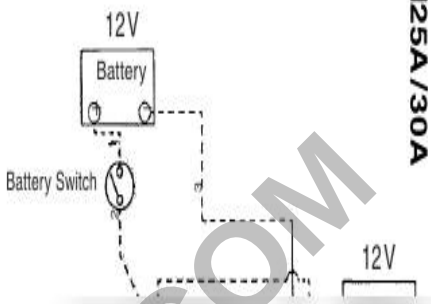
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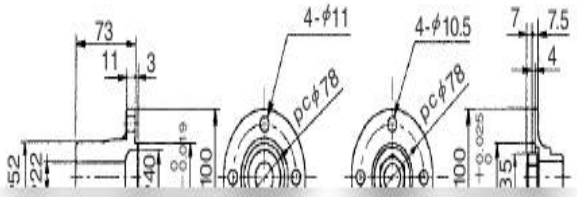
R	Red
B	Black
W	White
Y	Yellow

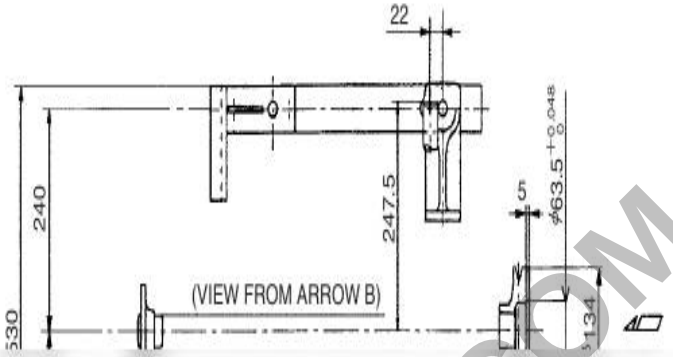


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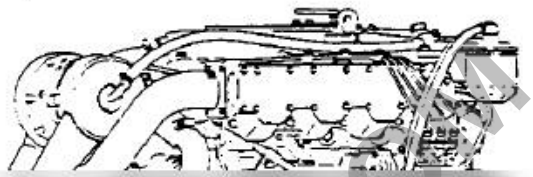
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3. Disassembly and Reassembly

3-1 Disassembly

For engines mounted in an engine room, remove the piping and wiring connecting them to the ship.



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3-1 Disassembly of fuel injection pump

When disassembling the fuel pump, separate the parts for each cylinder and be careful not to get them mixed up.
Be especially careful to keep the plunger/plunger barrel, delivery valve/delivery valve seat and other assemblies separate for each cylinder (the parts of each assembly must be kept with that assembly and put back in the same cylinder).

(2) Remove the fuel feed pump.
NOTE: Do not disassemble the fuel feed pump. See instructions for fuel feed pump for details.



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Model	Unit	3JH25A	3JH30A
Type	—	Vertical 4-cycle water cooled diesel engine	
Combustion system	—	Direct injection	
Aspiration	—	Normal aspiration	
Number of cylinders	—	3	
Bore × stroke	mm	82 × 86	
Displ acement	ℓ	1.303	

