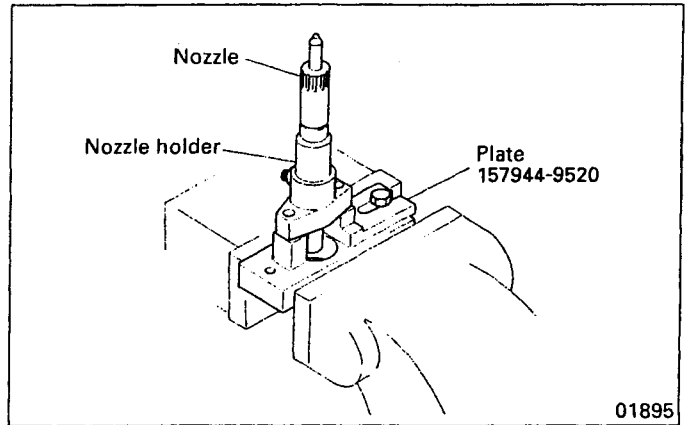


During reassembly, make adjustments and checks in the following sequence:

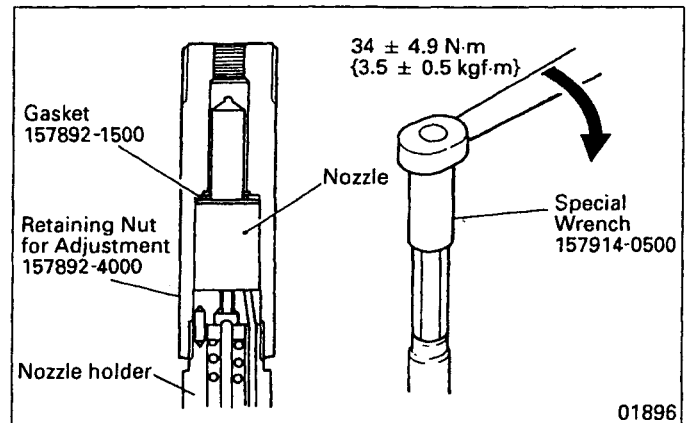
- (1) Adjust the No. 1 valve's opening pressure
- (2) Check the needle valve's total lift
- (3) Check the prelift amount
- (4) Check the No. 2 valve's opening pressure
- (5) Adjust the No. 2 valve's opening pressure
- (6) Replace the retaining nut
- (7) Make an overall inspection

Reassembly and Adjustment Procedure

(1) Reassembly

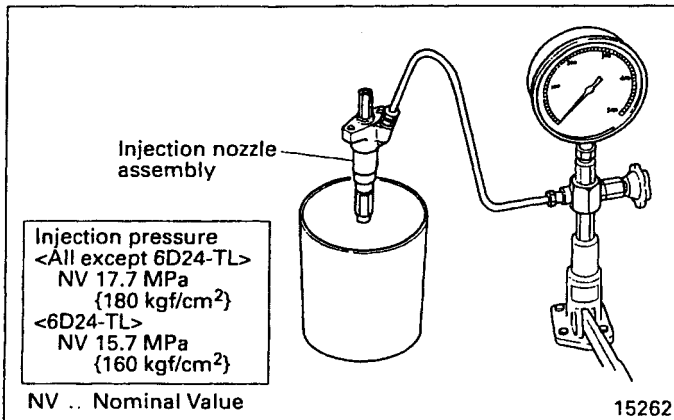


(a) Secure the Plate (special tool) in a vise, then mount the nozzle holder on the Plate. Carry out reassembly in the opposite of the disassembly sequence.



(b) Fit the Gasket (special tool) onto the nozzle. Then, secure the nozzle on the nozzle holder using the Retaining Nut for Adjustment (special tool). Turn the Retaining Nut for Adjustment as far as possible by hand, then tighten it to the specified torque using the Special Wrench (special tool).

(2) Adjusting No. 1 valve opening pressure



- (a) Fit the injection nozzle assembly onto the tester and measure the valve opening pressure.

