ISUZU

INDUSTRIAL DIESEL ENGINE

A1-4JJ1 MODEL

WORKSHOP MANUAL

ISUZU MOTORS LIMITED

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Engine

Engine Mechanical (4JJ1)

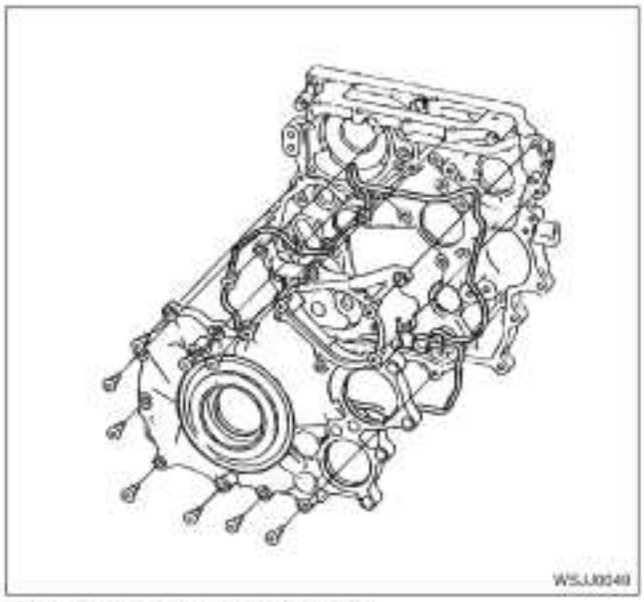
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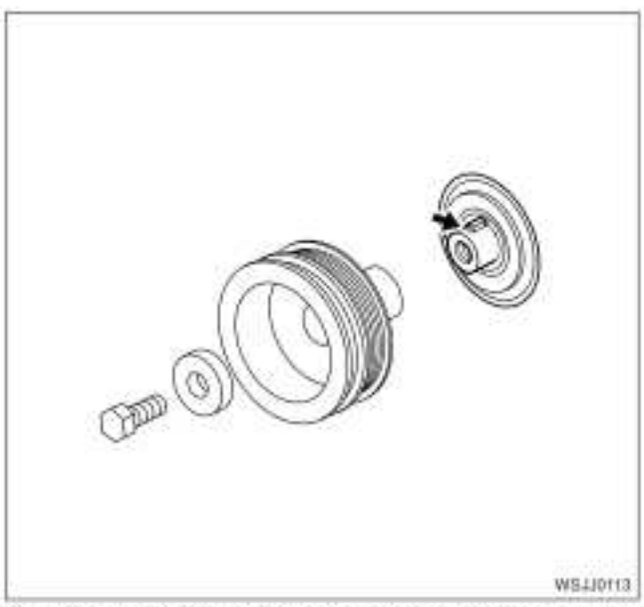
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3. Install the crankshaft pulley.
   - Apply liquid gasket (ThreeBond 1207B or equivalent) to the tip of the key.
   - Install the crankshaft pulley while aligning it with the key on the crankshaft.

Caution:
Replace the crankshaft pulley bolt and washer with new ones.

Tightening torque: 294 N·m (30.0kg·m/217 lb ft)

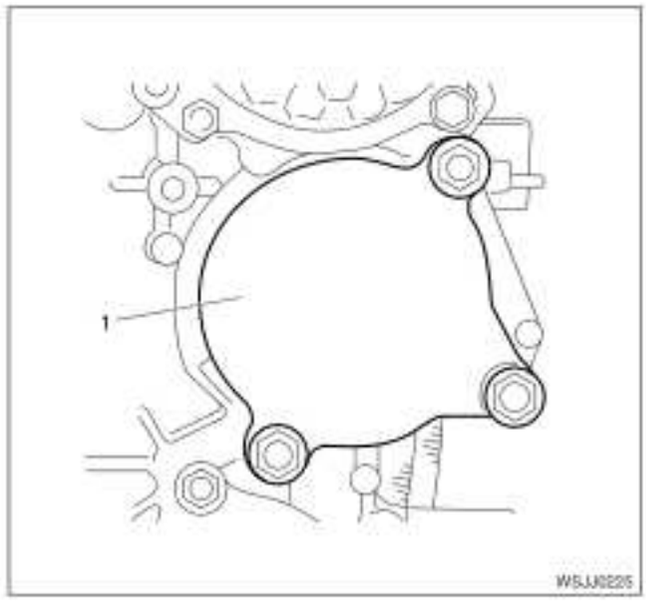


4. Install the starter motor and ground cable to the flywheel housing and tighten the bolt to the specified torque.

Tightening torque: 97 N·m (9.9 kg·m/72 lb ft)

5. Install the vacuum pump hole cover.
   - Apply engine oil to the packing.
   - Tighten the installing nut to the specified torque.

