

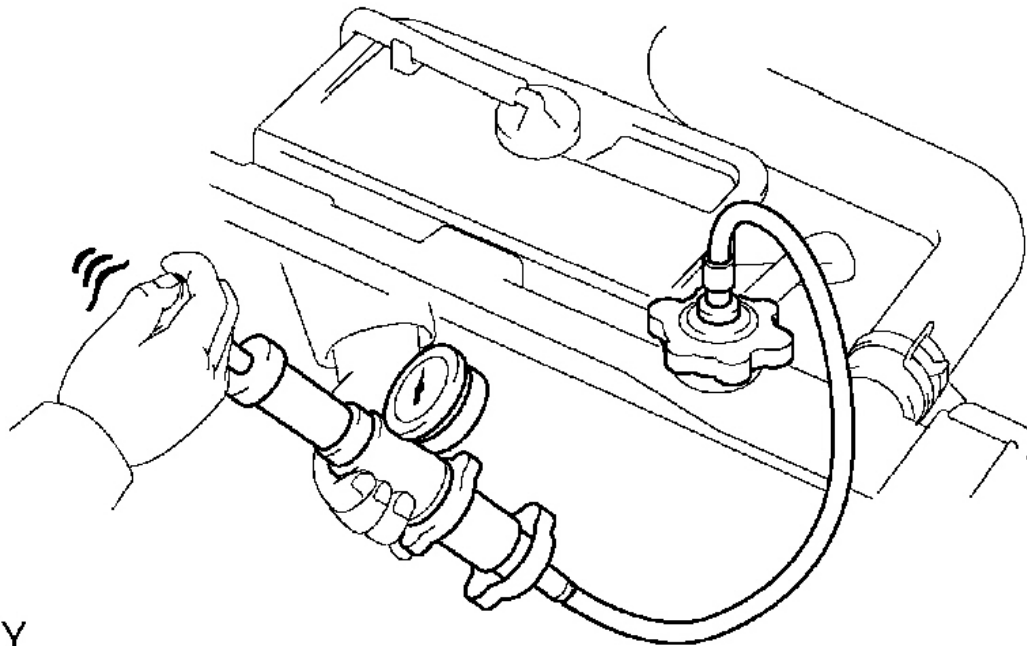
COOLING SYSTEM

ON-VEHICLE INSPECTION

1. CHECK COOLING SYSTEM FOR LEAKS

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

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



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Fig. 1: Checking Cooling System For Leaks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Warm up the engine.
- c. Using a radiator cap tester, increase the pressure inside the radiator to 137 kPa (1.4 kgf/cm² , 19.9

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 head.

2. CHECK ENGINE COOLANT LEVEL AT RESERVOIR

- a. Check that the engine coolant level is between the LOW and FULL lines when the engine is cold.

If the engine coolant is low, check for leaks and add "TOYOTA Super Long Life Coolant" to the FULL line.

If "TOYOTA Super Long Life Coolant" is not available, use a similar high quality ethylene glycol based non-silicate, non-amino, non-nitrite and non-borate coolant with long-life hybrid organic acid technology. Do not substitute plain water for engine coolant.

3. CHECK ENGINE COOLANT QUALITY

- a. Remove the radiator cap.

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

- b. Check if there are any excessive deposits of rust or scale around the radiator cap and radiator filler hole, Also, the coolant should be free from oil.

HINT:

If excessively dirty, clean the coolant passage and replace the coolant.

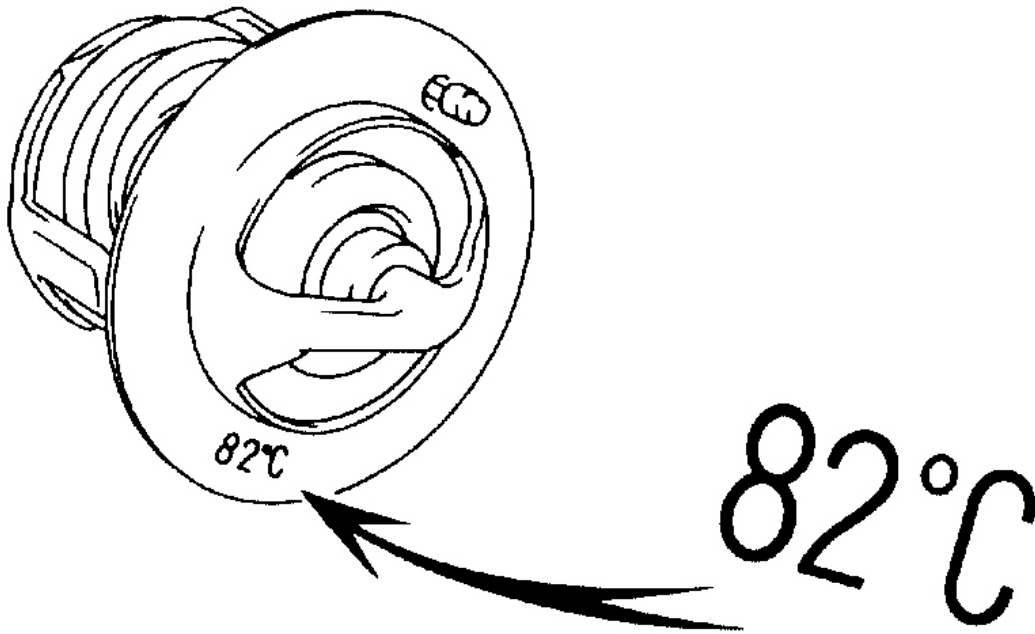
- c. Reinstall the radiator cap.

INSPECTION

1. INSPECT THERMOSTAT

HINT:

The thermostat is stamped with the valve opening temperature.



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Fig. 2: Inspecting Thermostat

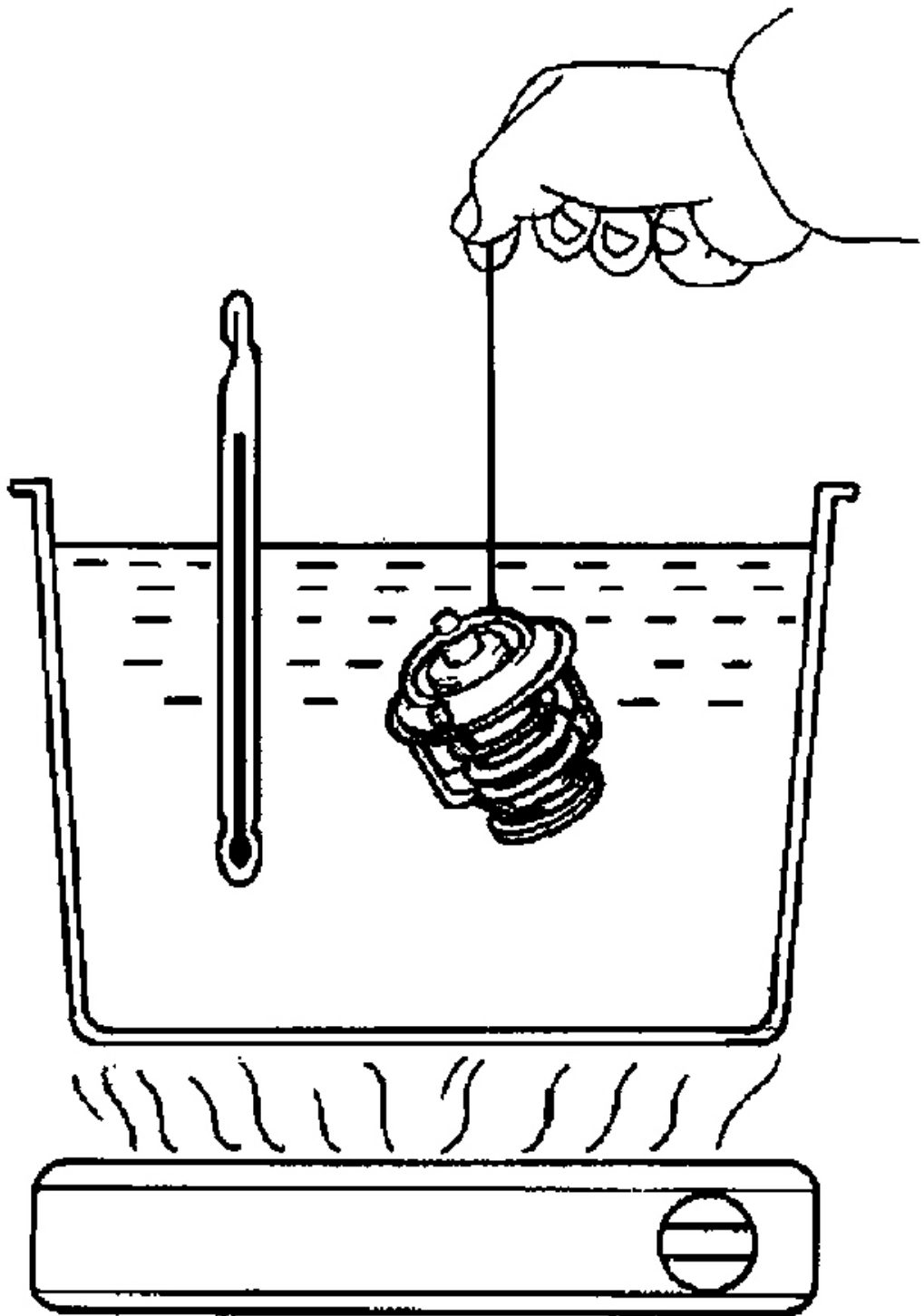
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Immerse the thermostat in water and gradually heat the water.
- b. Check the valve opening temperature.

Valve opening temperature:

80 to 84° C (176 to 183°F)

If the valve opening temperature is not as specified, replace the thermostat.



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Fig. 3: Checking Valve Opening Temperature
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

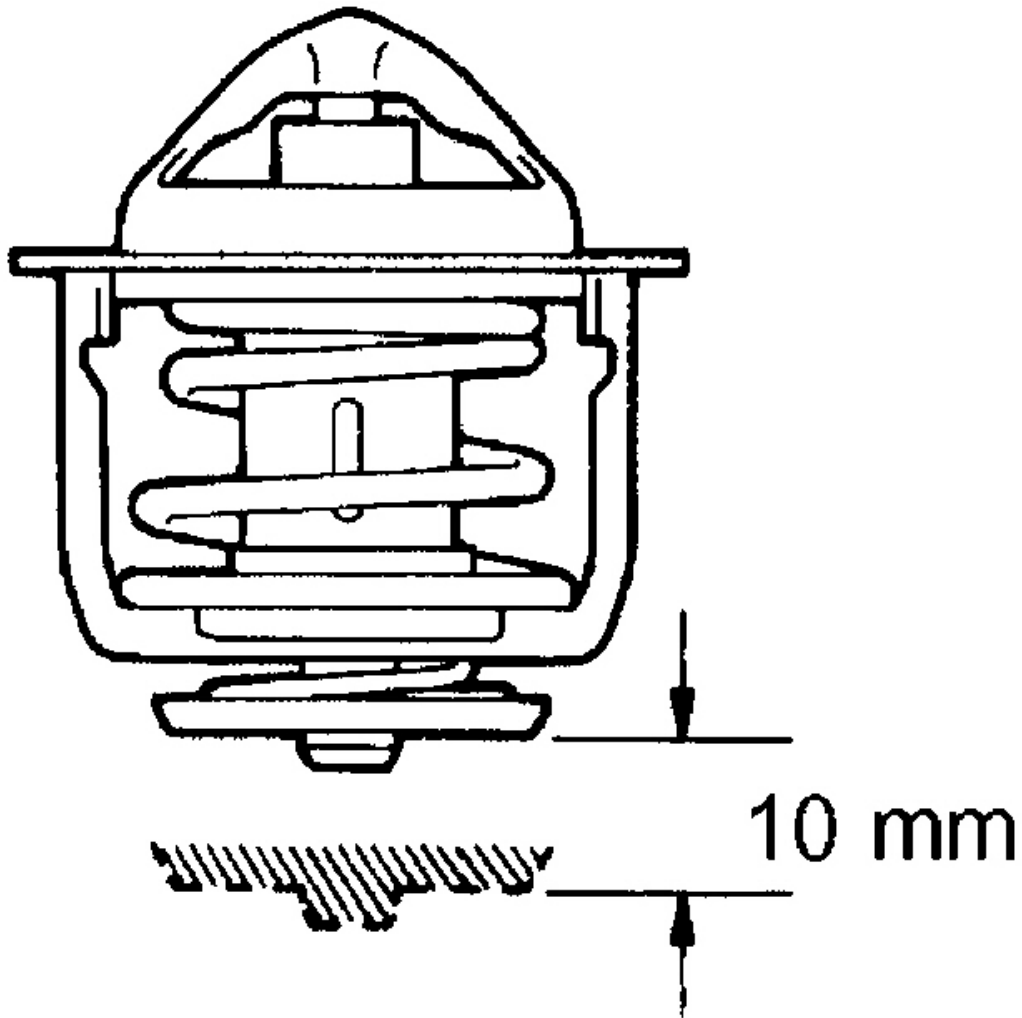
- c. Check the valve lift.

Valve lift: 10 mm (0.39 in.) or more at 95°C (203°F)

If the valve lift is not as specified, replace the thermostat.

- d. Check that the valve is fully closed when the thermostat is at low temperatures (below 40°C (104°F)).

If not closed, replace the thermostat.



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Fig. 4: Checking Valve Lift

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

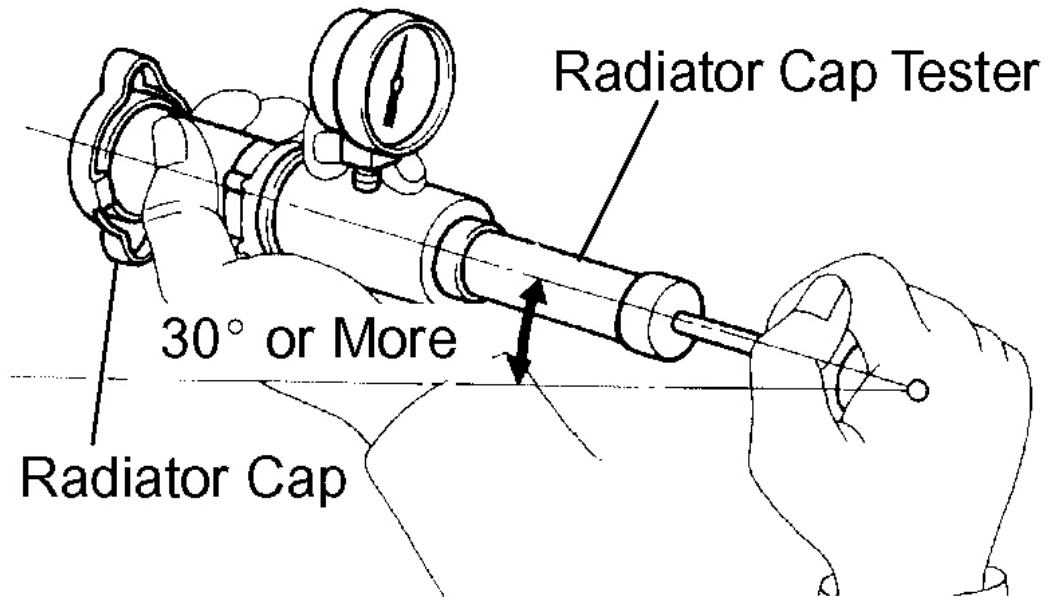
2. INSPECT RADIATOR CAP SUB-ASSY

NOTE:

- If the reservoir cap has contaminations, always rinse it with water.
- Before using a radiator cap tester, wet the relief valve and pressure valve with engine coolant or water.
- When performing steps (a) and (b) on the following page, keep the

tester at an angle of over 30° above the horizontal.

- a. Using a radiator cap tester, slowly pump the tester and check that air is being released from the vacuum valve.



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Fig. 5: Measuring Relief Valve Opening Pressure
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Pump speed: 1 push every 3 seconds or more

NOTE: Push the pump at a constant speed.

If air is not coming from the vacuum valve, replace the reservoir cap.

- b. Pump the tester and measure the relief valve opening pressure.

Pump speed: 1 push within 1 second

NOTE: The pump speed above should be followed for the first pump only. It will close the vacuum valve. Once the vacuum valve is closed, the pump speed can be reduced.

