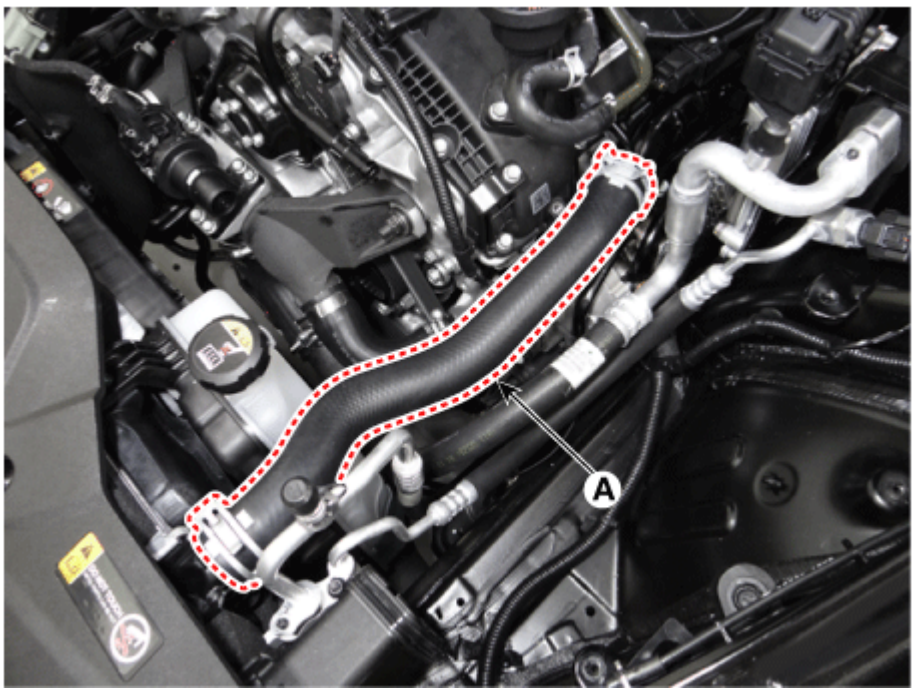
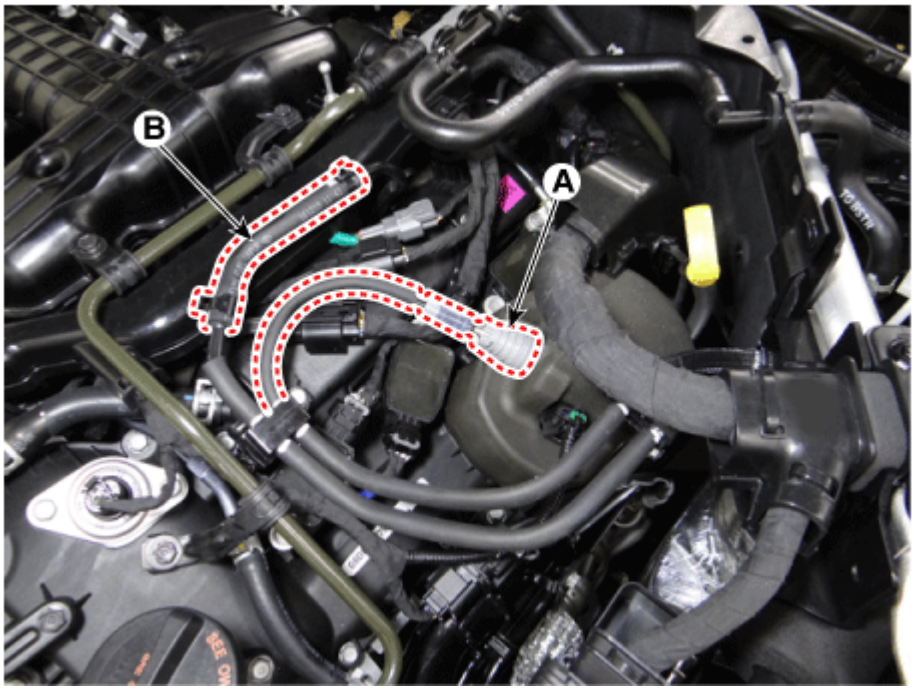
REMOVAL

LH Cylinder Head Cover

1. Remove the engine cover.
   (Refer to Engine and Transmission Assembly - "Engine Cover")
2. Remove the engine room front and rear under cover and engine room side cover.
   (Refer to Engine and Transmission Assembly - "Engine Room Under Cover")
3. Drain the coolant.
   (Refer to Cooling System - "Coolant")
4. Remove the LH air cleaner assembly.
   (Refer to Intake and Exhaust System - "Air Cleaner")
5. Disconnect the radiator upper hose (A).

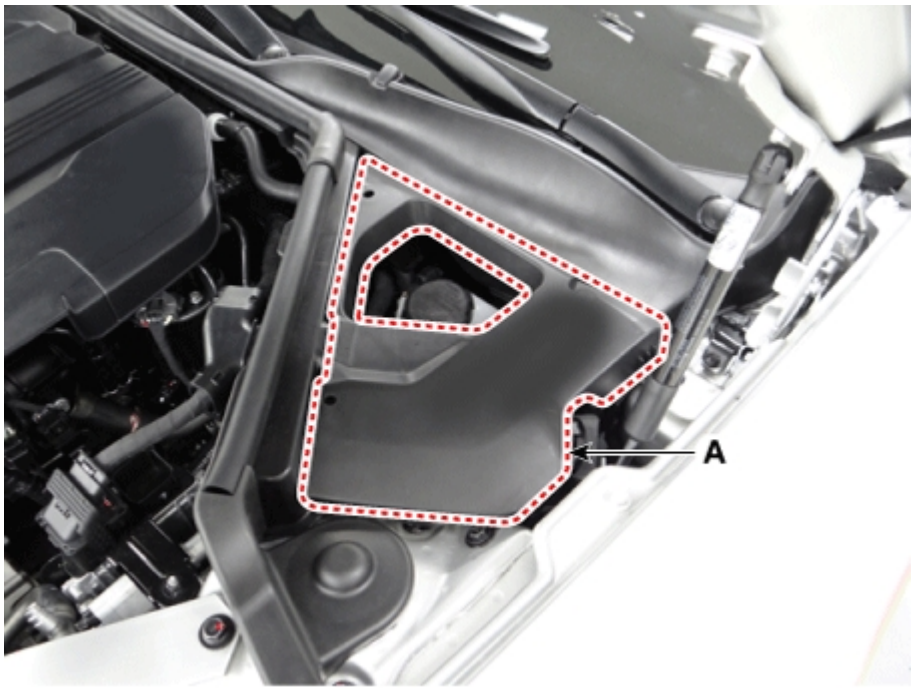


6. Disconnect the fuel hose (A) and purge control solenoid valve (PCSV) hose (B).

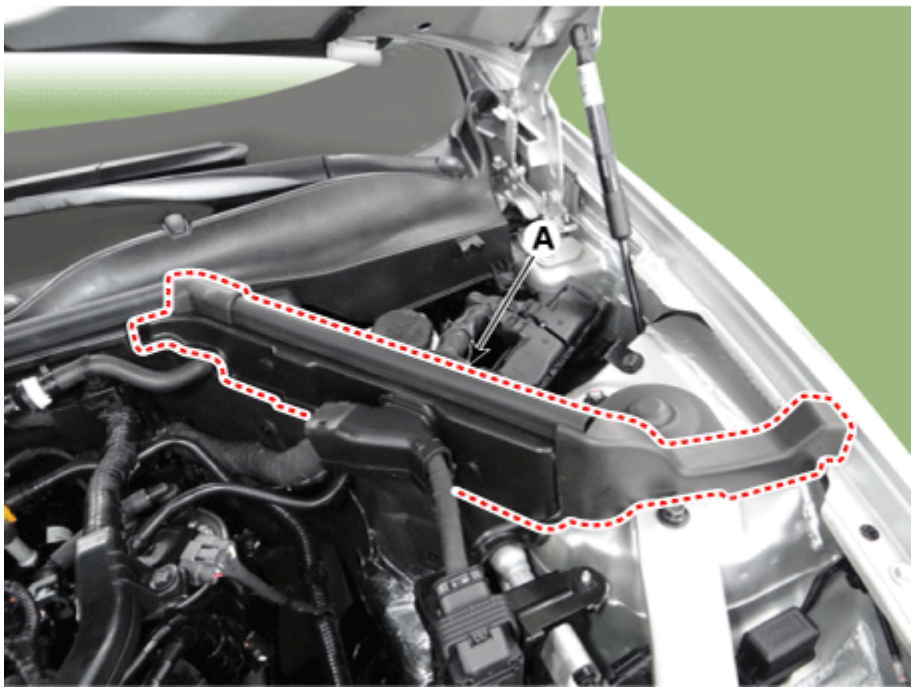


7. Disconnect the brake booster vacuum hose (A).

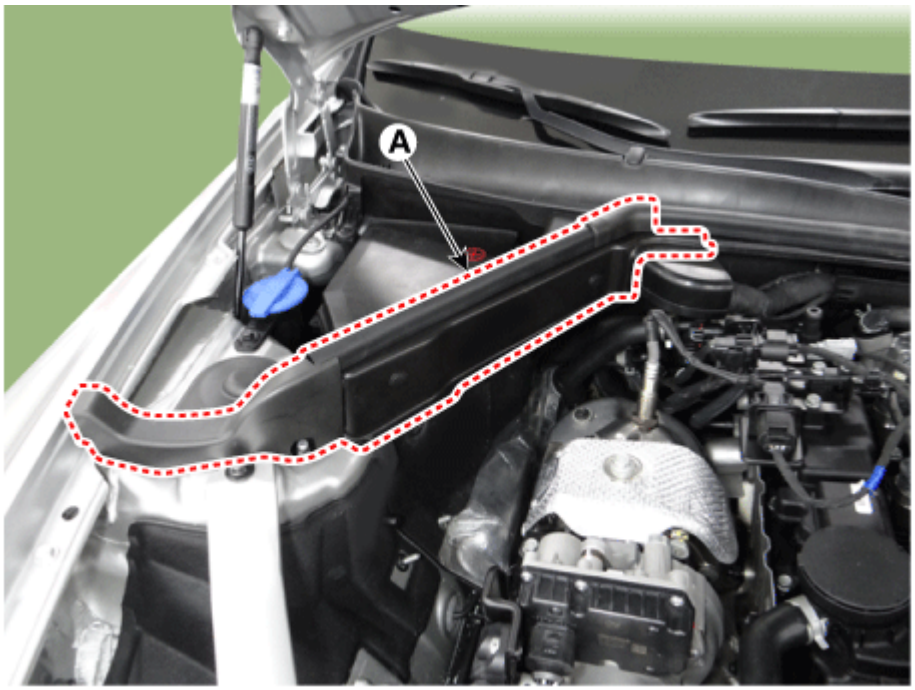
8. Remove the engine room cover (A).



