

SECTION **CHG**  
CHARGING SYSTEM

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
CHG  
N  
O  
P

CONTENTS

|  |   |  |    |
|--|---|--|----|
| <b>PRECAUTION</b> .....  | 2 | <b>CHARGING SYSTEM PRELIMINARY INSPECTION</b> .....                                | 8  |
| <b>PRECAUTIONS</b> .....   | 2 | Inspection Procedure .....   | 8  |
| Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... | 2 | <b>POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM OPERATION INSPECTION</b> ..... | 9  |
| Precaution Necessary for Steering Wheel Rotation After Battery Disconnect .....                  | 2 | Inspection Procedure .....   | 9  |
| Precaution for Power Generation Variable Voltage Control System .....                            | 3 | <b>B TERMINAL CIRCUIT</b> .....  | 11 |
| <b>PREPARATION</b> .....   | 4 | Description .....  | 11 |
| <b>PREPARATION</b> .....   | 4 | Diagnosis Procedure .....  | 11 |
| Special Service Tool .....   | 4 | <b>L TERMINAL CIRCUIT</b> .....  | 12 |
| Commercial Service Tool .....  | 4 | Description .....  | 12 |
| <b>BASIC INSPECTION</b> .....  | 5 | Diagnosis Procedure .....  | 12 |
| <b>DIAGNOSIS AND REPAIR WORKFLOW</b> .....   | 5 | <b>S TERMINAL CIRCUIT</b> .....  | 13 |
| Work Flow .....  | 5 | Description .....  | 13 |
| <b>FUNCTION DIAGNOSIS</b> .....  | 6 | Diagnosis Procedure .....  | 13 |
| <b>CHARGING SYSTEM</b> .....   | 6 | <b>CHARGING SYSTEM</b> .....   | 14 |
| System Diagram .....   | 6 | Wiring Diagram .....   | 14 |
| System Description .....   | 6 | <b>SYMPTOM DIAGNOSIS</b> .....   | 20 |
| Component Description .....  | 6 | <b>CHARGING SYSTEM</b> .....   | 20 |
| <b>POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM</b> .....                                    | 7 | Symptom Table .....  | 20 |
| System Diagram .....   | 7 | <b>ON-VEHICLE REPAIR</b> .....   | 21 |
| System Description .....   | 7 | <b>GENERATOR</b> .....   | 21 |
| Component Description .....  | 7 | Removal and Installation .....   | 21 |
| <b>COMPONENT DIAGNOSIS</b> .....   | 8 | <b>SERVICE DATA AND SPECIFICATIONS (SDS)</b> .....                                 | 22 |
|  |   | <b>GENERATOR</b> .....   | 22 |
|  |   | Generator .....  | 22 |

# PRECAUTIONS

< PRECAUTION >

## PRECAUTION

### PRECAUTIONS

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

INFOID:000000005153280

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000005197355

#### **NOTE:**

- This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

#### OPERATION PROCEDURE

1. Connect both battery cables.

#### **NOTE:**

Supply power using jumper cables if battery is discharged.

2. Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.

# PRECAUTIONS

## < PRECAUTION >

5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT-III.

### Precaution for Power Generation Variable Voltage Control System

INFOID:000000004915043

#### **CAUTION:**

For this model, the battery current sensor that is installed to the negative battery cable measures the charging/discharging current of the battery and performs various engine controls. If an electrical component is connected directly to the negative battery terminal, the current flowing through that component will not be measured by the battery current sensor. This condition may cause a malfunction of the engine control system and battery discharge may occur. Do not connect an electrical component or ground wire directly to the battery terminal.

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# PREPARATION

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## PREPARATION


### PREPARATION

#### Special Service Tool

INFOID:000000004915044

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

| Tool number<br>(Kent-Moore No.)<br>Tool name                   | Description  |
|--|--|
| —<br>(—) Model GR-8<br>Multitasking Battery Diagnostic Station | Tests batteries, starting and charging systems.<br>For operating instructions, refer to diagnostic station instruction manual. |

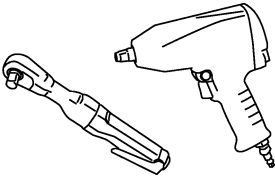


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#### Commercial Service Tool

INFOID:000000004915045

| Tool name  | Description              |
|------------|--------------------------|
| Power tool | Loosening bolts and nuts |



