

SECTION **CHG**
CHARGING SYSTEM

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000007630863

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 sections 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.

PREPARATION

< PREPARATION >


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PREPARATION

Special Service Tool


INFOID:000000007630864

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

Tool number (Kent-Moore No.) Tool name	Description
<p>— (—) Model GR-8 1200 NI Multitasking battery and electrical diagnostic station</p>  <p style="text-align: center;">AWIIA1239ZZ</p>	<p>Tests batteries, starting and charging systems and charges batteries. For operating instructions, refer to diagnostic station instruction manual.</p>

Commercial Service Tools

INFOID:000000007206489

Tool name	Description
<p>Power tool</p>  <p style="text-align: center;">PIIB1407E</p>	<p>Loosening bolts, nuts and screws</p>

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COMPONENT PARTS

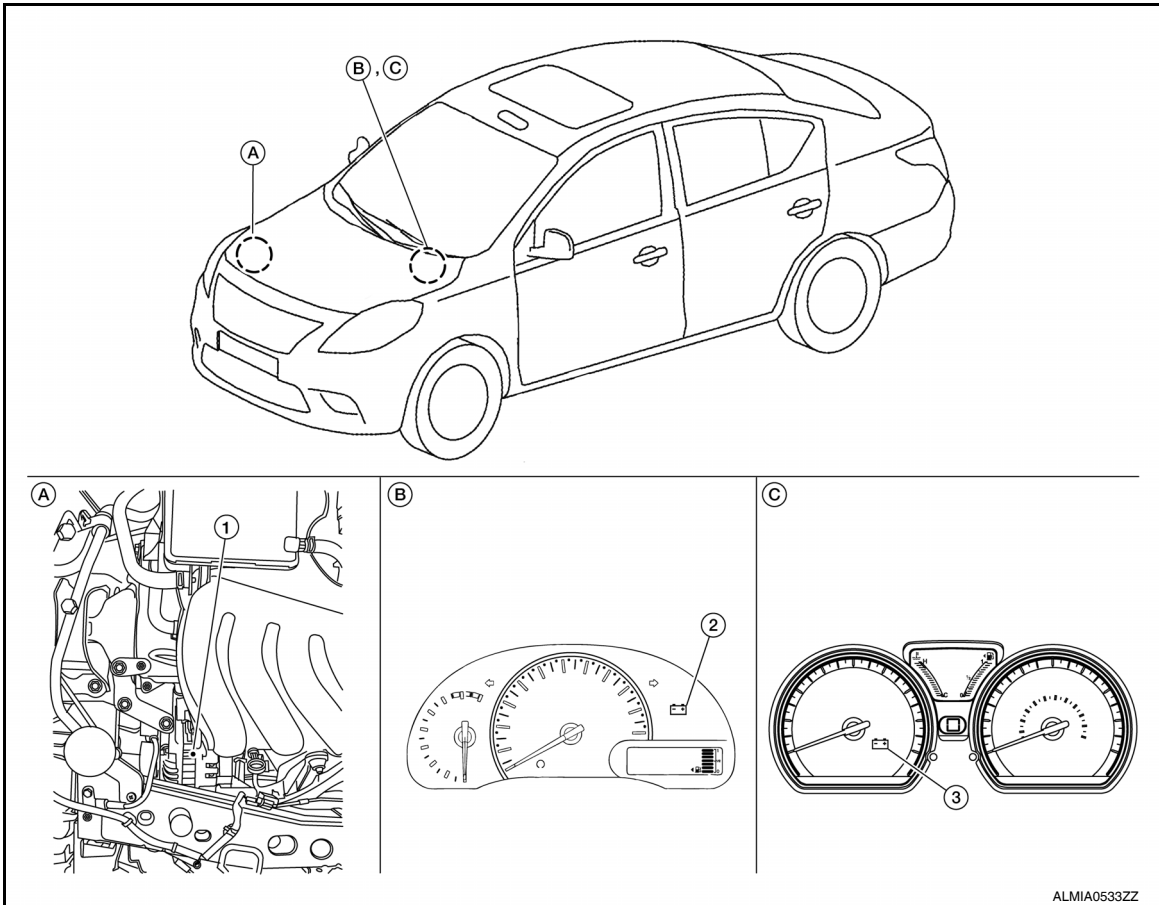
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000007206490



ALMIA0533ZZ

1. Generator

2. Combination meter (Type B)

3. Combination meter (Type A)

Component Description

INFOID:000000007631061

Component part	Description
Generator (IC voltage regulator)	The IC 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 generator performs the normal power generation according to the characteristic of the IC voltage regulator.
Combination meter (Charge warning lamp)	The IC regulator warning function activates to illuminate the charge warning lamp if any of the following symptoms occur while generator is operating: <ul style="list-style-type: none"> Excessive voltage is produced. No voltage is produced.