9. Remove the LH hood sealing cover (A).

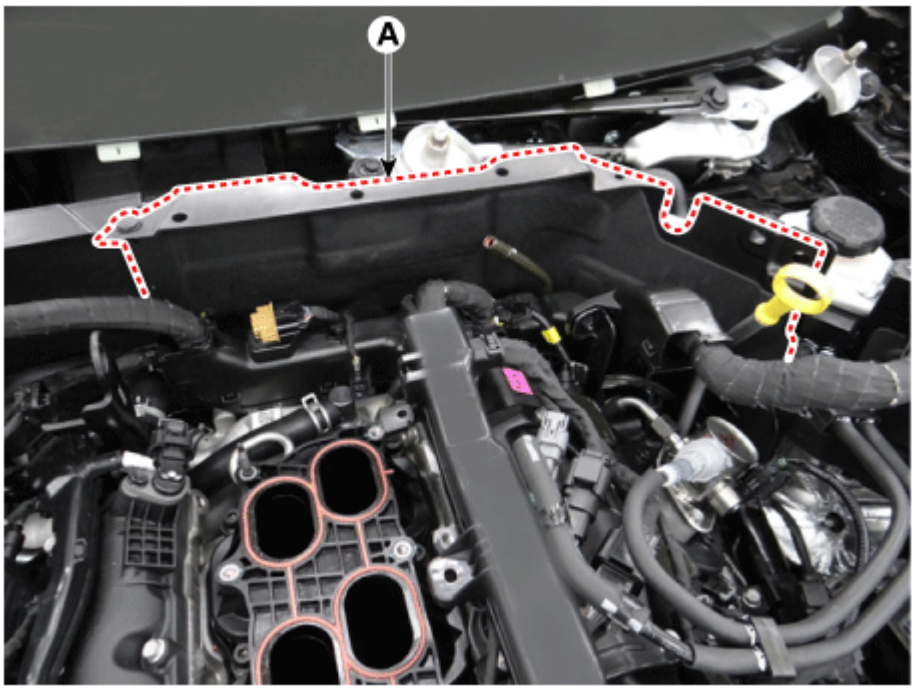


10. Remove the RH hood sealing cover (A).

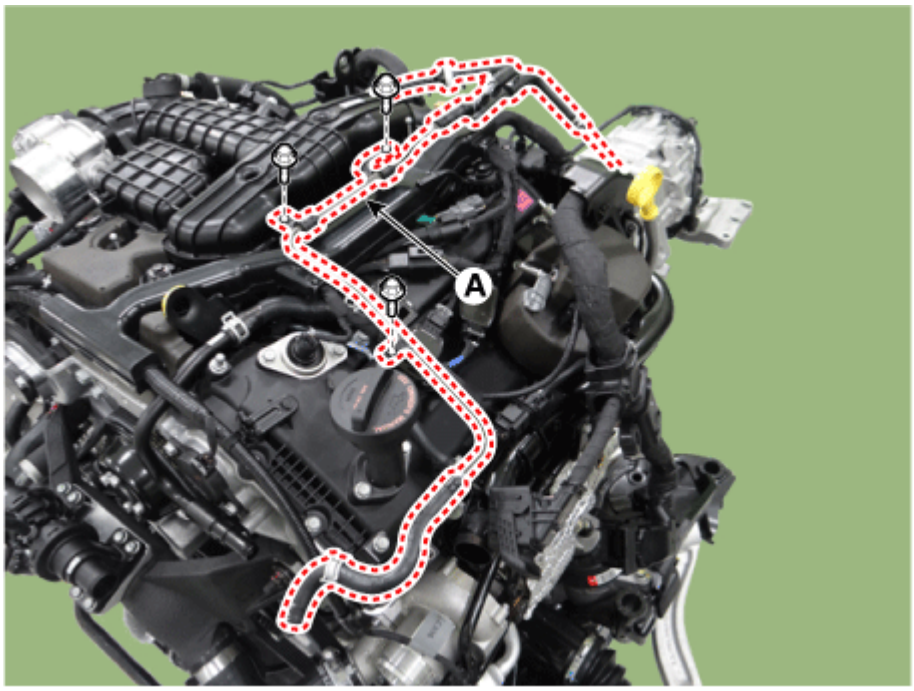


11. Remove the cowl top cover.
    (Refer to Body (Interior and Exterior) -"Cowl Top Cover")

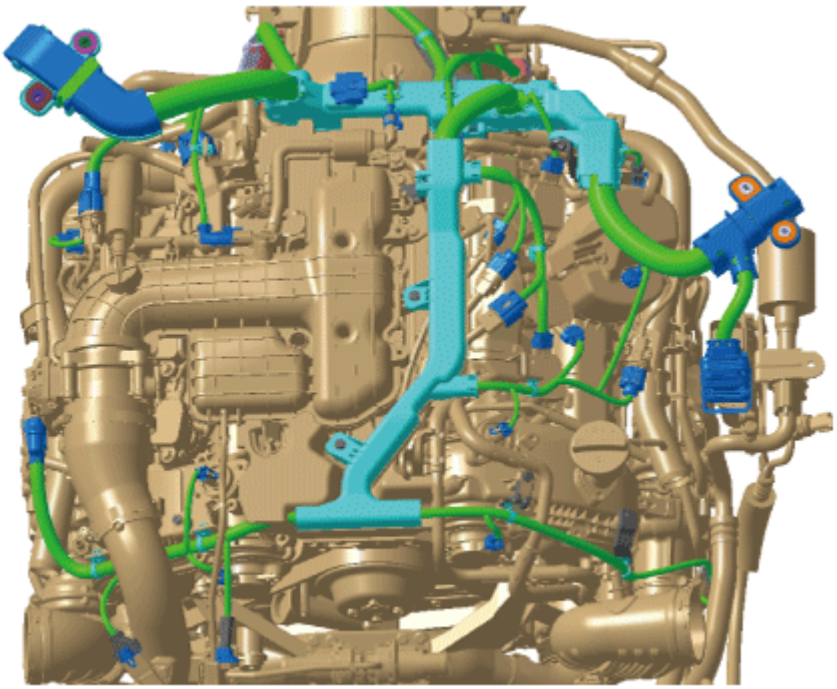
12. Remove the engine room panel (A).



13. Remove the brake vacuum pipe (A).
    Tightening torque :
    7.8 - 9.8 N·m (0.8 - 1.0 kgf·m, 5.8 - 7.2 lb·ft)



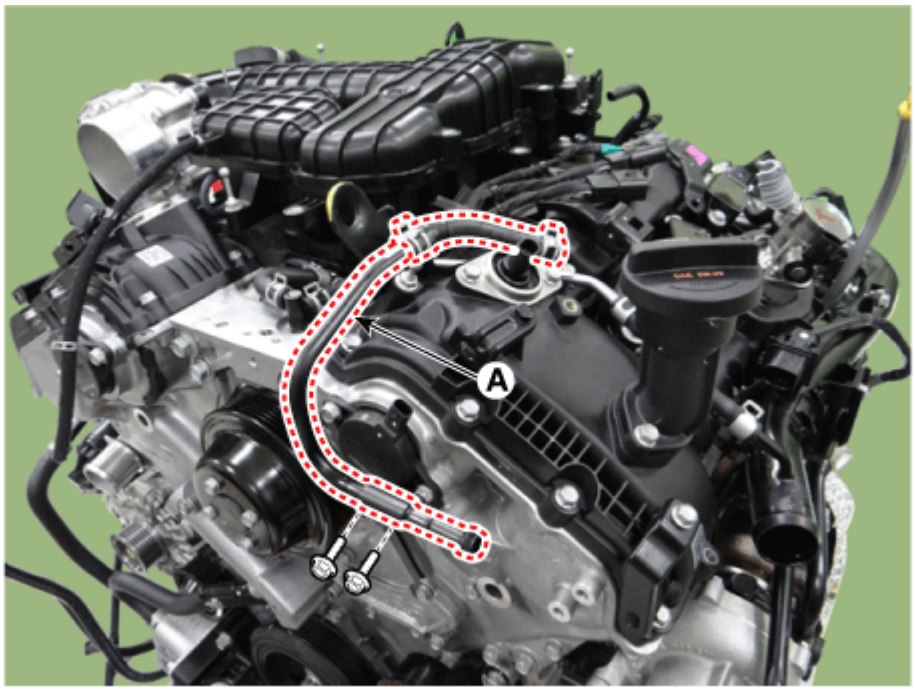
14. Disconnect the wiring connectors and harness clamps and remove the connector brackets around the LH cylinder head cover and surge tank.