NOTE:

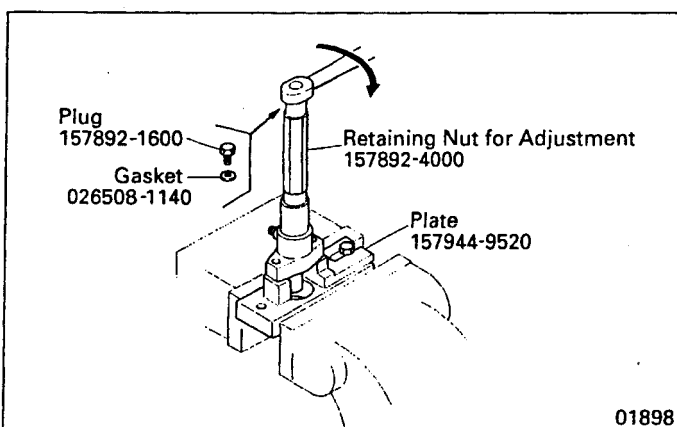
Do not touch the spray that comes out of the nozzle.

- (b) If the spray pressure is out of specification, adjust it using No. 1 valve opening pressure adjustment shim. (This shim has an outside diameter of 8.9 mm.)
 A 0.02 mm change in shim thickness causes a 235 kPa {2.4 kgf/cm²} change in valve opening pressure.

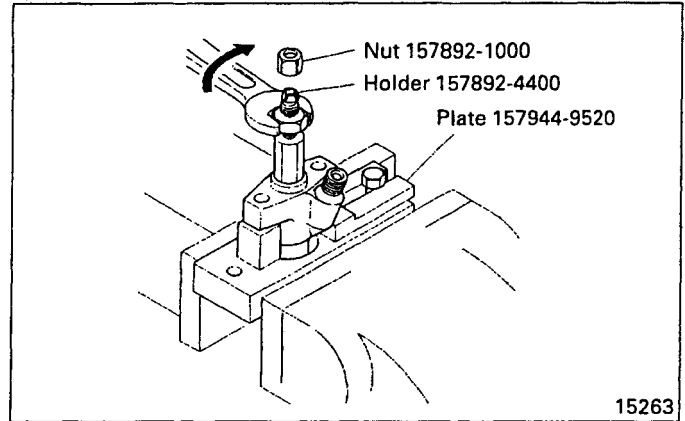
Shim thickness:

0.40, 0.50, 0.52, 0.54, 0.56, 0.58, 0.60, 0.70

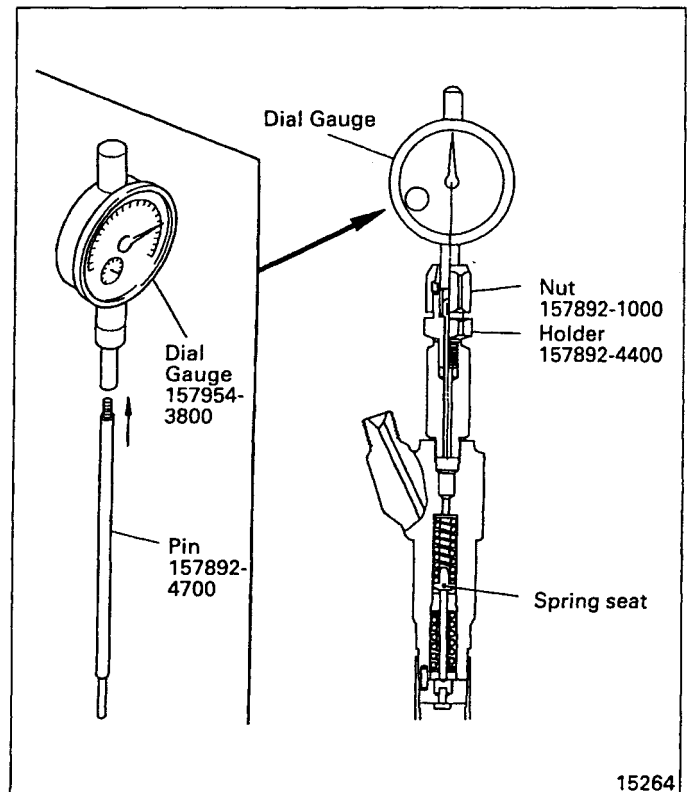
(3) Checking needle valve total lift



- (a) Fit the Gasket and Plug (special tools) onto the Retaining Nut for Adjustment (special tool).