SYSTEM

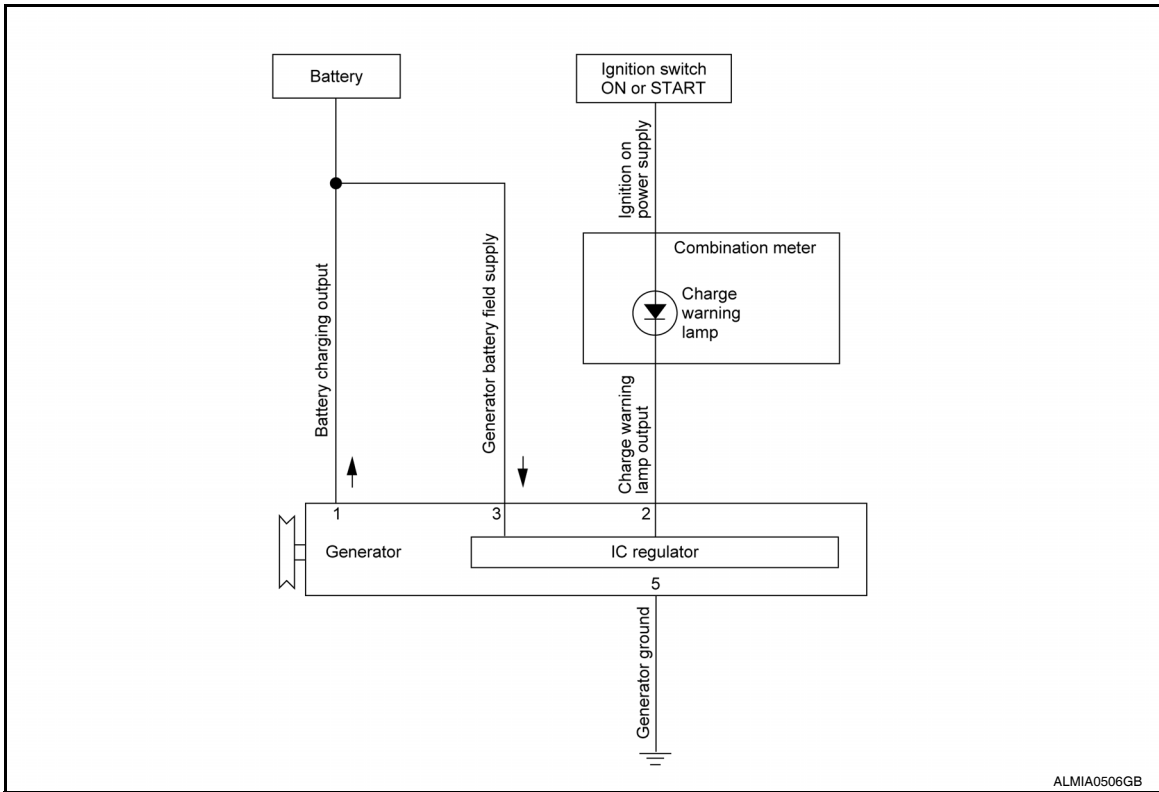
< SYSTEM DESCRIPTION >

SYSTEM

CHARGING SYSTEM

CHARGING SYSTEM : System Diagram

INFOID:000000007630970



CHARGING SYSTEM : System Description

INFOID:000000007630971

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.

