

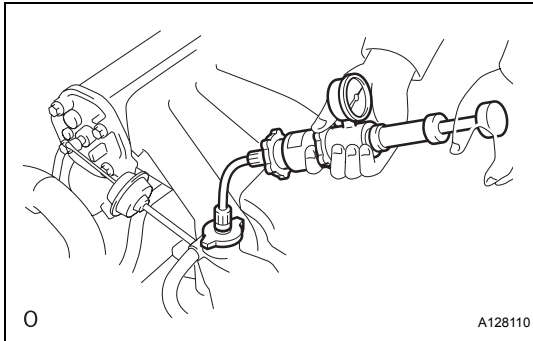
# COOLING SYSTEM

## ON-VEHICLE INSPECTION

### 1. INSPECT 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.
- (b) Warm up the engine.
- (c) Using the radiator cap tester, increase the pressure inside the radiator to 118 kPa (1.2 kgf/cm<sup>2</sup>, 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.

### 2. CHECK ENGINE COOLANT LEVEL AT RESERVOIR

- (a) The engine coolant level should be between the "LOW" and "FULL" lines when the engine is cold. 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.

### 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, replace the coolant.

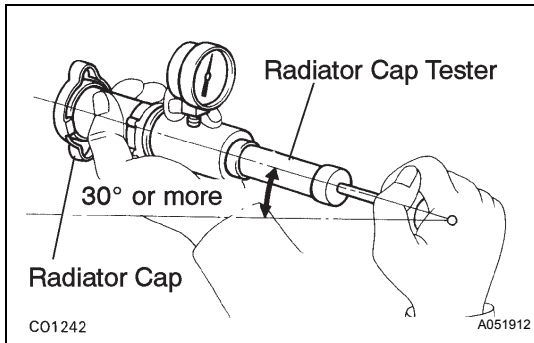
- (c) Reinstall the radiator cap.

## INSPECTION

### 1. INSPECT RADIATOR CAP SUB-ASSEMBLY

#### NOTICE:

- If the reservoir cap is contaminated , 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 procedures "A" and "B" below, 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 (Procedure "A").

#### Pump speed:

**1 push every 3 seconds or more**

#### NOTICE:

**Push the pump at a constant speed.**

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

- (b) Pump the tester and measure the relief valve opening pressure (Procedure "B").

#### Pump speed:

**1 push within 1 second**

#### NOTICE:

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

#### Standard opening pressure:

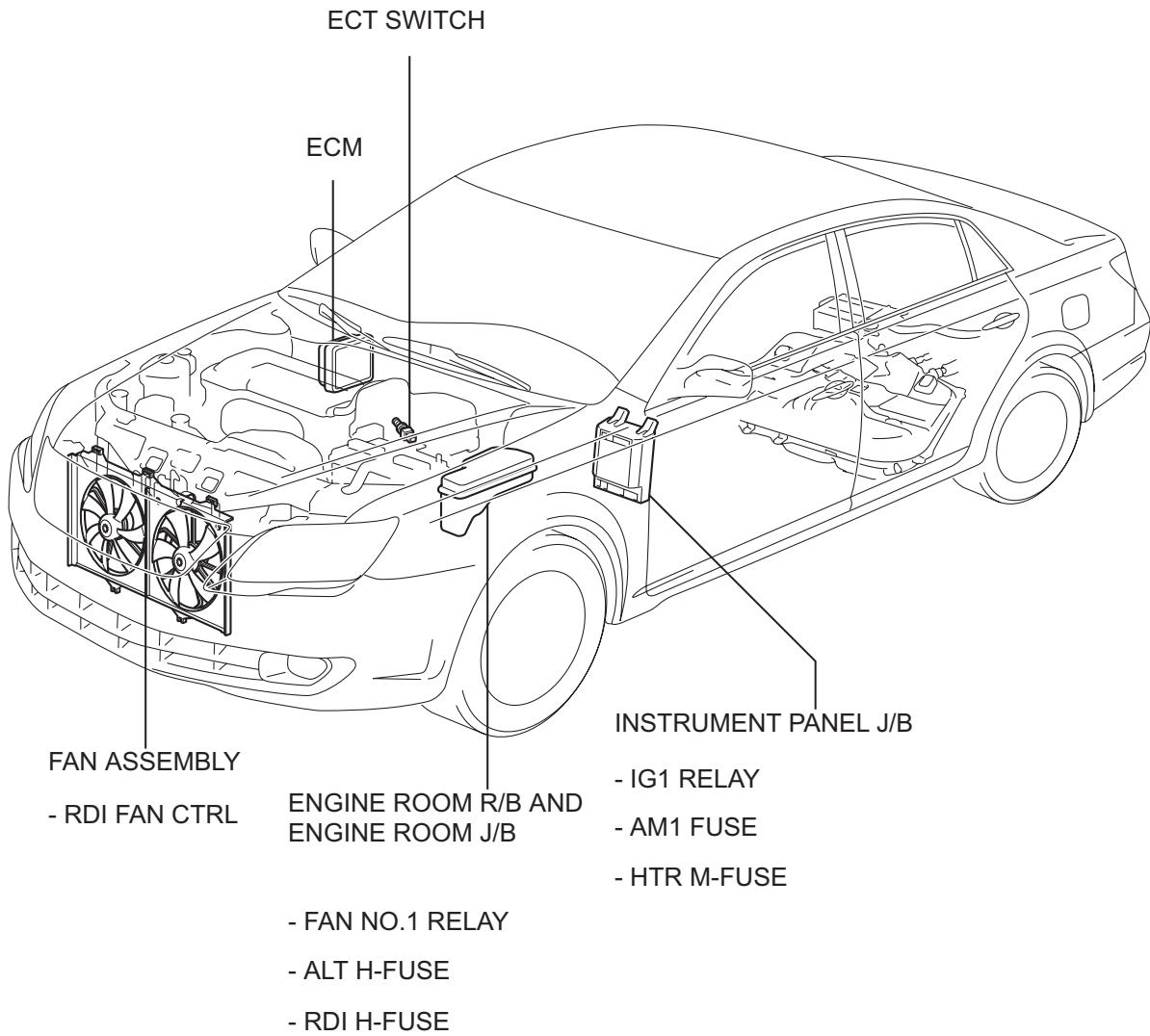
**69.0 to 112.8 kPa (0.70 to 1.15 kgf/cm<sup>2</sup>, 10.0 to 16.4 psi)**

#### HINT:

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

# COOLING FAN SYSTEM

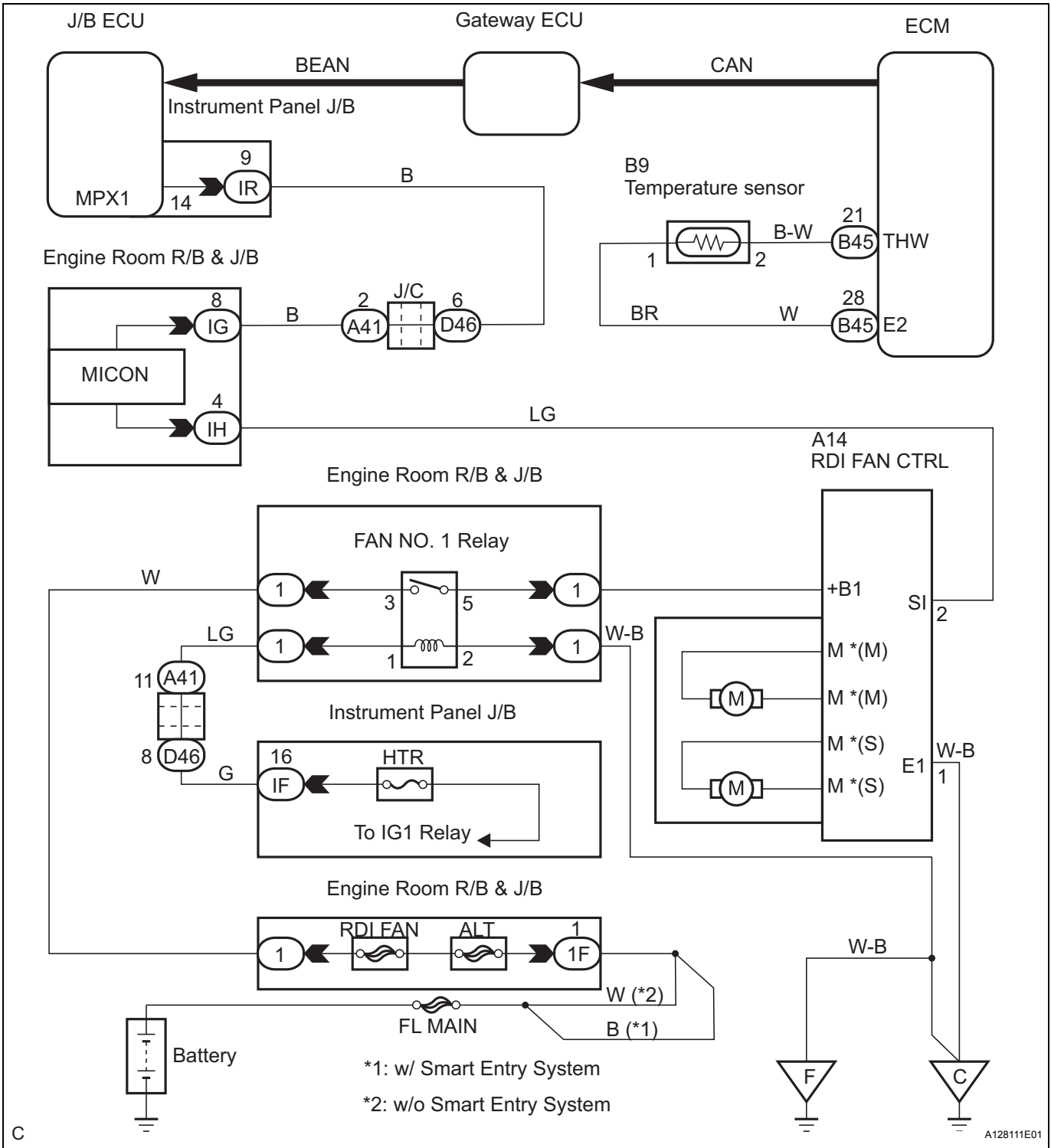
## PARTS LOCATION



CO

# SYSTEM DIAGRAM

The electric cooling fan system controls the fan motors using the Engine Coolant Temperature (ECT) switch, and turns the fan relay on and off according to the ECT and the air conditioner's operating condition.



CO

C

## ON-VEHICLE INSPECTION

### HINT:

The cooling fan may rotate when the ignition switch is turned from on (IG) to on (ACC), or from on (ACC) to on (IG). This is normal.

### 1. CHECK COOLING FAN OPERATION WITH LOW TEMPERATURE

- (a) Turn the ignition switch on (IG).
- (b) Check that the cooling fan stops.  
If not, check the cooling fan relay and ECT switches, and check for disconnected connectors or wire breaks between the cooling fan relay and ECT switches.
- (c) Disconnect the ECT switch No.1 connector.
- (d) Connect the terminals on the ECT switch No.1 connector.
- (e) Check that the No.1 cooling fan rotates at a high speed.  
If not, check the No. 1 cooling fan relay and No.1 cooling fan.
- (f) Reconnect the ECT switch No.1 connector.
- (g) Disconnect the ECT switch No.2 connector.
- (h) Ground the terminal on the ECT switch No.2 wire harness side connector.
- (i) Check that the No.1 and No.2 cooling fans rotate at a low speed.  
If not, check the No.2 cooling fan relay, No.3 cooling fan relay and No.2 cooling fan.
- (j) Reconnect the ECT switch No.2 connector.

### 2. CHECK COOLING FUN

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

#### Standard amperage:

**8.0 to 12.0 A at 20°C (68°F)**

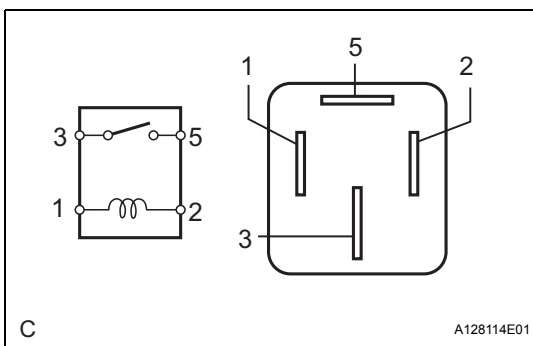
If not, replace the cooling fan.

- (d) Reconnect the cooling fan connector.

## INSPECTION

### 1. INSPECT RELAY

- (a) Check the resistance of the relay.

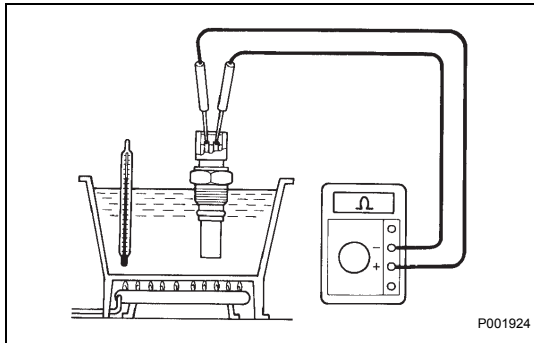


### Resistance

Tester Connection	Specified Condition
3-5	10 kΩ or higher

Tester Connection	Specified Condition
3-5	Below 1 $\Omega$ (when battery voltage is applied to terminals 1 and 2)

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



**2. INSPECT ECT SWITCH**

(a) Check the resistance.

**Resistance**

Temperature	Specified Condition
Above 98°C (208°F)	Below 1 $\Omega$
Below 88°C (190°F)	10 k $\Omega$ or higher

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

**NOTICE:**

**When checking the ECT switch in the water, the terminals should be kept dry. After the check, dry the switch.**

# COOLANT

## REPLACEMENT

### 1. DRAIN ENGINE COOLANT

- (a) Remove the radiator cap.

**CAUTION:**

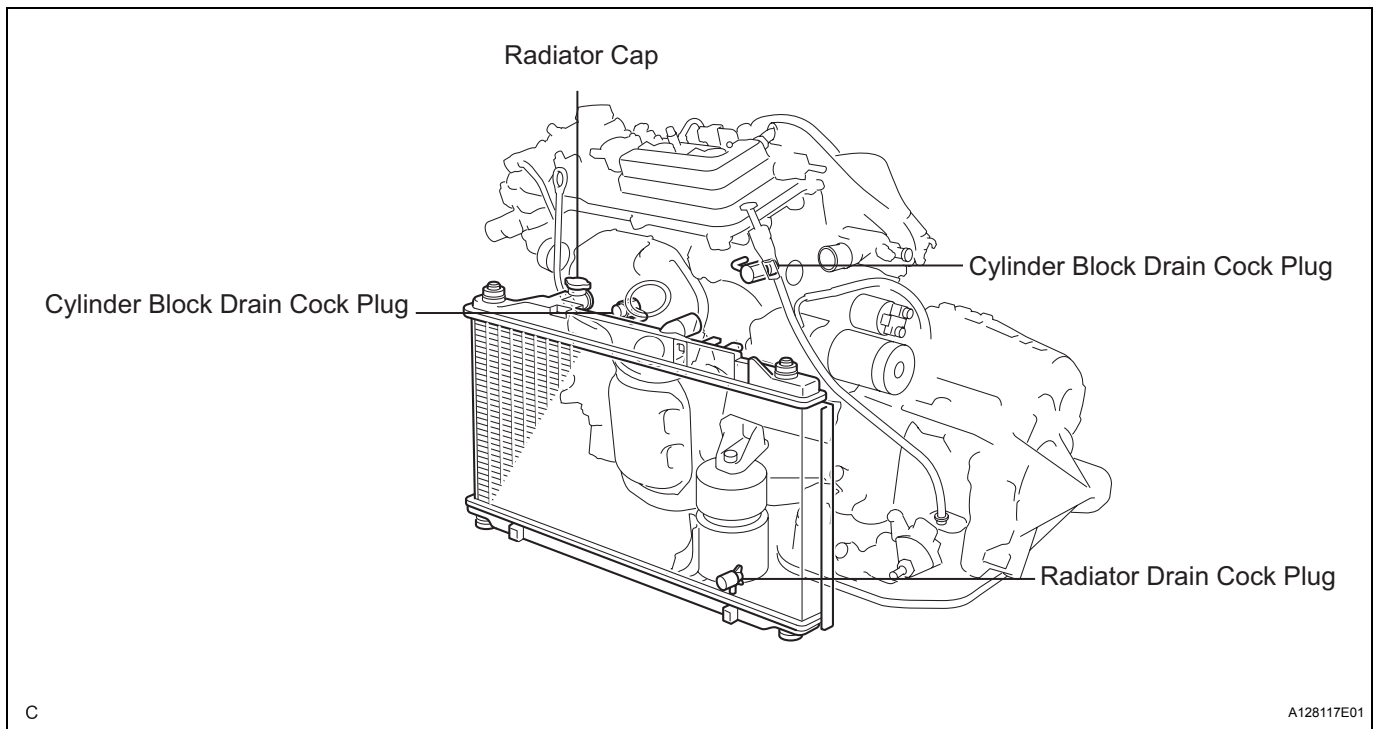
**Do not remove the radiator cap while the engine and radiator are still hot. Pressurized, hot engine coolant and steam may be released and cause serious burns.**

- (b) Drain engine coolant by loosening the radiator drain cock plug and the engine's cylinder block drain cock plug.

