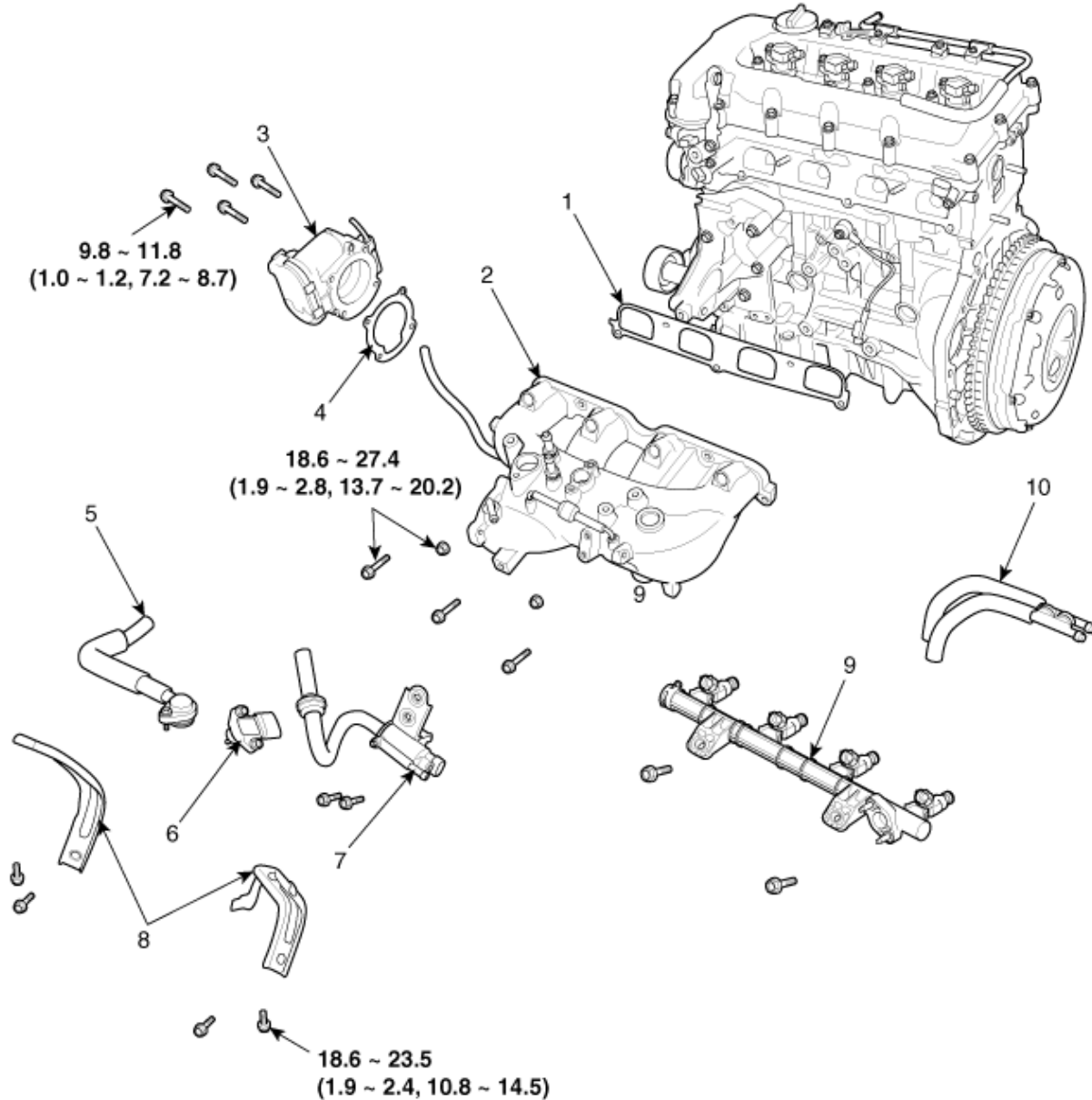


Components

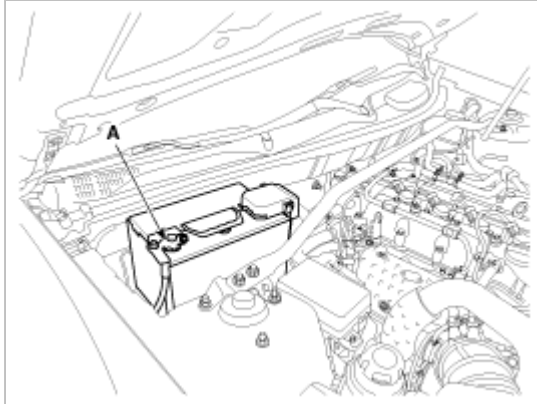


Torque : N.m (kgf.m, lb-ft)

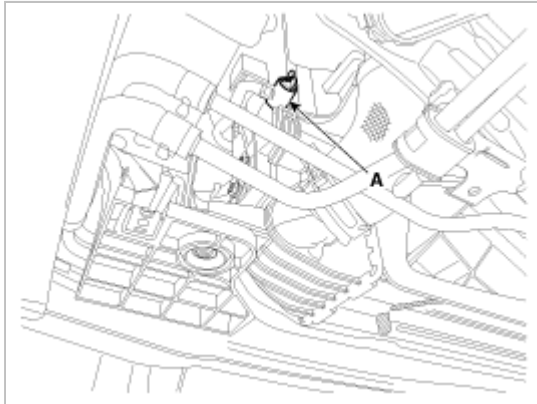
1. Intake manifold gasket	5. PCV hose assembly	8. Intake manifold stay
2. Intake manifold assembly	6. MAP sensor	9. Delivery pipe
3. Electronic throttle body	7. PCSV	10. Vacuum hose
4. Throttle body gasket		

Removal

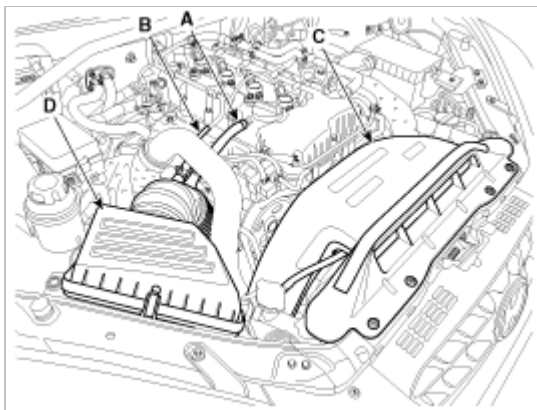
1. Disconnect the negative (-) battery terminal (A).