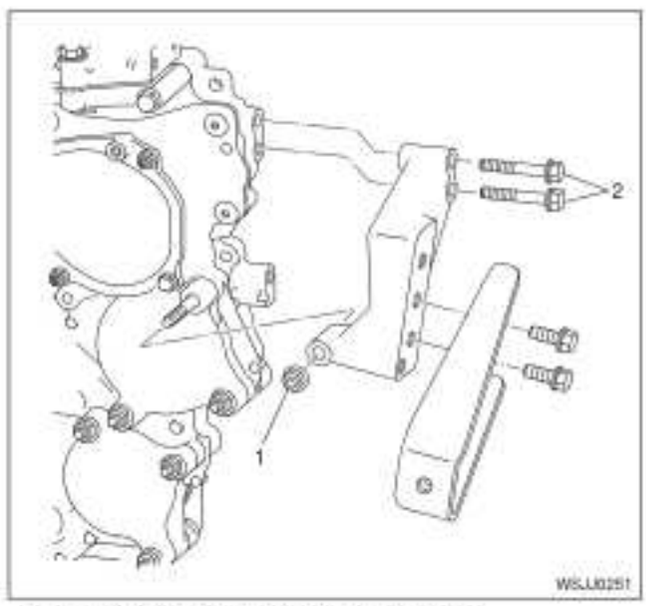
Tightening torque: 25 N·m (2.5 kg·m/18 lb ft)



Name
1. Vacuum Pump Hole Cover

6. Install the fan shroud bracket LH and fan shroud stay LH.
   - After temporarily tightening the nut as shown (1) in the illustration, temporarily tighten the bolt (2).
   - After fully tightening the nut as shown (1) in the illustration, fully tighten the bolt (2).

Tightening torque:
M8 bolt: 25 N·m (2.5 kg·m/18 lb ft)
M10 bolt: 51 N·m (5.2 kg·m/38 lb ft)
Nut: 25 N·m (2.5 kg·m/18 lb ft)



7. Install the power steering hole cover.
   - Apply a coat of engine oil to the O-ring.
   - Tighten the mounting nut to the specified torque.

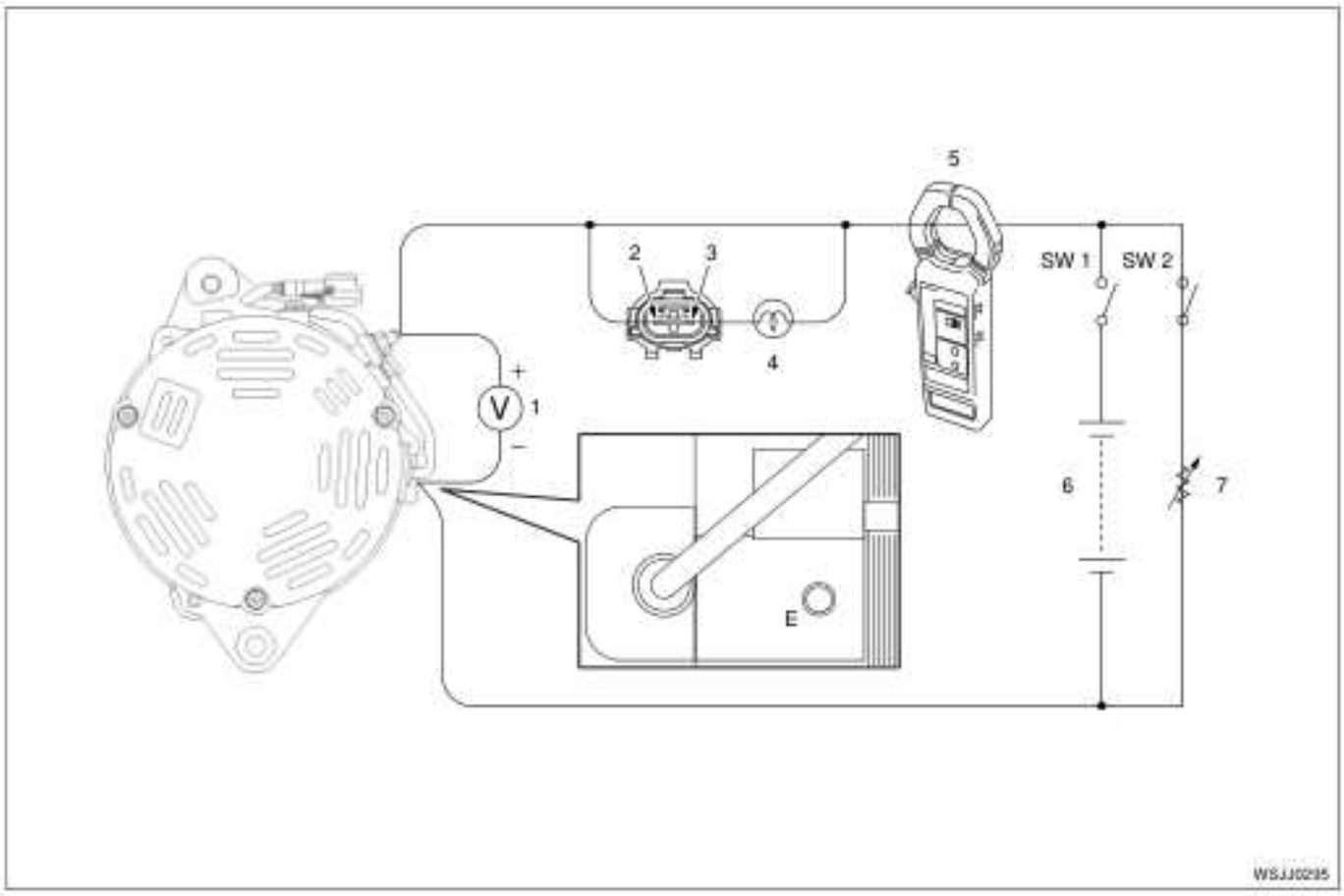
Tightening torque: 25 N·m (2.5 kg·m/18 lb ft)

