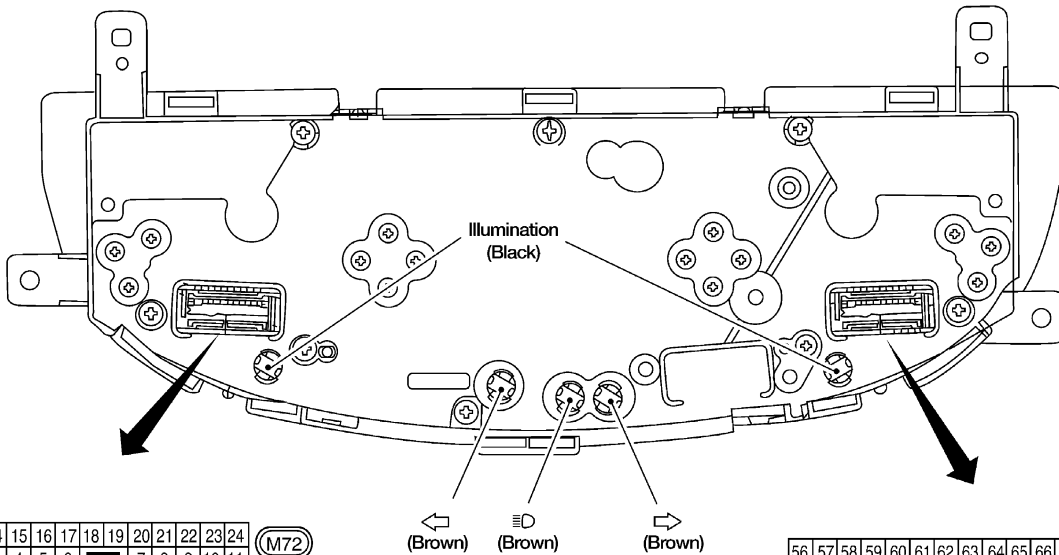
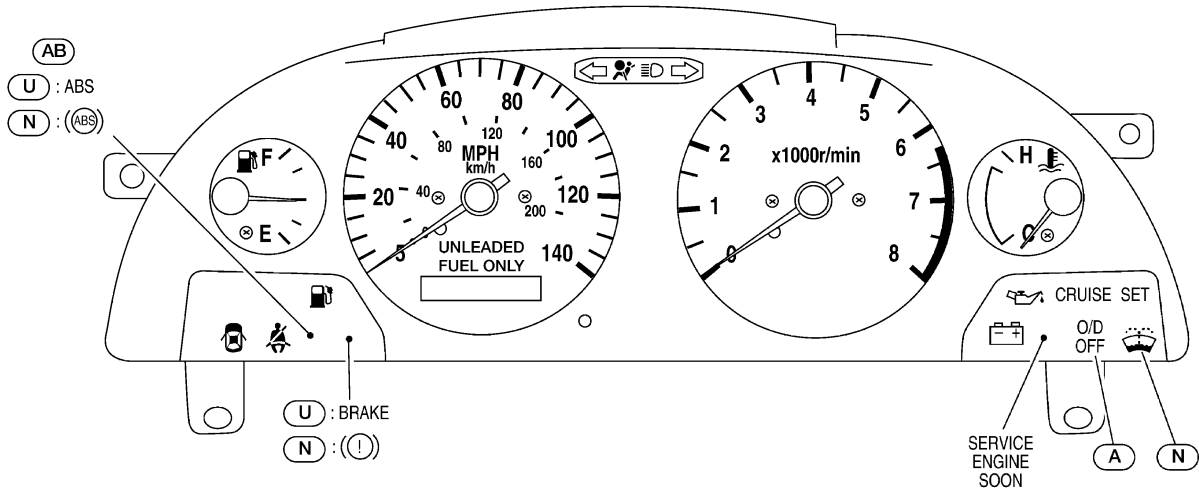
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METER AND GAUGES

Combination Meter

CHECK



12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	(M72)	

56	57	58	59	60	61	62	63	64	65	66	67	68
45	46	47	48	49	50	51	52	53	54	55	(M73)	

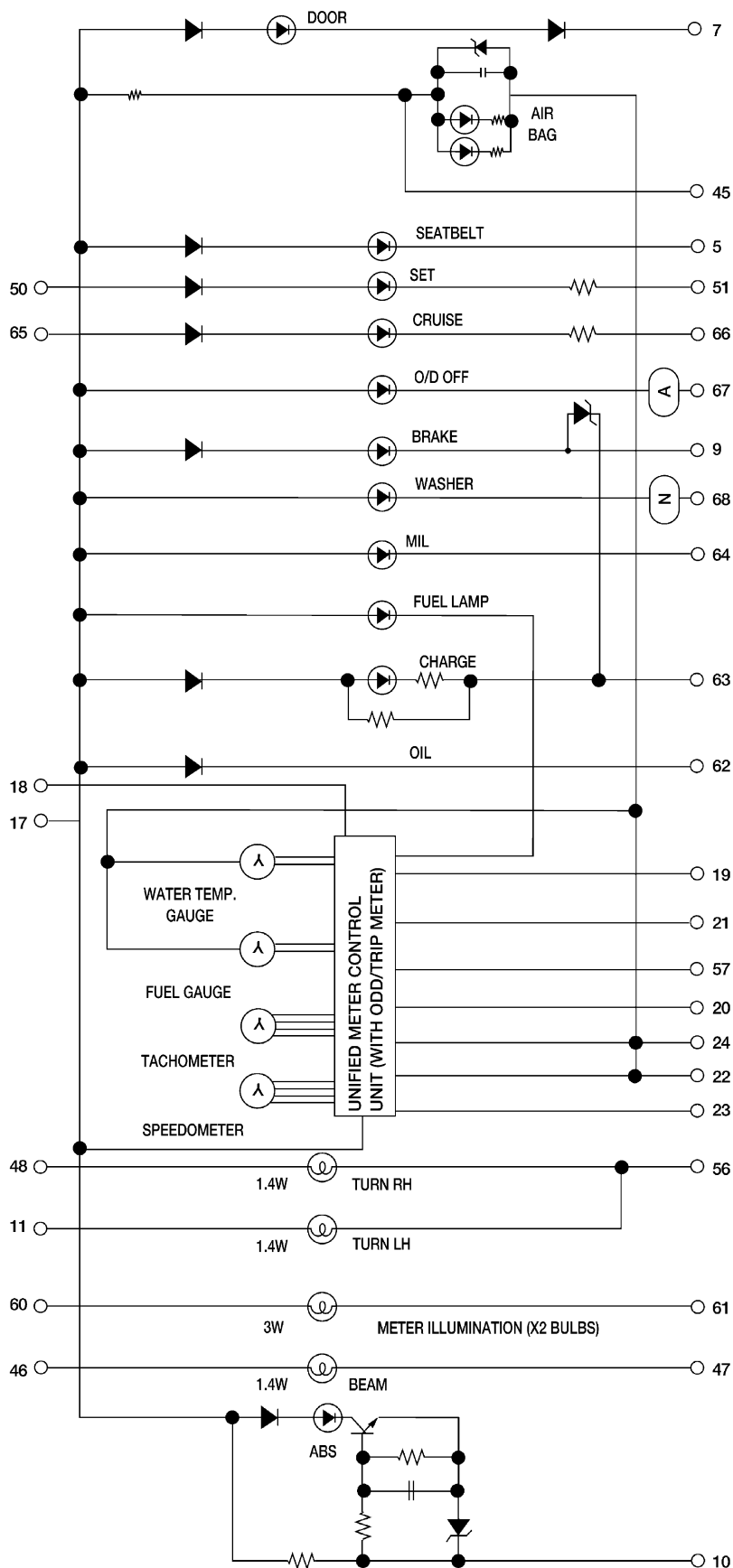
- (U) : For U.S.A
- (N) : For Canada
- (A) : With A/T
- (AB) : With ABS

Bulb socket color	Bulb wattage
Brown	1.4W
Black	3.0W

() : Bulb socket color

METER AND GAUGES

Schematic



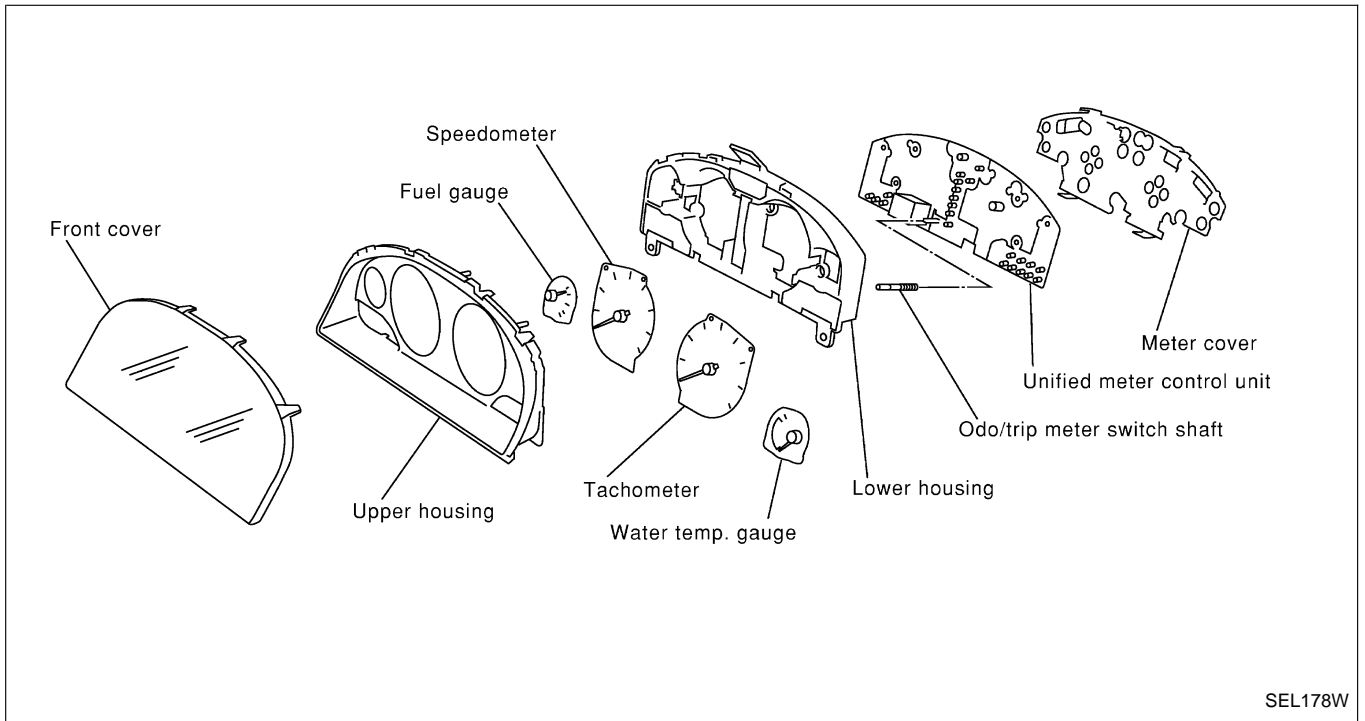
(A) : With A/T
(N) : For Canada

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METER AND GAUGES

Combination Meter

CONSTRUCTION

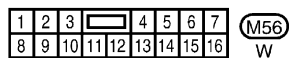
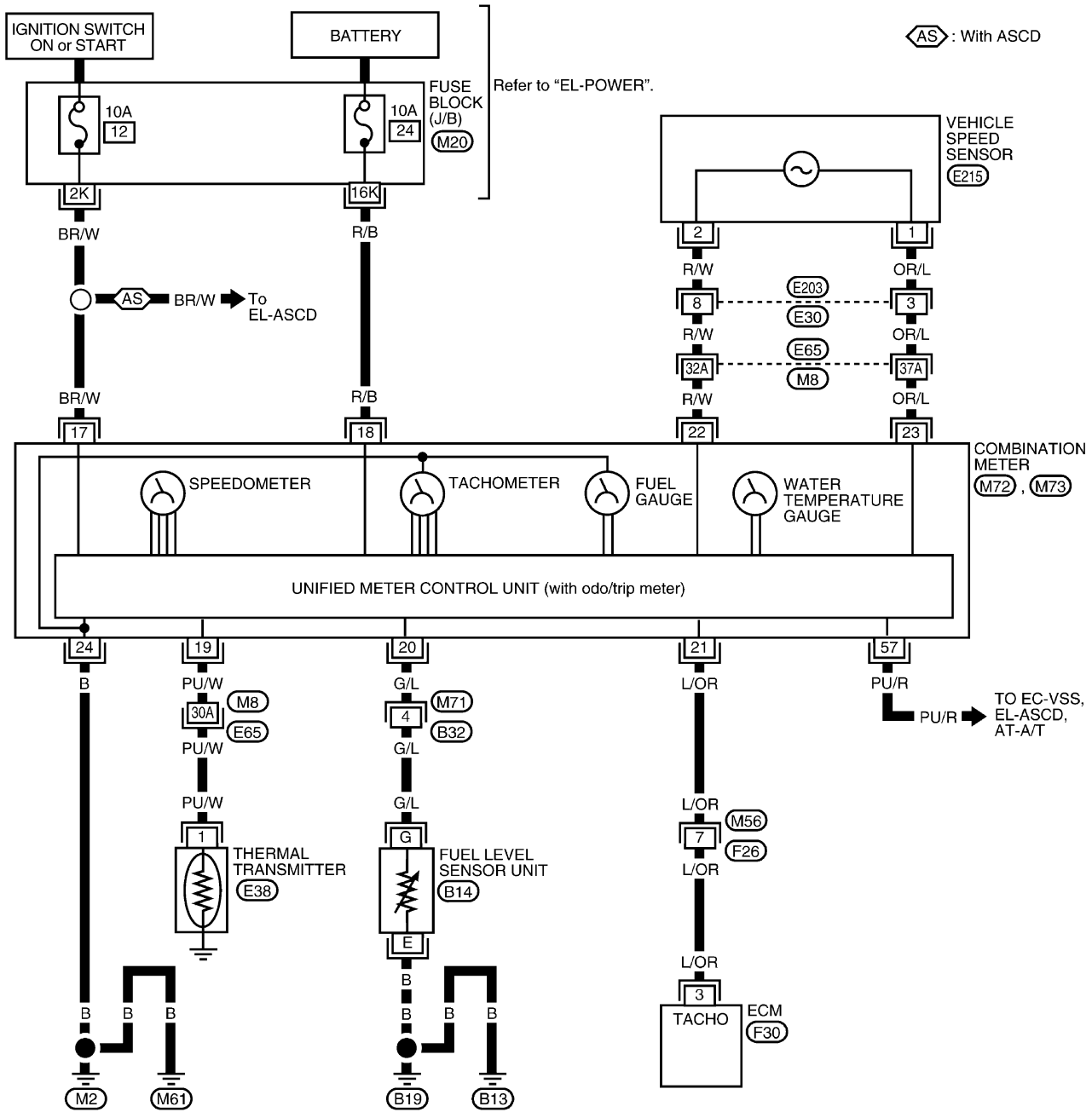


SEL178W

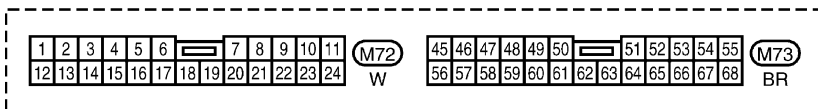
METER AND GAUGES

Wiring Diagram — METER —

EL-METER-01



Refer to the following.
 (M8, E65) - SUPER MULTIPLE JUNCTION (SMJ)
 (F30) - ELECTRICAL UNITS



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METER AND GAUGES

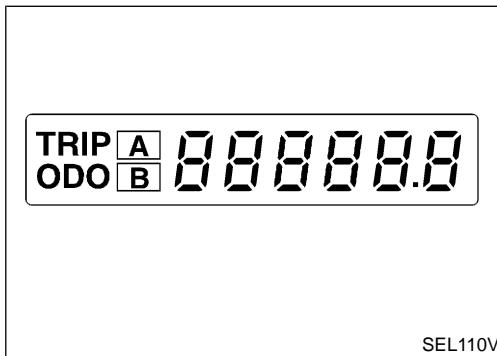
Meter/Gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode

DIAGNOSIS FUNCTION

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

HOW TO ALTERNATE DIAGNOSIS MODE

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

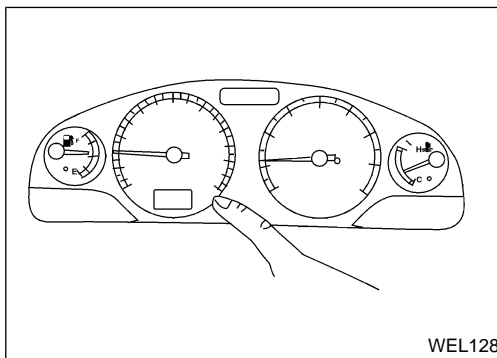


6. All odo/trip meter segments should be turned on.

NOTE:

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

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



7. Push odo/trip meter switch. Indication of each meter/gauge should be as shown left during pushing odo/trip meter switch if it is no malfunctioning.

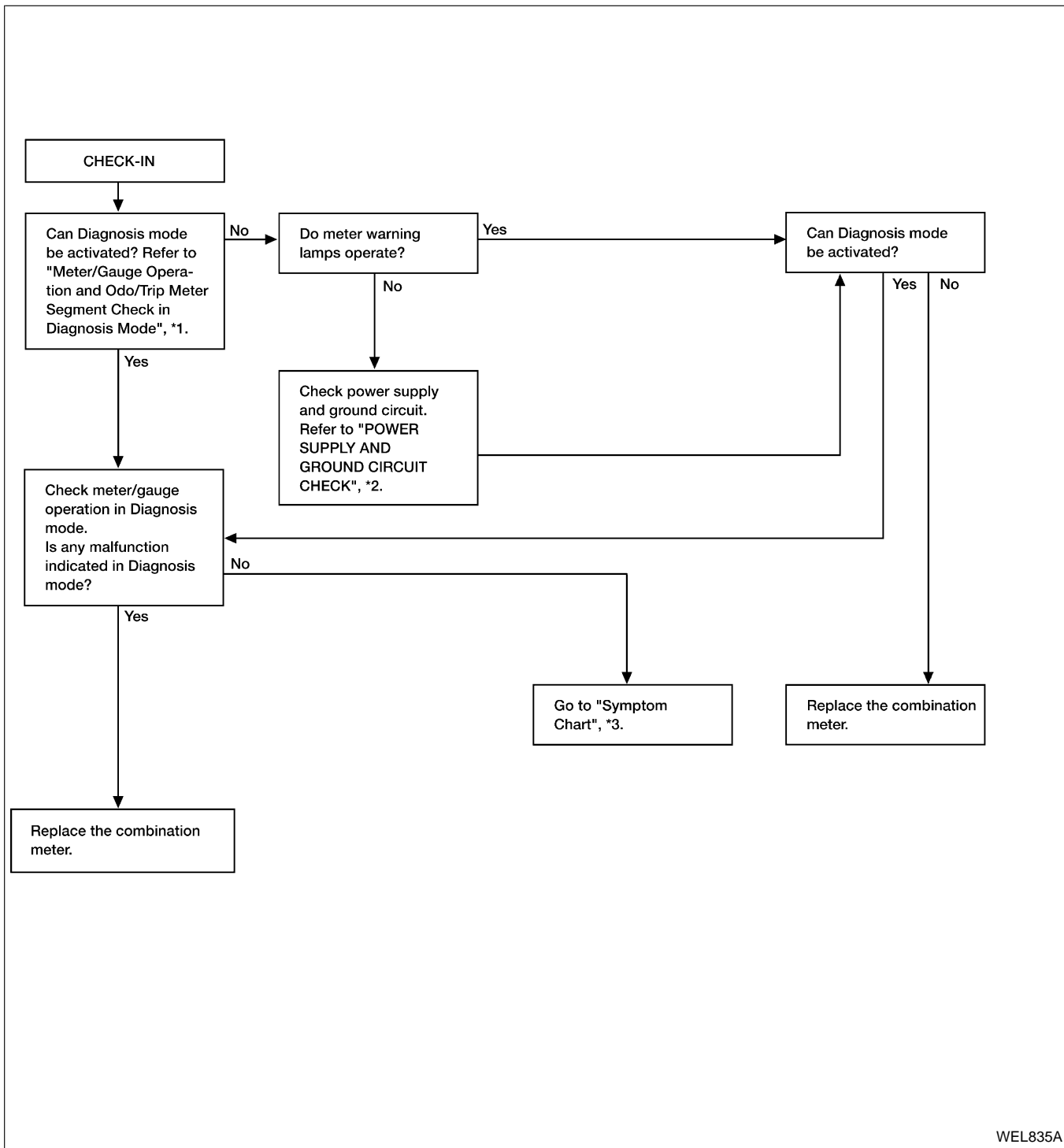
NOTE:

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

8. Turn ignition switch to OFF or start engine to cancel diagnosis mode.

METER AND GAUGES

Trouble Diagnosis PRELIMINARY CHECK



*1: Meter/Gauge Operation and Odo/Trip Meter Segment Check in Diagnosis Mode (EL-106)

*2: POWER SUPPLY AND GROUND CIRCUIT CHECK (EL-109)

*3: Symptom Chart (EL-108)

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METER AND GAUGES

Trouble Diagnosis (Cont'd)

SYMPTOM CHART

Symptom Chart 1 (Malfunction is Indicated in Diagnosis Mode)

Symptom	Possible causes	Repair order
Odo/trip meter indicate(s) malfunction in Diagnosis mode.	<ul style="list-style-type: none"> ● Unified meter control unit 	<ul style="list-style-type: none"> ● Replace combination meter.
Multiple meter/gauge indicate malfunction in Diagnosis mode.		
One of speedometer/ tachometer/fuel gauge/ water temp. gauge indicates malfunction in Diagnosis mode.	<ul style="list-style-type: none"> ● Meter/Gauge ● Unified meter control unit 	<ol style="list-style-type: none"> 1. Check resistance of meter/gauge indicating malfunction. If the resistance is NG, replace the combination meter. Refer to "METER/GAUGE RESISTANCE CHECK", EL-112. 2. If the resistance is OK, replace combination meter.

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

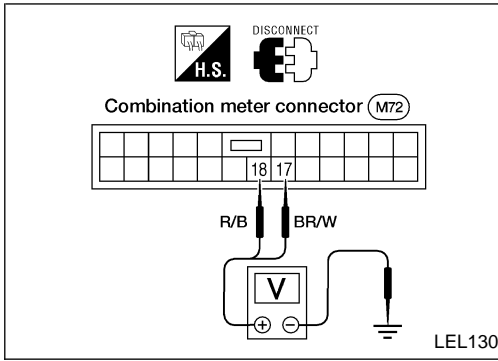
Symptom	Possible causes	Repair order
One of speedometer/ tachometer/fuel gauge/ water temp. gauge is malfunctioning.	<ol style="list-style-type: none"> 1. Sensor signal <ul style="list-style-type: none"> - Vehicle speed signal - Engine revolution signal - Fuel gauge - Water temp. gauge 2. Unified meter control unit 	<ol style="list-style-type: none"> 1. Check the sensor for malfunctioning meter/gauge. Refer to "INSPECTION/VEHICLE SPEED SENSOR", EL-110. Refer to "INSPECTION/ENGINE REVOLUTION SIGNAL", EL-110. Refer to "INSPECTION/FUEL LEVEL SENSOR UNIT", EL-111. Refer to "INSPECTION/THERMAL TRANSMITTER", EL-111. 2. Replace combination meter.
Multiple meter/gauge are malfunctioning. (except odo/trip meter).		

METER AND GAUGES

Trouble Diagnosis (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK

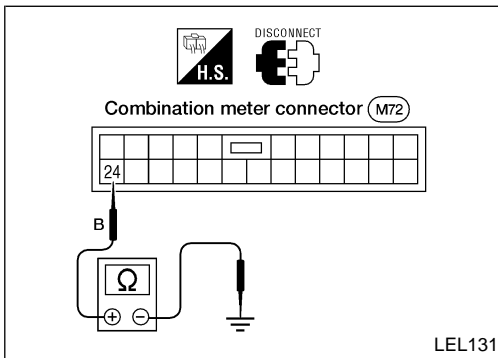
Power Supply Circuit Check



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

If NG, check the following.

- 10A fuse [No. 12, located in fuse block (J/B)]
- 10A fuse [No. 24, located in fuse block (J/B)]
- Harness for open or short between fuse and combination meter



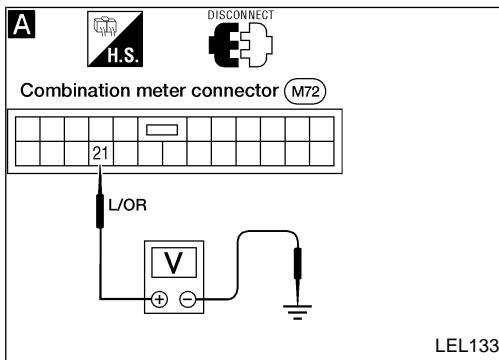
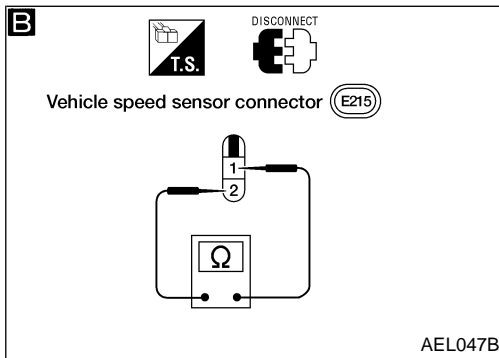
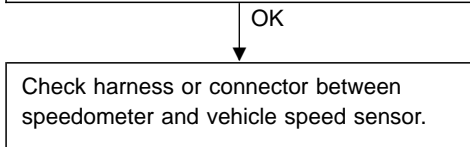
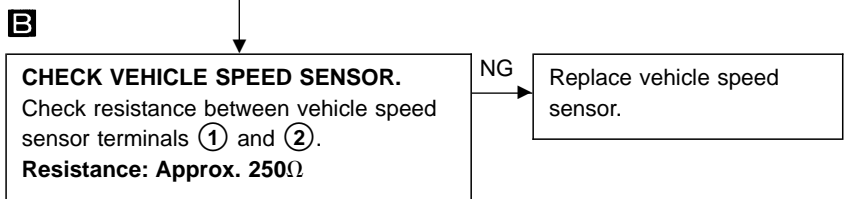
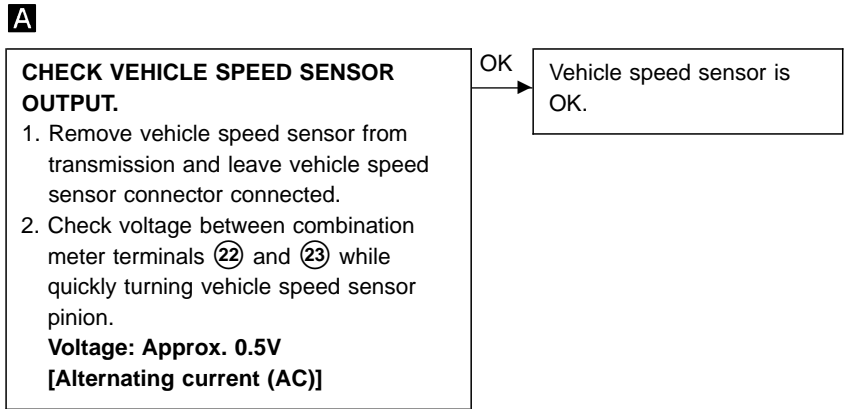
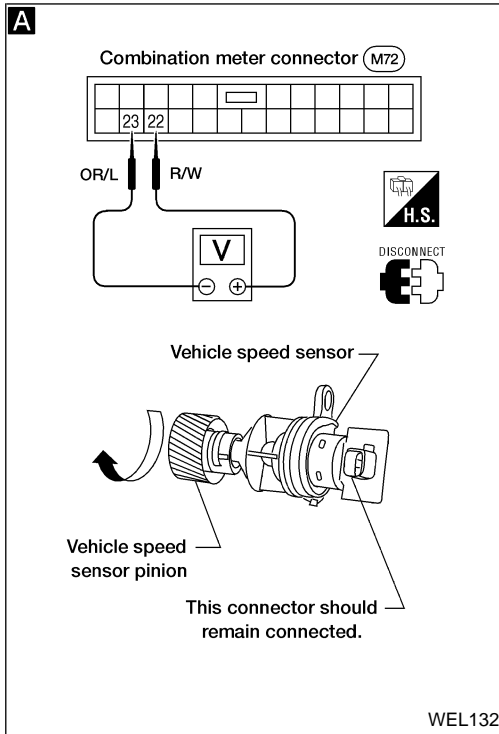
Ground Circuit Check

Terminals	Continuity
24 - Ground	Yes

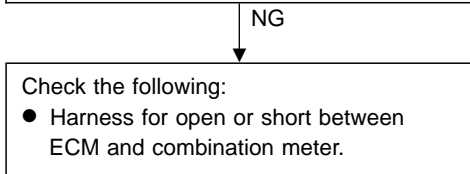
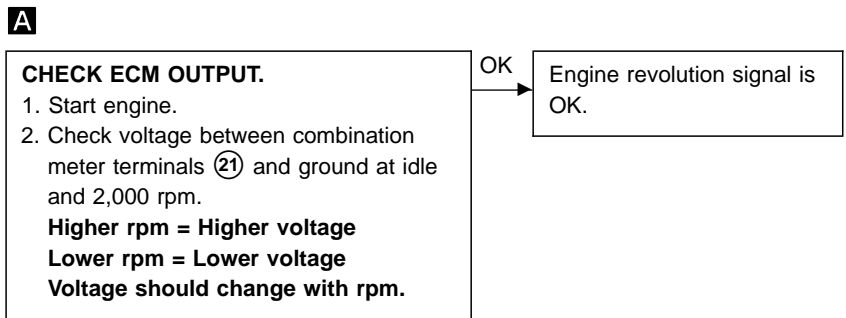
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METER AND GAUGES

Trouble Diagnosis (Cont'd) INSPECTION/VEHICLE SPEED SENSOR



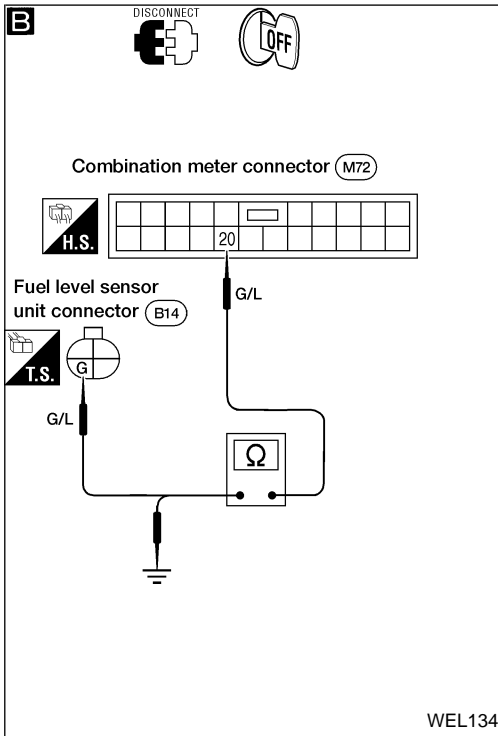
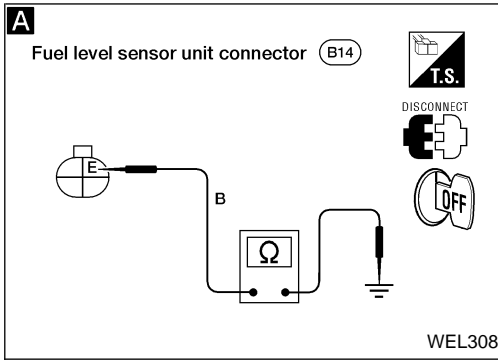
INSPECTION/ENGINE REVOLUTION SIGNAL



METER AND GAUGES

Trouble Diagnosis (Cont'd)

INSPECTION/FUEL LEVEL SENSOR UNIT



A

CHECK GROUND CIRCUIT FOR FUEL LEVEL SENSOR UNIT.

Check harness continuity between fuel level sensor unit terminal (E) and ground.
Continuity should exist.

NG → Repair harness or connector.

OK ↓

CHECK GAUGE UNITS.

Refer to "FUEL LEVEL SENSOR UNIT CHECK", (EL-112).

NG → Repair or replace. Refer to FE section.

OK ↓

B

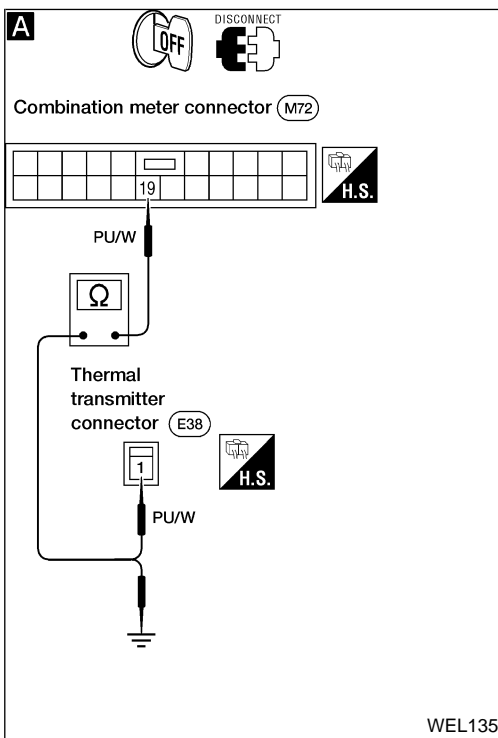
CHECK HARNESS.

1. Disconnect ECM connector (F30), combination meter connector (M72) and fuel level sensor unit connector (B14).
2. Check harness continuity between combination meter terminal (20) and fuel level sensor unit terminal (G).
Continuity should exist.
3. Check continuity between combination meter terminal (20) and ground.
Continuity should not exist.

NG → Repair harness or connector.

OK ↓

Fuel tank gauge is OK.



INSPECTION/THERMAL TRANSMITTER

CHECK THERMAL TRANSMITTER.

Refer to "THERMAL TRANSMITTER CHECK", (EL-112).

NG → Repair or replace.

OK ↓

A

CHECK HARNESS.

1. Disconnect combination meter connector (M72) and thermal transmitter connector (E38).
2. Check harness for open or short between combination meter terminal (19) and thermal transmitter terminal (1).
Continuity should exist.
3. Check continuity between combination meter terminal (19) and ground.
Continuity should not exist.

NG → Repair harness or connector.

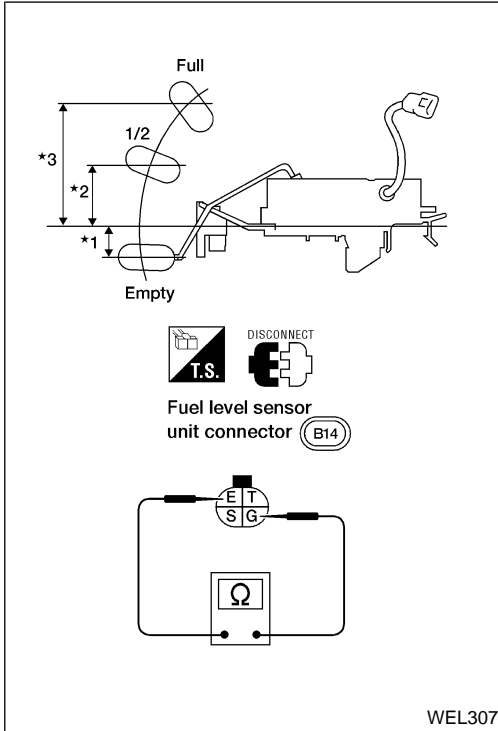
OK ↓

Thermal transmitter is OK.

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METER AND GAUGES

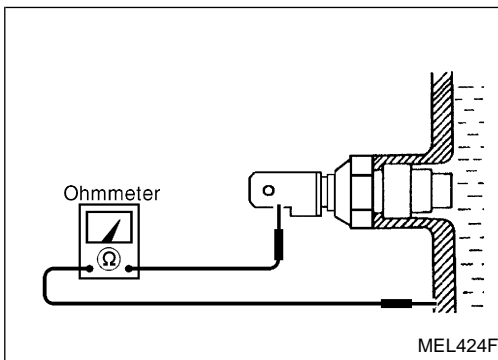
Electrical Components Inspection



FUEL LEVEL SENSOR UNIT CHECK

- For removal, refer to FE section.
- Check the resistance between terminals **E** and **G**.

Ohmmeter		Float position mm (in)			Resistance Ω (Approx.)
(+)	(-)				
E	G	*1	Full	94 (3.70)	4 - 6
		*2	1/2	37.2 (1.465)	31 - 35
		*3	Empty	16.7 (0.657)	77 - 83



THERMAL TRANSMITTER CHECK

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

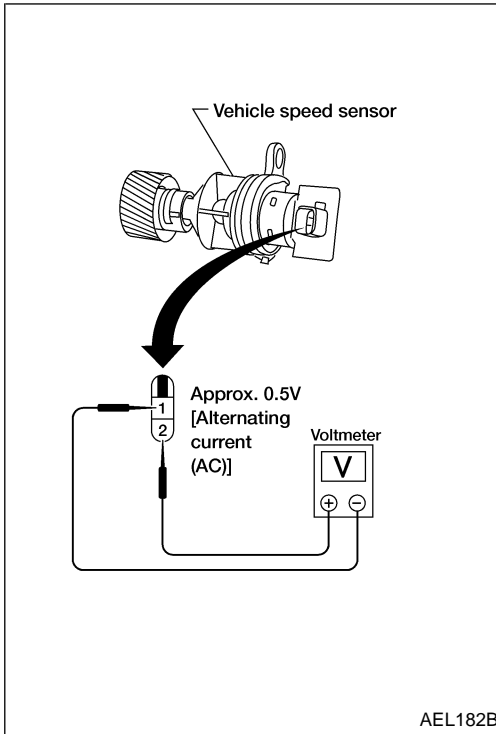
Water Temperature	Resistance (Approx.)
60°C (140°F)	170 - 210 Ω
100°C (212°F)	47 - 53 Ω

METER AND GAUGES

Electrical Components Inspection (Cont'd)

VEHICLE SPEED SENSOR SIGNAL CHECK

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



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WARNING LAMPS

System Description

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

- through 10A fuse (No. 12, located in the fuse block [J/B])
- to combination meter terminal 17.

Ground is supplied:

- to combination meter terminals 24 and 56
- through body grounds M2 and M61 .

Ground is supplied:

- to fuel level sensor unit terminal E and
- seat belt buckle switch terminal 2
- through body grounds B13 and B19 .

Ground is supplied:

- to brake fluid level switch terminal 2
- through body grounds E10 and E34 .

Ground is supplied

- to washer fluid level switch terminal 2
- through body grounds E10 and E34 .

AIR BAG WARNING LAMP

During prove out or when an air bag malfunction occurs, the ground path is interrupted:

- from the air bag diagnosis sensor unit terminal 15
- to combination meter terminal 45.

With power and ground supplied, the air bag warning lamp (LEDs) illuminate.

For further information, refer to RS section "TROUBLE DIAGNOSES".

DOOR AJAR WARNING LAMP

When a door is open, ground is supplied:

- to combination meter terminal 7
- from door switches terminal 1.

With power and ground supplied, the door ajar warning lamp illuminates.

MALFUNCTION INDICATOR LAMP

During prove out or when an engine control malfunction occurs, ground is supplied:

- to combination meter terminal 64
- from ECM terminal 18.

With power and ground supplied, the malfunction indicator lamp illuminates.

For further information, refer to EC section, "Malfunction Indicator Lamp (MIL)".

LOW OIL PRESSURE WARNING LAMP

Low oil pressure causes oil pressure switch terminal 1 to provide ground to combination meter terminal 62.

With power and ground supplied, the low oil pressure warning lamp illuminates.

CHARGE WARNING LAMP

During prove out or when a generator malfunction occurs, ground is supplied:

- to combination meter terminal 63
- from generator terminal L.

With power and ground supplied, the charge warning lamp and brake lamp illuminate.

BRAKE WARNING LAMP

When the parking brake is applied, or the brake fluid level is low, ground is supplied:

- to combination meter terminal 9
- from parking brake switch terminal 1, or
- brake fluid level switch terminal 1.

With power and ground supplied, the brake warning lamp illuminates.

WARNING LAMPS

System Description (Cont'd)

LOW FUEL LEVEL WARNING LAMP

The amount of fuel in the fuel tank is determined by the fuel level sensor in the fuel tank. A signal is sent from fuel level sensor unit terminal ⑥ to combination meter terminal ⑳. The fuel level sensor will illuminate the low fuel level warning lamp when the fuel level is low.

With power and ground supplied, the low fuel level warning lamp illuminates.

SEAT BELT WARNING LAMP

When the driver's seat belt is unfastened, ground is supplied:

- to combination meter terminal ⑤
- from seat belt buckle switch LH terminal ①.

With power and ground supplied, the seat belt warning lamp illuminates.

ABS WARNING LAMP

During prove out or when an ABS malfunction occurs, ground is supplied:

- to combination meter terminal ⑩
- from ABS control unit terminal ③①.

With power and ground supplied, the ABS warning lamp illuminates.

For further information, refer to BR section, "Self-diagnosis".

LOW WASHER FLUID WARNING LAMP (For Canada)

When the washer fluid level is low, ground is supplied:

- to combination meter terminal ⑥⑧
- from washer fluid level switch terminal ①.

GI

MA

EM

LC

EC

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CL

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BT

HA

EL

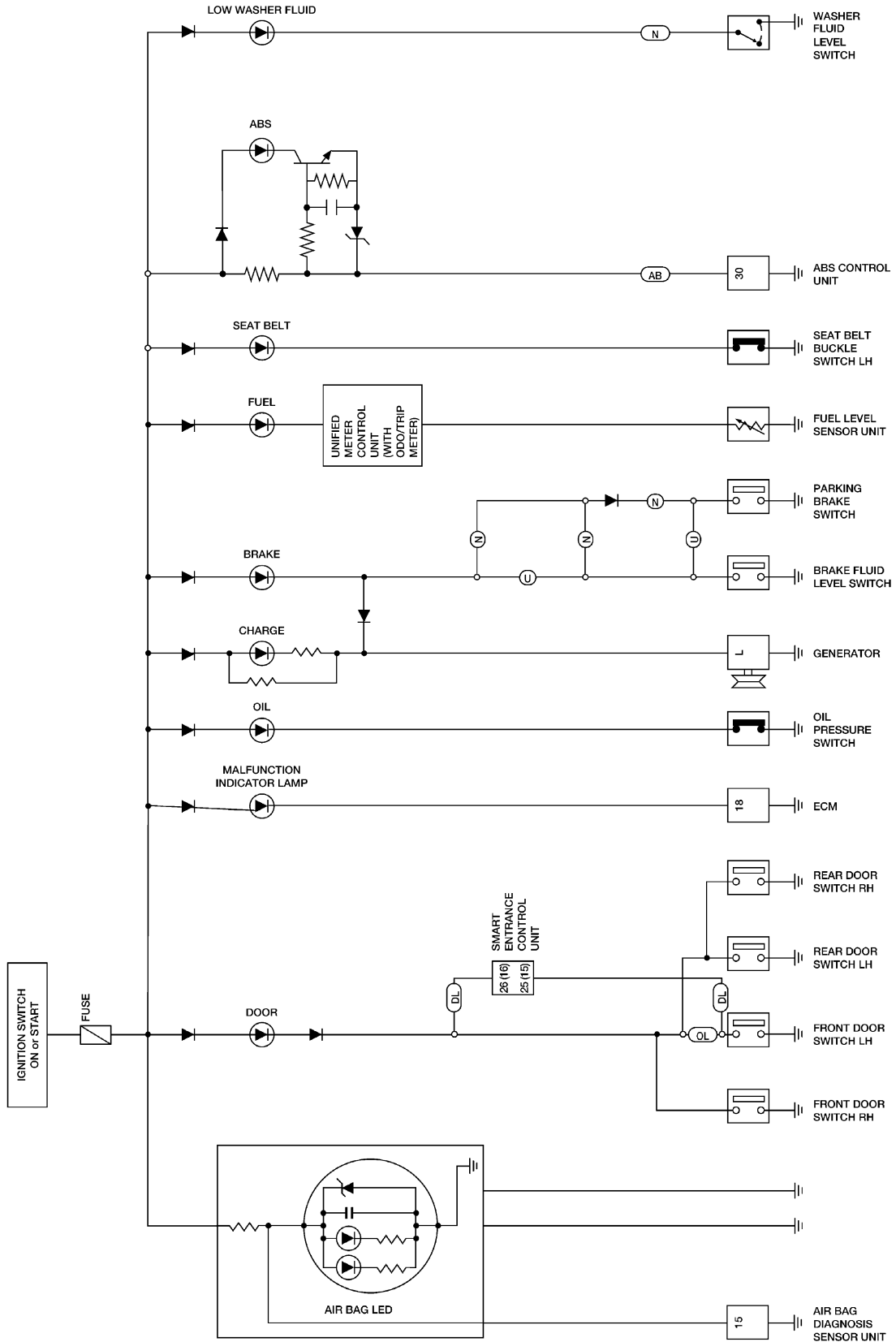
IDX

WARNING LAMPS

Schematic

(AB) : With ABS
 (DL) : With power door locks
 (OL) : Without power door locks
 () : With vehicle security system

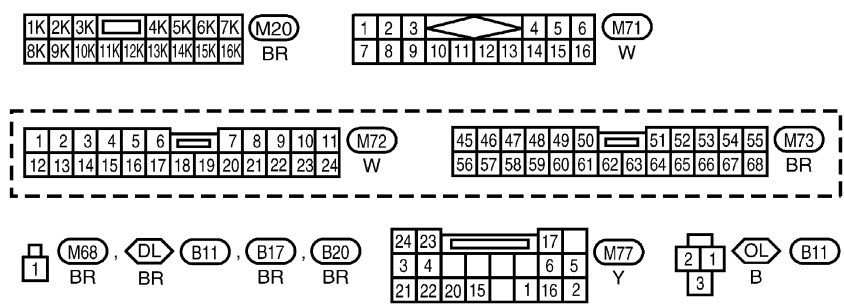
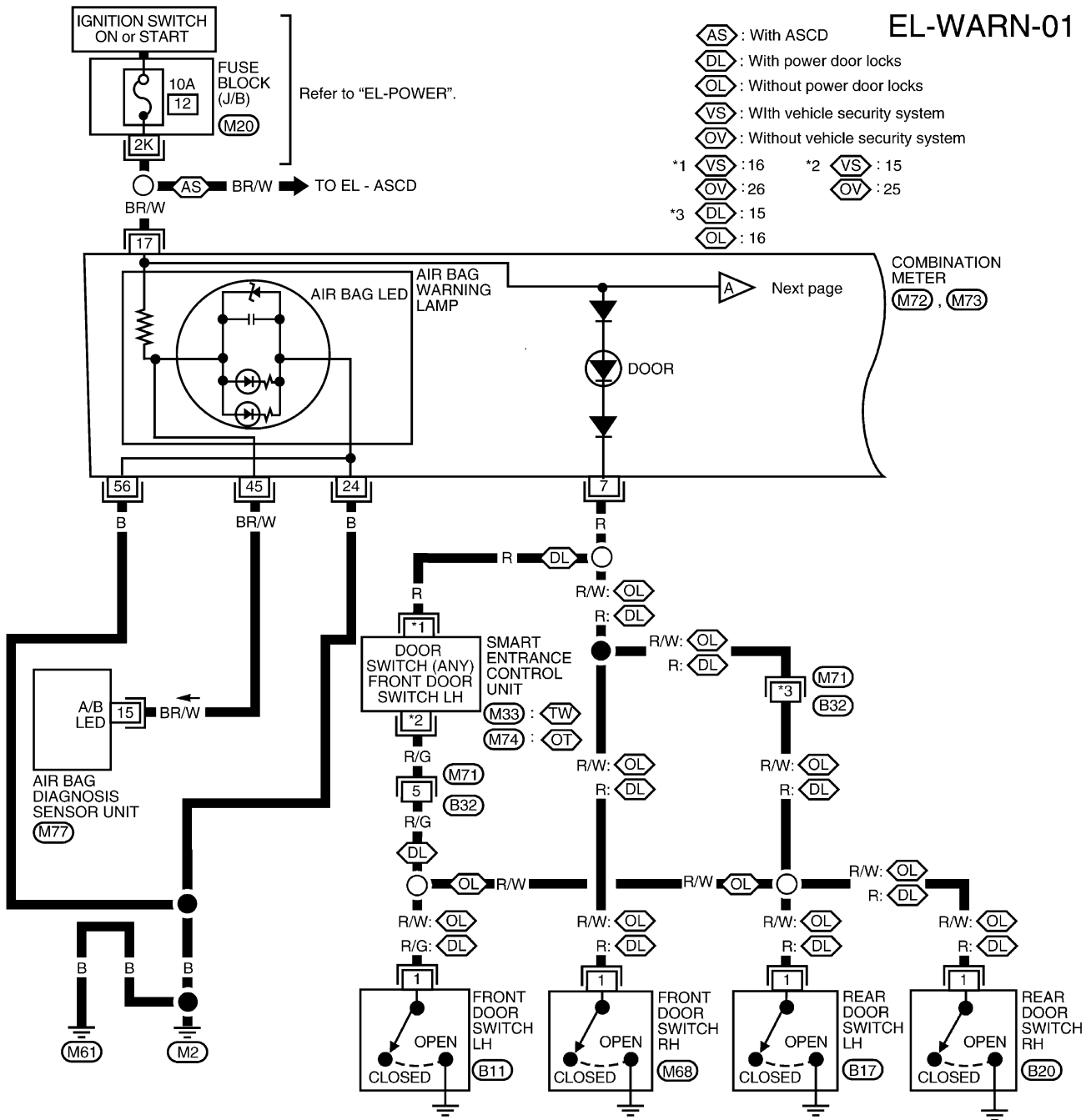
(U) : For U.S.A.
 (N) : For Canada



WARNING LAMPS

Wiring Diagram — WARN —

EL-WARN-01



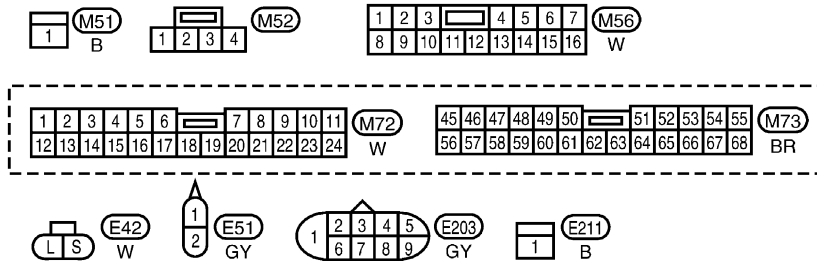
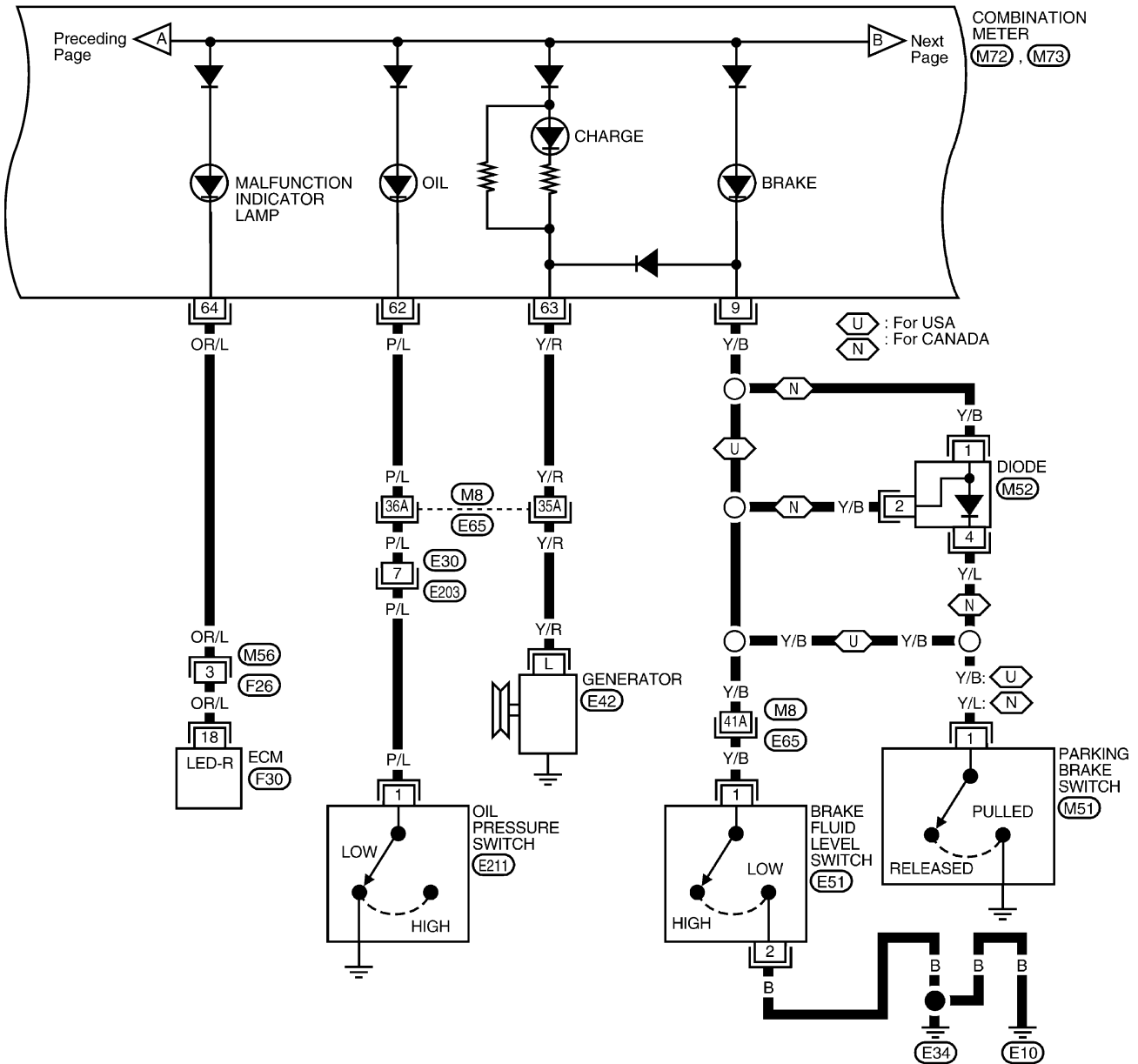
Refer to the following.
 (M33), (M74) - ELECTRICAL UNITS

GI
 MA
 EM
 LC
 EC
 FE
 CL
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 ST
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 EL
 IDX

WARNING LAMPS

Wiring Diagram — WARN — (Cont'd)

EL-WARN-02



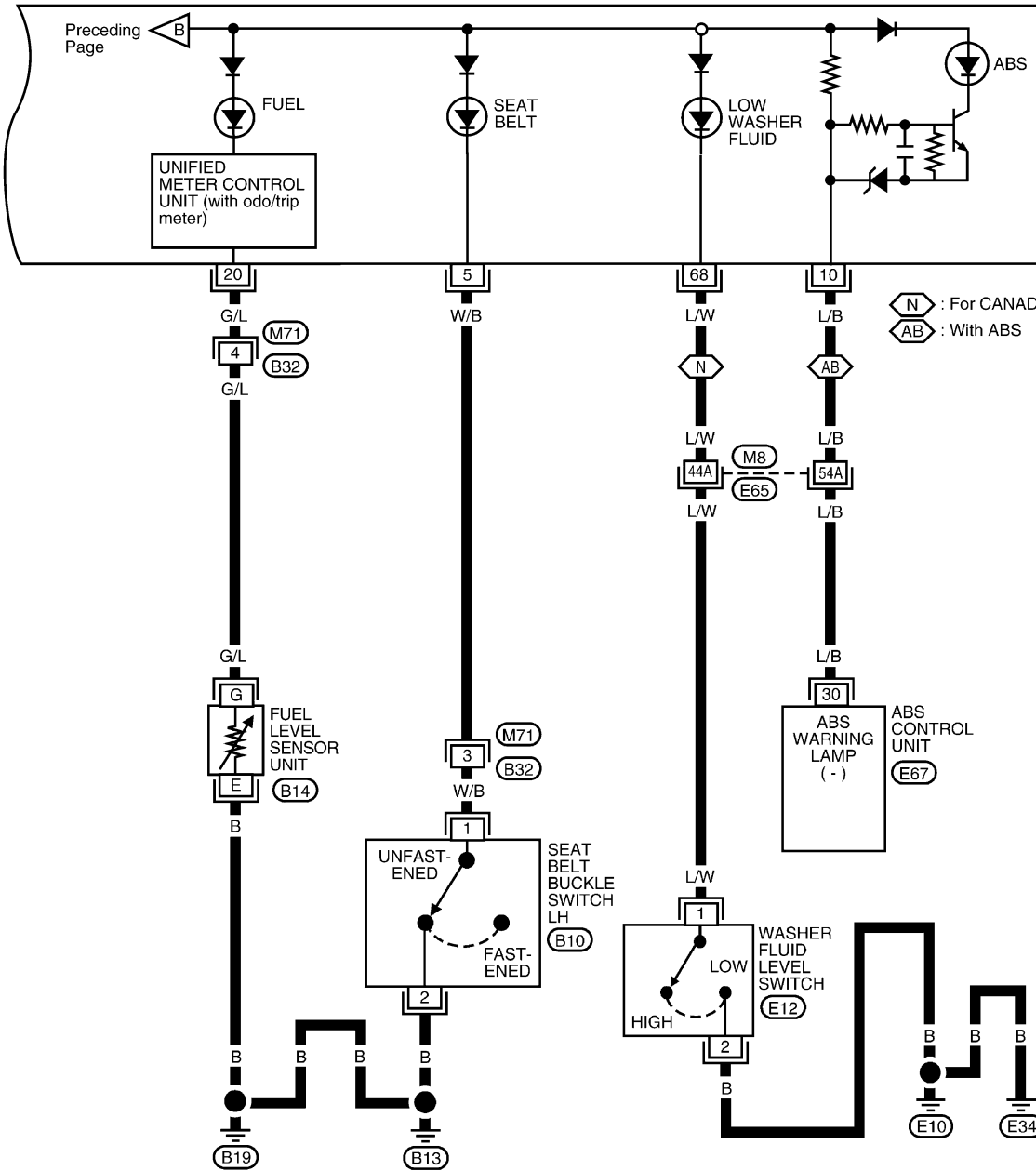
Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)
 (F30) - ELECTRICAL UNITS

WARNING LAMPS

Wiring Diagram — WARN — (Cont'd)

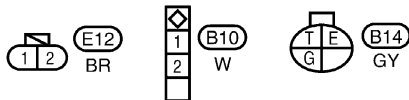
EL-WARN-03

COMBINATION METER
M72, M73



1	2	3	4	5	6	M71 W			
7	8	9	10	11	12		13	14	15

1	2	3	4	5	6	M72 W	45	46	47	48	49	50	M73 BR																	
12	13	14	15	16	17		18	19	20	21	22	23		24	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66



Refer to the following.

- M8, E65 - SUPER MULTIPLE JUNCTION (SMJ)
- E67 - ELECTRICAL UNITS

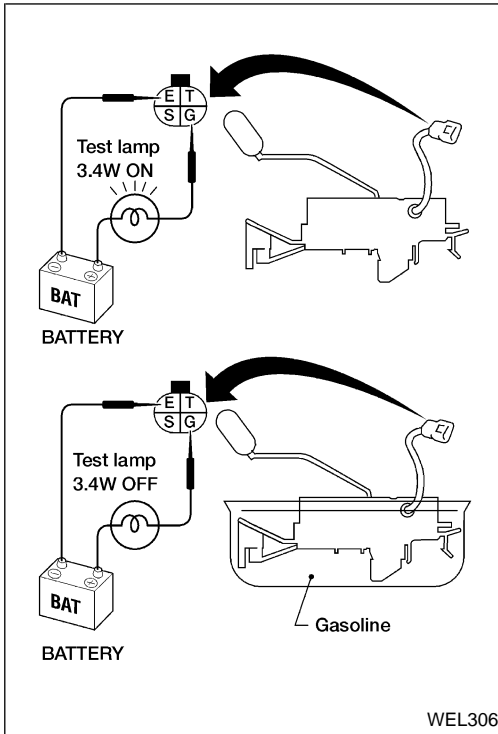
GI
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WARNING LAMPS

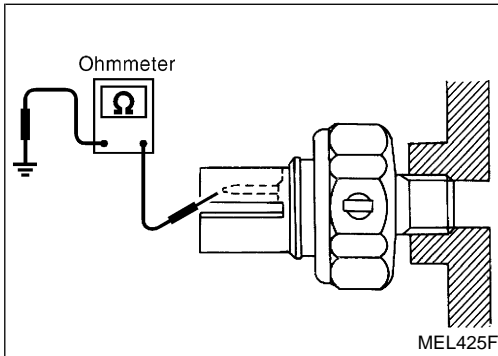
Electrical Components Inspection

FUEL WARNING LAMP SENSOR CHECK

- It will take a short time for the bulb to light.



OIL PRESSURE SWITCH CHECK



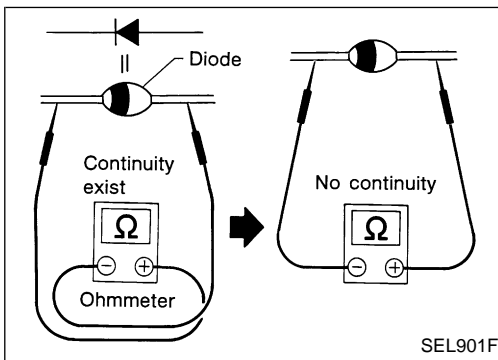
	Oil pressure kPa (kg/cm ² , psi)	Continuity
Engine start	More than 10 - 20 (0.1 - 0.2, 1 - 3)	NO
Engine stop	Less than 10 - 20 (0.1 - 0.2, 1 - 3)	YES

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

DIODE CHECK

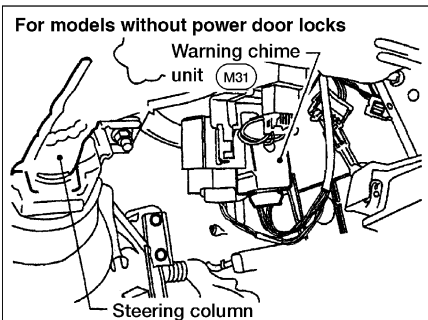
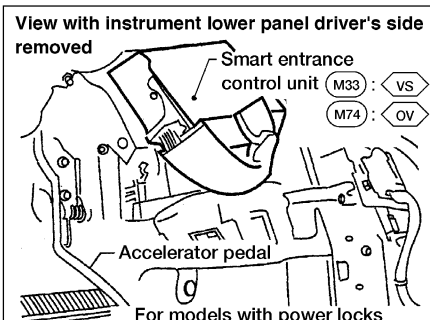
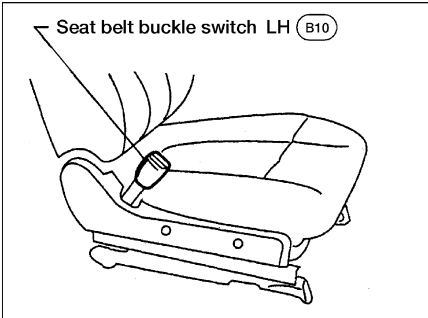
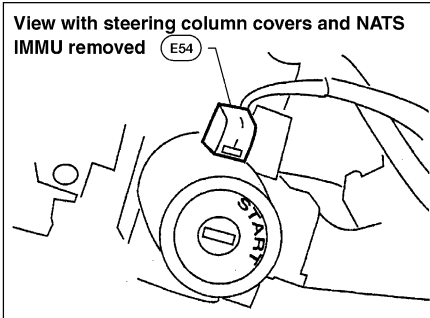
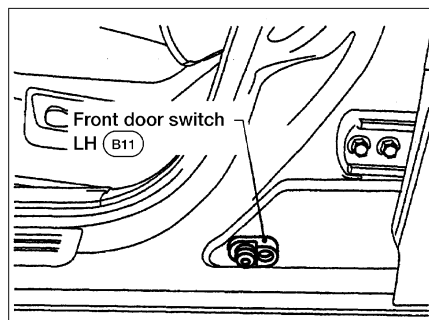
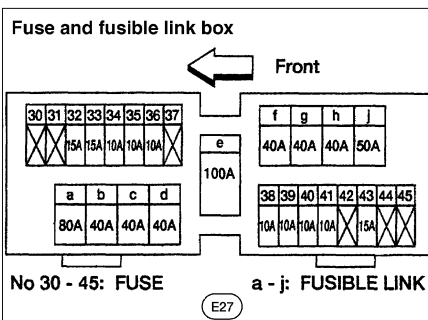
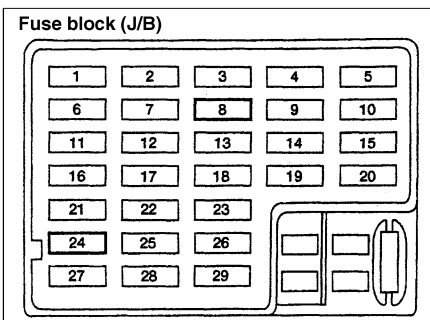
- Check continuity using an ohmmeter.
- Diode is functioning properly if test results are as shown in the figure at left.
- Check diodes at the combination meter harness connector instead of on the combination meter assembly. Refer to Warning Lamps wiring diagrams, EL-117.

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



WARNING CHIME

Component Parts and Harness Connector Location



GI
MA
EM
LC
EC
FE
CL
MT
AT
FA
RA
BR
ST
RS
BT
HA
EL
IDX

VS : With vehicle security system
OV : Without vehicle security system

WARNING CHIME

System Description

MODELS WITH POWER DOOR LOCKS

The warning chime is integral with the smart entrance control unit, which controls its operation.

Power is supplied at all times:

- through 10A fuse [No. 24], located in the fuse block (J/B)
- to key switch terminal ②.

Power is supplied at all times:

- through 10A fuse (No. 34), located in the fuse and fusible link box)
- to lighting switch terminal ⑪.

Power is supplied at all times:

- through 40A fusible link (letter d), located in the fuse and fusible link box).
- to circuit breaker - 1 terminal ①
- through circuit breaker - 1 terminal ②
- to smart entrance control unit terminal ① (with vehicle security system), ⑥ (without vehicle security system).

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

- through 10A fuse [No. 8], located in the fuse block (J/B)
- to smart entrance control unit terminal ⑪ (with vehicle security system), ⑳ (without vehicle security system).

Ground is supplied to smart entrance control unit terminal ⑩ (with vehicle security system), ① (without vehicle security system) through body grounds M2 and M61.

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 in the ignition key cylinder, the ignition switch in the OFF or ACC position, and the driver's door open, the warning chime will sound. A battery positive voltage is supplied:

- from key switch terminal ①
- to smart entrance control unit terminal ⑳ (with vehicle security system), ⑫ (without vehicle security system).

Ground is supplied:

- from front door switch LH terminal ①
- to smart entrance control unit terminal ⑮ (with vehicle security system), ⑳ (without vehicle security system).

Light warning chime

With ignition switch in the OFF or ACC position, driver's door open, and lighting switch in 1ST or 2ND position, warning chime will sound. A battery positive voltage is supplied:

- from lighting switch terminal ⑫
- to smart entrance control unit terminal ⑳ (with vehicle security system), ⑪ (without vehicle security system).

Ground is supplied:

- from front door switch LH terminal ①
- to smart entrance control unit terminal ⑮ (with vehicle security system), ⑳ (without vehicle security system).

Seat belt warning chime

The warning chime sounds for about 6 seconds when ignition switch is turned from OFF to ON and seat belt is unfastened.

Ground is supplied:

- from seat belt buckle switch LH terminal ①
- to smart entrance control unit terminal ㉑ (with vehicle security system), ⑱ (without vehicle security system).

Seat belt buckle switch LH terminal ② is grounded through body grounds B13 and B19.

WARNING CHIME

System Description (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

The warning chime is integral with the warning chime unit, which controls its operation.

Power is supplied at all times:

- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to key switch terminal ②.

Power is supplied at all times:

- through 10A fuse (No. 34, 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. 8, 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 M2 and M61.

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

Ignition key warning chime

With the key in the ignition switch in the OFF or ACC position, and the driver's door open, the warning chime will sound. A battery positive voltage is supplied:

- from key switch terminal ①
- to warning chime unit terminal ⑤.

Ground is supplied:

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

Front door switch LH terminal ③ is grounded through body grounds B13 and B19.

Light warning chime

With ignition switch OFF or ACC, driver's door open, and lighting switch in 1ST or 2ND position, 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
- from front door switch LH terminal ②.

Front door switch LH terminal ③ is grounded through body grounds B13 and B19.

Seat belt warning chime

With ignition switch turned to ON or START and seat belt unfastened, warning chime will sound for approximately 6 seconds.

Ground is supplied:

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

Seat belt buckle switch LH terminal ② is grounded through body grounds B13 and B19.

GI

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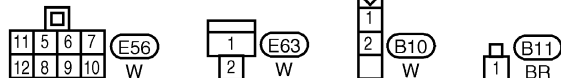
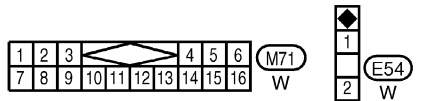
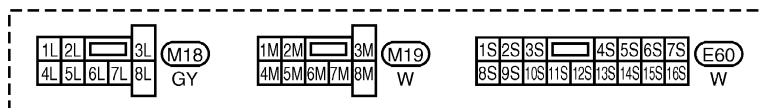
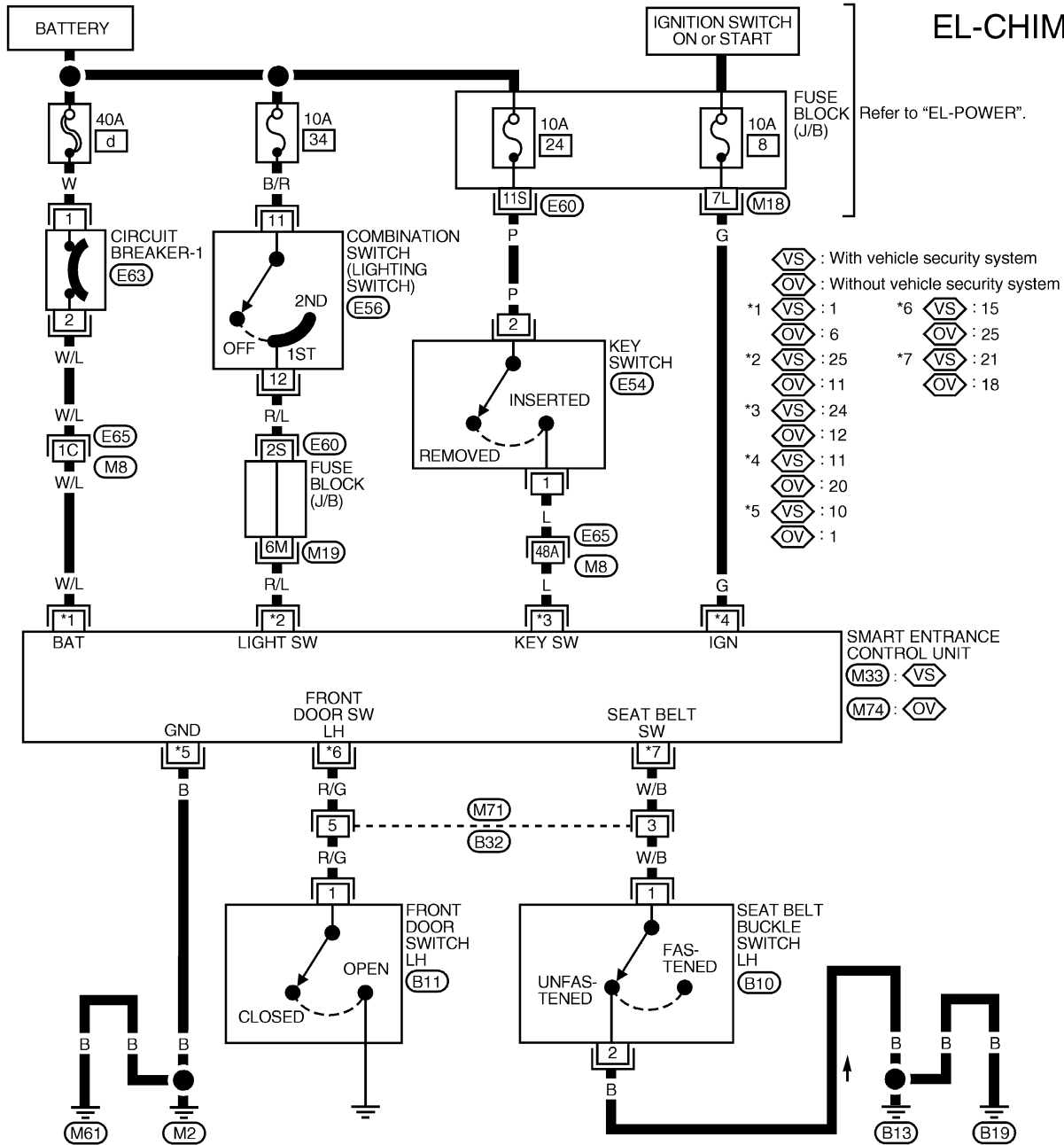
IDX

WARNING CHIME

Wiring Diagram — CHIME —

MODELS WITH POWER DOOR LOCKS

EL-CHIME-01



Refer to the following.