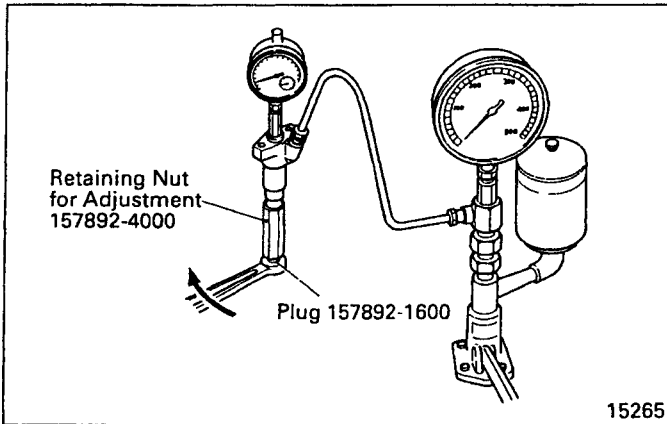
- (b) Mount the injection nozzle assembly upside-down on the Plate (special tool). Then, fit the Holder and Nut (special tools).



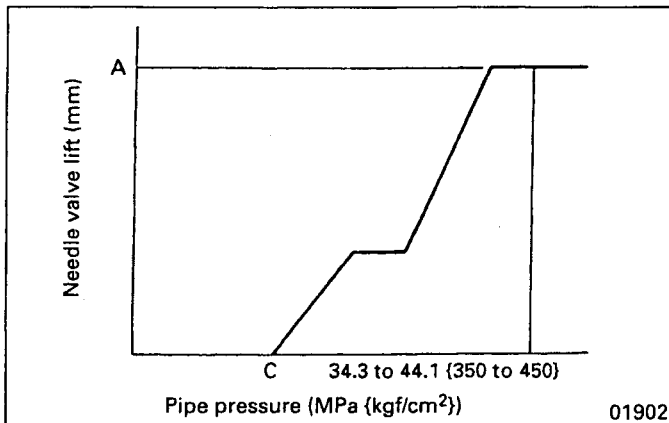
- (c) Fit the Pin (special tool) into the Dial Gauge (special tool).
- (d) Fit the Dial Gauge (special tool) onto the injection nozzle assembly and secure it with the Nut (special tool) such that the Pin (special tool) is touching the top surface of the No. 1 spring seat.

NOTE:

1. Secure the Dial Gauge such that a stroke of approximately 1.2 mm can be measured.
2. Do not overtighten the Nut. If the Nut is too tight, the Dial Gauge shaft will stick in one position.



- (e) Fit the injection nozzle assembly onto the Nozzle Tester, then zero the Dial Gauge. Loosen the Plug (special tool) and operate the Nozzle Tester. Bleed the Retaining Nut for Adjustment, and check for fuel leaks at the same time. After fully bleeding the Retaining Nut for Adjustment, securely tighten the Plug.

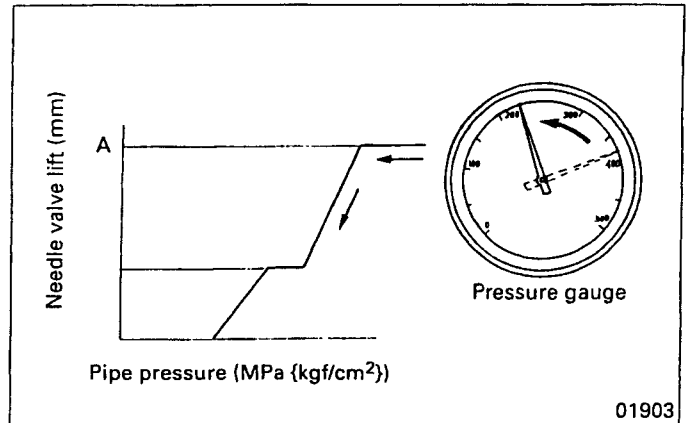


- (f) Operate the Nozzle Tester. When the pipe pressure is raised to 34.3 to 44.1 MPa (350 to 450 kgf/cm²), the needle valve should lift completely. When this happens, make a note of the total lift measurement. In the graph,
- A: Needle valve total lift amount
 - C: No. 1 valve opening pressure

