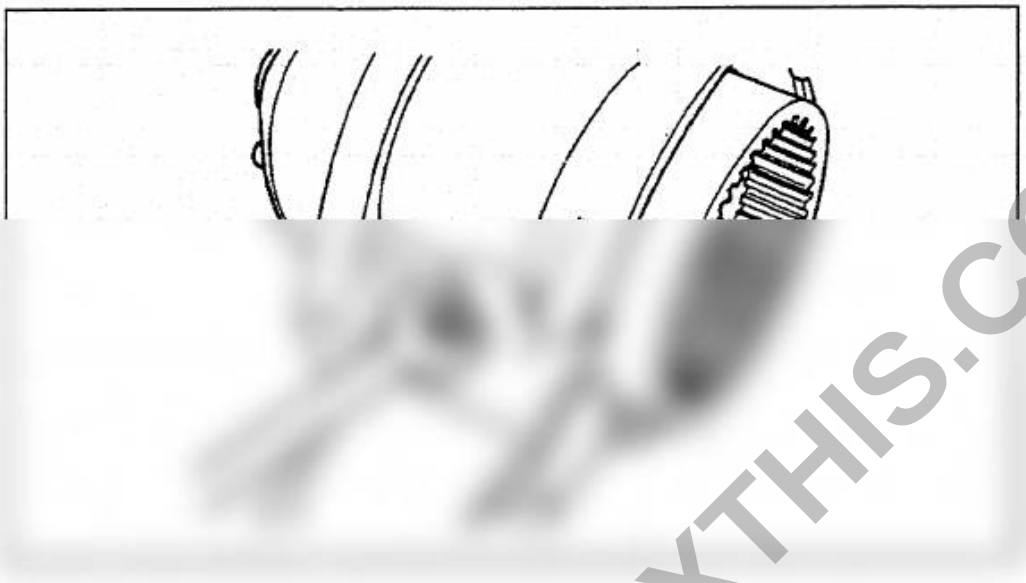
(6) Removal of shift lever pin

Remove the M6 nut (10mm) and pull out the shift lever pin.

Now. the dustcover, shift lever, gear case and gear shaft can be removed.





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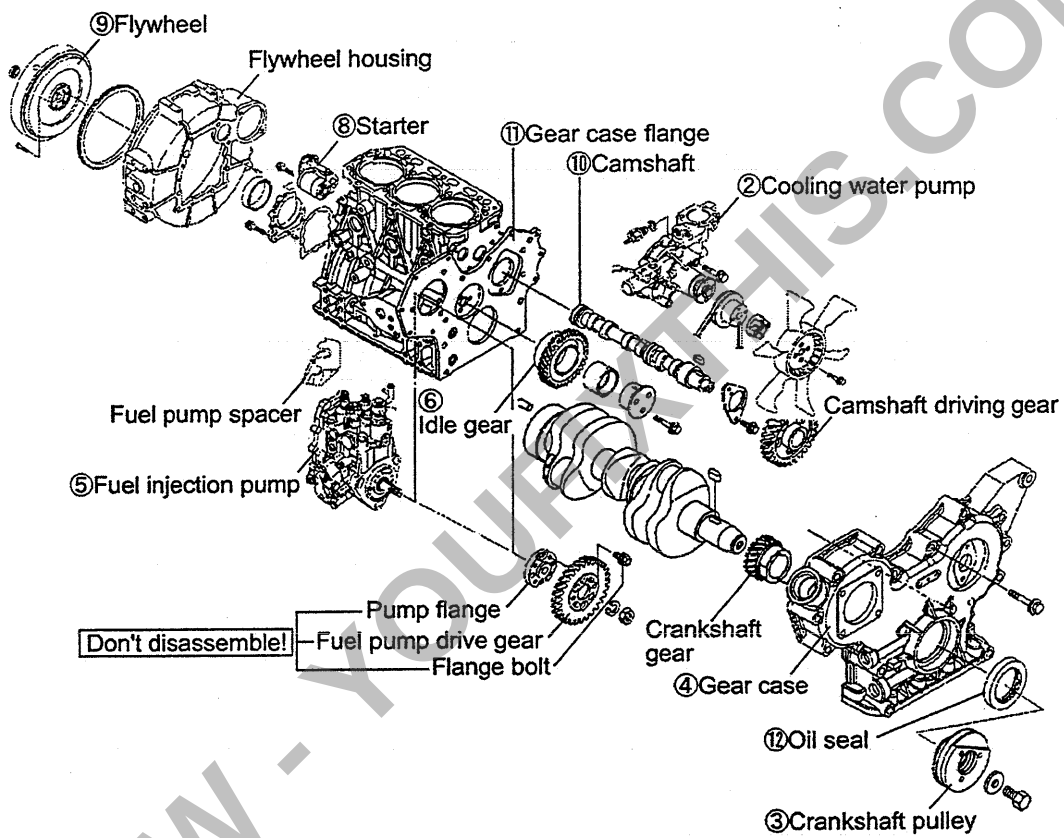
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## (2) How to Read the Explanations

- An exploded view, sectional views, a system diagram, etc. are shown at the beginning of each section as required for easy understanding of the mounted states of the components.
- For the removal/installation of each part, the procedure is shown with the procedural step No. in the illustration.
- Precautions and key points for disassembly and reassembly of parts are described as **points**. In the explanation for each point, detailed operation method, information, standard and precautions are described.

