

Rev.

0

ENGINE SPECIFICATIONS

| | | |
|---------------------------------|---------------|--------------------------|
| Engine Model | Base Model : | 4JJ1 (Intercooler turbo) |
| | Model No. : | BJ-4JJ1XYGV-01 |
| Customer | EXPORT | |
| Application | Gene-set | |
| Drawing No. (3D Data Code) | E3-1040-025-1 | |

| Symbol | Date | Revision Record | Issue No. |
|--------|------------|--|-----------|
| 0 | : 2008-9-3 | : For confirmation of prototype engine specifications. | : |
| | : | : | : |
| | : | : | : |
| | : | : | : |
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| | : | : | : |

ISUZU MOTORS LIMITED
Powertrain Business Dept.

Manager : Nobuhiro Shimizu

Prepared : Koji Ogawa



Engine Specifications

Model No. BJ-4JJ1XYGV-01

Rev. 0

| | | |
|--------------------------------|---|---------------------------|
| Manufacturer | ISUZU MOTORS LIMITED | |
| Engine Model | Base Model: 4JJ1 (Intercooler turbo) | Model No.: BJ-4JJ1XYGV-01 |
| Application | Gene-set | |
| Emission regulation | EPA Tier-3 / EC Stage-IIIa | |
| Engine type | Four cycle, water cooled, overhead valve, vertical in-line, direct injection type | |
| No. of cylinders-bore x stroke | 4 - 95.4 mm x 104.9 mm | |
| Total piston displacement | 2.999 L | |
| Compression ratio | 17.5 to 1 | |

| Engine performance | Rating |
|--------------------|--------|
|--------------------|--------|

| | | | | | | | | | | | |
|--|--|--|-----------------|--|-------------|--|-------------|--|--|------------------------------------|--|
| Test conditions | Standard atmospheric condition | | | | | | | | | | |
| <table border="1"> <tr> <td>Conforming standard</td> <td>Break-in time 30 hrs</td> </tr> <tr> <td>JPN;JIS D0006-1</td> <td></td> </tr> <tr> <td>US;SAEJ1349</td> <td>With AC generator, without cooling fan</td> </tr> <tr> <td>EU;ISO15550</td> <td></td> </tr> <tr> <td></td> <td>With air cleaner and exh. silencer</td> </tr> </table> | Conforming standard | Break-in time 30 hrs | JPN;JIS D0006-1 | | US;SAEJ1349 | With AC generator, without cooling fan | EU;ISO15550 | | | With air cleaner and exh. silencer | |
| | Conforming standard | Break-in time 30 hrs | | | | | | | | | |
| | JPN;JIS D0006-1 | | | | | | | | | | |
| | US;SAEJ1349 | With AC generator, without cooling fan | | | | | | | | | |
| | EU;ISO15550 | | | | | | | | | | |
| | With air cleaner and exh. silencer | | | | | | | | | | |
| | * Intake restriction -2.45kPa or less at 1800rpm | | | | | | | | | | |
| | * Exhaust restriction 13.3kPa or less at 1800rpm | | | | | | | | | | |
| | Fuel : JPN: JIS-NO.2 | | | | | | | | | | |

| | |
|----------------------------|---------------------------------|
| Rated Output | : 73.0±3% kW / 1800 min-1 |
| | : 57.0±5% kW / 1500 min-1 |
| Continuous rating | : 65.5±3%Nm / 1800 min-1 |
| | : 50.0±5%Nm / 1500 min-1 |
| S.F.C at Continuous rating | : 217±5% g/kw.h (at 1800min-1) |
| | : 213±5% g/kw.h (at 1500min-1) |
| No load max. speed | : 1800±20 min-1 |
| | : 1500±20 min-1 |
| Low idle speed | : 1000±20 min-1 |

| | |
|--------------------|---|
| Type of fuel | Diesel fuel only (JPN:JIS-NO.2, US:ASTM-2D, EU:EN590) |
| Engine dry weight | Approx. 320 kg |
| Dimensions | L 884 x W 748 x H 811.5 (With cooling fan) |
| Firing order | 1 - 3 - 4 - 2 |
| Rotating direction | Clockwise viewed from cooling fan |
| Valve device | Overhead valve |

