

Removal

⚠ WARNING

⌘ Be sure to read and follow the "General Safety Information and Caution" before doing any work related with the high voltage system. Failure to follow the safety instructions may result in serious electrical injuries.

NOTICE

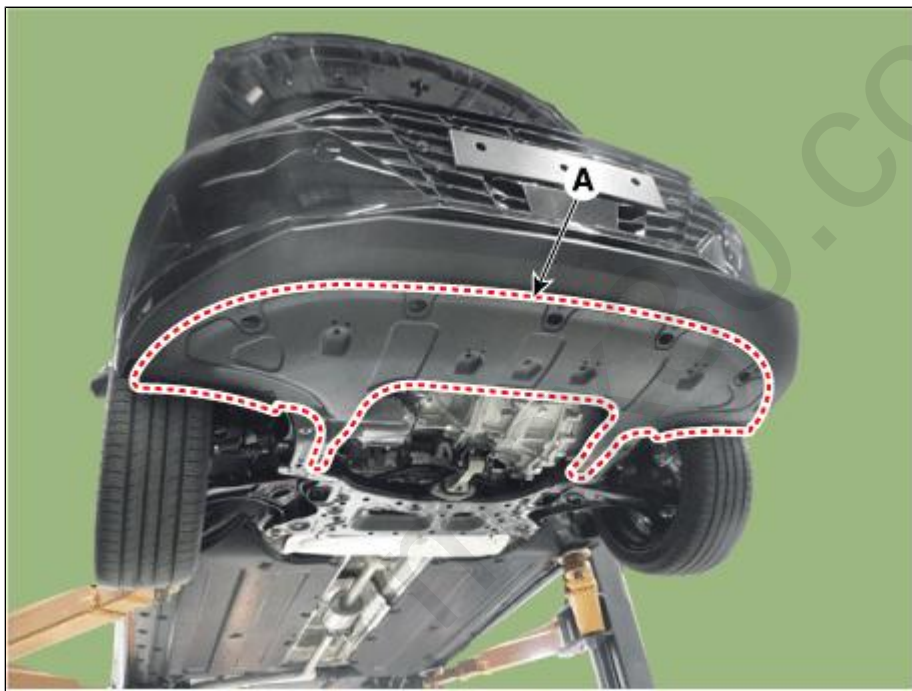
⌘ Use fender covers to avoid damaging painted surfaces.

⌘ To avoid damage, unplug the wiring connectors carefully while holding the connector portion.

1. Shut off the High Voltage circuit.
(Refer to General Information - "High Voltage Shutoff Procedure")
2. Remove the engine room under cover (A).

Tightening torque:

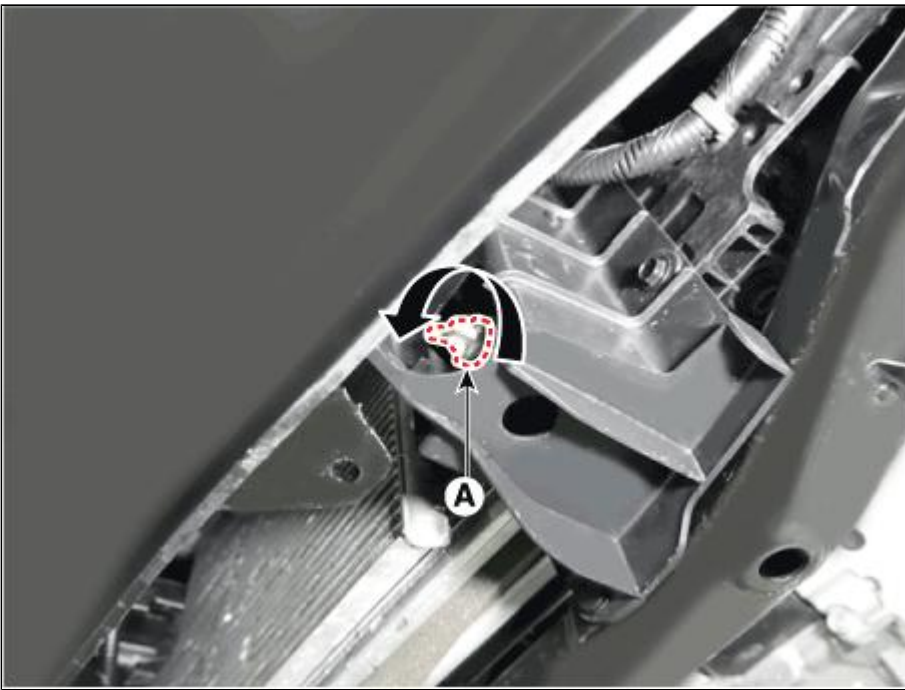
3.9 - 5.9 N.m (0.4 - 0.6 kgf.m, 2.9 - 4.3 lb-ft)