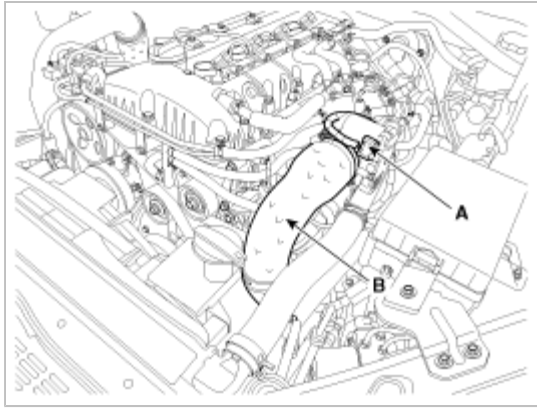
2. Remove the drain plug (A) and drain the engine coolant.



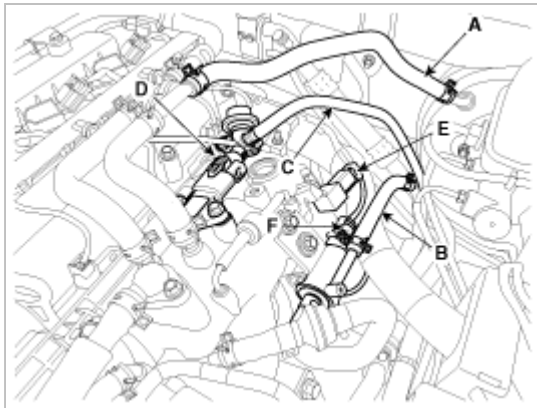
3. Remove the air duct (C).



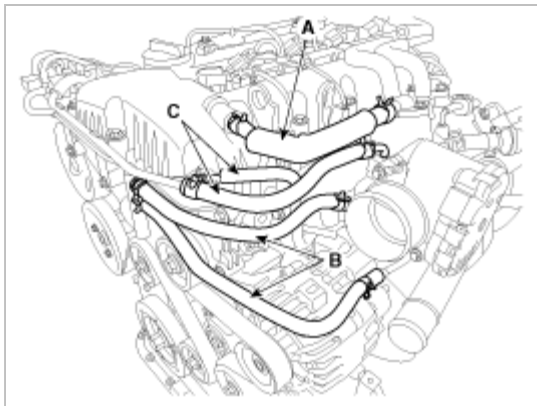
4. Remove the ETC connector (A) and intercooler outlet hose (B).



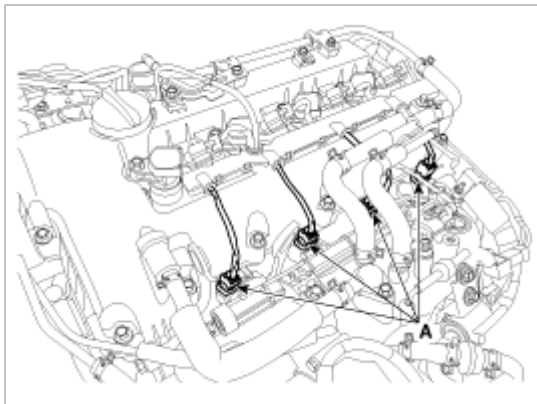
5. Disconnect the vacuum hose (A), PCSV hose (B), fuel hose (C), MAP sensor connector (D), condenser connector (E) and PCSV connector (F).



6. Remove the PCV hose (A), coolant hoses (B) and vacuum hoses (C).



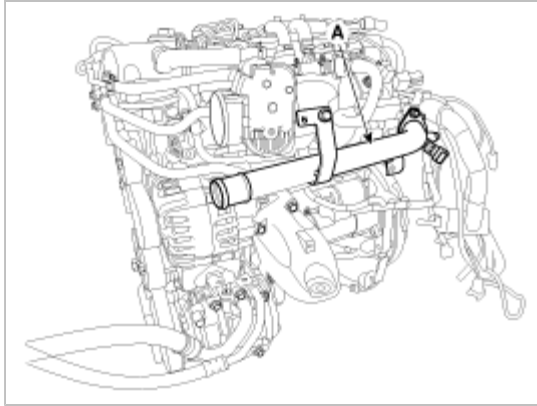
7. Remove the injector connectors (A).



8. Remove the water outlet pipe (A).

Tightening torque :

18.6~ 23.5N.m (1.9 ~ 2.4kgf.m, 13.7 ~ 17.4lb-ft)

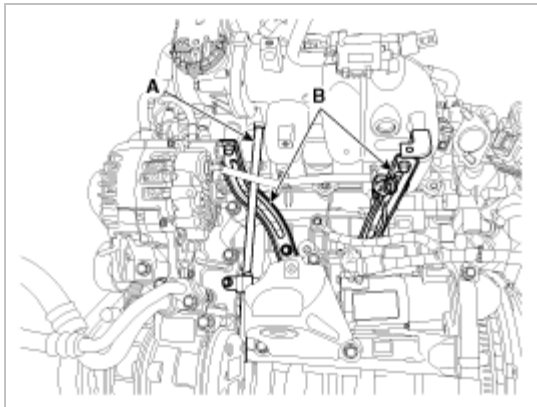


9. Remove the oil level gauge (A) and intake manifold stay (B) bolt.
-

Tightening torque :

A: 7.8~ 11.8N.m (0.8 ~ 1.2kgf.m, 5.8 ~ 8.7lb-ft)

