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< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for 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 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 “SRS AIR BAG” and “SEAT BELT” 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 that 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 “SRS AIR BAG”.
- 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 Air Bag Diagnosis Sensor Unit or other Air Bag 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

NOTE:
- Before removing and installing any control units, first turn the push-button ignition switch to the LOCK position, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work.
  - If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.
  - For vehicle with steering lock unit, if the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.
- If turning the steering wheel is required with the battery disconnected or discharged, follow the operation 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. Turn the push-button ignition switch to ACC position.
   (At this time, the steering lock will be released.)
3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
4. Perform the necessary repair operation.
5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the push-button ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the push-button ignition switch is turned to LOCK position.)

6. Perform self-diagnosis check of all control units using CONSULT-III.

Precaution for Power Generation Voltage Variable Control System

**CAUTION:**

For this model, the battery current sensor that is installed to the battery cable at the negative terminal measures the charging/discharging current of the battery, and performs various controls. If the electrical component or the ground wire is connected directly to the battery terminal, the current other than that being measured with the battery current sensor is charging to or discharging from the battery. This condition causes the malfunction of the control, and then the battery discharge may occur. Do not connect the electrical component or the ground wire directly to the battery terminal.
## Special Service Tools

<table>
<thead>
<tr>
<th>Tool number (Kent-Moore No.)</th>
<th>Tool name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-44373 Model MCR620</td>
<td>Starting/Charging System Tester</td>
<td>Tests starting and charging systems. For operating instructions, refer to Technical Service Bulletin.</td>
</tr>
</tbody>
</table>

## Commercial Service Tools

<table>
<thead>
<tr>
<th>Tool name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power tool</td>
<td>Loosening bolts, nuts and screws</td>
</tr>
</tbody>
</table>
Component Description

<table>
<thead>
<tr>
<th>Component part</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternator (IC voltage regulator)</td>
<td>IC voltage regulator controls the power generation voltage by the target power generation voltage based on the received power generation command signal. When there is no power generation command signal, the alternator performs the normal power generation according to the characteristic of the IC voltage regulator.</td>
</tr>
<tr>
<td>Battery current sensor</td>
<td>Battery current sensor is installed to the battery cable at the negative terminal, and it detects the charging/discharging current of the battery and sends the voltage signal to ECM according to the current value.</td>
</tr>
</tbody>
</table>
| Combination meter (Charge warning lamp) | The IC voltage regulator warning function activates to illuminate the charge warning lamp, if any of the following symptoms occur while alternator is operating:  
  • Excessive voltage is produced.  
  • No voltage is produced.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ECM                                     | Battery current sensor detects the charging/discharging current of the battery. ECM judges the battery condition based on this signal.  
  ECM judges whether to perform the power generation voltage variable control according to the battery condition.  
  When performing the power generation voltage variable control, ECM calculates the target power generation voltage according to the battery condition and sends the calculated value as the power generation command value to IPDM E/R.                                                                                                                                                                                                                                           |
| IPDM E/R                                | IPDM E/R converts the received power generation command value into the power generation command signal (PWM signal) and sends it to the IC voltage regulator.                                                                                                                                                                                                                                                                                                                                                                                                                     |
CHARGING SYSTEM : System Description

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

POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM

POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM : System Diagram
By performing the power generation voltage variable control, the engine load due to the power generation of the alternator is reduced and fuel consumption is decreased.

**NOTE:**
When any malfunction is detected in the power generation voltage variable control system, the power generation is performed according to the characteristic of the IC voltage regulator of the alternator.
< BASIC INSPECTION >

DIAGNOSIS AND REPAIR WORKFLOW

BASIC INSPECTION

Work Flow

OVERALL SEQUENCE

1. Preliminary inspection.
2. Stop the operation of the power generation voltage variable control.
3. Perform charging system test with Starting/Charging System Tester.

