

Rev.

0

ENGINE SPECIFICATIONS

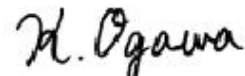
Engine Model	Base Model :	4LE1(Stage 3A / Interim Tier4)
	Model No. :	AV-4LE1NYBW-05
Customer		EXPORT
Application		General power
Drawing No. (3D Data Code)		E3-1037-081-0

Symbol	Date	Revision Record	Issue No.
0	2008-2-20	For confirmation of prototype engine specifications.	
		:	:
		:	:
		:	:
		:	:
		:	:

ISUZU MOTORS LIMITED
Powertrain Business Dept.

Manager : Nobuhiro Shimizu

Prepared : Koji Ogawa



Engine Specifications

Model No. AV-4LE1NYBW-05

Rev. 0

Manufacturer	ISUZU MOTORS LIMITED
Engine Model	Base Model: 4LE1(Stage 3A / Interim Tier4) Model No. AV-4LE1NYBW-05
Application	General power
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
<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
	* Intake restriction -2.45kPa or less	
	* Exhaust restriction 10.0kPa or less	
Fuel : EPA		Fuel : JPN: JIS-NO.2

Rated Output	: 35.9±3% kW / 2600 min-1	:
Maximum Torque	: 140±5%Nm / approx. 1800 min-1	:
Fuel consumption at rated.	: 257±5% g/kw.h	:
No load max. speed	: 2860±25 min-1	:
Low idle speed	: 1100±25 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 695.7 x W 522.6 x H 601.8 (With cooling fan)
Firing order	1 - 3 - 4 - 2
Rotating direction	Clockwise viewed from cooling fan
Valve device	Overhead valve

Engine Specifications

Model No. AV-4LE1NYBW-05

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. AV-4LE1NYBW-05

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

Cooling system With water-cooled

Manufacturer TOKYO ROKI

Cooling device

Cooling system Pressurized water forced circulation type

Cooling fan dia.400-6-Suction

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 None

Engine Specifications

Model No. AV-4LE1NYBW-05

Rev. 0

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- II)

Alternator

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

Regulator

Regulating system Built-in IC regulator
Manufacturer Denso 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. AV-4LE1NYBW-05

Rev. 0

Allowable inclination angle 0.523 rad.(30deg) 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	0.7 rad(40deg) BBDC	0.28 rad(16deg) ATDC	

Injection timing BTDC 0.227 rad (13deg)
 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°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.

Engine Specifications

Model No. AV-4LE1NYBW-05

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	Denso corporation A/C 12V-35A
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 rearward (Viewed from Flywheel)
12	COOLING FAN	dia.400-6 blade-Suction(Loose parts)
13	FAN SPACER	t=36.5 (4.5+32) (Loose parts)
14	POWER TAKE OFF	None