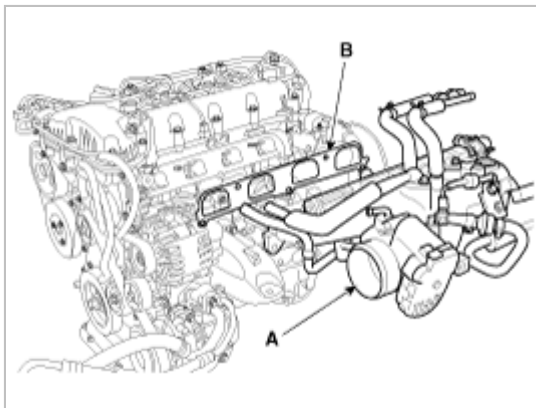
B: 18.6~ 22.5N.m (1.9 ~ 2.3kgf.m, 13.7 ~ 16.6lb-ft)



10. Remove the intake manifold (A) and gasket (B).
-

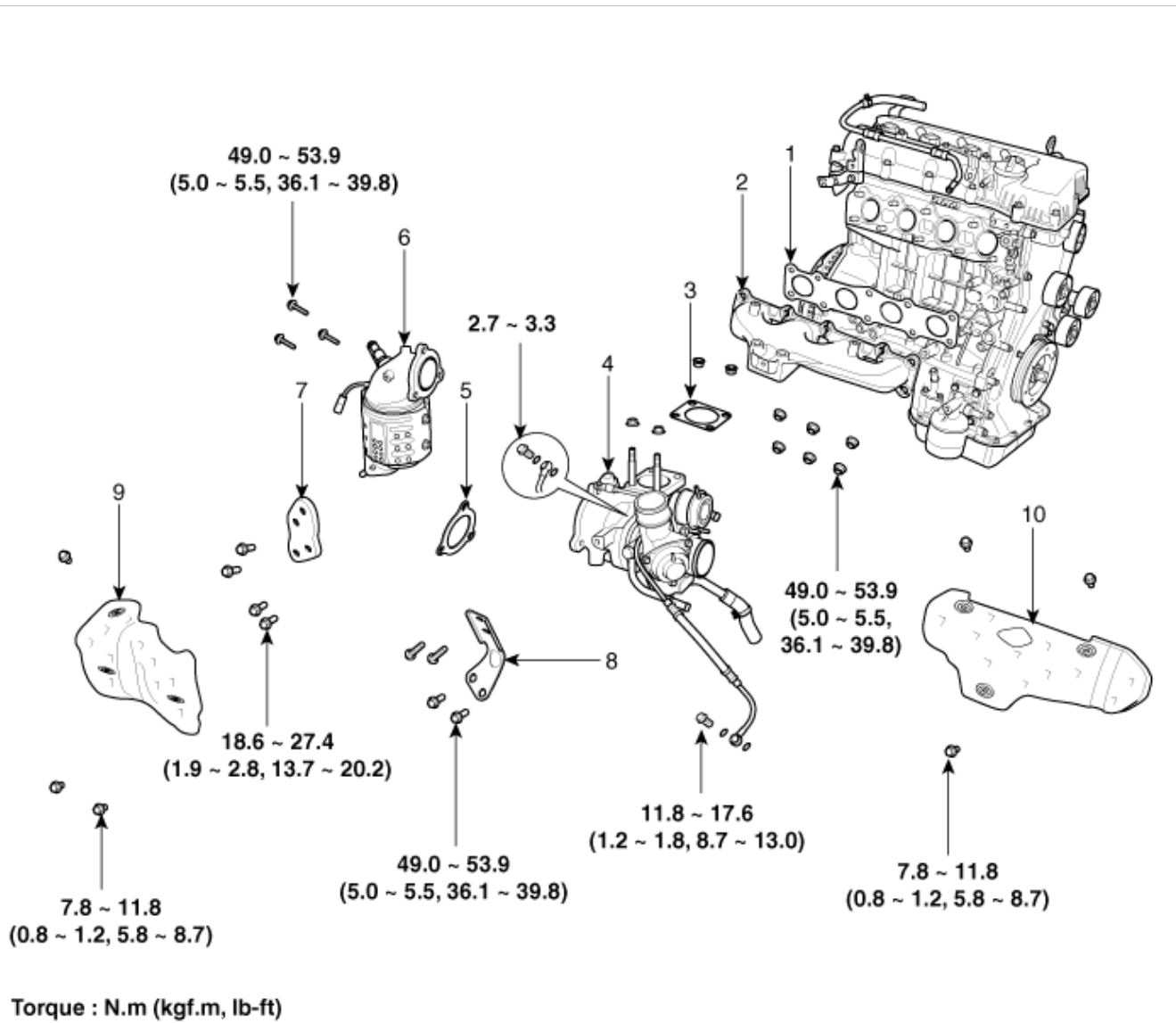
Tightening torque :

18.6~ 27.4N.m (1.9 ~ 2.8kgf.m, 13.7 ~ 20.2lb-ft)



11. Installation is the reverse of removal.

Components



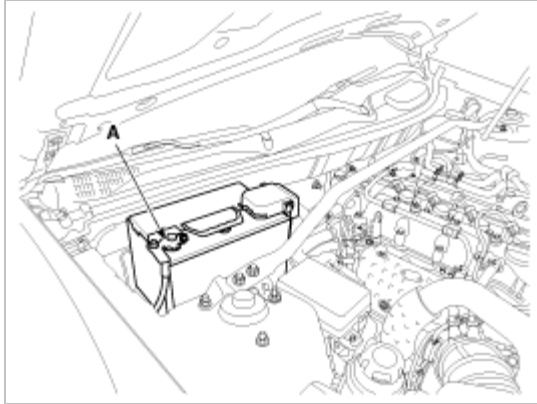
1. Exhaust manifold gasket	4. Turbocharger assembly	7. Turbocharger stay
2. Exhaust manifold	5. WCC gasket	8. Turbocharger heat protector
3. Turbocharger gasket	6. Warm-up catalytic converter (WCC)	9. Exhaust manifold heat protector

Removal

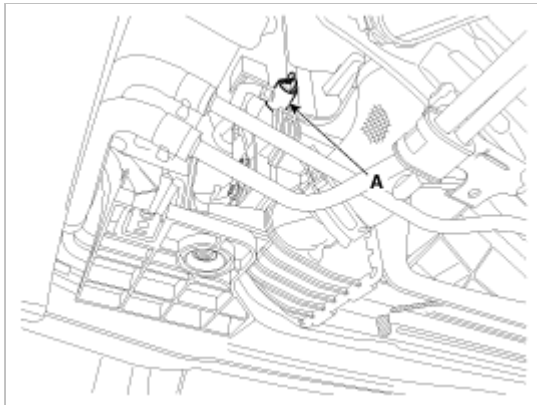
CAUTION

Check that engine is cool enough to work.