CHARGING SYSTEM NORMAL and DIODE RIPPLE NORMAL

4. When turning ignition switch ON, is charging lamp ON?
   - YES
   - NG

   5. Check "L" terminal circuit (open).
      - OK
      - NG
         **Repair as needed.**

   6. When running engine at idle, is charging lamp OFF?
      - YES
      - NG
         **Repair as needed.**

   7. Check "L" terminal circuit (short).
      - OK
      - NG
         **Repair as needed.**

   8. Check "S" terminal circuit.
      - OK
      - NG
      **Repair as needed.**

   9. When keeping engine running at 3,000rpm, is continuously charging lamp OFF?
      - YES
      - NG
      **Repair as needed.**

10. Check alternator pulley.
    - NG
       **Repair as needed.**

11. Check "B" terminal circuit.

12. Check "B" terminal circuit.
    - OK
    - NG
    **Repair as needed.**

13. Check alternator pulley.
    - NG
       **Repair as needed.**

    - OK
    - NG
    **Repair as needed.**

Replace alternator

INFOID:0000000006274884

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CHG-13

2011 QX56
NOTE: To ensure a complete and thorough diagnosis, the battery, starter and alternator test segments must be done as a set from start to finish.

1. PRELIMINARY INSPECTION

Perform the preliminary inspection. Refer to CHG-16, "Inspection Procedure".

>> GO TO 2.

2. STOP POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM

Stop the operation of the power generation voltage variable control in either of the following procedures.

- After selecting "ENGINE" of "SELECT SYSTEM" using CONSULT-III, set the DUTY value of "ALTERNATOR DUTY" to 0 % by selecting "ALTERNATOR DUTY" of "Active Test". Continue "Active Test" until the end of inspection. (When the DUTY value is 0 or 100 %, the normal power generation is performed according to the characteristic of the IC voltage regulator of the alternator.)
- Turn the ignition switch OFF, and disconnect the battery current sensor connector. [However, DTC (P1550 - P1554) of the engine might remain. After finishing the inspection, connect the battery current sensor connector and erase the self-diagnosis results history of the engine using CONSULT-III.]

>> GO TO 3.

3. DIAGNOSIS WITH STARTING/CHARGING SYSTEM TESTER

Perform the charging system test using Starting/Charging System Tester (SST: J-44373). For details and operating instructions, refer to Technical Service Bulletin.

Test result

CHARGING SYSTEM NORMAL >> Charging system is normal and will also show “DIODE RIPPLE” test result.
NO CHARGING VOLTAGE >> GO TO 4.
LOW CHARGING VOLTAGE >> GO TO 12.
HIGH CHARGING VOLTAGE >> GO TO 14.
DIODE RIPPLE NORMAL >> Diode ripple is OK and will also show “CHARGING VOLTAGE” test result.
EXCESS RIPPLE DETECTED >> Replace the alternator. Perform “DIODE RIPPLE” test again using Starting/Charging System Tester (SST: J-44373) to confirm repair.
DIODE RIPPLE NOT DETECTED >> GO TO 4.

4. INSPECTION WITH CHARGE WARNING LAMP (IGNITION SWITCH IS ON)

Turn the ignition switch ON.

Does the charge warning lamp illuminate?

YES >> GO TO 6.
NO >> GO TO 5.

5. “L” TERMINAL CIRCUIT (OPEN) INSPECTION

Check “L” terminal circuit (open). Refer to CHG-20, "Diagnosis Procedure".

Is the “L” terminal circuit normal?

YES >> Replace alternator.
NO >> Repair as needed.

6. INSPECTION WITH CHARGE WARNING LAMP (IDLING)

Start the engine and run it at idle.

Does the charge warning lamp turn OFF?

YES >> GO TO 9.
NO >> GO TO 7.

7. “L” TERMINAL CIRCUIT (SHORT) INSPECTION

Check “L” terminal circuit (short). Refer to CHG-22, "Diagnosis Procedure".

Is the “L” terminal circuit normal?

YES >> GO TO 8.
NO >> Repair as needed.
8. “S” TERMINAL CIRCUIT INSPECTION

Check “S” terminal circuit. Refer to CHG-23, "Diagnosis Procedure".

Is the “S” terminal circuit normal?
   YES >> GO TO 10.
   NO   >> Repair as needed.

9. INSPECTION WITH CHARGE WARNING LAMP (ENGINE AT 3,000 RPM)

Increase and maintain the engine speed at 3,000 rpm.

Does the charge warning lamp remain off?
   YES >> GO TO 11.
   NO   >> GO TO 10.

10. INSPECTION OF ALTERNATOR PULLEY

Check alternator pulley. Refer to CHG-28, "Inspection".

Is alternator pulley normal?
   YES >> Replace alternator.
   NO   >> Repair as needed.

