(2) 4TNE98

Engine name	Unit	4TNE98	
Engine specification class	–	CL	VM
Type	–	Vertical, in-line, 4-cycle, water-cooled diesel engine	
Combustion chamber	–	Direct injection	
Number of cylinders	–	4	
Cylinder bore × stroke	mm × mm	98 × 110	
Displacement	ℓ		

PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

- **Contents omitted in this manual**

  Though the following jobs are omitted in the explanation in this manual, they should be conducted in actual work:

  (1) Jacking up and lifting
  (2) Cleaning and washing of removed parts as required
  (3) Visual inspection

(3) Definition of Terms

[NOTICE] Instruction whose negligence is very likely to cause an accident. Always ob-

Blurred on purpose. The manual you buy has this page in full quality.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

⑥ Apply oil to the contact between the adjusting screw and push rod.

⑦ Turn the crankshaft 180° then and make adjustment for the No.3 cylinder. Then adjust the No.4 and No.2 cylinders in this order.
The cylinder to be adjusted first does not have to be the No.1 cylinder. Select and adjust the cylinder where the piston is the nearest to the top dead center

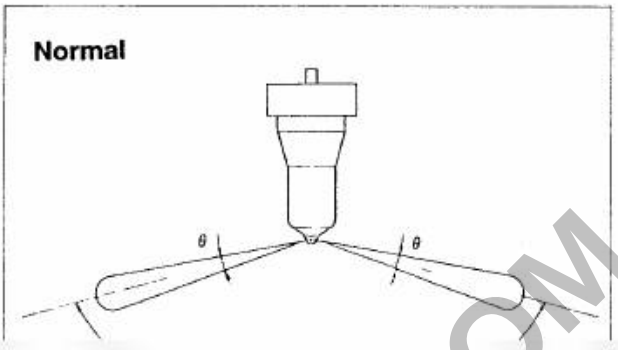
PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

(2) Spray pattern inspection

After adjustment to the specified valve opening pressure, use a nozzle tester and check the spray pattern and seat oil-tightness.



① Seat oil-tightness check

- After injecting a few times, increase the pressure gradually. Hold the pressure for about 5 seconds at a little be-

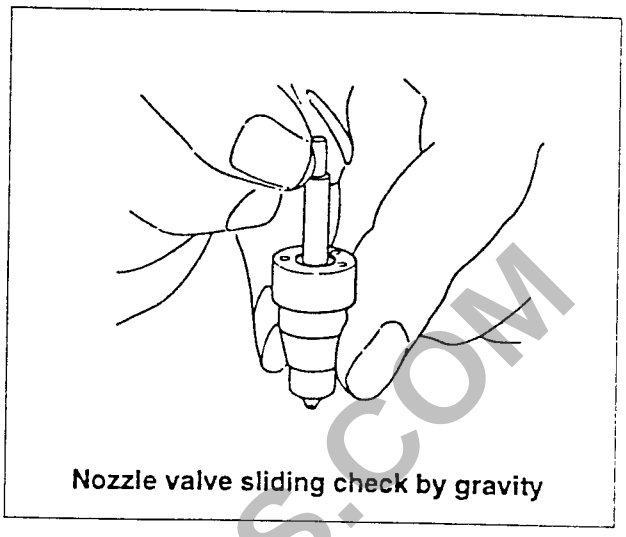
PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

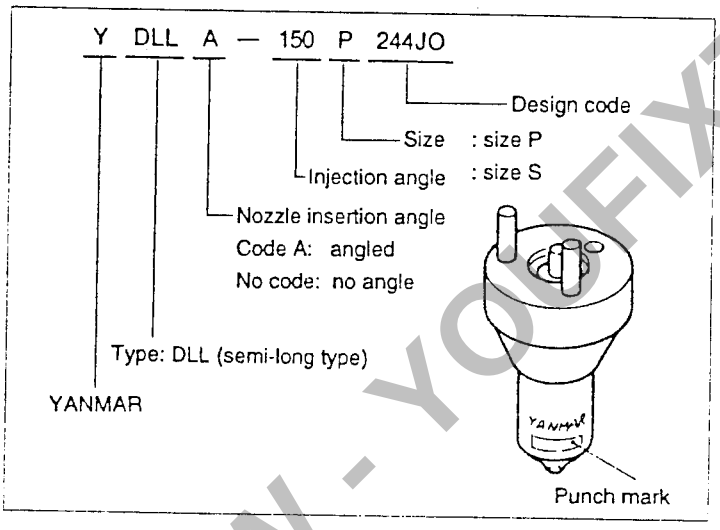
(3) Nozzle valve sliding test

Wash the nozzle valve in clean fuel oil. Place the nozzle body vertically and insert the nozzle into the body to about 1/3 of its length. The valve is normal if it smoothly falls by its own weight into the body. In case of a new nozzle, remove the seal peel, and immerse it in clean diesel oil or the like to clean the inner and outer surfaces and to thoroughly remove rust-preventive oil before using the nozzle. Note that a new nozzle is coated with rust-preventive oil and is pasted with the seal peel to shut off outer air.