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CHARGING SYSTEM

< WIRING DIAGRAM >

CHARGING SYSTEM CONNECTORS

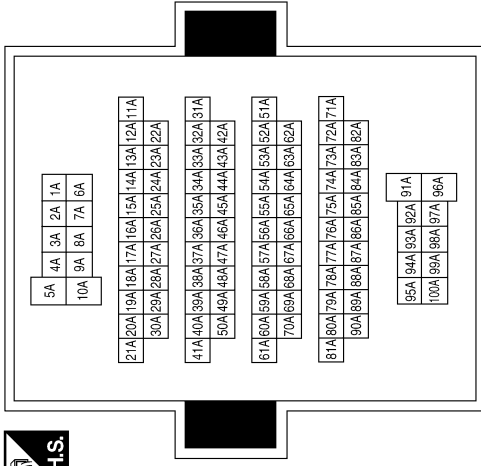
Connector No.	M24
Connector Name	COMBINATION METER (WITH TYPE B)
Connector Color	WHITE



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	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
3	GR	IGN
35	Y	CHG

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	17A	Color of Wire	Y	Signal Name	-
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Connector No.	M82
Connector Name	COMBINATION METER (WITH TYPE A)
Connector Color	WHITE



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	28	Color of Wire	GR	Signal Name	IGN
	38		Y		CHG

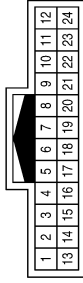
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CHARGING SYSTEM

< WIRING DIAGRAM >

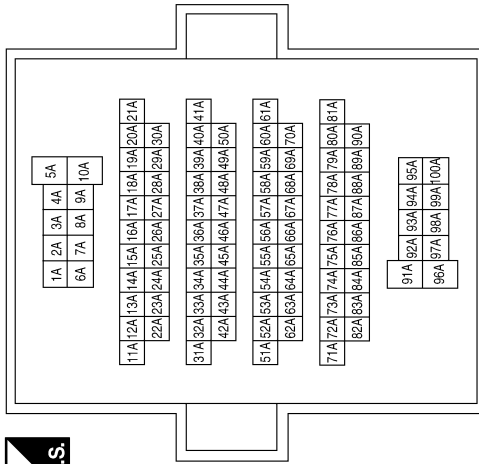
Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	19	Color of Wire	V	Signal Name	-
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Terminal No.	17A	Color of Wire	V	Signal Name	-
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Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	F2
Connector Name	GENERATOR
Connector Color	-



Terminal No.	1	Color of Wire	B/R	Signal Name	-
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Connector No.	F1
Connector Name	GENERATOR
Connector Color	BLACK



Terminal No.	2	Color of Wire	L/W	Signal Name	-
3	G				

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	2	Color of Wire	L	Signal Name	-
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CHARGING SYSTEM

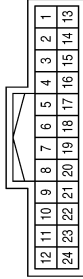
< WIRING DIAGRAM >

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	2	Color of Wire	G	Signal Name	-
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Connector No.	F8
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	19	Color of Wire	L/W	Signal Name	-
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Connector No.	F4
Connector Name	GENERATOR
Connector Color	-



Terminal No.	5	Color of Wire	B/Y	Signal Name	-
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Connector No.	F40
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	-



Terminal No.	5	Color of Wire	B/R	Signal Name	-
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DIAGNOSIS AND REPAIR WORKFLOW