PBIC0190E

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

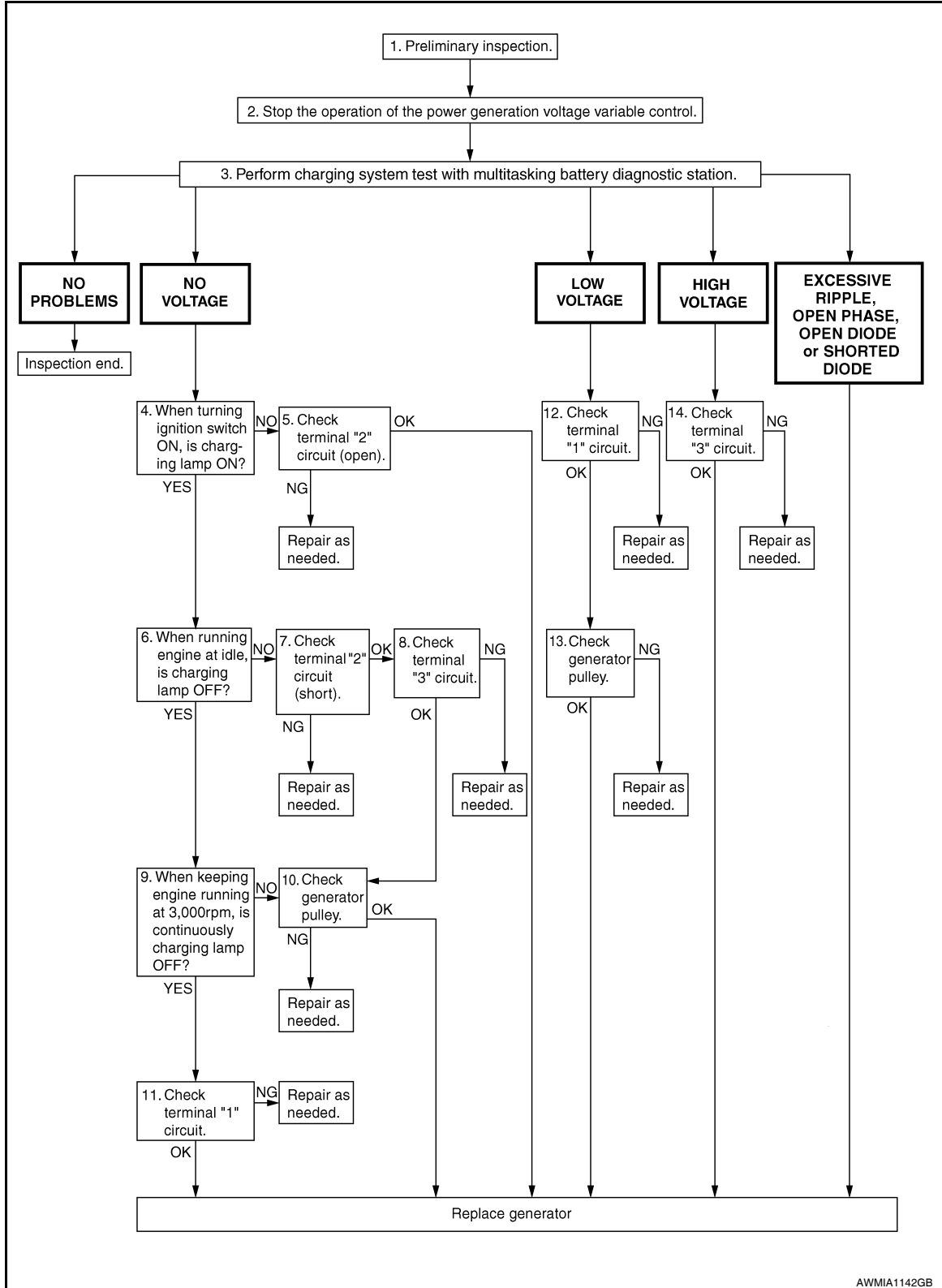
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000004915046