15. Remove the breather hose & pipe (A).

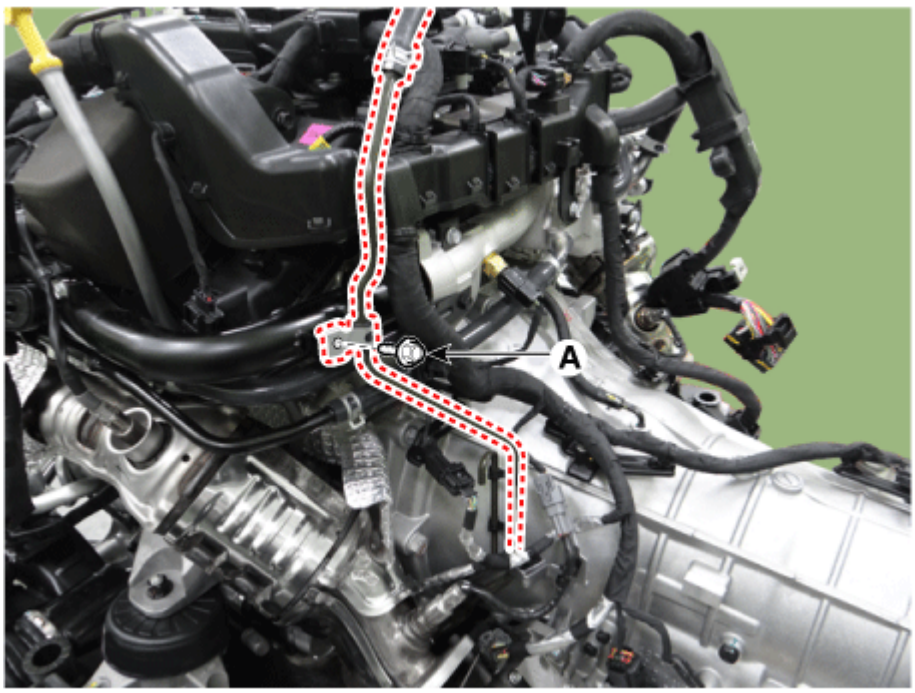
Tightening torque :
9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)

English

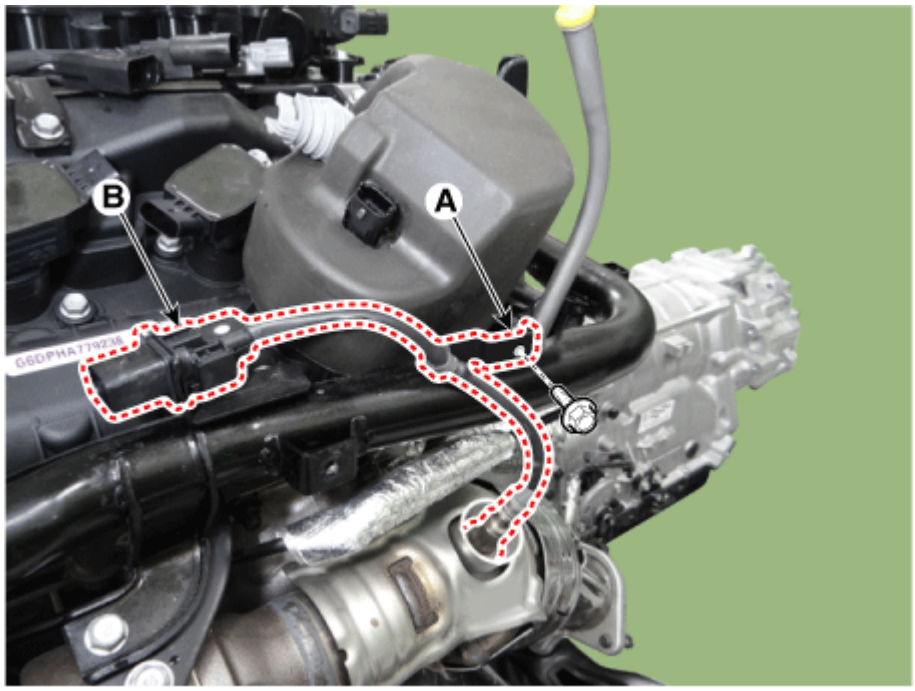


16. Remove the surge tank.
(Refer to Intake and Exhaust System - "Surge Tank")

17. Remove the brake vacuum pipe mounting bolt (A).
Tightening torque :
7.8 - 9.8 N·m (0.8 - 1.0 kgf·m, 5.8 - 7.2 lb·ft)



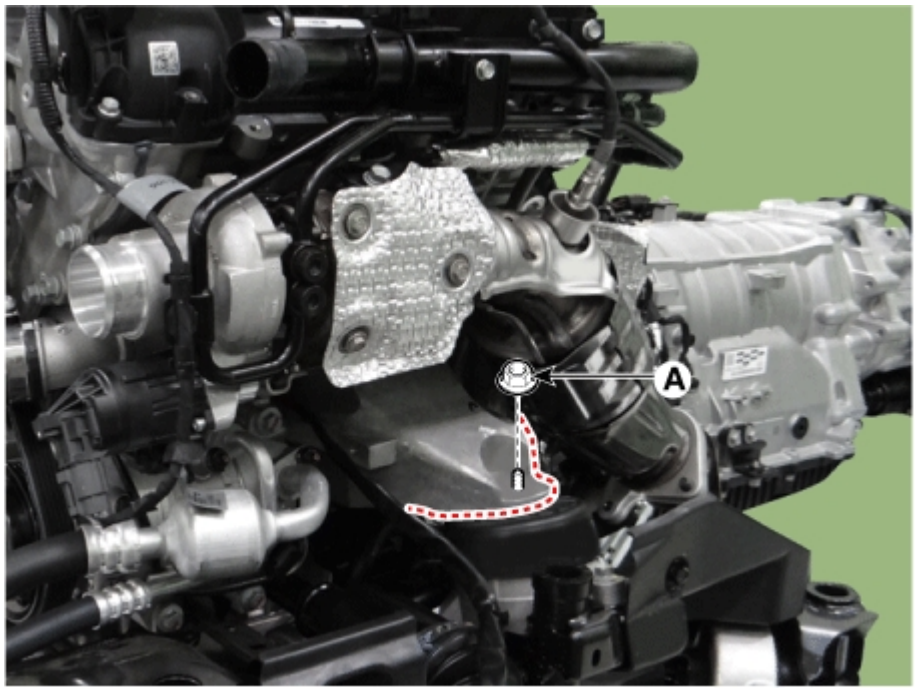
18. Remove the heated oxygen sensor (HO2S) wiring bracket (A) and heated oxgyen sensor (HO2S) connector (B) from the water outlet pipe.



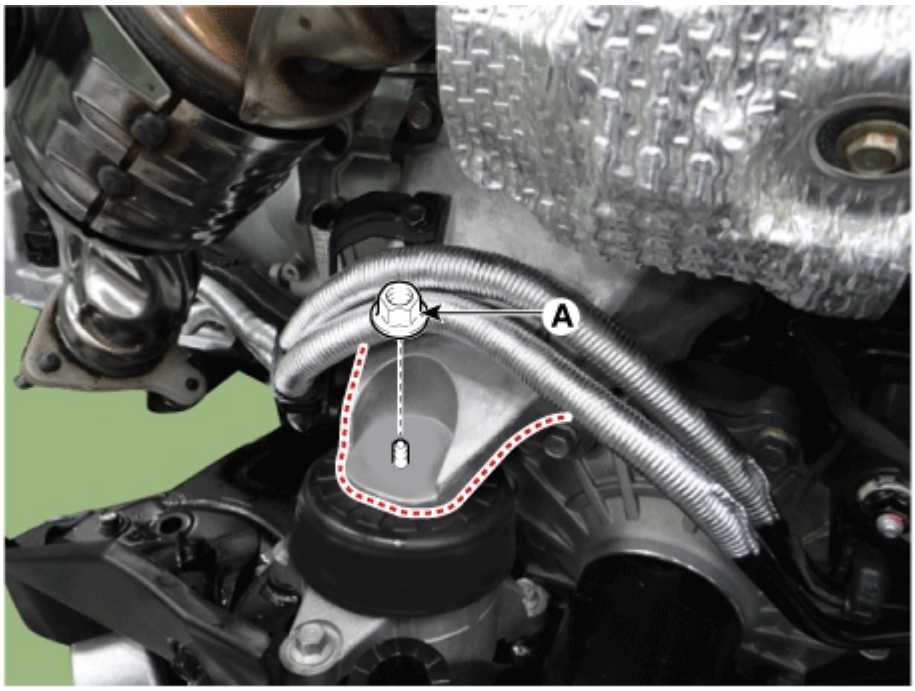
19. Remove the LH/RH engine mounting insulator nut (A).

Tightening torque :
63.7 - 83.4 N·m (6.5 - 8.5 kgf·m, 47.0 - 61.5 lb·ft)

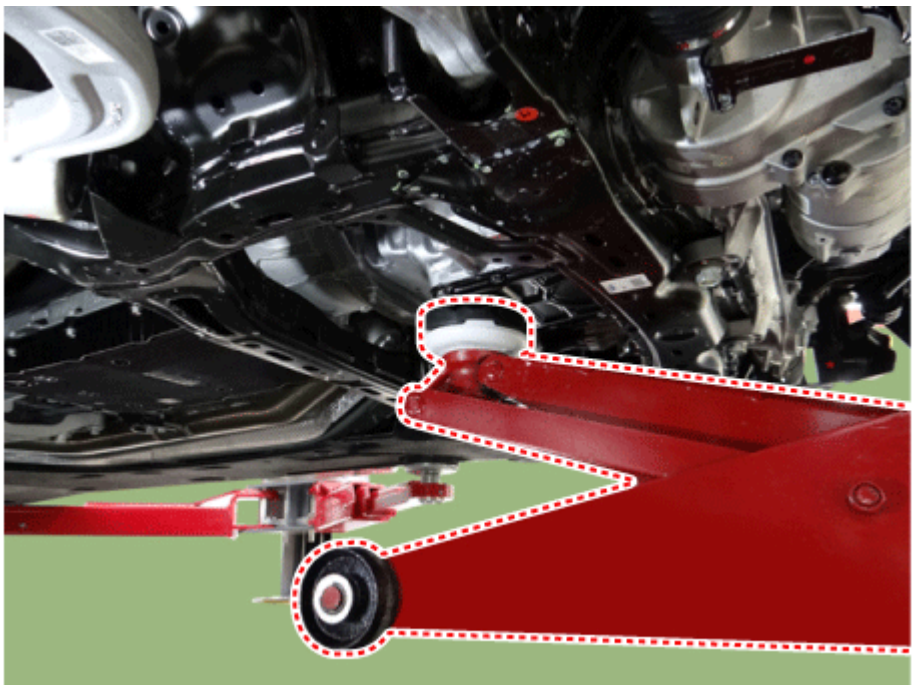
[LH]



[RH]



20. Set the jack to the edge of upper oil pan.



NOTICE

Place a wooden block between the jack and the oil pan to prevent damage to the upper oil pan.