NOTE:

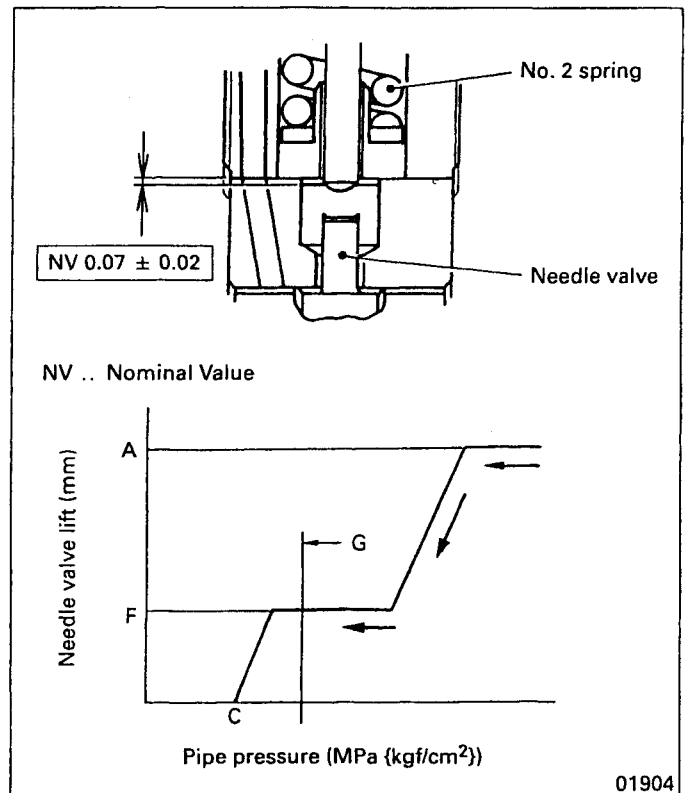
This check is necessary to check for abnormal wear on the nozzle seat.

(4) Checking prelift



- (a) Once the needle valve is in its fully lifted position, the pipe pressure will start to drop if the Nozzle Tester handle is not moved. The needle valve lift measurement (as shown by the Dial Gauge) will drop concomitantly. In the graph,

A: Needle valve total lift amount

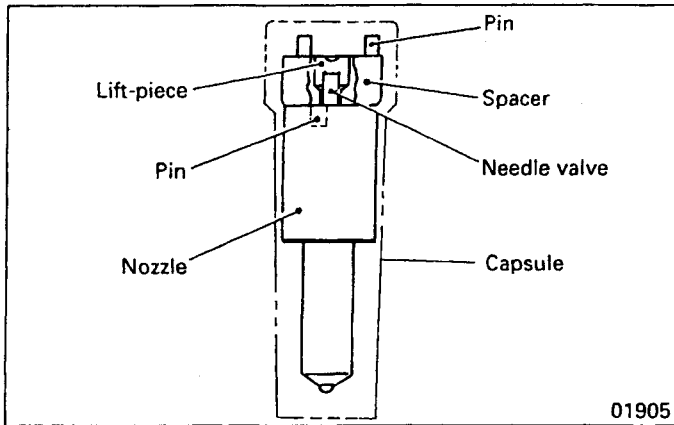


- (b) Read the Dial Gauge indication when the No. 2 spring stops acting and the needle valve stops dropping. This point is labeled "F" in the above graph. Confirm that the reading conforms with the specified nominal value.