(M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

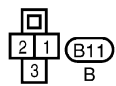
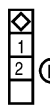
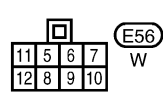
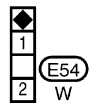
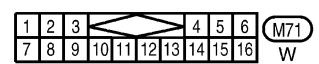
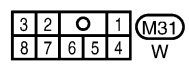
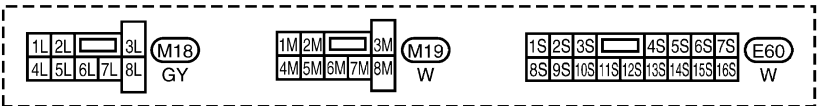
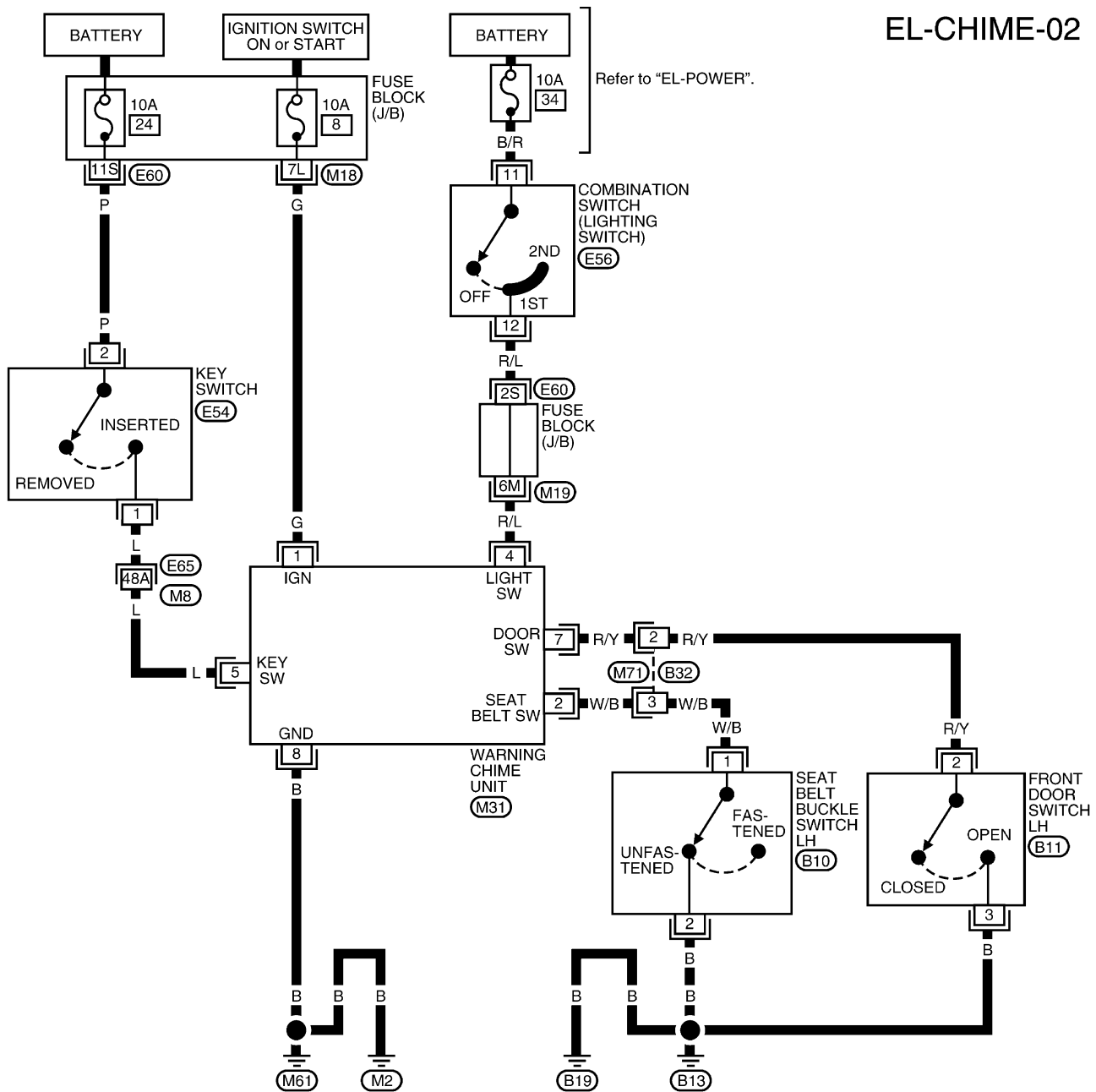
(M33), (M74) - ELECTRICAL UNITS

WARNING CHIME

Wiring Diagram — CHIME — (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

EL-CHIME-02



Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

GI
MA
EM
LC
EC
FE
CL
MT
AT
FA
RA
BR
ST
RS
BT
HA
EL
IDX

WARNING CHIME

Trouble Diagnoses

SYMPTOM CHART

REFERENCE PAGE	EL-127	EL-129	EL-130	EL-131	EL-132
SYMPTOM	MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK	DIAGNOSTIC PROCEDURE 1 (Lighting switch input signal check)	DIAGNOSTIC PROCEDURE 2 (Key switch input signal check)	DIAGNOSTIC PROCEDURE 3 (Seat belt buckle switch LH input signal check)	DIAGNOSTIC PROCEDURE 4 (Driver side door switch input signal 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				

WARNING CHIME

Trouble Diagnoses (Cont'd)

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

Main power supply circuit check

- Models with power door locks and vehicle security system.

Terminals		Ignition switch position		
+	-	OFF	ACC	ON
①	Ground	Battery voltage	Battery voltage	Battery voltage
⑪	Ground	0V	0V	Battery voltage

- Models with power door locks and without vehicle security system.

Terminals		Battery voltage existence condition		
		Ignition switch position		
+	-	OFF	ACC	ON
⑥	Ground	Battery voltage	Battery voltage	Battery voltage
⑳	Ground	0V	0V	Battery voltage

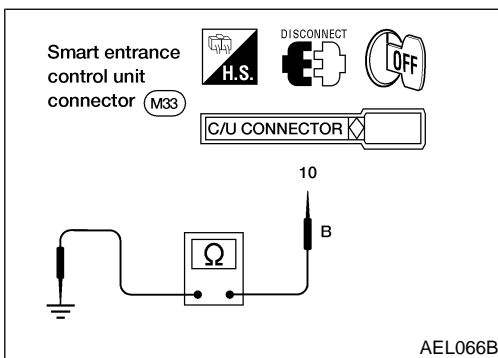
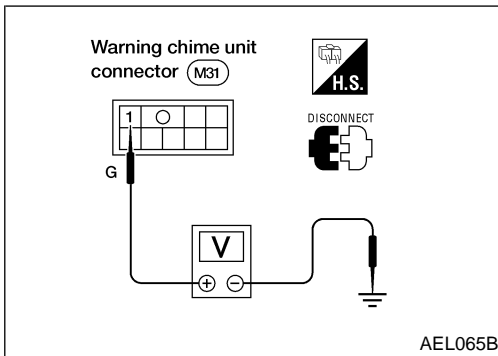
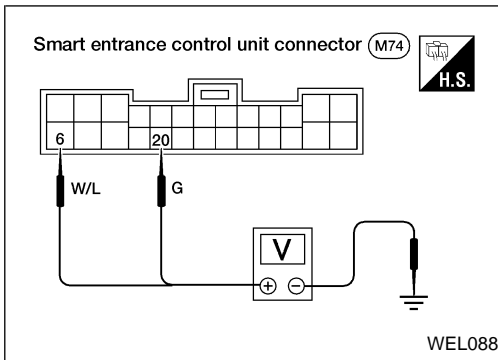
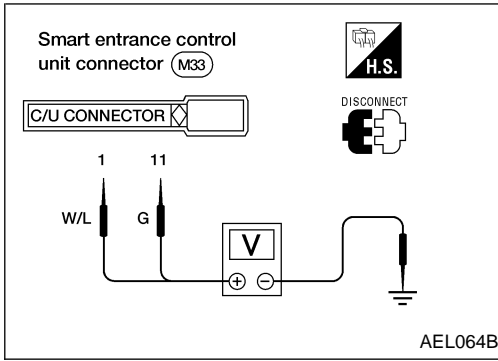
- Models without power door locks

Terminals		Battery voltage existence condition		
		Ignition switch position		
+	-	OFF	ACC	ON
①	Ground	0V	0V	Battery voltage

Ground circuit check

- Models with power door locks and vehicle security system

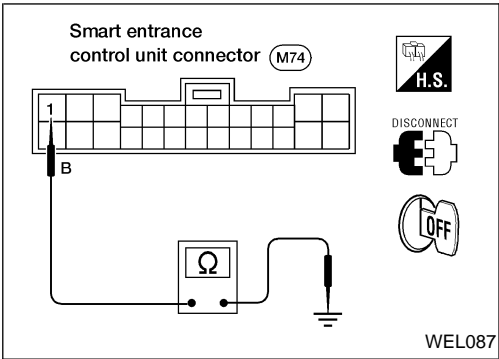
Terminals	Continuity
⑩ - Ground	Yes



GI
MA
EM
LC
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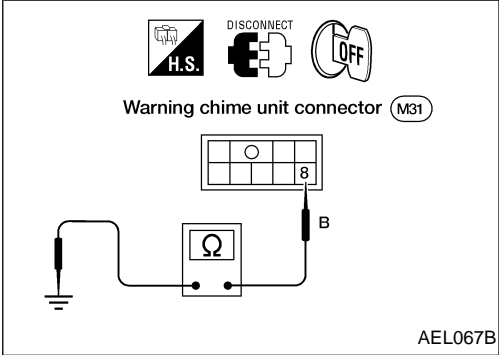
WARNING CHIME

Trouble Diagnoses (Cont'd)



- Models with power door locks and without vehicle security system

Terminals	Continuity
① - Ground	Yes



- Models without power door locks

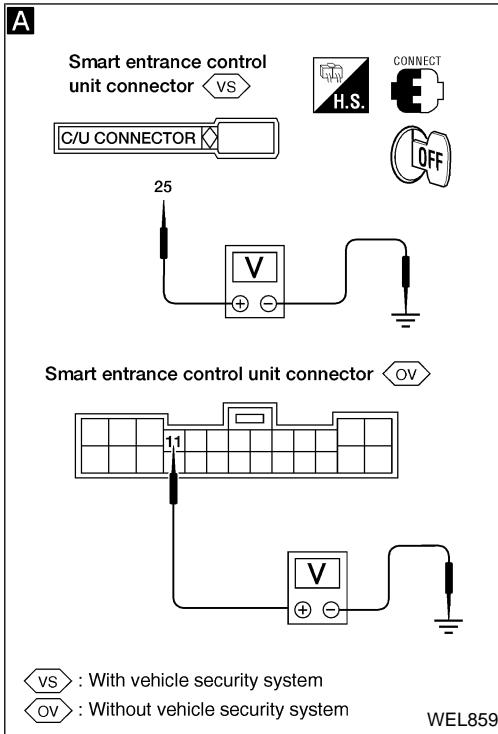
Terminals	Continuity
⑧ - Ground	Yes

WARNING CHIME

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1(Lighting switch input signal check)

Models with power door locks



A

CHECK LIGHTING SWITCH INPUT SIGNAL.

Check voltage between smart entrance control unit **(M33)** terminal **(25)** (R/L) (with vehicle security system), **(M74)** terminal **(11)** (R/L) (without vehicle security system) and ground.

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

OK

Go to "DIAGNOSTIC PROCEDURE 4", EL-132.

NG

Check the following.

- 10A fuse (No. **34**, located in the fuse and fusible link box)
- Harness for open or short between smart entrance control unit and lighting switch

GI

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BR

ST

RS

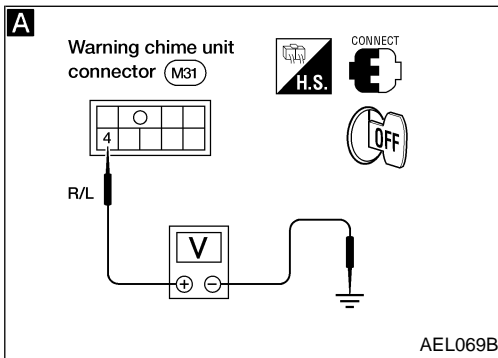
BT

HA

EL

IDX

Models without power door locks



A

CHECK LIGHTING SWITCH INPUT SIGNAL.

Check voltage between warning chime unit terminal **(4)** and ground.

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

OK

Go to "DIAGNOSTIC PROCEDURE 4", EL-132.

NG

Check the following.

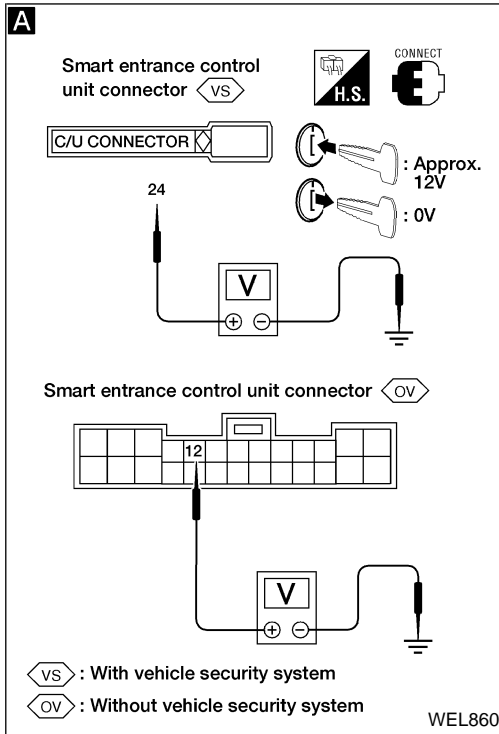
- 10A fuse (No. **34**, located in the fuse and fusible link box)
- Harness for open or short between warning chime unit and lighting switch

WARNING CHIME

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2(Key switch input signal check)

Models with power door locks



A

CHECK KEY SWITCH INPUT SIGNAL.

Check voltage between smart entrance control unit (M33) terminal (24) (L) (with vehicle security system), (M74) terminal (12) (L) (without vehicle security system) and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is withdrawn.	0

OK

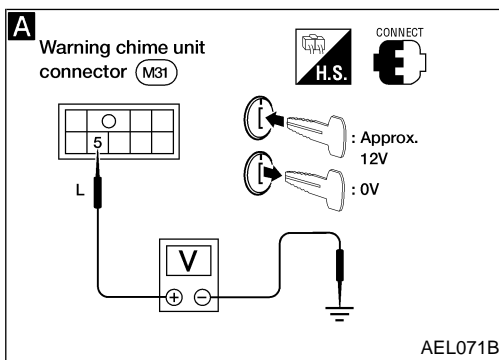
Go to "DIAGNOSTIC PROCEDURE 4", EL-132.

NG

Check the following.

- Key switch
Refer to "Electrical Components Inspection", EL-133.
- 10A fuse [No. 24], located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between smart entrance control unit and key switch

Models without power door locks



A

CHECK KEY SWITCH INPUT SIGNAL.

Check voltage between warning chime unit terminal (5) and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is withdrawn.	0

OK

Go to "DIAGNOSTIC PROCEDURE 4", EL-132.

NG

Check the following.

- Key switch
Refer to "Electrical Components Inspection", EL-133.
- 10A fuse [No. 24], located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between warning chime unit and key switch

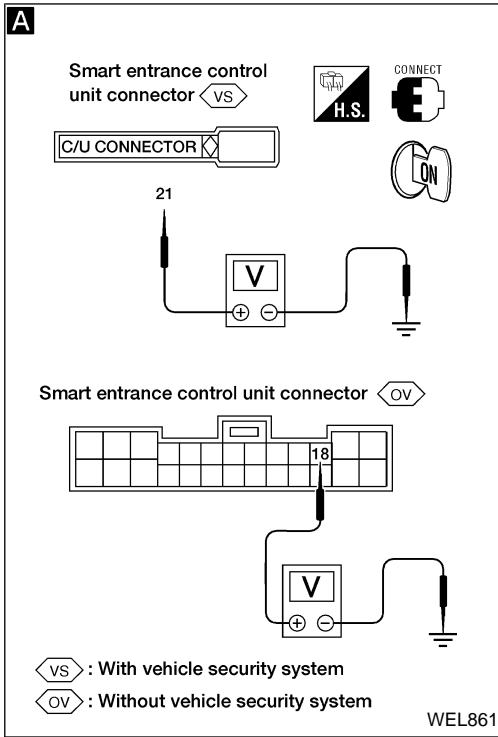
WARNING CHIME

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3(Seat belt buckle switch LH input signal check)

Models with power door locks

GI
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EM
LC
EC
FE
CL
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AT
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BR
ST
RS
BT
HA
EL
IDX



A

CHECK SEAT BELT BUCKLE SWITCH LH INPUT SIGNAL.

1. Turn ignition switch ON.
2. Check voltage between smart entrance control unit (M33) terminal (21) (W/B) (with vehicle security system), (M74) terminal (18) (W/B) (without vehicle security system) and ground.

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

NG

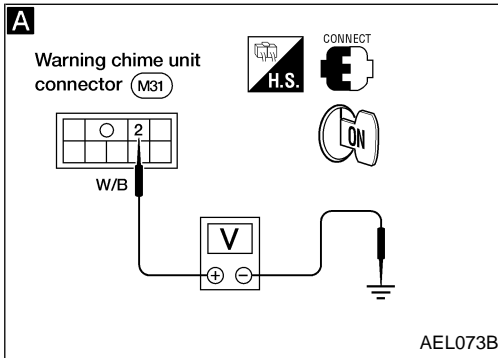
Check the following.

- Seat belt buckle LH switch
Refer to "Electrical Components Inspection", EL-133.
- Seat belt buckle switch LH ground circuit
- Harness for open or short between smart entrance control unit and seat belt buckle switch LH

OK

System is OK.

Models without power door locks



A

CHECK SEAT BELT BUCKLE SWITCH LH INPUT SIGNAL.

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

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

NG

Check the following.

- Seat belt buckle switch LH
Refer to "Electrical Components Inspection", EL-133.
- Seat belt buckle switch LH ground circuit
- Harness for open or short between warning chime unit and seat belt buckle switch LH

OK

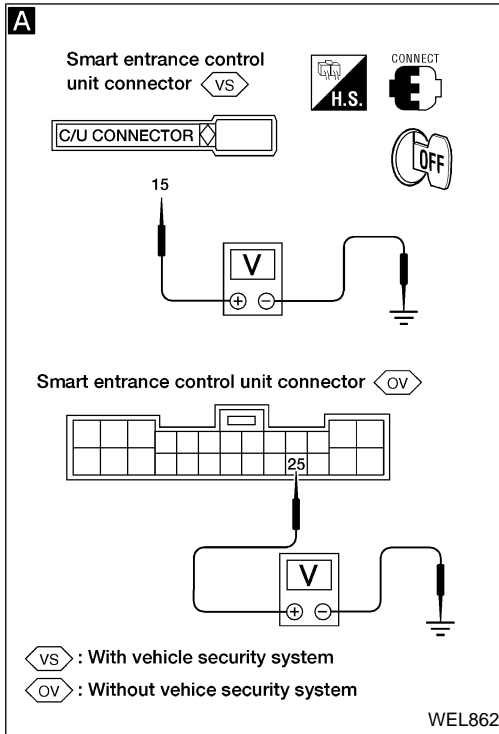
System is OK.

WARNING CHIME

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4(Driver side door switch input signal check)

Models with power door locks



A

CHECK DOOR SWITCH INPUT SIGNAL.

Check voltage between smart entrance control unit (M33) terminal (15) (R/G) (with vehicle security system), (M74) terminal (25) (R/G) (without vehicle security system) and ground.

Condition of driver's door	Voltage [V]
Driver side door is closed.	Approx. 12
Driver side door is open.	0

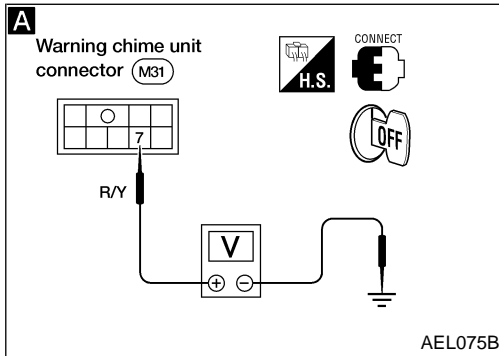
NG

- Check the following.
- Driver side door switch
 - Door switch ground condition
 - Harness for open or short between smart entrance control unit and door switch

OK

Replace smart entrance control unit.

Models without power door locks



A

CHECK DOOR SWITCH INPUT SIGNAL.

Check voltage between control unit terminal (7) and ground.

Condition of driver's door	Voltage [V]
Driver side door is closed.	Approx. 12
Driver side door is open.	0

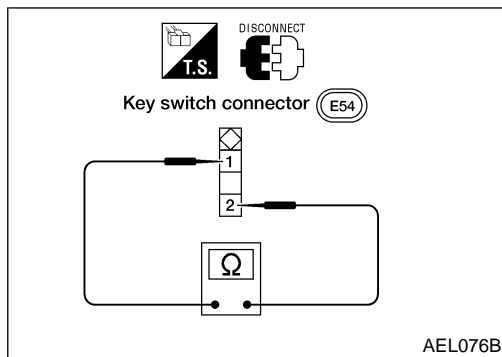
NG

- Check the following.
- Driver side door switch
 - Door switch ground circuit
 - Harness for open or short between warning chime unit and door switch

OK

Replace warning chime unit.

WARNING CHIME



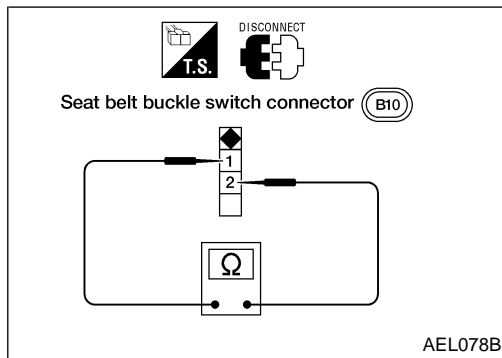
Electrical Components Inspection

KEY SWITCH (insert)

Check continuity between terminals when key is inserted in ignition key cylinder and key is removed from ignition key cylinder.

Terminal No.	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is removed.	No

GI
MA
EM



SEAT BELT BUCKLE SWITCH LH

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

Terminal No.	Condition	Continuity
① - ②	Seat belt is fastened.	No
	Seat belt is unfastened.	Yes

LC
EC
FE

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EL
IDX

FRONT WIPER AND WASHER

System Description

WIPER OPERATION

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

- LO speed
- HI speed
- INT (Intermittent).

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

- through 20A fuse [No. 19], located in the fuse block (J/B)]
- to wiper motor terminal (B) and
- to wiper amplifier terminal (5).

Ground is supplied to wiper amplifier terminal (3) through body grounds (M2) and (M61).

Low and high speed wiper operation

Ground is supplied to wiper switch terminal (17) through body grounds (E10) and (E34).

When the wiper switch is placed in the LO position, ground is supplied:

- through terminal (14) of the wiper switch
- to wiper motor terminal (L).

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

When the wiper switch is placed in the HI position, ground is supplied:

- through terminal (16) of the wiper switch
- to wiper motor terminal (H).

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

Auto stop operation

With wiper switch turned OFF, wiper motor will continue to operate until wiper arms reach windshield base.

When wiper arms are not located at base of windshield with wiper switch OFF, ground is supplied:

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

Ground is also supplied:

- through terminal (13) of the wiper switch
- to wiper amplifier terminal (2)
- through terminal (7) of the wiper amplifier
- to wiper motor terminal (P)
- through terminal (E) of the wiper motor, and
- through body grounds (M2) and (M61).

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

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.

When the wiper switch is placed in the INT position, ground is supplied:

- to wiper amplifier terminal (1)
- from wiper switch terminal (15)
- through body grounds (E10) and (E34)
- to wiper motor terminal (L)
- through the wiper switch terminal (14)
- to wiper switch terminal (13)
- through wiper amplifier terminal (2)
- to wiper amplifier terminal (3)
- through body grounds (M2) and (M61).

The desired interval time is input:

- to wiper amplifier terminal (8)
- from wiper switch terminal (19)
- to wiper switch terminal (20)
- through body grounds (E10) and (E34).

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

FRONT WIPER AND WASHER

System Description (Cont'd)

WASHER OPERATION

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

- through 20A fuse [No. 19, located in the fuse block (J/B)]
- to washer motor terminal ②.

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

- to washer motor terminal ①, and
- to wiper amplifier terminal ⑥
- from terminal ⑱ of the wiper switch
- through terminal ⑰ of the wiper switch, and
- through body grounds E10 and E34 .

With power and ground supplied, the washer motor operates.

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

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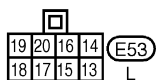
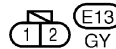
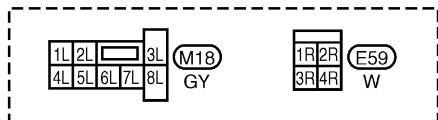
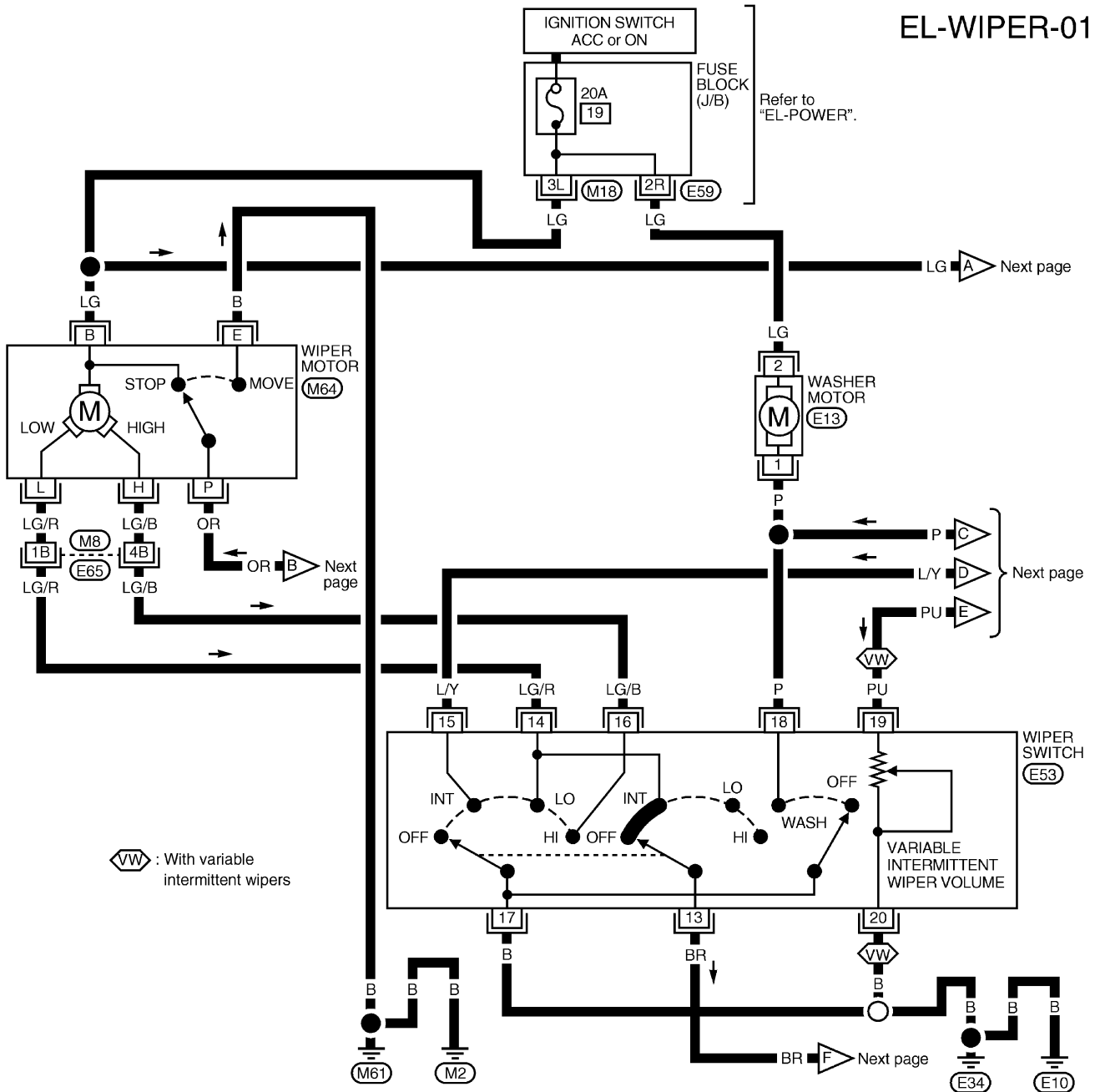
EL

IDX

FRONT WIPER AND WASHER

Wiring Diagram — WIPER —

EL-WIPER-01



Refer to the following.
(M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

FRONT WIPER AND WASHER

Wiring Diagram — WIPER — (Cont'd)

EL-WIPER-02

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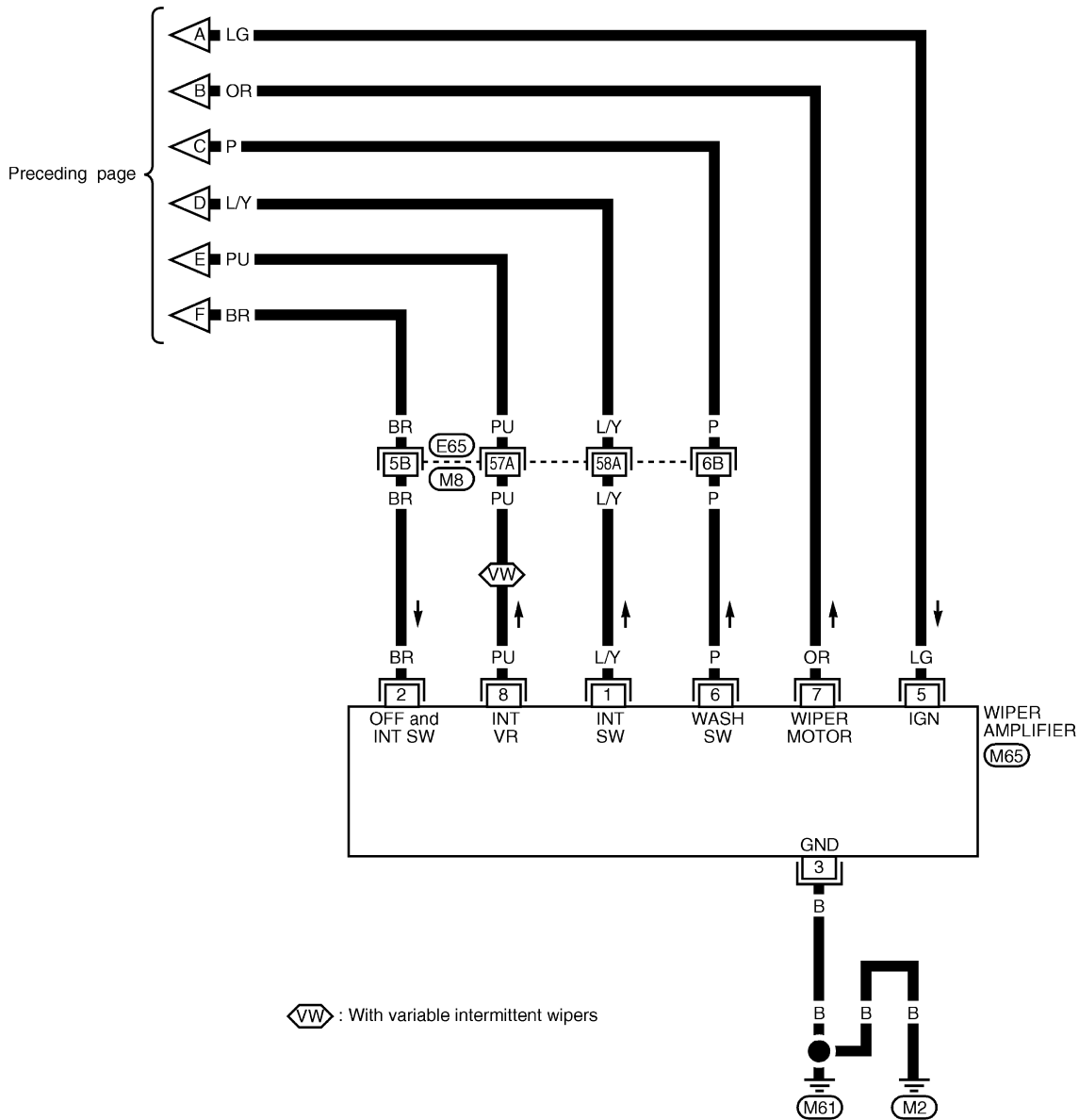
RS

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Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

	3	2	1	(M65)
	8	7	6	5

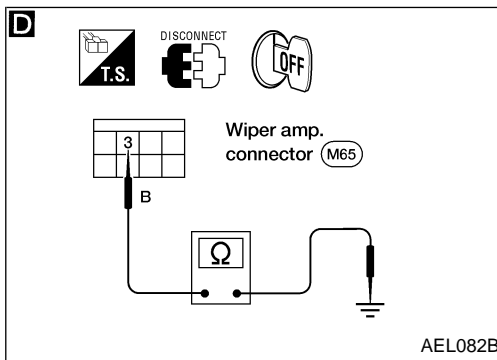
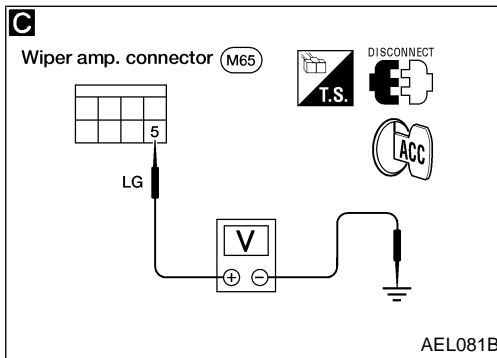
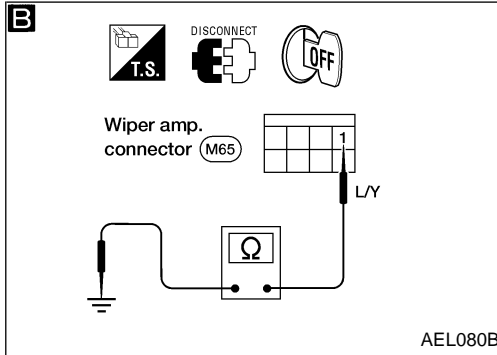
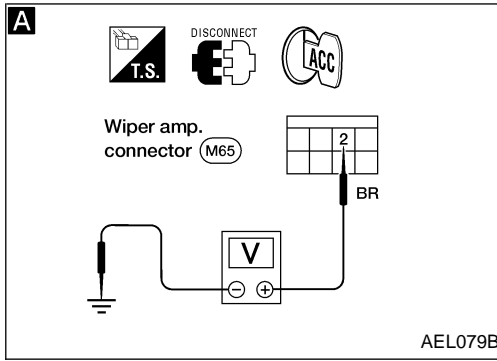
W

FRONT WIPER AND WASHER

Trouble Diagnoses

DIAGNOSTIC PROCEDURE 1

SYMPTOM: Intermittent wiper does not operate.



Check whether wiper operates with the wiper switch at LO position.

NG → Check the following.

- 20A fuse [No. 19], located in fuse block (J/B)
- Wiper motor
- Wiper switch
- Harness for open or short

OK ↓

A

1. Turn front wiper switch to OFF.
2. Disconnect wiper amp. connector.
3. Check voltage between wiper amp. terminal ② and ground.
Battery voltage should exist.

NG → Check the following.

- Wiper switch
- Harness for open or short between wiper amp. terminal ② and wiper switch terminal ⑬

OK ↓

B

CHECK INTERMITTENT SWITCH INPUT SIGNAL.
Check harness continuity between wiper amp. terminal ① and ground.

Condition of wiper switch	Continuity
OFF	No
INT	Yes

NG → Check the following.

- Wiper switch
- Harness for open or short between wiper amp. terminal ① and wiper switch terminal ⑮
- Ground circuit for front wiper switch terminal ⑰

OK ↓

C

CHECK WIPER AMP. POWER SUPPLY CIRCUIT.
Check voltage between wiper amp. terminal ⑤ and ground while ignition switch is in ACC.
Battery voltage should exist.

NG → Check the following.

- Harness for open or short between wiper amp. and fuse

OK ↓

D

CHECK WIPER AMP. GROUND CIRCUIT.
Check harness continuity between wiper amp. terminal ③ and body ground.
Continuity should exist.

NG → Repair harness or connector.

OK ↓

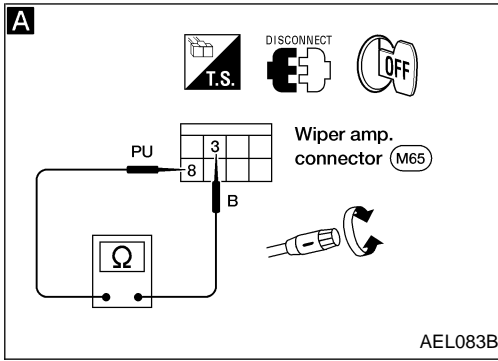
Replace wiper amp.

FRONT WIPER AND WASHER

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

SYMPTOM: Intermittent time of wiper cannot be adjusted.



AEL083B

A

CHECK INTERMITTENT WIPER VOLUME INPUT SIGNAL.

1. Disconnect wiper amp. connector.
2. Measure resistance between wiper amp. terminals (8) and (3) while turning intermittent wiper volume.

Position of wiper knob	Resistance [Ω]
S	0
L	Approx. 1 k

OK → Replace wiper amp.

NG

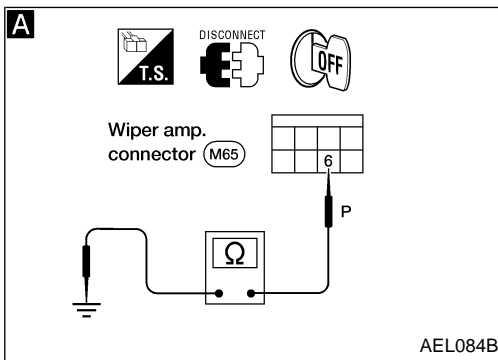
Check the following.

- Harness for open or short between wiper amp. terminal (8) and wiper switch terminal (19)
- Ground circuit for front wiper switch terminal (20)

OK

Check intermittent wiper volume.

NG → Replace wiper switch.



AEL084B

DIAGNOSTIC PROCEDURE 3

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

A

CHECK WASHER SWITCH INPUT SIGNAL.

1. Turn ignition switch OFF.
2. Disconnect wiper amp. connector.
3. Check harness continuity between wiper amp. terminal (6) and ground.

Condition of washer switch	Continuity
OFF	No
ON	Yes

NG → Check harness for open or short between wiper amp. terminal (6) and wiper switch terminal (18).

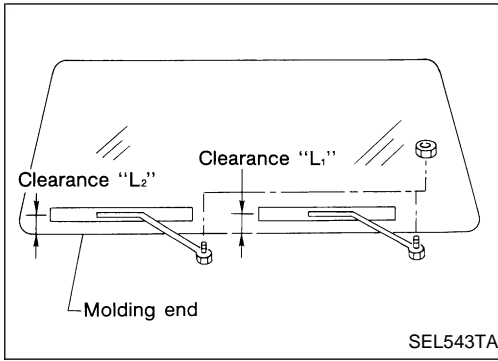
OK

Go to "DIAGNOSTIC PROCEDURE 1", EL-138.

NG → Replace wiper amp.

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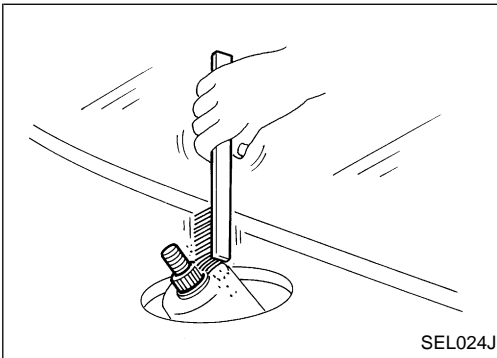
FRONT WIPER AND WASHER



Removal and Installation

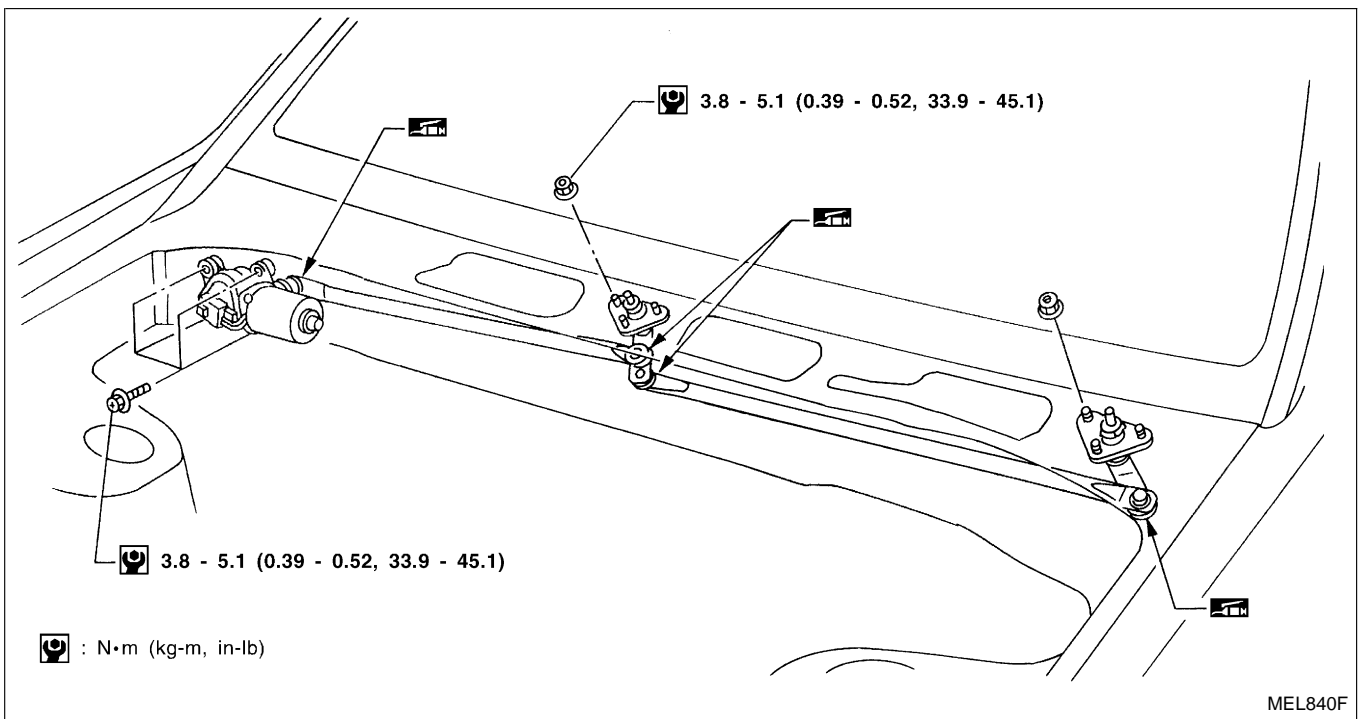
WIPER ARMS

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": 45 mm (1.77 in)**
 - **Clearance "L₂": 38 mm (1.50 in)**
- Tighten wiper arm nuts to specified torque.
 - **Front wiper: 17 - 23 N·m (1.7 - 2.3 kg·m, 12 - 17 ft·lb)**



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

WIPER LINKAGE



FRONT WIPER AND WASHER

Removal and Installation (Cont'd)

Removal

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

- Grease ball joint portion before installation.
1. Installation is the reverse order of removal.

GI

MA

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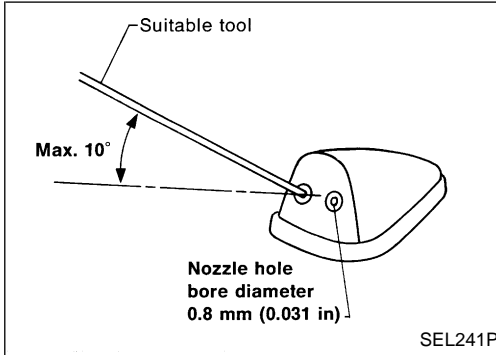
RS

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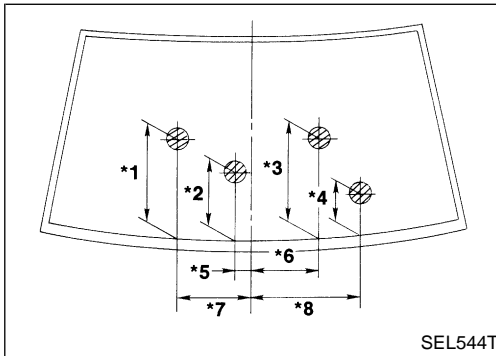
IDX



Washer Nozzle Adjustment

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

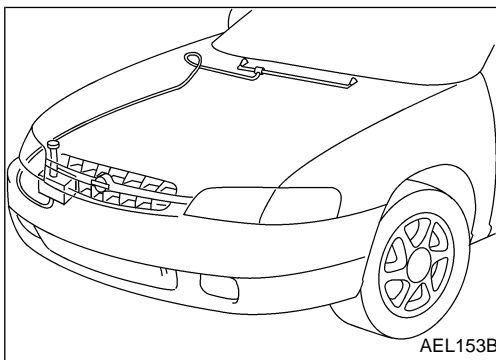
Adjustable range: ±10°



Unit: mm (in)

*1	350 (13.78)	*5	135 (5.31)
*2	190 (7.48)	*6	230 (9.06)
*3	320 (12.60)	*7	275 (10.83)
*4	135 (5.31)	*8	440 (17.32)

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

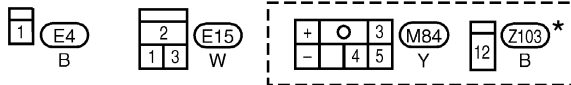
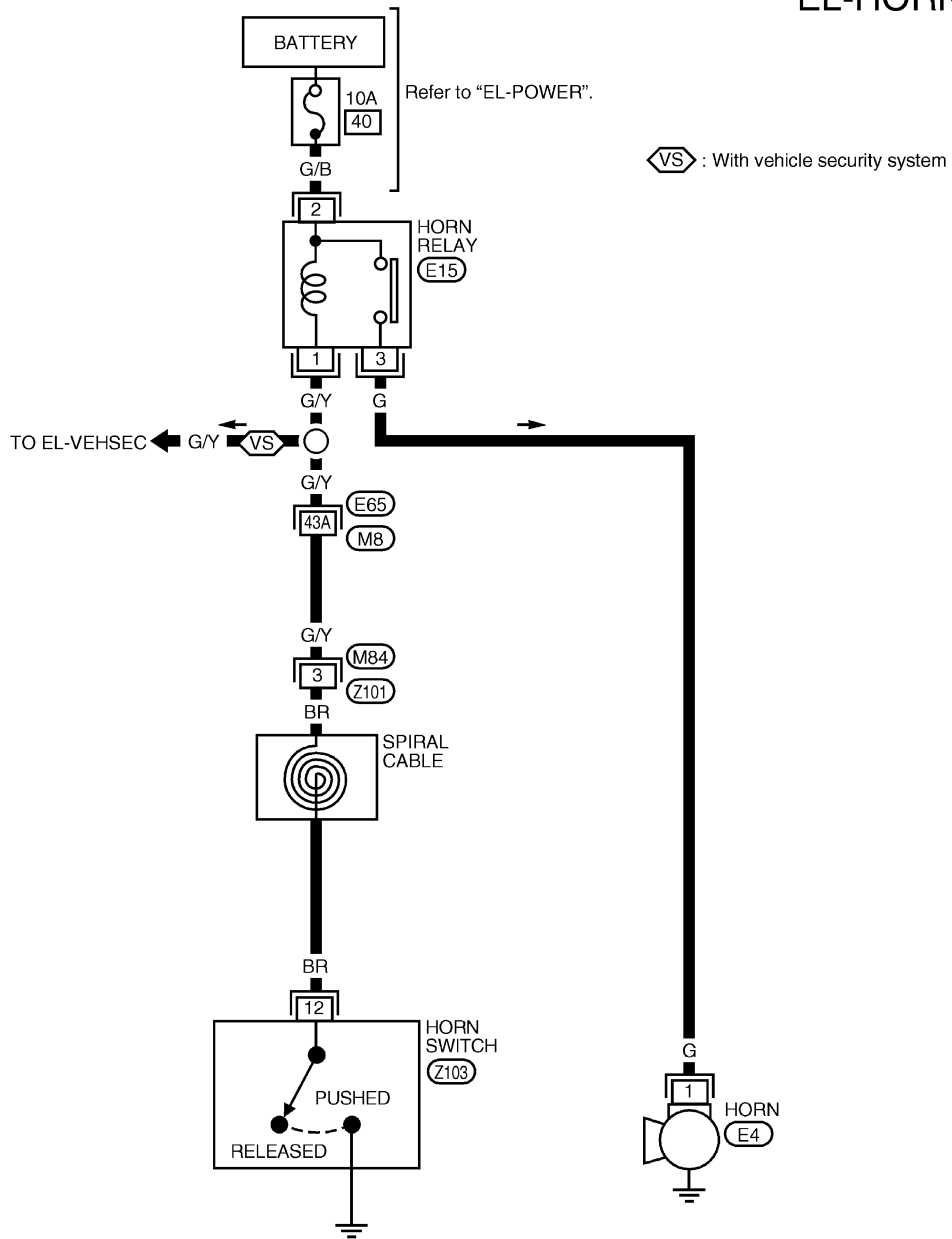


Washer Tube Layout

HORN

Wiring Diagram — HORN —

EL-HORN-01



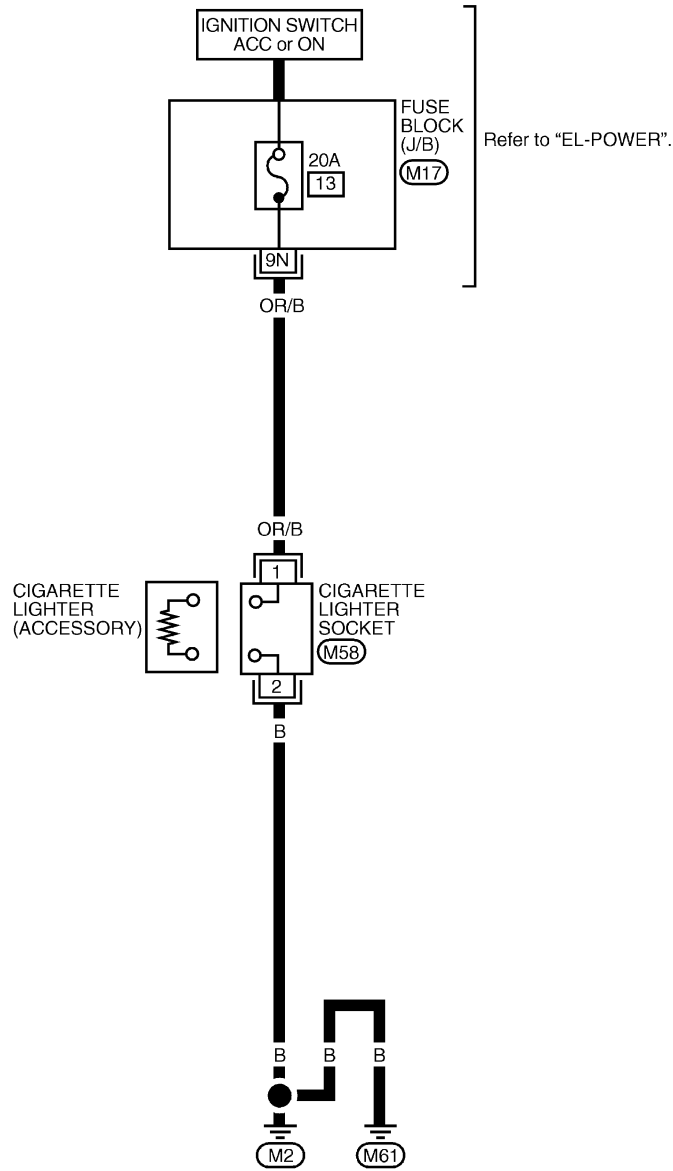
Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

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

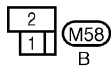
CIGARETTE LIGHTER

Wiring Diagram — CIGAR —

EL-CIGAR-01



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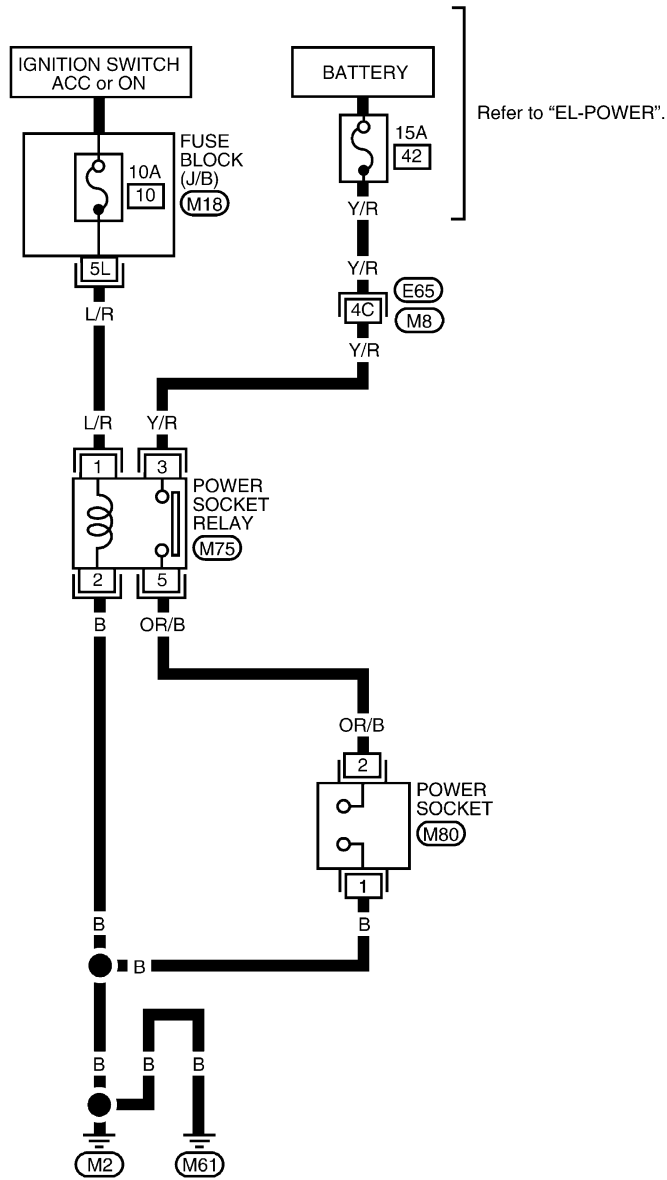
EL

IDX

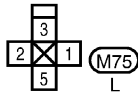
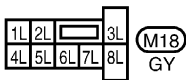
CIGARETTE LIGHTER

Wiring Diagram — CIGAR — (Cont'd)

EL-CIGAR-02



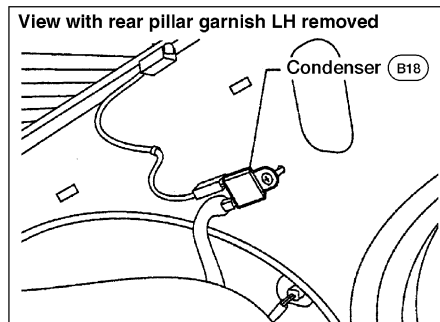
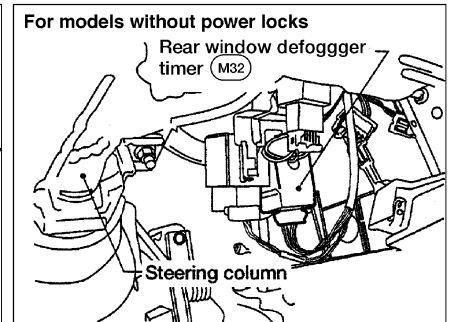
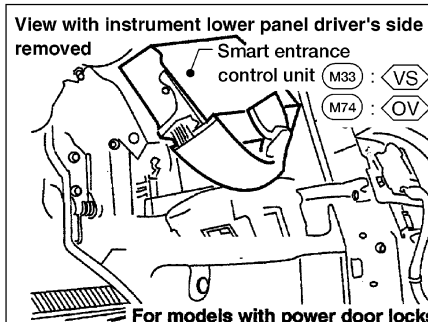
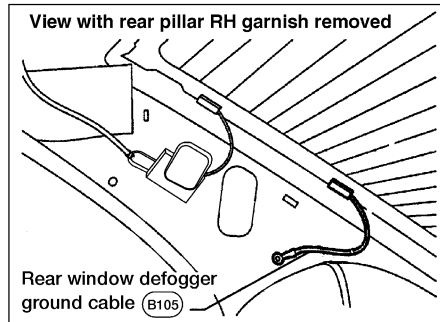
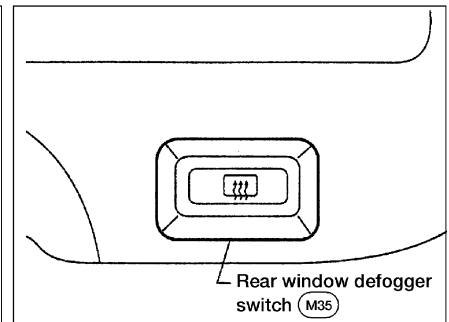
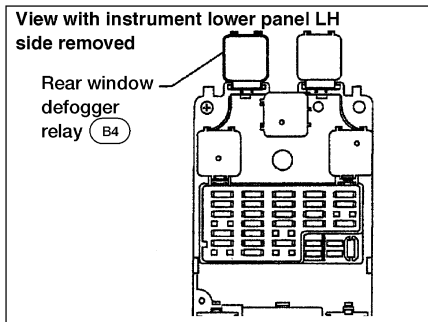
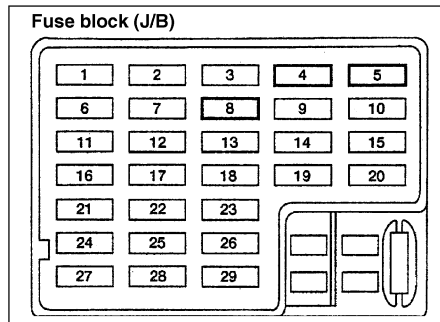
Refer to "EL-POWER".



Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

REAR WINDOW DEFOGGER

Component Parts and Harness Connector Location



GI
MA
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EL
IDX

VS : With vehicle security system
OV : Without vehicle security system

REAR WINDOW DEFOGGER

System Description

MODELS WITH POWER DOOR LOCKS

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

Power is supplied at all times:

- to rear window defogger relay terminal ③
- through 20A fuse [No. ⑤, located in the fuse block (J/B)] and
- to rear window defogger relay terminal ⑥
- through 20A fuse [No. ④, located in the fuse block (J/B)].

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

- to rear window defogger relay terminal ① and
- to smart entrance control unit terminal ⑪ (with vehicle security system), ⑫ (without vehicle security system).
- through 10A fuse [No. ⑧, located in the fuse block (J/B)].

Ground is supplied to terminal ⑩ (with vehicle security system), ① (without vehicle security system) of the smart entrance control unit through body grounds M2 and M61.

Ground is also supplied to terminal ② of the rear window defogger switch through body grounds M2 and M61.

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

- through terminal ① of the rear window defogger switch
- to smart entrance control unit terminal ⑫ (with vehicle security system), ⑬ (without vehicle security system).

Terminal ⑬ (with vehicle security system), ④ (without vehicle security system) of the smart entrance control unit then supplies ground to the rear window defogger relay terminal ②.

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

Power is supplied:

- through terminals ⑤ and ⑦ of the rear window defogger relay
- to condenser terminal ⊕
- through condenser terminal ⊖
- to the rear window defogger terminal ⊕.

Ground is supplied to terminal ⊖ of the rear window defogger through body ground B105.

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

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

Power is supplied:

- to terminal ③ of the rear window defogger switch
- from terminals ⑤ and ⑦ of the rear window defogger relay.

Terminal ④ of the rear window defogger switch is grounded through body grounds M2 and M61.

REAR WINDOW DEFOGGER

System Description (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

If not equipped with power door locks, the rear defogger system is controlled by the rear window defogger timer. The rear window defogger operates for approximately 15 minutes.

Power is supplied at all times:

- through 20A fuse (No. 4, located in the fuse block [J/B])
- to rear window defogger relay terminal 6 and
- through 20A fuse (No. 5, located in the fuse block [J/B])
- to rear window defogger relay terminal 3.

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

- through 10A fuse (No. 8, located in the fuse block [J/B])
- to rear window defogger relay terminal 1 and
- to rear window defogger timer terminal 1.

Ground is supplied to terminal 4 of the rear window defogger timer through body grounds M2 and M61.

Ground is also supplied to terminal 2 of the rear window defogger switch through body grounds M2 and M61.

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

- through terminal 1 of the rear window defogger switch
- to rear window defogger timer terminal 3.

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

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

Power is supplied:

- through terminals 5 and 7 of the rear window defogger relay
- to condenser terminal +
- through condenser terminal -
- to rear window defogger terminal +.

Ground is supplied to terminal - of rear window defogger through body ground B105.

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

Power is supplied:

- to terminal 3 of the rear window defogger switch
- from terminals 5 and 7 of the rear window defogger relay.

Terminal 4 of the rear window defogger switch is grounded through body grounds M2 and M61.

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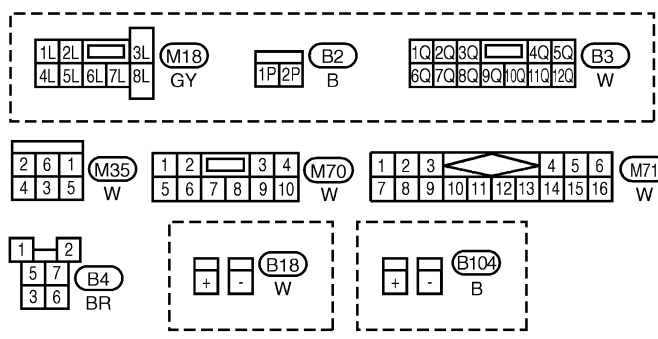
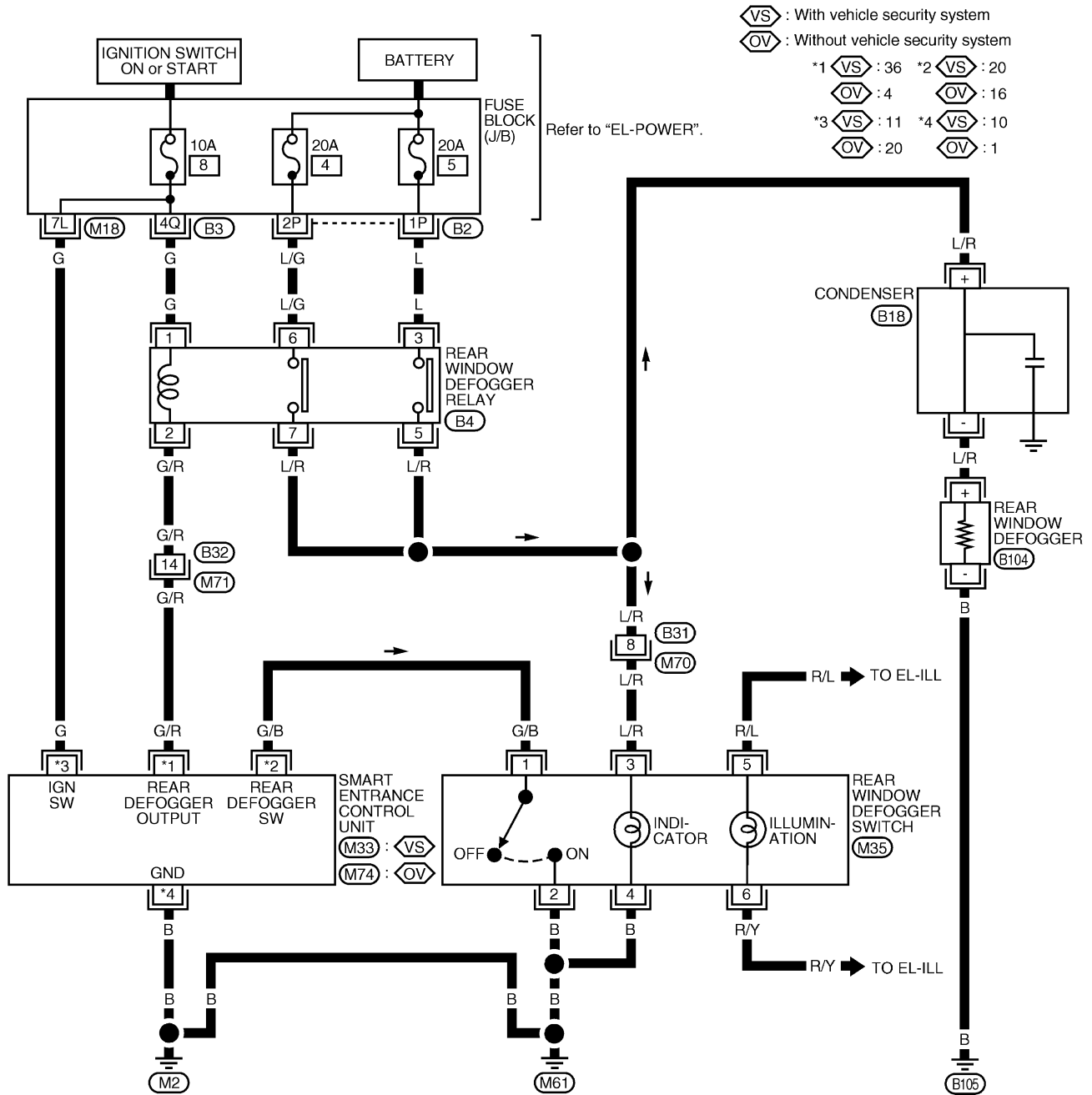
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REAR WINDOW DEFOGGER

Wiring Diagram — DEF —

MODELS WITH POWER DOOR LOCKS

EL-DEF-01



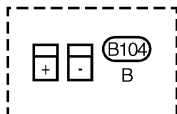
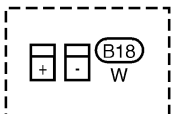
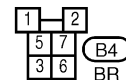
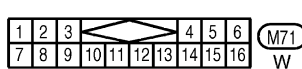
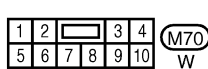
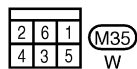
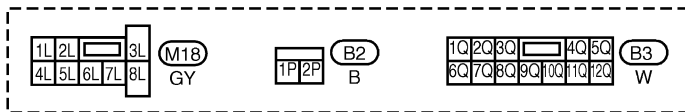
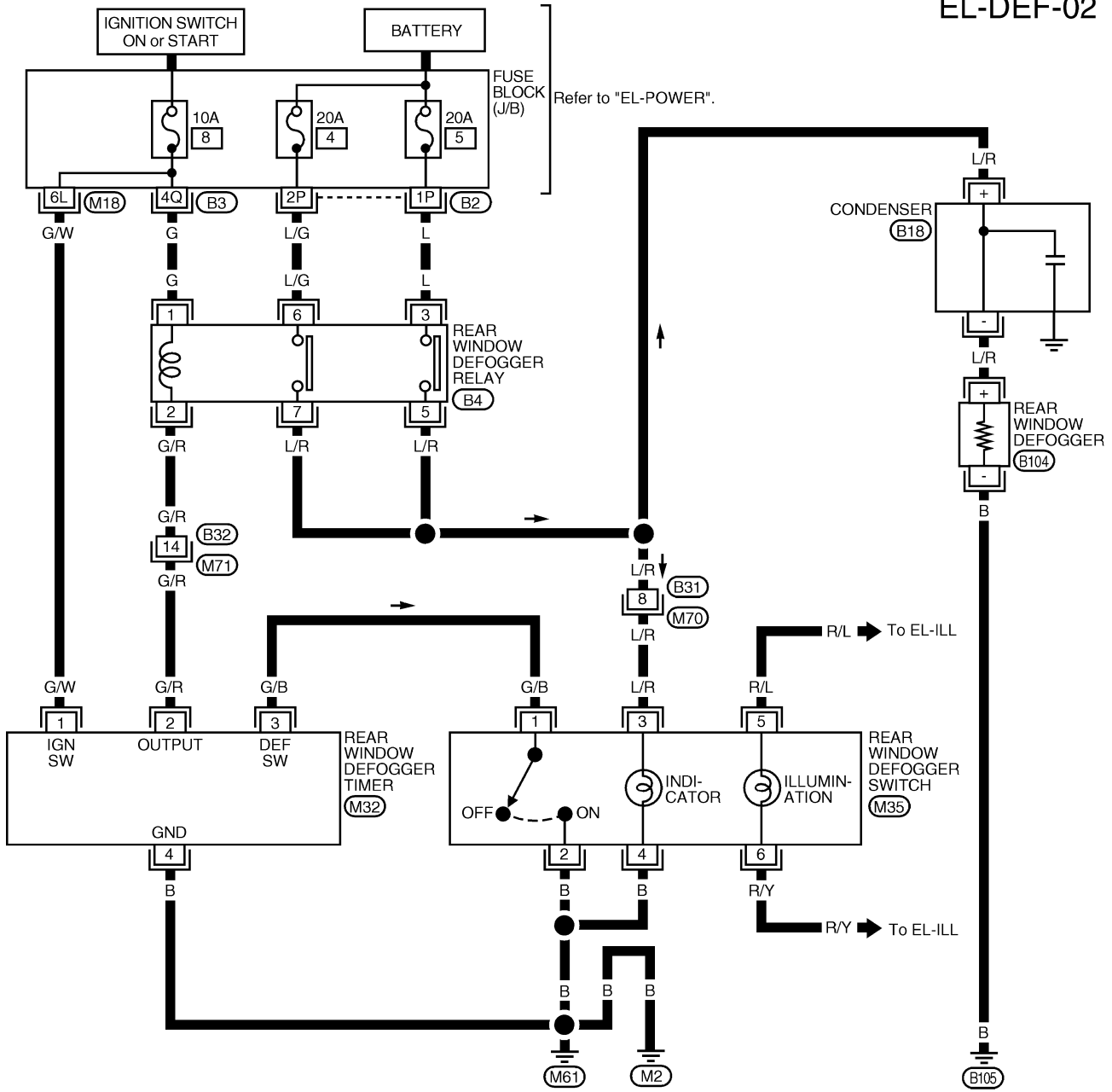
Refer to the following.
 (M33), (M74) - ELECTRICAL UNITS

REAR WINDOW DEFOGGER

Wiring Diagram — DEF — (Cont'd)

MODELS WITHOUT POWER DOOR LOCKS

EL-DEF-02



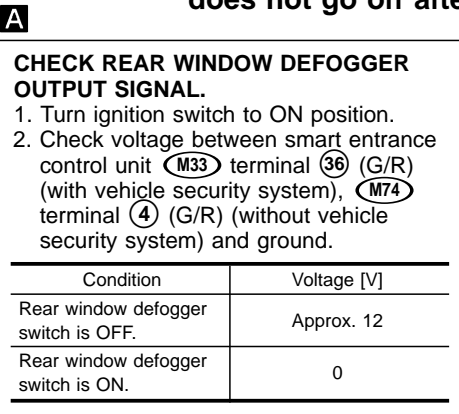
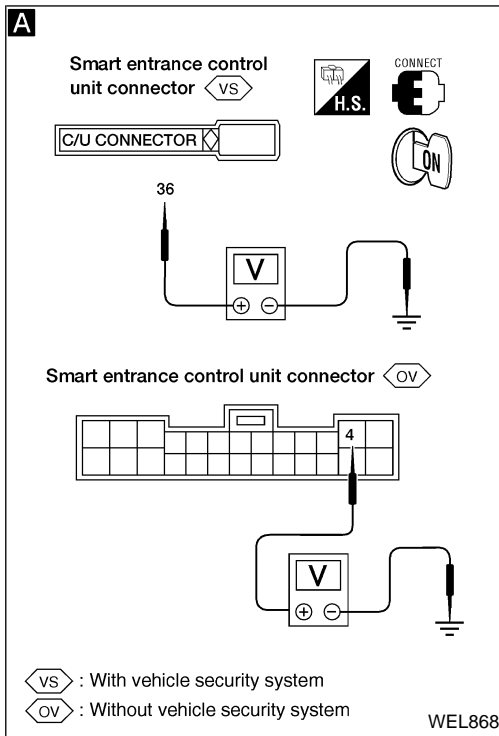
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REAR WINDOW DEFOGGER

Trouble Diagnoses (For models with power door locks)

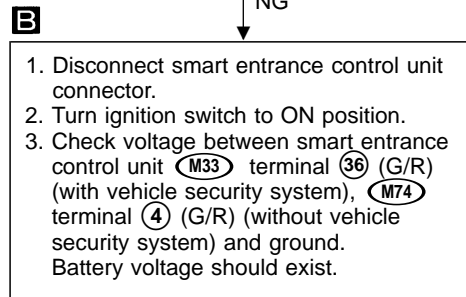
DIAGNOSTIC PROCEDURE

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



OK → Check the following.

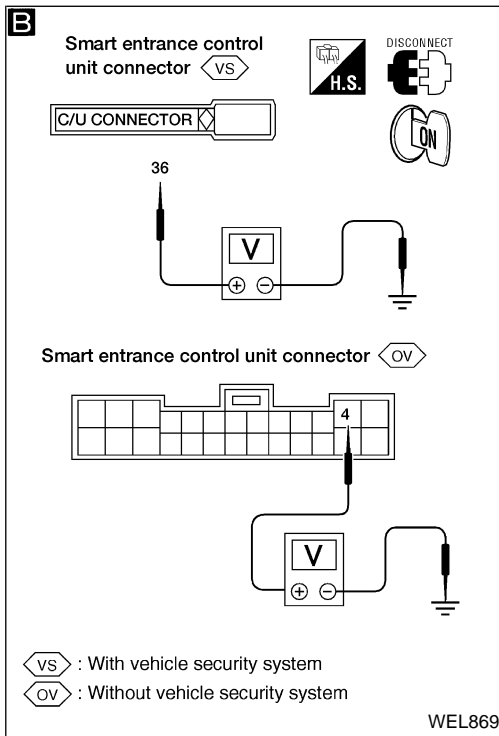
- Rear window defogger relay
Refer to “REAR WINDOW DEFOGGER RELAY”, EL-154.
- Rear window defogger circuit
- Rear window defogger filament
Refer to “Filament Check”, EL-154.



NG → Check the following.