21. Lift the engine slightly using the jack to obtain space for loosen the LH turbocharger water pipe eye bolt.

22. Loosen the LH turbocharger water pipe eye bolts (A) and mounting bolt (B).

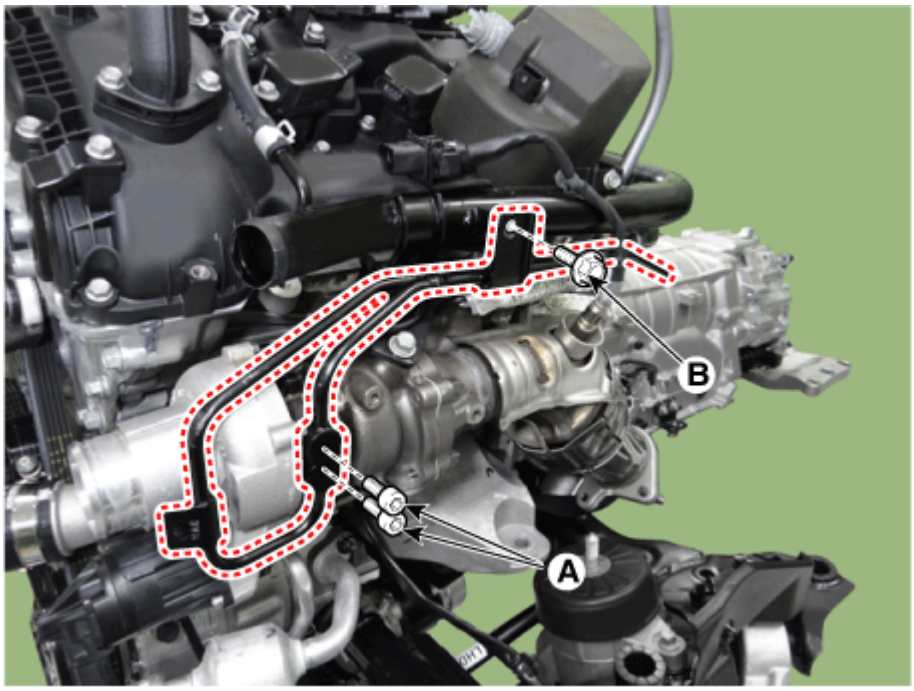
Tightening torque

Eye bolts :

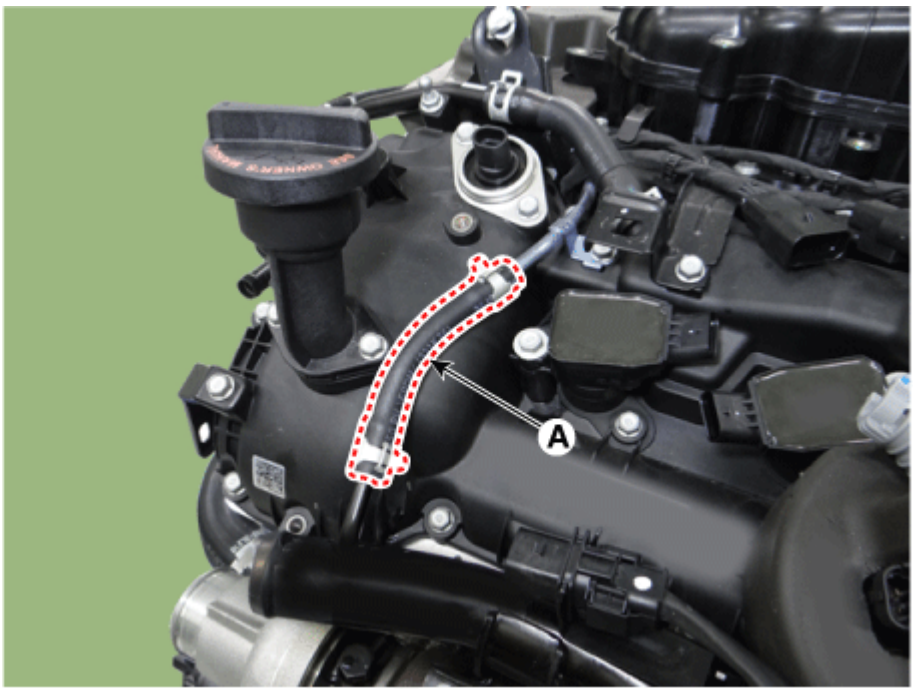
33.3 - 39.2 N·m (3.4 - 4.0 kgf·m, 24.6 - 28.9 lb·ft)

Bolt :

9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)



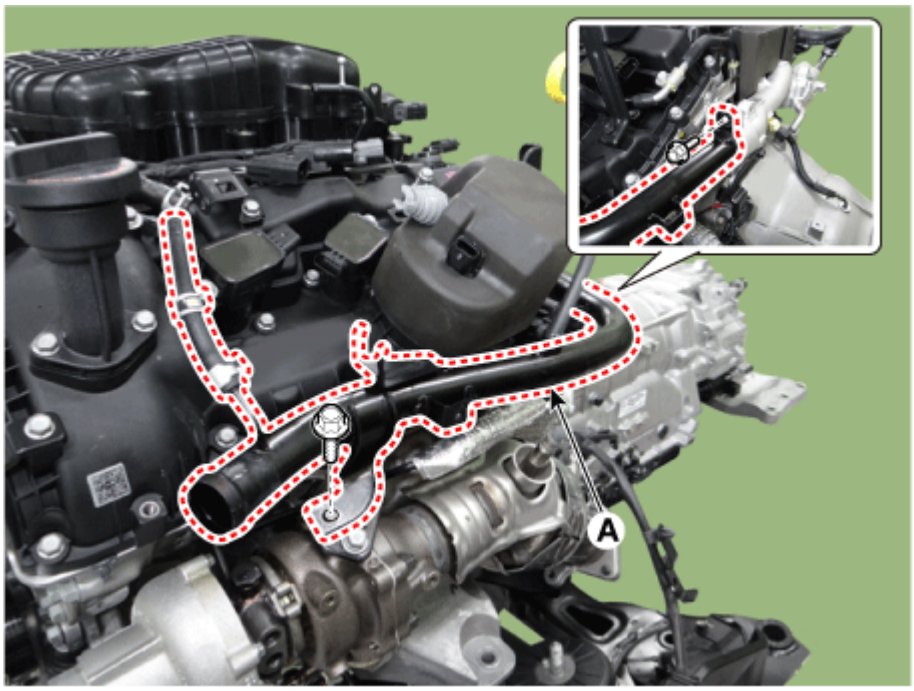
23. Disconnect the coolant hose (A).



24. Remove the water outlet pipe (A).

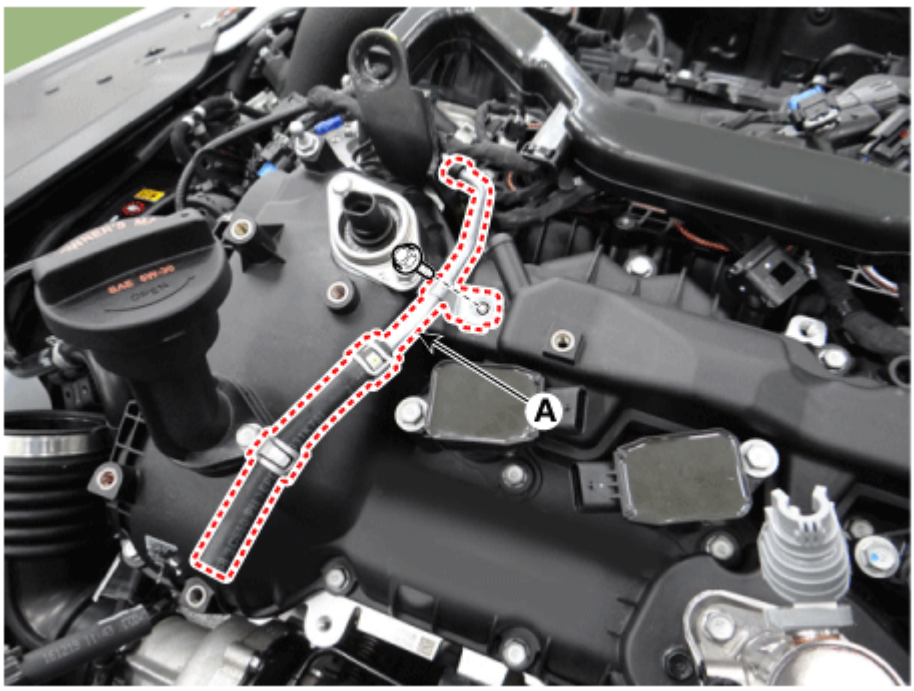
Tightening torque :

24.5 - 28.4 N·m (2.5 - 2.9 kgf·m, 18.1 - 21.0 lb·ft)



25. Remove the water pipe (A) from the LH cylinder head cover.

    Tightening torque :
    9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)

