

Rev.

0

ENGINE SPECIFICATIONS

Engine Model	Base Model :	BH-6HK1X (Intercooler turbo)
	Model No. :	BH-6HK1XYGV-02
Customer	EXPORT	
Application	Generator	
Drawing No.	E3-1032-033-0	
(3D Data Code)		

Symbol	Date	Revision Record	Issue No.
0	30 Oct. 2008	: For confirmation of prototype specification	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:

ISUZU MOTORS LIMITED
Powertrain Business Dept.

Approval
S.Nogami
S.Nogami
Group Leader

Check
H.Harada
H.Harada
Manager

Issue
K.Ogawa
K.Ogawa

Engine Specifications

Model No. BH-6HK1XYGV-02

Rev. 0

Manufacturer	ISUZU MOTORS LIMITED
Engine Model	Base Model: 6HK1X Intercooler Turbo Model No. BH-6HK1XYGV-02
Application	Generator
Emission regulation	EPA Tier-3 / EC Stage-III A
Engine type	Four cycle, water cooled, overhead camshaft, vertical in-line, direct injection type, with turbocharger
No. of cylinders - bore x stroke	6 - 115.0 mm x 125.0 mm
Total piston displacement	7.790 L
Compression ratio	17.5 to 1
Engine performance	Rating
Test conditions	Standard atmospheric condition
Conforming standard JPN;JIS D0006-1 US;SAEJ1349 EU;ISO15550	Break-in time 30 hrs
	With AC generator and Without cooling fan
	With air cleaner and exh. silencer
	Fuel : JPN: JIS-NO.2
Rated Output	: 192.4 ± 4 kW / 1800 min-1 : 167.4 ± 3.4 kW / 1500 min-1
Continuous rating	: 159.1 ± 8.3 kW / 1800 min-1 : 134.3 ± 6.9 kW / 1500 min-1
S.F.C at Continuous rating	: 217.4 ± 13.6 g/kWh (at 1800 min-1 : 219.1 ± 13.6 g/kWh (at 1500 min-1)
No load max. speed	: 1800 ± 25 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. 640 kg
Dimensions	L 1227.3 x W 790.5 x H 1074.3 (with cooling fan)
Firing order	1 - 5 - 3 - 6 - 2 - 4
Rotating direction	Clockwise viewed from cooling fan
Valve device	Overhead camshaft

Engine Specifications

Model No. BH-6HK1XYGV-02

Rev. 0

Supercharging device	With
Supercharging system	Exhaust turbocharger
Driving system	---
Lubricating system	Full forced pressure feed type (Oil-cooled)
Manufacturer	ISIKAWAJIMA HARIMA HEAVY INDUSTRIES, LTD.
Name of type	RHG6 without waist gate
Fuel device	
Injection pump	
Manufacturer	Denso corporation
Name of type	Common rail HP4 type
Plunger	3 - 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 (G2 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 (Loose part)
Filtering system	Paper element type (With priming pump and water separator)
Manufacturer	WAKO INDUSTRIAL 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

Engine Specifications

Model No. BH-6HK1XYGV-02

Rev. 0

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 (Spin-on, without drain plug)
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	Without
Type of fan	
Driving system	Belt driven by crankshaft, speed ratio: 0.90
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 engine coolant water temperature sensor

Engine Specifications

Model No. BH-6HK1XYGV-02

Rev. 0

Air cleaner

Cleaning system ---
 Manufacturer ---

Starting device

Starting motor
 Manufacturer DENSO LTD.
 Name of type Reduction type
 Voltage 12 V
 Output 3.0 kW

Engine stop device Fuel cut (Electronic controlled)

Preheating device QOS- II

Alternator

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

Regulator

Regulating system Built-in IC regulator
 Manufacturer DENSO LTD.
 Charging discharging indicating system: ---

Hour meter

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

Power Take Off

Without
 Maximum torque
 Speed ratio
 Rotation
 Flange type
 Spline number of teeth
 Diametric pitch
 Pressure angle

Engine Specifications

Model No. BH-6HK1XYGV-02

Rev. 0

Allowable inclination angle 0.35 rad. for all directions viewed from flywheel

Capacity

Lubrication oil MAX: approx. 38.0 L MIN: approx. 28.0 L (Oil pan only)
 Air cleaner ---
 Injection pump ---
 Governor ---
 Cooling water 14.5 L (Engine only)
 Others ---

Maintenance data

Valve clearance and adjustment	Valve	Valve clearance	Valve timing: open	Valve timing: close
Inlet	0.4 mm at cold	0.30 rad BTDC	0.73 rad ABDC	
Exhaust	0.4 mm at cold	0.84 rad BBDC	0.24 rad ATDC	

Injection timing Electrical control
 Initial injection pressure ---
 Compressive pressure 3.04 MPa (31 kgf/cm²) (At engine speed 200 min⁻¹)

Reference data

Thermostat Initial opening temperature at atmospheric pressure: 82.0°C
 Temperature at valve lift of 10.0 mm and over: 95.0°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 lubrication oil API Grade CD, CE, CF, CF-4 or ACEA Grade B2/B3, E2/E3
 *Please refer to "Engine Instruction Manual" for details.

