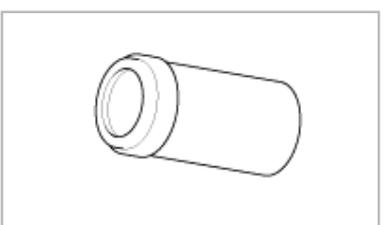
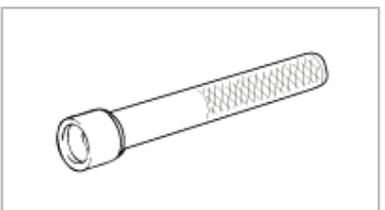
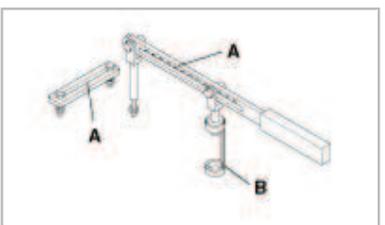
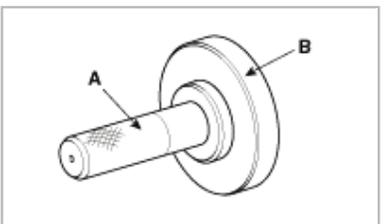
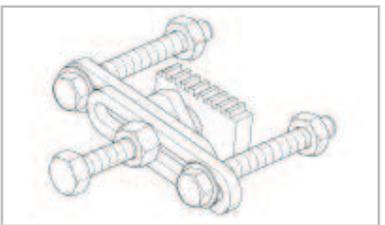
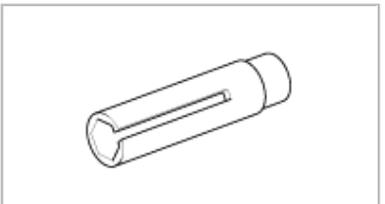




## Special Service Tools

Tool (Number and name)	Illustration	Use
Crankshaft front oil seal installer (09455-21200)		Installation of the front oil seal
Valve stem oil seal installer (09222-2B100)		Installation of the valve stem oil seal
Valve spring compressor and holder A : (09222-3K000) B : (09222-3K100)		Removal and installation of the intake or exhaust valve
Crankshaft rear oil seal installer A : (09231-H1100) B : (09231-2B200)		Installation of the crankshaft rear oil seal
Ring gear stopper (09231-2B100)		Installation of crankshaft pulley bolt
Engine coolant temperature sensor socket wrench (09221-25100)		Removal and installation of engine coolant sensor

Oil pan remover  
(09215-3C000)



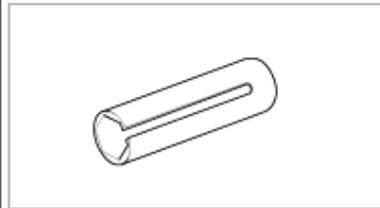
Removal of oil pan

Torque angle adapter  
(09221-4A000)



Installation of bolts & nuts needing an angular method

Oxygen sensor wrench  
(09392-2H100)