**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 (130 kgf\*cm, 10 ft.\*lbf)**

### 2. ADD ENGINE COOLANT

- (a) Tighten the radiator drain plug (Procedure "A").  
 (b) Add engine coolant into the radiator until it overflows (Procedure "B").

**Capacity:**

**8.3 liters (8.8 US qts, 7.3Imp. qts)**

**HINT:**

- Use of improper coolants may damage the engine cooling system.

- Only 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  $-35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )). 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.

**NOTICE:**

**Do not use plain water alone.**

- (c) Pour coolant into the radiator reservoir tank until the coolant reaches the full line (Procedure "C").
- (d) Install the radiator cap (Procedure "D").
- (e) Warm up the engine (Procedure "E").

**HINT:**

As the engine warms up, press the inlet and outlet radiator hoses several times by hand.

- (f) Stop the engine and wait until the coolant cools down to room temperature (Procedure "F").
- (g) Remove the radiator cap and check the coolant level inside the radiator (Procedure "G").  
If the coolant level is below the full level, repeat procedure "C" to "G" until the coolant level. If it is below the full line, add coolant.

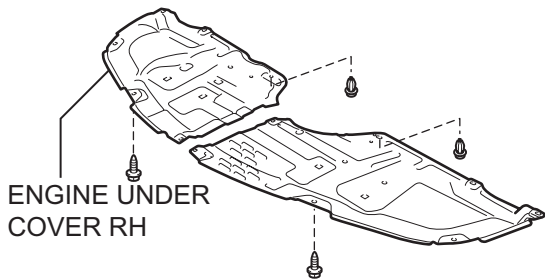
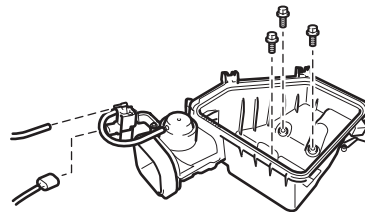
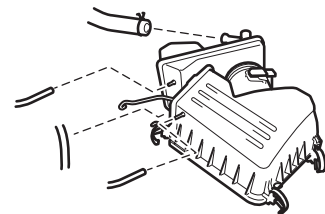
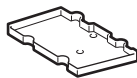
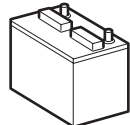
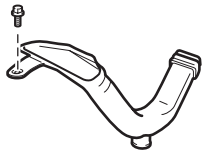
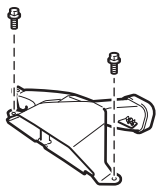
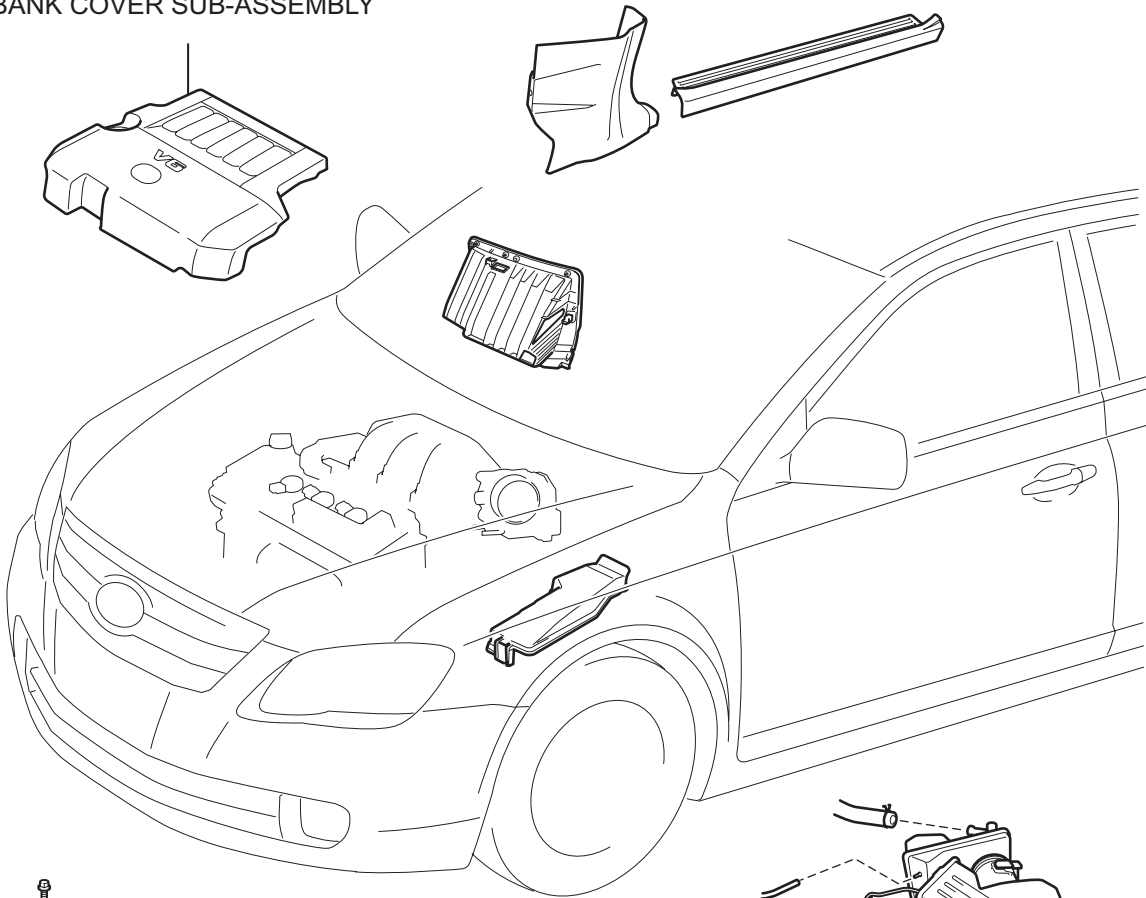
**3. CHECK ENGINE COOLANT LEAKS**

- (a) Fill the radiator with coolant and attach a radiator cap tester.
- (b) Pump it to 118 kPa (1.2 kgf/cm<sup>2</sup>, 17.1 psi) and check leakage.

