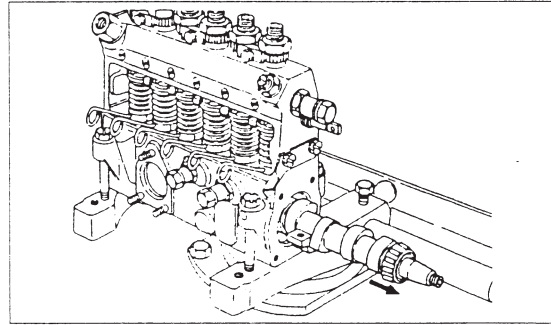


Point 7

Disassemble:

- Set the drive side cam at the TDC and pull the camshaft toward the drive side for removal.



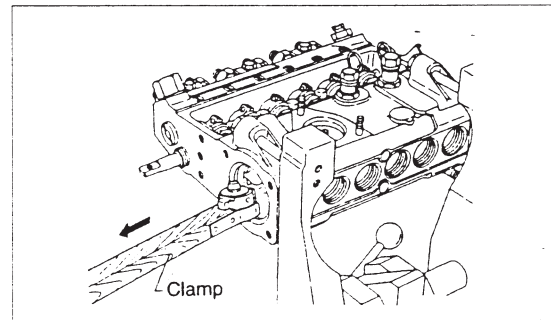
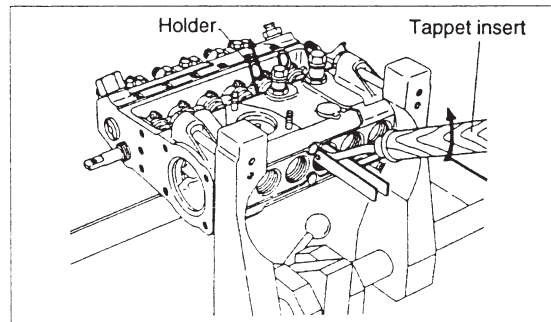
Point 8

Disassemble:

- For tappet removal, push the tappet roller up with the tappet insert from below to remove the tappet holder, and take the tappet out from the camshaft hole with the clamp.

Zexel's codes

- Tappet insert: 157921-0120
- Clamp: 157931-6120



(6) Parts inspection and measurement

(6.1) Pump housing

Mainly check for crack, wear and damage at threaded hole.

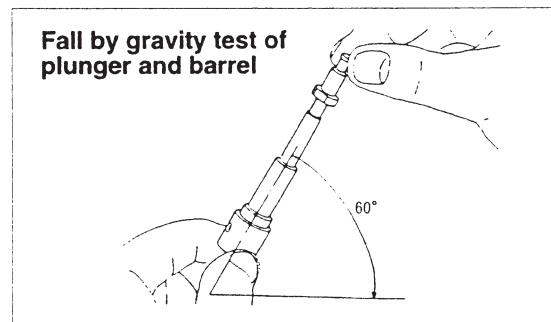
(6.2) Springs (plunger and delivery)

Mainly check for surface defect, crack, uneven wear, corrosion and rust.

(6.3) Plunger & barrel

Check for surface defect, uneven corrosion and wear mainly at the lead portion. After washing, tilt the barrel by around 60°.

Pull the plunger out and release it. The state is normal if the plunger slips down smoothly by its own weight. Test several times while turning the plunger to different angles.



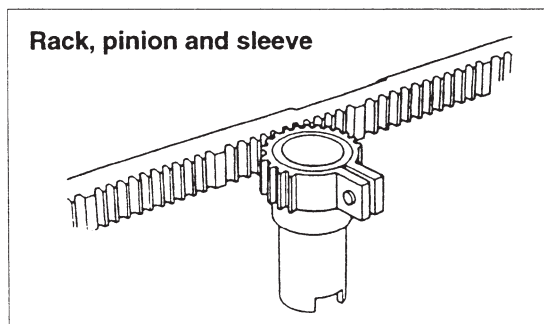
7. Fuel Injection System/Governor

(6.4) Delivery valve

Mainly check for surface defect, corrosion and wear mainly at the piston.

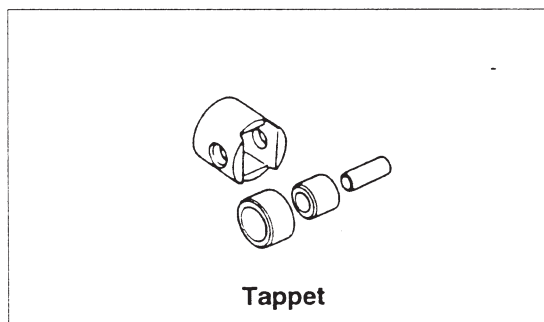


- (6.5) Check mainly the control rack for bend, the pinion for wear and damage at the gear portion, and the sleeve for wear at the contact face with the plunger collar portion.



