INDUSTRIAL DIESEL ENGINE

A1-4JJ1 MODEL

WORKSHOP MANUAL

ISUZU MOTORS LIMITED

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Engine

Engine Mechanical (4JJ1)

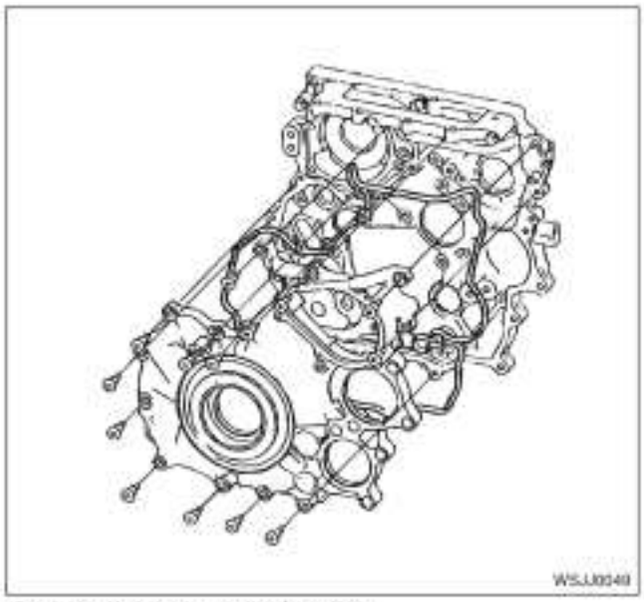
Contents

Isuzu Diesel Engine (4JJ1) 1A-3
Precautions on Service Work 1A-3
Main Data and Specifications 1A-8
Engine Foot 1A-10
Components 1A-10
Removal 1A-10
Installation 1A-11
Cylinder Head Cover 1A-13
Components 1A-13
Removal 1A-14
Installation 1A-15
Torque Specifications 1A-16
Intake Manifold 1A-17
Components 1A-17
Removal 1A-17
Installation 1A-18
Torque Specifications 1A-20
Exhaust Manifold 1A-21
Components 1A-21
Removal 1A-21
Inspection 1A-22
Installation 1A-23
Torque Specifications 1A-25
Timing Gear Train 1A-26
Components 1A-26
Removal 1A-26
Disassembly 1A-29
Reassembly 1A-29
Inspection 1A-30
Installation 1A-31
Torque Specifications 1A-35
Special Tool 1A-35
Camshaft ASM 1A-36
Components 1A-36
Removal 1A-37
Disassembly 1A-38
Reassembly 1A-40
Installation 1A-41
Torque Specifications 1A-43
Special Tool 1A-43
Rocker Arm Shaft ASM 1A-44
Components 1A-44
Removal 1A-44
Disassembly 1A-45
Reassembly 1A-47
Installation 1A-47
Torque Specifications 1A-48
Valve Stem Seal, Valve Spring 1A-49
Components 1A-49
Removal 1A-49
Inspection 1A-50
Installation 1A-51
Special Tool 1A-52
Cylinder Head 1A-53
Components 1A-53
Removal 1A-53
Disassembly 1A-58
Inspection 1A-59
Reassembly 1A-64
Installation 1A-67
Torque Specifications 1A-75
Special Tool 1A-75
Piston, Connecting Rod 1A-77
Components 1A-77
Removal 1A-77
Disassembly 1A-78
Reassembly 1A-84
Installation 1A-85
Torque Specifications 1A-87
Special Tool 1A-87
Flywheel 1A-88
Components 1A-88
Removal 1A-88
Inspection 1A-89
Installation 1A-89
Torque Specifications 1A-91
Special Tool 1A-91
Gear Case ASM 1A-92
Components 1A-92
Removal 1A-92
Installation 1A-93
Torque Specifications 1A-94
Crankshaft Front Oil Seal 1A-95
Components 1A-95
Removal 1A-95
Installation 1A-96
Torque Specifications 1A-98
Special Tool 1A-98
Crankshaft Rear Oil Seal 1A-99
Components 1A-99
Removal 1A-100
Installation 1A-100
Torque Specifications 1A-102
Special Tool 1A-102
Crankshaft 1A-103
Components 1A-103
Removal 1A-103
Disassembly 1A-104
Reassembly 1A-105
Inspection 1A-105
Installation 1A-109
Torque Specifications 1A-112
Cylinder Block 1A-113
Components 1A-113