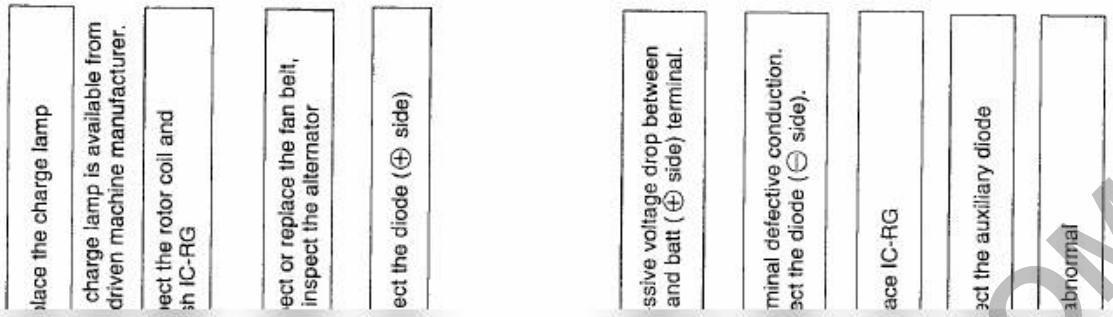
Nozzle valve sliding check by gravity

(4) Nozzle punch mark



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



Blurred on purpose. The manual you buy has this page in full quality.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

9.1.5 Inspection and Maintenance

(1) Armature

(a) Commutator outside diameter

Measure the commutator outside diameter and replace the commutator if the measured value is less than the limit.

(mm)

Standard	Limit
36.5	35.5

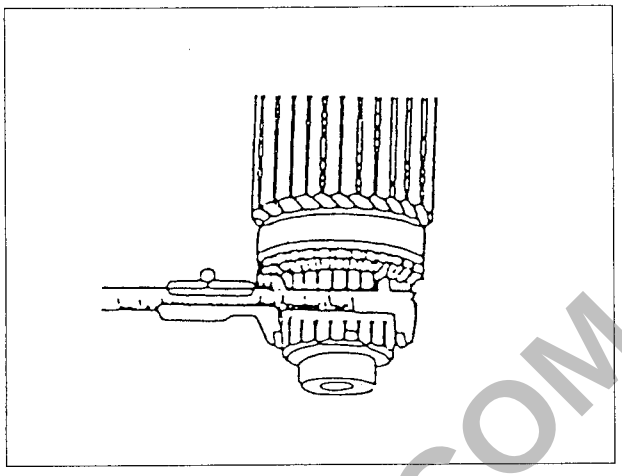


Fig. 10

(b) Armature coil continuity test

Check continuity between commutator segments with a multimeter. Good if continuity exists.

No continuity

(Coil disconnection)
Replace the armature.

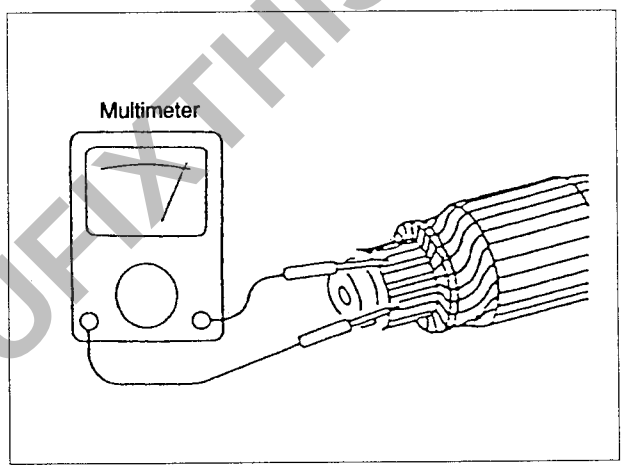


Fig. 11

(c) Armature coil insulation test

Inspect the continuity between a commutator segment and the shaft or core with a multimeter. Good if no continuity exists.

Continuity exists

(Coil short circuit)
Replace the armature.

