

Rev.

0

ENGINE SPECIFICATIONS

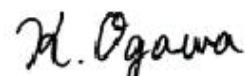
Engine Model Base Model : 4LE1(Stage 3A / Interim Tier 4)Model No. : BV-4LE1NYGV-01Customer EXPORTApplication GeneratorDrawing No. E3-1037-076-0
(3D Data Code)

Symbol	Date	Revision Record	Issue No.
0	: 2008-2-13	: For confirmation of prototype engine specifications.	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:

ISUZU MOTORS LIMITED
Powertrain Business Dept.

Manager : Nobuhiro Shimizu

Prepared : Koji Ogawa



Engine Specifications

Model No. BV-4LE1NYGV-01

Rev. 0

Manufacturer	ISUZU MOTORS LIMITED
Engine Model	Base Model: 4LE1(Stage 3A / Interim Tier 4) Model No. BV-4LE1NYGV-01
Application	Generator
Engine type	Four cycle, water cooled, overhead valve, vertical in-line, in-direct injection type
No. of cylinders-bore x stroke	4 - 85.0 mm x 96.0 mm
Total piston displacement	2.179 L
Compression ratio	21.5 to 1

Engine performance	Rating	Rating at delivery from Isuzu factory
--------------------	--------	---------------------------------------

Test conditions	Standard atmospheric condition	Standard atmospheric condition	
<table border="1"> <tr> <td>Conforming standard JPN;JIS D0006-1 US;SAEJ1349 EU;ISO15550</td> </tr> </table>	Conforming standard JPN;JIS D0006-1 US;SAEJ1349 EU;ISO15550	Break-in time 30 hrs	Break-in time 0.5 hr
	Conforming standard JPN;JIS D0006-1 US;SAEJ1349 EU;ISO15550		
	With AC generator and without cooling fan	With AC generator, without cooling fan	
	With air cleaner and exh. silencer	Without air cleaner, With exh. silencer	
Fuel : EPA	Fuel : JPN: JIS-NO.2		
* Intake restriction	-1.9kPa@1500min-1 / -2.45kPa@1800min-1 or less		
* Exhaust restriction	4.0kPa@1500min-1 / 7.0kPa@1800min-1 or less		

Rated output	: 21.8 ± 4% kW / 1500 min-1(Stage 3A)	:	: 26.3 ± 4% kW / 1800 min-1(Interim Tier-4)
Continuous rating	: 19.5 kW / 1500 min-1(Stage 3A)	:	: 23.9 kW / 1800 min-1(Interim Tier-4)
Fuel consumption at rated.	: 258 g/kw.h or less	:	
No load max. speed	: 1575 min-1 or less	:	: 1890 min-1 or less
Low idle speed	: 1000 ± 25 min-1	:	
Speed lever set speed	: 1940 ± 5 min-1	:	

Type of fuel	Diesel fuel only (JPN:JIS-NO.2, US:ASTM-2D, EU:EN590)
Engine dry weight	Approx. 170 kg
Dimensions	L 671 x W 496 x H 595 (With cooling fan)
Firing order	1 - 3 - 4 - 2
Rotating direction	Clockwise viewed from cooling fan
Valve device	Overhead valve

Engine Specifications

Model No. BV-4LE1NYGV-01

Rev. 0

Supercharging device	None(Natural aspirated)
Supercharging system	---
Driving system	---
Lubricating system	---
Manufacturer	---
Name of type	---
Fuel device	
Injection pump	
Manufacturer	Bosch automotive system
Name of type	PFR1KX type
Plunger	Diameter 6.5 mm (Lubricated by fuel oil)
Injection nozzle	
Manufacturer	Bosch automotive system
Name of type	Throttle type
Fuel injection time regulator	None
Manufacturer	---
Name of type	---
Fuel feed pump	With (Engine attached)
Manufacturer	U-shin LTD.
Name of type	Electromagnetic type
Fuel filter	With (Engine attached)
Filtering system	Paper element type
Manufacturer	TOKYO ROKI
Name of type	Paper element type
Governor	
Speed control system	Centrifugal variable speed control
Lubricating system	Splash type
Manufacturer	ISUZU MOTORS LIMITED
Name of type	---

Engine Specifications

Model No. BV-4LE1NYGV-01

Rev. 0

Lubricating device

Lubricating system Full forced pressure feed type

Lubricating pump

Type of pump Trochoid pump type

Driving system Driven by timing gear

Oil pressure regulating device Piston - spring type

Oil pressure indicating device Oil pressure switch for warning lamp (Push-off, 98kPa)

Oil filter

Filtering system Full flow paper element

Manufacturer TOKYO ROKI

Oil cooler

None

Cooling system ---

Manufacturer ---

Cooling device

Cooling system Pressurized water forced circulation type

Cooling fan dia.380-6-Blower

Type of fan ---

Driving system Belt driven by crankshaft, speed ratio: 1.12

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 Overheat switch for warning lamp (95 degrees C)