11. “B” TERMINAL CIRCUIT INSPECTION

Check “B” terminal circuit. Refer to CHG-19, "Diagnosis Procedure".

Is “B” terminal circuit normal?
   YES >> Replace alternator.
   NO   >> Repair as needed.

12. “B” TERMINAL CIRCUIT INSPECTION

Check “B” terminal circuit. Refer to CHG-19, "Diagnosis Procedure".

Is “B” terminal circuit normal?
   YES >> GO TO 13.
   NO   >> Repair as needed.

13. INSPECTION OF ALTERNATOR PULLEY

Check alternator pulley. Refer to CHG-28, "Inspection".

Is alternator pulley normal?
   YES >> Replace alternator.
   NO   >> Repair as needed.

14. “S” TERMINAL CIRCUIT INSPECTION

Check “S” terminal circuit. Refer to CHG-23, "Diagnosis Procedure".

Is the “S” terminal circuit normal?
   YES >> Replace alternator.
   NO   >> Repair as needed.
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.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Power source (Power supply terminals)</th>
<th>Fuse No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternator</td>
<td>Battery (&quot;S&quot; terminal)</td>
<td>32</td>
</tr>
<tr>
<td>Combination meter</td>
<td>Ignition switch ON (&quot;L&quot; terminal)</td>
<td>3</td>
</tr>
</tbody>
</table>

Is the inspection result normal?

YES  >> GO TO 3.

NO  >> Replace the blown fuse after repairing the applicable circuit.

3. CHECK "E" TERMINAL CONNECTION

Check if "E" terminal (alternator ground harness) is clean and tight.

Is the inspection result normal?

YES  >> GO TO 4.

NO  >> Repair "E" terminal connection.

4. CHECK DRIVE BELT TENSION

Check drive belt tension. Refer to EM-20, "Checking".

Is the inspection result normal?

YES  >> INSPECTION END

NO  >> Repair as needed.
< BASIC INSPECTION >

POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM OPERATION INSPECTION

Inspection Procedure

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-63, "CONSULT-III Function".

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. shift the selector lever to “P” or “N” position and turn off all of the electric loads and A/C, etc.
3. Select “ALTERNATOR DUTY” at “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 the 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-12, "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 ALTERNATOR AND IPDM E/R

1. Turn ignition switch OFF.
2. Disconnect alternator harness connector and IPDM E/R harness connector.
3. Check continuity between alternator harness connector and IPDM E/R harness connector.

<table>
<thead>
<tr>
<th>Alternator</th>
<th>IPDM E/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>Terminal</td>
</tr>
<tr>
<td>E205</td>
<td>5</td>
</tr>
</tbody>
</table>

Continuity: Existed

4. Check continuity between alternator harness connector and ground.
< BASIC INSPECTION >

Alternator harness connector

<table>
<thead>
<tr>
<th>Connector</th>
<th>Terminal</th>
<th>Ground</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>E205</td>
<td>5</td>
<td></td>
<td>Not existed</td>
</tr>
</tbody>
</table>

Is the inspection result normal?

YES  >> Replace IPDM E/R.
NO   >> Repair harness or connector between IPDM E/R and alternator.
B TERMINAL CIRCUIT

DTC/CIRCUIT DIAGNOSIS

B TERMINAL CIRCUIT

Description

“B” terminal circuit supplies power to charge the battery and to operate the vehicle’s electrical system.

Diagnosis Procedure

1. CHECK “B” TERMINAL CONNECTION

1. Turn ignition switch OFF.
2. Check that “B” terminal is clean and tight.

Is the inspection result normal?

YES >> GO TO 2.

2. CHECK “B” TERMINAL CIRCUIT

Check voltage between alternator “B” terminal and ground.

<table>
<thead>
<tr>
<th>(+)</th>
<th>(-)</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternator “B” terminal</td>
<td>Ground</td>
<td>Battery voltage</td>
</tr>
</tbody>
</table>

E203 1

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness for open between alternator and fusible link.

3. CHECK “B” TERMINAL CONNECTION (VOLTAGE DROP TEST)

1. Start engine, then engine running at idle and warm.
2. Check voltage between battery positive terminal and alternator “B” terminal.

<table>
<thead>
<tr>
<th>(+)</th>
<th>(-)</th>
<th>Voltage (V) (Approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery positive terminal</td>
<td>Alternator “B” terminal</td>
<td>Terminal</td>
</tr>
<tr>
<td>E203</td>
<td>1</td>
<td>Less than 0.2</td>
</tr>
</tbody>
</table>

Is the inspection result normal?