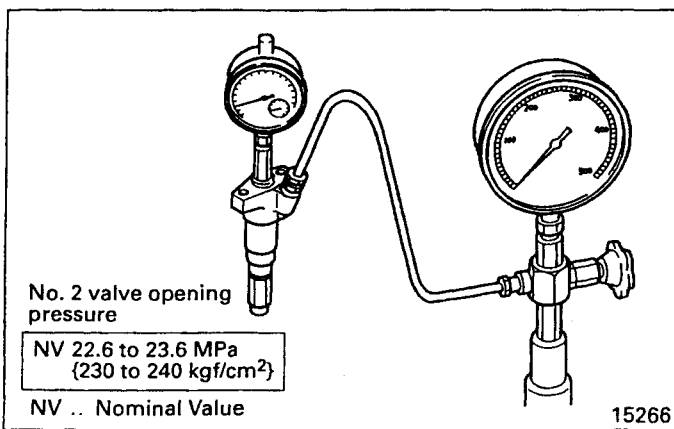
The prelift measurement point (labeled "G" in the graph) corresponds to C + approx. 980 kPa {10 kgf/cm²}, where "C" is the No. 1 valve opening pressure.

In the graph,

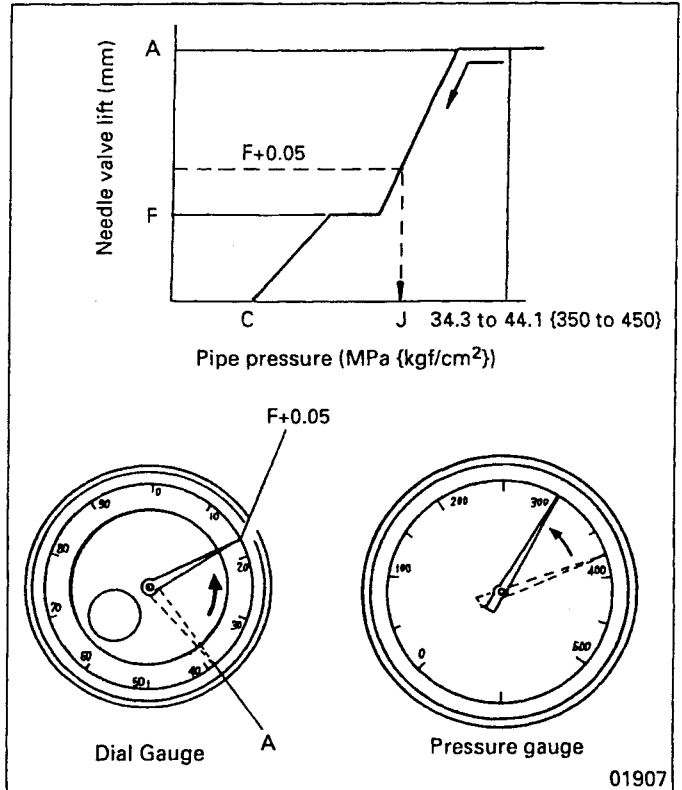
- A: Needle valve total lift amount
- C: No. 1 spring opening pressure
- F: Prelift
- G: Prelift measurement point



- (c) If the prelift measurement is out of specification, replace the pin, lift-piece, spacer, nozzle, and needle valve with the Nozzle Service Kit.
- (5) Checking No. 2 valve opening pressure



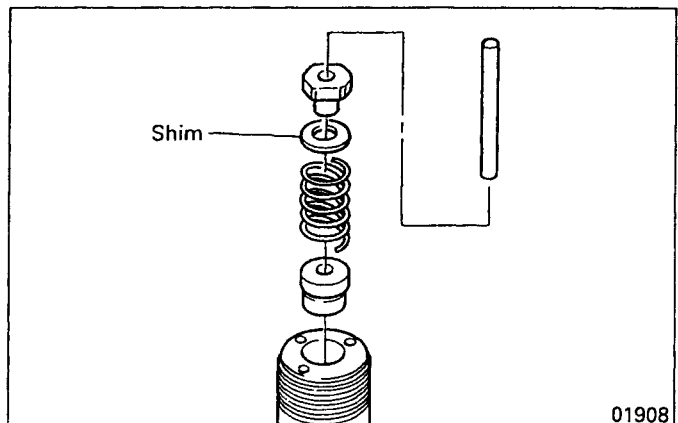
- (a) After checking the prelift, operate the Nozzle Tester and raise the pipe pressure to 34.3 to 44.1 MPa {350 to 450 kgf/cm²} such that the needle valve lifts fully. If the Nozzle Tester handle is not moved, the pipe pressure will drop. The needle valve lift measurement (shown by the Dial Gauge) will drop concomitantly.



