

2008 Scion xD

2008 ENGINE 2ZR-FE Cooling - xD

2008 ENGINE**2ZR-FE Cooling - xD****COOLING SYSTEM****ON-VEHICLE INSPECTION**

CAUTION: Be sure that the ignition is off if you work near the electric cooling fans or radiator grille. With the ignition on, the electric cooling fans may automatically start if the engine coolant temperature is high or the air conditioning is on.

1. CHECK COOLING SYSTEM FOR LEAKAGE

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

- a. Fill the radiator assembly with engine coolant, then attach a radiator cap tester.

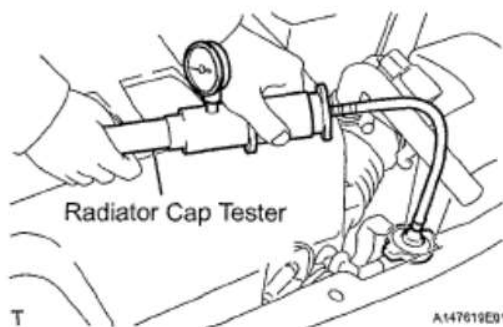


Fig. 1: Filling Engine Coolant With Radiator Cap Tester
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Pump the tester to 137 kPa (1.4 kgf/cm², 19.9 psi), then check that the pressure does not drop.

If the pressure drops, check the hoses, radiator assembly and water pump assembly for leakage. If there are no signs or traces of external engine coolant leakage, check the heater core, cylinder block and head.

2. INSPECT RESERVOIR TANK ENGINE COOLANT LEVEL

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

HINT:

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If it is below the LOW line, check for leakage 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. INSPECT ENGINE COOLANT QUALITY

- a. Remove the radiator cap sub-assembly.

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

- b. Check for excessive deposits of rust or scale around the radiator cap sub-assembly and radiator filler hole. The engine coolant should be free of oil.

If excessively dirty, replace the engine coolant.

- c. Reinstall the radiator cap sub-assembly.

4. INSPECT FINS FOR BLOCKAGE

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

NOTE:

- To avoid damaging the fins, the injection direction should be at right angles to the core surface.
- If the steam cleaner is too close to the core, there is a possibility of damaging the fins, so keep to the following injection distances.

INJECTION LENGTH

Injection Pressure kPa (kgf*cm ² , psi)	Injection Distance mm (in.)
2.942 to 4.903 (30 to 50, 427 to 711)	300 (11.811)
4.903 to 7.845 (50 to 80, 711 to 1.138)	500 (9.685)

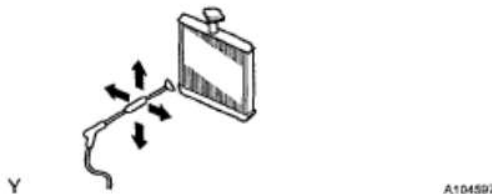


Fig. 2: Inspecting Fins For Blockage
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- If the fins are bent, straighten them with a screwdriver or pliers.

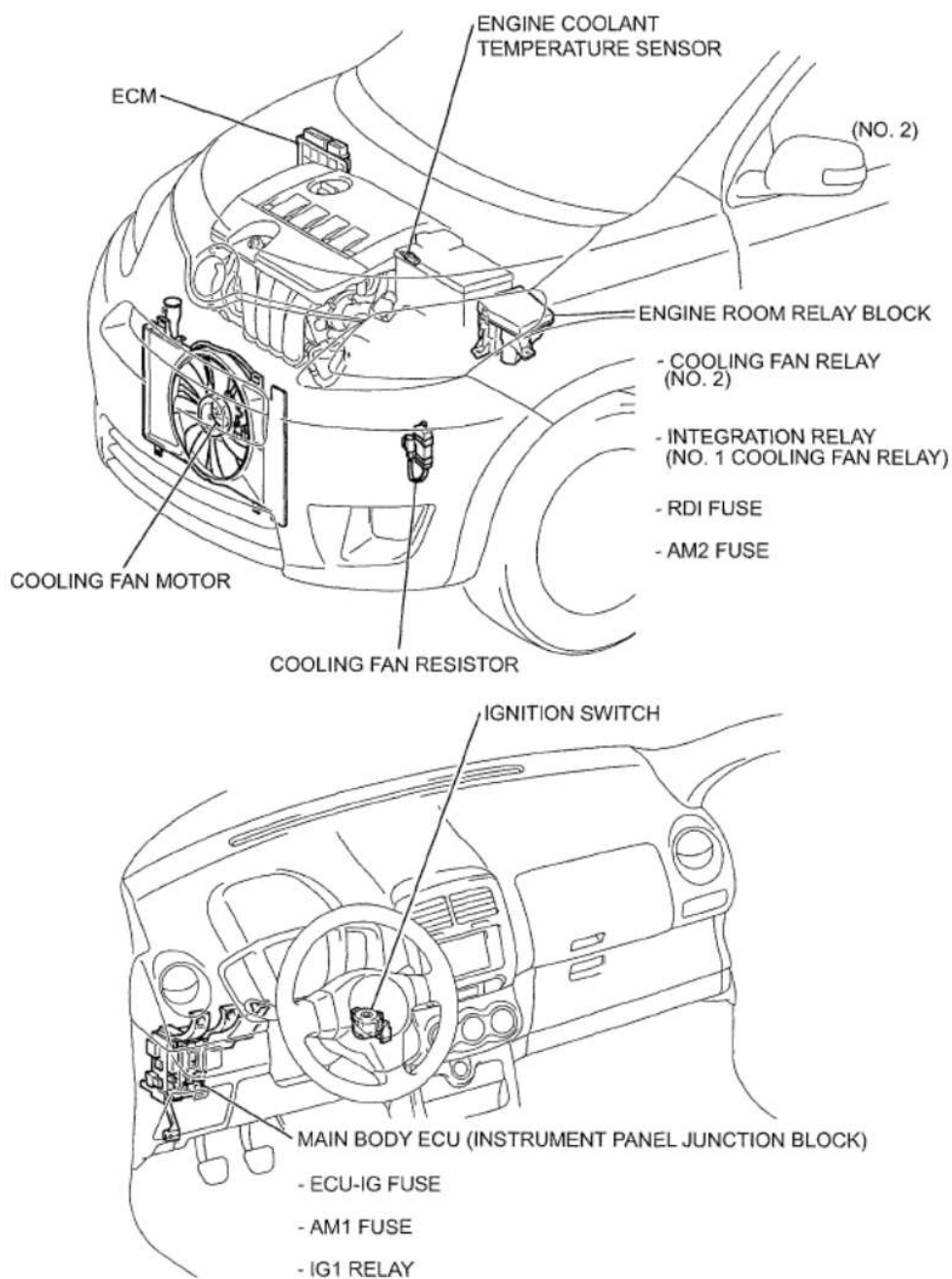
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- Do not expose electronic components to water.

COOLING FAN SYSTEM

PARTS LOCATION

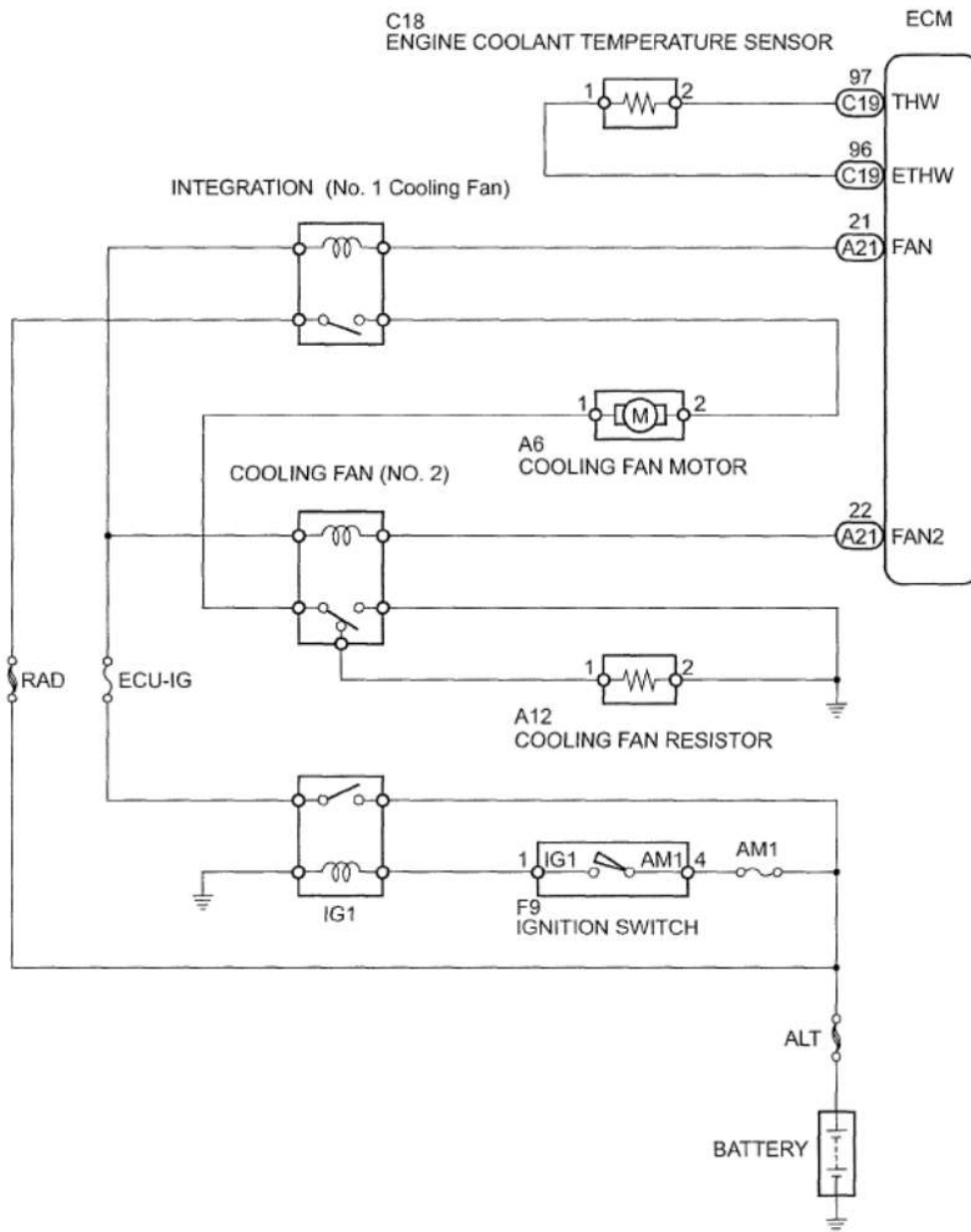


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Fig. 3: Identifying Cooling Fan System Parts Location

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SYSTEM DIAGRAM



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

ON-VEHICLE INSPECTION

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CAUTION: Be sure that the ignition is off if you work near the electric cooling fans or radiator grille. With the ignition on, the electric cooling fans may automatically start if the engine coolant temperature is high or the air conditioning is on.

1. INSPECT COOLING FAN OPERATION AT LOW TEMPERATURES (Below 83°C (181°F))

- a. Turn the ignition switch ON with the A/C switch OFF.
- b. Check that the cooling fan does not operate. If it does not, check the cooling fan relays and engine coolant temperature sensor, and then check for disconnection of the connector or a wire break between the cooling fan relay and engine coolant temperature sensor.
- c. Disconnect the engine coolant temperature sensor connector.
- d. Check that the cooling fan rotates.

If it does not, check the fuses, cooling fan relays, ECM and cooling fan, and then check for an open circuit between the cooling fan relay and engine coolant temperature.

- e. Reconnect the engine coolant temperature sensor connector.

2. INSPECT COOLING FAN OPERATION AT HIGH TEMPERATURES (Above 93°C (199°F))

- a. Start the engine and turn the air conditioning switch off, and raise the engine coolant temperature to above 93°C (199°F).

HINT:

Coolant temperature is detected by the engine coolant temperature sensor on the cylinder head.

- b. Check that the cooling fan rotates.

If it does not, check the engine coolant temperature sensor, cooling fan, harness and connector.

COOLANT**REPLACEMENT**

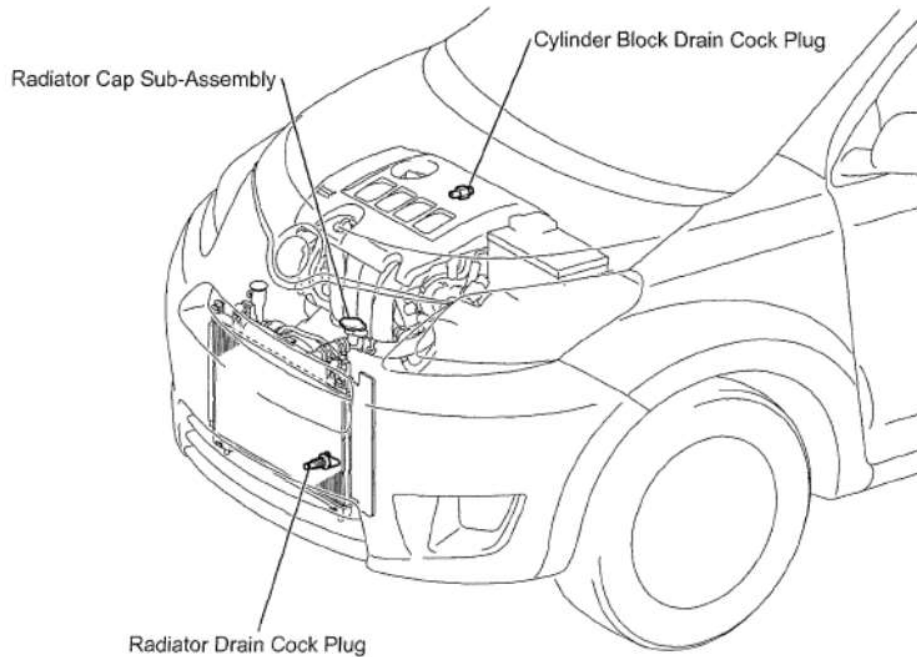
CAUTION: Be sure that the ignition is off if you work near the electric cooling fans or radiator grille. With the ignition on, the electric cooling fans may automatically start if the engine coolant temperature is high or the air conditioning is on.

1. DRAIN ENGINE COOLANT

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

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- a. Loosen the radiator drain cock plug.
- b. Remove the radiator cap sub-assembly.
- c. Loosen the cylinder block drain cock plug, then drain the coolant.



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Fig. 5: Identifying Radiator Cap Sub-Assembly, Cylinder Block Drain Cock Plug And Radiator Drain Cock Plug

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

2. ADD ENGINE COOLANT

- a. Tighten all the plugs.
- b. Pour engine coolant into the radiator assembly until it is completely full.

Capacity:

M/T 5.0 liters (5.3 US qts, 4.4 Imp. qts)

A/T 4.9 liters (5.2 US qts, 4.3 Imp. qts)

NOTE: Do not substitute water for engine coolant.

HINT:

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- Use of improper engine coolant may damage the engine coolant system.
 - Use only Toyota Super Long Life Coolant or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate engine coolant with long-life hybrid organic acid technology (coolant with long-life hybrid organic acid technology consists of a combination of low phosphates and organic acids).
- c. Check the engine coolant level inside the radiator assembly by squeezing the inlet and outlet radiator hoses several times by hand. If the engine coolant level goes down, add engine coolant.
 - d. Install the radiator cap sub-assembly securely.
 - e. Slowly pour engine coolant into the radiator reservoir until it reaches the FULL line.
 - f. Bleed air from the cooling system.
 1. Warm up the engine until the thermostat opens. While the thermostat is open, circulate the coolant for several minutes.

HINT:

The thermostat open timing can be confirmed by pressing the inlet radiator hose by hand, and checking when the engine coolant starts to flow inside the hose.

2. Maintain the engine speed at 2500 to 3000 rpm.
3. Press the inlet and outlet radiator hoses several times by hand to bleed air.