#### OVERALL SEQUENCE



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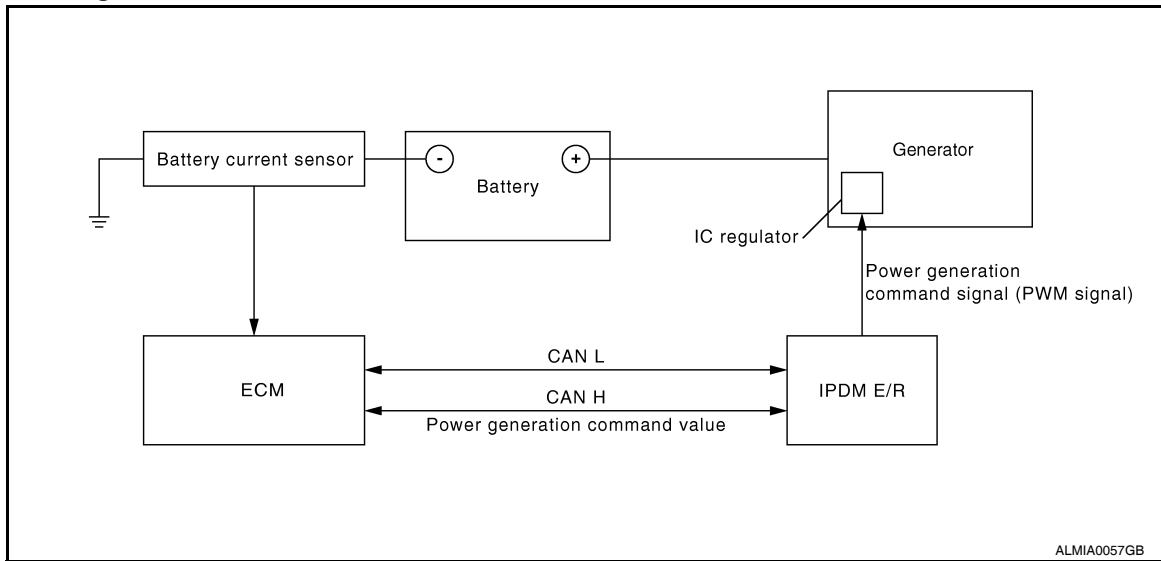


# POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM

< FUNCTION DIAGNOSIS >

## POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM

### System Diagram



INFOID:000000004915050

ALMIA0057GB

### System Description

INFOID:000000004915051

Power generation variable voltage control system has been adopted. By varying the voltage to the generator, engine load due to power generation of the generator is reduced and fuel consumption is decreased.

#### NOTE:

When any malfunction is detected in the power generation variable voltage control system, power generation is performed according to the characteristic of the IC regulator in the generator.

### Component Description

INFOID:000000004915052

| Component part           | Description   |
|--------------------------|---|
| Battery current sensor   | The battery current sensor is installed on the battery cable at the negative terminal. The battery current sensor detects the charging/discharging current of the battery and sends a voltage signal to the ECM according to the current value detected.  |
| ECM                      | The battery current sensor detects the charging/discharging current of the battery. The ECM judges the battery condition based on this signal.<br>The ECM judges whether to request more output via the power generation voltage variable control according to the battery condition.<br>When performing the power generation voltage variable control, the ECM calculates the target power generation voltage according to the battery condition and sends the calculated value as the power generation command value to the IPDM E/R. |
| IPDM E/R                 | The IPDM E/R converts the received power generation command value into a pulse width modulated (PWM) command signal and sends it to the IC regulator.   |
| Generator (IC regulator) | The IC regulator controls the power generation voltage by the target power generation voltage based on the received PWM command signal.<br>When there is no PWM command signal, the generator performs the normal power generation according to the characteristic of the IC regulator.   |

# CHARGING SYSTEM PRELIMINARY INSPECTION

< COMPONENT DIAGNOSIS >

## COMPONENT DIAGNOSIS

### CHARGING SYSTEM PRELIMINARY INSPECTION

#### Inspection Procedure

INFOID:000000004915053

#### 1. CHECK BATTERY TERMINALS CONNECTION

Check if battery terminals are clean and tight.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair battery terminals connection.

#### 2. CHECK FUSE

Check for blown fuse and fusible link.

| Unit              | Power source (Power supply terminals) | Fuse or Fusible Link |
|-------------------|---------------------------------------|----------------------|
| Generator         | Battery (terminal 3)                  | Fuse 30              |
|                   | Battery (terminal 1)                  | Fusible Link A       |
| Combination meter | Ignition switch ON (terminal 2)       | Fuse 14              |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Be sure to eliminate cause of malfunction before installing new fuse or fusible link.

#### 3. CHECK GENERATOR GROUND TERMINAL CONNECTION

Verify connector E206 terminal 5 (generator ground harness) is clean and tight.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair connection.

#### 4. CHECK DRIVE BELT TENSION

Check drive belt tension. Refer to [EM-13. "Checking Drive Belts"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair as needed.



# POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM OPERATION INSPECTION

< COMPONENT DIAGNOSIS >

## POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM OPERATION INSPECTION

### Inspection Procedure

INFOID:000000004915054

Regarding Wiring Diagram information, refer to [CHG-14. "Wiring Diagram"](#).

#### **CAUTION:**

**When performing this inspection, always use a charged battery that has completed the battery inspection. (When the charging rate of the battery is low, the response speed of the voltage change will become slow. This can cause an incorrect inspection.)**

### 1. CHECK ECM (CONSULT-III)

Perform ECM self-diagnosis with CONSULT-III. Refer to [EC-69. "CONSULT-III Function \(ENGINE\)"](#).

#### Self-diagnostic results content

No malfunction detected>> GO TO 2.

Malfunction detected>> Check applicable parts, and repair or replace corresponding parts.