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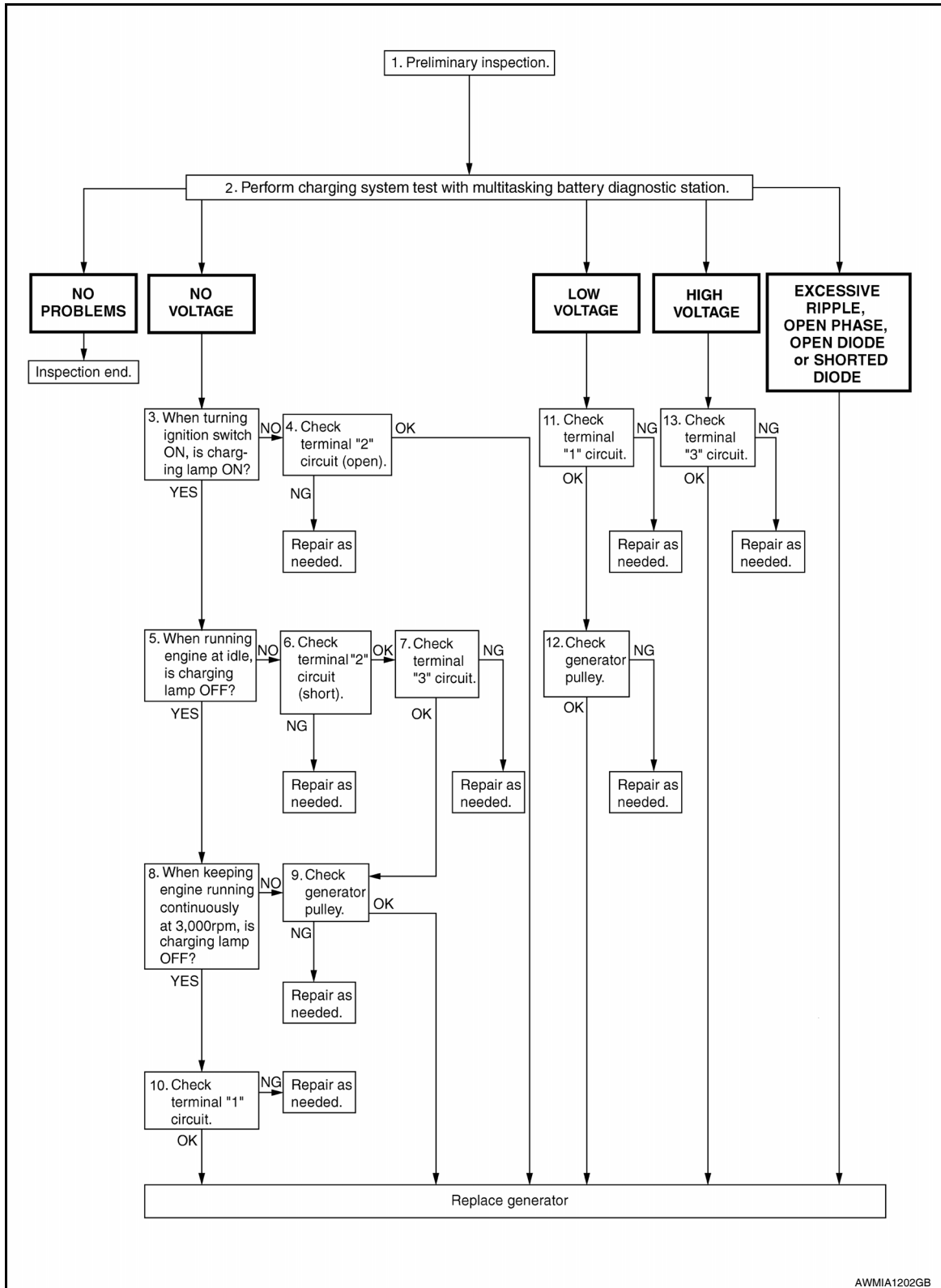
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000007630972

OVERALL SEQUENCE



AWMIA1202GB

CHARGING SYSTEM PRELIMINARY INSPECTION

< BASIC INSPECTION >

CHARGING SYSTEM PRELIMINARY INSPECTION

Inspection Procedure

INFOID:000000007206498

Regarding Wiring Diagram information, refer to [CHG-6, "Wiring Diagram"](#).

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 1)	A
	Battery (terminal 3)	24
Combination meter (Type A)	Ignition switch ON (terminal 28)	3
Combination meter (Type B)	Ignition switch ON (terminal 3)	3

Is the inspection result normal?

YES >> GO TO 3.

NO >> Be sure to eliminate the cause of malfunction before installing new fuse.

3. CHECK GENERATOR GROUND TERMINAL CONNECTION

Verify connector F4 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-17, "Inspection"](#).

Is the inspection result normal?

YES >> Inspection end.

NO >> Repair as needed.

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B TERMINAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

B TERMINAL CIRCUIT

Description

INFOID:000000007206500

The terminal "1" (B) circuit supplies power to charge the battery and operate the vehicle's electrical system.

Diagnosis Procedure

INFOID:000000007206501

Regarding Wiring Diagram information, refer to [CHG-6, "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 Multitasking Battery Diagnostic instruction manual.

2. CHECK TERMINAL "1" CIRCUIT

Check voltage between generator connector F2 terminal 1 and ground.

(+)		(-)	Voltage
Connector	Terminal		
F2	1	Ground	Battery voltage

Is the inspection result normal?