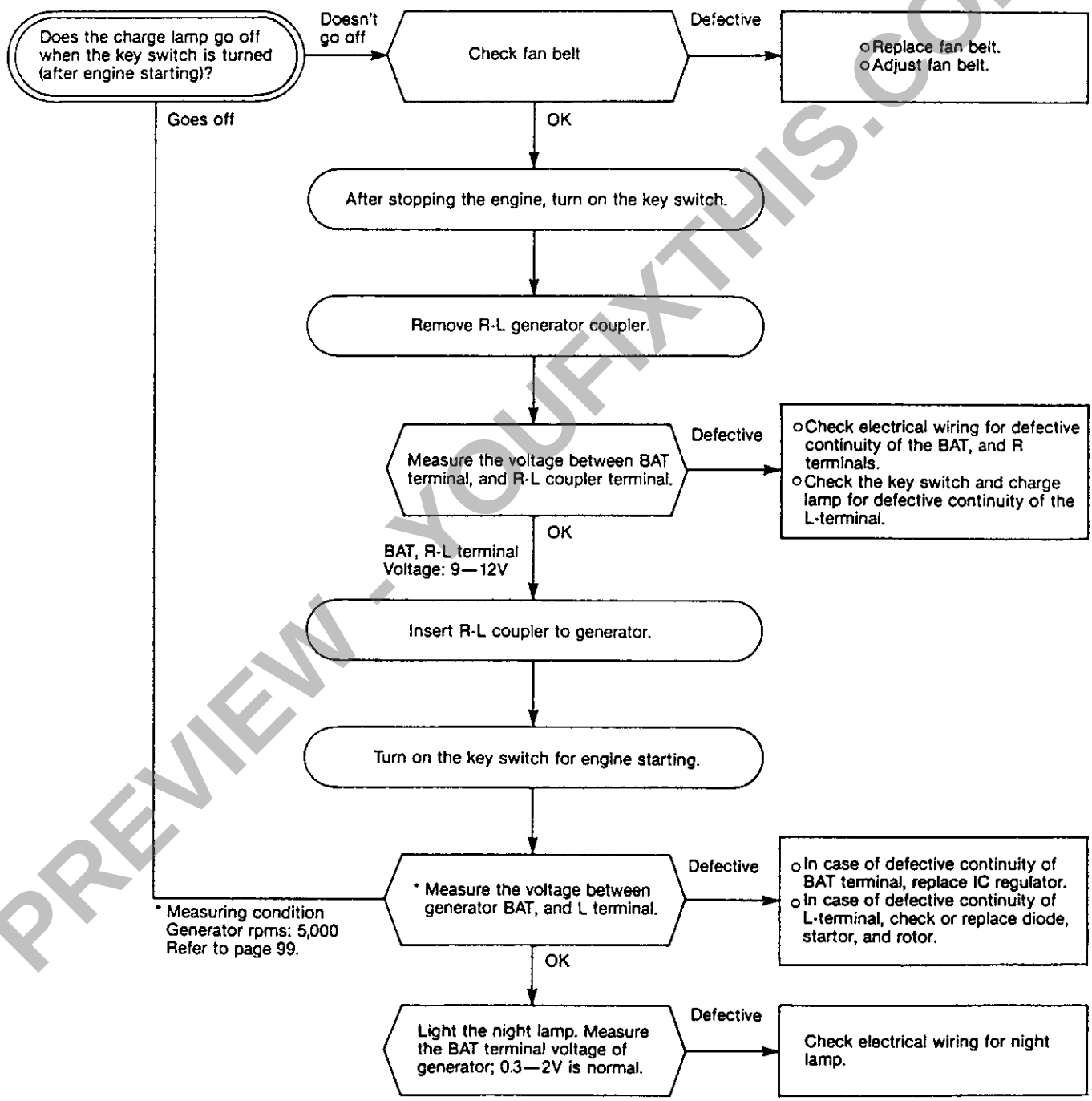
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4-11 Troubleshooting

(1) Charging failure



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mm

		Standard dimensions	Limited dimensions
Dimensions	KM3P1 KM3P3	32.7-33.3	32.4
	KM35P1	29.25-29.75	28.1

NOTE : When dismantled, the forward of reverse direction of the drive cone must be clearly identified.

(4) If the wear of the V-groove of the drive cone is exces-

(3) Lap the large gear's cave and drive cone, pushing them together by hand.



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Item \ Engine		3JH25A		3JH30A	
Assemble code	Part No	729198-51300		729198-51320	
	I.D. mark	B450		B451	
Adjustment specs		Engine spec.	Cal. Spec.	Engine spec.	Cal. Spec.
Nozzle type I.D. mark		150P244HCO	DN-12SD12	150P244HCO	DN-12SD12
Injection starting pressure	(kg/cm²)	200~210	165~175	200~210	165~175
Fuel injection pipe	(OD ϕ×ID ϕ×L)	ϕ6×ϕ1.8×360	ϕ6×ϕ2.0×600	ϕ6×ϕ1.8×360	ϕ6×ϕ2.0×600

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KM3A

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KM3P1,KM3P3,KM35P1

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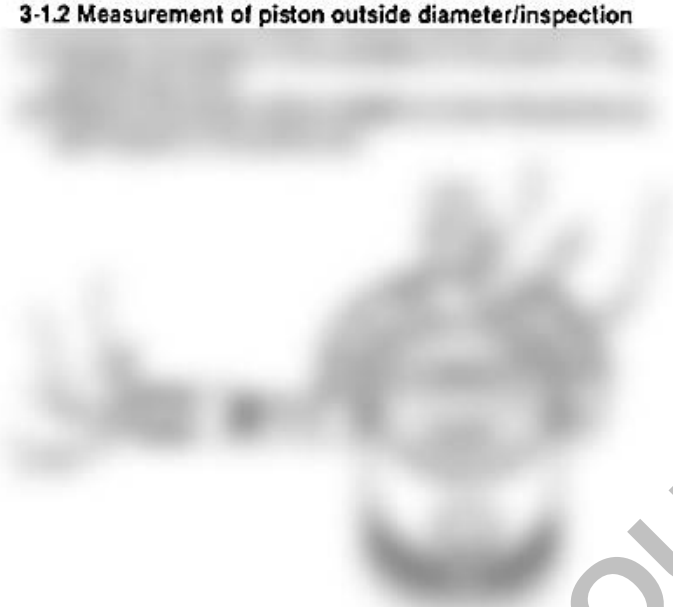
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3-1 Piston