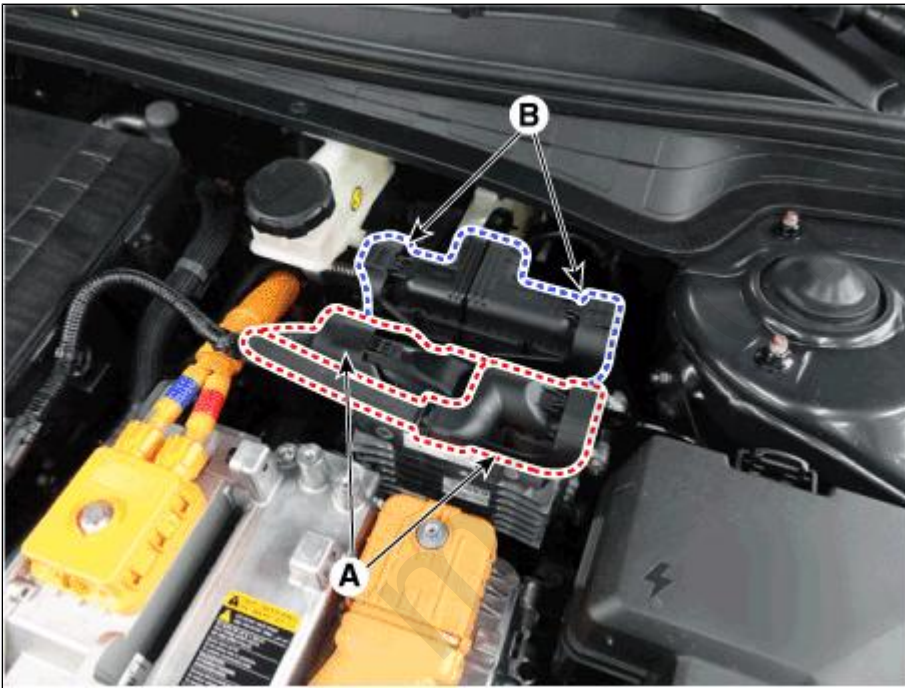
3. Drain the inverter coolant.
 - (1) Loosen the drain plug (A) and then drain the coolant.
 - (2) Allow the coolant to drain out and then reinstall the drain plug (A).

Tightening torque :

7.8 - 11.8 N.m (0.7 - 1.4 kgf.m, 5.8 - 8.7 lb-ft)



4. Disconnect the TCM connector (A) and ECM connector (B).



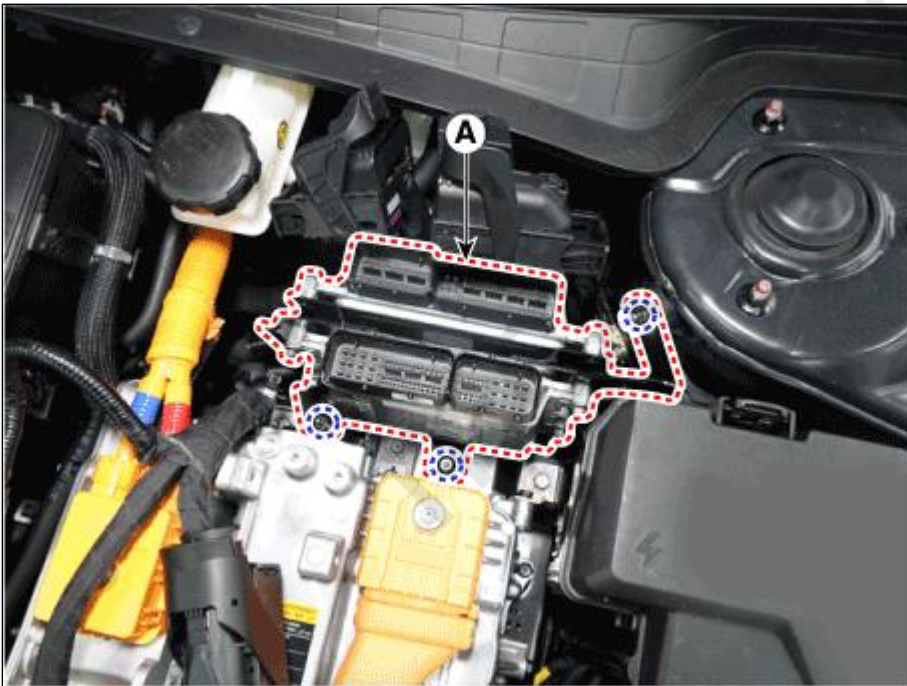
5. Separate the wiring cllip (A).