YES >> “B” terminal circuit is normal. Refer to CHG-13, "Work Flow".
NO >> Check harness between battery and alternator for poor continuity.
L TERMINAL CIRCUIT (OPEN)

Description

The “L” terminal circuit controls the charge warning lamp. The charge warning lamp illuminates when the ignition switch is set to ON or START. When the alternator 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

1. CHECK “L” TERMINAL CONNECTION

1. Turn ignition switch OFF.
2. Check that “L” terminal is clean and tight.

Is the inspection result normal?

YES  >> GO TO 2.

2. CHECK “L” TERMINAL CIRCUIT (OPEN)

1. Disconnect alternator connector.
2. Apply ground to alternator harness connector terminal.
3. Check condition of the charge warning lamp with the ignition switch in the ON position.

<table>
<thead>
<tr>
<th>(+)</th>
<th>(−)</th>
<th>Condition</th>
<th>Charge warning lamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>E205</td>
<td>3</td>
<td>Ground</td>
<td>Ignition switch ON</td>
</tr>
</tbody>
</table>

Does it illuminate?

YES  >> “L” terminal circuit is normal. Refer to CHG-13, "Work Flow".
NO   >> GO TO 3.

3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the battery cable from the negative terminal.
2. Disconnect the combination meter connector.
3. Check continuity between alternator harness connector and combination meter harness connector.

<table>
<thead>
<tr>
<th>Alternator</th>
<th>Combination meter</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>E205</td>
<td>Terminal</td>
<td>M34</td>
</tr>
<tr>
<td>3</td>
<td>Connector</td>
<td>Terminal</td>
</tr>
<tr>
<td></td>
<td>M34</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Existed</td>
<td></td>
</tr>
</tbody>
</table>

Is the inspection result normal?

YES  >> GO TO 4.
NO   >> Repair the harness or connector.

4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check continuity between combination meter harness connector and fuse block (J/B).

<table>
<thead>
<tr>
<th>Combination meter</th>
<th>Fuse block (J/B)</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>Terminal</td>
<td>Connector</td>
</tr>
<tr>
<td>M34</td>
<td>2</td>
<td>M1</td>
</tr>
<tr>
<td>2</td>
<td>2A</td>
<td>Existed</td>
</tr>
</tbody>
</table>

Is the inspection result normal?

YES  >> GO TO 5.
NO   >> Repair the harness or connector.

5. CHECK POWER SUPPLY CIRCUIT
L TERMINAL CIRCUIT (OPEN)

1. Connect the battery cable to the negative terminal.
2. Check voltage between combination meter harness connector and ground.

<table>
<thead>
<tr>
<th>(+)</th>
<th>(−)</th>
<th>Condition</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>Terminal</td>
<td>Ground</td>
<td>Ignition switch ON</td>
</tr>
<tr>
<td>M34</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Is the inspection result normal?

YES >> Replace combination meter.
NO  >> Inspect the power supply circuit. Refer to PG-89, "Wiring Diagram - IGNITION POWER SUPPLY - ".
L TERMINAL CIRCUIT (SHORT)

Description

The “L” terminal circuit controls the charge warning lamp. The charge warning lamp illuminates when the ignition switch is set to ON or START. When the alternator 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

1. CHECK “L” TERMINAL CIRCUIT (SHORT)

1. Turn ignition switch OFF.
2. Disconnect alternator connector.
3. Turn ignition switch ON.
Does charge warning lamp illuminate?

YES >> GO TO 2.
NO >> Refer to CHG-13, "Work Flow".

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect combination meter connector.
4. Check continuity between combination meter harness connector and ground.

<table>
<thead>
<tr>
<th>Combination meter</th>
<th>Connector</th>
<th>Terminal</th>
<th>Ground</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M34</td>
<td>25</td>
<td></td>
<td>Not existed</td>
</tr>
</tbody>
</table>

Is the inspection result normal?

YES >> Replace combination meter.
NO >> Repair the harness or connector.
**S TERMINAL CIRCUIT**

**Description**

The output voltage of the alternator is controlled by the IC voltage regulator at the “S” terminal detecting the input voltage. The “S” terminal circuit detects the battery voltage to adjust the alternator output voltage with the IC voltage regulator.