### 2. CHECK OPERATION OF POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM

1. Connect CONSULT-III and start the engine.
2. The selector lever is in "P" or "N" position and all of the electric loads and A/C, etc. are turned OFF.
3. Select "ALTERNATOR DUTY" in "Active Test" of "ENGINE", and then check the value of "BATTERY VOLT" monitor when DUTY value of "ALTERNATOR DUTY" is set to 40.0 %.

#### **"BATTERY VOLT"**

**2 seconds after setting the DUTY value of "ALTERNATOR DUTY" to 40.0 % : 12 - 13.6 V**

4. Check the value of "BATTERY VOLT" monitor when DUTY value of "ALTERNATOR DUTY" is set to 80.0%.

#### **"BATTERY VOLT"**

**20 seconds after setting the DUTY value of "ALTERNATOR DUTY" to 80.0 % : +0.5 V or more against the value of "BATTERY VOLT" monitor when DUTY value is 40.0 %**

Is the measurement value within specification?

YES >> Inspection End.

NO >> GO TO 3.

### 3. CHECK IPDM E/R (CONSULT-III)

Perform IPDM E/R self-diagnosis with CONSULT-III. Refer to [PCS-14. "CONSULT - III Function \(IPDM E/R\)"](#).

#### Self-diagnostic results content

No malfunction detected>> GO TO 4.

Malfunction detected>> Check applicable parts, and repair or replace corresponding parts.

### 4. CHECK HARNESS BETWEEN GENERATOR AND IPDM E/R

# POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM OPERATION INSPECTION

## < COMPONENT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Disconnect generator connector E205 and IPDM E/R connector E122.
3. Check continuity between generator harness connector E205 (A) terminal 4 and IPDM E/R harness connector E122 (B) terminal 37.

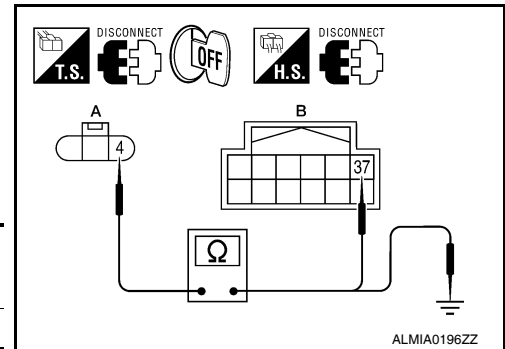
| A         |          | B         |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E205      | 4        | E122      | 37       | Yes        |

4. Check continuity between generator harness connector E122 (A) terminal 4 and ground.

| A         |          | —      | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| E205      | 4        | Ground | No         |

Are the continuity test results as specified?

- YES >> Replace IPDM E/R. Refer to [PCS-32. "Removal and Installation of IPDM E/R"](#).
- NO >> Repair harness or connector between IPDM E/R and generator.



# B TERMINAL CIRCUIT

< COMPONENT DIAGNOSIS >

## B TERMINAL CIRCUIT

### Description

INFOID:000000004915055

The terminal "1" circuit supplies power to charge the battery and operate the vehicles electrical system.

### Diagnosis Procedure

INFOID:000000004915056

Regarding Wiring Diagram information, refer to [CHG-14, "Wiring Diagram"](#).

### 1. CHECK TERMINAL "1" CONNECTION

1. Turn ignition switch OFF.
2. Verify terminal "1" is clean and tight.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair terminal "1" connection. Confirm repair by performing complete Starting/Charging system test. Refer to diagnostic station instruction manual.

### 2. CHECK TERMINAL "1" CIRCUIT

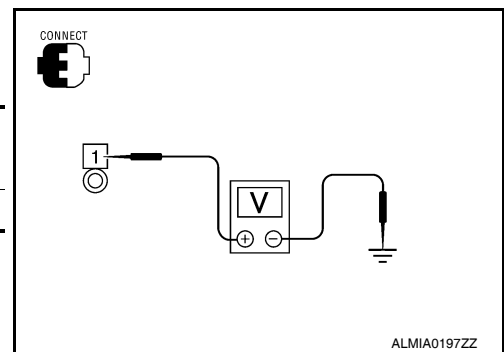
Check voltage between generator connector E204 terminal 1 and ground.

| (+)       |          | (-)    | Voltage         |
|-----------|----------|--------|-----------------|
| Connector | Terminal |        |                 |
| E204      | 1        | Ground | Battery voltage |

Is voltage reading as specified?

YES >> GO TO 3.

NO >> Check harness for open between generator and fusible link.