- (b) Read the pressure gauge indication at the instant when the Dial Gauge indicates the specified nominal needle valve lift (normally prelift F + 0.05 mm). In the graph,

- A: Needle valve total lift amount
- C: No. 1 valve opening pressure
- F: Prelift
- J: No. 2 valve opening pressure

- (6) Adjusting No. 2 valve opening pressure



If the No. 2 valve opening pressure is out of specification, disassemble the nozzle mounting side of the injection nozzle assembly and change the No. 2 valve

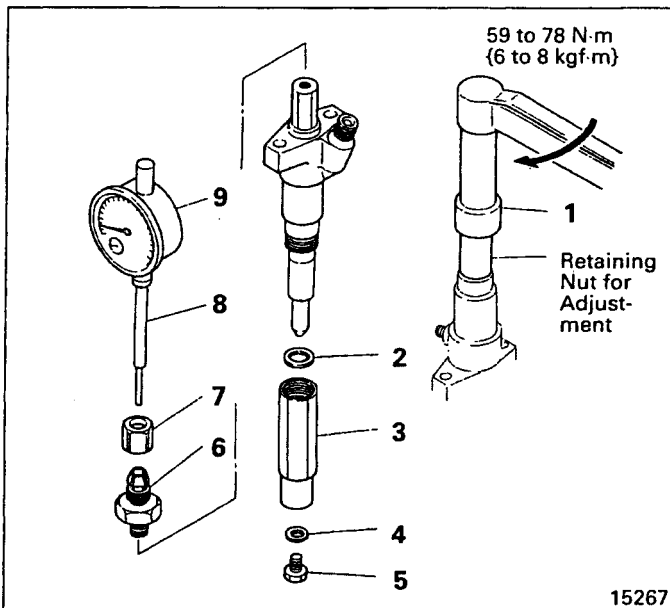
opening pressure adjustment shim. (This shim has an outside diameter of 9.9 mm.)

Shims are available in the following thicknesses: 0.40, 0.50, 0.52, 0.54, 0.56, 0.58, 0.60, and 0.70 mm. A 0.02 mm change in shim thickness causes a change in valve opening pressure of 196 kPa {2 kgf/cm²}.

NOTE:

1. Do not touch the spray that comes out of the nozzle.
2. Changing the No. 1 valve opening pressure causes the No. 2 valve opening pressure to also change.

(7) Replacing retaining nut

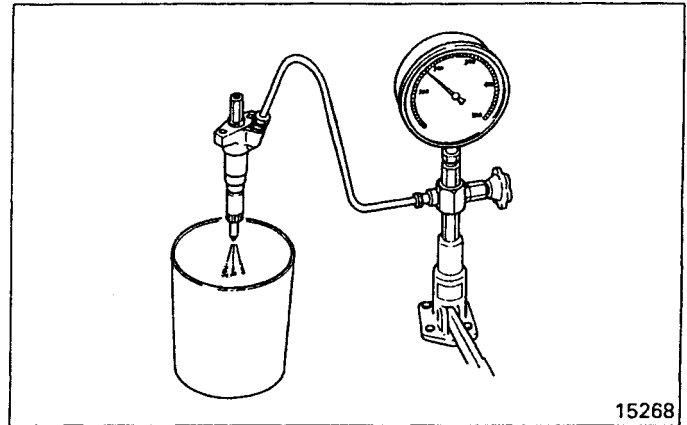


Remove the Dial Gauge, Pin, Nut, and Holder. Then, take off the Plug, the Gasket, and the Retaining Nut for Adjustment and its Gasket. Fit the regular retaining nut and tighten it to the specified torque using the Special Wrench (special tool).