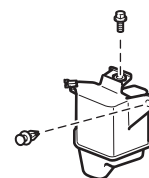


# WATER PUMP COMPONENTS

V-BANK COVER SUB-ASSEMBLY



ENGINE UNDER  
COVER RH

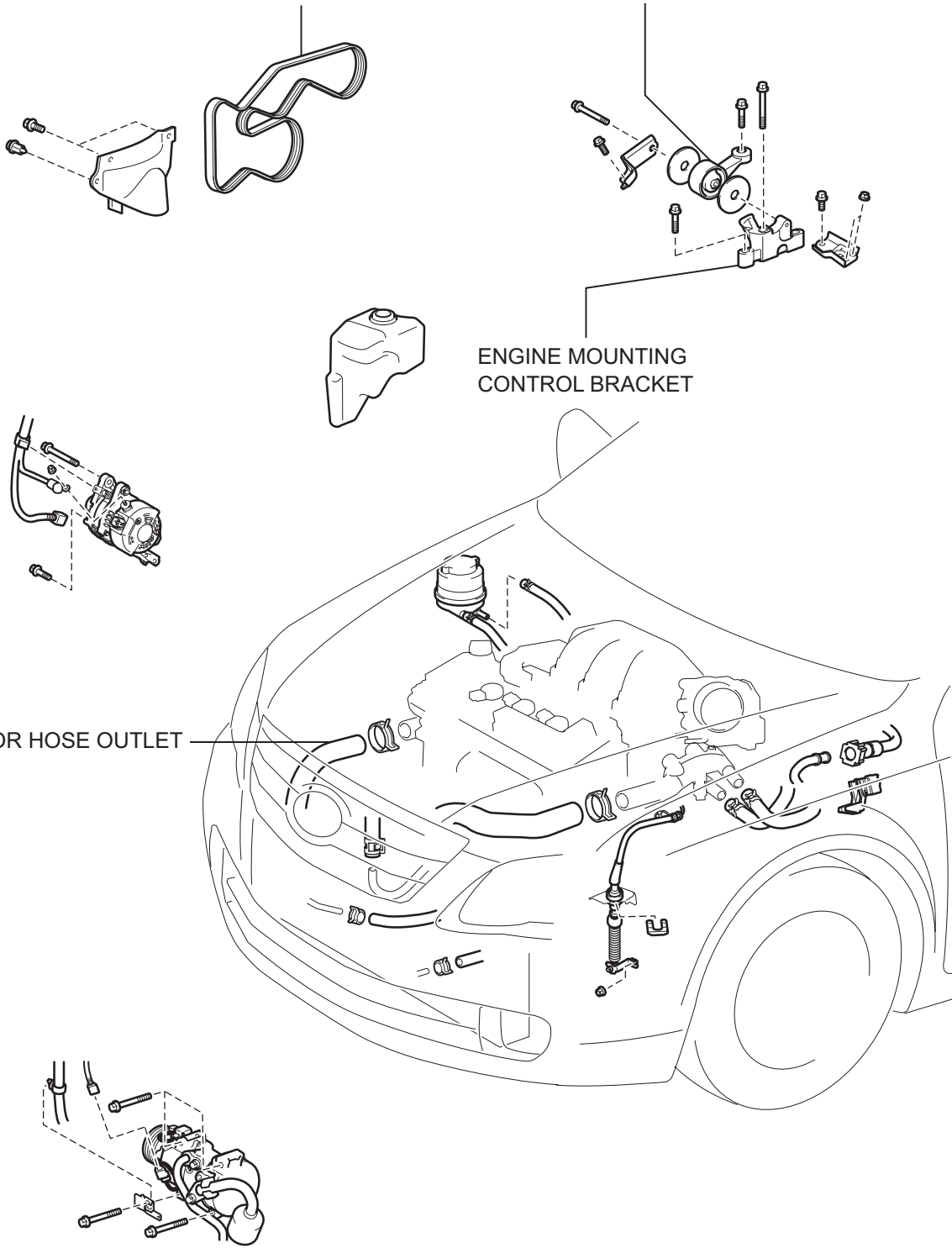


ENGINE MOVING  
CONTROL ROD

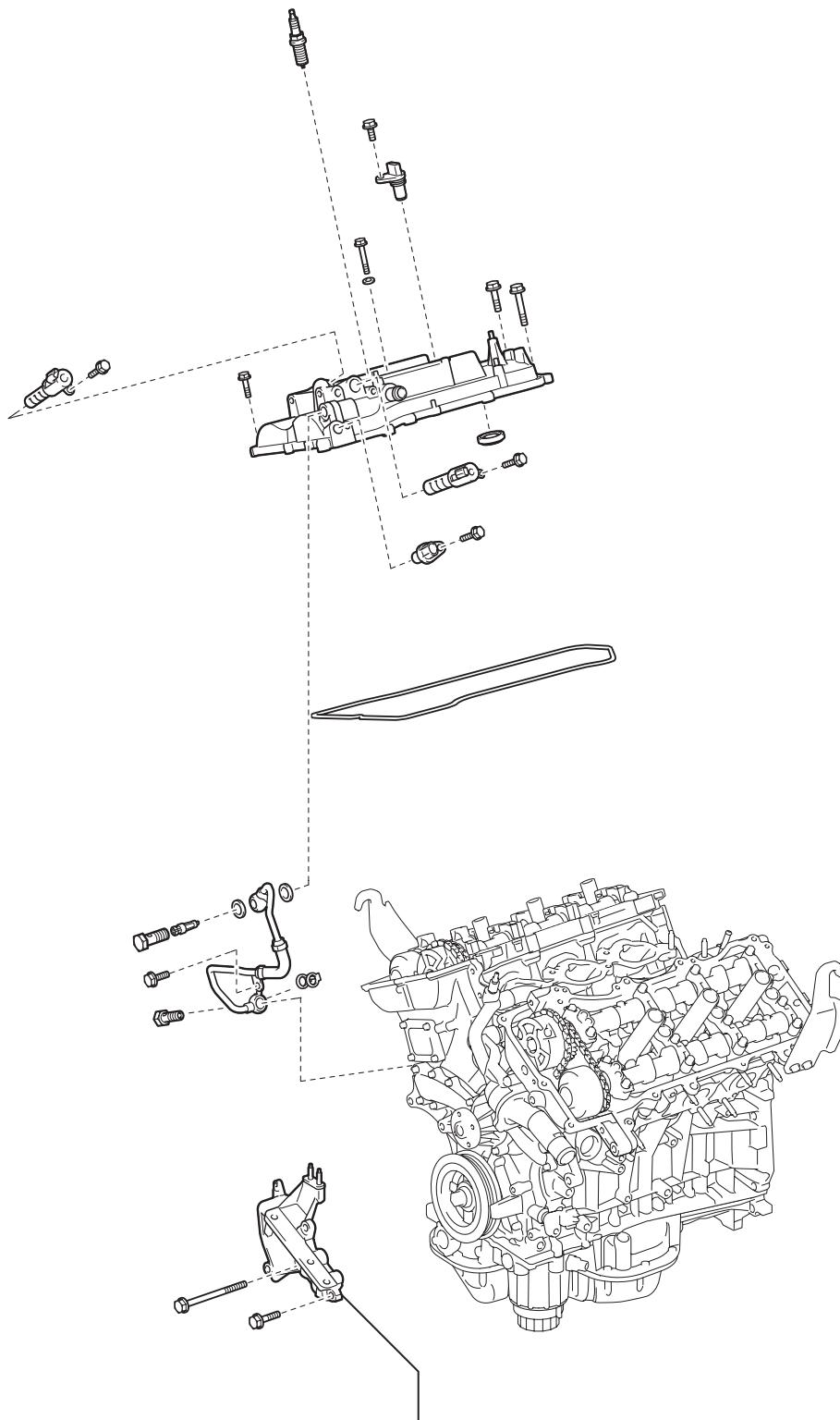
FAN AND GENERATOR V BELT

ENGINE MOUNTING  
CONTROL BRACKET

RADIATOR HOSE OUTLET

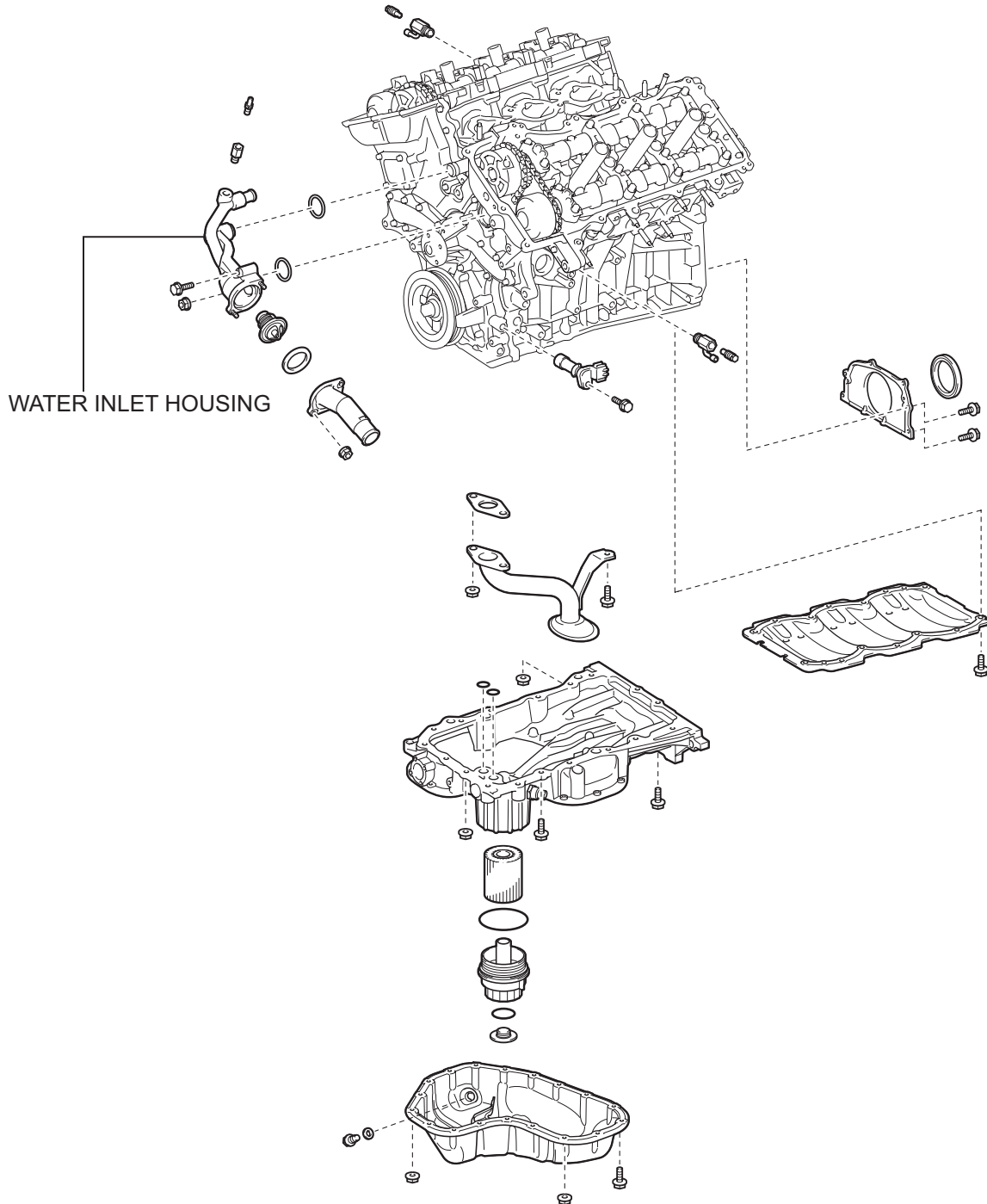


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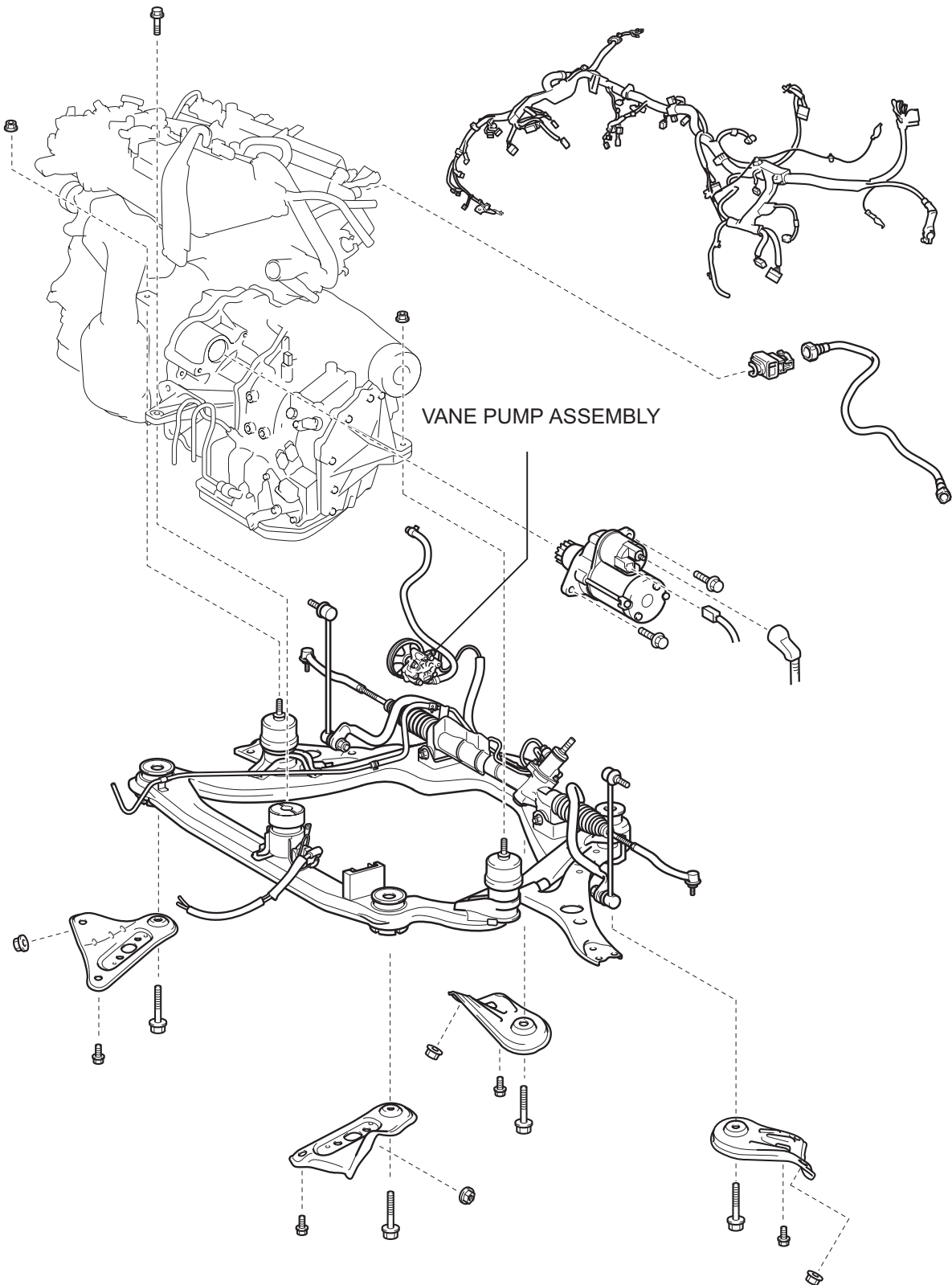
ENGINE MOUNTING BRACKET FRONT NO.1 LH

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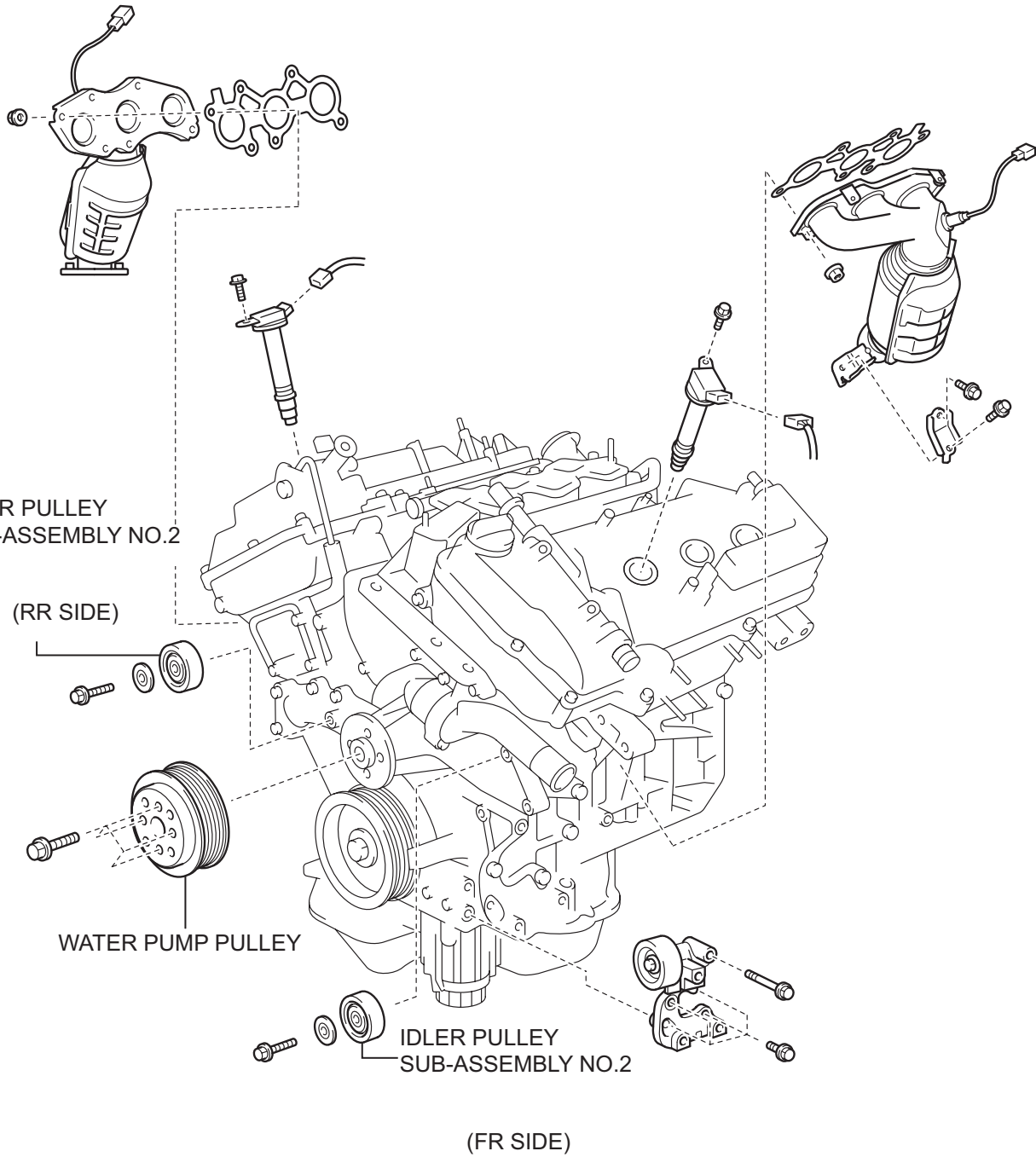


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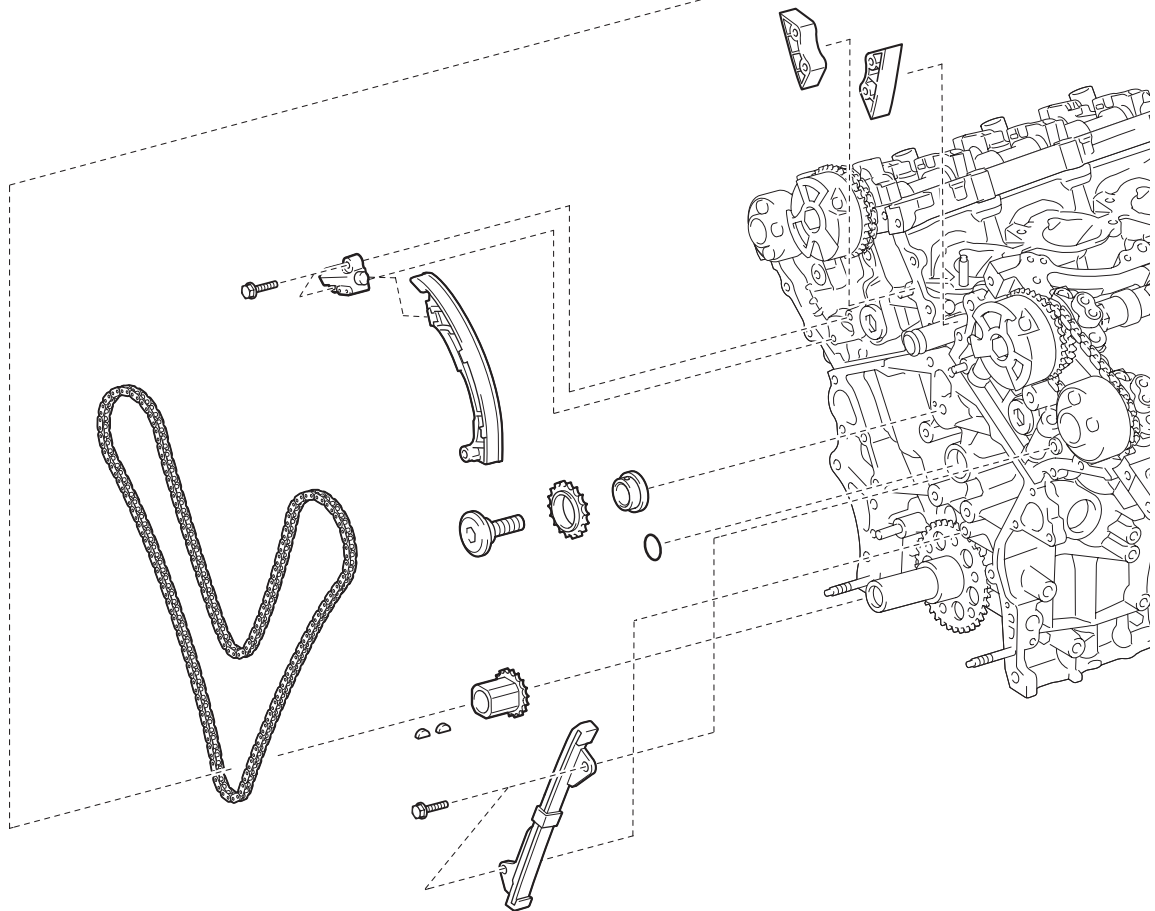
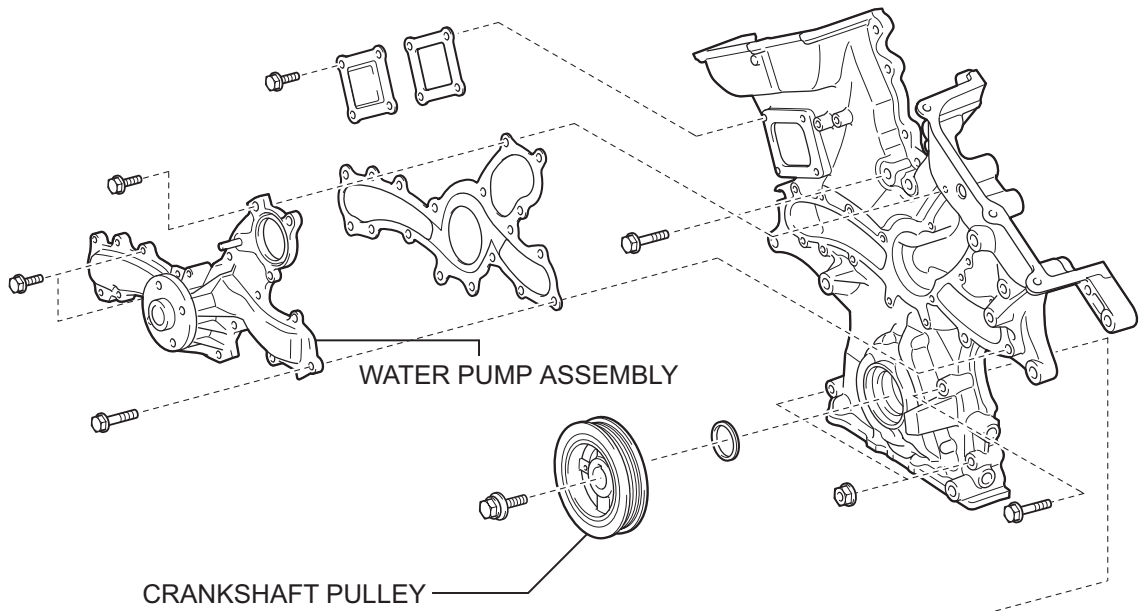
IDLER PULLEY  
SUB-ASSEMBLY NO.2