Engine Specifications

Model No. BV-4LE1NYGV-01

Rev. 0

Air cleaner

Cleaning system ---
Manufacturer ---

Starting device

Starting motor
Manufacturer Denso corporation
Name of type Reduction type
Voltage 12 V
Output 2.0 kW

Engine stop device

Fuel cut by engine stop solenoid

Preheating device

With Glow plug (QOS- II)

Alternator

Generating system A/C type
Manufacturer HITACHI corporation
Voltage 12 V
Output 20A
Driving system Belt driven from crankshaft pulley

Regulator

Regulating system Built-in IC regulator
Manufacturer HITACHI corporation
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

Model No. BV-4LE1NYGV-01

Rev. 0

Allowable inclination angle 0.262 rad.(15deg.) for all directions viewed from flywheel

Capacity

Lubrication oil MAX : approx. 8.4 L MIN : approx. 5.9 L (Oil pan only)
 Air cleaner ---
 Injection pump ---
 Governor ---
 Cooling water Approx 2.8 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	0.26 rad(15deg) BTDC	0.51 rad(29deg) ABDC	
Exhaust	0.4 mm at cold	0.70 rad(40deg) BBDC	0.28 rad(16deg) ATDC	

Injection timing BTDC 0.175 rad (10deg)
 Initial injection pressure 14.7 MPa
 Compressive pressure 3.04 MPa (31 kgf/cm²) (At engine speed 250 min⁻¹)

Reference data

Thermostat Initial opening temperature at atmospheric pressure: 82.0 degrees C
 Temperature at valve lift of 8.0 mm and over: 95.0 degrees 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. BV-4LE1NYGV-01

Rev. 0

Dress Level

No.	Item	Description
1	HOUSING ; FLYWHEEL	SAE#5 Level
2	FLYWHEEL	semi-SAE 7.5" STD type
3	OIL PAN	With Drain plug
4	OIL LEVEL GAUGE	With (Engine RH attached)
5	AC GENERATOR	HITACHI corporation A/C 12V-20A
6	STARTER	Denso corporation 12V-2.0kW
7	FUEL FILTER	With (Engine RH attached)
8	OIL FILTER	With (Engine RH attached)
9	WATER INLET PIPE	Right hand sideward (Viewed from Flywheel)
10	WATER OUTLET PIPE	Left hand sideward (Viewed from Flywheel)
11	AIR INLET	Left hand sideward, straight (Viewed from Flywheel)
12	COOLING FAN	dia.380-6 blade-Blower(Loose parts)
13	FAN SPACER	t=22.5 (4.5+18) (Loose parts)