CAUTION: When pressing the radiator hoses:

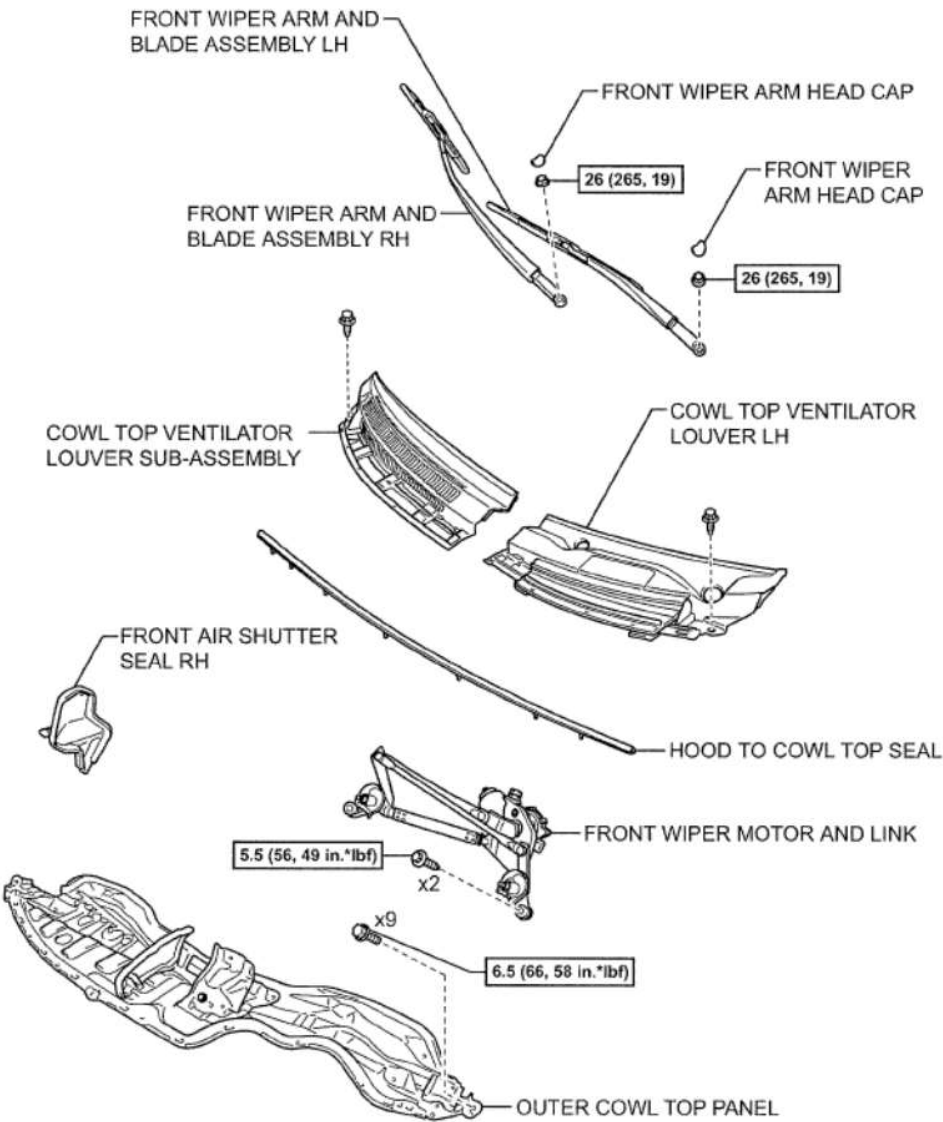
- **Wear protective gloves.**
- **Be careful as the radiator hoses are hot.**
- **Keep your hands away from the radiator fan.**

- g. Stop the engine and wait until the coolant cools down.
- h. If the engine coolant level is below the full level, perform steps (a) through (f) again and repeat the operation until the engine coolant level stays at the full level.
- i. Recheck the engine coolant level inside the radiator reservoir tank assembly. If it is below the full level, add engine coolant.

3. INSPECT FOR ENGINE COOLANT LEAK (See ON-VEHICLE INSPECTION)**WATER PUMP****COMPONENTS**

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

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Fig. 6: Identifying Water Pump Components With Torque Specifications (1 Of 12)
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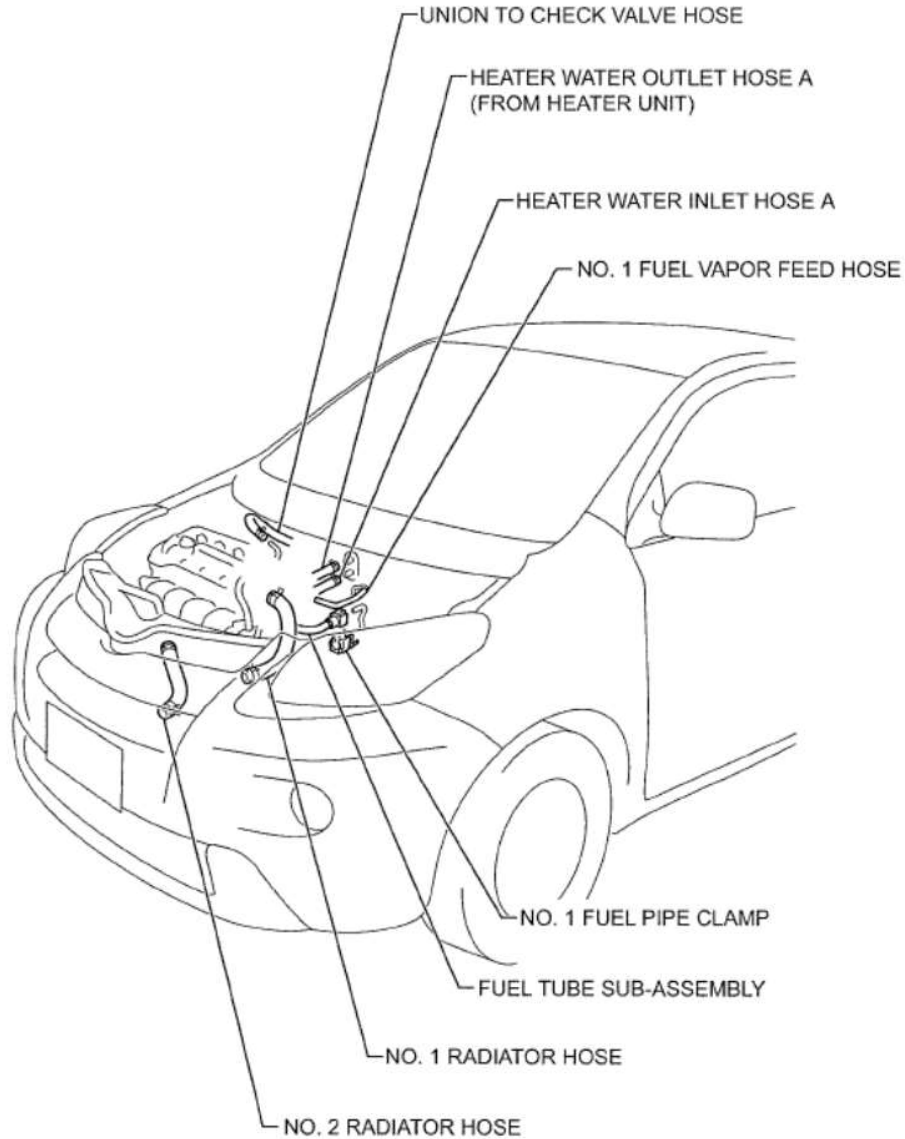
N*m (kgf*cm, ft*lbf) : Specified torque

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

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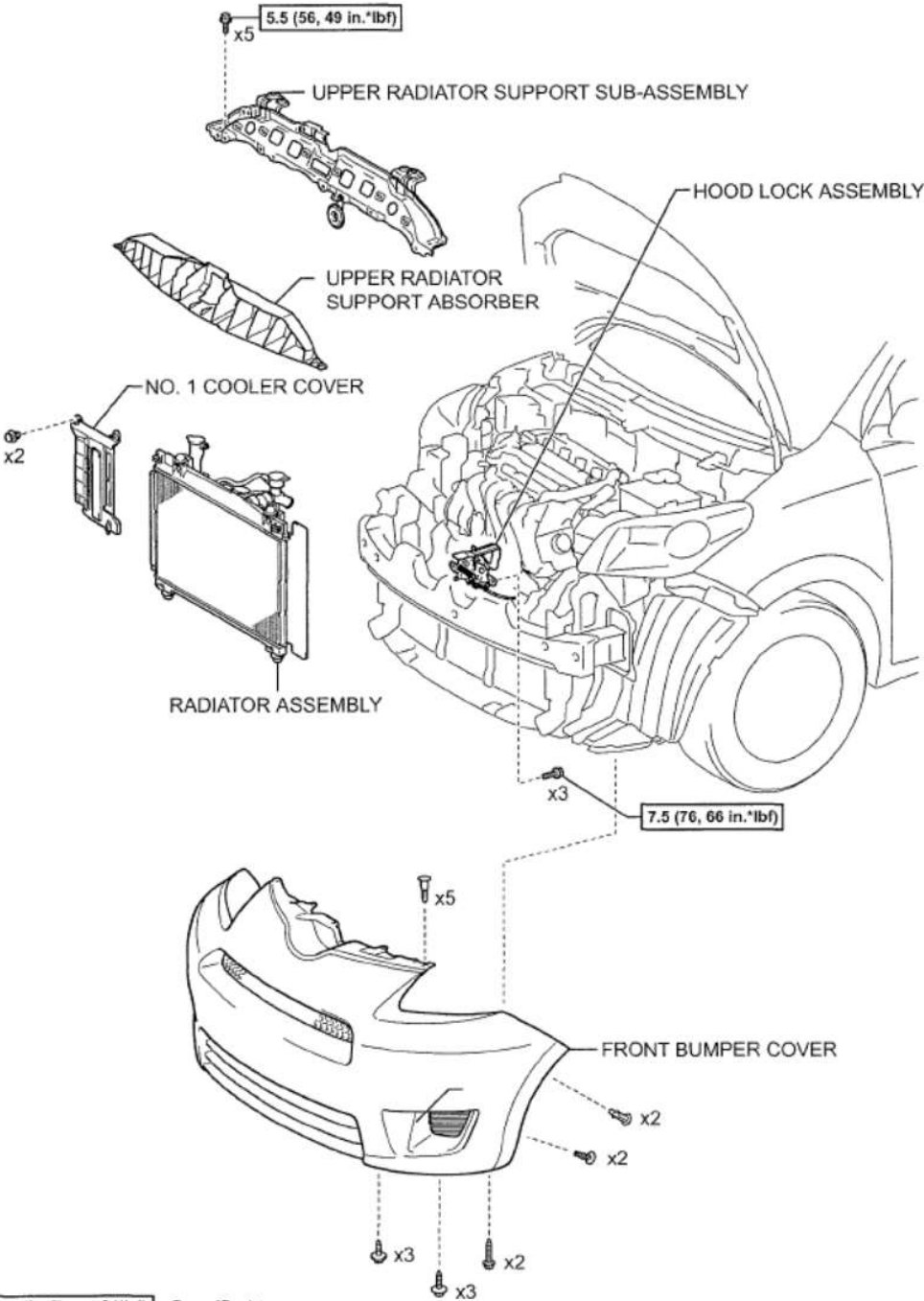


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Fig. 8: Identifying Water Pump Components With Torque Specification (3 Of 12)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Fig. 9: Identifying Water Pump Components With Torque Specifications (4 Of 12)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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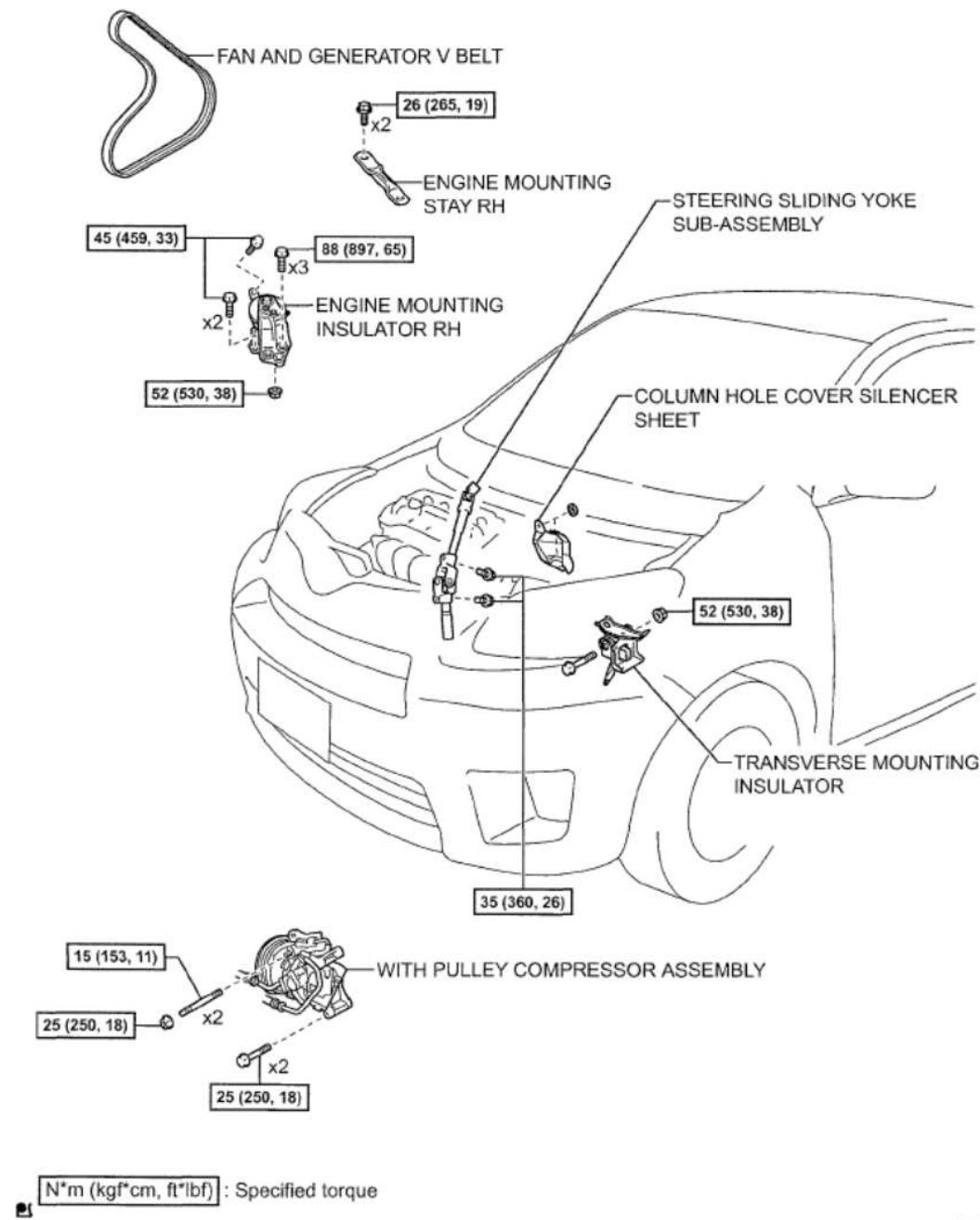
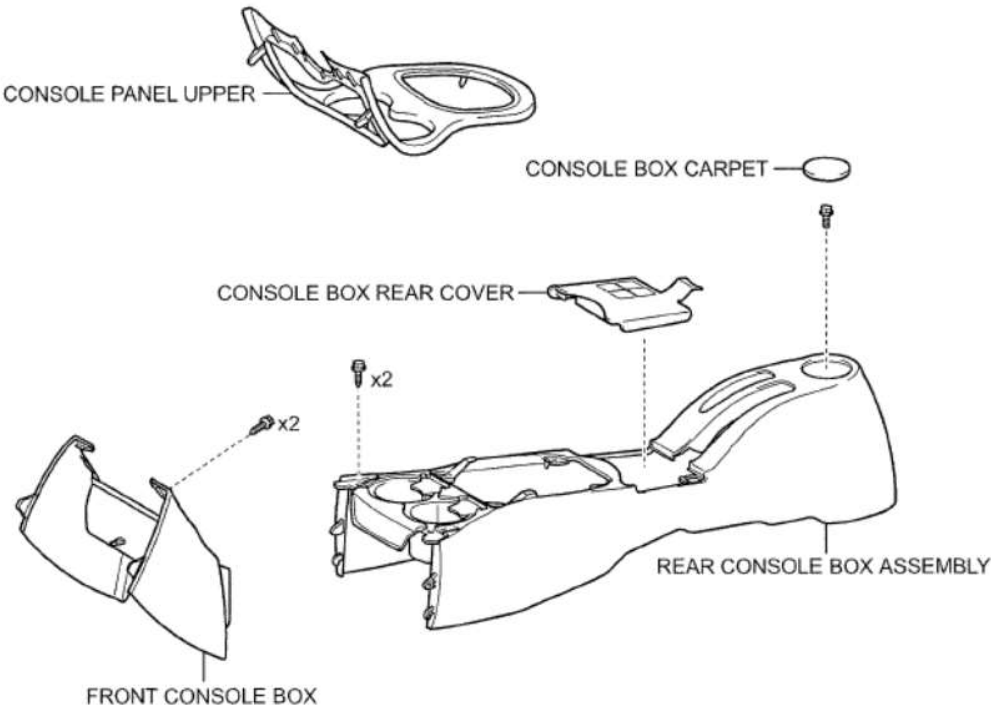
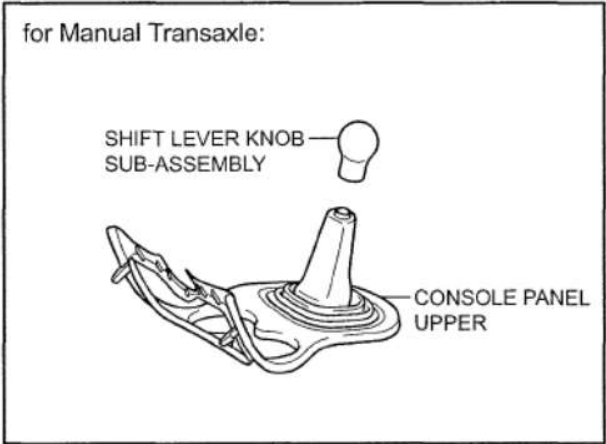