Engine Specifications

Model No. BH-6HK1XYGV-02

Rev. 0

Dress Level

No.	Item	Description
1	HOUSING ; FLYWHEEL	SAE J617c #2 short length type
2	FLYWHEEL	SAE J620 11.5"
3	OIL PAN	Center sump
4	COOLING FAN	Without
5	AC GENERATOR	12V-110A
6	STARTER	12V-3.0kW
7	FUEL FILTER	Loose parts (Remote type)
8	WATER SEDIMENTER	With (Integrated with fuel filter)
9	OIL FILTER	Spin-on, Co
10	FUEL FEED PUMP;Elc.	Loose parts (Remote type)
11	FUEL FILTER ASM;PRE.	Loose parts (Remote type)

Engine Specifications

Model No. BH-6HK1XYGV-02

Rev. 0

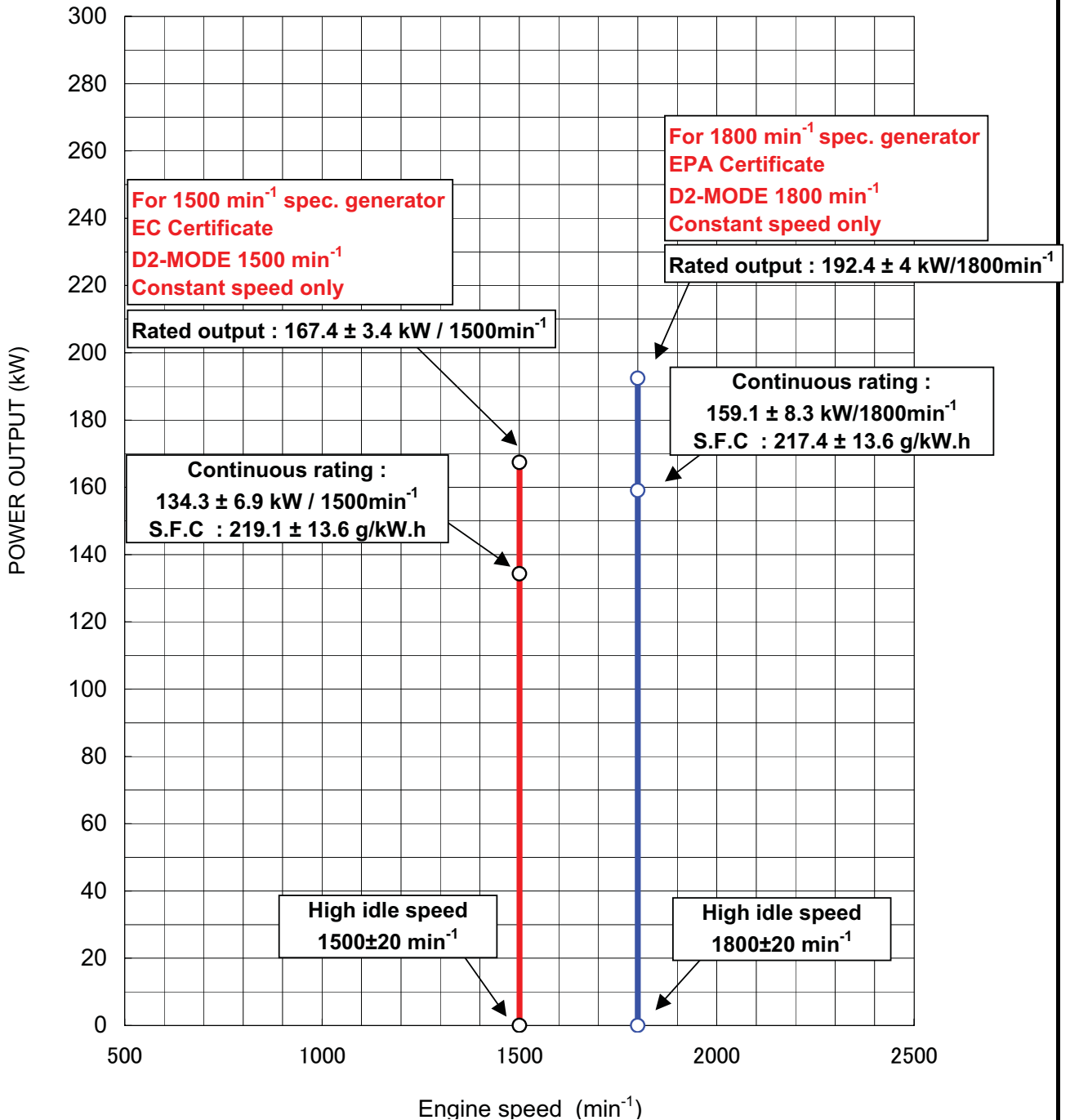
Loose parts

No.	Parts No.	Item	Qty	Remarks
1	898077-2491	ECM	1	
2	582553-0444	RELAY;STARTER	1	
3	812146-8300	SENSOR; Inlet air temp.	1	
4	897324-3861	OIL FILTER ASM	1	
5	898013-9863	FUEL FILTER ASM	1	
6	897383-4270	PIPE; JOINT, FUEL	4	
7	109630-0860	PACKING;FUEL PIPE	8	
8	109675-0951	BOLT; EYE, FUEL	4	
9	897217-7780	SENSOR;Barometric press	1	
10	114145-1920	GASKET;TURBO EXH	1	
11	582550-0290	RELAY;MAIN	1	
12	582550-0290	RELAY;STARTER CUT	1	
13	898075-8551	FUEL FILTER ASM;PRE.	1	
14	898068-2750	FUEL FEED PUMP;Electric	1	
15	897173-9510	RELAY;GLOW	1	
16	582550-0290	RELAY;FUEL PUMP Elect	1	
17	894402-5000	SWITCH ASM;STARTER	1	



**BH-6HK1XYGV-02 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 : 3.4kPa at 1800rpm)
Exh.silencer	With(Exhaust restriction : 13.3kPa at 1800rpm)
Generator	With (No load)



Engine specifications Revision chart

Customer : EXPORT

Engine Model : BH-6HK1XYGV-02

Application : Generator

Rev. No.	IS No.	Date	Page	Item	Previous	Current	Description (Reason of change)
0	IS-08-173-0	30.Oct.08		For confirmation of prototype engine specifications			