6. Loosen the nuts and then removing the TCM & ECM bracket assembly (A).

Tightening torque:

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



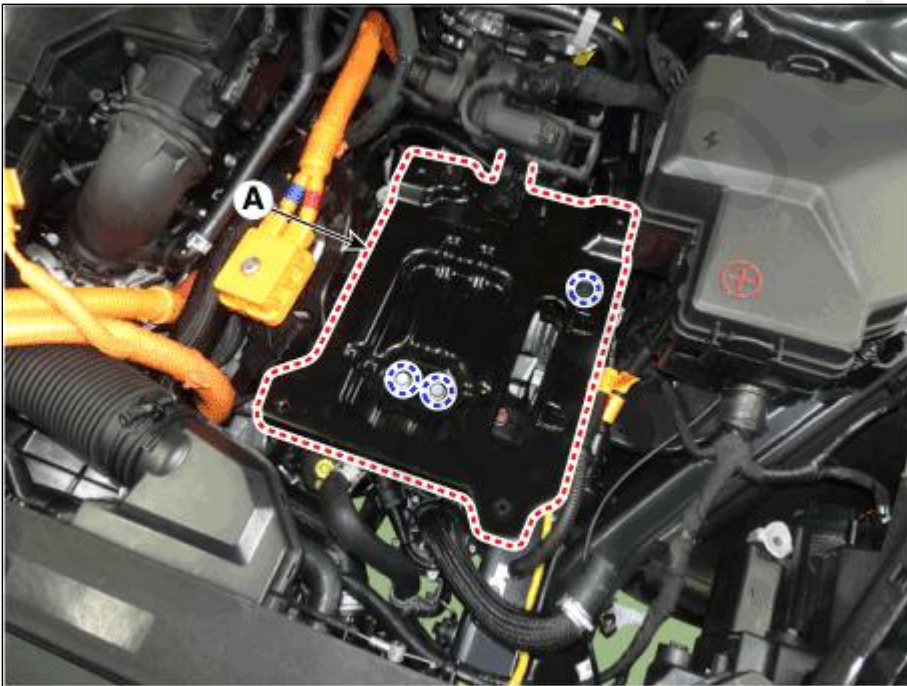
7. Remove the HPCU (Hybrid Power Control Unit).
(Refer to Hybrid Control System - "Hybrid Power Control Unit (HPCU)")
8. Separate the wiring clip (A).



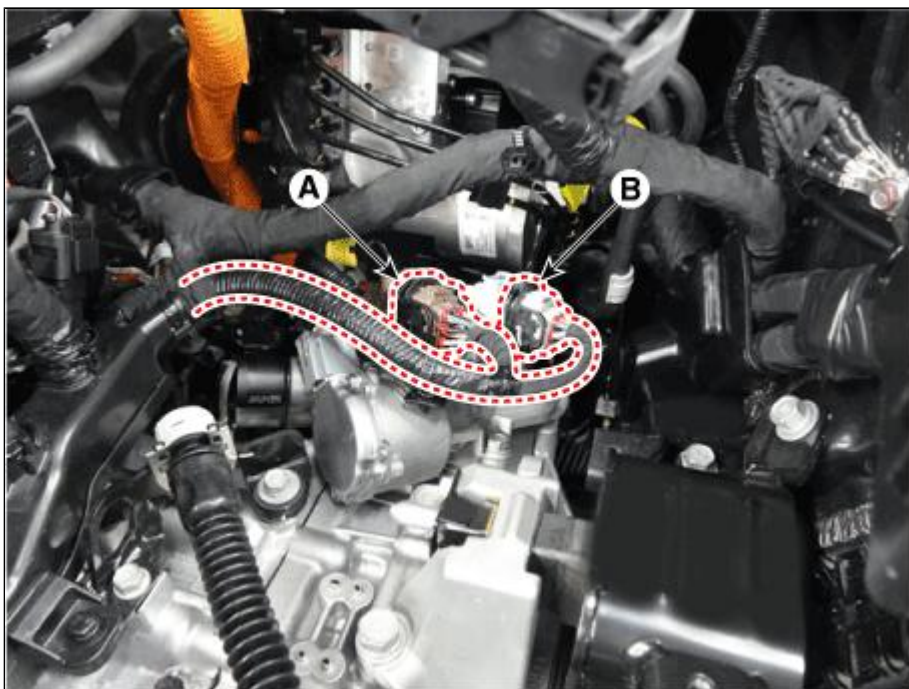
9. Loosen the wiring and then removing the HPCU tray (A).