(RR SIDE)

WATER PUMP PULLEY

IDLER PULLEY  
SUB-ASSEMBLY NO.2

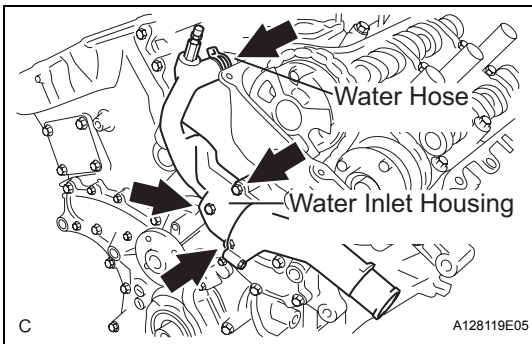
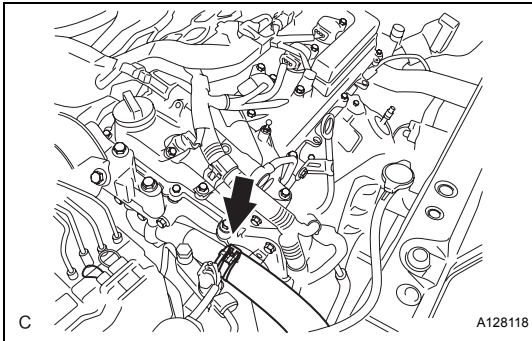
(FR SIDE)



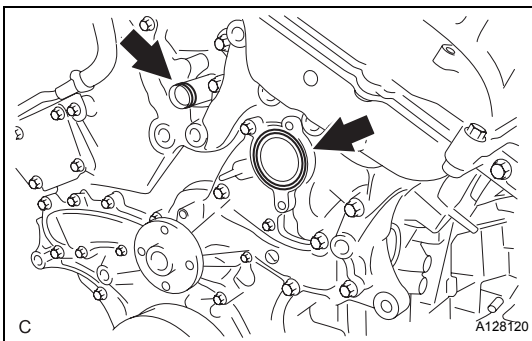
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## REMOVAL

1. DRAIN ENGINE COOLANT
2. REMOVE FRONT WHEEL RH
3. REMOVE ENGINE UNDER COVER RH
4. REMOVE V-BANK COVER SUB-ASSEMBLY
5. REMOVE ENGINE MOVING CONTROL ROD
6. REMOVE ENGINE MOUNTING CONTROL BRACKET
7. REMOVE ENGINE MOUNTING BRACKET FRONT NO.1 LH
8. REMOVE FAN AND GENERATOR V BELT
9. SEPARATE RADIATOR HOSE OUTLET
  - (a) Separate the radiator hose outlet.



10. REMOVE WATER INLET HOUSING
  - (a) Separate the water hose.
  - (b) Remove the 2 bolts, nut and water inlet housing.

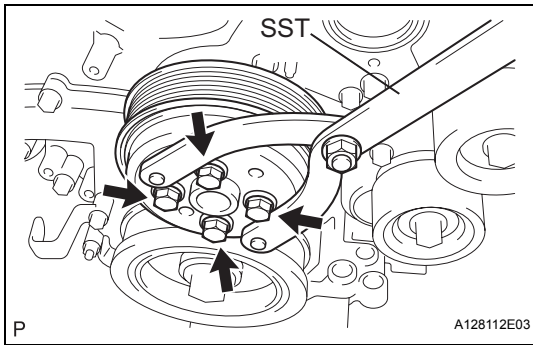


- (c) Remove the water inlet housing gasket No.1 and water outlet pipe O-ring.

11. REMOVE CRANKSHAFT PULLEY
 

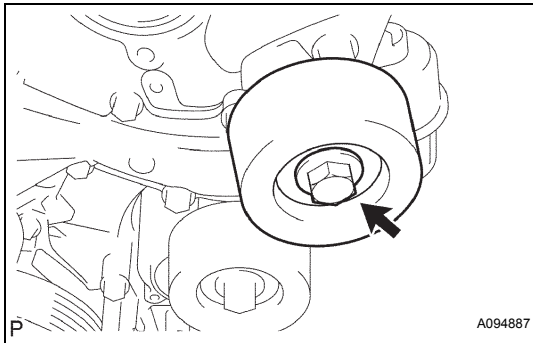
SST 09213-70011 (09213-70020), 09330-00021,  
09950-50013 (09951-05010, 09952-05010,  
09953-05020, 09954-05021)





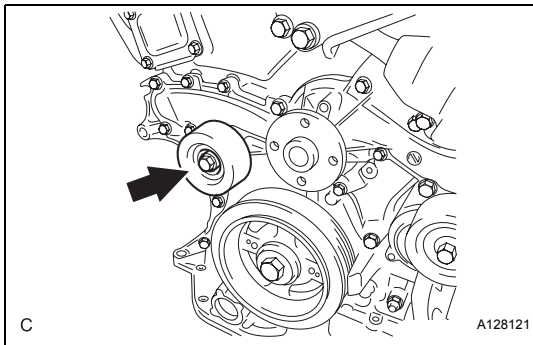
**12. REMOVE WATER PUMP PULLEY**

- (a) Using SST, hold the water pump pulley.  
**SST 09960-10010 (09962-01000, 09963-00700)**
- (b) Remove the 4 bolts and water pump pulley.

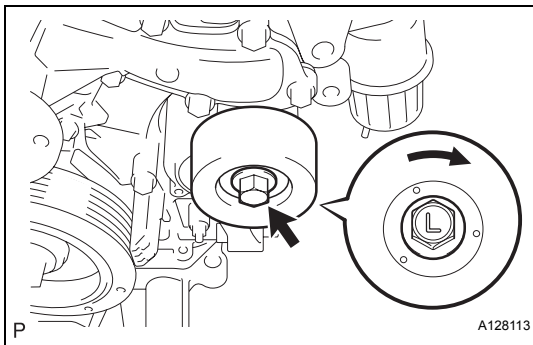


**13. REMOVE IDLER PULLEY SUB-ASSEMBLY NO.2**

- (a) Remove the bolt, idler pulley cover plate No.2 and idler pulley sub-assembly No.2.



- (b) Remove the bolt, idler pulley cover plate No.2 and idler pulley sub-assembly No.2.

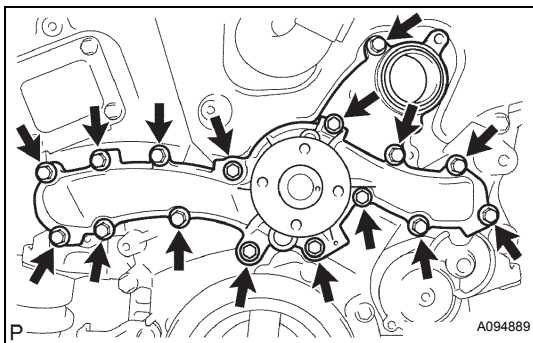


- (c) Remove the bolt and idler pulley.

**NOTICE:**

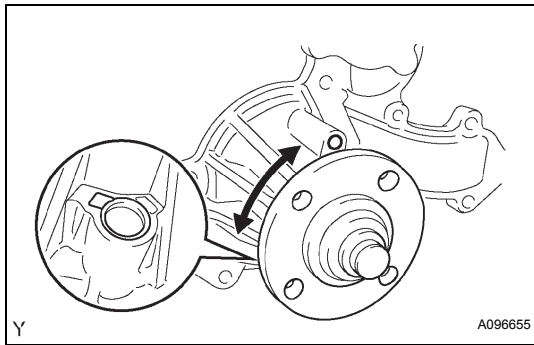
**Be careful when loosening the bolt because it is left-hand threaded.**

**14. SEPARATE VANE PUMP ASSEMBLY**



**15. REMOVE WATER PUMP ASSEMBLY**

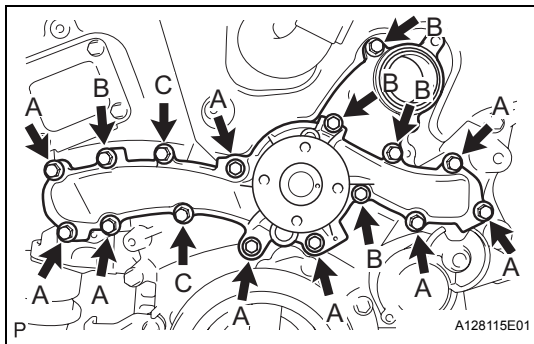
- (a) Remove the 16 bolts, water pump assembly and water pump gasket.



## INSPECTION

### 1. INSPECT WATER PUMP ASSEMBLY

- Visually check, the drain hole for coolant leakage.
- Turn the pulley, and check that the water pump bearing moves smoothly and noiselessly.  
If the bearing moves roughly or noisily, replace the water pump.



## INSTALLATION

### 1. INSTALL WATER PUMP ASSEMBLY

- Install a new water pump gasket and the water pump assembly with the 16 bolts.

**Torque: Bolt A**

**21 N\*m (214 kgf\*cm, 15 ft.\*lbf)**

**Bolts B and C**

**9.1 N\*m (93 kgf\*cm, 81 in.\*lbf)**

**NOTICE:**

- Make sure that there is no oil on the threads of the A bolts.
- Be sure to replace the 2 C bolts with new ones or reuse them after applying adhesive 1344.

**Adhesive:**

**Part No. 08833-00080, THREE BOND 1344 or equivalent**

### 2. INSTALL VANE PUMP ASSEMBLY

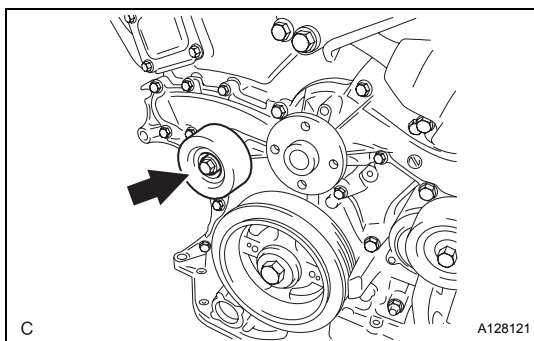
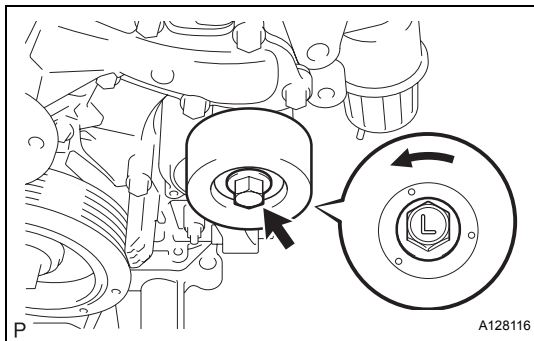
### 3. INSTALL IDLER PULLEY SUB-ASSEMBLY NO.2

- Install the idler pulley with the bolt.

**NOTICE:**

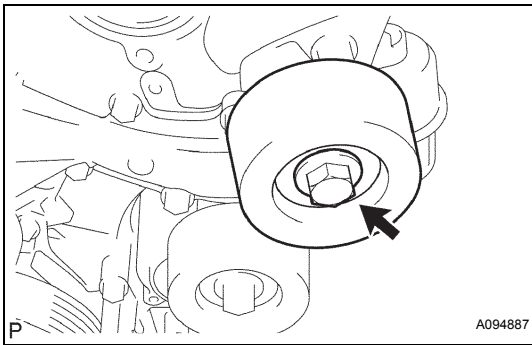
**Be careful when tightening the bolt because it is left-hand threaded.**

**Torque: 43 N\*m (438 kgf\*cm, 32 ft.\*lbf)**

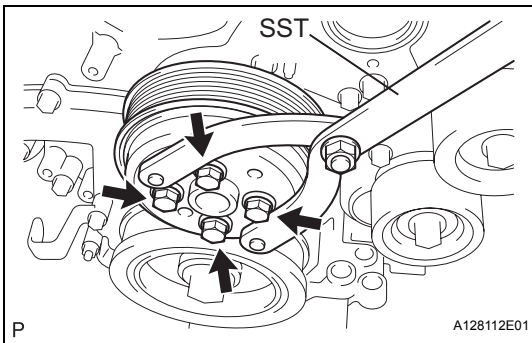


- Install the idler pulley cover plate No.2 and idler pulley sub-assembly No.2 with the bolt.

**Torque: 43 N\*m (438 kgf\*cm, 32 ft.\*lbf)**



- (c) Install the idler pulley cover plate No.2 and idler pulley sub-assembly No.2 with the bolt.  
**Torque: 43 N\*m (438 kgf\*cm, 32 ft.\*lbf)**



#### 4. INSTALL WATER PUMP PULLEY

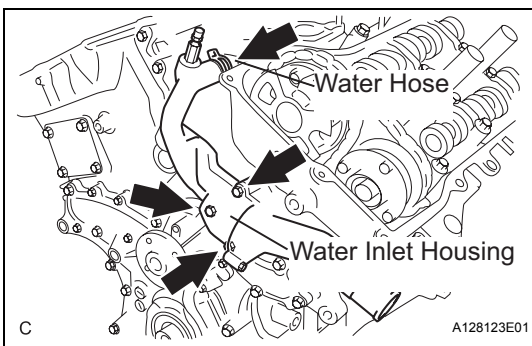
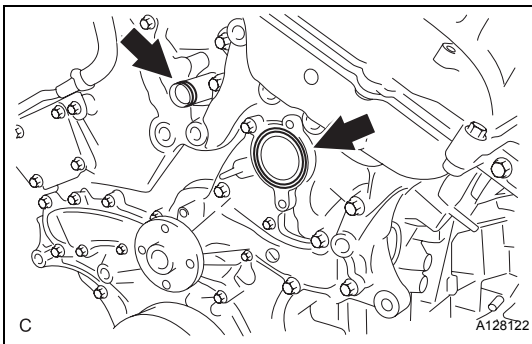
- (a) Temporarily install the water pump pulley with the 4 bolts.  
 (b) Using SST, hold the water pump pulley.  
**SST 09960-10010 (09962-01000, 09963-00700)**  
 (c) Tighten the 4 bolts.  
**Torque: 21 N\*m (214 kgf\*cm, 15 ft.\*lbf)**

#### 5. INSTALL CRANKSHAFT PULLEY

- SST 09213-70011 (09213-70020), 09330-00021, 09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05021)**

#### 6. INSTALL WATER INLET HOUSING

- (a) Install a new water inlet housing No.1 gasket and water outlet pipe O-ring.



- (b) Install the water inlet with the 2 bolts and nut.  
**Torque: 10 N\*m (102 kgf\*cm, 7 ft.\*lbf)**

#### NOTICE:

**Be careful not to allow the O-ring to get caught between the parts.**

- (c) Install the water hose.

#### 7. INSTALL RADIATOR HOSE OUTLET

- (a) Install the radiator hose outlet.

