# ENGINE COMPONENTS PARTS (W04D–J)

14177–01

## REPLACEMENT

**1. PREPARATION**

(a) Clean the engine.
  (1) Cover the openings with tape.
  (2) Using a steam cleaner, clean the engine.

**NOTICE:**

**Do not apply steam directly to the electrical component (generator, starter, etc.).**

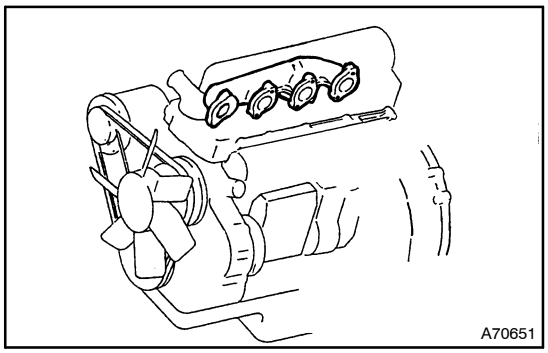
(b) Mount the engine on a work stand.

**2. DISCONNECT ELECTRICAL WIRE ASSY**

(a) Remove the clip of the wire harness.
(b) Disconnect the negative (–) terminal of the battery.
(c) Disconnect the electrical unit, switch and sensor.

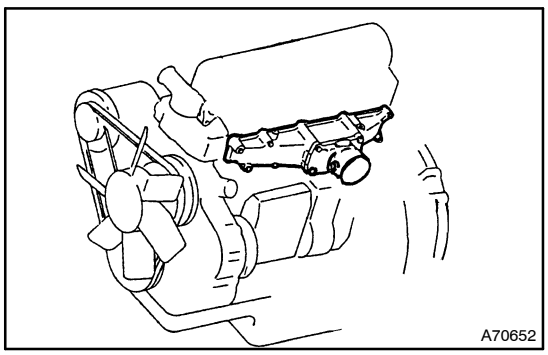
**3. REMOVE STARTER ASSY**

(a) Put alignment marks on the harness and the starter terminal, and then remove the harness.
(b) Remove the starter from the engine.




**4. REMOVE EXHAUST MANIFOLD**

(a) Remove the exhaust manifold.



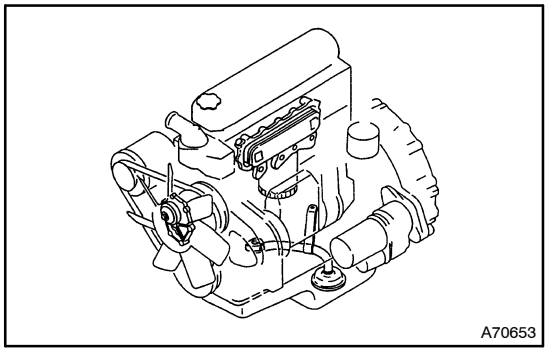

**5. REMOVE INTAKE PIPE**

**6. REMOVE INTAKE MANIFOLD**

(a) Remove the injection pipe and fuel filter assy.

**7. REMOVE INJECTION PUMP ASSY**
**(See page 11–190)**

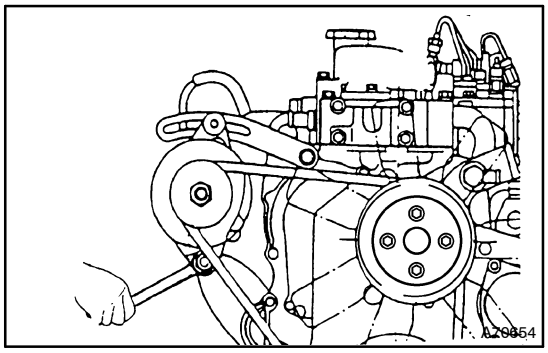
**8. REMOVE OIL FILTER SUB–ASSY (See page 17–50)**




**9. REMOVE OIL COOLER ASSY**

(a) Remove the oil lines.

(b) Remove the oil cooler.