Fig. 10: Identifying Water Pump Components With Torque Specifications (5 Of 12)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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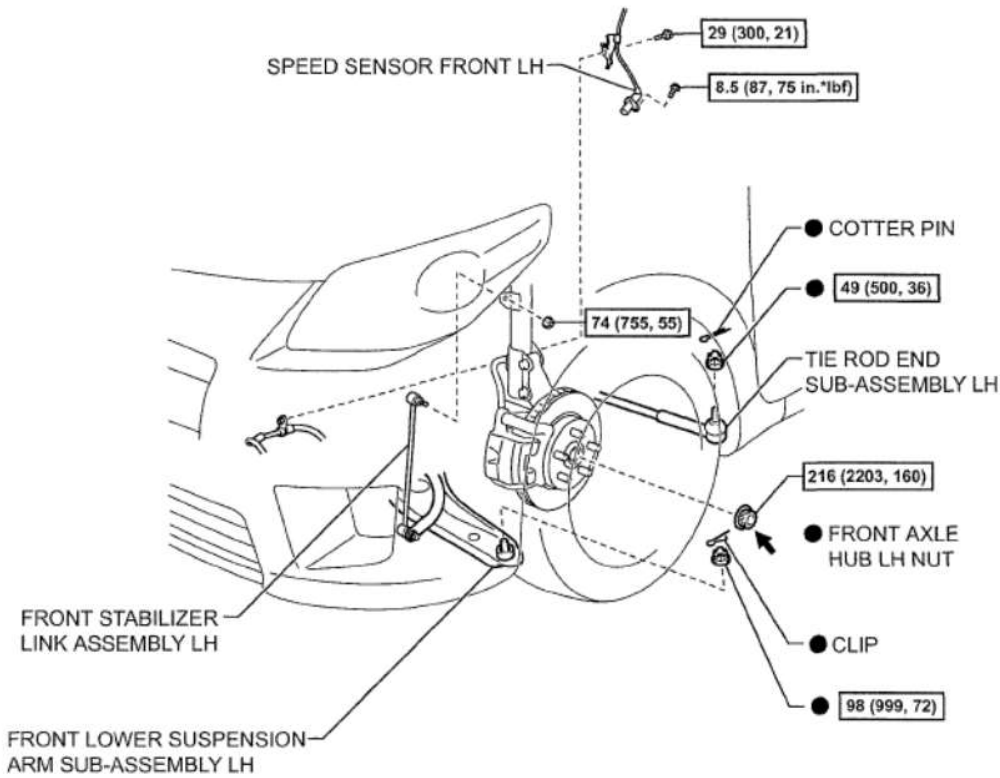
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Fig. 11: Identifying Water Pump Components With Torque Specification (6 Of 12)
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[N·m (kgf·cm, ft·lbf)] : Specified torque ● Non-reusable part

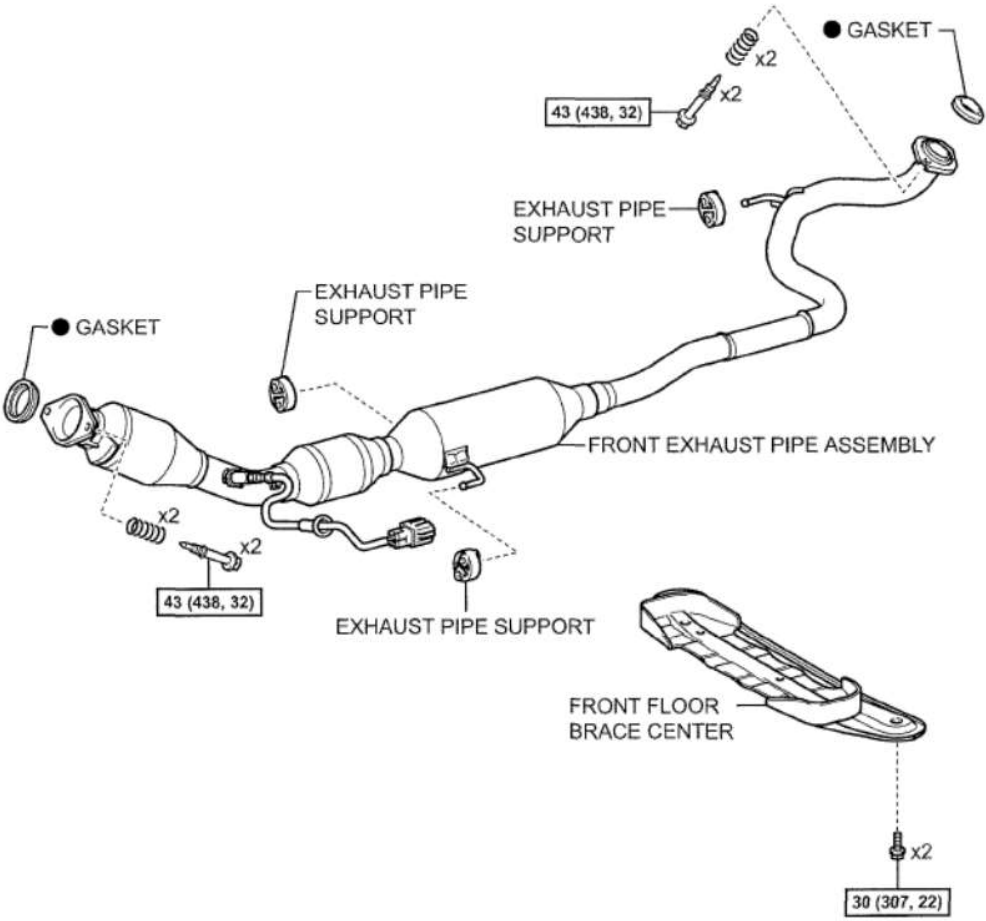
⬅ Do not apply lubricants to the threaded parts

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Fig. 12: Identifying Water Pump Components With Torque Specifications (7 Of 12)
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N*m (kgf*cm, ft*lb) : Specified torque ● Non-reusable part

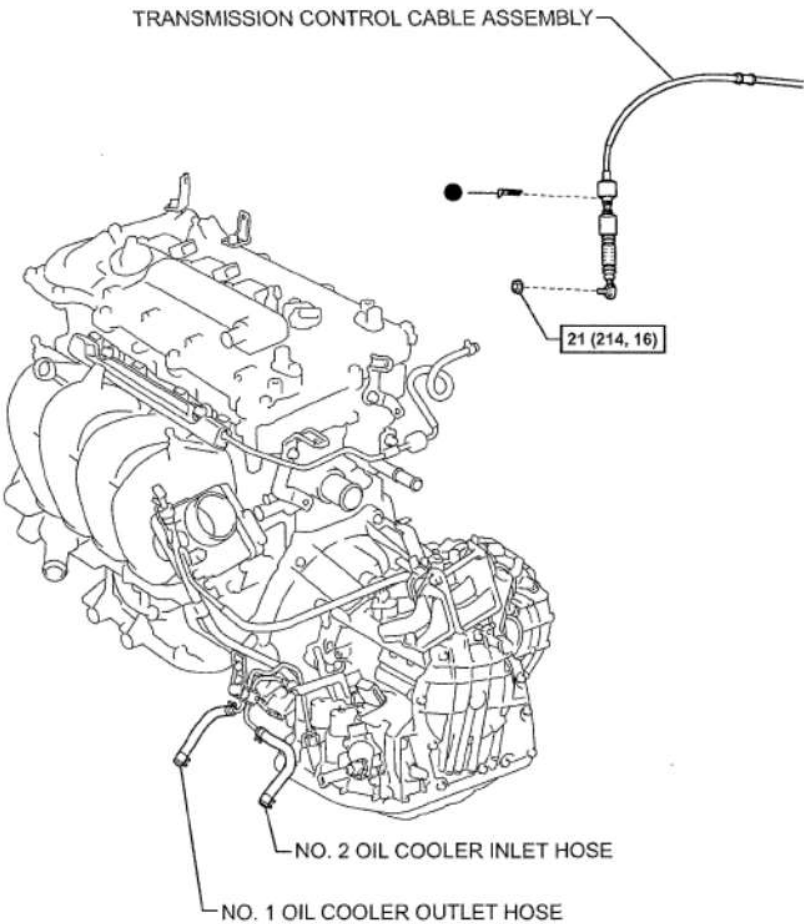
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Fig. 13: Identifying Water Pump Components With Torque Specifications (8 Of 12)
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for Automatic Transaxle:



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

● Non-reusable part

Fig. 14: Identifying Water Pump Components With Torque Specification (9 Of 12)
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for Manual Transaxle:

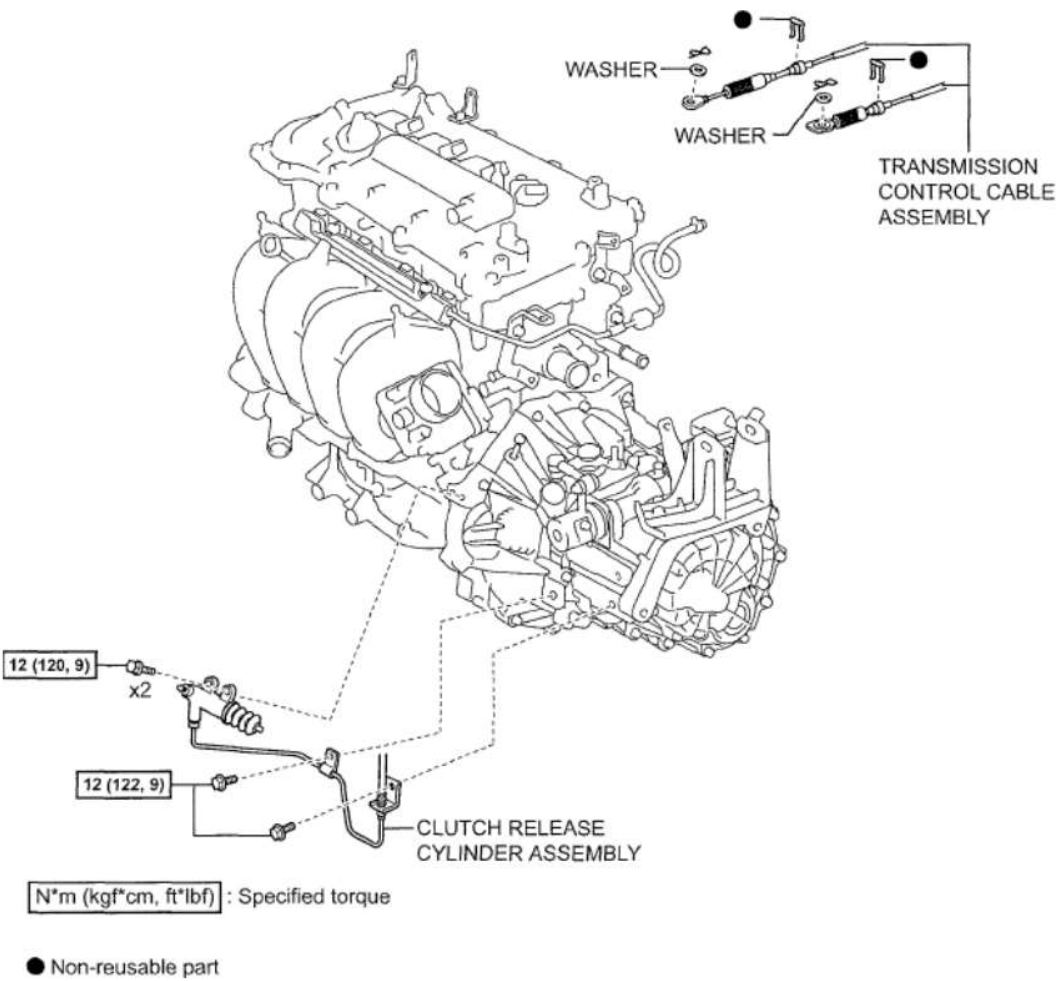
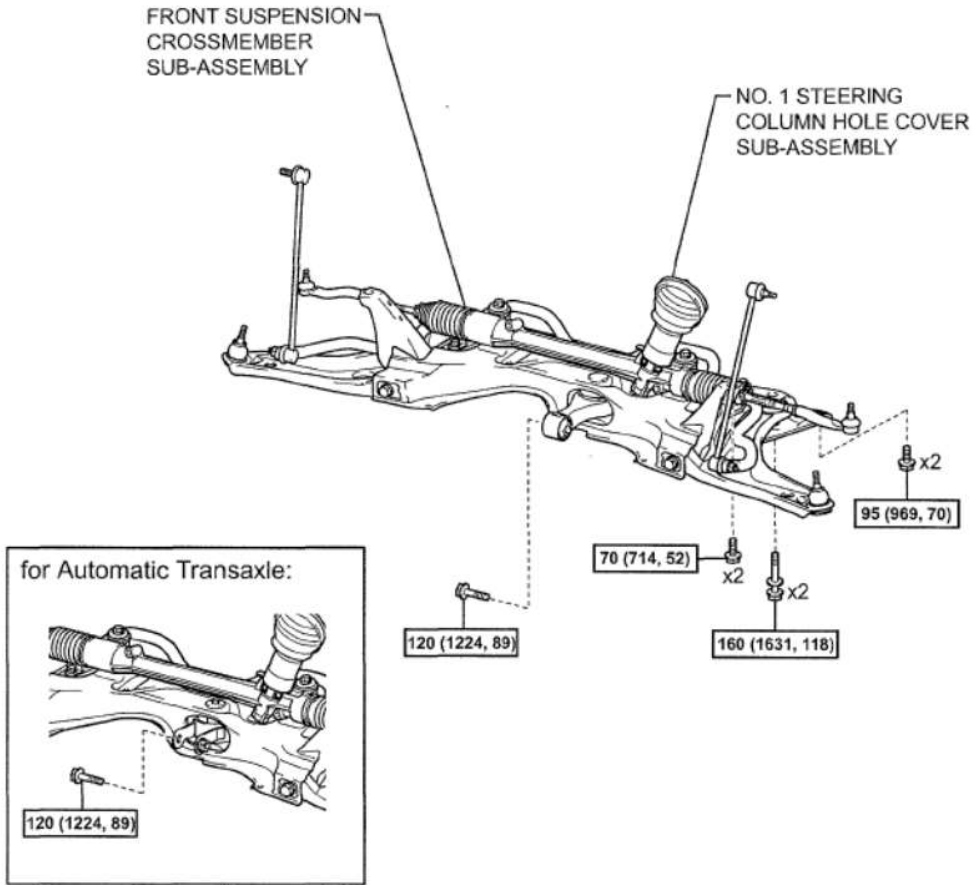


Fig. 15: Identifying Water Pump Components With Torque Specifications (10 Of 12)
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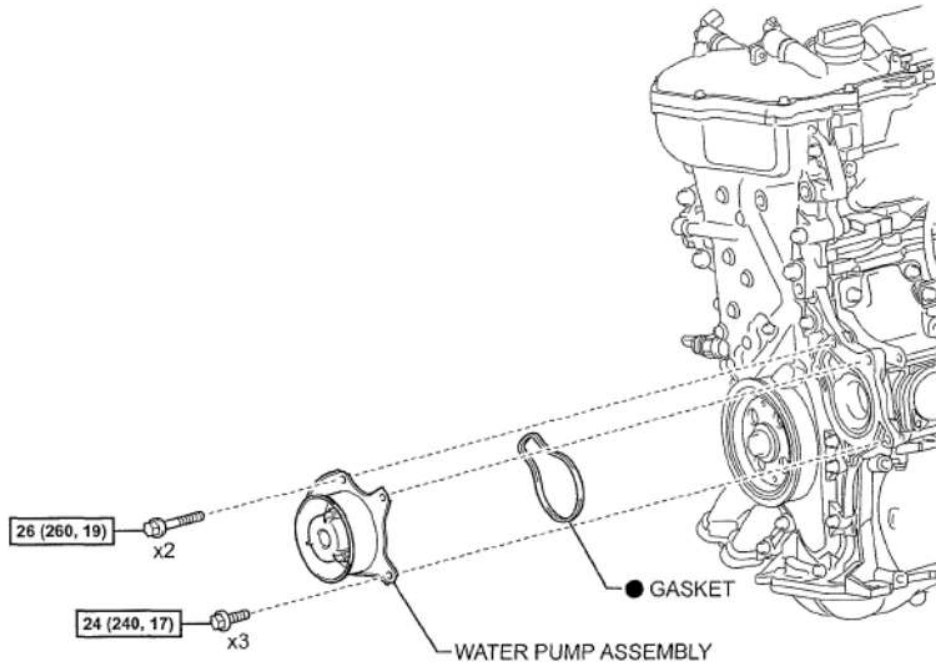
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N*m (kgf*cm, ft*lb) : Specified torque

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Fig. 16: Identifying Water Pump Components With Torque Specifications (11 Of 12)
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N·m (kgf·cm, ft·lbf) : Specified torque

● Non-reusable part

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Fig. 17: Identifying Water Pump Components With Torque Specifications (12 Of 12)

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

ON-VEHICLE INSPECTION

1. REMOVE ENGINE UNDER COVER RH
2. REMOVE NO. 2 CYLINDER HEAD COVER (See REMOVAL)
3. REMOVE FAN AND GENERATOR V BELT (See REMOVAL)
4. INSPECT WATER PUMP ASSEMBLY
 - a. Turn the pulley and check that the water pump bearing moves smoothly and quietly.

If necessary, replace the water pump assembly.

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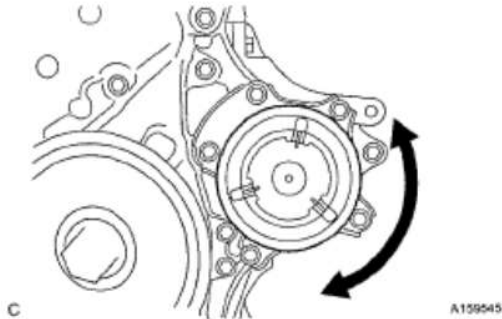


Fig. 18: Turning Pulley And Checking Water Pump
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Make sure that there are no drops of coolant on the water pump housing.

If necessary, replace the water pump assembly.

