

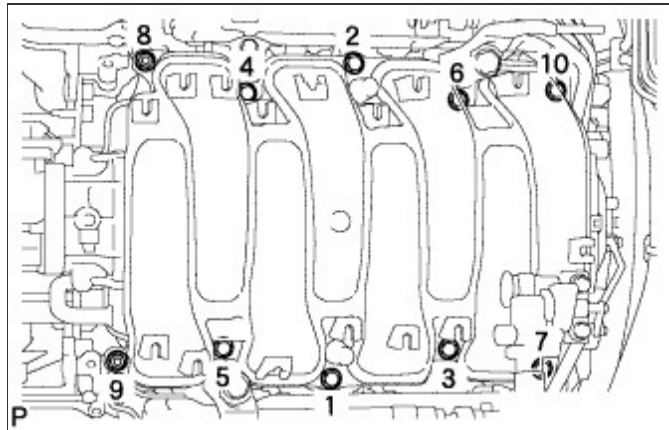
1UR-FSE INTAKE > INTAKE MANIFOLD > INSTALLATION

1. INSTALL INTAKE MANIFOLD

- a. Install 2 new gaskets to the intake manifold.
- b. Temporarily install the intake manifold with the 2 nuts and 8 bolts. Then tighten the 2 nuts and 8 bolts uniformly in the order shown in the illustration.

Torque:

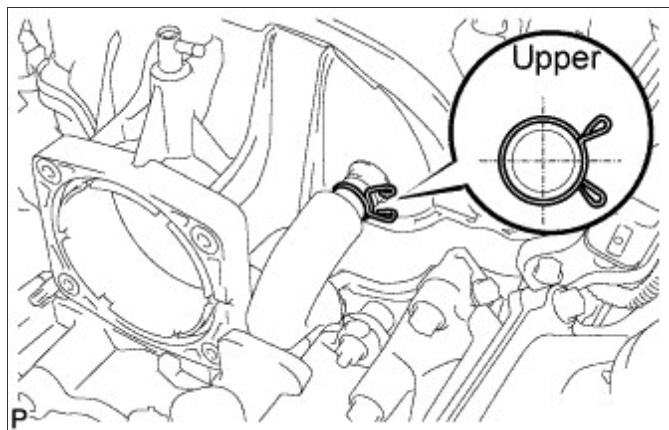
21 N*m { 214 kgf*cm , 15 ft.*lbf }



- c. Connect the PCV hose to the intake manifold.

NOTICE:

Make sure that the clip is facing as shown in the illustration.



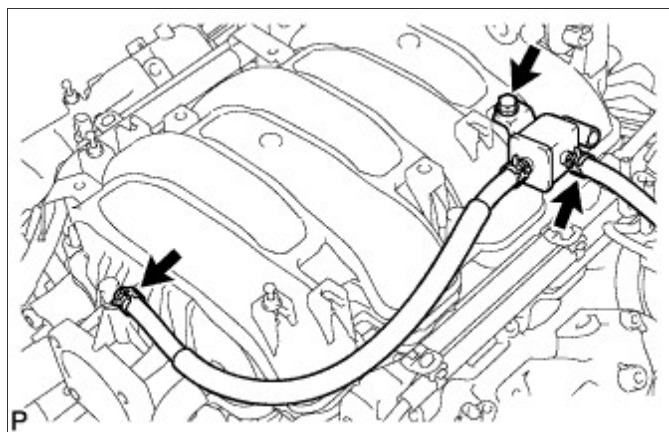
2. INSTALL PURGE VSV

- a. Install the purge VSV with the bolt.

Torque:

21 N*m { 214 kgf*cm , 15 ft.*lbf }

- b. Connect the fuel vapor feed hose to the intake manifold.
- c. Connect the No. 2 fuel vapor feed hose to the purge VSV.



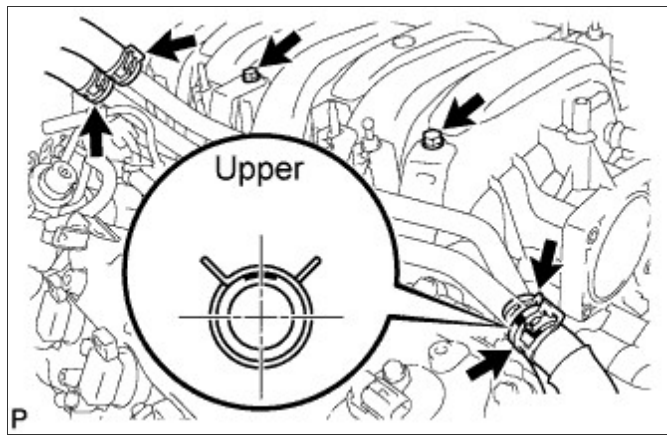
3. INSTALL WATER BY-PASS PIPE SUB-ASSEMBLY

- a. Install the water by-pass pipe to the intake manifold with the 2 bolts.

- b. Connect the heater water inlet hose, heater water outlet hose, water inlet hose, and No. 3 water by-pass hose to the water by-pass pipe with the 4 clamps.

NOTICE:

Make sure that the No. 3 water by-pass hose clamp is facing as shown in the illustration.



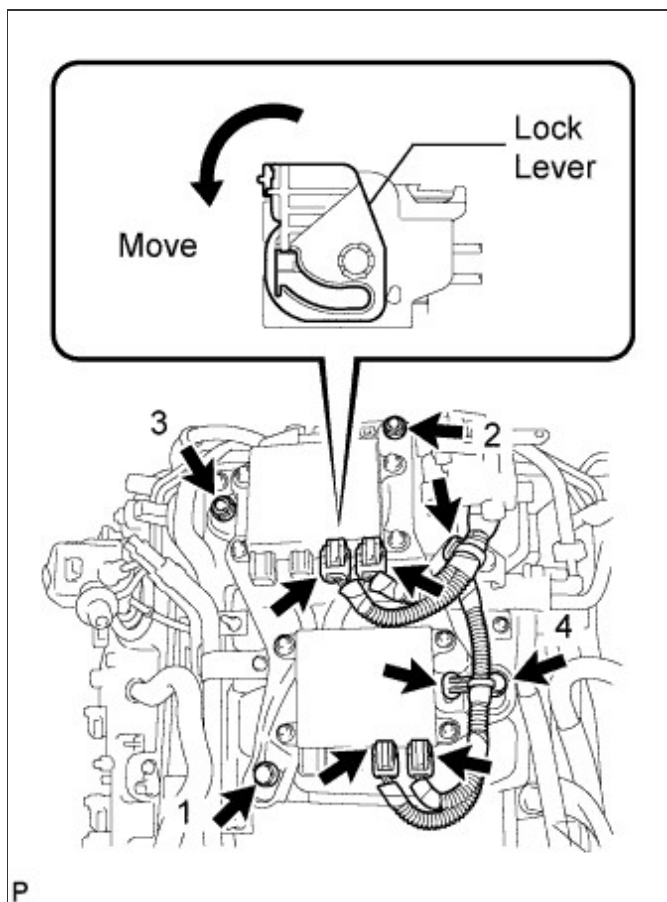
4. INSTALL INJECTOR DRIVER

- a. Install the injector driver to the intake manifold by installing the 2 bolts and 2 nuts in the order shown in the illustration.

