

Rev.

0

ENGINE SPECIFICATIONS

Engine Model	Base Model :	4JJ1 (Turbocharger)
	Model No. :	BU-4JJ1TYGV-01
Customer	EXPORT	
Application	Gene-set	
Drawing No. (3D Data Code)	E3-1040-023-1	

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

ISUZU MOTORS LIMITED
Powertrain Business Dept.

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Prepared : Koji Ogawa



Engine Specifications

Model No. BU-4JJ1TYGV-01

Rev. 0

Manufacturer	ISUZU MOTORS LIMITED	
Engine Model	Base Model: 4JJ1 (Turbocharger)	Model No.: BU-4JJ1TYGV-01
Application	Gene-set	
Emission regulation	EPA Interim Tier-4 / 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
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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	: 50.0±3% kW / 1800 min-1
	: 43.0±5% kW / 1500 min-1
Continuous rating	: 43.0±3%Nm / 1800 min-1
	: 36.0±5%Nm / 1500 min-1
S.F.C at Continuous rating	: 217±5% g/kw.h (at 1800min-1)
	: 212±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 846.6 (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 ---

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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	COOLING FAN	dia.550-7 blades-Blower
11	POWER TAKE OFF	None

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Loose parts

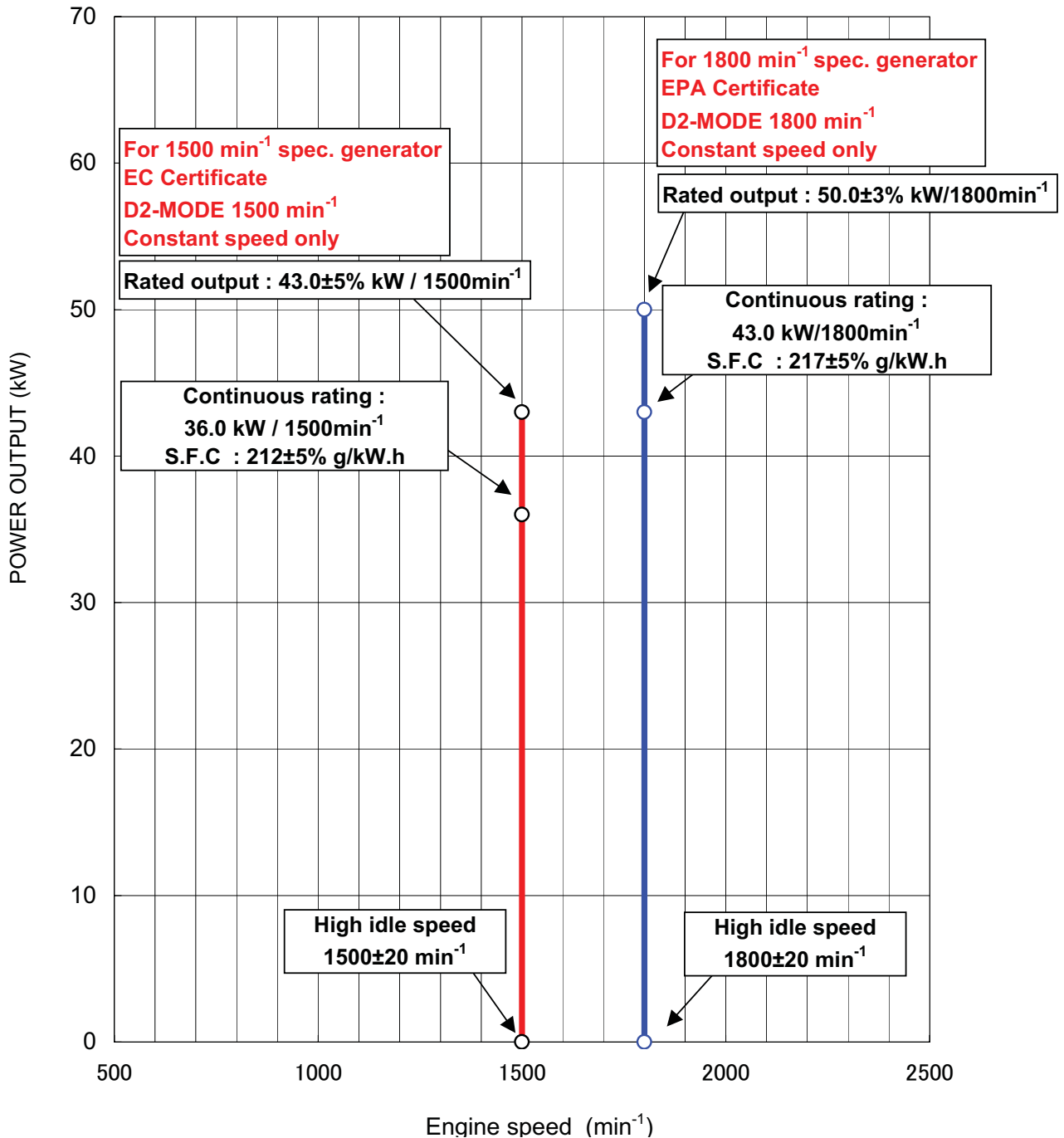
No.	Parts No.	Item	Qty	Remarks
1	582550-0290	RELAY	1	
2	894248-1610	RELAY;STARTER	1	
3	582550-0290	RELAY;STARTER CUT	1	
4	897011-9490	RELAY;GLOW PLUG	1	
5	812146-8300	SENSOR;TEMP, INLET PIPE	1	
6	898098-0770	CONTROL UNIT;ENGINE	1	
7	897383-4270	PIPE ASM;FUEL	4	
8	109675-0951	BOLT;EYE,FUEL PIPE	4	
9	109630-0860	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	

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Preliminary

**BU-4JJ1TYGV-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)



For 1500 min⁻¹ spec. generator
EC Certificate
D2-MODE 1500 min⁻¹
Constant speed only

Rated output : 43.0 ± 5% kW / 1500min⁻¹

Continuous rating :
36.0 kW / 1500min⁻¹
S.F.C : 212 ± 5% g/kW.h

High idle speed
1500 ± 20 min⁻¹

For 1800 min⁻¹ spec. generator
EPA Certificate
D2-MODE 1800 min⁻¹
Constant speed only

Rated output : 50.0 ± 3% kW / 1800min⁻¹

Continuous rating :
43.0 kW / 1800min⁻¹
S.F.C : 217 ± 5% g/kW.h

High idle speed
1800 ± 20 min⁻¹

