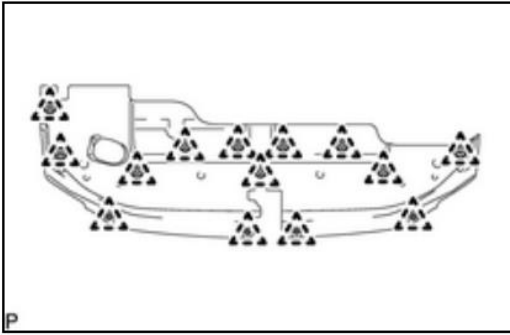
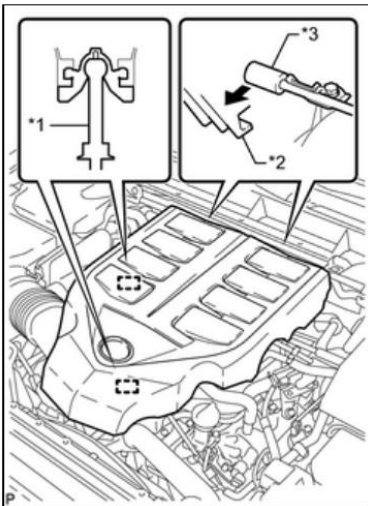


Vance's Water Pump Replacement Procedure for 2009-2020+ Lexus GX460

1. Remove upper radiator support seal

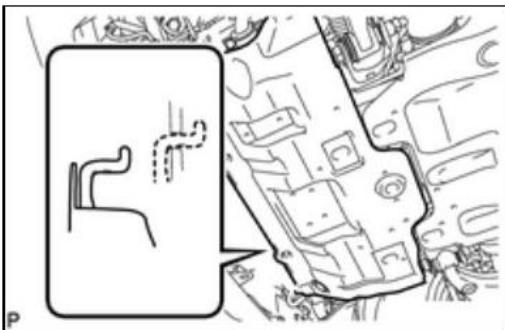


2. Remove engine cover

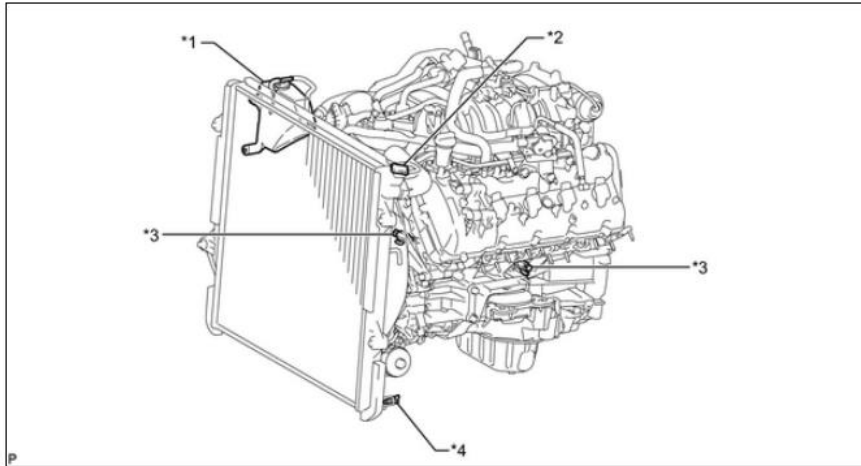


3. Remove lower front bumper cover

4. Remove engine under cover sub-assembly



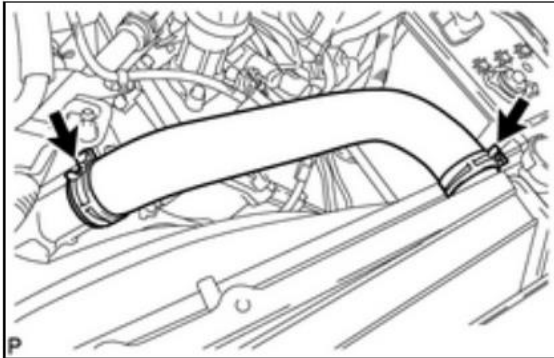
5. Drain engine coolant
 - a. Loosen the radiator drain cock plug.
 - b. Remove the radiator cap. Then drain the coolant from the radiator.
 - c. Tighten the radiator drain cock plug by hand.



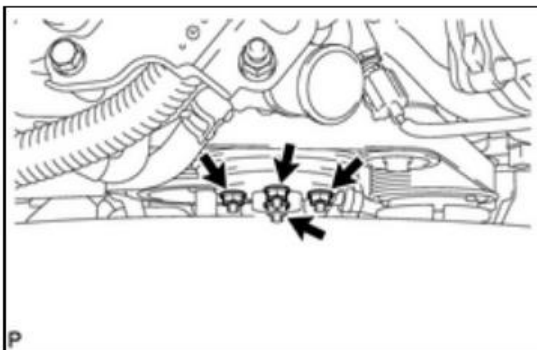
Text in Illustration

*1	Radiator Reservoir	*2	Radiator Cap
*3	Cylinder Block Drain Cock Plug	*4	Radiator Drain Cock Plug

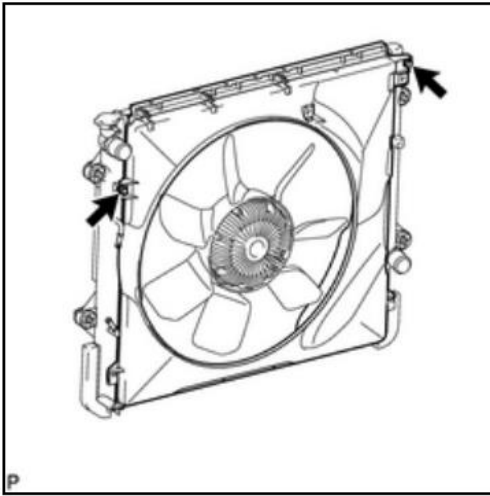
6. Remove no. 1 radiator hose



7. Remove the 4 nuts holding the fan blade



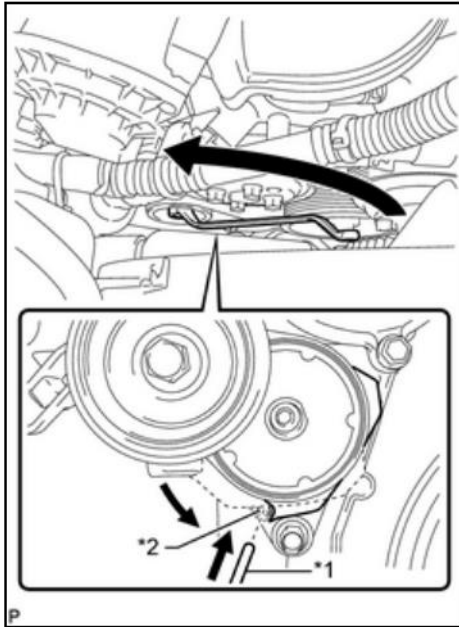
8. Remove the 3 bolts holding the fan shroud, 1 of which goes through the overflow tank.



9. Remove the fan shroud together with the fluid coupling / fan blade.
a. Disconnect overflow tube from radiator.

10. Remove the V-belt

- a. While turning the belt tensioner counterclockwise, align the service hole for the belt tensioner (*2) and the belt tensioner fixing position, and then insert a bar (*1) with a diameter of 5 mm (0.197 in.) into the service hole to fix the belt tensioner in place.

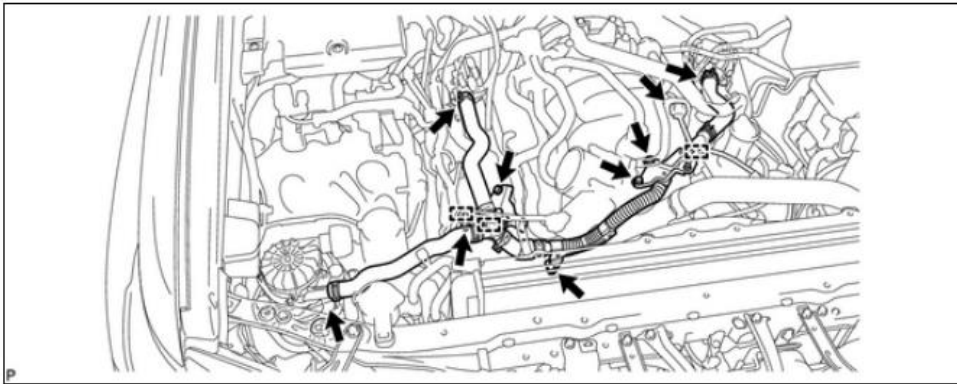


- b. Remove the V belt.

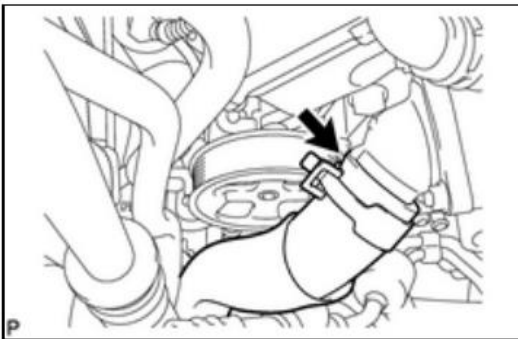
11. Remove water pump pulley
 - a. Using special tool (SST), hold the water pump pulley.
 - b. Remove the 4 bolts and water pump pulley.



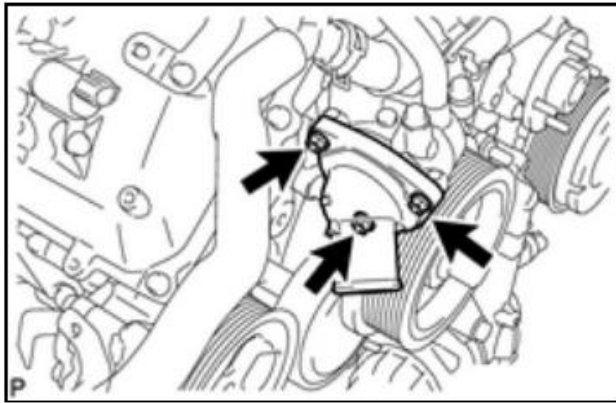
12. Disconnect some of the air tube sub-assembly, enough to move it out of the way.



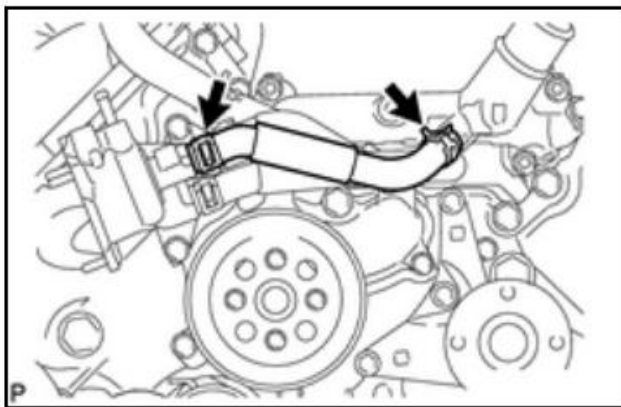
13. Disconnect no. 2 radiator hose from thermostat assembly



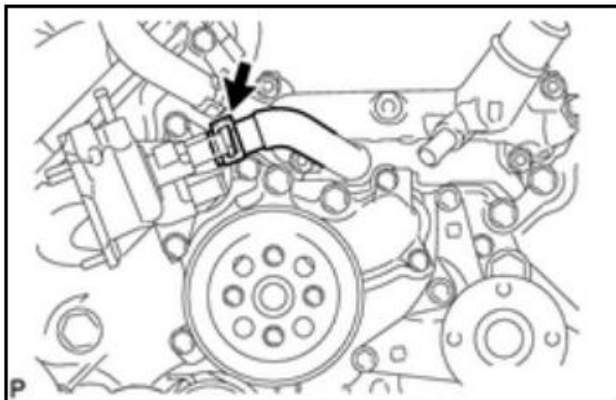
14. Remove the 3 nuts, and the thermostat housing



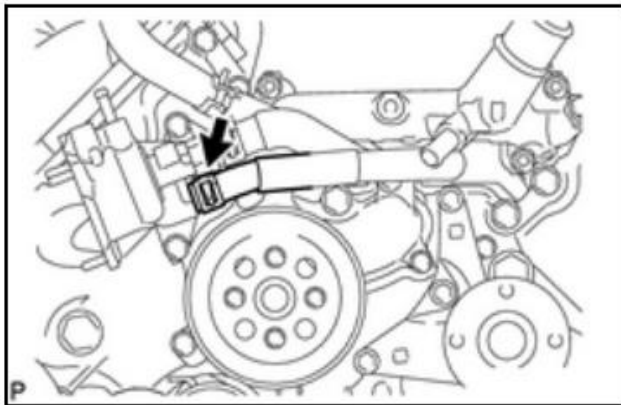
15. Remove no. 1 water bypass hose



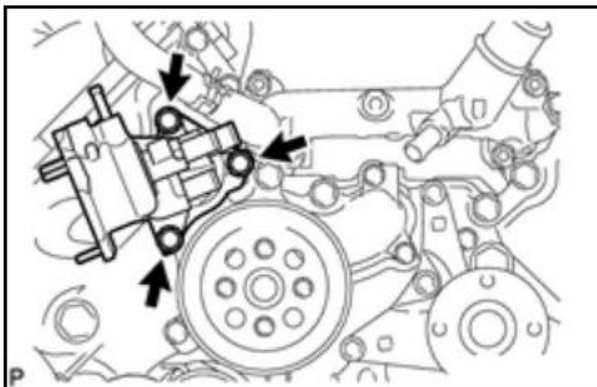
16. Disconnect no. 5 water by-pass hose



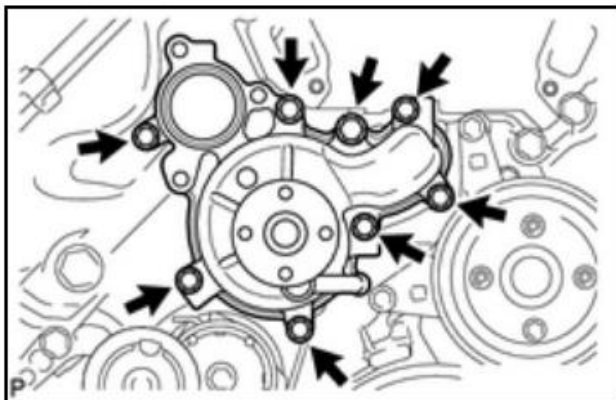
17. Disconnect no. 8 water bypass hose



18. Remove the 3 bolts and water inlet housing.

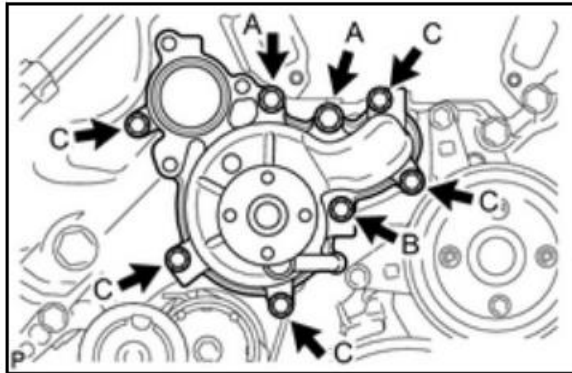


19. Remove the 8 bolts, water pump and gasket.



20. Install new water pump assembly

- a. Install a new gasket and the water pump with the 8 bolts shown in the illustration.
- b. Torque:
 - i. for bolt A - 35 ft·lb
 - ii. for bolt B - 17 ft·lb (204 in·lb).
 - iii. for bolt C – 15 ft·lb (180 in·lb).



21. Install water pump pulley

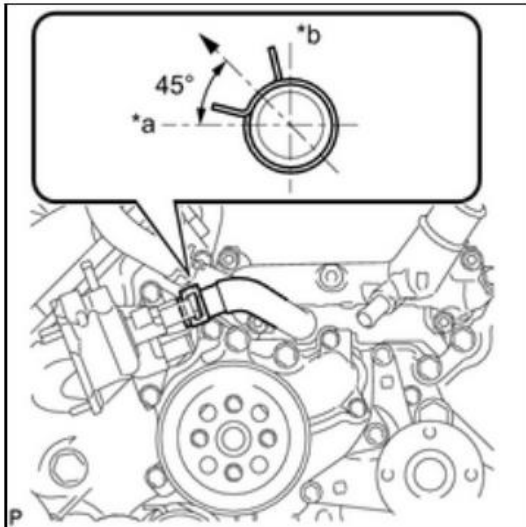
- a. Install the water pump pulley with the 4 bolts.
- b. Using SST, hold the water pump pulley and tighten the 4 bolts. SST: 09960-10010, 09962-01000, 09963-01000. Torque: 15 ft·lb (180 in·lb).



22. Install water inlet housing

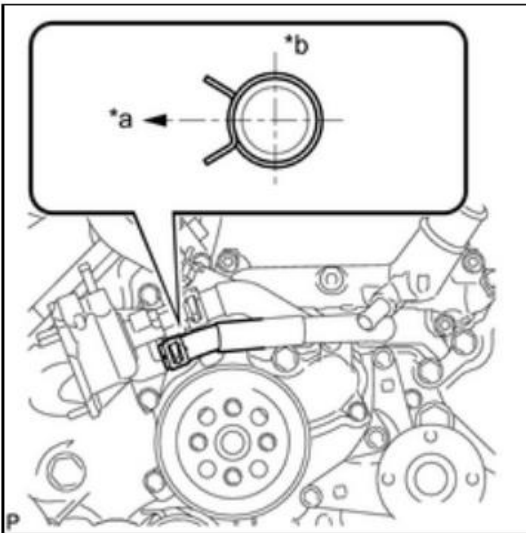
- a. Install a new gasket to the water pump.
- b. Install the water inlet housing with the 3 bolts. Torque: 15 ft·lb (180 in·lb).

23. Connect no. 5 water bypass hose



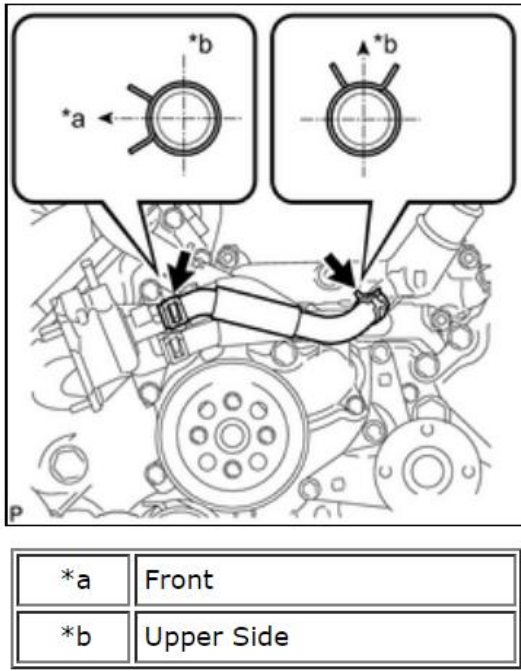
*a	Front
*b	Upper Side

24. Connect no. 8 water bypass hose



*a	Front
*b	Upper Side

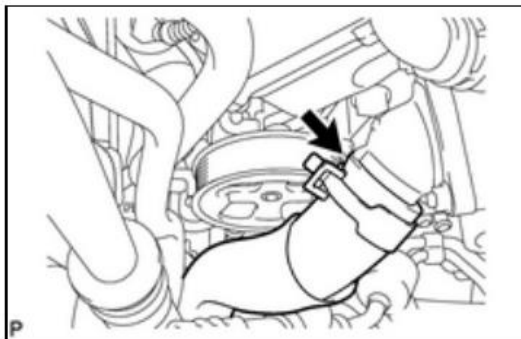
25. Install no. 1 water bypass hose



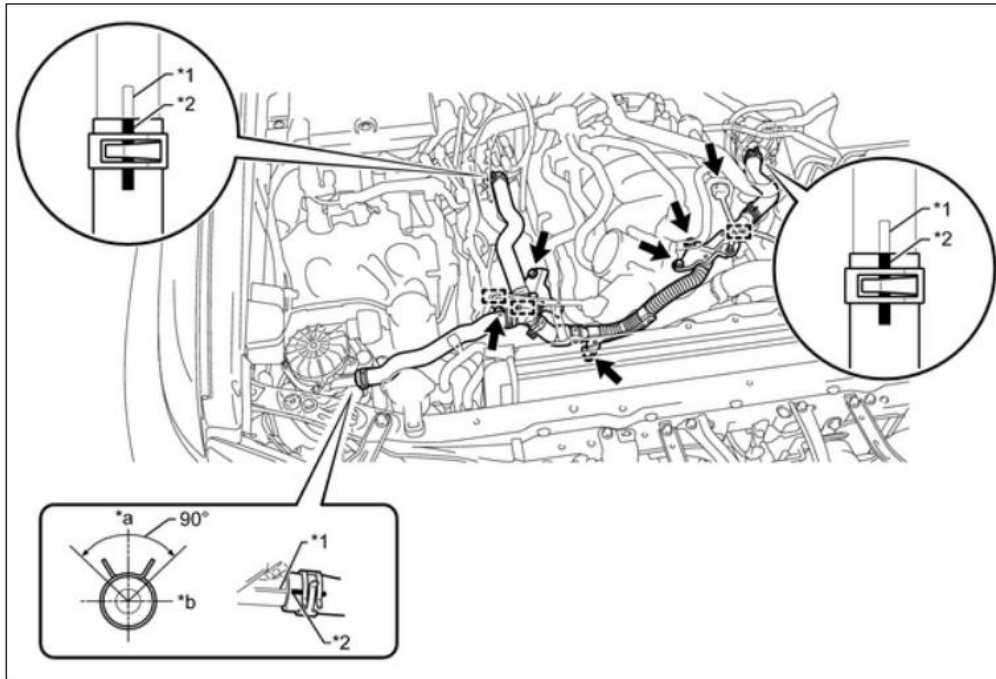
26. Install thermostat housing

- a. Install a new gasket and the thermostat housing with the 3 nuts. Torque: 7 ft·lb (84 in·lb).

27. Connect no. 2 radiator hose to thermostat housing



28. Reconnect air tube sub-assembly

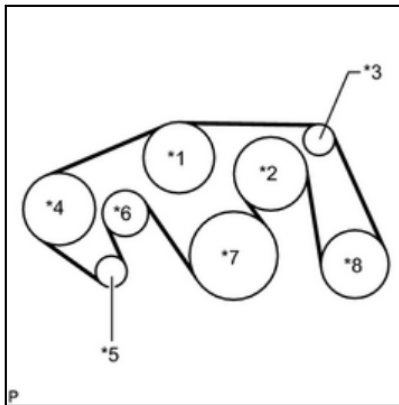


Text in Illustration

*1	Projection	*2	Paint Mark
*a	Top	*b	Front

29. Install the V-belt

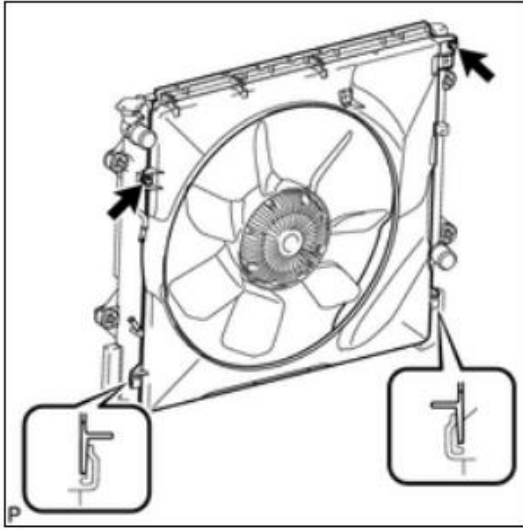
- a. Set the V-belt onto every part.
- b. While turning the belt tensioner counterclockwise, remove the pin.
- c. Check that the belt fits properly in the ribbed grooves.



*1	Water Pump Pulley
*2	Fan Pulley
*3	No. 1 Idler Pulley
*4	Vane Pump Pulley
*5	Generator Pulley
*6	V-ribbed Belt Tensioner
*7	Crankshaft Pulley
*8	Cooler Compressor Pulley

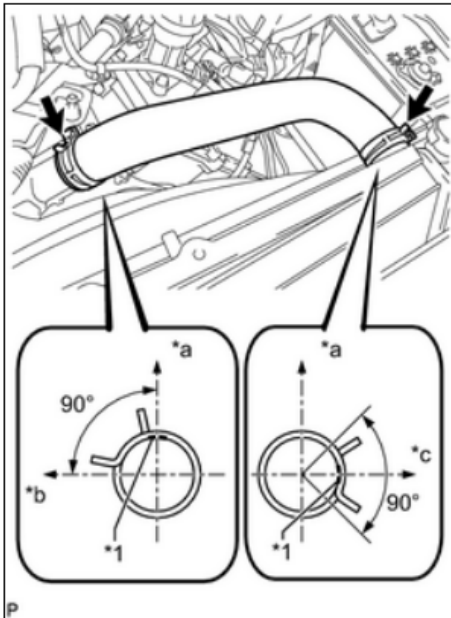
30. Install fan shroud and fan blade

- a. Place the fan shroud together with the fan blade between the radiator and engine.
- b. Temporarily install the fan blade to the fan pulley with the 4 nuts. Tighten the nuts as much as possible by hand.
- c. Set the fan shroud on the radiator as shown in the illustration.



- d. Tighten the 4 nuts on the fan blade. Torque: 15 ft·lb (180 in·lb)
- e. Install the shroud with the 2 bolts. Torque: 44 in·lb

31. Install no. 1 radiator hose



*1	Paint Mark
*a	Upper Side
*b	Rear
*c	LH Side

HINT:

When connecting the hoses, make sure the paint marks and clips are as shown in the illustration.

32. Add engine coolant, warm engine, and check for leaks

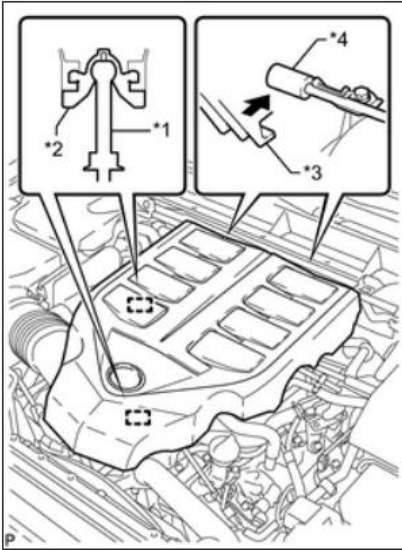
- a. Standard Capacity
 - i. w/o Rear Heater - 14.5 US qts
 - ii. w/Rear Heater - 16.3 US qts
- b. Press the No. 1 and No. 2 radiator hoses several times by hand, and then check the coolant level. If the coolant level is low, add coolant.
- c. Slowly pour coolant into the radiator reservoir until it reaches the F line.
- d. Install the reservoir cap.
- e. Install the radiator cap.*1
- f. Start the engine and stop it immediately.*2
- g. Allow approximately 10 seconds to pass. Then remove the radiator cap and check the coolant level. If the coolant level has decreased, add coolant.*3
- h. Repeat steps *1, *2 and *3 until the coolant level does not decrease.
 - i. Be sure to perform this step while the engine is cold, as air in the No. 1 radiator hose will flow into the radiator if the engine is warmed up and the thermostat opens.
- i. Install the radiator cap.*4
- j. Set the air conditioning as follows.*5

ITEM	CONDITION
Fan speed	Any setting except off
Temperature	Toward WARM
Air conditioning switch	Off

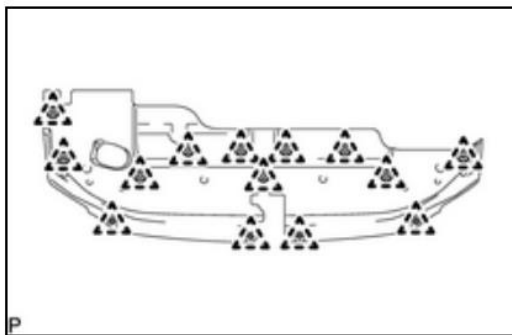
- k. Start the engine, warm it up until the thermostat opens, and then continue to run the engine for several minutes to circulate the coolant.*6
- l. CAUTION:
 - i. Wear protective gloves. Hot areas on the parts may injure your hands.
 - ii. Be careful of the fan.
 - iii. Be careful as the engine, radiator and radiator hoses are hot and can cause burns.
- m. NOTICE:
 - i. Immediately after starting the engine, if the radiator reservoir does not have any coolant, perform the following: 1) stop the engine, 2) wait until the coolant has cooled down, and 3) add coolant until the coolant is filled to the F line.
 - ii. Do not start the engine when there is no coolant in the radiator reservoir.
 - iii. Pay attention to the needle of the engine coolant temperature receiver gauge. Make sure that the needle does not show an abnormally high temperature.
 - iv. If there is not enough coolant, the engine may burn out or overheat.
 - v. Press the No. 1 and No. 2 radiator hoses several times by hand to bleed air while warming up the engine.
 - vi. The thermostat opening timing can be confirmed by pressing the No. 2 radiator hose by hand and checking when the engine coolant starts to flow inside the hose.
- n. Stop the engine and wait until the engine coolant cools down to ambient temperature. Then remove the radiator cap and check the coolant level.*7
- o. CAUTION:
 - i. 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.
- p. If the coolant level has decreased, add coolant and warm up the engine until the thermostat opens.*8
- q. If the coolant level has not decreased, check that the coolant level in the radiator reservoir is at the F line.
- r. If the coolant level is below the F line, repeat steps *4 through *8.
- s. If the coolant level is above the F line, drain coolant until the coolant level reaches the F line.

33. Install engine cover

- a. Attach the 2 engine cover hooks (*3) to the engine cover bracket (*4). Then align the 2 engine cover grommets (*2) with the 2 pins (*1) and press down on the engine cover to attach the pins.

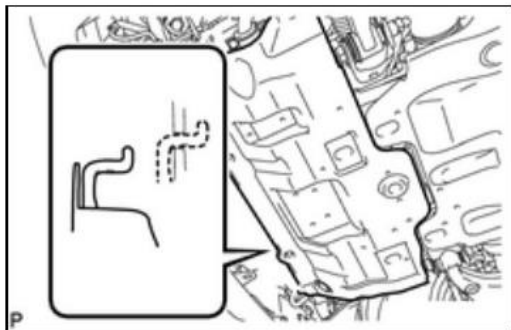


34. Install upper radiator support seal



35. Install engine under cover sub-assembly

- a. Hook the No. 1 engine under cover to the vehicle body as shown in the illustration.
- b. Install the 4 bolts. Torque: 21 ft·lb.



36. Install lower front bumper cover

- a. Install the lower front bumper cover with the 5 bolts and clip. Torque: 71 in·lb.