#### 8. INSTALL FAN AND GENERATOR V BELT

#### 9. INSTALL ENGINE MOUNTING BRACKET FRONT NO.1 LH

#### 10. INSTALL ENGINE MOUNTING CONTROL BRACKET

#### 11. INSTALL ENGINE MOVING CONTROL ROD

#### 12. INSTALL V-BANK COVER SUB-ASSEMBLY

#### 13. ADD ENGINE COOLANT

#### 14. CHECK FOR ENGINE COOLANT LEAKS

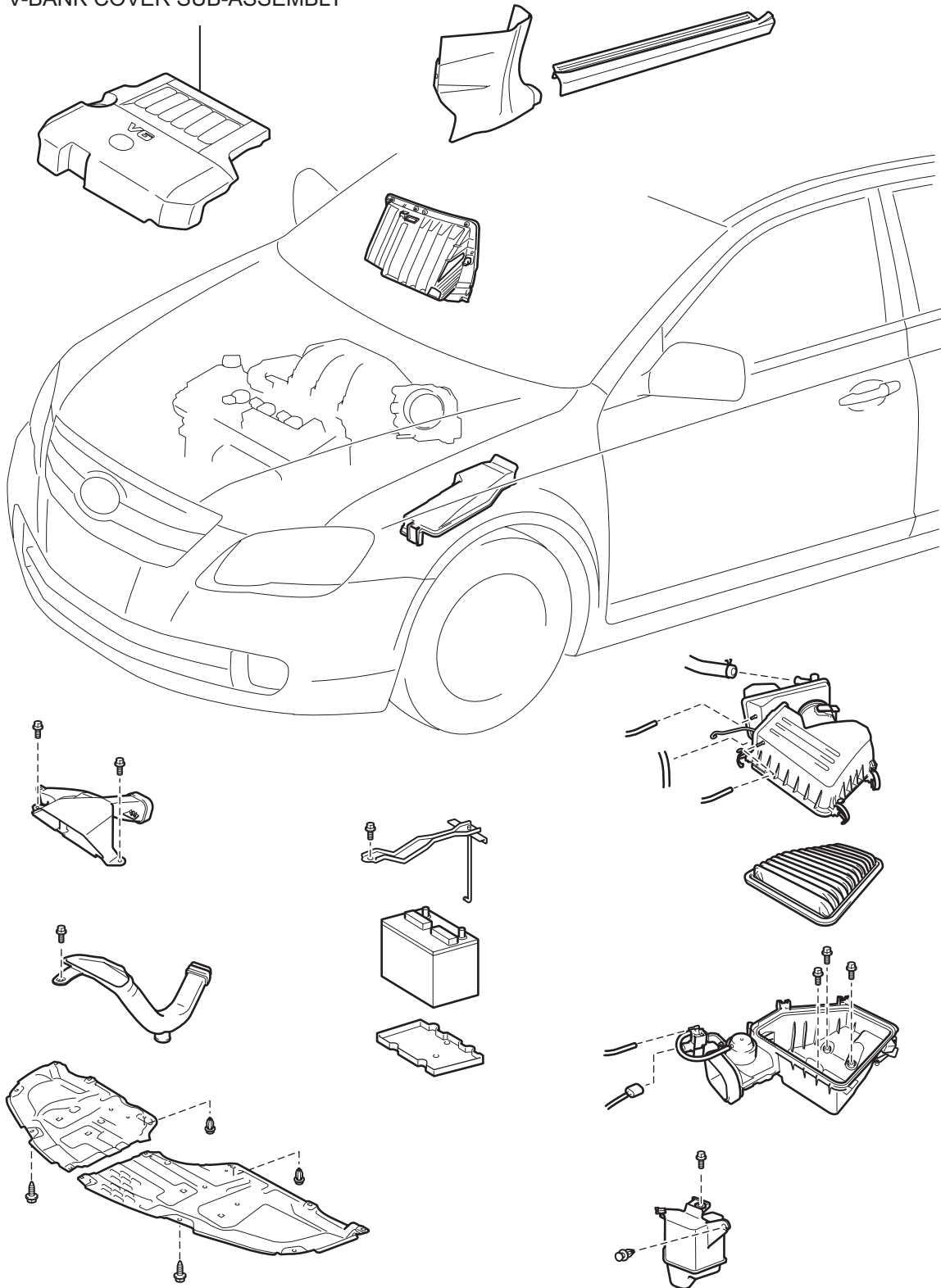
#### 15. INSTALL ENGINE UNDER COVER RH

**16. INSTALL FRONT WHEEL RH**

# THERMOSTAT

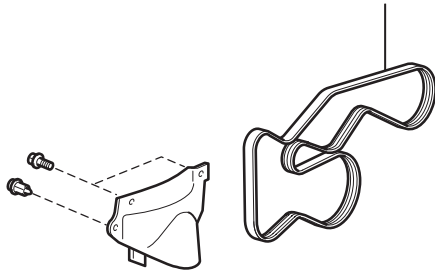
## COMPONENTS

V-BANK COVER SUB-ASSEMBLY

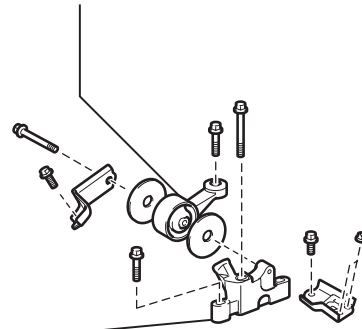


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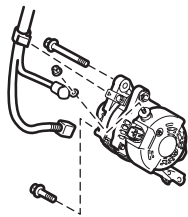
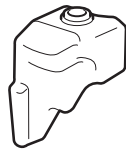
FAN AND GENERATOR V BELT



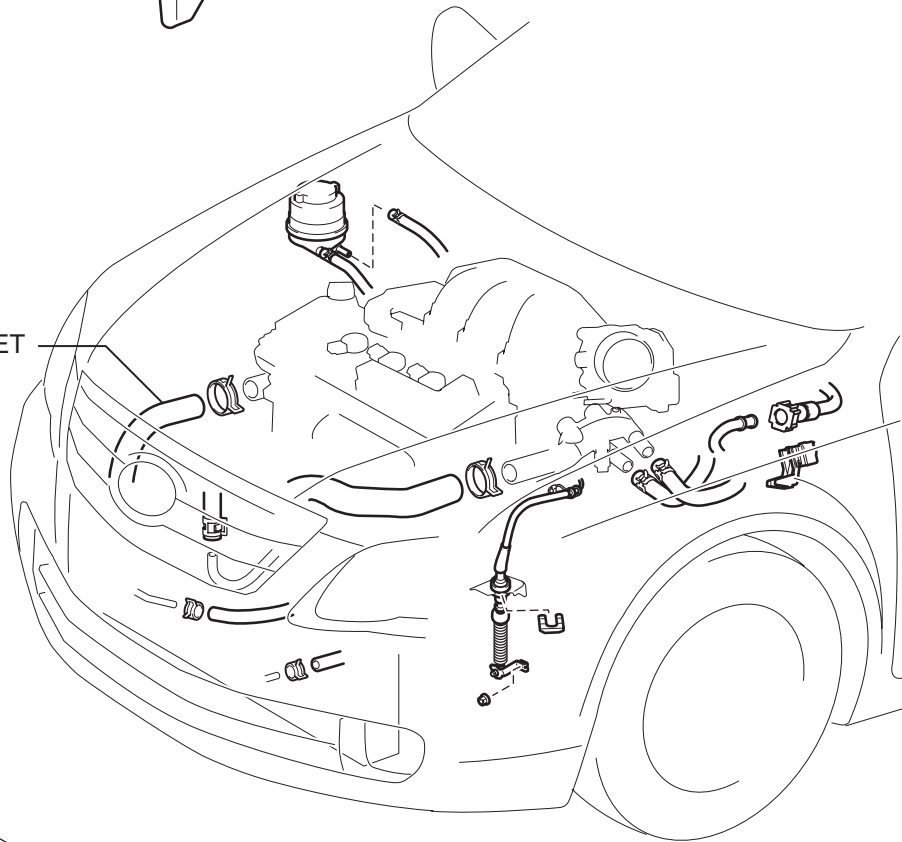
ENGINE MOVING CONTROL ROD



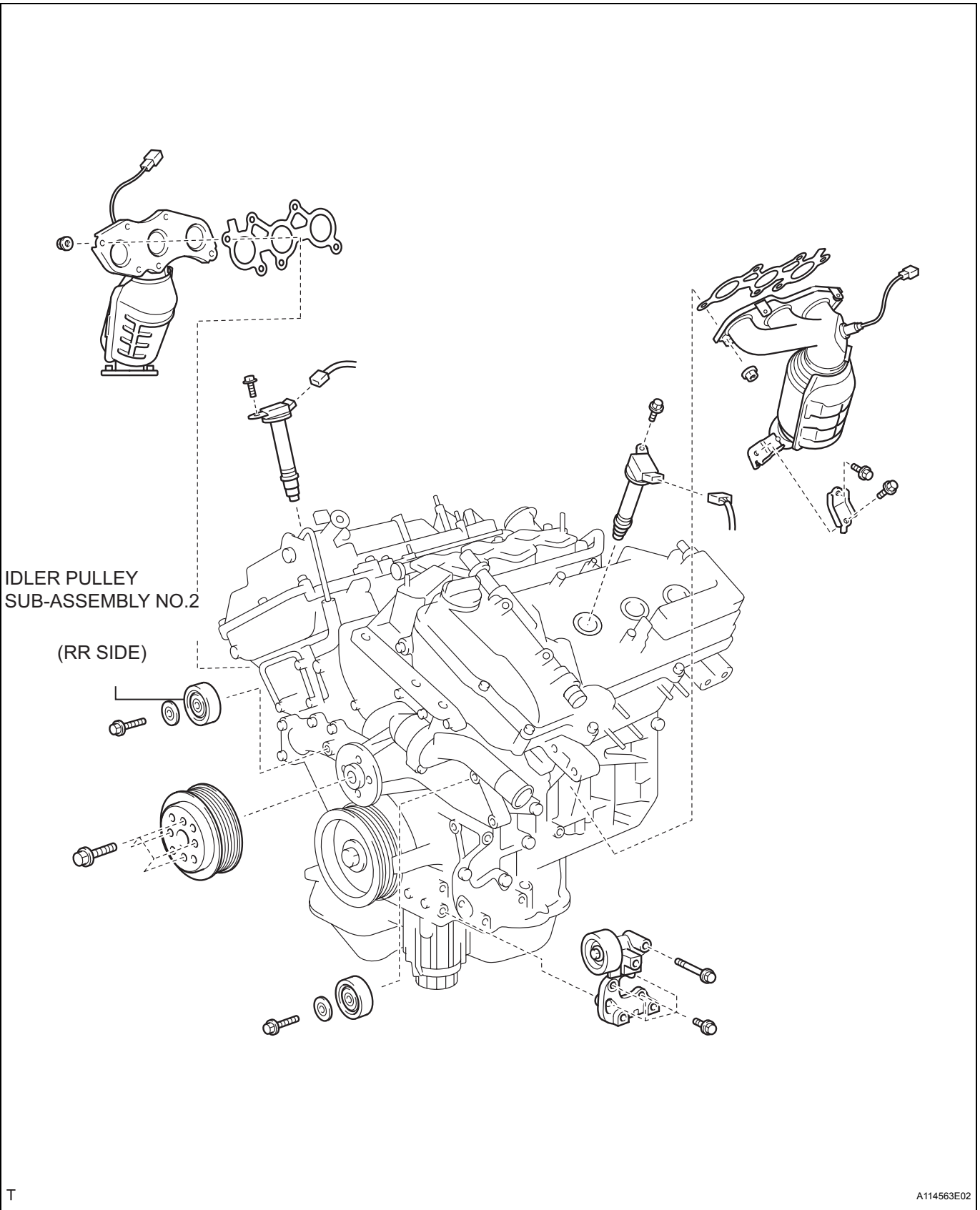
ENGINE MOUNTING CONTROL BRACKET



RADIATOR HOSE OUTLET



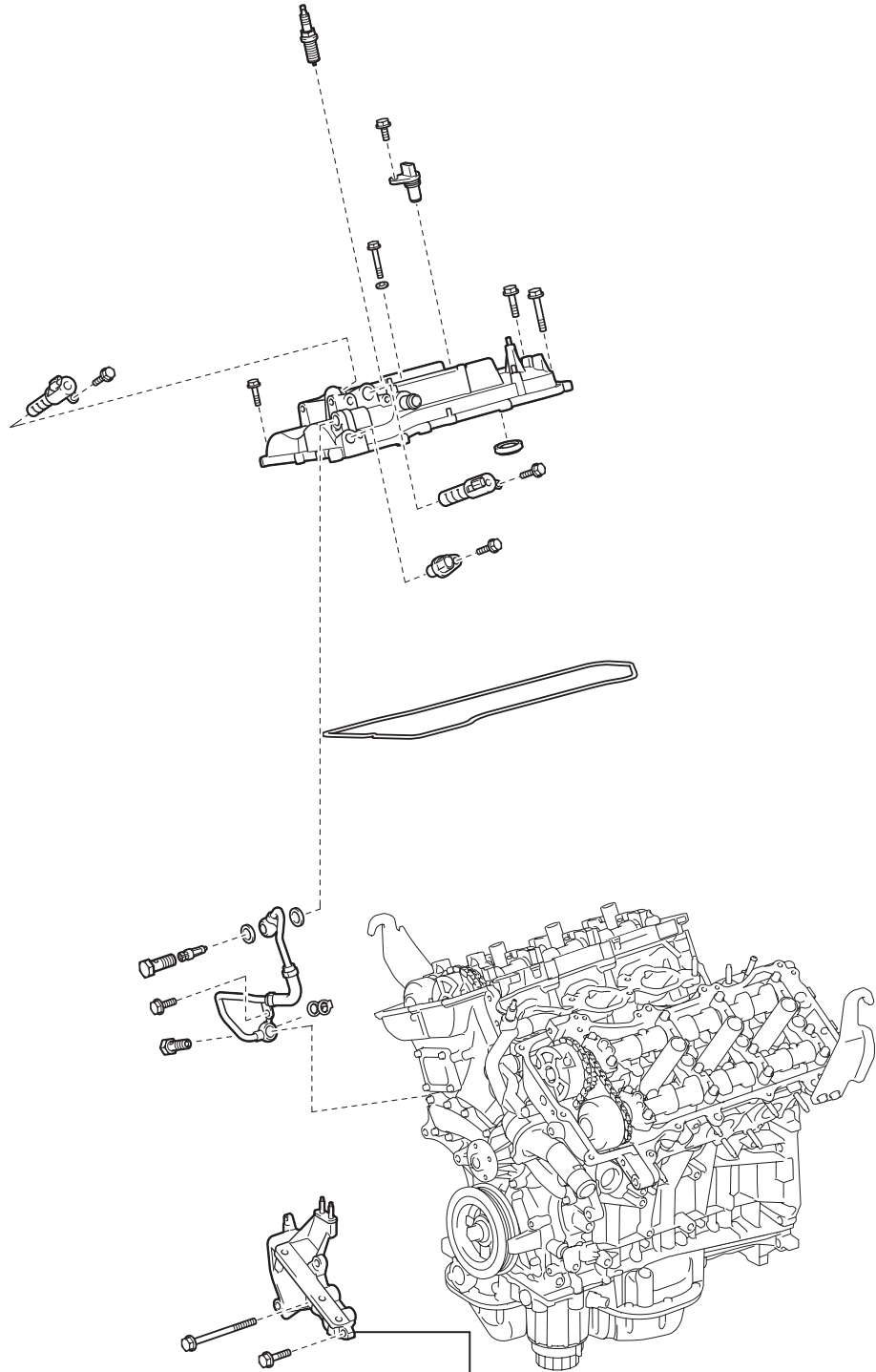
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IDLER PULLEY  
SUB-ASSEMBLY NO.2  
(RR SIDE)