- 10A fuse [No. **8**], located in the fuse block (J/B)
- Rear window defogger relay
- Harness for open or short between fuse and rear window defogger relay
- Harness for open or short between rear window defogger relay and smart entrance control unit

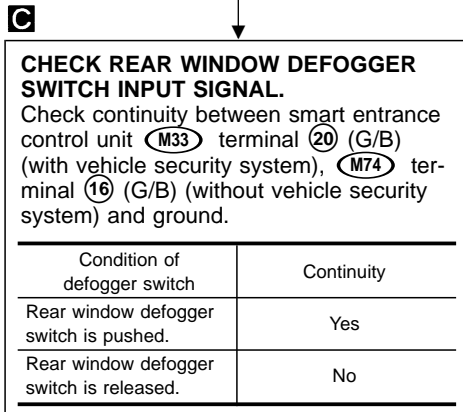
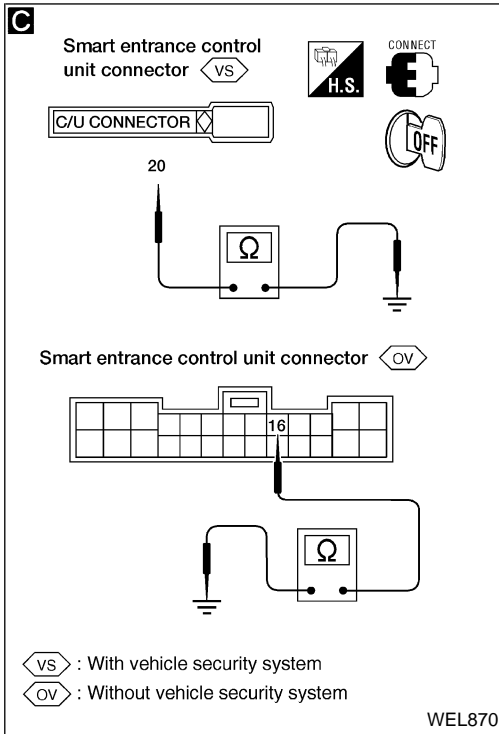
OK → **A**
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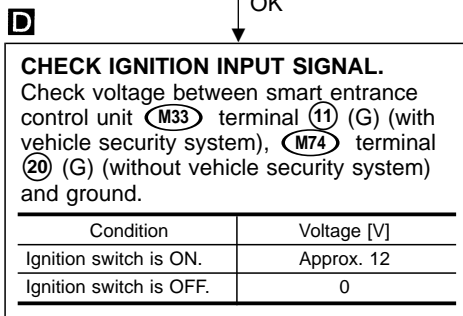
REAR WINDOW DEFOGGER

Trouble Diagnoses (For models with power door locks) (Cont'd)

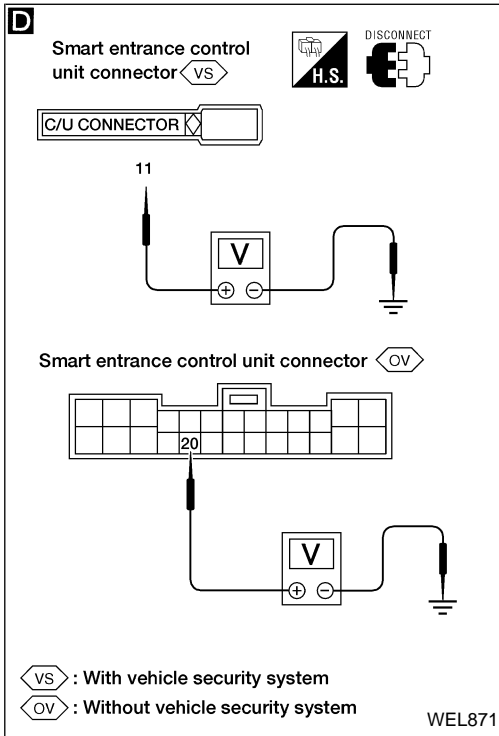
TBD



- NG →
- Check the following.
- Rear window defogger switch
 - Refer to "REAR WINDOW DEFOGGER SWITCH", EL-154.
 - Harness for open or short between smart entrance control unit and rear window defogger switch
 - Rear window defogger switch ground circuit



- NG →
- Check the following.
- Harness for open or short between smart entrance control unit and fuse



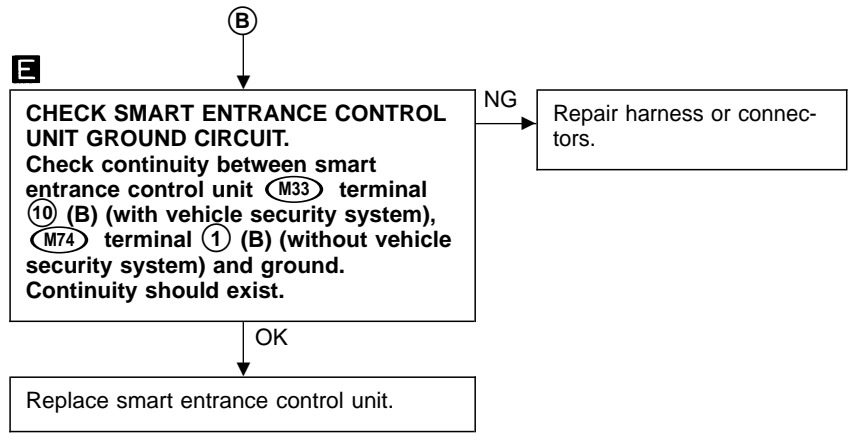
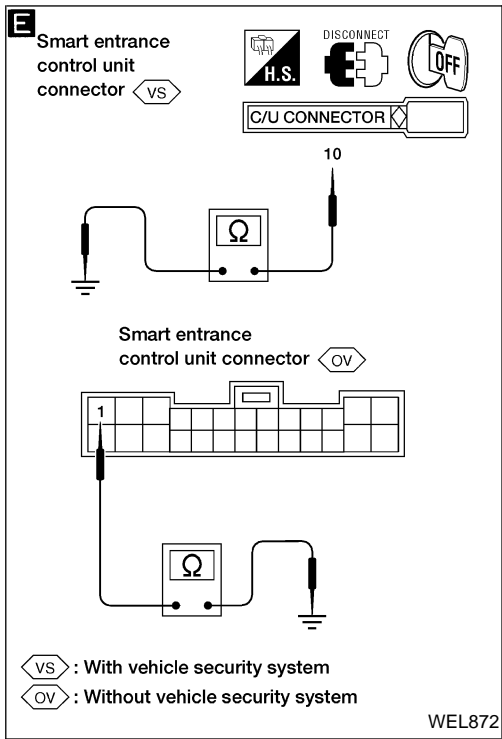
OK

B

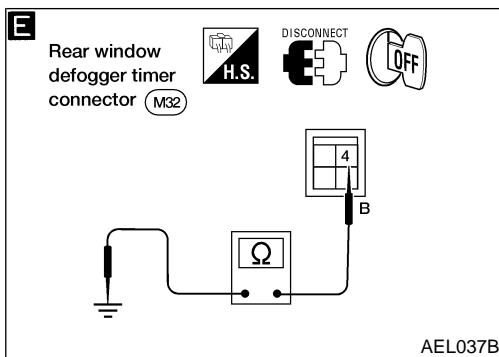
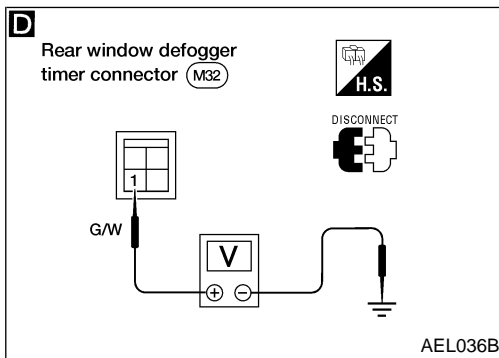
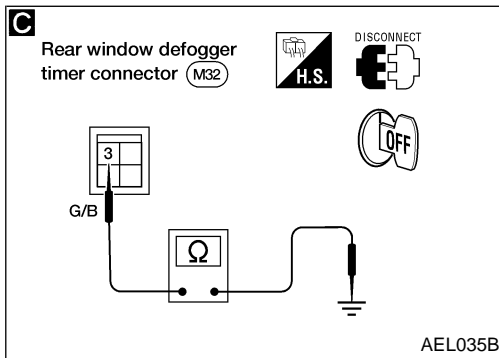
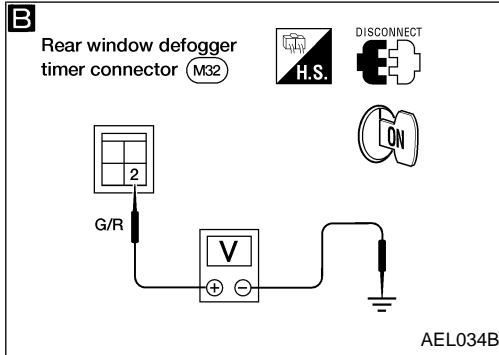
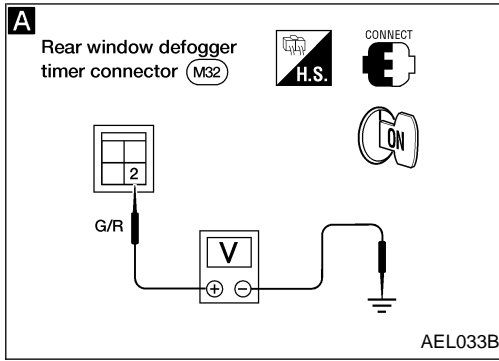
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REAR WINDOW DEFOGGER



REAR WINDOW DEFOGGER



Trouble Diagnoses (For models without power door locks)

DIAGNOSTIC PROCEDURE

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

A **CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL.**

- Turn ignition switch to ON position.
- Check voltage between rear window defogger timer terminal ② and ground.

Condition	Voltage [V]
Rear window defogger switch is OFF.	Approx. 12
Rear window defogger switch is ON.	0

OK → Check the following.

- Rear window defogger relay
- Refer to “REAR WINDOW DEFOGGER RELAY”, EL-154.
- Rear window defogger circuit
- Rear window defogger filament
- Refer to “Filament Check”, EL-154.

NG → **B**

B 1. Disconnect rear window defogger timer connector.

2. Turn ignition switch to ON position.

3. Check voltage between rear window defogger timer terminal ② and ground. **Battery voltage should exist.**

OK →

NG → Check the following.

- 10A fuse [No. 8], located in the fuse block (J/B)]
- Rear window defogger relay
- Harness for open or short between fuse and rear window defogger relay
- Harness for open or short between rear window defogger relay and rear window defogger timer

OK → **C**

C **CHECK REAR WINDOW DEFOGGER SWITCH INPUT SIGNAL.**

Check continuity between rear window defogger timer terminal ③ and ground.

Condition of defogger switch	Continuity
Rear window defogger switch is pushed.	Yes
Rear window defogger switch is released.	No

OK →

NG → Check the following.

- Rear window defogger switch
- Refer to “REAR WINDOW DEFOGGER SWITCH”, EL-154.
- Harness for open or short between rear window defogger timer and rear window defogger switch
- Rear window defogger switch ground circuit

OK → **D**

D **CHECK IGNITION INPUT SIGNAL.**

Check voltage between rear window defogger timer terminal ① and ground.

Condition	Voltage [V]
Ignition switch is ON.	Approx. 12
Ignition switch is OFF.	0

OK →

NG → Check the following.

- Harness for open or short between rear window defogger timer and fuse

OK → **E**

E **CHECK REAR WINDOW DEFOGGER TIMER GROUND CIRCUIT.**

Check continuity between rear window defogger timer terminal ④ and ground. **Continuity should exist.**

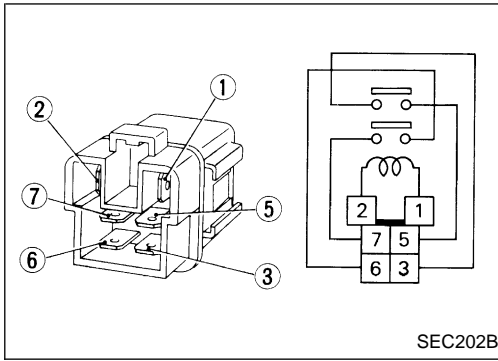
OK →

NG → Repair harness or connectors.

OK → Replace rear window defogger timer.

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REAR WINDOW DEFOGGER

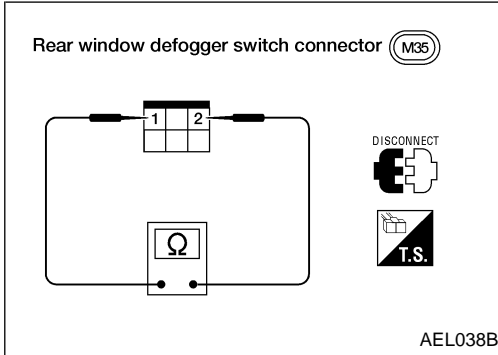


Electrical Components Inspection

REAR WINDOW DEFOGGER RELAY

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

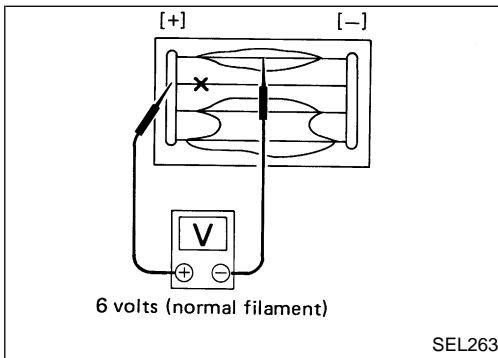
Condition	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No



REAR WINDOW DEFOGGER SWITCH

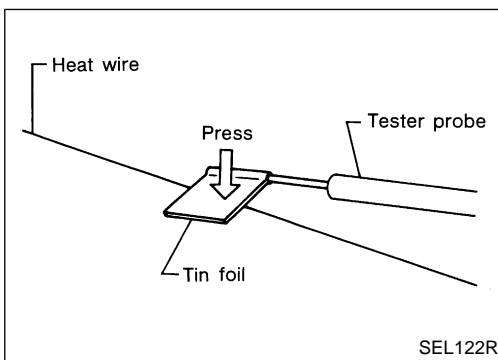
Check continuity between terminals when rear window defogger switch is pushed and released.

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



Filament Check

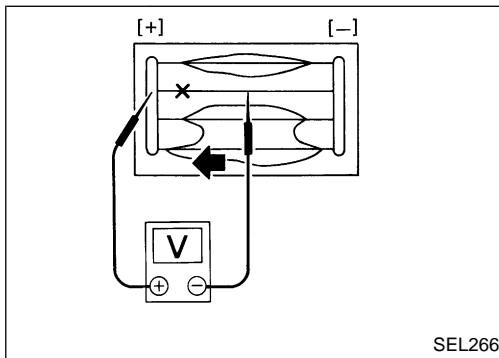
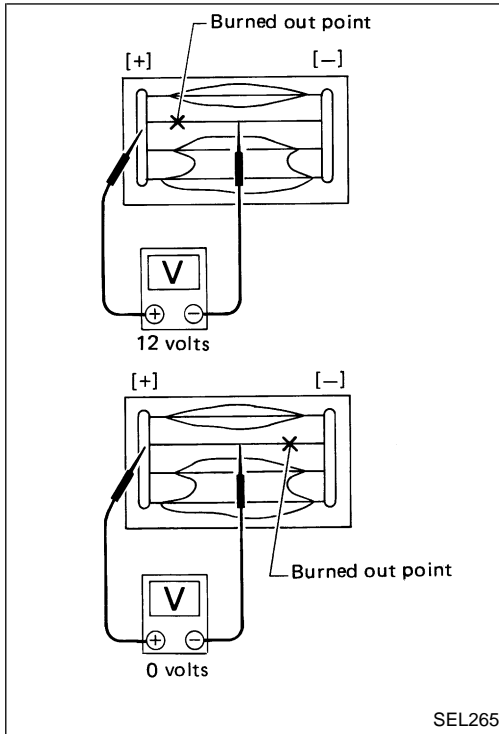
1. Attach probe circuit tester (in volt range) to middle portion of each filament.



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

REAR WINDOW DEFOGGER

Filament Check (Cont'd)



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

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

Filament Repair

REPAIR EQUIPMENT

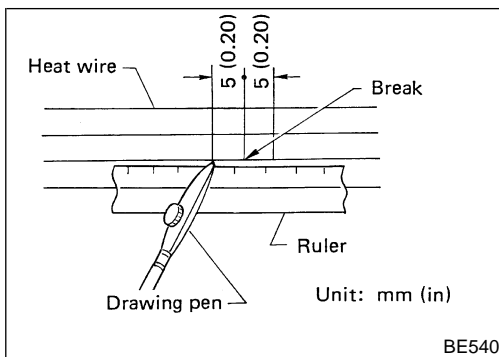
1. Conductive silver composition (Dupont No. 4817 or equivalent)
2. Ruler 30 cm (11.8 in) long
3. Drawing pen
4. Heat gun
5. Alcohol
6. Cloth

REPAIRING PROCEDURE

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

Shake silver composition container before use.

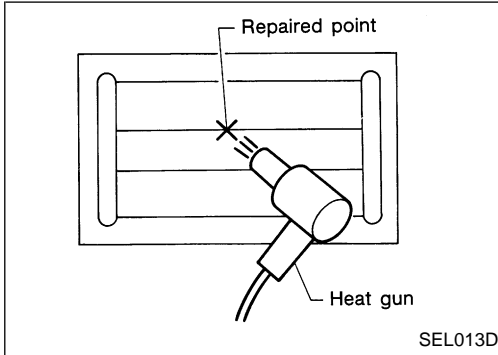
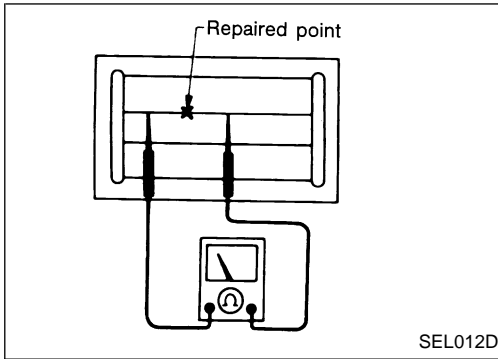
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.



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REAR WINDOW DEFOGGER

Filament Repair (Cont'd)



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

Do not touch repaired area while test is being conducted.

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

AUDIO

System Description

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

Power is supplied at all times:

- through 10A fuse (No. 35, 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. 10, located in the fuse block (J/B)]
- to audio unit terminal 10.

Ground is supplied through the case of the audio unit.

When the audio unit power knob is pushed to the ON position, audio unit signals are supplied:

- through audio unit terminals 1, 2, 3, 4, 13, 14, 15, and 16
- to the front and rear speakers or tweeters (with premium audio system).

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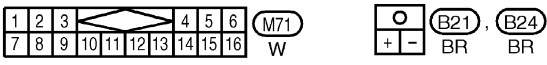
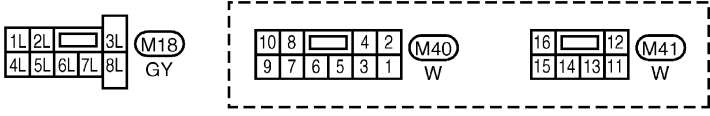
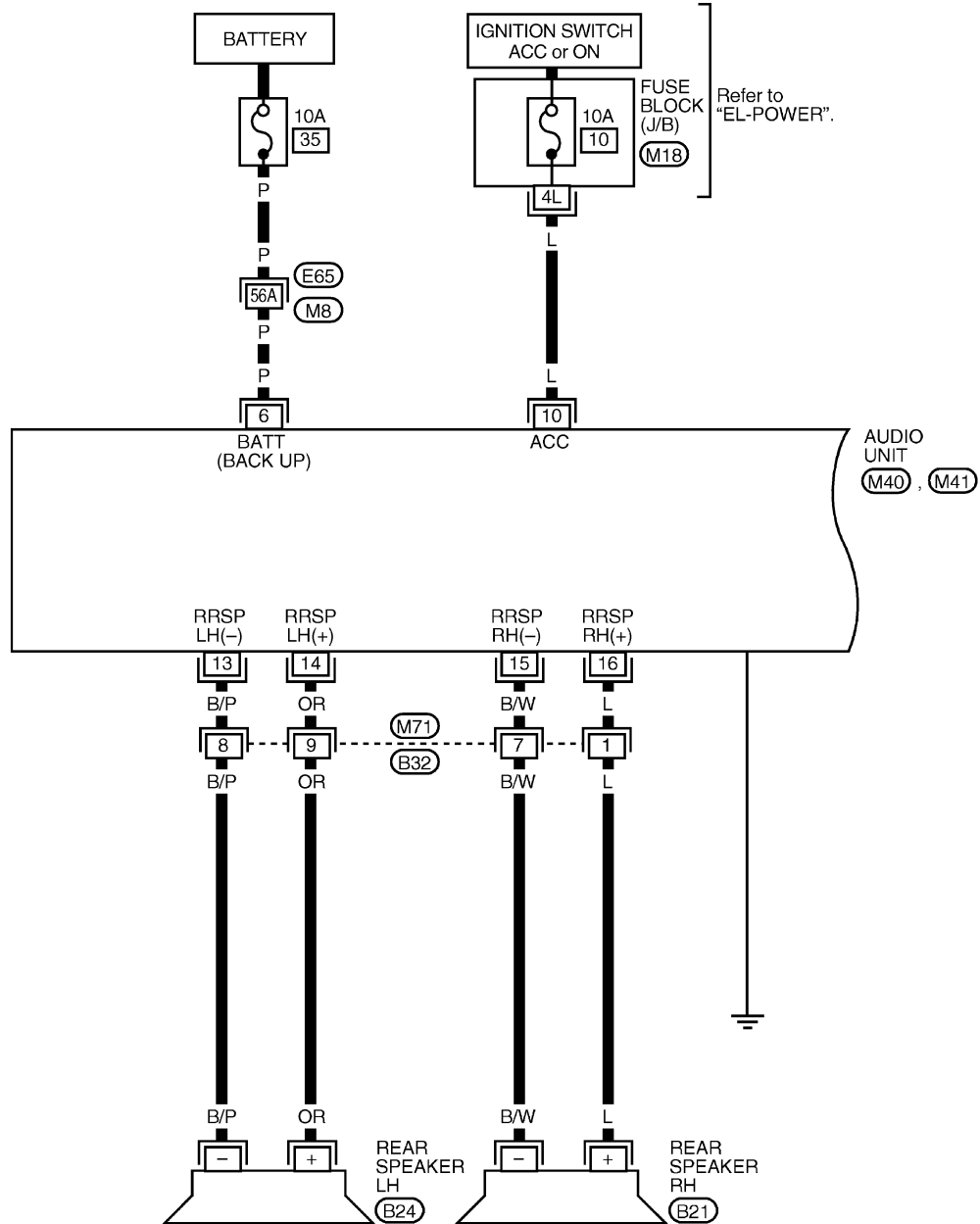
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AUDIO

Wiring Diagram — AUDIO —

EL-AUDIO-01




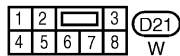
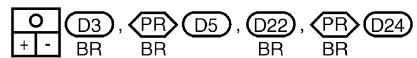
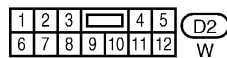
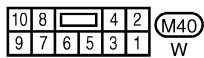
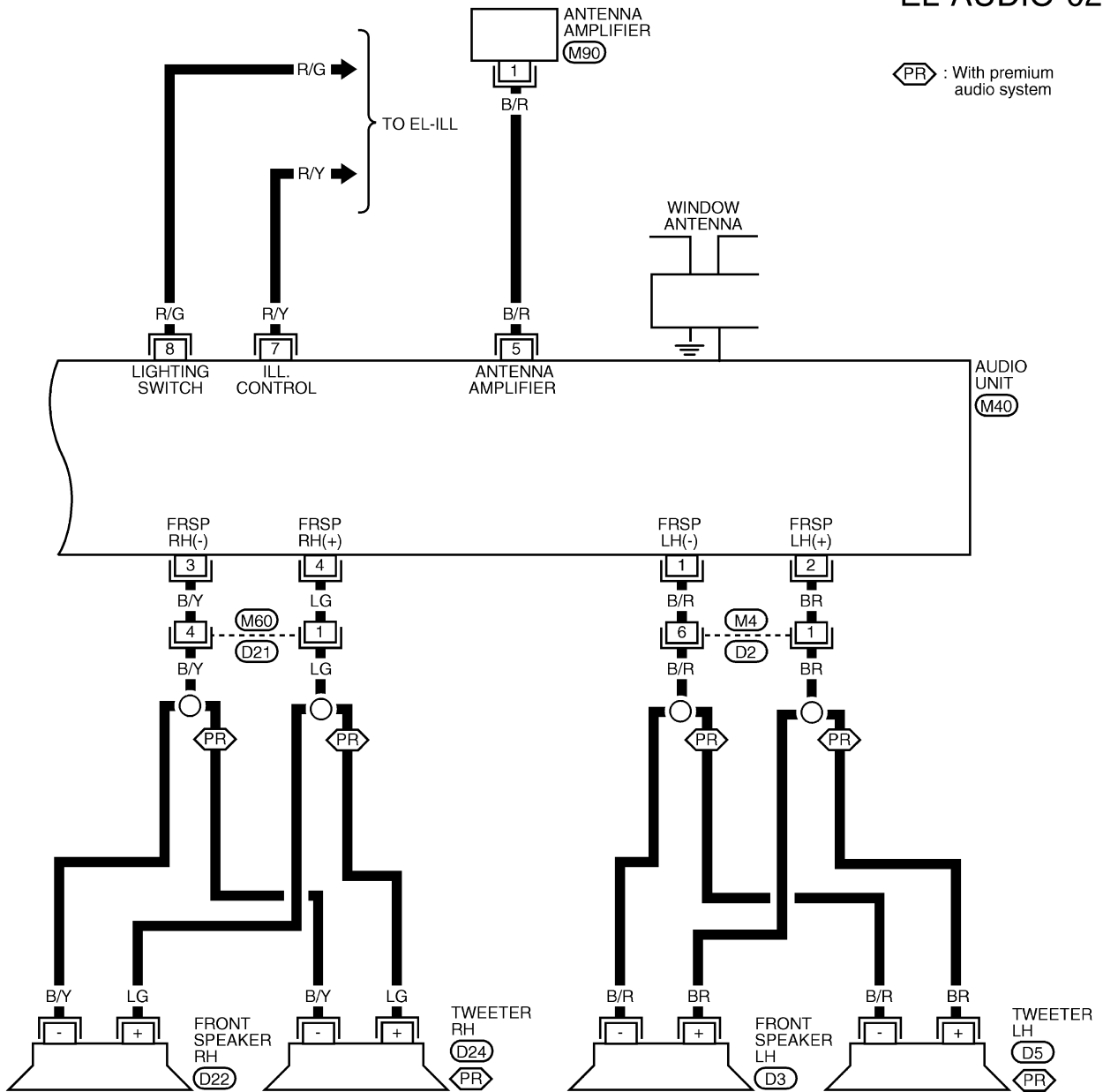
Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

AUDIO

Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-02

 : With premium audio system



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AUDIO

Trouble Diagnoses

AUDIO UNIT

Symptom	Possible causes	Repair order
Audio unit inoperative (no digital display and no sound from speakers).	<ol style="list-style-type: none"> 1. 10A fuse 2. Poor audio unit case ground 3. Audio unit 	<ol style="list-style-type: none"> 1. Check 10A fuse [No. 10], located in fuse block (J/B). Turn ignition switch ON and verify that battery positive voltage is present at terminal (10) of audio unit. 2. Check audio unit case ground. 3. Remove audio unit for repair.
Audio unit controls are operational, but no sound is heard from any speaker.	<ol style="list-style-type: none"> 1. Audio unit output 2. Audio unit 	<ol style="list-style-type: none"> 1. Check audio unit output voltage. 2. Remove audio unit for repair.
Audio unit presets are lost when ignition switch is turned OFF.	<ol style="list-style-type: none"> 1. 10A fuse 2. Audio unit 	<ol style="list-style-type: none"> 1. Check 10A fuse (No. 35), located in fuse and fusible link box) and verify that battery positive voltage is present at terminal (6) of audio unit. 2. Remove audio unit for repair.
Individual speaker is noisy or inoperative.	<ol style="list-style-type: none"> 1. Speaker 2. Audio unit output 3. Speaker circuit 4. Audio unit 	<ol style="list-style-type: none"> 1. Check speaker. 2. Check audio unit output voltages. 3. Check wires for open or short between audio unit and speaker. 4. Remove audio unit for repair.
Radio stations are weak or noisy	<ol style="list-style-type: none"> 1. Window antenna 2. Poor audio unit ground 3. Audio unit 	<ol style="list-style-type: none"> 1. Check window antenna. 2. Check audio unit ground. 3. Remove audio unit for repair.
FM stations are weak or noisy (AM stations OK). (For premium audio system)	<ol style="list-style-type: none"> 1. Window antenna 2. Audio unit 	<ol style="list-style-type: none"> 1. Check window antenna. 2. Remove audio unit for repair.
Radio generates noise in AM and FM modes with engine running.	<ol style="list-style-type: none"> 1. Poor audio unit ground 2. Loose or missing ground bonding straps 3. Ignition condenser or rear window defogger noise suppressor condenser 4. Generator 5. Ignition coil or secondary wiring 6. Audio unit 	<ol style="list-style-type: none"> 1. Check audio unit ground. 2. Check ground bonding straps. 3. Replace ignition condenser or rear window defogger noise suppressor condenser. 4. Check generator. 5. Check ignition coil and secondary wiring. 6. Remove audio unit for repair.
Radio generates noise in AM and FM modes with accessories on (switch pops and motor noise).	<ol style="list-style-type: none"> 1. Poor audio unit ground 2. Window antenna 3. Accessory ground 4. Faulty accessory 	<ol style="list-style-type: none"> 1. Check audio unit ground. 2. Check window antenna. 3. Check accessory ground. 4. Replace accessory.

AUDIO

Inspection

SPEAKER

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

ANTENNA

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

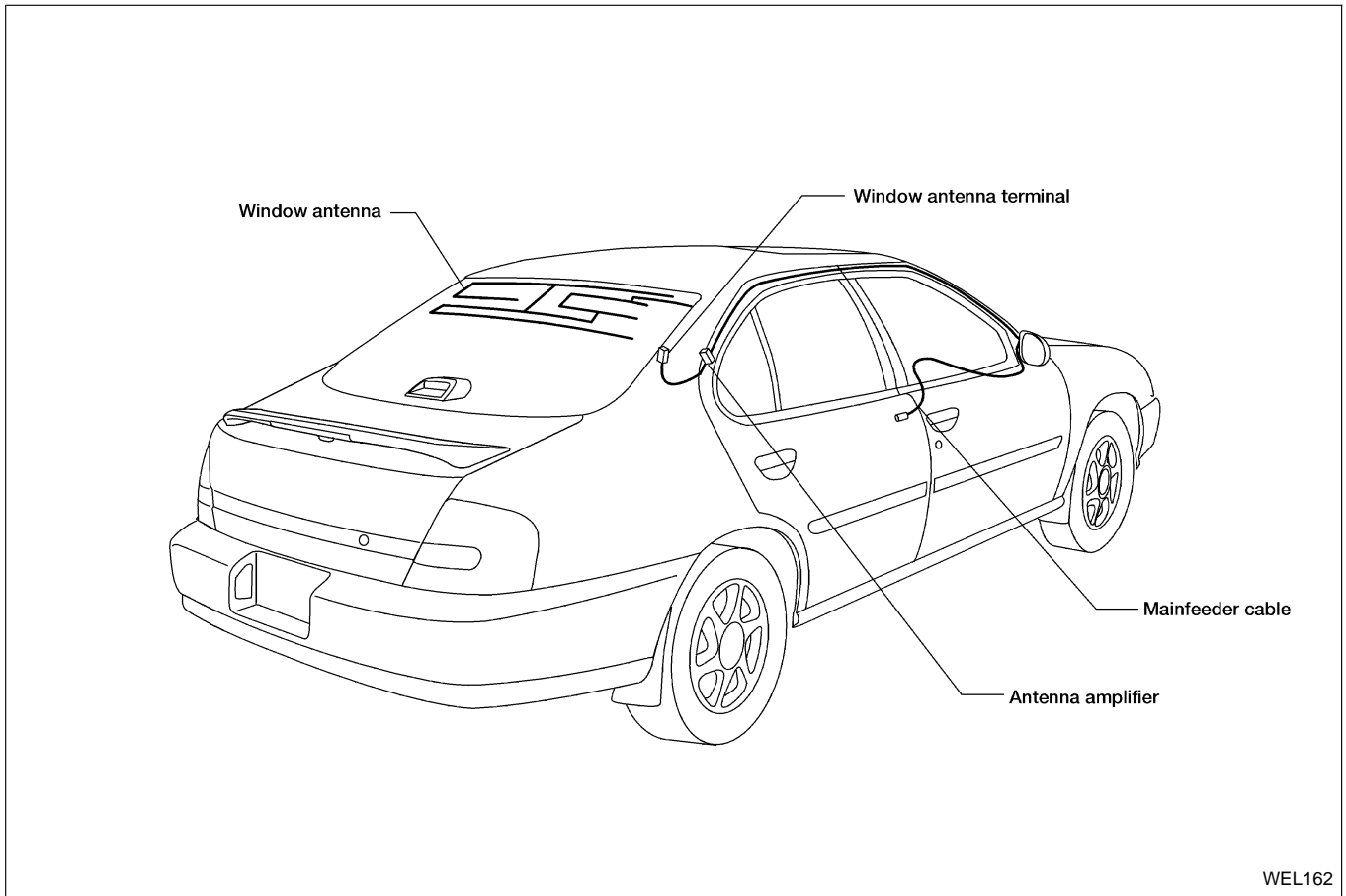
- If reception improves, check antenna ground (at body surface).
- If reception does not improve, check main feeder cable for short circuit or open circuit.

AUDIO UNIT

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).

Location of Antenna



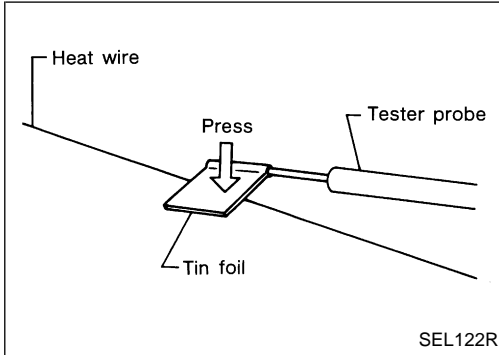
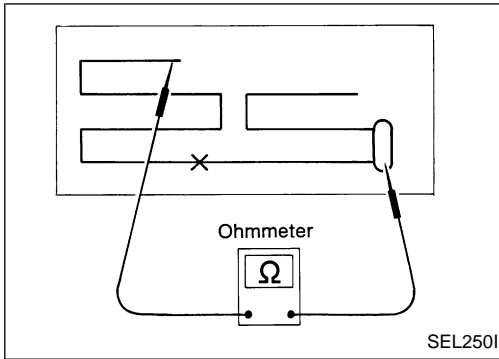
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AUDIO ANTENNA

Window Antenna Repair

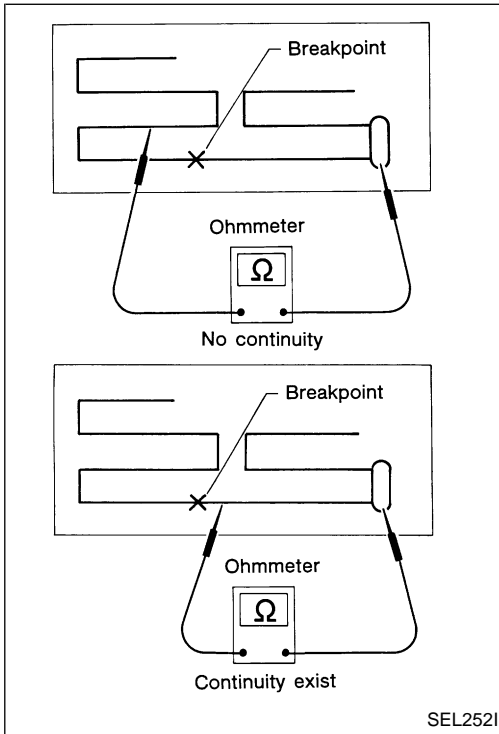
ELEMENT CHECK

1. Attach probe circuit tester (in ohm range) to antenna terminal on each side.

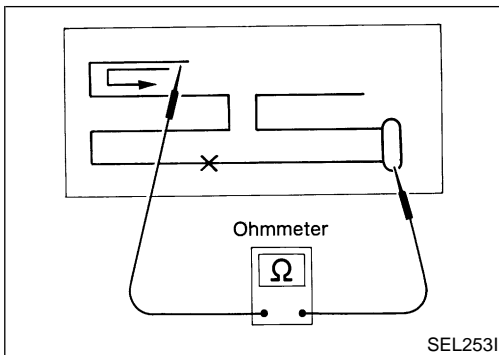


- When measuring continuity, wrap tin foil around the top of probe. Then press the foil against the wire with your finger.

2. If an element is broken, no continuity will exist.



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



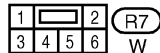
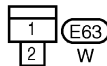
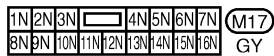
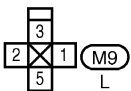
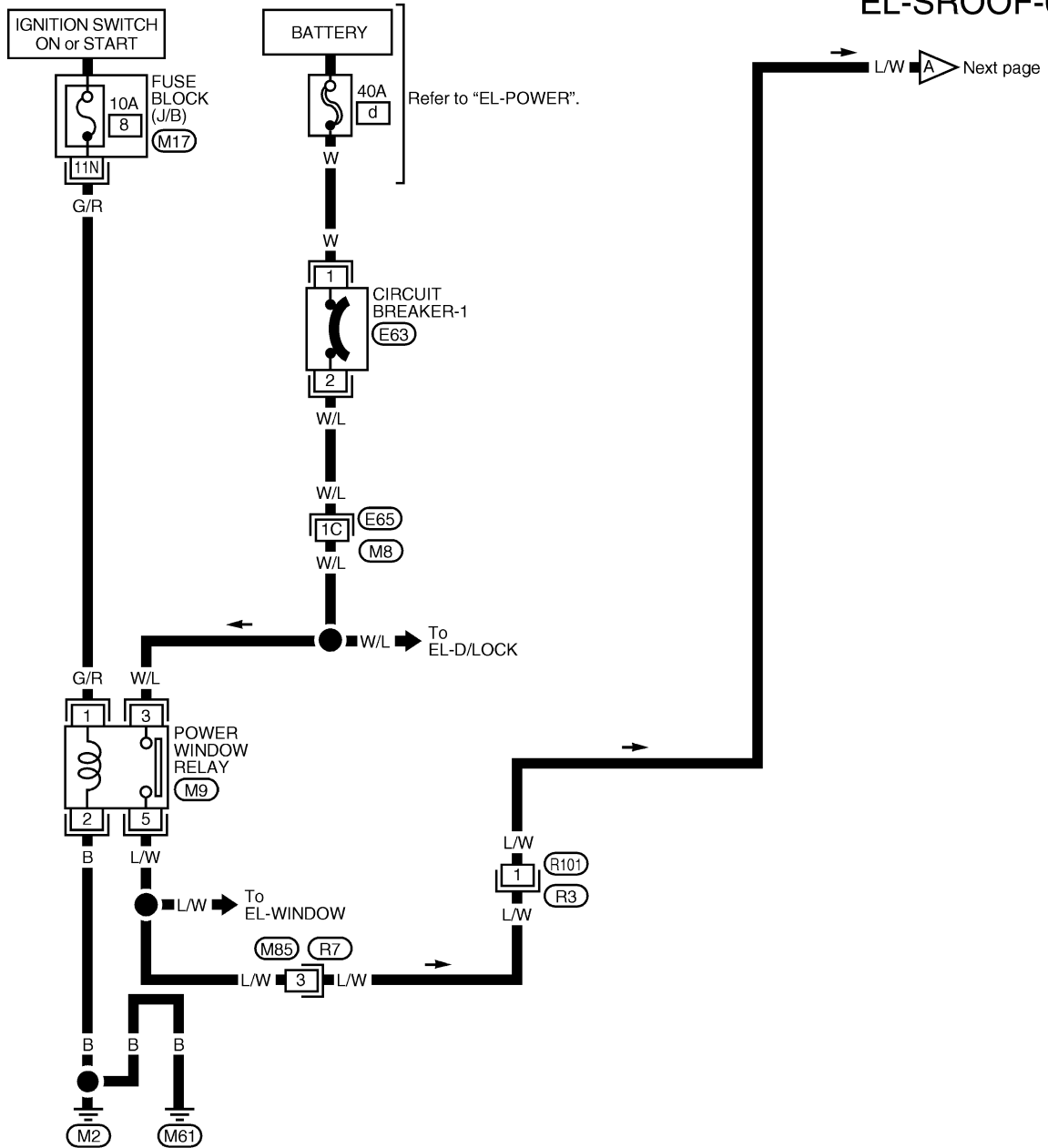
ELEMENT REPAIR

Refer to "Filament Repair" EL-155.

ELECTRIC SUNROOF

Wiring Diagram — SROOF —

EL-SROOF-01



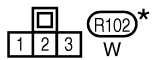
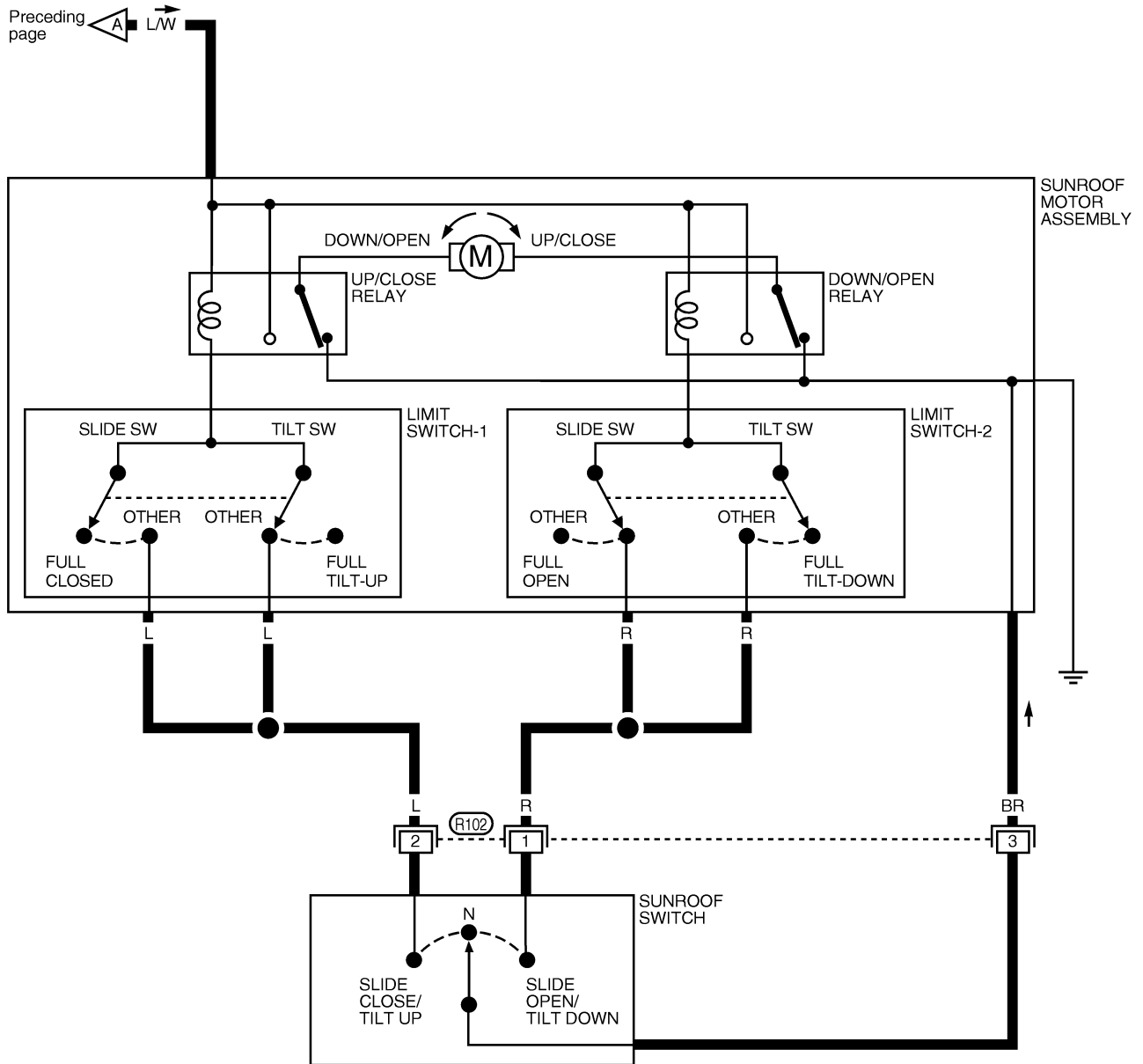
Refer to the following.
 (M8), (E65) - SUPER MULTIPLE
 JUNCTION (SMJ)

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ELECTRIC SUNROOF

Wiring Diagram — SROOF — (Cont'd)

EL-SROOF-02

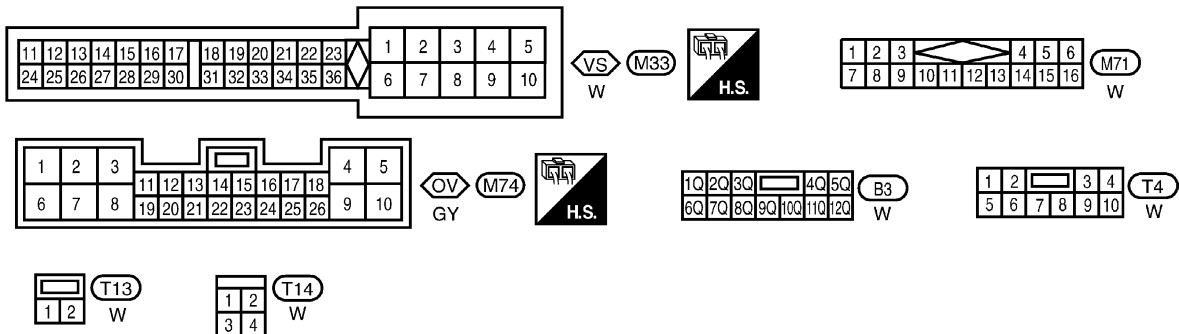
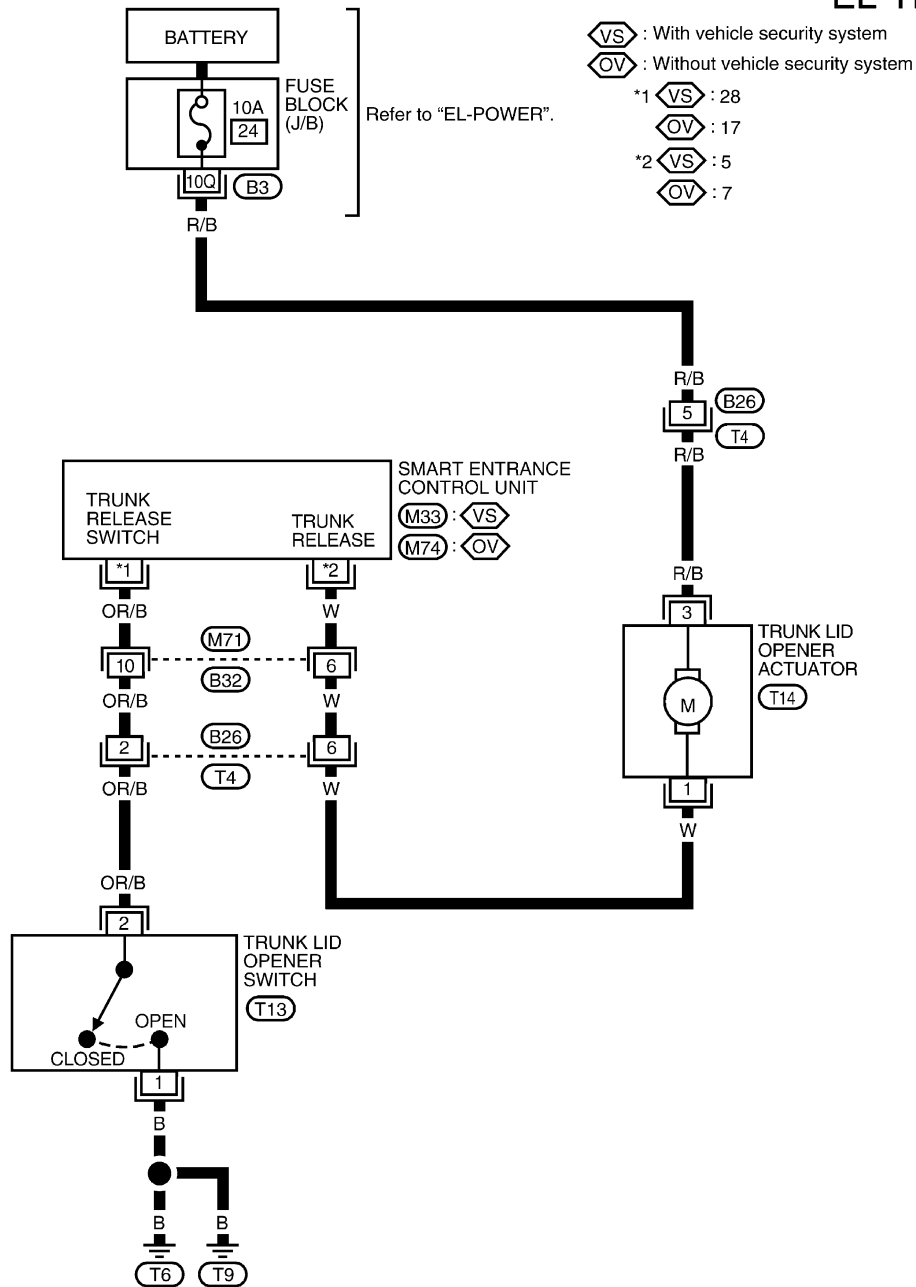


* : This connector is not shown in "HARNES LAYOUT" of EL section.

TRUNK LID OPENER

Wiring Diagram — TLID

EL-TLID-01

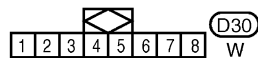
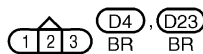
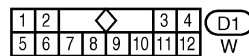
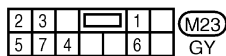
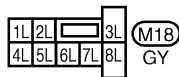
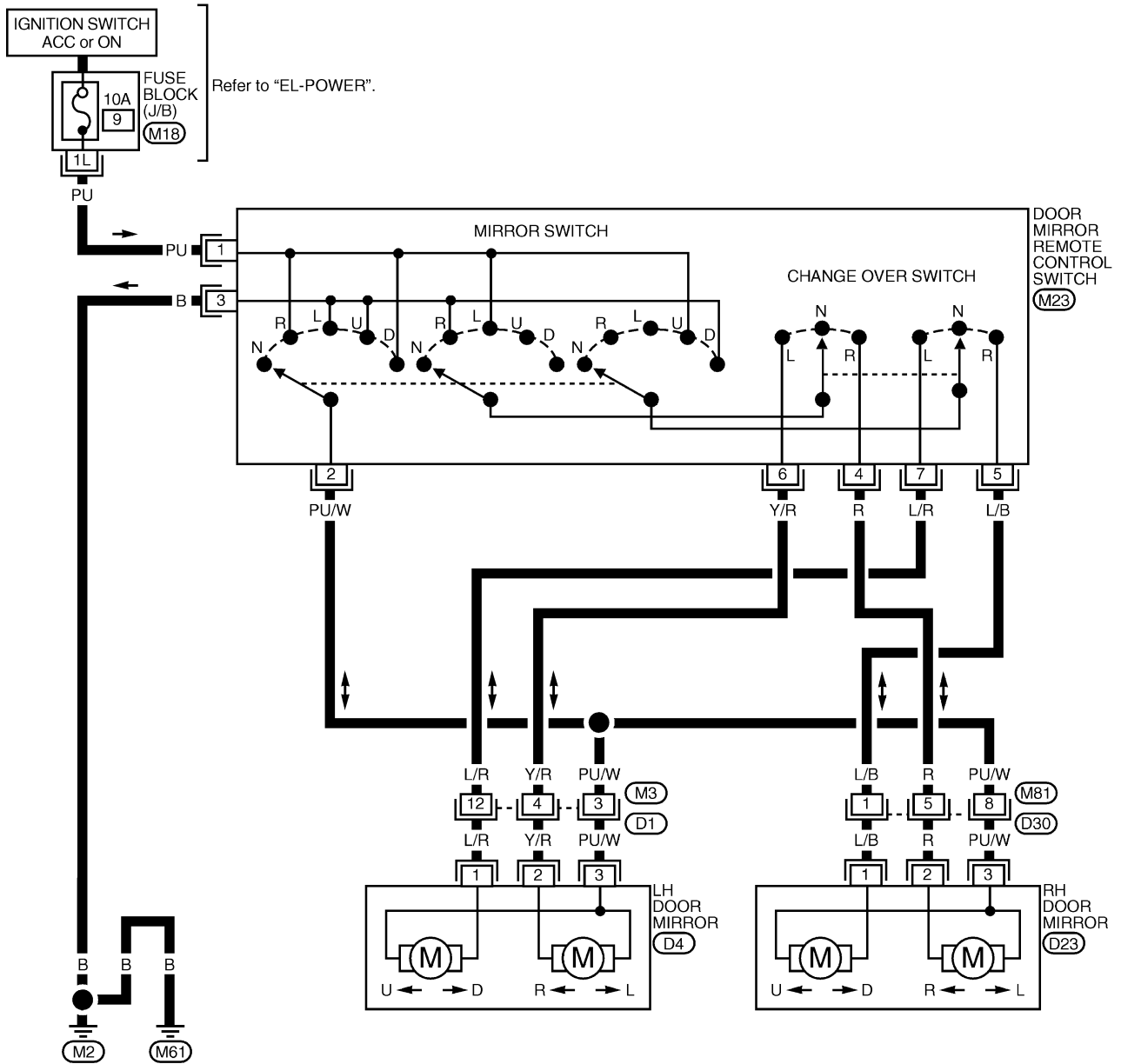


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POWER DOOR MIRROR

Wiring Diagram — MIRROR —

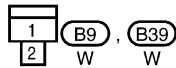
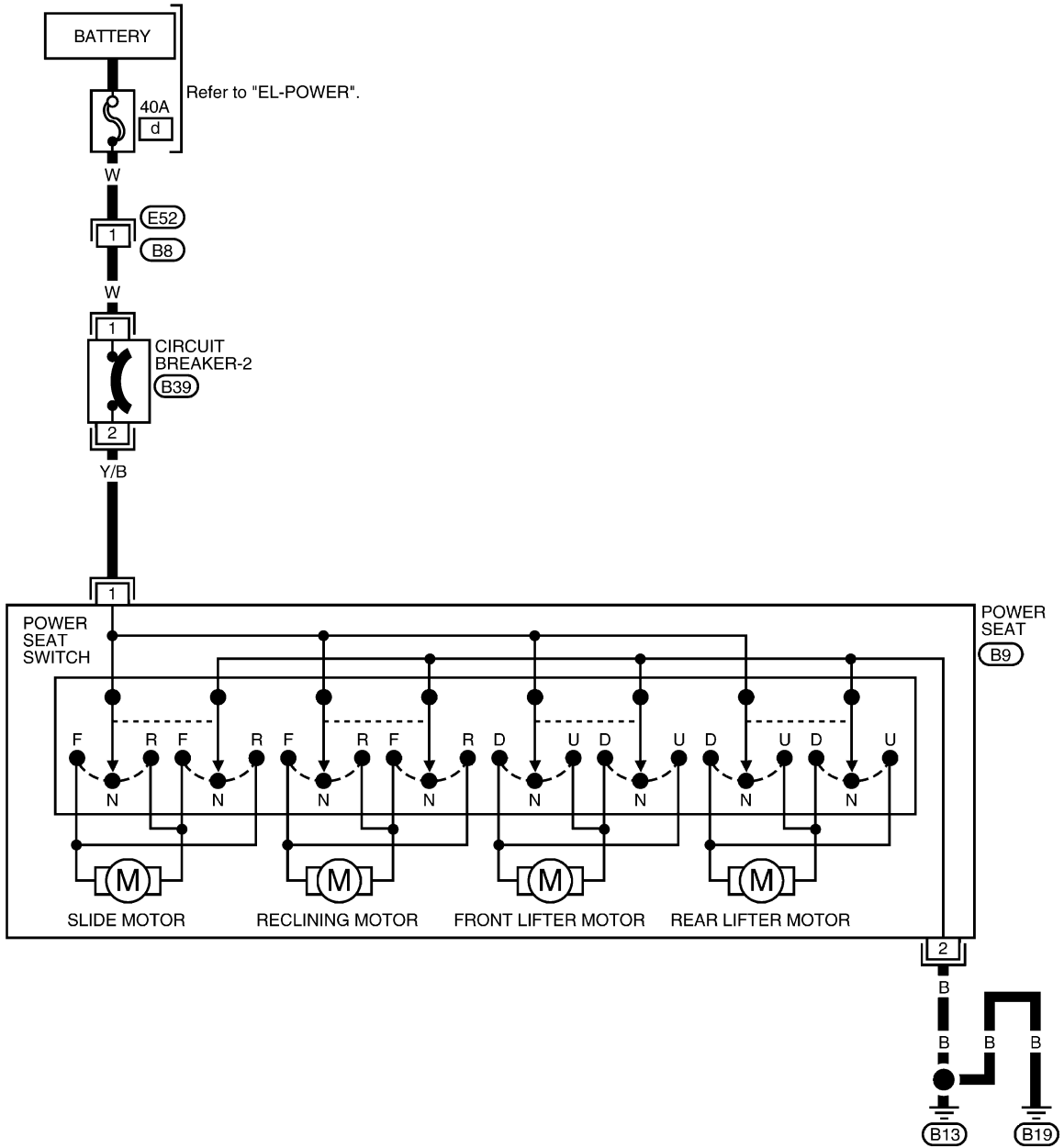
EL-MIRROR-01



POWER SEAT

Wiring Diagram — SEAT —

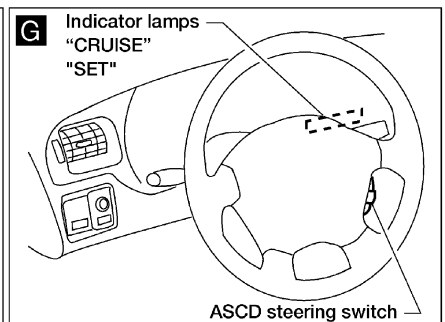
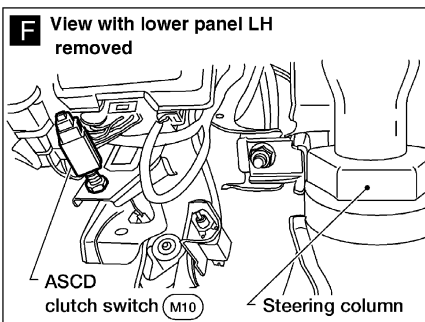
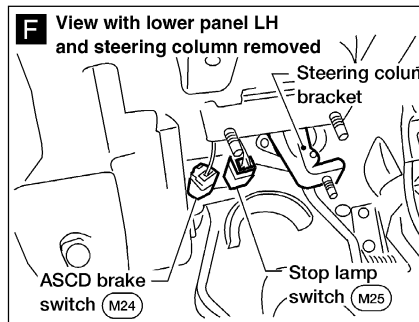
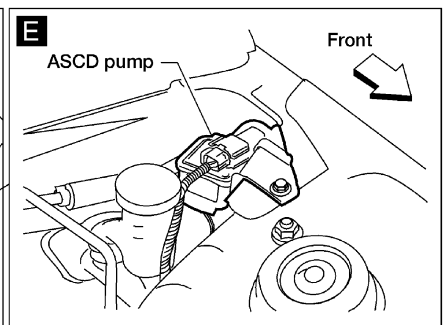
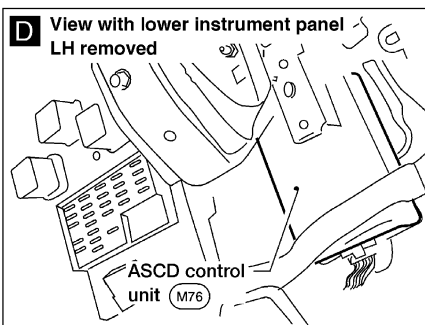
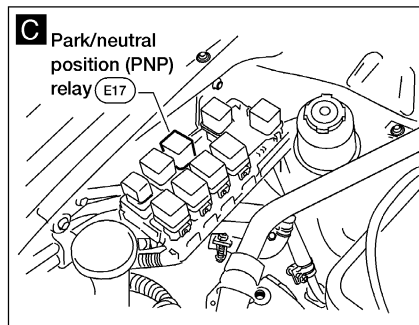
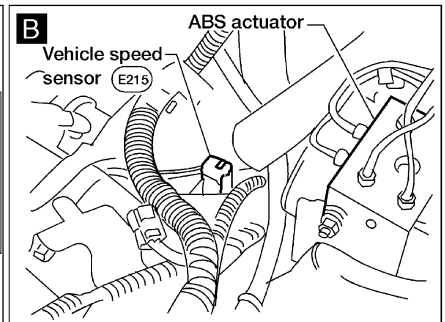
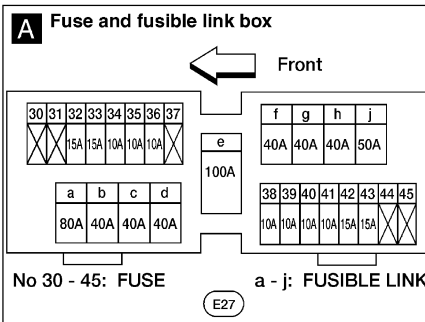
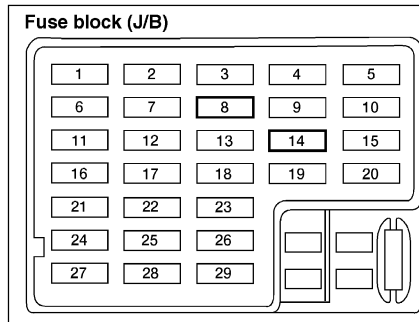
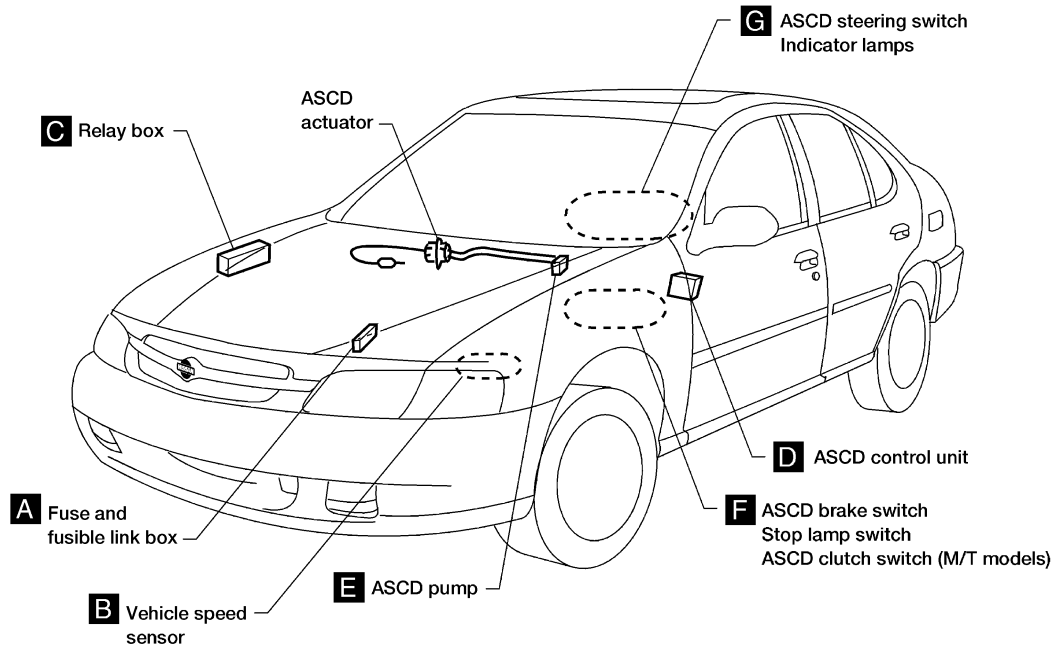
EL-SEAT-01



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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Component Parts and Harness Connector Location



AUTOMATIC SPEED CONTROL DEVICE (ASCD)

System Description

Refer to Owner's Manual for ASCD operating instructions.

POWER SUPPLY AND GROUND

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

- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to ASCD control unit terminal ⑤.

Ground is supplied:

- to ASCD control unit terminal 17
- through body grounds M2 and M61.

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

- to ASCD control unit terminal ②4
- through ASCD steering switch terminal ⑬ and
- to ASCD control unit terminal ⑪
- through ASCD steering switch terminal ⑭ and then CRUISE indicator illuminates.

OPERATION

Set Operation

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

- ASCD control unit receives ASCD main switch ON signal
- Power supply to ASCD control unit terminal ⑧ [Brake and clutch pedal are released (M/T models), or brake pedal is released and A/T selector lever is in other than P and N position (A/T models).]
- Vehicle speed is between 48 km/h (30 MPH) and 144 km/h (89 MPH). (Signal from combination meter)

When the SET/COAST switch is pressed, ASCD control unit receives SET/COAST signal and then ASCD pump is activated to control throttle wire and SET indicator illuminates.

A/T Overdrive Control during Cruise Control Driving

When the RESUME/ACCEL switch is pressed, a signal is sent:

- From ASCD control unit terminal ⑩
- To TCM (transmission control module) terminal 24.

When this occurs, the TCM (transmission control module) cancels overdrive. When the RESUME/ACCEL switch is released, overdrive is reactivated.

In RESUME mode when vehicle speed is approximately 3 km/h (2 MPH) below memory speed, overdrive is reactivated.

Coast Operation

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

If SET/COAST switch is pressed and released quickly during cruise control driving, vehicle set speed will be reduced by 1.6 km/h (1 MPH).

Accel Operation

When the RESUME/ACCEL switch is pressed during cruise control driving, ASCD actuator pulls the throttle cable to increase vehicle set speed until the switch is released. Then the ASCD will keep the new set speed.

If RESUME/ACCEL switch is pressed and released quickly during cruise control driving, vehicle set speed will increase by 1.6 km/h (1 MPH).

Cancel Operation

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

- CANCEL switch is pressed.
- Brake pedal is pressed. (Power supply to ASCD control unit terminal ⑳ from stop lamp switch)
- Brake or clutch pedal is pressed (M/T models), or brake pedal is pressed or A/T selector lever is shifted to P or N position. (Power supply to ASCD control unit terminal ⑧ is interrupted.)

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

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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

System Description (Cont'd)

Resume Operation

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

- Brake pedal is released.
- Clutch pedal is released. (M/T models)
- A/T selector lever is in other than P and N position. (A/T models)
- Vehicle speed is between 48 km/h (30 MPH) and 144 km/h (89 MPH).

ASCD PUMP OPERATION

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

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

Ground is supplied to vacuum motor, air valve and release valve from ASCD control unit depending on the operated condition as shown in the below table.

The pump is connected to ASCD actuator by vacuum hose. When the ASCD pump is activated, the ASCD pumps vacuum to the diaphragm of ASCD actuator to control throttle cable.

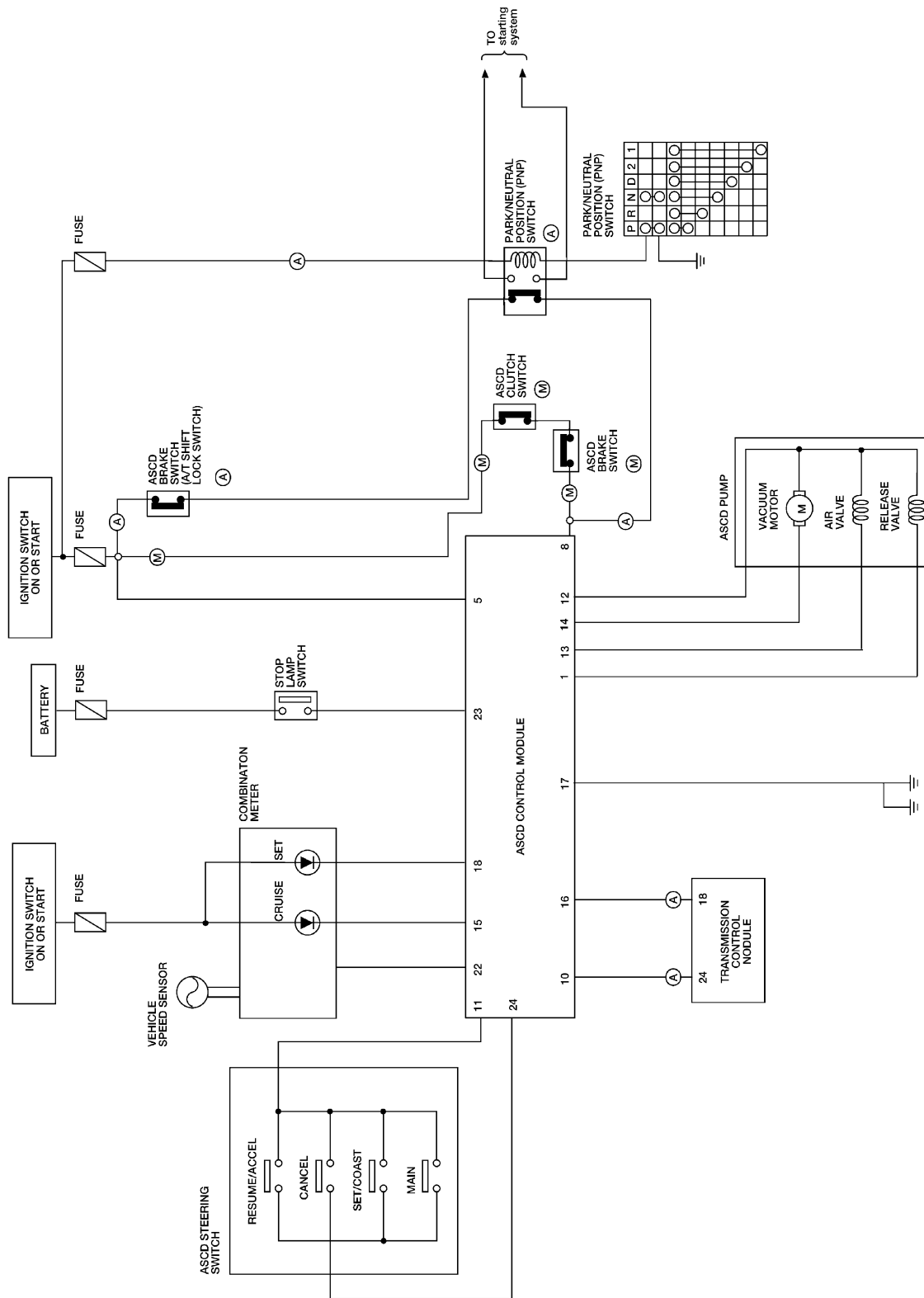
		Air valve (*1)	Release valve (*1)	Vacuum motor	Actuator inner pressure
ASCD not operating		Open	Open	Stopped	Atmosphere
ASCD operating	Releasing throttle cable	Open	Closed	Stopped	Vacuum
	Holding throttle position	Closed	Closed	Stopped	Vacuum (*2)
	Pulling throttle cable	Closed	Closed	Operated	Vacuum

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

*2: Set position held.