(6.6) Tappet

Check mainly for wear and damage at the pin hole, roller, pin and bushing.

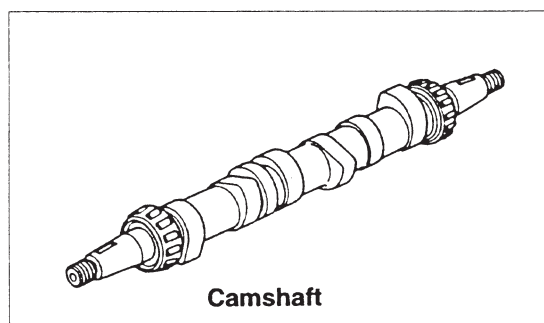


(6.7) Camshaft

Check mainly the cam surface for damage and wear, the key groove and thread for deformation, and the shaft for bend.

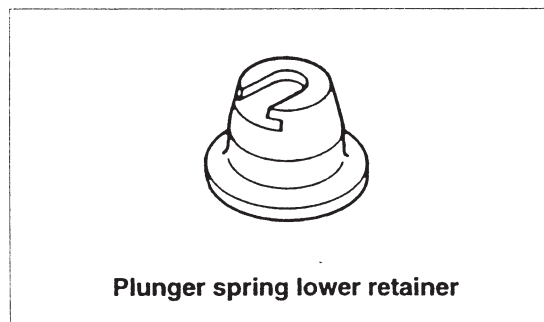
(6.8) Bearing

Check mainly the roller bearing for wear, and the outer race for surface defect.



(6.9) Plunger spring lower retainer

Check mainly the portion in contact with the plunger for deformation and wear.



7.3 Fuel Injection Valve

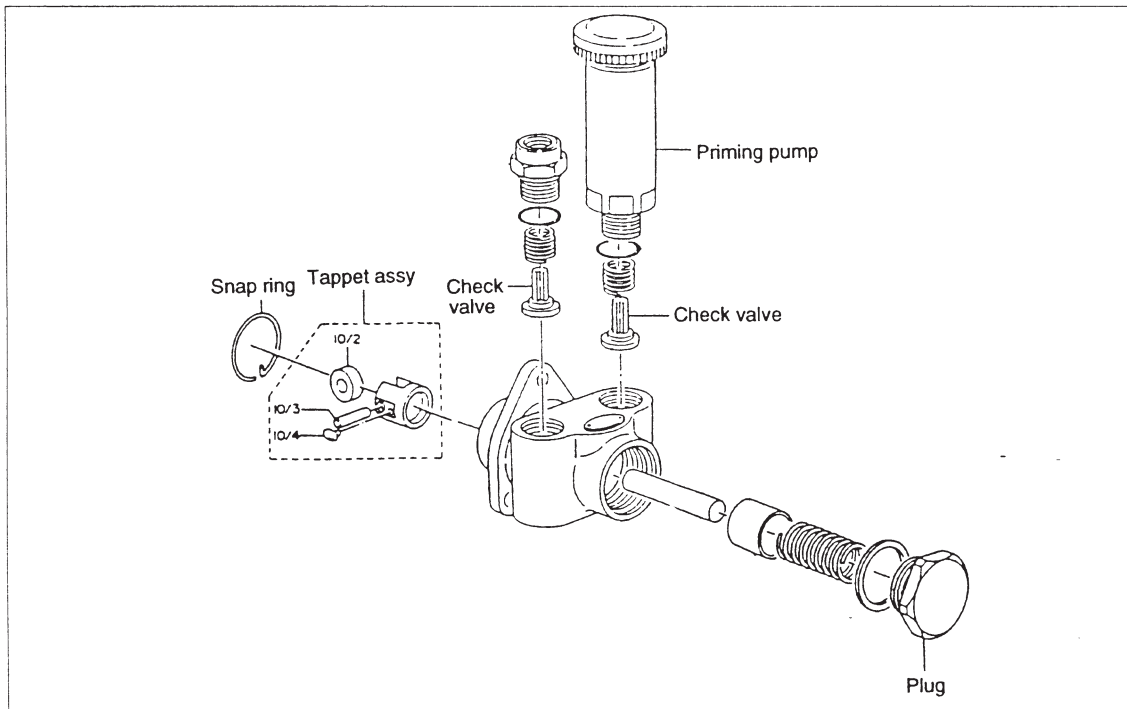
Point 1

Disassemble:

- Check the fuel injection pressure and spray pattern. See 3.6 in Chapter 3 for the inspection method.

7.4 Fuel Feed Pump

(1) Components



(2) Disassembly procedure (Reverse the procedure below for assembly.)