Torque:

10 N*m { 102 kgf*cm , 7 ft.*lbf }

- b. Connect the 4 wire harness connectors to the injector driver. Then move the lock lever as shown in the illustration to lock the connectors.
- c. Connect the 2 clamps to the injector driver.



5. CONNECT ENGINE WIRE

- a. for 2WD:

- i. Connect the engine wire harness connectors.

HINT:

To connect the injector driver connectors, move the lock lever to lock the connector.

- ii. Connect the engine wire harness to the +B terminal of the generator assembly with the nut.

Torque:

12 N*m{ 122 kgf*cm , 9 ft.*lbf }

iii. Connect the 6 engine wire harness clamps.

iv. Connect the engine wire to the fusible link block assembly with the nut.

Torque:

13 N*m{ 127 kgf*cm , 10 ft.*lbf }

v. Connect the engine wire harness ground with the bolt.

Torque:

21 N*m{ 214 kgf*cm , 15 ft.*lbf }

vi. Install the 4 engine wire harness clamp brackets with the 4 bolts.

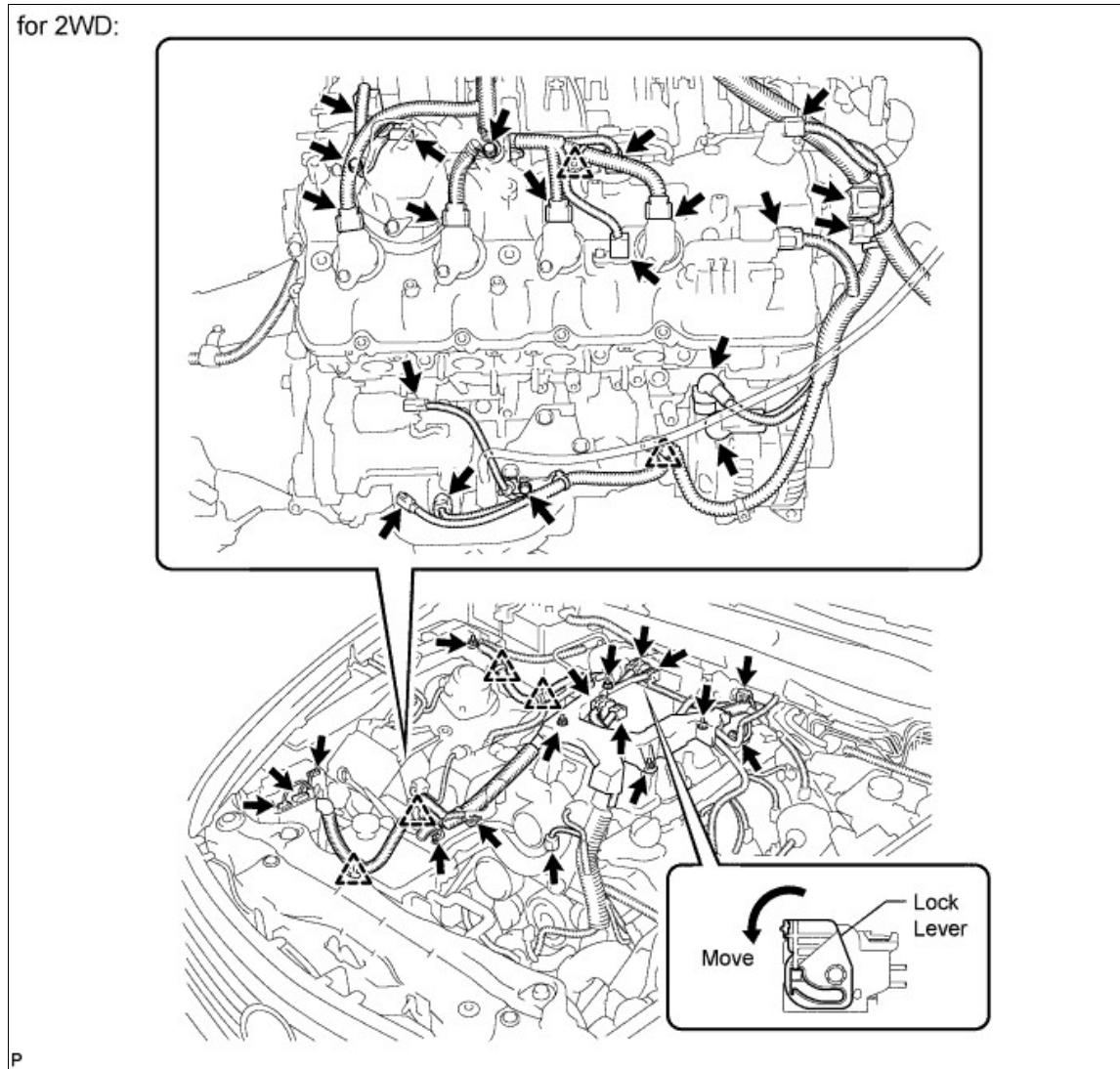
Torque:

10 N*m{ 102 kgf*cm , 7 ft.*lbf }

vii. Connect the engine wire harness with the 4 nuts.

Torque:

10 N*m{ 102 kgf*cm , 7 ft.*lbf }



b. for AWD:

- i.** Connect the engine wire harness connectors.

HINT:

To connect the injector driver connectors, move the lock lever to lock the connector.

- ii.** Connect the engine wire harness to the +B terminal of the generator assembly with the nut.

Torque:

12 N*m{ 122 kgf*cm , 9 ft.*lbf }

- iii.** Connect the 6 engine wire harness clamps.

- iv.** Connect the engine wire to the fusible link block assembly with the nut.