Tightening torque:

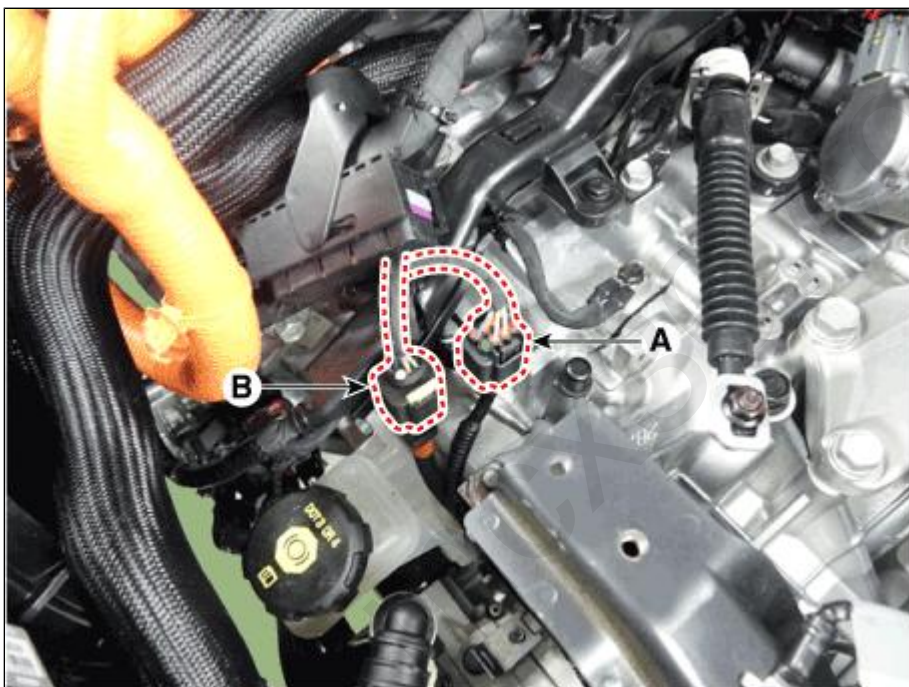
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



