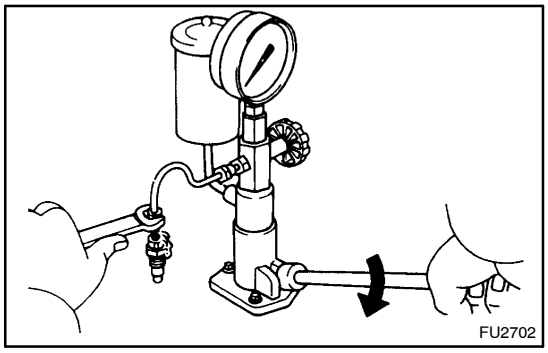
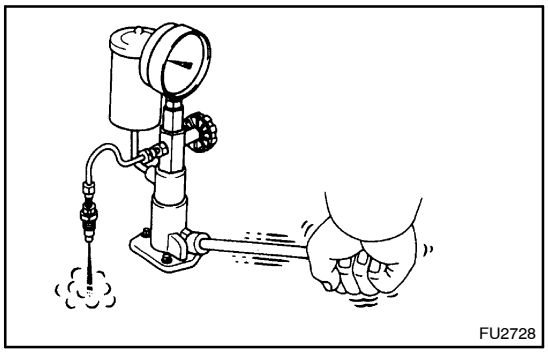
OVERHAUL





1. INSPECT NOZZLE HOLDER AND NOZZLE SET

(a) Infection pressure test.

(1) Install the nozzle holder to the injection nozzle hand tester and bleed air from the union nut.

NOTICE:

Do not place your finger over the nozzle injection hole.

(2) Pump the tester handle a few times as fast as possible to discharge the carbon from the injection hole.

(3) Pump the tester handle slowly and observe the pressure gauge.

(4) Read the pressure gauge just as the injection pressure begins to drop.

Opening pressure:

New nozzle: 15,310 – 16,090 kPa (156 – 164 kgf/cm^2, 2,220 – 2,334 psi)

Reused nozzle: 14,710 – 15,690 kPa (150 – 160 kgf/cm^2, 2,133 – 2,276 psi)

HINT:

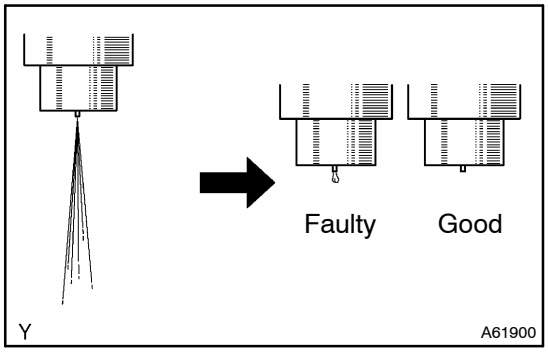
Proper nozzle operation can be determined by a swishing sound.

If the opening pressure is not within specification, disassemble the nozzle holder and change the shim on the top of the pressure spring.

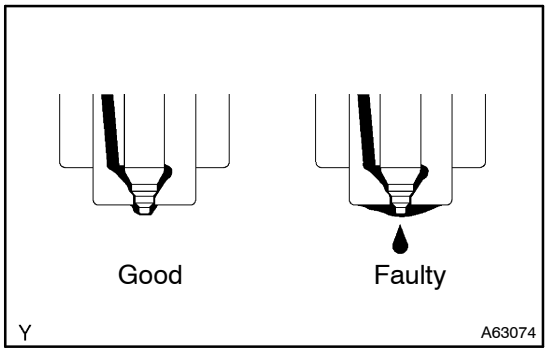
Adjusting shim thickness mm (in.)		
0.900 (0.0354)	1.300 (0.0512)	1.700 (0.0669)
0.950 (0.0374)	1.350 (0.0531)	1.750 (0.0689)
1.000 (0.0394)	1.400 (0.0551)	1.800 (0.0709)
1.050 (0.0413)	1.450 (0.0571)	1.850 (0.0728)
1.100 (0.0433)	1.500 (0.0591)	1.900 (0.0748)
1.150 (0.0453)	1.550 (0.0610)	1.950 (0.0768)
1.200 (0.0472)	1.600 (0.0630)	
1.250 (0.0492)	1.650 (0.0650)	

HINT:

- Varying the adjusting shim thickness by 0.05 mm (0.0020 in.) changes the injection pressure by about 628 kPa (6.4 kgf/cm^2, 91 psi).
- Only one adjusting shim should be used.



