

Rev.

0

## ENGINE SPECIFICATIONS

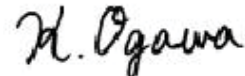
Engine Model    Base Model : 4LE1T (Stage 3A / Interim Tier4)  
                  Model No. : BV-4LE1TYGV-01  
Customer        EXPORT  
Application     Generator  
Drawing No.    E3-1037-082-0  
( 3D Data Code )

Symbol	Date	Revision Record	Issue No.
0	: 2008-4-7	: For confirmation of prototype engine specifications.	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:

ISUZU MOTORS LIMITED  
Powertrain Business Dept.

Manager : Nobuhiro Shimizu

Prepared : Koji Ogawa



## Engine Specifications

Model No. BV-4LE1TYGV-01

Rev. 0

Manufacturer	ISUZU MOTORS LIMITED	
Engine Model	Base Model: 4LE1T (Stage 3A / Interim Tier4)	Model No. BV-4LE1TYGV-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
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Test conditions	Standard atmospheric condition	Standard atmospheric condition
<div style="border: 1px solid black; padding: 2px;">           Conforming standard            JPN;JIS D0006-1            US;SAEJ1349            EU;ISO15550         </div>	Break-in time 30 hrs	Break-in time 0.5 hr
	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
	* Maximum intake depression	-1.4kPa@1500 min-1 / -2.45kPa@1800min-1 or less
	* Maximum exhaust back pressure	6.0kPa@1500min-1 / 10.0kPa@1800min-1 or less
Fuel : EPA fuel	Fuel : JPN: JIS-NO.2	

Rated Output	: 29.0 ± 5% kW / 1500 min-1 : 35.0 ± 3% kW / 1800 min-1	:
Continuous rated	: 25.0 Nm / 1500 min-1 : 30.6 Nm / 1800 min-1	:
Fuel consumption at Cont. rated	: 244 ± 10 g/kW.h ( at 1500min-1) : 247 ± 10 g/kW.h ( at 1800min-1)	:
No load max. speed	: 1575 min-1 or less (50Hz) : 1890 min-2 or less (60Hz)	:
Low idle speed	: 1000 ± 25 min-1	:
Speed lever set speed	: 1940 ± 10min-1	:

Type of fuel	Diesel fuel only ( JPN:JIS-NO.2, US:ASTM-2D, EU:EN590 )
Engine dry weight	Approx. 190 kg
Dimensions	L 785.6 x W 507 x H 736.8 ( 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)
Manufacturer	IHI LTD.
Name of type	RHF3 without waste gate

**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(Loose parts)
Manufacturer	U-Shin LTD.
Name of type	Electromagnetic type
Fuel filter	With(Loose parts)
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	---

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**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 With oil pressure switch for warning lamp(Push-off, 29kPa)

Oil filter With(Loose parts)

Filtering system Full flow paper element

Manufacturer Nippon Donaldson LTD.

Oil cooler With

Cooling system water-cooled

Manufacturer TOKYO ROKI

**Cooling device**

Cooling system Pressurized water forced circulation type

Cooling fan dia.430-6-Blower

Type of fan ---

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 overheat switch for warning lamp. (105 degrees centigrade)

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**Air cleaner**

Cleaning system ---  
Manufacturer ---

**Starting device**

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

**Engine stop device**

Fuel cut (Electronic controlled)

**Preheating device**

With Glow plug (QOS-III)

**Alternator**

Generating system A/C type  
Manufacturer HITACHI corporation  
Voltage 12V  
Output 35A  
Driving system Belt driven by 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

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

**Capacity**

Lubrication oil MAX : approx. 10.4 L MIN : approx. 7.6 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	0.7 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/cm<sup>2</sup>) (At engine speed 250 min<sup>-1</sup>)

**Reference data**

Thermostat Initial opening temperature at atmospheric pressure: 82.0 degrees C  
 Temperature at valve lift of 9.5 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** 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#4
2	FLYWHEEL	SAE #4
3	OIL PAN	With Drain plug
4	OIL LEVEL GAUGE	With (Engine RH attached)
5	AC GENERATOR	HITACHI corporation A/C 12V-35A
6	STARTER MOTOR	Denso corporation 12V-2.0kW
7	WATER INLET PIPE	Right hand sideward (Viewed from Flywheel)
8	WATER OUTLET PIPE	Left hand sideward (Viewed from Flywheel)
9	TURBOCHARGER	Left hand rearward (Viewed from Flywheel)
10	COOLING FAN	dia.430-6 blade-Blower(Loose parts)
11	FAN SPACER	t=36.5 (4.5+32) (Loose parts)
12	FUEL FILTER	Remote type(Loose parts)
13	OIL FILTER	Remote type(Loose parts)

