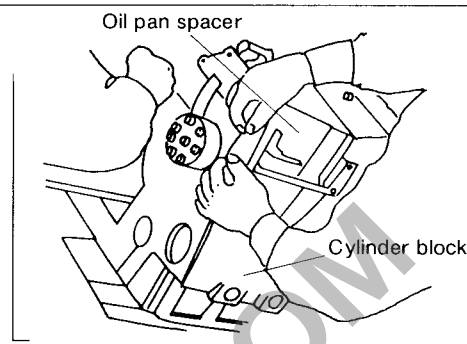
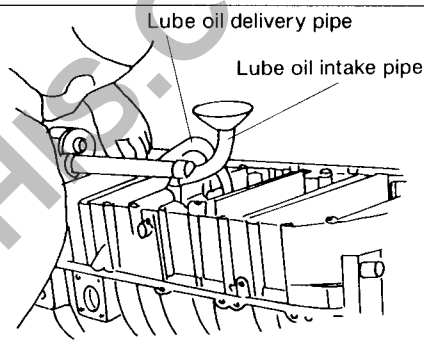
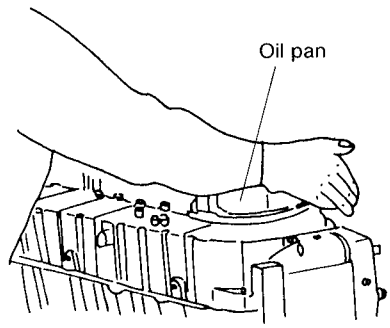
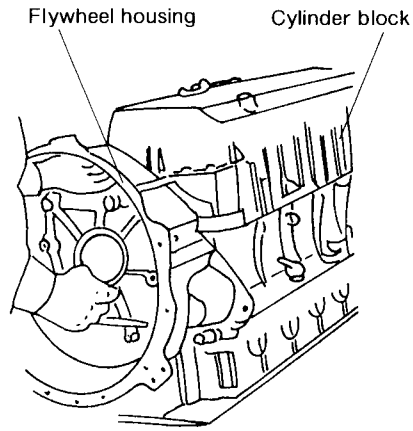
1-1. Specification

Model		6LY(M)-UTE	6LY(M)-STE
Type		Vertical 4-cycle water cooled diesel engine	
Combustion system		Direct injection	
Aspiration		Turbocharger with intercooler	
Number of cylinder-bore×stroke	mm	6-100×110	

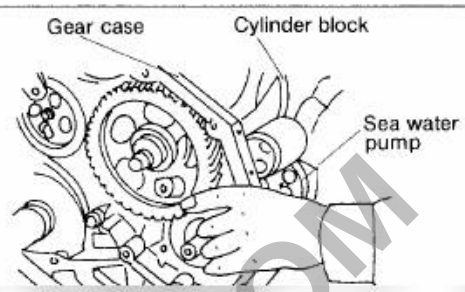
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	Part	Description	Symbol	Illustration
11	Oil pan spacer	Apply liquid gasket to oil pan spacer, and than fit spacer. To prevent difference in height, use fitting jig (see photo). Secure spacer by tightening 4 bolts of **M8×35mm**	1212 12	 Fitting of oil pan spacer using fitting jig
12	Lube oil intake pipe and delivery pipe	1) Fit lube oil delivery pipe first, and then intake pipe. Secure delivery and intake pipes by tightening bolts listed below: **M8×25mm**, 2 bolts **M8×16mm**, 2 bolts 2) Insert other end of lube oil delivery pipe into oil pan spacer. Secure pipe by tightening bolts of **M8×25mm**.	12	 Fitting of lube oil delivery pipe
13	Oil pan	Apply liquid gasket to oil pan, and then fit oil pan. Secure oil pan by tightening bolts listed below: **M8×25mm**, 4 bolts **M8×120mm**, 26 bolts **M8×190mm**, 2 bolts **M8×90mm**, 2 bolts	1212 12	 Fitting of oil pan
14	Flywheel housing	Fit flywheel housing while adjusting position of 2 parallel pins. Secure housing by tightening bolts listed below: **M10×25mm,** 8 bolts **M10×30mm,** 4 bolts (mm) Spigot joint runout: less than 0.25 Surface runout: less than 0.15	1212 14 P	 Fitting of flywheel housing