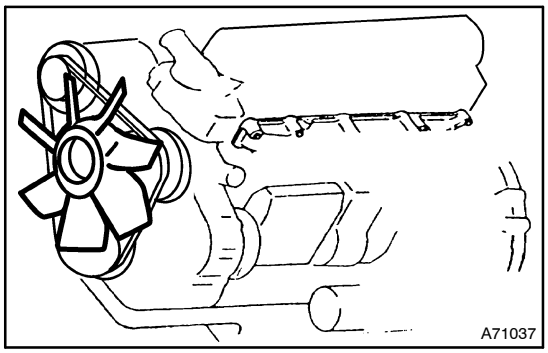



**10. REMOVE V BELT AND GENERATOR**

(a) Loosen the V belt adjusting bolt.

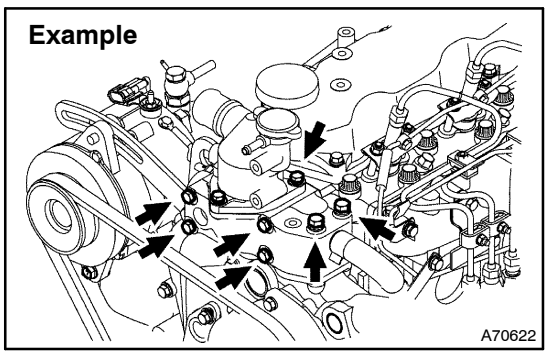
(b) Loosen the through bolt.

(c) Remove the V belt, and then remove the generator.

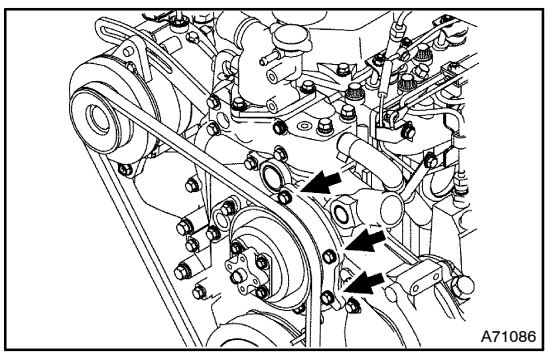



**11. REMOVE FAN**

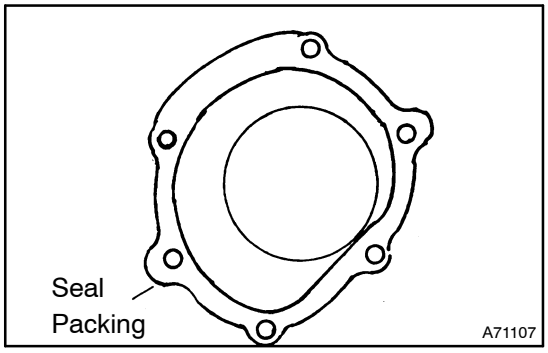
**12. REMOVE FAN PULLEY**




**13. REMOVE THERMOSTAT CASE**




**14. REMOVE WATER PUMP ASSY**



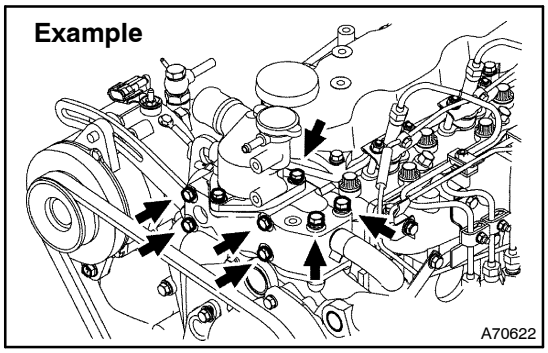

**15. INSTALL WATER PUMP ASSY**

(a) Clean the cylinder block mounting surface of the water pump.

(b) Apply seal packing to the water pump and install it onto the cylinder block within 20 minutes.
**Seal packing: Part No. 08826–00100 or equivalent**
**Coating width: 1.5 – 2.5 mm (0.059 – 0.098 in.)**
**Torque: 22.1 N·m (225 kgf·cm, 16 ft·lbf)**

HINT:

- If more than 20 minutes have passed since the seal packing is applied, do not assemble the parts. After removing the seal packing completely, reapply it to assemble them.
- Do not start the engine for 2 hours after the installation.




