1. INSTALL TIMING BELT

a. Check that the timing marks are aligned as shown in the illustration.

**HINT:**
If reusing the timing belt, align the points marked during removal, and install the belt with the arrow pointing in the direction of engine revolution.

**NOTICE:**
- The engine should be cold.
- When turning the crankshaft, the valve heads will hit against the piston’s top position. Do not turn it more than necessary.

b. Using a 10 mm hexagon wrench, install the and timing belt idler pulley and new washer with the bolt.

**Torque:**
35 N\*m (357 kgf cm, 26 ft. lbf)

c. Check that the idler pulley moves smoothly.
If it does not move smoothly, check the idler sub-assembly and washer.

d. Install the timing belt to the pump drive shaft pulley, camshaft timing pulley and No. 1 timing belt idler in sequence.

e. Place the tensioner upright.
Then set the press to the top of the tensioner.

**NOTICE:**
- Do not scratch or deform the rod end.
- Press in the tensioner rod upward.
- Protect the tip of the push rod with a cloth in order to prevent damage.

f. Using a press, slowly push in the push rod using 981 to 9,807 N (100 to 1,000 kgf, 220 to 2,205 lbf) of force.

**NOTICE:**
Do not impose a load of over 9,807 N (100 to 1,000 kgf, 220 to 2,205 lbf) to the push rod.
g. Align the holes of the push rod and housing. Then pass a 1.27 mm hexagon wrench through the holes to keep the setting position of the push rod.

h. Install the timing belt tensioner with the 2 bolts while pushing the idler pulley toward the timing belt.

i. Tighten the 2 bolts.

**Torque:**

\[ 13 \text{ N*m} \{ 133 \text{ kgf*cm} , 10 \text{ ft.}*\text{lbf} \} \]

**NOTICE:**
Uniformly tighten the 2 bolts and install the tensioner.

j. Remove the 1.5 mm hexagon wrench from the tensioner.

k. Turn the crankshaft clockwise 720° and check that the timing marks are aligned as shown in the illustration.

l. **2. INSTALL NO. 1 TIMING BELT COVER**

a. Install the timing belt cover with the 6 bolts.

**Torque:**

\[ 6.0 \text{ N*m} \{ 61 \text{ kgf*cm} , 53 \text{ in.*lbf} \} \]

b. Install the wire harness clamp.

c. Install the water hose clamp with the bolt.
Torque:
\[ 18 \text{ N}^*\text{m} \approx 184 \text{ kgf}\text{cm} \approx 13 \text{ ft.}*\text{lbf} \]

3. INSTALL FAN PULLEY
   a. Install the fan pulley.

4. INSTALL FAN & GENERATOR V BELT
   a. Use the pulley set bolt of the tensioner to rotate the tensioner pulley clockwise, and then install the V belt.

   **NOTICE:**
   Make sure that the V belt is set properly at each pulley.

   ![Diagram of belt system]

   b. Make sure that the indicator mark of the tensioner is within range A, as shown in the illustration.

5. INSTALL FAN SHROUD
   a. Install the fan pulley to the water pump.
b. Install the shroud together with the coupling fan between the radiator and engine component.

**NOTICE:**
Be careful not to damage the radiator core.

c. Install the fluid coupling fan to the fan pulley with the 4 nuts. Tighten the nuts as much as possible by hand.

d. Attach the shroud's claws to the radiator.

e. Install the shroud with the 2 bolts.

**Torque:**
5.0 N*m ( 51 kgf*cm, 44 in.*lbf )

f. Install the drive belt (Refer to 1KD-FTV ENGINE MECHANICAL > DRIVE BELT > INSTALLATION (200502 - )).

g. Tighten the 4 nuts of the fluid coupling fan.

**Torque:**
18 N*m ( 184 kgf*cm, 13 ft.*lbf )

h. Install the radiator reservoir with the 2 bolts.

**Torque:**
5.0 N*m ( 51 kgf*cm, 44 in.*lbf )

i. Connect the No. 1 and No. 2 water by-pass hoses to the tank upper and lower.
j. Install the oil reservoir with the 3 bolts.

Torque:

\[ 5.0 \text{ N} \cdot \text{m} = 51 \text{ kgf} \cdot \text{cm} \approx 44 \text{ in}.*\text{lbf} \]
a. Tighten the radiator drain cock plug by hand.

b. Tighten the cylinder block drain cock plug.

Torque:
8.0 N*m \(\{ 82 \text{ kgf*cm, 71 in.}*\text{lbf} \}\)

c. Fill the radiator with TOYOTA Super Long Life Coolant (SLLC) to the reservoir tank's B line.

Standard capacity:

<table>
<thead>
<tr>
<th>Item</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/T</td>
<td>11.1 liters (11.7 US qts, 9.8 Imp. qts)</td>
</tr>
<tr>
<td>M/T</td>
<td>9.8 liters (10.4 US qts, 8.6 Imp. qts)</td>
</tr>
</tbody>
</table>

HINT:
- TOYOTA vehicles are filled with TOYOTA SLLC at the factory. In order to avoid damage to the engine cooling system and other technical problems, only use TOYOTA SLLC or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, non-borate coolant with long-life hybrid organic acid technology (coolant with long-life hybrid organic acid technology consists of a combination of low phosphates and organic acids).
- Please contact your TOYOTA dealer for further details.

NOTICE:
Never use water as a substitute for engine coolant.

d. Press the inlet and outlet radiator hoses several times by hand, and then check the level of the coolant.
If the coolant level drops below the B line, add TOYOTA SLLC to the B line.

e. Install the radiator reservoir cap.

f. Using a wrench, install the vent plug.

Torque:
2.0 N*m \(\{ 20 \text{ kgf*cm, 18 in.}*\text{lbf} \}\)

g. Bleed air from the cooling system.
i. Warm up the engine until the thermostat opens. While the thermostat is open, circulate the coolant for several minutes.

ii. Maintain the engine speed at 2,500 to 3,000 rpm.

iii. Press the inlet and outlet radiator hoses several times by hand to bleed air.

**CAUTION:**
When pressing the radiator hoses:
- Wear protective gloves.
- Be careful as the radiator hoses are hot.
- Keep your hands away from the radiator fan.

iv. Stop the engine and wait until the coolant cools down to ambient temperature.

**CAUTION:**
Do not remove the radiator reservoir cap while the engine and radiator are still hot. Pressurized, hot engine coolant and steam may be released and cause serious burns.

h. After the coolant cools down, check that the coolant level is at the F line. If the coolant level is below the F line, add TOYOTA SLLC to the F line.

7. CHECK FOR ENGINE COOLANT LEAKS