No. IS-08-171-0 (1/9)

Rev.

0

# **ENGINE SPECIFICATIONS**

 Engine Model
 Base Model :
 4HK1X (Intercooler turbo)

 Model No. :
 BI-4HK1XYGV-02

 Customer
 EXPORT

 Application
 Generator

 Drawing No.
 E4-1033-024-0

 ( 3D Data Code )
 AHK1X (Intercooler turbo)

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

H. Ogawa K.Ogawa

Issue

No. IS-08-171-0 (2/9)

Rev.

0

Engine Specifications Model No. BI-4HK1XYGV-02

C. A. LOUTUMOTORO LIMITER

Manufacturer ISUZU MOTORS LIMITED

Engine Model Base Model: 4HK1X Intercooler Turbo Model No.: BI-4HK1XYGV-02

Application Generator

Emission regulation EPA Tier-3 / EC Stage-IIIA

Engine type

Four cycle, water cooled, overhead camshaft, vertical in-line,

direct injection type, with turbocharger

No. of cylinders - bore x stroke 4 - 115.0 mm x 125.0 mm

Total piston displacement 5.193 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 : 129.0 ± 2.6 kW / 1800 min-1

: 108 ± 5.5 kW / 1500 min-1

Continuous rating : 116 kW / 1800 min-1

: 97.2 kW / 1500 min-1

S.F.C at Continuous rating : 217 ± 13.6 g/kw.h ( at 1800min-1)

: 216 ± 13.6 g/kw.h ( at 1500min-1)

No load max. speed : 1800 ± 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. 470 kg

Dimensions L 947 x W 776 x H 994.8 (without cooling fan)

Firing order 1 - 3 - 4 - 2

Rotating direction Clockwise viewed from cooling fan

Valve device Overhead camshaft

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Engine Specifications Model No. BI-4HK1XYGV-02

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 RHF55 without waist 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 (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

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Engine Specifications Model No. BI-4HK1XYGV-02

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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, Remoto type

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: 1.01

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

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Engine Specifications Model No. BI-4HK1XYGV-02

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Air cleaner---Cleaning system---Manufacturer---

## Starting device

Starting motor

Manufacturer Nikko Electric Industry Co.,Ltd

Name of type Reduction type

Voltage 12 V Output 2.5 kW

Engine stop device Fuel cut (Electronic controlled)

Preheating device QOS-II

#### **Alternator**

Generating system A/C type
Manufacturer HITACHI LTD.

Voltage 12 V Output 110 A

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 Without

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

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Engine Specifications Model No. BI-4HK1XYGV-02

Rev. 0

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

Capacity

Lubrication oil MAX: approx. 20.5 L MIN: approx. 13.0 L (Oil pan only)

Air cleaner --Injection pump --Governor --Cooling water 14.0

Cooling water 14.0 L (Engine only)

Others ---

Maintenance data

Valve clearance Valve timing: open Valve timing: close

and adjustment Inlet 0.4 mm at cold 0.33 rad BTDC 0.93 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.

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**Engine Specifications** 

Model No.

BI-4HK1XYGV-02

0 Rev.

Dress	Level

DIES	S LEVEI		
	No.	Item	Description
	1	HOUSING ; FLYWHEEL	SAE J617c #3
	2	FLYWHEEL	SAE J620 11.5"
	3	OIL PAN	Rear sump type
	4	COOLING FAN	Without
	5	AC GENERATOR	12V - 110A
	6	STARTER	12V - 2.5kW
	7	FUEL FILTER	Loose parts (Remote type)
	8	WATER SEDIMENTER	With (Integrated with fuel filter)
	9	OIL FILTER	Spin-on type, Combined type (Remote)

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**Engine Specifications** 

Model No.

BI-4HK1XYGV-02

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No.	Parts No.	Item	Qty	Remarks
1	898077-7821	ECM	1	
2	812146-8300	SENSOR;Inlet air temp.	1	
3	897324-3861	OIL FILTER ASM	1	
4	898013-9863	FILTER ASM;MAIN, FUEL	1	
5	897383-4270	PIPE ASM;FUEL	4	
6	109630-0860	PACKING;FUEL PIPE	8	
7	109675-0951	BOLT;EYE	4	
8	897217-7780	SENSOR;Barometrical press.	1	
9	114145-1840	GASKET;Exhaust pipe	1	
10	898068-2750	FEED PUMP ASM; Electric	1	
11	898075-8551	FILTER ASM;PRE, FUEL	1	
12	897173-9510	RELAY;GLOW	1	
13	582550-0290	RELAY;MAIN	1	
14	582550-0290	RELAY;STARTER CUT	1	
16	582550-0290	RELAY;FUEL PUMP	1	
17	894402-5000	SWITCH ASM;STARTER	1	

				Spec	ificatio	ns she	et No.		IS-08	3-171·	-0	Re	v. (
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## **Engine specifications Revision chart**

Customer : EXPORT

Engine Model: BI-4HK1XYGV-01 Application: Generator

Rev. No.	IS No.	Date	Page	Item	Previous	Current	Description (Reason of change)
0	IS-08-170-0	29.Oct.08	For conf	firmation of prototype engine spec			