Removal and installation of oxygen sensor

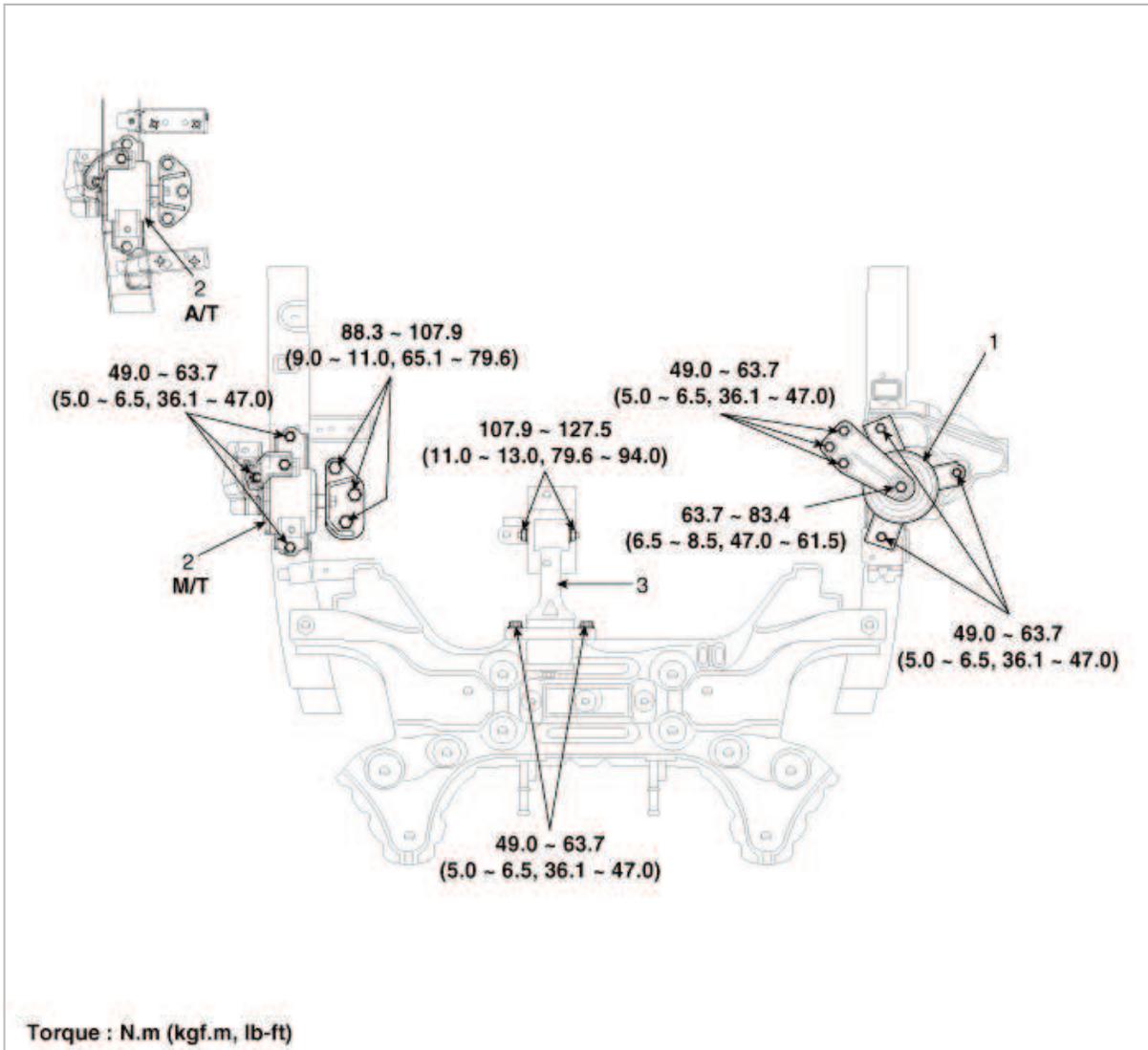


# **Engine Mechanical System**

Engine And Transaxle Assembly - Engine  
Mounting



Components



<p>1. Engine mounting bracket 2. Transaxle mounting bracket</p>	<p>3. Rear roll stopper</p>
---------------------------------------------------------------------	-----------------------------



# **Engine Mechanical System**

Engine And Transaxle Assembly - Engine  
And Transaxle Assembly



## Removal

### CAUTION

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

### NOTICE

- Mark all wiring and hoses to avoid misconnection.
- For release the fuel system pressure before remove the engine assembly, start the engine without fuel pump relay. And then turn off the ignition switch after engine stops.

1. Disconnect the battery negative terminal (A).
2. Disconnect the breather hose (B), air intake hose (C) and then remove the air cleaner assembly (D).