### 3. CHECK TERMINAL "1" CONNECTION (VOLTAGE DROP TEST)

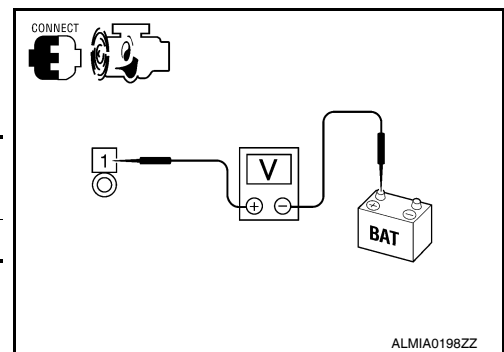
1. Start engine, then engine running at idle and warm.
2. Check voltage between battery positive terminal and generator connector E204 terminal 1.

| (+)       |          | (-)                       | Voltage        |
|-----------|----------|---------------------------|----------------|
| Connector | Terminal |                           |                |
| E204      | 1        | Battery positive terminal | Less than 0.2V |

Is the voltage reading as specified?

YES >> Terminal "1" circuit is normal. Refer to [CHG-5, "Work Flow"](#).

NO >> Check harness between battery and generator for high resistance.



# L TERMINAL CIRCUIT

< COMPONENT DIAGNOSIS >

## L TERMINAL CIRCUIT

### Description

INFOID:000000004915057

The terminal "2" (L) circuit controls the charge warning lamp. The charge warning lamp illuminates when the ignition switch is set to ON or START. When the generator is providing sufficient voltage with the engine running, the charge warning lamp will go off. If the charge warning lamp illuminates with the engine running, a malfunction is indicated.

### Diagnosis Procedure

INFOID:000000004915058

Regarding Wiring Diagram information, refer to [CHG-14, "Wiring Diagram"](#).

### 1. CHECK CHARGE WARNING LAMP CIRCUIT CONNECTION

Verify generator connector E205 terminal 2 is clean and tight.

Is the connection secure?

YES >> GO TO 2.

NO >> Repair the connection. Confirm repair by performing complete Starting/Charging system test. Refer to diagnostic station instruction manual.

### 2. CHECK CHARGE WARNING LAMP CIRCUIT

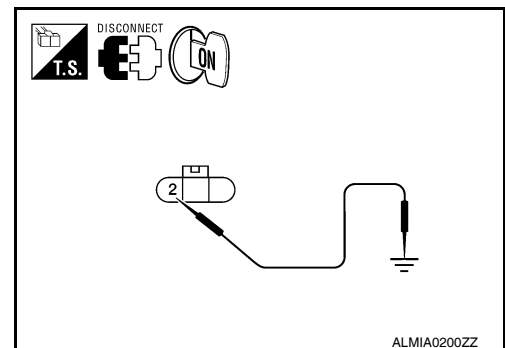
1. Disconnect generator connector E205.
2. Apply ground to generator harness connector E205 terminal 2 with the ignition switch in the ON position.

**Charge lamp should illuminate**

Does the charge lamp illuminate?

YES >> Check generator function. Refer to [CHG-5, "Work Flow"](#).

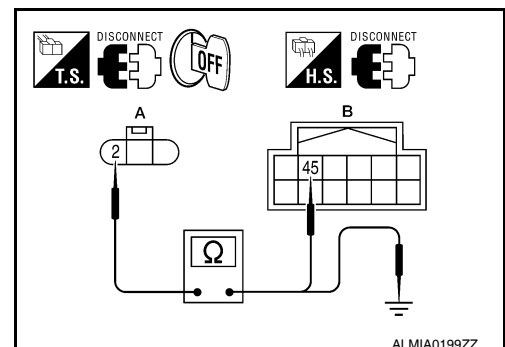
NO >> GO TO 3.



### 3. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect the generator connector E205 and combination meter connector M23.
3. Check continuity between generator harness connector E205 (A) terminal 2 and combination meter harness connector M23 (B) terminal 45.

| A         |          | B         |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E205      | 2        | M23       | 45       | Yes        |



4. Check continuity between generator harness connector E205 (A) terminal 2 and ground.

| A         |          | —      | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| E205      | 2        | Ground | No         |

Are the continuity results as specified?

YES >> Replace the combination meter. Refer to [MWI-106, "Removal and Installation"](#).

NO >> Repair the harness or connector.

# S TERMINAL CIRCUIT

< COMPONENT DIAGNOSIS >

## S TERMINAL CIRCUIT

### Description

INFOID:000000004915059

The output voltage of the generator is controlled by the IC regulator at terminal "3" (S) detecting the input voltage. Terminal "3" circuit detects the battery voltage to adjust the generator output voltage with the IC regulator.

### Diagnosis Procedure

INFOID:000000004915060

Regarding Wiring Diagram information, refer to [CHG-14, "Wiring Diagram"](#).