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Removal 1A-113
Inspection 1A-114
Installation 1A-116
Lubrication System 1A-117
Precautions on Service Work 1A-117
Functional Check 1A-118
Special Tool 1A-119
Oil Filter ASM 1A-120
Components 1A-120
Removal 1A-120
Installation 1A-121
Oil Port Cover ASM 1A-122
Components 1A-122
Removal 1A-122
Installation 1A-122
Oil Cooler 1A-123
Components 1A-123
Removal 1A-123
Disassembly 1A-124
Reassembly 1A-125
Installation 1A-125
Oil Relief Valve 1A-127
Components 1A-127
Removal 1A-127
Installation 1A-128
Crankcase, Oil Pan 1A-130
Components 1A-130
Removal 1A-130
Disassembly 1A-131
Reassembly 1A-132
Installation 1A-132
Torque Specifications 1A-134
Oil Pump 1A-135
Components 1A-135
Removal 1A-135
Disassembly 1A-137
Reassembly 1A-137
Inspection 1A-137
Installation 1A-139
Oil Pressure Switch 1A-142
Components 1A-142
Removal 1A-142
Inspection 1A-142
Installation 1A-143

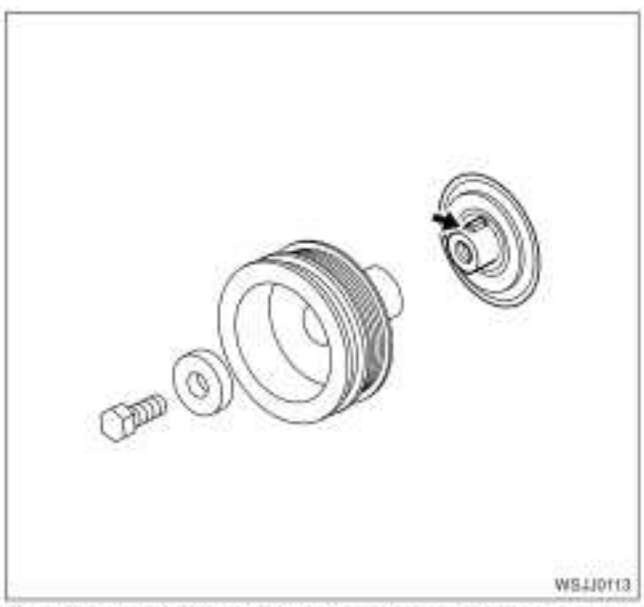
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3. Install the crankshaft pulley.
   - Apply liquid gasket (ThreeBond 1207B or equivalent) to the tip of the key.
   - Install the crankshaft pulley while aligning it with the key on the crankshaft.

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

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

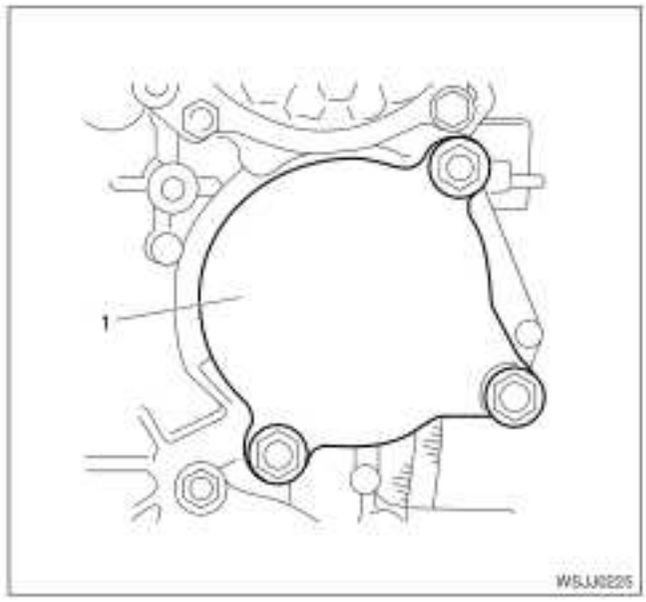


4. Install the starter motor and ground cable to the flywheel housing and tighten the bolt to the specified torque.

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.

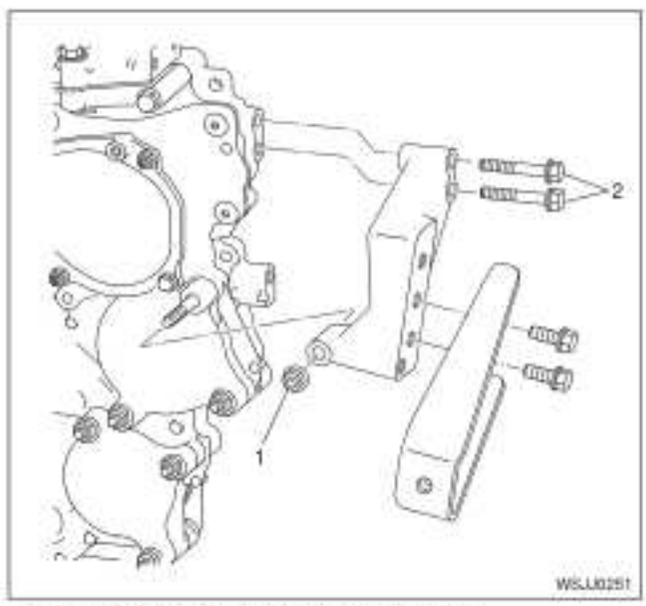
Tightening torque: 25 N·m (2.5 kg·m/18 lb ft)



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.