**Diagnosis Procedure**

1. **CHECK “S” TERMINAL CONNECTION**

   1. Turn ignition switch OFF.
   2. Check if “S” terminal is clean and tight.

   Is the inspection result normal?
   - YES >> GO TO 2.

2. **CHECK “S” TERMINAL CIRCUIT**

   Check voltage between alternator harness connector and ground.

<table>
<thead>
<tr>
<th>(+)</th>
<th>Alternator</th>
<th>Terminal</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>E205</td>
<td>4</td>
<td>Ground</td>
<td>Battery voltage</td>
</tr>
</tbody>
</table>

   Is the inspection result normal?
   - YES >> Refer to CHG-13, "Work Flow".
   - NO >> Check harness for open between alternator and fuse.
## Symptom Table

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharged battery</td>
<td>Refer to CHG-13, &quot;Work Flow&quot;</td>
</tr>
<tr>
<td>The charge warning lamp does not illuminate when the ignition switch is set to ON.</td>
<td></td>
</tr>
<tr>
<td>The charge warning lamp does not turn OFF after the engine starts.</td>
<td></td>
</tr>
<tr>
<td>The charging warning lamp turns ON when increasing the engine speed.</td>
<td></td>
</tr>
</tbody>
</table>
REMOVAL AND INSTALLATION
ALTERNATOR
Exploded View

REMOVAL

1. Alternator bracket
2. Alternator bracket mounting bolt
3. “B” terminal harness
4. “B” terminal nut
5. Alternator connector
6. Alternator
7. Alternator stay
8. Alternator mounting bolt (lower)
9. Alternator stay mounting bolt
10. Ground harness
11. Alternator mounting bolt (upper)

Refer to GI-4, “Components” for symbols in the figure.

DISASSEMBLY
Removal and Installation

REMOVAL
1. Disconnect the battery cable from the negative terminal. Refer to PG-164, "Removal and Installation".
2. Remove front under cover. Refer to EXT-25, "Removal and Installation".
3. Remove drive belt. Refer to EM-20, "Removal and Installation".
4. Disconnect engine oil pressure switch connector (A) and alternator connector (B).
5. Remove harness bracket bolt (C).
6. Remove “B” terminal nut (D) and disconnect “B” terminal harness.
7. Remove ground harness mounting bolt.

8. Remove alternator mounting bolt (lower), and then alternator mounting bolt (upper).
9. Remove A/T fluid cooler tube (1) from fan shroud (2).

10. Move A/T fluid cooler tube (1) and secure work space.
11. Remove alternator assembly (2) from underneath the vehicle.

INSTALLATION
Note the following items, and then install in the reverse order of removal.

CAUTION:
• Be careful to tighten “B” terminal nut carefully.
• Install alternator, and check tension of belt. Refer to EM-20, "Checking".
• For this model, the power generation voltage variable control system that controls the power generation voltage of the alternator has been adopted. Therefore, the power generation voltage variable control system operation inspection should be performed after replacing the alternator, and then make sure that the system operates normally. Refer to CHG-17, "Inspection Procedure".
• When installing alternator bracket, tighten mounting bolts in numerical order as shown in the figure.
ALTERNATOR PULLEY INSPECTION

Perform the following.

- Make sure that alternator pulley does not rattle.
- Make sure that alternator pulley nut is tight. Refer to CHG-25, "Exploded View".
Alternator

<table>
<thead>
<tr>
<th>Type</th>
<th>A002TX1491</th>
</tr>
</thead>
<tbody>
<tr>
<td>MITSUBISHI make</td>
<td></td>
</tr>
<tr>
<td>Nominal rating [V - A]</td>
<td>12 - 150</td>
</tr>
<tr>
<td>Ground polarity</td>
<td>Negative</td>
</tr>
<tr>
<td>Minimum revolution under no-load (When 13.5 V is applied) [rpm]</td>
<td>Less than 1,300</td>
</tr>
<tr>
<td>Hot output current (When 13.5 V is applied) [A/rpm]</td>
<td>More than 57/1,500 More than 126/2,500 More than 152/5,000</td>
</tr>
<tr>
<td>Regulated output voltage [V]</td>
<td>14.1 - 14.7*</td>
</tr>
</tbody>
</table>

*: Adjustment range of power generation voltage variable control is 11.4 - 15.6 V.