- ① Remove the feed pump assy from the fuel injection pump.
- ② Remove the priming pump and check valve.
- ③ Remove the plug and check valve from the fuel outlet side.
- ④ Remove the plug, and remove the piston.
- ⑤ Remove the snap ring, and remove the tappet assy, spring and push rod.

(3) Parts inspection and measurement

(3.1) Check valve

Replace with a new one as a rule.

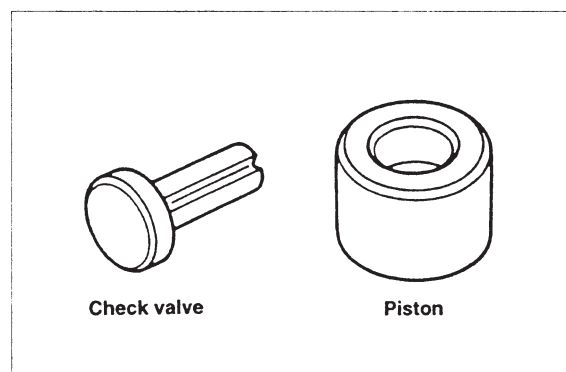
Check mainly for deformation and partially wear.

(3.2) Piston

Check mainly for surface defect and wear.

(3.3) Springs (piston and check valve)

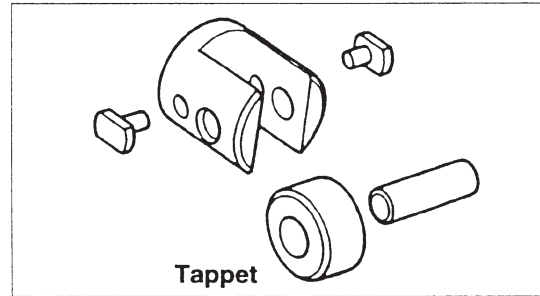
Check mainly for surface defect, fatigue and rust.



