Removal

⚠ CAUTION

When removing the high pressure fuel pump, high pressure fuel pipe, delivery pipe, and injector, there is possible risk of injury from leakage of high pressure fuel. Therefore, do not attempt repairing immediately after the engine stops.

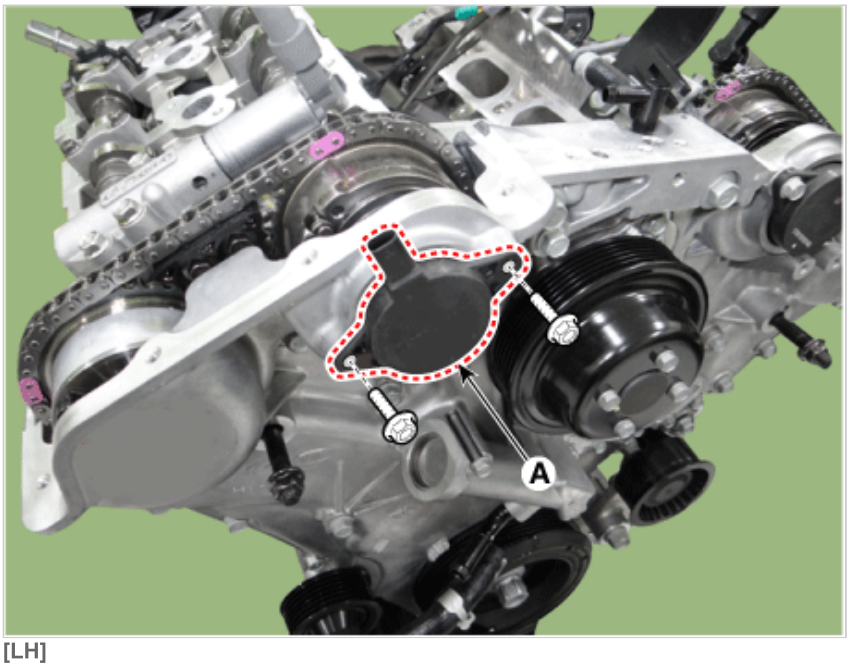
NOTICE

- Use fender covers to avoid damaging painted surfaces.
- To avoid damage, unplug the wiring connectors carefully while holding the connector portion.

Information

Mark all wiring and hoses to avoid misconnection.

1. Remove the engine cover.
   (Refer to Engine and Transmission Assembly - "Engine Cover")
2. Remove the engine room front and rear under cover.
   (Refer to Engine and Transmission Assembly - "Engine Room Under Cover")
3. Drain the coolant.
   (Refer to Cooling System - "Coolant")
4. Drain the engine oil.
   (Refer to Lubrication System - "Engine Oil")
5. Remove the surge tank.
   (Refer to Intake And Exhaust System - "Surge Tank")
6. Remove the LH/RH cylinder head cover.
   (Refer to Cylinder Head Assembly - "Cylinder Head Cover")
7. Remove the drive belt.
   (Refer to Drive Belt System - "Drive Belt")
8. Remove the idler.
   (Refer to Drive Belt System - "Idler")
9. Remove the drive belt tensioner.
   (Refer to Drive Belt System - "Drive Belt Tensioner")
10. Remove the crankshaft damper pulley.
    (Refer to Drive Belt System - "Crankshaft Damper Pulley")
11. Remove the water pump.
    (Refer to Cooling System - "Water Pump")
12. Remove the oil filter body.
    (Refer to Lubrication System - "Oil Filter Body")
13. Remove the RH and LH variable force solenoid (VFS) valve (A).
    [RH]

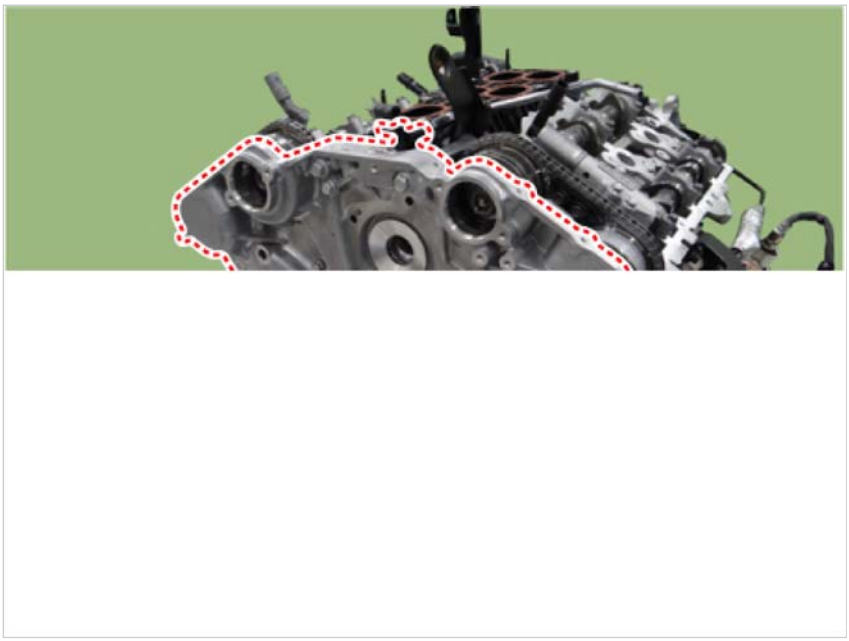


[LH]

NOTICE

The variable force solenoid (VFS) must be removed before removing the timing chain cover.

