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(H) Handling the Product

⚠ WARNING



- **Supplying the Fuel**
  When supplying the fuel, always keep any fire source like a cigarette or match away.

  [Otherwise]
  A fire or explosion may arise.

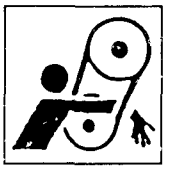
⚠ WARNING



- **Pay attention to hot portions.**
  Do not touch the engine during running or immediately after it is stopped.

  [Otherwise]
  Scalding may be caused by a high temperature.

⚠ WARNING



- **Pay attention to the rotating part.**
  Never bring clothes or a tool close to the rotating part during engine running.

  [Otherwise]
  Injury may be caused by entrapping.

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1. Product Outline

1.1 Usage

This diesel engine is suitable for powering machinery used in civil engineering and construction, agricultural machinery, generators, and other industrial use machinery.

1.2 Exhaust Gas Regulations

This engine conforms to EPA exhaust gas regulations (under 8kW) for a low emission engine.

Exhaust emission \ Conditions	C1,G2 mode※	remarks
[illegible]	[illegible]	[illegible]

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Unit : mm

Parts		Model	Standard	Service limit	Remarks
Crankcase cover					
Crankshaft bearing part	I.D.	L48EE	34 $^{+0.025}_{0}$	–	
		L70EE	39 $^{+0.025}_{0}$	–	
		L100EE	44 $^{+0.025}_{0}$	–	
	Bearing O.D. (Plain)	L48EE	34 $^{+0.105}_{+0.070}$	–	
		L70EE	39 $^{+0.105}_{+0.070}$	–	
		L100EE	44 $^{+0.120}_{+0.085}$	–	
	Fitting	L48EE L70EE	0.045 – 0.105	–	Tight fit
		L100EE	0.060 – 0.120	–	
	Bearing metal I.D. (Plain metal)	L48EE	30 $^{+0.060}_{+0.040}$	30.13	
		L70EE	35 $^{+0.063}_{+0.043}$	35.13	
		L100EE	40 $^{+0.063}_{+0.043}$	40.13	
Camshaft bearing part	I.D.	L48EE	52 $^{-0.035}_{-0.055}$	–	
		L70EE	62 $^{-0.040}_{-0.060}$	–	
		L100EE	72 $^{-0.045}_{-0.065}$	–	
	Ball bearing O.D.	L48EE	52 $^{0}_{-0.013}$	–	Tight fit
		L70EE	62 $^{0}_{-0.013}$	–	
		L100EE	72 $^{0}_{-0.013}$	–	
	Fitting	L48EE	0.022 – 0.055	–	
		L70EE	0.027 – 0.060	–	
		L100EE	0.032 – 0.065	–	

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Unit : mm

Parts		Model	Standard	Service limit	Remarks
Cylinder block					
Crankshaft bearing part	I.D.	L48EE	72 ± 0.0095	—	
		L70EE	$80\ ^{-0.004}_{-0.020}$	—	
		L100EE	$90\ ^{0}_{-0.016}$	—	
	Ball bearing O.D.	L48EE	$72\ ^{0}_{-0.013}$	—	
		L70EE	$80\ ^{0}_{-0.013}$	—	
		L100EE	$90\ ^{0}_{-0.015}$	—	
	Fitting	L48EE	0.0225 – 0.0095	—	
		L70EE	0.009 – 0.020	—	
		L100EE	0.015 – 0.016	—	
Camshaft bearing part	I.D.	L48EE L70EE L100EE	$21\ ^{-0.022}_{-0.043}$	—	
Cylinder sleeve I.D.		L48EE	$70\ ^{+0.030}_{0}$	70.16	
		L70EE	$78\ ^{+0.030}_{0}$	78.18	
		L100EE	$86\ ^{+0.030}_{0}$	86.18	

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9.2 Meters, Instruments and service Accessories.

(Necessary for middle- and small-size engine service shops)

—Typical sizes—

Instrument Name	Description	Illustration
Dial gauge	mm 1 div. 0.01 Range 0-5 0-10 To measure bending and gap of the shaft, surface distortion, etc.	

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10.2.2 Reassembly Procedures

1) Check that the spring is set correctly in the starter case housing. Adjust the shape of the inner end of the spring to locate it at about 4 mm from the starter shaft for making the reel's hook engages with the spring correctly.
(The inner end of the spring can be simply

3) Hold the starter rope as shown in Fig.(h). Wind it 4 turns in the arrow direction while securely holding the reel so that the rope may not be reversed. Lead the starter rope from the inside to outside. Slowly turn the reel in reverse.