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.
2. Bring engine to normal operating temperature and run at idle speed.
3. Check voltage between battery positive terminal and generator connector F2 terminal 1.

(+)	(-)		Voltage
	Connector	Terminal	
Battery positive terminal	F2	1	Less than 0.2 V

Is the inspection result normal?

YES >> Terminal "1" circuit is normal. Refer to [CHG-10, "Work Flow"](#).

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

L TERMINAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

L TERMINAL CIRCUIT

Description

INFOID:000000007206502

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:000000007206503

Regarding Wiring Diagram information, refer to [CHG-6, "Wiring Diagram"](#).

1. CHECK CHARGE WARNING LAMP CIRCUIT CONNECTION

1. Turn ignition switch OFF.
2. Verify generator F1 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 Multitasking Battery Diagnostic Station instruction manual.

2. CHECK CHARGE WARNING LAMP CIRCUIT

1. Disconnect generator connector F1.
2. Apply ground to generator harness connector F1 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-10, "Work Flow"](#).

NO >> GO TO 3.

3. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect the combination meter connector.
3. Check continuity between generator harness connector and combination meter harness connector.

Combination meter Type A

Generator		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
F1	2	M82	38	Yes

Combination meter Type B

Generator		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
F1	2	M24	35	Yes

4. Check continuity between generator harness connector F1 terminal 2 and ground.

Generator		(-)	Continuity
Connector	Terminal		
F1	2	Ground	No

Are the continuity results as specified?

YES >> Replace the combination meter. Refer to [MWI-52, "Removal and Installation"](#) (with Type A meter) or [MWI-101, "Removal and Installation"](#) (with Type B meter).

NO >> Repair the harness or connector.

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S TERMINAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

S TERMINAL CIRCUIT

Description

INFOID:000000007206506

The output voltage of the generator is controlled by the IC voltage 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 voltage regulator.

Diagnosis Procedure

INFOID:000000007206507

Regarding Wiring Diagram information, refer to [CHG-6, "Wiring Diagram"](#).

1. CHECK VOLTAGE REGULATOR CIRCUIT CONNECTION

1. Turn ignition switch OFF.
2. Verify generator connector F1 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 Multitasking Battery Diagnostic Station instruction manual.

2. CHECK VOLTAGE REGULATOR TERMINAL CIRCUIT

Check voltage between generator harness connector F1 terminal 3 and ground.

(+)		(-)	Voltage
Connector	Terminal		
F1	3	Ground	Battery voltage

Is voltage as specified?

YES >> Refer to [CHG-10, "Work Flow"](#).

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

CHARGING SYSTEM

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

CHARGING SYSTEM

Symptom Table

INFOID:000000007206508

Symptom	Reference
Battery discharged	Refer to CHG-10, "Work Flow" .
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.	

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GENERATOR

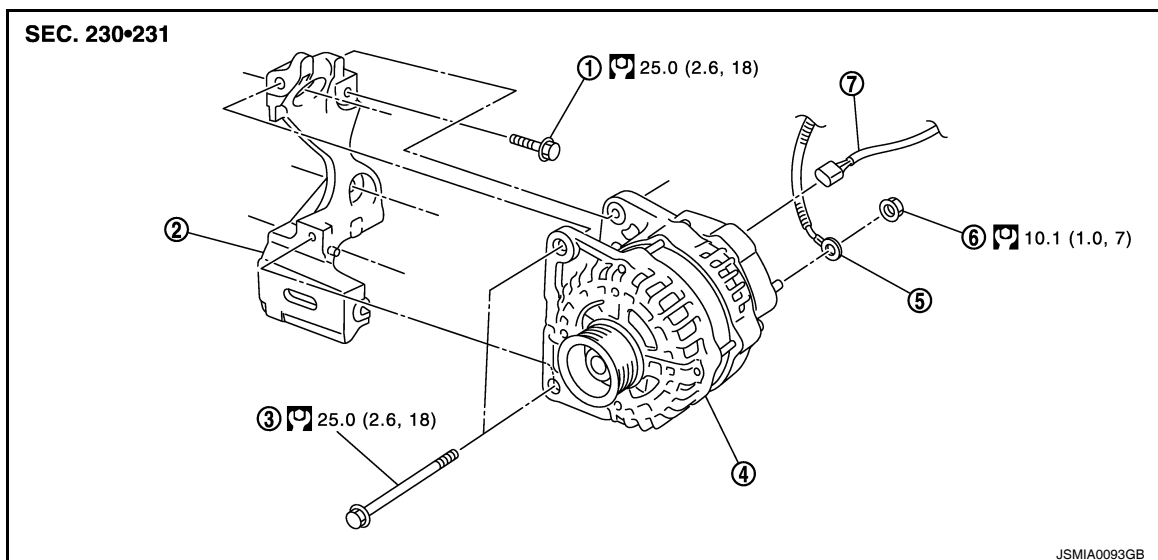
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