Torque:

13 N*m{ 127 kgf*cm , 10 ft.*lbf }

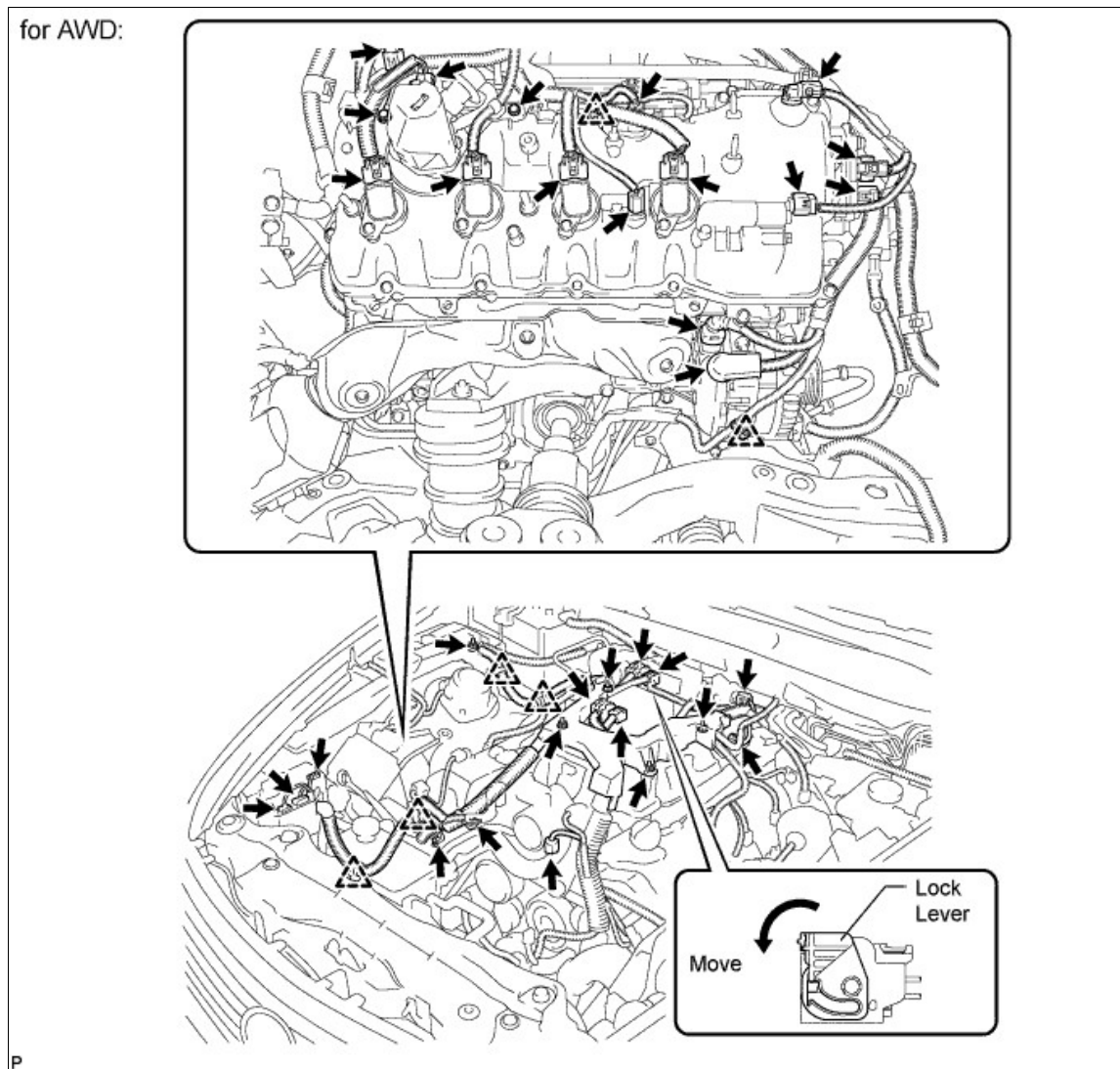
- v.** Connect the engine wire harness ground with the bolt.

Torque:**21 N*m{ 214 kgf*cm , 15 ft.*lbf }**

- vi.** Install the 3 engine wire harness clamp brackets with the 3 bolts.

Torque:**10 N*m{ 102 kgf*cm , 7 ft.*lbf }**

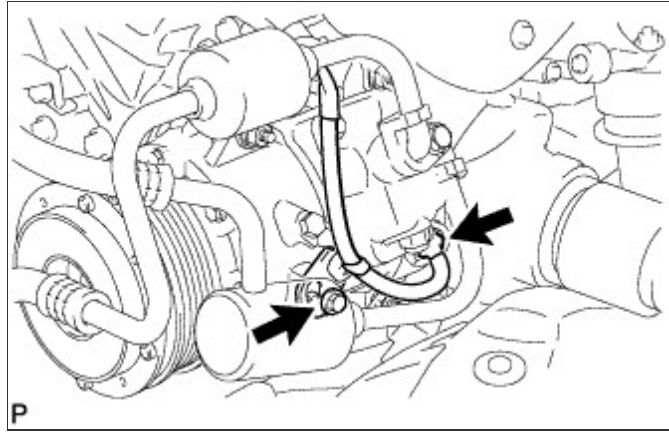
- vii.** Connect the engine wire harness with the 4 nuts.

Torque:**10 N*m{ 102 kgf*cm , 7 ft.*lbf }**

- viii.** Connect the wire harness bracket with the bolt.

Torque:**10 N*m{ 102 kgf*cm , 7 ft.*lbf }**

- ix.** Connect the cooler compressor connector.



- x. Install the clamp bracket with the bolt.

Torque:

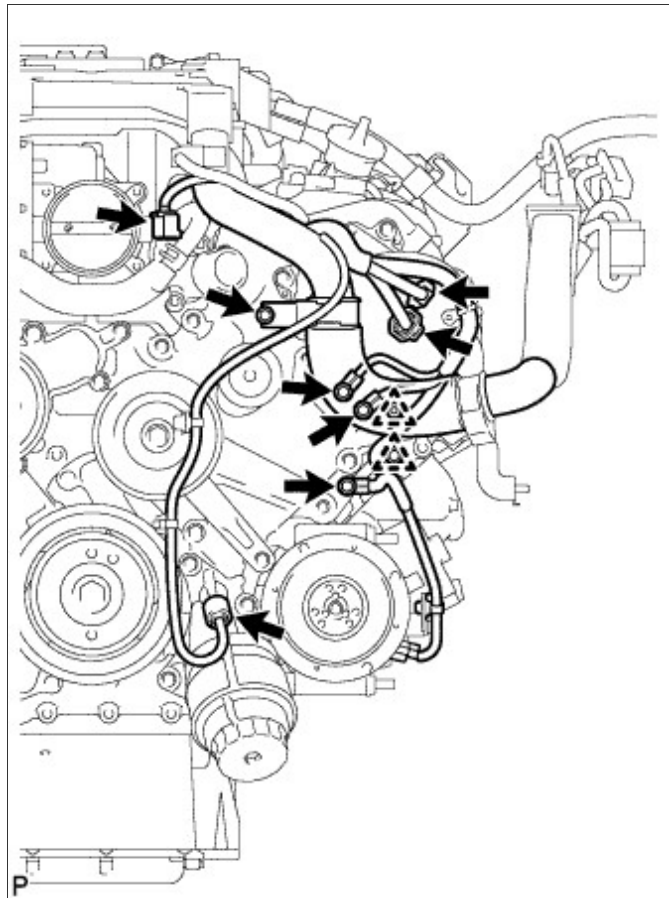
10 N*m{ 102 kgf*cm , 7 ft.*lbf }

- xi. Connect the 2 clamps and 3 ground wires with the 3 bolts.