14. Remove the timing chain cover (A).

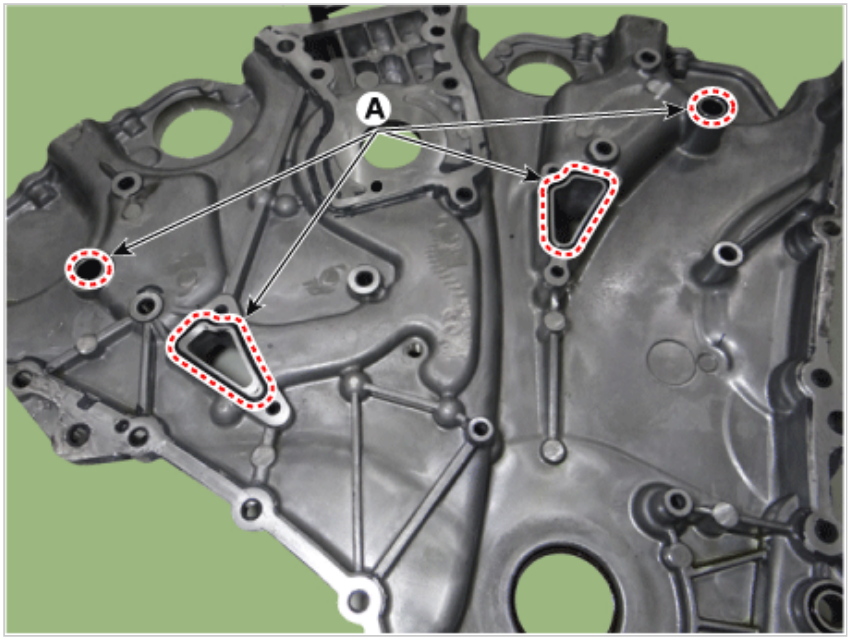


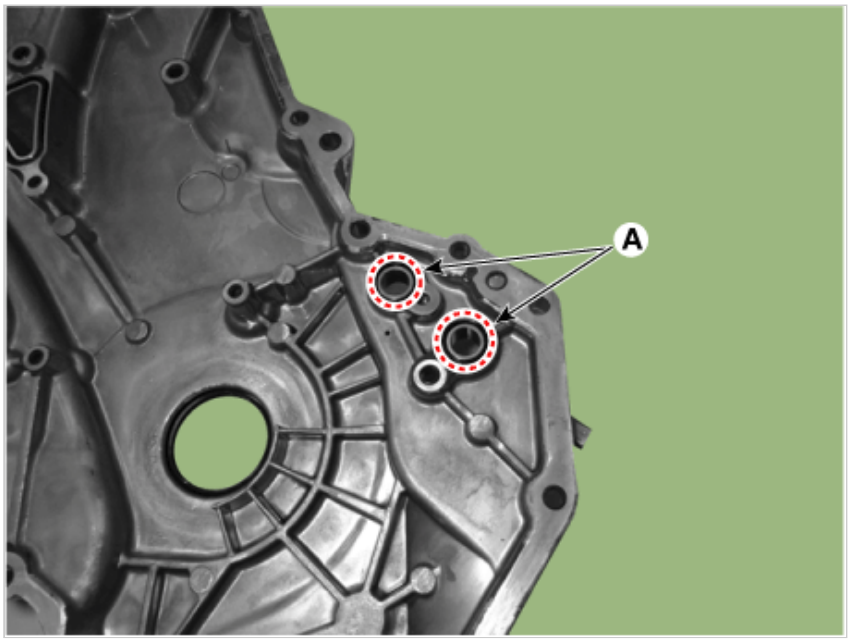
NOTICE

Be careful not to damage the contact surfaces of cylinder block, cylinder head and timing chain cover.