Standard opening pressure:

93 to 123 kPa (0.95 to 1.25 kgf/cm² , 13.5 to 17.8 psi)

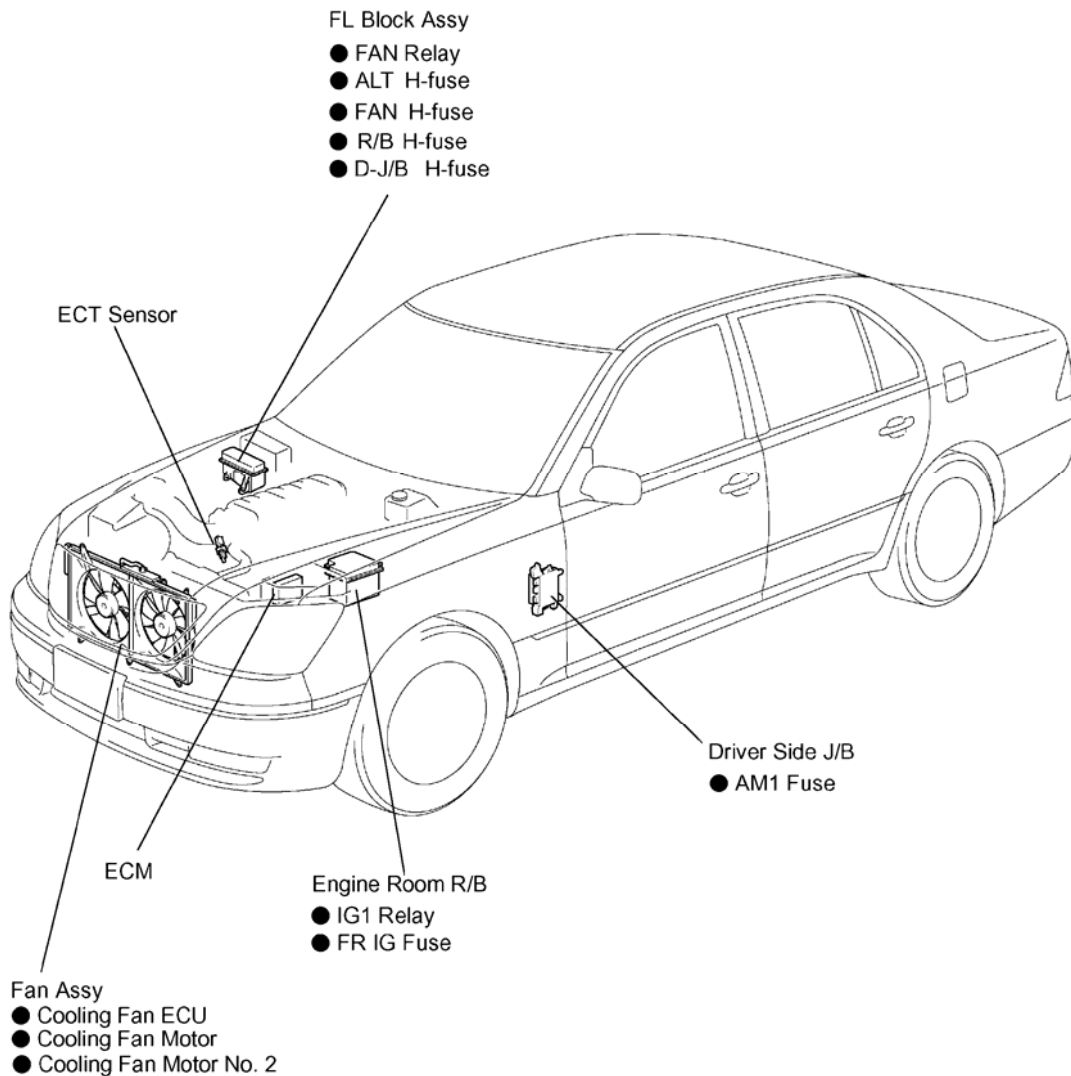
Minimum opening pressure:

78 kPa (0.78 kgf/cm² , 11.4 psi)

HINT:

Pay attention to the tester's maximum reading of the opening pressure. If the maximum reading is less than the minimum opening pressure above, replace the reservoir cap.

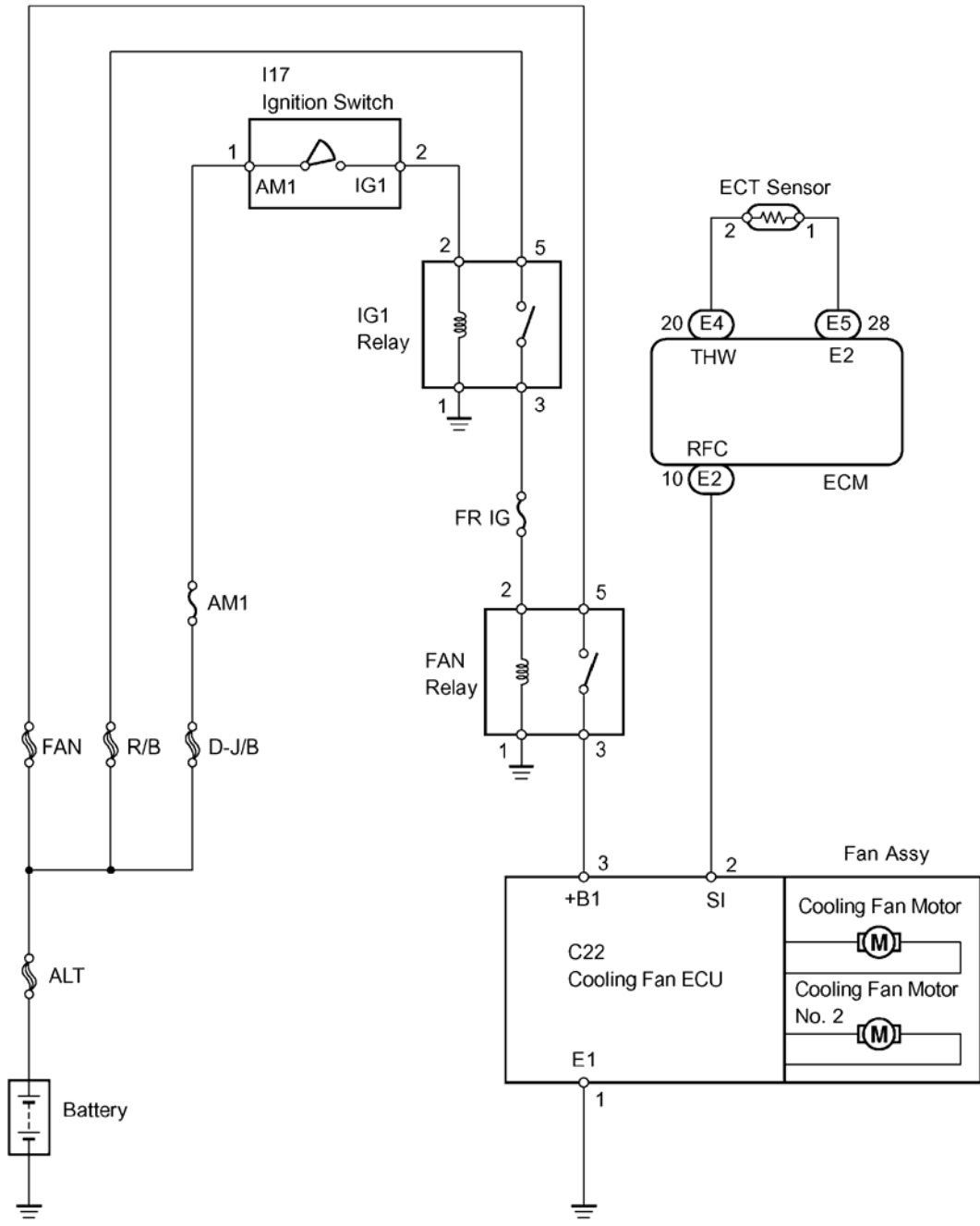
LOCATION



γ ● These fuses and relays are located inside the block or assembly written above them

Fig. 6: Identifying Cooling Fan System Component Location
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM



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Fig. 7: System Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

1. CHECK COOLING FAN SYSTEM

- a. Look at the chart below. Check that when the cooling fan is in the condition on the left, its operation is what is written on the right.

Standard when engine coolant temperature is below 82°C (180°F):

CONDITION AND OPERATION SPECIFICATION

Condition	Operation (Fan Speed)
Ignition ON at engine stopping	Not rotating
A/C switch OFF at idle speed	Not rotating
A/C switch ON at idle speed	Rotating (Low speed)
Disconnect ECT sensor connector at idle speed	Rotating (High speed)

If the fan does not operate as specified, proceed to next step.

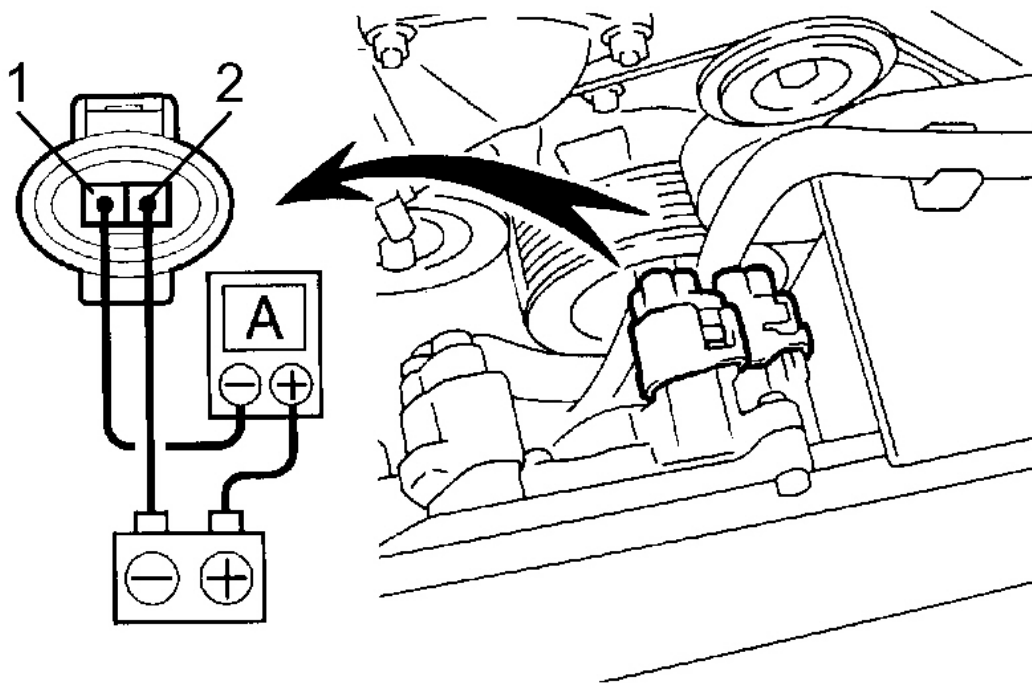
2. INSPECT COOLING FAN MOTOR

- a. Remove the air cleaner inlet No. 1.
- b. Disconnect the 2 connectors.
- c. Connect the battery and ammeter.
- d. Check that the fan rotates smoothly, and then check the amperage on the ammeter.

Standard: 9.2 to 11.0 A at 20° C (68° F)

If the result is not as specified, replace the fan motor.

If the fan operates, proceed to the next step.



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Fig. 8: Checking Cooling Fan System
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

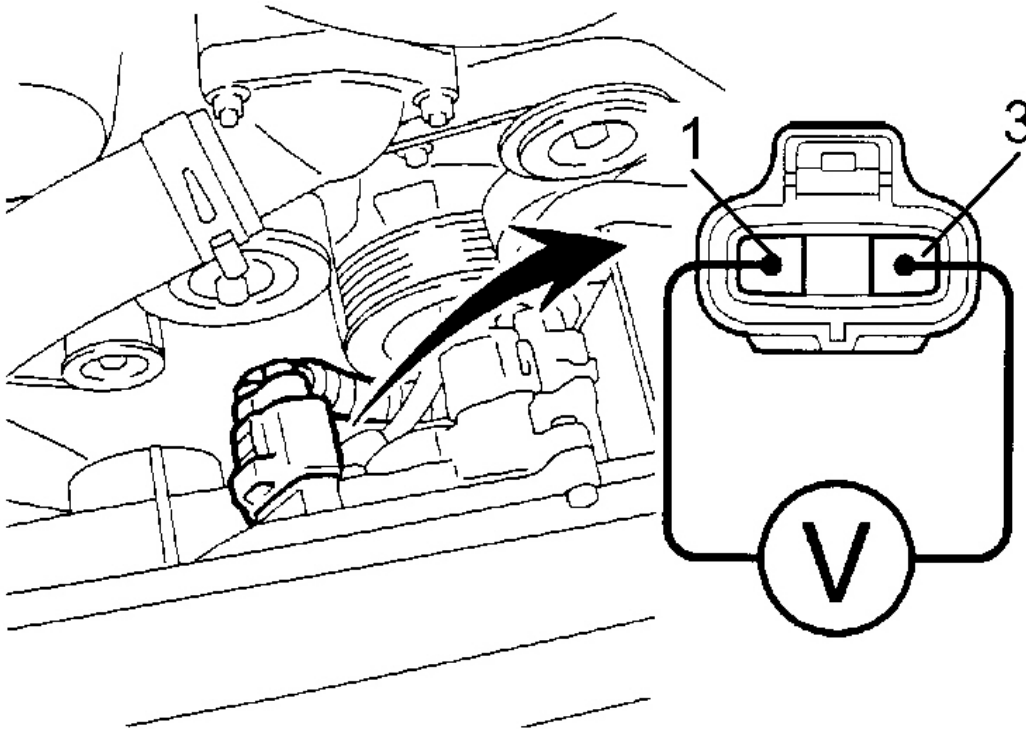
3. INSPECT COOLING FAN ECU WIRE HARNESS

- a. Remove the air cleaner inlet No. 1.
- b. Disconnect the 2 connectors.
- c. Inspect the connector on the wire harness side.
- d. Measure the voltage between terminals 1 and 3.

Standard: 9 to 14 V

If the result is not as specified, check the fuse, relay and wire harness.

If the result is as specified, replace the fan ECU.



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Fig. 9: Measuring Voltage Between Terminals 1 And 3.
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

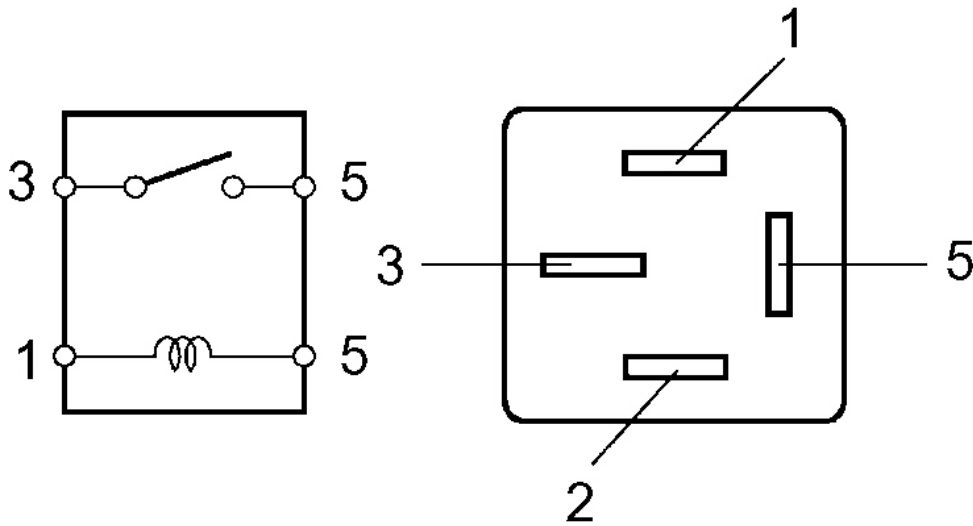
INSPECTION

1. **INSPECT RELAY (Marking: FAN)**
 - a. Remove the FAN relay from the FL block
 - b. Measure the resistance of the relay.

STANDARD SPECIFICATION

Tester Connection	Specified Condition
3-5	10 k Ω or higher
3-5	Below 1 Ω (when battery voltage is applied to terminals 1 and 2)

If the result is not as specified, replace the relay.



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Fig. 10: Measuring Resistance Relay
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

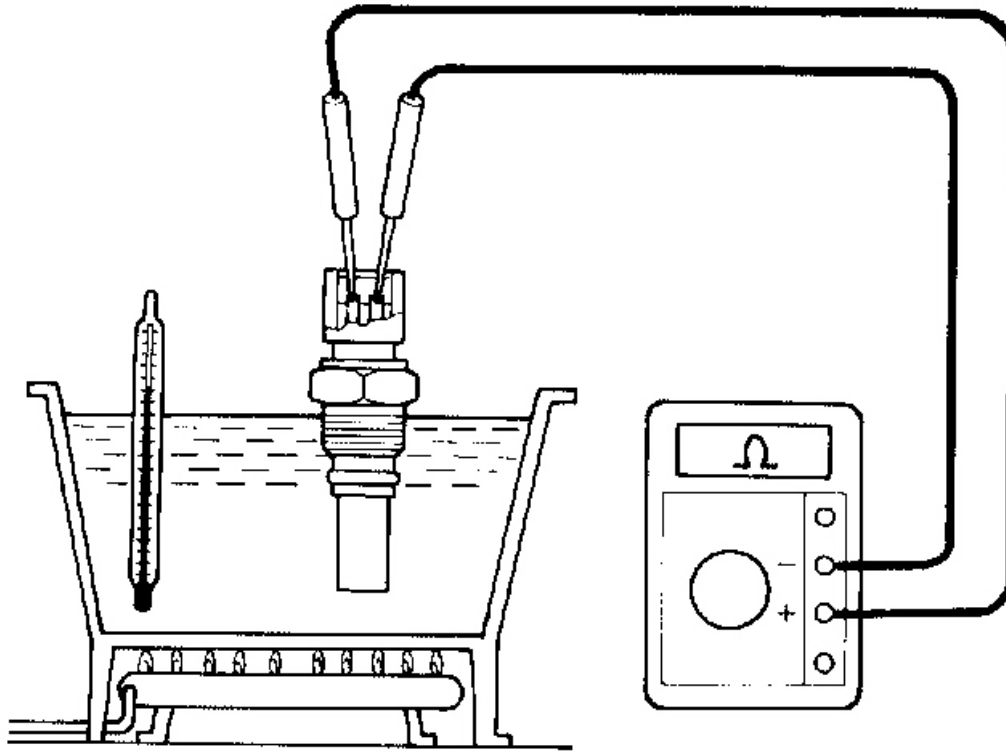
2. INSPECT ECT SWITCH

- a. Measure the resistance of the switch.

STANDARD SPECIFICATION

Temperature	Specified Condition
Above 98° C (208° F)	Below 1 Q
Below 88° C (190° F)	10 kQ or higher

If the result is not as specified, replace the switch.



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Fig. 11: Measuring resistance of switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ENGINE COOLANT

REPLACEMENT

1. REMOVE V-BANK COVER
2. REMOVE AIR CLEANER INLET NO.1 (See REPLACEMENT)
3. DRAIN ENGINE COOLANT
 - a. Remove the 2 radiator caps from the radiator reservoir and radiator.

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

- b. Loosen the radiator drain plug and 2 drain cock plugs, then drain the coolant.

- c. Close the radiator drain plug.
- d. Tighten the 2 drain cock plugs.

Torque: 13 Nm (130 kgf cm, 9 ft lbf)

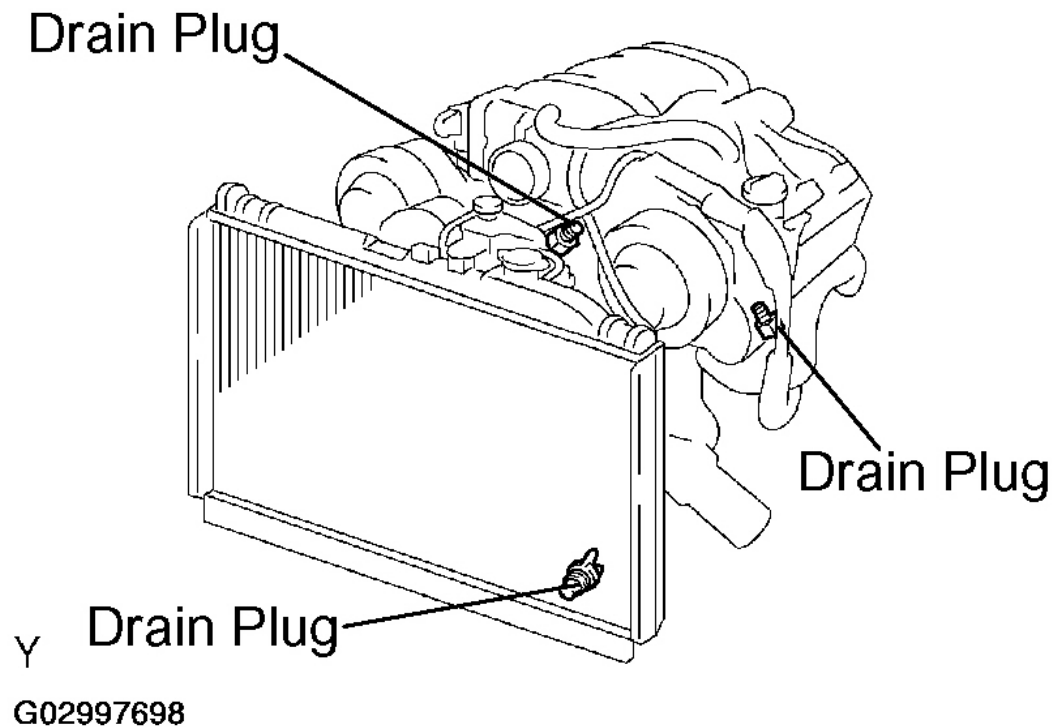


Fig. 12: Loosening Radiator Drain Plug And Drain Cock Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. ADD ENGINE COOLANT

- a. Slowly fill the cooling system with coolant.

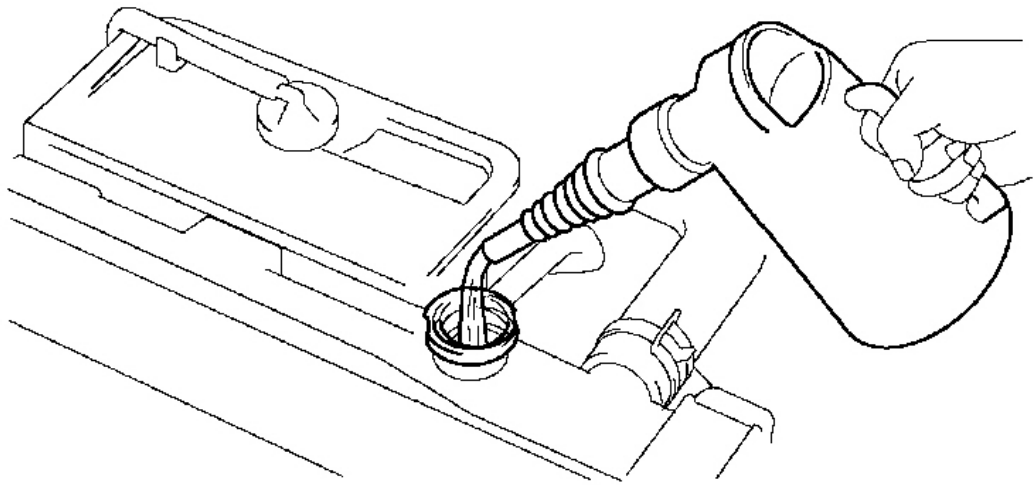
Capacity: 9.5 liters (10.0 US qts, 8.4 Imp. qts)

HINT:

- Use of improper coolants may damage the engine cooling system.
- Use "TOYOTA Super Long Life Coolant" or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology.
- New Toyota vehicles are filled with TOYOTA Super Long Life Coolant (color is pink, premixed ethylene-glycol concentration is approximately 50 % and freezing temperature is -35° C (-31° F)). When replacing coolant, TOYOTA Super Long Life Coolant is

recommended.

- Observe the coolant level inside the radiator by pressing the inlet and outlet radiator hoses several times by hand. If the coolant level drops, add coolant.



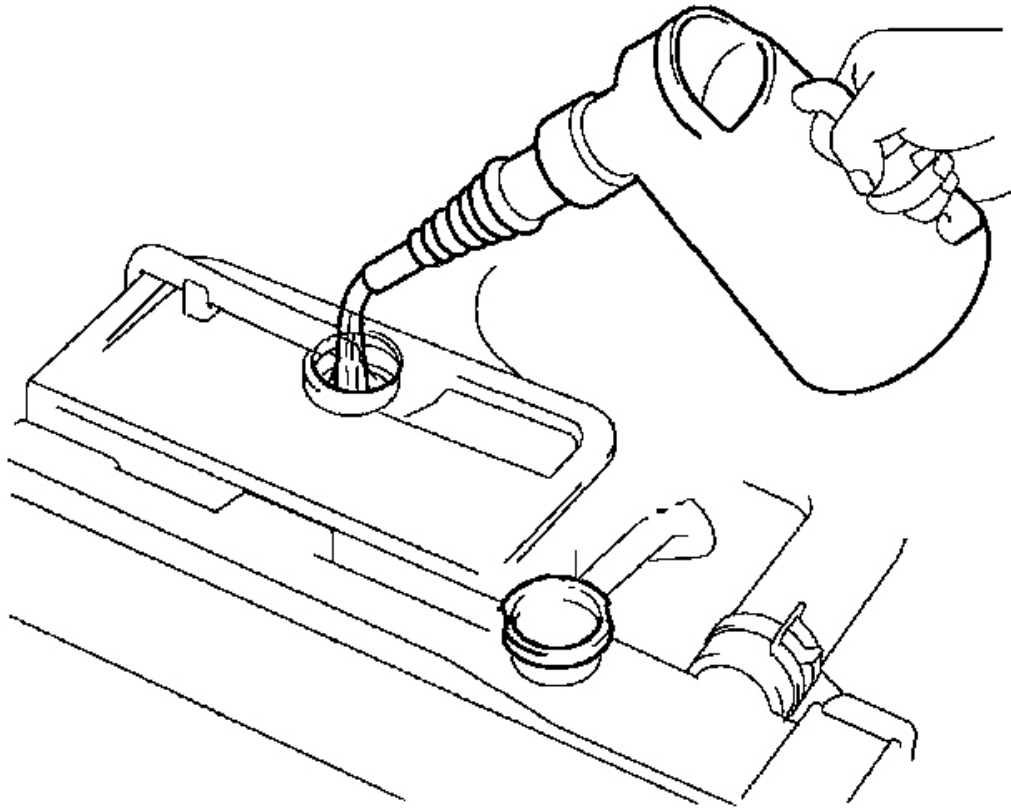
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Fig. 13: Adding Engine Coolant

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not substitute plain water for engine coolant.

- Slowly pour coolant into the radiator reservoir until it reaches the FULL line.
- Install the radiator caps to the radiator and radiator reservoir.
- Bleed the cooling system.
 - Start the engine, and open the heater water valve.
 - Maintain the engine speed at 2,000 to 2,500 RPM and warm up the engine.
- Stop the engine, and wait until the engine coolant cools down.
- Add coolant to the FULL line for the radiator and reservoir.



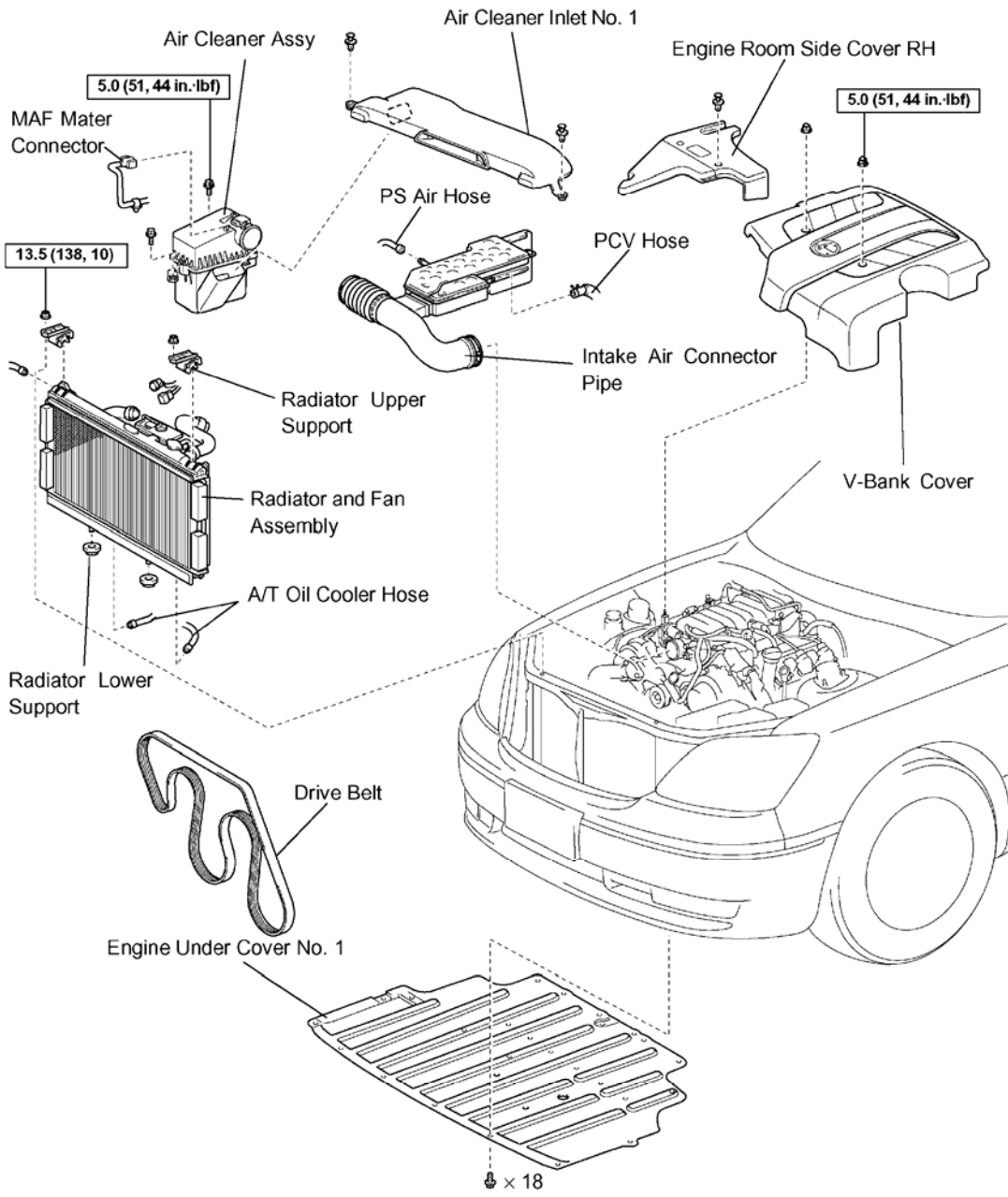
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Fig. 14: Adding Coolant To Full Line For Radiator And Reservoir
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. CHECK FOR ENGINE COOLANT LEAKS
6. INSTALL AIR CLEANER INLET NO.1 (See REPLACEMENT)
7. INSTALL V-BANK COVER