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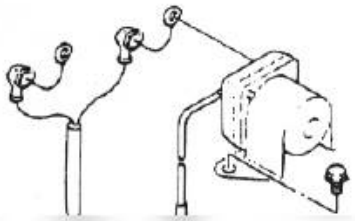
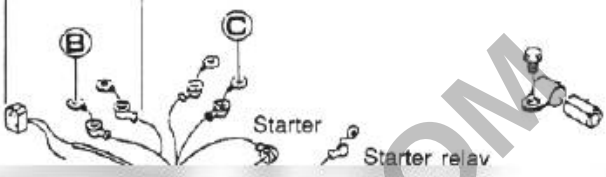
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	Part	Description	Symbol	Illustration
15	Seawater pump	Fit seawater pump to gear case. Secure pump by tightening bolts and nuts listed below: M8×20mm, 2 bolts M8, 2 nuts	12	

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	Part	Description	Symbol	Illustration
46	Wire harness	Fit wire harness. 		For details on wire harness, refer to diagram of wire harness on next page. 

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(3) Valve guide

1) Measurement of inner diameter of valve guide.
Measure the inner diameter of each valve guide. If a valve guide is worn in excess of the limit value specified below, replace the guide with a new one.

(mm)

	Standard dimension	Limit dimension
Valve guide inner dia.	$\phi 9^{+0.015}$	9.1

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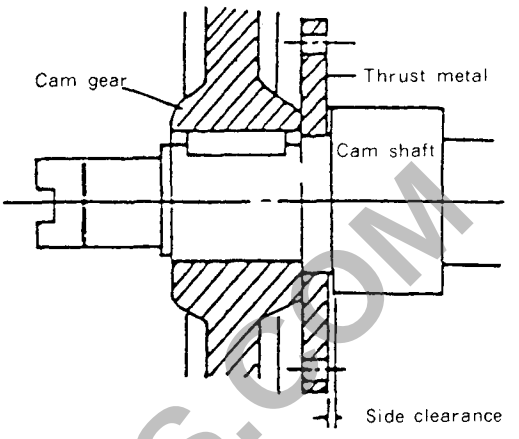
4-6. Cam Shaft and Tappet

4-6-1. Cam shaft

Check the condition of the contact surfaces between each tappet and cam. Check each bearing for seizure, and check that each cam gear is not damaged.

(1) Measurement of side clearance of cam shaft

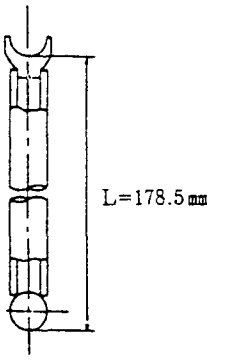
The thrusting force of cam shaft is received by the reference main metal at the end of the cam gear. If the main metal is worn, the side clearance between the thrust metal and cam shaft will be widened. Therefore, check the side clearance before disassembling the cam shaft. To replace a thrust metal, remove the cam shaft and cam gear as a unit. Since each cam gear is hot-fitted to the cam shaft, heat the cam gear to 200℃ or less to remove the gear from the shaft. Then replace the thrust metal.