GENERATOR

Exploded View

INFOID:000000007206509



- | | | |
|------------------------------------|-------------------------|---------------------|
| 1. Generator bracket mounting bolt | 2. Generator bracket | 3. Generator bolt |
| 4. Generator | 5. "B" terminal harness | 6. "B" terminal nut |
| 7. Generator connector | | |

Removal and Installation

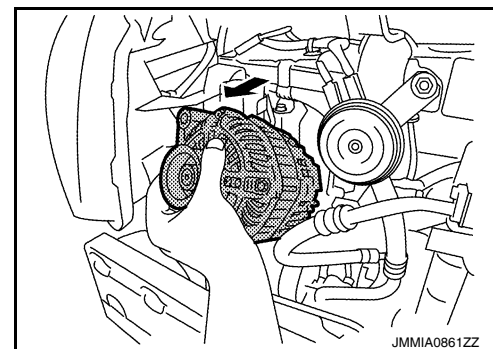
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REMOVAL

1. Disconnect the battery cable from the negative terminal.
CAUTION:
Disconnect the battery cable from the negative terminal first.
2. Remove fender protector (RH). Refer to [EXT-26, "Removal and Installation"](#).
3. Remove undercover. Refer to [EXT-19, "Removal and Installation"](#).
4. Remove drive belt. Refer to [EM-16, "Removal and Installation"](#).
5. Remove horn bracket.
6. Disconnect generator connector.
7. Remove "B" terminal nut and disconnect "B" terminal harness.
8. Remove generator bolts.
9. Remove generator.

CAUTION:
Be careful not to damage surrounding parts when removing generator from the vehicle.

NOTE:
Front fascia shown removed for clarity.



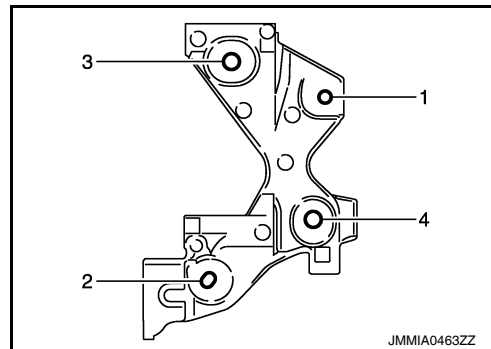
10. Remove generator bracket if necessary.

GENERATOR

< REMOVAL AND INSTALLATION >

INSTALLATION

1. Install the generator bracket, if removed, using the following procedure.
 - a. Temporarily tighten bolt (1).
 - b. Temporarily tighten bolt (2).
 - c. Tighten bolts to specification in numerical order as shown.



2. Install generator using the following procedure.
 - a. Temporarily tighten the generator bolts in order from the lower to the upper.
 - b. Tighten the generator bolts to the specification starting with the top bolt.
 - c. Install "B" terminal harness and "B" terminal nut.
CAUTION:
Be sure to tighten "B" terminal nut carefully.
3. Install and check the tension of the drive belt. Refer to [EM-16. "Removal and Installation"](#).
4. Installation of the remaining components is in the reverse order of removal.

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SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Generator

INFOID:000000007206513

Model*	A002TJ1791ZC
Manufacturer	Mitsubishi
Nominal rating	13.5V - 110A
Ground polarity	Negative
Minimum revolution under no-load	1,000 rpm
Hot output current (When 13.5 V is applied)	More than 27A/1,300 rpm More than 95A/2,500 rpm More than 116A/5,000 rpm
Regulated output voltage	14.1 - 14.7V @20°C (68°F)
Adjustment range of power generation voltage variable control	11.4 - 15.6V

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