**Description Example**




Note) This figure shows the 3TNV84.

The job contents are described in the disassembly procedure for Nos. not shown in the illustration.

- Disassembly procedure

1) Follow steps (1) to (15) of the cylinder head disassembly procedure.
2) Remove the cooling water pump.
3) Remove the crankshaft pulley. **(Point 1)** ← Operation point to be explained on a later page.

- Operation points

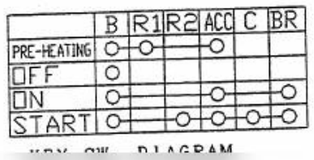
Disassemble: Service point for removal
Reassemble: Service point for installation
Disassemble-Reassemble: Service point required in both removal and installation.

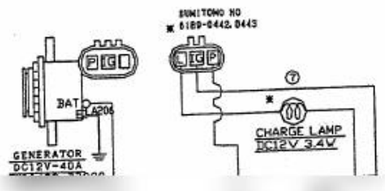
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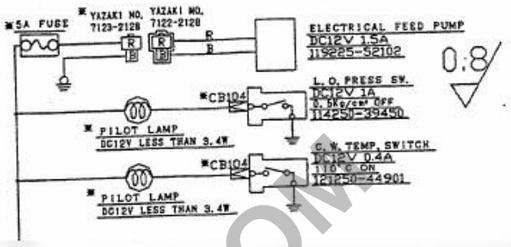
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# 11. ELECTRIC WIRING

## 11.1 Electric Wiring Diagram




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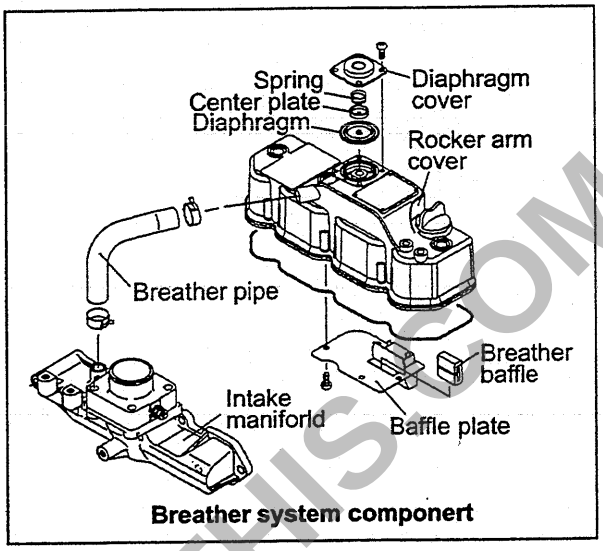
(2) Diaphragm assy inspection

Inspect the diaphragm assy on the rocker arm cover every 1000 hours or **2 years**. Refer to 4.2.4 point 6 for the function of the diaphragm.

1) Loosen screws, and remove a diaphragm assy, and check whether oil and so on doesn't enter between the diaphragm and the cover. If oil and so on enters into the diaphragm assy, the diaphragm doesn't work well.
2) Check the damages of the diaphragm rubber and the spring. If necessary, replace with new ones.

[NOTICE]

- When a diaphragm is damaged, pressure control inside the crankcase becomes insufficient, and troubles such as combustion defect and so on occur.
- At lubricating oil replacement or lubricating oil supply, the amount of lubricating oil isn't to be beyond the standard upper limit. If the lubricating oil quantity is beyond the upper limit or an engine is operated beyond the allowable maximum angle of an engine, the amount of oil mist may be inducted in the combustion chamber and the oil hammer sometimes may occur.




**Breather system componert**

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(5) 4TNV84

| Engine name | Unit | 4TNV84 | |
|---|---|---|---|
| Engine specification class | - | CL | VM |
| Type | - | Vertical, in-line, 4-cycle, water-cooled diesel engine | |
| Combustion chamber | - | Direct injection | |
| Number of cylinders | - | 4 | |

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[Reassemble]
Apply sealant (code No.977770-01212) and install the mounting flange by matching the two dowel pins. After assembly, raise the engine with its mounting flange on the bottom side.