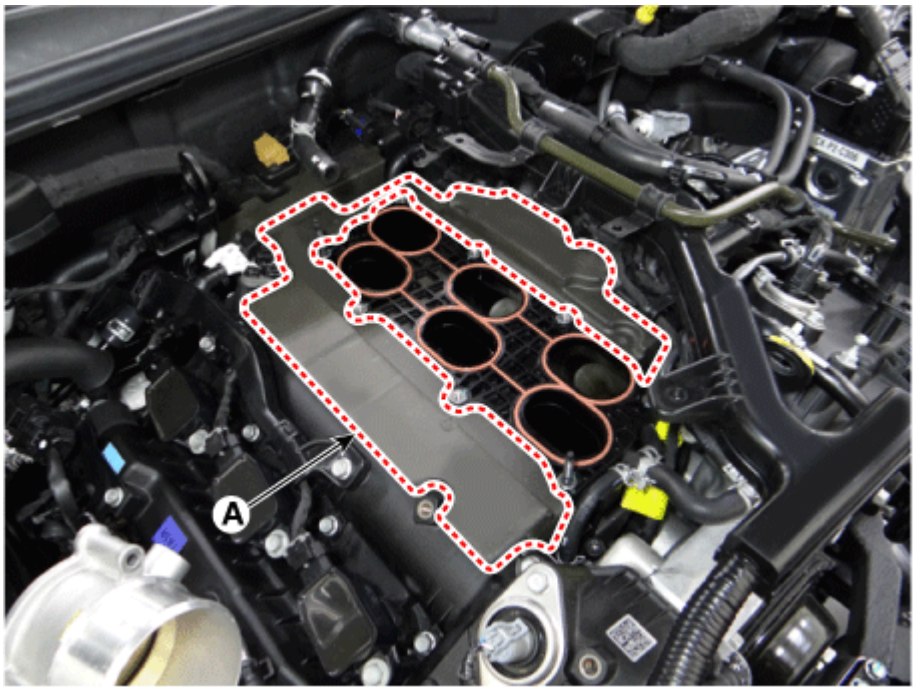


26. Remove the LH ignition coils.
    (Refer to Engine Electrical System - "Ignition Coil")

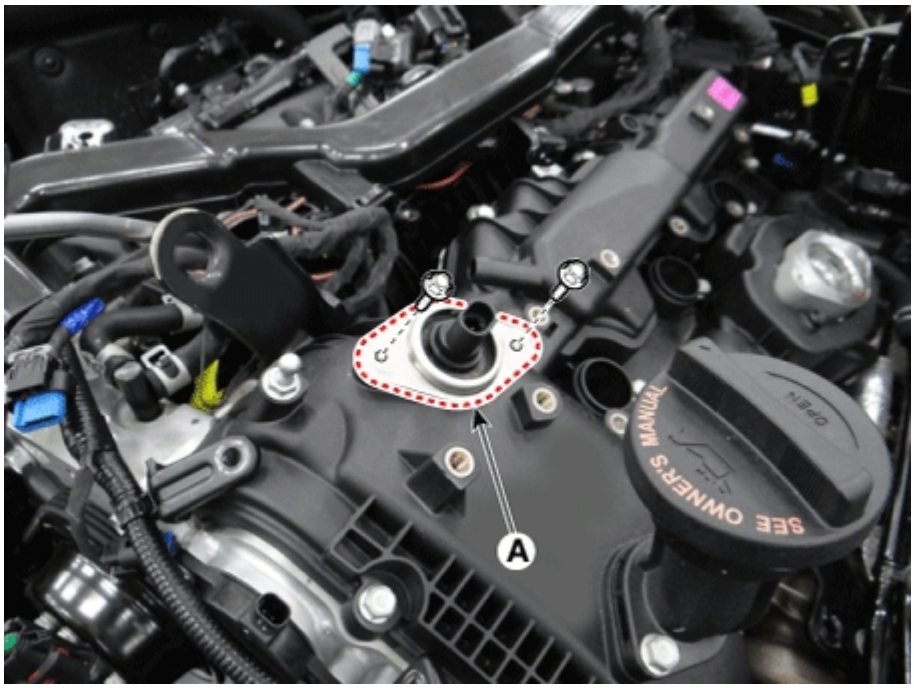
27. Remove the high pressure fuel pump.
    (Refer to Engine Control / Fuel System - "High Pressure Fuel Pump")

28. Remove the foam (A).

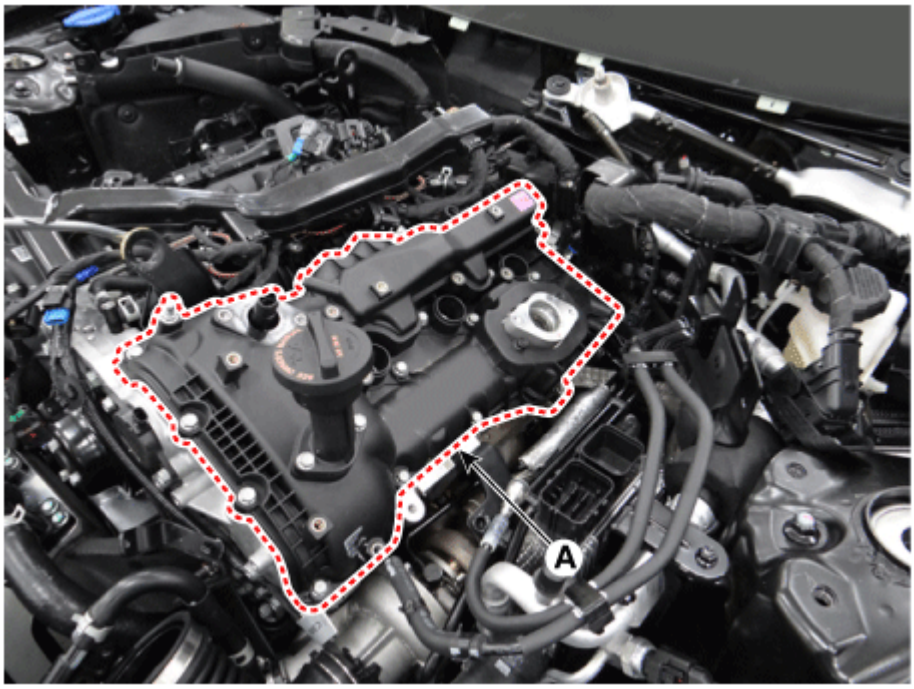
English



29. Remove the LH cylinder head cover.
    (1) Remove the LH exhaust CVVT oil control valve cap (A).



    (2) Remove the LH cylinder head cover (A) and gasket.



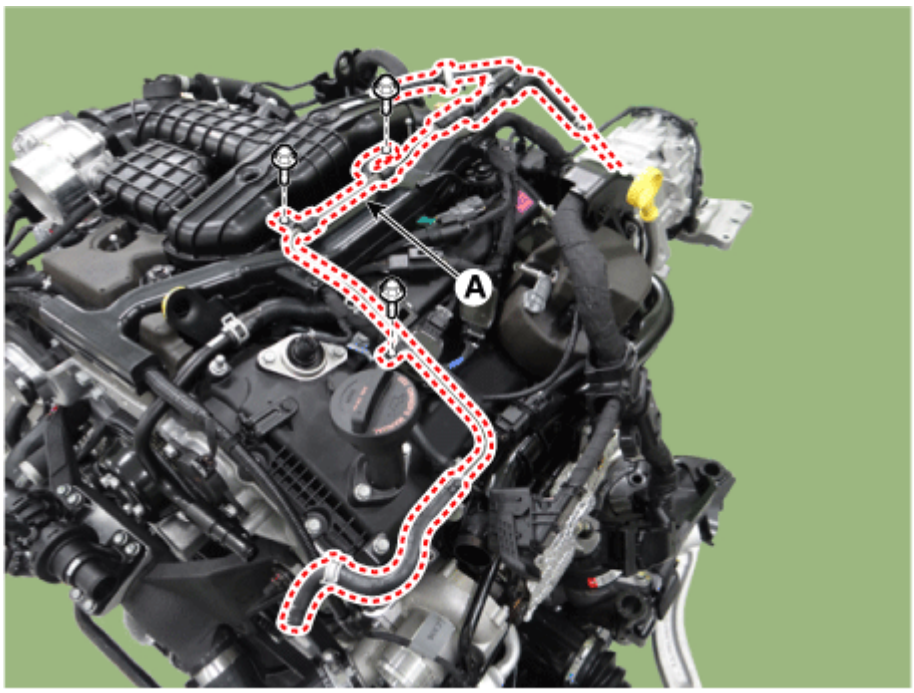
NOTICE

Cover the cylinder head with a clean shop rag or vinyl cover to prevent foreign materials from entering.

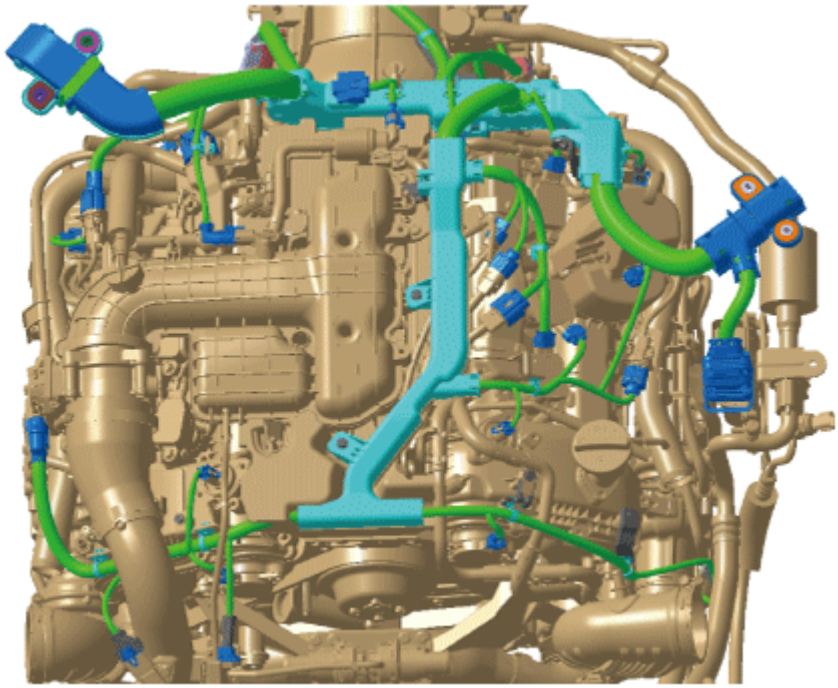
RH Cylinder Head Cover

1. Remove the RH air cleaner assembly.
   (Refer to Intake and Exhaust System - "Air Cleaner")

2. Remove the brake vacuum pipe (A).
   Tightening torque :
   7.8 - 9.8 N·m (0.8 - 1.0 kgf·m, 5.8 - 7.2 lb·ft)



3. Disconnect the wiring connectors and harness clamps and remove the connector brackets around the LH cylinder head cover and surge tank.