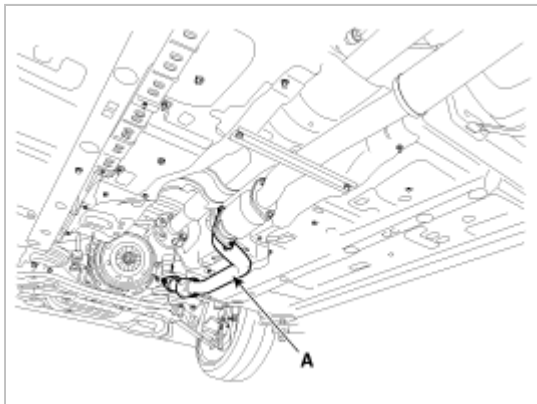
1. Disconnect the negative (-) battery terminal (A).



2. Remove the drain plug (A) and drain the engine coolant.



3. Remove the front muffler (A).

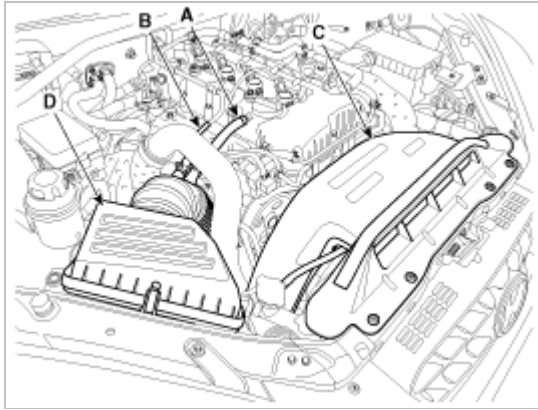


4. Disconnect the breather hose (A), vacuum hose (B). And remove the air duct (C) and air cleaner assembly (D).

Tightening torque :

Bolt : 7.8 ~ 9.8N.m (0.8 ~ 1.0kgf.m, 5.8 ~ 7.2lb-ft)

Clamp : 2.9~ 4.9N.m (0.3 ~ 0.5kgf.m, 2.1 ~ 3.6lb-ft)

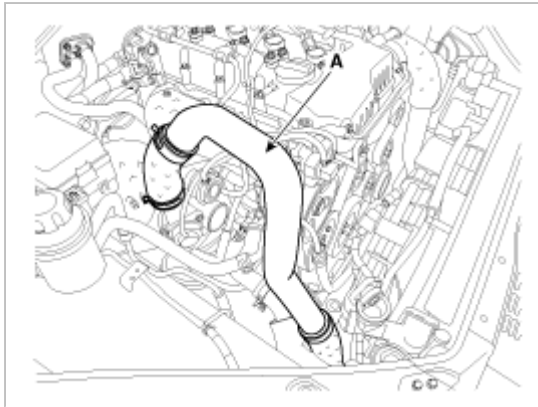


5. Disconnect the intercooler inlet hose (A).

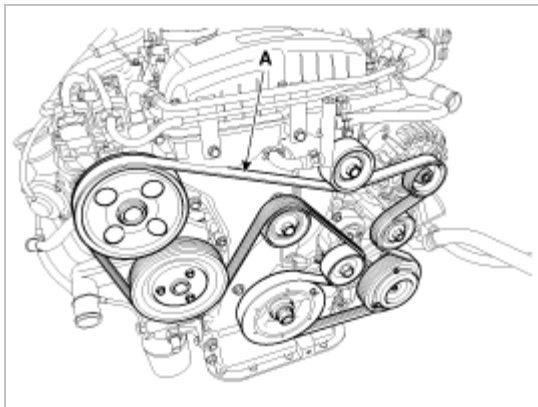
Tightening torque :

Bolt : 14.7 ~ 19.6N.m (1.5 ~ 2.0kgf.m, 10.8 ~ 14.4lb-ft)

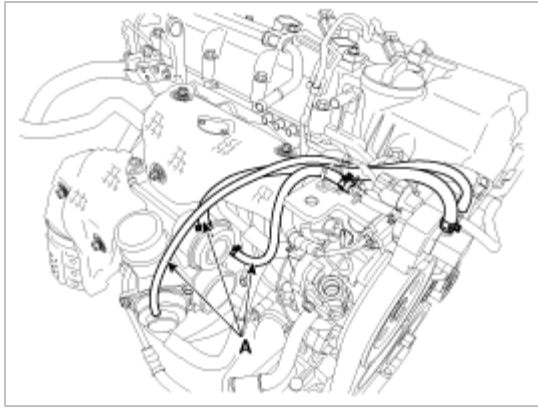
Clamp : 4.9~ 6.8N.m (0.5 ~ 0.7kgf.m, 3.6 ~ 5.0lb-ft)



6. Remove the drive belt (A).



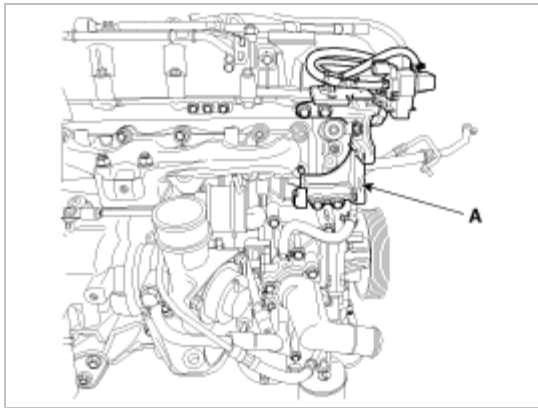
7. Remove the turbo control hoses (A).