5. **INSTALL FAN AND GENERATOR V BELT** (See INSTALLATION)
6. **ADJUST FAN AND GENERATOR V BELT** (See INSTALLATION)
7. **INSPECT FAN AND GENERATOR V BELT** (See INSTALLATION)
8. **INSTALL NO. 2 CYLINDER HEAD COVER** (See INSTALLATION)
9. **INSTALL ENGINE UNDER COVER RH**

REMOVAL

1. **DISCHARGE FUEL SYSTEM PRESSURE**

(See PRECAUTION)

2. **REMOVE BATTERY** (See REMOVAL)
3. **REMOVE BATTERY TRAY**
4. **REMOVE FRONT WHEELS**
5. **REMOVE ENGINE UNDER COVER LH**
6. **REMOVE ENGINE UNDER COVER RH**
7. **DRAIN ENGINE COOLANT** (See REPLACEMENT)
8. **REMOVE FRONT WIPER ARM HEAD CAP** (See REMOVAL)
9. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH** (See REMOVAL)
10. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH** (See REMOVAL)
11. **REMOVE HOOD TO COWL TOP SEAL** (See REMOVAL)
12. **REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY** (See REMOVAL)
13. **REMOVE COWL TOP VENTILATOR LOUVER LH** (See REMOVAL)
14. **REMOVE FRONT WIPER MOTOR AND LINK** (See REMOVAL)

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15. REMOVE FRONT AIR SHUTTER SEAL RH (See REMOVAL)
16. REMOVE OUTER COWL TOP PANEL (See REMOVAL)
17. REMOVE AIR CLEANER ASSEMBLY (See REMOVAL)
18. REMOVE AIR CLEANER BRACKET (See REMOVAL)
19. REMOVE BATTERY CARRIER (See REMOVAL)
20. REMOVE NO. 2 CYLINDER HEAD COVER (See REMOVAL)
21. REMOVE FAN AND GENERATOR V BELT (See REMOVAL)
22. REMOVE NO. 2 RADIATOR HOSE (See REMOVAL)
23. DISCONNECT NO. 1 RADIATOR HOSE (See REMOVAL)
24. REMOVE FRONT BUMPER COVER (See REMOVAL)
25. DISCONNECT NO. 1 OIL COOLER OUTLET HOSE (for Automatic Transaxle) (See REMOVAL)
26. DISCONNECT NO. 2 OIL COOLER INLET HOSE (for Automatic Transaxle) (See REMOVAL)
27. REMOVE HOOD LOCK ASSEMBLY (See REMOVAL)
28. REMOVE NO. 1 COOLER COVER (See REMOVAL)
29. REMOVE UPPER RADIATOR SUPPORT ABSORBER (See DISASSEMBLY)
30. REMOVE UPPER RADIATOR SUPPORT SUB-ASSEMBLY (See REMOVAL)
31. REMOVE RADIATOR ASSEMBLY (See REMOVAL)
32. SEPARATE WITH PULLEY COMPRESSOR ASSEMBLY (See REMOVAL)
33. SEPARATE TRANSMISSION CONTROL CABLE ASSEMBLY (for Automatic Transaxle) (See REMOVAL)
34. SEPARATE TRANSMISSION CONTROL CABLE ASSEMBLY (for Manual Transaxle) (See REMOVAL)
35. SEPARATE UNION TO CHECK VALVE HOSE (See REMOVAL)
36. SEPARATE NO. 1 FUEL VAPOR FEED HOSE (See REMOVAL)
37. DISCONNECT ENGINE WIRE (See REMOVAL)
38. DISCONNECT HEATER WATER OUTLET HOSE A(FROM HEATER UNIT) (See REMOVAL)
39. DISCONNECT HEATER WATER INLET HOSE A (See REMOVAL)
40. DISCONNECT FUEL TUBE SUB-ASSEMBLY (See REMOVAL)
41. SEPARATE CLUTCH RELEASE CYLINDER ASSEMBLY (for Manual Transaxle) (See REMOVAL)
42. REMOVE COLUMN HOLE COVER SILENCER SHEET (See REMOVAL)
43. SEPARATE STEERING SLIDING YOKE SUB-ASSEMBLY (See REMOVAL)
44. SEPARATE NO. 1 STEERING COLUMN HOLE COVER SUB-ASSEMBLY (See REMOVAL)
45. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) (See REMOVAL)
46. REMOVE CONSOLE PANEL UPPER (See REMOVAL)
47. REMOVE CONSOLE BOX REAR COVER (See REMOVAL)

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- 48. **REMOVE CONSOLE BOX CARPET** (See REMOVAL)
- 49. **REMOVE REAR CONSOLE BOX SUB-ASSEMBLY** (See REMOVAL)
- 50. **REMOVE FRONT CONSOLE BOX** (See REMOVAL)
- 51. **REMOVE FRONT FLOOR BRACE CENTER** (See REMOVAL)
- 52. **REMOVE FRONT EXHAUST PIPE ASSEMBLY** (See REMOVAL)
- 53. **REMOVE FRONT AXLE SHAFT LH NUT** (See REMOVAL)
- 54. **REMOVE FRONT AXLE SHAFT RH NUT**

HINT:

The removal procedure for the RH side is the same as that for the LH side.

- 55. **SEPARATE SPEED SENSOR FRONT LH** (See REMOVAL)
- 56. **SEPARATE SPEED SENSOR FRONT RH**

HINT:

The removal procedure for the RH side is the same as that for the LH side.

- 57. **SEPARATE TIE ROD END SUB-ASSEMBLY LH** (See REMOVAL)
- 58. **SEPARATE TIE ROD END SUB-ASSEMBLY RH**

HINT:

The removal procedure for the RH side is the same as that for the LH side.

- 59. **SEPARATE FRONT STABILIZER LINK ASSEMBLY LH** (See REMOVAL)
- 60. **SEPARATE FRONT STABILIZER LINK ASSEMBLY RH**

HINT:

The removal procedure for the RH side is the same as that for the LH side.

- 61. **SEPARATE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY LH** (See REMOVAL)
- 62. **SEPARATE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY RH**

HINT:

The removal procedure for the RH side is the same as that for the LH side.

- 63. **SEPARATE FRONT AXLE ASSEMBLY LH** (See REMOVAL)
- 64. **SEPARATE FRONT AXLE ASSEMBLY RH**

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HINT:

The removal procedure for the RH side is the same as that for the LH side.

65. **REMOVE ENGINE ASSEMBLY WITH TRANSAXLE** (See **REMOVAL**)
66. **REMOVE FRONT SUSPENSION CROSSMEMBER SUB-ASSEMBLY** (See **REMOVAL**)
67. **REMOVE WATER PUMP ASSEMBLY**
 - a. Remove the 5 bolts and remove the water pump assembly.

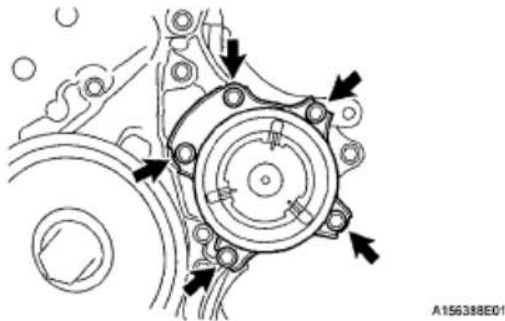


Fig. 19: Locating Water Pump Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the water pump gasket from the timing chain cover.

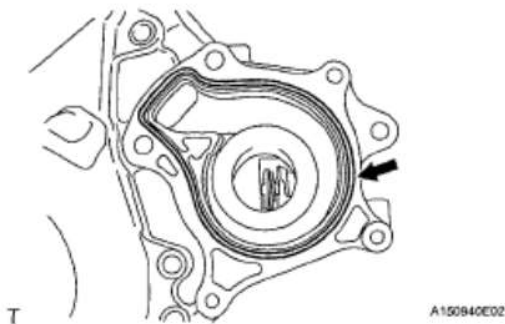


Fig. 20: Locating Timing Chain Cover Of Water Pump
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL WATER PUMP ASSEMBLY**
 - a. Install a new water pump gasket to the timing chain cover.

HINT:

Make sure that the installation surfaces are clean.

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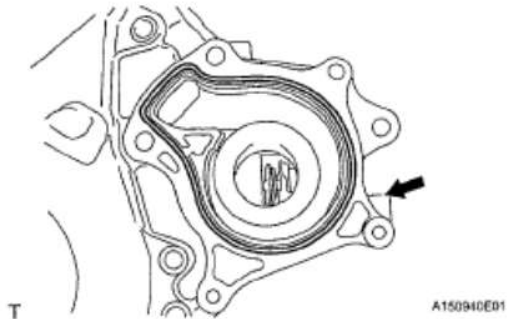


Fig. 21: Locating Water Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the water pump assembly with the 5 bolts.

Bolt length

BOLT LENGTH SPECIFICATION

Item	Length
Bolt A	35 mm (1.38 in.)
Bolt B	18 mm (0.71 in.)

Torque: 26 N*m (260 kgf*cm, 19 ft.*lbf) (for bolt A)

24 N*m (240 kgf*cm, 17 ft.*lbf) (for bolt B)

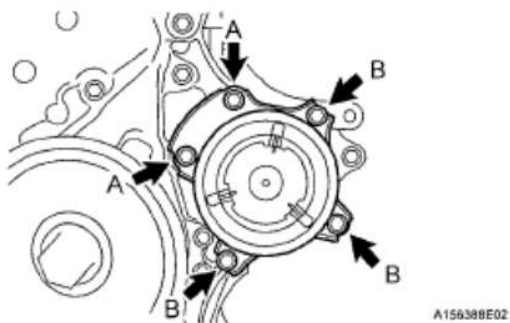


Fig. 22: Locating Water Pump Assembly With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL FRONT SUSPENSION CROSSMEMBER SUB-ASSEMBLY** (See **INSTALLATION**)
3. **INSTALL ENGINE ASSEMBLY WITH TRANSAXLE** (See **INSTALLATION**)
4. **INSTALL FRONT AXLE ASSEMBLY LH** (See **INSTALLATION**)
5. **INSTALL FRONT AXLE ASSEMBLY RH**

HINT:

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The installation procedure for the RH side is the same as that for the LH side.

6. **INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY LH** (See **INSTALLATION**)
7. **INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY RH**

HINT:

The installation procedure for the RH side is the same as that for the LH side.

8. **INSTALL FRONT STABILIZER LINK ASSEMBLY LH** (See **INSTALLATION**)
9. **INSTALL FRONT STABILIZER LINK ASSEMBLY RH**

HINT:

The installation procedure for the RH side is the same as that for the LH side.

10. **INSTALL TIE ROD END SUB-ASSEMBLY LH** (See **INSTALLATION**)
11. **INSTALL TIE ROD END SUB-ASSEMBLY RH**

HINT:

The installation procedure for the RH side is the same as that for the LH side.

12. **INSTALL SPEED SENSOR FRONT LH** (See **INSTALLATION**)
13. **INSTALL SPEED SENSOR FRONT RH**

HINT:

The installation procedure for the RH side is the same as that for the LH side.

14. **INSTALL FRONT AXLE SHAFT LH NUT** (See **INSTALLATION**)
15. **INSTALL FRONT AXLE SHAFT RH NUT**

HINT:

The installation procedure for the RH side is the same as that for the LH side.

16. **INSTALL FRONT EXHAUST PIPE ASSEMBLY** (See **INSTALLATION**)
17. **INSTALL FRONT FLOOR BRACE CENTER** (See **INSTALLATION**)
18. **INSTALL FRONT CONSOLE BOX** (See **INSTALLATION**)
19. **INSTALL REAR CONSOLE BOX ASSEMBLY** (See **INSTALLATION**)
20. **INSTALL CONSOLE BOX CARPET** (See **INSTALLATION**)
21. **INSTALL CONSOLE BOX REAR COVER** (See **INSTALLATION**)
22. **INSTALL CONSOLE PANEL UPPER** (See **INSTALLATION**)

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23. **INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) (See INSTALLATION)**
24. **INSTALL NO. 1 STEERING COLUMN HOLE COVER SUB-ASSEMBLY (See INSTALLATION)**
25. **INSTALL STEERING SLIDING YOKE SUB-ASSEMBLY (See INSTALLATION)**
26. **INSTALL COLUMN HOLE COVER SILENCER SHEET (See INSTALLATION)**
27. **INSTALL CLUTCH RELEASE CYLINDER ASSEMBLY (for Manual Transaxle) (See INSTALLATION)**
28. **CONNECT FUEL TUBE SUB-ASSEMBLY (See INSTALLATION)**
29. **CONNECT HEATER WATER INLET HOSE A (See INSTALLATION)**
30. **CONNECT HEATER WATER OUTLET HOSE A(FROM HEATER UNIT) (See INSTALLATION)**
31. **CONNECT ENGINE WIRE (See INSTALLATION)**
32. **INSTALL NO. 1 FUEL VAPOR FEED HOSE (See INSTALLATION)**
33. **INSTALL UNION TO CHECK VALVE HOSE (See INSTALLATION)**
34. **INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY (for Automatic Transaxle) (See INSTALLATION)**
35. **INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY (for Manual Transaxle) (See INSTALLATION)**
36. **INSTALL WITH PULLEY COMPRESSOR ASSEMBLY (See INSTALLATION)**
37. **INSTALL RADIATOR ASSEMBLY (See INSTALLATION)**
38. **INSTALL UPPER RADIATOR SUPPORT SUB-ASSEMBLY (See INSTALLATION)**
39. **INSTALL UPPER RADIATOR SUPPORT ABSORBER (See REASSEMBLY)**
40. **INSTALL NO. 1 COOLER COVER (See INSTALLATION)**
41. **INSTALL HOOD LOCK ASSEMBLY (See INSTALLATION)**
42. **CONNECT NO. 2 OIL COOLER INLET HOSE (for Automatic Transaxle) (See INSTALLATION)**
43. **CONNECT NO. 1 OIL COOLER OUTLET HOSE (for Automatic Transaxle) (See INSTALLATION)**
44. **INSTALL FRONT BUMPER COVER (See INSTALLATION)**
45. **CONNECT NO. 1 RADIATOR HOSE (See INSTALLATION)**
46. **INSTALL NO. 2 RADIATOR HOSE (See INSTALLATION)**
47. **INSTALL FAN AND GENERATOR V BELT (See INSTALLATION)**
48. **ADJUST FAN AND GENERATOR V BELT (See INSTALLATION)**
49. **INSPECT FAN AND GENERATOR V BELT (See INSTALLATION)**
50. **INSTALL NO. 2 CYLINDER HEAD COVER (See INSTALLATION)**
51. **INSTALL BATTERY CARRIER (See INSTALLATION)**
52. **INSTALL AIR CLEANER BRACKET (See INSTALLATION)**
53. **INSTALL AIR CLEANER ASSEMBLY (See INSTALLATION)**

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54. **INSTALL OUTER COWL TOP PANEL** (See INSTALLATION)
55. **INSTALL FRONT AIR SHUTTER SEAL RH** (See INSTALLATION)
56. **INSTALL FRONT WIPER MOTOR AND LINK** (See INSTALLATION)
57. **INSTALL COWL TOP VENTILATOR LOUVER LH** (See INSTALLATION)
58. **INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY** (See INSTALLATION)
59. **INSTALL HOOD TO COWL TOP SEAL** (See INSTALLATION)
60. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH** (See INSTALLATION)
61. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH** (See INSTALLATION)
62. **INSTALL FRONT WIPER ARM HEAD CAP** (See INSTALLATION)
63. **INSTALL BATTERY TRAY**
64. **INSTALL BATTERY** (See INSTALLATION)
65. **ADD ENGINE COOLANT** (See REPLACEMENT)
66. **INSPECT FOR FUEL LEAK**
67. **INSPECT FOR EXHAUST GAS LEAK**
68. **INSPECT FOR ENGINE COOLANT LEAK** (See ON-VEHICLE INSPECTION)
69. **INSTALL ENGINE UNDER COVER RH**
70. **INSTALL ENGINE UNDER COVER LH**
71. **INSTALL FRONT WHEELS** (See INSTALLATION)
72. **INSPECT IGNITION TIMING** (See ON-VEHICLE INSPECTION)
73. **INSPECT ENGINE IDLING SPEED** (See ON-VEHICLE INSPECTION)
74. **INSPECT CO/HC** (See ON-VEHICLE INSPECTION)
75. **INSPECT FRONT WHEEL ALIGNMENT**

(See ADJUSTMENT)

76. **INSPECT ABS SENSOR SIGNAL (w/ ABS)**

(See TEST MODE PROCEDURE)