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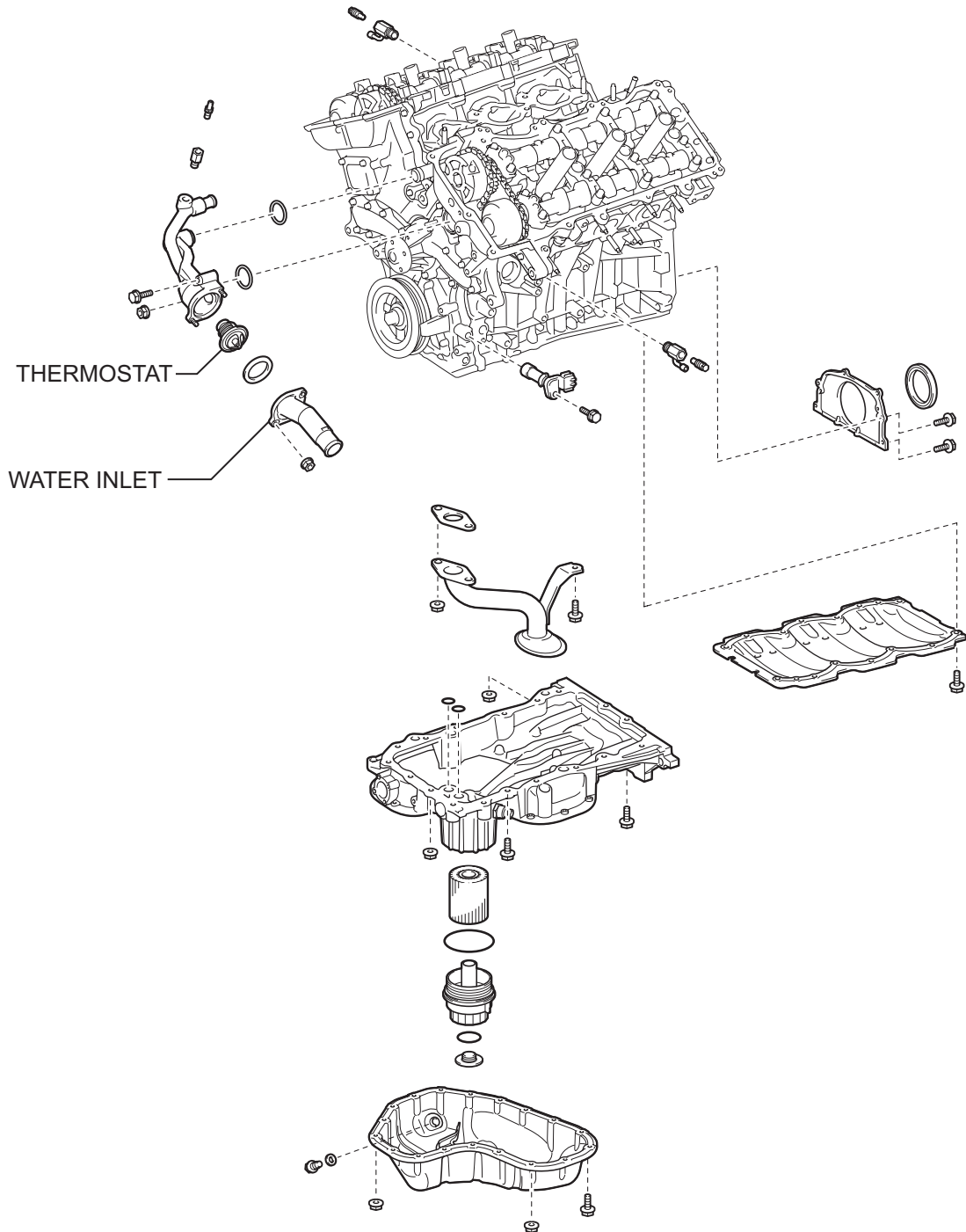
A114563E02



ENGINE MOUNTING BRACKET FRONT NO.1 LH

CO





CO

## REMOVAL

1. DRAIN ENGINE COOLANT
2. REMOVE V-BANK COVER SUB-ASSEMBLY
3. REMOVE ENGINE MOVING CONTROL ROD
4. REMOVE ENGINE MOUNTING CONTROL BRACKET
5. REMOVE ENGINE MOUNTING BRACKET FRONT NO.1 LH
6. REMOVE FAN AND GENERATOR V BELT
7. REMOVE IDLER PULLEY SUB-ASSEMBLY NO.2
8. SEPARATE RADIATOR HOSE OUTLET
9. REMOVE WATER INLET
  - (a) Remove the 2 bolts and water inlet.

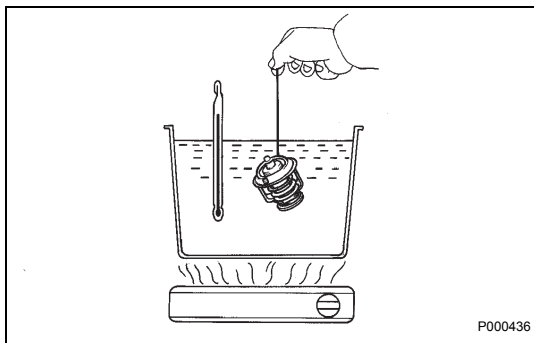
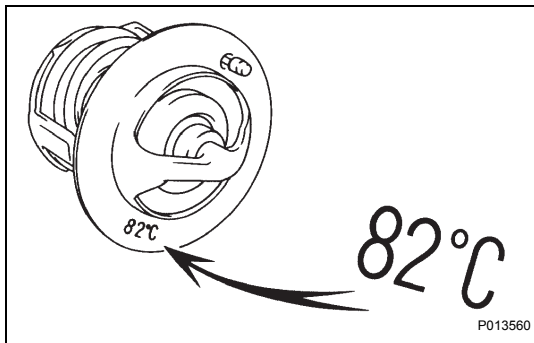
## 10. REMOVE THERMOSTAT INSPECTION

### 1. INSPECT THERMOSTAT

- (a) Inspect the thermostat.

HINT:

The thermostat is numbered with the valve opening temperature.



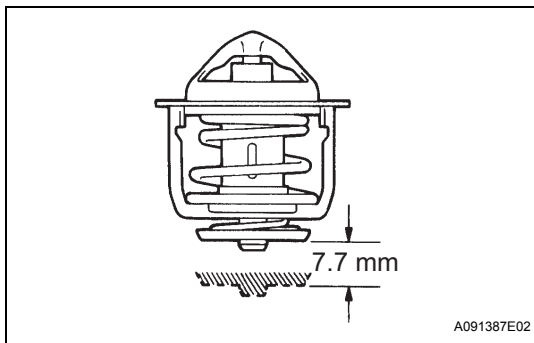
- (b) Immerse the thermostat in water and gradually heat the water.

- (c) 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.



- (d) Check the valve lift.

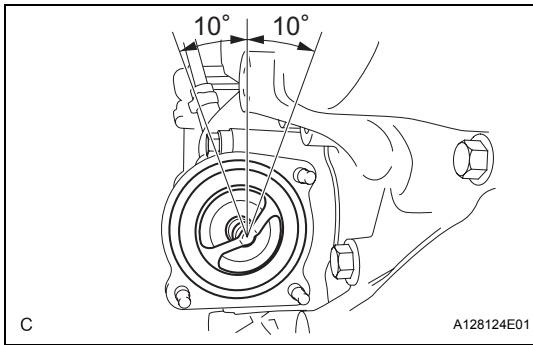
**Valve lift:**

**7.7 mm (0.3031 in.) or more at 95°C (203°F)**

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

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

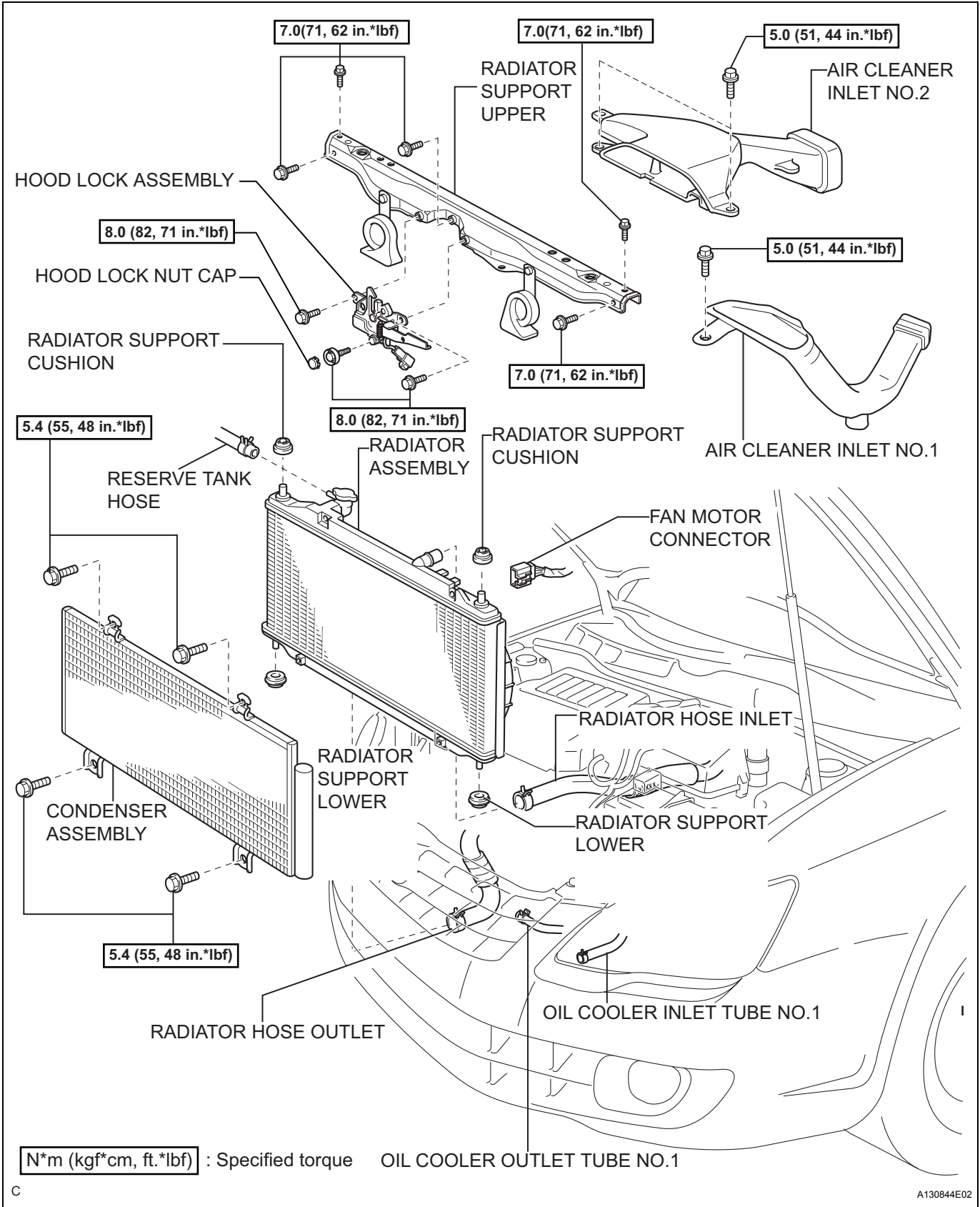
If not closed, replace the thermostat.



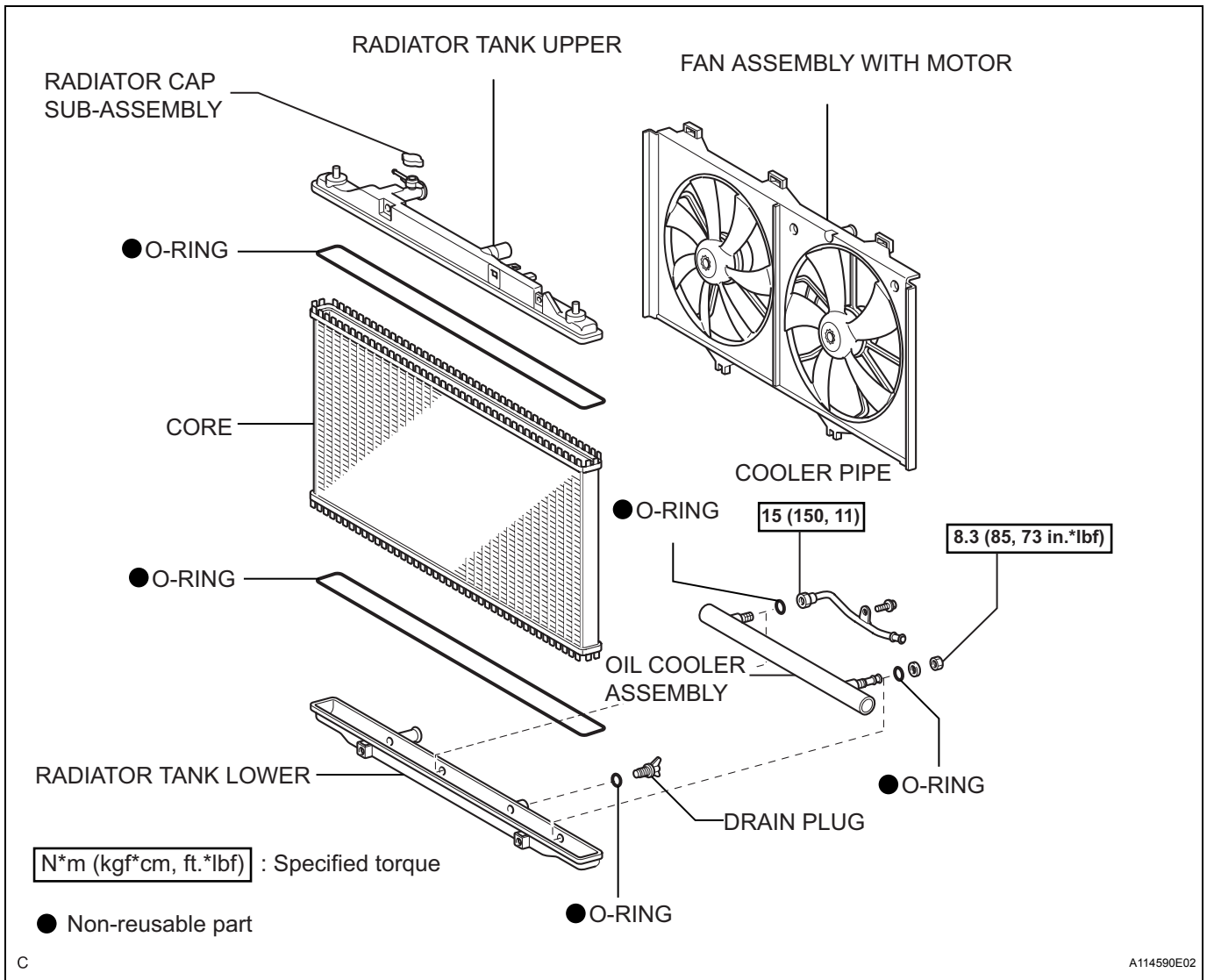
## INSTALLATION

1. **INSTALL THERMOSTAT**
  - (a) Install a new gasket to the thermostat.
  - (b) Install the thermostat with the jiggle valve facing up.  
HINT:  
The jiggle valve may be set within 10° of either side of the prescribed position.
2. **INSTALL WATER INLET**  
Torque: 10 N\*m (102 kgf\*cm, 7 ft.\*lbf)
3. **INSTALL RADIATOR HOSE OUTLET**
4. **INSTALL IDLER PULLEY SUB-ASSEMBLY NO.2**
5. **INSTALL FAN AND GENERATOR V BELT**
6. **INSTALL ENGINE MOUNTING BRACKET FRONT NO.1 LH**
7. **INSTALL ENGINE MOUNTING CONTROL BRACKET**
8. **INSTALL ENGINE MOVING CONTROL ROD**
9. **INSTALL V-BANK COVER SUB-ASSEMBLY**
10. **ADD ENGINE COOLANT**
11. **CHECK FOR ENGINE COOLANT LEAKS**

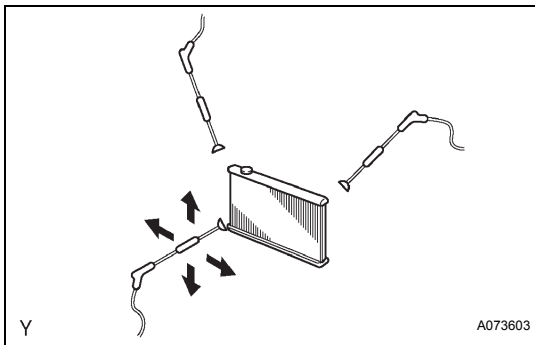
# RADIATOR COMPONENTS



CO



CO



## ON-VEHICLE CLEANING

### 1. INSPECT FINS BLOCKAGE

- (a) If the fins are clogged, wash them with water or a steam cleaner. Dry with compressed air.