8. Remove the power steering pump. (Refer to steering group)
9. Remove the steering pump bracket (A).

Tightening torque :

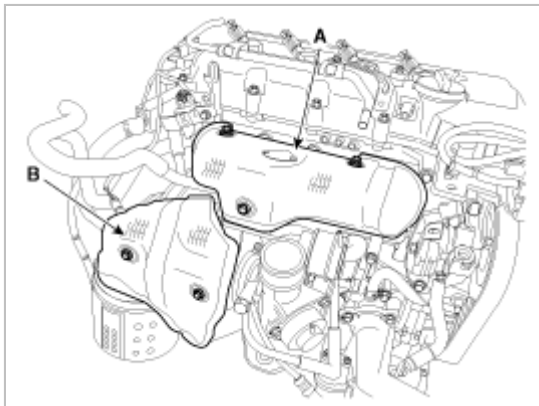
19.6~ 23.5N.m (2.0 ~ 2.4kgf.m, 13.4 ~ 17.4lb-ft)



10. Remove the exhaust manifold heat protector (A) and turbocharger heat protector (B).

Tightening torque :

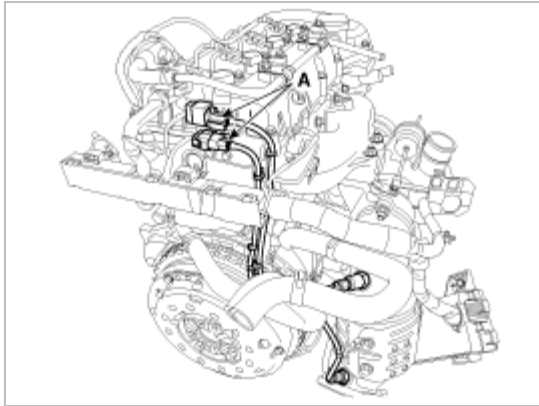
7.8~ 11.8N.m (0.8 ~ 1.2kgf.m, 5.8 ~ 8.7lb-ft)



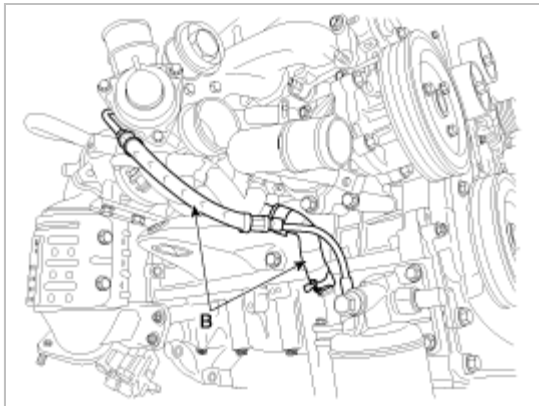
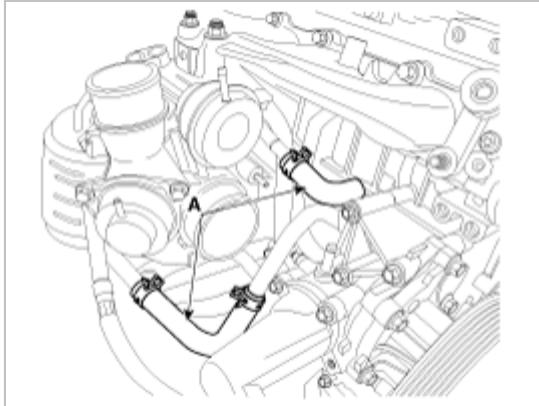
CAUTION

Check that engine is cool enough to work.

11. Remove the oxygen sensor connectors (A).



12. Remove the coolant hoses (A) and oil hoses (B) from turbocharger.

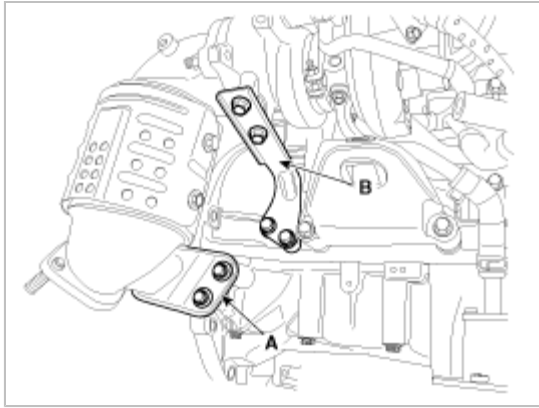


13. Remove the turbocharger stay bolt (A) and WCC stay bolt (B).

Tightening torque :

A: 49.0 ~ 53.9N.m (5.0 ~ 5.5kgf.m, 36.1 ~ 39.8lb-ft)

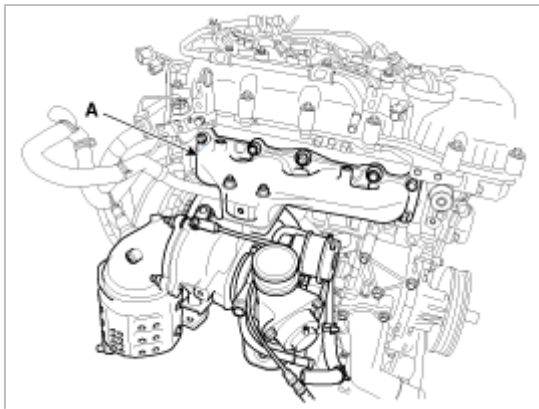
B: 8.6~ 27.4N.m (1.9 ~ 2.8kgf.m, 13.7 ~ 20.2lb-ft)



14. Remove the exhaust manifold & turbocharger assembly (A) and gasket.

Tightening torque :

49.0 ~ 53.9N.m (5.0 ~ 5.5kgf.m, 36.1 ~ 39.8lb-ft)