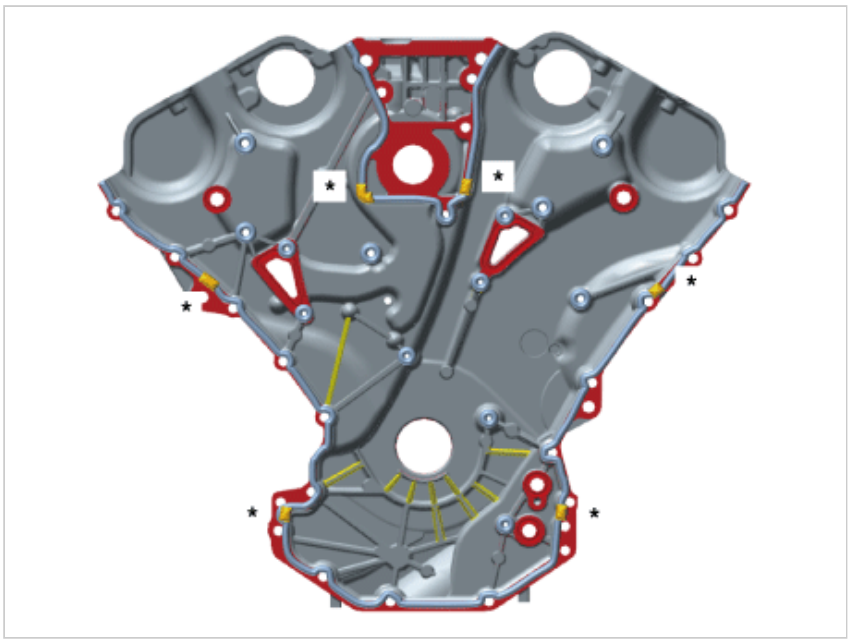
Installation

1. Install the timing chain cover.
   (1) The sealant locations on chain cover and on counter parts (cylinder head, cylinder block, and lower oil pan) must be free of engine oil and etc.
   (2) Install the new gasket and O-ring (A).





(3) Apply liquid sealant TB 1217H on timing chain cover. Assemble the part within 5 minutes of applying sealant. Apply sealant in a continuous thread.

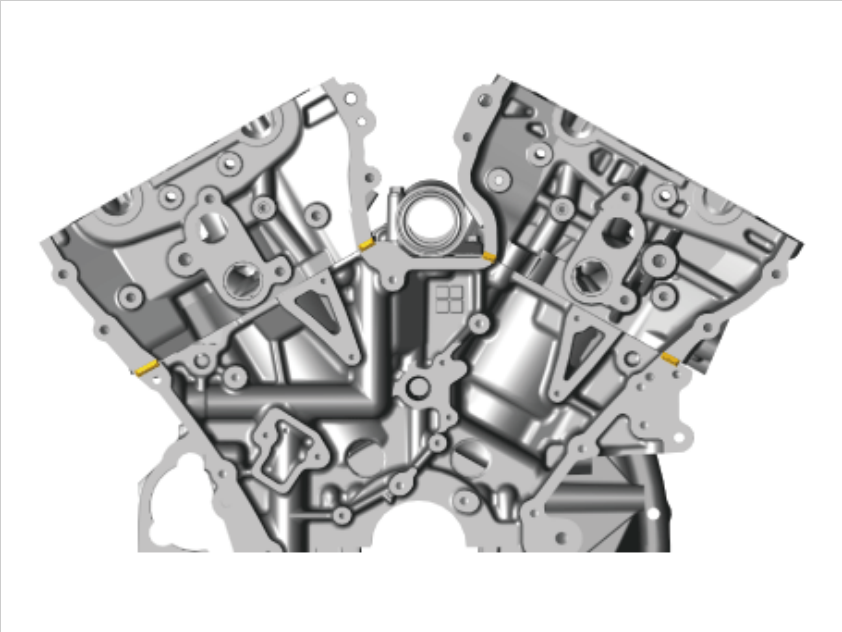


NOTICE

- Fill six (6) T-joint areas with sealant.
- Apply sealant all around dowel pin holes.

(4) Before assembling the timing chain cover, apply the liquid sealant TB 1217H on the gap between cylinder head and cylinder block. Assemble the part within 5 minutes of applying sealant.

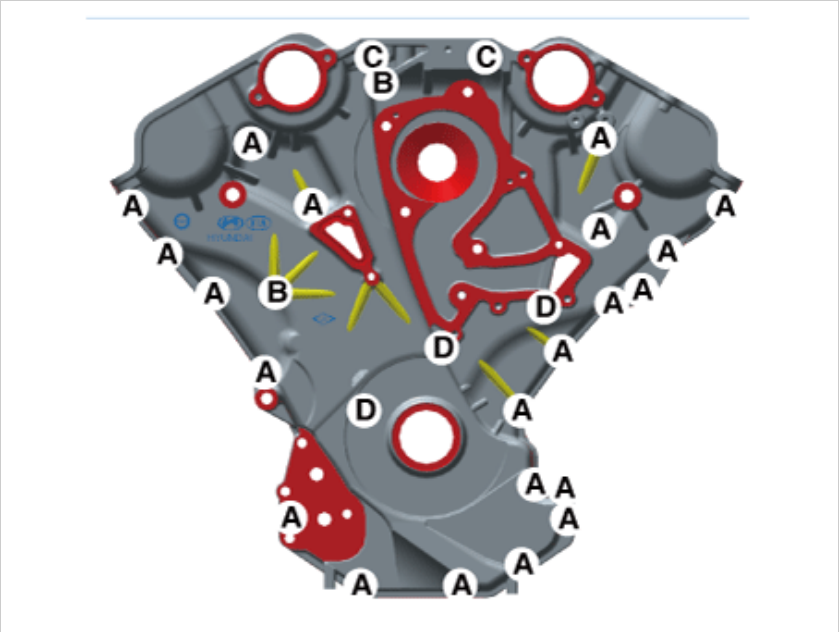
Bead width :4.0 mm (0.2 in.)