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Schematic

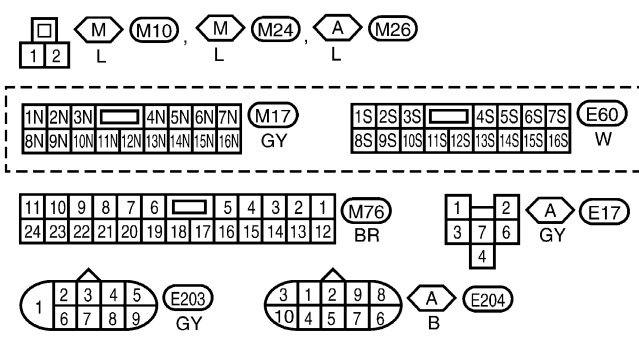
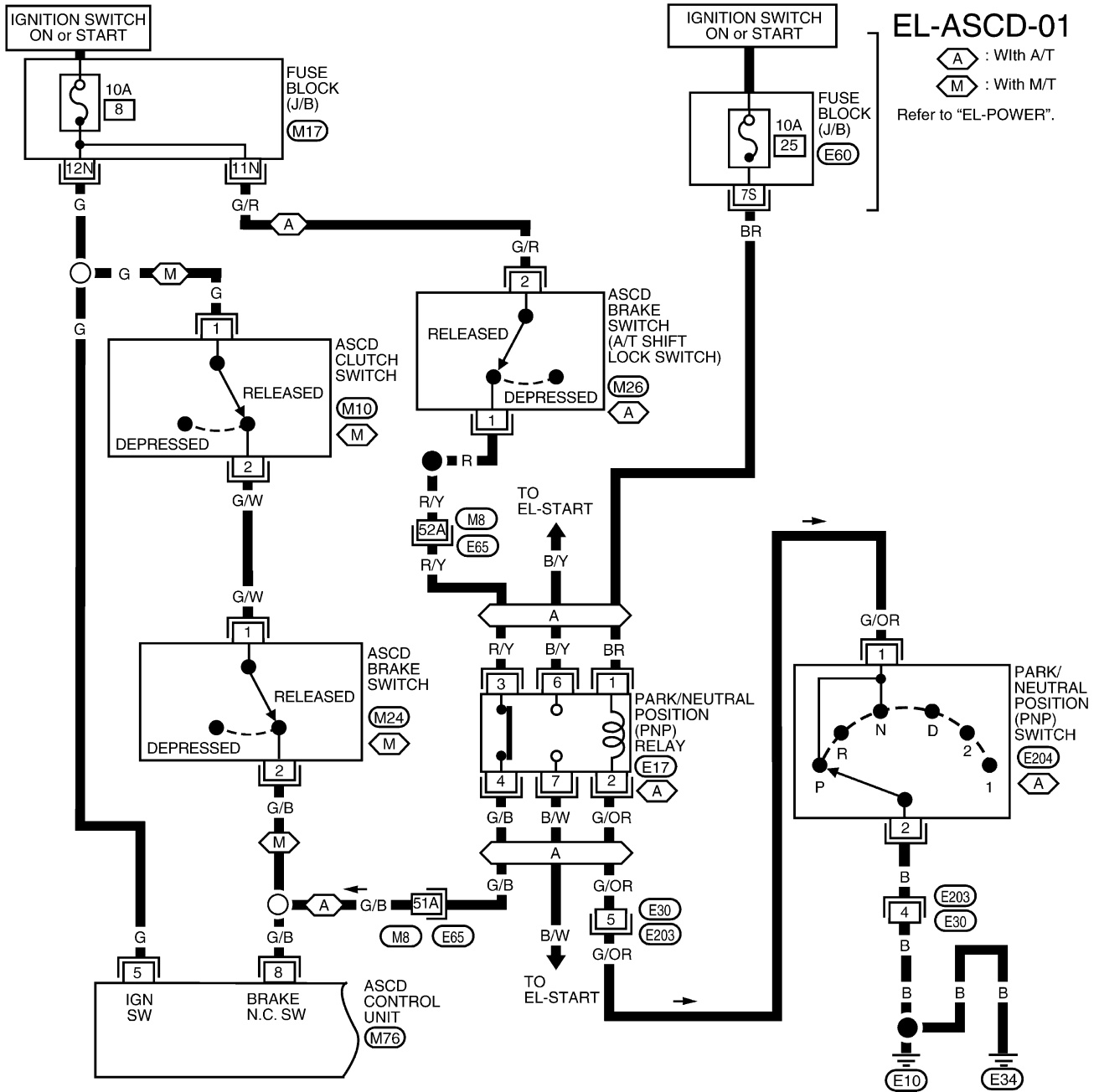


(A) : With A/T
(M) : With M/T

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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

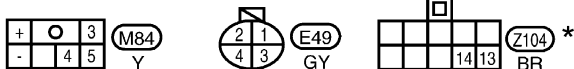
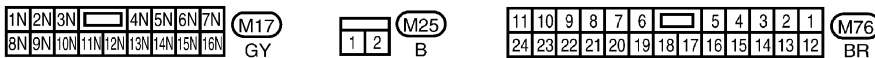
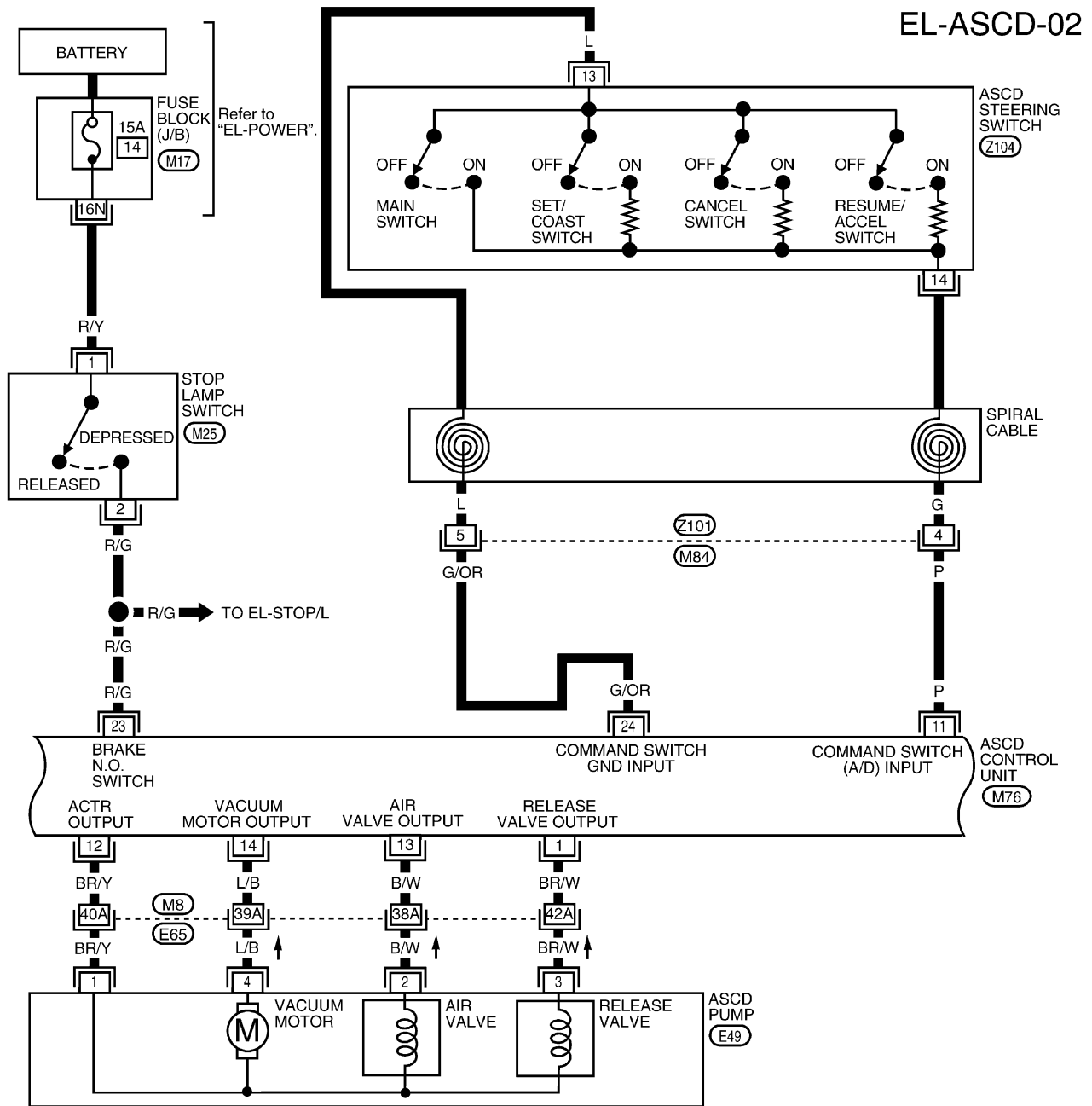
Wiring Diagram — ASCD —



Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Wiring Diagram — ASCD — (Cont'd)



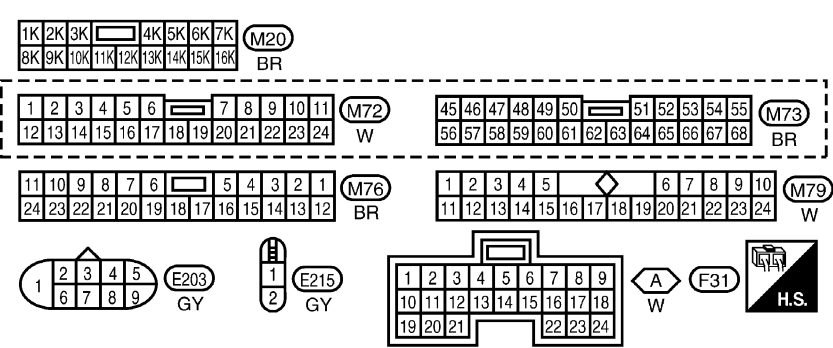
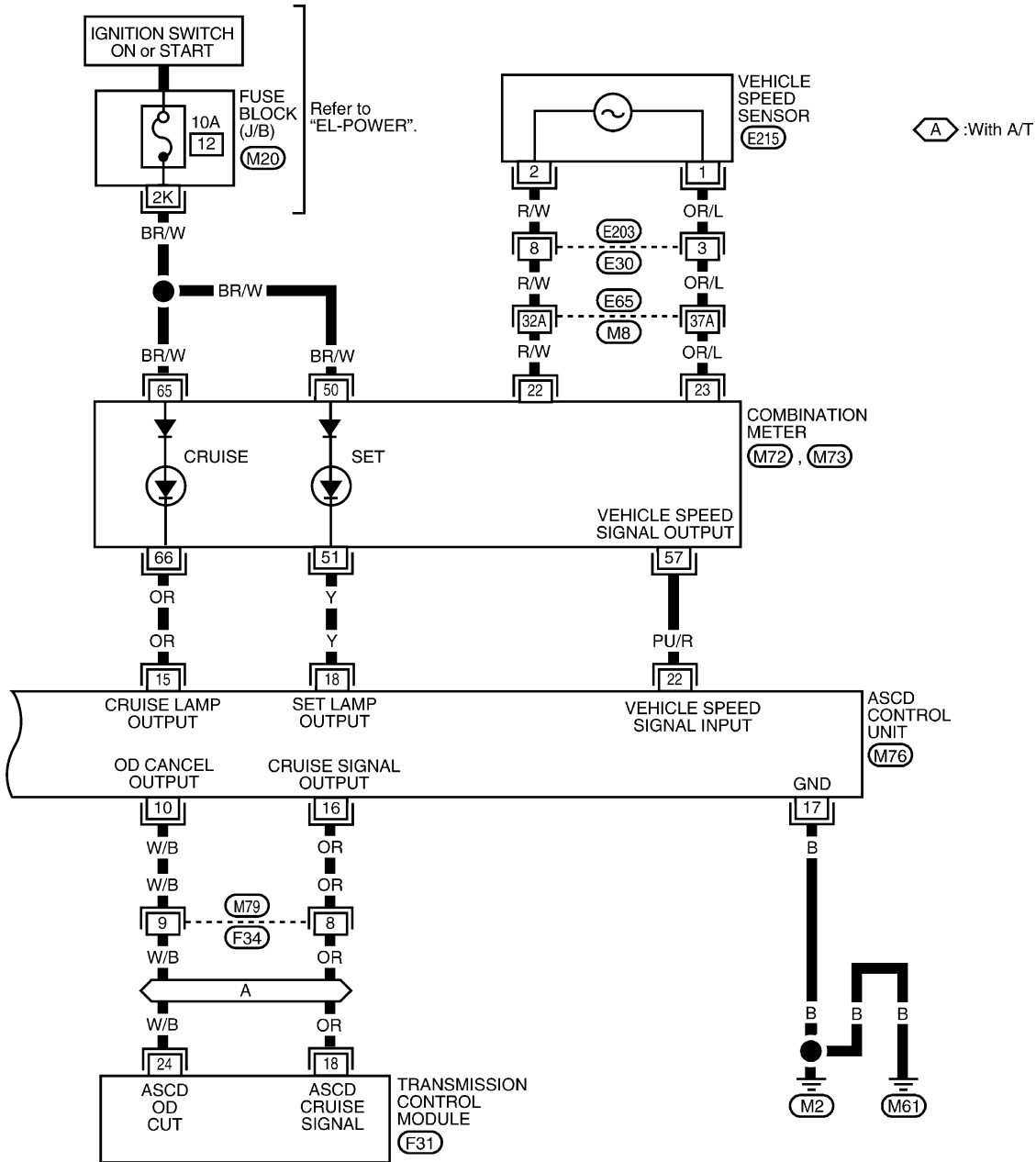
Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

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

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

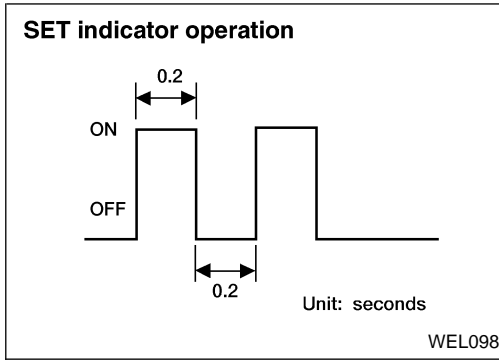
Wiring Diagram — ASCD — (Cont'd)

EL-ASCD-03



Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

AUTOMATIC SPEED CONTROL DEVICE (ASCD)



Fail-safe System Description

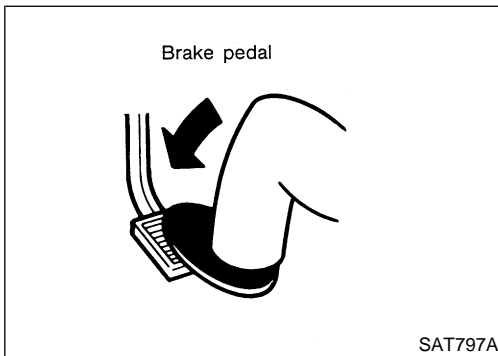
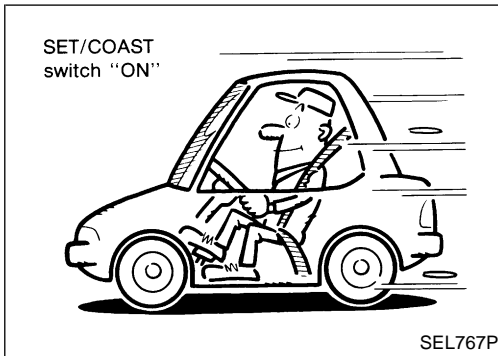
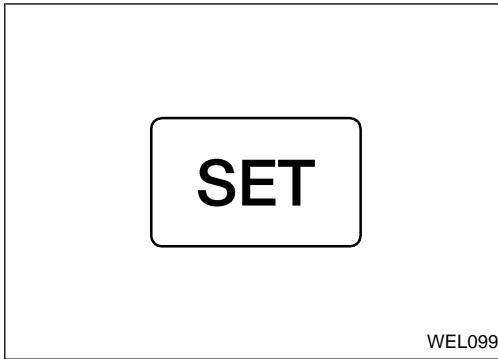
When the fail-safe system senses a malfunction, it deactivates ASCD operation. The SET indicator in the combination meter will then flash.

MALFUNCTION DETECTION CONDITIONS

Detection conditions	ASCD operation during malfunction detection
<ul style="list-style-type: none"> ● ASCD steering (RESUME/ACCEL, CANCEL, SET/COAST) switch is stuck. ● Vacuum motor ground circuit or power circuit is open or shorted. ● Air valve ground circuit or power circuit is open or shorted. ● Release valve ground circuit or power circuit is open or shorted. ● Vehicle speed sensor is faulty. ● ASCD control unit internal circuit is malfunctioning. 	<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)



Fail-Safe System Check

1. Turn ignition switch ON.
2. Turn ASCD main switch to ON position and check if the "SET indicator" blinks.

If the indicator lamp blinks, check the following.

- ASCD steering switch. Refer to "DIAGNOSTIC PROCEDURE 3", EL-180.

3. Drive the vehicle at more than 48 km/h (30 MPH) and push SET/COAST switch.

If the indicator lamp blinks, check the following:

- Vehicle speed sensor. Refer to "DIAGNOSTIC PROCEDURE 4", EL-180.
- ASCD pump circuit. Refer to "DIAGNOSTIC PROCEDURE 5", EL-181.
- Replace control unit.

4. Depress brake pedal slowly (brake pedal should be depressed more than 5 seconds).

If the indicator lamp blinks, check the following:

- ASCD brake/stop lamp switch. Refer to "DIAGNOSTIC PROCEDURE 2", EL-179.

5. END. (System is OK.)

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses

SYMPTOM CHART

PROCEDURE	—	Diagnostic procedure					
REFERENCE PAGE	EL-176	EL-178	EL-179	EL-180	EL-180	EL-181	EL-182
SYMPTOM	Fail-Safe System Check	DIAGNOSTIC PROCEDURE 1 (POWER SUPPLY AND GROUND CIRCUIT CHECK)	DIAGNOSTIC PROCEDURE 2 (ASCD BRAKE/STOP LAMP SWITCH CHECK)	DIAGNOSTIC PROCEDURE 3 (ASCD STEERING SWITCH CHECK)	DIAGNOSTIC PROCEDURE 4 (VEHICLE SPEED SENSOR CHECK)	DIAGNOSTIC PROCEDURE 5 (ASCD PUMP CIRCUIT CHECK)	DIAGNOSTIC PROCEDURE 6 (ASCD ACTUATOR/PUMP CHECK)
ASCD cannot be set. ("CRUISE" indicator lamp does not illuminate.)		X		X ★3			
ASCD cannot be set. ("SET" indicator lamp does not blink.)			X	X	X		
ASCD cannot be set. ("SET" indicator lamp blinks.★1)	X		X	X	X	X	
Vehicle speed does not decrease after SET/COAST switch has been pressed.				X			X
Vehicle speed does not return to the set speed after RESUME/ACCEL switch has been pressed.★2				X			X
Vehicle speed does not increase after RESUME/ACCEL switch has been pressed.				X			X
System is not released after CANCEL switch (steering) has been pressed.				X			X
Large difference between set speed and actual vehicle speed.					X	X	X
Deceleration is greatest immediately after ASCD has been set.					X	X	X

★1: It indicates that system is in fail-safe. After completing diagnostic procedures, perform "Fail-Safe System Check", (EL-176) to verify repairs.

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

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

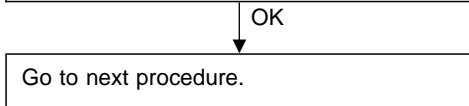
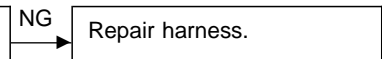
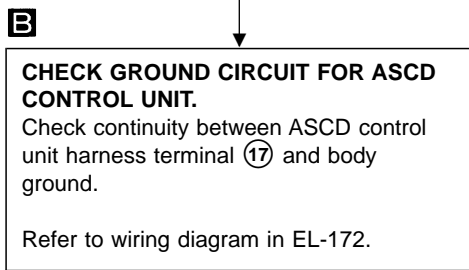
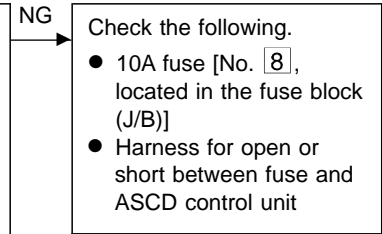
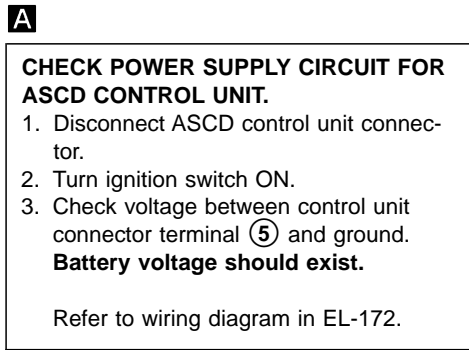
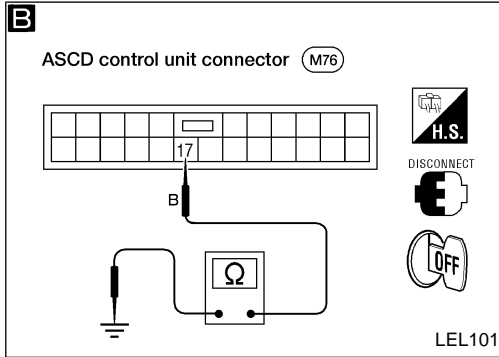
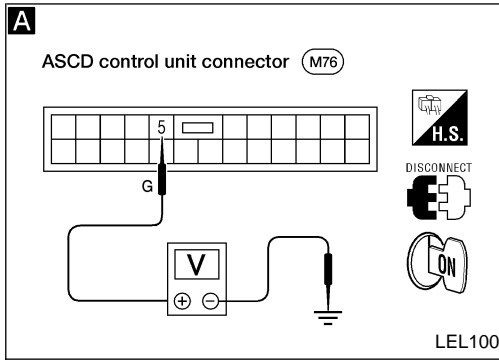
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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

(POWER SUPPLY AND GROUND CIRCUIT CHECK)

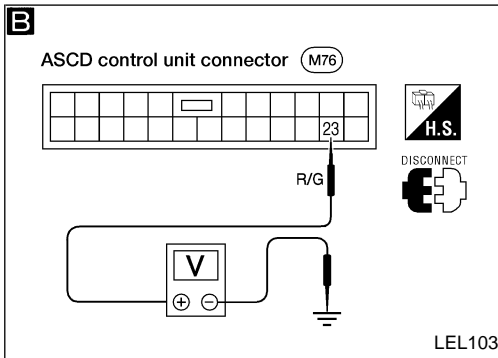
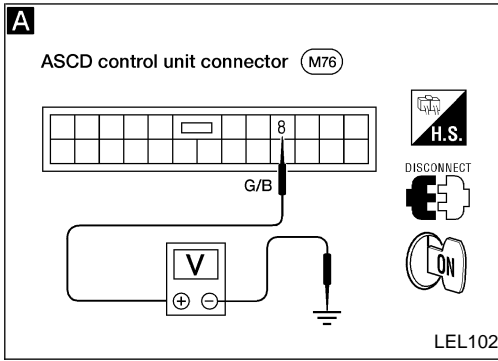


AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

(ASCD BRAKE/STOP LAMP SWITCH CHECK)



A

CHECK ASCD BRAKE SWITCH CIRCUIT.

1. Disconnect control unit connector.
2. Turn ignition switch ON.
3. Check voltage between control unit connector terminal (8) and ground.

When brake pedal or clutch pedal (M/T) is depressed or A/T selector lever (A/T) is in N or P range:

Approx. 0V

When brake pedal and clutch pedal (M/T) are released or A/T selector lever (A/T) is not in N or P range:

Battery voltage should exist.

Refer to wiring diagram in EL-172.

NG

Check the following.

- ASCD brake switch
Refer to "Electrical Components Inspection", EL-184.
- ASCD clutch switch (M/T model)
Refer to "Electrical Components Inspection", EL-184.
- Park/neutral position (PNP) switch (A/T model)
Refer to "Electrical Components Inspection", EL-184.
- Harness for open or short

OK

B

CHECK STOP LAMP SWITCH CIRCUIT.

1. Disconnect control unit connector.
2. Check voltage between control unit terminal (23) and ground.

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

Refer to wiring diagram in EL-173.

NG

Check the following.

- 15A fuse [No. 14], located in the fuse block (J/B)]
- Harness for open or short between ASCD control unit and stop lamp switch
- Harness for open or short between fuse and stop lamp switch
- Stop lamp switch
Refer to "Electrical Components Inspection", EL-184.

OK

ASCD brake/stop lamp switch circuit is OK.

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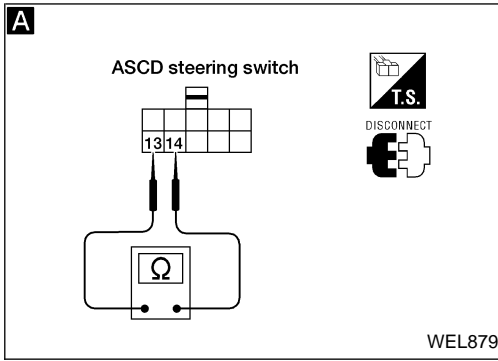
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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

(ASCD STEERING SWITCH CHECK)



- A**
- CHECK ASCD STEERING SWITCH.**
1. Disconnect ASCD steering switch.
 2. Measure resistance between ASCD steering switch connector (Z104) terminals (13) and (14) by pushing each switch.

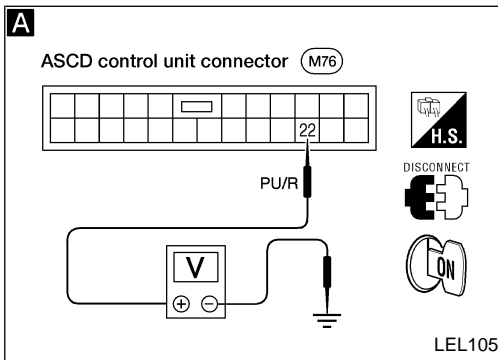
Switch	Resistance (Ω)
MAIN	0
SET/COAST	1,470 - 1,530
RESUME/ACCEL	3,234 - 3,366
CANCEL	4,998 - 5,202

Refer to wiring diagram in EL-173.

NG → Replace ASCD steering switch.

OK

Check harness for open or short between ASCD steering switch and ASCD control unit.



DIAGNOSTIC PROCEDURE 4

(VEHICLE SPEED SENSOR CHECK)

- A**
- CHECK VEHICLE SPEED SENSOR CIRCUIT.**
1. Apply wheel chocks and jack up drive wheel.
 2. Disconnect control unit connector.
 3. Connect voltmeter between control unit terminal (22) and ground.
 4. Slowly turn drive wheel.
 5. Check deflection of voltmeter pointer.

Refer to wiring diagram in EL-174.

OK → Vehicle speed sensor is OK.

NG

Does speedometer operate normally? No → Check speedometer and vehicle speed sensor circuit. Refer to EL-174.

Yes

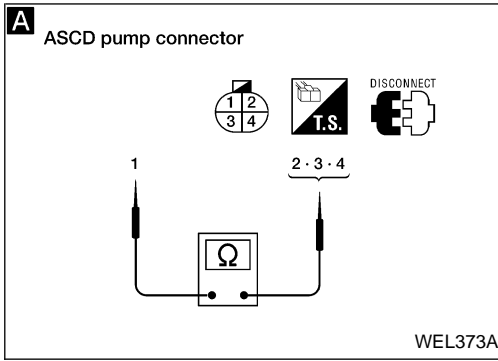
Check harness for open or short between ASCD control unit terminal (22) and combination meter terminal (57).

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

(ASCD PUMP CIRCUIT CHECK)



A

CHECK ASCD PUMP.

1. Disconnect ASCD pump connector.
2. Measure resistance between ASCD pump connector (E49) terminals ① and ②, ③, ④.

Terminals	Resistance [Ω]
① ④	Approx. 11.8
① ②	Approx. 67
① ③	Approx. 67.3

Refer to wiring diagram in EL-173.

NG

Replace ASCD pump.

OK

Check harness for open or short between ASCD pump and ASCD control unit.

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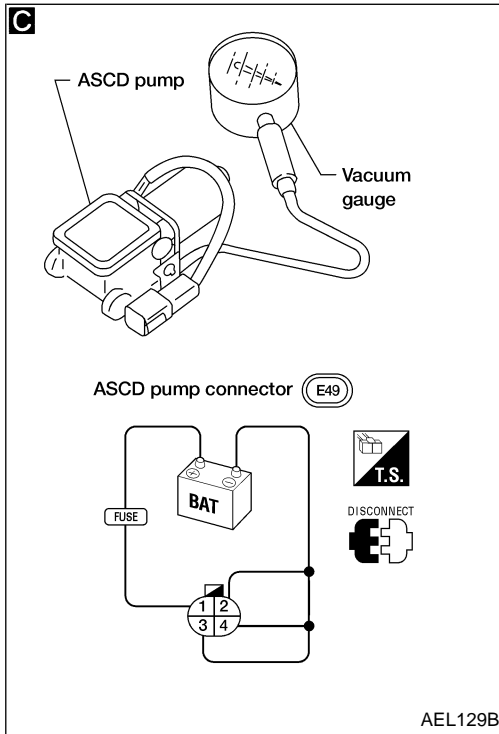
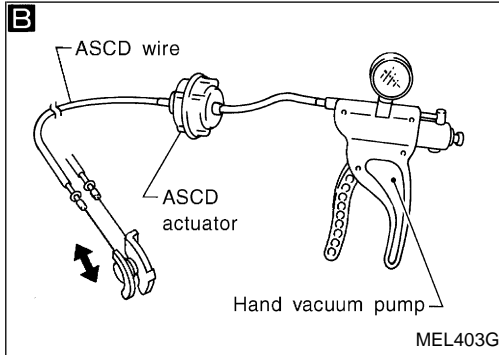
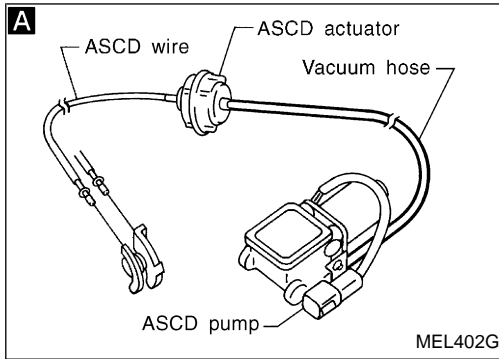
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AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

(ASCD ACTUATOR/PUMP CHECK)



A

CHECK VACUUM HOSE.

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

NG

Repair or replace hose.

OK

CHECK ASCD WIRE.

Check wire for improper installation, rust formation or breaks.

NG

Repair or replace wire. Refer to "ASCD Wire Adjustment", EL-183.

OK

B

CHECK ASCD ACTUATOR.

1. Disconnect vacuum hose from ASCD actuator.
2. Apply -40 kPa (-0.400 bar, -0.41 kg/cm², -5.8 psi) vacuum to ASCD actuator with hand vacuum pump.

ASCD wire should move to pull throttle drum.

3. Wait 10 seconds and check for decrease in vacuum pressure.

Vacuum pressure decrease:

Less than 2.7 kPa (0.0270 bar, 0.028 kg/cm², 0.39 psi)

NG

Replace ASCD actuator.

OK

C

CHECK ASCD PUMP.

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

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

A vacuum pressure of at least -35 kPa (-0.350 bar, -0.36 kg/cm², -5.1 psi) should be generated.

NG

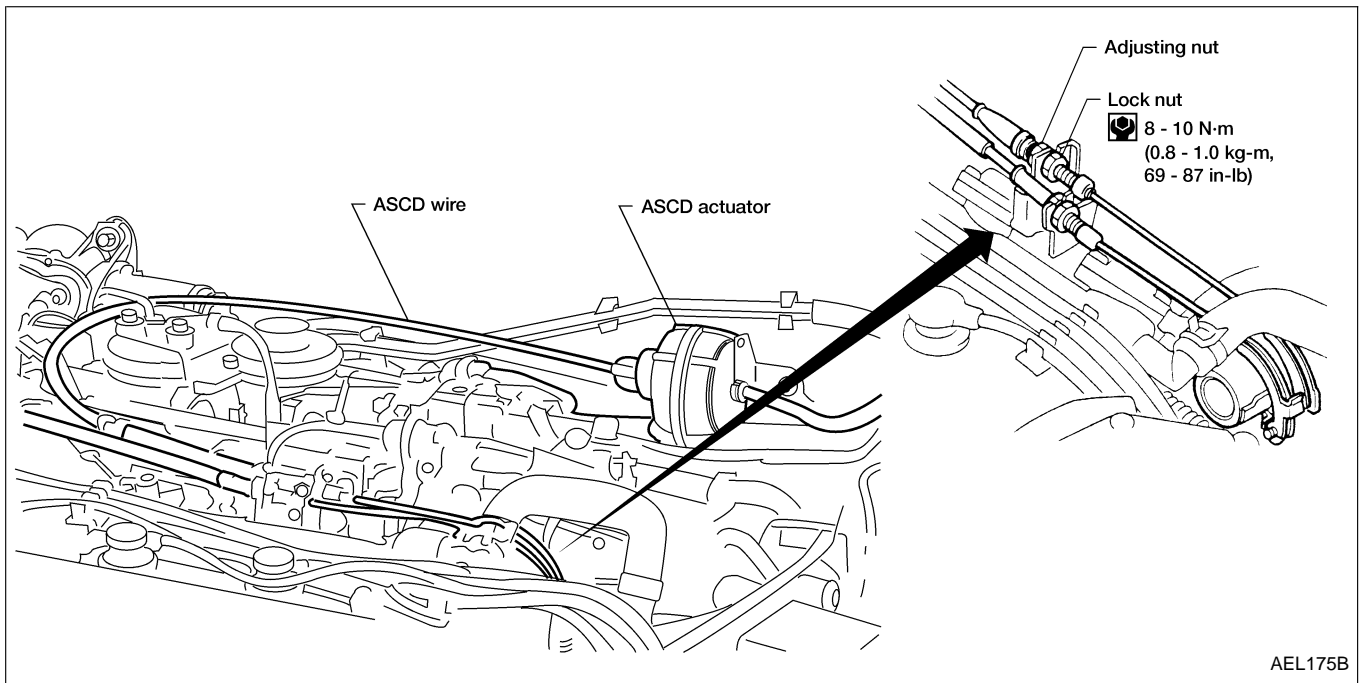
Replace ASCD pump.

OK

INSPECTION END

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

ASCD Wire Adjustment



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 section, "Accelerator Control System".
- (3) Tighten adjusting nut just until throttle drum starts to move.
- (4) Loosen adjusting nut again 1/2 to 1 turn.
- (5) Tighten lock nut.

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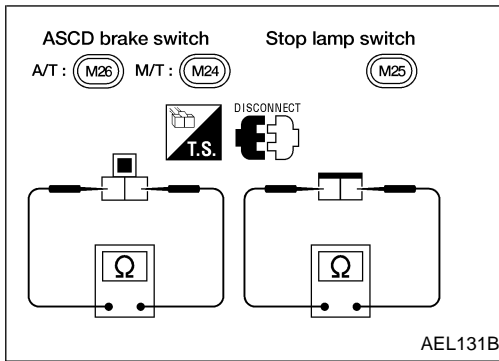
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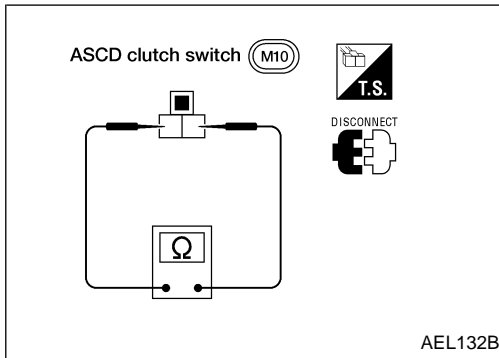
AUTOMATIC SPEED CONTROL DEVICE (ASCD)



Electrical Components Inspection ASCD BRAKE SWITCH AND STOP LAMP SWITCH

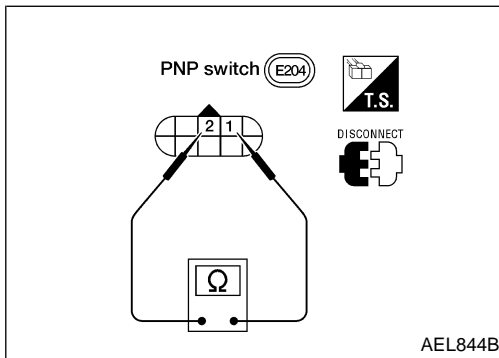
Condition	Continuity	
	ASCD brake switch	Stop lamp switch
When brake pedal is depressed	No	Yes
When brake pedal is released	Yes	No

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



ASCD CLUTCH SWITCH (For M/T models)

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



PARK/NEUTRAL POSITION (PNP) SWITCH (For A/T models)

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

POWER WINDOW

System Description

Power is supplied at all times:

- from 40A fusible link (Letter **d**), located in the fuse and fusible link box
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to power window relay terminal ③.

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

- through 10A fuse [No. **8**] located in the fuse block (J/B)
- to power window relay terminal ①.

Ground is supplied to power window relay terminal ②:

- through body grounds **M2** and **M61** .

The power window relay is energized and power is supplied:

- through power window relay terminal ⑤
- to main power window and door lock/unlock switch terminal ②,
- to front power window switch RH terminal ④ (with power door locks), ③ (without power door locks),
- to rear power window switches terminal ③.

MANUAL OPERATION

Front door LH

Ground is supplied:

- to main power window and door lock/unlock switch terminal ⑩
- through body grounds **M2** and **M61** .

WINDOW UP

When the front LH switch in the main power window and door lock/unlock switch is pressed in the up position, power is supplied:

- to front power window motor LH terminal ②
- through power window main switch terminal ⑫.

Ground is supplied:

- to front power window motor LH terminal ①
- through power window main switch terminal ⑯.

Then, the motor raises the window until the switch is released.

WINDOW DOWN

When the LH switch in the main power window and door lock/unlock switch is pressed in the down position, power is supplied:

- to front power window motor LH terminal ①
- through power window main switch terminal ⑯.

Ground is supplied:

- to front power window motor LH terminal ②
- through power window main switch terminal ⑫.

Then, the motor lowers the window until the switch is released.

Front door RH

Ground is supplied:

- to main power window and door lock/unlock switch terminal ⑩
- through body grounds **M2** and **M61** .

NOTE:

Numbers in parentheses are terminal numbers, when power window switch is pressed in the UP and DOWN positions respectively.

MAIN SWITCH OPERATION

Power is supplied:

- through main power window and door lock/unlock switch (⑭, ⑬)
- to front power window switch RH [⑤, ② (with power door locks) or ②, ④ (without power door locks)].

The subsequent operation is the same as the power window switch operation.

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POWER WINDOW

System Description (Cont'd)

POWER WINDOW SWITCH OPERATION

Power is supplied:

- through front power window switch [(6), (3) (with power door locks) or (6), (5) (without power door locks)]
- to front power window motor RH ((2), (1)).

Ground is supplied:

- to front power window motor RH ((1), (2))
- to front power window switch [(3), (6) (with power door locks) or (5), (6) (without power door locks)]
- through front power window switch [(2), (5) (with power door locks) or (4), (2) without power door locks]
- through power window main switch ((13), (14)).

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

Rear door

Rear door windows will raise and lower in the same manner as front door RH window.

AUTO OPERATION

The power window AUTO feature enables the driver to lower the driver's window without holding the window switch in the down position.

The AUTO feature only operates on the driver's window downward movement.

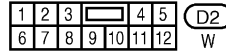
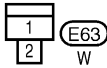
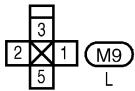
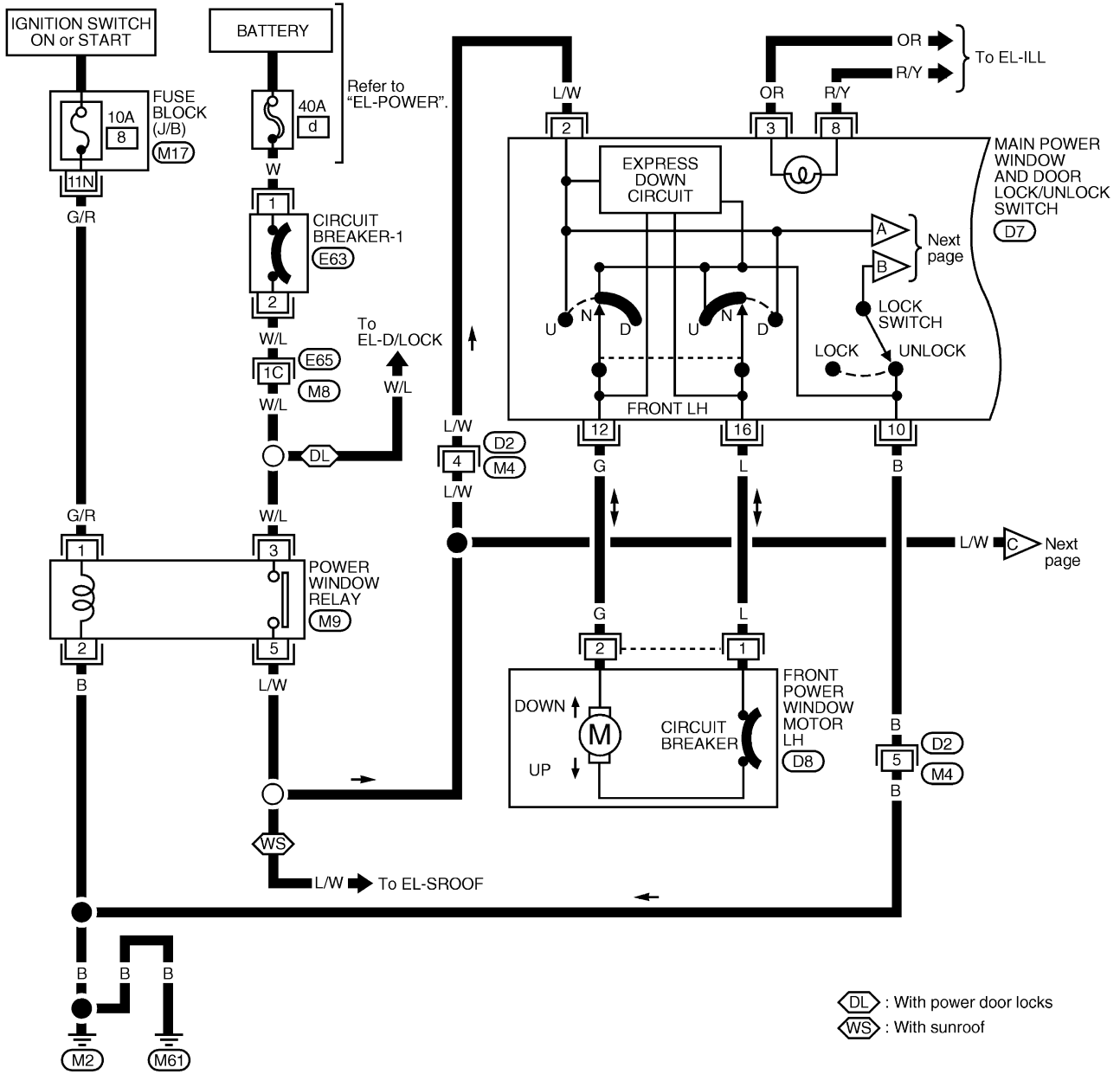
POWER WINDOW LOCK

The power window lock is designed to lock operation of all windows except for driver's door window. When the lock switch is pressed to lock position, ground of the power window switches in the main power window and door lock/unlock switch is disconnected. This prevents the power window motors from operating.

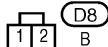
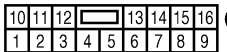
POWER WINDOW

Wiring Diagram — WINDOW —

EL-WINDOW-01



Refer to the following.
(M8), **(E65)** - SUPER MULTIPLE JUNCTION (SMJ).



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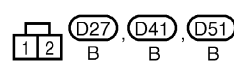
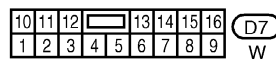
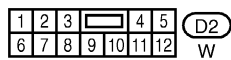
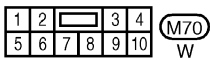
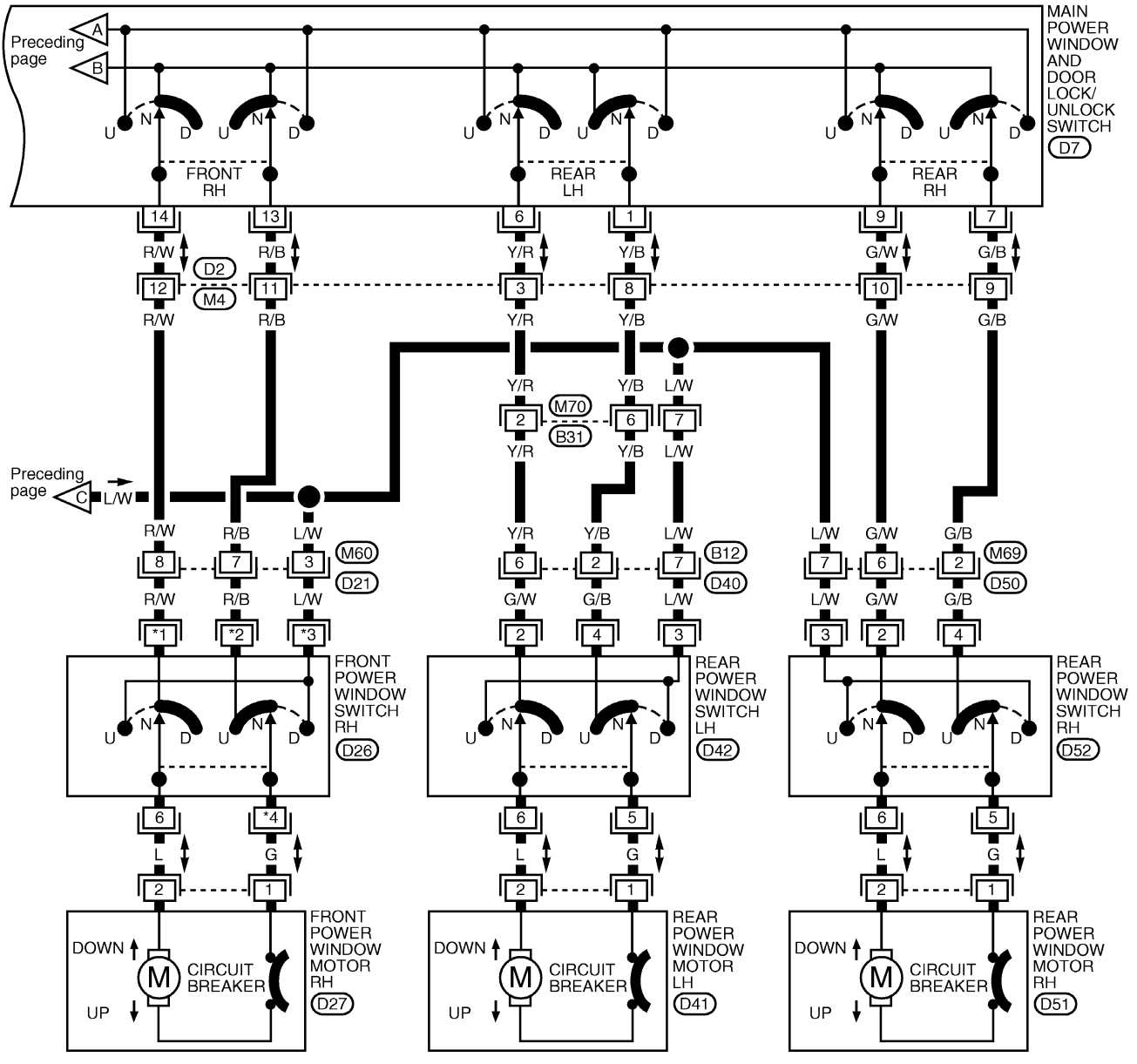
POWER WINDOW

Wiring Diagram — WINDOW — (Cont'd)

*1 : 5 *2 : 2 *3 : 4 *4 : 3
 : 2 : 4 : 3 : 5

: With power door locks
 : Without power door locks

EL-WINDOW-02



POWER WINDOW

Trouble Diagnoses

Symptom	Possible cause	Repair order
None of the power windows can be operated using any switch.	<ol style="list-style-type: none"> 10A fuse, 40A fusible link and E63 circuit breaker Power window relay ground circuit Power window relay Open/short in main power window switch circuit Main power window switch ground circuit. Main power window switch. 	<ol style="list-style-type: none"> Check 10A fuse (No. 8, located in fuse block [J/B]), 40A fusible link (letter d, located in fuse and fusible link box) and E63 circuit breaker. Turn ignition switch ON and verify battery positive voltage is present at terminal 2 of main power window switch. Check power window relay ground circuit. Check power window relay. Check L/W wire between power window relay and main power window switch for open/short circuit. Check main power window switch ground circuit. Check main power window switch.
Driver side power window cannot be operated but other windows can be operated.	<ol style="list-style-type: none"> Driver side power window motor circuit Driver side power window motor Main power window switch 	<ol style="list-style-type: none"> Check harness between main power window switch and front power window motor LH for open or short circuit. Check front power window motor LH. Check main power window switch.
Passenger power window cannot be operated.	<ol style="list-style-type: none"> Passenger power window switch Passenger power window motor Main power window switch Power window circuit 	<ol style="list-style-type: none"> Check passenger power window switch. Check passenger power window motor. Check main power window switch. 4-1. Check harnesses between main power window switch and passenger power window switch for open/short circuit. 4-2. Check harnesses between passenger power window switch and passenger power window motor for open/short circuit.
Passenger power window cannot be operated using main power window switch but can be operated by passenger power window switch.	<ol style="list-style-type: none"> Main power window switch 	<ol style="list-style-type: none"> Check main power window switch.
Driver side power window auto function cannot be operated using main power window switch.	<ol style="list-style-type: none"> Main power window switch 	<ol style="list-style-type: none"> Check main power window switch.

Passenger refers to front RH, or rear LH or RH.

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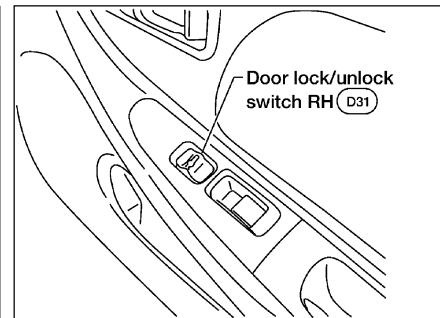
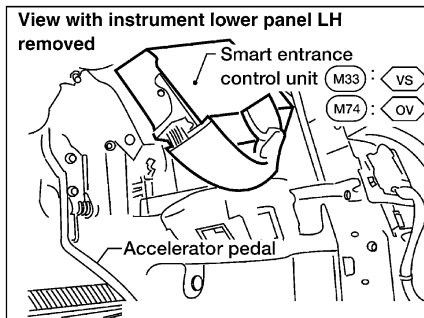
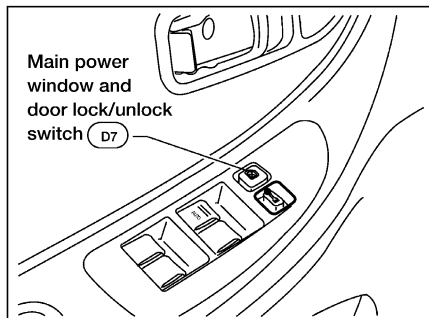
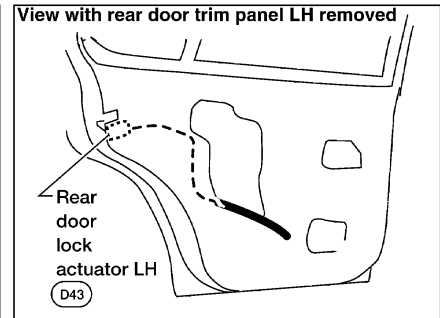
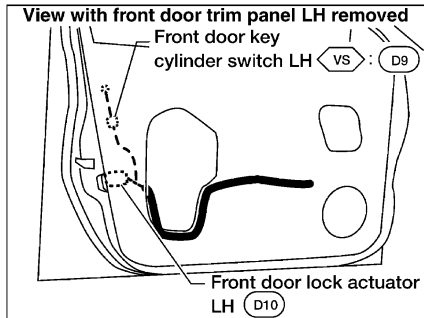
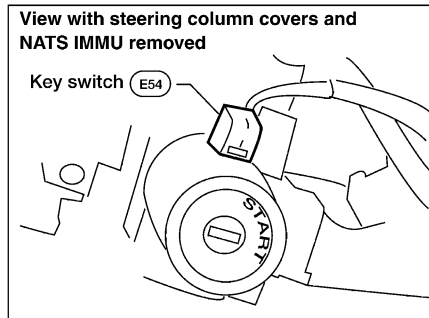
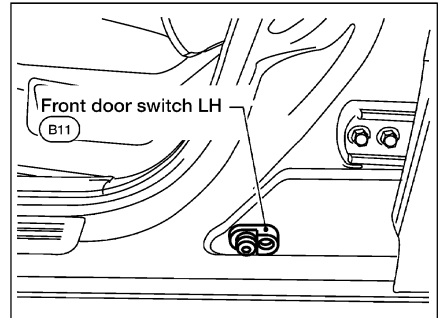
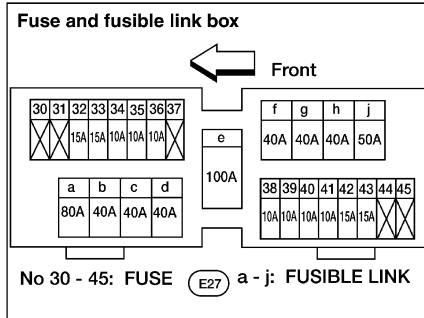
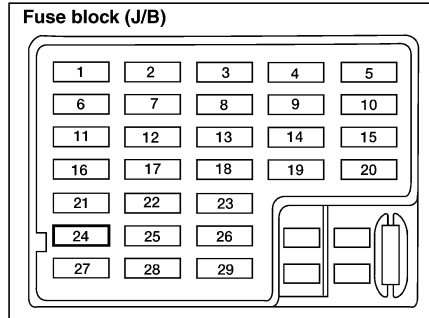
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POWER DOOR LOCK

Component Parts and Harness Connector Location



VS : With vehicle security system
 OV : Without vehicle security system

POWER DOOR LOCK

System Description

Power is supplied at all times:

- through 40A fusible link (Letter **d**, located in the fuse and fusible link box) GI
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to smart entrance control unit terminal ① (with vehicle security system), ⑥ (without vehicle security system) MA

Power is supplied at all times:

- through 10A fuse [No. **24**, located in the fuse block (J/B)] EM
- to key switch terminal ②.

Ground is supplied:

- to smart entrance control unit terminal ⑩ (with vehicle security system), ① (without vehicle security system) LC
- through body grounds **M2** and **M61** . EC

INPUT

Power is supplied through key switch terminal ① to smart entrance control unit terminal ⑳ (with vehicle security system), ⑫ (without vehicle security system) when the ignition key is inserted in the key switch. FE

Ground is supplied:

- to smart entrance control unit terminal ⑮ or ⑯ (with vehicle security system), ⑳ or ㉑ (without vehicle security system) CL
- through door switch terminal ① when door is open.

Ground is supplied (Models with vehicle security system): MT

- to smart entrance control unit terminal ㉓
- from front LH door key cylinder switch terminal ③
- through front LH door key cylinder switch terminal ② when door key cylinder is BETWEEN FULL STROKE AND N (to unlock position) AT
- through body grounds **M2** and **M61** .

Ground is supplied (Models with vehicle security system): FA

- to smart entrance control unit terminal ㉒
- from front LH door key cylinder switch terminal ①
- through front LH door key cylinder switch terminal ② when door key cylinder is BETWEEN FULL STROKE AND N (to lock position) RA
- through body grounds **M2** and **M61** .

Ground is supplied: BR

- to smart entrance control unit terminal ⑱ or ⑲ (with vehicle security system), ㉔ or ⑮ (without vehicle security system)
- from main power window and door lock/unlock switch terminal ⑮ or ⑪ ST
- through main power window and door lock/unlock switch terminal ⑩ (when switch is pressed in lock or unlock position)
- through body grounds **M2** and **M61** . RS

Ground is supplied:

- to smart entrance control unit terminal ⑱ or ⑲ (with vehicle security system), ㉔ or ⑮ (without vehicle security system) BT
- from door lock/unlock switch RH terminal ⑥ or ③
- through door lock/unlock switch RH terminal ④ (when switch is pressed in lock or unlock position)
- through body grounds **M2** and **M61** . HA

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POWER DOOR LOCK

System Description (Cont'd)

OUTPUT

Unlock

Power is supplied:

- from smart entrance control unit terminal ③ (with vehicle security system) or terminal ⑧ (without vehicle security system)
- to front LH door lock actuator terminal ①.

Power is supplied:

- from smart entrance control unit terminal ②
- to front RH door lock actuator or rear door lock actuator terminals ①.

Ground is supplied:

- from smart entrance control unit terminal ④ (with vehicle security system), ③ (without vehicle security system).
- to all door lock actuator terminals ③.

With power and ground supplied, the door actuators move to the unlocked position.

Lock

Power is supplied:

- from smart entrance control unit terminal ④ (with vehicle security system), ③ (without vehicle security system).
- to all door lock actuator terminals ③.

Ground is supplied:

- from smart entrance control unit terminal ③ (with vehicle security system) or terminal ⑧ (without vehicle security system)
- to front LH door lock actuator terminal ①.

Ground is supplied:

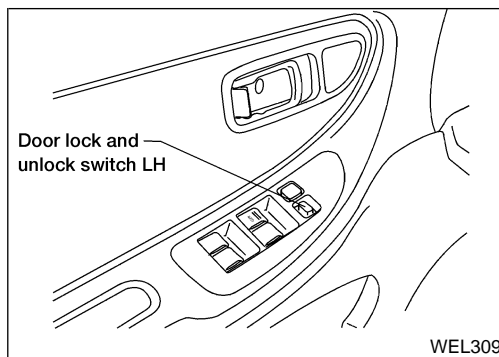
- from smart entrance control unit terminal ②
- to front RH door lock actuator or rear door lock actuator terminals ①.

With power and ground supplied, the door actuators move to the locked position.

OPERATION

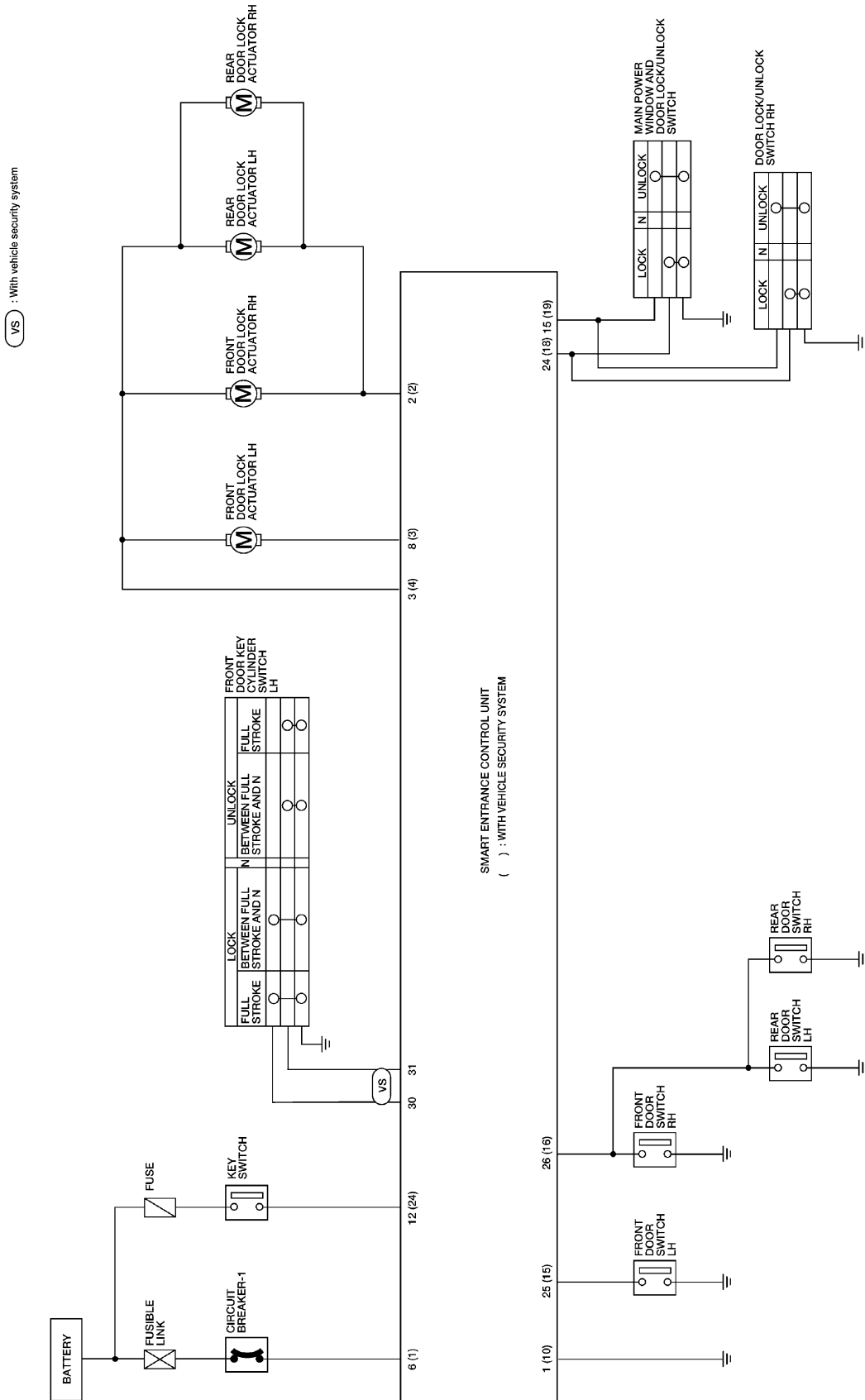
- The lock and unlock switch (LH and RH) on door trim can lock and unlock all doors.
- With the door key inserted in the key cylinder on front LH door, turning it to LOCK will lock all doors; turning it to UNLOCK once unlocks the door; turning it to UNLOCK again within 5 seconds after the first unlock operation unlocks all of the other doors (signal from front door key cylinder switch) (Models with vehicle security system).

However, if the ignition key is in the ignition key cylinder and one or more of the doors are open, setting the lock and unlock switch, or the door key to LOCK locks the doors once but then immediately unlocks them (combination signals from key switch, door switches). — (KEY REMINDER DOOR SYSTEM)



POWER DOOR LOCK

Schematic

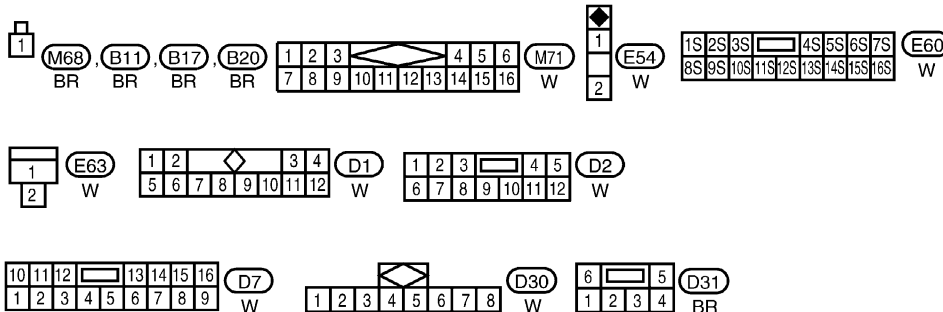
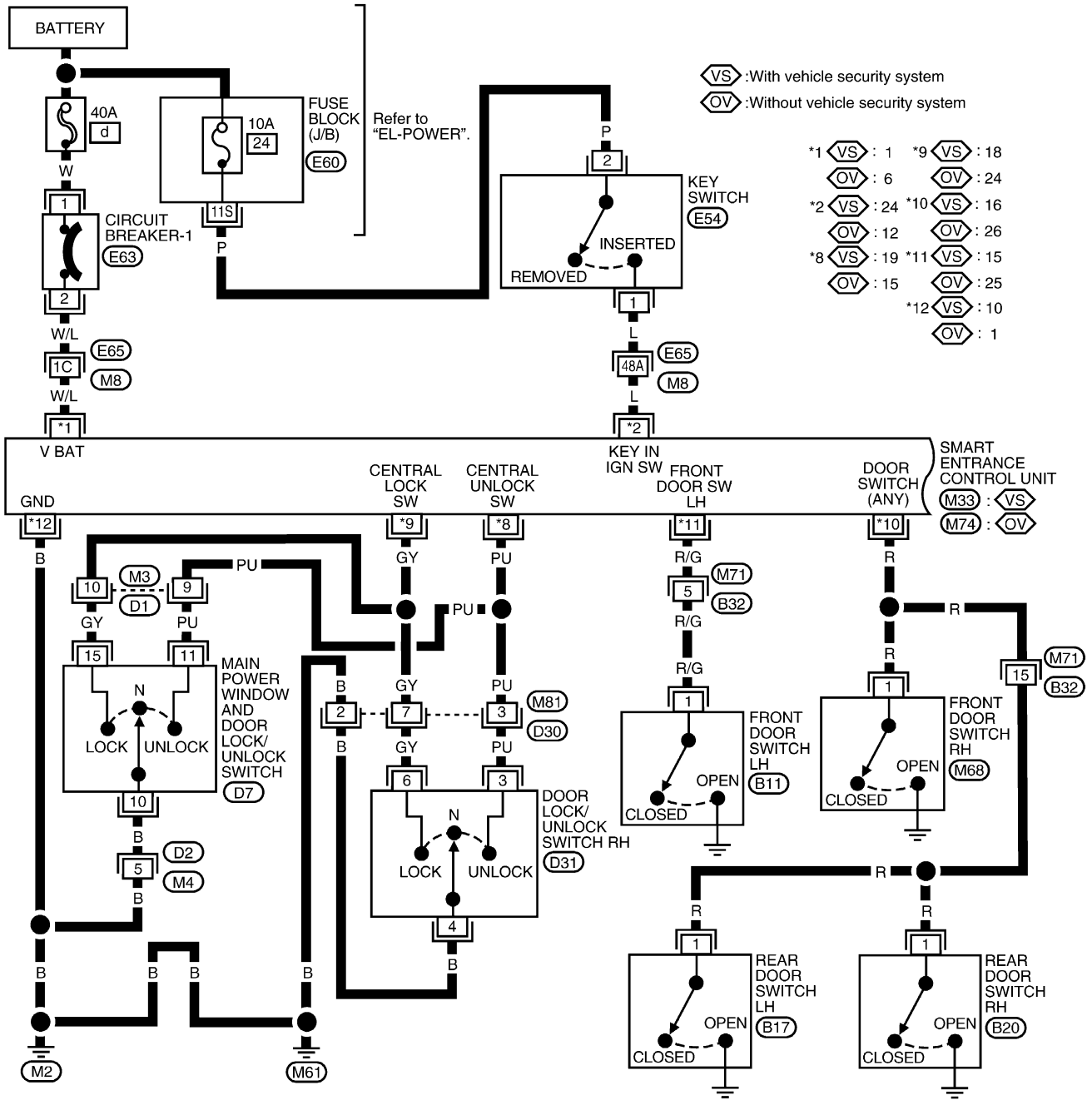


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- EL**
- IDX

POWER DOOR LOCK

Wiring Diagram — D/LOCK —

EL-D/LOCK-01



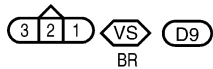
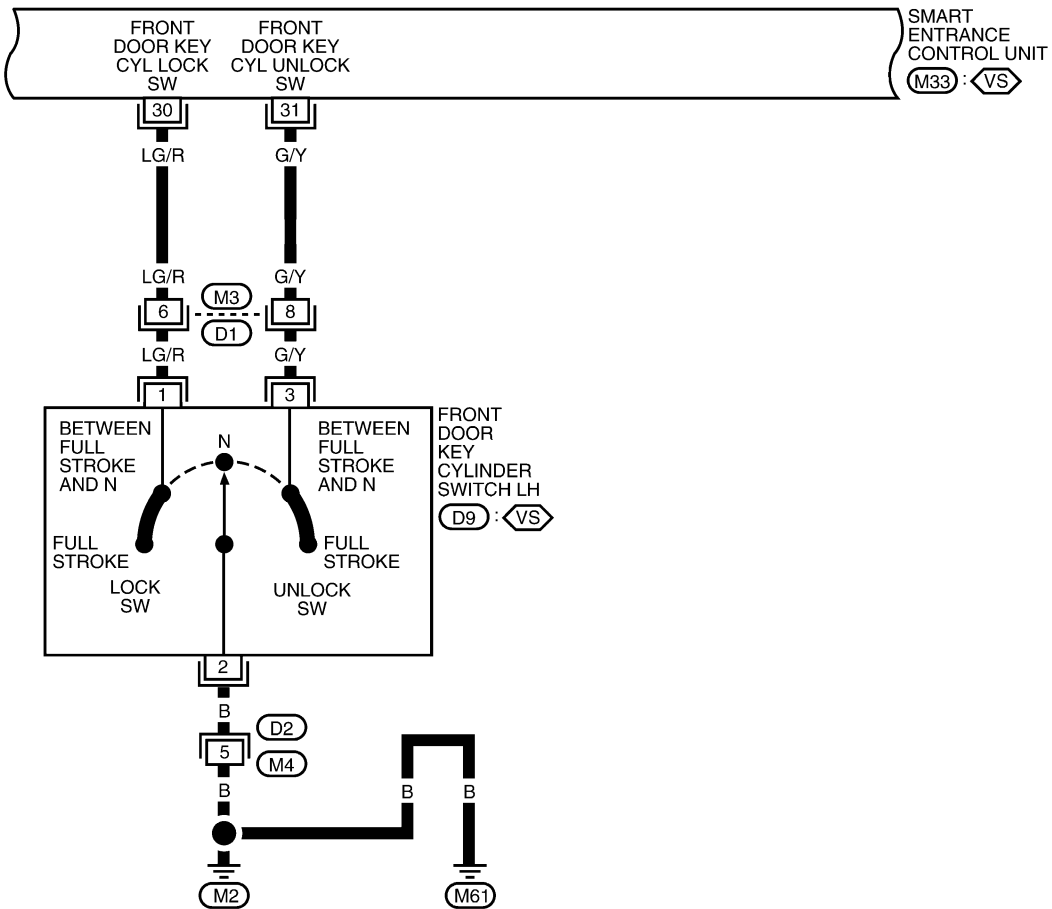
Refer to the following.
 (M8) (E65) - SUPER MULTIPLE JUNCTION (SMJ)
 (M33) (M74) - ELECTRICAL UNITS

POWER DOOR LOCK

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-02

⬠VS⬠ : With vehicle security system



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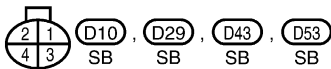
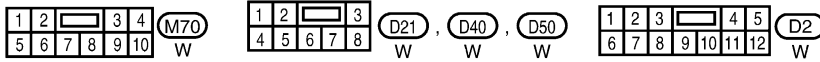
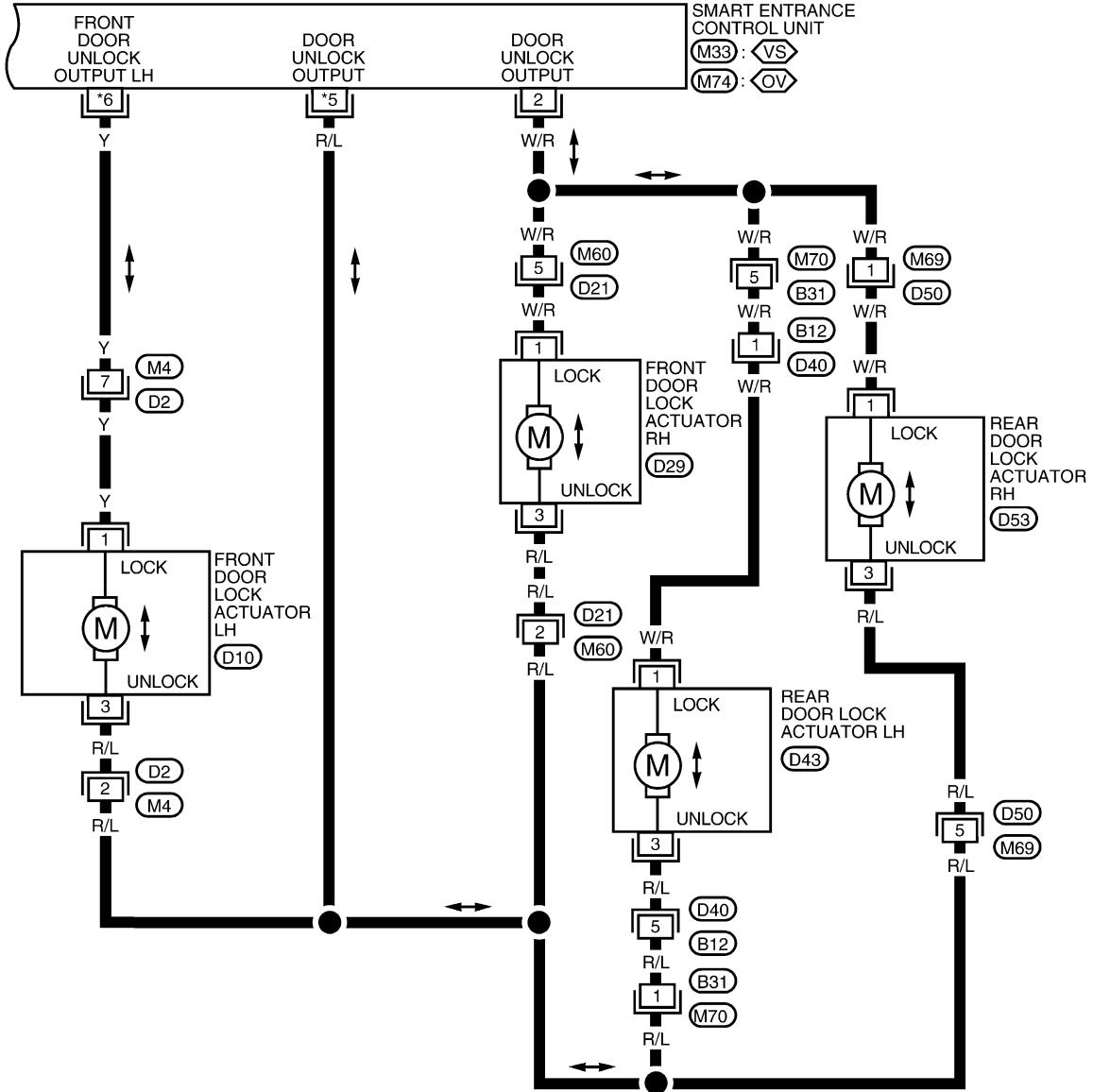
POWER DOOR LOCK

Wiring Diagram — D/LOCK — (Cont'd)

EL-D/LOCK-03

*5 : 4 *6 : 3
 : 3 : 8

: With vehicle security system
 : Without vehicle security system



Refer to the following.
 , - ELECTRICAL UNITS

POWER DOOR LOCK

Trouble Diagnoses

SYMPTOM CHART

PROCEDURE	Main power supply and ground circuit check		Diagnostic procedure				
	EL-198	EL-198	EL-199	EL-200	EL-201	EL-203	EL-204
SYMPTOM	Main power supply for smart entrance control unit	Ground circuit for smart entrance control unit	DIAGNOSTIC PROCEDURE 1 (Door switch check)	DIAGNOSTIC PROCEDURE 2 [Key switch (insert) check]	DIAGNOSTIC PROCEDURE 3 (Door lock/unlock switch check)	DIAGNOSTIC PROCEDURE 4 (Front door key cylinder switch check)	DIAGNOSTIC PROCEDURE 5 (Door lock actuator check)
Key reminder door system does not operate properly.	X	X	X	X			X
One or more doors are not locked and/or unlocked.	X	X					X
Lock & unlock switch does not operate.	X	X			X		
None of the doors lock/unlock when operating front door key cylinder switch (Models with vehicle security system).	X	X				X	

Perform "MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK", EL-198 before starting with power door lock diagnostic procedure.