WATER PUMP ASSY

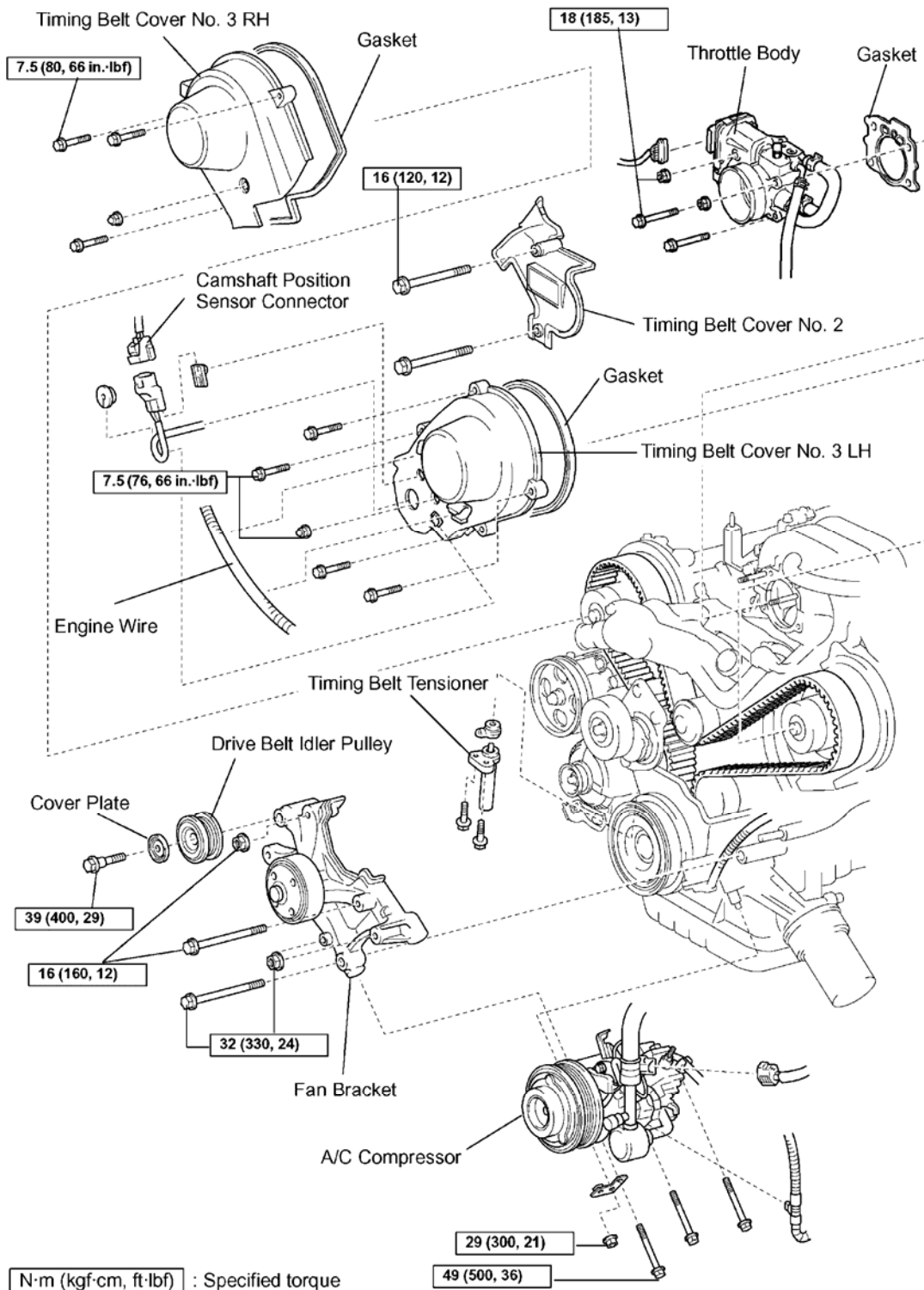
COMPONENTS



γ [N·m (kgf·cm, ft·lbf)] : Specified torque

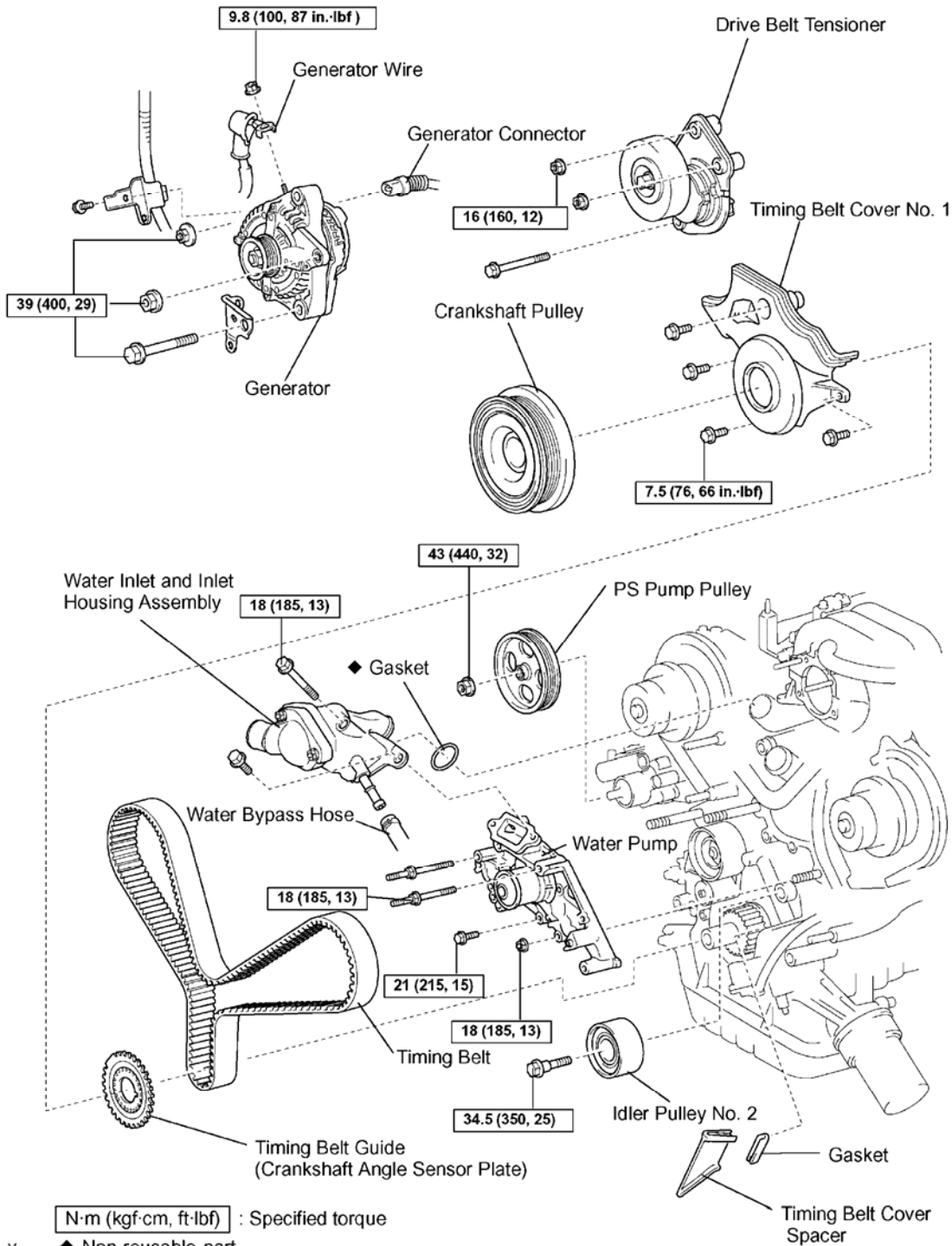
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Fig. 15: Identifying Water Pump Component Assy (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



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Fig. 16: Identifying Water Pump Component Assy (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



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Fig. 17: Identifying Water Pump Component Assy (3 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REPLACEMENT

1. **DISCONNECT BATTERY NEGATIVE TERMINAL**
2. **DRAIN ENGINE COOLANT (See REPLACEMENT)**
3. **REMOVE ENGINE UNDER COVER NO.1**
4. **REMOVE RADIATOR ASSY**
5. **REMOVE TIMING BELT (See REPLACEMENT)**
6. **REMOVE WATER INLET HOUSING**
 - a. Disconnect the water hose and remove the 2 bolts, inlet housing and O-ring.

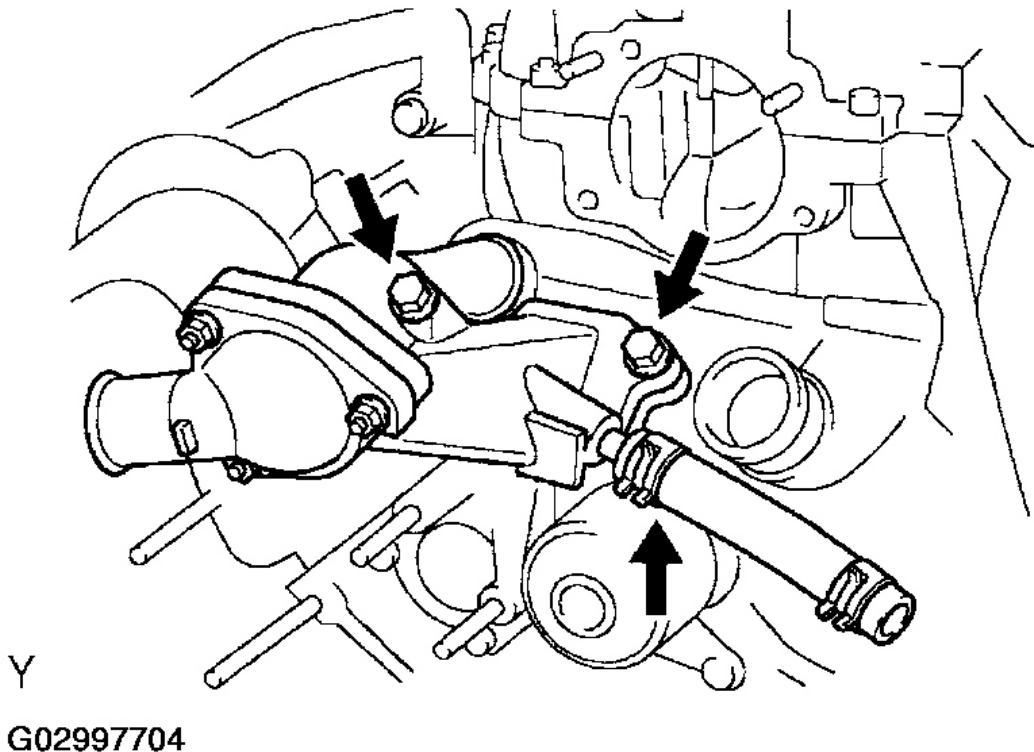
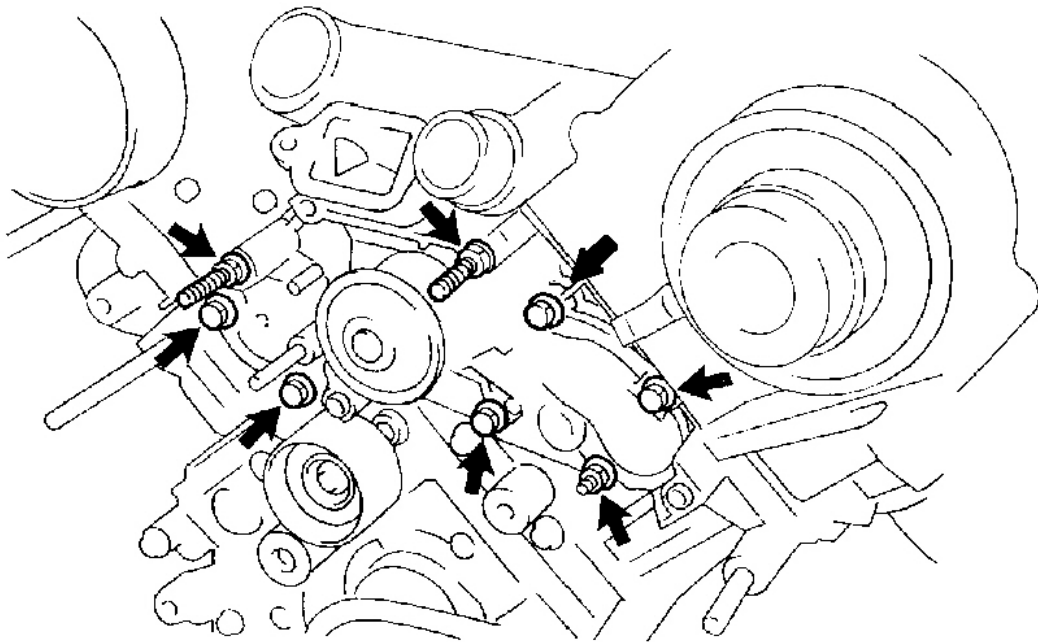


Fig. 18: Disconnecting Water Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE TIMING BELT IDLER SUB-ASSY NO.2 (See OVERHAUL)**
8. **REMOVE WATER PUMP ASSY**
 - a. Remove the 5 bolts, water pump and gasket.



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Fig. 19: Removing Bolts, Water Pump And Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. INSTALL WATER PUMP ASSY

- a. Install a new gasket and the water pump with the 5 bolts, 2 stud bolts and nut.

Torque:

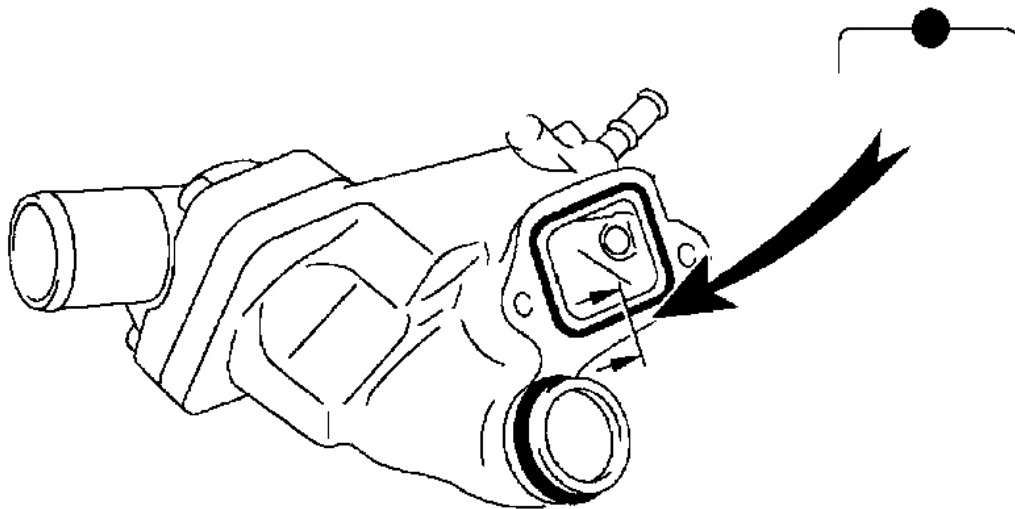
21 N m (215 kgf cm, 15 ft lbf) for bolt

18 N m (185 kgf cm, 13 ft lbf) for stud bolt

HINT:

Use a bolt this is 30 mm (1.18 in.) in length.

NOTE: Uniformly tighten the bolts, stud bolts and nuts. Tighten them little by little in diagonal pairs. For example, after tightening an upper-right side bolt 30 %; or after tighten a lower-left side bolt 30 %; or after tightening a left side bolt 30 %, tighten a right side bolt 30 %.



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Fig. 20: Installing Water Inlet Housing

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. INSTALL WATER INLET HOUSING

- a. Install a new O-ring.
- b. Apply soapy water to the O-ring.
- c. Apply seal packing to the groove of the water inlet housing as shown in the illustration.

Seal packing: Part No. 08826-00100 or equivalent

NOTE:

- After applying seal packing, install the part within 5 minutes.
- Be sure to keep this O-ring away from engine oil. The O-ring must be replaced if it contacts engine oil.

- d. Install the water inlet housing with the 2 bolts. Then connect the water hose.

Bolt length:

75 mm (2.95 in.) for bolt A

25 mm (0.98 in.) for bolt B

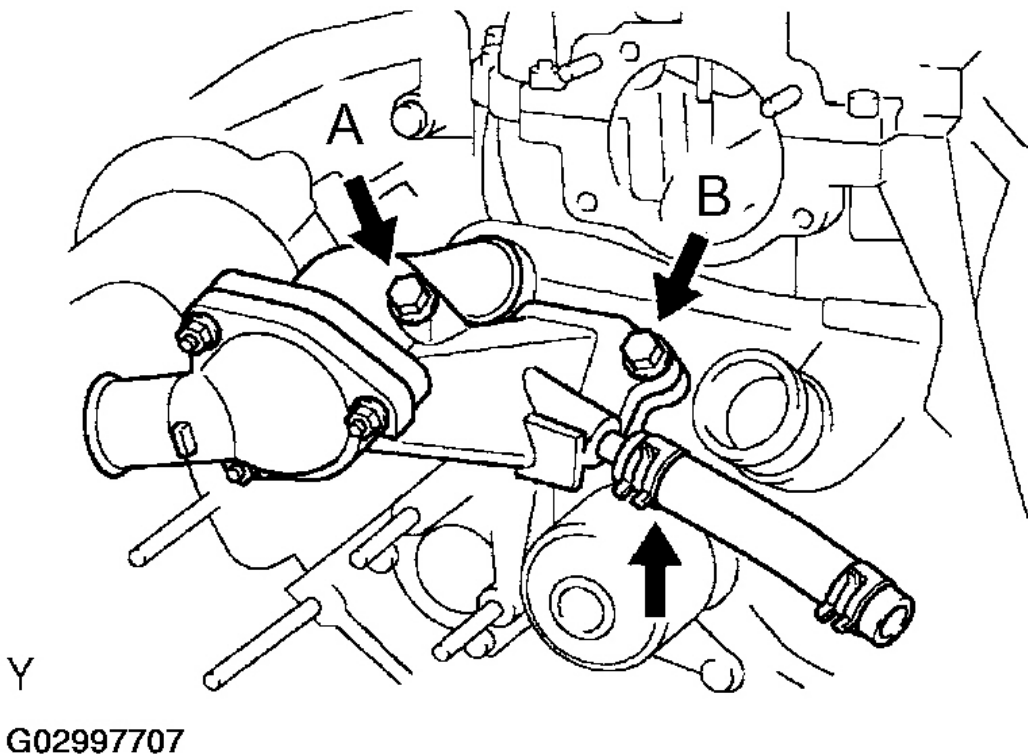


Fig. 21: Installing Water Inlet Housing With Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSTALL TIMING BELT IDLER SUB-ASSY NO.2 (See OVERHAUL)**
12. **INSTALL TIMING BELT (See REPLACEMENT)**
13. **INSTALL RADIATOR ASSY (See REPLACEMENT)**
14. **REFILL ENGINE COOLANT (See REPLACEMENT)**
15. **CONNECT BATTERY NEGATIVE TERMINAL**

NOTE: When disconnecting the negative (-) battery terminal, initialize the following systems after the terminal is reconnected (see INITIALIZATION).

16. **CHECK FOR ENGINE COOLANT LEAKS (See ON-VEHICLE INSPECTION)**
17. **INSTALL ENGINE UNDER COVER NO.1**

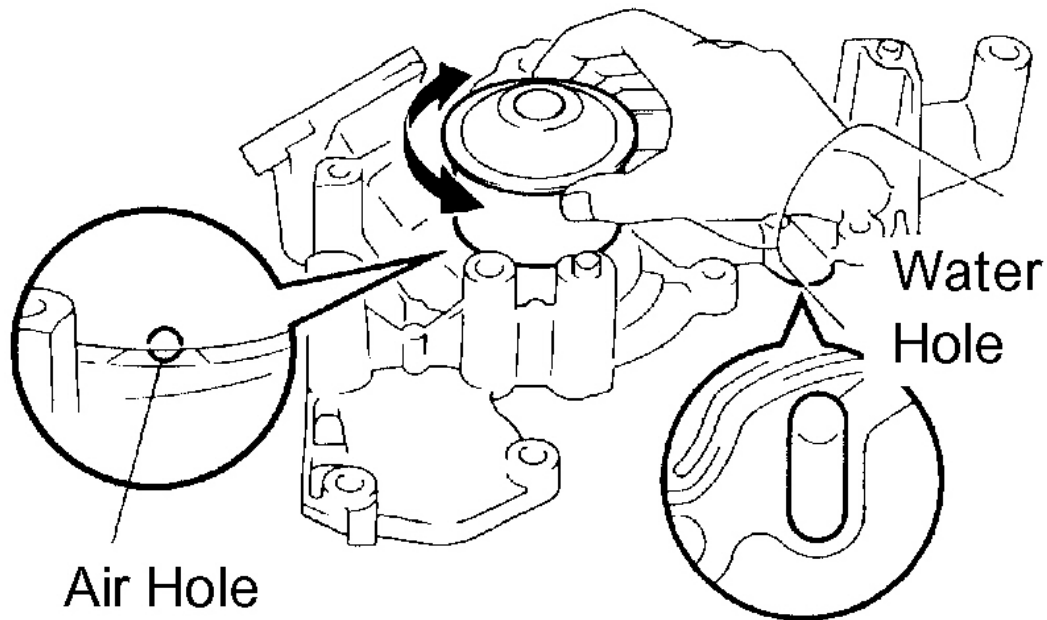
INSPECTION

1. **INSPECT WATER PUMP ASSY**
 - a. Visually check the air hole and water hole for coolant leakage.

If leakage is found, replace the water pump and timing belt.

- b. Turn the pulley, and check that the water pump bearing moves smoothly and quietly.

If it moves roughly or noisily, replace the water pump.