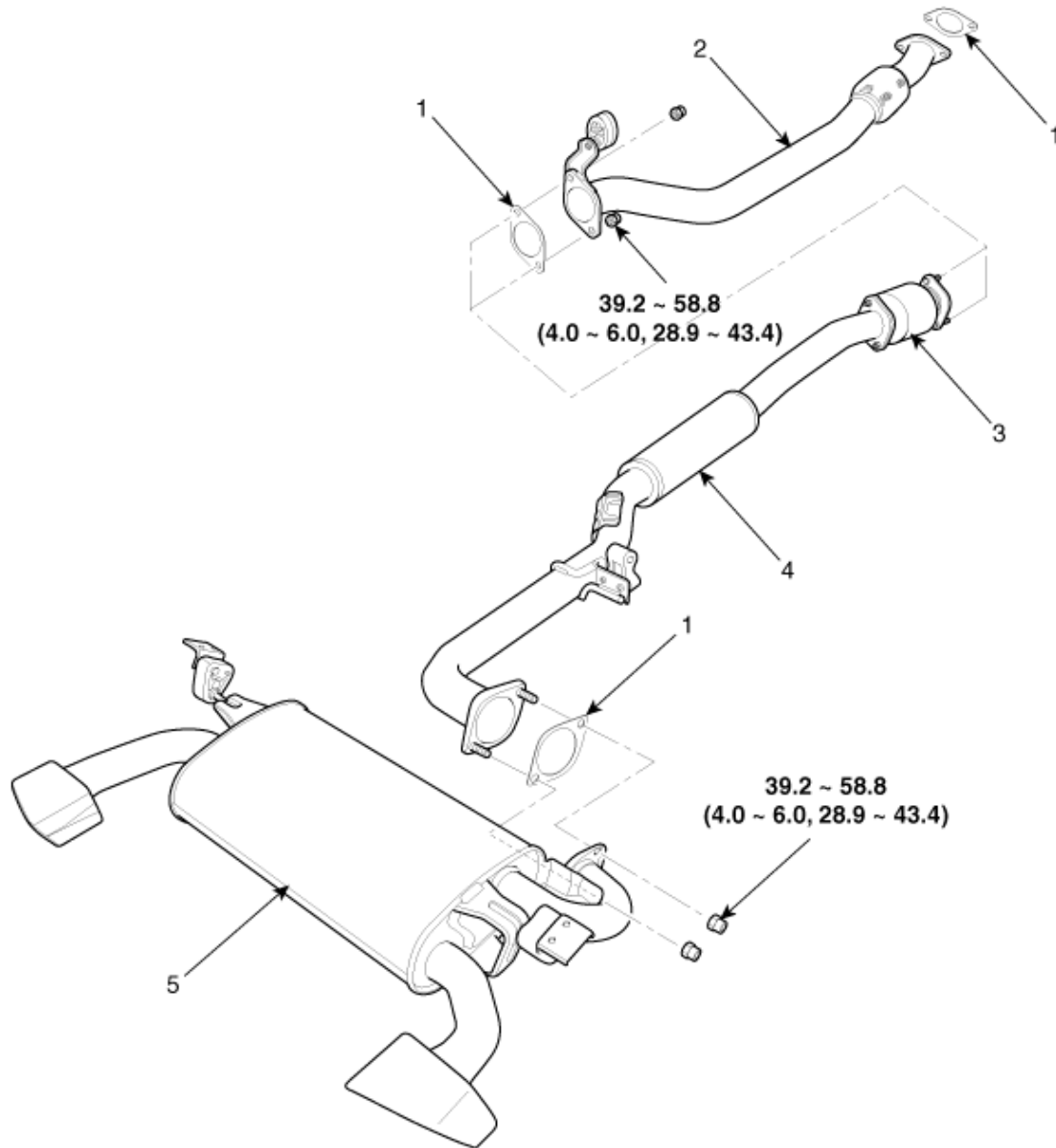


15. Installation is the reverse of removal.

NOTE

- Always use the new turbocharger, exhaust manifold and WCC gaskets when replacing.
- Always use a new turbocharger nuts and, exhaust manifold nuts when it is removed.
- Check that turbo control hose is installed in the right position to avoid interference with another parts (Heat protector, air hose etc.).
- Take care whether the turbocharger coolant hose is interfered with heat protector and exhaust manifold.

Components



Torque : N.m (kgf.m, lb-ft)

- 1. Gasket
- 2. Front muffler
- 3. Catalytic converter

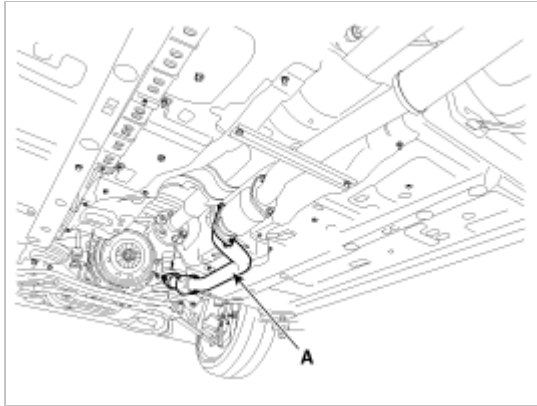
- 4. Center muffler
- 5. Main muffler

Removal

1. Remove the front muffler (A).

Tightening torque :

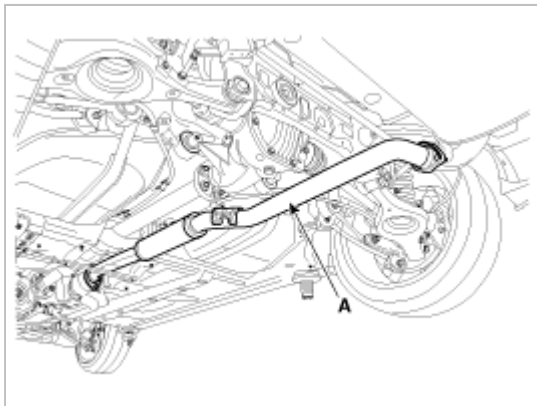
39.2~ 58.8N.m (4.0 ~ 6.0kgf.m, 28.9 ~ 43.4lb-ft)



2. Remove the center muffler (A).

Tightening torque :