3-1.1 Piston head and combustion surface

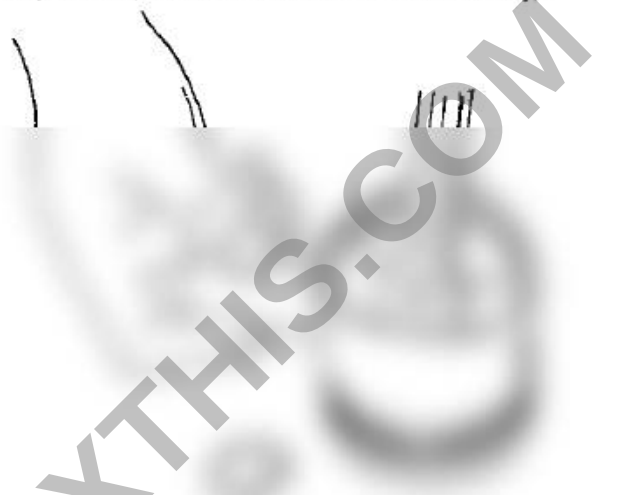
Remove the carbon that has accumulated on the piston head and combustion surface, taking care not to scratch the piston. Check the combustion surface for any damage.

3-1.2 Measurement of piston outside diameter/inspection



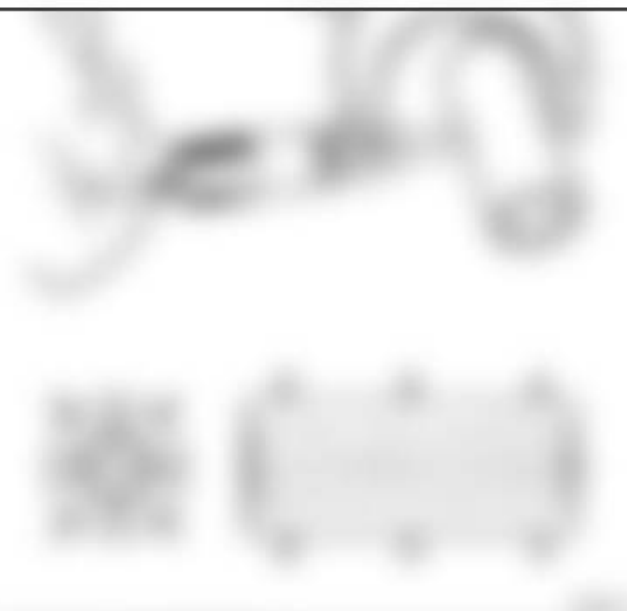
3-1.3 Replacing the piston

A floating type piston pin is used in this engine. The piston pin can be pressed into the piston pin hole at room temperature (coat with oil to make it slide in easily).









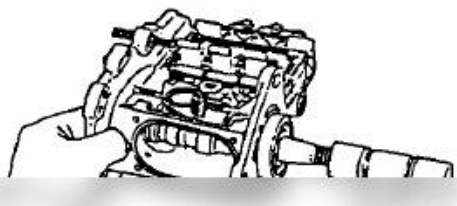


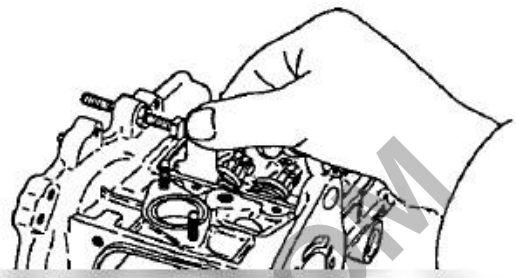
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(12) Fit the bearings to both ends of the camshaft, and insert from the drive side by tapping lightly.





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2-7.5 Poor (slow) turbocharger responsiveness (starting)

Cause	Remedy
1) Carbon build-up on turbine side (blade seal) inhibiting turbine shaft rotation.	• Disassemble and wash turbocharger and replace engine oil.
2) Incomplete combustion.	• Inspect engine fuel system and improve combustion efficiency.