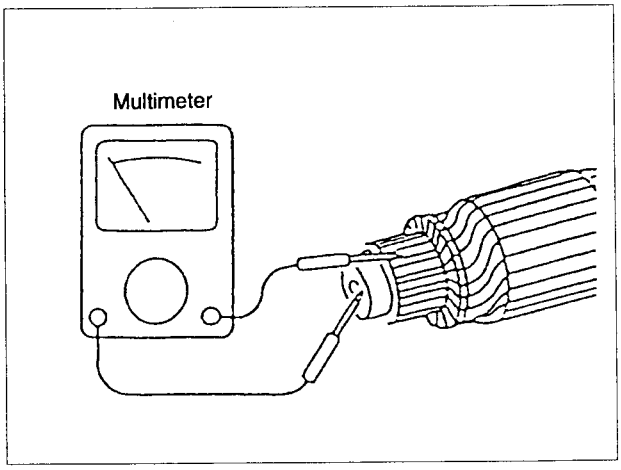
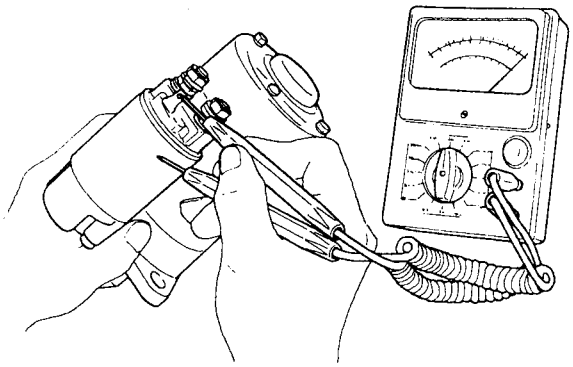


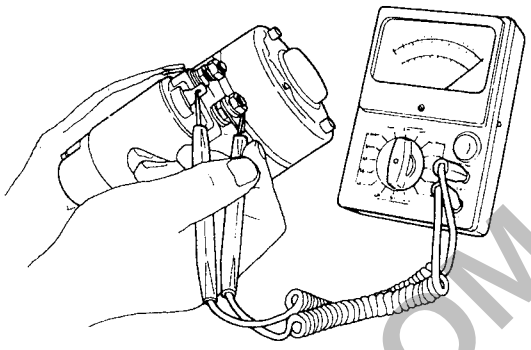
Fig. 12

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com
Printed in Japan
HINSHI-H8013-R1



(Shunt coil continuity test)



(Series coil continuity test)

(5) Pinion

a) Check the pinion teeth for wear and damage. Replace with a new one, if necessary.
b) Check if the pinion slides smoothly. If it is damaged or rusted or does not slide smoothly, repair.
c) Check springs for damage, and replace if necessary.

(6) Ball bearing

If abnormalities such as irregular noises are detected to the ball bearing, replace with a new one.

9.2.7 Assembly

The assembly procedure is reverse of the disassembly procedure, but pay attention to the following points.

(1) Apply grease as instructed below.

Greasing point	Grease type
Sliding portions and head of plunger Pinion metal and metal portions of gear case Spline portions of pinion Sliding portions of shift lever	NPC-FC6A Grease
Deceleration gear	MALTEMP SRL Grease

(2) Armature thrust

No adjustments are needed for the thrust.

(3) Gear shaft thrust

Some thrust washers of 1.0 and 0.25 mm thickness are provided between the center bracket and gear shaft supporting surface. Make sure to check them at reassembly.
If washers are deformed or worn, replace them with new ones.
The appropriate thrust is from 0.05 to 0.3 mm. If it is over 0.3 mm, add the appropriate thrust washer, but pay attention so that the thrust is not 0.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

1. GENERAL ..... 1-1~1-13

1.1 ENGINE NOMENCLATURE 1-1

1.2 SPECIFICATIONS 1-2

1.3 FUEL OIL, LUBRICATING OIL AND COOLING WATER 1-6

1.4 ENGINE EXTERNAL VIEWS 1-8

1.5 STRUCTURAL DESCRIPTION 1-9

1.6 HOW TO READ THIS MANUAL 1-10

(1) Range of Operation Explanation 1-10

(2) How to Read The Explanations 1-10

(3) Definition of Terms 1-11

(4) Abbreviations 1-11

1.7 PRECAUTIONS FOR SERVICE WORK 1-12

1.8 TIGHTENING TORQUES FOR STANDARD BOLTS AND NUTS 1-13

PREVIEW - YOUFIXTHIS.COM

Printed in Japan
HINSHI-H8013-R1

Download full manual at youfixthis.com

1.2 Specifications

(1) 4TNE94

Engine name	Unit	4TNE94	
Engine specification class	–	CL	VM
Type	–	Vertical, in-line, 4-cycle, water-cocled diesel engine	
Combustion chamber	–	Direct injection	

PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

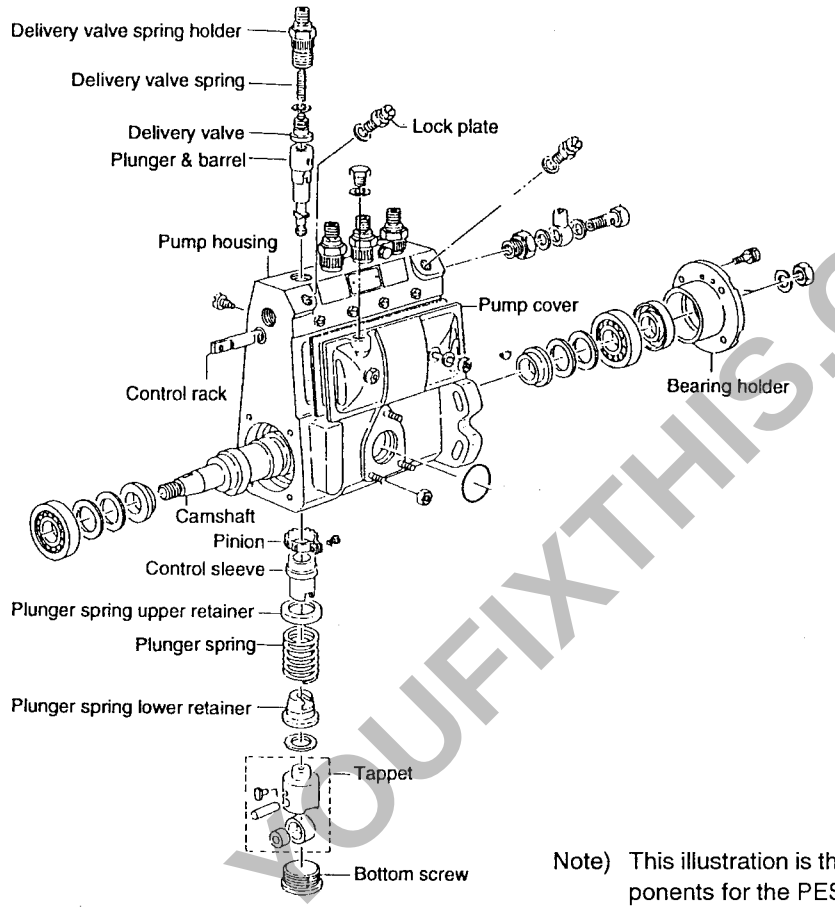
0.1 FOREWORD 0-1
0.2 FOR SAFE SERVICING 0-2
0.3 PRECAUTIONS FOR SAFE SERVICING 0-3
(A) Service Shop (Place) 0-3

Blurred on purpose. The manual you buy has this page in full quality.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(2) Components



Note) This illustration is the standard components for the PES-A type.
The shapes of some parts are different from those of the fuel injection pump for this engine.

(3) Disassembly procedure:

(3.1) Disassembly from the engine body

① Remove the cooling fan, pulley and V-belt. See 4.2(2)② in Chapter 4.
② Remove the fuel injection pipe, fuel oil piping, fuel return pipe and rear stay. See 4.2(2)⑦ in Chapter 4.
③ Remove the fuel injection pump drive gear cover. See 4.3(1) in Chapter 4.
④ Remove the fuel injection pump drive gear. See 4.3(1) in Chapter 4. ***(Point 1)***
⑤ Remove the fuel injection pump. See 4.3(2)⑤ in Chapter 4.

(3.2) Fuel injection pump disassembly

① Remove the fuel feed pump. See 7.4(1) Components.
② Remove the governor cover. See 7.5(1) Components. ***(Point 2)***
③ Remove the governor housing. See 7.5(1) Components. ***(Point 3)***
④ Remove the bottom screw from the bottom. ***(Point 4)***
⑤ Remove the fuel injection pump cover.
⑥ Bring the tappet away from the camshaft. ***(Point 5)***
⑦ Remove the bearing holder. ***(Point 6)***
⑧ Remove the camshaft. ***(Point 7)***

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com
Printed in Japan
HINSHI-H8013-R1

PREVIEW ONLY

You're viewing 12 of 208 pages

The full manual includes:

- All 208 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Yanmar 4TNE94, 4TNE98, 4TNE106(T), 4TNE94.98.106(T), 4TNE106T Service Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual