

COOLANT INSPECTION

C004D-19

HINT:

Check the coolant level when the engine is cold.

1. CHECK ENGINE COOLANT LEVEL AT RESERVOIR

The engine coolant level should be between the "LOW" and "FULL" line.

If low, check for leaks and add "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 up to the "FULL" line.

2. CHECK ENGINE COOLANT QUALITY

- (a) Remove the reservoir cap.

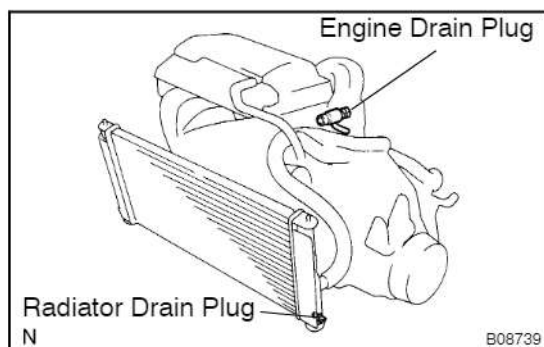
CAUTION:

To avoid the danger of being burned, do not remove the reservoir the cap while the engine and radiator are still hot, as fluid and steam can be blown out under pressure.

- (b) There should not be any excessive deposits of rust or scale around the reservoir cap or reservoir filler hole, and the coolant should be free from oil.

If excessively dirty, replace the coolant.

- (c) Reinstall the reservoir cap.



REPLACEMENT

HINT:

For replacing the heater parts such a heater core or heater hose, refer to AC-29.

1. DRAIN ENGINE COOLANT

- (a) Remove the reservoir cap.

CAUTION:

To avoid the danger of being burned, do not remove the reservoir cap while the engine and radiator are still hot, as fluid and steam can be blown out under pressure.

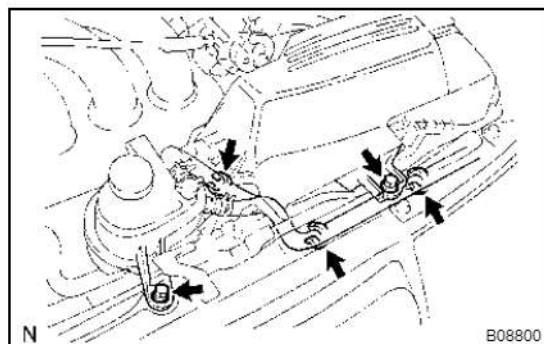
- (b) Loosen the radiator drain plug (on the left under side of the radiator tank) and engine drain plug on the engine coolant drain union (on the left rear of the cylinder block), and drain the coolant.

- (c) Close the drain plugs.

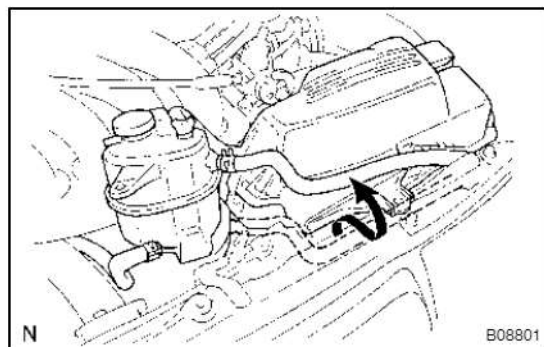
Torque: 12.7 N·m (130 kgf·cm, 9 ft·lbf) for engine

2. FILL ENGINE COOLANT

- (a) Remove the upper front fender apron seal and upper radiator support seal.



- (b) Remove the 2 bolts.
- (c) Disconnect the 3 clamps and 2 hoses, then place hoses on air cleaner case.



- (d) Lift the engine coolant reservoir and hook it on a hood latch to fix.
- (e) Remove the bleeder plug.
- (f) Slowly fill the cooling system with coolant.

Capacity:

1ZZ-FE:

M/T	5.7 liters (6.0 US qts, 5.0 Imp. qts)
A/T	5.6 liters (5.9 US qts, 4.9 Imp. qts)

2ZZ-GE:

M/T	5.9 liters (6.2 US qts, 5.2 Imp. qts)
A/T	5.8 liters (6.1 US qts, 5.1 Imp. qts)

NOTICE:

Do not use plain water alone.

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 the 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 goes down, add the coolant.
 - When the level can not be lowered before the supply of the 3.7 liters coolant, squeeze the radiator lower hose several times while blocking the hole in the bleeder plug with a finger, and surely supply the coolant.
- (g) Start the engine with the reservoir cap and the bleeder plug removed and warm it up until the cooling fan blows first and then stops.

HINT:

At this time, the A/C switch should be OFF.

- (h) Additionally supply 500 cc coolant with the engine idling.
 (i) Install the bleeder plug and reservoir cap.

HINT:

Close the reservoir cap by marking approx. 2.5 rotations until clicks is heard.

- (j) Repeat 5 sec. engine operation at 3,000 rpm and 5 sec. idling alternately for 15 min. or more.
 (k) After complete cooling of the engine, the level shall be between Low and FULL.

HINT:

After warming-up of engine, the level shall be over the FULL.

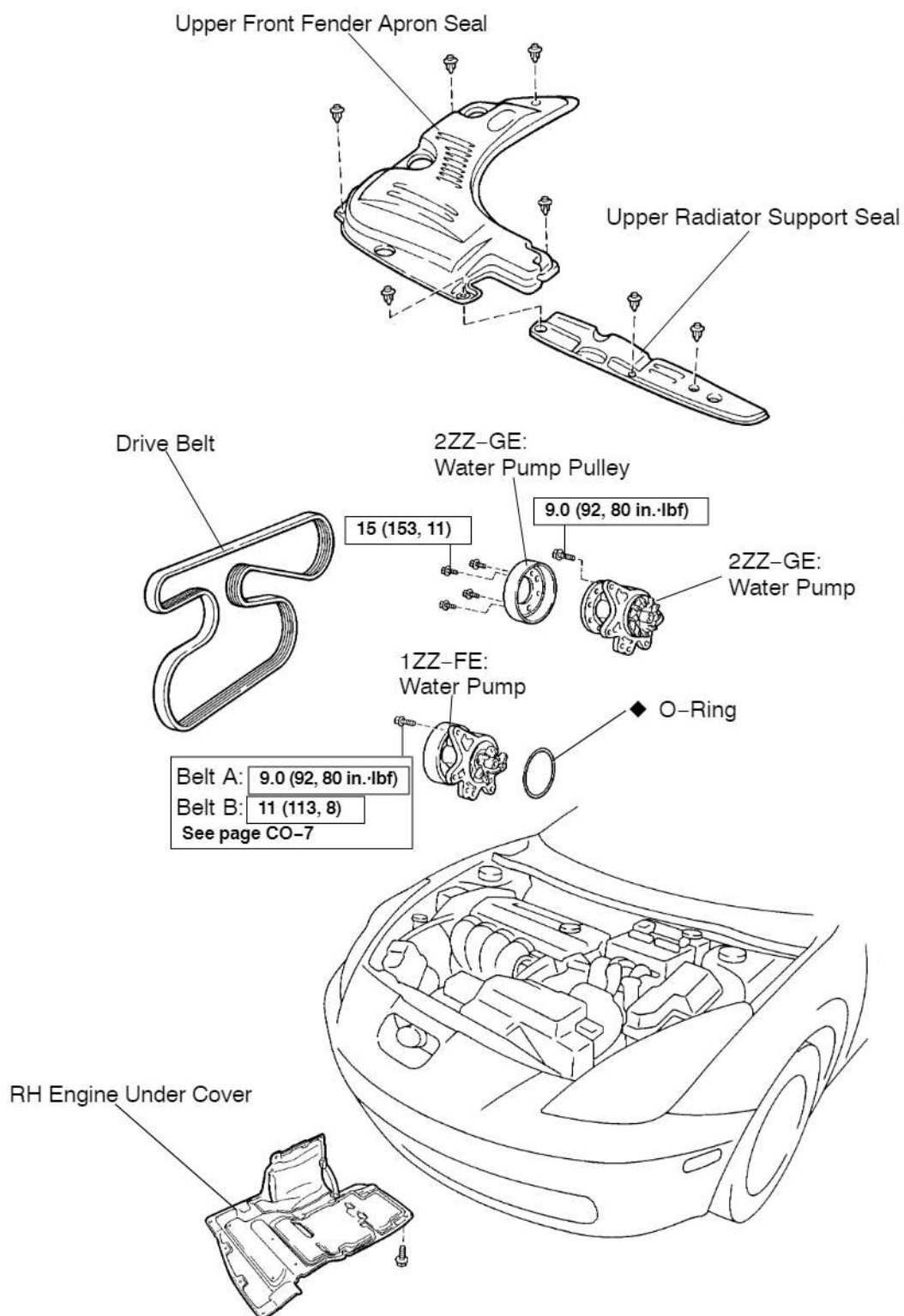
- (l) Connect the 2 hoses and clamps.
 (m) Install the 2 bolts.
 (n) Install the cover.

3. CHECK FOR COOLANT LEAKS

4. CHECK ENGINE COOLANT SPECIFIC GRAVITY CORRECT

WATER PUMP COMPONENTS

C004F-27

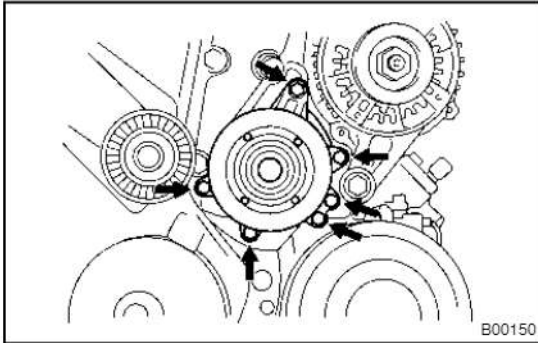


N $\text{N}\cdot\text{m}$ (kgf·cm, ft·lbf) : Specified torque
 ◆ Non-reusable part

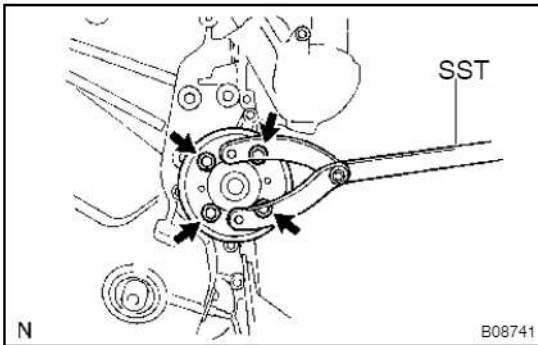
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REMOVAL

1. REMOVE RH ENGINE UNDER COVER
2. DRAIN ENGINE COOLANT
3. REMOVE DRIVE BELT (See page CH-7)



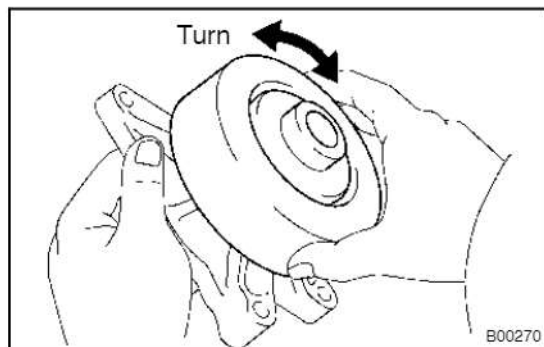
4. **1ZZ-FE:**
REMOVE WATER PUMP
 - (a) Remove the 6 bolts, water pump and O-ring.
 - (b) Clean up the engine coolant from the water chamber room.



5. **2ZZ-GE:**
REMOVE WATER PUMP
 - (a) Using SST, remove the 4 water pump pulley set bolts. SST 09960-10010 (09962-01000, 09963-00600)
 - (b) Remove the water pump pulley.
 - (c) Remove the 6 bolts, water pump and O-ring.
 - (d) Clean up the engine coolant from the water chamber room.

NOTICE:

Do not remove the RH engine mounting bracket and generator when the water pump alone is replaced.

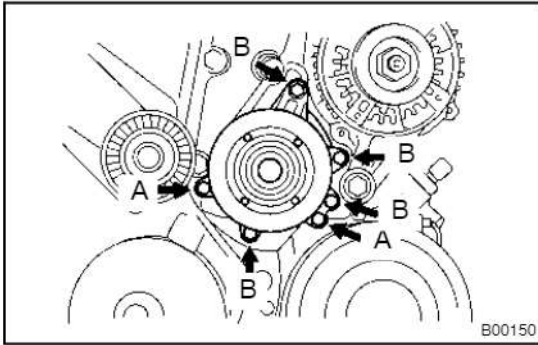


INSPECTION

INSPECT WATER PUMP

- (a) Visually check the drain hole for coolant leakage. If leakage is found, replace the water pump.
- (b) Turn the pulley, and check that the water pump bearing moves smoothly and quietly.

If necessary, replace the water pump.



INSTALLATION

1. 1ZZ-FE:

INSTALL WATER PUMP

- (a) Place a new O-ring on the timing chain cover.
- (b) Install the water pump with the 6 bolts.

Torque:

Bolt A 9.0 N·m (92 kgf·cm, 80 in·lbf)

Bolt B 11 N·m (113 kgf·cm, 8 ft·lbf)

HINT:

Each bolt length is indicated in the illustration.

A: 30 mm (1.18 in.)

B: 35 mm (1.38 in.)

2. 2ZZ-GE:

INSTALL WATER PUMP

- (a) Place a new O-ring on the timing chain cover.
- (b) Install the water pump with the 6 bolts.

Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)

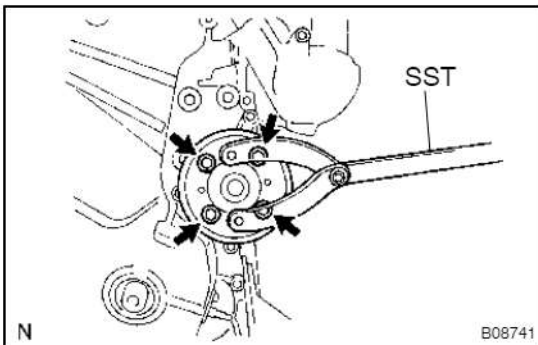
HINT:

Each bolt length is indicated in the illustration.

A: 30 mm (1.18 in.)

B: 35 mm (1.38 in.)

- (c) Install the water pump pulley.



- (d) Using SST, tighten the 4 water pump pulley set bolts.
SST 09960-10010 (09962-01000, 09963-00600)

Torque: 15 N·m (153 kgf·cm, 11 ft·lbf)

3. INSTALL RH ENGINE UNDER COVER

4. INSTALL DRIVE BELT

(See page CH-17)

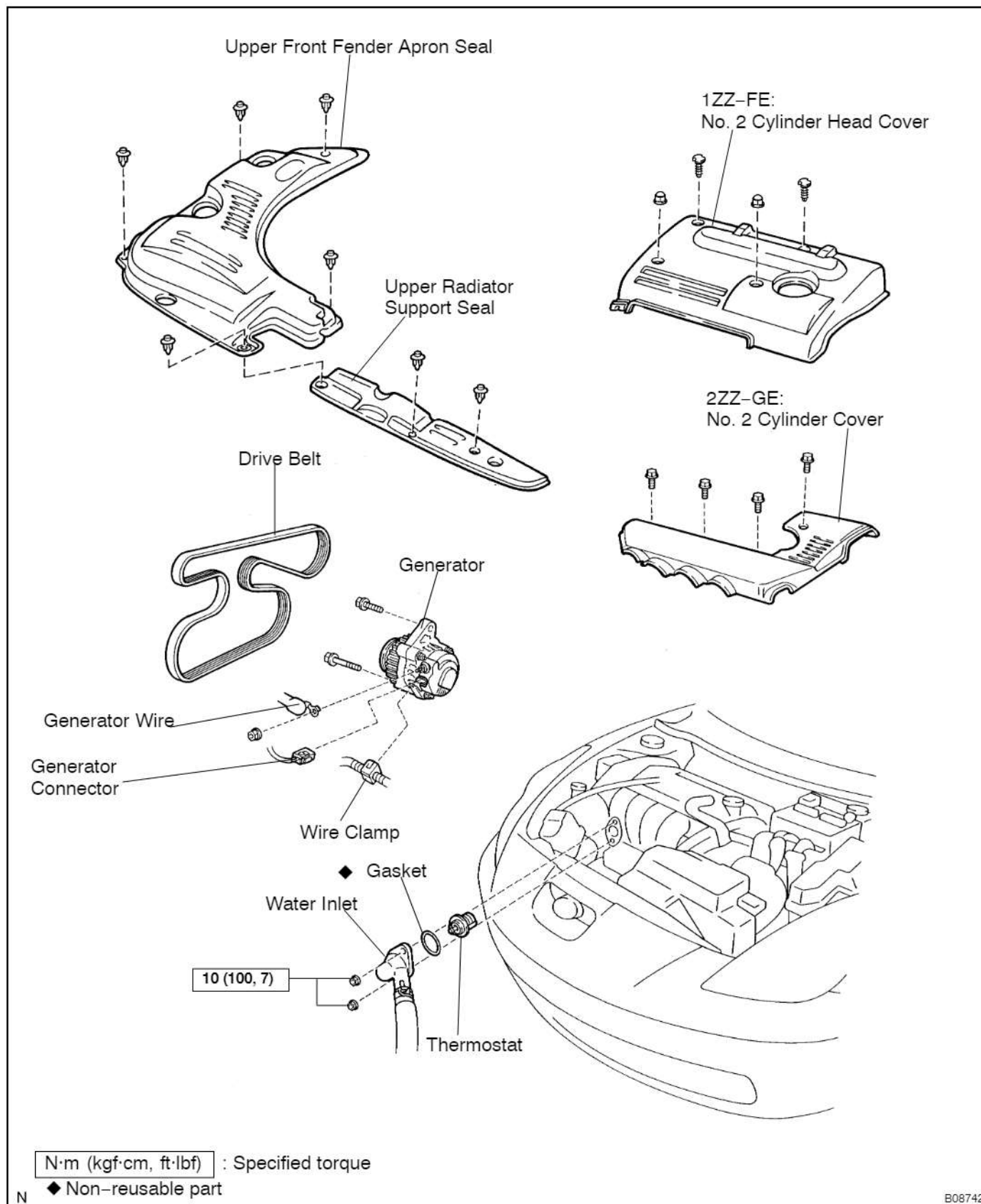
5. FILL WITH ENGINE COOLANT

6. START ENGINE AND CHECK FOR LEAKS

7. RECHECK ENGINE COOLANT LEVEL

THERMOSTAT COMPONENTS

C004J-27



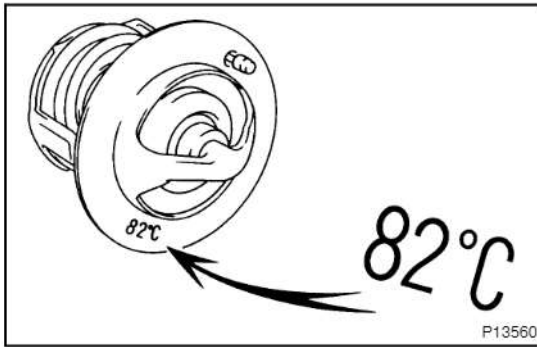
B08742

REMOVAL

HINT:

Removal of the thermostat would have an adverse effect, causing a lowering of cooling efficiency. Do not remove the thermostat, even if the engine tends to overheat.

1. **DRAIN ENGINE COOLANT**
2. **REMOVE DRIVE BELT AND GENERATOR**
(See page CH-7)
3. **REMOVE WATER INLET AND THERMOSTAT**
 - (a) Remove the 2 nuts, and disconnect the water inlet from the cylinder block.
 - (b) Remove the thermostat.
 - (c) Remove the gasket from the thermostat.

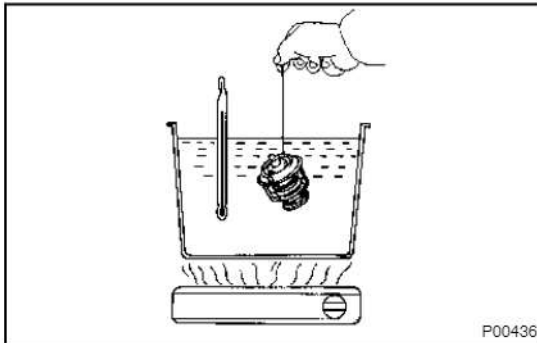


INSPECTION

INSPECT THERMOSTAT

HINT:

The thermostat is numbered with the valve opening temperature.



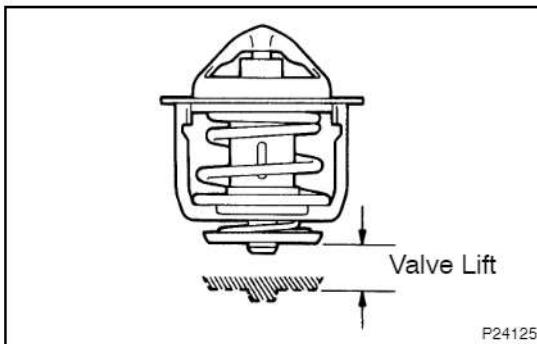
(a) Immerse the thermostat in water and gradually heat the water.

(b) Check the valve opening temperature.

Valve opening temperature:

80.0 – 84.0°C (176 – 183°F)

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



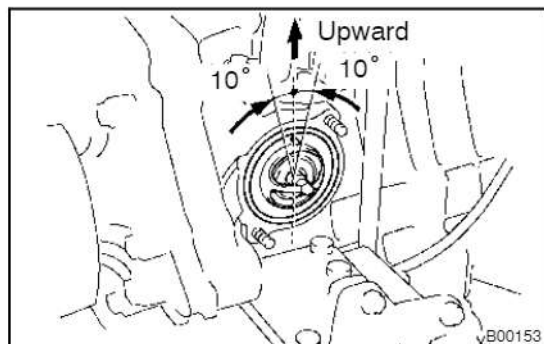
(c) Check the valve lift.

Valve lift: 10 mm (0.39 in.) or more at 90°C (194°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.



INSTALLATION

1. PLACE THERMOSTAT IN CYLINDER BLOCK

- (a) Install a new gasket to the thermostat.
- (b) Install the thermostat with the jiggle valve upward.

HINT:

The jiggle valve may be set within 10° of either side of the prescribed position.

2. INSTALL WATER INLET

Install the water inlet with the 2 nuts.

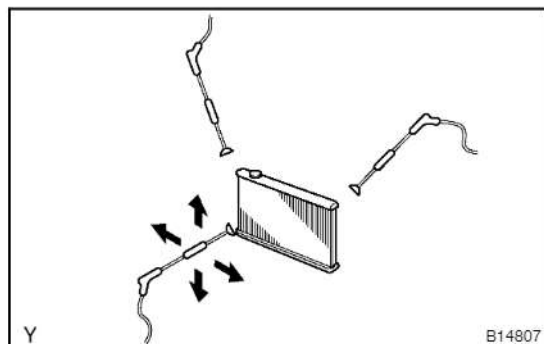
Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)

3. INSTALL GENERATOR AND DRIVE BELT

(See page CH-17)

4. FILL WITH ENGINE COOLANT

5. START ENGINE, AND CHECK FOR COOLANT LEAKS



RADIATOR ON-VEHICLE CLEANING

CO1B0-05

INSPECT FINS FOR BLOCKAGE

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

NOTICE:

- If the distance between the steam cleaner and the core is too close, there is a possibility of damaging the fin, so keep the following injection distance.

Injection Pressure	Injection Distance
2,942 - 4,903 kpa (30 - 50 kg/cm ² , 427 - 711 psi)	300 mm (11.811 in)
4,903 - 7,845 kpa (50 - 80 kg/cm ² , 711 - 1,138 psi)	500 mm (19.685 in)

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

ON-VEHICLE INSPECTION

1. REMOVE RESERVOIR CAP

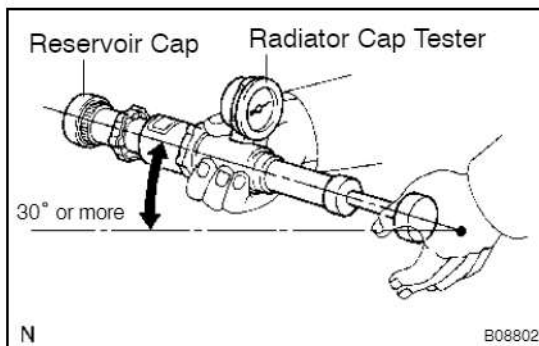
CAUTION:

To avoid the danger of being burned, do not remove the reservoir cap while the engine and radiator are still hot, as fluid and steam can be blown out under pressure.

2. INSPECT RESERVOIR CAP

NOTICE:

- 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) below, keep the radiator cap 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 coming from the vacuum valve.

Pump speed: 1 push/(3 seconds or more)

NOTICE:

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

NOTICE:

This pump speed is for the first pump only (in order to close the vacuum valve). After this, the pump speed can be reduced.

Standard opening pressure:

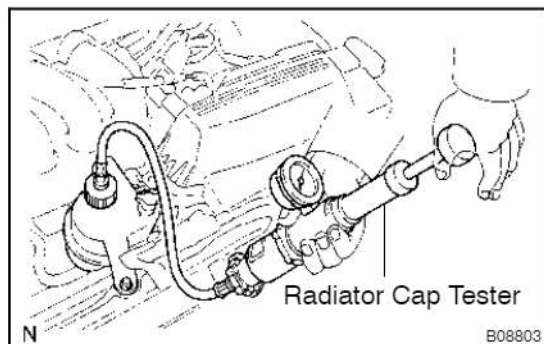
93 – 123 kPa (0.95 – 1.25 kgf/cm², 13.5 – 17.8 psi)

Minimum opening pressure:

79 kPa (0.8 kgf/cm², 11.5 psi)

HINT:

Use the tester's maximum reading as the opening pressure. If the opening pressure is less than minimum, replace the reservoir cap.

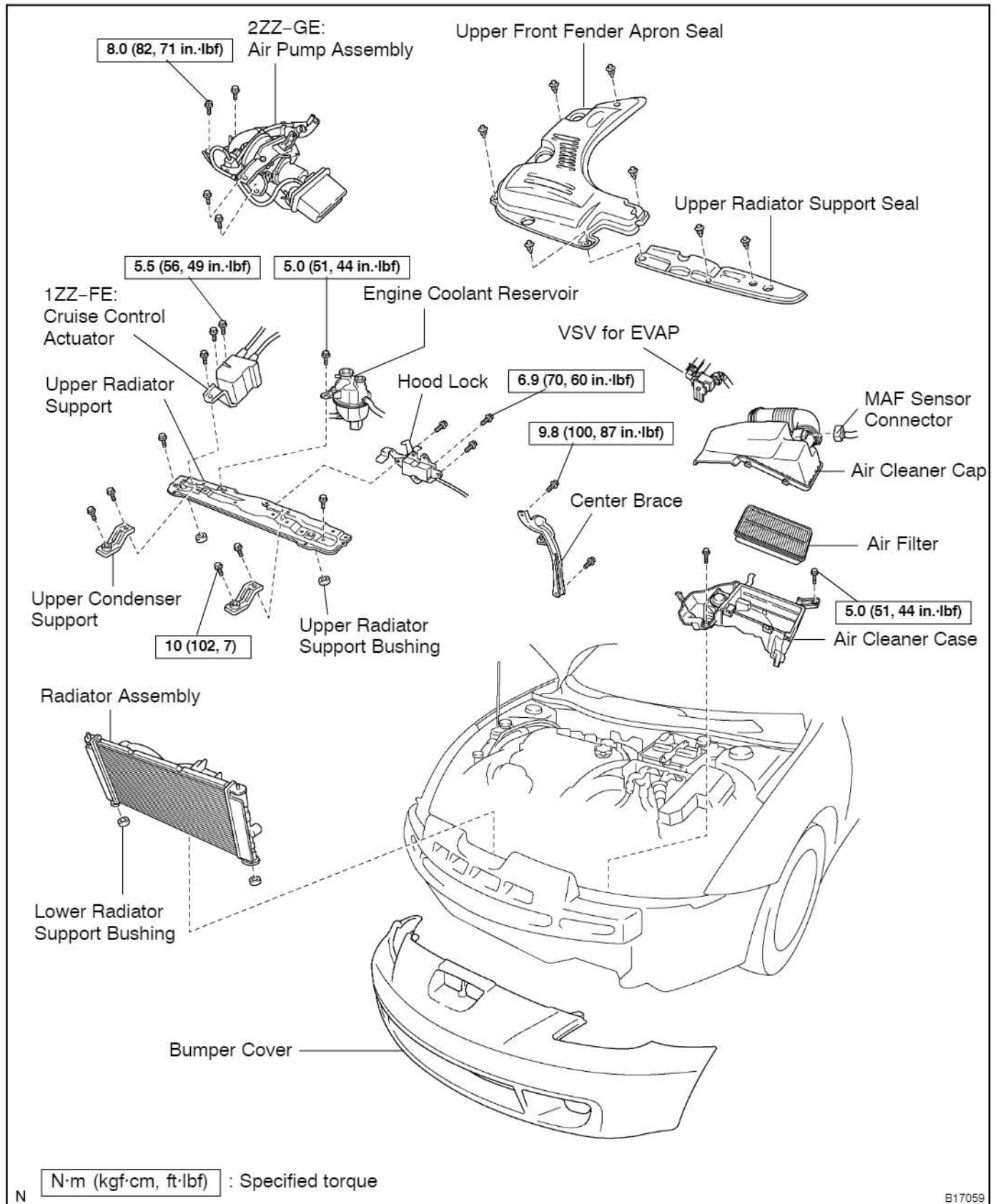
**3. INSPECT COOLING SYSTEM FOR LEAKS**

- (a) Fill the radiator with coolant and attach a radiator cap tester.
- (b) Warm up the engine.
- (c) Pump it to 118 kPa (1.2 kgf/cm², 17.1 psi), and check that the pressure does not drop.

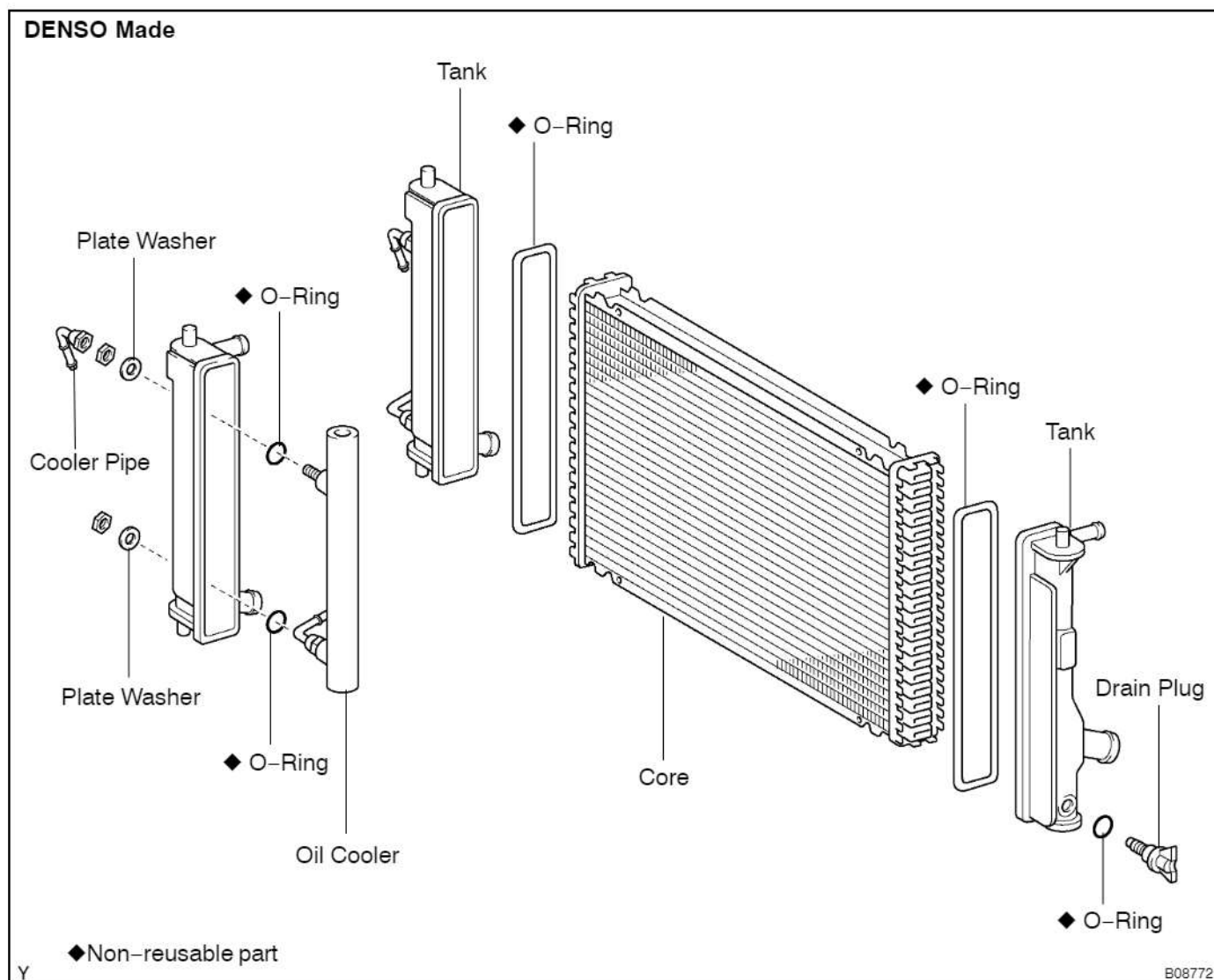
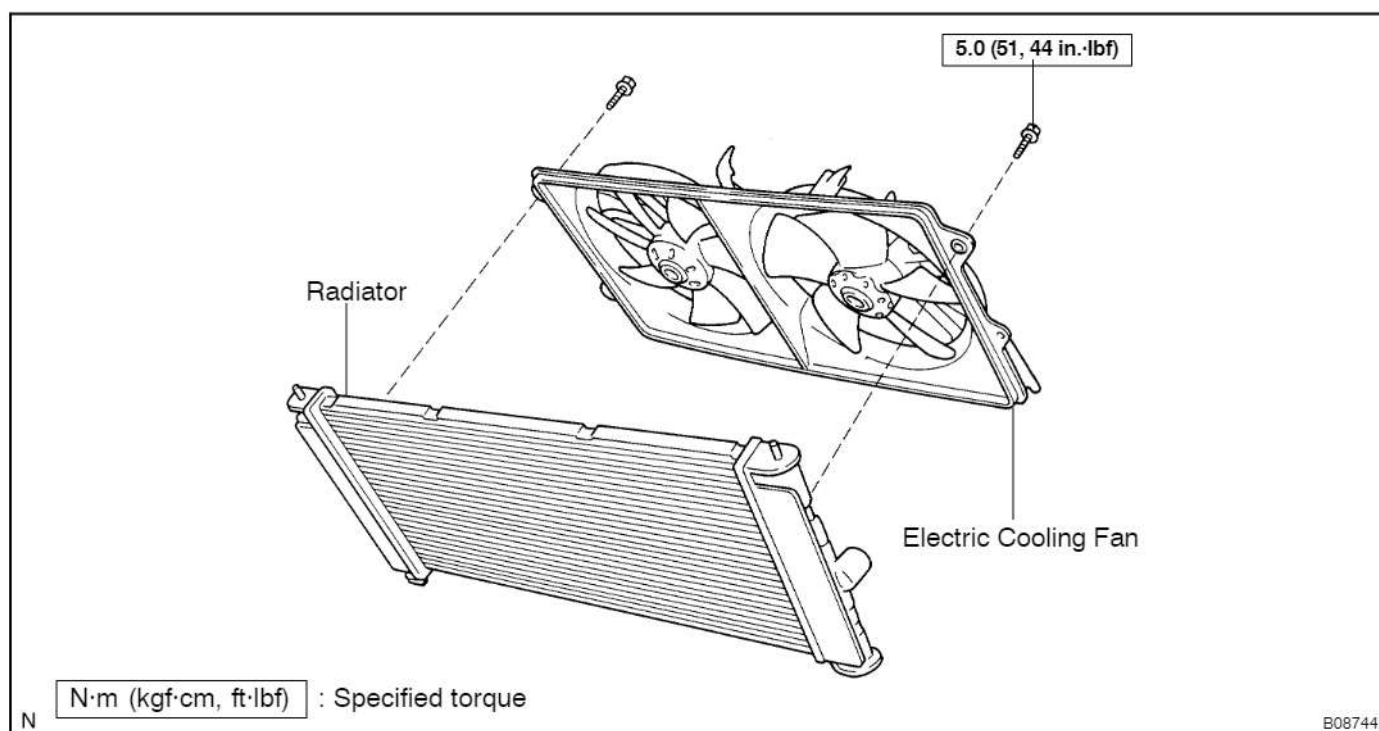
If the pressure drops, check the hoses, radiator or water pump for leaks. If no external leaks are found, check the heater core, cylinder block and head.

4. REINSTALL RESERVOIR CAP

COMPONENTS

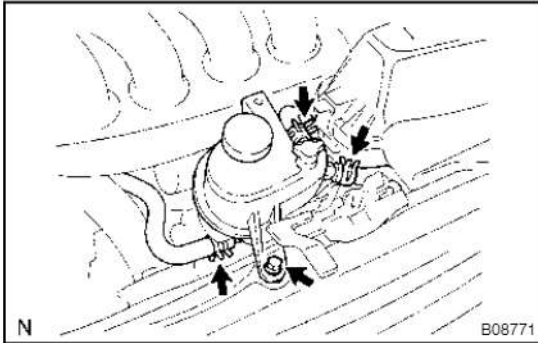


B17059



REMOVAL

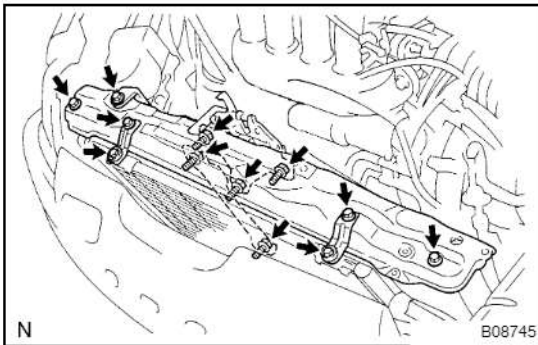
1. REMOVE UPPER FRONT FENDER APRON SEAL AND UPPER RADIATOR SUPPORT SEAL
2. DRAIN ENGINE COOLANT
3. REMOVE BUMPER COVER (See page BO-4)
4. 2ZZ-GE:
REMOVE AIR PUMP ASSEMBLY (See page EC-15)
5. REMOVE AIR CLEANER

**6. REMOVE ENGINE COOLANT RESERVOIR**

- (a) Disconnect the 3 radiator reservoir hoses.
- (b) Remove the bolt and engine coolant reservoir.

7. REMOVE RADIATOR ASSEMBLY

- (a) Disconnect the No. 1 electric cooling fan connector.
 - (b) Disconnect the No. 2 electric cooling fan connector.
 - (c) Disconnect the upper radiator hose.
 - (d) Disconnect the lower radiator hose.
 - (e) Disconnect the 2 A/T oil cooler hoses.
 - (f) Remove the 3 bolts, and disconnect the hood lock.
 - (g) Remove the 2 bolts and center brace.
 - (h) Remove the 4 bolts and 2 upper condenser supports.
 - (i) w/ Cruise control system:
Remove the bolt, and disconnect the cruise control actuator.
 - (j) Remove the 2 bolts and radiator upper support.
 - (k) Remove the 2 upper radiator support bushings.
 - (l) Remove the radiator assembly.
 - (m) Remove the 2 lower radiator support bushings.
- 8. REMOVE ELECTRIC COOLING FAN FROM RADIATOR**

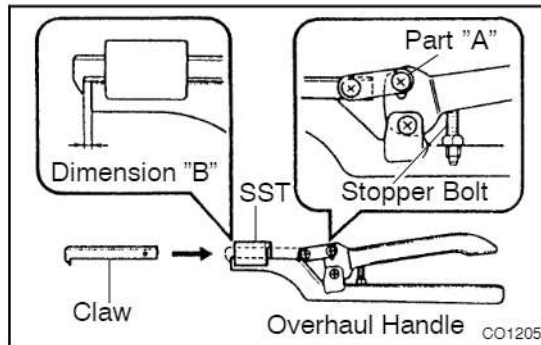


Remove the 2 bolts and cooling fan assembly.

DISASSEMBLY

1. REMOVE DRAIN PLUG

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



2. DENSO Made:

ASSEMBLE SST

SST 09230-01010

- Install the claw to the overhaul handle, inserting it in the hole in part "A" as shown in the diagram.
- While gripping the handle, adjust the stopper bolts so that dimension "B" shown in the diagram is 0.2 – 0.3 mm (0.008 – 0.012 in.).

NOTICE:

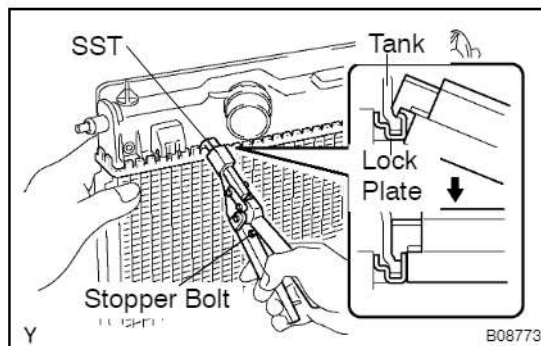
If this adjustment is not done the claw may be damaged.

3. DENSO Made:

UNCAULK LOCK PLATES

Using SST to release the caulking, squeeze the handle until stopped by the stopper bolts.

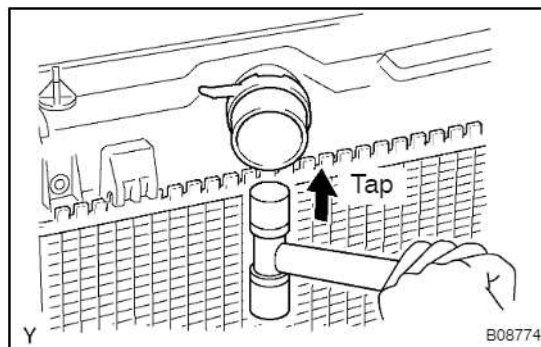
SST 09230-01010



4. DENSO Made:

REMOVE TANKS AND O-RINGS

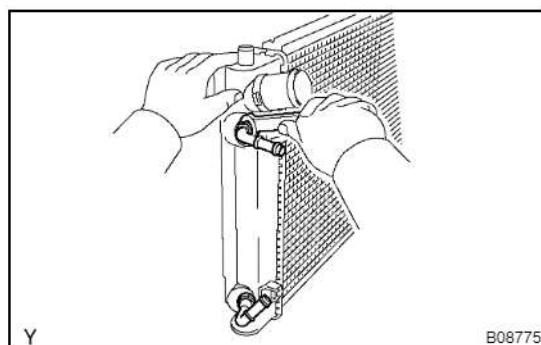
Lightly tap the bracket of the radiator (or radiator inlet or outlet) with a soft-faced hammer, and remove the tank and the O-ring.

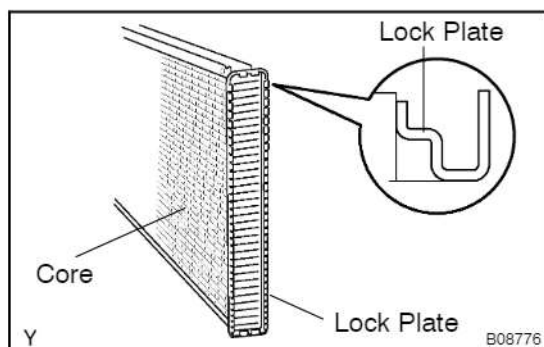


5. A/T (DENSO Made):

REMOVE OIL COOLER FROM LOWER TANK

- Loosen the nut, and remove the cooler pipe.
- Remove the 2 nuts and 2 plate washers.
- Remove the oil cooler and 2 O-rings.





INSPECTION

DENSO Made:

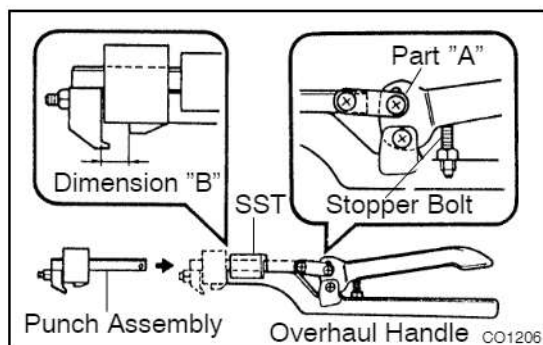
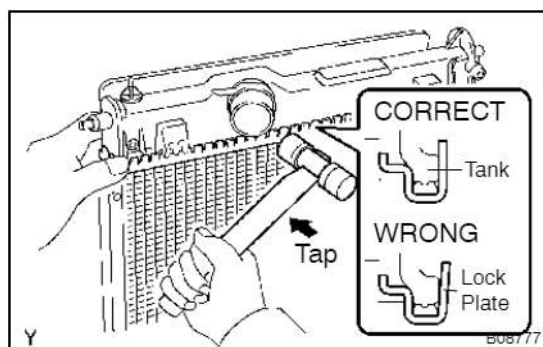
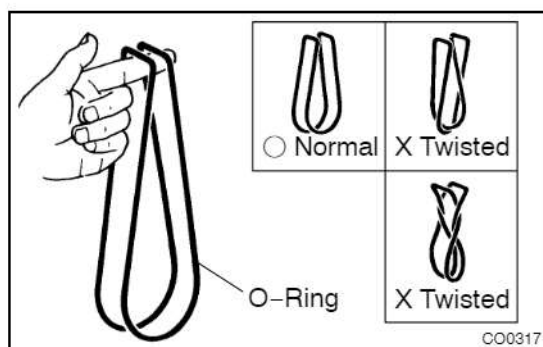
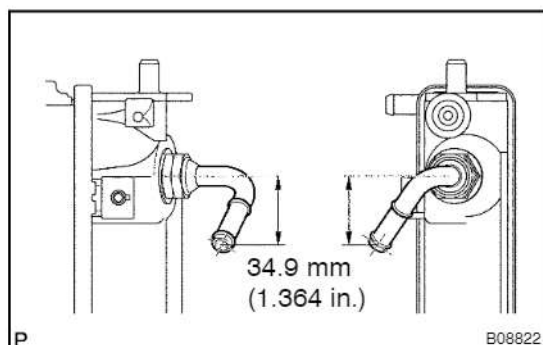
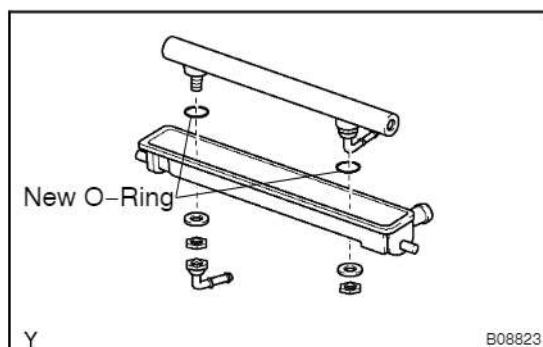
INSPECT LOCK PLATE FOR DAMAGE

HINT:

- If the sides of the lock plate groove are deformed, reassembly of the tank will be impossible.
- Therefore, first correct any deformation with pliers or similar object. Water leakage will result if the bottom of the lock plate groove is damaged.

NOTICE:

The radiator can only be recaulked 2 times. After the 2nd time, the radiator core must be replaced.



REASSEMBLY

1. A/T (DENSO Made):

INSTALL OIL COOLER TO LOWER TANK

- Clean the O-ring contact surface of the lower tank and oil cooler.
- Install 2 new O-rings to the oil cooler.
- Install the oil cooler to the lower tank.
- Install the 2 plate washers and 2 nuts.

Torque: 8.34 N·m (85 kgf·cm, 74 in·lbf)

- Install the cooler pipe in the direction indicated as shown in the illustration.

Torque: 14.7 N·m (150 kgf·cm, 11 ft·lbf)

2. DENSO Made:

INSTALL NEW O-RINGS AND TANKS

- After checking that there are no foreign objects in the lock plate groove, install the new O-ring without twisting it.

HINT:

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

- Install the tank without damaging the O-ring.

- Tap the lock plate with a soft-faced hammer so that there is no gap between it and the tank.

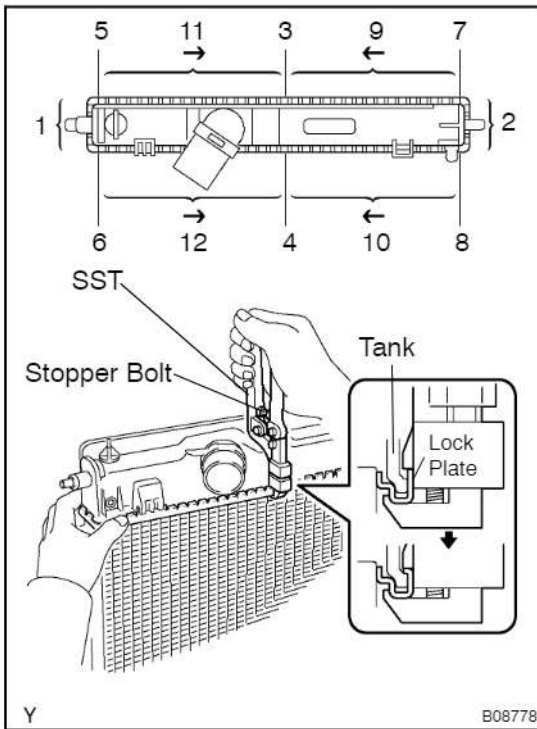
3. DENSO Made:

ASSEMBLE SST

SST 09230-01010, 09231-14010

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

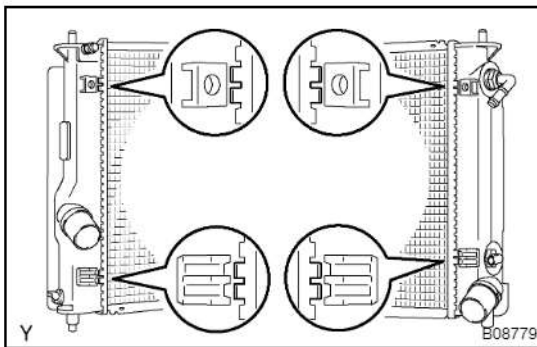
Dimension: 8.4 mm (0.331 in.)



**4. DENSO Made:
CAULK LOCK PLATE**

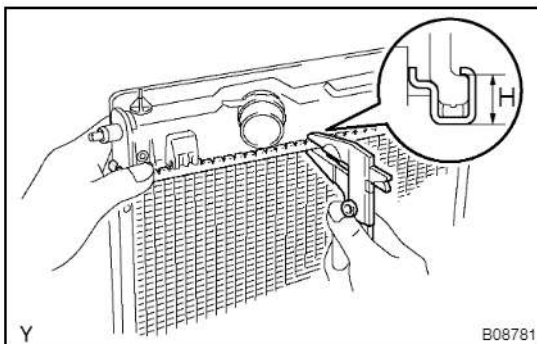
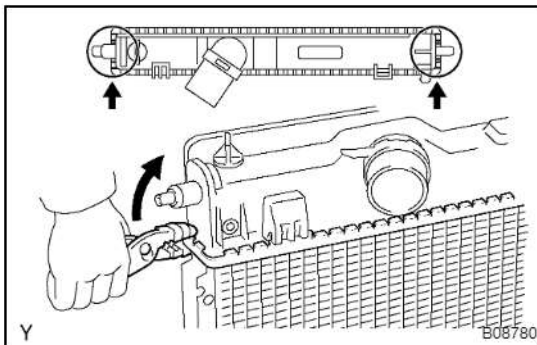
- (a) Lightly press SST against the lock plate in the order shown in the illustration. After repeating this a few times, fully caulk the lock plate by squeezing the handle until stopped by the stopper plate.

SST 09230-01010



HINT:

- Do not stake the areas protruding around the pipes, brackets or tank ribs.
- The points shown in the illustration and oil cooler near here (A/T) cannot be staked with SST. Use wrap vinyl tape around the tip of a pair or similar object and be careful not to damage the core plates.



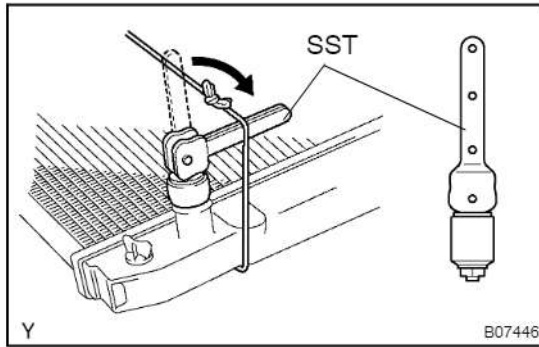
- (b) Check the lock plate height (H) after completing the caulking.

Plate height: 7.40 – 7.80 mm (0.2913 – 0.3071 in.)

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

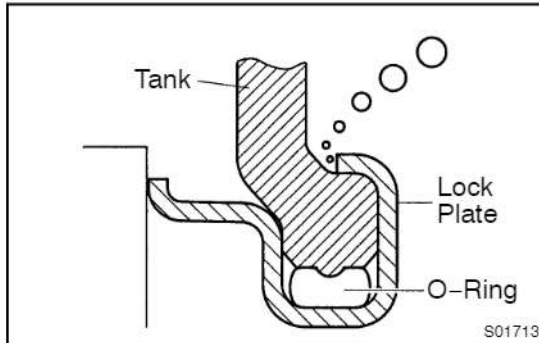
5. INSTALL DRAIN PLUG

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



6. INSPECT FOR WATER LEAKS

- (a) Tighten the drain plug.
- (b) Install the engine coolant reservoir.
- (c) Plug the inlet and outlet pipes of the radiator with SST.
SST 09230-01010
- (d) Using a radiator cap tester, apply pressure to the radiator.
Test pressure: 177 kPa (1.8 kgf/cm², 26 psi)
- (e) Submerge the radiator in water.



- (f) Inspect for leaks.

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. Therefore, before doing the water leak test, first swish the radiator around in the water until all bubbles disappear.

INSTALLATION

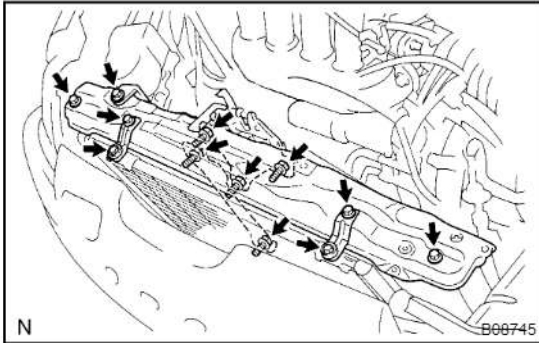
1. INSTALL ELECTRIC COOLING FAN TO RADIATOR

Install the cooling fan with the 2 bolts.

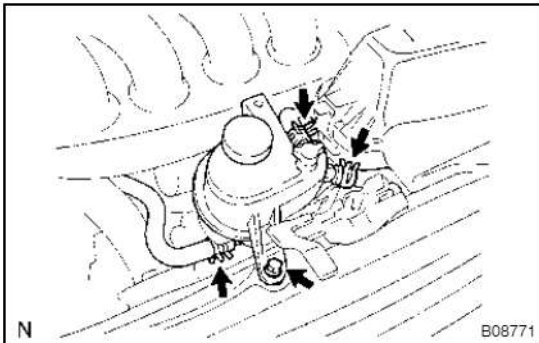
Torque: 5.0 N·m (51 kgf·cm, 44 in·lbf)

2. INSTALL RADIATOR ASSEMBLY

- (a) Install the 2 lower radiator support bushings.
- (b) Install the radiator assembly.
- (c) Install the 2 upper radiator support bushings.



- (d) Install the radiator upper support with the 2 bolts.
- (e) w/ Cruise control system:
Install the cruise control actuator with the 3 bolts.
- (f) Install the 2 upper condenser supports with the 4 bolts.
- (g) Install the center brace with the 2 bolts.
- (h) Install the hood lock with the 3 bolts.
- (i) Connect the 2 A/T oil cooler hoses.
- (j) Connect the lower radiator hose.
- (k) Connect the upper radiator hose.
- (l) Connect the No. 1 electric cooling fan connector.
- (m) Connect the No. 2 electric cooling fan connector.



3. INSTALL ENGINE COOLANT RESERVOIR

- (a) Install the engine coolant reservoir with the bolt.
Torque: 5.0 N·m (51 kgf·cm, 44 in·lbf)
- (b) Connect the 3 radiator reservoir hoses.

4. INSTALL AIR CLEANER

5. 2ZZ-GE:

INSTALL AIR PUMP ASSEMBLY (See page EC-18)

6. INSTALL BUMPER COVER (See page BO-4)

7. FILL WITH ENGINE COOLANT

8. INSTALL UPPER FRONT FENDER APRON SEAL AND UPPER RADIATOR SUPPORT SEAL

9. START ENGINE AND CHECK FOR COOLANT LEAKS

ELECTRIC COOLING FAN ON-VEHICLE INSPECTION

COOXS-08

1. CHECK COOLING FAN OPERATION WITH LOW TEMPERATURE (Below 83°C (181°F))

- Turn the ignition switch ON.
- Check that the cooling fan stops.

If not, check the cooling fan relay and ECT sensor, and check for a separated connector or severed wire between the cooling fan relay and ECT sensor.

- Disconnect the ECT sensor connector.
- Check that the cooling fan rotates.

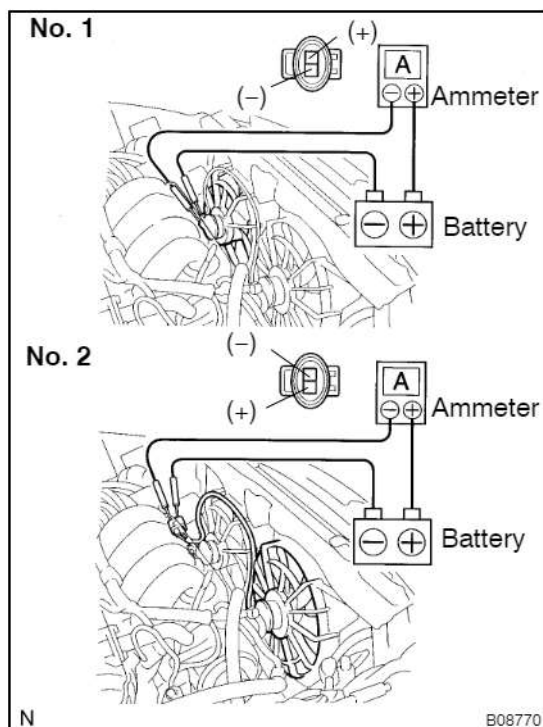
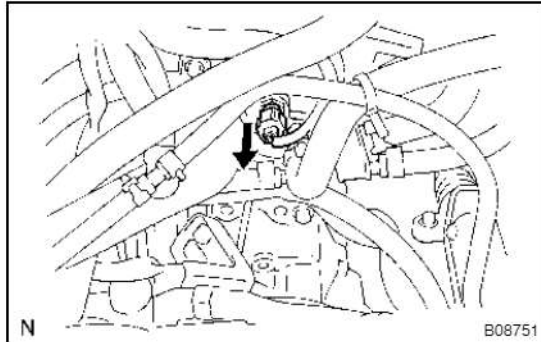
If not, check the engine main relay, cooling fan relay, cooling fan, fuses, and check for short circuit between the cooling fan relay and ECT sensor.

- Reconnect the ECT sensor connector.

2. CHECK COOLING FAN OPERATION WITH HIGH TEMPERATURE (Above 93°C (199°F))

- Start the engine, and raise coolant temperature to above 93°C (199°F).
- Check that the cooling fan rotates.

If not, replace the ECT sensor.



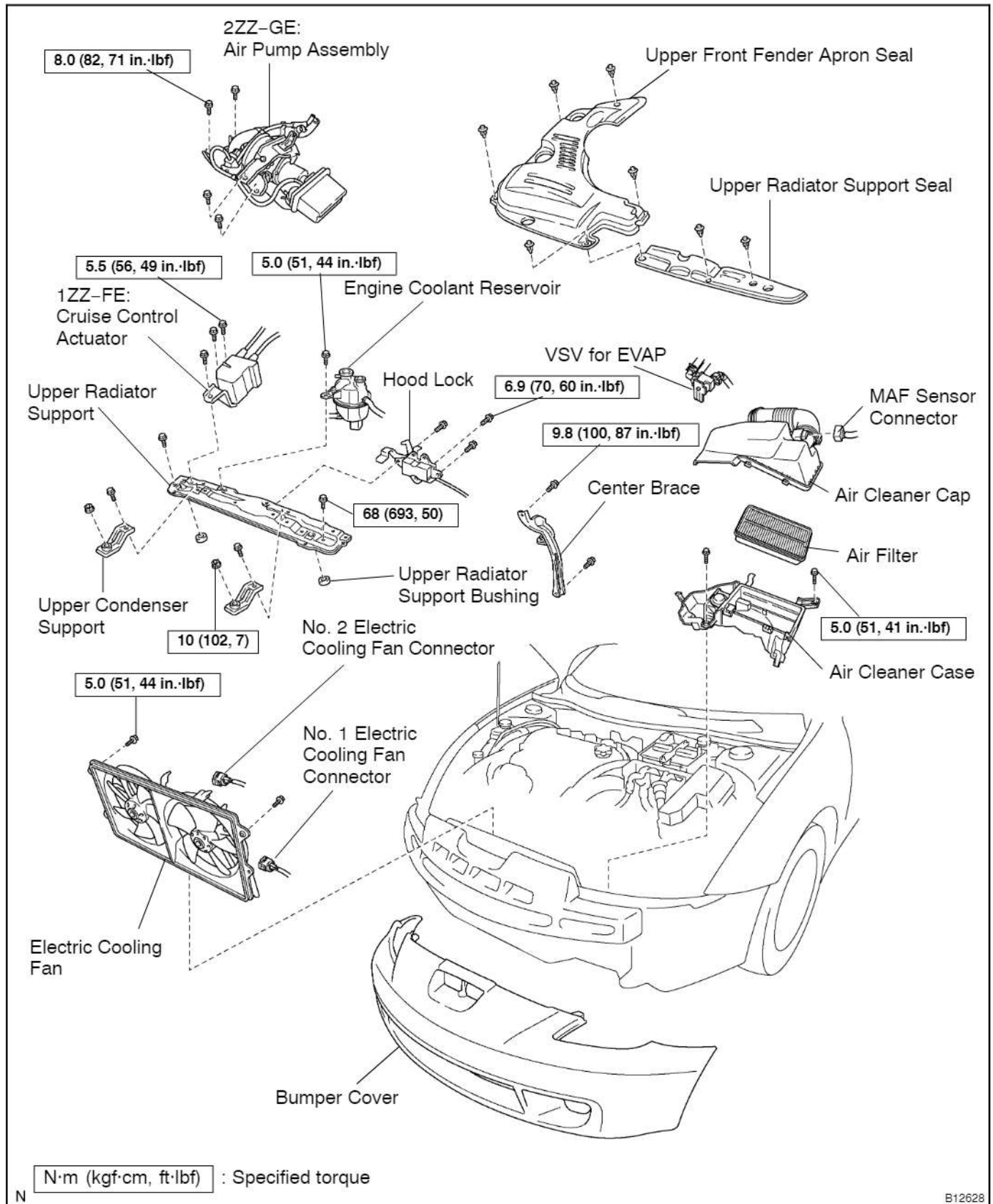
3. INSPECT COOLING FANS

- Disconnect the cooling fan connector.
- Connect battery and ammeter to the connector.
- Check that the cooling fan rotates smoothly, and check the reading on the ammeter.

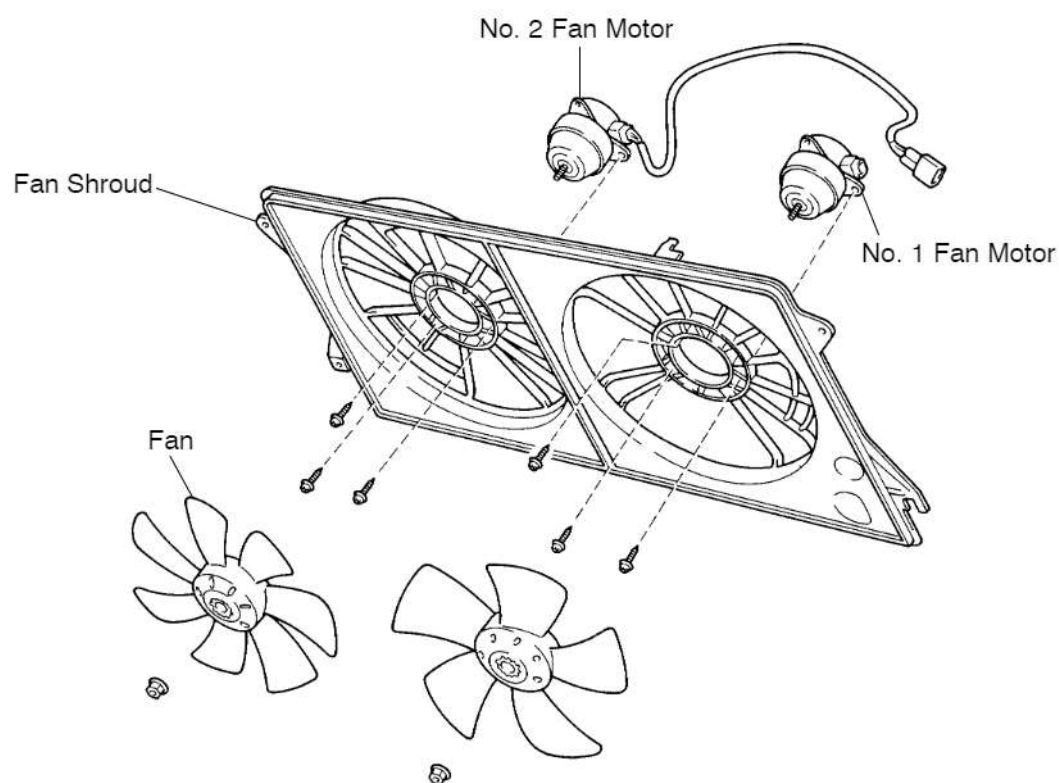
Standard amperage: 5.2 – 8.2 A

- Reconnect the cooling fan connector.

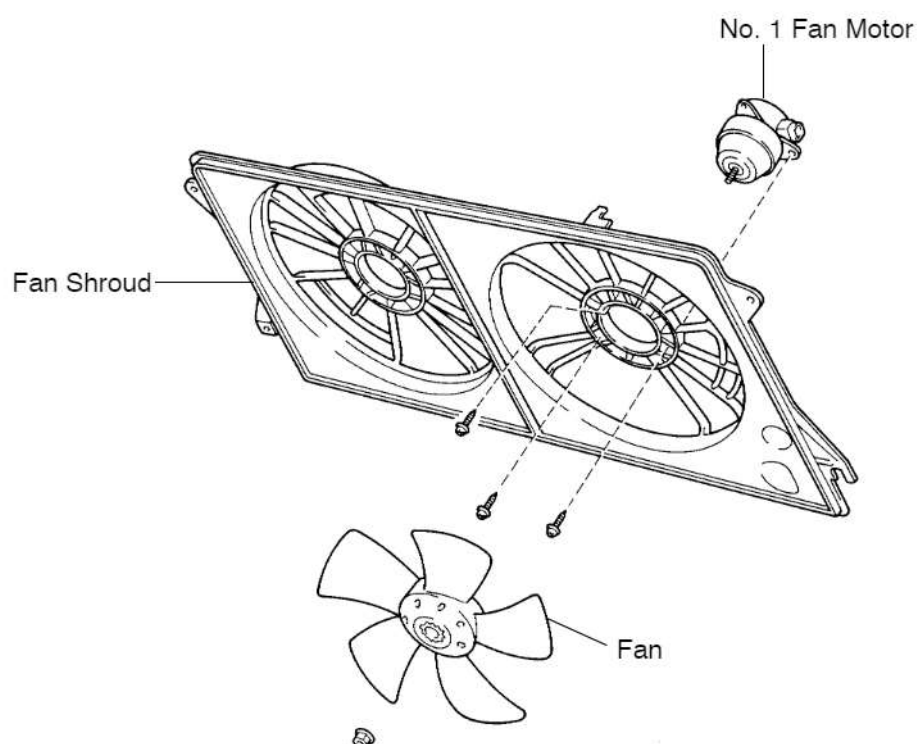
COMPONENTS



w/ A/C

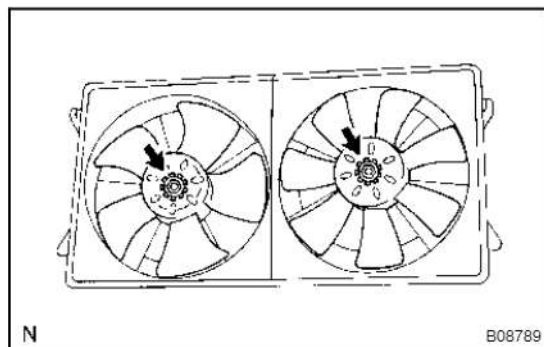


w/o A/C



REMOVAL

1. **REMOVE UPPER FRONT FENDER APRON SEAL AND UPPER RADIATOR SUPPORT SEAL**
2. **2ZZ-GE:**
REMOVE AIR PUMP ASSEMBLY (See page EC-15)
3. **DRAIN ENGINE COOLANT**
4. **REMOVE BUMPER COVER (See page BO-4)**
5. **REMOVE RADIATOR UPPER SUPPORT**
 - (a) Remove the air cleaner assembly.
 - (b) Remove the engine coolant reservoir.
 - (c) Remove the 3 bolts, and disconnect the hood lock.
 - (d) Remove the 2 bolts and center brace.
 - (e) Remove the 4 bolts and 2 upper condenser supports.
 - (f) w/ Cruise control system:
Remove the bolt, and disconnect the cruise control actuator.
 - (g) Remove the 2 bolts and radiator upper support.
6. **REMOVE COOLING FAN**
 - (a) Disconnect the 2 cooling fan connectors.
 - (b) Remove the 2 bolts and cooling fan.



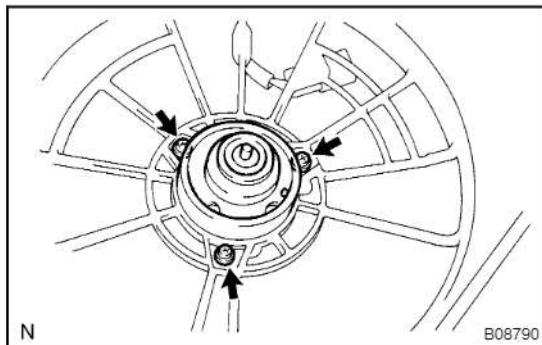
DISASSEMBLY

1. REMOVE FAN(S)

Remove the nut and fan.

2. REMOVE FAN MOTOR(S)

- (a) Disconnect the wire and connector holder from the fan shroud.
- (b) Remove the 3 screws and fan motor.

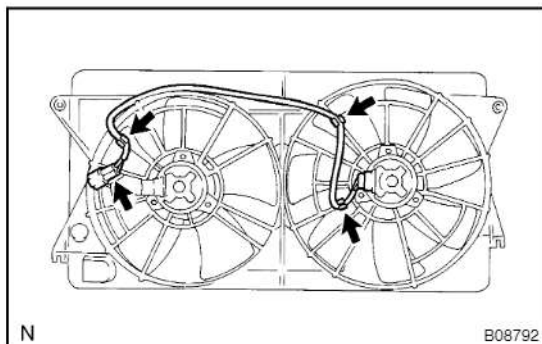


REASSEMBLY

1. INSTALL FAN MOTOR(S)

- (a) Install the fan motor with the 3 screws.

Torque: 2.55 N·m (26 kgf·cm, 23 in·lbf)



- (b) Install the wire and connector holder to the fan shroud.

2. INSTALL FAN(S)

Install the fan with the nut.

Torque: 6.18 N·m (63 kgf·cm, 55 in·lbf)

INSTALLATION

1. INSTALL COOLING FAN

- (a) Install the cooling fan with the 2 bolts.

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

- (b) Connect the 2 cooling fan connectors.

2. INSTALL RADIATOR UPPER SUPPORT

- (a) Install the radiator upper support with the 2 bolts.

- (b) w/ Cruise control system:

Install the cruise control actuator with the 3 bolts.

- (c) Install the 2 upper condenser supports with the 4 bolts.

- (d) Install the center brace with the 2 bolts.

- (e) Install the hood lock with the 3 bolts.

- (f) Install the engine coolant reservoir.

- (g) Install the air cleaner assembly.

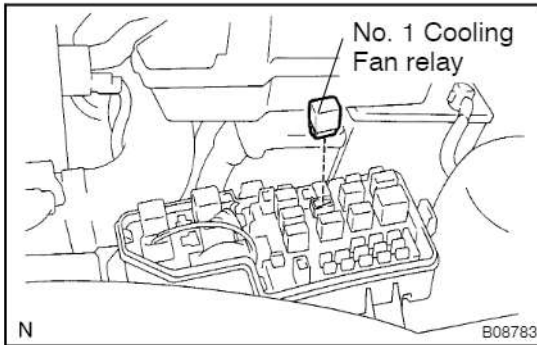
3. INSTALL FRONT BUMPER (See page BO-4)

4. 2ZZ-GE:

INSTALL AIR PUMP ASSEMBLY (See page EC-18)

5. FILL WITH ENGINE COOLANT

6. START ENGINE AND CHECK FOR COOLANT LEAKS

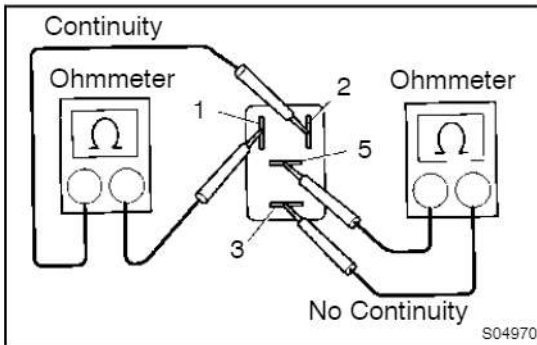


COOLING FAN RELAY INSPECTION

CO054-11

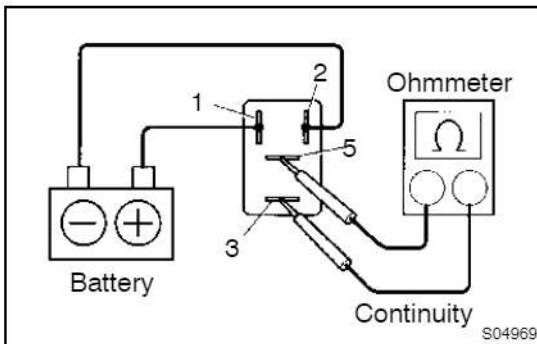
1. INSPECT NO. 1 COOLING FAN RELAY

- Remove the relay box cover.
- Remove the No. 1 cooling fan relay. (Marking: FAN No. 1)

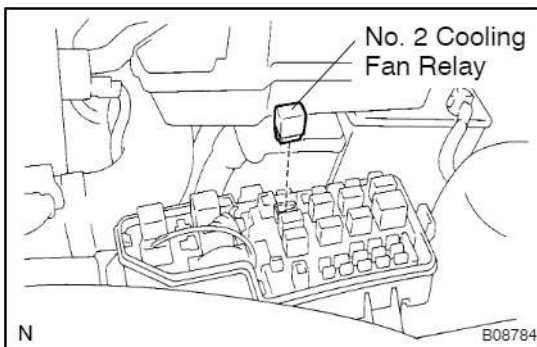


- Inspect the No. 1 cooling fan relay continuity.
 - Using an ohmmeter, check that there is continuity between terminals 1 and 2.
 If there is no continuity, replace the relay.
 - Check that there is no continuity between terminals 3 and 5.

If there is continuity, replace the relay.



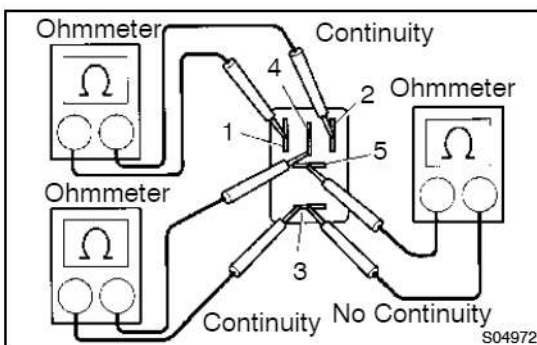
- Inspect the No. 1 cooling fan relay operation.
 - Apply battery positive voltage across terminals 1 and 2.
 - Using an ohmmeter, check that there is continuity between terminals 3 and 5.
 If there is no continuity, replace the relay.
- Reinstall the No. 3 cooling fan relay.
- Reinstall the relay box cover.



2. w/ A/C:

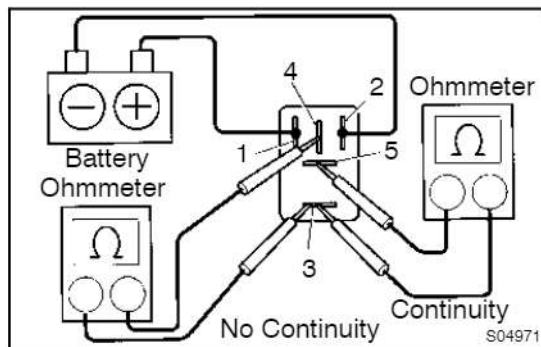
INSPECT NO. 2 COOLING FAN RELAY

- Remove the relay box cover.
- Remove the No. 2 cooling fan relay. (Marking: FAN No. 2)



- Inspect the No. 2 cooling fan relay continuity.
 - Using an ohmmeter, check that there is continuity between terminals 1 and 2.
 If there is no continuity, replace the relay.
 - Check that there is continuity between terminals 3 and 4.
 If there is no continuity, replace the relay.
 - Check that there is no continuity between terminals 3 and 5.

If there is continuity, replace the relay.



(d) Inspect the No. 2 cooling fan relay operation.

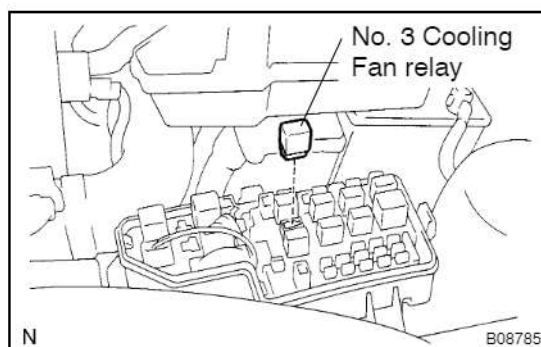
- (1) Apply battery positive voltage across terminals 1 and 2.
- (2) Using an ohmmeter, check that there is no continuity between terminals 3 and 4.

If there is continuity, replace the relay.

- (3) Check that there is continuity between terminals 3 and 5.

If there is no continuity, replace the relay.

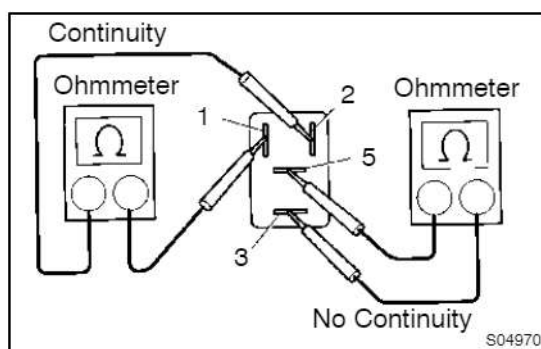
- (e) Reinstall the No. 2 cooling fan relay.
- (f) Reinstall the relay box cover.



3. w/ A/C:

INSPECT NO. 3 COOLING FAN RELAY

- (a) Remove the relay box cover.
- (b) Remove the No. 3 cooling fan relay. (Marking: FAN No. 3)



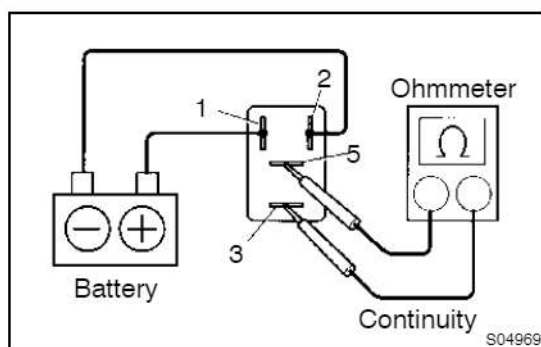
(c) Inspect the No. 3 cooling fan relay continuity.

- (1) Using an ohmmeter, check that there is continuity between terminals 1 and 2.

If there is no continuity, replace the relay.

- (2) Check that there is no continuity between terminals 3 and 5.

If there is continuity, replace the relay.



(d) Inspect the No. 3 cooling fan relay operation.

- (1) Apply battery positive voltage across terminals 1 and 2.
- (2) Using an ohmmeter, check that there is continuity between terminals 3 and 5.

If there is no continuity, replace the relay.

- (e) Reinstall the No. 3 cooling fan relay.
- (f) Reinstall the relay box cover.