77. **INSPECT VSC SENSOR SIGNAL (w/ VSC)**

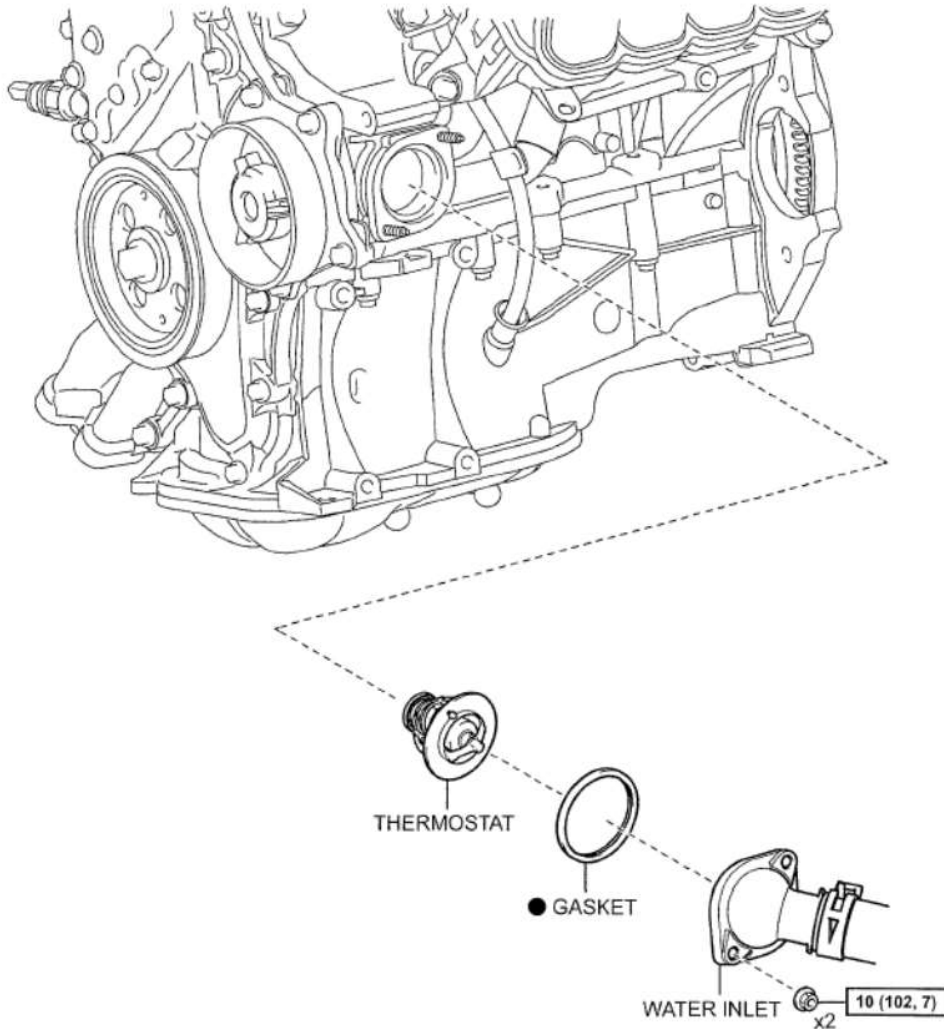
(See TEST MODE PROCEDURE)

THERMOSTAT

COMPONENTS

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N*m (kgf*cm, ft*lb) : Specified torque

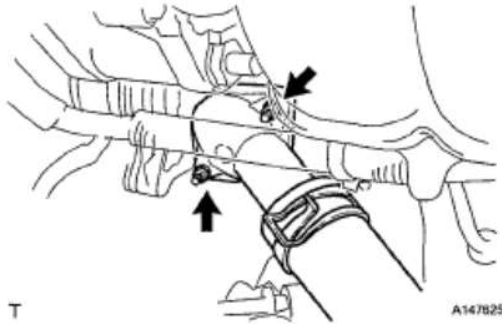
● Non-reusable part

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Fig. 23: Identifying Thermostat Components With Torque Specification
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

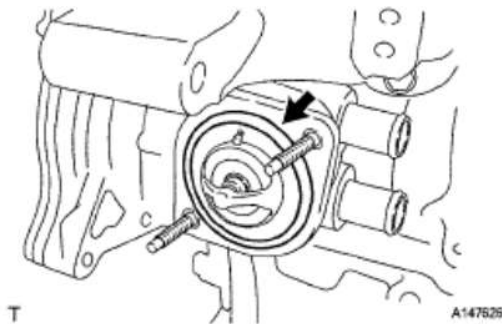
1. **DRAIN ENGINE COOLANT** (See **REPLACEMENT**)
2. **REMOVE WATER INLET**
 - a. Remove the 2 nuts and separate the water inlet with radiator hose from the cylinder block.

2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD****Fig. 24: Locating Radiator Hose Nuts**

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

3. REMOVE THERMOSTAT

- Remove the thermostat from the cylinder block.
- Remove the gasket from the thermostat.

**Fig. 25: Locating Thermostat**

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

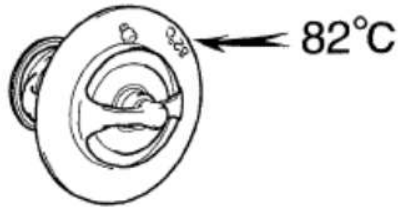
INSPECTION**1. INSPECT THERMOSTAT**

HINT:

The valve opening temperature is inscribed on the thermostat.

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Fig. 26: Identifying Valve Opening Temperature On 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 of the thermostat.

Valve opening temperature:

80 to 84°C (176 to 183°F)

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

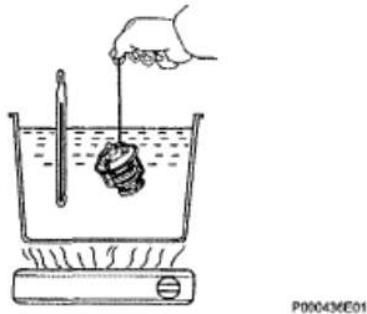


Fig. 27: Checking Valve Opening Temperature Of Thermostat
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Check the valve lift.

Valve lift:

10 mm (0.393 in.) or more at 95°C (203°F)

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

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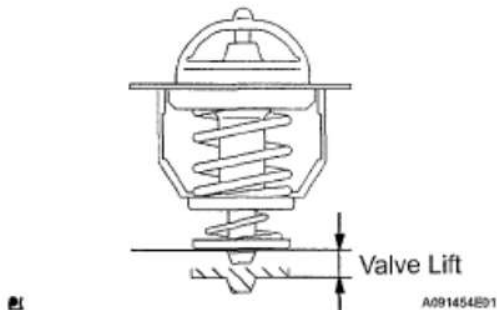


Fig. 28: Identifying Valve Lift Gap

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

- d. Check that the valve is fully closed when the thermostat is at low temperatures (below 77°C (171°F))

If not fully closed, replace the thermostat.

INSTALLATION

1. INSTALL THERMOSTAT

- a. Install a new gasket onto the thermostat.
- b. Install the thermostat with the jiggle valve facing upward.

HINT:

The jiggle valve may be set within 10° on either side, as shown in the illustration.

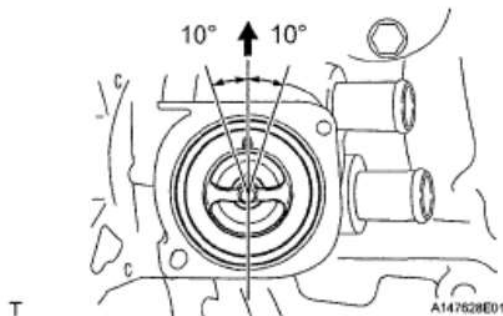


Fig. 29: Identifying Thermostat With Jiggle Valve Facing Upward

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

2. INSTALL WATER INLET

- a. Install the water inlet with radiator hose with the 2 nuts.

Torque: 10 N*m (102 kgf*cm, 7 ft.*lbf)

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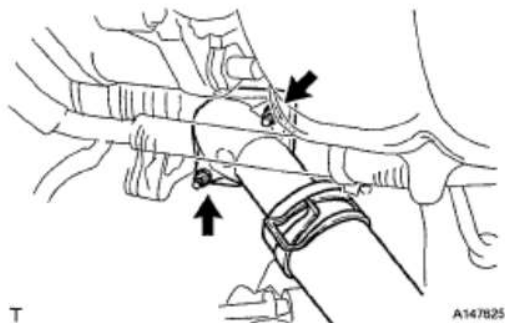


Fig. 30: Locating Water Inlet Radiator Hose With Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

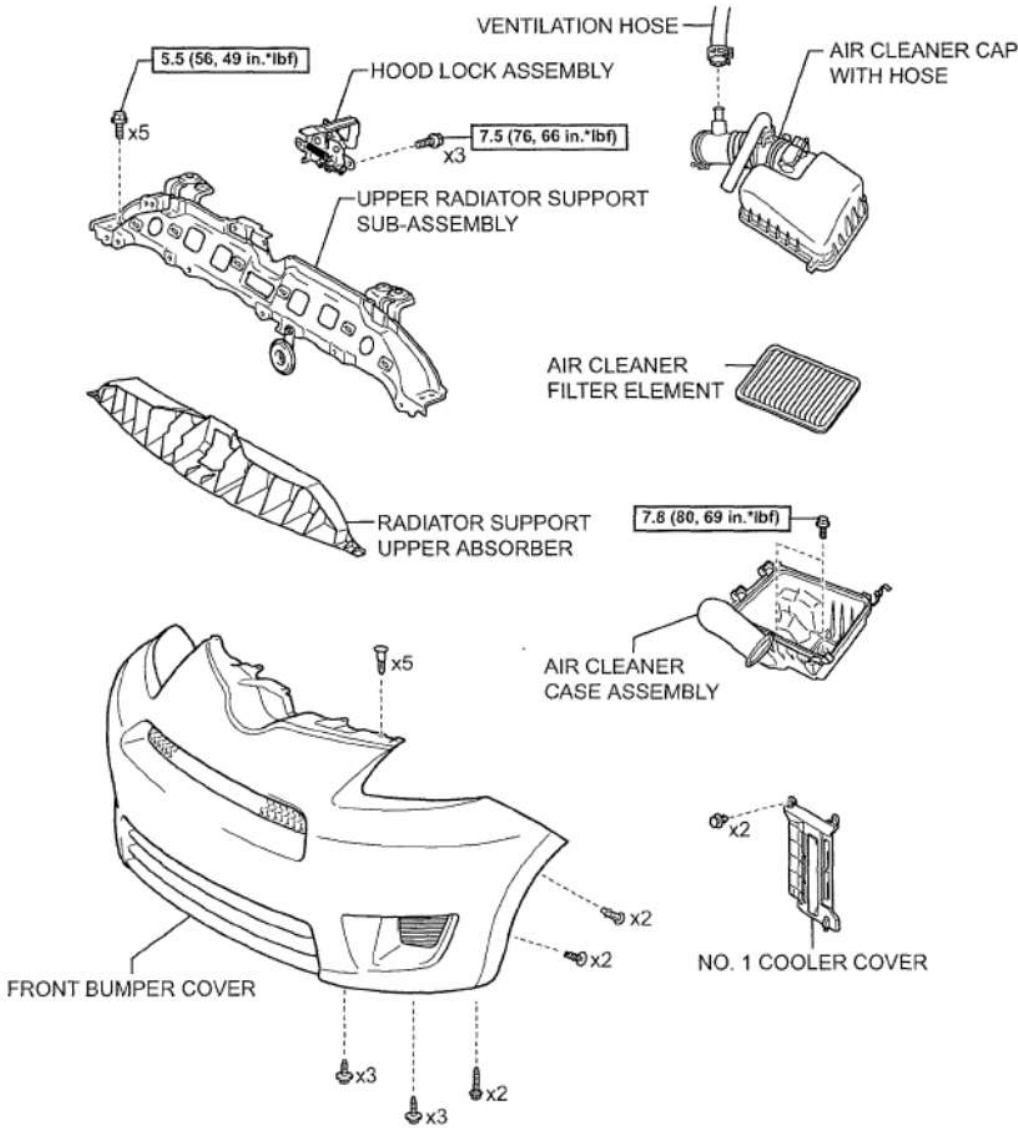
3. **ADD ENGINE COOLANT** (See REPLACEMENT)
4. **INSPECT FOR ENGINE COOLANT LEAK** (See ON-VEHICLE INSPECTION)

COOLING FAN MOTOR

COMPONENTS

2008 Scion xD

2008 ENGINE 2ZR-FE Cooling - xD



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

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Fig. 31: Identifying Cooling Fan Motor Components With Torque Specifications (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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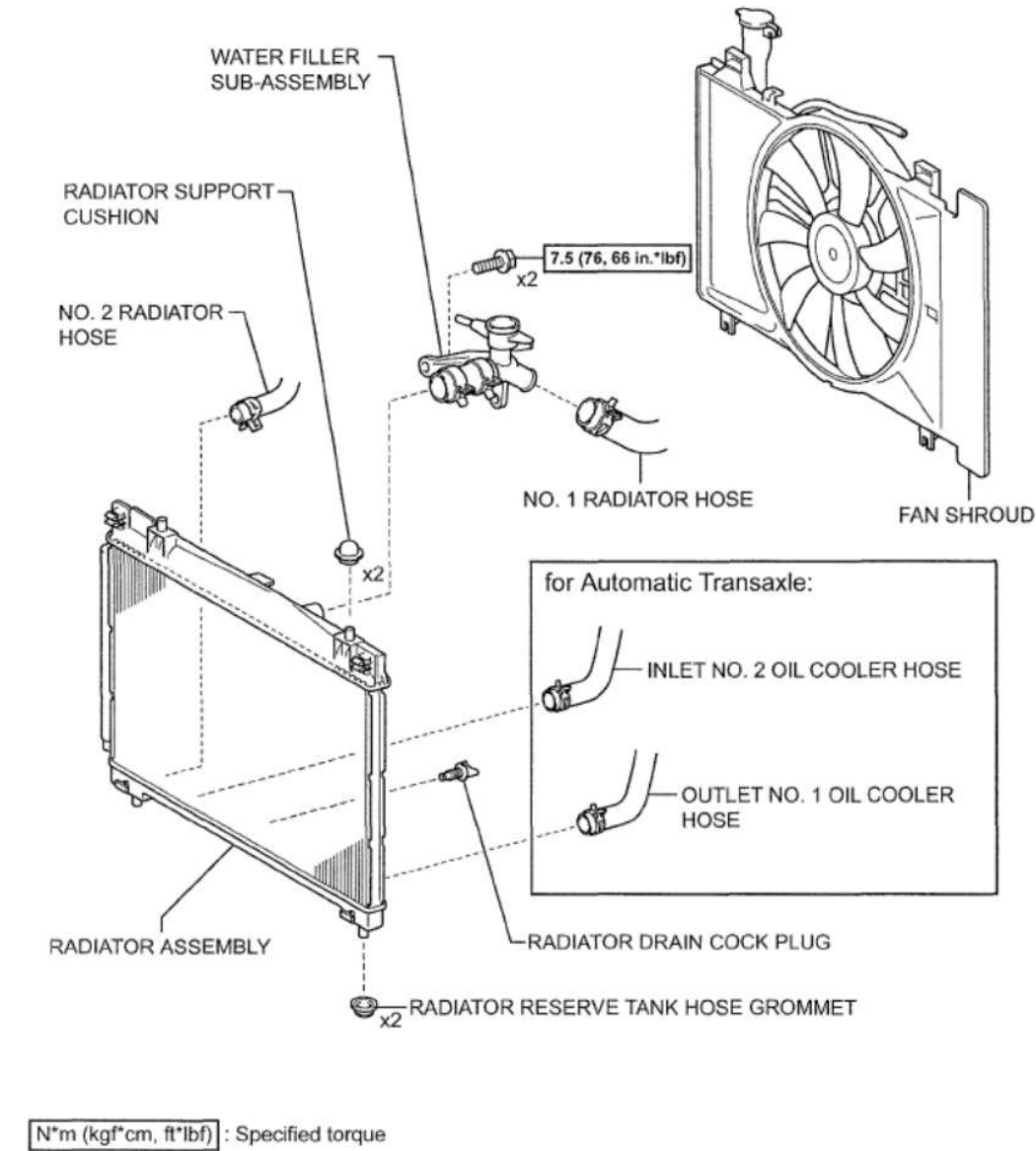
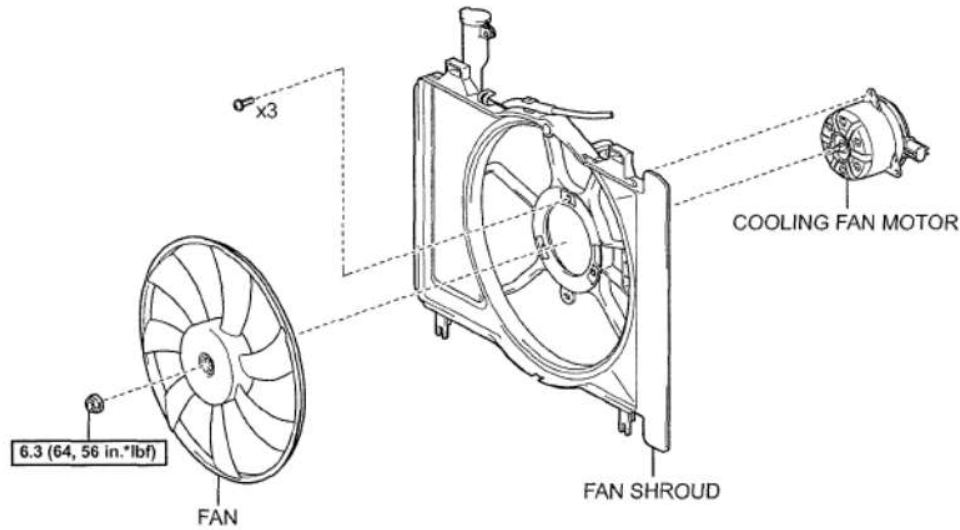


Fig. 32: Identifying Cooling Fan Motor Components With Torque Specification (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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Fig. 33: Identifying Cooling Fan Motor Components With Torque Specification (3 Of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION**1. INSPECT COOLING FAN MOTOR**

- a. Disconnect the cooling fan motor connector.
- b. Connect the cooling fan motor connector to the battery and check that the fan motor moves smoothly.