**⚠ CAUTION**

Unforeseen injury may arise due to falling of slipping when raising or reversing the engine. Carefully operate so as not to lose balance.

**Point4: Journal bearing cap**

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# SAFETY LABELS

- Most accidents are caused by negligence of basic safety rules and precautions. For accident prevention, it is important to avoid such causes before development to accidents.
  Please read this manual carefully before starting repair or maintenance to fully understand safety precautions and appropriate inspection and maintenance procedures.
  Attempting at a repair or maintenance job without sufficient knowledge may cause an unexpected accident.

- It is impossible to cover every possible danger in repair or maintenance in the manual. Sufficient

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| Trouble symptom / Cause | Starting failure | | | | Insufficient engine output | | | Poor exhaust color | | Rough knocking sound during combustion | Abnormal engine sound | Uneven combustion sound | Hunting | | Large engine vibration | Difficulty in returning to low speed | Excessive fuel consumption | Lubricating oil | | | | Much blow-by gas | Cooling water | | Air intake | | Exhaust temperature rise | Corrective action |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Engine does not start. | Engine starts but stops soon. | | | Exhaust color | | | During work | | | | | During idling | During work | | | | Excessive consumption | Dilution by fuel oil | Mixture with water | Low L.O. pressure | | Overheat | Low water temperature | Pressure drop | Pressure rise | | |
| | | Exhaust smoke | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | None | White | Much | Ordinary | White | Black | White | Black | | | | | | | | | | | | | | | | | | | |

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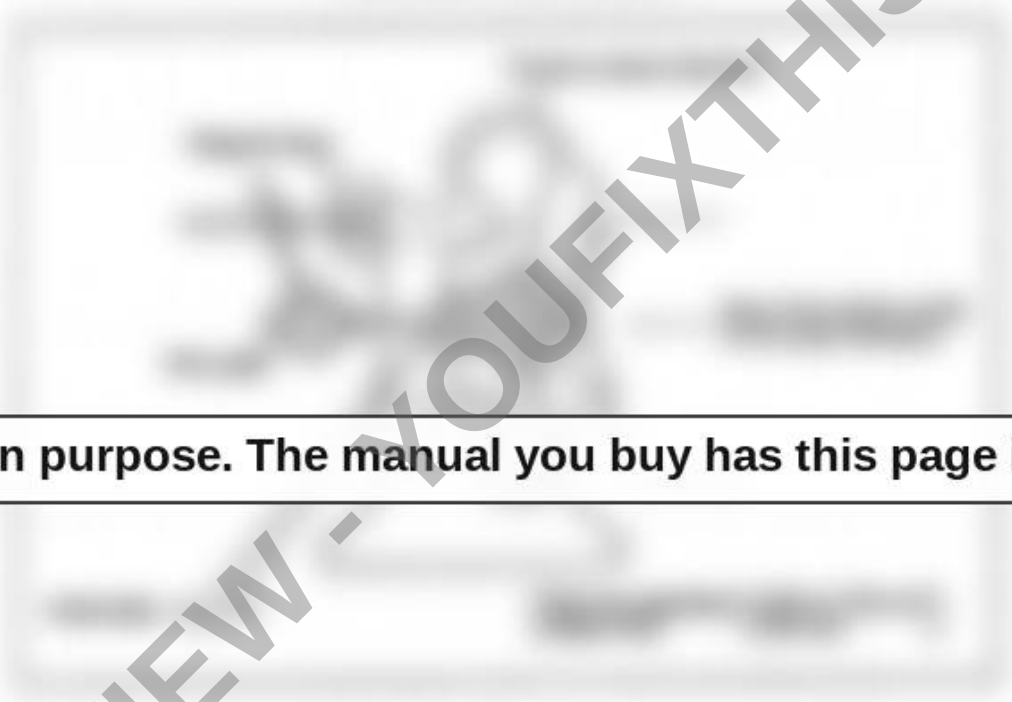
### 8.3.2 Inspection procedure

(1) Rotor rotation inspection

Inspect the rotor rotation by listening to any abnormal sound generation during rotation.
For inspection with a sound detecting bar, bring the tip end of the bar into strong contact with the turbocharger case and raise the engine speed gradually.
If any high pitch sound is generated at intervals of 2 to 3 seconds, the rotation is abnormal. Since the bearing or rotor may be defective in this state, either replace or overhaul the turbocharger.

(2) Rotor play inspection

Remove the turbocharger from the engine and inspect the rotor play in the axial and radial directions



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(3) Thrust bearing

mm

| Inspection item | | Standard | Limit | Reference page |
|---|---|---|---|---|
| Crankshaft side gap | All models | 0.13~0.23 | 0.28 | 4.4.4 |

(4) Piston and ring

Piston

mm



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