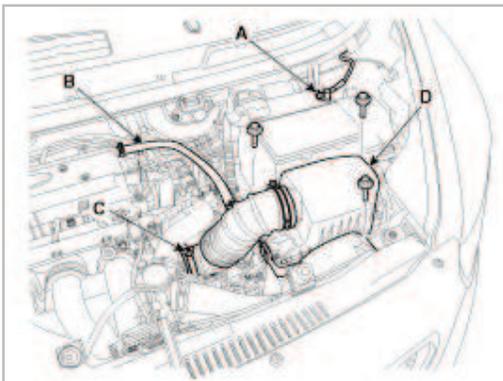
### Tightening torque

Hose clamp bolt:

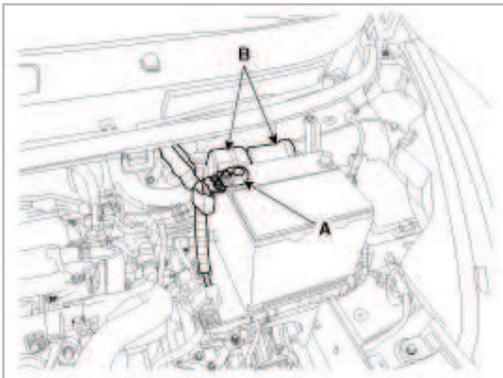
2.9 ~ 4.9N.m (0.3 ~ 0.5kgf.m, 2.2 ~ 3.6lb-ft)

Air cleaner assembly bolts:

7.8 ~ 11.8N.m (0.8 ~ 1.0kgf.m, 5.8 ~ 7.2lb-ft)



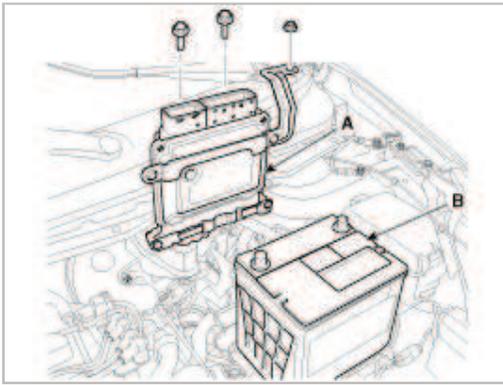
3. Disconnect the battery positive terminal (A) and the ECM connectors (B).



4. Remove the ECM (A) and the battery (B).

### Tightening torque :

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



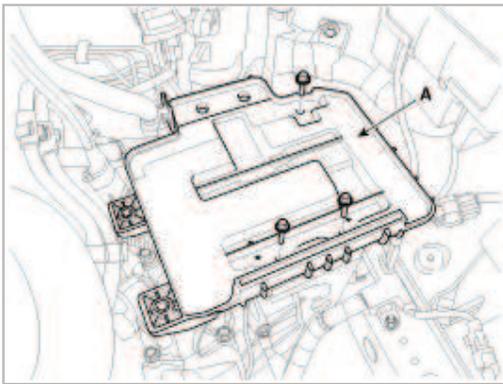
5. Remove the battery tray (A).

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**Tightening torque :**

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

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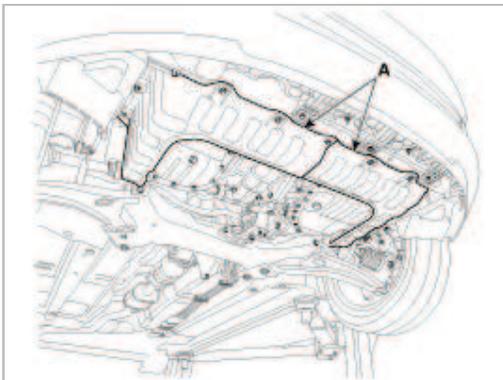
6. Remove the LH/RH under covers (A).