Torque:

10 N*m{ 102 kgf*cm , 7 ft.*lbf }

- xii. Connect the 2 camshaft timing control motor connectors (for Bank 1).
- xiii. Connect the oil pressure sensor connector.
- xiv. Connect the engine coolant temperature sensor connector.

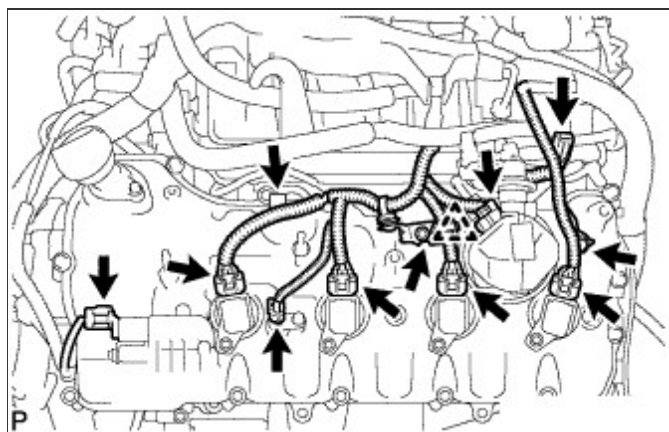


- xv. Connect the clamp and install the 2 clamp brackets with the 2 bolts.

Torque:

10 N*m{ 102 kgf*cm , 7 ft.*lbf }

- xvi. Connect the No. 8 engine wire connector.
- xvii. Connect the fuel pump connector (for high pressure).
- xviii. Connect the 2 VVT sensor connectors.



- xix.** Connect the 4 ignition coil connectors.
- xx.** Connect the camshaft timing control valve connector.

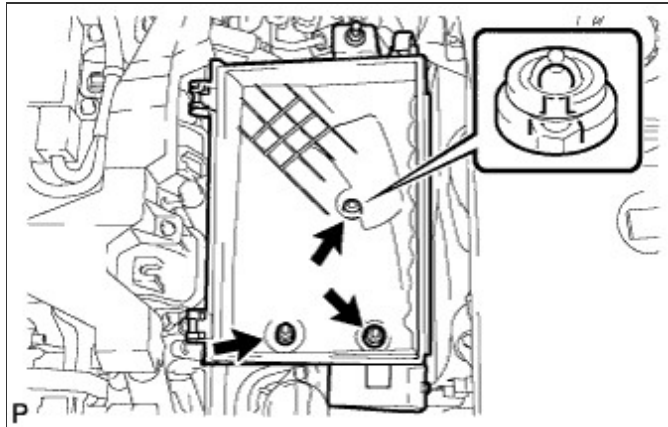
6. INSTALL AIR CLEANER ASSEMBLY LH

- a.** Install the air cleaner case with the 2 nuts and clip.

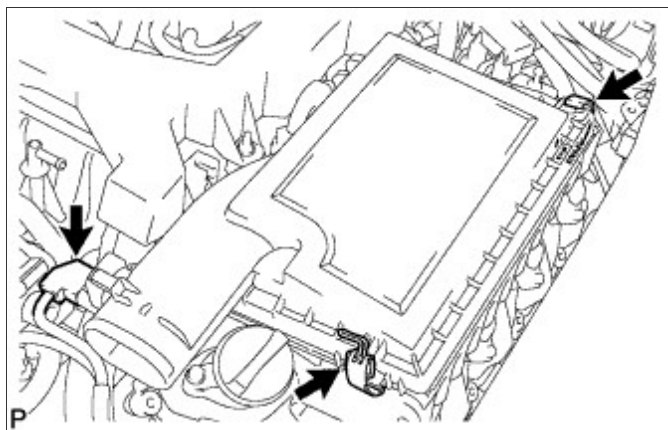
Torque:

5.0 N*m { 51 kgf*cm , 44 in.*lbf }

- b.** Install the air cleaner filter element to the air cleaner case.



- c.** Install the air cleaner cap with the 2 clamps.
- d.** Connect the MAF meter connector.



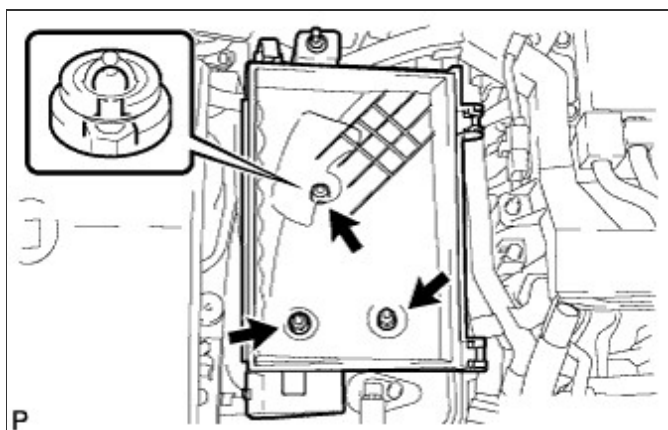
7. INSTALL AIR CLEANER ASSEMBLY RH

- a.** Install the air cleaner case with the 2 nuts and clip.

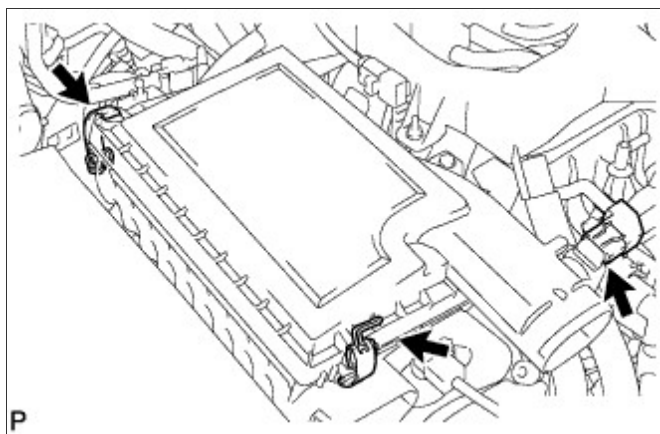
Torque:

5.0 N*m { 51 kgf*cm , 44 in.*lbf }

- b.** Install the air cleaner filter element to the air cleaner case.