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Supercharging device

| | |
|----------------------|---|
| Supercharging system | With Exhaust turbocharger |
| Driving system | --- |
| Lubricating system | Full forced pressure feed type (Oil cooled & water-cooled type) |
| Manufacturer | IHI LTD. |
| Name of type | RHF5 without waste gate |

Fuel device

| | |
|-------------------------------|--|
| Injection pump | |
| Manufacturer | Denso corporation |
| Name of type | Common rail HP3 type |
| Plunger | 2 - Diameter 8.5 mm x Stroke 8.8 mm (Lubricated by fuel oil) |
| Injection nozzle | |
| Manufacturer | Denso corporation |
| Name of type | Electrical multi-hole type |
| Fuel injection time regulator | Electrical controlled |
| Manufacturer | --- |
| Name of type | --- |
| Fuel feed pump | With |
| Manufacturer | Denso corporation |
| Name of type | Rotary type(Lubricated by Fuel oil) |
| Fuel filter | With |
| Filtering system | Paper element type (With priming pump and water separator) |
| Manufacturer | WAKOU INDUSTRY CO. LTD |
| Name of type | Cartridge type |
| Governor | |
| Speed control system | Electrical variable speed control |
| Lubricating system | --- |
| Manufacturer | TRANSTRON Inc. |
| Name of type | Electrical control type |

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Lubricating device

Lubricating system Full forced pressure feed type

Lubricating pump

Type of pump Gear pump

Driving system Crank gear driven

Oil pressure regulating device Piston - spring type

Oil pressure indicating device With engine oil pressure sensor

Oil filter

Filtering system Full flow paper element

Manufacturer Nippon Donaldson,Ltd

Oil cooler

Cooling system Water cooled type (Built-in Engine)

Manufacturer TOKYO ROKI CO.,LTD

Cooling device

Cooling system Pressurized water forced circulation type

Cooling fan

Type of fan Dia. 550 mm - Blower type - 7 blades

Driving system Belt driven by crankshaft, speed ratio: 1.03

Water pump

Type of pump Impeller type

Driving system Belt driven by crankshaft pulley

Thermostat

Regulating system Wax-pellet type

Manufacturer Fuji Bellows Co., Ltd.

Water temperature
indicating device With (water temp. sensor)
#REF!

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Air cleaner

Cleaning system ---
Manufacturer ---

Starting device

Starting motor
Manufacturer Denso corporation
Name of type Reduction type
Voltage 12V
Output 2.5kW

Engine stop device

Fuel cut (Electronic controlled)

Preheating device

With Glow plug (QOS- II)

Alternator

Generating system A/C type
Manufacturer HITACHI Ltd.
Voltage 12V
Output 110A
Driving system Belt driven by crankshaft pulley

Regulator

Regulating system Built-in IC regulator
Manufacturer HITACHI Ltd.
Charging discharging indicating system: ---

Hour meter

Without
System ---
Manufacturer ---
Fitting position ---
Driving system ---
Speed ratio ---
Rated speed indicator ---

Power Take Off

None

Flange type ---
Speed ratio ---
Spline number of teeth ---

Engine Specifications

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Allowable inclination angle 0.26 rad.(15deg) for all directions viewed from flywheel

Capacity

Lubrication oil MAX : approx. 15.0 L MIN : approx. 11.0 L (Oil pan only)
 Air cleaner ---
 Injection pump ---
 Governor ---
 Cooling water Approx 6.0 L (Engine only)
 Others ---

Maintenance data

| Valve clearance and adjustment | Valve | Valve clearance | Valve timing: open | Valve timing: close |
|-----------------------------------|-----------------|----------------------|-----------------------|---------------------|
| Inlet | 0.15 mm at cold | 0.23 rad(13deg) BTDC | 0.72 rad(41deg) ABDC | |
| Exhaust | 0.15 mm at cold | 0.91 rad(52deg) BBDC | 0.10 rad(5.7deg) ATDC | |

Injection timing Electrical control
 Initial injection pressure ---
 Compressive pressure 3.0 MPa (At engine speed 200 min⁻¹)

Reference data

Thermostat Initial opening temperature at atmospheric pressure: 85.0 degrees C
 Temperature at valve lift of 10.0 mm and over: 92.0 °C

Painting color Clear, except for cooling fan, electrical part connectors, and labels

Lubricating oil at delivery There is no engine oil when engine deliver from Isuzu factory.