Engine Specifications

Model No. BV-4LE1NYGV-01

Rev. 0

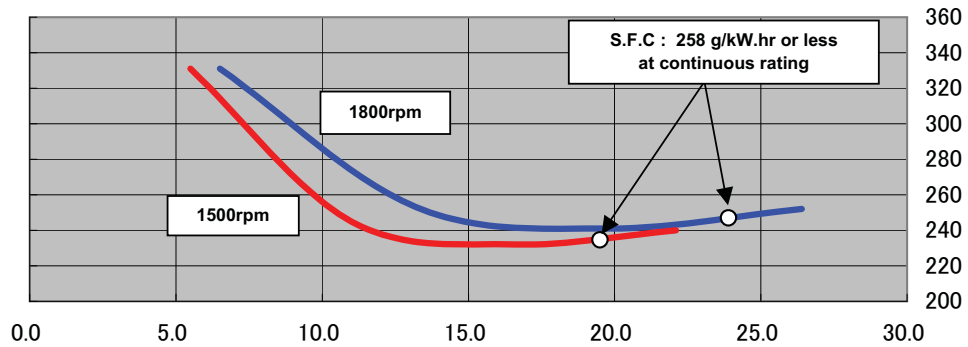
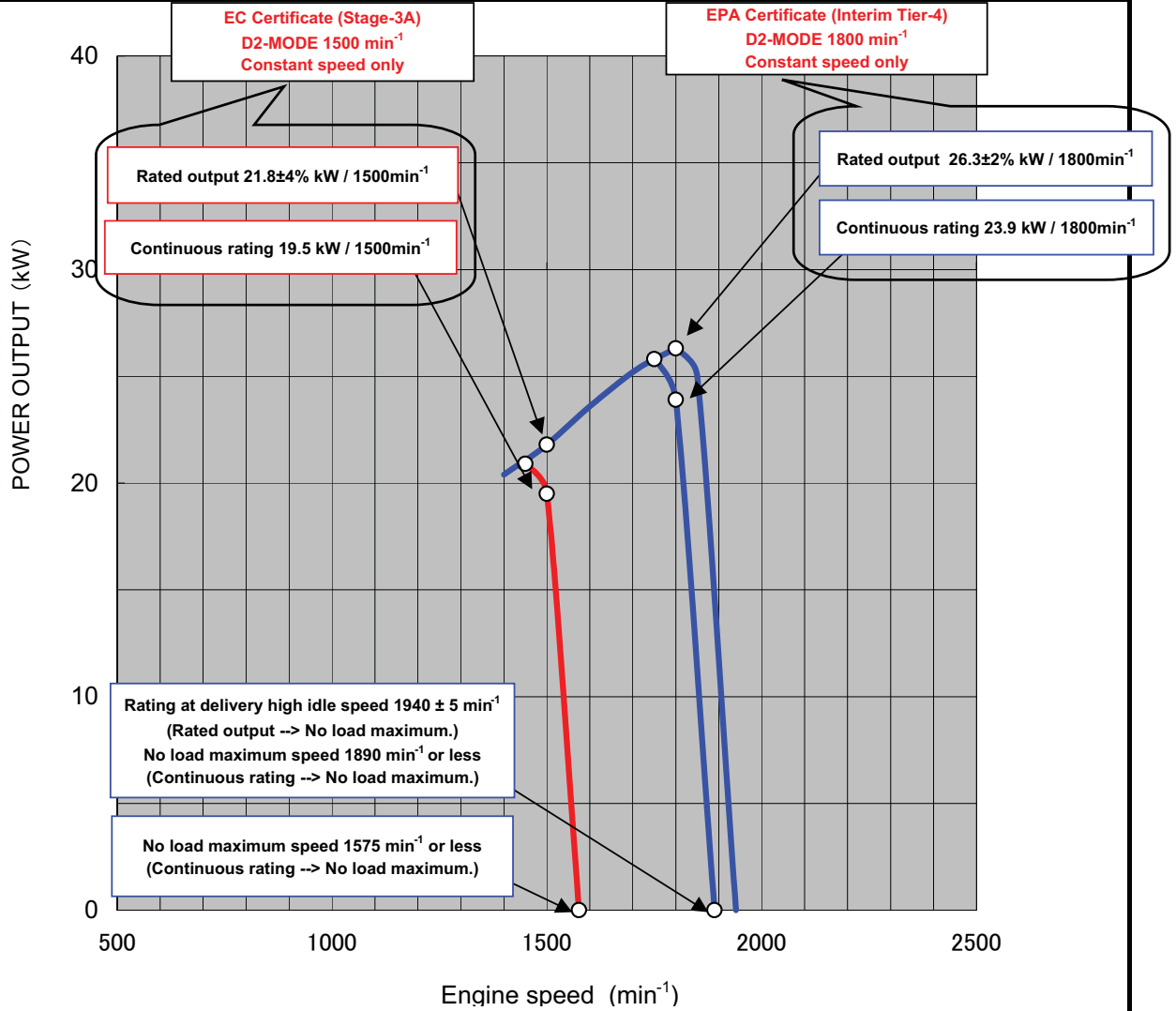
Loose parts

No.	Parts No.	Item	Qty	Remarks
1	897111-9621	TIMER ASM;EMERGENCY	1	
2	894173-9480	CONTROL RESISTANCE	1	
3	897105-4300	CONNECTOR;ACG	1	
4	897105-4310	CONNECTOR;ACG	1	
5	582550-0290	RELAY;STARTER	1	
6	897022-8101	FAN ASM;COOLING(dia.380-Push)	1	
7	028050-8450	BOLT;FAN FIX	4	Temporary attached to ENG
8	897063-4003	SPACER;FAN t=4.5	1	Temporary attached to ENG
9	989136-4230	SPACER;FAN t=18.0	1	Temporary attached to ENG
10	897042-0280	GSKT;EXH. PIPE	1	Temporary attached to ENG
11	---	SUPPLEMENT LABEL	1	Temporary attached to ENG
12	898106-4910	FUEL INLET LABEL	1	Temporary attached to ENG

ISUZU

BV-4LE1NYGV-01 (for GENERATOR-SET) Target Performance Curve

IS-08-012-0		Rev.	0
Condition	SAE J1349 NET wo/Fan		
Temp.	Standard		
Test hour	30Hr		
Pulley Ratio	-		
Cooling fan	Without		
Air cleaner	With		
Exh.silencer	With		
Generator	With (No load)		



Allowable limit

Maximum intake depression ; -2.45kPa @1800min⁻¹ , -1.9kPa @1500min⁻¹
Maximum exhaust back pressure ; 7.0kPa @1800min⁻¹ , 4.0kPa @1500min⁻¹

Engine specifications Revision chart

Customer : EXPORT

Engine Model : BV-4LE1GV-01

Application : Generator

Rev. No.	IS No.	Date	Page	Item	Previous	Current	Description (Reason of change)
0	IS-08-012-0	13th.Feb.08		For confirmation of prototype engine specifications			