10. Disconnect the gear actuator connetor (A) and the solenoid connector (B).



11. Disconnect the inhibitor switch connector (A) and the input speed sensor connector (B).

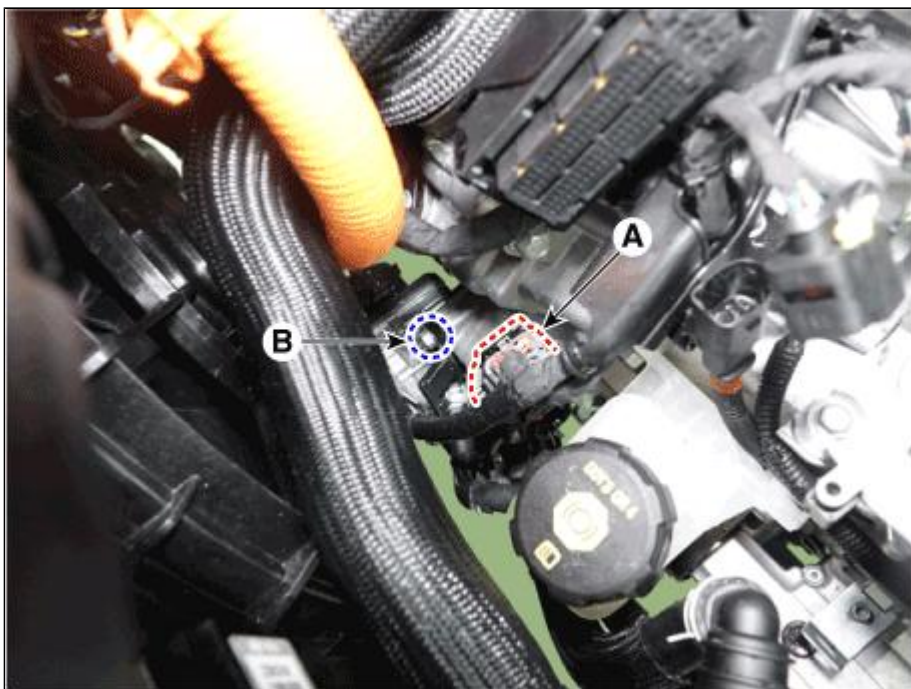


12. Disconnect the clutch actuator connector (A).

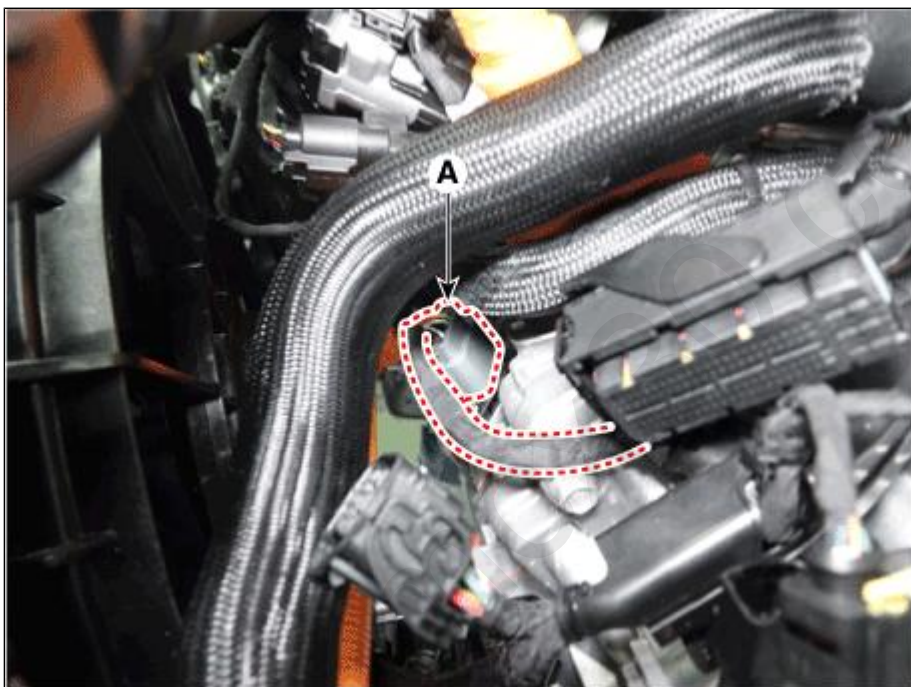
13. Loosen the wiring bracket mounting bolt (B).

Tightening torque:

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



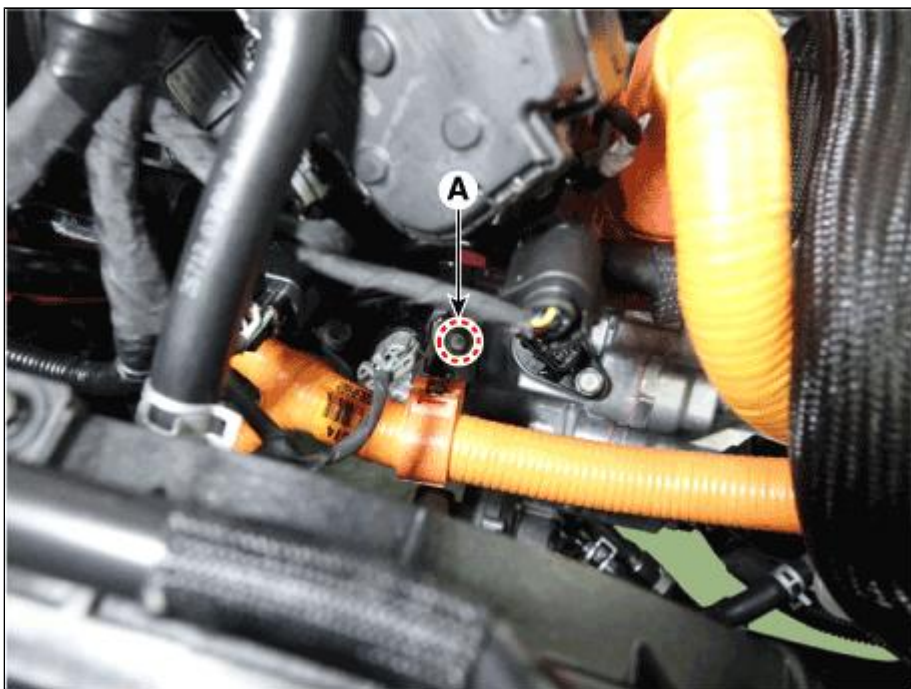
14. Disconnect the resolver sensor connector (A).