**16. INSTALL THERMOSTAT CASE**

(a) Clean the cylinder head mounting surface of the thermostat case.

(b) Apply seal packing to the thermostat case and install it onto the cylinder head within 20 minutes.
**Seal packing: Part No. 08826–00100 or equivalent**
**Coating width: 1.5 – 2.5 mm (0.059 – 0.098 in.)**

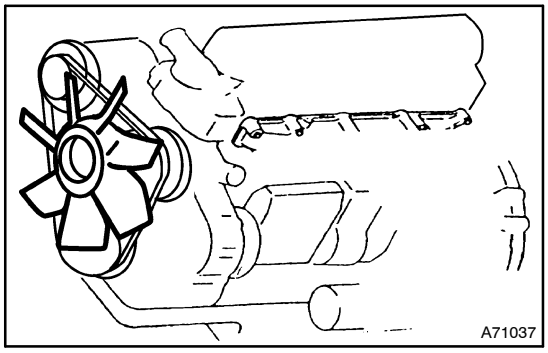
HINT:

- If more than 20 minutes have passed since the seal packing is applied, do not assemble the parts. After removing the seal packing completely, reapply it to assemble them.
- Do not start the engine for 2 hours after the installation.

(c) Tighten the 4 side ones of the thermostat case mounting bolts.
**Torque: 28.5 N·m (290 kgf·cm, 21 ft·lbf)**

(d) Tighten the 3 upper ones of the timing gear case bolts.
**Torque: 55 N·m (560 kgf·cm, 41 ft·lbf)**

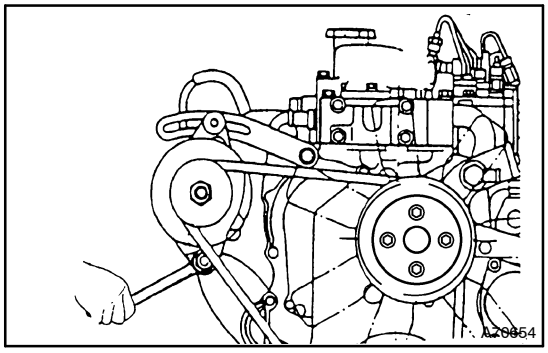
(e) Install the cooling line.




**17. INSTALL FAN PULLEY**

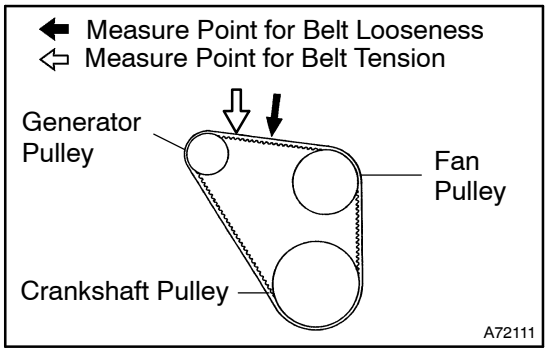
(a) Install the fan pulley and fan spacer.
**Torque: 11 N·m (110 kgf·cm, 8 ft·lbf)**

**18. INSTALL FAN**



### 19. INSTALL GENERATOR AND V BELT

(a) Attach the generator provisionally, and install the V belt.



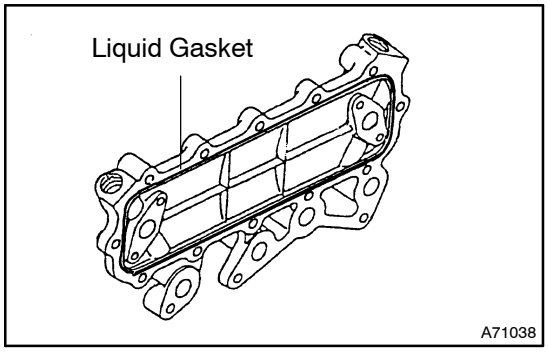

(b) Press the center point of the V belt with a load of approx. 98 N (10 kgf, 22 lbf) and adjust the V belt deflection so that it should be within the standard value.
**V belt deflection: 10 – 15 mm (0.394 – 0.591 in.)**

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 approx. 5 minutes and recheck the belt tension.