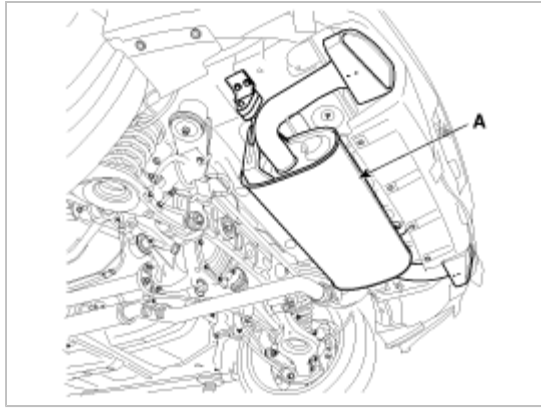
39.2~ 58.8N.m (4.0 ~ 6.0kgf.m, 28.9 ~ 43.4lb-ft)



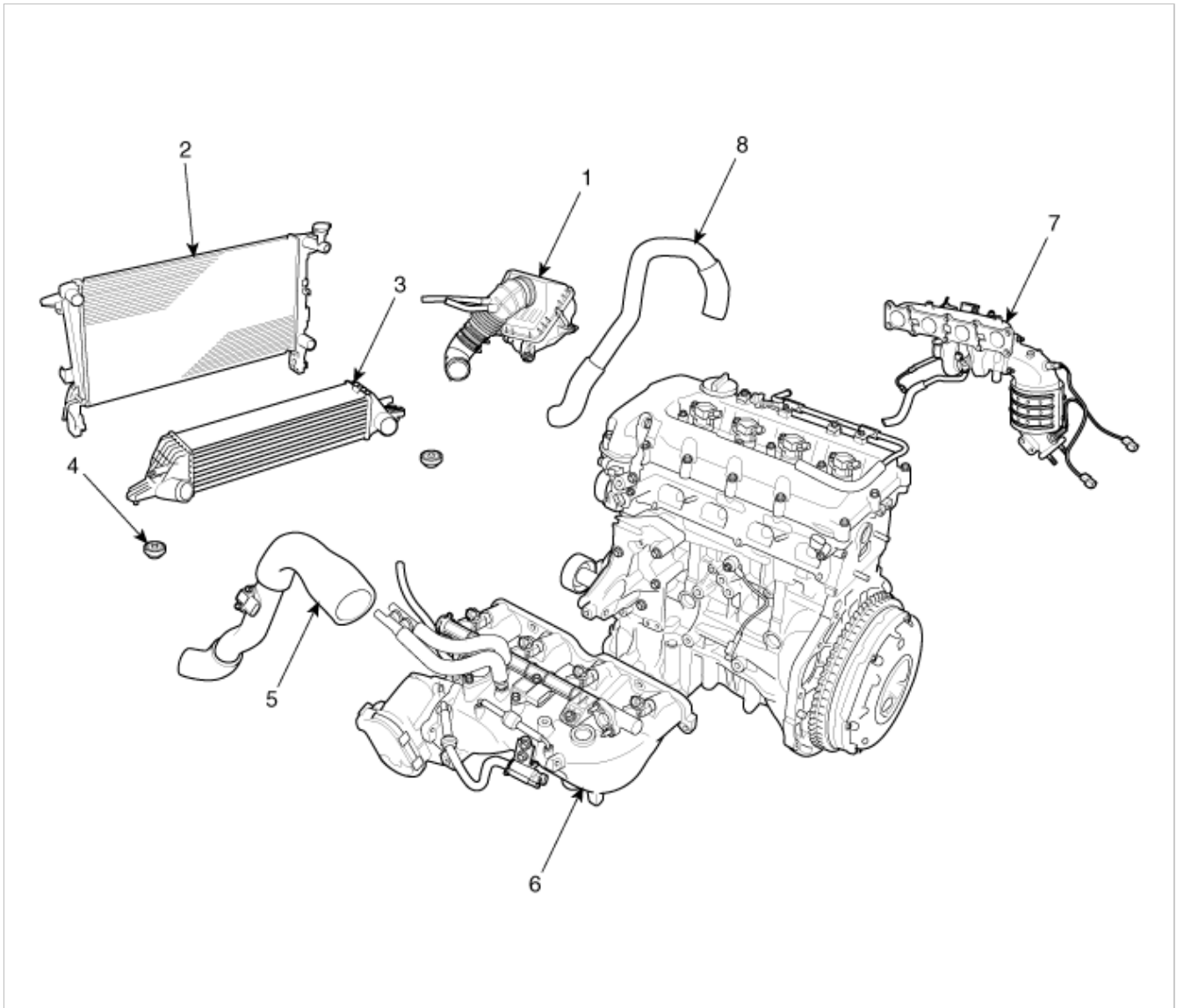
3. Remove the main muffler (A).

Tightening torque :

39.2~ 58.8N.m (4.0 ~ 6.0kgf.m, 28.9 ~ 43.4lb-ft)



Components

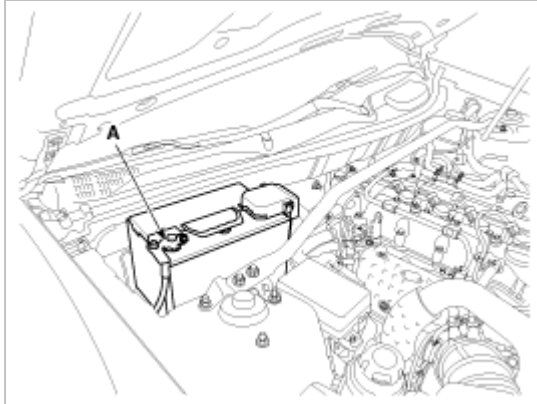


1. Air cleaner assembly
2. Radiator
3. Intercooler
4. Mounting insulator

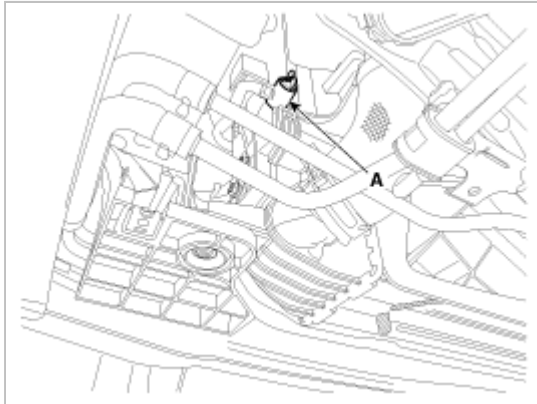
5. Intercooler outlet hose
6. Intake manifold
7. Exhaust manifold
8. Intercooler inlet hose