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POWER DOOR LOCK

Trouble Diagnoses (Cont'd)

MAIN POWER SUPPLY AND GROUND CIRCUIT CHECK

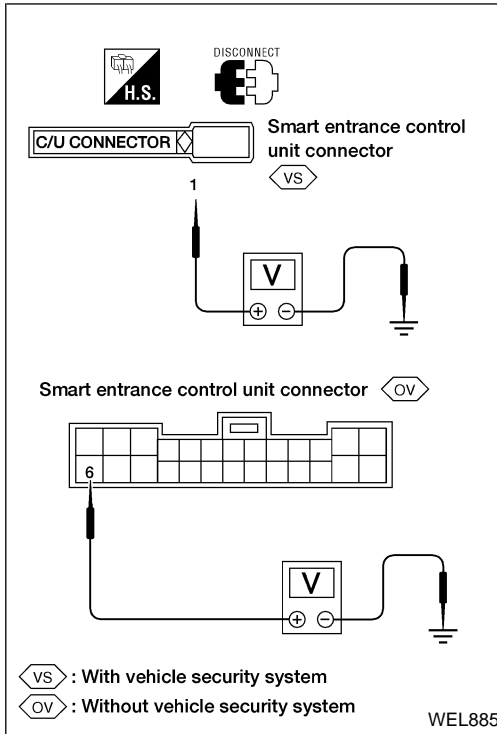
Main power supply circuit check

- With vehicle security system

Terminals		Ignition switch		
⊕		OFF	ACC	ON
Connector	Terminal (Wire color)	Battery voltage	Battery voltage	Battery voltage
M33	① (W/L)			
		⊖		
		Ground		

Without vehicle security system

Terminals		Ignition switch		
⊕		OFF	ACC	ON
Connector	Terminal (Wire color)	Battery voltage	Battery voltage	Battery voltage
M74	⑥ (W/L)			
		⊖		
		Ground		



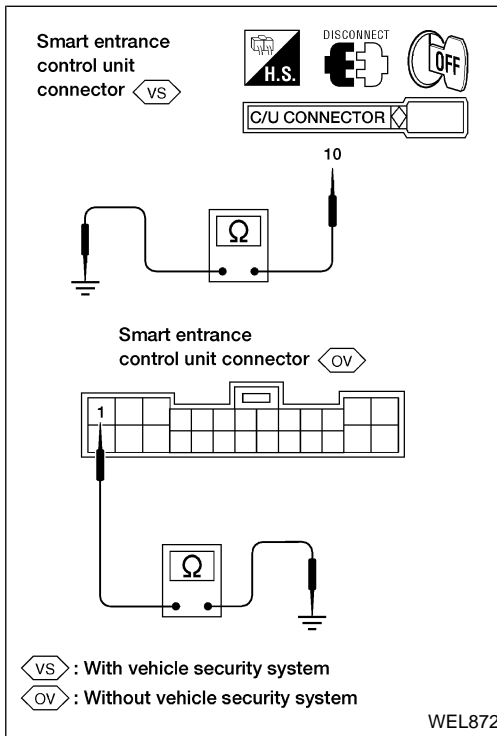
Ground circuit check

- With vehicle security system

Terminals (Connector, wire color)	Continuity
⑩ (M33, B) - Ground	Yes

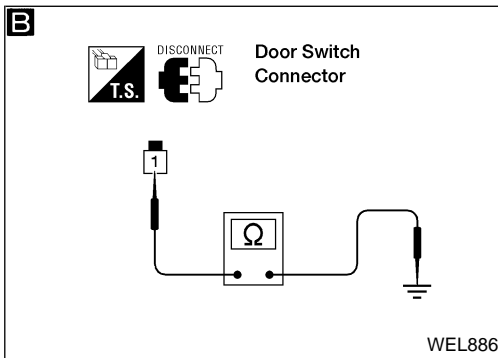
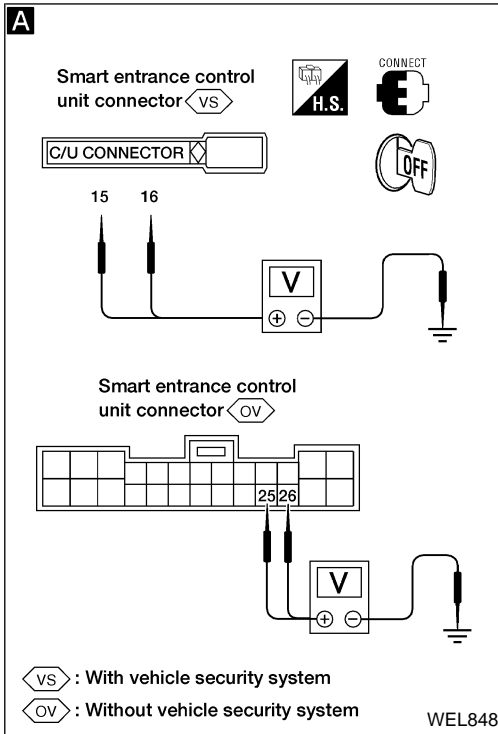
- Without vehicle security system

Terminals (Connector, wire color)	Continuity
① (M74, B) - Ground	Yes



POWER DOOR LOCK

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 1 (Door switch check)



A

CHECK DOOR SWITCH INPUT SIGNAL.

Check voltage between smart entrance control unit terminals and ground.

- With vehicle security system

	Terminals	Condition	Voltage [V]
Front LH door switch	M33 (15) (R/G)	Open	0
		Closed	Approx. 12
Front RH door and rear door switches	M33 (16) (R)	Open	0
		Closed	Approx. 12

- Without vehicle security system

	Terminals	Condition	Voltage [V]
Front LH door switch	M74 (25) (R/G)	Open	0
		Closed	Approx. 12
Front RH door and rear door switches	M74 (26) (R)	Open	0
		Closed	Approx. 12

Refer to wiring diagram in EL-194.

OK → Door switch is OK.

B

CHECK DOOR SWITCH.

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

	Terminals	Condition	Continuity
Front LH door switch	① - Ground	Closed	No
		Open	Yes
Front RH door and rear door switches	① - Ground	Closed	No
		Open	Yes

NG → Replace door switch.

OK →

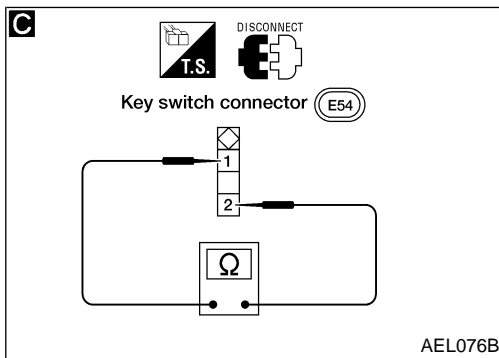
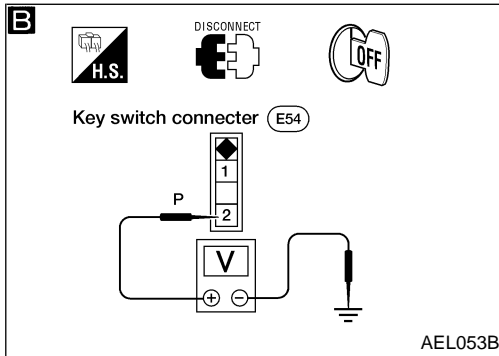
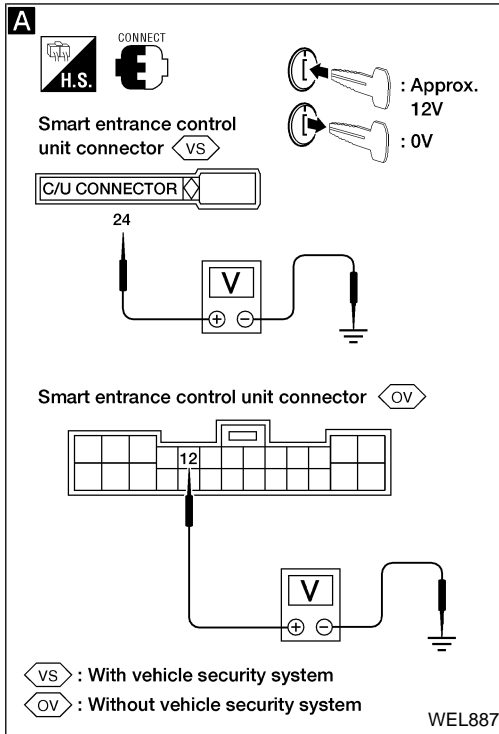
Check the following.

- Door switch ground condition
- Harness for open or short between smart entrance control unit and door switch

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POWER DOOR LOCK

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 2 [Key switch (insert) check]



A

CHECK KEY SWITCH INPUT SIGNAL.
Check voltage between smart entrance control unit **M33** terminal **24** (L) (with vehicle security system), **M74** terminal **12** (L) (without vehicle security system) and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is withdrawn.	0

Refer to wiring diagram in EL-194.

OK → Key switch (insert) is ok.

B

CHECK KEY SWITCH POWER SUPPLY.
1. Disconnect key switch connector.
2. Check voltage between key switch harness terminal **2** and ground.
Battery voltage should exist.

NG → Check the following.

- 10A fuse [No. **24**, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse

C

CHECK KEY SWITCH.
Check continuity between key switch terminals.

Terminals	Condition	Continuity
1 - 2	Key is inserted.	Yes
	Key is withdrawn.	No

NG → Replace key switch.

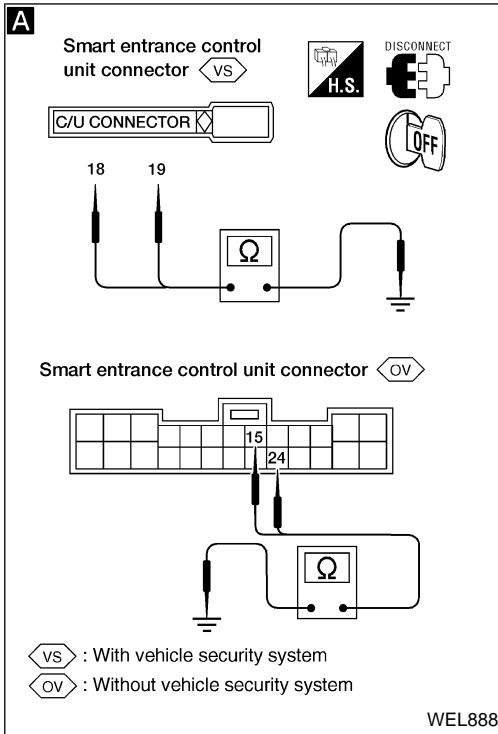
OK → Check harness for open or short between smart entrance control unit and key switch.

POWER DOOR LOCK

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

(Door lock/unlock switch check)



A

CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL.

1. Disconnect smart entrance control unit connector.
2. Check continuity between smart entrance control unit terminals and ground.

● With vehicle security system

Terminals (Connector, Wire color)	Door lock/unlock switch (LH or RH) condition	Continuity
⑱ (M33, GY) - Ground	Lock	Yes
	N and Unlock	No
⑲ (M33, PU) - Ground	Unlock	Yes
	N and Lock	No

● Without vehicle security system

Terminals (Connector, Wire color)	Door lock/unlock switch (LH or RH) condition	Continuity
⑳ (M74, GY) - Ground	Lock	Yes
	N and Unlock	No
⑮ (M74, PU) - Ground	Unlock	Yes
	N and Unlock	No

Refer to wiring diagram in EL-194.

NG

A

(Go to next page.)

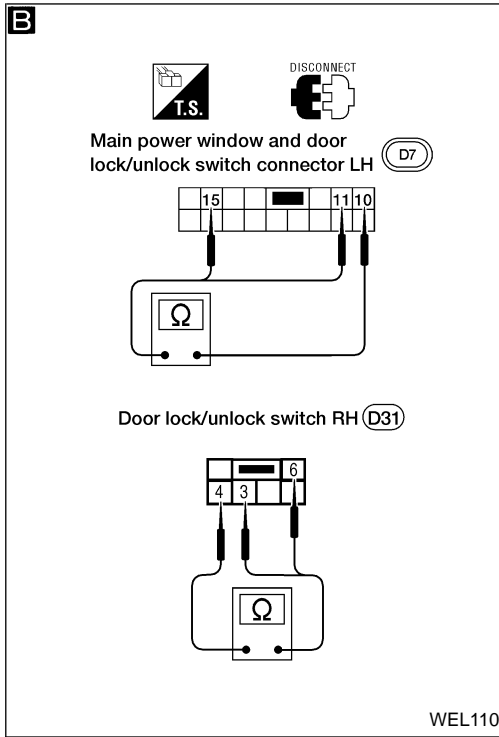
OK

Door lock/unlock switch is OK.

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POWER DOOR LOCK

Trouble Diagnoses (Cont'd)



A

B

CHECK DOOR LOCK/UNLOCK SWITCH.

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

- Door lock/unlock switch LH

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	○	○	

NG → Replace door lock/unlock switch.

OK

Check the following.

- Ground circuit for door lock/unlock switch
- Harness for open or short between door lock/unlock switch and smart entrance control unit connector

POWER DOOR LOCK

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

(Front door key cylinder switch check)

A

H.S. **CONNECT** **OFF**

Smart entrance control unit connector

WEL069A

A

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

Check voltage between smart entrance control unit terminal (30), (31) and ground.

Con- nector	Terminals		Key posi- tion	Voltage [V]
	Terminal (Wire color)	⊖		
M33	(31) (G/Y)	Ground	Neutral	Approx. 12
			Unlock	0
M33	(30) (LG/R)	Ground	Neutral	Approx. 12
			Lock	0

Refer to wiring diagram in EL-195.

B

T.S. **DISCONNECT**

Front door key cylinder switch connector

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

LEL070A

B

CHECK DOOR KEY CYLINDER SWITCH.

1. Disconnect door key cylinder switch connector.
2. Check continuity between door key cylinder switch connector (D9) terminals.

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

Check the following.

- Door key cylinder switch ground circuit
- Harness for open or short between smart entrance control unit and door key cylinder switch

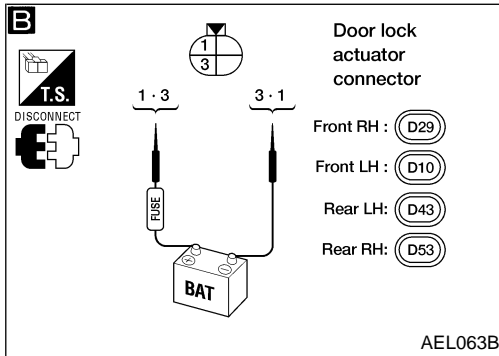
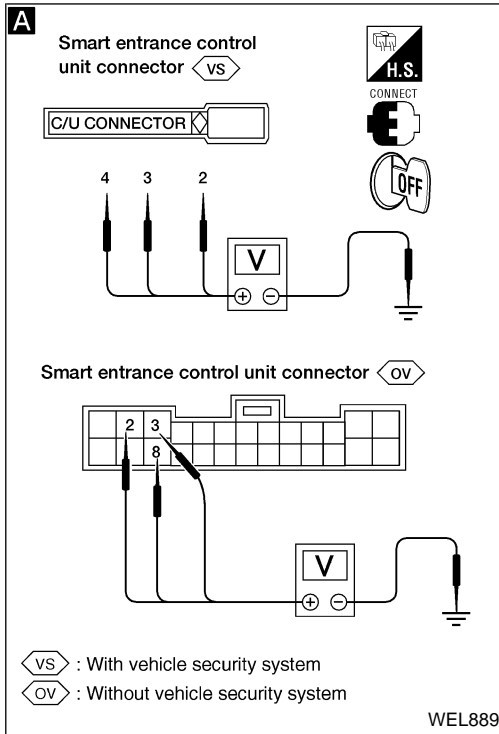
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POWER DOOR LOCK

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

(Door lock actuator check)



A

CHECK DOOR LOCK ACTUATOR OUTPUT.

Check voltage for door lock actuator.

- Models with vehicle security system

Door lock/ unlock switch condition	Terminals		Voltage (V)
	⊕ (Connector, Wire color)	⊖	
Lock	④ (M33, R/L)	Ground	Battery voltage
Unlock	③ (M33, Y), ② (M33, W/R)	Ground	

- Models without vehicle security system

Door lock/ unlock switch condition	Terminals		Voltage (V)
	⊕ (Connector, Wire color)	⊖	
Lock	③ (M74, R/L)	Ground	Battery voltage
Unlock	⑧ (M74, Y), ② (M74, W/R)	Ground	

Refer to wiring diagram in EL-196.

NG → Replace smart entrance control unit. (Before replacing control unit, perform other procedures by following the SYMPTOM CHART. Refer to "SYMPTOM CHART", EL-197.)

OK

B

CHECK DOOR LOCK ACTUATOR.

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

Door lock actuator operation	Terminals	
	⊕	⊖
Unlocked → Locked	③	①
Locked → Unlocked	①	③

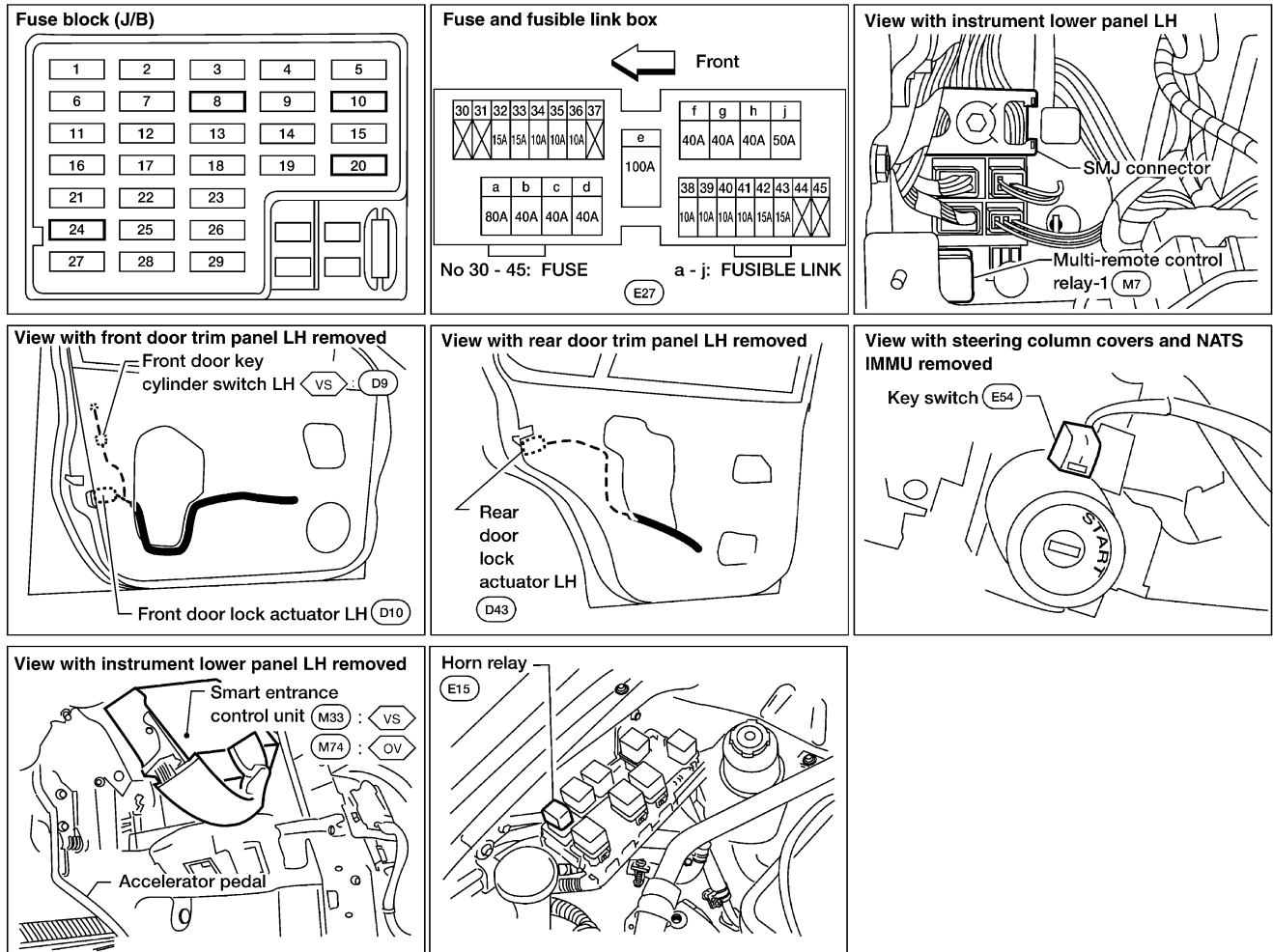
NG → Replace door lock actuator.

OK

Check harness for open or short between smart entrance control unit connector and door lock actuator.

MULTI-REMOTE CONTROL SYSTEM

Component Parts and Harness Connector Location



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VS : With vehicle security system
OV : Without vehicle security system

MULTI-REMOTE CONTROL SYSTEM

System Description

Power is supplied at all times:

- through 40A fusible link (letter **d**), located in the fuse and fusible link box
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to smart entrance control unit terminal ① (with vehicle security system), ⑥ (without vehicle security system).

Power is supplied at all times:

- through 10A fuse [No. **24**], located in the fuse block (J/B)
- to key switch terminal ②.

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

- through 10A fuse [No. **8**], located in the fuse block (J/B)
- to smart entrance control unit terminal ⑪ (with vehicle security system), ⑳ (without vehicle security system).

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

- through 10A fuse [No. **10**], located in the fuse block (J/B)
- to smart entrance control unit terminal ⑰ (with vehicle security system), ⑱ (without vehicle security system).

Ground is supplied:

- to smart entrance control unit terminal ⑩ (with vehicle security system), ① (without vehicle security system).
- through body grounds **M2** and **M61** .

INPUTS

When the key switch is ON (ignition key is inserted in key cylinder), power is supplied:

- through key switch terminal ①
- to smart entrance control unit terminal ⑳ (with vehicle security system), ⑫ (without vehicle security system).

When the front door switch LH is OPEN, ground is supplied:

- to smart entrance control unit terminal ⑮ (with vehicle security system), ⑳ (without vehicle security system).
- through front door switch LH terminal ①
- through door switch body ground.

When the front door switch RH or rear door switches are OPEN, ground is supplied:

- to smart entrance control unit terminal ⑯ (with vehicle security system), ⑳ (without vehicle security system).
- through front door switch RH terminal ① or rear door switch terminal ①
- through each door switch body ground.

When power window main switch (door lock and unlock switch LH) is in the LOCK position, ground is supplied:

- to smart entrance control unit terminal ⑱ (with vehicle security system), ⑳ (without vehicle security system).
- through power window main switch terminals ⑮ and ⑩
- through body grounds **M2** and **M61** .

When power window main switch (door lock and unlock switch LH) is in the UNLOCK position, ground is supplied:

- to smart entrance control unit terminal ⑱ (with vehicle security system), ⑮ (without vehicle security system).
- through power window main switch terminals ⑪ and ⑩
- through body grounds **M2** and **M61** .

Remote controller signal input:

- through internal antenna.

MULTI-REMOTE CONTROL SYSTEM

System Description (Cont'd)

The multi-remote control system controls operation of the:

- power door lock
- trunk lid opener
- interior lamp
- panic alarm
- hazard and horn reminder.

GI

MA

OPERATION PROCEDURE

Power Door Lock Operation

EM

Smart entrance control unit receives a LOCK signal from remote controller. Smart entrance control unit locks all doors with input of LOCK signal from remote controller.

LC

When an UNLOCK signal is sent from remote controller once, driver's door will be unlocked.

Then, if an UNLOCK signal is sent from remote controller again within 5 seconds, all other door will be unlocked.

EC

When an UNLOCK signal is sent from the remote controller for longer than 1.5 seconds, all doors will be unlocked.

Hazard and Horn Reminder

FE

Power is supplied at all times:

- to multi-remote control relay-1 terminals ①, ③ and ⑥
- through 10A fuse [No. 20 , located in the fuse block (J/B)], and
- to horn relay terminal ②
- through 10A fuse (No. 40 , located in the fusible link fuse box)

CL

MT

When smart entrance control unit receives LOCK or UNLOCK signal from remote controller with all doors closed, ground is supplied:

- to multi-remote control relay-1 terminal ②
- through smart entrance control unit terminal ⑭ (without vehicle security system), ⑦ (with vehicle security system)
- to horn relay terminal ①
- through smart entrance control unit terminal ⑨ (without vehicle security system), ⑧ (with vehicle security system).

AT

FA

Multi-remote control relay-1 and horn relay are now energized, and hazard warning lamp flashes and horn sounds as a reminder.

RA

The hazard and horn reminder has a horn chirp mode and a non-horn chip mode.

BR

ST

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MULTI-REMOTE CONTROL SYSTEM

System Description (Cont'd)

Operating function of hazard and horn reminder.

	Horn chirp mode		Non-horn chirp 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 remote controller for more than 2 seconds at the same time, the hazard and horn reminder mode is changed and hazard warning lamp flashes 3 times.

Trunk lid opener operation

Power is supplied at all times:

- through 10A fuse (No. 24, located in the fuse block (J/B))
- to trunk lid opener actuator terminal ③.

When a TRUNK OPEN signal is sent with key OFF (ignition key removed from key cylinder) from remote controller, ground is supplied:

- to trunk lid opener actuator terminal ①
- through smart entrance control unit terminal ⑤ (with vehicle security system), ⑦ (without vehicle security system).

Then power and ground are supplied and trunk lid opener actuator opens trunk lid.

Interior lamp operation

When the following input signals are both supplied:

- key switch OFF (when ignition key is not inserted in key cylinder);
- door switch CLOSED (when all the doors are closed);

multi-remote control system turns on the interior lamp (for 30 seconds) with input of UNLOCK signal from remote controller.

For detailed description, refer to "INTERIOR ROOM LAMP", EL-89.

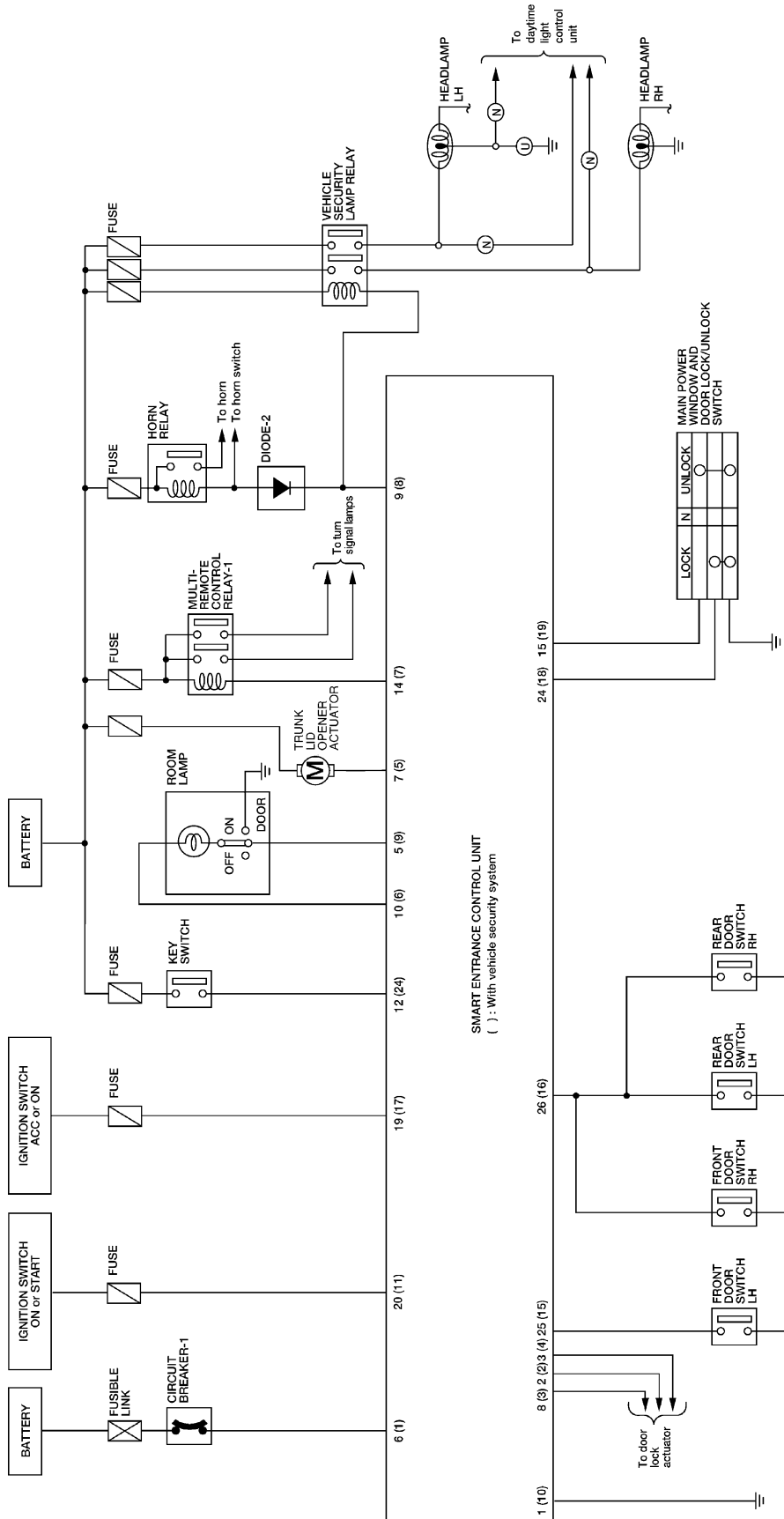
Panic alarm operation

When key switch is OFF (when ignition key is not inserted in key cylinder), multi-remote control system turns on and off the horn and headlamp intermittently with input of PANIC ALARM signal from remote controller.

For detailed description, refer to "VEHICLE SECURITY SYSTEM", EL-228.

MULTI-REMOTE CONTROL SYSTEM

Schematic

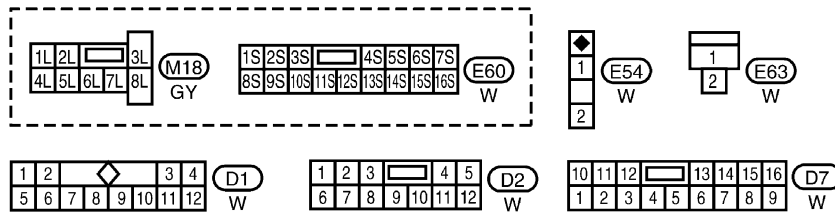
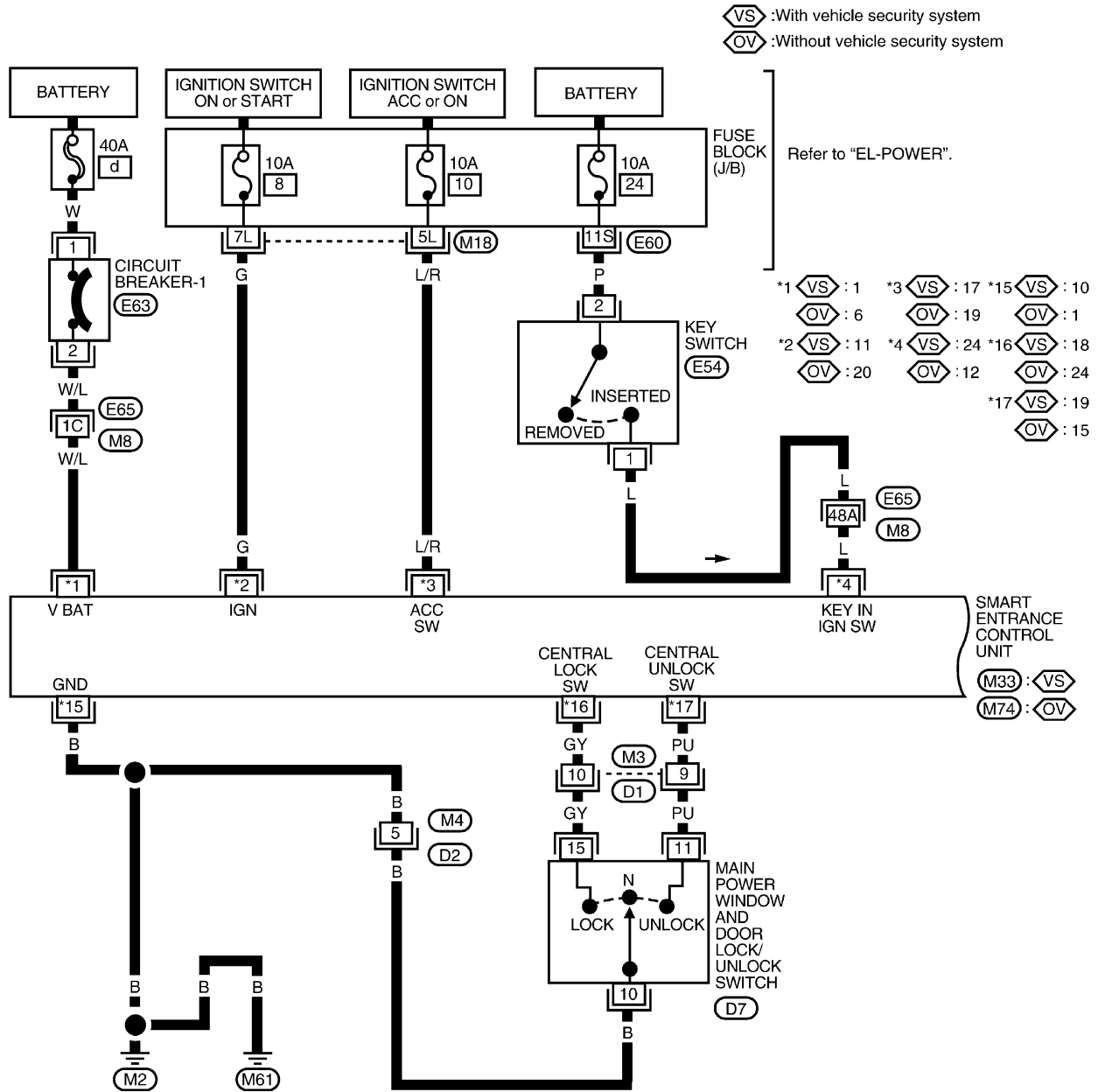


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MULTI-REMOTE CONTROL SYSTEM

Wiring Diagram — MULTI —

EL-MULTI-01

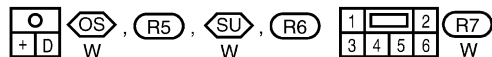
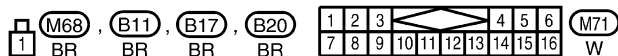
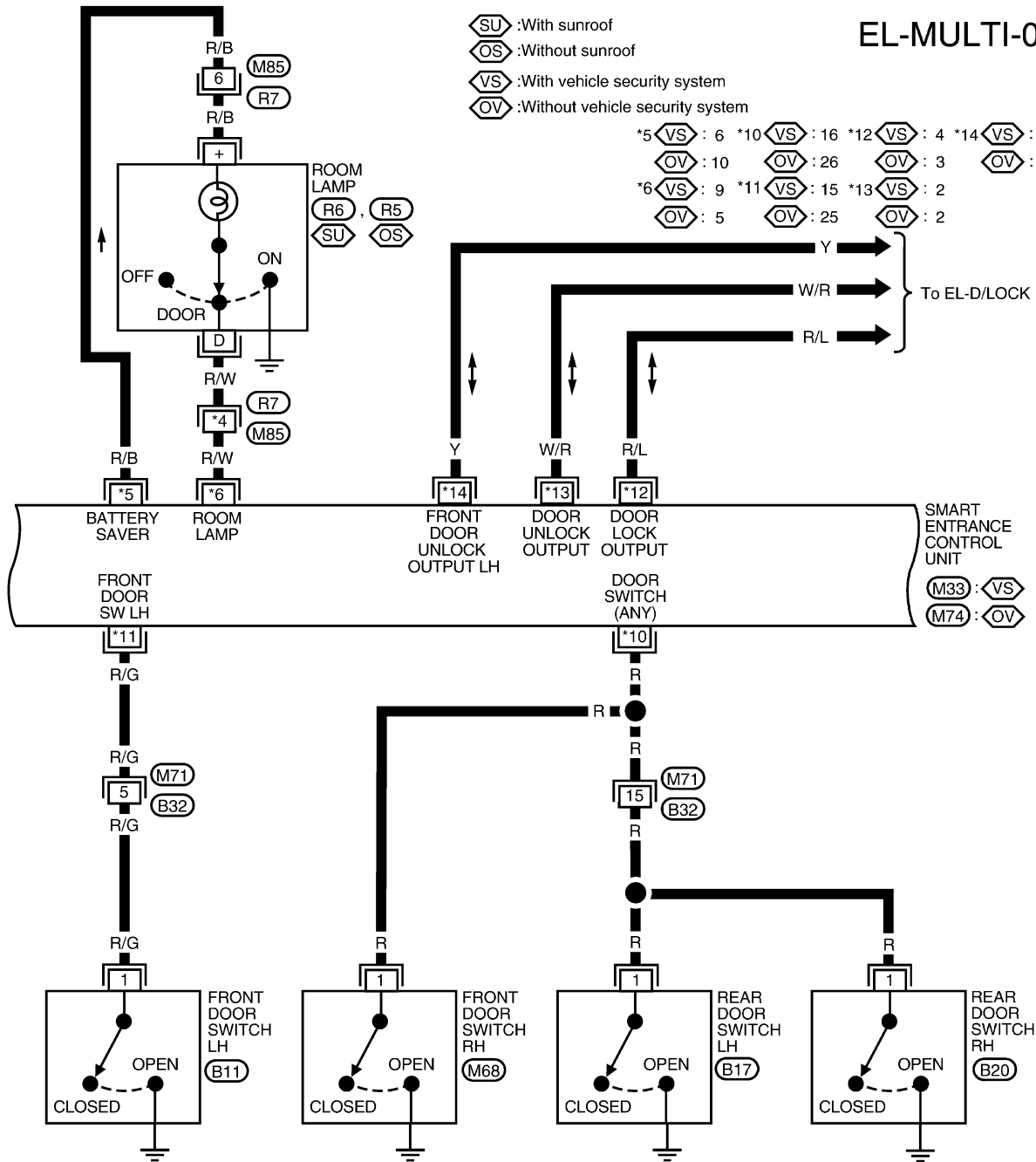


Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)
 (M33), (M74) - ELECTRICAL UNITS

MULTI-REMOTE CONTROL SYSTEM

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-02



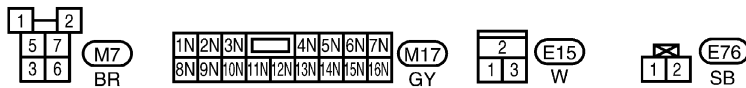
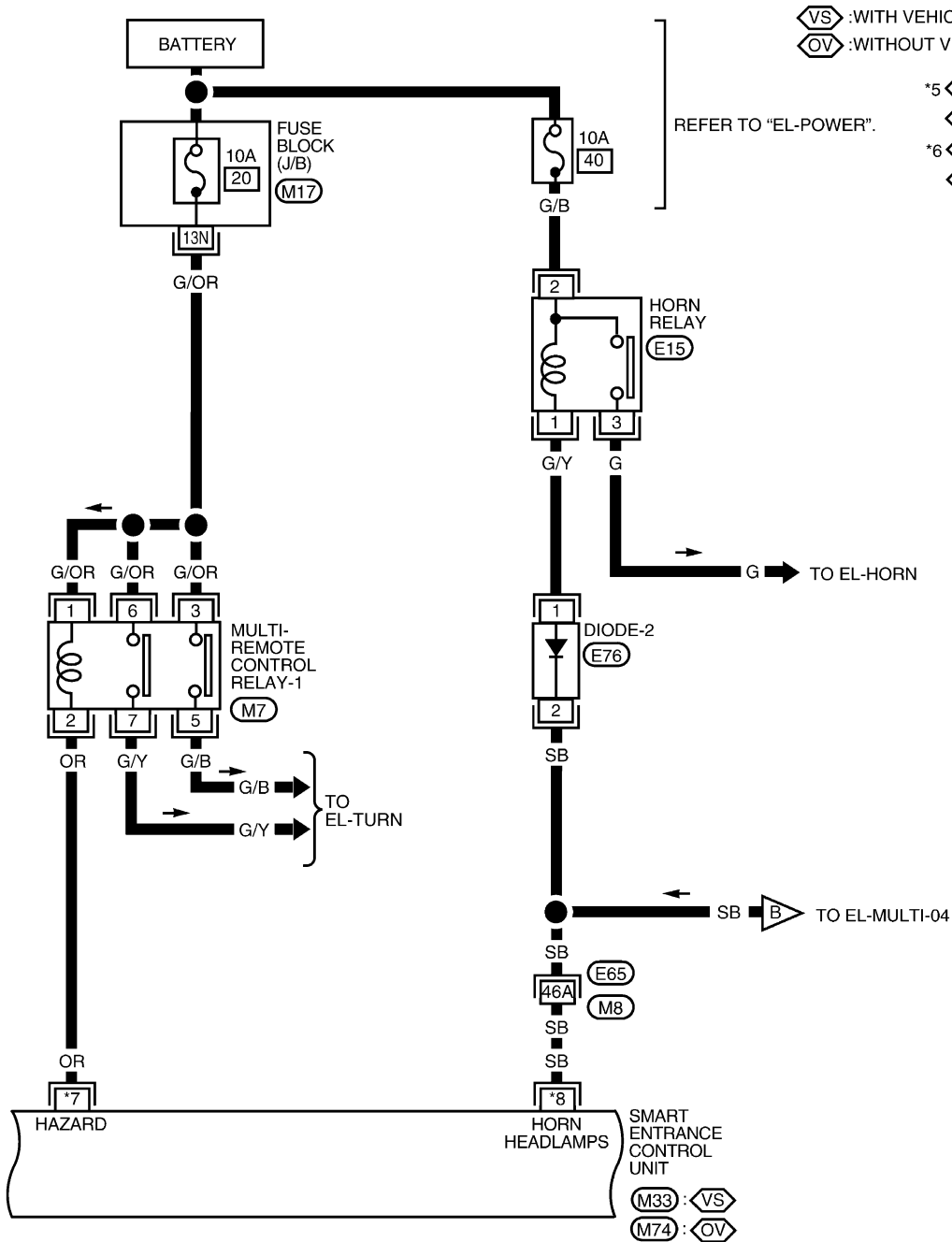
Refer to the following.
M33 , M74 - ELECTRICAL UNITS

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MULTI-REMOTE CONTROL SYSTEM

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-03



REFER TO THE FOLLOWING.

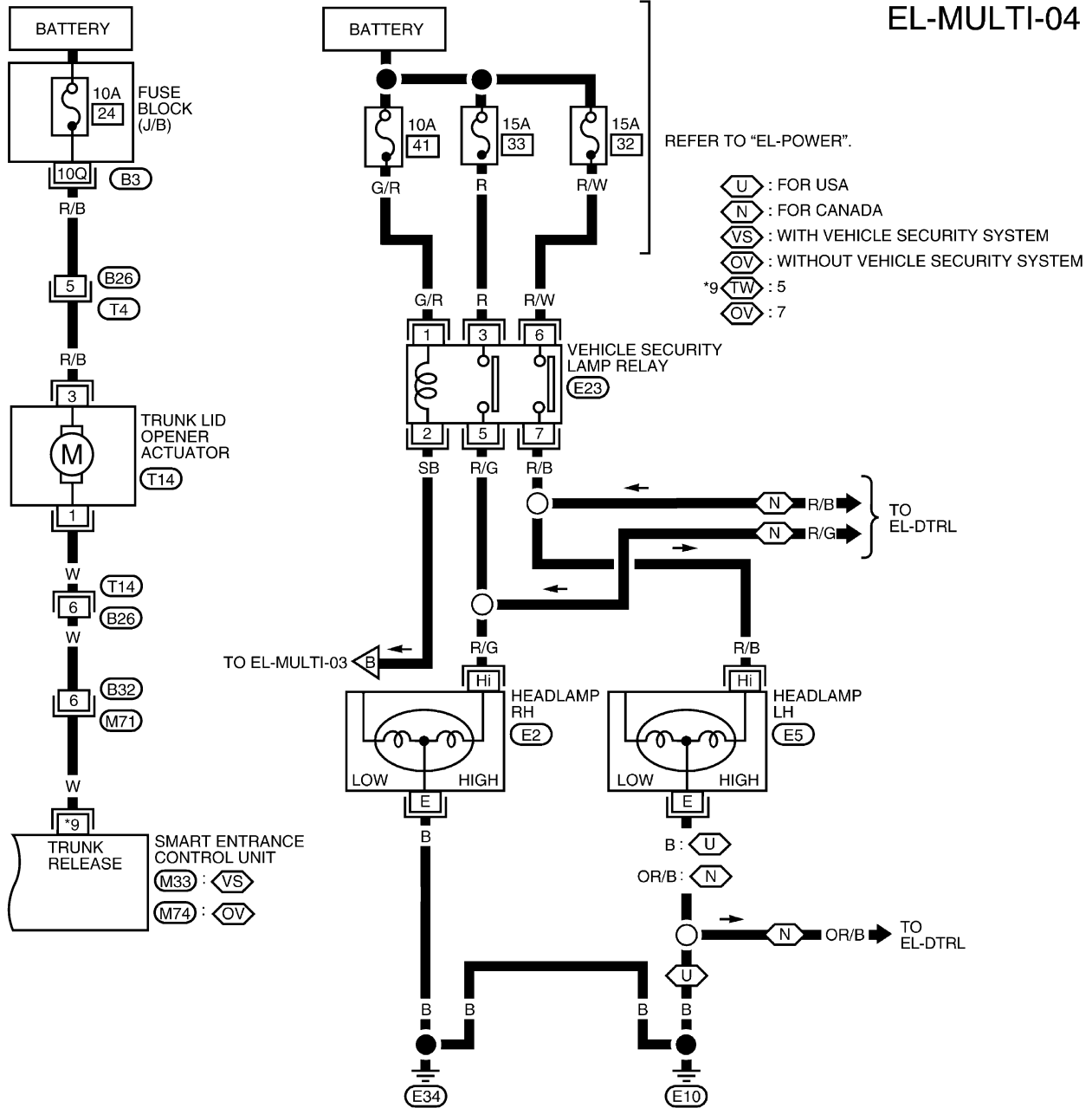
(M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

(M33), (M74) - ELECTRICAL UNITS

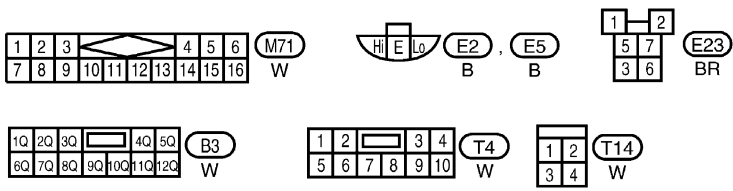
MULTI-REMOTE CONTROL SYSTEM

Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-04



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REFER TO THE FOLLOWING.
M33, M74 - ELECTRICAL UNITS

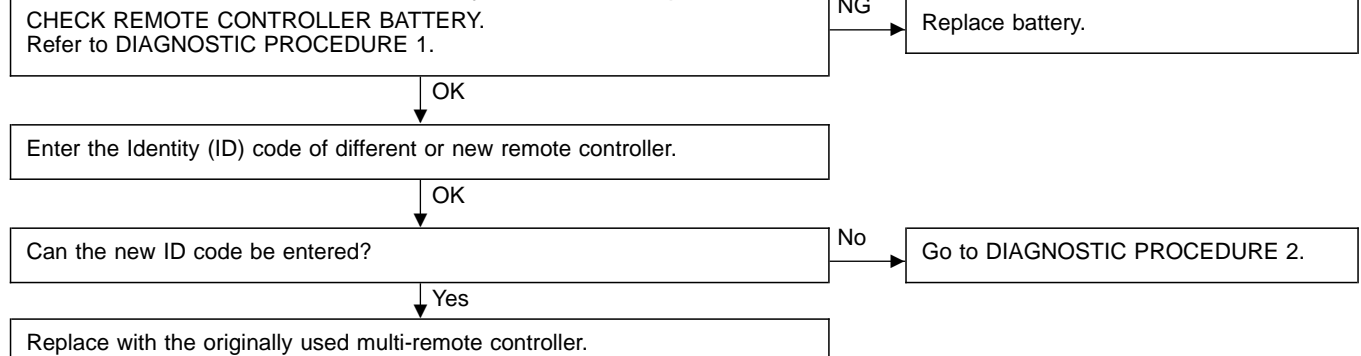
MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses

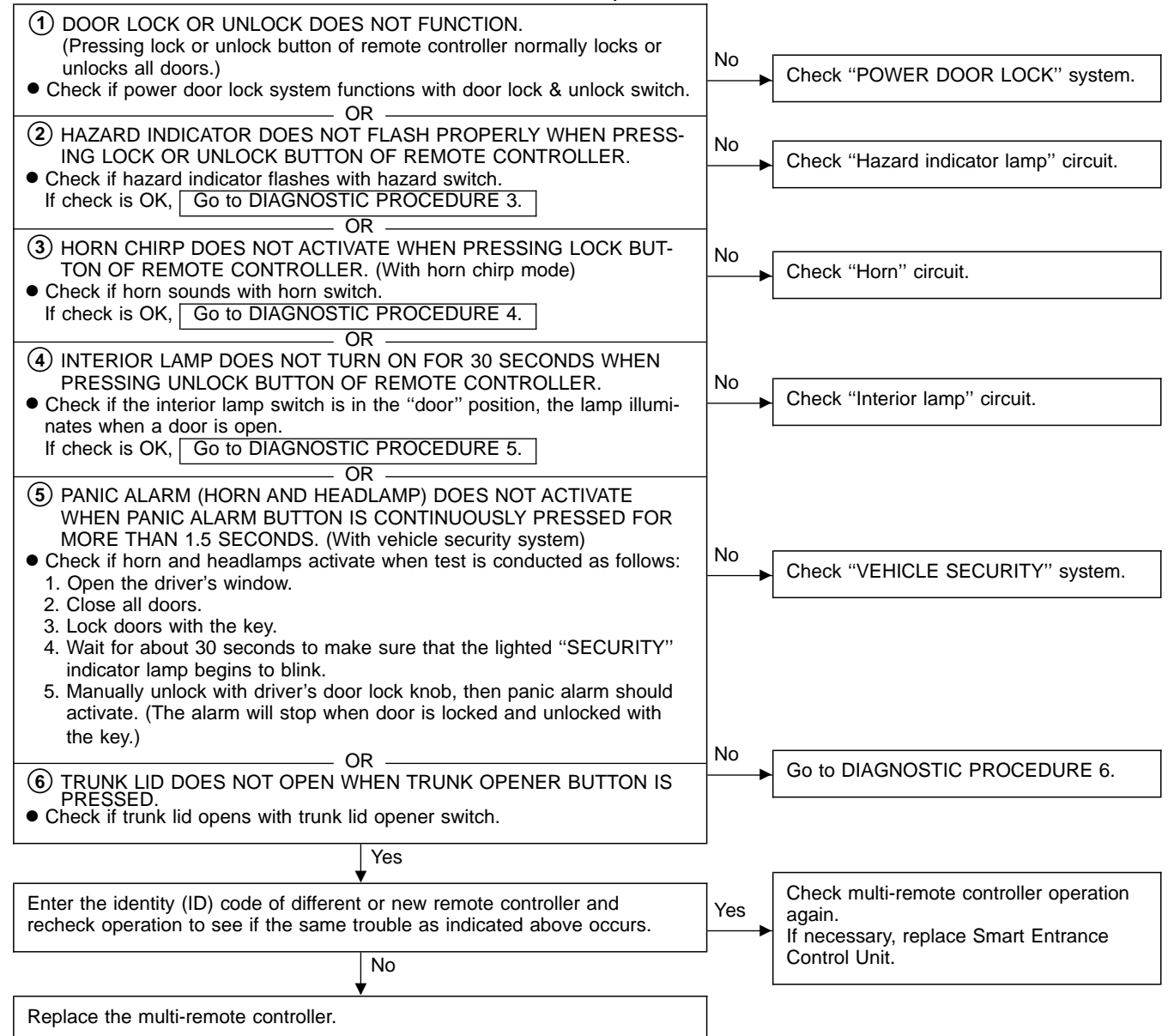
- Note:**
- Always check remote controller battery before replacing remote controller.
 - The lock operation of the multi-remote control system does not activate with the key inserted in the ignition key cylinder and one or more of the front doors are open.

TROUBLE SYMPTOM

- All functions of remote control system do not operate.



- Some functions of multi-remote controller do not operate.

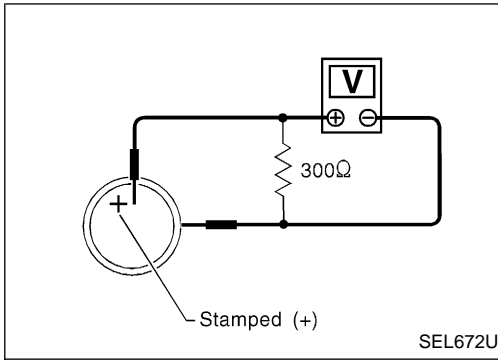


MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

Check remote controller battery.



CHECK REMOTE CONTROLLER BATTERY.

Remove battery and measure voltage across battery positive and negative terminals, ⊕ and ⊖.

Measuring terminal		Standard value
⊕	⊖	
Battery positive terminal	Battery negative terminal	2.5 - 3.0V
⊕	⊖	

Note:

Remote controller does not function if battery is not set correctly.

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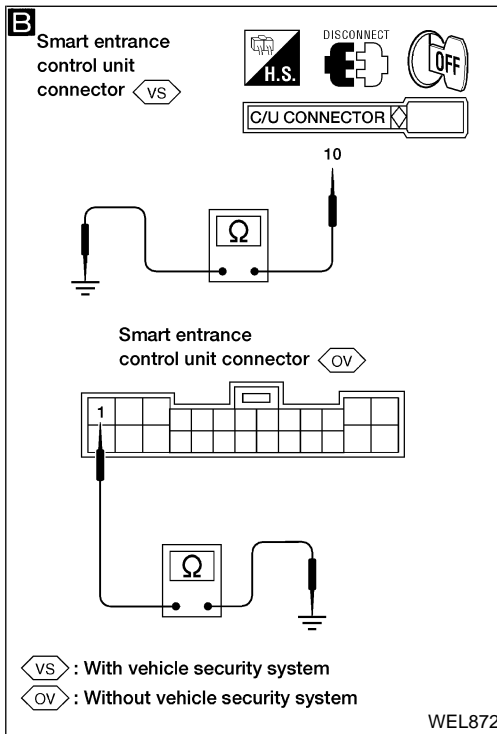
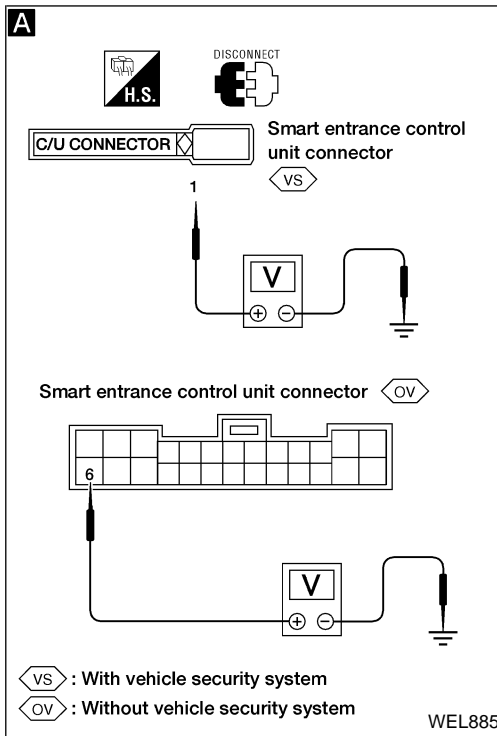
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MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 2

All remote controls do not function even if remote controller is operated properly.



A

CHECK MAIN POWER SUPPLY CIRCUIT FOR CONTROL UNIT.

1. Disconnect connector from smart entrance control unit.
2. Check voltage between smart entrance control unit (M33) terminal ① (W/L) (with vehicle security system), (M74) terminal ⑥ (W/L) (without vehicle security system) and ground.

Battery voltage should exist.

Refer to wiring diagram in EL-210.

NG

Check the following:

- 40A fusible link (Letter **d**, located in fuse and fusible link box)
- (E63) circuit breaker-1
- Harness for open or short between smart entrance control unit and fuse

OK

B

CHECK GROUND CIRCUIT FOR CONTROL UNIT.

Check continuity between smart entrance control unit (M33) terminal ⑩ (B) (with vehicle security system), (M74) terminal ① (B) (without vehicle security system) and ground.

Continuity should exist.

Refer to wiring diagram in EL-210.

NG

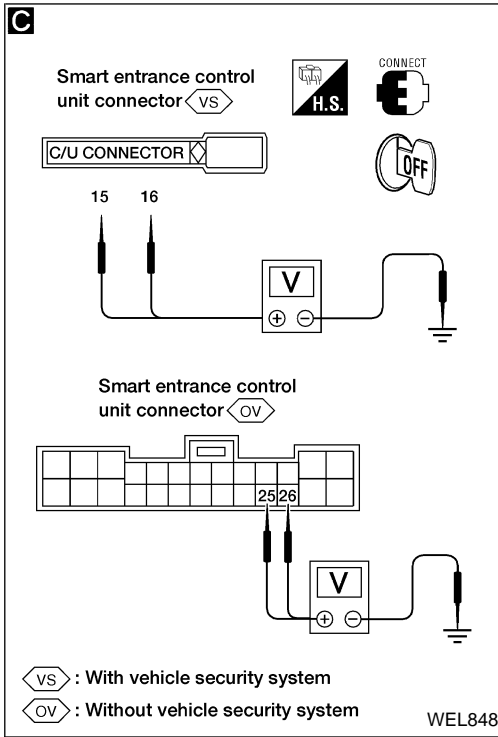
Check ground harness.

OK

Ⓐ

(Go to next page.)

MULTI-REMOTE CONTROL SYSTEM



A

C

CHECK DOOR SWITCH CIRCUIT.

1. Connect smart entrance control unit connector
2. Check voltage between smart entrance control unit terminal and GND.

- With vehicle security system

	Terminals		Condition	Voltage [V]
	Con- nector	Termi- nal (Wire color)		
Front LH door switch	M33	⓫ (R/G)	Open	0
			Closed	Approx. 12
Front RH and rear door switches	M33	⓬ (R)	Open	0
			Closed	Approx. 12

- Without vehicle security system

	Terminals		Condition	Voltage [V]
	Con- nector	Termi- nal (Wire color)		
Front LH door switch	M74	⓫ (R/G)	Open	0
			Closed	Approx. 12
Front RH and rear door switches	M74	⓬ (R)	Open	0
			Closed	Approx. 12

Refer to wiring diagram in EL-211.

NG → Check the following.

- Door switch
- Door switch ground condition
- Harness for open or short between smart entrance control unit and door switch

OK

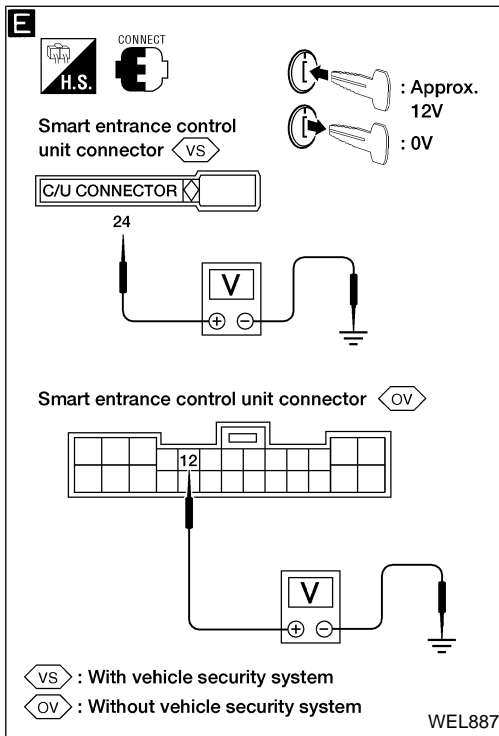
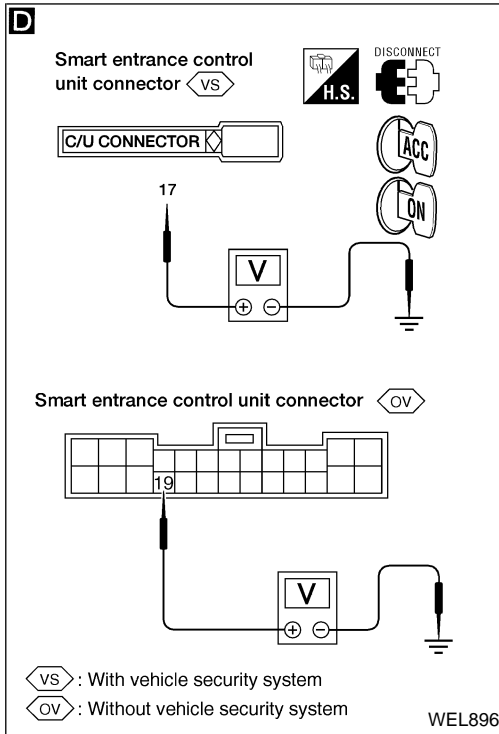
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MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses (Cont'd)



D

CHECK IGNITION SWITCH ACC OR ON CIRCUIT.

1. Disconnect smart entrance control unit connector.
2. Check voltage between smart entrance control unit **M33** terminal **17** (L/R) (with vehicle security system), **M74** terminal **19** (L/R) (without vehicle security system) and ground while ignition switch is in ACC or ON position.
Battery voltage should exist.

Refer to wiring diagram in EL-210.

NG → Check the following:

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

E

CHECK KEY SWITCH INPUT SIGNAL.

1. Connect smart entrance control unit connector.
2. Check voltage between smart entrance control unit **M33** terminal **24** (L) (with vehicle security system), **M74** terminal **12** (L) (without vehicle security system) and ground.

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

Refer to wiring diagram in EL-210.

NG → Check the following:

- 10A fuse [No. **24**, located in fuse block (J/B)]
- Key switch
Refer to "Electrical Components Inspection", EL-224.
- Harness for open or short between key switch and fuse
- Harness for open or short between smart entrance control unit and key switch

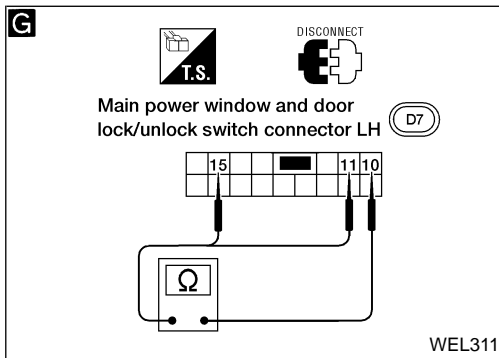
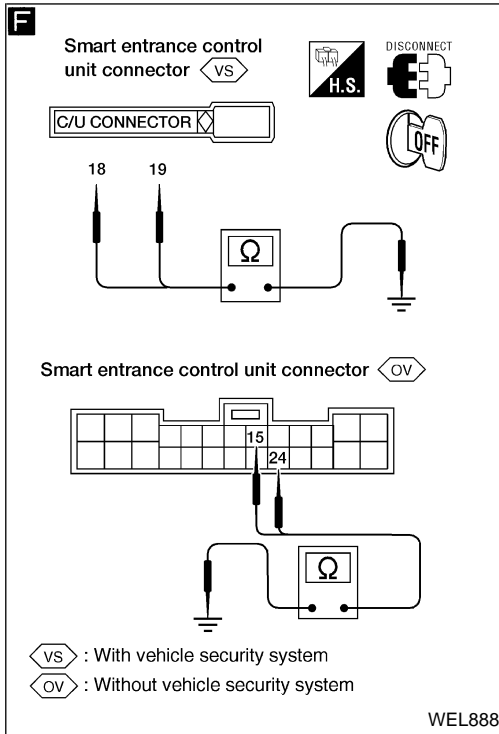
OK

C

(Go to next page.)

MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses (Cont'd)



C

F

CHECK DOOR LOCK/UNLOCK SWITCH INPUT SIGNAL.

1. Disconnect smart entrance control unit connector.

2. Check continuity between smart entrance control unit terminals and ground.

- With vehicle security system

Terminals (Connector, Wire color)	Door lock/unlock switch LH condition	Continuity
⑱ (M33, GY) - Ground	Lock	Yes
	N and Unlock	No
⑲ (M33, PU) - Ground	Unlock	Yes
	N and Lock	No

- Without vehicle security system

Terminals (Connector, Wire color)	Door lock/unlock switch LH condition	Continuity
⑳ (M74, GY) - Ground	Lock	Yes
	N and Unlock	No
㉑ (M74, PU) - Ground	Unlock	Yes
	N and Unlock	No

Refer to wiring diagram in EL-194.

OK → Door lock/unlock switch is OK.

NG

G

CHECK DOOR LOCK/UNLOCK SWITCH.

1. Disconnect door lock/unlock switch connector.

2. Check continuity between door lock/unlock switch terminals.

- Door lock/unlock switch LH

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

NG → Replace door lock/unlock switch.

OK → Check the following.

- Ground circuit for door lock/unlock switch
- Harness for open or short between door lock/unlock switch and smart entrance control unit connector

OK → Check operation parts in multi-remote control system for function.

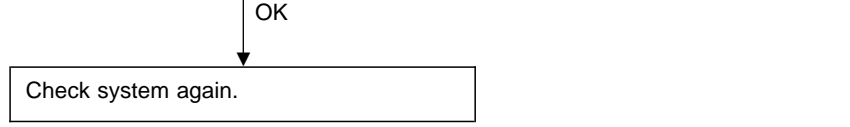
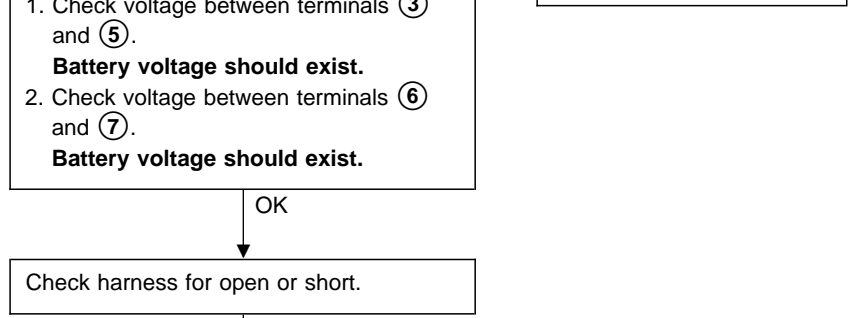
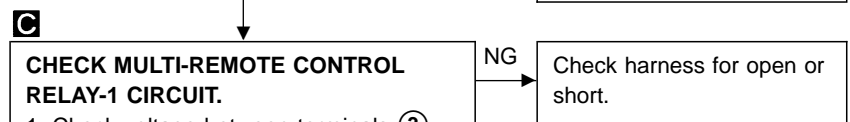
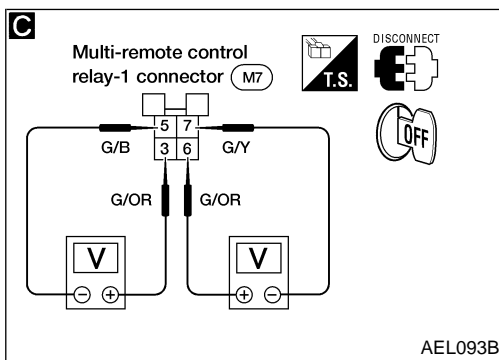
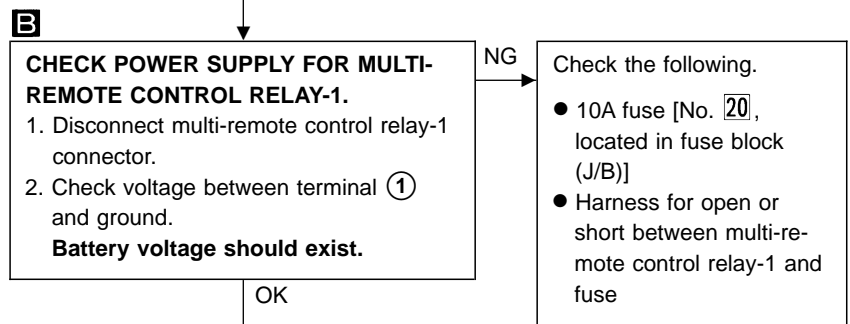
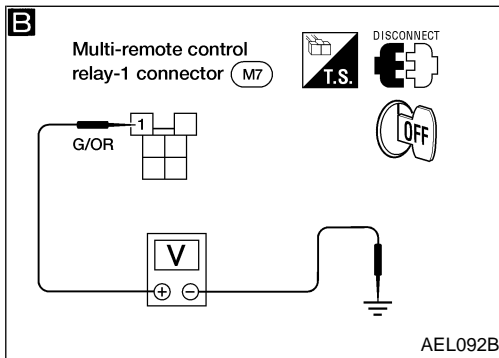
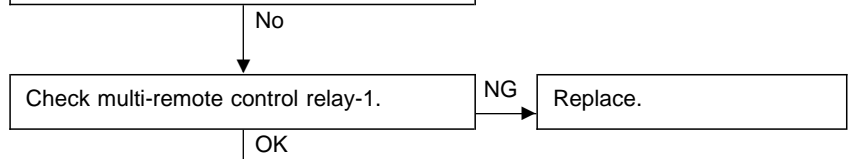
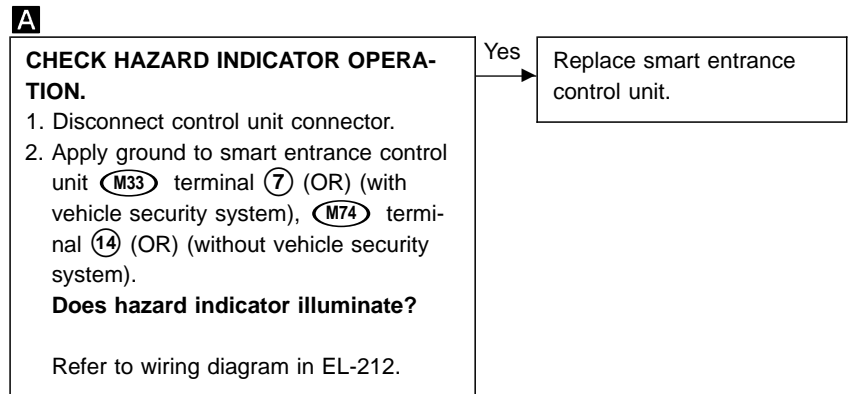
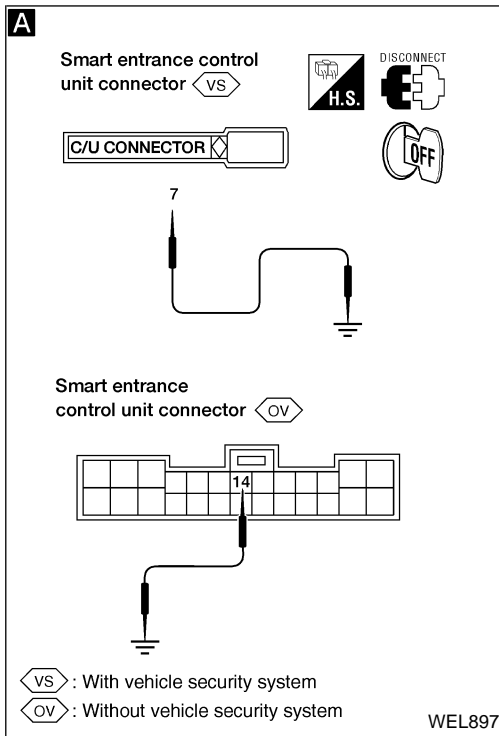
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MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

Hazard indicator does not flash twice when pressing lock button of remote controller. Everything else functions.



MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

Horn chirp does not activate when pressing lock button of remote controller. (With horn chirp mode)

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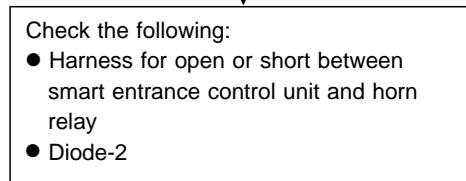
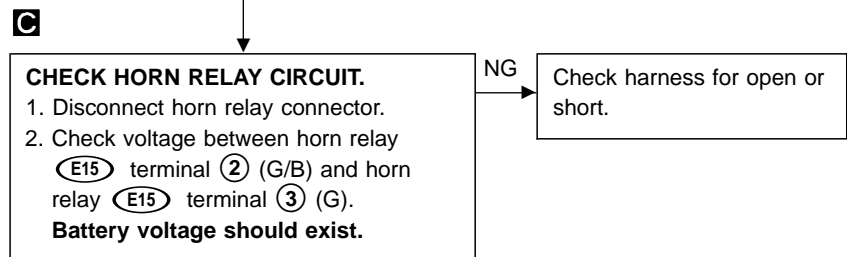
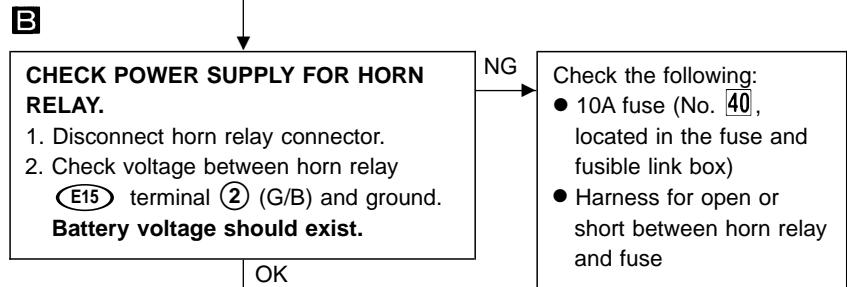
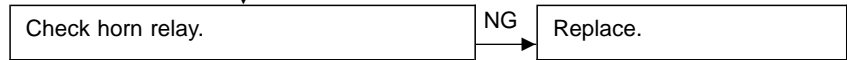
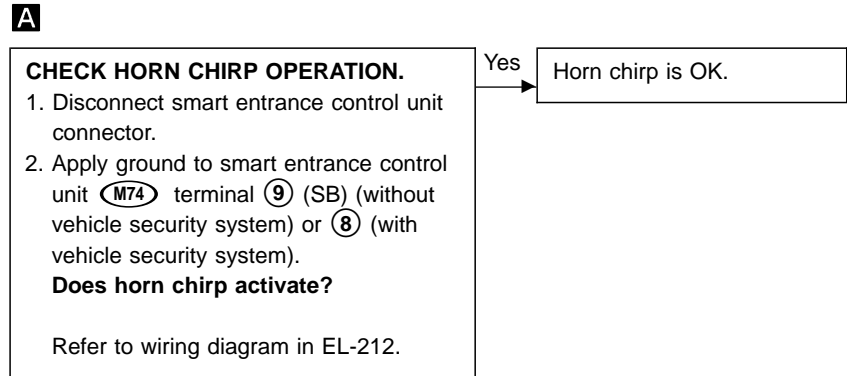
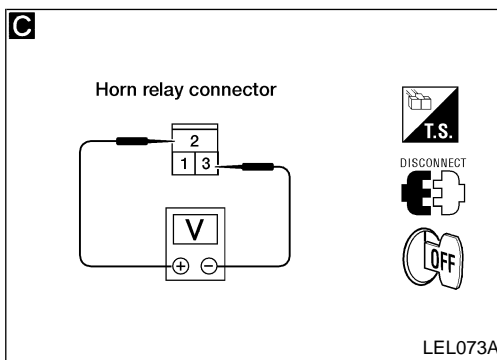
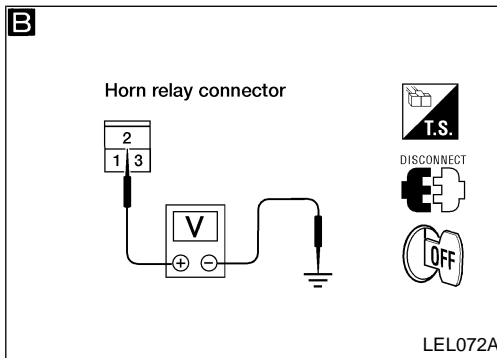
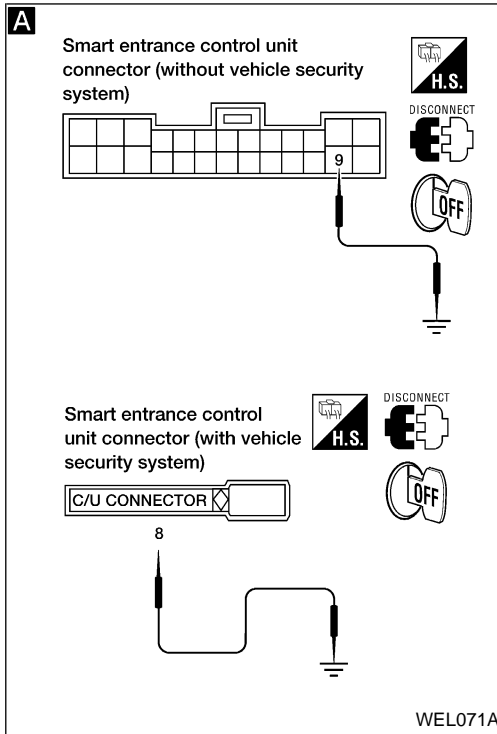
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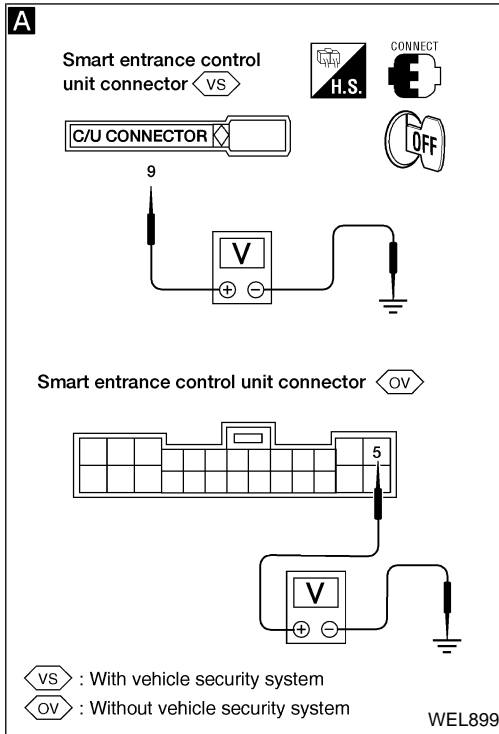


MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

Room lamp does not turn on for 30 seconds when pressing unlock button of remote controller. Everything else functions.



A

CHECK ROOM LAMP CIRCUIT.

When room lamp switch is in DOOR position, check voltage between smart entrance control unit **M33** terminal **9** (R/W) (with vehicle security system), **M74** terminal **5** (R/W) (without vehicle security system) and ground.

Does battery voltage exist?

Refer to wiring diagram in EL-212.

No

Repair harness between smart entrance control unit and room lamp.

Yes

A

Push unlock button of remote controller with all doors closed and check voltage between smart entrance control unit **M33** terminal **9** (R/W) (with vehicle security system), **M74** terminal **5** (R/W) (without vehicle security system) and ground.

No

Check harness for open or short between room lamp and smart entrance control unit.

Multi-remote controller button condition	Voltage (V)
Unlock button is pushed.	0
Unlock button is not pushed.	Battery voltage

Yes

Check system again.

MULTI-REMOTE CONTROL SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

Trunk lid does not open when trunk opener button is pressed.

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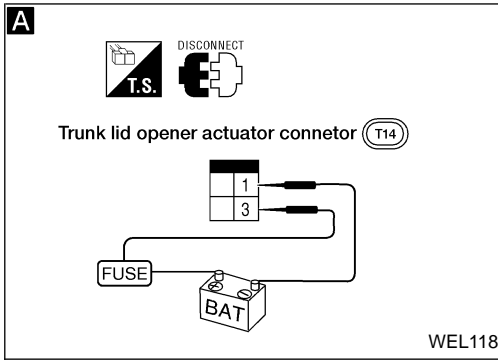
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A

CHECK TRUNK LID OPENER ACTUATOR.

1. Disconnect trunk lid opener actuator connector.
2. Check to see if trunk lid opens when 12V DC is applied across trunk lid opener actuator connector terminals ① and ③.

Refer to wiring diagram in EL-213.

NG

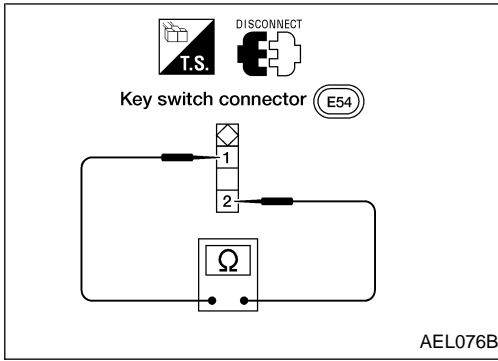
Replace trunk lid opener actuator.

OK

Check the following.

- 10A fuse [No. 24], located in fuse block (J/B)
- Harness for open or short between fuse and trunk lid opener actuator
- Harness for open or short between trunk lid opener actuator and smart entrance control unit

MULTI-REMOTE CONTROL SYSTEM



Electrical Components Inspection

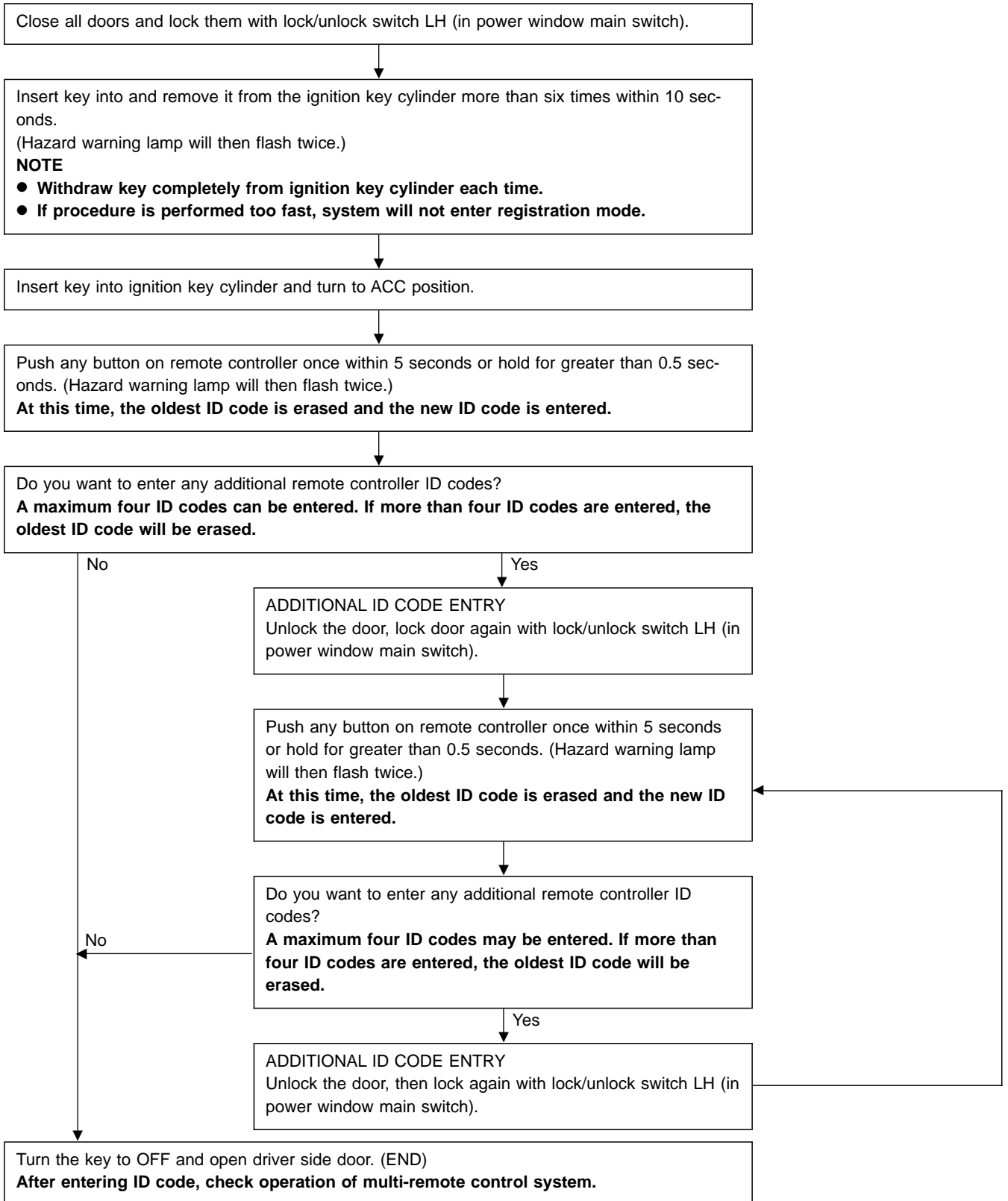
KEY SWITCH (insert)

Check continuity between terminals when key is inserted in ignition key cylinder and key is removed from ignition key cylinder.

Terminal No.	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is removed.	No

MULTI-REMOTE CONTROL SYSTEM

ID Code Entry Procedure



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MULTI-REMOTE CONTROL SYSTEM

ID Code Entry Procedure (Cont'd)

NOTE:

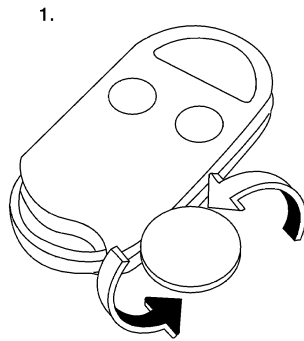
- If a remote controller is lost, the ID code of the lost remote controller must be erased to prevent unauthorized use. To erase all ID codes in memory, register one ID code (remote controller) four times. After all ID codes are erased, the ID codes of all remaining and/or new remote controllers must be re-registered.
- When registering an additional remote controller, the existing ID codes in memory may or may not be erased. If four ID codes are stored in memory, when an additional code is registered, only the oldest code is erased. If less than four ID codes are stored in memory, when an additional ID code is registered, the new ID code is added and no ID codes are erased.
- If you need to activate more than two additional new remote controllers, repeat the procedure "Additional ID code entry" for each new remote controller.
- Entry of maximum four ID codes is allowed. When more than four ID codes are entered, the oldest ID code will be erased.
- Even if the same ID code that is already in the memory is input, the same ID code can be entered. The code is counted as an additional code.

MULTI-REMOTE CONTROL SYSTEM

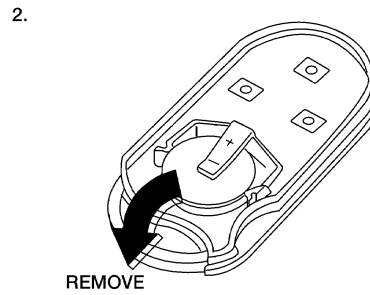
Remote Controller Battery Replacement

NOTE:

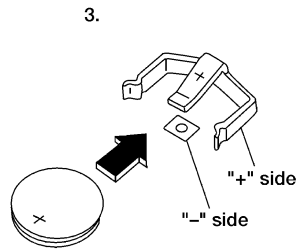
- Be careful not to touch the circuit board or battery terminal.
- The remote controller is water-resistant. However, if it does get wet, immediately wipe dry.



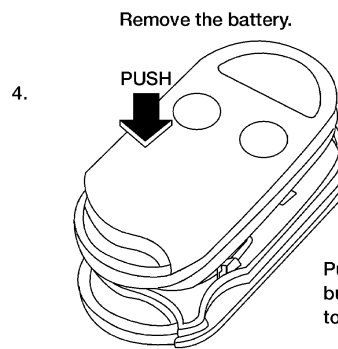
Open the lid using a coin.



REMOVE



Insert the new battery.



Close the lid securely.

Push the remote controller button two or three times to check its operation.

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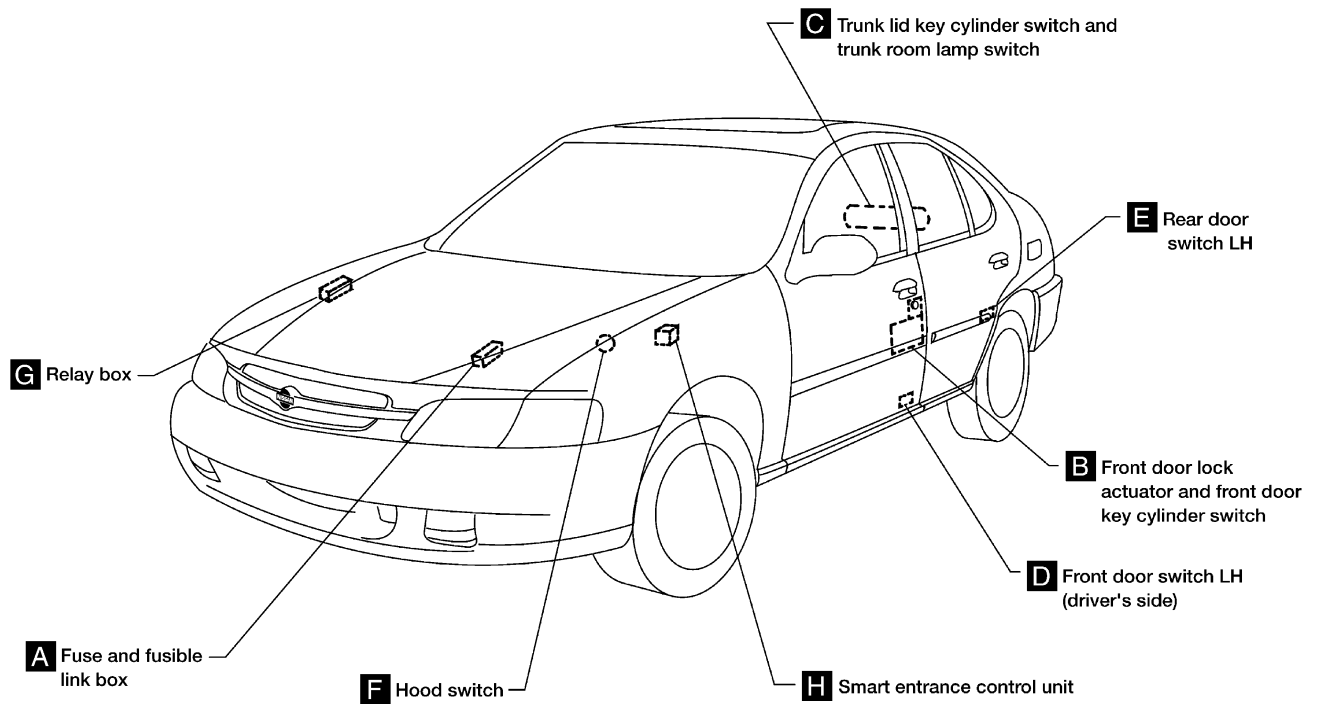
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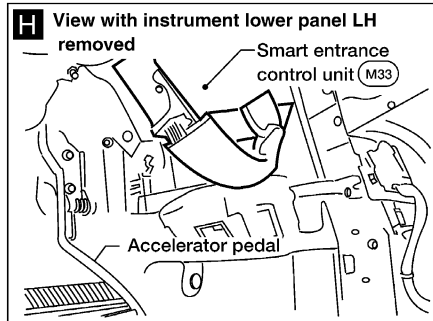
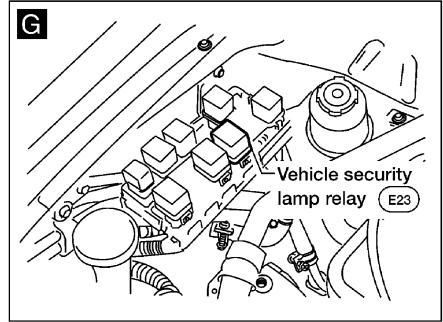
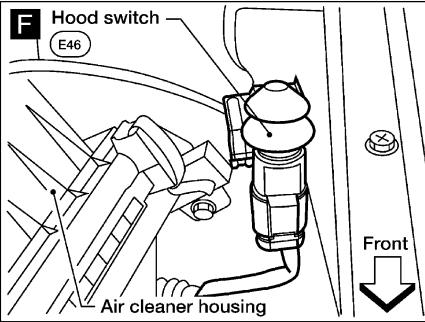
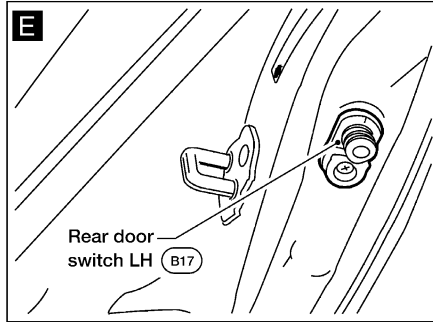
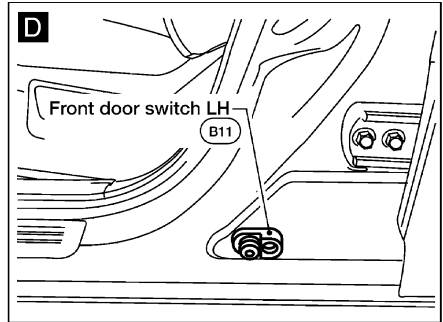
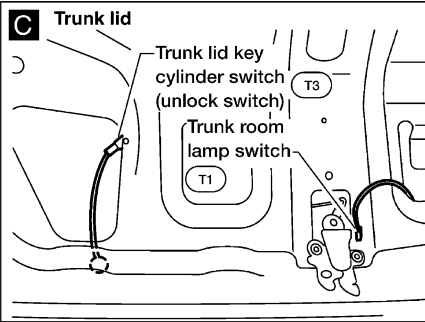
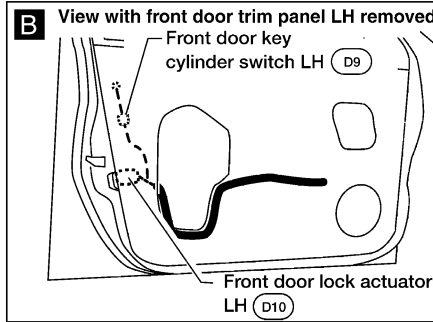
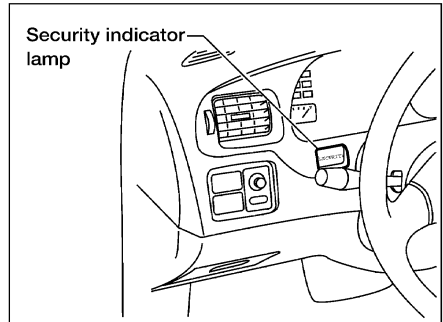
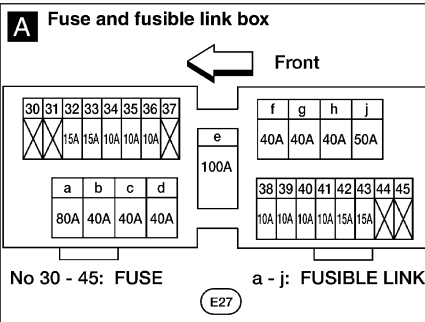
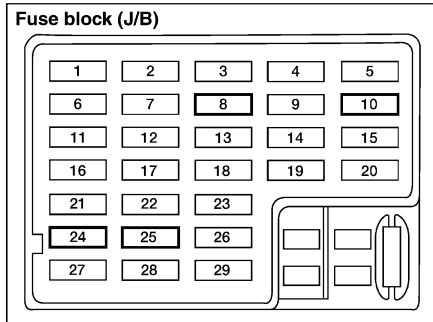
VEHICLE SECURITY (THEFT WARNING) SYSTEM

Component Parts and Harness Connector Location



VEHICLE SECURITY (THEFT WARNING) SYSTEM

Component Parts and Harness Connector Location (Cont'd)

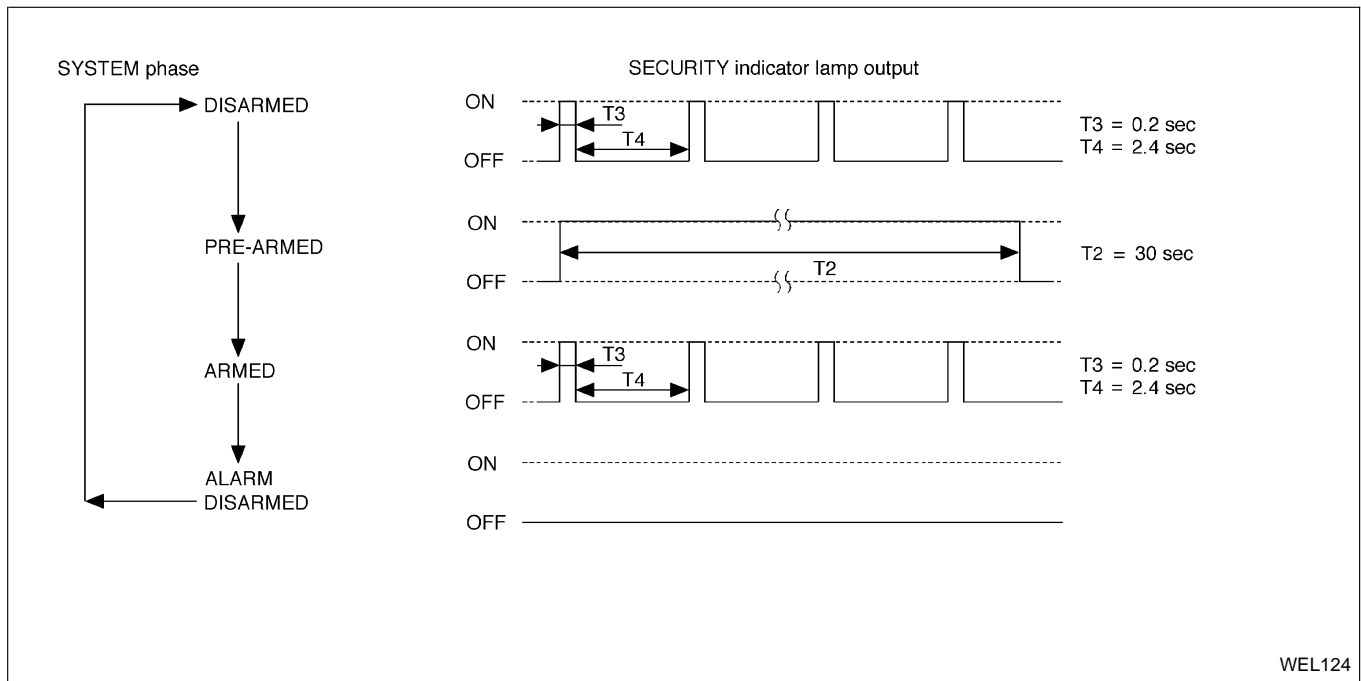


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VEHICLE SECURITY (THEFT WARNING) SYSTEM

System Description

OPERATION FLOW



SETTING THE VEHICLE SECURITY SYSTEM

Initial condition

- (1) Close all doors.
- (2) Close hood and trunk lid.

Disarmed phase

When the vehicle security system is in the disarmed phase, the security indicator lamp blinks every 2.6 seconds.

Pre-armed phase and armed phase

The vehicle security system turns into the “pre-armed” phase when hood, trunk lid and all doors are closed and locked by key or multi-remote controller. (The security indicator lamp illuminates.)

After about 30 seconds, the system automatically shifts into the “armed” phase (the system is set). (The security indicator lamp blinks every 2.6 seconds.)

CANCELING THE SET VEHICLE SECURITY SYSTEM

When the following (a) or (b) operation is performed, the armed phase is canceled.

- (a) Unlock the doors with the key or multi-remote controller.
- (b) Open the trunk lid with the key or multi-remote controller.

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 (a) or (b) is performed, the system sounds the horn and flashes the headlamps for about 2.5 minutes.

- (a) Engine hood, trunk lid or any door is opened before unlocking door with key or multi-remote controller.
- (b) Driver's door is unlocked without using key or multi-remote controller.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

System Description (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times:

- through 10A fuse [No. 24, located in the fuse block (J/B)]
- to security indicator lamp terminal ① and
- to key switch terminal ②.

When the key switch is ON (ignition key is inserted in key cylinder), power is supplied:

- through key switch terminal ①
- to smart entrance control unit terminal 24.

Power is supplied at all times:

- through 40A fusible link (letter d, located in the fuse and fusible link box)
- to circuit breaker-1 terminal ①
- through circuit breaker-1 terminal ②
- to smart entrance control unit terminal ①.

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

- through 10A fuse [No. 10, located in the fuse block (J/B)]
- to smart entrance control unit terminal 17.

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

- through 10A fuse [No. 8, located in the fuse block (J/B)]
- to smart entrance control unit terminal 11.

Ground is supplied:

- to smart entrance control unit terminal 10
- through body grounds M2 and M61 .

INITIAL CONDITION TO ACTIVATE THE SYSTEM

The operation of the vehicle security system is controlled by the doors, hood and trunk lid.

To activate the vehicle security system, the smart entrance control unit must receive signals indicating the doors, hood and trunk lid are closed and the driver's door is locked.

When a door is open, smart entrance control unit terminals 15 or 16 receives a ground signal from each door switch.

When a door is unlocked, smart entrance control unit terminal 14 receives a ground signal:

- from terminal ④ of front door door unlock sensor LH
- through terminal ② of front door door unlock sensor LH
- through body grounds M2 and M61 for the front door unlock sensor LH.

When the hood is open, smart entrance control unit terminal 29 receives a ground signal:

- from terminal ① of the hood switch
- through terminal ② of the hood switch
- through body grounds E34 and E10 .

When the trunk lid is open, smart entrance control unit terminal 26 receives a ground signal:

- from terminal ① of the trunk room lamp switch
- through terminal ② of the trunk room lamp switch
- through body grounds T6 and T9 .

When the vehicle security system is in disarmed phase, if one of the described conditions exist, the security indicator lamp will blink every 2.6 seconds.

VEHICLE SECURITY SYSTEM ACTIVATION (With key or remote controller used to lock doors)

If the key is used to lock doors, smart entrance control unit terminal 30 receives a ground signal:

- from terminal ① of the front door key cylinder switch LH
- through terminal ② of the front door key cylinder switch LH
- through body grounds M2 and M61 .

If this signal or lock signal from remote controller 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 33 supplies ground to terminal ② of the security indicator lamp.

The security indicator lamp will illuminate for approximately 30 seconds and then blink every 2.6 seconds. Now the vehicle security system is in armed phase.

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

System Description (Cont'd)

VEHICLE SECURITY SYSTEM ALARM OPERATION

The vehicle security system is triggered by:

- opening a door
- opening the trunk lid
- opening the hood
- unlocking driver's door without using the key or multi-remote controller.

Once the vehicle security system is in armed phase, if the smart entrance control unit receives a ground signal at terminal ⑭ (door unlock sensor LH), ⑮, ⑯ (door switch), ⑳ (trunk room lamp switch) or ㉑ (hood switch), the vehicle security system will be triggered. The headlamps flash and the horns sound intermittently.

Power is supplied at all times:

- through 10A fuse (No. 41, located in fuse and fusible link box)
- to vehicle security lamp relay terminal ①.

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

- from terminal ⑧ of the smart entrance control unit
- to vehicle security lamp relay terminal ② and
- to horn relay terminal ①.

The headlamps flash and the horn sound intermittently.

The alarm automatically turns off after 2 or 3 minutes but will reactivate if the vehicle is tampered with again.

VEHICLE SECURITY SYSTEM DEACTIVATION

To deactivate the vehicle security system, a door or the trunk lid must be unlocked with the key or remote controller.

When the key is used to unlock a door, smart entrance control unit terminal ⑳ receives a ground signal:

- from terminal ③ of the front door key cylinder switch LH
- through terminal ② of the front door key cylinder switch LH
- through body grounds M2 and M61.

When the key is used to unlock the trunk lid, smart entrance control unit terminal ㉑ receives a ground signal:

- from terminal ① of the trunk lid key cylinder switch
- through terminal ② of the trunk lid key cylinder switch
- through body grounds T6 and T9.

When the smart entrance control unit receives either one of these signals or unlock signal from remote controller, the vehicle security system is deactivated. (Disarmed phase)

PANIC ALARM OPERATION

Multi-remote control system may or may not operate vehicle security system (horn and headlamps) as required.

When the multi-remote control system is triggered, ground is supplied intermittently:

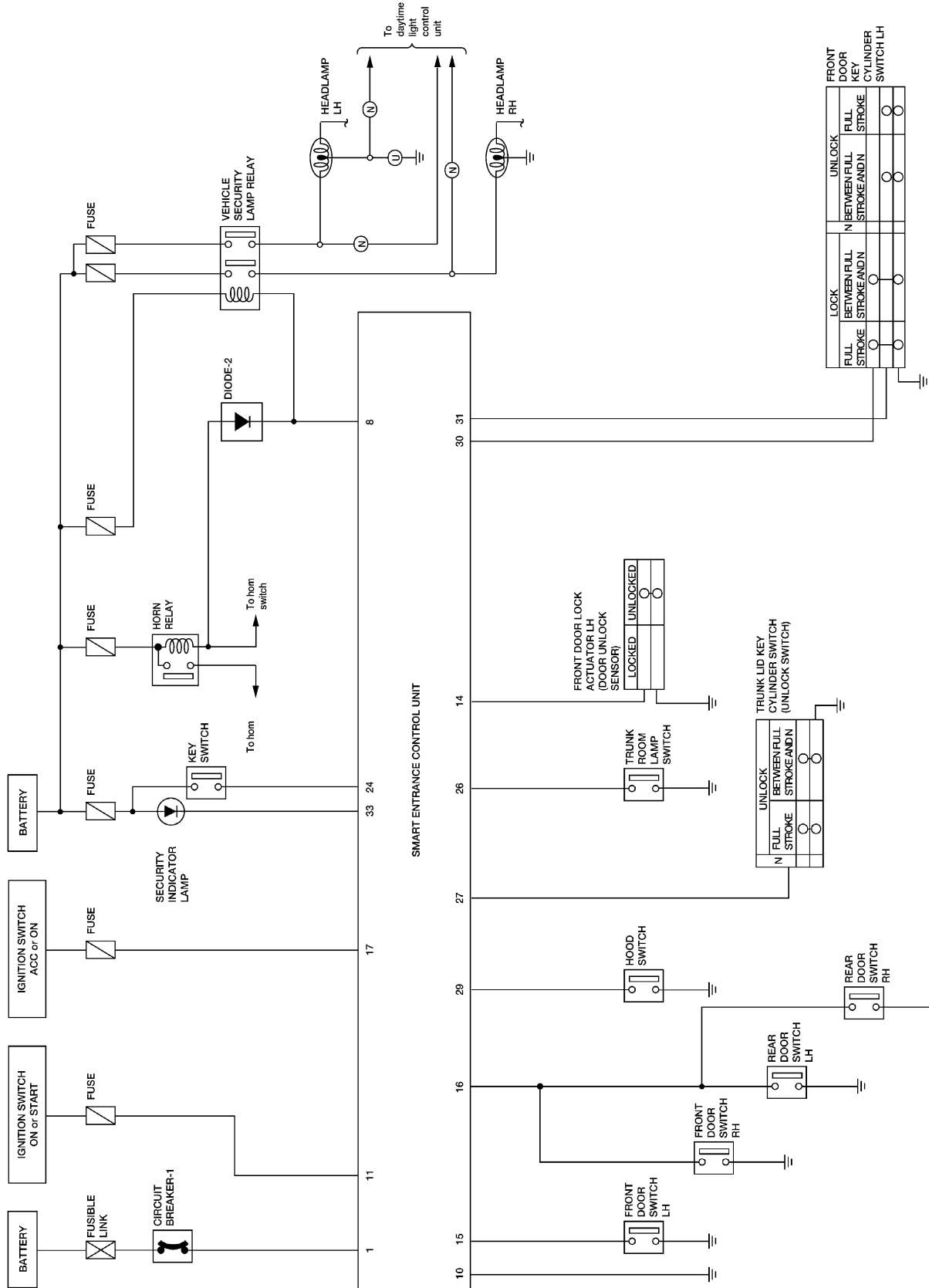
- from smart entrance control unit terminal ⑧
- to vehicle security lamp relay terminal ② and
- to horn relay terminal ①.

The headlamp flashes and the horn sounds intermittently.

The alarm automatically turns off after 30 seconds or when smart entrance control unit receives any signal from multi-remote controller.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Schematic

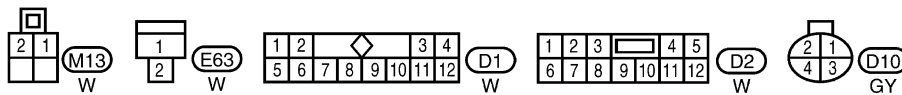
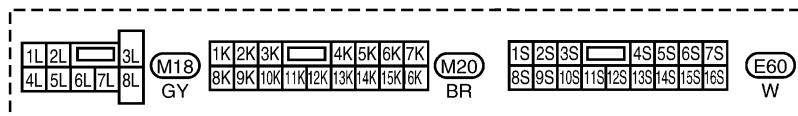
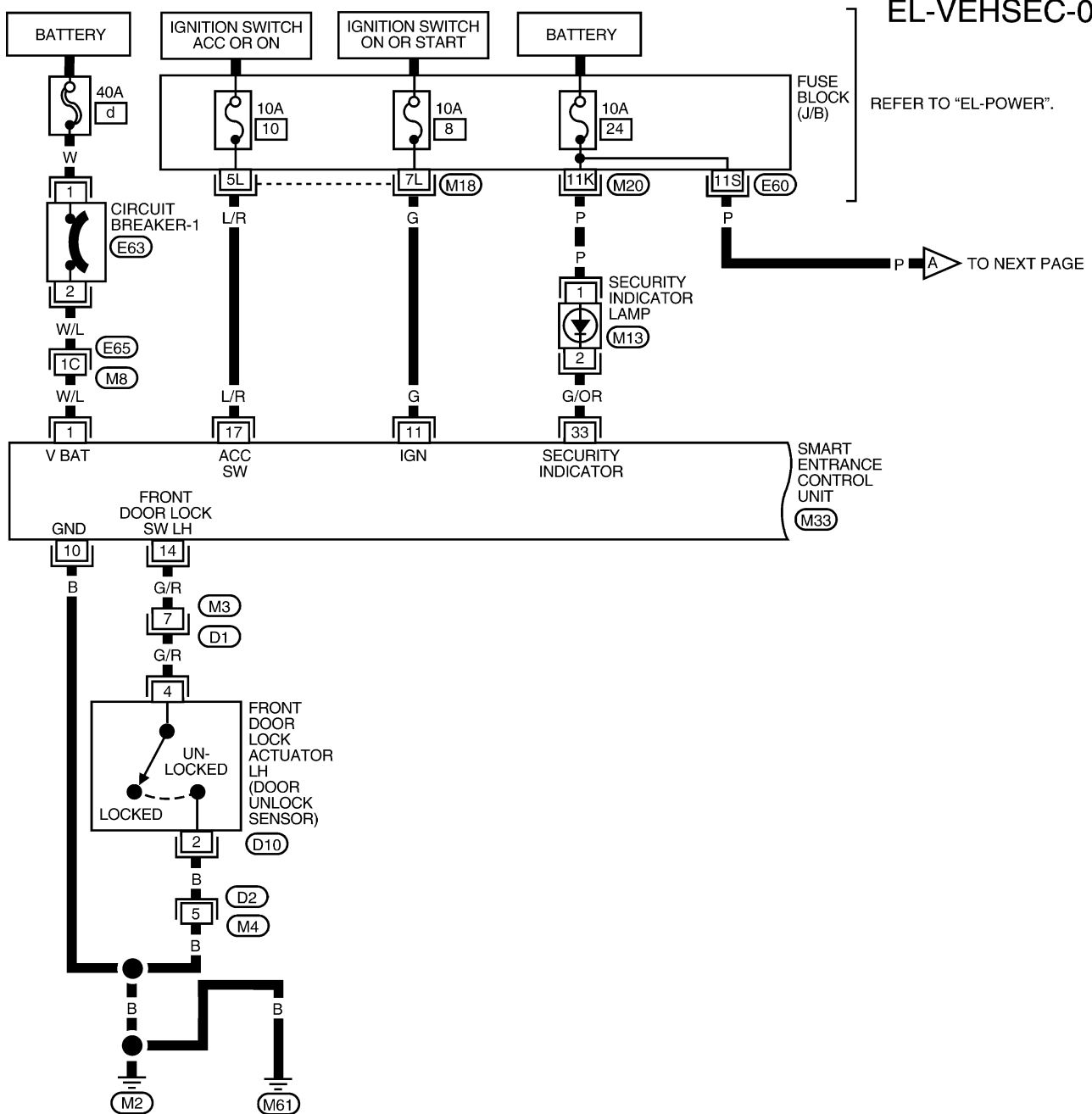


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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Wiring Diagram — VEHSEC —

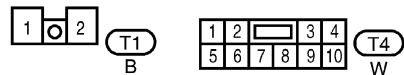
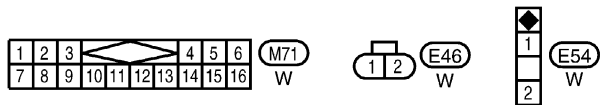
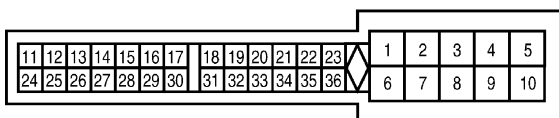
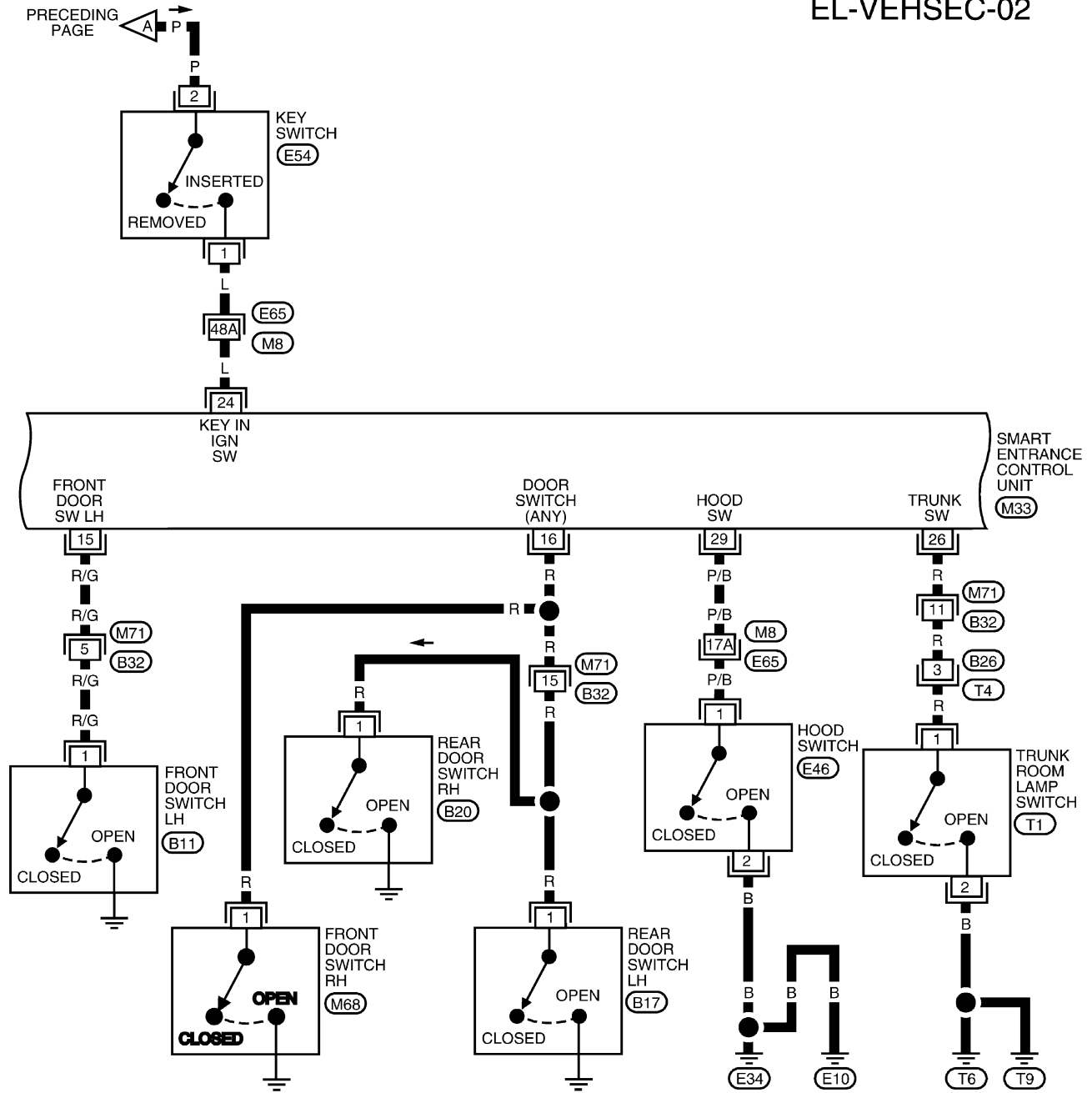


REFER TO THE FOLLOWING.
(M8), **(E65)** - SUPER MULTIPLE JUNCTION (SMJ)
(M33) - ELECTRICAL UNITS

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Wiring Diagram — VEHSEC — (Cont'd)

EL-VEHSEC-02

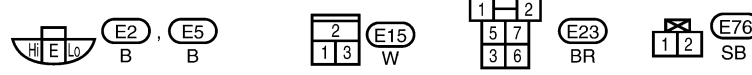
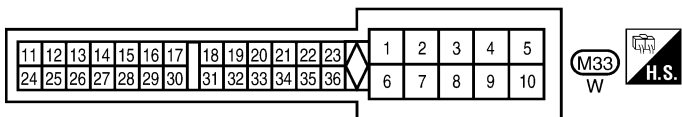
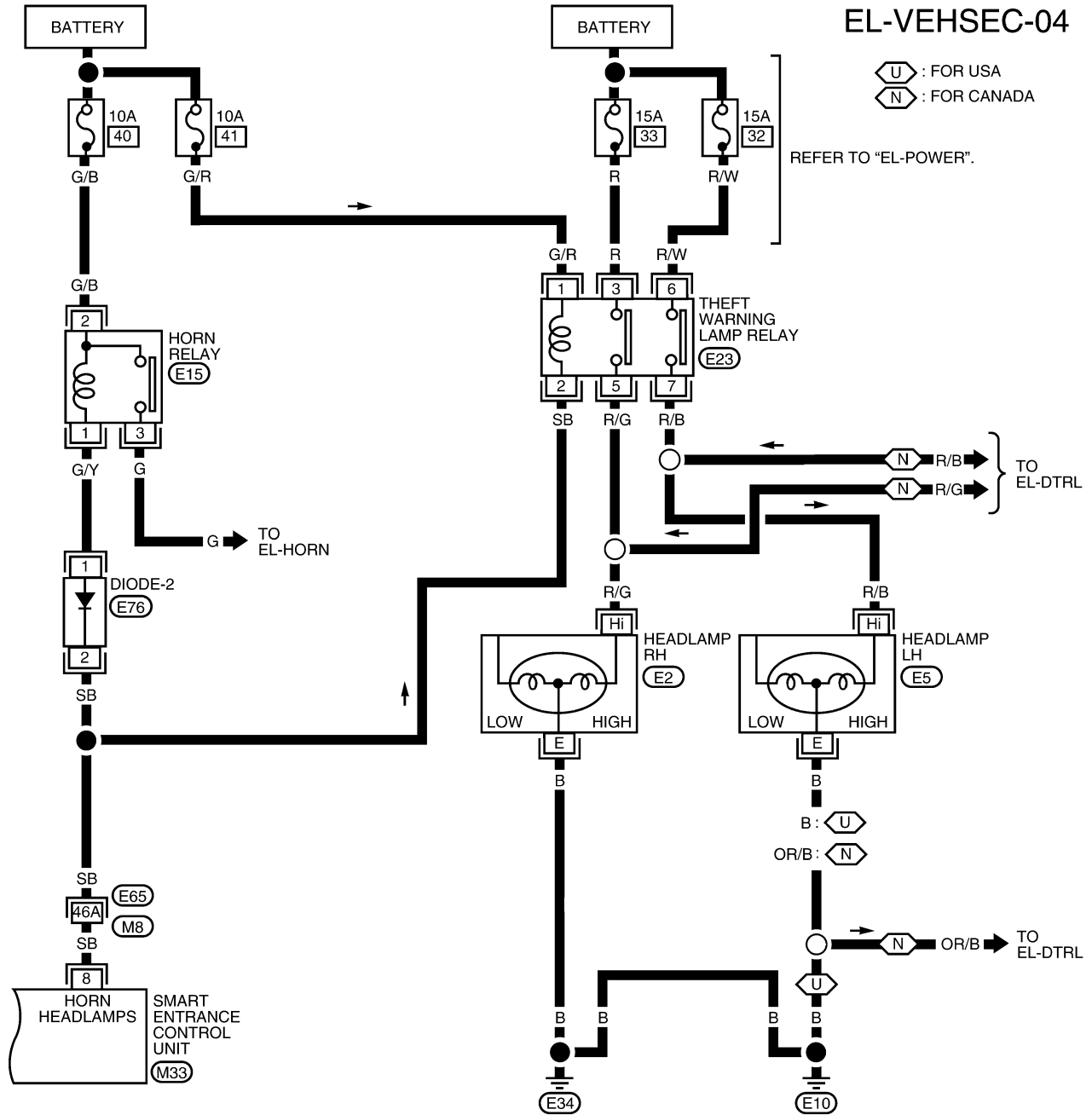


REFER TO THE FOLLOWING.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Wiring Diagram — VEHSEC — (Cont'd)



REFER TO THE FOLLOWING.
M8, E65 - SUPER MULTIPLE JUNCTION (SMJ)

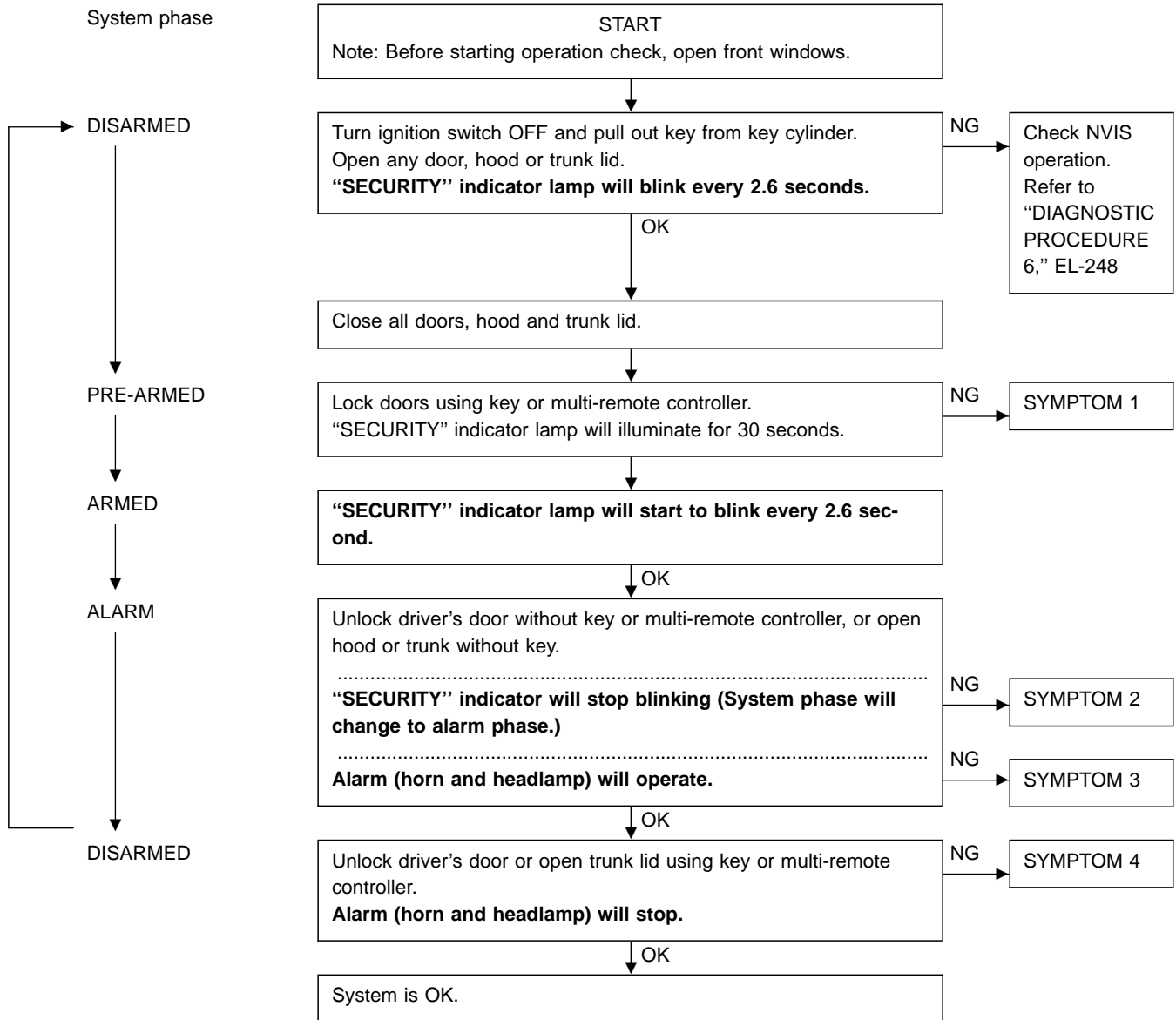
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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses

PRELIMINARY CHECK

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



After performing preliminary check, go to symptom chart on next page.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

Before starting trouble diagnoses below, perform preliminary check, EL-238.

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

SYMPTOM CHART

PROCEDURE		—	Power supply and ground circuit check		Diagnostic procedure						—	
			EL-238	EL-240	EL-240	EL-241	EL-244	EL-245	EL-246	EL-247		EL-248
SYMPTOM		Preliminary check	Power supply circuit check	Ground circuit check	Diagnostic Procedure 1 (Door, hood and trunk room lamp switch check)	Diagnostic Procedure 2 (Security indicator lamp check)	Diagnostic Procedure 3 (Door unlock sensor check)	Diagnostic Procedure 4 (Door key cylinder switch check)	Diagnostic Procedure 5 (Trunk lid key cylinder switch check)	Diagnostic Procedure 6 (Horn alarm check)	Diagnostic Procedure 7 (Vehicle security headlamp alarm check)	Check "MULTI-REMOTE CONTROL" system.
1	Security indicator lamp does not illuminate for 30 seconds.	X	X	X	X	X						
	Vehicle security system cannot be set by ...	All items	X	X	X	X	X					
		Door out side key	X					X				
		Multi-remote control	X									X
2	*1 Vehicle security system does not alarm when ...				X							
	Driver's door is unlocked without using key or multi-remote controller	X					X					
3	Vehicle security system does not activate.	All function	X			X	X					
		Horn alarm	X							X		
		Headlamp alarm	X								X	
4	Vehicle security system cannot be canceled by ...	Door out side key	X					X				
		Trunk lid key	X						X			
		Multi-remote control	X									X

X : Applicable

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

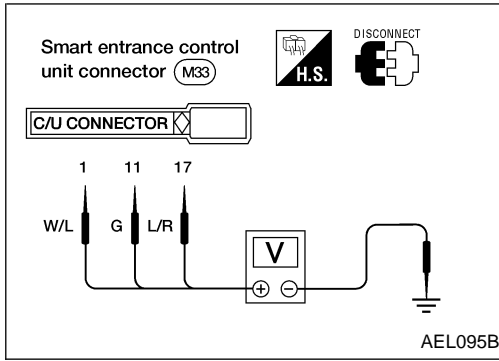
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VEHICLE SECURITY (THEFT WARNING) SYSTEM

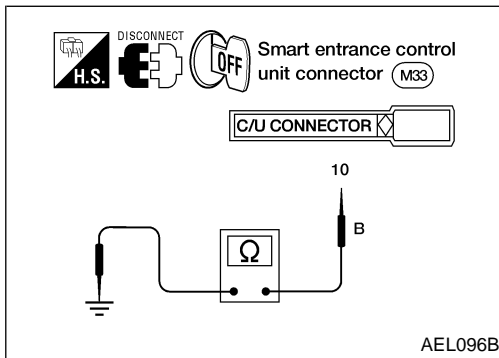
Trouble Diagnoses (Cont'd)

POWER SUPPLY AND GROUND CIRCUIT CHECK

Power supply circuit check



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

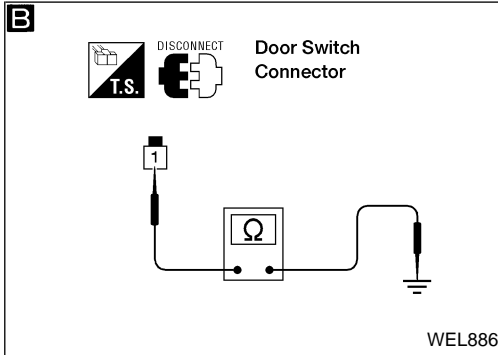
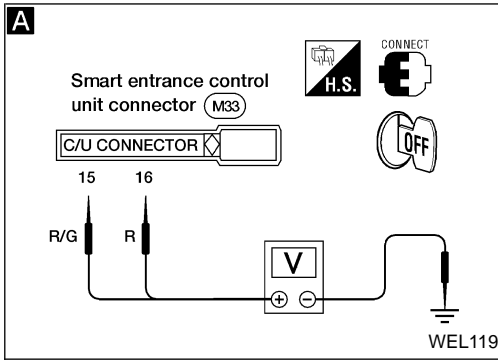


Ground circuit check

Terminals	Continuity
⑩ - Ground	Yes

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 1-(1) (Door switch check)



1. Turn ignition switch OFF and remove key from key cylinder.
2. Close all doors, hood and trunk lid. **“SECURITY” indicator lamp should blink every 2.6 seconds.**
3. Lock doors with multi-remote. **“SECURITY” indicator lamp should turn on for 30 seconds.**
4. Unlock any door with the door lock knob (except driver side) and open the door within 30 seconds after the door is locked. **“SECURITY” indicator lamp should turn off.**

OK → Door switch is OK, and go to hood switch check.

NG

A

CHECK DOOR SWITCH INPUT SIGNAL.
Check voltage between smart entrance control unit terminals (15) or (16) and ground.

OK → Door switch is OK, and go to hood switch check.

	Terminals		Condition	Voltage [V]
	⊕	⊖		
Front LH door switch	(15)	Ground	Open	0
			Closed	Approx. 12
Front RH door and rear door switches	(16)	Ground	Open	0
			Closed	Approx. 12

Refer to wiring diagram in EL-235.

NG

B

CHECK DOOR SWITCH.
1. Disconnect door switch connector.
2. Check continuity between door switch terminals.

NG → Replace door switch.

	Terminals	Condition	Continuity
Front LH door switch	① - Ground	Closed	No
		Open	Yes
Other door switches	① - Ground	Closed	No
		Open	Yes

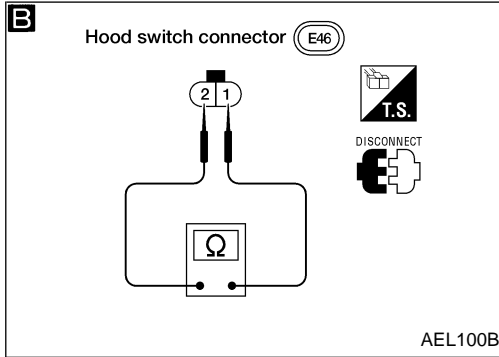
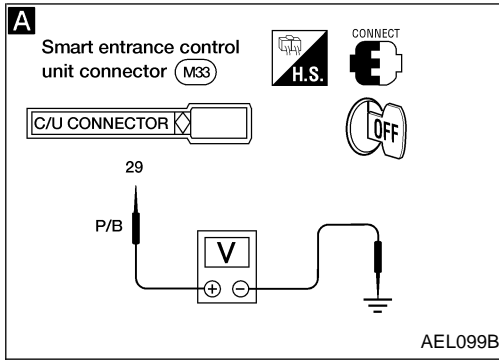
OK

- Check the following.
- Door switch ground condition
 - Harness for open or short between smart entrance control unit and door switch

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 1-(2) (Hood switch check)



1. Turn ignition switch OFF and remove key from key cylinder.
2. Close all doors, hood and trunk lid. **“SECURITY” indicator lamp should blink every 2.6 seconds.**
3. Lock doors with multi-remote controller from inside the vehicle. **“SECURITY” indicator lamp should turn on for 30 seconds.**
4. Open hood within 30 seconds after door is locked. **“SECURITY” indicator lamp should turn off.**

OK → Hood switch is OK, and go to trunk room lamp switch check.

NG

Check hood switch and hood fitting condition.

NG → Adjust installation of hood switch or hood.

OK

A **CHECK HOOD SWITCH INPUT SIGNAL.**
Check voltage between smart entrance control unit terminal (29) and ground.

OK → Hood switch is OK, and go to trunk room lamp switch check.

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

Refer to wiring diagram in EL-235.

NG

B **CHECK HOOD SWITCH.**
1. Disconnect hood switch connector.
2. Check continuity between hood switch terminals.

NG → Replace hood switch.

Terminals	Condition	Continuity
① - ②	Closed	No
	Open	Yes

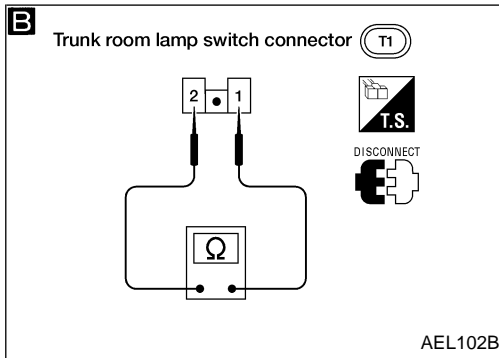
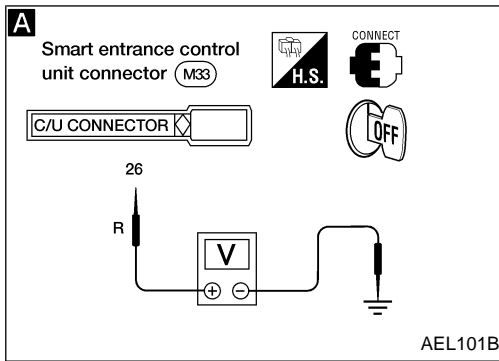
OK

Check the following.

- Hood switch ground circuit
- Harness for open or short between smart entrance control unit and hood switch

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 1-(3) (Trunk room lamp switch check)



1. Turn ignition switch OFF and remove key from key cylinder.
2. Close all doors, hood and trunk lid. **“SECURITY” indicator lamp should blink every 2.6 seconds.**
3. Lock doors with multi-remote controller from inside the vehicle. **“SECURITY” indicator lamp should turn on for 30 seconds.**
4. Open trunk lid with trunk lid opener switch within 30 seconds after is locked. **“SECURITY” indicator lamp should turn off.**

OK → Trunk room lamp switch is OK.

NG

A

CHECK TRUNK ROOM LAMP SWITCH INPUT SIGNAL.
Check voltage between smart entrance control unit terminal (26) and ground.

Condition	Voltage [V]
Trunk lid is open.	Approx. 0
Trunk lid is closed.	Approx. 12

Refer to wiring diagram in EL-235.

OK → Trunk room lamp switch is OK.

NG

B

CHECK TRUNK ROOM LAMP SWITCH.

1. Disconnect trunk room lamp switch connector.
2. Check continuity between trunk room lamp switch terminals.

Terminals	Condition	Continuity
① - ②	Closed	No
	Open	Yes

NG → Replace trunk room lamp switch.

OK

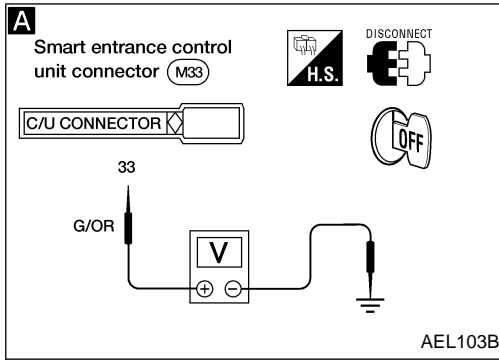
Check the following.

- Trunk room lamp switch ground circuit
- Harness for open or short between smart entrance control unit and trunk room lamp switch

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 2 (Security indicator lamp check)



A

CHECK INDICATOR LAMP OUTPUT SIGNAL.

1. Disconnect smart entrance control unit connector.
2. Check voltage between smart entrance control unit terminal (33) and ground.
Battery voltage should exist.

Refer to wiring diagram in EL-234.

OK

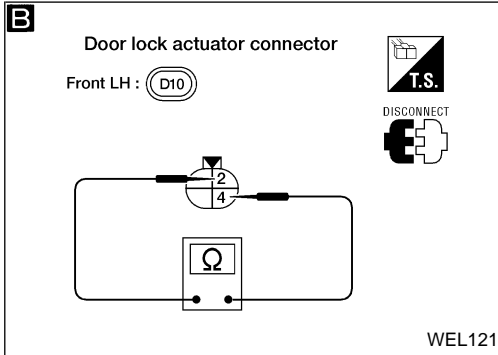
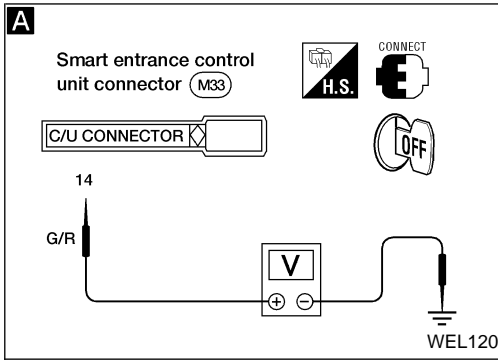
Security indicator lamp is OK.

NG

Check harness for open or short between security indicator lamp and smart entrance control unit.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 3 (Door unlock sensor LH check)



A

CHECK DOOR UNLOCK SENSOR LH INPUT SIGNAL.

Check voltage between smart entrance control unit terminals (14) and ground.

Terminals		Condition	Voltage [V]
+	-		
(14)	Ground	Locked	Approx. 12
(14)	Ground	Unlocked	0

Refer to wiring diagram in EL-234.

OK → Door unlock sensor is OK.

B

CHECK DOOR UNLOCK SENSOR LH.

1. Disconnect door unlock sensor connector.
2. Check continuity between door unlock sensor terminals.

Terminals	Condition	Continuity
(4) - (2)	Locked	No
	Unlocked	Yes

NG → Replace door unlock sensor.

OK →

Check the following.

- Door unlock sensor ground circuit
- Harness for open or short between smart entrance control unit and door unlock sensor

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 4 (Door key cylinder switch check)

A

H.S. **CONNECT** **OFF**

Smart entrance control unit connector

WEL069A

A

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

Check voltage between smart entrance control unit terminals ③① or ③② and ground.

Terminals		Key position	Voltage [V]
Con-connector	Terminal (Wire color)		
M33	③① (LG/R)	Neutral	Approx. 12
		Lock	0
M33	③② (G/Y)	Neutral	Approx. 12
		Unlock	0

Refer to wiring diagram in EL-236.

B

T.S. **DISCONNECT**

Front door key cylinder switch connector

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

LEL070A

B

CHECK DOOR KEY CYLINDER SWITCH.

1. Disconnect door key cylinder switch 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

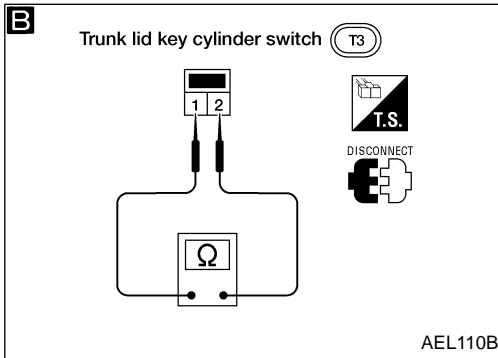
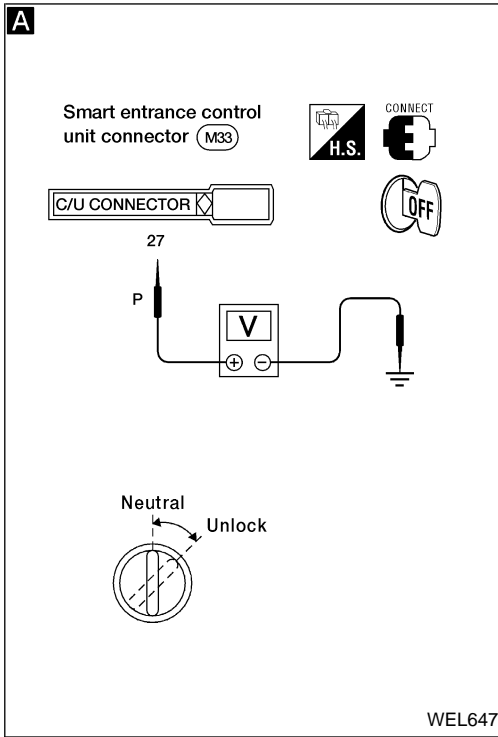
Check the following:

- Door key cylinder switch ground circuit
- Harness for open or short between smart entrance control unit and door key cylinder switch

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5 (Trunk lid key cylinder switch check)



A

CHECK TRUNK LID KEY CYLINDER SWITCH INPUT SIGNAL (UNLOCK SIGNAL).

Check voltage between smart entrance control unit terminal (27) and ground.

Key position	Voltage [V]
Neutral	Approx. 12
Between neutral and unlock	0

Refer to wiring diagram in EL-236.

OK → Trunk lid key cylinder switch is OK.

NG

B

CHECK TRUNK LID KEY CYLINDER SWITCH.

1. Disconnect trunk lid key cylinder switch connector.
2. Check continuity between trunk lid key cylinder switch terminals.

Key position	Continuity
Neutral	No
Between neutral and unlock	Yes

NG → Replace trunk lid key cylinder switch.

OK

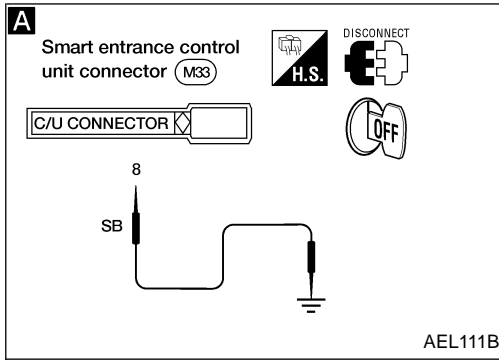
Check the following:

- Trunk lid key cylinder switch ground circuit
- Harness for open or short between smart entrance control unit and trunk lid key cylinder switch

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VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 6 (Horn alarm check)



A

CHECK HORN ALARM OPERATION.

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

Does horn alarm activate?

Refer to wiring diagram in EL-237.

Yes

Horn alarm is OK.

No

Check vehicle horn operation.

NG

Repair base horn system.
Refer to EL-142.