Special tools:

- | | |
|---------------------------------|---------------|
| 1. Special Wrench | (157914-0500) |
| 2. Gasket | (157892-1500) |
| 3. Retaining Nut for Adjustment | (157892-4000) |
| 4. Gasket | (026508-1140) |
| 5. Plug | (157892-1600) |
| 6. Holder | (157892-4400) |
| 7. Nut | (157892-1000) |
| 8. Pin | (157892-4700) |
| 9. Dial Gauge | (157954-3800) |

(8) Inspection

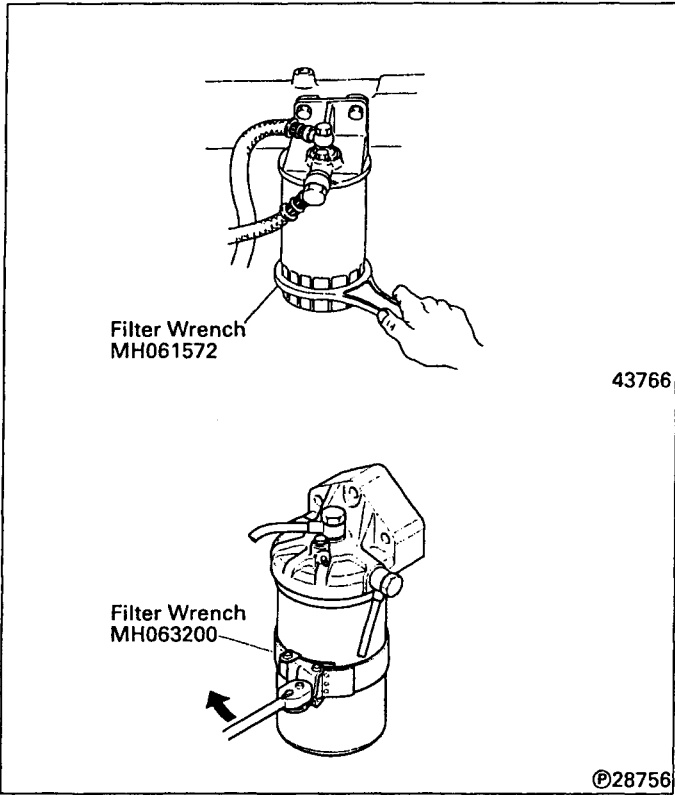


Fit the injection nozzle assembly onto the Nozzle Tester. Check the No. 1 valve opening pressure, the spray shape, and the oil-tightness of the seat. Check also that there are no leaks.