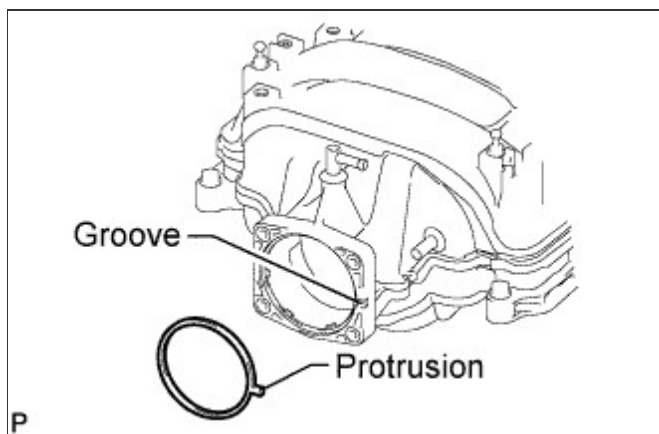
- c.** Install the air cleaner cap with the 2 clamps.
- d.** Connect the MAF meter connector.



- a. Install a new gasket to the intake manifold.

HINT:

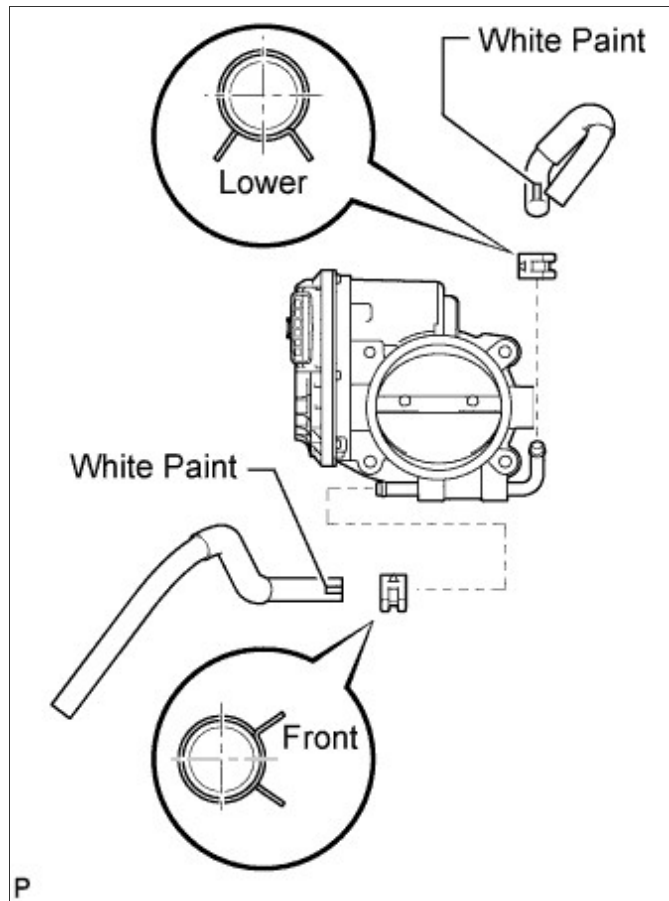
Align the protrusion of the gasket with the groove on the intake manifold.



- b. Connect the No. 4 and No. 5 water by-pass hoses to the throttle body.

NOTICE:

- Position the claws of the clamps as shown in the illustration.
- Install the clamps so that they are within the hose's paint marks.

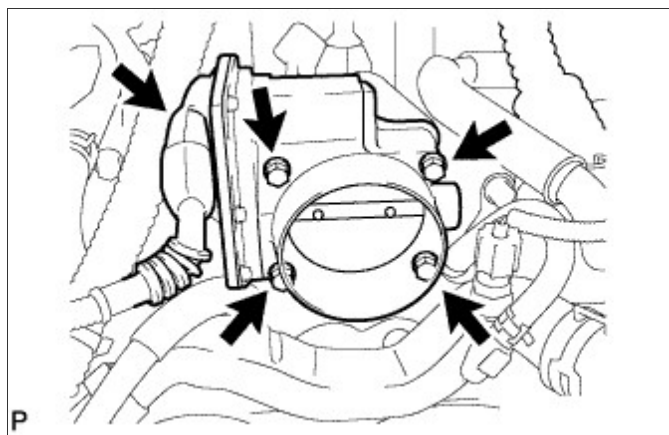


- c. Install the throttle body with the 4 bolts.

Torque:

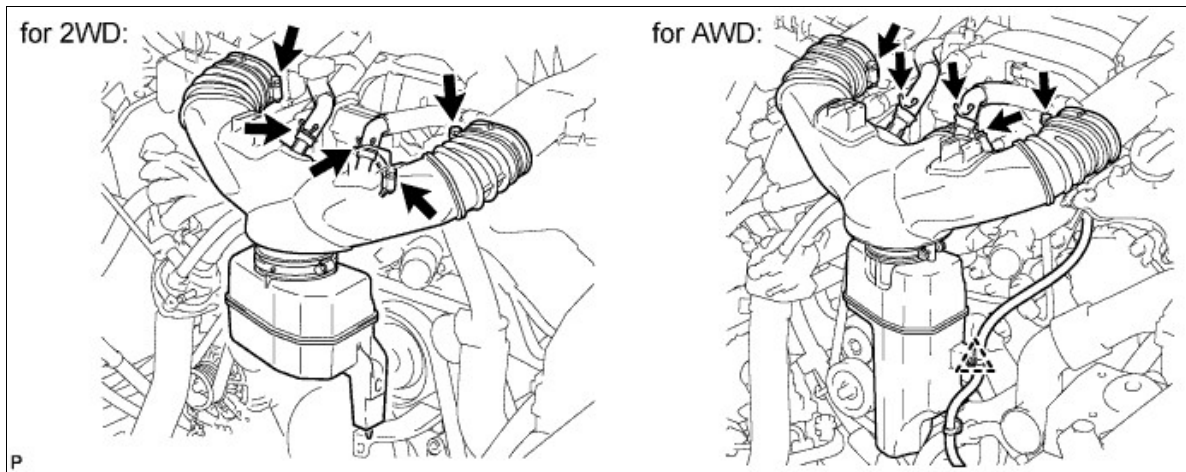
10 N*m { 102 kgf*cm , 7 ft.*lbf }

- d. Connect the throttle motor connector.



9. INSTALL INTAKE AIR CONNECTOR PIPE

- a. Align the protrusion of the intake air resonator with the cutout of the bracket and insert the protrusion.



- b. Install the intake air connector pipe with the 3 hose clamps.