OK

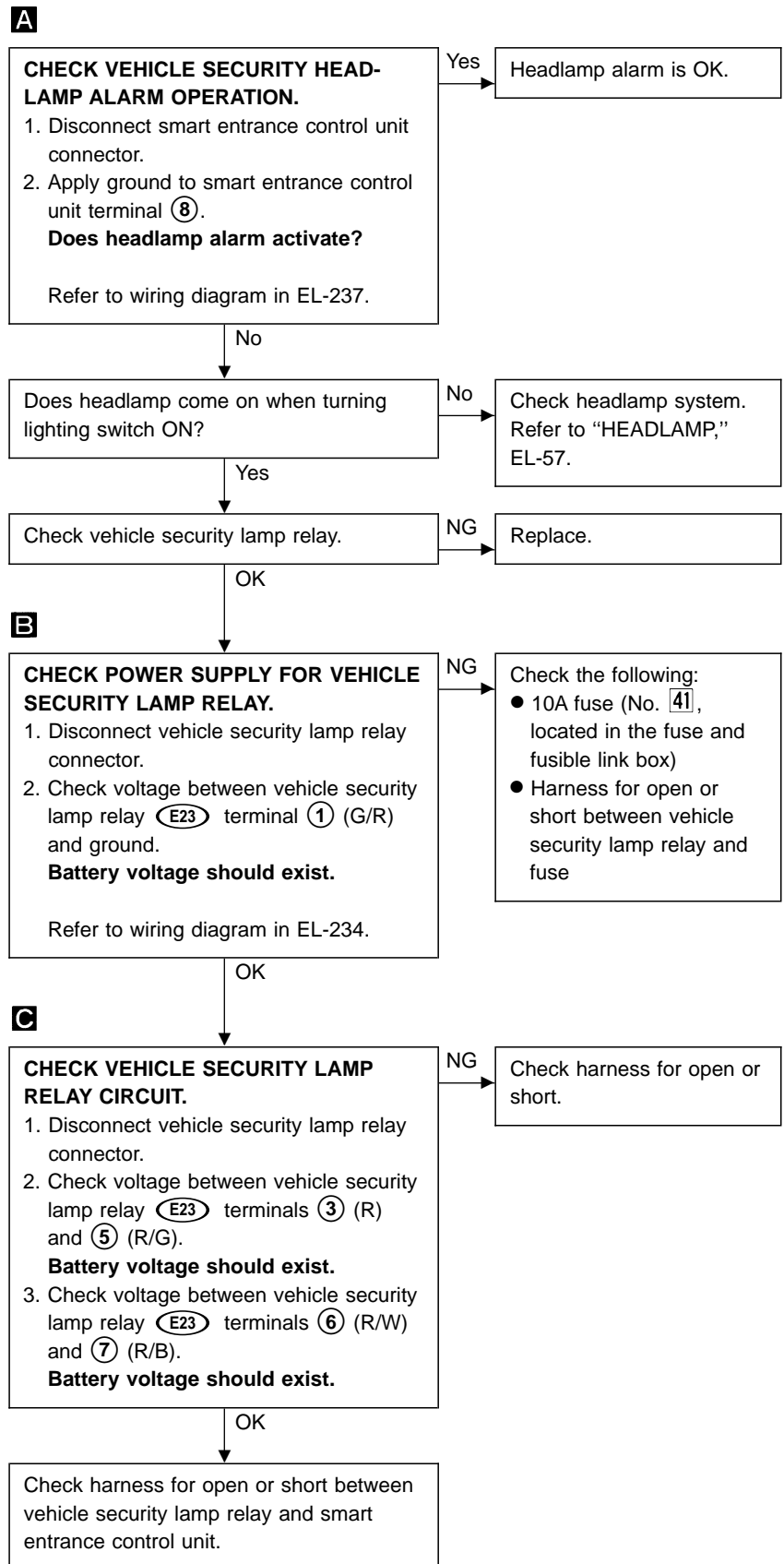
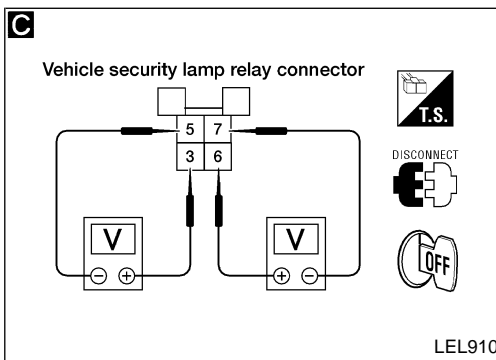
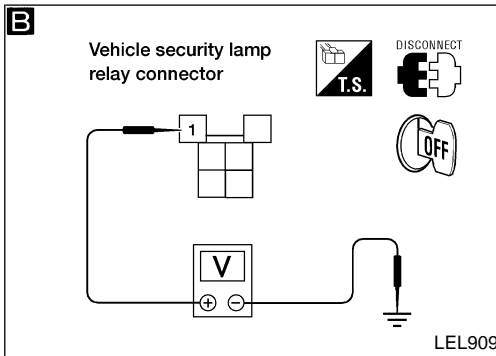
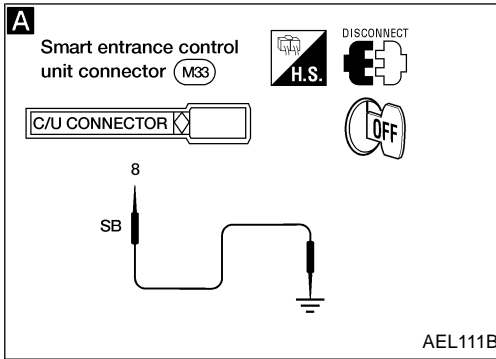
Check harness for open or short between
horn relay and smart entrance control unit.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

(Vehicle security headlamp alarm check)



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SMART ENTRANCE CONTROL UNIT

Description

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

- Warning chime
- Rear window defogger timer
- Power door lock
- Interior lamp timer
- Multi-remote control system
- Vehicle security system
- Battery saver

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

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

System	Input	Output
Power door lock	Door lock and unlock switches	Door lock actuators
Multi-remote control	Key switch (Insert) Ignition switch (ACC) Door switch Remote controller signal	Vehicle security horn relay (with vehicle security system) Vehicle security lamp relay (with vehicle security system) Horn relay (without vehicle security system) Interior lamp Multi-remote control relay-1 Door lock actuators Trunk lid opener actuator
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)
Rear window defogger timer	Ignition switch (ON) Rear window defogger switch	Rear window defogger relay
Vehicle security	Ignition switch (ACC, ON) Key switch (Insert) Door switches Hood switch Trunk room lamp switch Door key cylinder switches (lock/unlock) Trunk lid key cylinder switch (unlock) Door unlock sensor LH	Horn relay Vehicle security lamp relay Security indicator
Interior lamp timer	Door switches Ignition switch (ON) Key switch (Insert)	Room lamp
Battery saver	Ignition switch (ON) Door switches	Room lamp

SMART ENTRANCE CONTROL UNIT

Input/Output Operation Signal

- With vehicle security system

Terminal No.	Wire color	Connections	Operated condition	Voltage (V) (Approximate values)	
1	W/L	Power source (C/B)	—	12V	
2	W/R	Passenger and rear door lock actuators	Door lock & unlock switch	Unlocked	12V
3	Y	Driver door lock actuator		Free	0V
4	R/L	Driver, passenger and rear door lock actuators	Door lock & unlock switch	Locked	12V
				Free	0V
5	W	Trunk lid opener actuator	OFF (Neutral) → ON (Unlocked)	12V → 0V	
6	R/B	Battery saver	When room lamp is operated for more than 30 minutes.	12V	
7	OR	Multi-remote control relay-1	When doors are locked using remote controller.	12V → 0V	
8	SB	Horn and vehicle security lamp relays	When panic alarm is operated using remote controller.	12V → 0V	
9	R/W	Room lamp	When room lamp is operated using remote controller. (Lamp switch in DOOR position)	12V → 0V	
10	B	Ground	—	—	
11	G	Ignition switch (ON)	Ignition key is in ON position	12V	
14	G/R	Driver door unlock sensor	Driver door LH & RH: Locked → Unlocked	12V → 0V	
15	R/G	Front door switch LH	OFF (Closed) → ON (Open)	12V → 0V	
16	R	Door switch (any)	OFF (Closed) → ON (Open)	12V → 0V	
17	L/R	Ignition switch (ACC)	ACC position	12V	
18	GY	Door lock/unlock switch (lock)	Neutral → Locks	12V → 0V	
19	PU	Door lock/unlock switch (unlock)	Neutral → Unlocks	12V → 0V	
20	G/B	Rear window defogger switch	OFF → ON	12V → 0V	
21	W/B	Seat belt buckle switch LH	Unfasten → Fasten (Ignition key is in ON position)	0V → 12V	
24	L	Ignition key switch (Insert)	IGN key inserted → IGN key removed from IGN key cylinder	12V → 0V	
25	R/L	Lighting switch (1ST)	1ST, 2ND positions: ON → OFF	12V → 0V	
26	R	Trunk room lamp switch	ON (Open) → OFF (Closed)	0V → 12V	
27	P	Trunk lid key cylinder switch (unlock)	OFF (Neutral) → ON (Unlocked)	12V → 0V	
28	OR/B	Trunk lid opener switch	OFF (Neutral) → ON (Open)	12V → 0V	
29	P/B	Hood open switch	ON (Open) → OFF (Closed)	0V → 12V	
30	LG/R	Door key cylinder lock switch	OFF (Neutral) → ON (Locked)	12V → 0V	
31	G/Y	Door key cylinder unlock switch	OFF (Neutral) → ON (Unlocked)	12V → 0V	
33	G/OR	Security indicator lamp	Goes off → Illuminates	12V → 0V	
36	G/R	Rear window defogger relay	OFF → ON (Ignition key is in ON position)	12V → 0V	

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SMART ENTRANCE CONTROL UNIT

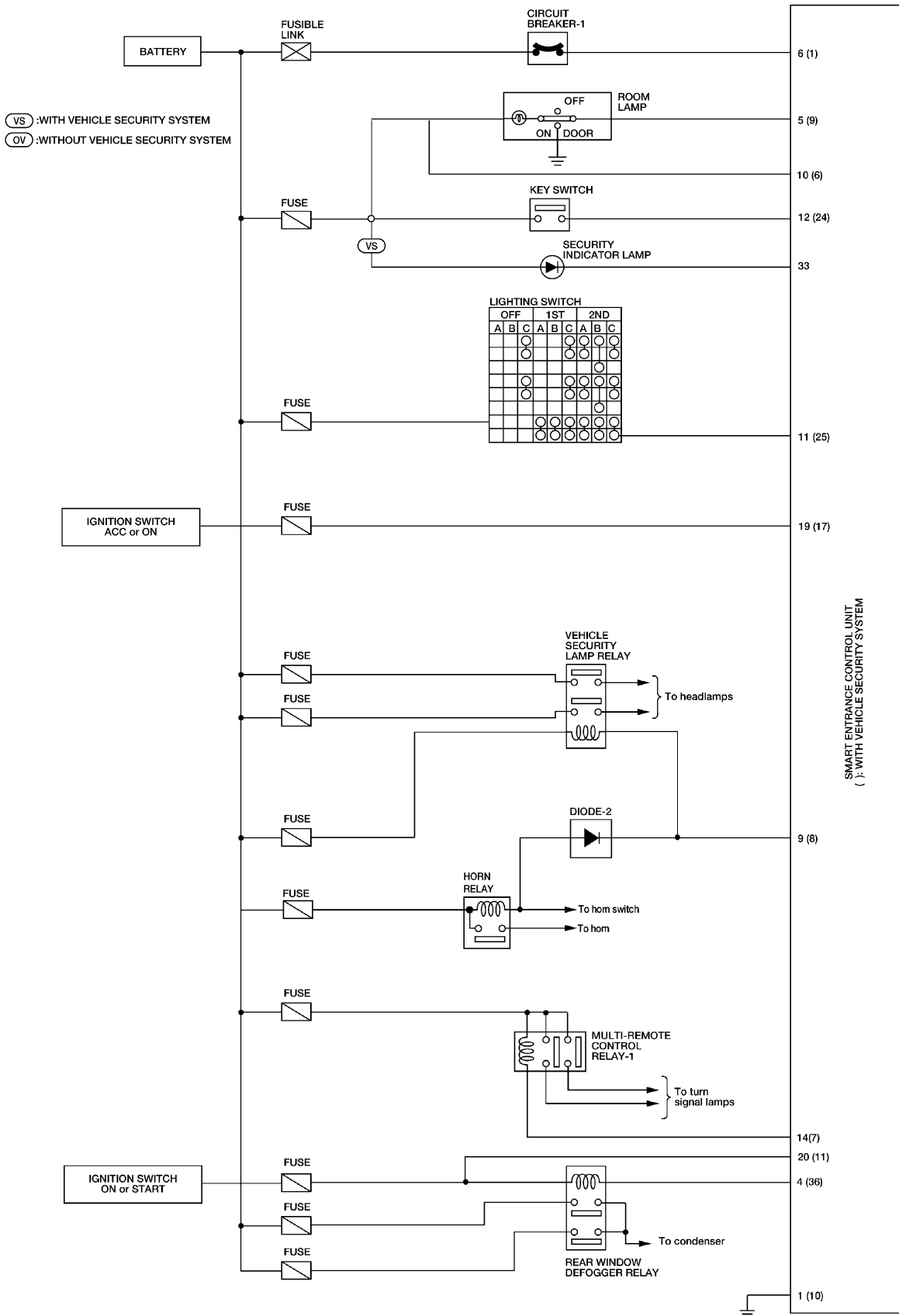
Input/Output Operation Signal

- Without vehicle security system

Terminal No.	Wire color	Connections	Operated condition		Voltage (V) (Approximate values)
1	B	Ground	—		—
2	W/R	Passenger and rear door lock actuators	Door lock & unlock switch	Unlocked	12V
				Free	0V
3	R/L	Driver, passenger and rear door lock actuators	Door lock & unlock switch	Locked	12V
				Free	0V
4	G/R	Rear window defogger relay	OFF → ON (Ignition key is in ON position)		0V → 12V
5	R/W	Room lamp	When room lamp is operated using remote controller. (Lamp switch in DOOR position)		12V → 0V
6	W/L	Power source (C/B)	—		12V
7	W	Trunk lid opener actuator	OFF (Neutral) → ON (Unlocked)		12V → 0V
8	Y	Driver door lock actuator	Door lock & unlock switch	Unlocked	12V
				Free	0V
9	SB	Horn and vehicle security lamp relays	When panic alarm is operated using remote controller.		12V → 0V
10	R/B	Battery saver	When room lamp is operated for more than 30 minutes.		12V
11	R/L	Lighting switch (1ST)	1ST, 2ND positions: ON → OFF		12V → 0V
12	L	Ignition key switch (Insert)	IGN key inserted → IGN key removed from IGN key cylinder		12V → 0V
14	OR	Multi-remote control relay-1	When doors are locked using remote controller.		12V → 0V
15	PU	Door lock/unlock switch (unlock)	Neutral → Unlocks		12V → 0V
16	G/B	Rear window defogger switch	OFF → ON		12V → 0V
17	OR/B	Trunk lid opener switch	OFF (Neutral) → ON (Open)		12V → 0V
18	W/B	Seat belt buckle switch LH	Unfasten → Fasten (Ignition key is in ON position)		0V → 12V
19	L/R	Ignition switch (ACC)	ACC position		12V
20	G	Ignition switch (ON)	Ignition key is in ON position		12V
24	GY	Door lock/unlock switch (lock)	Neutral → Locks		12V → 0V
25	R/G	Front door switch LH	OFF (Closed) → ON (Open)		12V → 0V
26	R	Door switch (any)	OFF (Closed) → ON (Open)		12V → 0V

SMART ENTRANCE CONTROL UNIT

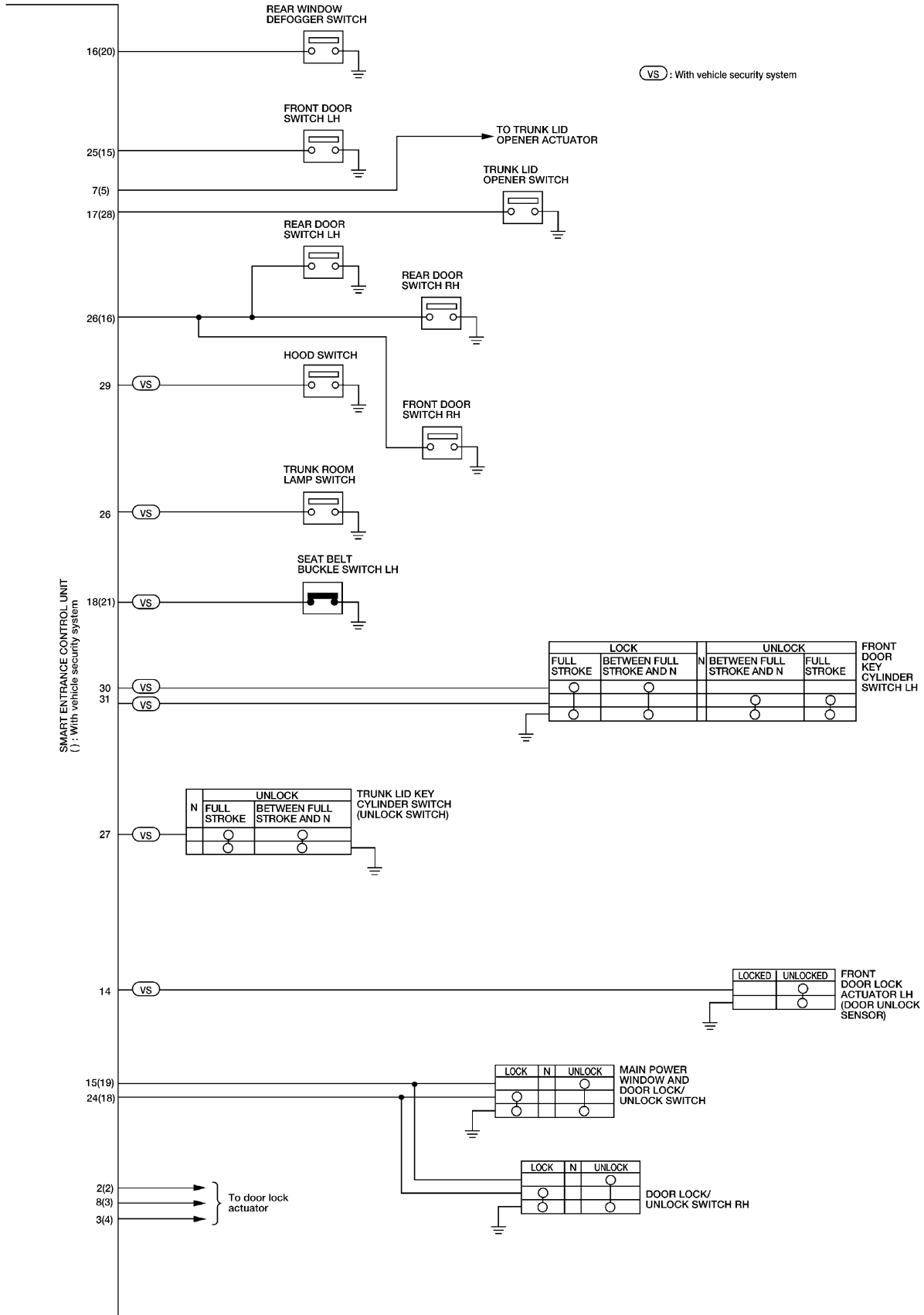
Schematic



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SMART ENTRANCE CONTROL UNIT

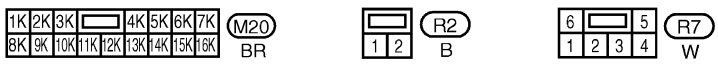
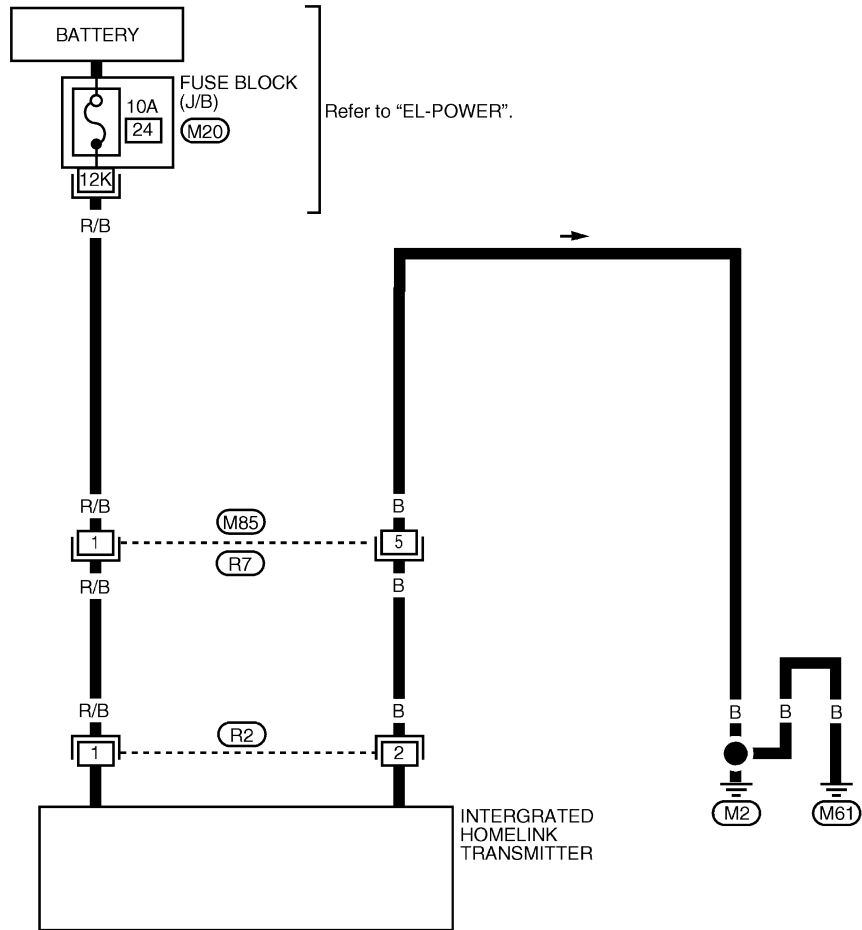
Schematic (Cont'd)



INTEGRATED HOMELINK TRANSMITTER

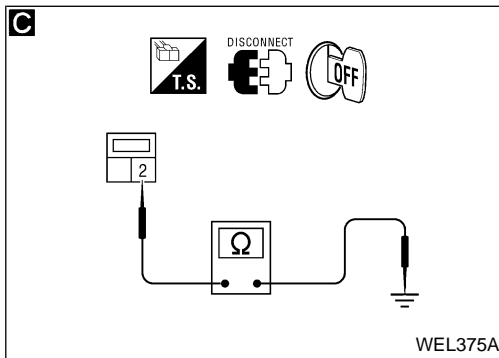
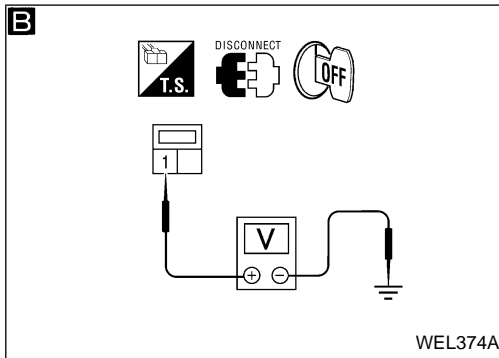
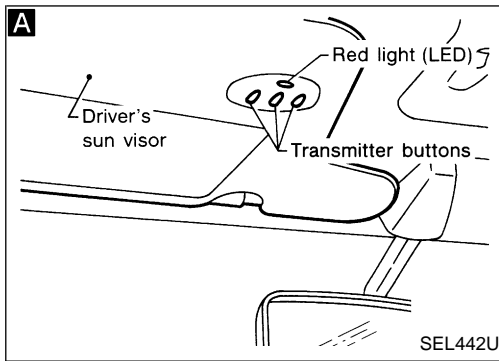
Wiring Diagram — TRNSMT —

EL-TRNSMT-01



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INTEGRATED HOMELINK TRANSMITTER

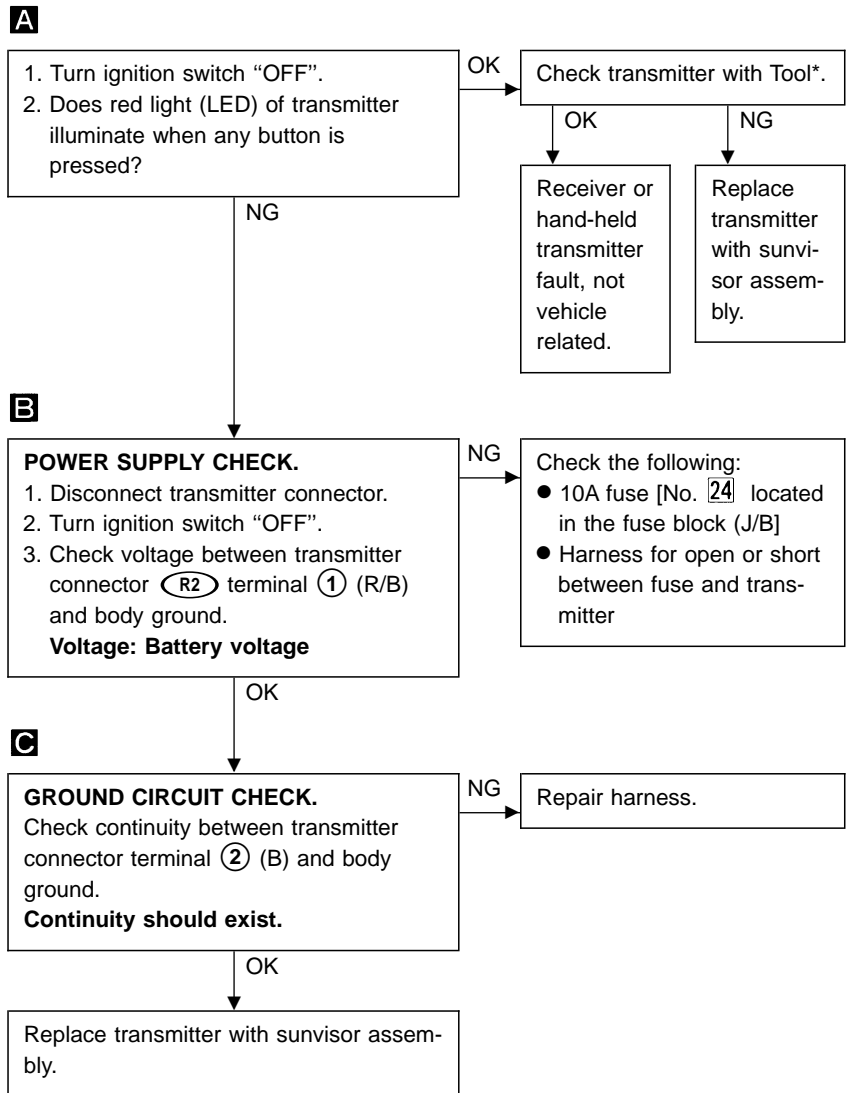


Trouble Diagnoses

DIAGNOSTIC PROCEDURE

SYMPTOM: Transmitter does not activate receiver.

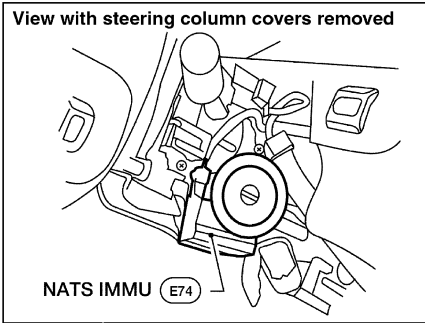
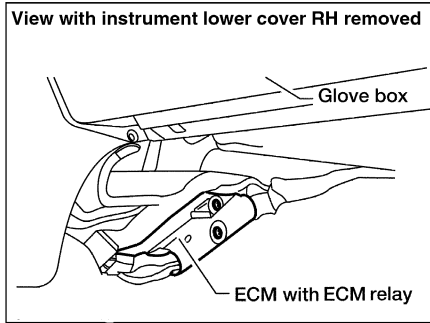
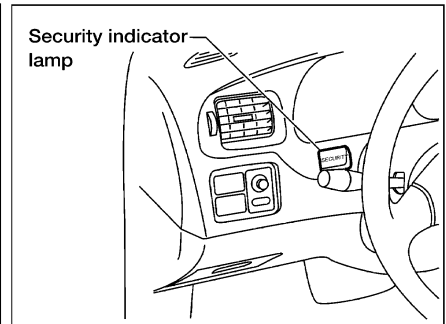
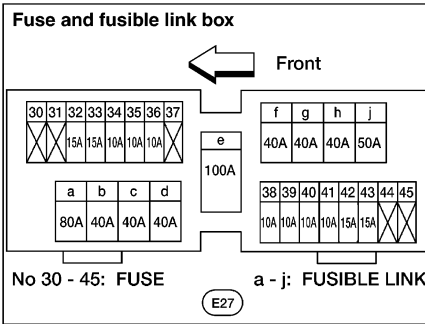
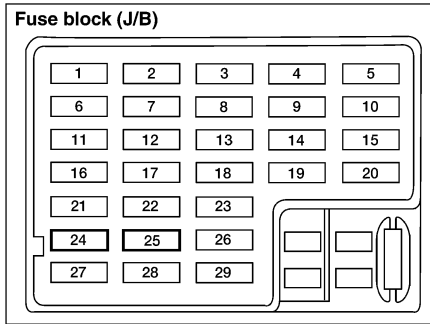
Before conducting the procedure given below, make sure that system receiver (garage door opener, etc.) operates with original, hand-held transmitter. If NG, receiver or hand-held transmitter is at fault, not vehicle related.



* For details, refer to Technical Service Bulletin.

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Component Parts and Harness Connector Location



NOTE:

If customer is reporting a “NO START” condition, request ALL KEYS be brought to Dealer in case of NATS malfunction.

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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

System Description

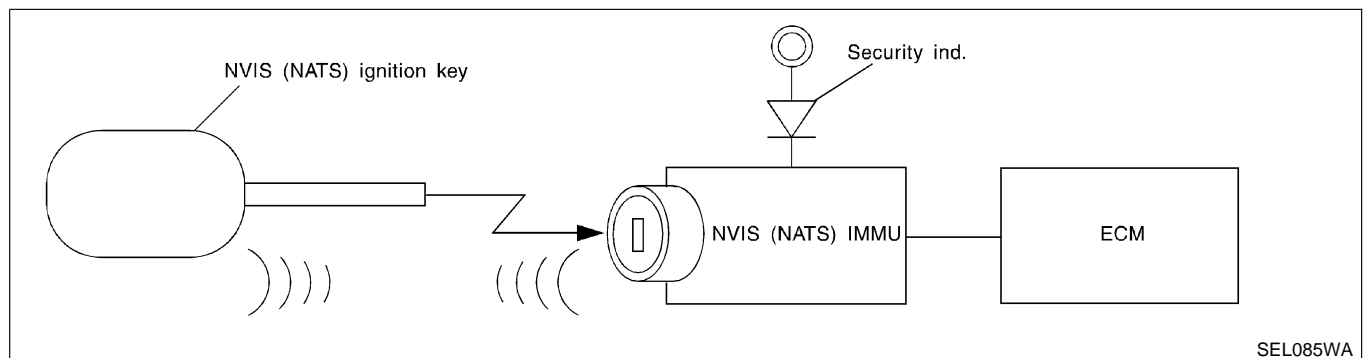
NVIS (Nissan Vehicle Immobilizer System — NATS) has the following immobilizer functions:

- Since only NVIS (NATS) ignition keys, whose ID nos. have been registered into the ECM and IMMU of NVIS (NATS), allow the engine to run, operation of a stolen vehicle without a NVIS (NATS) registered key is prevented by NVIS (NATS). That is to say, NVIS (NATS) will immobilize the engine if someone tries to start it without the registered key of NVIS (NATS).
- All of the originally supplied ignition key IDs have been NVIS (NATS) registered. If requested by the vehicle owner, a maximum of five key IDs can be registered into the NVIS (NATS) components. All other existing keys will need to be re-registered if any additional keys are added.
- The security indicator blinks when the ignition switch is in “OFF” or “ACC” position. Therefore, NVIS (NATS) warns outsiders that the vehicle is equipped with the system.
- When NVIS (NATS) detects trouble, the security indicator lamp will illuminate continuously while ignition key is in the “ON” position.
- NVIS (NATS) trouble diagnoses, system initialization and additional registration of other NVIS (NATS) ignition key IDs must be carried out using CONSULT-II hardware and CONSULT-II NVIS (NATS) software.
- When NVIS (NATS) initialization has been completed, the ID of the inserted ignition key is automatically NVIS (NATS) registered. Then, if necessary, additional registration of other NVIS (NATS) ignition key IDs can be carried out. Regarding the procedures of NVIS (NATS) initialization and NVIS (NATS) ignition key ID registration, refer to CONSULT-II OPERATION MANUAL, IVIS/NVIS.
- **When servicing a malfunction of the NVIS (NATS) (indicated by lighting up of Security Indicator Lamp when ignition key is “ON”) or registering another NVIS (NATS) ignition key ID no., it is necessary to re-register all original key identifications. Therefore, be sure to receive ALL KEYS from vehicle owner.**

System Composition

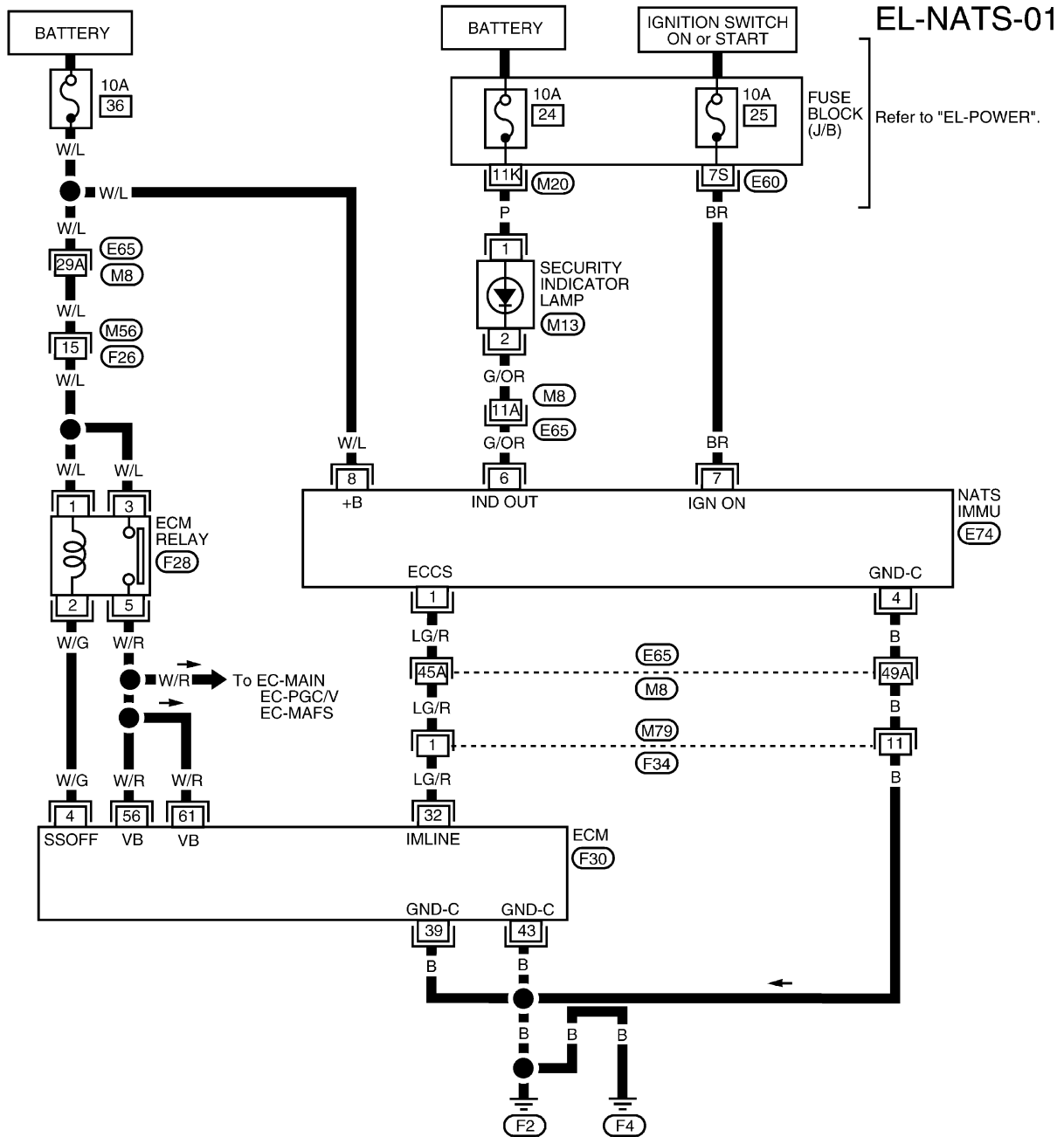
The immobilizer function of the NVIS (NATS) consists of the following:

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



NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

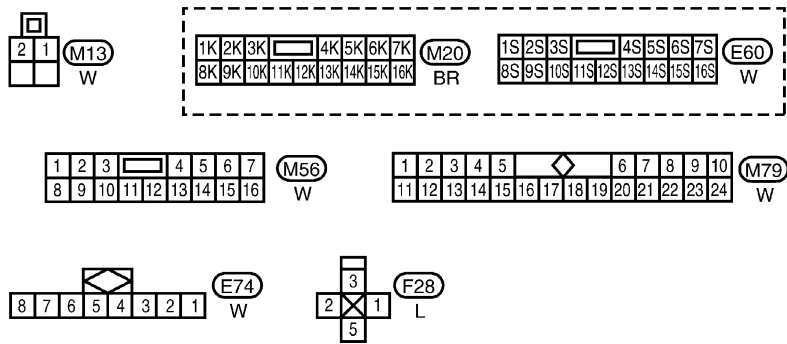
Wiring Diagram — NATS —



EL-NATS-01

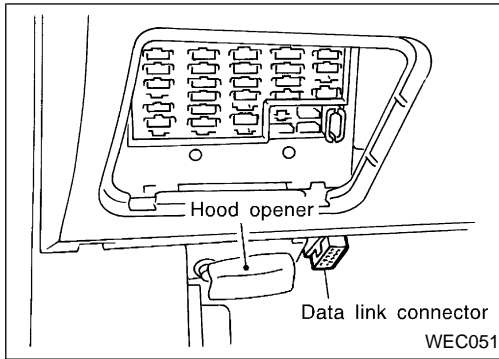
FUSE BLOCK (J/B) Refer to "EL-POWER".

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Refer to the following.
 (M8), (E65) - SUPER MULTIPLE JUNCTION (SMJ)
 (F30) - ELECTRICAL UNITS

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

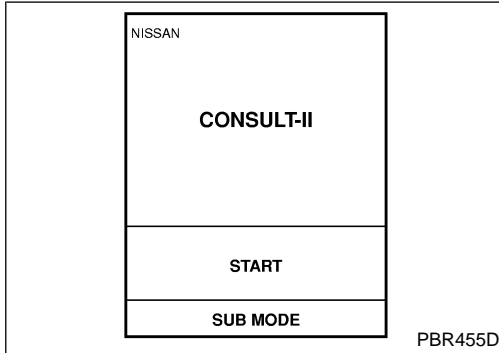


CONSULT-II

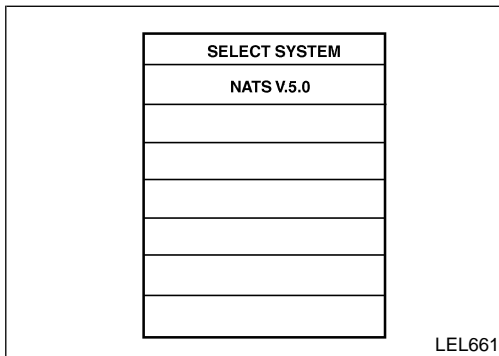
CONSULT-II INSPECTION PROCEDURE

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

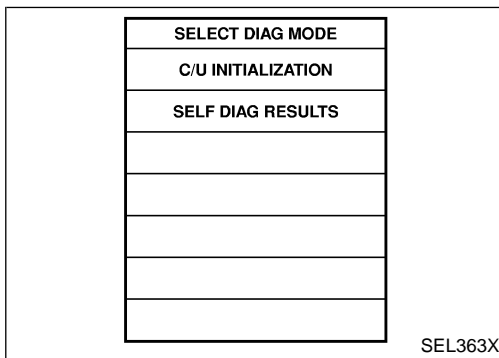
⚡: Program card
NATS (AEN00A)



3. Connect "CONSULT-II" to data link connector.
4. Turn ignition switch ON.
5. Touch "START".



6. Select "NATS V.5.0".



7. Perform each diagnostic test mode according to each service procedure.

For further information, see the "CONSULT-II OPERATION MANUAL, IVIS/NVIS".

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

CONSULT-II (Cont'd)

CONSULT-II DIAGNOSTIC TEST MODE FUNCTION

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

NOTE:

When any initialization is performed, all ID previously registered will be erased and all NVIS (NATS) ignition keys must be registered again. The engine cannot be started with an unregistered key. In this case, the system will show “DIFFERENCE OF KEY” or “LOCK MODE” may also be displayed along with “DIFFERENCE OF KEY” in some cases as a self-diagnostic result on the CONSULT-II screen. Refer to “SELF-DIAGNOSTIC RESULTS ITEM CHART”, EL-262.

In rare cases, “CHAIN OF ECM-IMMU” might be stored as a self-diagnostic result during key registration procedure, even if the system is not malfunctioning.

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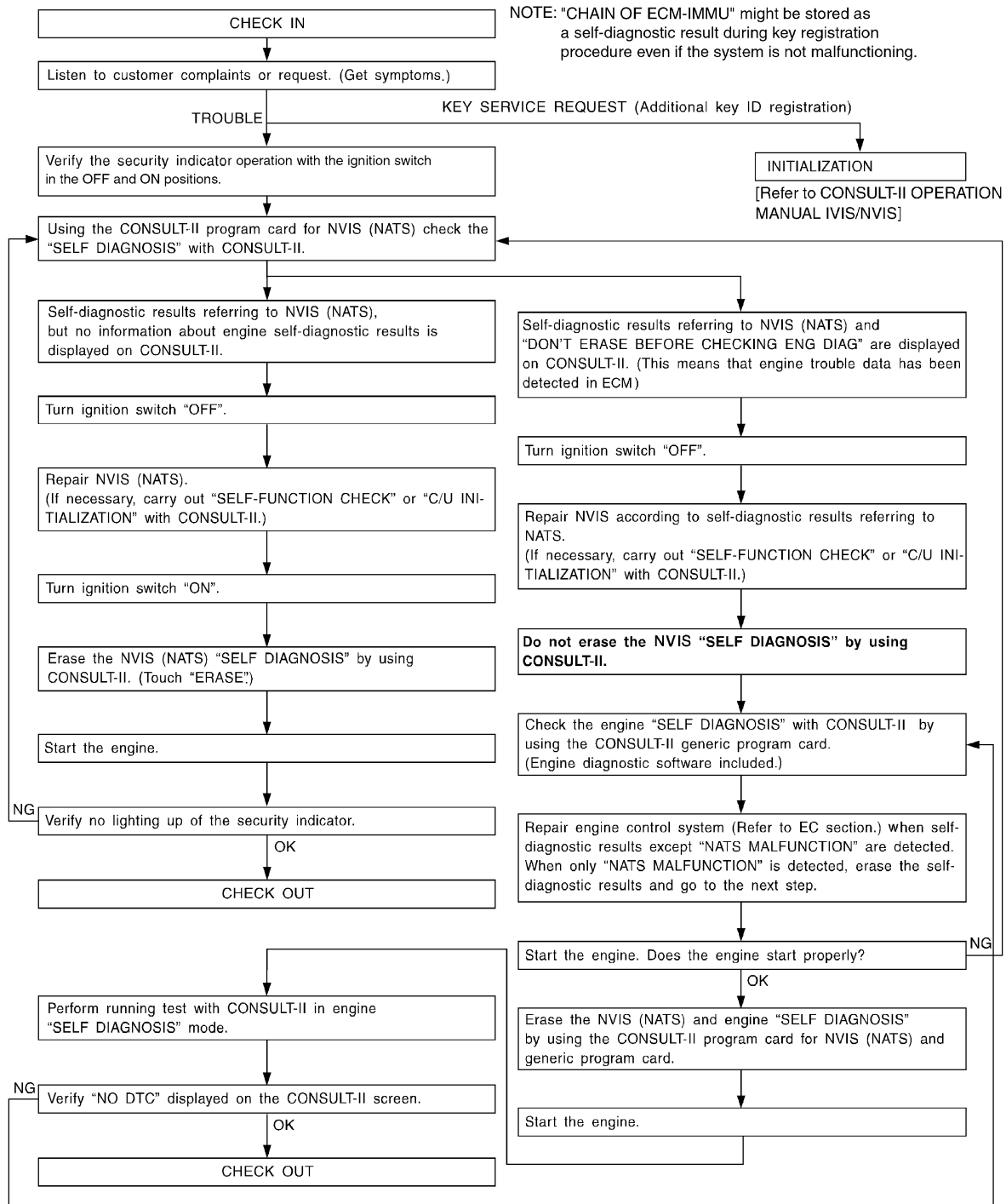
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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses WORK FLOW



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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd)

SYMPTOM MATRIX CHART 1

(Self-diagnosis related item)

SYMPTOM	Displayed "SELF-DIAG RESULTS" on CONSULT screen.	DIAGNOSTIC PROCEDURE (Reference page)	SYSTEM (Malfunctioning part or mode)	REFERENCE PART NO. OF ILLUSTRATION ON NEXT PAGE
<ul style="list-style-type: none"> ● Security indicator lighting up* ● Engine will crank but will not start 	ECM INT CIRC-IMMU	PROCEDURE 1 (EL-266)	ECM	B
	CHAIN OF ECM-IMMU	PROCEDURE 2 (EL-266)	In rare cases, "CHAIN OF ECM-IMMU" might be stored during key registration procedure, even if the system is not malfunctioning.	—
			Open circuit in battery voltage line of IMMU circuit	C1
			Open circuit in ignition line of IMMU circuit	C2
			Open circuit in ground line of IMMU circuit	C3
			Open circuit in communication line between IMMU and ECM	C4
			Short circuit between IMMU and ECM communication line and battery voltage line	C4
			Short circuit between IMMU and ECM communication line and ground line	C4
			ECM	B
			IMMU	A
			DIFFERENCE OF KEY	PROCEDURE 3 (EL-268)
			IMMU	A
	CHAIN OF IMMU-KEY	PROCEDURE 4 (EL-269)	Malfunction of key ID chip	E
			IMMU	A
	ID DISCORD, IMM-ECM	PROCEDURE 5 (EL-270)	System initialization has not yet been completed.	F
ECM			F	
LOCK MODE	PROCEDURE 7 (EL-272)	LOCK MODE	D	
<ul style="list-style-type: none"> ● MIL staying ON ● Security indicator lighting up* 	DON'T ERASE BEFORE CHECKING ENG DIAG	WORK FLOW (EL-263)	Engine trouble data and NVIS (NATS) trouble data have been detected in ECM	—

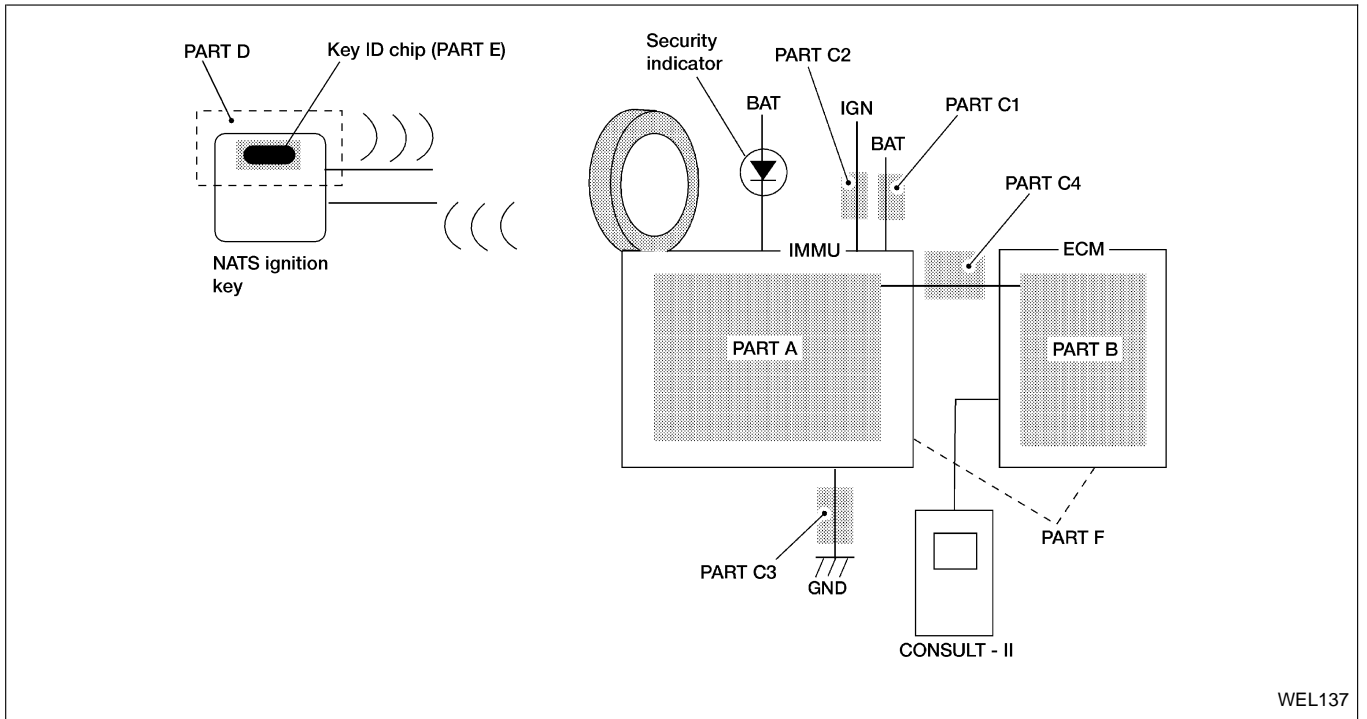
*: When NVIS (NATS) detects trouble, the security indicator lamp will illuminate continuously while ignition key is in the "ON" position.

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd) SYMPTOM MATRIX CHART 2 (Non self-diagnosis related item)

SYMPTOM	DIAGNOSTIC PROCEDURE (Reference page)	SYSTEM (Malfunctioning part or mode)
Security indicator lamp does not light up	PROCEDURE 6 (EL-271)	Security indicator lamp
		Open circuit between fuse and NATS IMMU
		Continuation of initialization mode
		NATS IMMU

DIAGNOSTIC SYSTEM DIAGRAM



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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 1

Self diagnostic results:

“ECM INT CIRC-IMMU” displayed on CONSULT-II screen

A

SELF DIAGNOSIS	
DTC RESULTS	TIME
ECM INT CIRC-IMMU	0

SEL314W

A



Confirm SELF-DIAGNOSTIC RESULTS “ECM INT CIRC-IMMU” displayed on CONSULT-II screen. Ref. part No. B.

1. Replace ECM.

2. Perform initialization with CONSULT-II.

For the initialization procedure, refer to “CONSULT-II OPERATION MANUAL IVIS/NVIS”.

A

SELF DIAGNOSIS	
DTC RESULTS	TIME
CHAIN OF ECM-IMMU	0

WEL171

DIAGNOSTIC PROCEDURE 2

Self-diagnostic results:

“CHAIN OF ECM-IMMU” displayed on CONSULT-II screen

A



Confirm SELF-DIAGNOSTIC RESULTS “CHAIN OF ECM-IMMU” displayed on CONSULT-II screen.

NOTE: In rare cases, “CHAIN OF ECM-IMMU” might be stored during key registration procedure, even if the system is not malfunctioning.

NG

Refer to “SYMPTOM MATRIX CHART 1”, EL-264.

OK

B

CHECK POWER SUPPLY CIRCUIT FOR IMMU.

Check voltage between terminal **⑧** of IMMU and ground with CONSULT-II or tester.

Voltage: Battery voltage

NG

Check the following.

- 10A fuse (No. **36**), located in the fuse and fusible link box)
 - Harness for open or short between fuse and IMMU connector
- Ref. Part No. C1

OK

C

CHECK IGN SW. ON SIGNAL.

Check voltage between terminal **⑦** of IMMU and ground with CONSULT-II or tester.

Voltage: Battery voltage

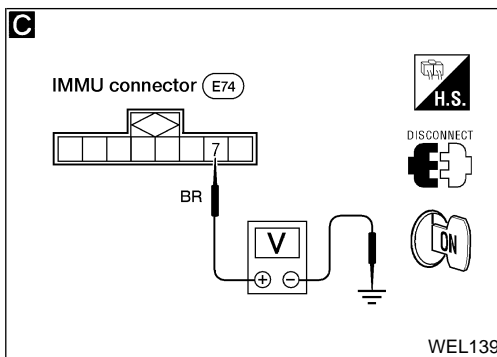
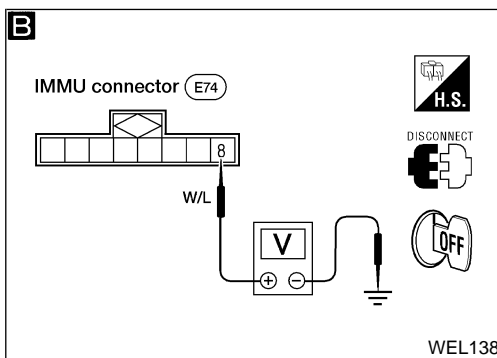
NG

Check the following.

- 10A fuse [No. **25**], located in the fuse block (J/B)]
 - Harness for open or short between fuse and IMMU connector
- Ref. Part No. C2

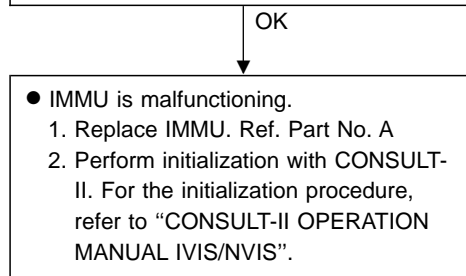
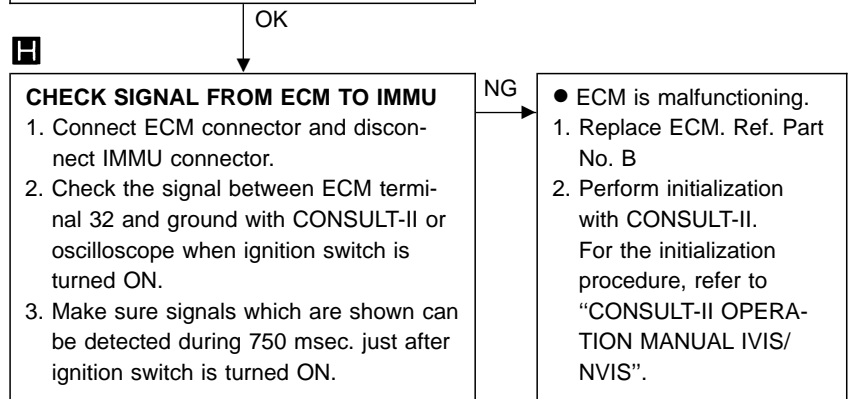
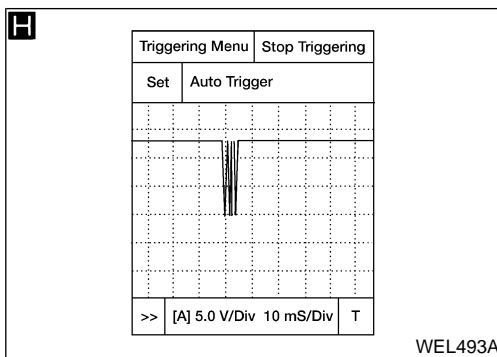
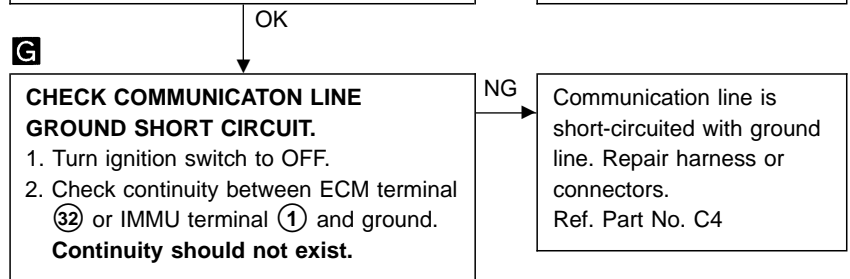
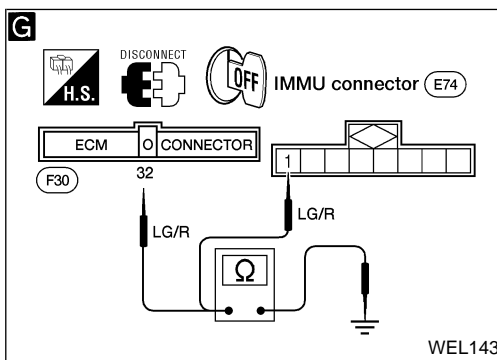
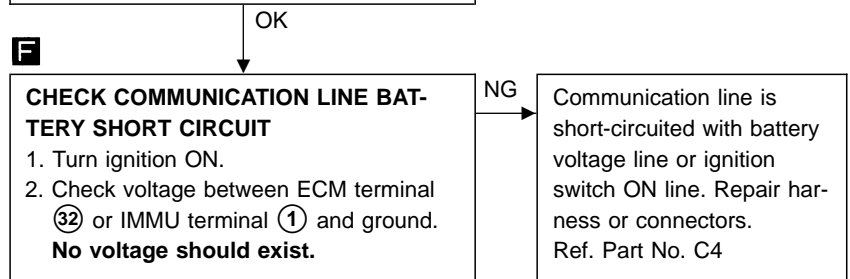
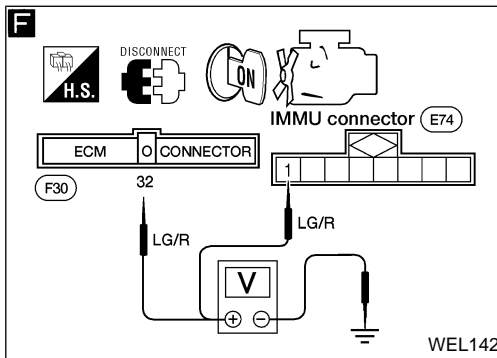
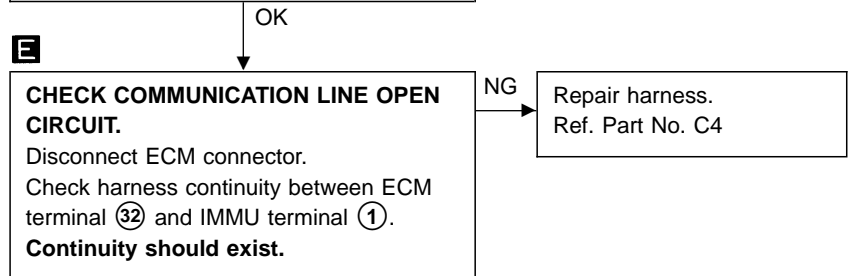
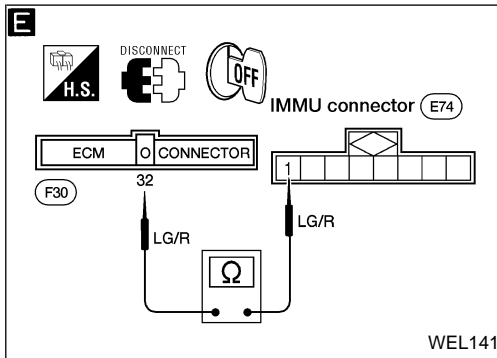
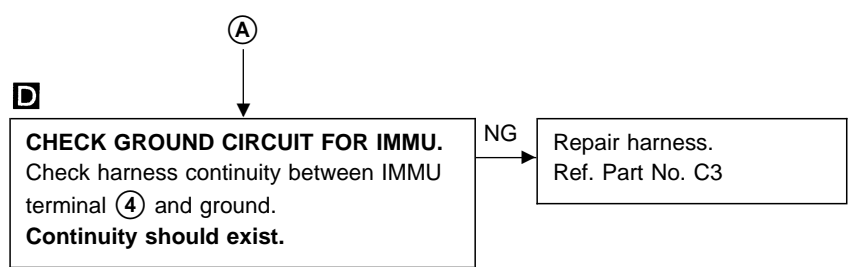
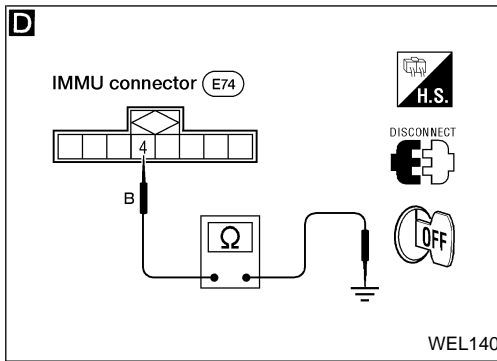
OK

(Go to next page.)



NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd)



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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 3

Self-diagnostic results:


“DIFFERENCE OF KEY” displayed on CONSULT-II screen

A

SELF DIAGNOSIS	
DTC RESULTS	TIME
DIFFERENCE OF KEY	0

WEL173

A

 Confirm SELF-DIAGNOSTIC RESULTS “DIFFERENCE OF KEY” displayed on CONSULT-II screen.

NG → Refer to “SYMPTOM MATRIX CHART 1”, EL-264.

OK ↓

B

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

WEL174

B

PERFORM INITIALIZATION.
 Perform initialization with CONSULT-II. Re-register all NVIS (NATS) ignition key IDs. For the initialization procedure, refer to “CONSULT-II OPERATION MANUAL IVIS/ NVIS”.

Can the system be initialized?
 Note: If the initialization is not completed or fails, CONSULT-II shows **B** message on the screen.

No →

- IMMU is malfunctioning.
- 1. Replace IMMU. Ref. Part No. A
- 2. Perform initialization with CONSULT-II. For the initialization procedure, refer to “CONSULT-II OPERATION MANUAL IVIS/ NVIS”.

Yes ↓

Start engine with each key letting the system reset between key checks. This takes about 5 seconds to ensure every key will start the vehicle. (End)
 (The ignition key ID was unregistered.)
 Ref. Part No. D

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 4

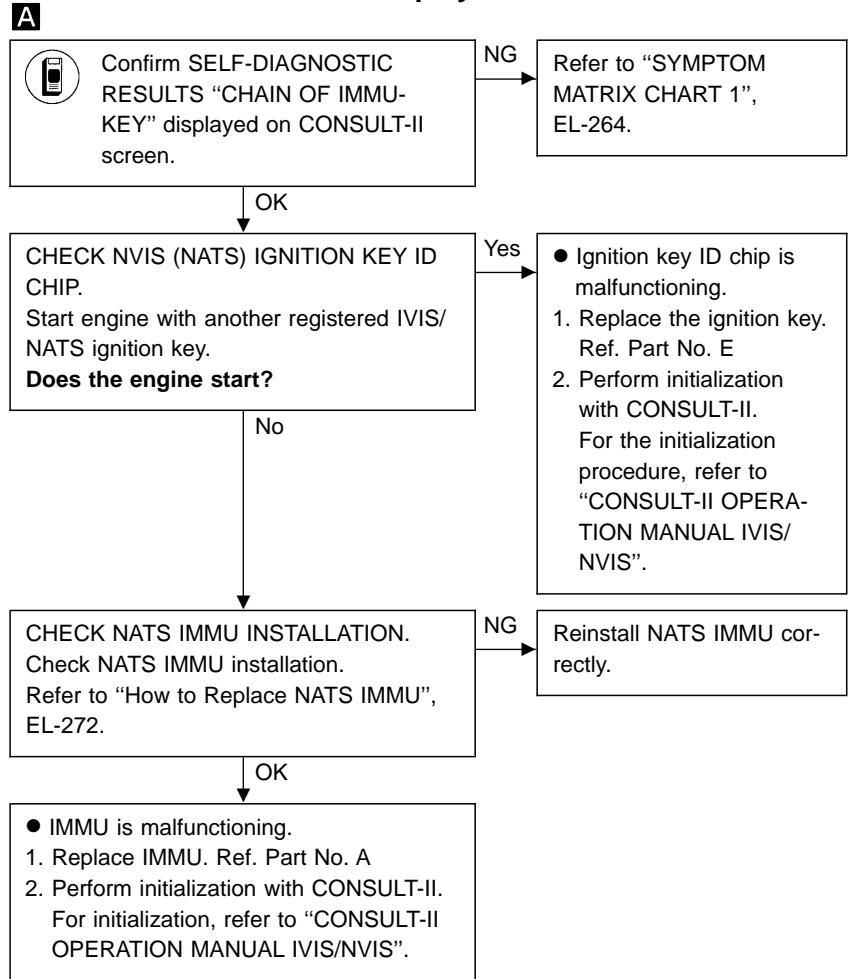
Self diagnostic results:

“CHAIN OF IMMU-KEY” displayed on CONSULT-II screen

A

SELF DIAGNOSIS	
DTC RESULTS	TIME
CHAIN OF IMMU-KEY	0

WEL495A



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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 5

Self-diagnostic results:

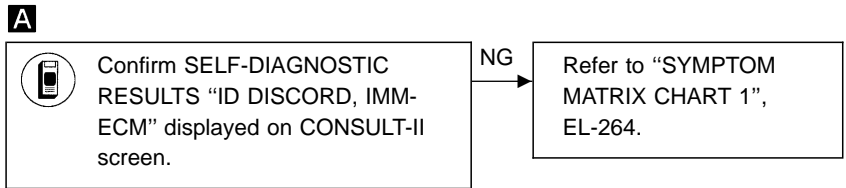
“ID DISCORD, IMM-ECM” displayed on CONSULT-II screen*

* “ID DISCORD, IMM-ECM”: Registered ID of IMM-U is in discord with that of ECM.

A

SELF DIAGNOSIS	
DTC RESULTS	TIME
ID DISCORD, IMM-ECM	0

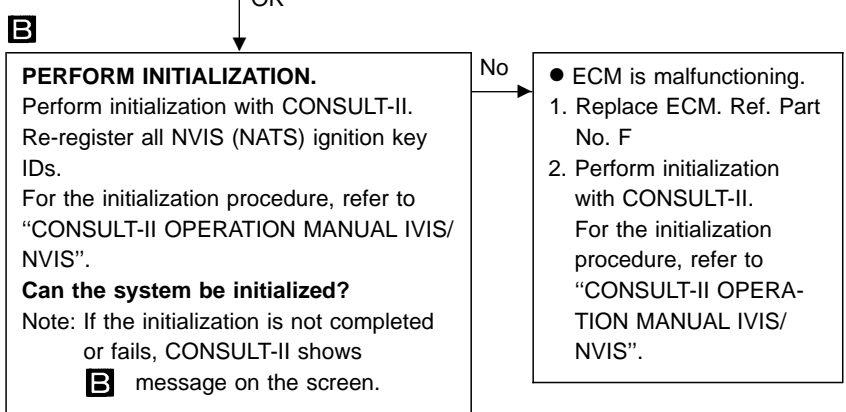
WEL175



B

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

WEL174



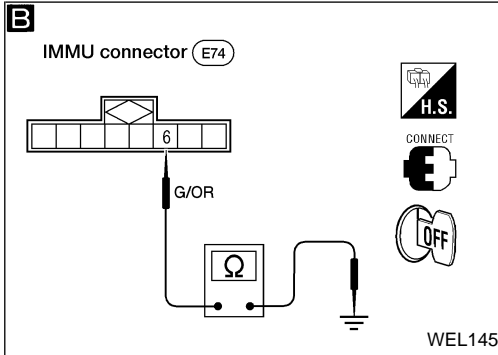
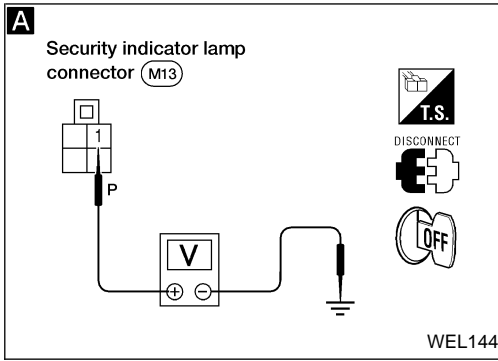
Start engine (END).
(System initialization had not been completed. Ref. Part No. F).

NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 6

“SECURITY INDICATOR LAMP DOES NOT LIGHT UP”



CHECK FUSE.
Check 10A fuse [No. 24], located in the fuse block (J/B).

NG → Replace fuse.

OK ↓

CHECK SECURITY INDICATOR LAMP.

1. Install 10A fuse.
2. Perform initialization with CONSULT-II.
For initialization, refer to “CONSULT-II OPERATION MANUAL IVIS/NVIS”.
3. Turn ignition switch OFF.
4. Start engine and turn ignition switch OFF.
5. Check the security indicator lamp lighting.
Does security indicator lamp light up?

Yes → Inspection end.

No ↓

A

CHECK SECURITY INDICATOR LAMP POWER SUPPLY CIRCUIT.
Disconnect security indicator lamp connector.
Check voltage between security indicator terminal ① and ground.
Battery voltage should exist.

NG → Check harness for open or short between fuse and security indicator lamp.

OK ↓

Check security indicator lamp.

NG → Replace security indicator lamp.

OK ↓

B

CHECK NATS IMMU FUNCTION.

1. Disconnect NATS IMMU connector.
2. Connect security indicator lamp connector.
3. Check continuity between NATS IMMU terminal ⑥ and ground.
Does continuity exist intermittently?

No →

- IMMU is malfunctioning.
- 1. Replace IMMU.
- 2. Perform initialization with CONSULT-II.
For initialization, refer to “CONSULT-II OPERATION MANUAL IVIS/NVIS”.

Yes ↓

Check harness for open or short between security indicator lamp and NATS IMMU.

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NVIS (NISSAN VEHICLE IMMOBILIZER SYSTEM — NATS)

Trouble Diagnoses (Cont'd)

DIAGNOSTIC PROCEDURE 7

Self-diagnostic results:

“LOCK MODE” displayed on CONSULT-II screen

A

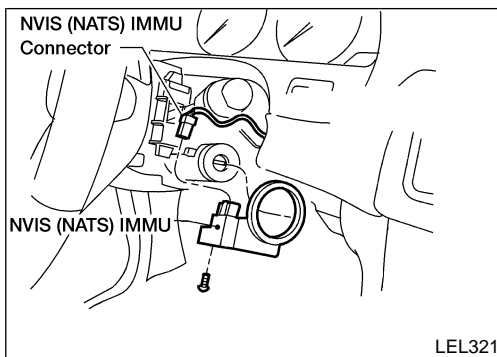
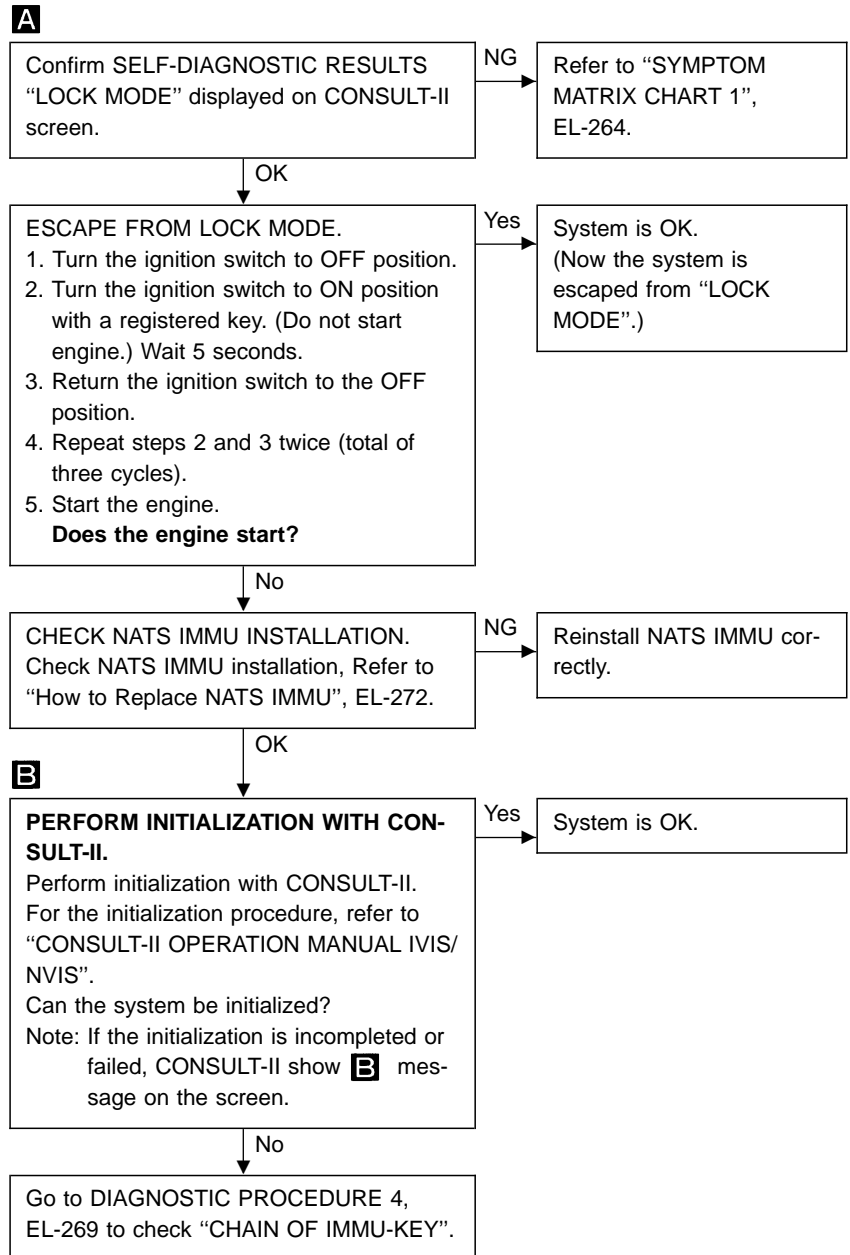
SELF DIAGNOSIS	
DTC RESULTS	TIME
LOCK MODE	0

WEL176

B

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

WEL174



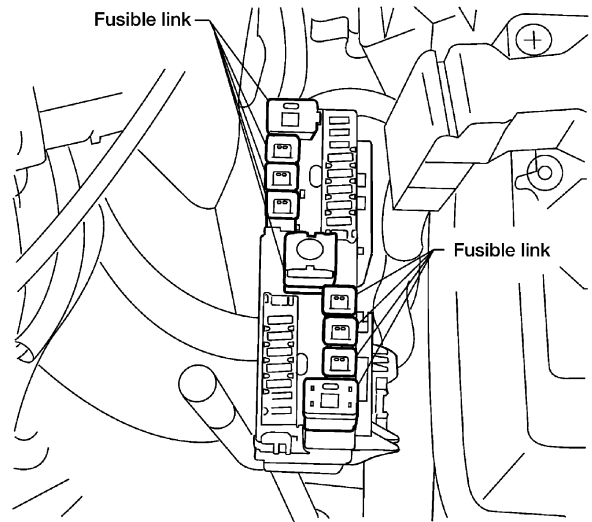
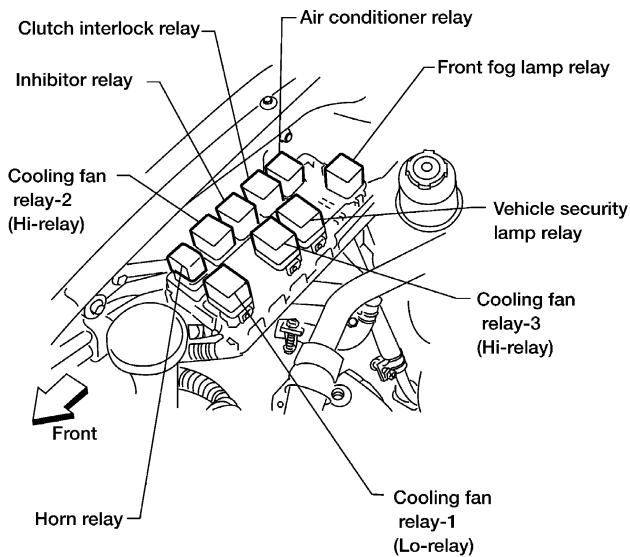
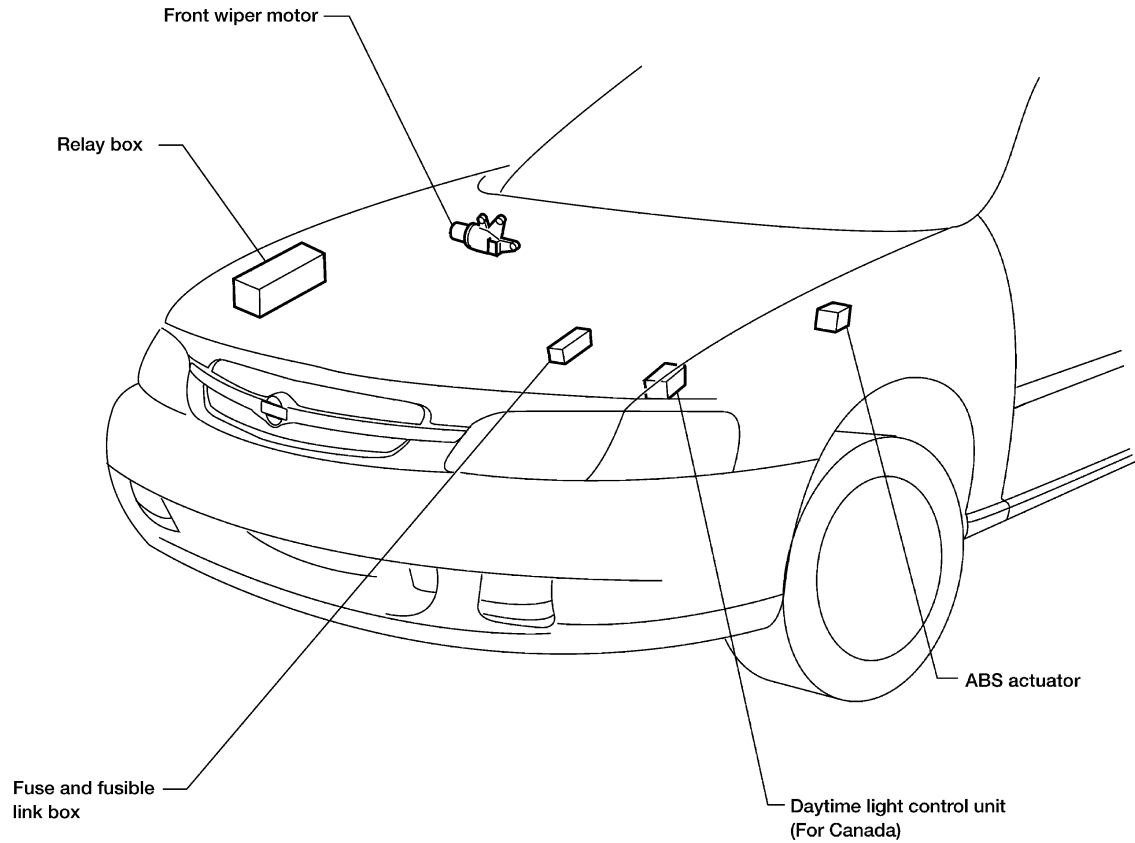
How to Replace NATS IMMU

NOTE:

- If NATS IMMU is not installed correctly, NVIS (NATS) system will not operate properly and SELF-DIAG RESULTS on CONSULT-II screen will show “LOCK MODE”, “CHAIN OF IMMU-KEY”, or “CHAIN OF ECM-IMMU”.