**NOTICE:**

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

**Standard**

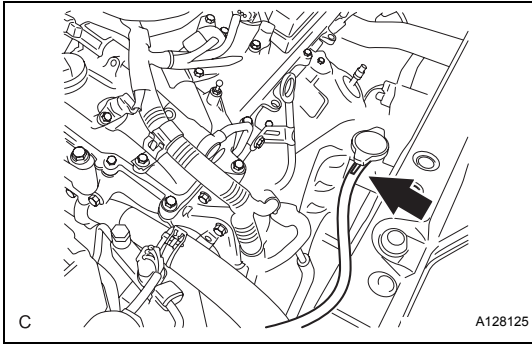
Injection Distance	Injection Pressures
300 mm (11.81 in.)	2,942 to 4,903 kPa (30 to 50 kg/cm <sup>2</sup> , 427 to 711 psi)
500 mm (19.69 in.)	4,903 to 7,845 kPa (50 to 80 kg/cm <sup>2</sup> , 711 to 1,138 psi)

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

## REMOVAL

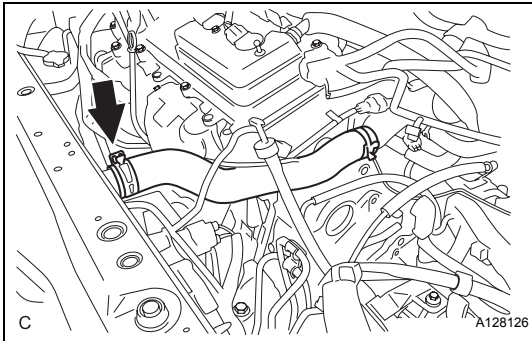
1. DRAIN ENGINE COOLANT
2. REMOVE BATTERY
3. REMOVE AIR CLEANER INLET NO.2
4. REMOVE AIR CLEANER INLET NO.1
5. SEPARATE RADIATOR RESERVE TANK HOSE OR PIPE

(a) Separate radiator reserve tank hose from the radiator assembly.



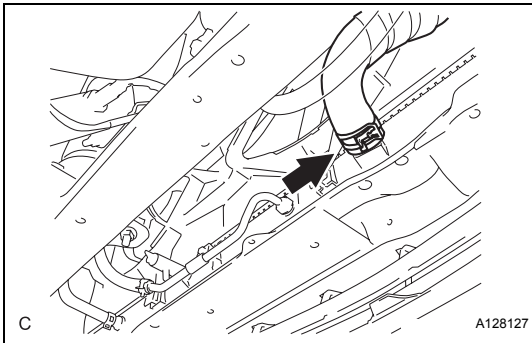
6. SEPARATE RADIATOR HOSE INLET

(a) Separate radiator hose inlet from the radiator assembly.



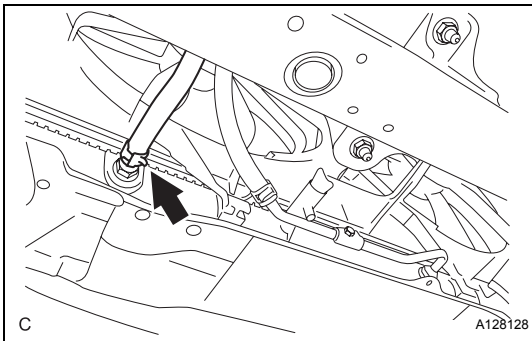
7. SEPARATE RADIATOR HOSE OUTLET

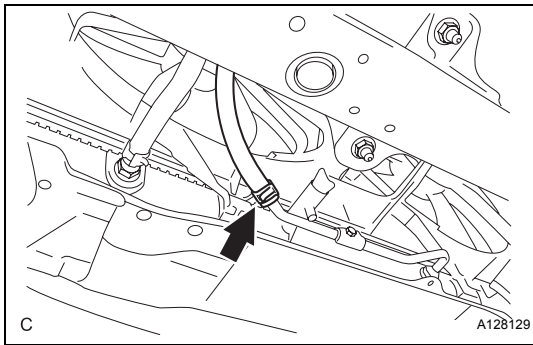
(a) Separate radiator hose outlet from the radiator assembly.



8. SEPARATE OIL COOLER INLET TUBE NO.1

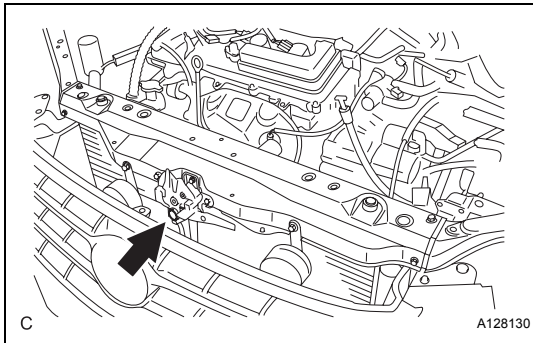
(a) Separate oil cooler inlet tube No.1 from the radiator assembly.





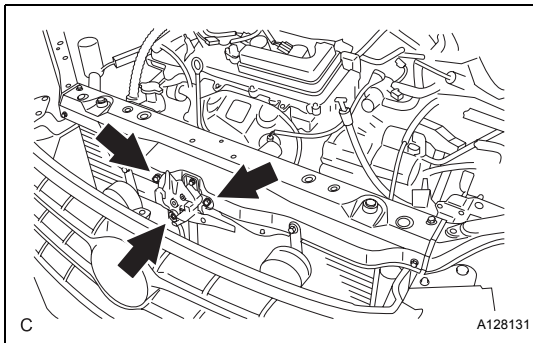
### 9. SEPARATE OIL COOLER OUTLET TUBE NO.1

- (a) Separate oil cooler outlet tube No.1 from the radiator assembly.

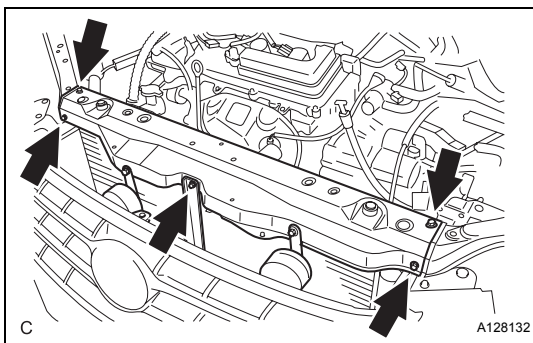


### 10. REMOVE RADIATOR SUPPORT UPPER

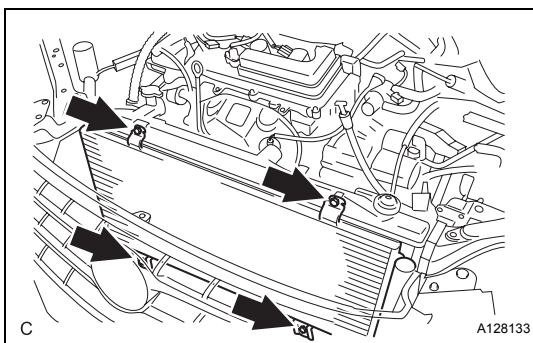
- (a) Remove the hood lock nut cap from the hood lock assembly.



- (b) Remove the 3 bolts and separate the hood lock assembly from the radiator support upper.

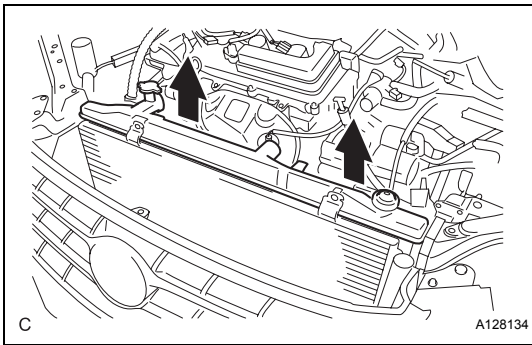


- (c) Remove the 5 bolts and radiator support upper.

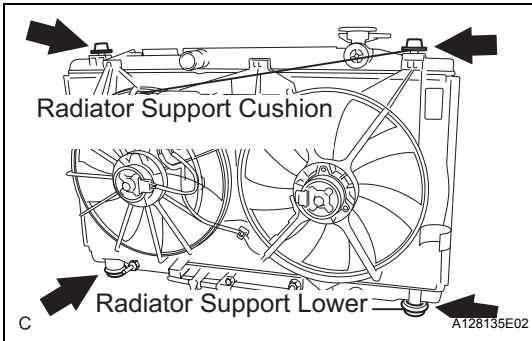


### 11. REMOVE RADIATOR ASSEMBLY

- (a) Disconnect the fan motor connector.  
 (b) Remove the 4 bolts and separate the condenser assembly from the radiator assembly.



(c) Remove the radiator assembly from the body.

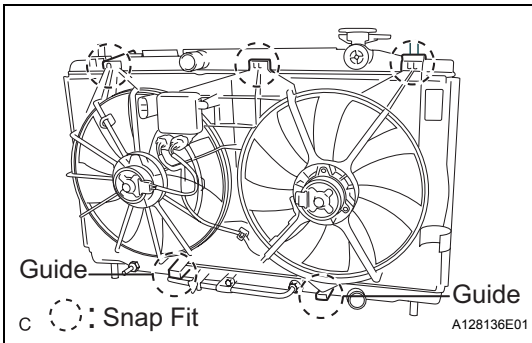


## 12. REMOVE RADIATOR SUPPORT CUSHION

(a) Remove the 2 radiator support cushions from the radiator assembly.

## 13. REMOVE RADIATOR SUPPORT LOWER

(a) Remove the 2 radiator support lowers from the radiator assembly.



## 14. REMOVE FAN ASSEMBLY WITH MOTOR

(a) Disassemble the 3 snap fits and lift the fan assembly w/motor from the radiator.



## DISASSEMBLY

### 1. REMOVE DRAIN PLUG

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

### 2. ASSEMBLE SST

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

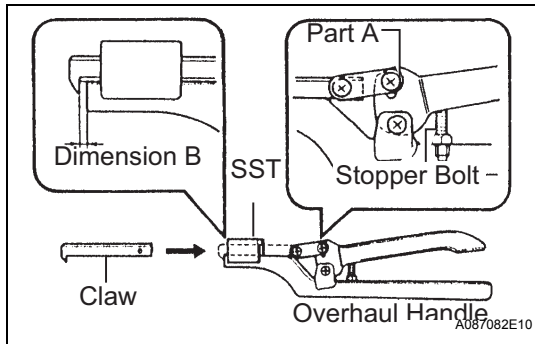
- Install the claw to the overhaul handle, inserting it in the hole in part A as shown in the illustration.
- While gripping the handle, adjust the stopper bolt so that dimension B is as shown in the illustration.

**Dimension B:**

**0.2 to 0.3 mm (0.008 to 0.012 in.)**

**NOTICE:**

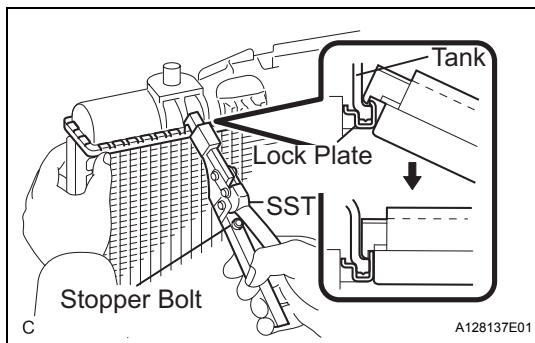
**If the stopper bolt is not adjusted, the claw may be damaged.**



### 3. REMOVE UNCAULK LOCK PLATE

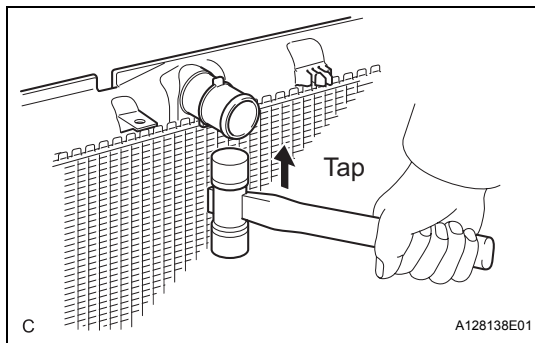
- Using SST to release the caulking, grip the handle until stopped by the stopper bolt.

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



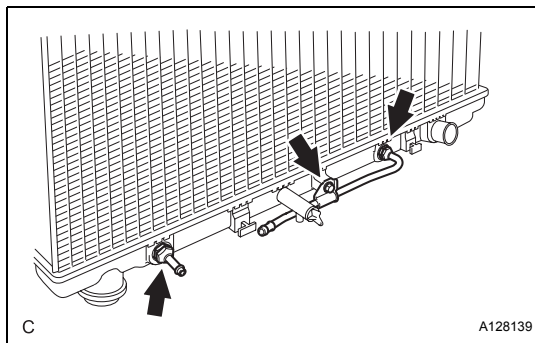
### 4. REMOVE RADIATOR TANK UPPER AND TANK LOWER

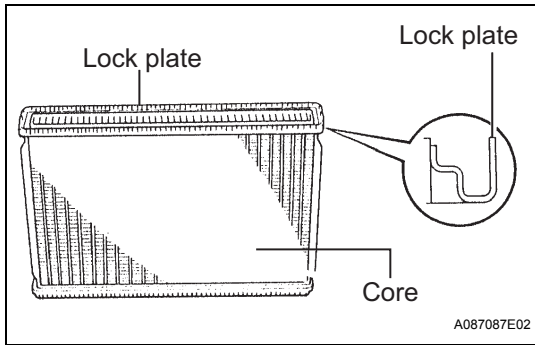
- Lightly tap the bracket of the radiator (or radiator hose inlet or outlet) with a soft-faced hammer and remove the tank.
- Remove the O-ring.



### 5. REMOVE OIL COOLER ASSEMBLY

- Remove the screw and cooler pipe.
- Remove the nut and plate washer.
- Remove the oil cooler.
- Remove the 2 O-rings from the oil cooler.





## INSPECTION

### 1. INSPECT LOCK PLATE

- (a) Inspect the 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 the lock plate groove's shape with pliers or a similar object, if necessary.
- Water leakage will result if the bottom of the lock plate groove is damaged or dented. Repair or replace if necessary.

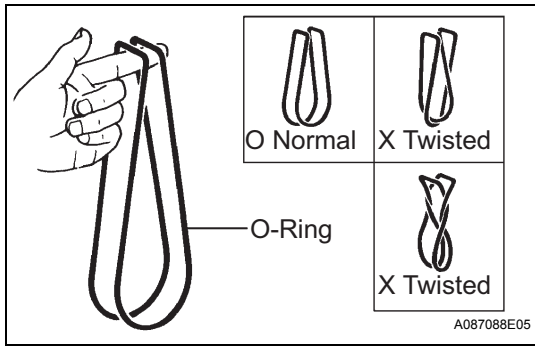
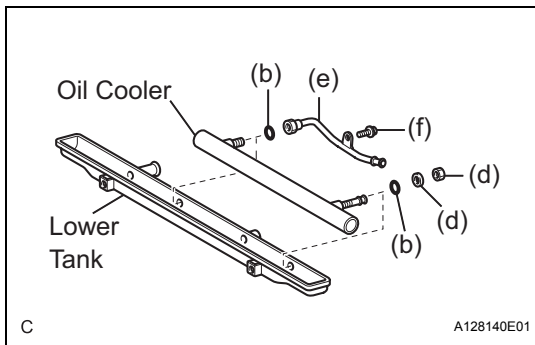
**NOTICE:**

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

## REASSEMBLY

### 1. INSTALL OIL COOLER ASSEMBLY

- (a) Clean the O-rings contact surface of the lower tank and oil cooler.
- (b) Install 2 new O-rings to the oil cooler.
- (c) Install the oil cooler to the lower tank.
- (d) Install the plate washer and nut.
- Torque: 8.3 N\*m (85 kgf\*cm, 73 in.\*lbf)**
- (e) Install the cooler pipe.
- Torque: 15 N\*m (150 kgf\*cm, 11 ft.\*lbf)**
- (f) Install the screw.