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**Tightening torque:**

6.9 ~ 10.8N.m (0.7 ~ 1.1kgf.m, 5.1 ~ 8.0lb-ft)

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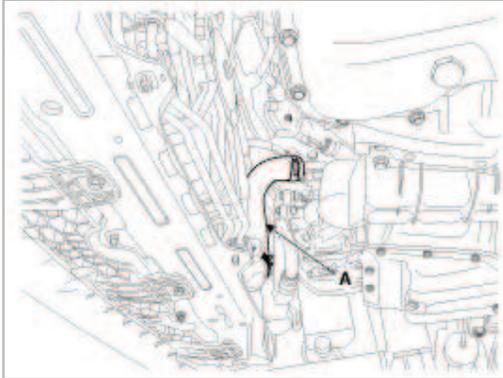
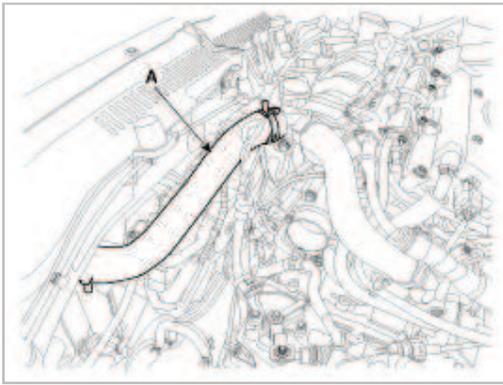


7. Loosen the drain plug and drain the coolant. Open the radiator cap to make rapid draining.

**WARNING**

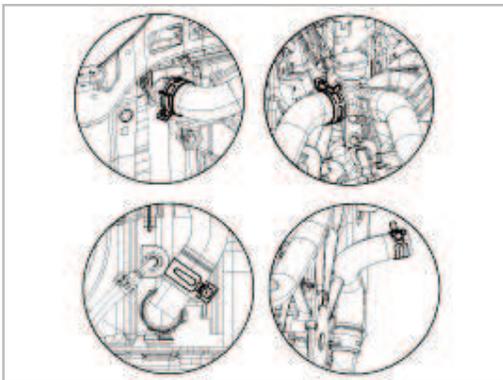
Never remove the radiator cap when the engine is hot. Serious scalding could be caused by hot fluid under high pressure escaping from the radiator.

8. Remove the radiator upper hose (A) and lower hose (B).

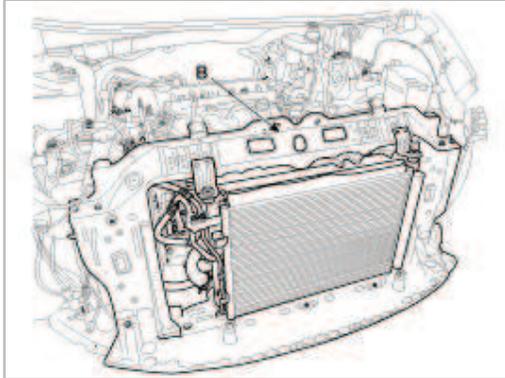
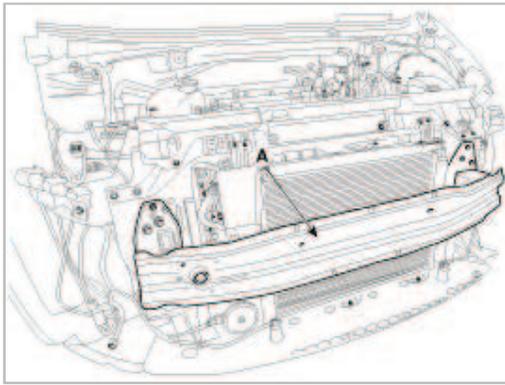


**NOTICE**

Install the radiator hoses as shown illustrations.



9. Recover the refrigerant and then remove the high pressure pipe and low pressure pipe. (Refer to Air conditioning system in HA Group.)
10. Remove the front bumper after disconnecting the wiring connectors. (Refer to Bumper in BD group)
11. Remove the rail (A) and remove the front end module (FEM) (B) with the cooling module assembly after disconnecting the wiring connectors.

