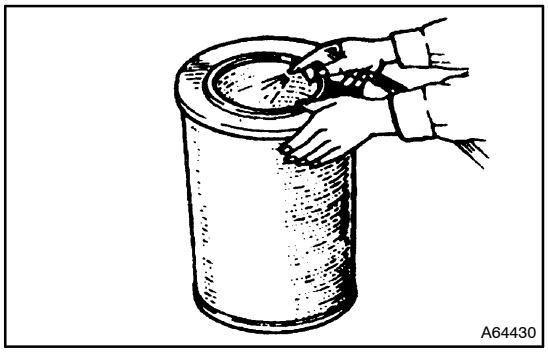
ENGINE (W04D–J)

14174–01

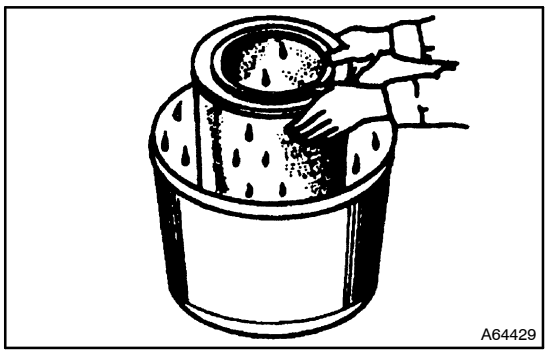
ADJUSTMENT

1. INSPECT ENGINE COOLANT (See page 16–81)
2. INSPECT ENGINE OIL (See page 17–49)
3. INSPECT BATTERY


A64430

4. Paper filter type:
   INSPECT AIR CLEANER FILTER ELEMENT SUB–ASSY
(a) Visually check that the filter is not excessively dirty or oily.
(b) To remove dry dirt or dust, use a compressed air gun (Air pressure: lower than 690 kPa (7.0 kgf/cm^2, 100 psi)). Always blow off from the inside of the element to the outside. Never strike or bang the filter to remove dirt or dust.

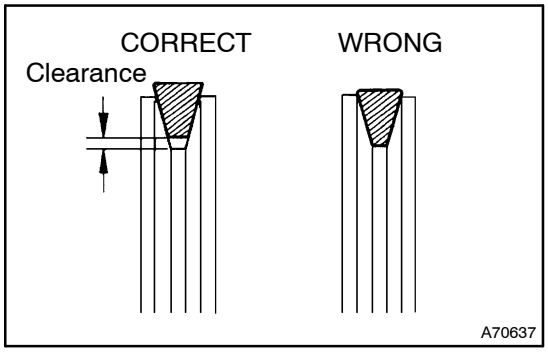
HINT:
If the compressed air is too high and the element has deformation, the engine will be in trouble.


A64429

5. Washable type:
   INSPECT AIR CLEANER FILTER ELEMENT SUB–ASSY
(a) Wash the element by soaking it in a non–sudsy detergent solution for approx. 30 minutes.
(b) Rinse the element with clean water and dry it completely with compressed air.

HINT:
- Check to see that the inside of the element is not soiled with dust etc.
- If drying the element in an oven, drying should be done at below 80°C (176°F).
- Never reinstall the element until it is completely dry.
- Make sure that the dried element is not broken and that the packing is not broken nor deformed.

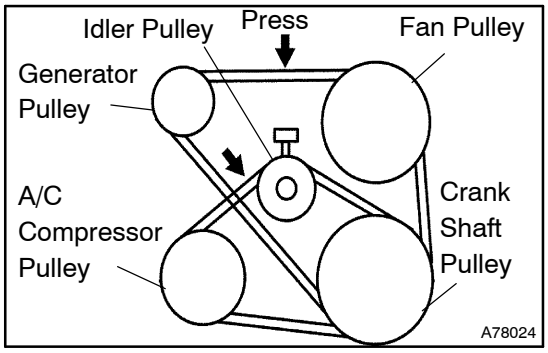
NOTICE:
Never use kerosene, gasoline or other solvents to clean the elements. Use of these could cause the engine to overrunning of the engine and damage the engine.



6. INSPECT V BELT

(a) Visually check the belt for cracks, oiliness or wear. Check that the belt does not touch the bottom of the pulley groove.

If necessary, replace the belts as a set.



(b) Measure the belt deflection by pressing on the belt at the points indicated in the illustration with 98 N (10 kgf, 22 lbf) of pressure.

Deflection:

Generator belt		10.0 – 15.0 mm (0.394 – 0.591 in.)
A/C belt	New belt	7.0 – 8.5 mm (0.276 – 0.335 in.)
	Used belt	8.5 – 10.0 mm (0.335 – 0.394 in.)

