3MZ-FE COOLING > COOLANT > ON-VEHICLE INSPECTION

## DRAIN ENGINE COOLANT

**a.** Remove the radiator cap.

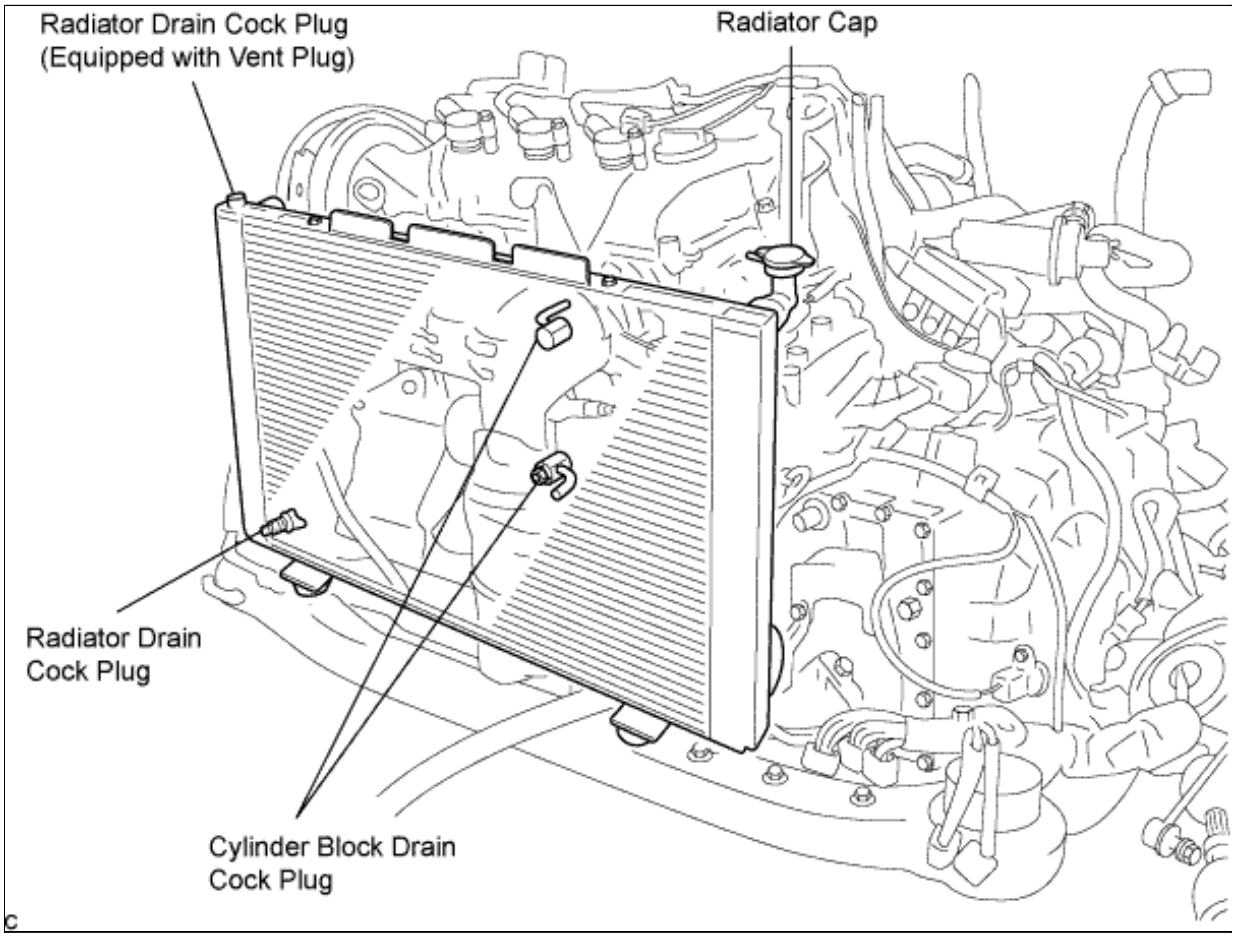
**CAUTION:**
To avoid the danger of being burned, do not remove the radiator cap while the engine and radiator are still hot. Thermal expansion will cause hot engine coolant and steam to blow out from the radiator.

**b.** Drain the engine coolant by loosening the lower drain plug of the radiator and the cylinder block drain cock plugs.

**HINT:**
Engine coolant inside the radiator is drained from the drain hole located on the bottom of the engine under cover.