15. Loosen the wiring bracket mounting bolt (A).

Tightening torque:

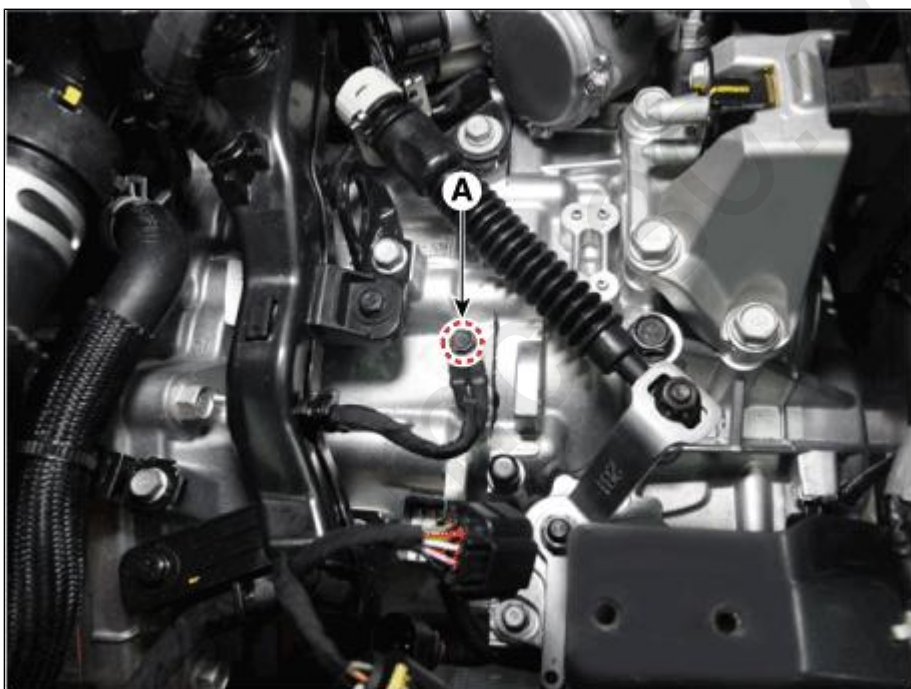
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



16. Loosen the ground bolts (A).

Tightening torque:

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

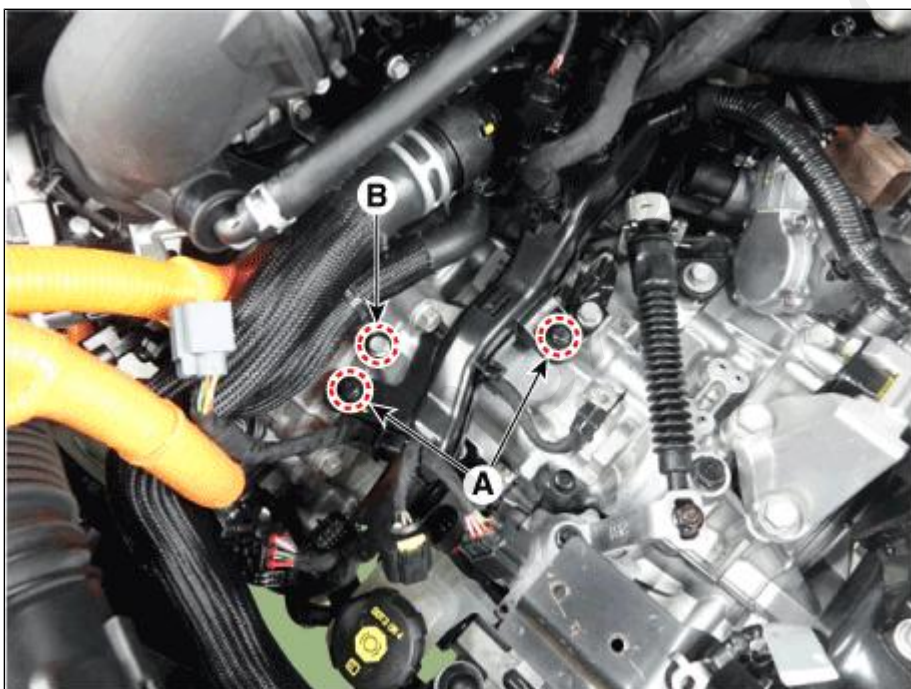




17. Loosen the wiring bracket bolts (A) and the hybrid motor cooling hose bracket mounting bolt (B).

Tightening torque:

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

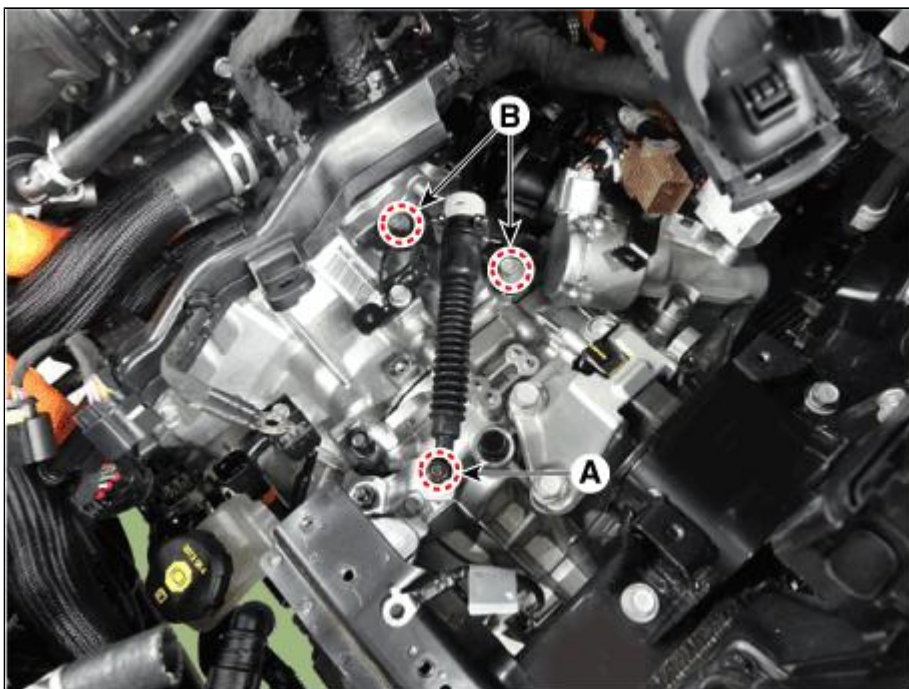


18. Loosen the nut (A) and the shift cable bracket mounting bolts (B).

Tightening torque:

(A) 9.8 - 13.7 N.m (1.0 - 1.4 kgf.m, 7.2 - 10.8 lb-ft)

(B) 19.6 - 26.5 N.m (2.0 - 2.7 kgf.m, 14.5 - 19.5 lb-ft)



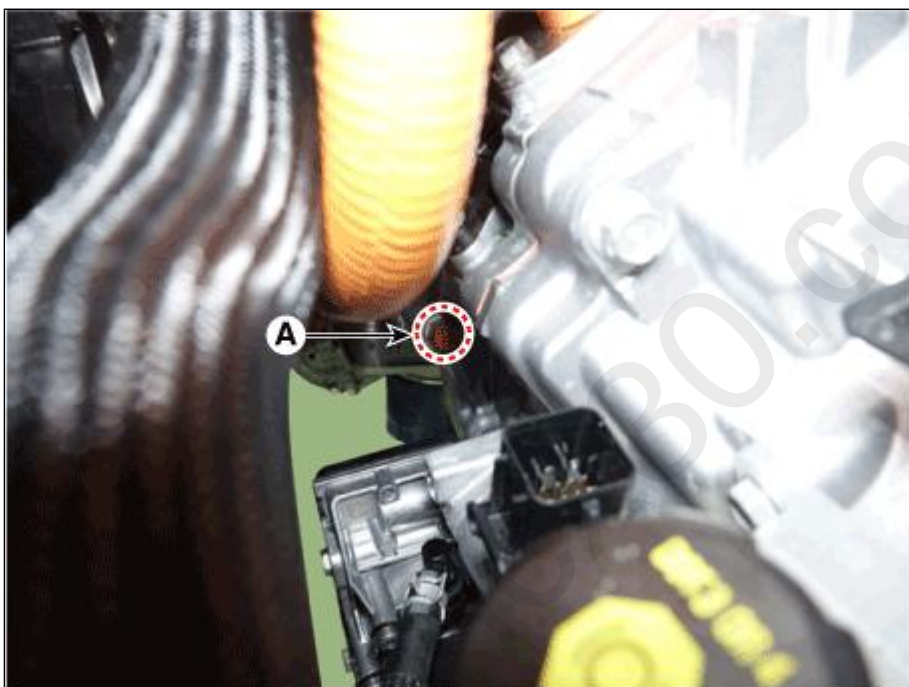
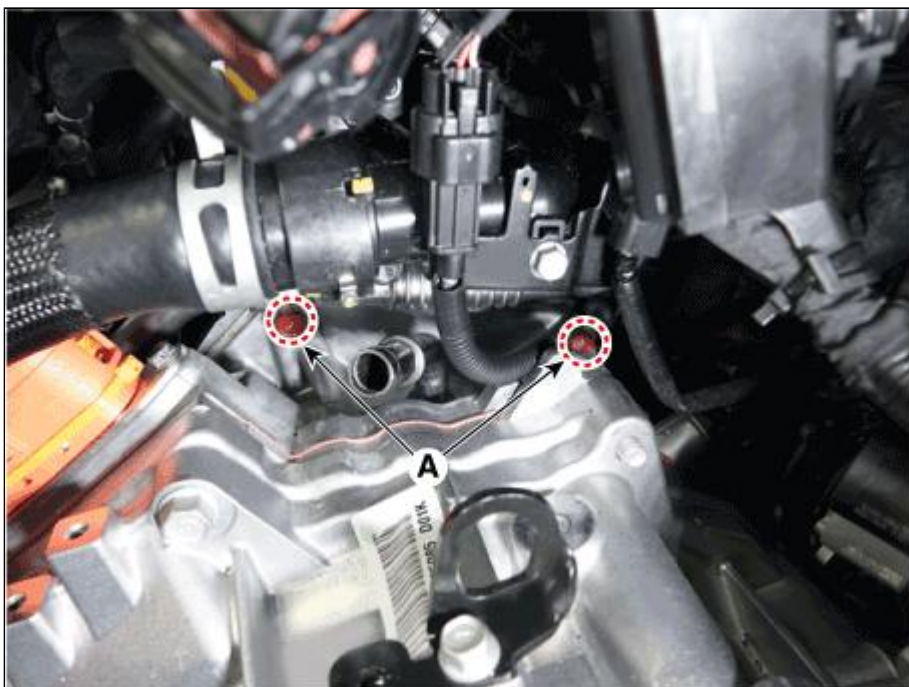
19. Separate the hybrid motor cooling hose (A).