Torque:

for intake air connector pipe and throttle body:

4.8 N*m { 49 kgf*cm , 42 in.*lbf }

for intake air connector pipe and air cleaner cap:

3.8 N*m { 39 kgf*cm , 34 in.*lbf }

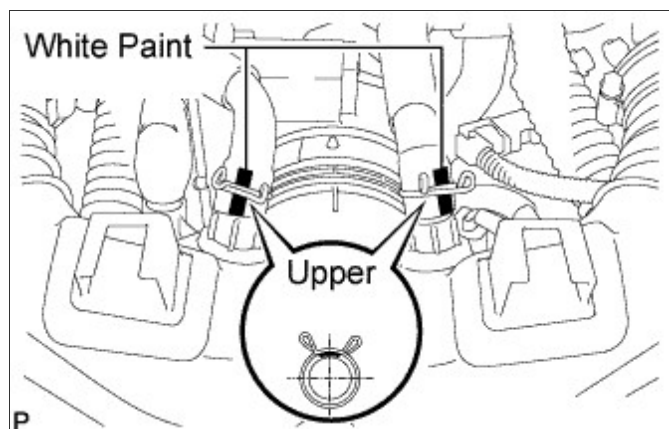
HINT:

- Insert the protrusion of the intake air connector pipe into the hole of the hose clamp.
- The intake air connector pipe and throttle body clamp can be tightened within the range of 4.0 N*m (41 kgf*cm, 35 in.*lbf) to 5.5 N*m (56 kgf*cm, 49 in.*lbf), and the intake air connector pipe and air cleaner cap clamp can be tightened within the range of 2.0 N*m (20 kgf*cm, 18 in.*lbf) to 5.5 N*m (56 kgf*cm, 49 in.*lbf).

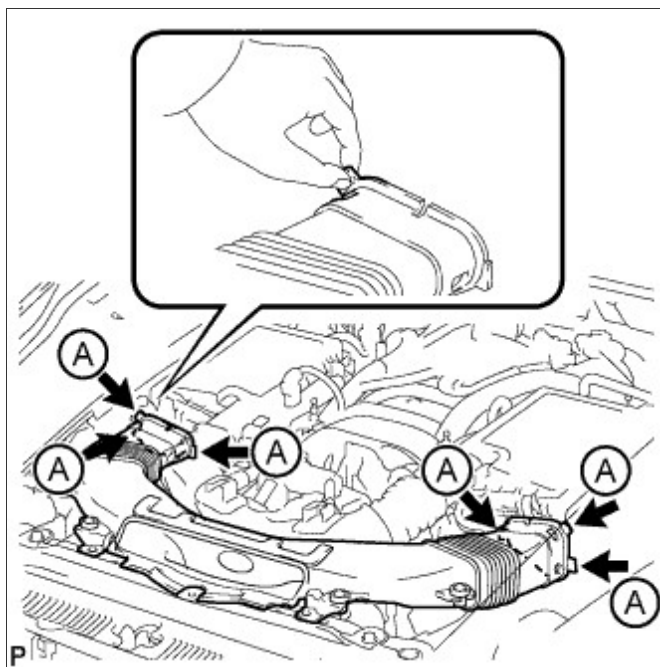
- c. for AWD:
Attach the wire harness clamp.
- d. Connect the No. 1 and No. 2 ventilation hoses to the intake air connector pipe.

HINT:

- Position the claws of the clamps as shown in the illustration.
- Install the clamps so that they are within the hose's paint marks.



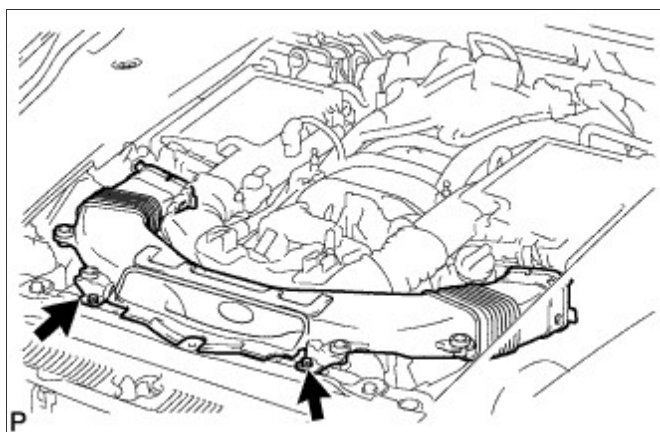
- a. Align the holes with the connection areas labeled A, and attach the No. 1 air cleaner inlet.



- b. Install the No. 1 air cleaner inlet with the 2 bolts.

Torque:

5.0 N*m { 51 kgf*cm , 44 in.*lbf }



11. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Refer to [INTRODUCTION > REPAIR INSTRUCTION > INITIALIZATION\(200909 - \)](#)).

12. ADD ENGINE COOLANT

NOTICE:

Before adding coolant, turn the A/C switch OFF.

Standard Capacity:

Item	Specified condition
for 2WD	11.0 liters (11.7 US qts, 9.7 Imp. qts)
for AWD	11.1 liters (11.7 US qts, 9.8 Imp. qts)

- a. Tighten the radiator drain cock plug and 2 cylinder block drain cock plugs.

Torque:

13 N*m{ 133 kgf*cm , 10 ft.*lbf } for cylinder block drain cock plug

- b. Add TOYOTA Super Long Life Coolant (SLLC) into the radiator reservoir.

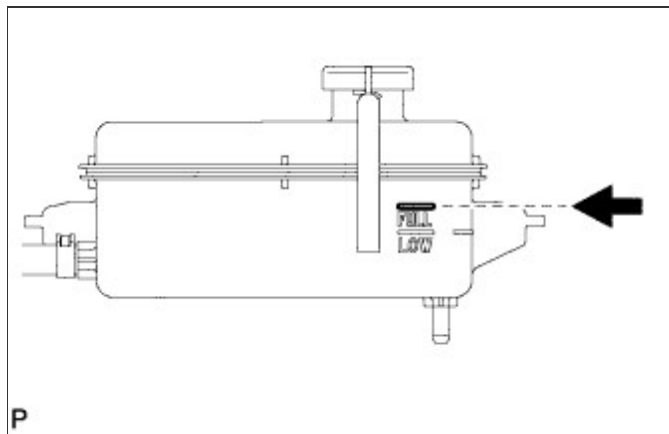
Capacity:

5.0 liters (5.3 US qts, 4.4 Imp. qts)

HINT:

- TOYOTA vehicles are filled with TOYOTA SLLC at the factory. In order to avoid damage to the engine cooling system and other technical problems, only use TOYOTA SLLC or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, non-borate 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).
- Please contact your TOYOTA dealer for further details.
- The thermostat open timing can be confirmed by pressing the inlet radiator hose by hand, and checking when the coolant starts to flow inside the hose.

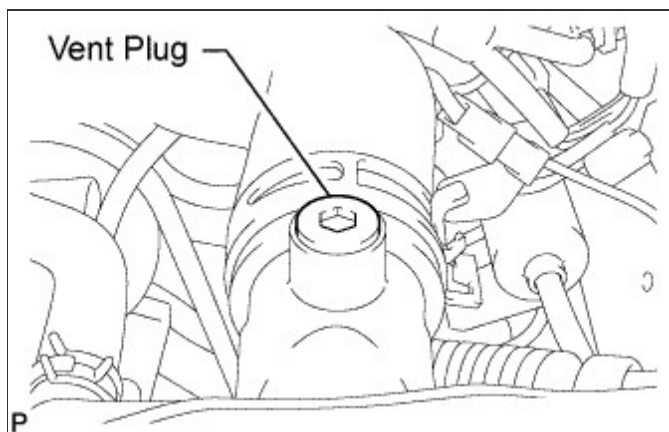
- c. Further add coolant into the reservoir until it reaches the FULL line.
- d. Press the No. 1 and No. 2 radiator hoses several times by hand, and then check the coolant level. If the coolant level is low, add coolant.