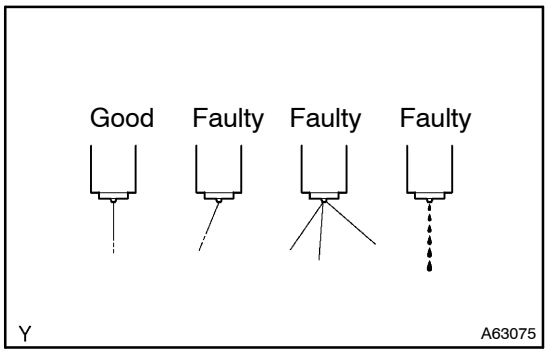
(5) There should be no dripping after injection.



(b) Leakage test

(1) While maintaining pressure at about 981 – 1,961 kPa (10 – 20 kgf/cm^2, 142 – 284 psi) below opening pressure (adjust by tester handle), check that there is no dripping for 10 seconds from the injection hole or around the retaining nut.

If the nozzle drips within 10 seconds, replace or clean and overhaul the nozzle assembly.



(c) Spray pattern test

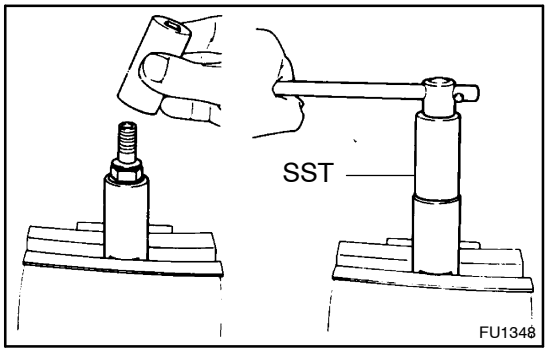
(1) The injection nozzle should shudder at a certain pumping speed between 30 – 60 times per minute.

(2) Check the spray pattern during shuddering.

If the spray pattern is not correct during shuddering, the nozzle must be replaced or cleaned.

2. REMOVE RING PACKING SETTING NUT

(a) Remove the ring packing setting nut and washer.



3. REMOVE NOZZLE RETAINING NUT

(a) Using SST, remove the nozzle retaining nut.

SST 09268–64010 (09268–64020, 09268–64030)

NOTICE:

Be careful not to drop the inner parts.

4. REMOVE NOZZLE HOLDER PRESSURE SPRING

5. REMOVE NOZZLE HOLDER PRESSURE SPRING WASHER

6. REMOVE NOZZLE HOLDER PRESSURE PIN

7. REMOVE NOZZLE DISTANCE PIECE

8. REMOVE INJECTION NOZZLE

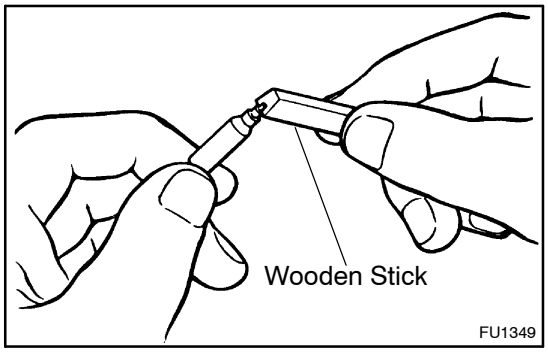
9. CLEAN INJECTION NOZZLE

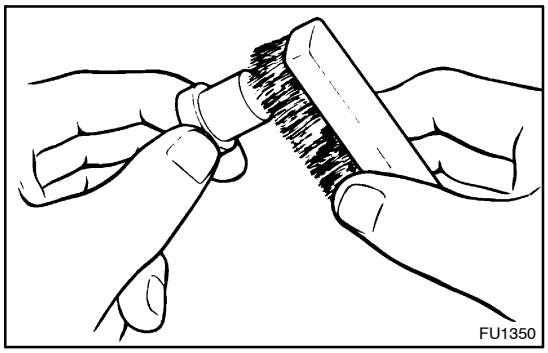
(a) Using a wooden stick and brass brush to wash the nozzles.