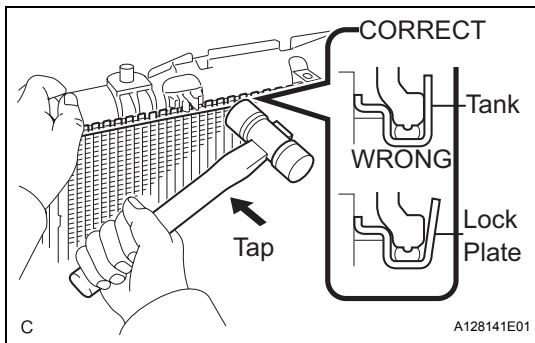
### 2. INSTALL RADIATOR TANK UPPER AND TANK LOWER

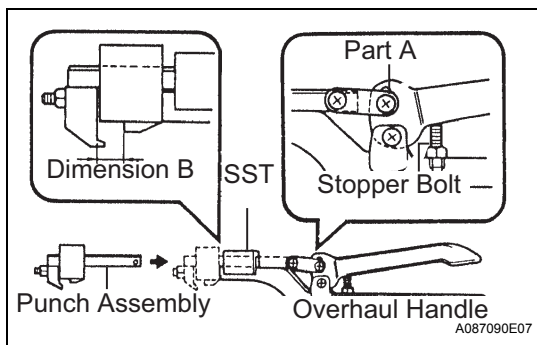
- (a) After checking that there are no foreign objects in the lock plate groove, install a new O-ring without twisting it.
- HINT:  
When cleaning the lock plate groove, lightly rub it with sand paper without scratching it.

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

### 3. ASSEMBLE SST

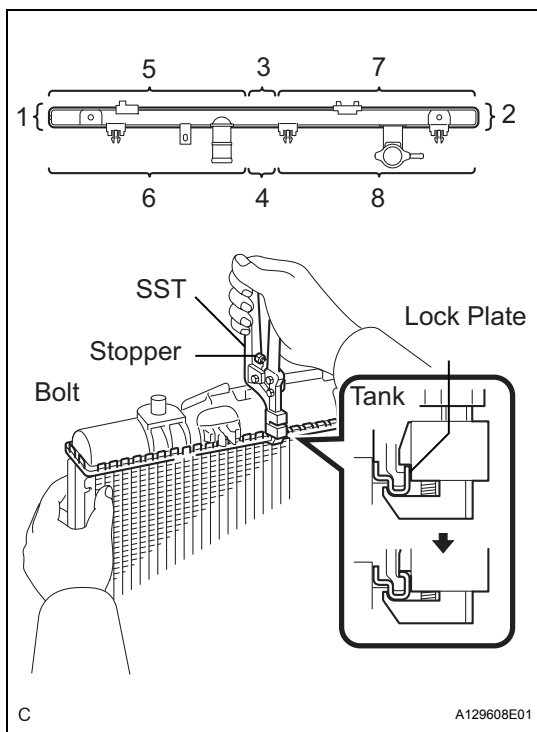
**SST 09230-01010, 09231-14010**





- (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.)**



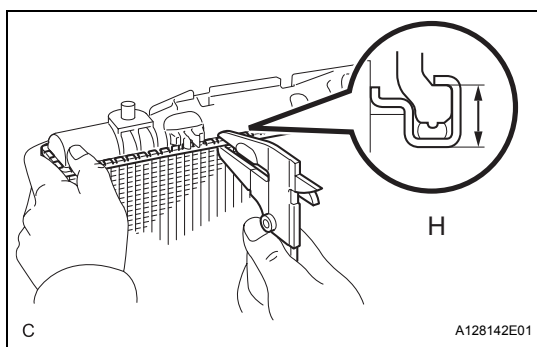
**4. CAULK LOCK PLATE**

- (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**

HINT:

- Do not tap the areas protruding around the pipes, brackets or tank ribs.
- The dotted circles shown in the illustration and parts of the oil cooler near the dotted circles cannot be tapped with the SST. Use pliers or similar objects and be careful not to damage the core plates.



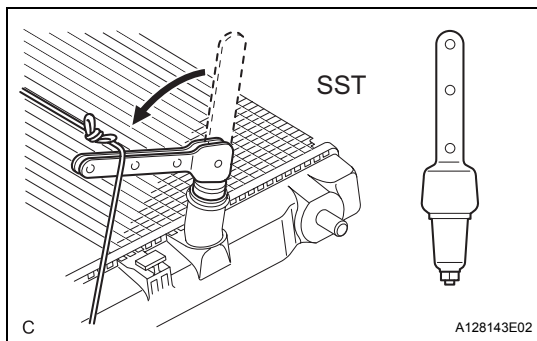
- (b) Check the lock plate height (H) after completing the caulking.

**Plate height (H):**  
**7.40 to 7.80 mm (0.2913 to 0.3071 in.)**

If not within the specified height, adjust the stopper bolt of the handle 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) Plug the inlet and outlet pipes of the radiator with SST.

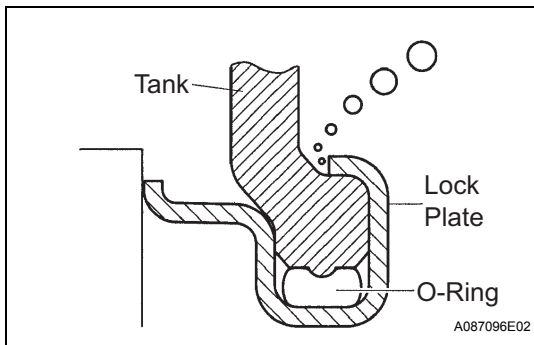
**SST 09230-01010**

- (b) Using a radiator cap tester, apply pressure to the radiator.

**Test pressure:**

**177 kPa (1.8 kgf/cm<sup>2</sup>, 26 psi)**

- (c) Submerge the radiator in water.



(d) Inspect for leaks.

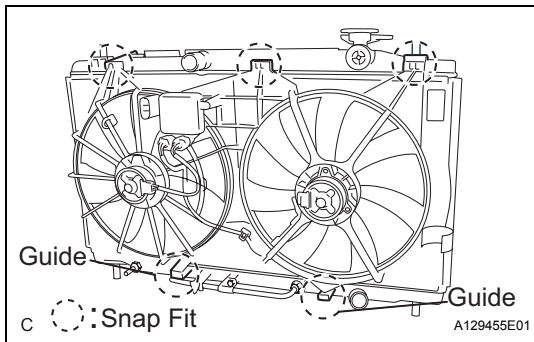
HINT:

On radiators with resin tanks, there is 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 air bubbles disappear.

## INSTALLATION

### 1. INSTALL FAN MOTOR WITH MOTOR

(a) Install the fan assembly w/ motor to the radiator with the 2 guides at the bottom and 3 snap fits on the top.

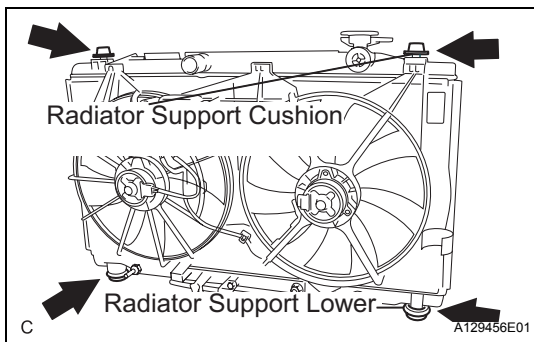


### 2. INSTALL RADIATOR SUPPORT LOWER

(a) Install the 2 radiator support lowers to the radiator assembly.

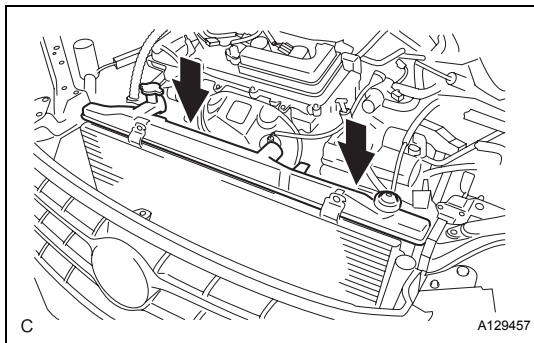
### 3. INSTALL RADIATOR SUPPORT CUSHION

(a) Install the 2 radiator support cushions to the radiator assembly.



### 4. INSTALL RADIATOR ASSEMBLY

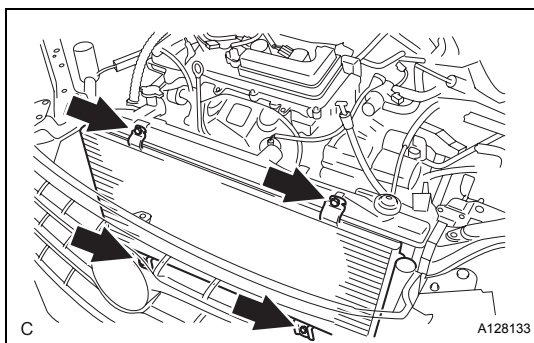
(a) Install the radiator to the body.

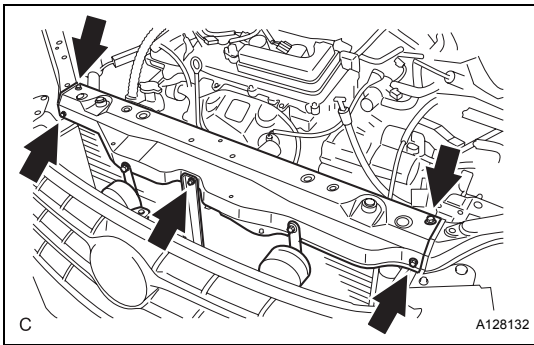


(b) Install the condenser assembly with the 4 bolts.

**Torque: 5.4 N\*m (55 kgf\*cm, 48 in.\*lbf)**

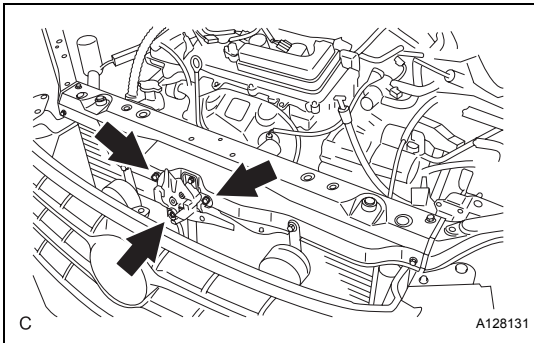
(c) Connect the fan motor connector.



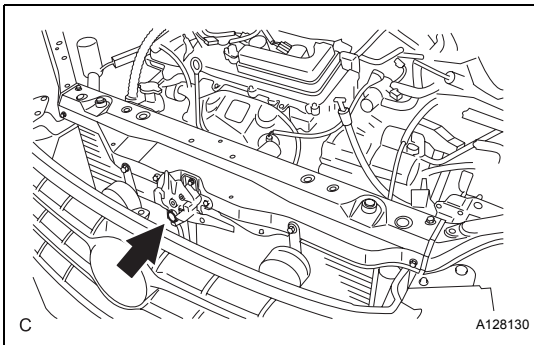


## 5. INSTALL RADIATOR SUPPORT UPPER

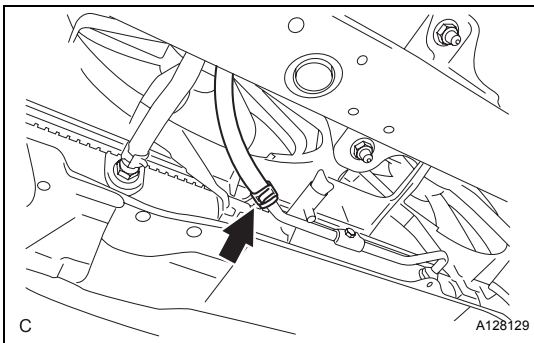
- (a) Install the radiator support upper with the 5 bolts.  
**Torque: 7.0 N\*m (71 kgf\*cm, 62 in.\*lbf)**



- (b) Install the hood lock assembly to the radiator support upper with the 3 bolts.  
**Torque: 8.0 N\*m (82 kgf\*cm, 71 in.\*lbf)**

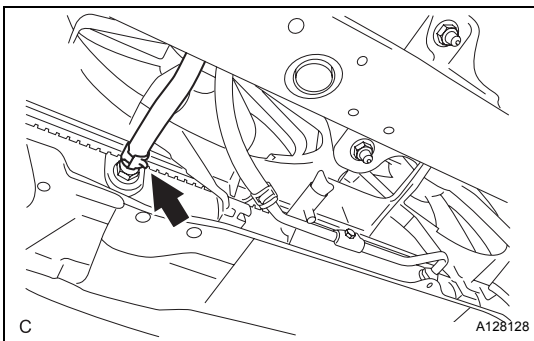


- (c) Install the hood lock nut cap to the hood lock assembly.



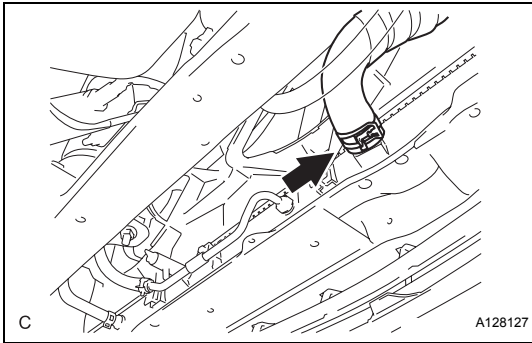
## 6. INSTALL OIL COOLER OUTLET TUBE NO.1

- (a) Install oil cooler outlet tube No.1 to the radiator assembly.

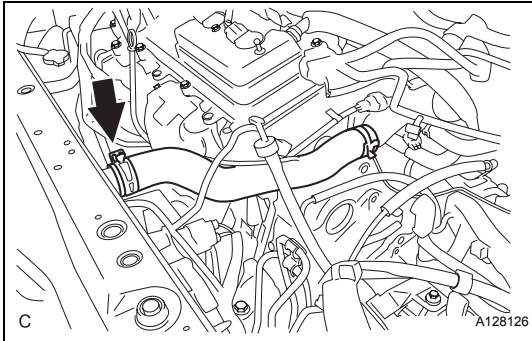


## 7. INSTALL OIL COOLER INLET TUBE NO.1

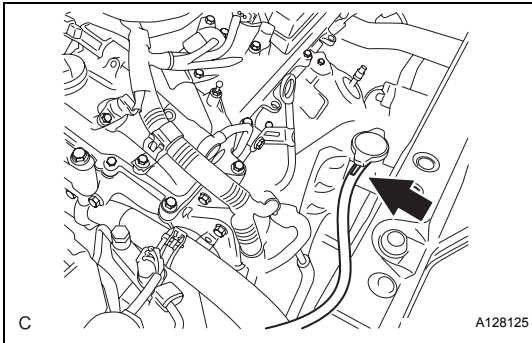
- (a) Install oil cooler inlet tube No.1 to the radiator assembly.

**8. INSTALL RADIATOR HOSE OUTLET**

- (a) Install radiator hose outlet to the radiator assembly.

**9. INSTALL RADIATOR HOSE INLET**

- (a) Install radiator hose inlet to the radiator assembly.

**10. INSTALL RADIATOR RESERVE TANK HOSE OR PIPE**

- (a) Install radiator reserve tank hose to the radiator assembly.

**11. INSTALL AIR CLEANER INLET NO.1****12. INSTALL AIR CLEANER INLET NO.2****13. INSTALL BATTERY****14. ADD ENGINE COOLANT****15. CHECK FOR ENGINE COOLANT LEAKS**