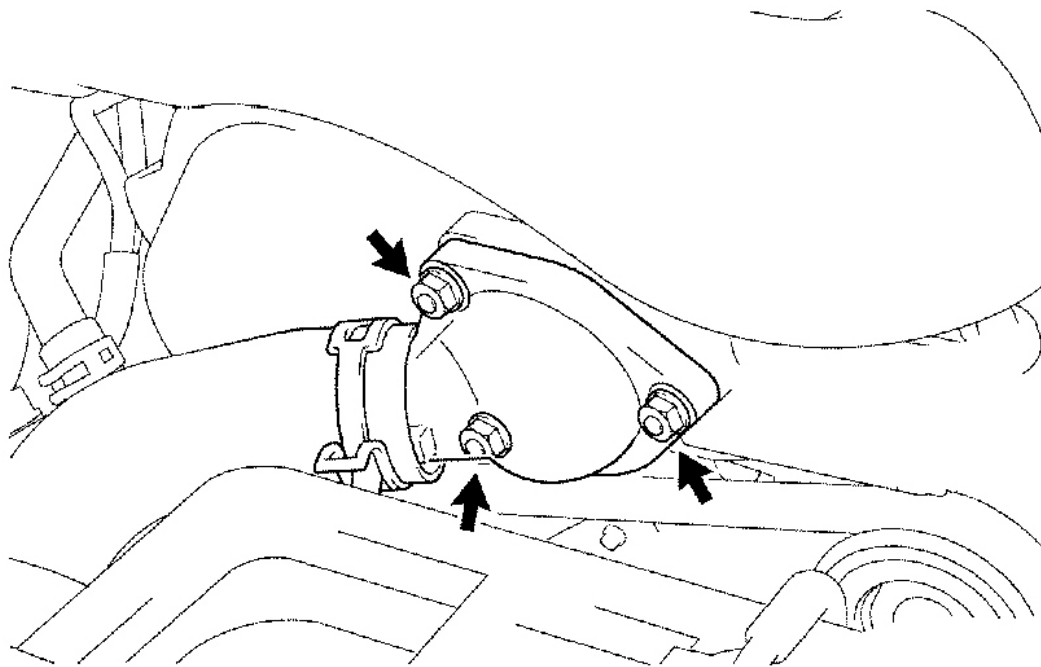
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Fig. 22: Inspecting Water Pump Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

THERMOSTAT

REPLACEMENT

1. **REMOVE AIR CLEANER INLET NO.1 (See REPLACEMENT)**
2. **DRAIN ENGINE COOLANT (See REPLACEMENT)**
3. **REMOVE THERMOSTAT**
 - a. Remove the 3 nuts and disconnect the water inlet from the water inlet housing.
 - b. Remove the thermostat.
 - c. Remove the gasket from the thermostat.



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Fig. 23: Removing Nuts

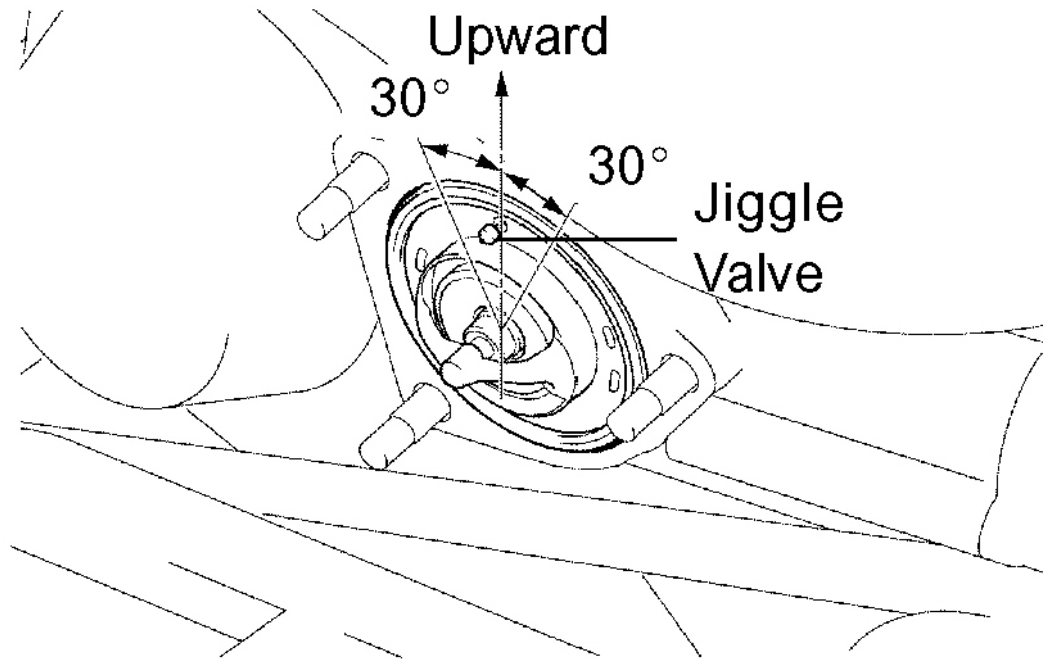
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSTALL THERMOSTAT

- a. Install a new gasket to the thermostat.
- b. Insert the thermostat into the water inlet housing with the jiggle valve facing straight upward.

HINT:

The jiggle valve may be set within 30° of either side of the prescribed position.

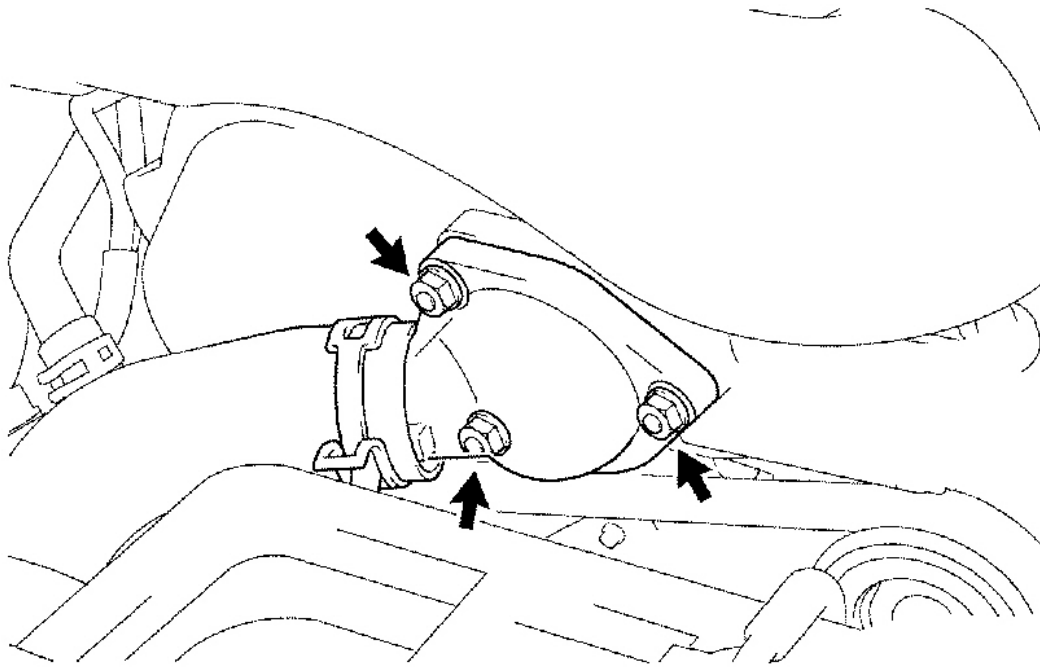


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Fig. 24: Installing New Gasket To Thermostat
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Install the water inlet with the 3 nuts.

Torque: 19 N m (195 kgf cm, 14 ft lbf)



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Fig. 25: Installing Water Inlet With Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REFILL ENGINE COOLANT** (See **REPLACEMENT**)
6. **CHECK FOR ENGINE COOLANT LEAKS** (See **ON-VEHICLE INSPECTION**)
7. **INSTALL AIR CLEANER INLET NO.1** (See **REPLACEMENT**)

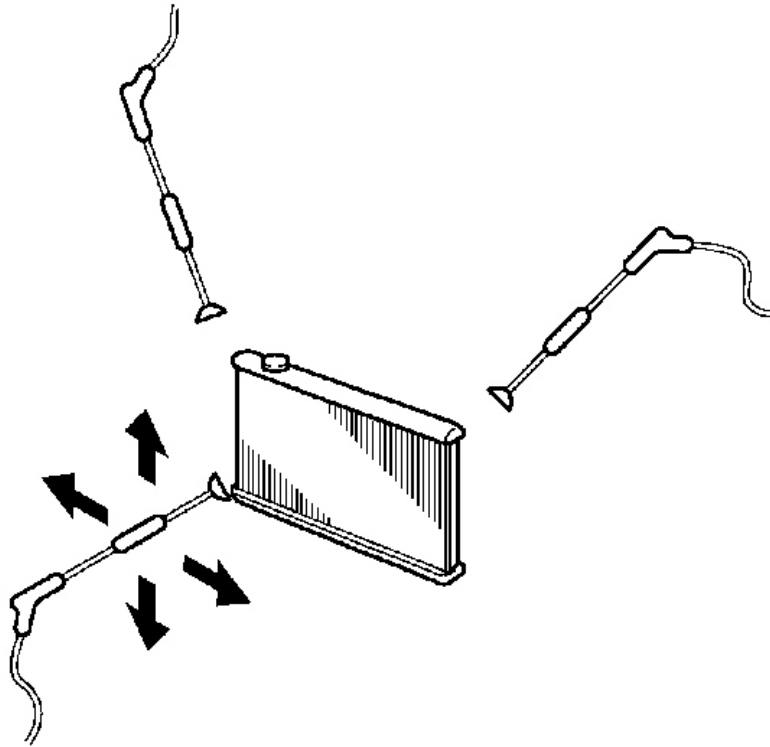
RADIATOR ASSY

ON-VEHICLE CLEANING

1. INSPECT FINS BLOCKAGE

- a. Check that the radiator and condenser are not blocked with leaves, dirt, or insects. Clean the hose connection.

If the fins are clogged, wash them with water or a steam cleaner and dry with compressed air.



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Fig. 26: Inspecting Fins Blockage

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

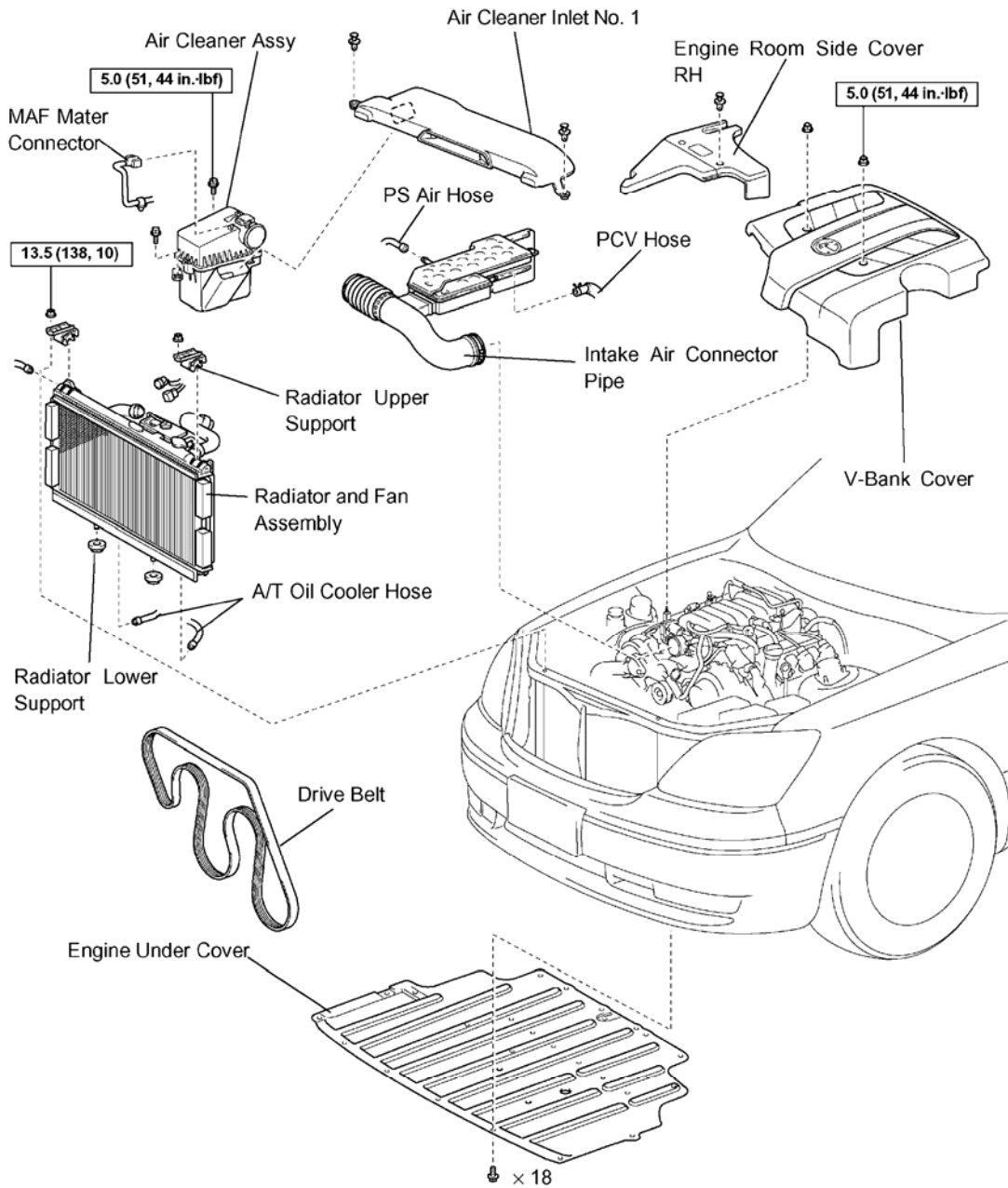
- If the distance between the steam cleaner and the core is too close, the fins may become damaged. Keep the following injection distance.

STANDARD SPECIFICATION

Injection Distance	Injection Pressure
300 mm (11.81 in.)	2,942 to 4,903 kPa (30 to 50 kgf cm ² , 427 to 711 psi)
500 mm (19.69 in.)	4,903 to 7,845 kPa (50 to 80 kgf cm ² , 711 to 1,138 psi)

- If the fins are bent, straighten them with a screwdriver or pliers.
- Never apply water directly onto the electronic components.

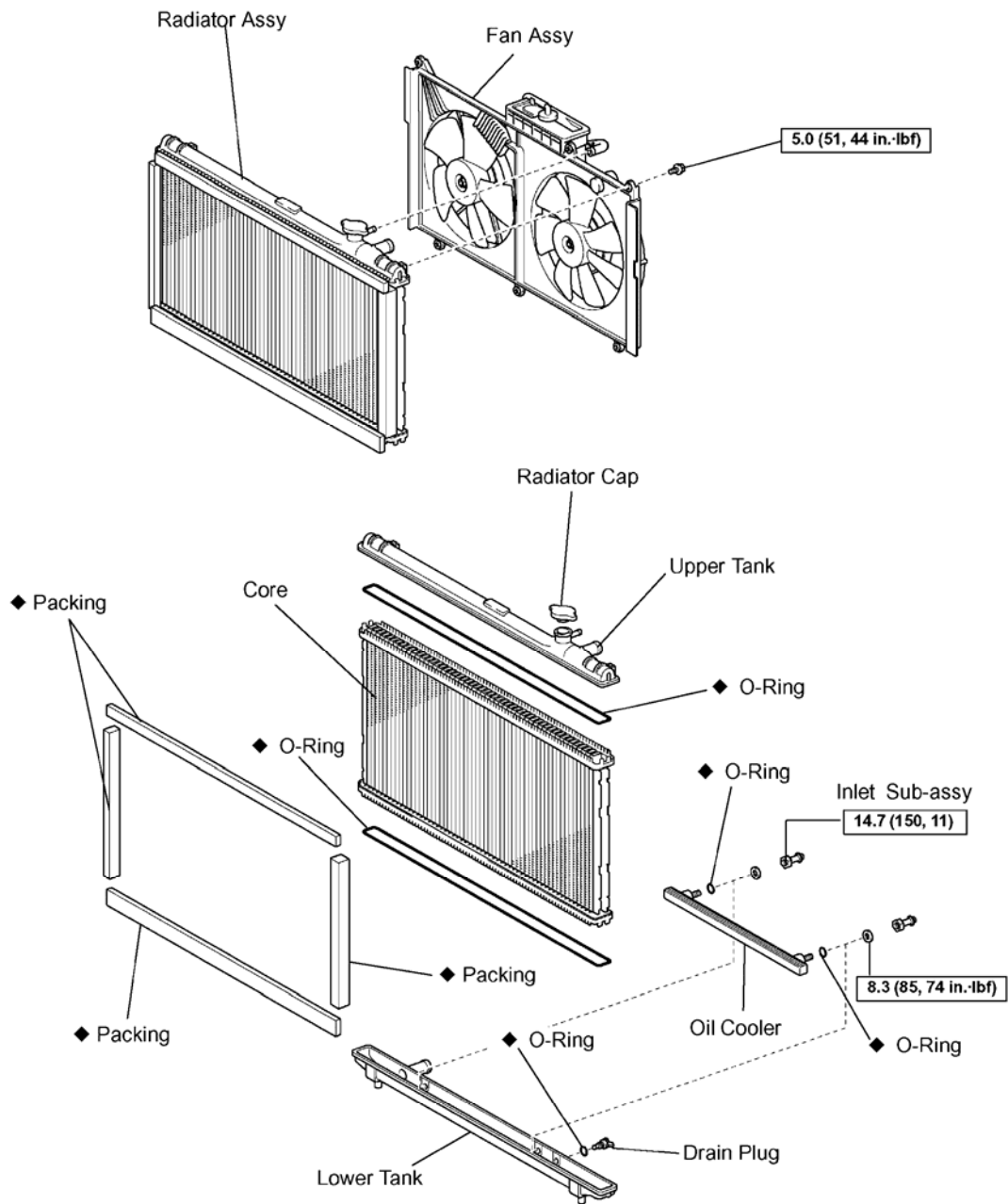
COMPONENTS



γ [N·m (kgf·cm, ft·lbf)] : Specified torque

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Fig. 27: Identifying Radiator Assy Component (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