Removal

1. Disconnect the negative (-) battery terminal (A).



2. Remove the drain plug (A) and drain the engine coolant.

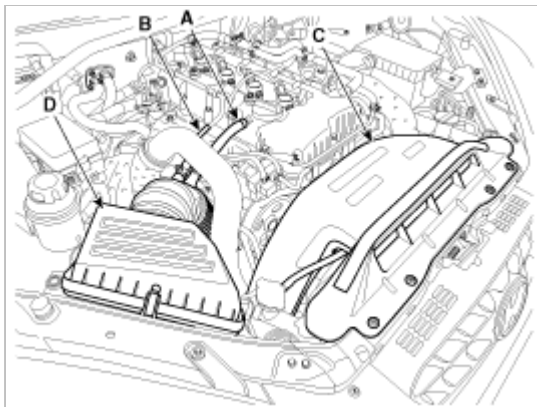


3. Disconnect the breather hose (A) and vacuum hose (B). And remove the air duct (C) and air cleaner assembly (D).

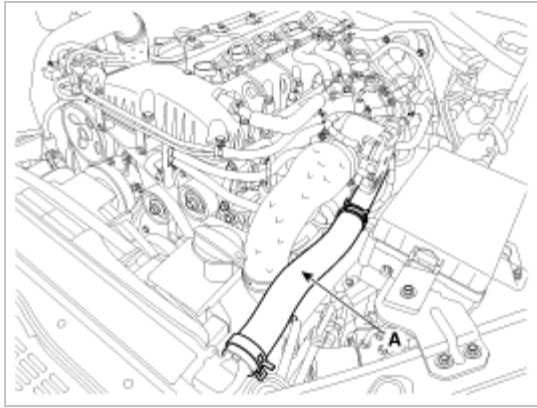
Tightening torque :

Bolt : 7.8 ~ 9.8N.m (0.8 ~ 1.0kgf.m, 5.8 ~ 7.2lb-ft)

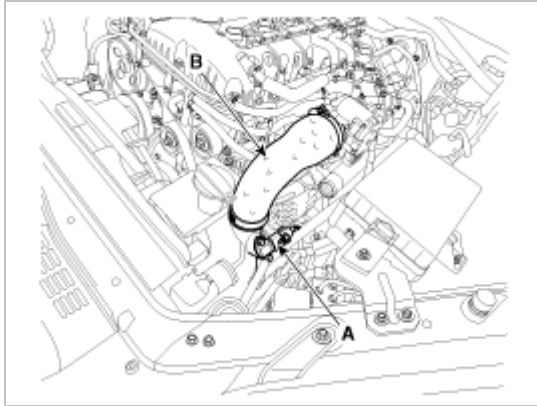
Clamp : 2.9~ 4.9N.m (0.3 ~ 0.5kgf.m, 2.1 ~ 3.6lb-ft)



4. Remove the radiator upper hose (A).



5. Remove the BPS connector (A) and intercooler outlet hose (B).

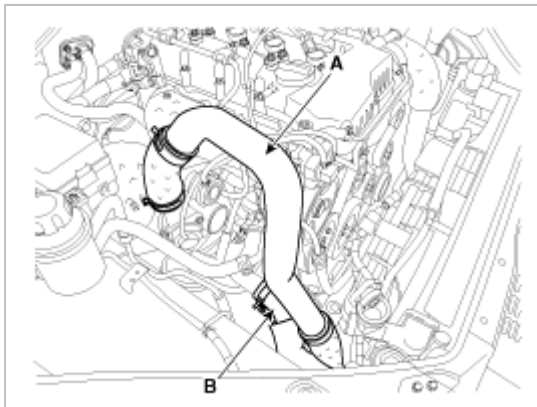


6. Disconnect the intercooler inlet hose (A) and radiator lower hose (B).

Tightening torque :

Bolt : 14.7 ~ 19.6N.m (1.5 ~ 2.0kgf.m, 10.8 ~ 14.4lb-ft)

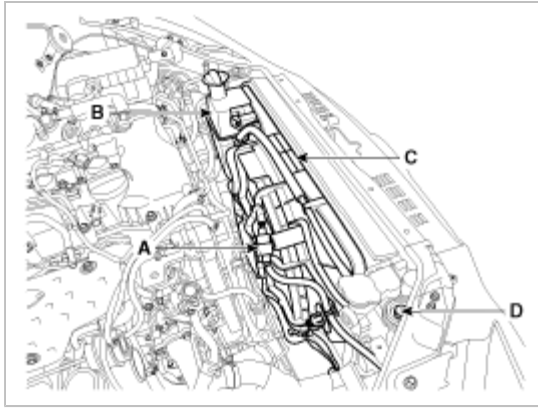
Clamp : 4.9~ 6.8N.m (0.5 ~ 0.7kgf.m, 3.6 ~ 5.0lb-ft)



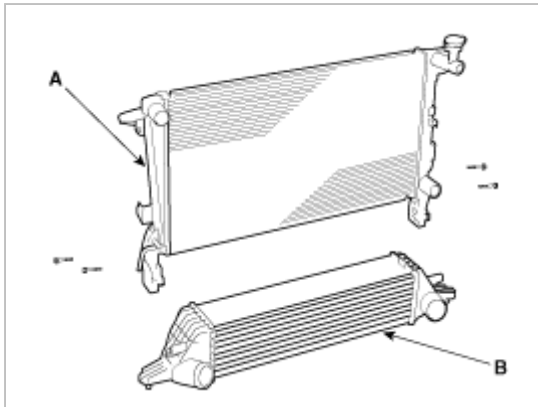
7. Remove the radiator assembly.
- (1) Remove the cooling fan connector(A).
 - (2) Remove the reservoir tank(B).
 - (3) Remove the fan assembly(C).
 - (4) Remove the radiator after removing the radiator upper mounting bracket(D).

Tightening torque :

7.8 ~ 13.7N.m (0.9 ~ 1.4kgf.m, 5.8 ~ 10.1lb-ft)



8. Remove the radiator (A) and intercooler (B).



9. Installation is the reverse of removal.