- e. Using a 6 mm hexagon wrench, install the vent plug.

Torque:

1.5 N*m{ 15 kgf*cm , 13 in.*lbf }



- f. Bleed air from the cooling system.

NOTICE:

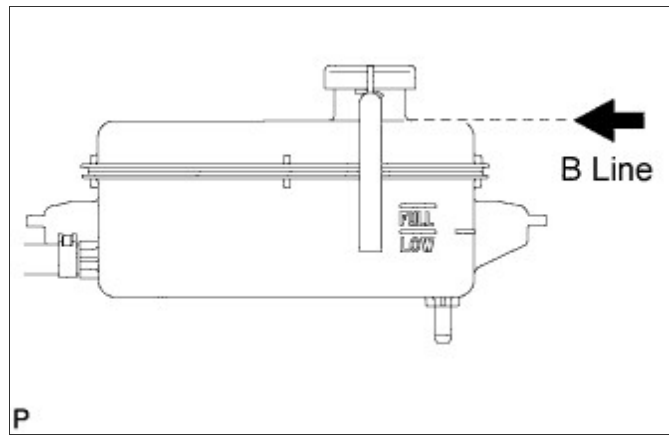
Before starting the engine to warm up the engine, turn the A/C switch OFF.

- i. While idling the engine for approximately 10 minutes, make sure the coolant remains at the FULL line by adding coolant as necessary.

- ii. After idling the engine for 10 minutes, add coolant until it reaches the B line at the base of the reservoir's filler neck.

Capacity:
2.5 to 3.5 liters (2.6 to 3.7 US qts, 2.2 to 3.1 Imp. qts)

HINT:
 The B line is the lower edge of the inner wall of the filler neck.



- iii. Close the radiator reservoir cap, and run the engine at 1500 to 2000 rpm for 5 minutes.

HINT:
 The thermostat open timing can be confirmed by pressing the No. 1 radiator hose by hand, and checking when the SLLC starts to flow inside the hose.

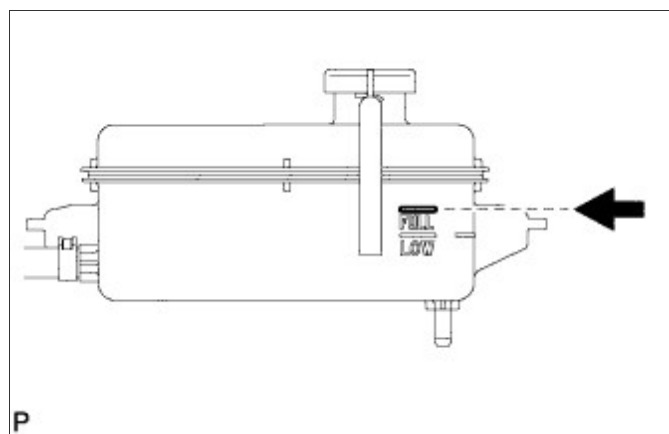
CAUTION:
 When pressing the radiator hose:

- Wear protective gloves.
- Be careful as the radiator hose is hot.
- Keep your hands away from the radiator fan.

- g. Stop the engine and wait until the coolant cools down to ambient temperature.

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

- h. Check the coolant level.
 If the coolant level is below the FULL line, add coolant until it reaches the FULL line.



13. INSPECT FOR ENGINE COOLANT LEAK

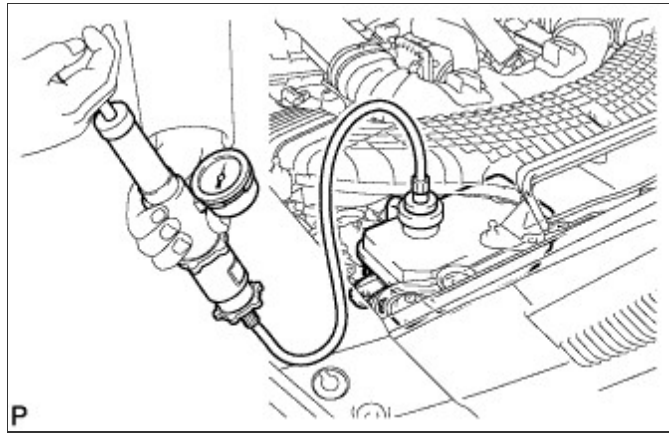
NOTICE:
 Before each inspection, turn the A/C switch OFF.

CAUTION:
 Do not remove the radiator reservoir 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

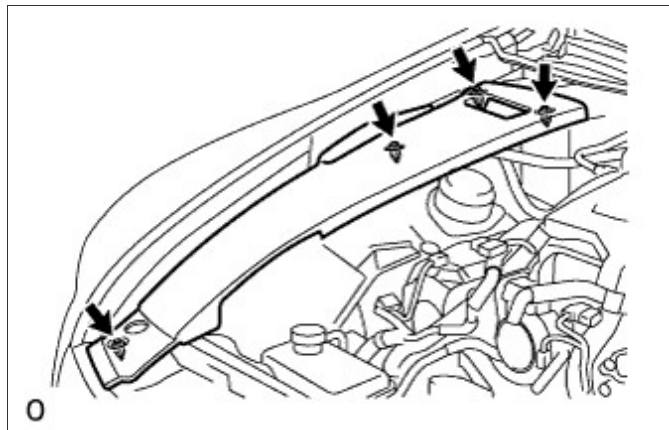
attach a radiator cap tester.

- b. Warm up the engine.
- c. Using the radiator cap tester, increase the pressure inside the radiator to 118 kPa (1.2 kgf/cm², 17 psi), and check that the pressure does not drop.
If the pressure drops, check the hoses, radiator and water pump for leaks. If no external leaks are found, check the heater core, cylinder block and head.



14. INSTALL ENGINE ROOM SIDE COVER RH

- a. Install the side cover with the 4 clips.



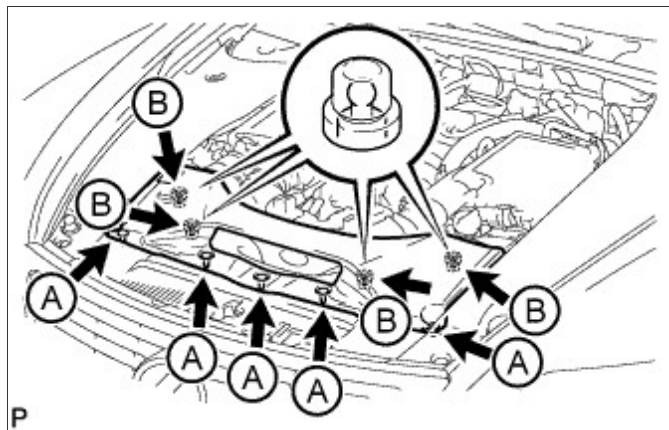
15. INSTALL AIR CLEANER INLET COVER

- a. Attach the 4 clips B.

NOTICE:

- Make sure the clips are attached securely.
- Attaching the clips forcefully or hitting the top of the clips may damage them.

- b. Install the air cleaner inlet cover with the 5 clips A.

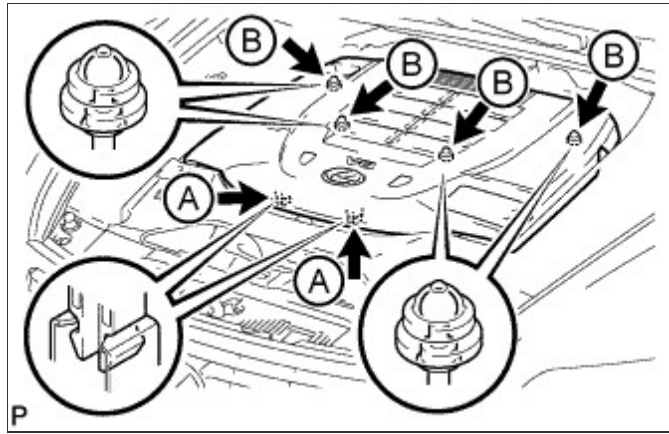


16. INSTALL V-BANK COVER SUB-ASSEMBLY

- a. Slide the cover from the vehicle front toward the rear of the vehicle to attach the 2 clips labeled A, and then attach the 4 clips labeled B to install the V bank cover.

NOTICE:

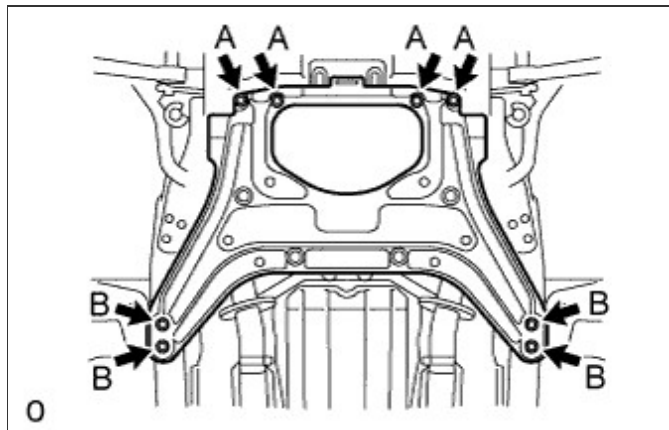
- Make sure the clips are attached securely.
- Attaching the clips forcefully or hitting the top of the clips may damage them.
- When attaching the clips labeled A, be sure to slide the cover from the front of the vehicle toward the rear of the vehicle.

**17. INSTALL NO. 2 ENGINE UNDER COVER**

- a. Install the under cover with the 8 bolts.

Torque:

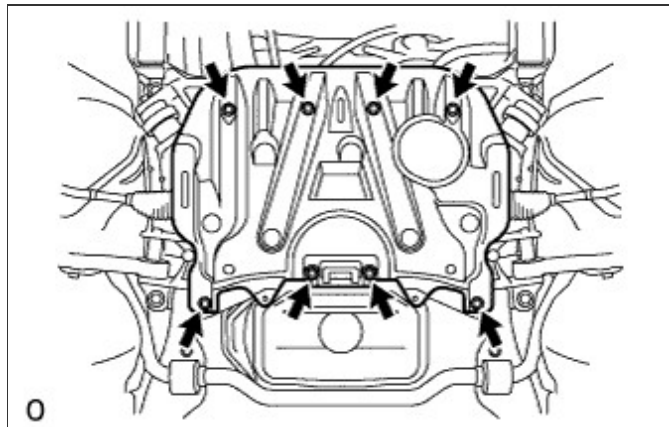
10 N*m { **102 kgf*cm** , **7 ft.*lbf** } for bolt A
27 N*m { **275 kgf*cm** , **20 ft.*lbf** } for bolt B

**18. INSTALL FRONT SUSPENSION MEMBER PROTECTOR LOWER**

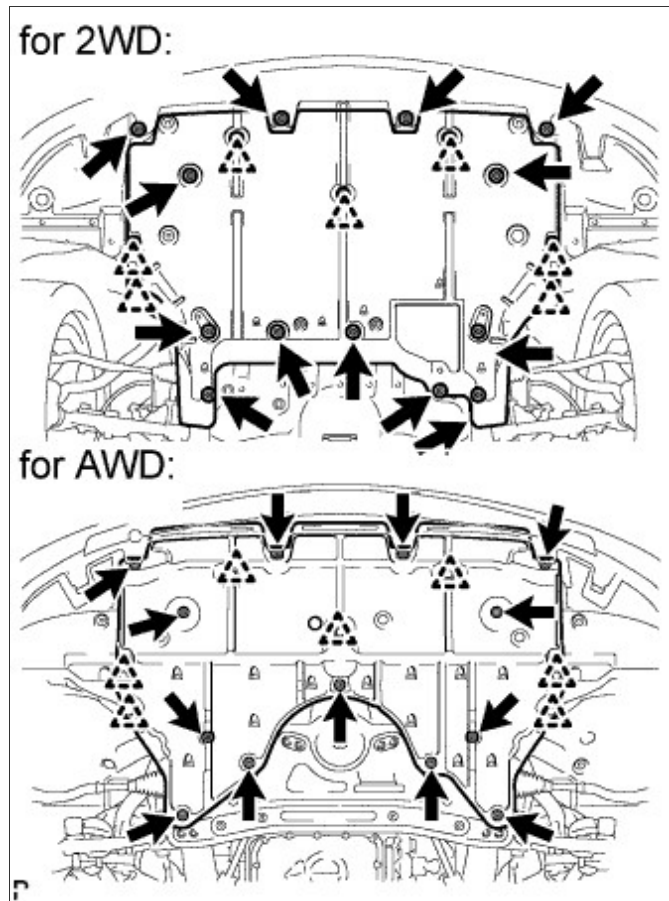
- a. Install the suspension member protector with the 8 bolts.

Torque:

10 N*m { **102 kgf*cm** , **7 ft.*lbf** }

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

- a. Install the cover with the 7 clips and 13 screws.



20. INSTALL COWL TOP VENTILATOR LOUVER RH

- a. Install the 6 clips and cowl top ventilator louver RH.

NOTICE:

If the cowl top ventilator louver RH is not properly installed, water may leak into the engine room and cause malfunctions. Therefore, make sure the cowl top ventilator louver RH is installed properly.