2-7.6 Abnormal noise or vibration

(1) Abnormal noise

Cause	Remedy
1) Blower discharge air flows back (surges) when the gas line area is considerably reduced due to closing of the turbine chamber nozzle or during acceleration.	• Disassemble and clean turbocharger.
2) Rotating parts knocking something.	• Disassemble turbocharger and repair or replace.

(2) Vibration

Cause	Remedy
1) Fittings connecting turbocharger and exhaust gas piping/oil pipe have become loose.	• Inspect fittings and retighten/repair as necessary.
2) Rotating parts making contact with surrounding parts because of metal failure, or turbine blade or blower blade damaged due to entrance of foreign matter.	• Disassemble turbocharger and repair or replace. Thoroughly remove any foreign matter.
3) Rotating parts out of balance.	• Repair or replace rotating parts.

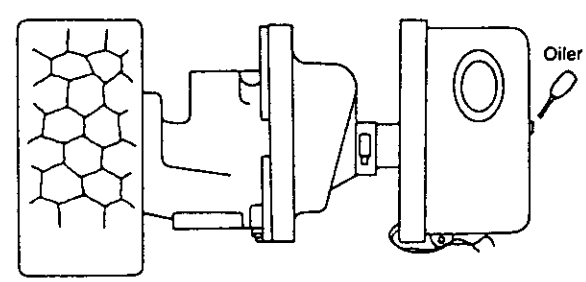
2-8 Turbocharger blower washing procedure

2-8.1 General

(1) Use "Blower Wash" and clean water to wash the blower.
(2) Make it a general practice to wash the turbocharger blower when the air supply pressure has decreased by about 10 percent. The frequency of this will differ greatly depending on working conditions, but about once a week is generally sufficient.
(3) This prodecure cannot be used for cleaning the entire turbocharger. It must be periodically disassembled and cleaned.
(4) Only remove the inlet cap when washing the blower—it must not be removed under any other circumstances.

2-8.2 Procedure

(1) Run the engine at normal load (3/4 ~ 4/4 load) and apply Blower Wash for 4 ~ 5 seconds with a 20cc standard oiler.
(2) 3 ~ 5 minutes after application of the Blower Wash the dirt will be loosened up. Slowly put in 20cc of water (over about 4 ~ 10 seconds).
(3) Use a vinyl container to feed in the cleaning agent or water. If too much cleaning agent or water enters suddenly there might be a breakdown or breakage of the blower blade. Be sure to feed in the cleaning agent or water at the correct speed.
(4) If there is no change in the air supply pressure or exhaust gas temperature after washing, repeat the washing after about 10 minutes.
No change after washing the blower 3 ~ 4 times indicates that either the blower is extremely dirty or something else is out of order. Disassemble and clean the washer, and take any other action as necessary.
(5) Run the engine under load to dry for at least 15 minutes after feeding in the agent or water.



Clean the blower: Every 150 hours

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1-2 specifications

Model		KM3A				
For engine models		3JH2BE			3JH2-TBE	
Clutch		Constant mesh gear with servo cone clutch (wet type)				
Reduction ratio	Forward	2.33	2.64	3.21	2.33	2.64
	Reverse	3.04	3.04	3.04	3.04	3.04
Propeller shaft rpm(Forward)		1457	1290	1059	1457	1290

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3. Inspection and Servicing

3-1 Clutch case

(1) Check the clutch case with a test hammer for cracking.
Perform a color check when required.
If the case is cracked, replace it.

(2) Check for staining on the inside surface of the bearing section.
Also, measure the inside diameter of the case.
Replace the case if it is worn beyond the wear limit.

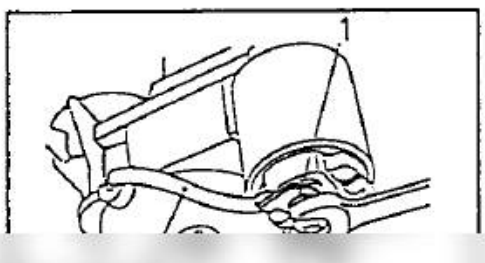
(2) Forward/reverse large gear needle bearing.
When an abnormal sound is produced at the needle bearing, visually inspect the rollers; replace the bearing if the rollers are faulty.



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1) The Magnetic Switch's 8 mm Nut

Remove the magnetic switch's 8 mm nut and disconnect the connecting wire.

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3) Rotor coil insulation test
Check the continuity between the slip ring and the rotor core, or the shaft. If there is continuity, insulation inside the rotor is defective, causing a short with the earth circuit. Replace the rotor coil.



2) Stator coil insulation test
Check the continuity between the terminals and the stator core. If there is continuity, insulation of the stator coil is defective. This will cause a short-circuit with the earth core. Replace the stator coil.



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