(5) The dowel pins on the cylinder block and holes on the timing chain cover should be used as a reference for assembling the timing chain cover to the exact position.

Tightening torque

A (21 pcs) :
18.6 - 21.6 N·m (1.9 - 2.2 kgf·m, 13.7 - 15.9 lb·ft)
B (2 pcs) :
24.5 - 26.5 N·m (2.5 - 2.7 kgf·m, 18.1 - 19.5 lb·ft)
C (2 pcs) :
58.8 - 68.8 N·m (6.0 - 7.0 kgf·m, 43.4 - 50.6 lb·ft)
D (3 pcs) :
9.8 - 11.8 N·m (1.0 - 1.2 kgf·m, 7.2 - 8.7 lb·ft)



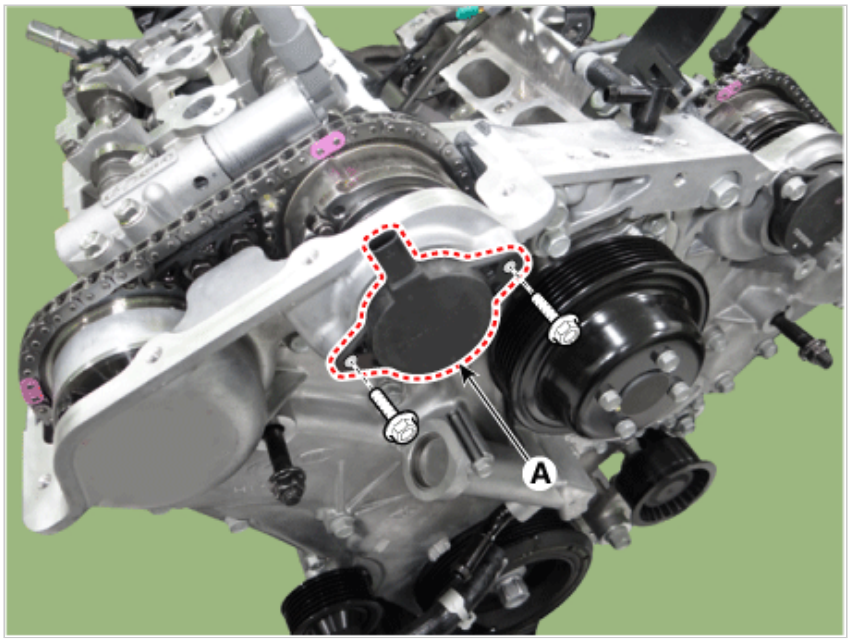
(6) Do not run the engine or perform pressure test within 30 minutes of assembly.

2. Install the RH and LH variable force solenoid (VFS) valve (A).

Tightening torque :

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

[RH]



[LH]

NOTICE

- Do not use any dropped variable force solenoid (VFS) valve.
- Note below cautions when installing variable force solenoid (VFS) valve.

1) After replacing the O-ring (A) of variable force solenoid (VFS) valve, apply engine oil on new O-ring (A).

2) Push variable force solenoid (VFS) valve up to the timing chain cover, and temporarily tighten the bolt.
3) Tighten the variable force solenoid (VFS) valve to the specified torque.

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

NOTICE

- Refill engine oil.
- Clean the battery posts and cable terminals with sandpaper. Assemble and then apply grease to prevent corrosion.
- Inspect for fuel leakage.

– After assembling the fuel line, turn on the ignition switch (without operating the starter) so that the fuel pump runs for approximately two seconds and fuel line pressurizes.
– Repeat this operation two to three times, and then check for fuel leakage at any point on the fuel lines.

- Refill radiator and reservoir tank with engine coolant.
- Bleed air from the cooling system.

– Start engine and let it run until it warms up (until the radiator fan operates 3 or 4 times).
– Turn off the engine and let it cool down. Check the level in the radiator, and add coolant if needed. This will allow trapped air to be released from the cooling system.
– Put radiator cap on tightly, then run the engine again and check for leaks.