### 1. CHECK VOLTAGE REGULATOR CIRCUIT CONNECTION

Check to see if connector E205 terminal 3 is clean and tight.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair terminal connection. Confirm repair by performing complete Starting/Charging system test.  
Refer to diagnostic station instruction manual.

### 2. CHECK VOLTAGE REGULATOR CIRCUIT

Check voltage between generator harness connector E205 terminal 3 and ground.

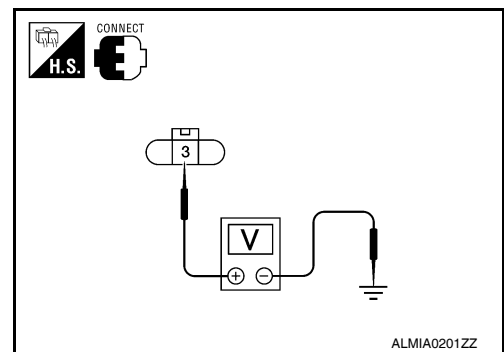
**3 - ground**

**Battery voltage**

Does battery voltage exist?

YES >> Refer to [CHG-5, "Work Flow"](#).

NO >> Check harness for open between generator and fuse.



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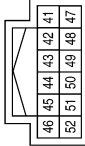
## CHARGING SYSTEM CONNECTORS

|                 |                  |
|-----------------|------------------|
| Connector No.   | M4               |
| Connector Name  | FUSE BLOCK (J/B) |
| Connector Color | WHITE            |



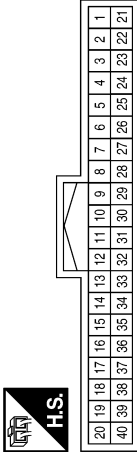
|              |    |               |     |             |   |
|--------------|----|---------------|-----|-------------|---|
| Terminal No. | 5P | Color of Wire | O/L | Signal Name | — |
|--------------|----|---------------|-----|-------------|---|

|                 |                   |
|-----------------|-------------------|
| Connector No.   | M23               |
| Connector Name  | COMBINATION METER |
| Connector Color | WHITE             |



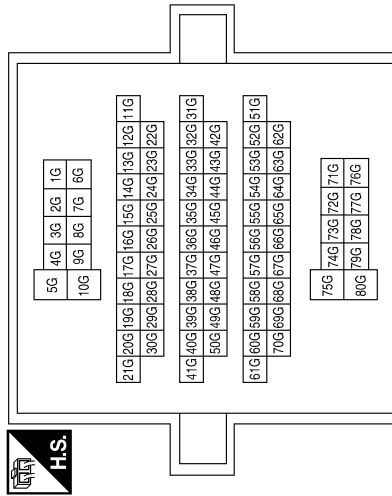
|              |    |               |      |             |           |
|--------------|----|---------------|------|-------------|-----------|
| Terminal No. | 45 | Color of Wire | BR/W | Signal Name | CHARGE IN |
|--------------|----|---------------|------|-------------|-----------|

|                 |                   |
|-----------------|-------------------|
| Connector No.   | M24               |
| Connector Name  | COMBINATION METER |
| Connector Color | WHITE             |



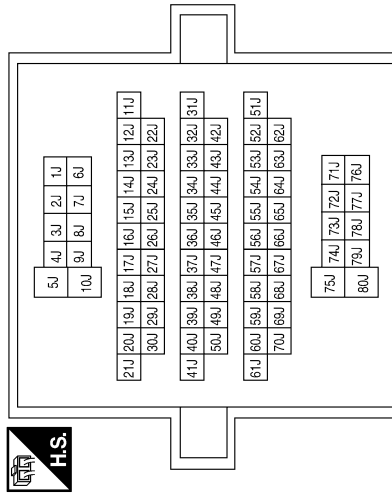
|              |    |               |     |             |           |
|--------------|----|---------------|-----|-------------|-----------|
| Terminal No. | 24 | Color of Wire | O/L | Signal Name | RUN/START |
|--------------|----|---------------|-----|-------------|-----------|

|                 |              |
|-----------------|--------------|
| Connector No.   | M31          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



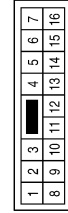
|              |     |               |      |             |   |
|--------------|-----|---------------|------|-------------|---|
| Terminal No. | 31G | Color of Wire | L    | Signal Name | — |
|              | 34G | Color of Wire | BR/W | Signal Name | — |
|              | 42G | Color of Wire | P    | Signal Name | — |

|                 |              |
|-----------------|--------------|
| Connector No.   | M40          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



|              |     |               |   |             |   |
|--------------|-----|---------------|---|-------------|---|
| Terminal No. | 51J | Color of Wire | L | Signal Name | — |
|              | 52J | Color of Wire | P | Signal Name | — |

|                 |              |
|-----------------|--------------|
| Connector No.   | E2           |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



|              |    |               |   |             |   |
|--------------|----|---------------|---|-------------|---|
| Terminal No. | 12 | Color of Wire | R | Signal Name | — |
|--------------|----|---------------|---|-------------|---|