**c.** Tighten the cylinder block drain cock plugs.

**Torque:**
**13 N*m{ 133 kgf*cm , 9 in.*lbf }**

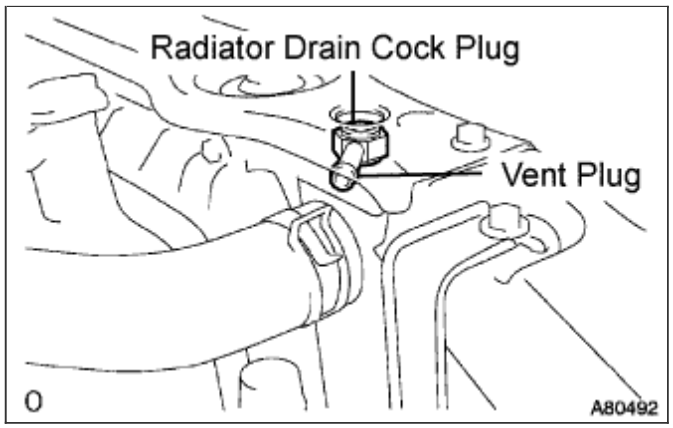



## ADD ENGINE COOLANT

**a.** Tighten the lower drain plug of the radiator.

**b.** Loosen the upper drain plug of the radiator.

**c.** Install a vinyl tube to the vent plug located on the upper drain plug.




**d.** Fill the radiator with engine coolant until the vinyl tube is filled with the coolant.

**e.** Tighten the upper drain plug.

**CAUTION:**

- Do not use an alcohol type coolant or plain water alone.
- The coolant must be mixed with plain water (preferably de-mineralized water).

**Capacity:**

**9.7 liters (10.3 US qts, 8.5 lmp.qts)**

**HINT:**

- Improper coolants may damage engine cooling system.
- Use "Toyota Long Life Coolant" or equivalent. Mix it with plain water according to the manufacturer's instruction.
- Using of coolant which includes more than 50% (freezing protection down to -35°C (-31°F) or 60% (freezing protection down to -50°C (-58°F) of ethylene-glycol is recommended but not more than 70%.
- Observe the coolant level inside the radiator by pressing the inlet and outlet radiator hoses several times by hand. If the coolant level goes down, add the coolant.

**f.** Install the radiator cap securely.

**g.** Fill the radiator reservoir tank with coolant.

**h.** Warm up the engine.

**HINT:**
Press the inlet and outlet radiator hoses several times by hand while warming up the engine.

**i.** Stop the engine and wait until the coolant cools down.

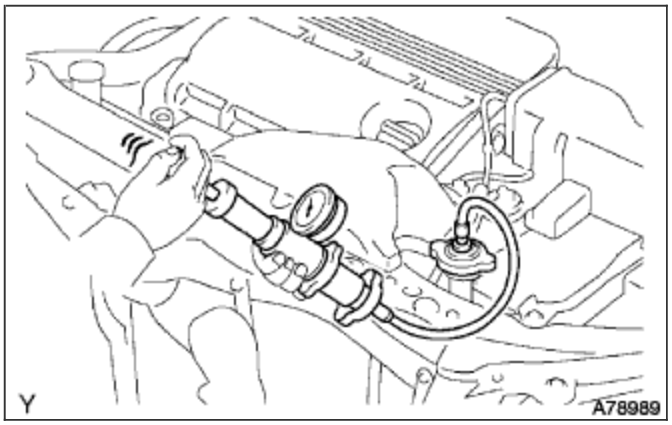
**j.** Remove the radiator cap and check the coolant level inside the radiator.

**k.** If the coolant level is below the full level, perform the steps from (a) through (j) and repeat the operation until the coolant level stays the full level.

**l.** Recheck the coolant level inside the radiator reservoir tank. If it is below the full level, add the coolant.

## CHECK FOR ENGINE COOLANT LEAKS

**CAUTION:**
Do not remove the radiator cap while the engine and radiator are still hot. Thermal expansion will cause hot engine coolant and steam to blow out from the radiator.




**a.** Fill the radiator with coolant and attach a radiator cap tester.

**b.** Warm up the engine.

**c.** Using a radiator cap tester, increase the pressure inside the radiator to 118 kPa (1.2 kgf*cm, 17 psi), and check that the pressure does not drop.
If the pressure drops, check the hoses, radiator and water pump for leaks. If no external leaks are found, check the heater core, cylinder block and cylinder head.