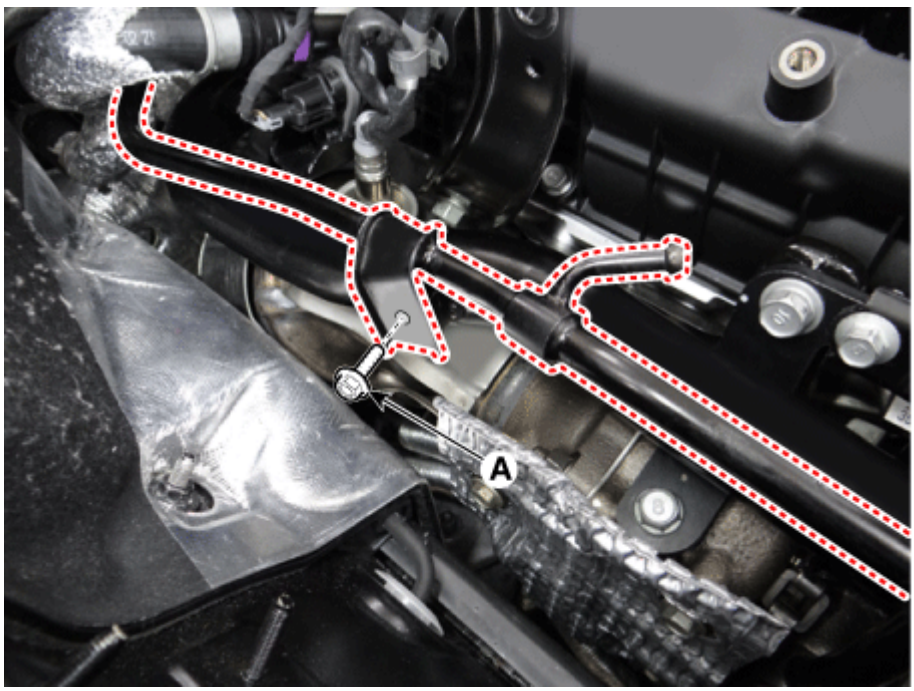


4. Remove the electronic throttle body control (ETC) module.
   (Refer to Engine control /Fuel System - "ETC (Electronic Throttle Control) System")

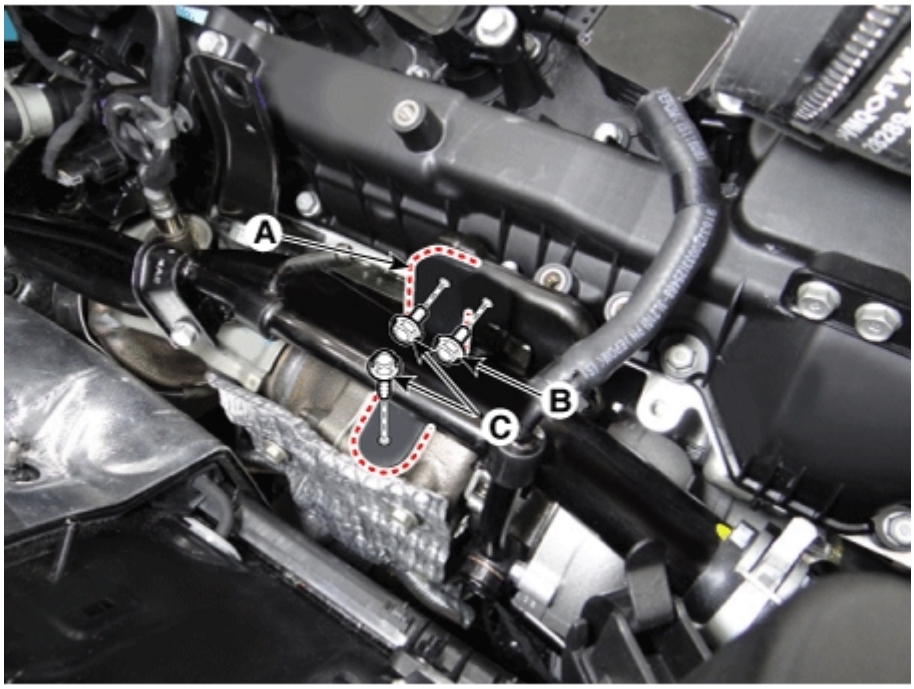
5. Remove the surge tank.
   (Refer to Intake and Exhaust System - "Surge Tank")

6. Remove the RH heated oxygen sensor (HO2S).
   (Refer to Engine control /Fuel System - "Heated Oxygen Sensor (HO2S)")

7. Loosen the RH turbocharger water pipe mounting bolt (A).
   Tightening torque :
   9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)

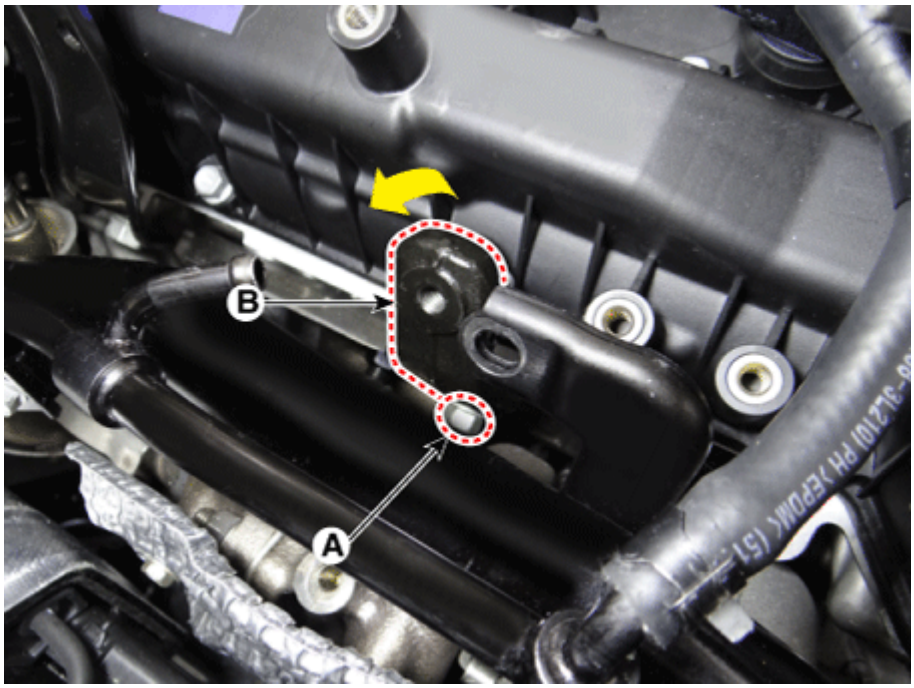


8. Remove the RH turbo manifold module stay (A).
   Tightening torque
   Bolt B :
   24.5 - 28.4 N·m (2.5 - 2.9 kgf·m, 18.1 - 21.0 lb·ft)
   Bolts C :
   26.5 - 31.4 N·m (2.7 - 3.2 kgf·m, 19.5 - 23.1 lb·ft)



9. Loosen the RH turbo manifold module stay A mounting bolt (A) and then turn the RH turbo manifold module stay A (B) direction of arrow.

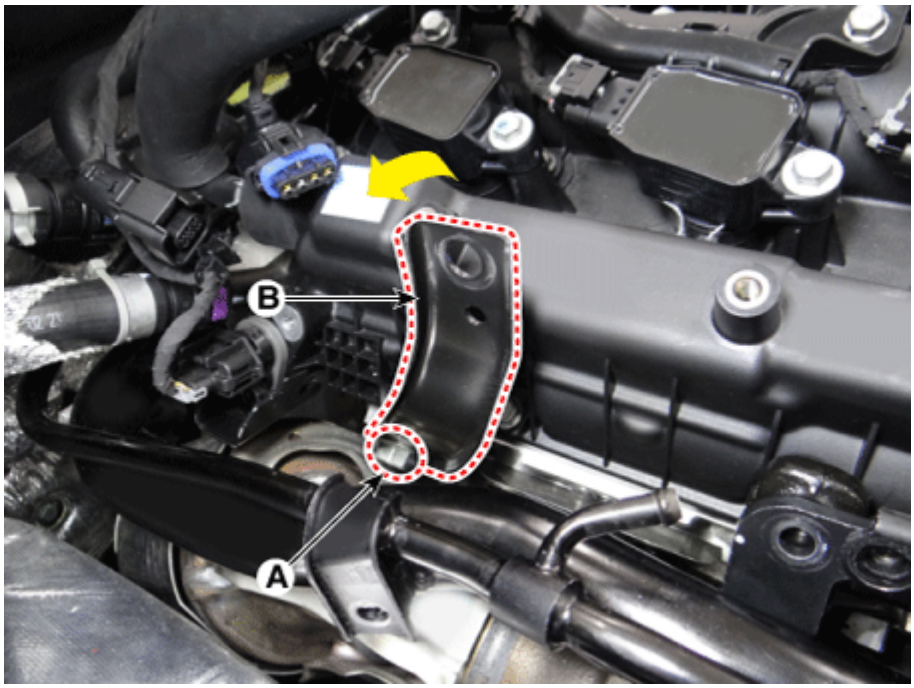
   Tightening torque :
   18.6 - 23.5 N·m (1.9 - 2.4 kgf·m, 13.7 - 17.4 lb·ft)



> **NOTICE**
>
> Do not need to remove the RH turbo manifold module stay A mounting bolt (A) entirely.