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## Loose parts

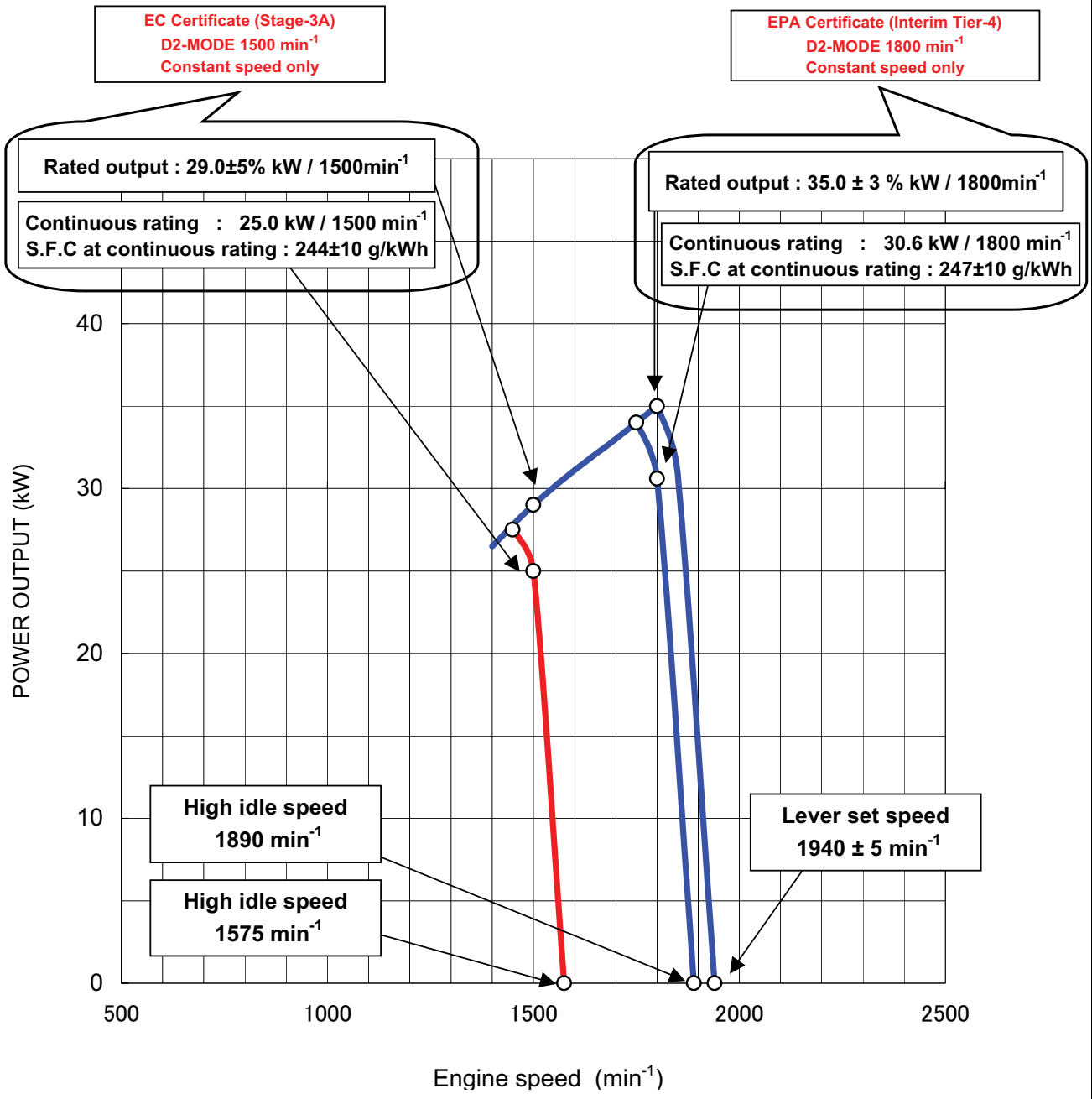
No.	Parts No.	Item	Qty	Remarks
1	897068-7781	SAFETY UNIT	1	
2	582550-0290	RELAY;STARTER	1	
3	898075-6710	OIL FILTER ASM	1	
4	897240-6750	FEED PUMP ASM;elec.	1	
5	897367-9180	GSKT;EXH. PIPE	1	
6	894415-0773	FUEL FILTER ASM	1	
7	897311-2542	WATER SEDIMENTER ASM	1	
8	897201-3310	TIMER;GLOW PLUG	1	
9	894483-8941	FAN ASM;Cooling (dia.430-6-Blow)	1	
10	897027-2570	BOLT;FAN FIX	4	Temporary attached to ENG
11	091610-7060	WASHER;FAN FIX	4	Temporary attached to ENG
12	897063-4003	SPACER;FAN t=4.5	1	Temporary attached to ENG
13	913642-0780	SPACER;FAN t=32.0	1	Temporary attached to ENG
14	898106-4910	FUEL INLET LABEL	1	Temporary attached to ENG





**BV-4LE1TYGV-01 (GEN-SET)  
Target Performance Curve**

conditions	SAE J1349 NET wo/Fan
atmospheric condition	25°C
braking time	30Hr
Pulley Ratio	-
Cooling Fan	without
Air Cleaner	with (-2.45kPa)
Alternator	with (Noload)
EXH. Silencer	with (10kPa)



**Allowable limit**

Maximum intake depression ; -1.4kPa @1500min<sup>-1</sup> / -2.45kPa @1800min<sup>-1</sup>  
Maximum exhaust back pressure ; 6.0kPa @1500min<sup>-1</sup> / 10kPa @1800min<sup>-1</sup>

### Engine specifications Revision chart

Customer : EXPORT

Engine Model : BV-4LE1TYGV-01

Application : Generator

Rev. No.	IS No.	Date	Page	Item	Previous	Current	Description (Reason of change)
0	IS-08-025-0	7th.April.08		For confirmation of prototype engine specifications			