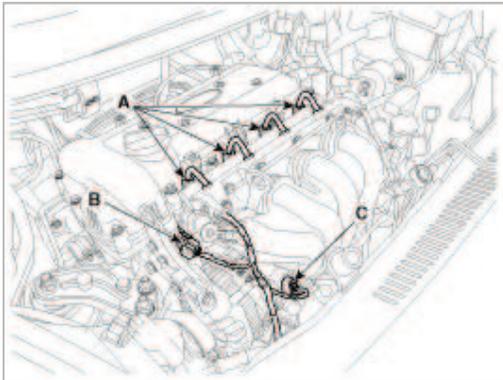


12. Disconnect the engine wiring harness connectors and remove the wiring harness protectors.

(1) Injector connectors (A)

(2) OCV connector (B)

(3) Alternator connector (C)

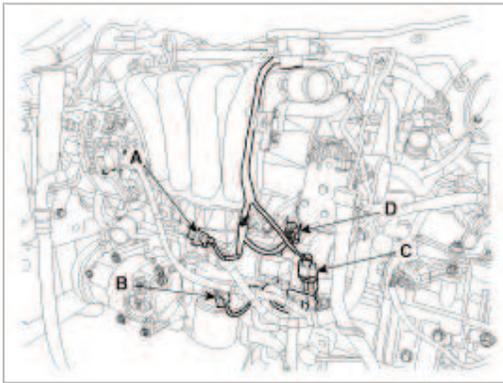


(4) Knock sensor connector (A)

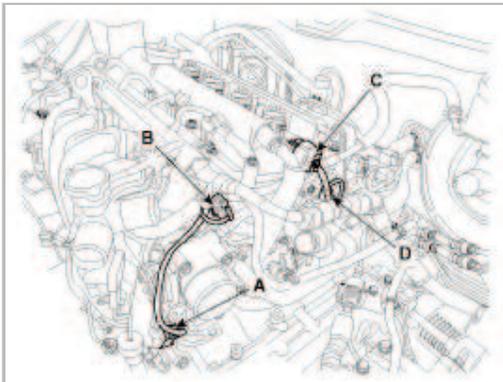
(5) Oil pressure switch connector (B)

(6) CKP sensor connector (C)

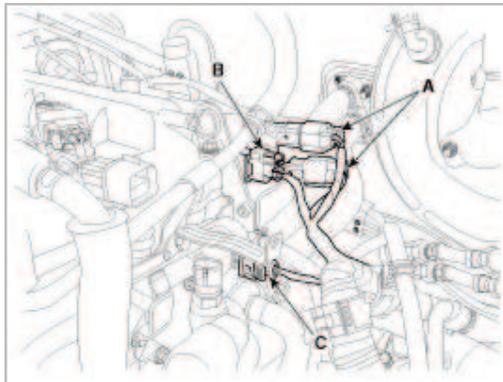
(7) MAP sensor connector (D)



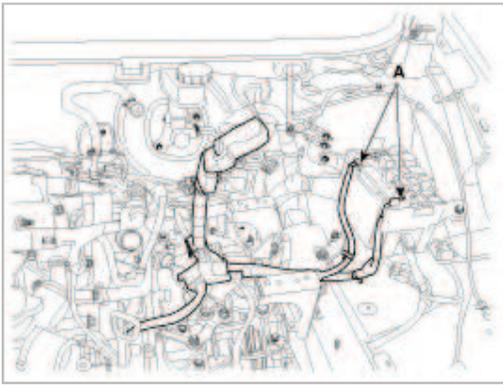
- (8) ETC connector (A)
- (9) CMPS connector (B)
- (10) Ignition coil connector (C)
- (11) WTS connector (D)



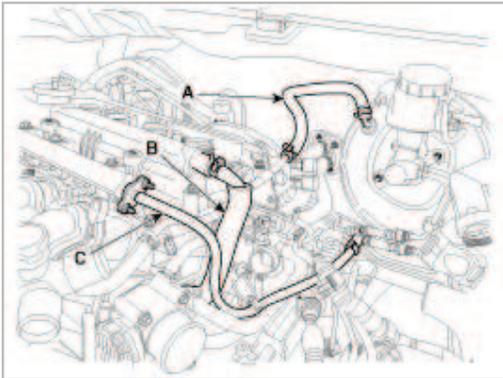
- (12) Oxygen sensor connectors (A)
- (13) Condenser connector (B)
- (14) PCSV connector (C)