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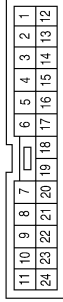
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# CHARGING SYSTEM

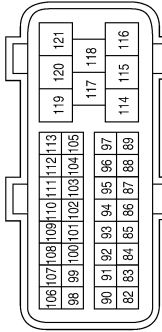
## < COMPONENT DIAGNOSIS >

|                 |              |
|-----------------|--------------|
| Connector No.   | E34          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



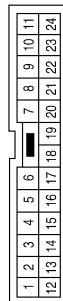
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 23           | P             | -           |
| 24           | L             | -           |

|                 |       |
|-----------------|-------|
| Connector No.   | E16   |
| Connector Name  | ECM   |
| Connector Color | BLACK |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 86           | P             | CAN-L       |
| 94           | L             | CAN-H       |

|                 |              |
|-----------------|--------------|
| Connector No.   | E5           |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



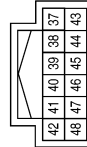
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 3            | L             | -           |
| 5            | L             | -           |
| 10           | B             | -           |
| 11           | R/Y           | -           |
| 14           | P             | -           |
| 15           | P             | -           |

|                 |  |
|-----------------|--|
| Connector No.   | E124   |
| Connector Name  | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Color | BLACK  |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 59           | B             | GND (POWER) |

|                 |  |
|-----------------|--|
| Connector No.   | E122   |
| Connector Name  | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Color | WHITE  |



| Terminal No. | Color of Wire | Signal Name  |
|--------------|---------------|--------------|
| 37           | Y             | ALT-C CONT   |
| 38           | B             | GND (SIGNAL) |
| 39           | L             | CAN-H        |
| 40           | P             | CAN-L        |

|                 |              |
|-----------------|--------------|
| Connector No.   | E40          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | BLACK        |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | Y             | -           |
| 2            | Y/B           | -           |
| 3            | BR/W          | -           |

ABMIA1053GB



# CHARGING SYSTEM

## < COMPONENT DIAGNOSIS >

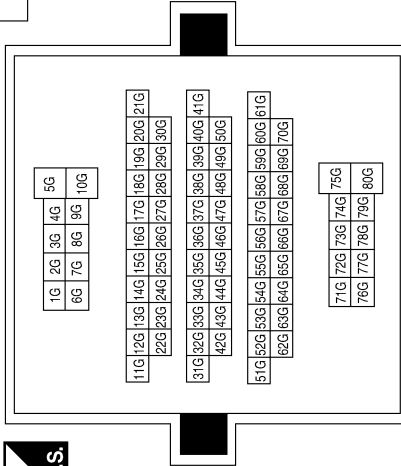
|                 |                        |
|-----------------|------------------------|
| Connector No.   | E161                   |
| Connector Name  | BATTERY CURRENT SENSOR |
| Connector Color | BLACK                  |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | R/Y           | -           |
| 2            | B             | -           |
| 3            | R             | -           |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 31G          | L             | -           |
| 34G          | BR/W          | -           |
| 42G          | P             | -           |

|                 |              |
|-----------------|--------------|
| Connector No.   | E152         |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



|                 |           |
|-----------------|-----------|
| Connector No.   | E204      |
| Connector Name  | GENERATOR |
| Connector Color | -         |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | B/R           | -           |

|                 |                            |
|-----------------|----------------------------|
| Connector No.   | E202                       |
| Connector Name  | FUSIBLE LINK BOX (BATTERY) |
| Connector Color | -                          |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5            | B/R           | -           |

|                 |              |
|-----------------|--------------|
| Connector No.   | E201         |
| Connector Name  | WIRE TO WIRE |
| Connector Color | BLACK        |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | Y             | -           |
| 2            | Y/B           | -           |
| 3            | BR/W          | -           |

ABMIA1161GB

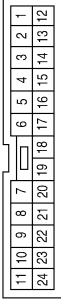
A  
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D  
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J  
K  
L  
N  
O  
P

CHG

# CHARGING SYSTEM

## < COMPONENT DIAGNOSIS >

|                 |              |
|-----------------|--------------|
| Connector No.   | F14          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 3            | L             | -           |
| 5            | L             | -           |
| 10           | B             | -           |
| 11           | R/Y           | -           |
| 14           | P             | -           |
| 15           | P             | -           |

|                 |           |
|-----------------|-----------|
| Connector No.   | E206      |
| Connector Name  | GENERATOR |
| Connector Color | -         |