Engine Specifications

Model No. AV-4LE1NYBW-05

Rev. 0

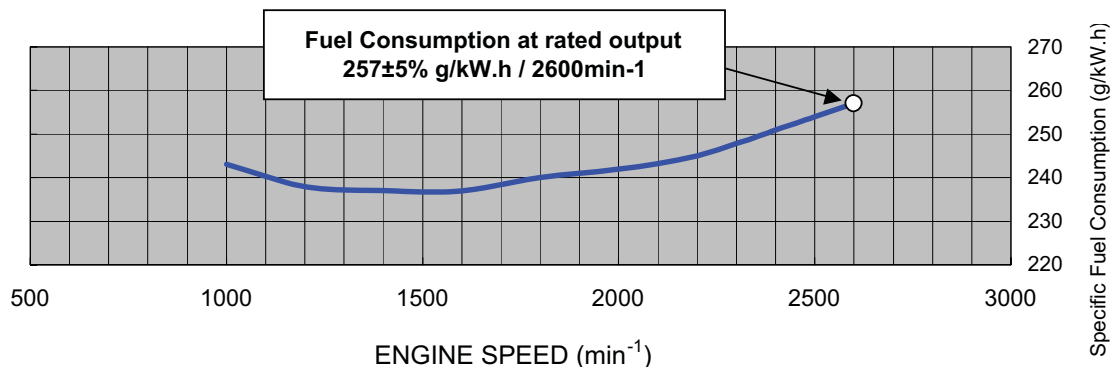
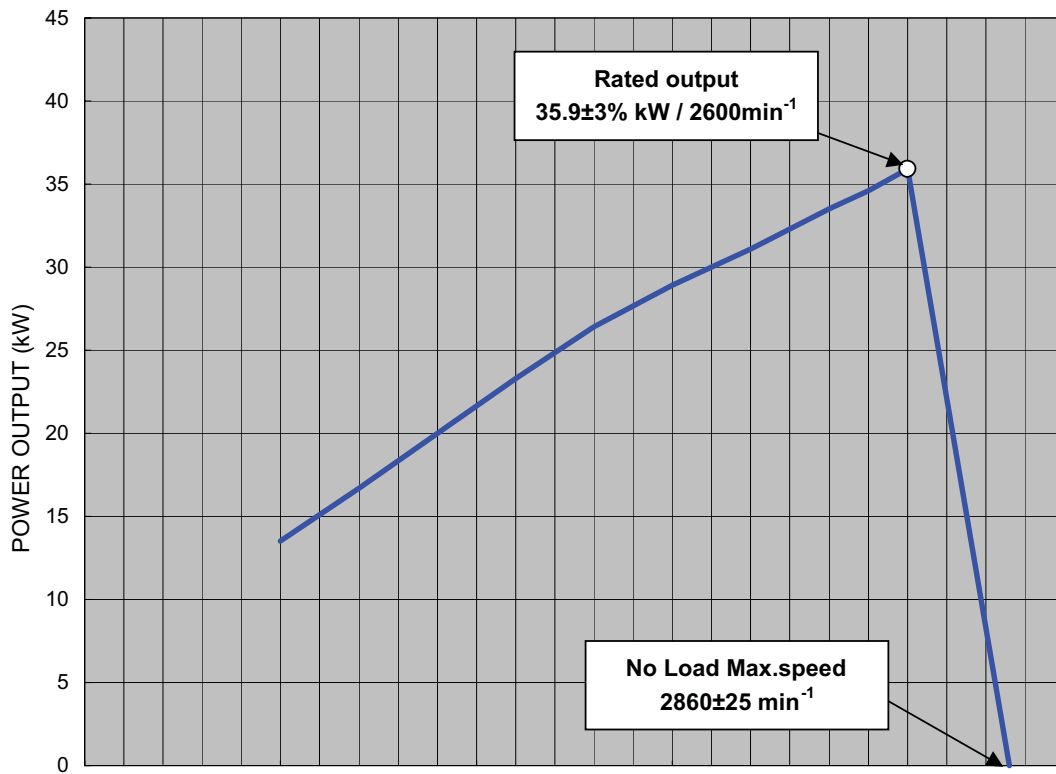
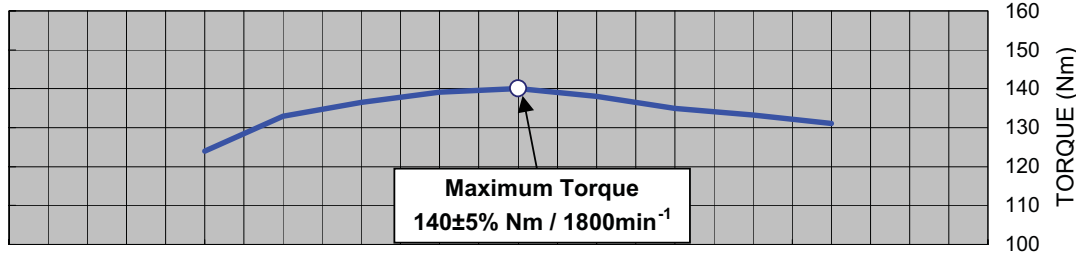
Loose parts

No.	Parts No.	Item	Qty	Remarks
1	894173-9480	CONTROL RESISTANCE	1	
2	897091-5400	CONNECTOR;ACG	1	
3	897068-7781	SAFETY UNIT	1	
4	582550-0290	RELAY;STARTER	1	
5	513660-3041	FAN ASM;COOLING(dia.400-Suc)	1	
6	028050-8500	BOLT;FAN FIX	4	Temporary attached to ENG
7	897063-4003	SPACER;FAN t=4.5	1	Temporary attached to ENG
8	913642-0780	SPACER;FAN t=32.0	1	Temporary attached to ENG
9	897042-0280	GSKT;EXH. PIPE	1	Temporary attached to ENG
10	---	SUPPLEMENT LABEL	1	Temporary attached to ENG
11	898106-4910	FUEL INLET LABEL	1	Temporary attached to ENG



AV-4LE1NYBW-05 (High Speed STD)
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
EXH. Silencer	with (10kPa)



Engine specifications Revision chart

Customer : EXPORT

Engine Model : AV-4LE1NYBW-05 Application : General power

Rev. No.	IS No.	Date	Page	Item	Previous	Current	Description (Reason of change)
0	IS-08-018-0	13th.Feb.08		For confirmation of prototype engine specifications			