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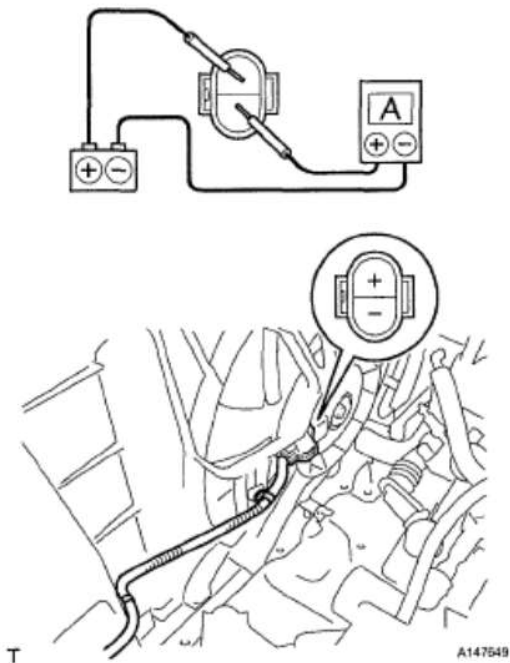


Fig. 34: Connecting Cooling Fan Motor Connector To Battery
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Using an ammeter, measure the current between the terminals.

Standard current

STANDARD CURRENT SPECIFICATION		
Tester connection	Condition	Specified condition
1 (+) - 2 (-)	12 V	11.8 to 14.8 A

- d. Connect the cooling fan motor connector.

REMOVAL

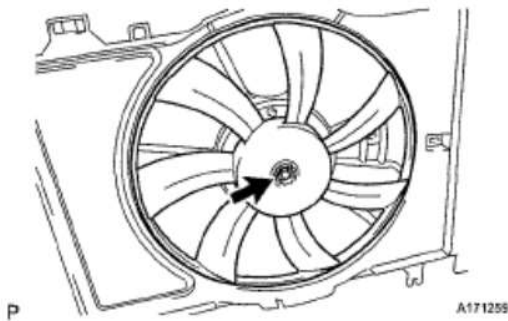
CAUTION: Be sure that the ignition is off if you work near the electric cooling fans or radiator grille. With the ignition on, the electric cooling fans may automatically start to run if the engine coolant temperature is high and/or the air conditioning is on.

- 1. DRAIN COOLANT (See REPLACEMENT)
- 2. REMOVE ENGINE UNDER COVER LH
- 3. REMOVE ENGINE UNDER COVER RH
- 4. REMOVE FRONT BUMPER COVER (See REMOVAL)
- 5. REMOVE RADIATOR SUPPORT UPPER ABSORBER (See DISASSEMBLY)

2008 Scion xD

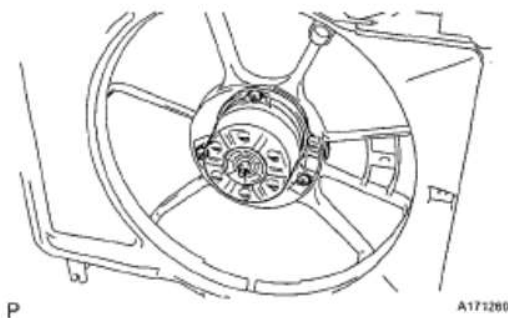
2008 ENGINE 2ZR-FE Cooling - xD

6. **REMOVE AIR CLEANER ASSEMBLY** (See REMOVAL)
7. **REMOVE NO. 1 RADIATOR HOSE** (See REMOVAL)
8. **DISCONNECT INLET NO. 2 OIL COOLER HOSE** (for Automatic Transaxle) (See REMOVAL)
9. **DISCONNECT OUTLET NO. 1 OIL COOLER HOSE** (for Automatic Transaxle) (See REMOVAL)
10. **DISCONNECT NO. 2 RADIATOR HOSE** (See REMOVAL)
11. **REMOVE HOOD LOCK ASSEMBLY** (See REMOVAL)
12. **REMOVE NO. 1 COOLER COVER** (See REMOVAL)
13. **REMOVE UPPER RADIATOR SUPPORT SUB-ASSEMBLY** (See REMOVAL)
14. **REMOVE RADIATOR ASSEMBLY** (See REMOVAL)
15. **REMOVE FAN SHROUD** (See REMOVAL)
16. **REMOVE FAN**
 - a. Remove the nut and remove the fan.

**Fig. 35: Locating Fan Nut**

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

17. **REMOVE COOLING FAN MOTOR**
 - a. Remove the 3 screws and remove the cooling fan motor.

**Fig. 36: Identifying Cooling Fan Motor Screws**

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

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2008 ENGINE 2ZR-FE Cooling - xD

INSTALLATION

1. INSTALL COOLING FAN MOTOR

- a. Install the cooling fan motor with the 3 screws.

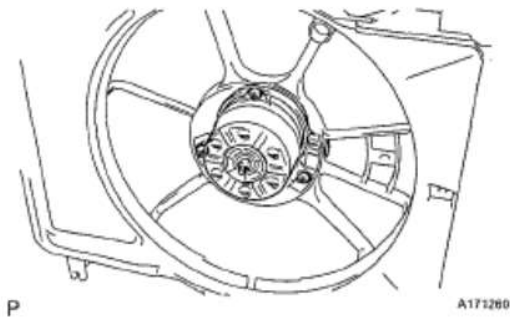


Fig. 37: Identifying Cooling Fan Motor With Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL FAN

- a. Install the fan with the nut.

Torque: 6.3 N*m (64 kgf*cm, 56 in.*lbf)

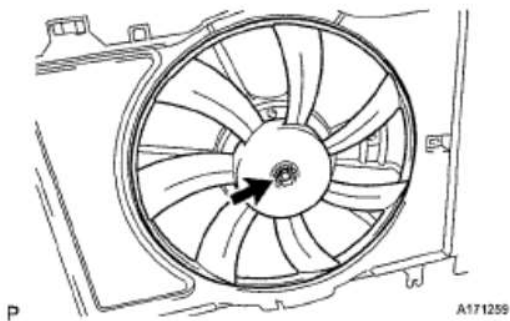


Fig. 38: Locating Fan Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. INSTALL FAN SHROUD (See INSTALLATION)
4. INSTALL RADIATOR ASSEMBLY (See INSTALLATION)
5. INSTALL UPPER RADIATOR SUPPORT SUB-ASSEMBLY (See INSTALLATION)
6. INSTALL NO. 1 COOLER COVER (See INSTALLATION)
7. INSTALL HOOD LOCK ASSEMBLY (See INSTALLATION)
8. CONNECT NO. 2 RADIATOR HOSE (See INSTALLATION)
9. CONNECT OUTLET NO. 1 OIL COOLER HOSE (for Automatic Transaxle) (See INSTALLATION)

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10. **CONNECT INLET NO. 2 OIL COOLER HOSE (for Automatic Transaxle) (See INSTALLATION)**
11. **CONNECT NO. 1 RADIATOR HOSE (See INSTALLATION)**
12. **INSTALL AIR CLEANER ASSEMBLY (See INSTALLATION)**
13. **INSTALL RADIATOR SUPPORT UPPER ABSORBER (See REASSEMBLY)**
14. **INSTALL FRONT BUMPER COVER (See INSTALLATION)**
15. **ADD COOLANT (See REPLACEMENT)**
16. **INSPECT FOR COOLANT LEAK (See ON-VEHICLE INSPECTION)**
17. **INSTALL ENGINE UNDER COVER RH**
18. **INSTALL ENGINE UNDER COVER LH**
19. **ADJUST HOOD LOCK ASSEMBLY (See INSTALLATION)**

COOLING FAN RELAY

ON-VEHICLE INSPECTION

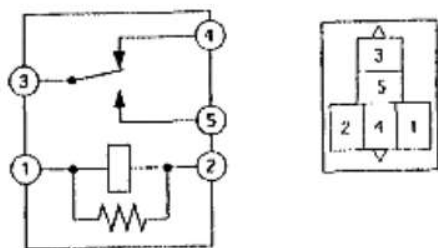
1. INSPECT NO. 2 COOLING FAN RELAY

- a. Measure the resistance according to the value(s) in the table below.

Standard resistance

RESISTANCE REFERENCE

Tester Connection	Condition	Specified Condition
3 - 4	When battery voltage absent	Below 1 ohms
3 - 4	When battery voltage is applied to terminals 1 and 2	10 kohms or higher
3 - 5	When battery voltage absent	10 kohms or higher
3 - 5	When battery voltage is applied to terminals 1 and 2	Below 1 ohms



A030919

Fig. 39: Identifying No. 2 Cooling Fan Relay

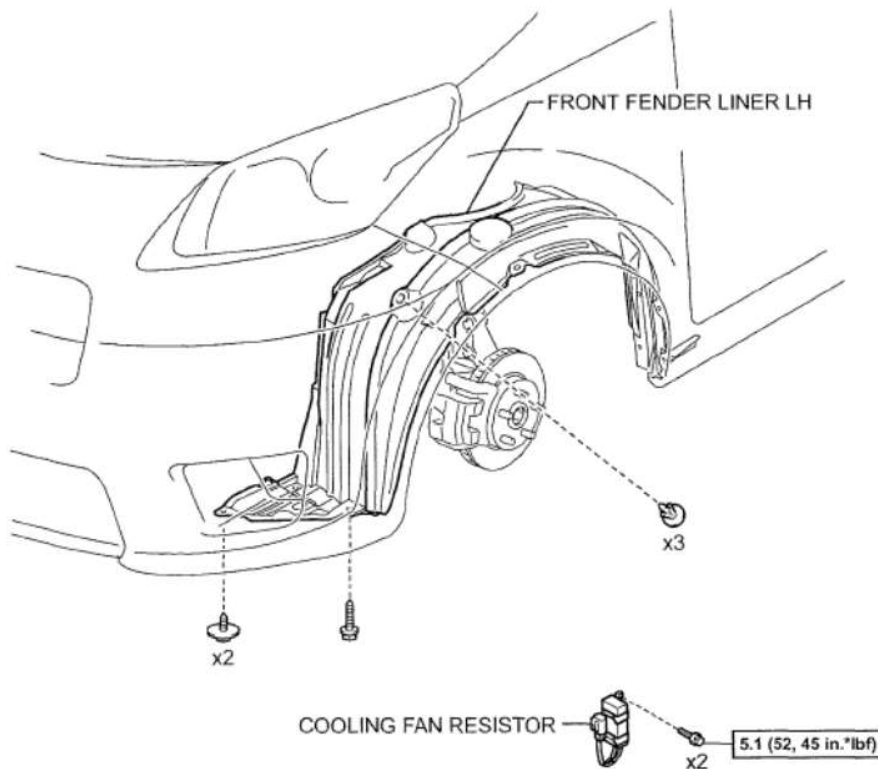
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

COOLING FAN RESISTOR

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COMPONENTS

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

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Fig. 40: Identifying Cooling Fan Resistor Components With Torque Specification
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE FRONT WHEEL LH**
2. **SEPARATE FRONT FENDER LINER LH**
 - a. Remove the 3 screws and 3 clips and separate the front fender liner LH.
3. **REMOVE COOLING FAN RESISTOR**
 - a. Disconnect the connector from the cooling fan resistor.
 - b. Remove the 2 bolts and cooling fan resistor.

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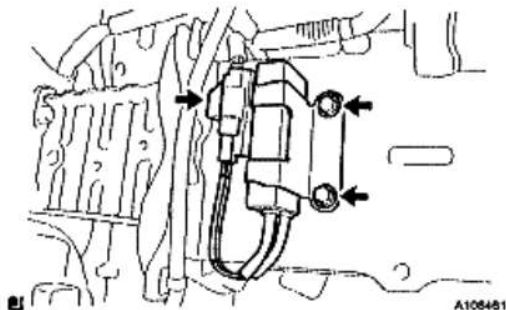


Fig. 41: Locating Cooling Fan Resistor Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

- 1. **INSPECT COOLING FAN RESISTOR**
 - a. Measure the resistance according to the value(s) in the table below.

Standard resistance

RESISTANCE REFERENCE

Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	1.17 to 1.43 ohms

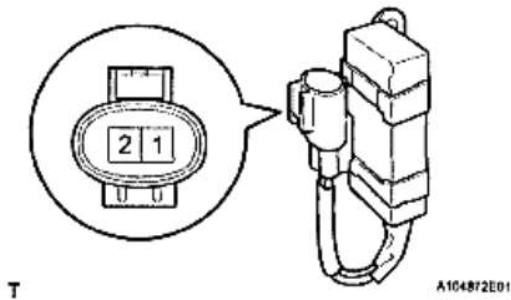


Fig. 42: Identifying Cooling Fan Resistor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

- 1. **INSTALL COOLING FAN RESISTOR**
 - a. Install the cooling fan resistor with the 2 bolts.

Torque: 5.1 N*m (52 kgf*cm, 45 in.*lbf)

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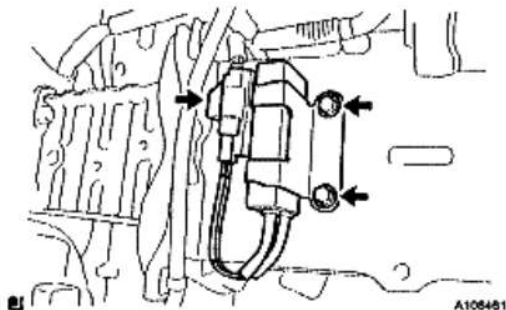


Fig. 43: Locating Cooling Fan Resistor With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect the cooling fan resistor connector.
2. **INSTALL FRONT FENDER LINER LH**
 - a. Install the front fender liner LH with the 3 screws and 3 clips.
3. **INSTALL FRONT WHEEL LH**

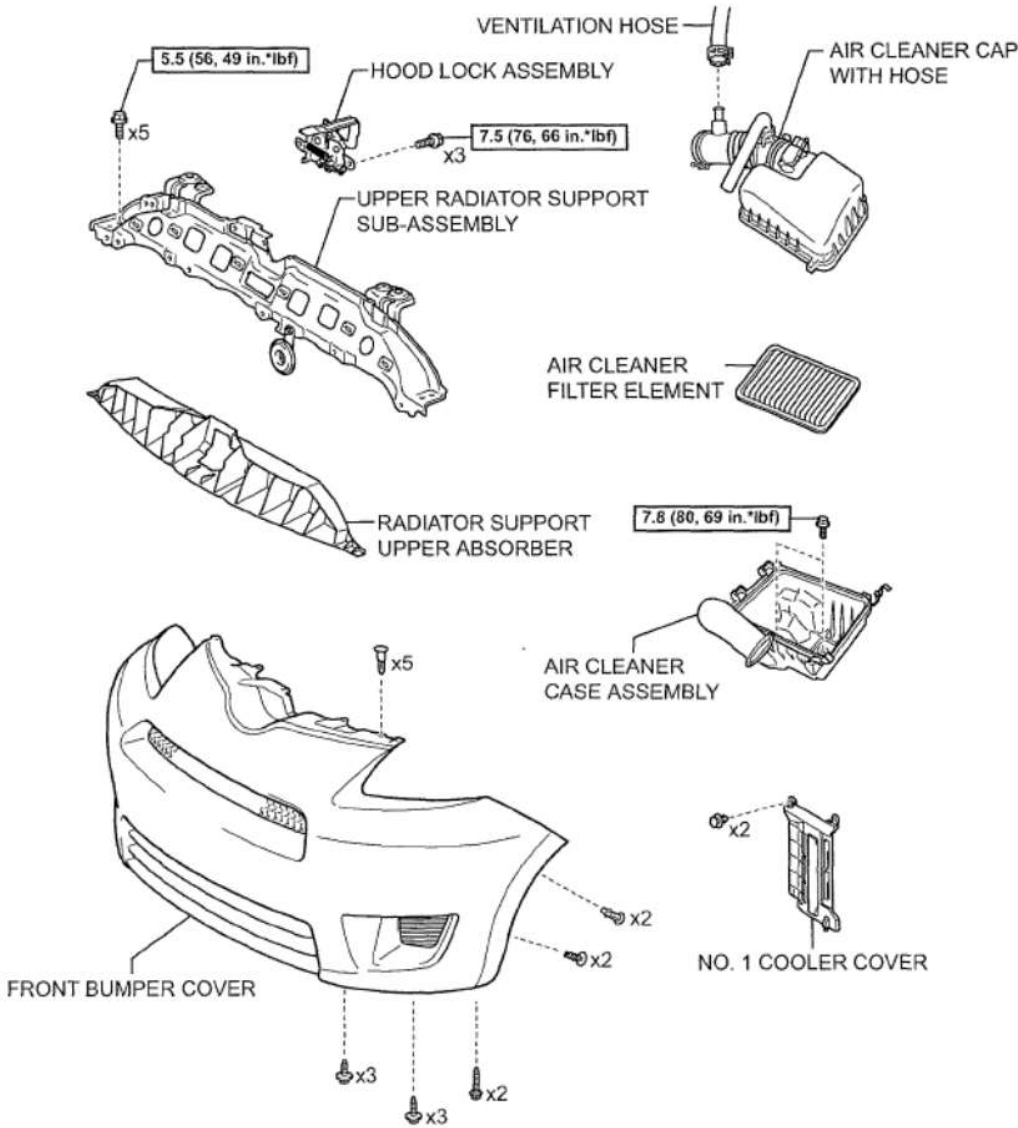
Torque: 103 N*m (1050 kgf*cm, 76 ft.*lbf)