(c) Reference:

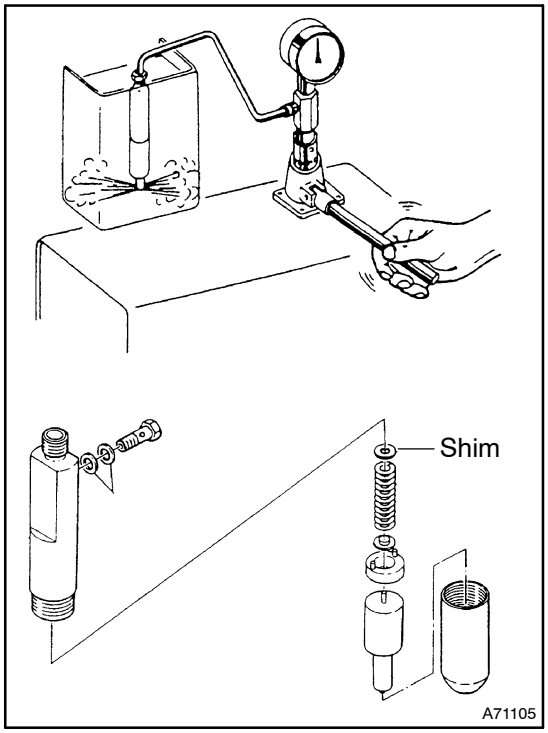
Using a belt tension gauge, measure the belt tension.

Tension:

New belt	374 – 471 N (38 – 48 kgf, 84 – 106 lb)
Used belt	275 – 373 N (28 – 38 kgf, 62 – 84 lb)

HINT:

- ”New belt” refers to a belt which has been used for less than 5 minutes on a running engine.
- ”Used belt” refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing a new belt, run the engine for about 5 minutes and recheck the belt tension.



7. ADJUST INJECTION PRESSURE

(a) Connect the nozzle holder with a nozzle tester and move lever at the rate of about 50 to 60 times per minite.

1st opening pressure (with new parts):
21.6 – 22.6 MPa
(220 – 230 kgf/cm^2, 3,130 – 3,272 psi)
1st opening pressure (with reused parts):
21.6 – 22.4 MPa
(220 – 228 kgf/cm^2, 3,130 – 3,243 psi)

NOTICE:

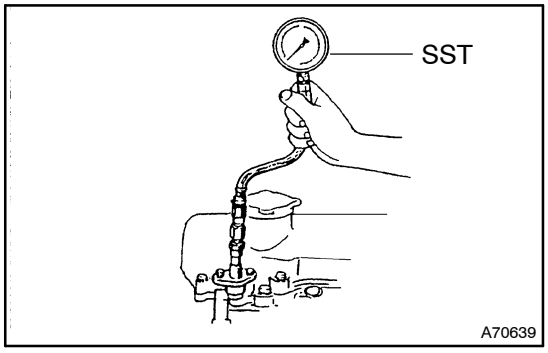
- **Diesel fuel is flammable.**
  This nozzle adjusting should be done a well ventilated room and away from any open flames or electric sparks.
- **The spray must always be covered. Keep your face and body away from the spray. This is because of the risk of fuel oil getting in your eyes or passing into your body.**

If the injection pressure is not as specified, change the shim.

8. INSPECT CYLINDER COMPRESSION PRESSURE

HINT:
If the power is short, the oil consumption is excessive, and the fuel economy is poor, measure the compression pressure.

(a) Allow the engine to warm up to the normal operating temperature.
(b) Remove the injection pipes.



(c) Check the compression pressure.

NOTICE:

When measuring each compression pressure, the other 3 injectors must be installed in the cylinder head.

(1) Remove the injection nozzle.
(2) Install the gasket and SST (attachment) to the injection nozzle hole with the adapter and bolt.
SST S0940–81041, S0955–21070
Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)
(3) Connect SST (compression gauge) to the SST (attachment).
SST 09992–00025 (09992–00211)
(4) While cranking the engine, measure the compression pressure.

HINT:
Always use a fully charged battery to obtain the engine revolution of 280 rpm or more.

(5) Repeat steps (2) through (4) for each cylinder.

NOTICE:
This measurement must be done as short a time as possible.

Compression pressure:
3,540 – 3,820 kPa (36 – 39 kgf/cm², 512 – 554 psi)
Minimum pressure: 2,750 kPa (28 kgf/cm², 399 psi)
Difference between each cylinder:
290 kPa (3.0 kgf/cm², 43 psi) or less

(6) If the cylinder compression in one or more cylinders is low, pour a small amount of engine oil into the cylinder through the injector hole and repeat steps (2) through (4) for the cylinder with low compression.
- If the compression becomes high by adding oil, it shows that the piston rings and/or cylinder bore are worn or damaged.
- If the pressure remains low, a valve may be sticking or seating improperly, or there may be leakage through the gasket.

(7) Remove the SST.
SST 09992–00025 (09992–00211), S0940–81041, S0955–21070
(8) Reinstall the injector (See page 11–180).

(d) Reinstall the injection pipes.
(e) Reinstall the cylinder head cover.
(f) Reinstall the intake air connector.
(g) Start the engine and check for leaks.