$\text{N}\cdot\text{m}$ (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

γ

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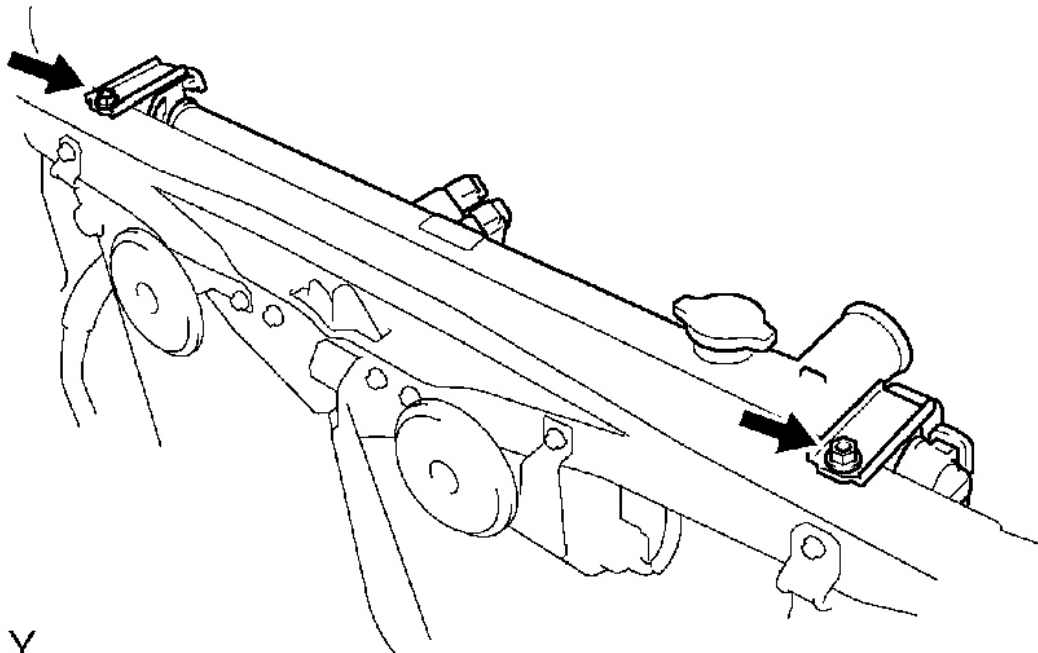
Fig. 28: Identifying Radiator Assy Component (2 Of 2)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REPLACEMENT

1. **DISCONNECT BATTERY NEGATIVE TERMINAL**
2. **REMOVE ENGINE UNDER COVER NO.1**

3. **REMOVE AIR CLEANER INLET NO.1**
4. **DRAIN ENGINE COOLANT (See REPLACEMENT)**
5. **REMOVE V-BANK COVER**
6. **REMOVE INTAKE AIR CONNECTOR PIPE**
7. **DISCONNECT RADIATOR HOSE NO.1**
8. **DISCONNECT RADIATOR HOSE NO.2**
9. **DISCONNECT OIL COOLER INLET TUBE NO.1**
10. **DISCONNECT OIL COOLER OUTLET TUBE NO.1**
11. **REMOVE AIR CLEANER ASSY**
12. **REMOVE RADIATOR AND FAN ASSEMBLY**
 - a. Disconnect the cooling fan ECU connector.
 - b. Remove the 2 nuts and 2 radiator upper supports.
 - c. Remove the radiator and fan assembly.
 - d. Remove the 2 radiator lower supports.



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Fig. 29: Removing Nuts And Radiator Upper Supports
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **REMOVE FAN ASSY**

- a. Disconnect the radiator reservoir hose from the radiator.
- b. Remove the 6 bolts and fan.

14. **INSTALL FAN ASSY**

- a. Install the fan with the 6 bolts.

Torque: 5.0 Nm (51 kgfcm, 44 in.lbf)

- b. Connect the radiator reservoir hose to the radiator.

15. **INSTALL RADIATOR AND FAN ASSEMBLY**

- a. Install the 2 radiator lower supports to the radiator.
- b. Attach the 2 radiator lower supports on the radiator to the body bracket.
- c. Install the radiator and fan assembly with the 2 radiator upper supports and 2 nuts.

Torque: 13.5 N m (138 kgf cm, 10 ft lbf)

- d. Connect the cooling fan ECU connector.

16. **INSTALL AIR CLEANER ASSY**

17. **INSTALL AIR CLEANER INLET NO.1**

18. **REFILL ENGINE COOLANT (See REPLACEMENT)**

19. **CHECK FOR ENGINE COOLANT LEAKS**

20. **INSTALL ENGINE UNDER COVER NO.1**

21. **CONNECT BATTERY NEGATIVE TERMINAL**

NOTE: **When disconnecting the negative (-) battery terminal, initialize the following systems after the terminal is reconnected (see INITIALIZATION).**

OVERHAUL

1. **REMOVE PACKING**

2. **REMOVE RADIATOR CAP SUB-ASSY**

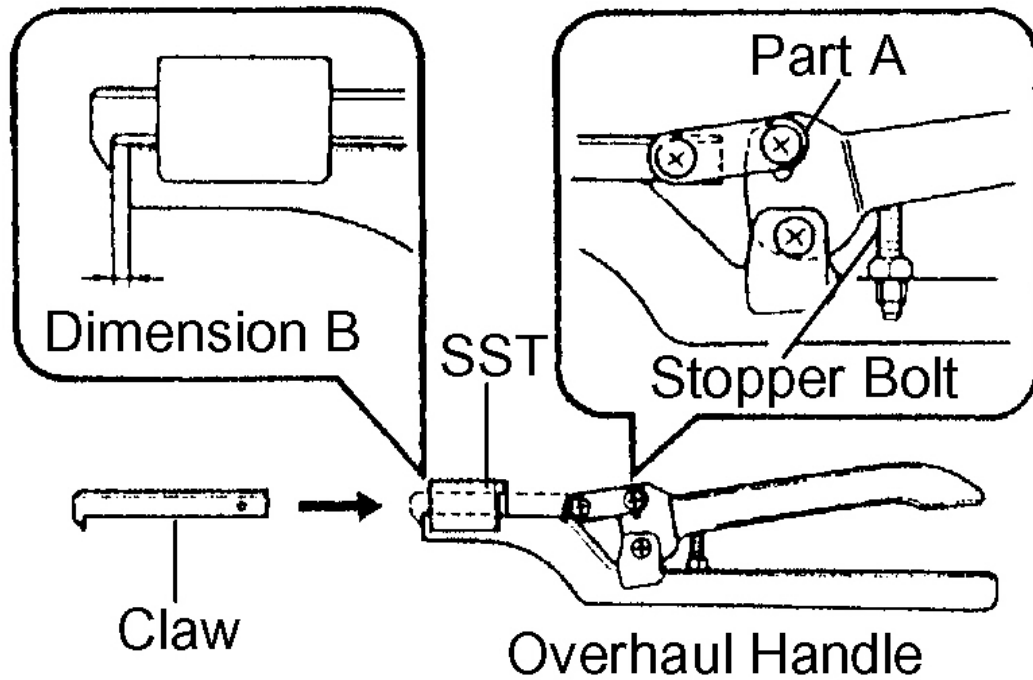
3. **REMOVE DRAIN PLUG**

- a. Remove the drain plug.
- b. Remove the O-ring.

4. **ASSEMBLE SST**

SST 09230-01010

- a. Install the claw to the overhaul handle, inserting it in the hole in part A as shown in the illustration
- b. While gripping the handle, adjust the stopper bolt so that dimension B is as shown in the illustration.



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Fig. 30: Installing Claw To Overhaul Handle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

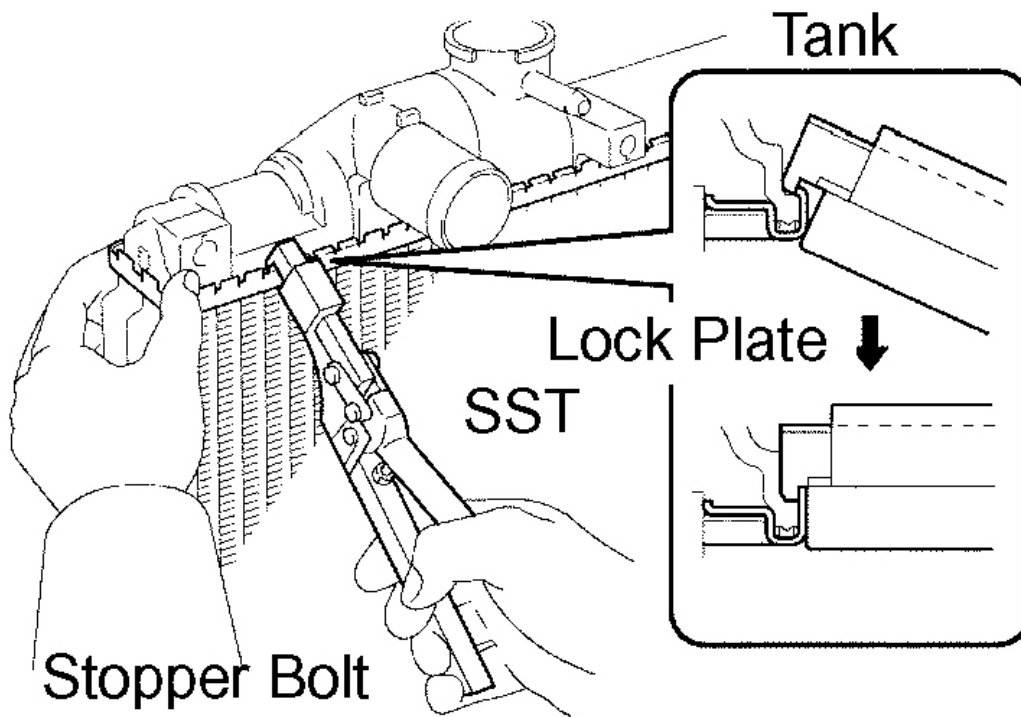
Dimension B: 0.2 to 0.3 mm (0.008 to 0.012 in.)

NOTE: If this adjustment is not performed, the claw will be damaged.

5. UNCAULK LOCK PLATE

Using SST to release the caulking, grip the handle until stopped by the stopper bolt.

SST 09230-01010 (09231-01010, 09231-01030)



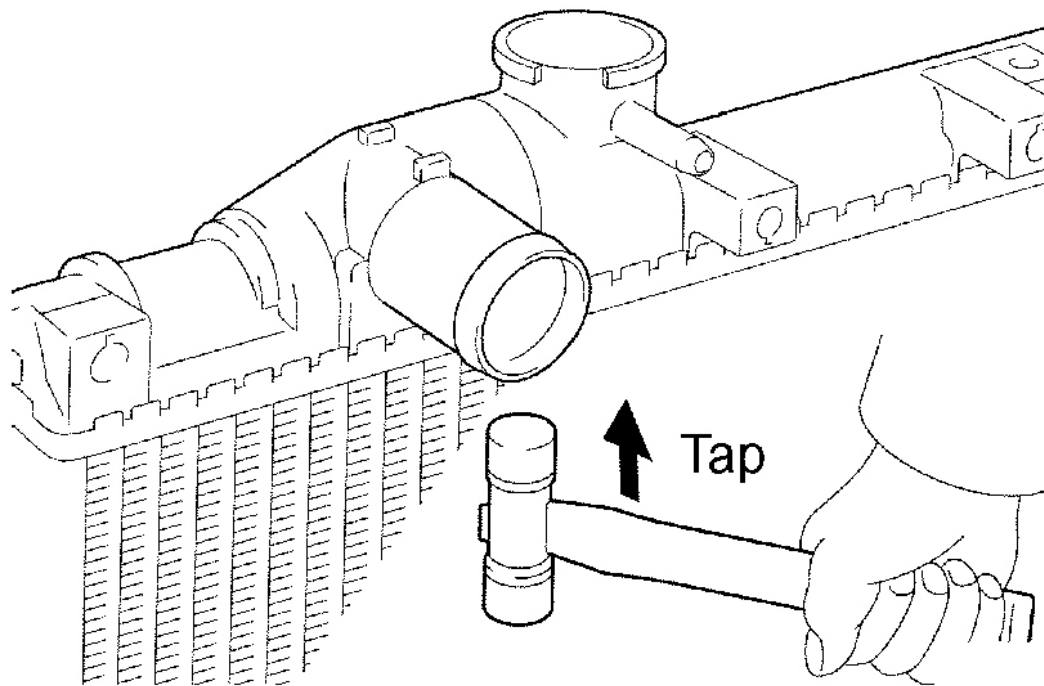
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Fig. 31: Releasing Caulking

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. REMOVE RADIATOR TANK UPPER AND TANK LOWER

- a. Lightly tap the bracket of the radiator (or radiator hose inlet or outlet) with a plastic hammer and remove the tank.
- b. Remove the O-ring.



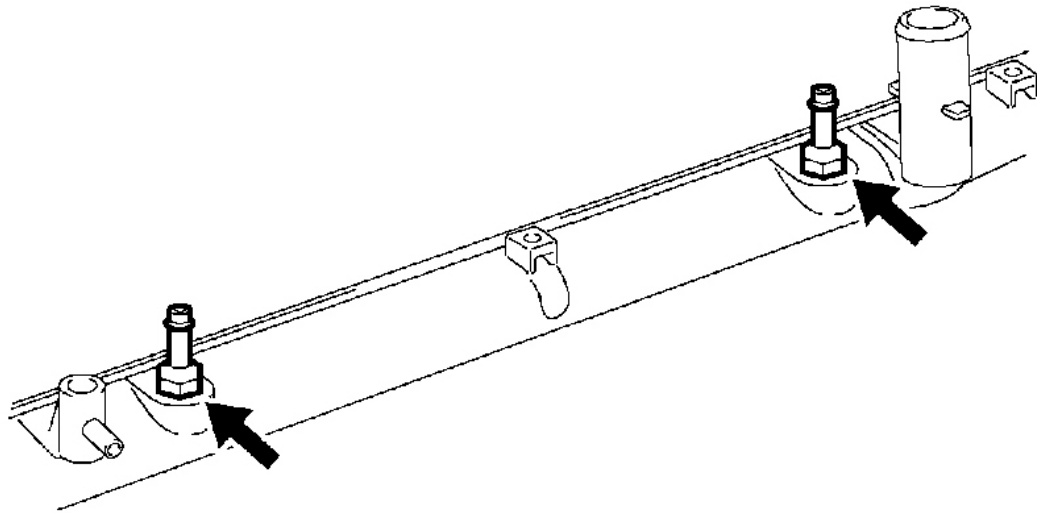
G02997718

Fig. 32: Tapping Bracket Radiator

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. REMOVE OIL COOLER ASSY

- a. Remove the 2 inlets.
- b. Remove the 2 nuts, 2 plate washers and oil cooler.
- c. Remove the 2 O-rings from the oil cooler.



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Fig. 33: Removing Inlets

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

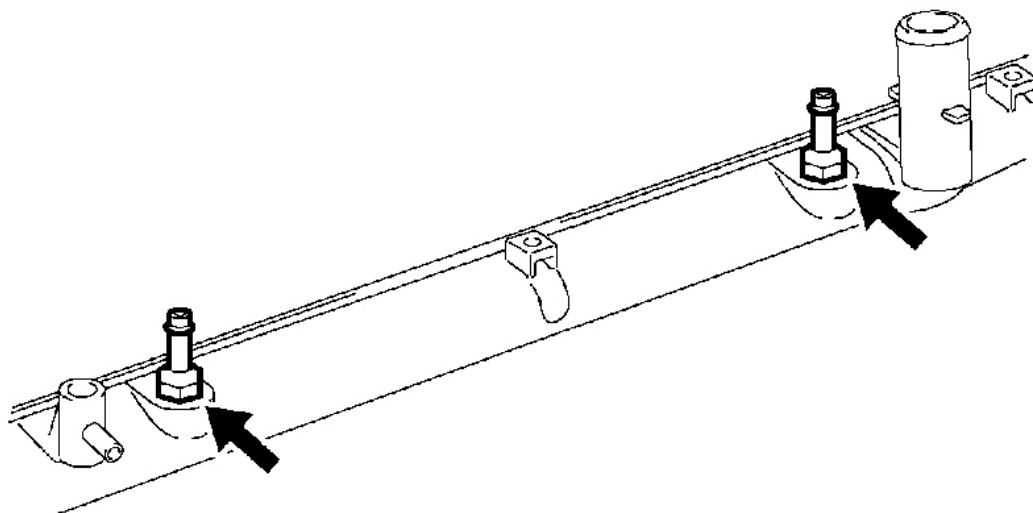
8. INSTALL OIL COOLER ASSY

- a. Install 2 new O-rings to the oil cooler.
- b. Install the oil cooler to the lower tank with the 2 plate washers and 2 nuts.