RADIATOR

COMPONENTS

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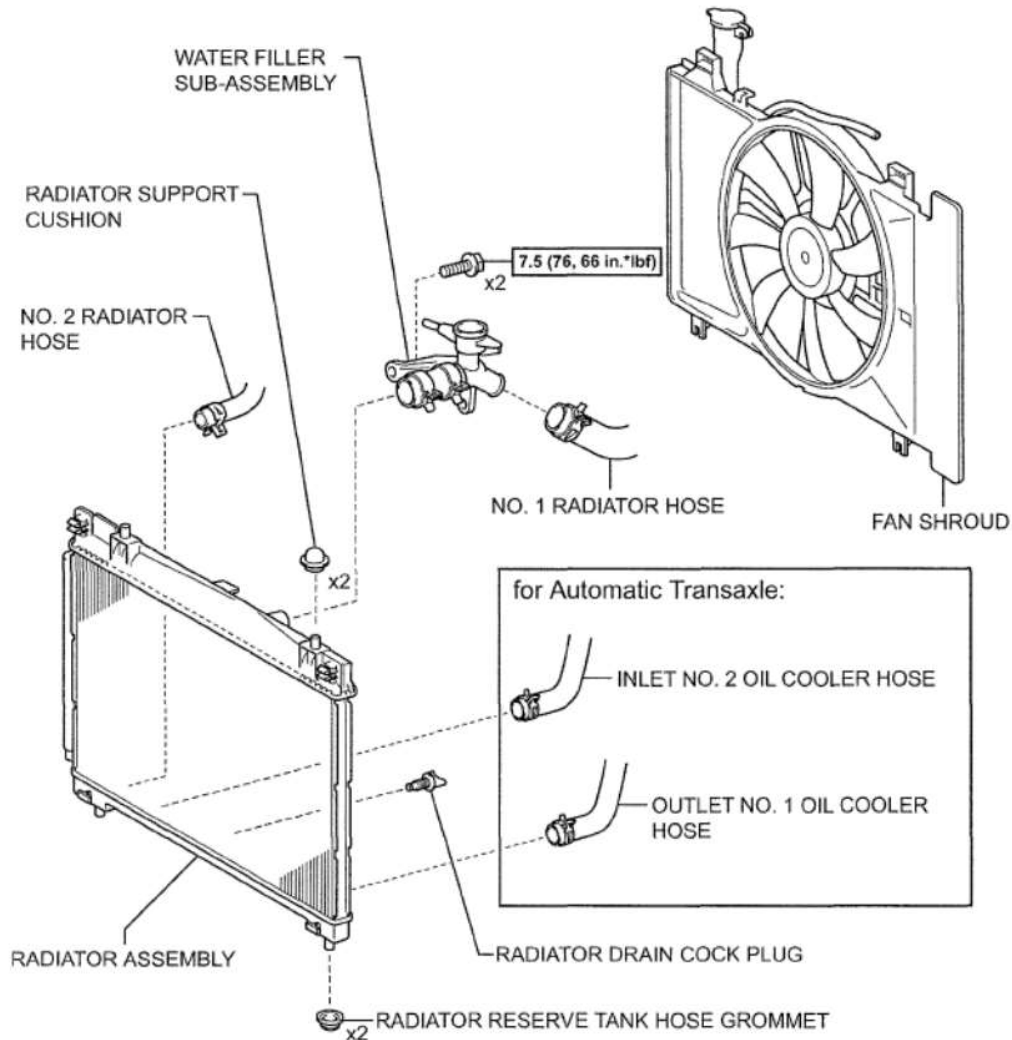
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N*m (kgf*cm, ft*lbf) : Specified torque

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Fig. 44: Identifying Radiator Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD**

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

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Fig. 45: Identifying Radiator Components With Torque Specification (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

1. CHECK RADIATOR CAP SUB-ASSEMBLY

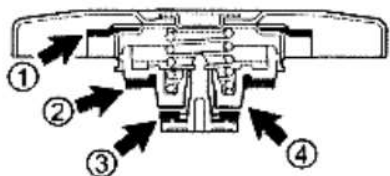
a. Measure the valve opening pressure.

1. If there are water stains or foreign matter on rubber packing 1, 2 or 3, clean the part(s) with water and finger scouring.

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- 2. Check that rubber packings 1, 2 and 3 are not deformed, cracked or swollen.
- 3. Check that rubber packings 3 and 4 are not stuck together.



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Fig. 46: Identifying Radiator Cap Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- 4. Apply engine coolant to rubber packings 2 and 3 before using the radiator cap tester.
- 5. When using the cap tester, tilt it to more than 30 degrees.
- 6. Pump the cap tester several times, and check the maximum pressure *1.

Pumping speed:

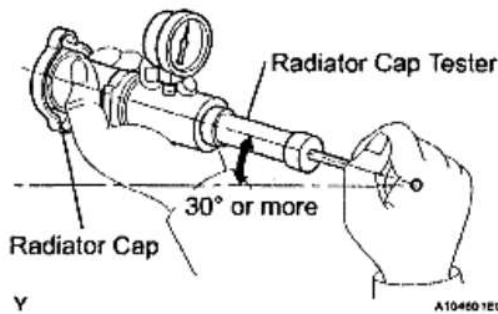
1 pump per second

*1: Even if the cap cannot maintain the maximum pressure, it is not a defect.

Judgment criteria

JUDGMENT CRITERIA SPECIFICATION

Item	Specified Condition
Standard valve (for brand-new cap)	93.3 to 122.7 kPa (0.95 to 1.25 kgf/cm ² , 13.5 to 17.8 psi)
Minimum standard valve (after using cap)	78.5 kPa (0.8 kgf/cm ² , 11.4 psi)



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Fig. 47: Checking Pressure With Radiator Cap Tester
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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If the maximum pressure is less than the specified pressure for the minimum standard valve, replace the radiator cap sub-assembly.

REMOVAL

CAUTION: Be sure that the ignition is off if you work near the electric cooling fans or radiator grille. With the ignition on, the electric cooling fans may automatically start if the engine coolant temperature is high or the air conditioning is on.

1. **REMOVE ENGINE UNDER COVER LH**
2. **REMOVE ENGINE UNDER COVER RH**
3. **DRAIN ENGINE COOLANT** (See REPLACEMENT)
4. **REMOVE FRONT BUMPER COVER** (See REMOVAL)
5. **REMOVE RADIATOR SUPPORT UPPER ABSORBER** (See DISASSEMBLY)
6. **REMOVE AIR CLEANER ASSEMBLY** (See REMOVAL)
7. **DISCONNECT NO. 1 RADIATOR HOSE**
 - a. Loosen the clip and disconnect the No. 1 radiator hose.

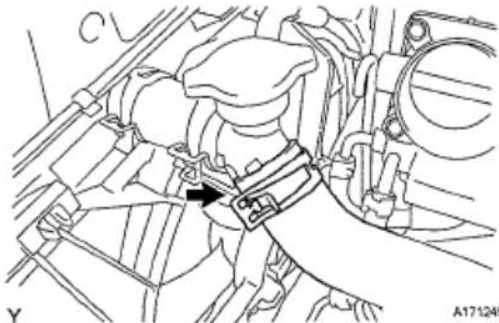
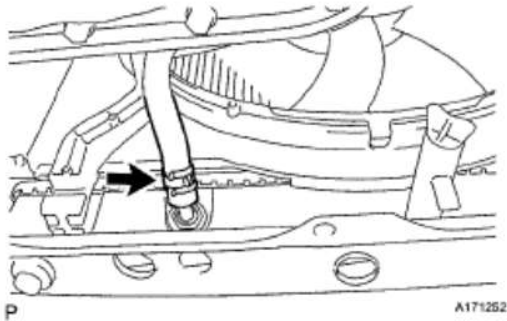


Fig. 48: Locating No. 1 Radiator Hose Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

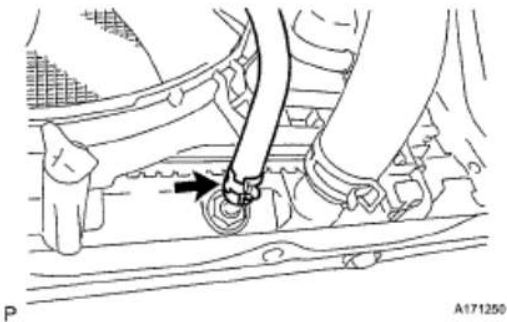
8. **DISCONNECT INLET NO. 2 OIL COOLER HOSE (for Automatic Transaxle)**
 - a. Disconnect the inlet No. 2 oil cooler hose.

2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD****Fig. 49: Locating No. 2 Oil Cooler Hose**

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

9. DISCONNECT OUTLET NO. 1 OIL COOLER HOSE (for Automatic Transaxle)

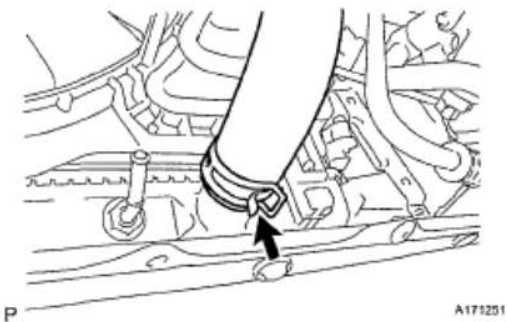
- a. Disconnect the outlet No. 1 oil cooler hose.

**Fig. 50: Locating No. 1 Oil Cooler Hose**

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

10. DISCONNECT NO. 2 RADIATOR HOSE

- a. Loosen the clip and disconnect the No. 2 radiator hose.

**Fig. 51: Locating No. 2 Radiator Hose Clip**

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

11. REMOVE HOOD LOCK ASSEMBLY

2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD**

- a. Separate the hood lock control cable assembly from the 2 clamps.

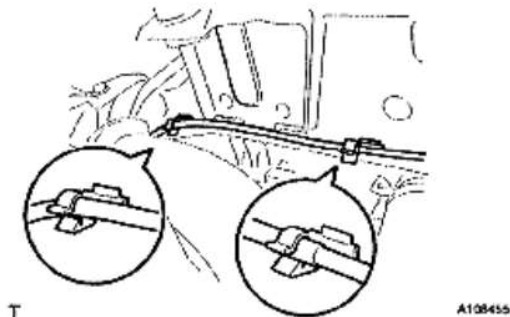


Fig. 52: Identifying Hood Lock Control Cable Assembly Of Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 3 bolts and remove the hood lock assembly.

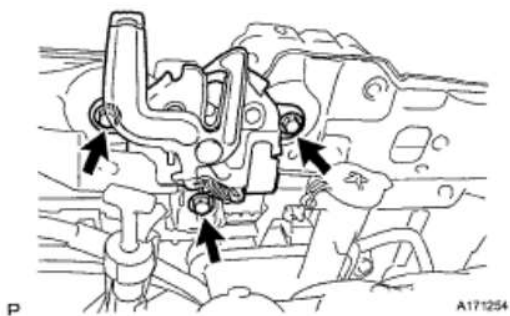
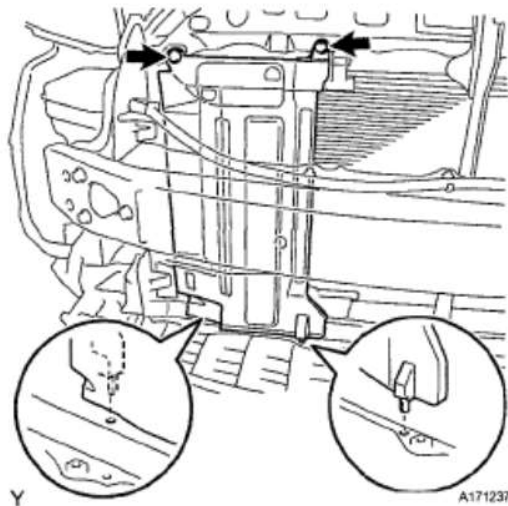


Fig. 53: Locating Hood Lock Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE NO. 1 COOLER COVER

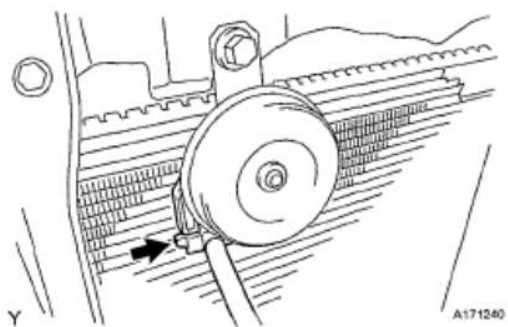
- a. Remove the 2 clips and remove the No. 1 cooler cover.

2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD****Fig. 54: Locating No. 1 Cooler Cover Clips**

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

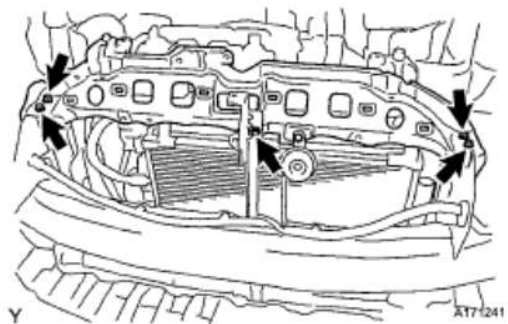
13. REMOVE UPPER RADIATOR SUPPORT SUB-ASSEMBLY

- a. Disconnect the horn connector.

**Fig. 55: Locating Horn Connector**

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

- b. Remove the 5 bolts and remove the radiator support sub-assembly upper.



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Fig. 56: Locating Radiator Support Sub-Assembly Upper Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. REMOVE RADIATOR ASSEMBLY

- a. Disconnect the cooling fan motor connector and separate the wire harness clamp.

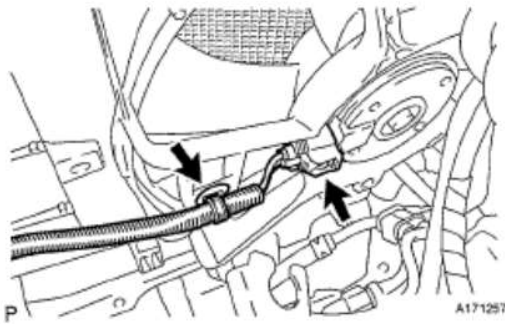


Fig. 57: Locating Cooling Fan Motor Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disengage the 2 claws and remove the radiator assembly from the vehicle.

NOTE: Do not apply excessive force to the cooler condenser assembly or piping when removing the radiator assembly.

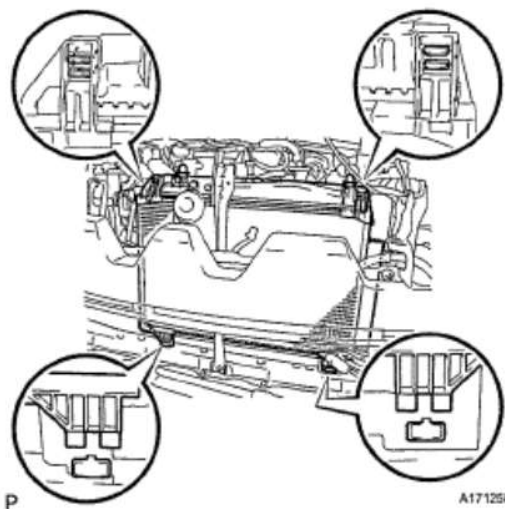


Fig. 58: Identifying Radiator Assembly Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. REMOVE WATER FILLER SUB-ASSEMBLY

- a. Disconnect the radiator reservoir tank hose from the water filler sub-assembly.

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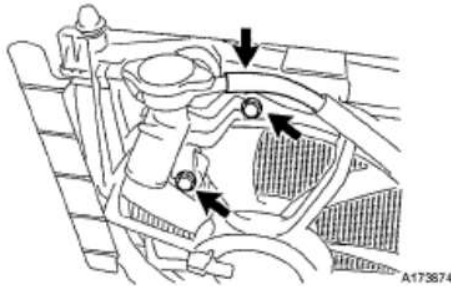


Fig. 59: Identifying Radiator Reservoir Tank Hose And Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 2 bolts.
- c. Loosen the clip and remove the water filler sub-assembly.

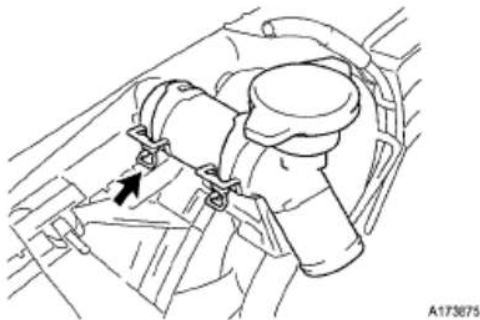
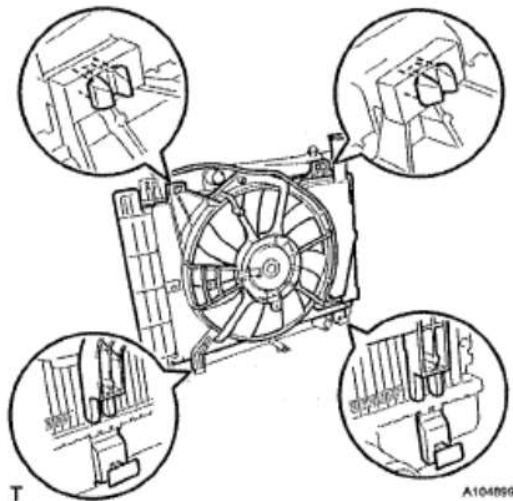


Fig. 60: Locating Water Filler Sub-Assembly Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. REMOVE FAN SHROUD

- a. Disengage the 2 claws and remove the fan shroud.