10. Loosen the surge tank stay mounting bolt (A) and then turn the surge tank stay (B) direction of arrow.

English

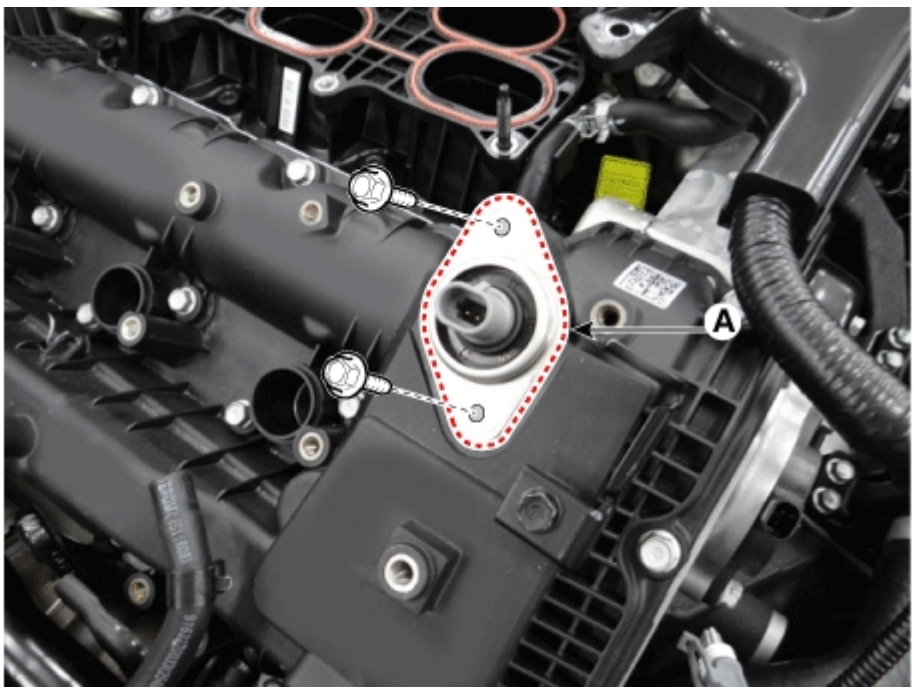


NOTICE

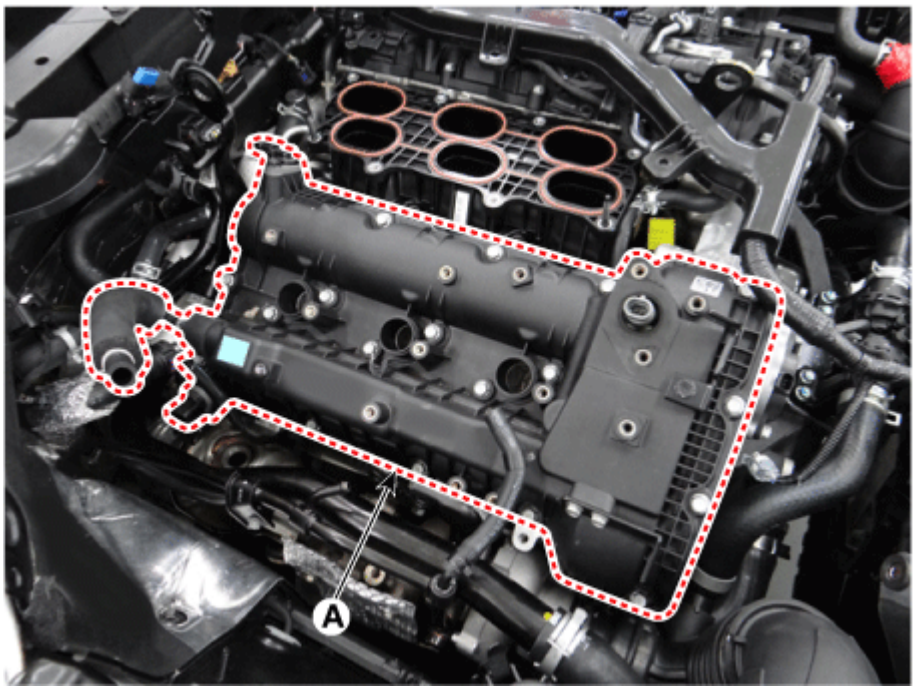
Do not need to remove the surge tank stay mounting bolt (A) entirely.

11. Remove the RH ignition coils.
(Refer to Engine Electrical System - "Ignition Coil")

12. Remove the RH cylinder head cover.
    (1) Remove the RH exhaust CVVT oil control valve cap (A).



    (2) Remove the RH cylinder head cover (A) and gasket.



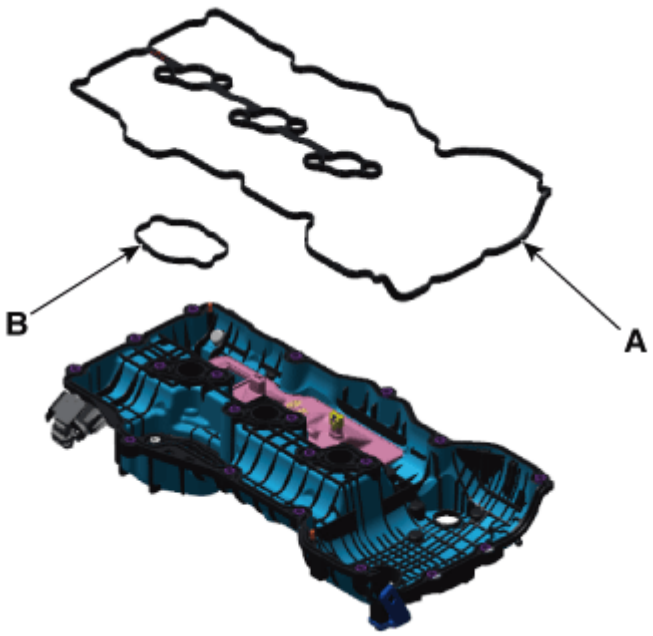
NOTICE

Cover the cylinder head with a clean shop rag or vinyl cover to prevent foreign materials from entering.

INSTALLATION

LH Cylinder Head Cover

1. Install the new cylinder head cover gasket (A) and high pressure fuel pump gasket (B).



NOTICE

Always use new cylinder head cover gasket.

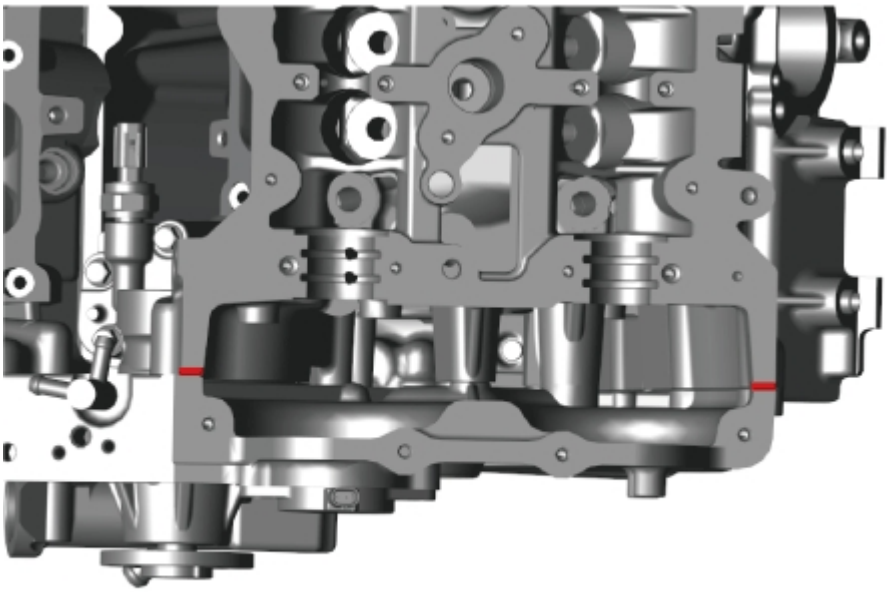
2. Install the LH cylinder head cover.

NOTICE

- Cylinder head cover with the exhaust OCV cap removed.
- To prevent engine oil leakage, install a new exhaust OCV cap after installing the cylinder head cover.

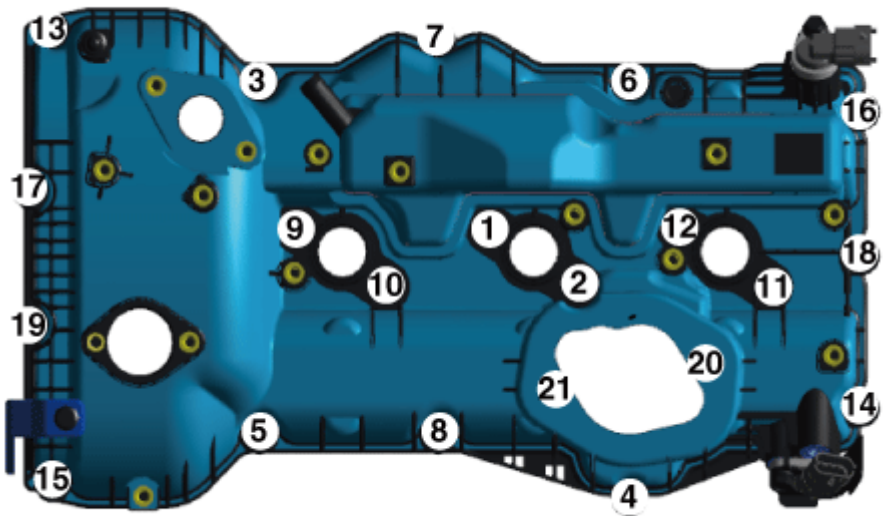
(1) The hardening sealant on the upper area between timing chain cover and cylinder head should be removed before assembling cylinder head cover.

(2) Assemble within 5 minutes of applying the THREE BOND 1217H sealant.
Bead width : 4.5 mm (0.2 in.)



(3) The firing and/or blow out test should not be performed within 30 minutes of assembling the cylinder head cover.