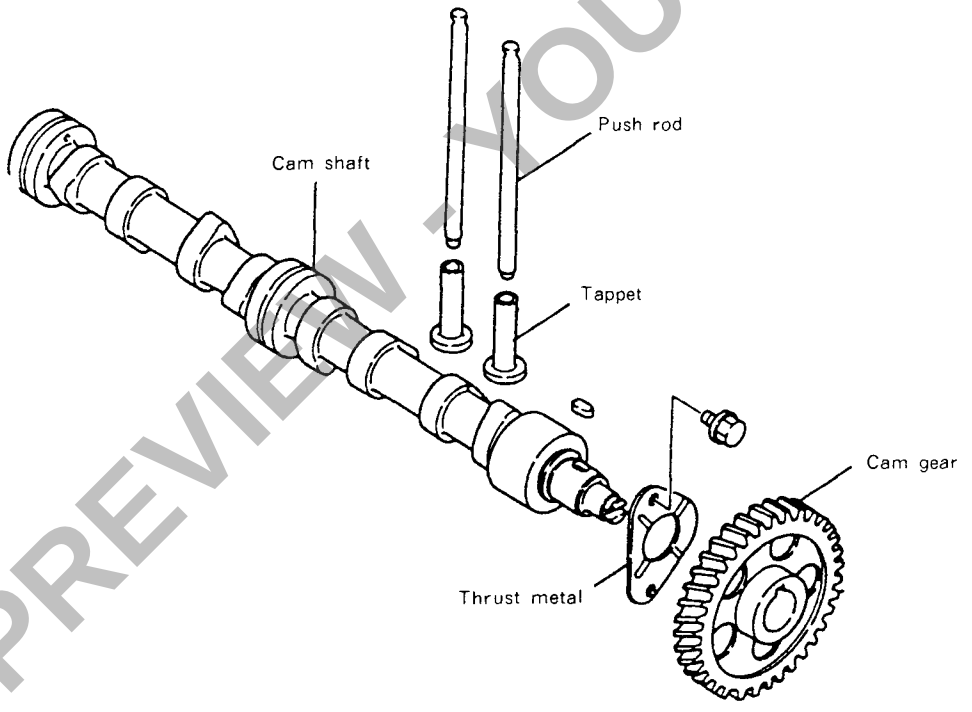
Side clearance

(mm)

	Standard dimension	Limit dimension
Side clearance	0.05~0.2	0.29



Length of push rod



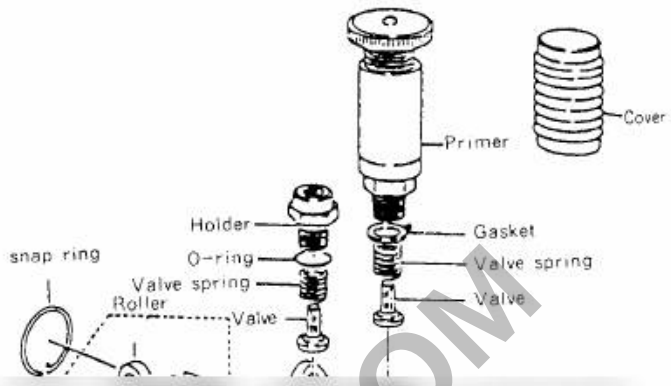
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4-11-4. Construction of feed pump

When the cam presses the piston via the roller guide, the fuel oil inside the piston chamber is fed to the rear side of the piston via the delivery valve. At that time, the applied pressure closes the intake valve and prevents the fuel oil from returning to fuel oil tank. When the cam goes down, the piston spring returns the piston to the original position, and the fuel oil on the rear side of the piston chamber is fed to the fuel oil pump. At the same time, since the pressure in the piston chamber lowers, the intake valve opens to feed fuel oil into the piston chamber. The pressure on the rear side of the piston increases as the oil feed pressure of the pump increases. If the oil pressure surpasses the piston spring force, the piston will move again.Therefore, the fuel oil feeding stops



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4-11-6. Governor

The governor is a 4-point centrifugal type that enables variable speed control. The governor is installed in the governor chamber that is connected to the fuel pump chamber. The governor weight assembly is driven by the fuel pump shaft. Therefore, the governor weight assembly controls the fuel oil pump with the governor lever, and increases and reduces the fuel oil injection amount.
The governor control lever is connected to the governor handle by the link.The inside of the governor is splash-lubricated by the governor weight.

Note :

1. *The governor is factory-adjusted at the specified output and rotational speed, and then sealed by lacing wire. Do not disassemble or readjust the governor, unless absolutely necessary.*
   If disassembly is necessary for some reason, be sure to adjust the governor after adjustment.
2. *When the governor is disassembled, remove the plug, and supply 400cc lube oil.*

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MODEL 6LY(M)-UTE.STE

1. Specifications ····· 1-1
1-1. Specifications ····· 1-1
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3. Disassembly and Reassembly ····· 3-1
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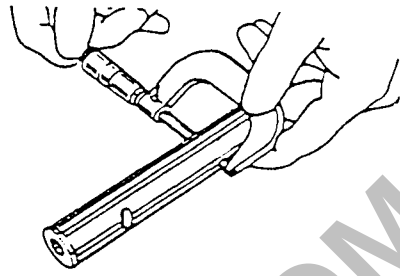
4-1-7. Rocker arm and push rod

The rocker arm opens and closes the valve. The output or performance of the engine depends on adjustment of opening/closing timing of the rocker arm.

(1) Measure rocker arm outer diameter, rocker arm hole inner diameter, and clearance between the shaft and hole. If one of the measurements exceeds the limit specified below, replace the part with a new one.