NOTICE:

Do not touch the nozzle mating surfaces with your fingers.

(b) Using a wooden stick, remove the carbon adhering to the nozzle needle tip.





(c) Remove the carbon from the exterior of the nozzle body (except wrapping angle) with a brass brush.

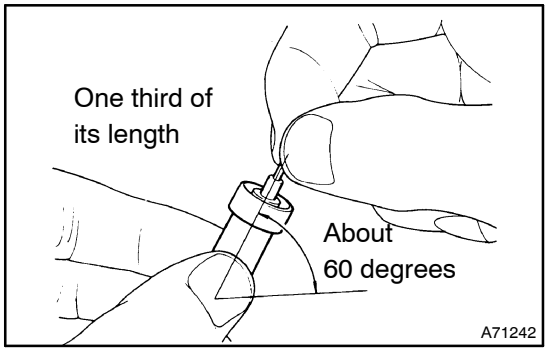
10. INSPECT INJECTION NOZZLE

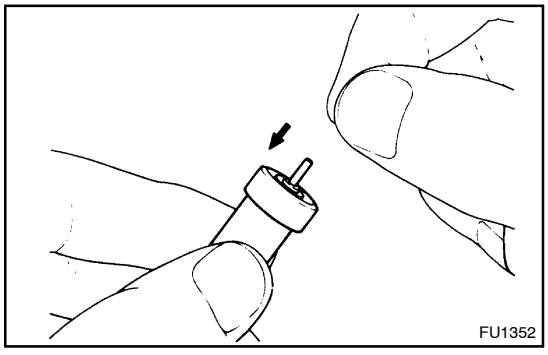
(a) Wash the nozzle in clean diesel fuel.

NOTICE:

Do not touch the nozzle mating surfaces with your fingers.

(b) Tilt the nozzle body about 60 degrees and pull the needle out about one third of its length.

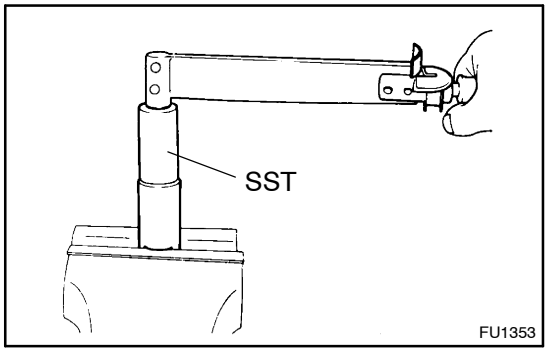




(c) When released, the needle should sink down into the body vent smoothly by its own weight.

(d) Repeat this test, rotating the needle slightly each time.

If the needle does not sink freely, replace the nozzle assembly.



11. INSTALL NOZZLE RETAINING NUT

(a) Install the pressure pin, distance piece and nozzle assembly to the nozzle retaining nut.

(b) Install the washer to the nozzle holder, and temporary tighten the nozzle holder to the nozzle retaining nut.

(c) Using the SST, tighten the nozzle retaining nut.

SST 09268–64010 (09268–64020, 09268–64030)

Torque: 47 N·m (475 kgf·cm, 34 ft·lbf)

NOTICE:

Over torquing could cause nozzle deformation and needle adhesion or other defects.

(d) Inspect the holder & nozzle set.

12. INSTALL RING PACKING SETTING NUT

(a) Install a new washer and ring packing setting nut.