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Performance test

In the performance test of generator, connect as follows and measure the regulated voltage and output current.

Actual wiring diagram for performance test of IC regulator built-in generator



Disassembly Procedure

1. Voltmeter
2. R Terminal
3. L Terminal
4. Charging Lamp 24 V-3 W
5. Clamp Tester Ammeter
6. Battery 24 V
7. Variable Resistor

Regulated voltage measurement of regulator

Close SW1 switch, and warm-up five to ten minutes at approx. 1500 rpm in generator until an ammeter shows 6 A or less.
After confirming that an ammeter shows between 2 and 6 A, set the generator between approx. 3000 to 4000 rpm. If an voltmeter shows between 27.5 and 29.5 V, the regulated voltage of regulator is normal.
If the ammeter shows 6A or more, charge the battery for a while or replace it with full-charged battery.
Replace the regulator if the voltmeter shows out of range between 27.5 and 29.5 V.

Specified value of regulated voltage
27.5 — 29.5 V (+25°C {77°F})

Measurement of the output current

Close SW1 and SW2 switches, and raise the generator speed to 5000 rpm. While keeping the voltmeter showing 27 V, measure the maximum value of output current with a variable resistor.
In this time, judge as normal if the output current is 50 A or more.

Caution:

- Do not cut off battery circuit during generator rotating.
- Do not connect to L terminal if the charging lamp (24 V-3 W) is not used.
  Never connect L terminal and B circuit directly. Diode for excitation may be broken.

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Trouble Shooting

The glow indicator lamp does not light up.

Condition	Possible Cause	Correction
The glow indicator lamp does not light up.	Slow blow fuse has blown.	Replace the slow-blow fuse.
	Fuse is unavailable.	Replace the fuse.
	Indicator valve is burnt out.	Replace the indicator valve.
	Engine control system is faulty.	Refer to Engine Control System section.

Preheating does not work.

Condition	Possible Cause	Correction
Preheating does not work.	Slow blow fuse has blown.	Replace the slow-blow fuse.
	Defective or faulty glow plug relay connector contact.	Re-mount or replace the glow plug relay.
	Engine control system is faulty.	Refer to Engine Control System section.

Preheating time is too long or too short.

Condition	Possible Cause	Correction
Preheating time is too long or too short.	Thermo-sensor fault and break in circuit or short circuit.	Replace the thermo-sensor. Repair the circuit.
	Fault in glow plug.	Replace or tighten the glow plug.
	Engine control system is faulty.	Refer to Engine Control System section.

Main Data and Specifications

Items	Model
Preheating device model	Glow plug
Glow plug rated voltage/ current (V-A)	23 – 3.5

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