Recommended

API Grade CD, CE, CF, CF-4 or ACEA Grade B2/B3, E2/E3
 * Please refer to "Engine Instruction Manual" for details.

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Dress Level

| No. | Item | Description |
|-----|--------------------|-----------------------------------|
| 1 | HOUSING ; FLYWHEEL | SAE#3 |
| 2 | FLYWHEEL | SAE 11.5 & 10 Combined type |
| 3 | OIL LEVEL GAUGE | Engine RH attached |
| 4 | AC GENERATOR | HITACHI A/C 12V-110A |
| 5 | STARTER | Denso corporation 12V-2.5kW |
| 6 | FUEL FILTER | With (remote type) |
| 7 | OIL FILTER | With (Engine RH attached) |
| 8 | WATER INLET PIPE | Right hand (Viewed from Flywheel) |
| 9 | WATER OUTLET PIPE | Left hand (Viewed from Flywheel) |
| 10 | AIR INLET | Left hand (Viewed from Flywheel) |
| 11 | COOLING FAN | dia.550-7 blades-Blower |
| 12 | POWER TAKE OFF | None |

Engine Specifications

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Loose parts

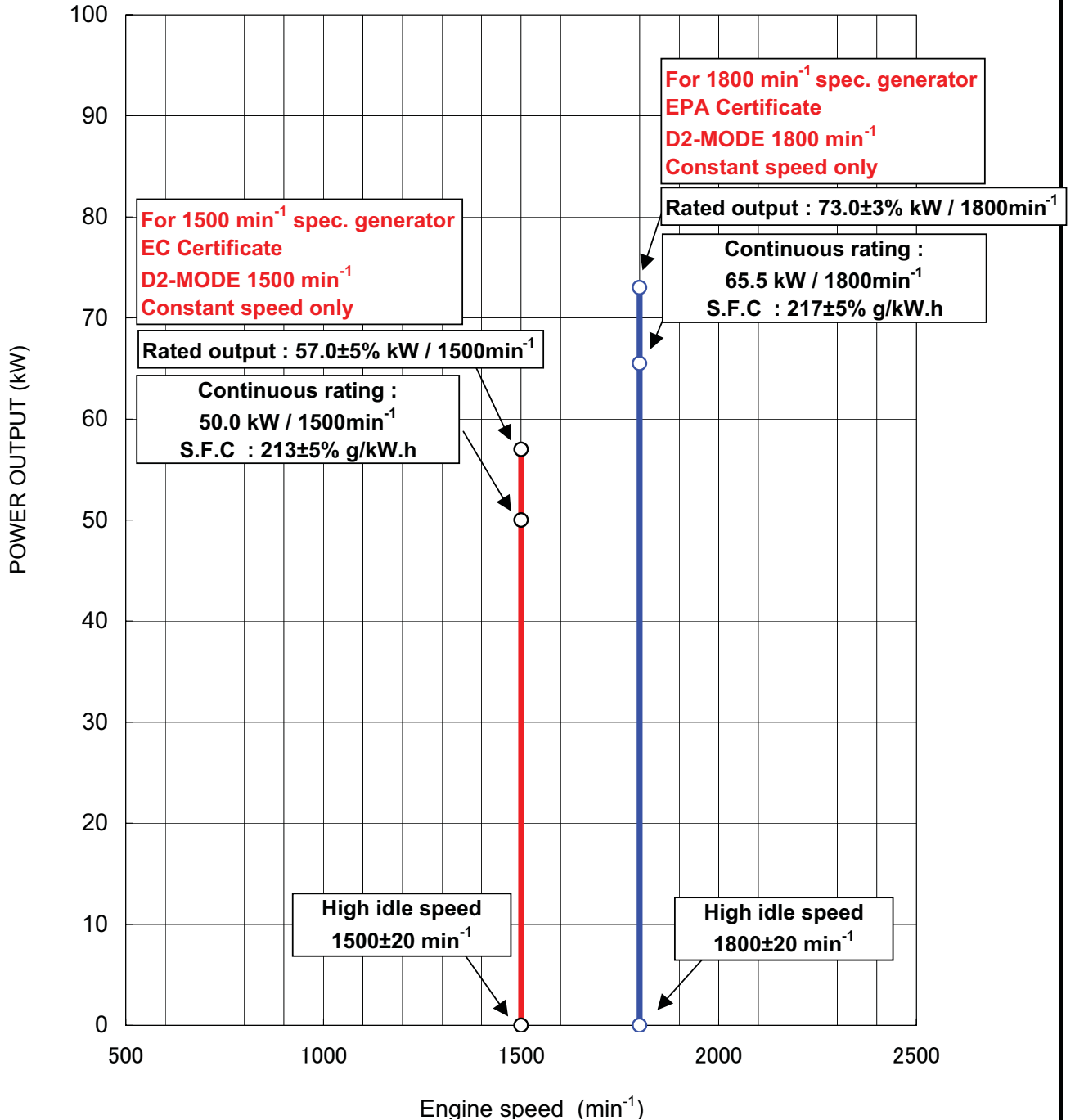
| No. | Parts No. | Item | Qty | Remarks |
|-----|-------------|-------------------------|-----|---------|
| 1 | 582550-0290 | RELAY | 1 | |
| 2 | 894248-1610 | RELAY;STARTER | 1 | |
| 3 | 582550-0290 | RELAY;STARTER CUT | 1 | |
| 4 | 897011-9490 | RELAY;GLOW PLUG | 1 | |
| 5 | 812146-8300 | SENSOR;TEMP, INLET PIPE | 1 | |