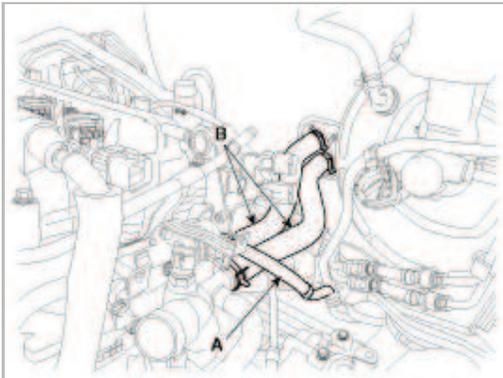
13. Disconnect the (+) cable (A) from the fuse box.



14. Disconnect the brake booster vacuum hose (A), the PCV hose (B) and the fuel hose (C).

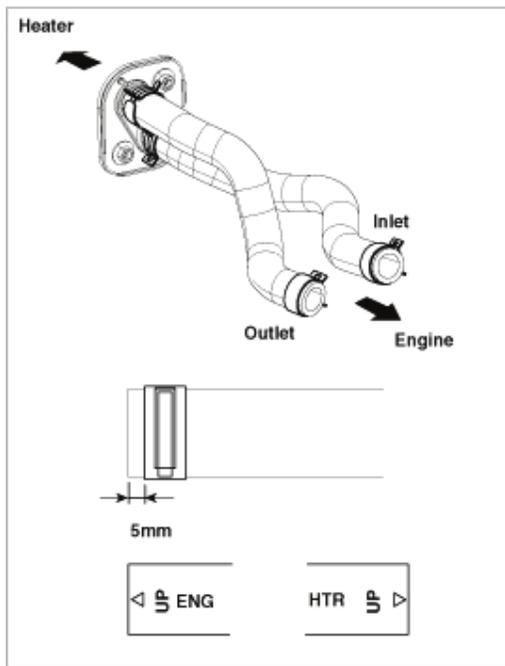


15. Disconnect the PCSV hose (A) and the heater hoses (B).

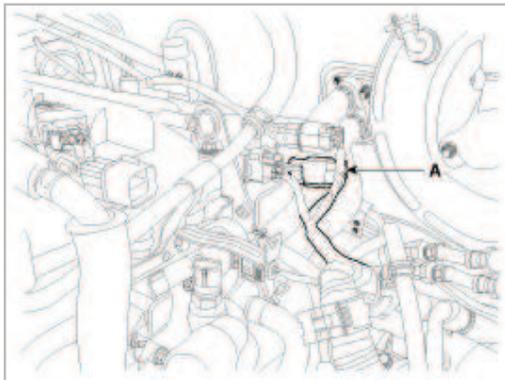


**NOTICE**

Install the heater hoses as shown illustrations.



16. Remove the transaxle wire harness connectors and control cable from the transaxle. (Refer to MT or AT group)
17. Disconnect the oxygen sensor connector (A) and then remove the front muffler (B).

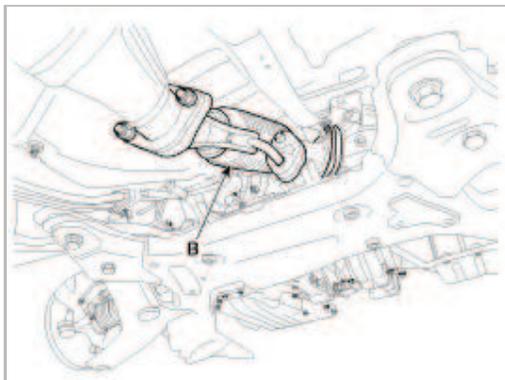


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**Tightening torque:**

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

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18. Remove the rear roll stopper (A).
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