2008 Scion xD

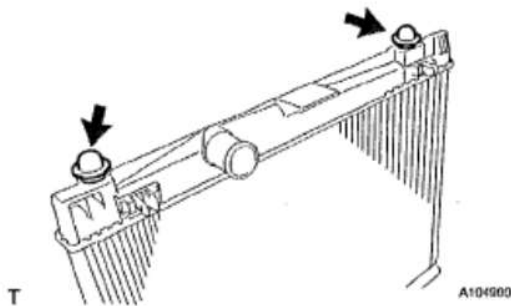
2008 ENGINE 2ZR-FE Cooling - xD

Fig. 61: Identifying Fan Shroud Claws

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

17. REMOVE RADIATOR SUPPORT CUSHION

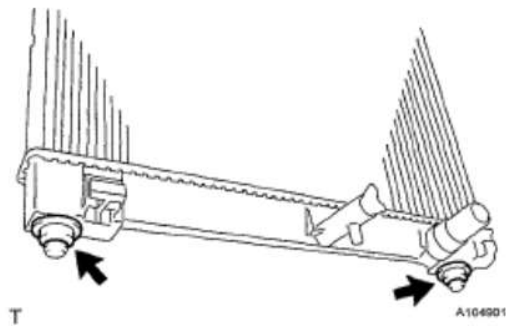
- a. Remove the 2 radiator support cushions from the radiator assembly.

**Fig. 62: Locating Radiator Support Cushions**

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

18. REMOVE RADIATOR RESERVE TANK HOSE GROMMET

- a. Remove the 2 radiator reserve tank hose grommets from the radiator assembly.

**Fig. 63: Locating Radiator Reserve Tank Hose Grommets**

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

19. REMOVE RADIATOR DRAIN COCK PLUG

- a. Remove the radiator drain cock from the radiator assembly.

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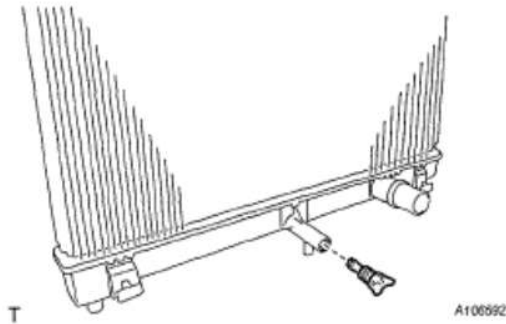


Fig. 64: Identifying Radiator Drain Cock Of Radiator Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. INSTALL RADIATOR DRAIN COCK PLUG

- a. Install the radiator drain cock onto the radiator assembly.

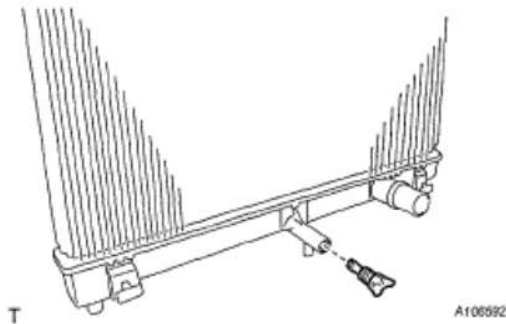


Fig. 65: Identifying Radiator Drain Cock Of Radiator Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL RADIATOR RESERVE TANK HOSE GROMMET

- a. Install the 2 radiator reserve tank hose grommets onto the radiator assembly.

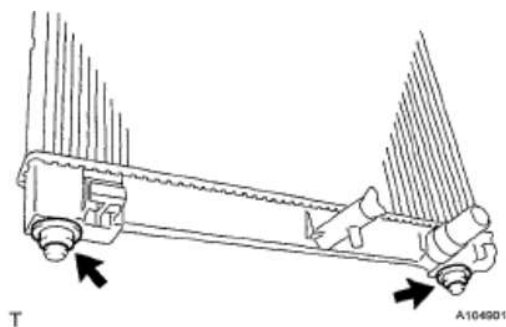


Fig. 66: Locating Radiator Reserve Tank Hose Grommets
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD****3. INSTALL RADIATOR SUPPORT CUSHION**

- a. Install the 2 radiator support cushions onto the radiator assembly.

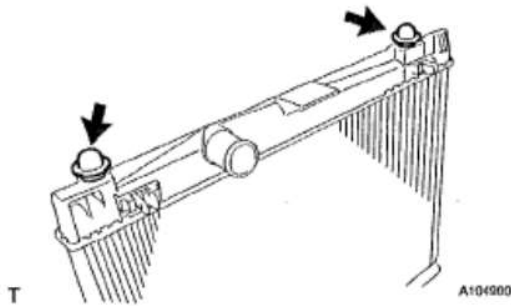


Fig. 67: Locating Radiator Support Cushions
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSTALL FAN SHROUD

- a. Engage the 2 claws and install the fan shroud.

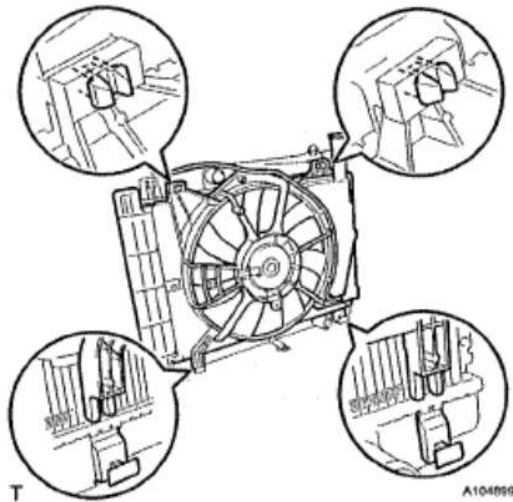


Fig. 68: Identifying Fan Shroud Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSTALL WATER FILLER SUB-ASSEMBLY

- a. Install the water filler sub-assembly with the clip.

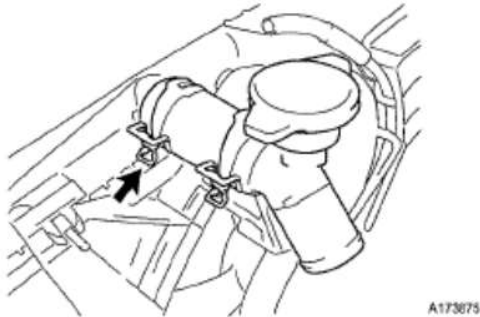
2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD**

Fig. 69: Locating Water Filler Sub-Assembly Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Install the 2 bolts.

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

- c. Connect the radiator reservoir tank hose to the water filler sub-assembly.

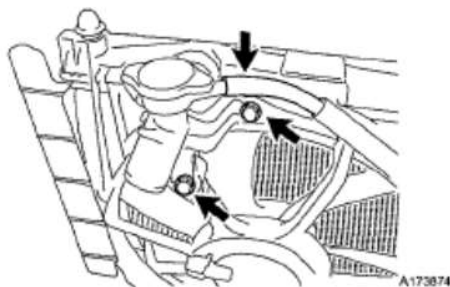


Fig. 70: Identifying Radiator Reservoir Tank Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

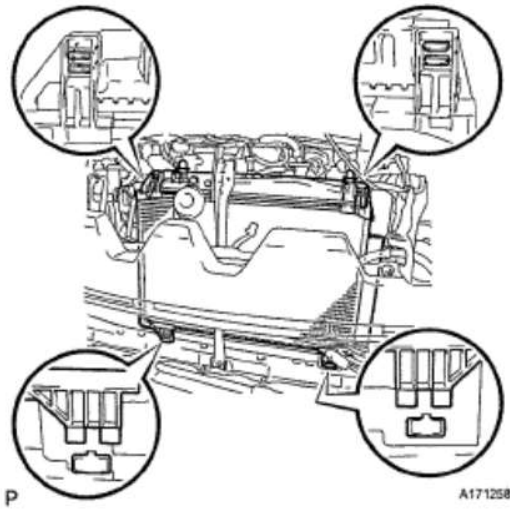
6. INSTALL RADIATOR ASSEMBLY

- a. Engage the 2 claws and install the radiator assembly onto the vehicle.

NOTE: Do not apply excessive force to the cooler condenser assembly or piping when installing the radiator assembly.

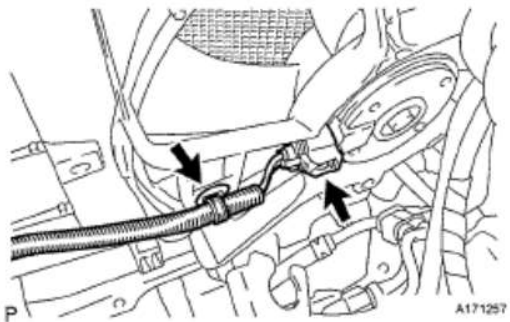
2008 Scion xD

2008 ENGINE 2ZR-FE Cooling - xD

**Fig. 71: Identifying Radiator Assembly Claws**

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

- b. Connect the cooling fan motor connector and install the wire harness clamp.

**Fig. 72: Locating Cooling Fan Motor Connector**

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

7. INSTALL UPPER RADIATOR SUPPORT SUB-ASSEMBLY

- a. Install the radiator support sub-assembly upper with the 5 bolts.

Torque: 5.5 N*m (56 kgf*cm, 49 in.*lbf)

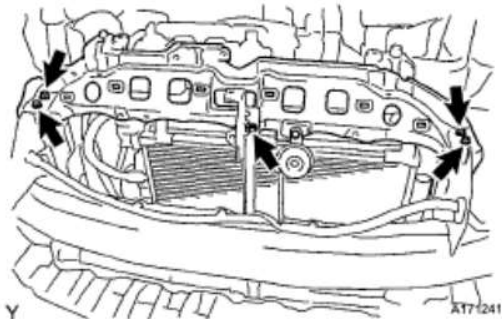
2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD**

Fig. 73: Locating Radiator Support Sub-Assembly Upper Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect the horn assembly connector.

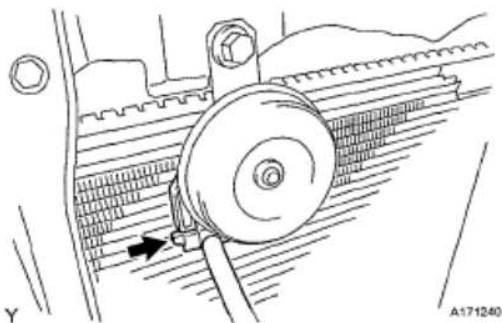
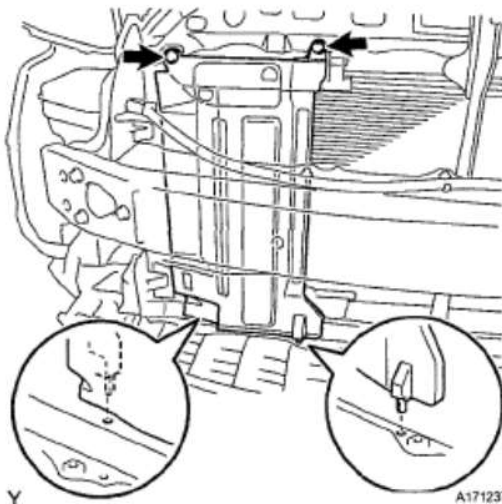


Fig. 74: Locating Horn Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. INSTALL NO. 1 COOLER COVER

- a. Install the No. 1 cooler cover with the 2 clips.



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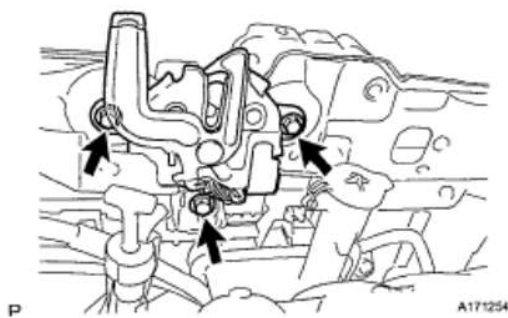
2008 ENGINE 2ZR-FE Cooling - xD

Fig. 75: Locating No. 1 Cooler Cover Clips

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

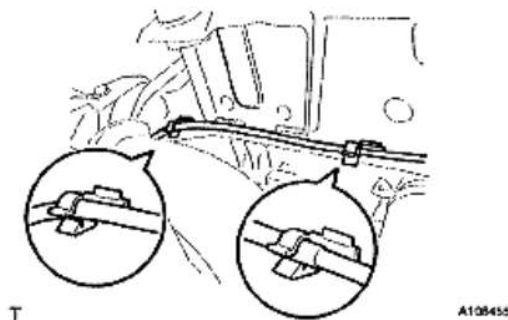
9. INSTALL HOOD LOCK ASSEMBLY

- a. Install the hood lock assembly with the 3 bolts.

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)**Fig. 76: Locating Hood Lock Assembly Bolts**

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

- b. install the hood lock control cable assembly with the 2 clamps.

**Fig. 77: Identifying Hood Lock Control Cable Assembly Of Clamps**

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

10. CONNECT NO. 2 RADIATOR HOSE

- a. Connect the No. 2 radiator hose with the clip.

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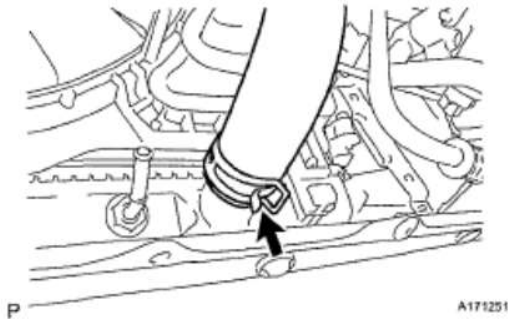


Fig. 78: Locating No. 2 Radiator Hose Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. CONNECT OUTLET NO. 1 OIL COOLER HOSE (for Automatic Transaxle)

- a. Connect the outlet No. 1 oil cooler hose.

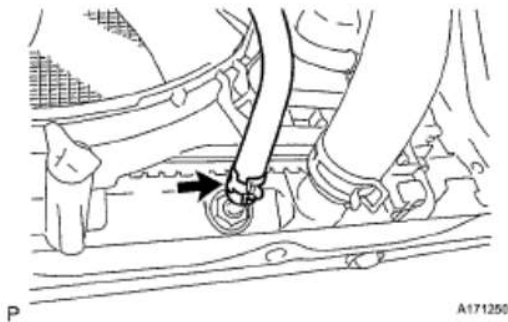


Fig. 79: Locating No. 1 Oil Cooler Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. REMOVE INLET NO. 2 OIL COOLER HOSE (for Automatic Transaxle)

- a. Connect the inlet No. 2 oil cooler hose.

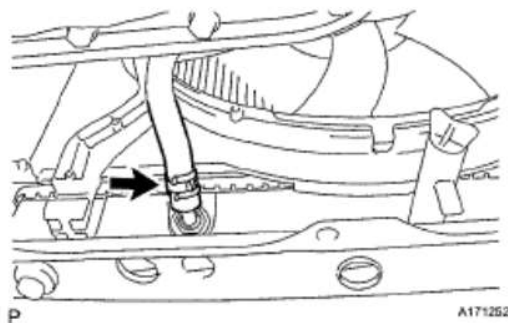


Fig. 80: Locating No. 2 Oil Cooler Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. CONNECT NO. 1 RADIATOR HOSE

2008 Scion xD**2008 ENGINE 2ZR-FE Cooling - xD**

- a. Connect the No. 1 radiator hose.

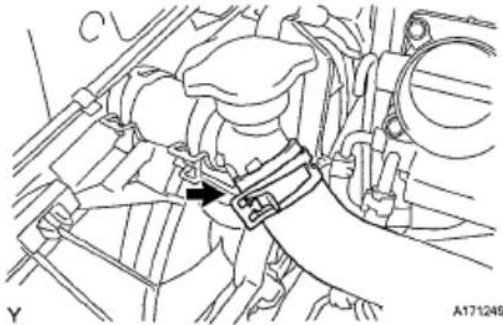


Fig. 81: Locating No. 1 Radiator Hose

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

14. **INSTALL AIR CLEANER ASSEMBLY** (See INSTALLATION)
15. **INSTALL RADIATOR SUPPORT UPPER ABSORBER** (See REASSEMBLY)
16. **INSTALL FRONT BUMPER COVER** (See INSTALLATION)
17. **ADD ENGINE COOLANT** (See REPLACEMENT)
18. **ADJUST HOOD LOCK ASSEMBLY**
 - a. Loosen the 3 bolts.

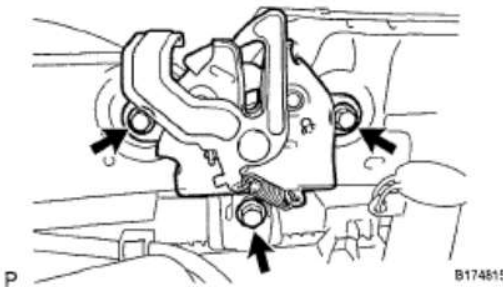


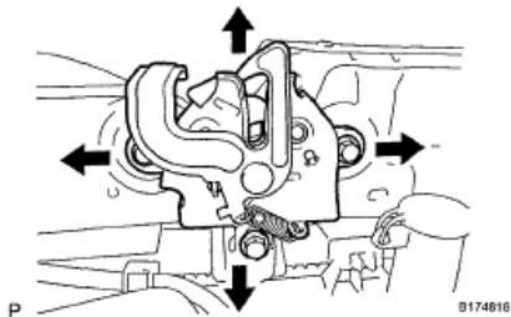
Fig. 82: Locating Hood Lock Assembly Bolts

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

- b. Adjust the hood lock position so that the striker can enter it smoothly.

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2008 ENGINE 2ZR-FE Cooling - xD

**Fig. 83: Adjusting Hood Lock Position**

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

- c. Tighten the 3 bolts after the adjustment.

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

19. **INSPECT FOR ENGINE COOLANT LEAK** (See **ON-VEHICLE INSPECTION**)