7. Fuel Injection System/Governor

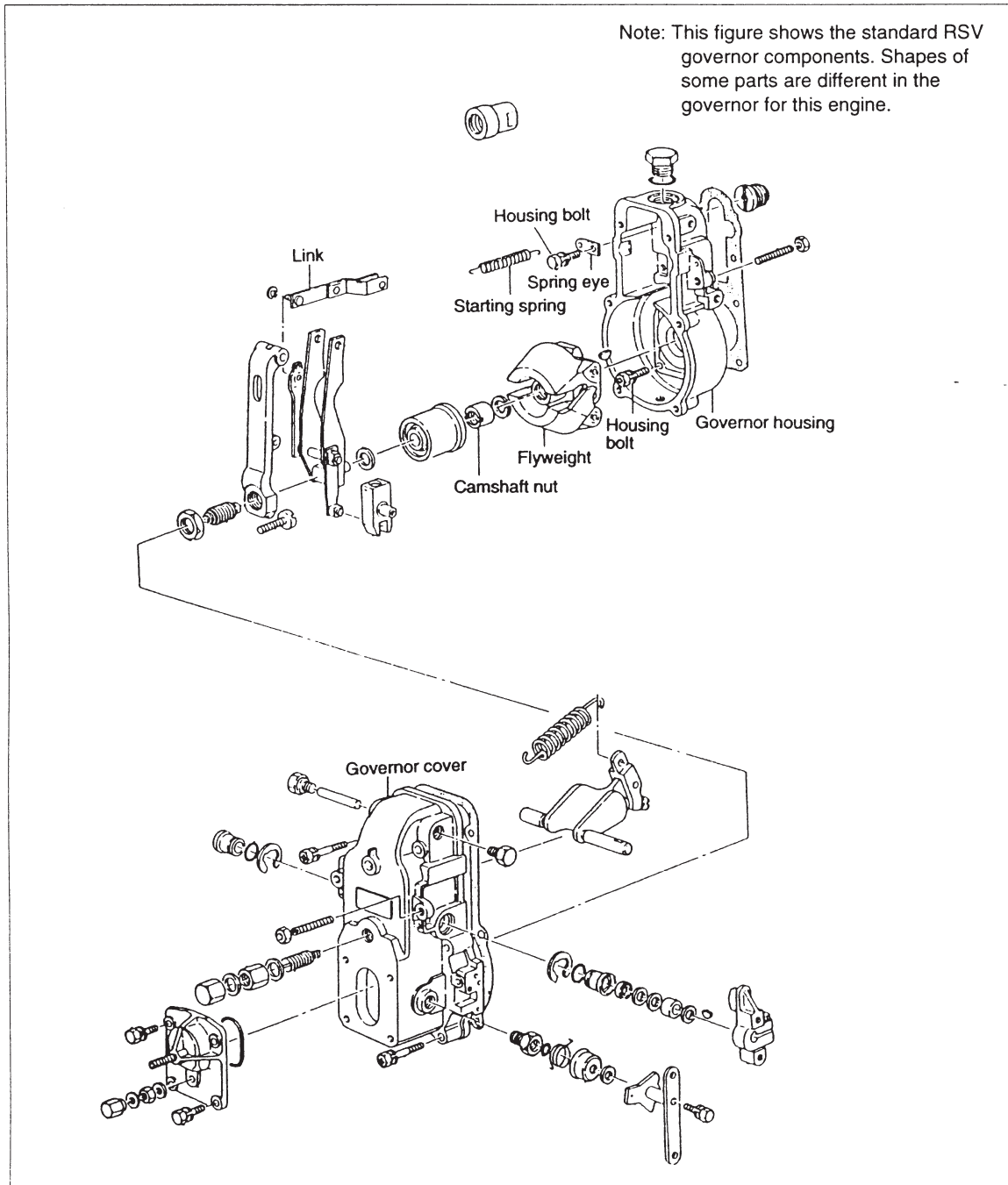
(3.4) Tappet assy and push rod

Check mainly for surface defect and wear. If the push rod outer surface is worn, replace the whole housing assy.



7.5 Governor

(1) Components



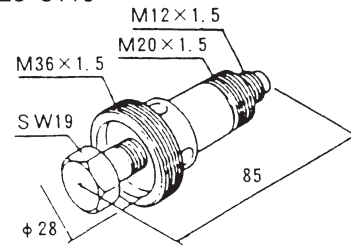
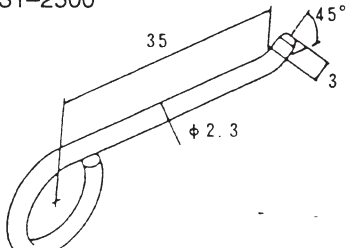
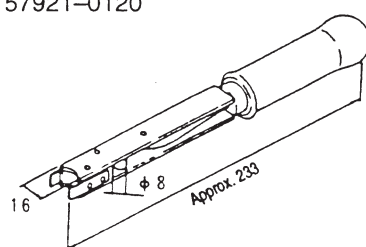
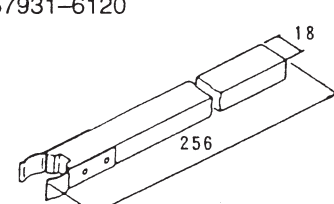
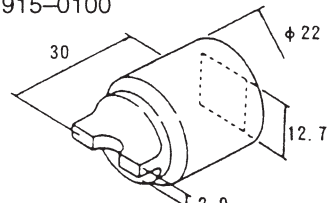
(2) Disassembly procedure (Reverse the procedure for assembly.)

- ① Follow steps ② and ③ in fuel injection pump disassembly procedure 7.2 (3.2).

(3) Parts inspection and measurement

Generally end disassembly in this stage and wash the parts for inspection.
See that each parts is not worn excessively or play.

7.6 Special Service Tools for Disassembly/Assembly

No.	Tool name	Application	Manufacturer's code and illustration
1	Extractor	Flyweight removal	157926-5110 
2	Tappet holder	Tappet and cam contact separation	157931-2500 
3	Tappet insert	Pushing tappet up	157921-0120 
4	Clamp	Tappet removal	157931-6120 
5	Wrench	Flyweight nut removal	157915-0100 

8. TURBOCHARGER (FOR 4TNE106T) 8-1~8-18

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8.1 Structure and Functions

(1) Structural and functional outline

(1.1) Turbine

The exhaust gas from the engine is accelerated at the nozzle portion in the turbine housing and blown onto the turbine impeller to rotate the turbine shaft.

This is called the turbine. A seal ring and heat insulating plate are installed to prevent the bearing from adverse influence of the gas.

(1.2) Compressor

The compressor impeller installed on the turbine shaft rotates with the shaft to suck and compress air for feeding into the intake manifold.

This is called the blower or compressor.

(1.3) Bearings

- Thrust bearing:

As the turbine shaft is constantly applied with a thrust force, this bearing prevents the shaft from being moved by the thrust force.

- Radial bearing:

A floating bearing is adopted. Since the bearing moves with the turbine shaft as the oil films are formed both inside and outside the bearing, the bearing sliding speed is slower than the turbine shaft speed, resulting in higher dynamic stability.

(1.4) Compressor side sealing mechanism

To prevent the intake air and oil from leaking, a seal ring and a seal plate are provided to form a double wall structure on the rear side of the compressor impeller.

(1.5) Waste gate

When the blower side pressure (intake air pressure) exceeds the specified level, the exhaust gas at the turbine inlet is partially bypassed to the exhaust discharge side to control the turbine rpm so as to maintain the intake pressure at the specified level for improving the response to load variation in the low to medium speed range and to minimize black smoke generation.

It consists of a control assembly separated from the turbocharger and a valve assembly installed in the turbine impeller chamber.