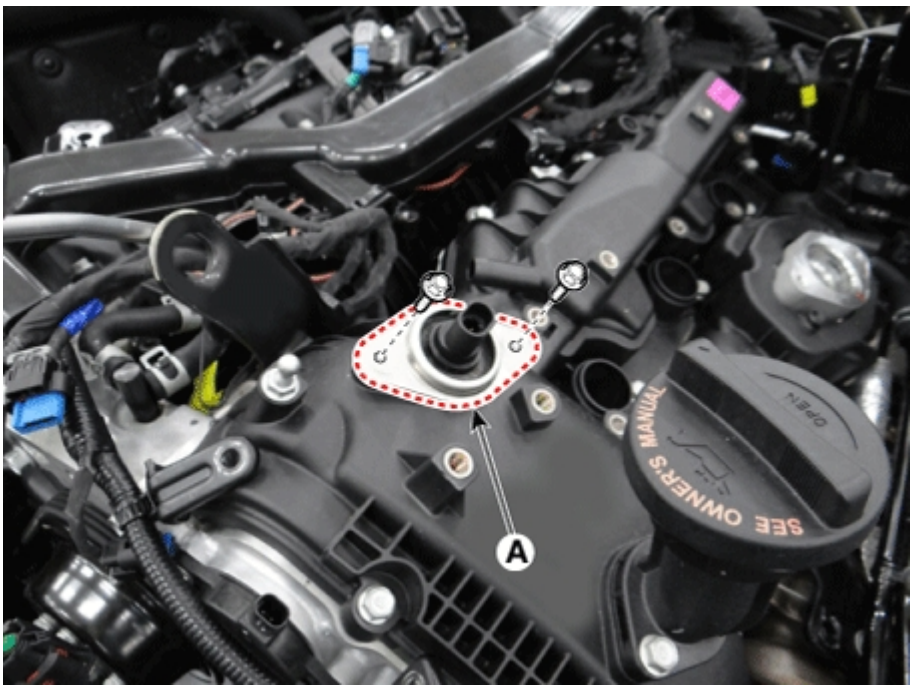
(4) Install the LH cylinder head cover bolts in the following method.
Tightening torque
1st step :
4.9 - 5.9 N·m (0.5 - 0.6 kgf·m, 3.6 - 4.3 lb·ft, 43.4 - 52.1 lb·in)
2nd step :
9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)



(5) Install the LH exhaust oil control valve (OCV) cap (A).
Tightening torque :

9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)

English



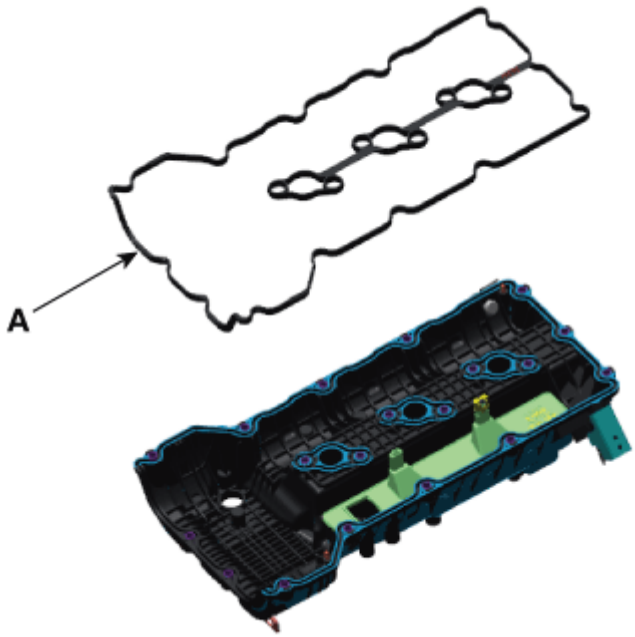
NOTICE

Always use new LH oil control valve (OCV) cap.

3. Install the rest of the parts in the reverse order of removal.

RH Cylinder Head Cover

1. Install the new cylinder head cover gasket (A).



NOTICE

Always use new cylinder head cover gasket.

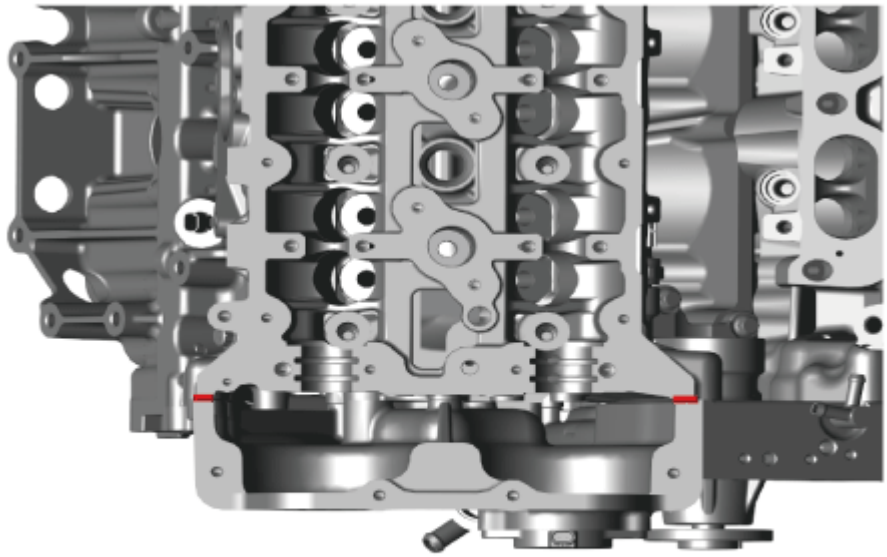
2. Install the RH cylinder head cover.

NOTICE

- Install the cylinder head cover with the exhaust OCV cap removed.
- To prevent engine oil leakage, install a new exhaust OCV cap after installing the cylinder head cover.

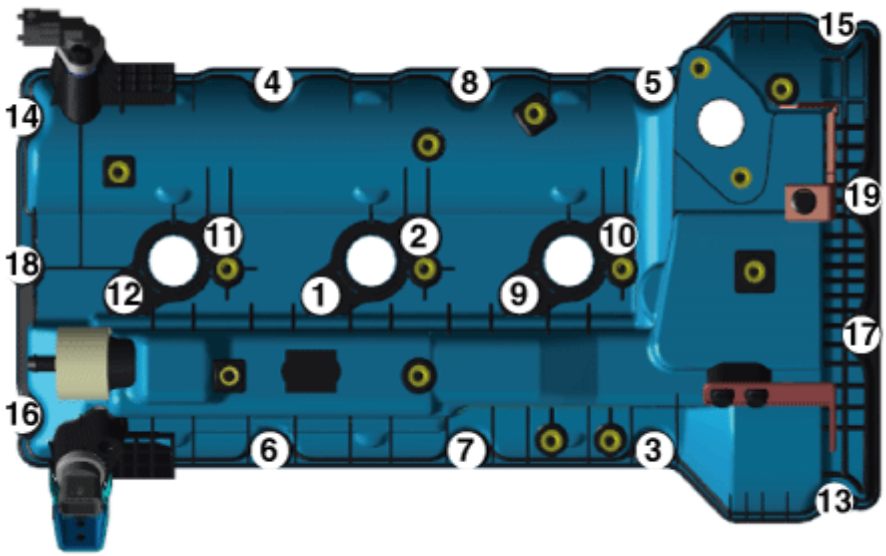
(1) The hardening sealant on the upper area between timing chain cover and cylinder head should be removed before assembling cylinder head cover.

(2) Assemble within 5 minutes of applying the THREE BOND 1217H sealant.
Bead width : 4.5 mm (0.2 in.)



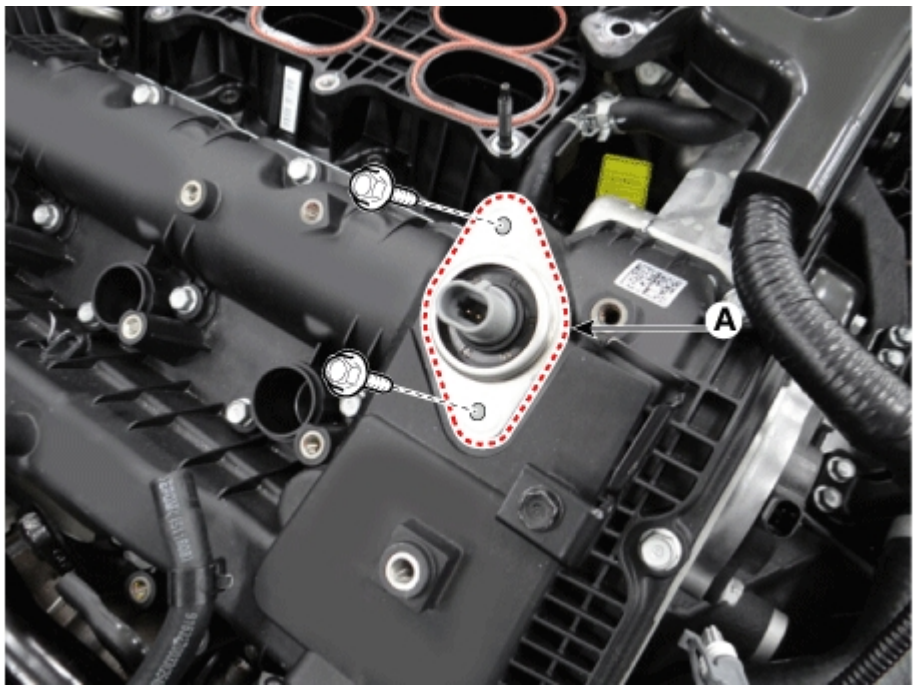
(3) The firing and/or blow out test should not be performed within 30 minutes of assembling the cylinder head cover.

(4) Install the RH cylinder head cover bolts in the following method.
Tightening torque
1st step:
4.9 - 5.9 N·m (0.5 - 0.6 kgf·m, 3.6 - 4.3 lb·ft, 43.4 - 52.1 lb·in)
2nd step:
9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)



(5) Install the RH exhaust oil control valve (OCV) cap (A).
Tightening torque :

9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)



NOTICE

Always use new RH oil control valve (OCV) cap.

3. Tighten the RH turbo manifold module stay A mounting bolt (A).

Tightening torque :
18.6 - 23.5 N·m (1.9 - 2.4 kgf·m, 13.7 - 17.4 lb·ft)

NOTICE

If not using torque wrench, tighten the RH turbo manifold module stay A mounting bolt (A) as much as possible.

4. Tighten the surge tank stay mounting bolt (A).

Tightening torque :
26.5 - 31.4 N·m (2.7 - 3.2 kgf·m, 19.5 - 23.1 lb·ft)

NOTICE

If not using torque wrench, tighten the surge tank stay mounting bolt (A) as much as possible.

5. Install the remaining parts in the reverse order of removal.