Torque: 8.4 N m (85 kgf cm, 74 in. lbf)

- c. Install the 2 inlets.

Torque: 14.7 Nm (150 kgfcm, 11 ftlbf)



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Fig. 34: Installing New O-Rings To Oil Cooler
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. INSPECT LOCK PLATE FOR DAMAGE

Inspect the lock plate for damage.

HINT:

- If the sides of the lock plate groove are deformed, reassembly of the tank will be impossible. Correct any deformations with pliers.
- Water leakage will result if the bottom of the lock plate groove is damaged or dented. Repair or replace if necessary.

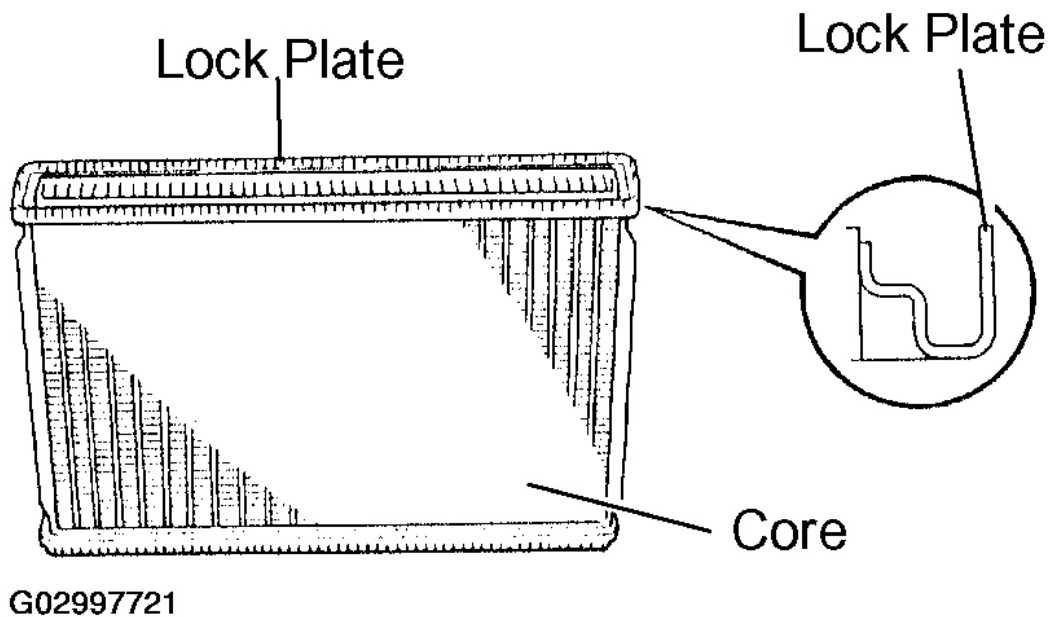


Fig. 35: Inspecting Lock Plate For Damage
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

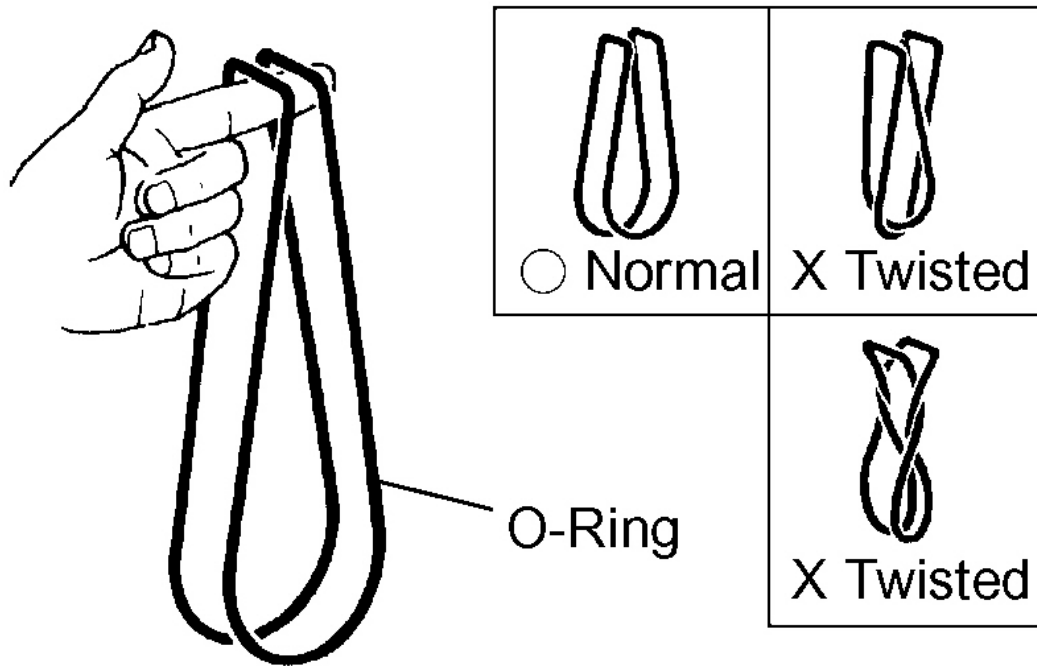
NOTE: The radiator can only be recalced twice. After the 2nd time, the radiator core must be replaced.

10. INSTALL RADIATOR TANK UPPER AND TANK LOWER

- a. Check that there are no foreign objects in the lock plate groove, and install a new O-ring. Make sure the O-ring is not twisted.

HINT:

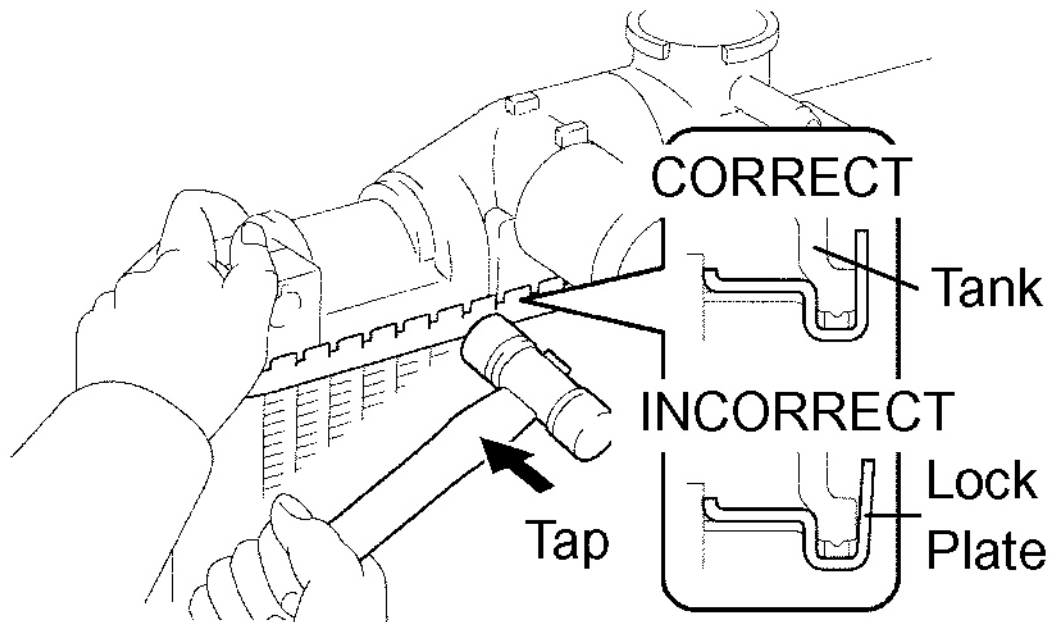
When cleaning the lock plate groove, lightly rub it with sandpaper without scratching it.



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Fig. 36: Installing Radiator Tank Upper And Tank Lower
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the tank without damaging the O-ring.
- c. Tap the lock plate with a plastic hammer so that there is no gap between the lock plate and the tank.



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Fig. 37: Installing Tank Without Damaging O-Ring
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. ASSEMBLE SST

SST 09230-01010, 09231-14010

- a. Install the punch assembly to the overhaul handle, inserting it in the hole in part A as shown in the illustration.
- b. While gripping the handle, adjust the stopper bolt so that dimension B is as shown in the illustration.

Dimension B: 8.4 mm (0.331 in.)

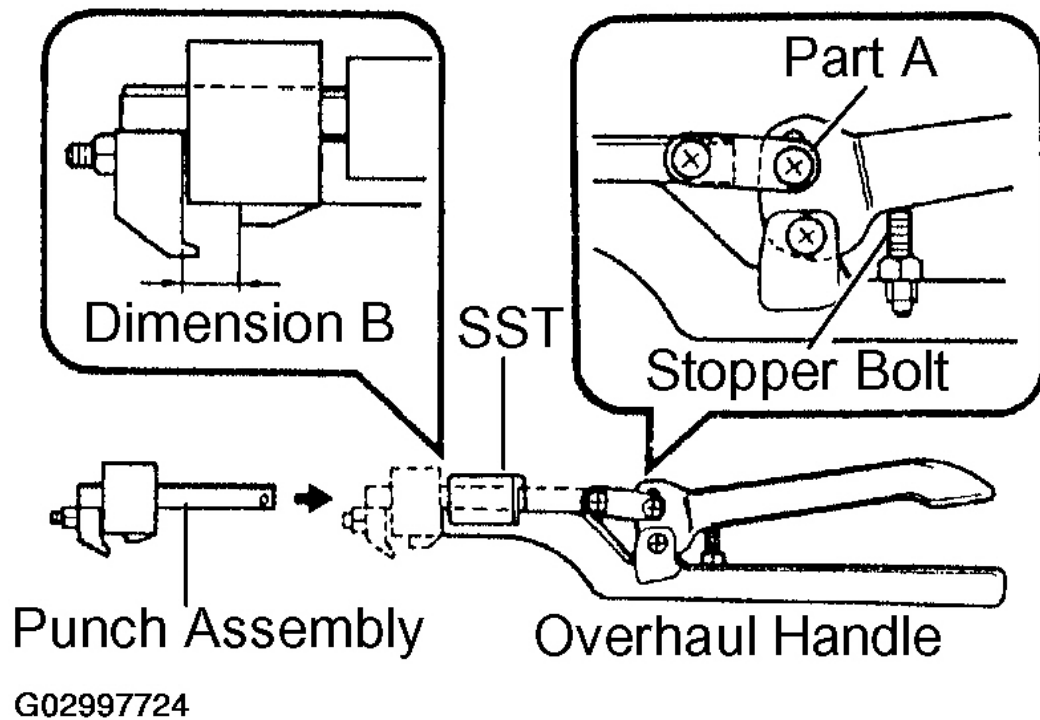
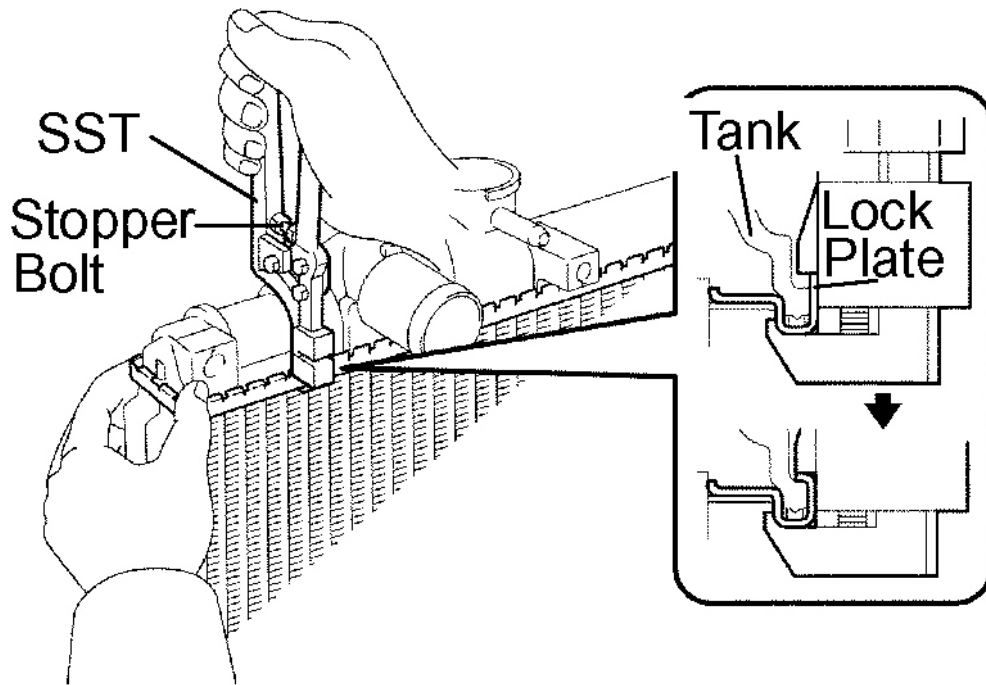
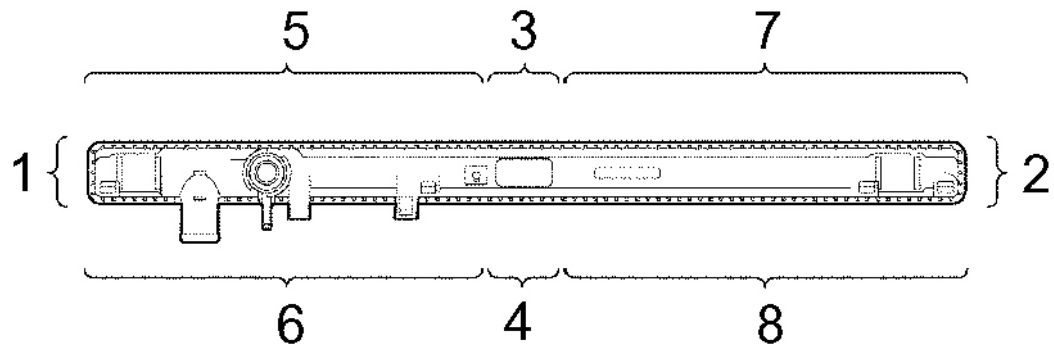


Fig. 38: Installing Punch Assembly To Overhaul Handle
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. CAULK LOCK PLATE

- a. Lightly press SST against the lock plate in the order shown in the illustration. After repeating this a few times, fully caulk the lock plate by gripping the handle until stopped by the stopper plate.

SST 09230-01010

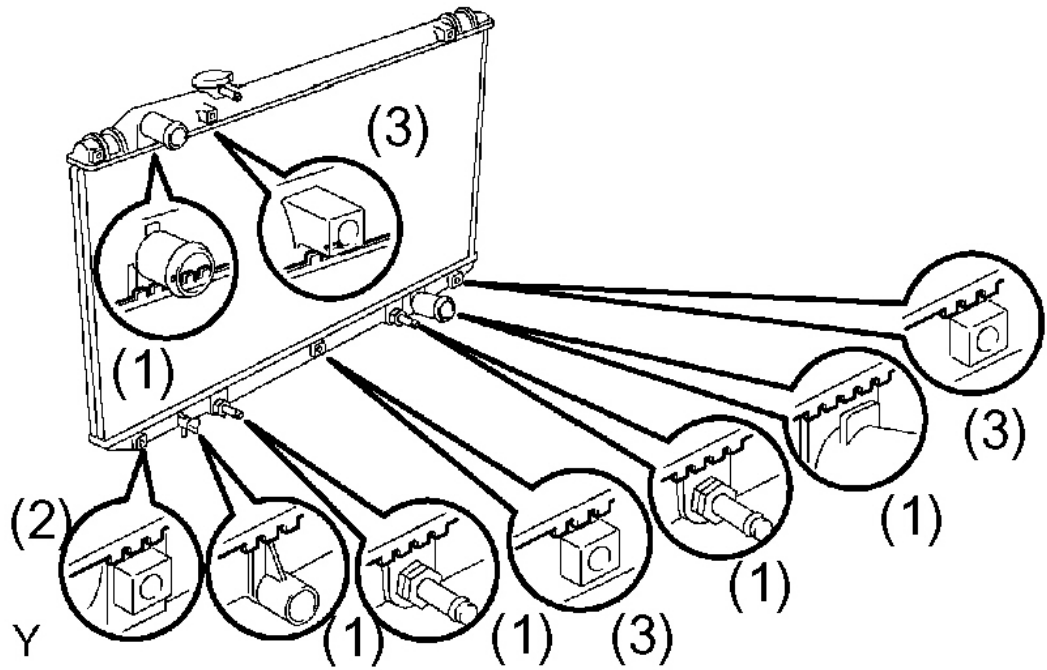


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Fig. 39: Identifying Caulk Lock Plate
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

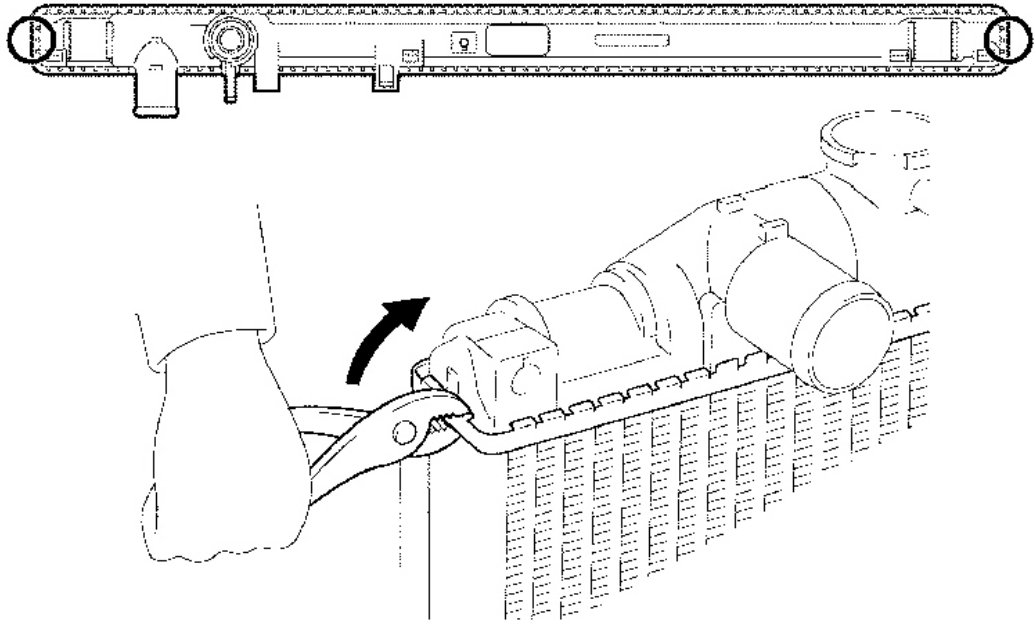
- Do not tap the areas protruding around the ports (1), flange (2) and brackets (3).