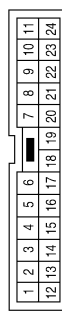
| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 5            | B             | -           |

|                 |           |
|-----------------|-----------|
| Connector No.   | E205      |
| Connector Name  | GENERATOR |
| Connector Color | BLACK     |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 2            | BR/W          | -           |
| 3            | Y/B           | -           |
| 4            | Y             | -           |

|                 |              |
|-----------------|--------------|
| Connector No.   | B40          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 23           | P             | -           |
| 24           | L             | -           |

|                 |       |
|-----------------|-------|
| Connector No.   | F54   |
| Connector Name  | ECM   |
| Connector Color | BLACK |



| Terminal No. | Color of Wire | Signal Name   |
|--------------|---------------|---------------|
| 49           | R/Y           | AVCC (PDPRES) |
| 67           | B             | GND-A         |
| 71           | R             | CURSEN        |

|                 |              |
|-----------------|--------------|
| Connector No.   | F32          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 12           | R             | -           |

ABMIA1054GB

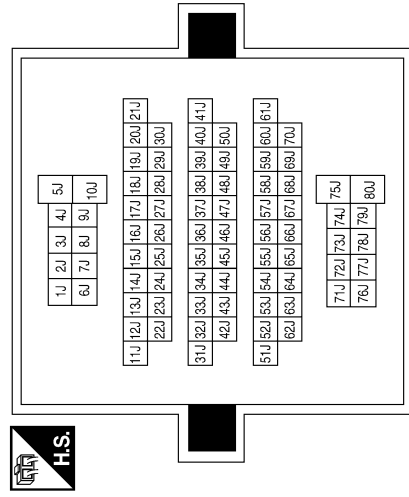
# CHARGING SYSTEM

## < COMPONENT DIAGNOSIS >

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| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 51J          | L             | -           |
| 52J          | P             | -           |

|                 |              |
|-----------------|--------------|
| Connector No.   | B69          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



**CHG**

ABMIA1162GB

# CHARGING SYSTEM

< SYMPTOM DIAGNOSIS >

## SYMPTOM DIAGNOSIS

### CHARGING SYSTEM

#### Symptom Table

INFOID:000000004915062

| Symptom  | Reference                                     |
|--|---|
| Battery discharged   | Refer to <a href="#">CHG-5, "Work Flow"</a> . |
| The charge warning lamp does not illuminate when the ignition switch is set to ON. |   |
| The charge warning lamp does not turn OFF after the engine starts.                 |   |
| The charging warning lamp turns ON when increasing the engine speed.               |   |

# GENERATOR

< ON-VEHICLE REPAIR >

## ON-VEHICLE REPAIR

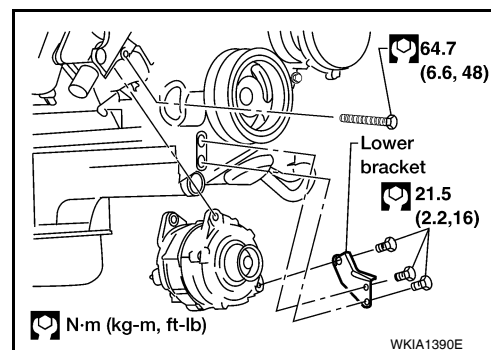
### GENERATOR

#### Removal and Installation

INFOID:000000004915063

#### REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-76. "Removal and Installation"](#).
2. Remove the fan shroud. Refer to [CO-15. "Removal and Installation"](#).
3. Remove the drive belt. Refer to [EM-13. "Removal and Installation"](#).
4. Remove lower bracket, using power tools.
5. Remove the generator upper bolt, using power tools.
6. Disconnect the generator harness connectors.
7. Remove the generator.



#### INSTALLATION

Installation is in the reverse order of removal.

- Install the generator and check the tension of the drive belt. Refer to [EM-13. "Checking Drive Belts"](#).

#### **CAUTION:**

**Tighten terminal nut carefully.**

**Terminal nut : 10.8 N·m (1.1 kg-m, 8 ft-lb)**

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L

CHG

# GENERATOR

< SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### GENERATOR

#### Generator

INFOID:000000004915064

|   |  |
|---|--|
| Model   | TG15S147   |
| Manufacturer  | Valeo  |
| Nominal rating  | 14V-130A   |
| Ground polarity   | Negative   |
| Minimum revolution under no-load                              | 1,200 rpm  |
| Hot output current (When 13.5 volts is applied)               | More than 52A/1,500 rpm<br>More than 82A/1,800 rpm<br>More than 115A/2,500 rpm<br>More than 130A/5,000 rpm |
| Regulated output voltage                                      | 13.5V @ 5,000 rpm @ 20°C   |
| Adjustment range of power generation variable voltage control | 11.4-15.6V   |