LOCATION OF ELECTRICAL UNITS

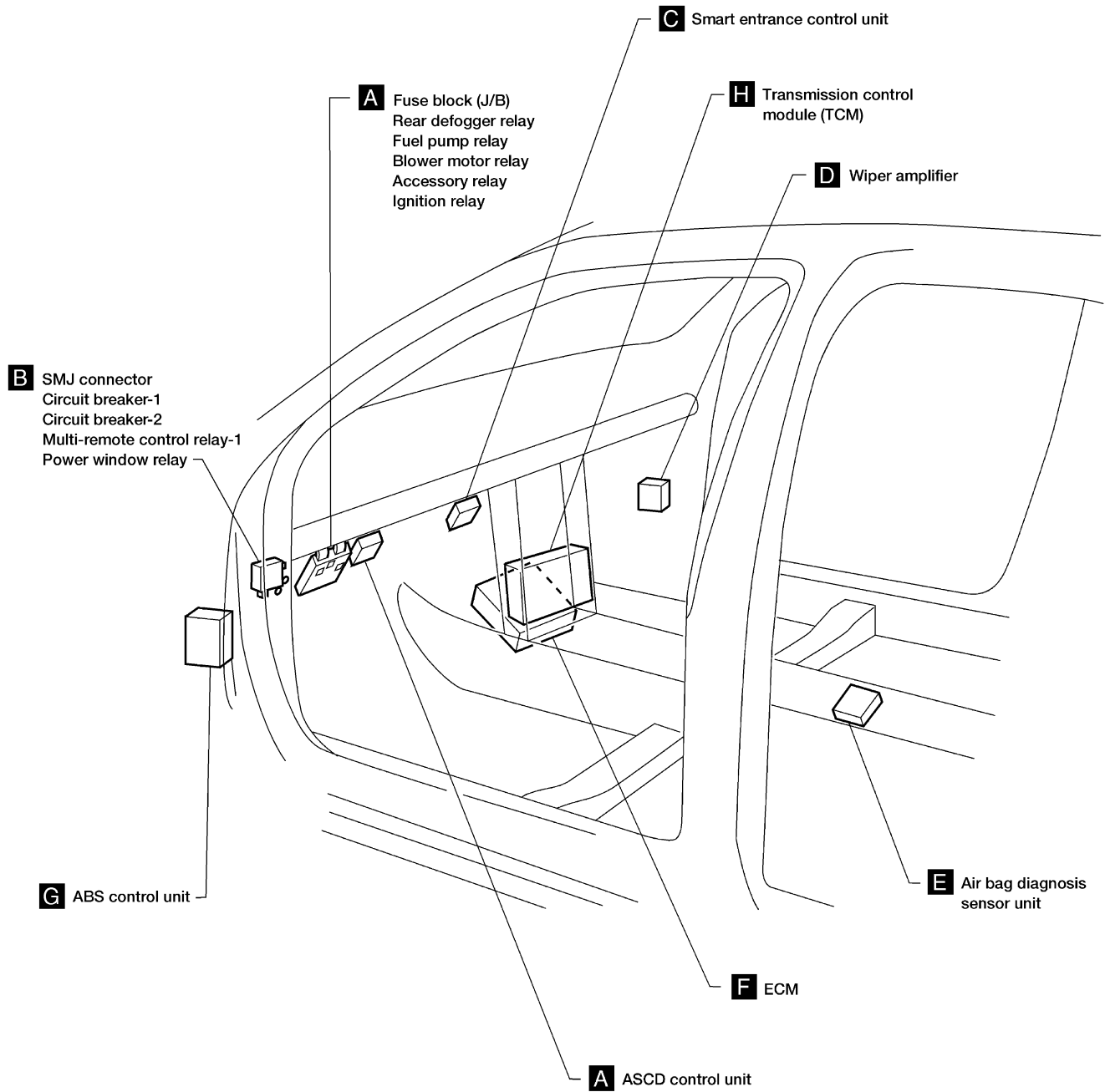
Engine Compartment



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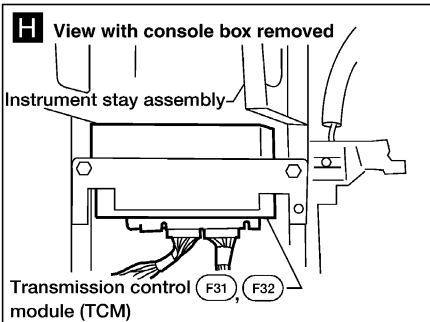
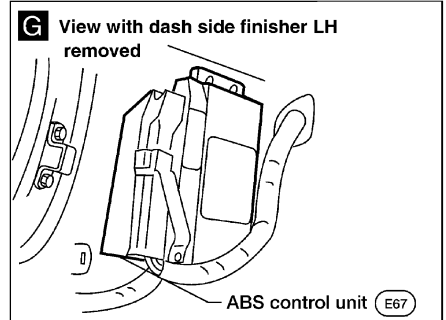
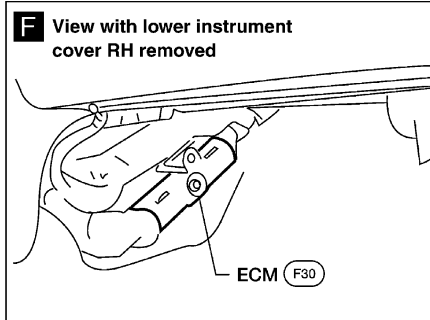
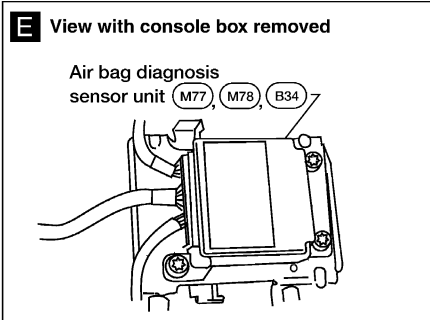
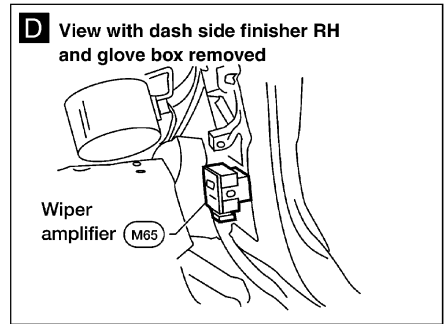
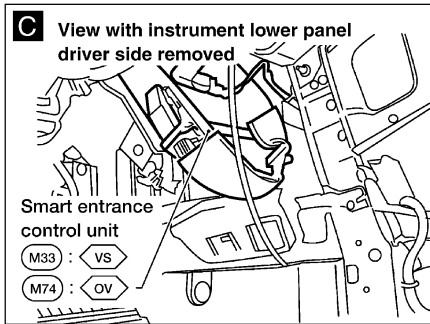
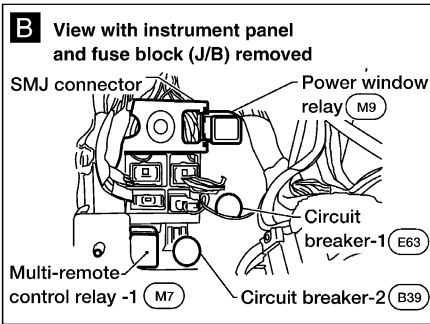
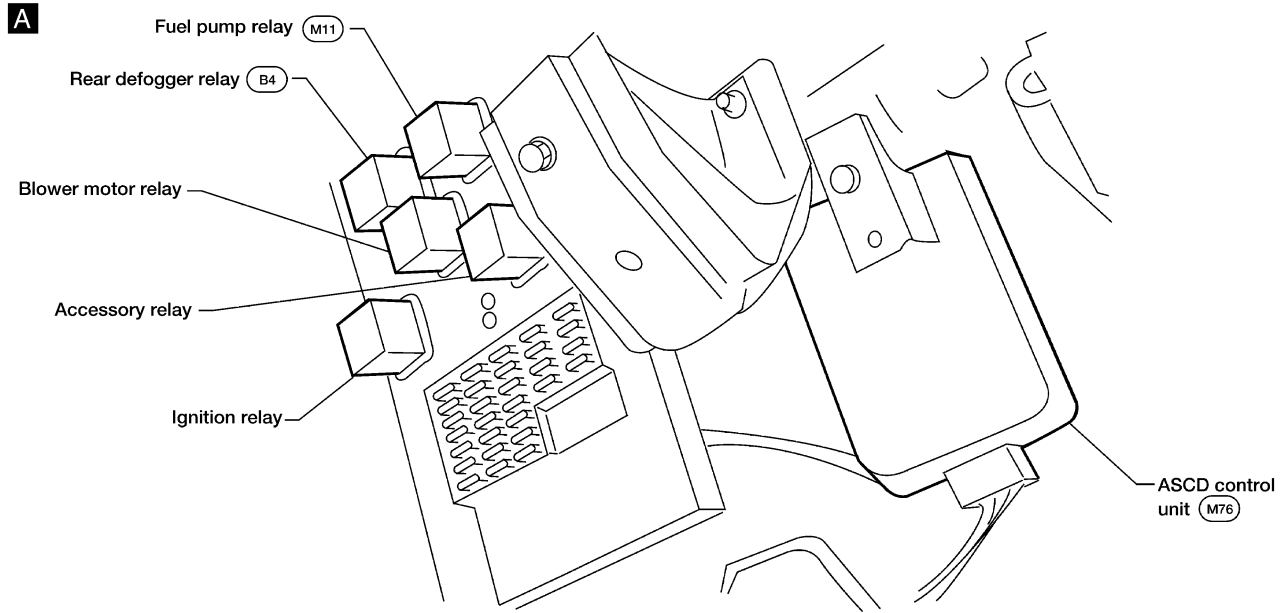
LOCATION OF ELECTRICAL UNITS

Passenger Compartment



LOCATION OF ELECTRICAL UNITS

Passenger Compartment (Cont'd)

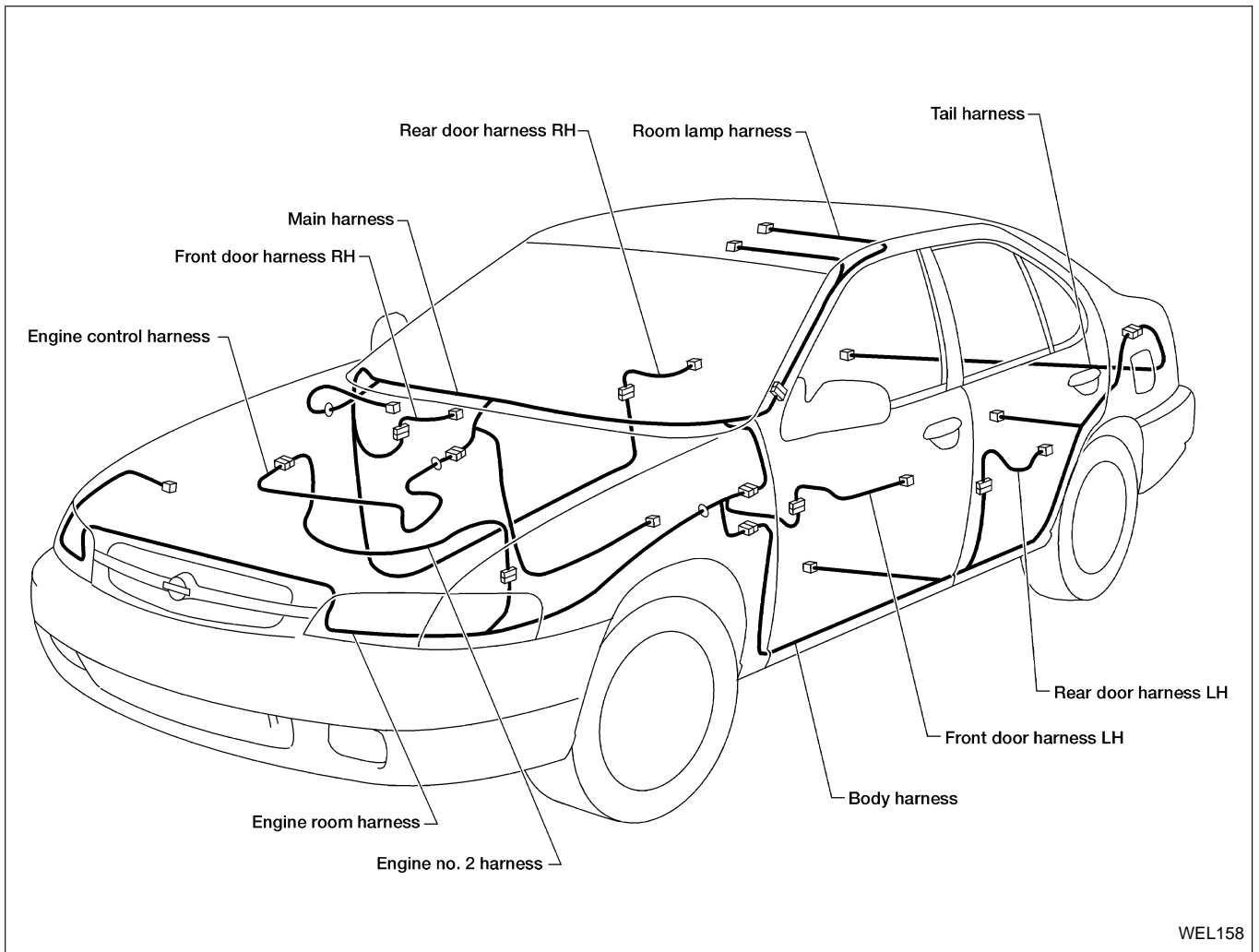


VS : With vehicle security system
 OV : Without vehicle security system

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HARNESS LAYOUT

Outline

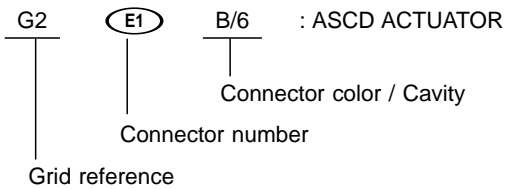


NOTE: For detailed ground distribution information, refer to "GROUND DISTRIBUTION", EL-20.

HARNESS LAYOUT

How to Read Harness Layout

Example:



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

- Main Harness
- Engine Room Harness (Engine Compartment)
- Engine Control Harness
- Body Harness

To use the grid reference

- 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

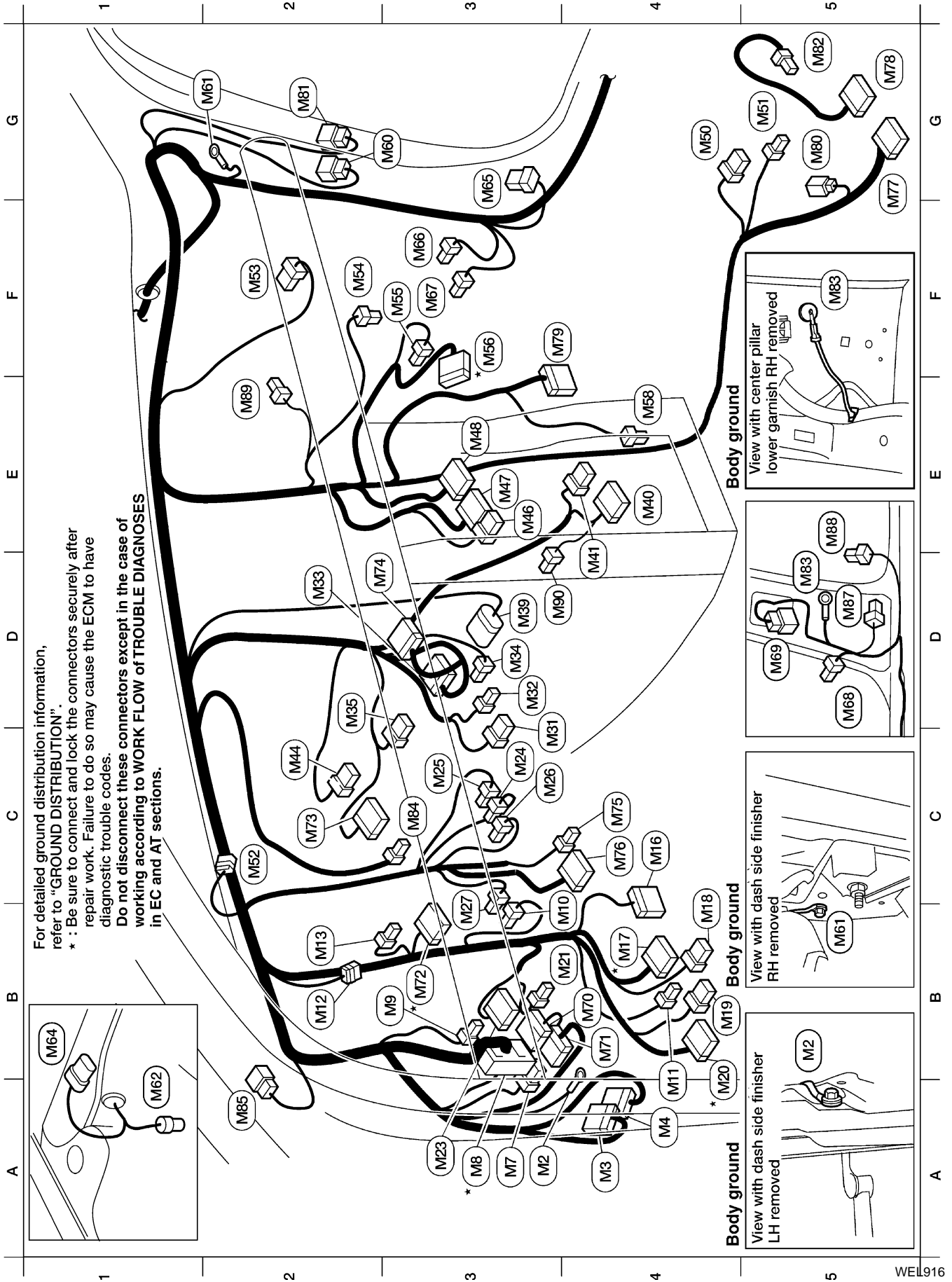
Main symbols of connector (in Harness Layout) are indicated in the below.

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. 	—			

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HARNESS LAYOUT

Main Harness

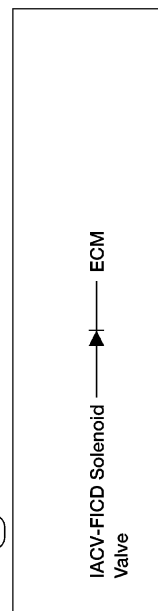


HARNES LAYOUT

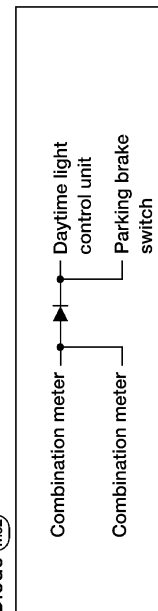
Main Harness (Cont'd)

A4 (M2) — : Body ground	D3 (M64) B/3 : Combination flasher unit	D5 (M68) BR/1 : Front door switch RH
A4 (M3) W/12 : To (D1)	D3 (M65) W/6 : Rear window defogger switch	D5 (M69) W/8 : To (D60)
A4 (M4) W/12 : To (D2)	D4 (M38) BR/10 : Mode door motor	B3 (M70) W/10 : To (E31)
A3 (M7) BR/6 : Multi-remote control relay-1	E4 (M40) W/10 : Audio unit	B3 (M71) W/16 : To (E32)
A3 (M8) SMJ : To (E65)	D4 (M41) W/6 : Audio unit	B3 (M72) W/24 : Combination meter
B3 (M9) L/4 : Power window relay	C2 (M44) W/8 : Hazard switch	C2 (M73) BR/24 : Combination meter
B4 (M10) L/2 : ASCD clutch switch	E4 (M46) W/6 : Fan switch	D3 (M74) GY/26 : Smart entrance control unit
A4 (M11) L/4 : Fuel pump relay	E3 (M47) B/20 : Push control unit	(without vehicle security system)
B2 (M12) W/2 : Diode	E3 (M48) B/16 : Push control unit	C4 (M75) L/4 : Power socket relay
B2 (M13) W/4 : Security indicator lamp	F4 (M50) W/6 : A/T device	C4 (M76) BR/24 : ASCD control unit
C4 (M16) W/16 : Data link connector	F5 (M51) B/1 : Parking brake switch	G5 (M77) Y/20 : Air bag diagnosis sensor unit
B4 (M17) GY/16 : Fuse block (J/B)	F2 (M52) SB/4 : Diode	G5 (M78) Y/12 : Air bag diagnosis sensor unit
B5 (M18) GY/8 : Fuse block (J/B)	F2 (M53) W/8 : Intake door motor	F3 (M79) W/24 : To (F34)
B5 (M19) W/8 : Fuse block (J/B)	F3 (M54) B/2 : Glove box lamp	G5 (M80) W/2 : Power socket
B5 (M20) BR/16 : Fuse block (J/B)	F3 (M55) W/3 : Thermo control amplifier	G2 (M81) W/8 : To (D30)
B4 (M21) W/3 : Illumination control switch	F3 (M56) W/16 : To (F26)	G5 (M82) Y/2 : Side air bag module RH
A3 (M23) GY/12 : Door mirror remote control switch	E4 (M59) B/2 : Cigarette lighter socket	D5 (M83) — : Body ground
C3 (M24) L/2 : ASCD brake switch	G3 (M60) W/8 : To (D21)	C3 (M84) Y/6 : Driver air bag module
C3 (M25) B/2 : Stop lamp switch	G2 (M61) — : Body ground	A2 (M85) W/6 : To (R7)
C4 (M26) L/2 : ASCD brake switch (A/T shift lock switch)	A1 (M62) GY/2 : Front wheel sensor RH	D5 (M87) Y/2 : Satellite sensor RH
B3 (M27) L/2 : Clutch interlock switch	B1 (M64) GY/6 : Wiper motor	D5 (M88) Y/2 : Seat belt pre-tensioner RH
C4 (M31) W/8 : Warning chime unit	F3 (M65) W/8 : Wiper amplifier	E2 (M89) W/2 : Passenger air bag module
D4 (M32) W/4 : Rear window defogger timer	F3 (M66) W/2 : Blower motor	D4 (M90) W/2 : Antenna amplifier
D3 (M33) W/36 : Smart entrance control unit (with vehicle security system)	F3 (M67) BR/4 : Fan resistor	

Diode (M12)



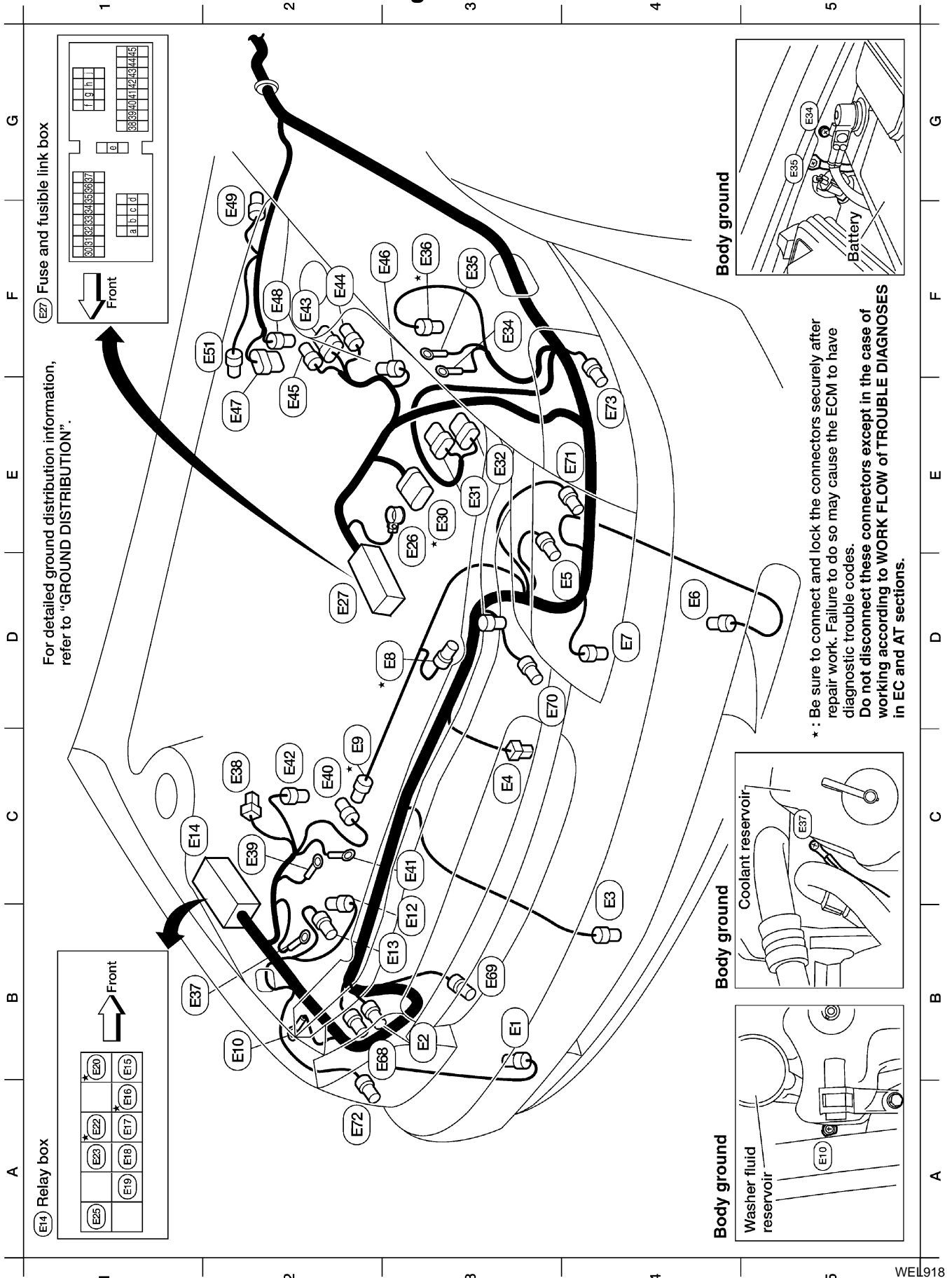
Diode (M52)



* : 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 Room Harness



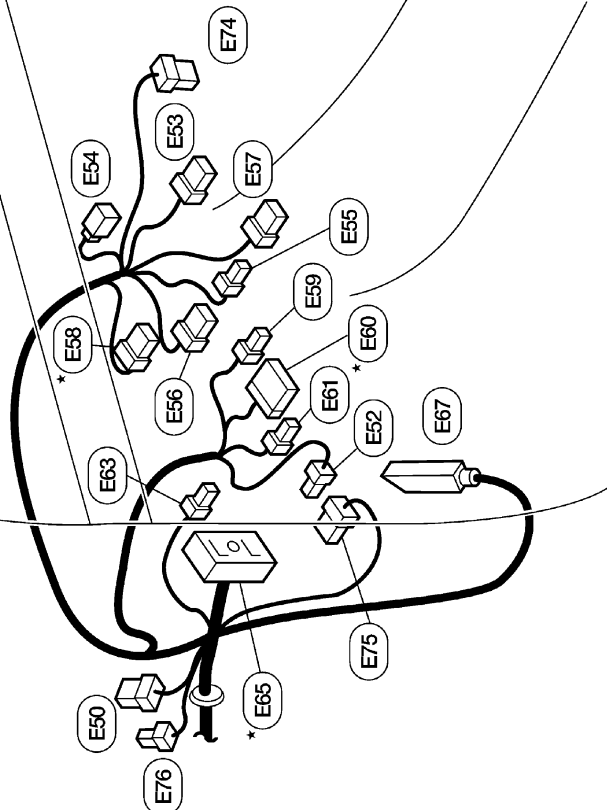
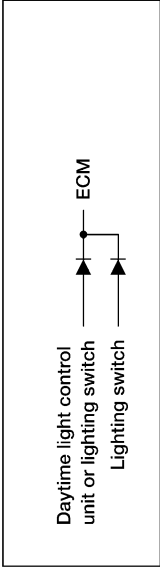
HARNESS LAYOUT

Engine Room Harness (Cont'd)

- (E50) SB/6 : Diode -1
- (E52) W/2 : To (E8)
- (E53) L/8 : Wiper switch
- (E54) W/3 : Key switch
- (E55) B/2 : Combination switch
(Front fog lamp switch)
- (E56) W/8 : Combination switch
(Lighting switch)
- (E57) W/6 : Combination switch
(Turn signal switch)
- * (E58) W/6 : Ignition switch
- (E59) W/4 : Fuse block (J/B)
- * (E60) W/16 : Fuse block (J/B)
- (E61) B/2 : Fuse block (J/B)
- (E63) W/2 : Circuit breaker-1
- * (E66) SMJ : To (M8)
- (E67) B/88 : ABS control unit
- (E74) W/8 : NATS IMMU
- (E75) W/5 : To (E33)
- (E76) SB/2 : Diode -2 (with multi-remote control system only)

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

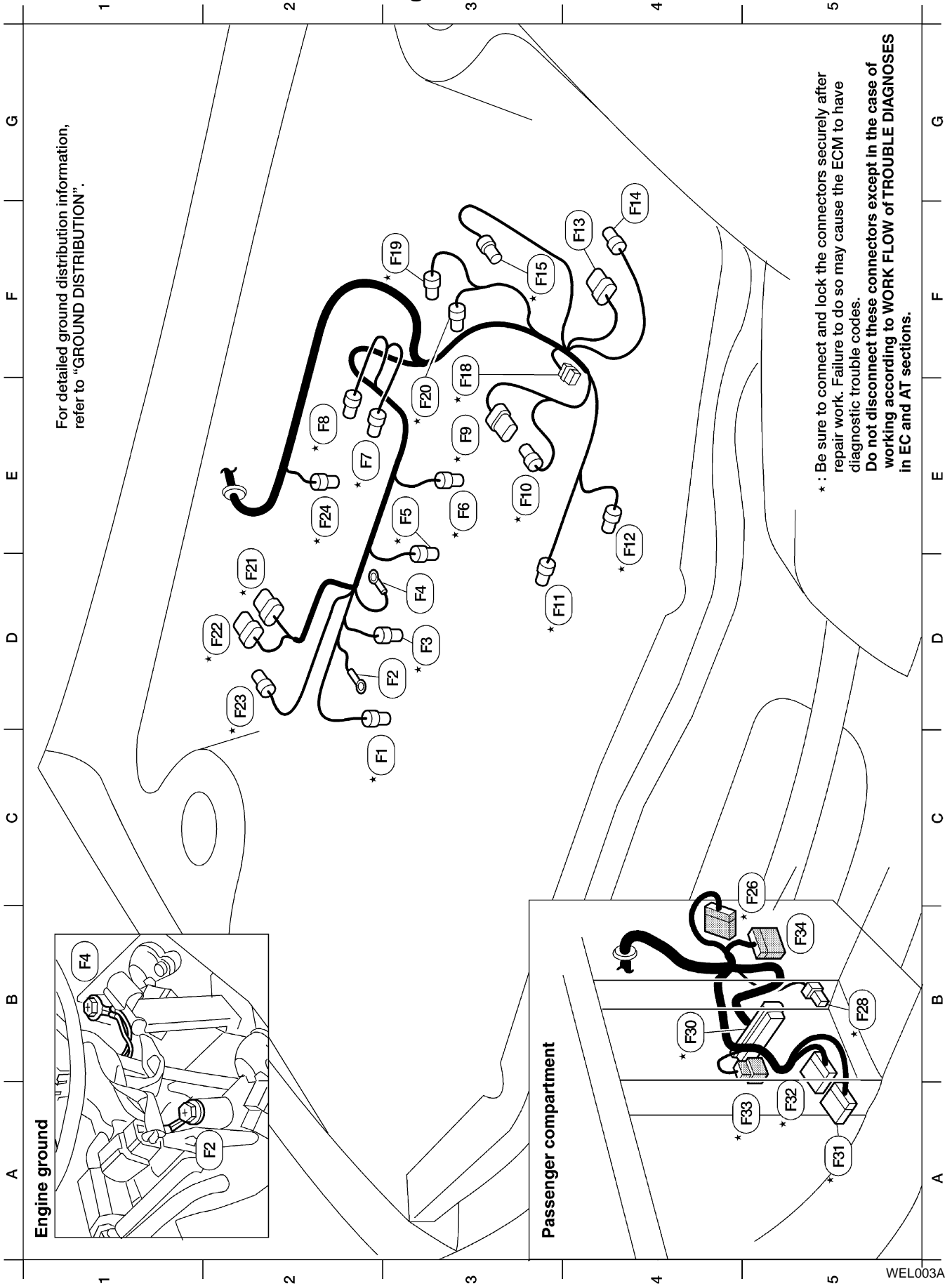
Diode (E50)



* : 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



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HARNESS LAYOUT

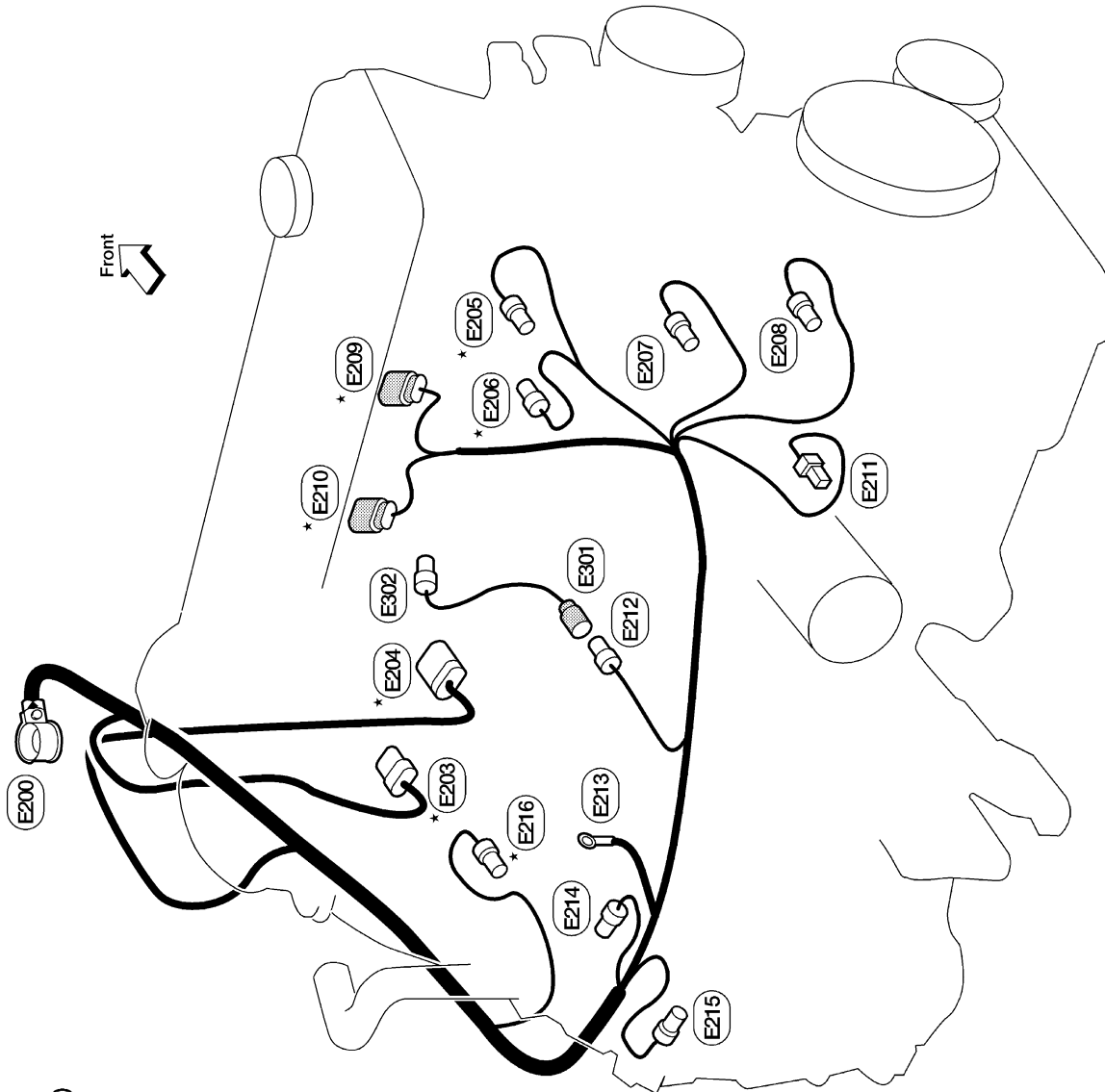
Engine Control Harness (Cont'd)

C2 *	(F1) B/2	: Injector No. 1	F3 *	(F18) GY/2	: Resistor
D3	(F2) —	: Engine ground	F3 *	(F19) BR/3	: Throttle position sensor
D3 *	(F3) B/2	: Injector No. 2	E3 *	(F20) GY/3	: Throttle position switch
D3	(F4) —	: Engine ground	D2 *	(F21) GY/8	: To (E210)
E3 *	(F5) B/2	: Injector No. 3	D2 *	(F22) GY/6	: To (E208)
E3 *	(F6) B/2	: Injector No. 4	D2 *	(F23) G/2	: EGRC-solenoid valve
E2 *	(F7) L/2	: EVAP canister purge volume control solenoid valve	E2 *	(F24) GY/3	: Rear heated oxygen sensor or G/3
E2 *	(F8) SB/2	: EGR temperature sensor	C5 *	(F26) W/18	: To (M56)
E3 *	(F9) GY/6	: Distributor (camshaft position sensor)	B5 *	(F28) L/4	: ECM relay
E3 *	(F10) GY/2	: Distributor	B4 *	(F30) W/88	: ECM
D3 *	(F11) GY/3	: Front heated oxygen sensor or SB/3	A5	(F31) W/24	: Transmission control module
E4 *	(F12) GY/2	: Crankshaft position sensor (OBD)	B5	(F32) GY/24	: Transmission control module
F4	(F13) BR/8	: A/T solenoid valve	B5	(F33) W/10	: To (B30)
F4	(F14) GY/3	: Revolution sensor	B5	(F34) W/24	: To (M79)
F3 *	(F15) BR/4	: Mass air flow sensor			

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

HARNESS LAYOUT

Engine No. 2 Harness



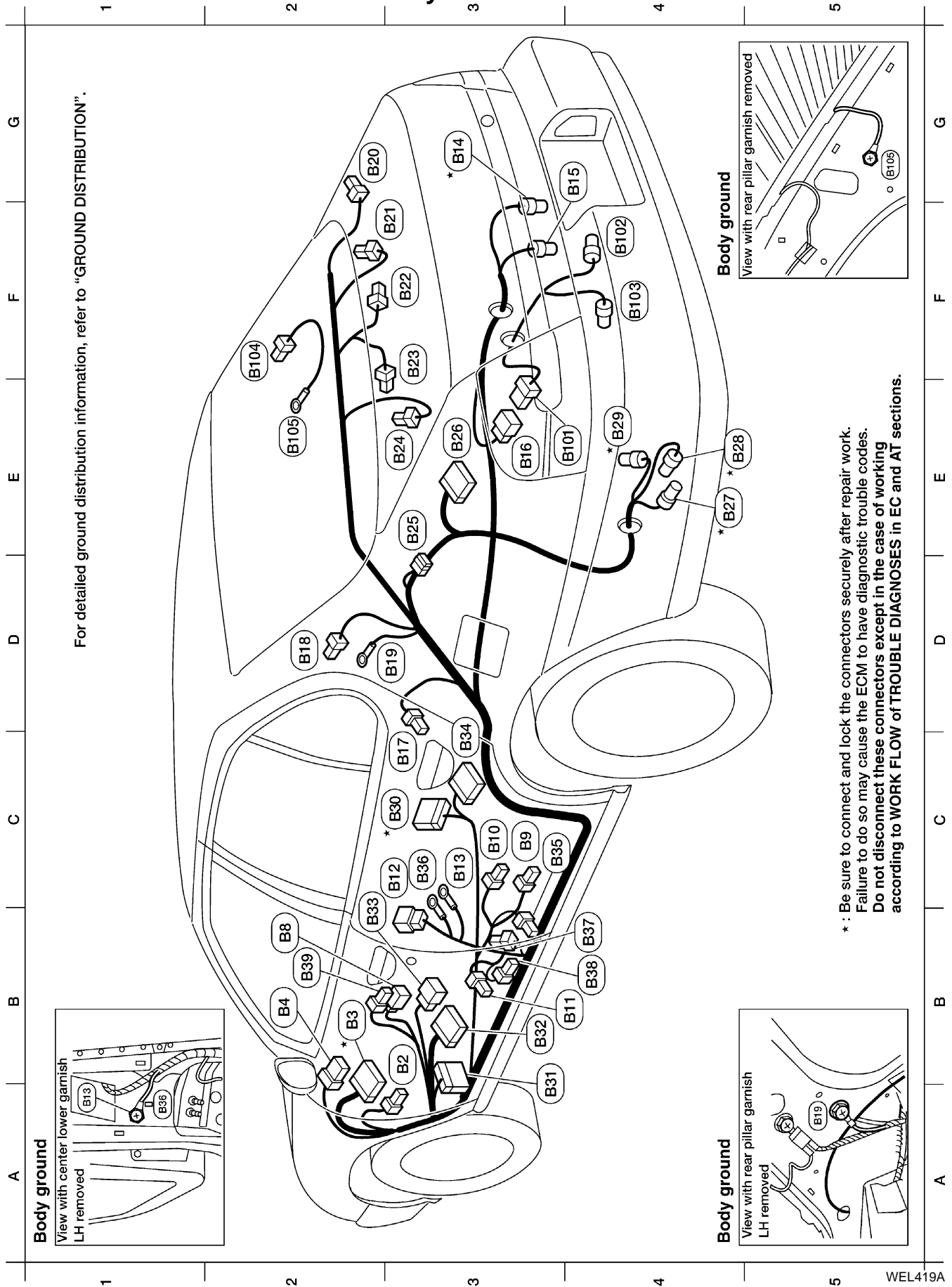
- (E200) — : Battery
 - * (E203) GY/9 : To (E30)
 - * (E204) B/10 : Park/neutral position (PNP) switch (With A/T)
 - * (E205) GY/2 : Engine coolant temperature sensor
 - * (E206) BR/2 : IACV-AAC valve
 - (E207) PU/2 : IACV-FICD solenoid valve
 - (E208) GY/1 : Power steering oil pressure switch
 - * (E209) GY/6 : To (F22)
 - * (E210) GY/8 : To (E21)
 - (E211) B/1 : Oil pressure switch
 - (E212) GY/2 : To (E301)
 - (E213) — : Starter motor
 - (E214) GY/1 : Starter motor
 - (E215) GY/2 : Vehicle speed sensor
 - * (E216) GY/4 : Back-up lamp switch (With M/T)
- Sub-harness**
- (E301) GY/2 : To (E212)
 - (E302) B/2 : Knock sensor

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

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HARNESS LAYOUT

Body Harness



HARNES LAYOUT

Body Harness (Cont'd)

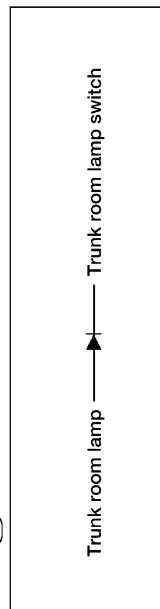
B3	(B2) B/2	: Fuse block (J/B)	F3	(B21) BR/2	: Rear speaker RH
B2 *	(B3) W/12	: Fuse block (J/B)	F3	(B22) W/2	: High-mounted stop lamp
B2	(B4) BR/6	: Rear window defogger relay	F3	(B23) W/2	: Trunk room lamp
B2	(B8) W/2	: To (E52)	E3	(B24) BR/2	: Rear speaker LH
C3	(B8) W/2	: Power seat LH	E3	(B25) W/2	: Diode
C3	(B10) W/3	: Seat belt buckle switch LH	E3	(B26) W/10	: To (T4)
B4	(B11) B/3	: Front door switch LH (with side air bags)	E4 *	(B27) B/2	: EVAP canister vent control valve
B4	(B11) BR/1	: Front door switch LH (without side air bags)	E5 *	(B28) GY/3	: EVAP control system pressure sensor
C3	(B12) W/8	: To (D40)	E4 *	(B29) G/2	: Vacuum cut valve bypass valve
C3	(B13) —	: Body ground	C3 *	(B30) W/10	: To (F33)
G3 *	(B14) GY/4	: Fuel level sensor unit	B3	(B31) W/10	: To (M70)
G4	(B15) GY/2	: Fuel pump	B3	(B32) W/16	: To (M71)
E3	(B16) W/6	: To (B10)	B3	(B33) W/4	: To (E75)
C3	(B17) BR/1	: Rear door switch LH	C3	(B34) Y/12	: Air bag diagnosis sensor unit
D2	(B18) B/1	: Condenser	C3	(B35) Y/2	: Side air bag module LH
D3	(B19) —	: Body ground	C3	(B36) —	: Body ground (with side air bags)
G2	(B20) BR/1	: Rear door switch RH			

B3 (B37) Y/2 : Seat belt pretensioner LH
 B3 (B38) Y/2 : Satellite sensor LH
 B2 (B39) W/2 : Circuit breaker-2

Sub-harness

E3 (B101) W/6 : To (E16)
 F4 (B102) GY/2 : Rear wheel sensor RH
 F4 (B103) BR/2 : Rear wheel sensor LH
 F2 (B104) B/1 : Rear window defogger (Ground)
 E2 (B105) — : Body ground

Diode (B25)

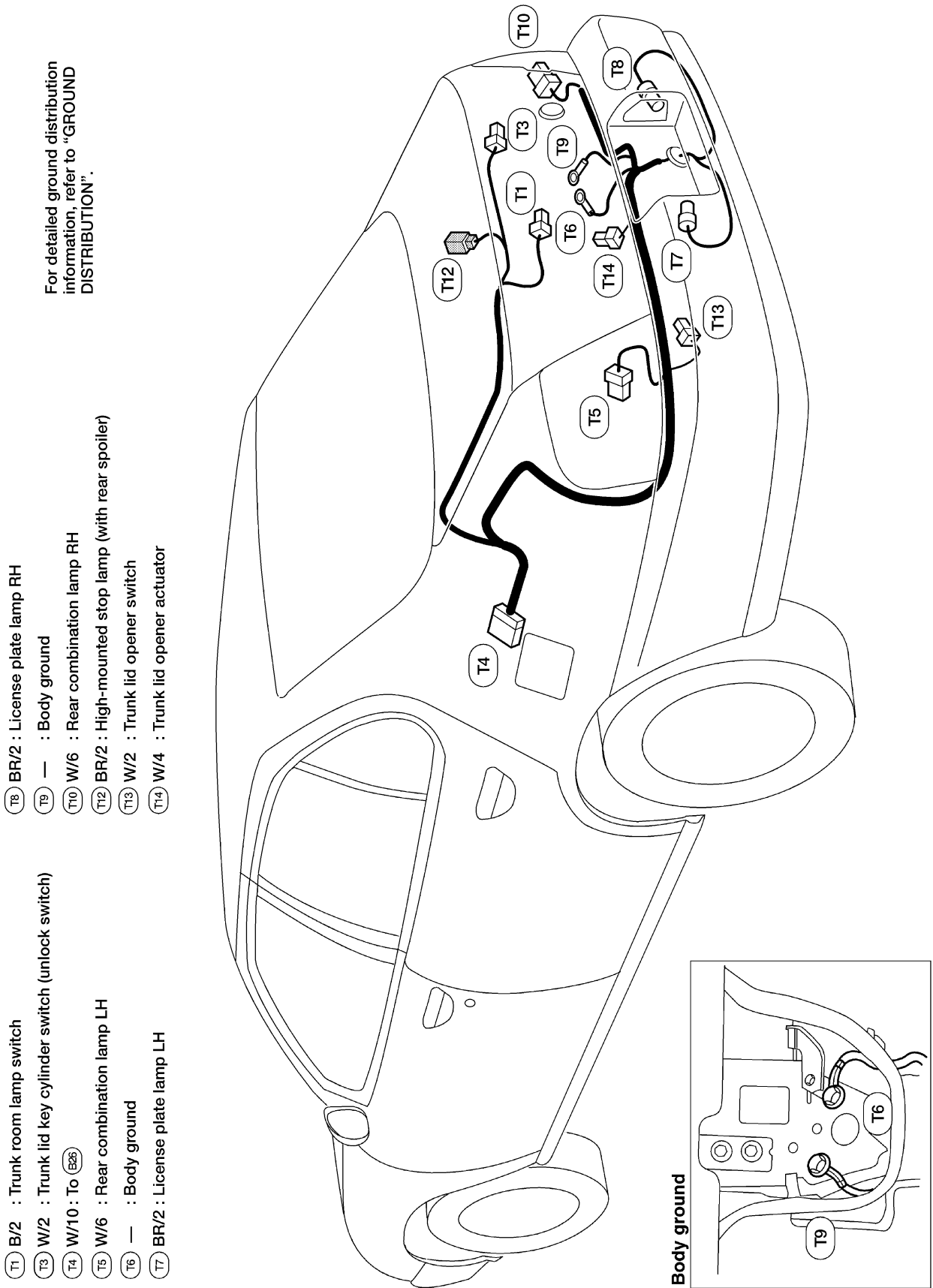


* : Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

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HARNESS LAYOUT

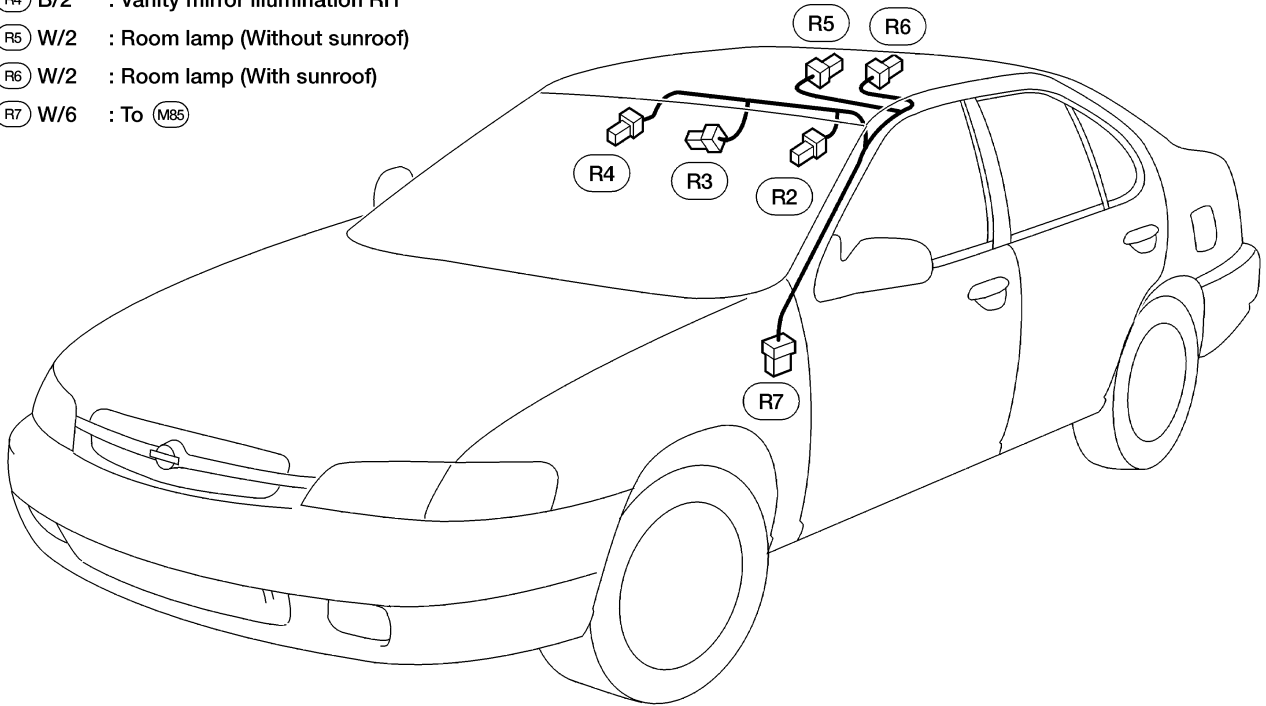
Tail Harness



HARNES LAYOUT

Room Lamp

- Ⓡ2 B/2 : Vanity mirror illumination LH
- Ⓡ3 W/2 : Spot lamp
- Ⓡ4 B/2 : Vanity mirror illumination RH
- Ⓡ5 W/2 : Room lamp (Without sunroof)
- Ⓡ6 W/2 : Room lamp (With sunroof)
- Ⓡ7 W/6 : To Ⓜ85



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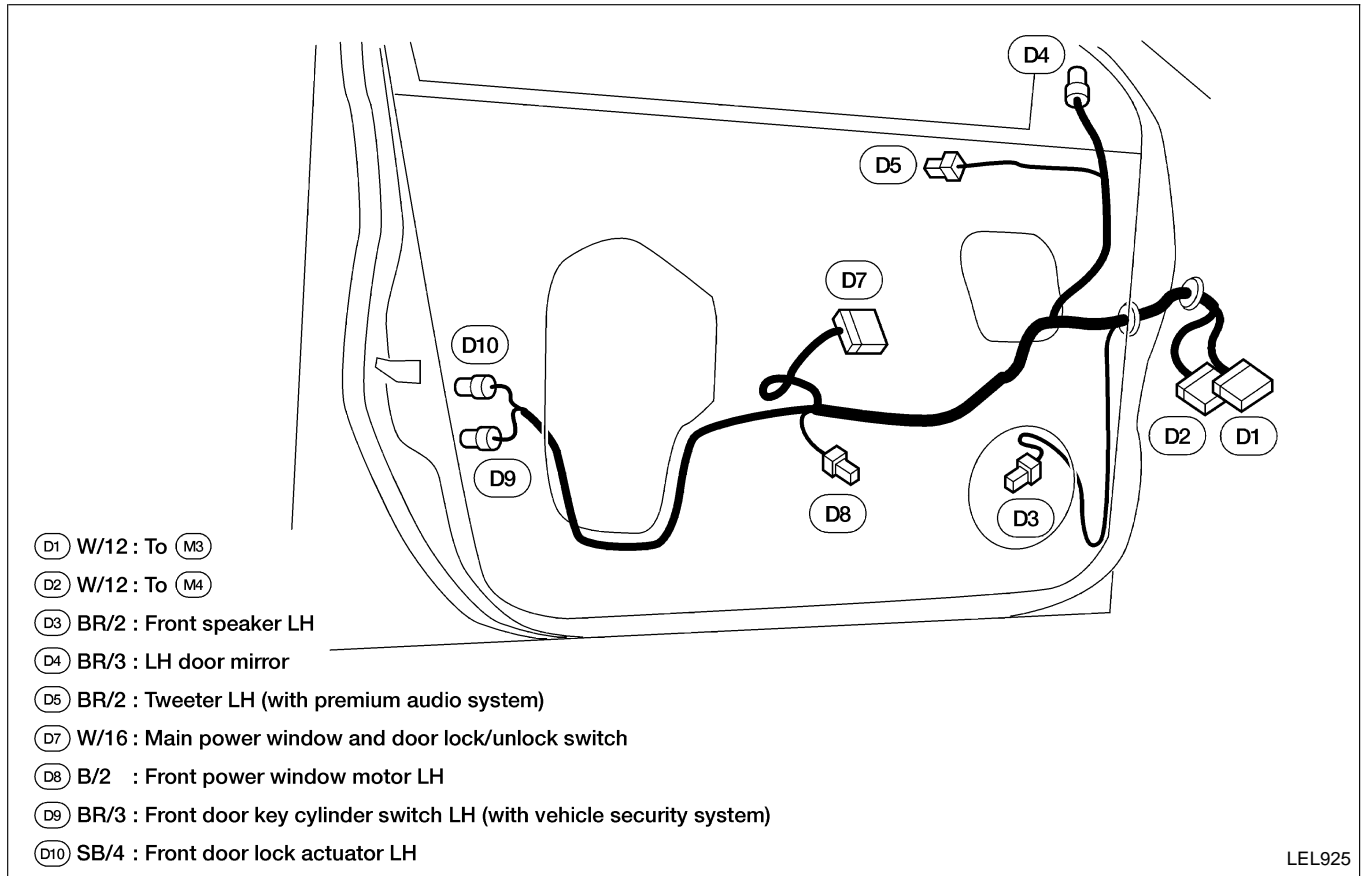
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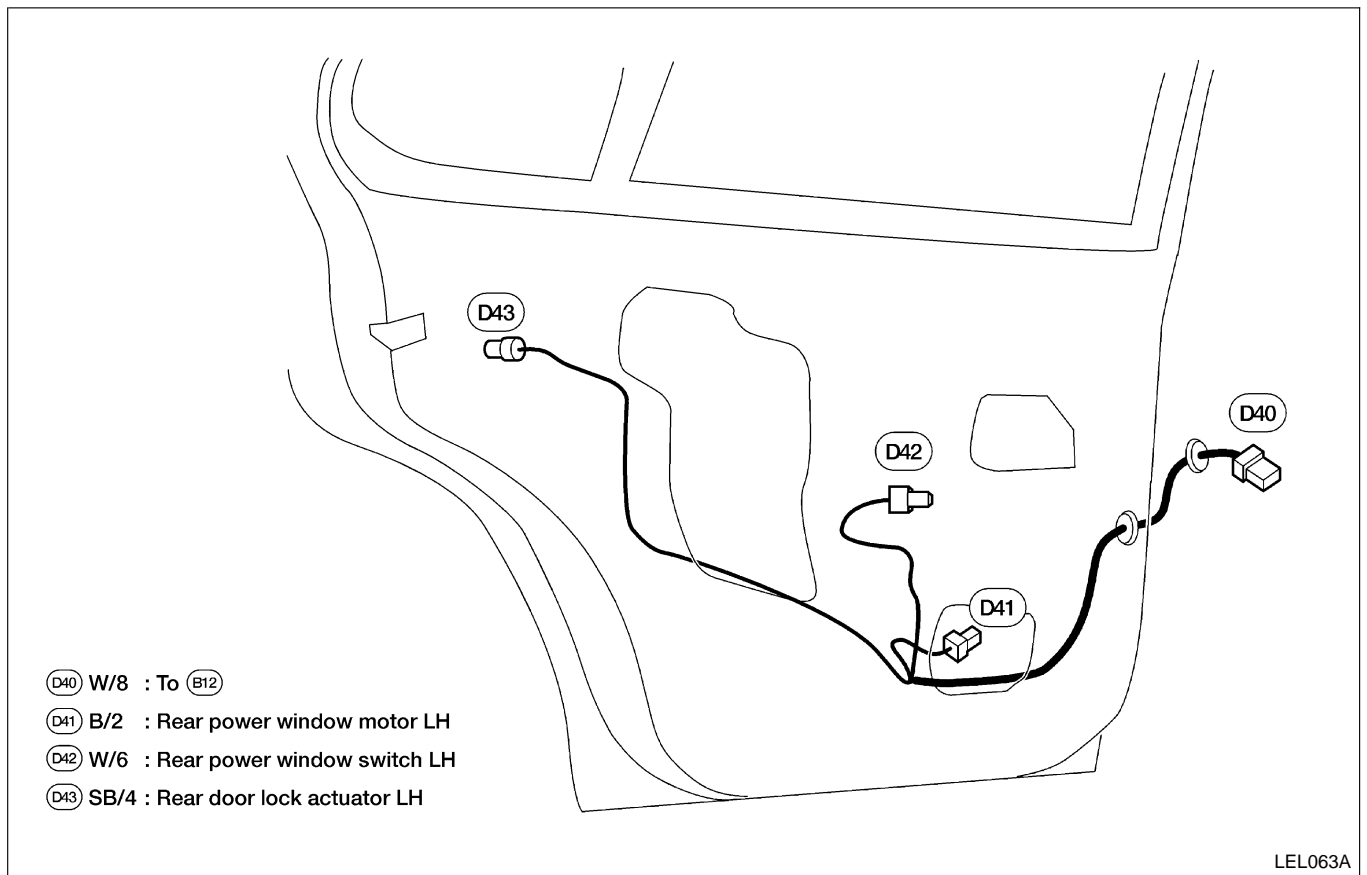
HARNESS LAYOUT

Door Harness (LH side)

FRONT



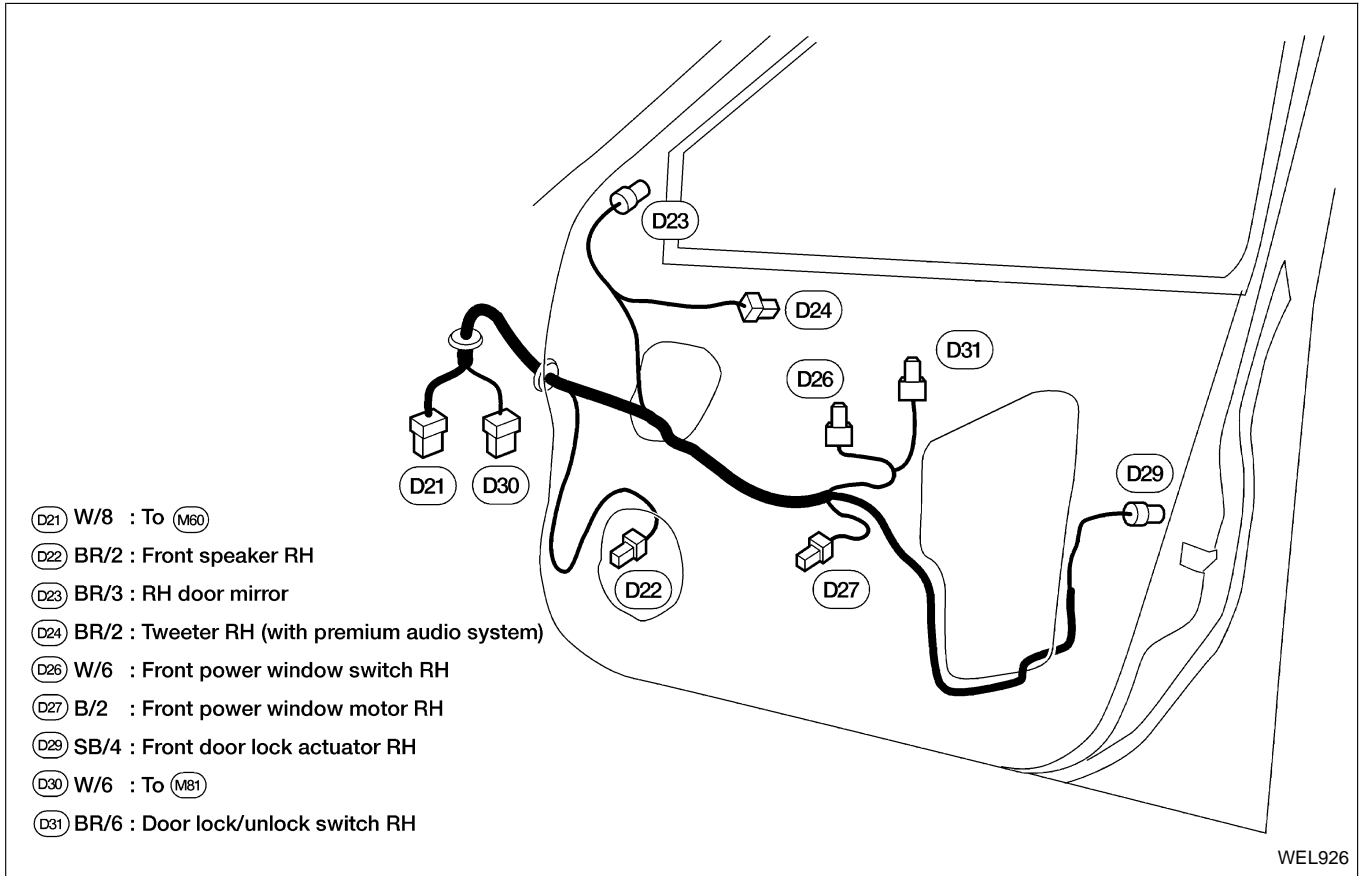
REAR



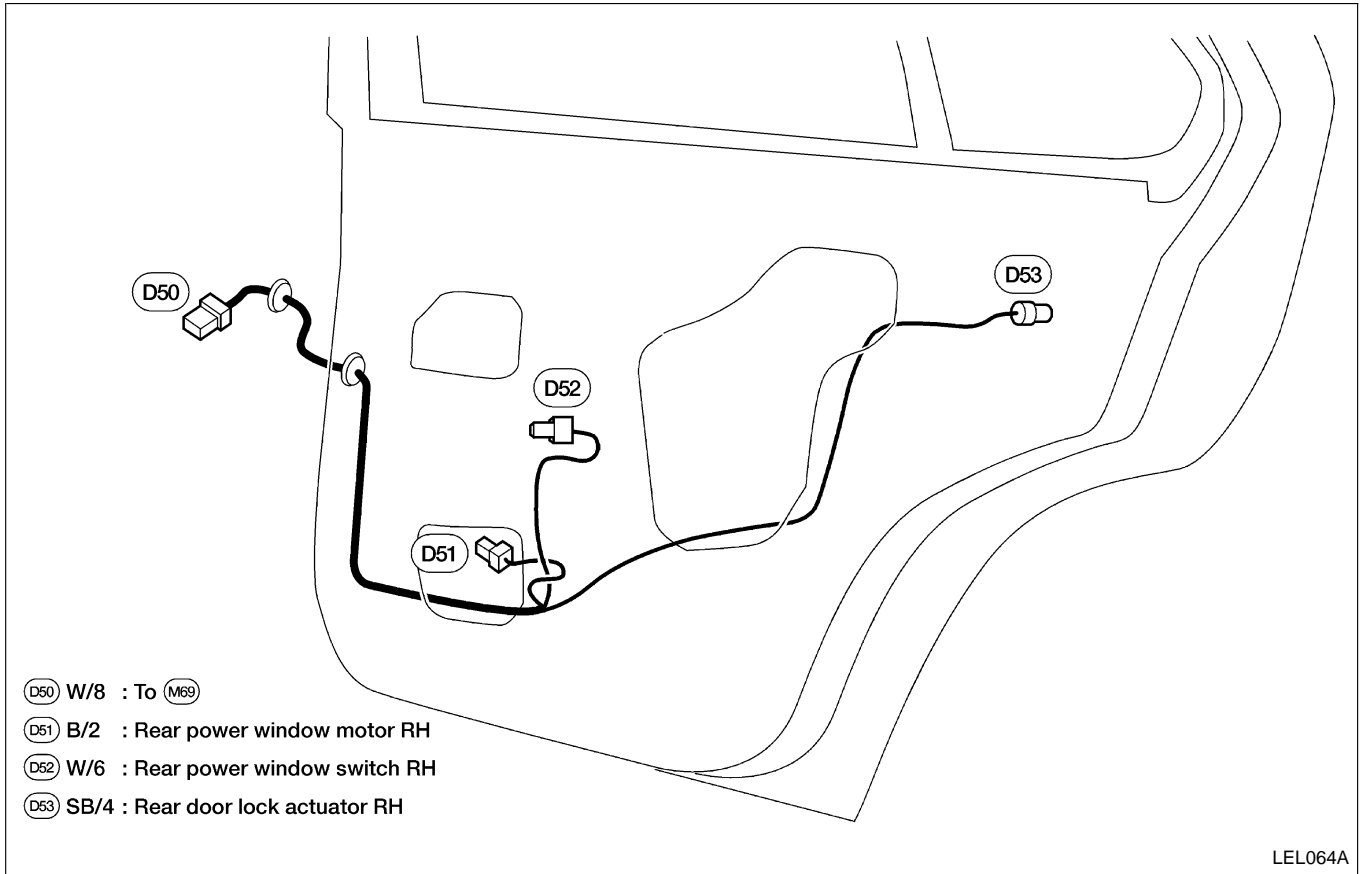
HARNESS LAYOUT

Door Harness (RH side)

FRONT



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BULB SPECIFICATIONS

Headlamp

	Wattage (12 volt)	Bulb No.
High/low	65/55	HB5 (9007)

Exterior Lamp

		Wattage (12 volt)	Bulb No.
Front combination lamp	Front turn signal	30	3457AK
	Parking and cornering	27/8	3157K
	Side marker	3.8	194
Front fog lamp		37.5	881L
Rear combination lamp	Turn signal	27	3156K
	Stop/Tail	27/8	3157K
	Back-up	18	921
License plate lamp		5	168
High mounted stop lamp (parcel shelf mount)		18	921
High mounted stop lamp (rear air spoiler mount)		*	*

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

Room Lamp

	Wattage (12 volt)	Bulb No.
Room lamp	8	68
Map lamp	10	578
Trunk room lamp	3.4	158
Glove box lamp (if equipped)	1.1	658

WIRING DIAGRAM CODES (CELL CODES)

Use the chart below to find out what each wiring diagram code stands for.

Code	Section	Wiring Diagram Name
1STSIG	AT	A/T 1st Gear Function
2NDSIG	AT	A/T 2nd Gear Function
3RDSIG	AT	A/T 3rd Gear Function
4THSIG	AT	A/T 4th Gear Function
A/C	HA	Air Conditioner
AAC/V	EC	IACV-AAC Valve
ABS	BR	Anti-Lock Brake System
ASCD	EL	Automatic Speed Control Device (ASCD)
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 A/T Control Unit Power Supply
BACK/L	EL	Back-up Lamp
BYPS/V	EC	Vacuum Cut Valve Bypass Valve
CHARGE	EL	Charging System
CHIME	EL	Warning Chime
CIGAR	EL	Cigarette Lighter
CKPS	EC	Crankshaft Position Sensor (CKPS) (OBD)
CMPS	EC	Camshaft Position Sensor (CMPS)
COOL/F	EC	Cooling Fan Control
CORNER	EL	Cornering Lamp
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
EGRC/V	EC	EGRC-Solenoid Valve
EGRC1	EC	EGR Function
ENGSS	AT	Engine Speed Signal
F/FOG	EL	Front Fog Lamp
F/PUMP	EC	Fuel Pump
FICD	EC	IACV-FICD Solenoid Valve
FL2	EC	Fuel Level Sensor Circuit
FL3	EC	Fuel Level Sensor Circuit (Ground Signal)
FLS	EC	Fuel Level Sensor Function (Slosh)
FTS	AT	A/T Fluid Temperature Sensor
FTTS	EC	Fuel Tank Temperature Sensor

Code	Section	Wiring Diagram Name
FUEL	EC	Fuel Injection System Function
H/LAMP	EL	Headlamp
HEATER	HA	Heater System
HO2S1	EC	Heated Oxygen Sensor 1 Front
HO2S1H	EC	Heated Oxygen Sensor 1 (Front) Heater
HO2S2	EC	Heated Oxygen Sensor 2 Rear
HO2S2H	EC	Heated Oxygen Sensor 2 (Rear) Heater
HORN	EL	Horn
IATS	EC	Intake Air Temperature Sensor
IGN/SG	EC	Ignition Signal
ILL	EL	Illumination
INJECT	EC	Injector
INT/L	EL	Spot, Trunk Room and Vanity Mirror Lamp
KS	EC	Knock Sensor
LOAD	EC	Load Signal
LPSV	AT	Line Pressure Solenoid Valve
MAFS	EC	Mass Air Flow Sensor
MAIN	AT	Main Power Supply and Ground Circuit
MAIN	EC	Main Power Supply and Ground Circuit
METER	EL	Meter and Gauges
MIL/DL	EC	MIL and Data Link Connector
MIRROR	EL	Door Mirror
MULTI	EL	Multi-Remote Control System
NATS	EL	NVIS (Nissan Vehicle Immobilizer System - NATS)
NONDTC	AT	Non-detectable Items
OVRCSV	AT	Overrun Clutch Solenoid Valve
PGC/V	EC	EVAP Canister Purge Volume Control Solenoid Valve
PNP/SW	AT	Park/Neutral Position (PNP) Switch
PNP/SW	EC	Park/Neutral Position (PNP) Switch
POWER	EL	Power Supply Routing
PRE/SE	EC	EVAP Control System Pressure Sensor
PST/SW	EC	Power Steering Oil Pressure Switch
ROOM/L	EL	Interior Room Lamp
S/SIG	EC	Start Signal
SEAT	EL	Power Seat

GI
MA
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WIRING DIAGRAM CODES (CELL CODES)

Code	Section	Wiring Diagram Name
SHIFT	AT	A/T Shift Lock System
SROOF	EL	Sunroof
SRS	RS	Supplemental Restraint System
SSV/A	AT	Shift Solenoid Valve A
SSV/B	AT	Shift Solenoid Valve B
START	EL	Starting System
STOP/L	EL	Stop Lamp
TAIL/L	EL	Parking, License, and Tail Lamps
TCCSIG	AT	A/T TCC Signal (Lock Up)
TCV	AT	Torque Convertor Clutch Solenoid Valve
TLID	EL	Trunk Lid Opener
TP/SW	EC	Throttle Position Switch
TPS	AT	Throttle Position Sensor

Code	Section	Wiring Diagram Name
TPS	EC	Throttle Position Sensor
TRNSMT	EL	Integrated HOMELINK ^(TM) Transmitter
TURN	EL	Turn Signal and Hazard Warning Lamps
VEHSEC	EL	Vehicle Security System
VENT/V	EC	EVAP Canister Vent Control Valve
VSS	EC	Vehicle Speed Sensor
VSSAT	AT	Vehicle Speed Sensor A/T (Revolution Sensor)
VSSMTR	AT	Vehicle Speed Sensor MTR
WARN	EL	Warning Lamps
WINDOW	EL	Power Window
WIPER	EL	Front Wiper and Washer