| 6 | 898098-0670 | CONTROL UNIT;ENGINE | 1 | |
| 7 | 897383-4270 | PIPE ASM;FUEL | 4 | |
| 8 | 109675-0951 | BOLT;EYE,FUEL PIPE | 4 | |
| 9 | 109630-0860 | PACKING;FUEL PIPE | 8 | |
| 10 | 898074-2911 | FILTER ASM;FUEL | 1 | |
| 11 | 898075-8551 | FILTER;PRE,FUEL | 1 | |
| 12 | 898068-2750 | FEED PUMP ASM;ELECTRIC | 1 | |
| 13 | 582550-0290 | RELAY;FUEL PUMP | 1 | |
| 14 | 897217-7780 | SENSOR;MAP | 1 | |
| 15 | 894402-5000 | SWITCH ASM;STARTER | 1 | |
| 16 | 894369-0210 | Gasket;Exhaust | 1 | |



Preliminary

**BJ-4JJ1XYGV-01 Target performance curve
FOR GENERATOR-SET**

| | |
|--------------|--|
| Condition | JIS D0006 / SAE J1349 / ISO15550 |
| Temp. | Standard |
| Test hour | 30Hr |
| Cooling fan | Without |
| Air cleaner | With(Intake restriction : 2.45kPa at 1800rpm) |
| Exh.silencer | With(Exhaust restriction : 13.3kPa at 1800rpm) |
| Generator | With (No load) |



Engine specifications Revision chart

Customer : EXPORT

Engine Model : BJ-4JJ1XYGV-01

Application : Gene-set

| Rev. No. | IS No. | Date | Page | Item | Previous | Current | Description (Reason of change) |
|----------|-------------|----------|------|---|----------|---------|-----------------------------------|
| 0 | IS-08-138-0 | 3.Sep.08 | | For confirmation of prototype engine specifications | | | |
| | | | | | | | |