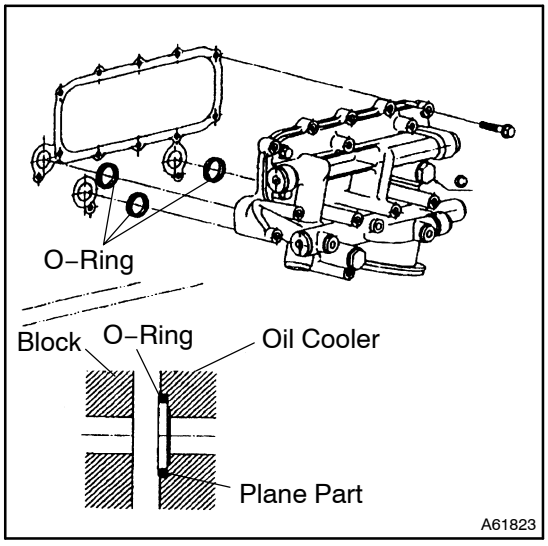
(c) Tighten the V belt adjusting bolt.

(d) Tighten the through bolt.
**Torque: 46.6 N·m (475 kgf·cm, 34 ft·lbf)**




### 20. INSTALL OIL COOLER ASSY

(a) Clean the cylinder block mounting surface of the oil cooler.




(b) Insert new O–rings into the O–ring groove of the oil cooler.

HINT:

Face the flat area of the O–ring toward the oil cooler for installation.

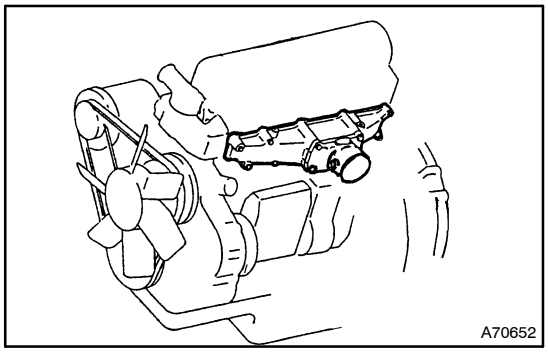
(c) Apply seal packing to the oil cooler housing and install it onto the cylinder block within 20 minutes.
**Seal packing: Part No. 08826–00100 or equivalent**
**Coating width: 1.5 – 2.5 mm (0.059 – 0.098 in.)**

HINT:

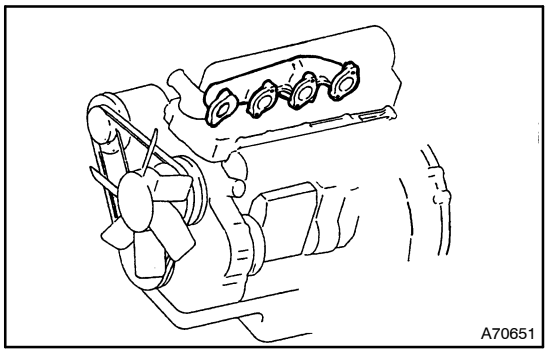
If more than 20 minutes have passed since the seal packing is applied, do not assemble the parts. After removing the seal packing completely, reapply it to assemble them.

(d) Install the oil line.

**21. INSTALL OIL FILTER SUB–ASSY (See page 17–50)**
**22. INSTALL INJECTION PUMP ASSY (See page 11–190)**




**23. INSTALL INTAKE MANIFOLD**
**Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)**
HINT:
Be sure to use a new gasket.
(a) Clean the matching face of the intake manifold.




**24. INSTALL EXHAUST MANIFOLD**
(a) Install the exhaust manifold gasket so that the black side could face the exhaust manifold.
HINT:
Be sure to use new gaskets.
**Torque: 47.1 N·m (480 kgf·cm, 34.7 ft·lbf)**

**25. INSTALL STARTER ASSY**
(a) Tighten the bolts and nuts.
**Torque: 154 N·m (1,570 kgf·cm, 114 ft·lbf)**
(b) Connect the harness at the alignment marks.
(c) Connect the battery cable.
**Torque: 13.5 N·m (137 kgf·cm, 10 ft·lbf)**
**26. CONNECT ELECTRICAL WIRE ASSY**