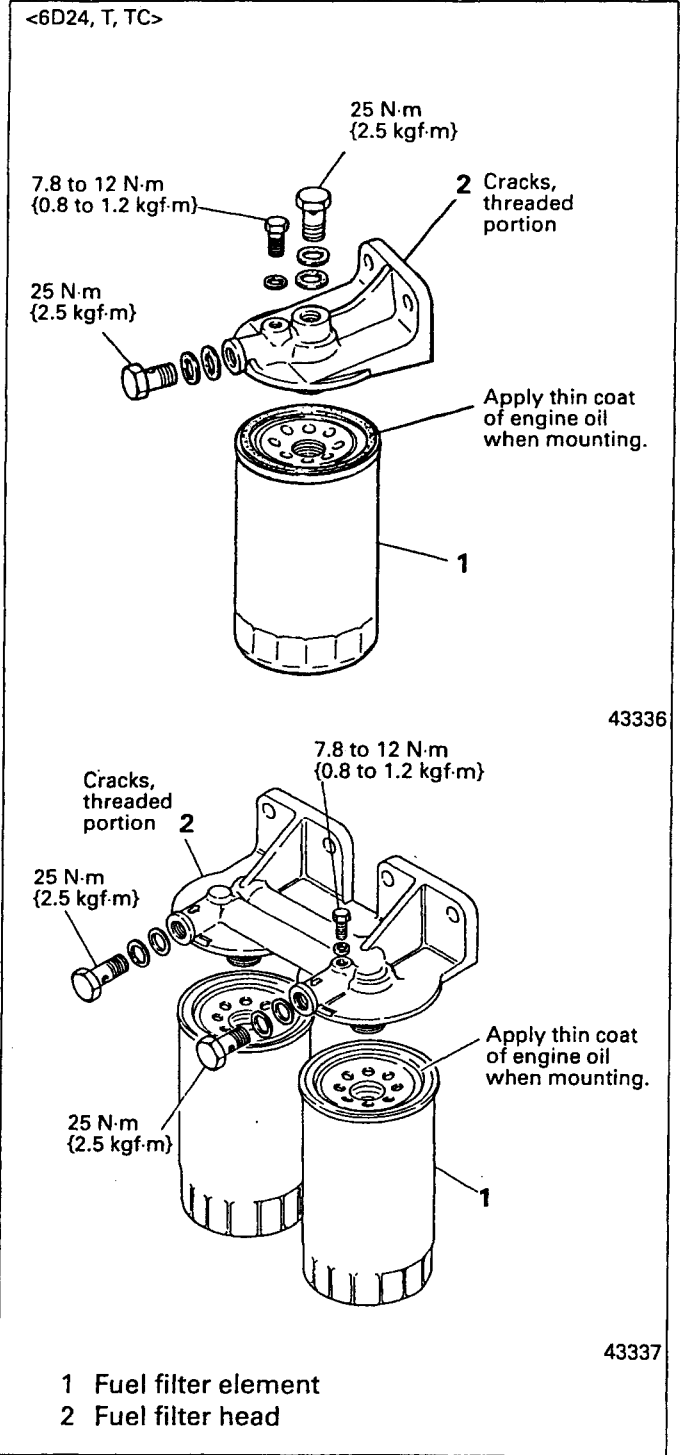
NOTE:

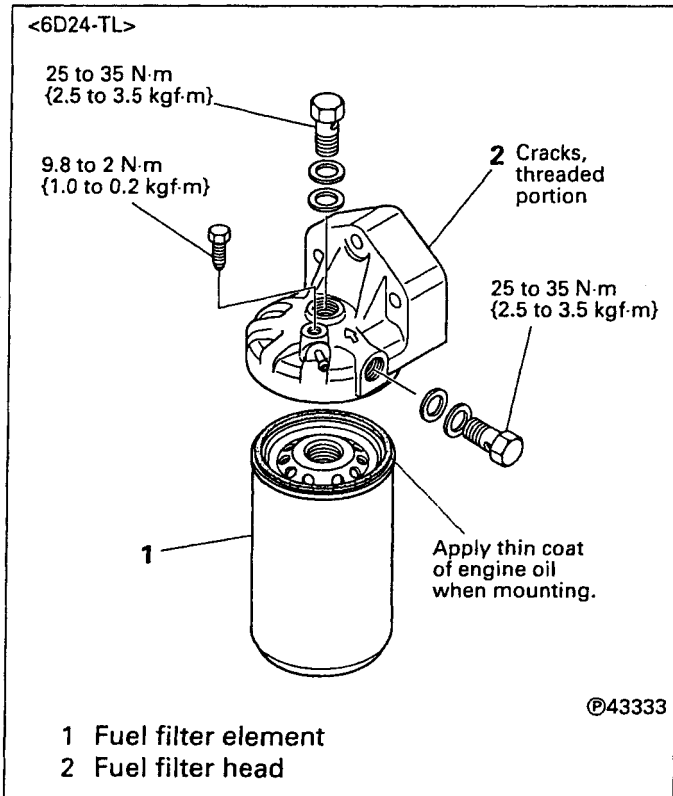
1. If the No. 1 valve opening pressure does not conform to its specified nominal value, go through the adjustment procedure again from step (1).
2. Do not touch the spray that comes out of the nozzle.

5.6 Fuel Filter



The element can be removed easily using the Filter Wrench (special tool).





NOTE:

1. When removing the element, check for the gasket left behind on the head side.
2. To mount, apply a thin coat of engine oil to the gasket, and then secure the element by tightening 3/4 to 1 turn after the gasket comes in contact with the fuel filter head.
3. After installation, bleed the fuel system.
4. After bleeding the air, start the engine and check for fuel leaks.