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Fig. 40: Tapping Areas Protruding Around Ports Flange And Brackets
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- The points shown in the illustration cannot be tapped with SST. Use pliers and be careful not to damage the core plates.



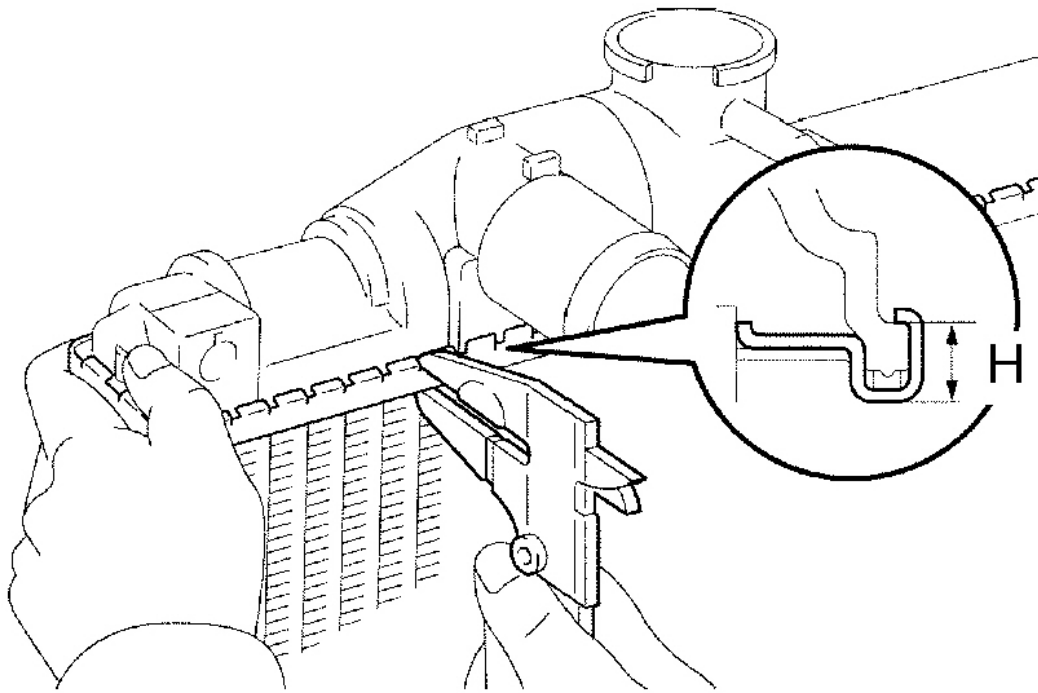
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Fig. 41: Removing Damage Core Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Check the lock plate height (H) after completing the caulking.

Plate height (H): 8.8 mm (0.346 in.)

If not within the specified height, adjust the stopper bolt of the handle again and caulk the lock plate again.



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Fig. 42: Checking Lock Plate Height (H) After Completing Caulking
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. INSTALL DRAIN PLUG

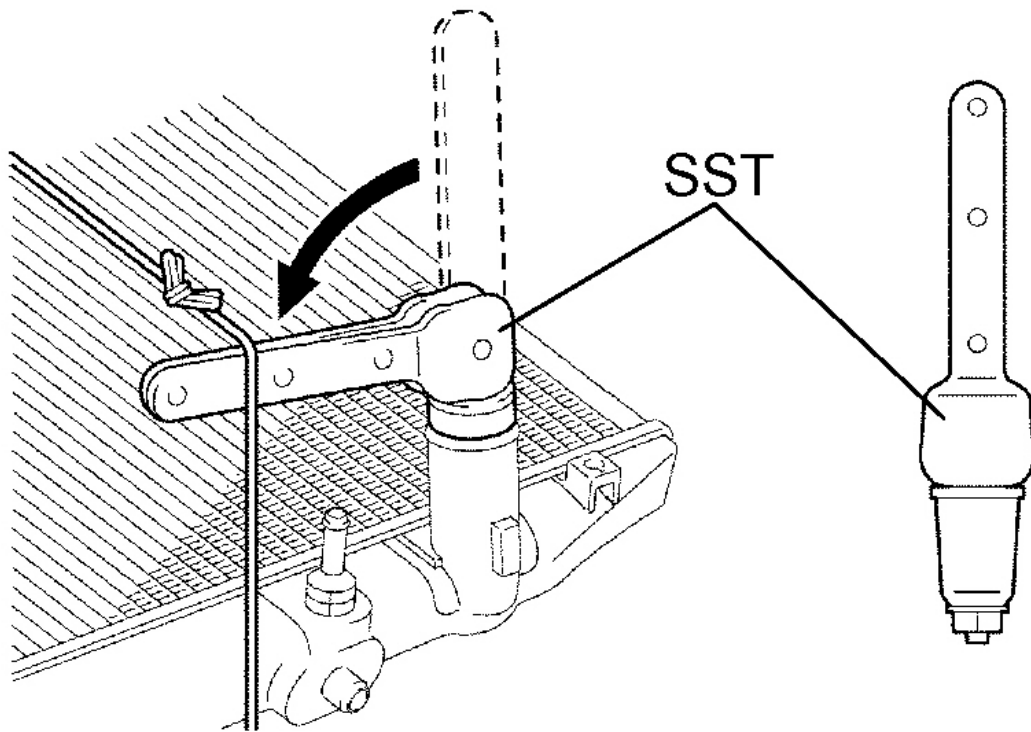
- a. Install a new O-ring to the drain plug.
- b. Install the drain plug.

14. INSPECT FOR WATER LEAKS

- a. Plug the inlet and outlet pipes of the radiator with SST.
SST 09230-01010
- b. Using a radiator cap tester, apply pressure to the radiator.

Test pressure: 177 kPa (1.8 kgf/cm² , 26 psi)

- c. Submerge the radiator in water.
- d. Inspect for leaks.



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Fig. 43: Inspecting Water Leaks

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

On radiators with resin tanks, there is a clearance between the tank and lock plate where a minute amount of air will remain, giving the appearance of an air leak when the radiator is submerged in water. Before doing the water leak test, first shake the radiator in the water until all air bubbles disappear.

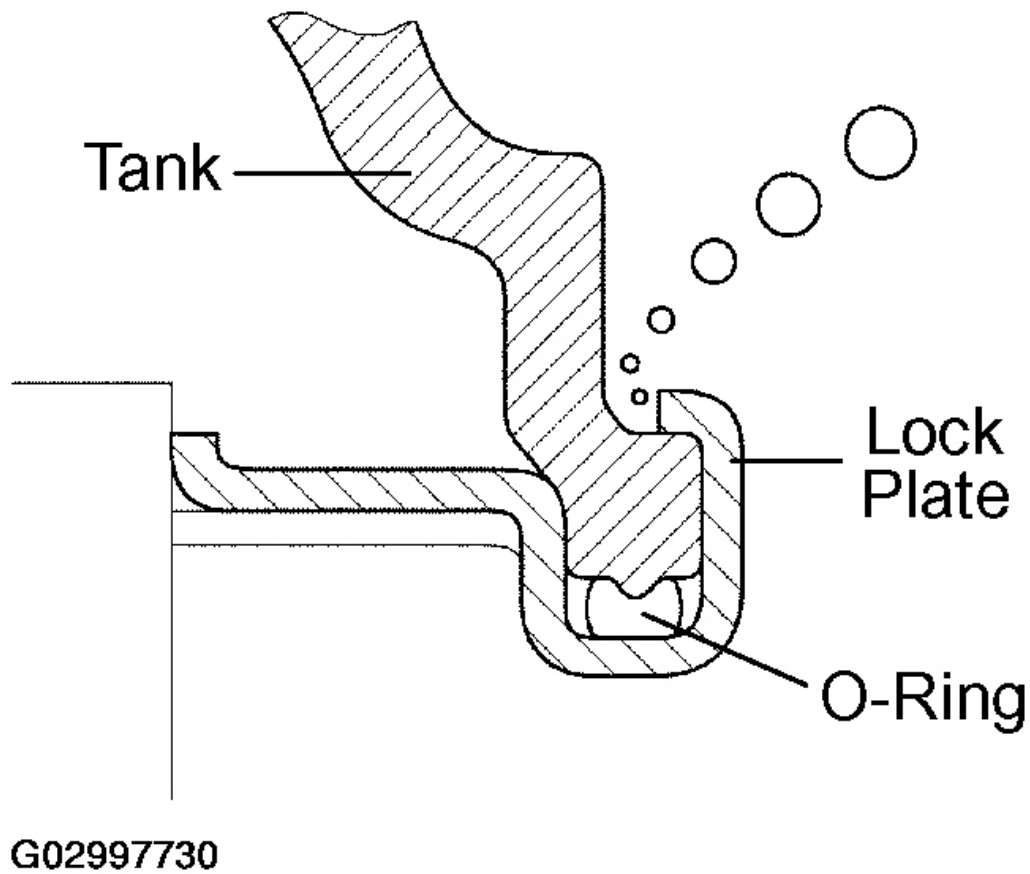


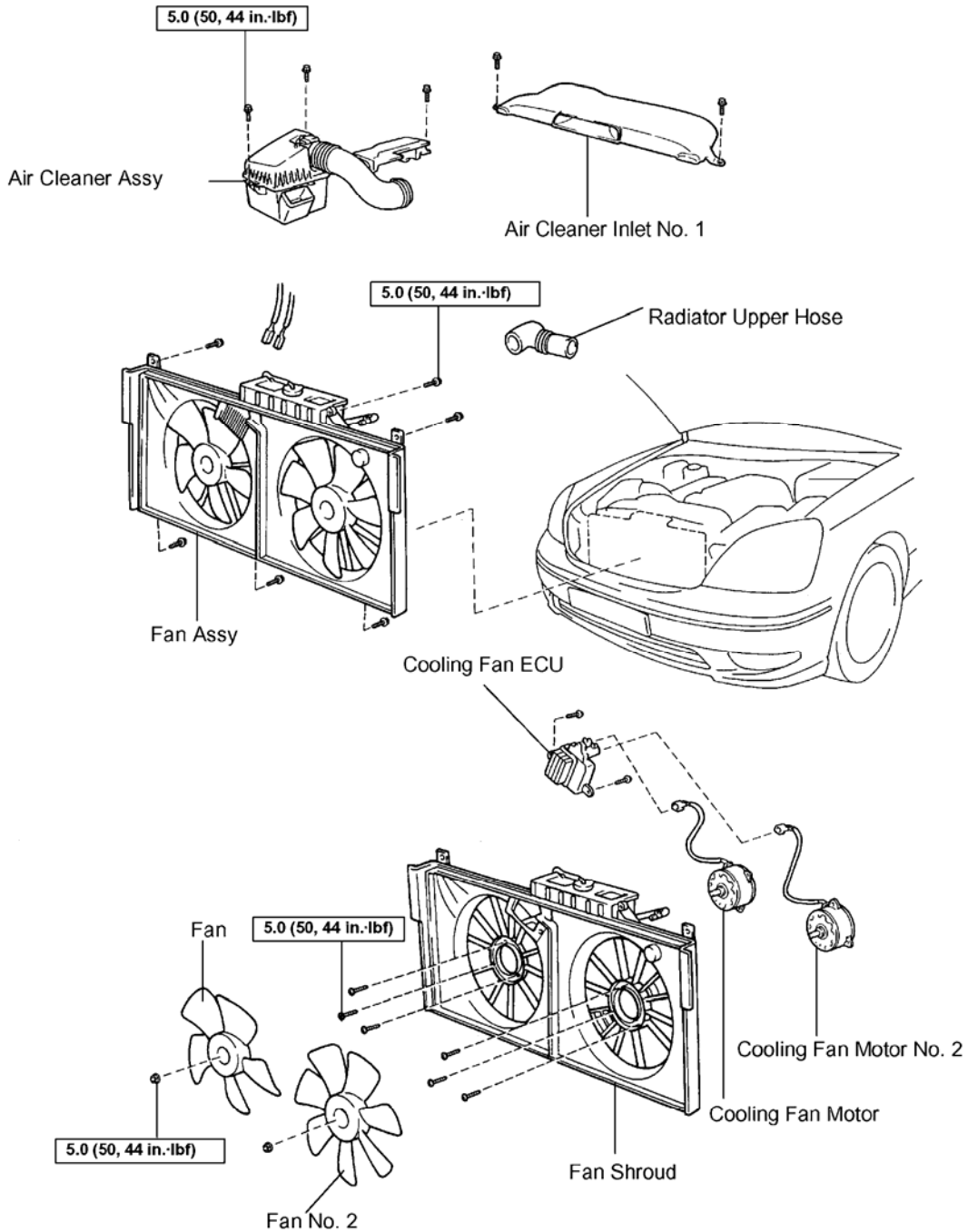
Fig. 44: Inspecting Leaks

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. INSTALL RADIATOR CAP SUB-ASSY
16. INSTALL PACKING

FAN ASSY

COMPONENTS



^N N·m (kgf·cm, ft·lbf) : Specified torque

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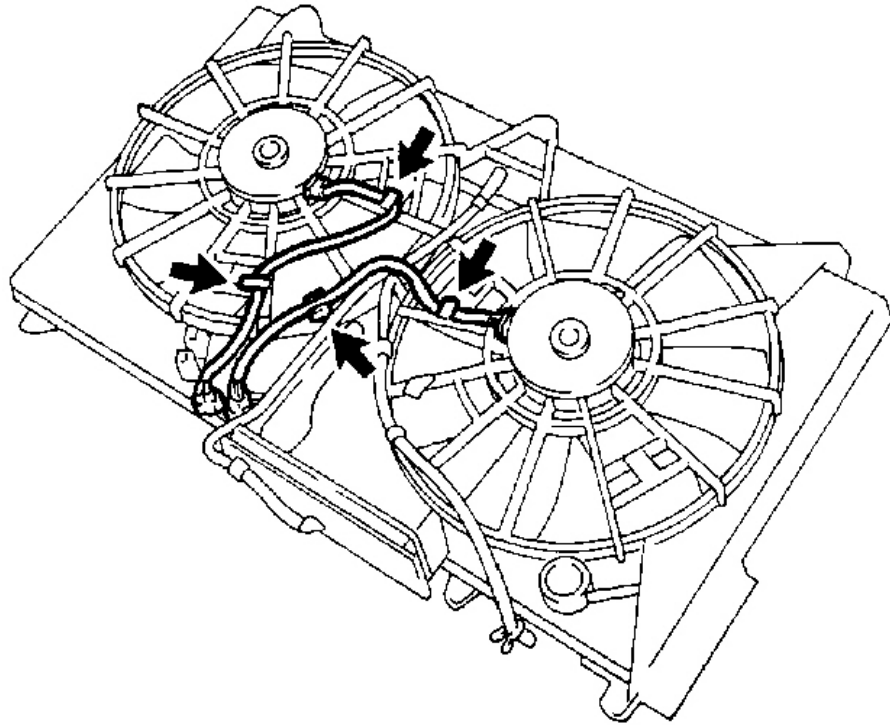
Fig. 45: Identifying Fan Assy And Component
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

HINT:

The installation procedures are the removal procedures in reverse order. However, only installation procedures requiring additional information are included.

1. **DRAIN ENGINE COOLANT FROM RADIATOR (See REPLACEMENT)**
2. **REMOVE AIR CLEANER INLET NO.1**
3. **REMOVE AIR CLEANER ASSY (See REPLACEMENT)**
4. **DISCONNECT RADIATOR HOSE NO.1**
5. **REMOVE FAN ASSY**
 - a. Disconnect the connector.
 - b. Remove the 6 bolts and fan.
6. **REMOVE COOLING FAN ECU**
 - a. Disconnect the 2 connectors.
 - b. Remove the 2 screws and ECU.
7. **REMOVE FAN**
 - a. Remove the 2 nuts and 2 fans.
8. **REMOVE COOLING FAN MOTOR**
 - a. Disconnect the 2 wires from the fan shroud.
 - b. Remove the 6 screws and 2 cooling fan motors.



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Fig. 46: Disconnecting Wires From Fan Shroud
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. INSTALL FAN ASSY s

- a. Install the fan with the 6 bolts.

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