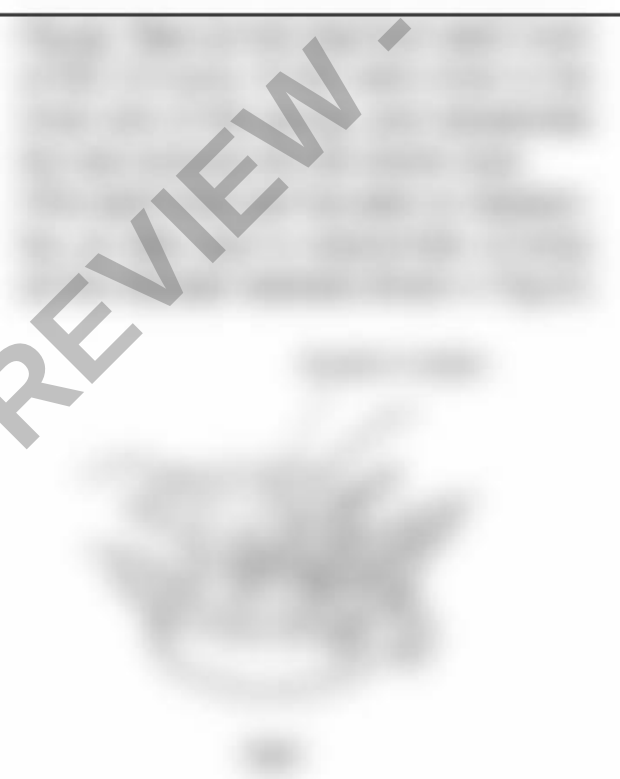
4) Assemble the removed parts in the reverse order of the disassembly in Fig.(g).





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⑧ Measure the distance (ℓ) between this mark and the TOP mark and use conversion formula below to convert it to revolution angle.

Conversion Formula

$\theta = 360\ell / (\pi \times D)$

θ : Revolution angle (degrees)

	D (Flywheel diameter)(mm)
L48EE	223

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11.13.5 Battery

The battery is used to start the engine (or to bear a lamp load) and should be well charged. Do not use a poorly charged battery which may be unable to attain the motor revolutions required to start the engine at low temperature.

(1) Battery capacity and battery cables

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FOREWORD

This manual describes the handling and maintenance for the EPA and ARB certified engine (under 8kW) models L48EE, L70EE, L100EE.

The specifications and components may be subject to change for improvement of the engine quality. If any modification of the contents described herein becomes necessary, it will be notified in the form of a correction information each time.

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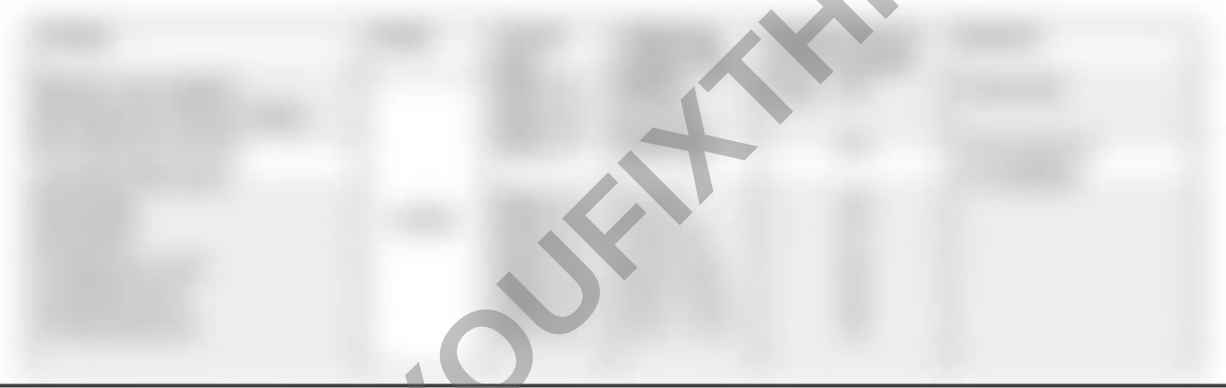
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YANMAR

Subject:	Service manual correction (ID no: M9961-H11310)
Date:	July, 2006
Correction item:	Tightening torques
Customer:	
Application:	
Engine model:	L48EE-



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Oil pump

mm

Item		Model: L48EE L70EE L100EE	
		Standard	Service limit
Outer	Outer rotor O.D.	29 $^{-0.02}_{-0.04}$	28.90
	Housing I.D. (Crankcase cover)	29 $^{+0.121}_{+0.100}$	29.18
	Clearance between housing I.D. and outer rotor O.D.	0.120 – 0.161	—

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