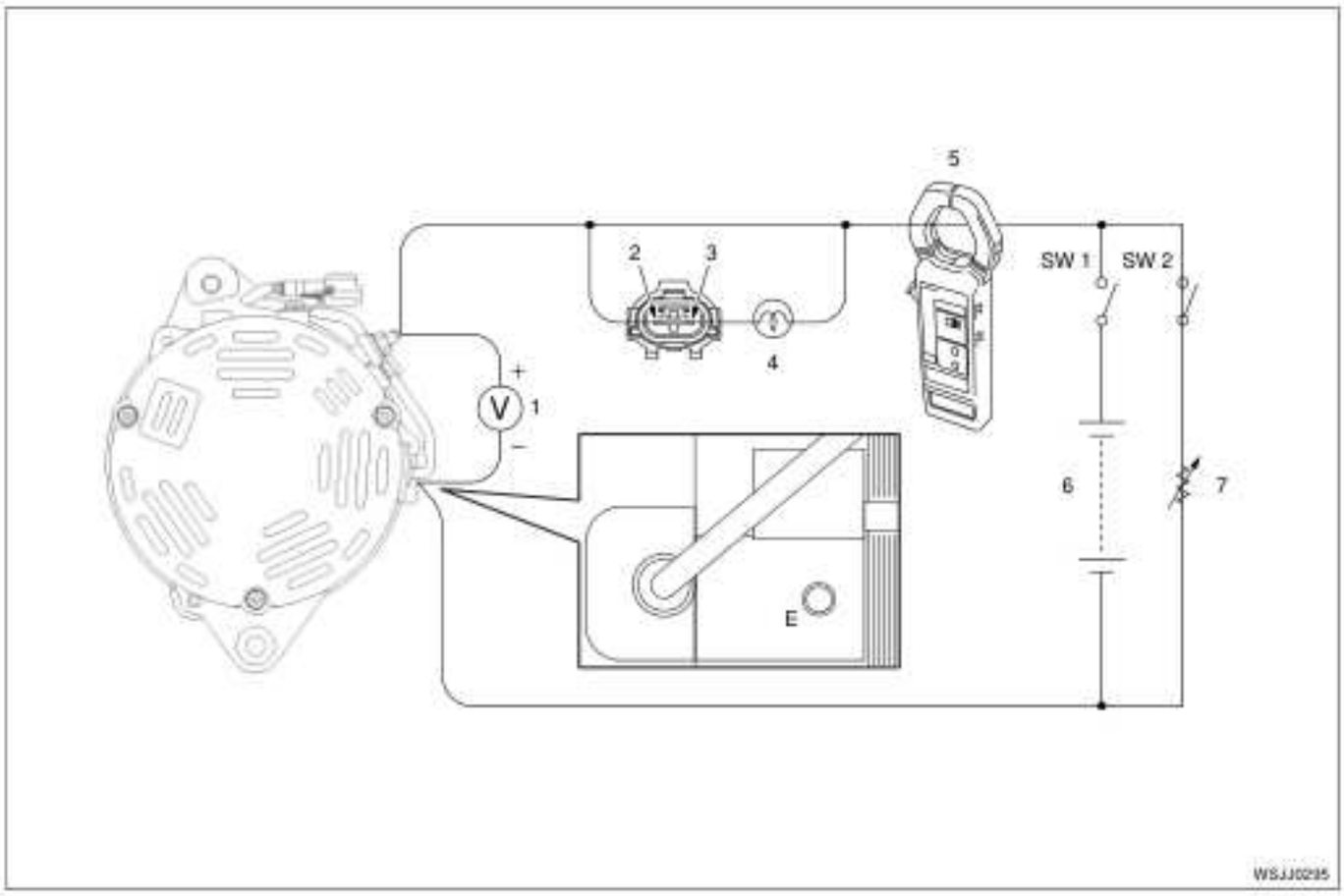
Tightening torque: 25 N·m (2.5 kg·m/18 lb ft)

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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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