(mm)

	Standard dimension	Limit dimension
Rocker arm shaf outer dia	$\phi 18.5^{-0.021}_{-0.041}$	18.35
Rocker arm hole inner dia	$\phi 18.5^{+0.002}_{0}$	18.60
Clearance between	0.021～0.061	0.15



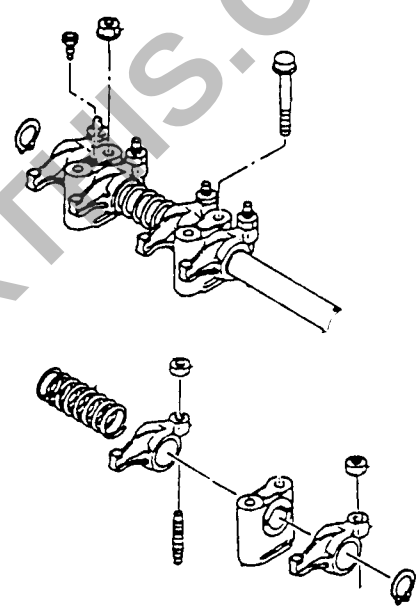
Measurement of rocker arm outer diameter

(2) Rocker arm spring
Check the rocker arm spring for corrosion and damage. If the spring is corroded or damaged, replace it.

(3) Worn rocker arm and valve cap
Check the condition of the contact surfaces between the arm and valve cap for wear and flakes. If the surfaces are extremely worn or flaked, replace the parts.

(4) Check the condition of the contact surfaces between the valve clearance adjustment screw and push rod. If the surfaces are worn or flaked, replace the parts.

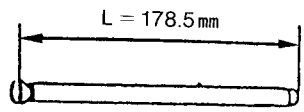
(5) Check that the push rod is not damaged or distorted.



Rocker arm shaft

(mm)

	Standard dimension	Limit dimension
Distortion of push rod	0.03	0.05



Length of push rod

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(1) Automatic reset function of boost compensator

1) Boost compensator
The basic function of the boost compensator is to reduce black fume by cutting the unnecessary amount of fuel injection during acceleration.
After that, according to increases in the rotational speed and load characteristic for boat, the boost compensator gradually increases the boost pressure and fuel injection amount. This the boost compensator ensures excellent acceleration and 4/4 load characteristic.

2) Automatic reset function
The boost compensator is superior to the conventional types in boost canceling. The conventional types employ eccentric shaft for boost canceling that requires holding of the cancel knob once pulled. The boost compensator of the 6LY(M)-UTE,STE, however, employs cam slider for boost canceling that allows immediate releasing of the cancel knob once pulled. Return the knob to the initial position because the boost compensator has already canceled when the knob was pulled. After starting the engine, when the engine is under the idling status (governor weight opens, and the control rack reduces the injection amount), the boost compensator is automatically reset.

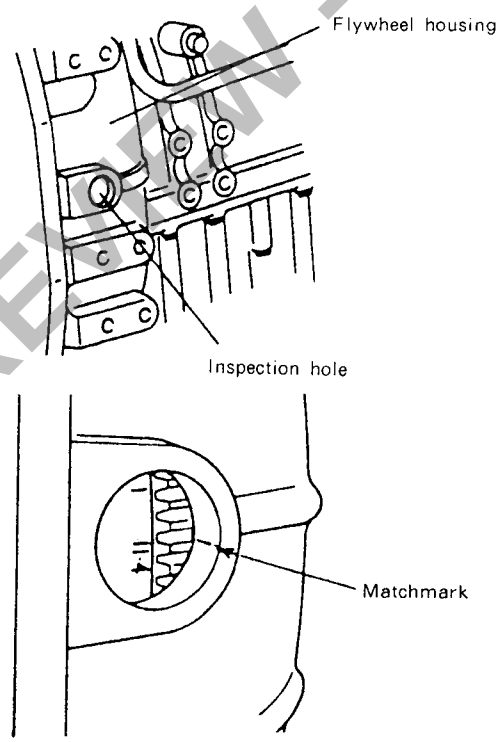
(2) Adjustment of fuel injection timing

1) Remove fuel injection pipe from the fuel injection pump.

2) While manually and slightly turning the flywheel, check that the fuel injection starts at the specified poin (13.5±0.5° before top dead center) by monitoring the indicated value through the inspection hole on the flywheel housing.

3) Check fuel injection timing for each cylinder.

4) If the fuel injection timing is not appropriate, adjust the timing. To advance the timing incline the pump against the matchmark toward the front side. To delay the engine side.



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