20. Loosen the hybrid motor upper mounting bolts (A).

Tightening torque :

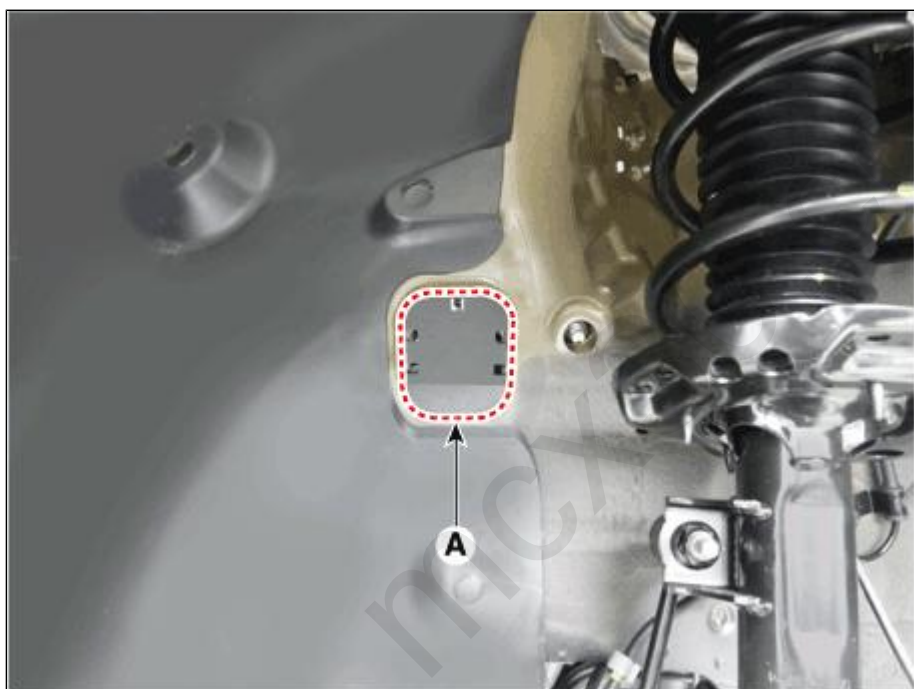
39.2 - 48.1 N.m (4.0 - 4.9kgf.m, 28.9 - 35.4 lb-ft)



21. Assemble the engine support fixture (beam No.: 09200-38001 or 09200-3N000, adapter No.: 09200-2W000).
(Refer to Special Service Tools - "Engine support fixture special tool assembly drawing")
22. Using the engine support fixture (A), hold the engine and transaxle assembly safely.



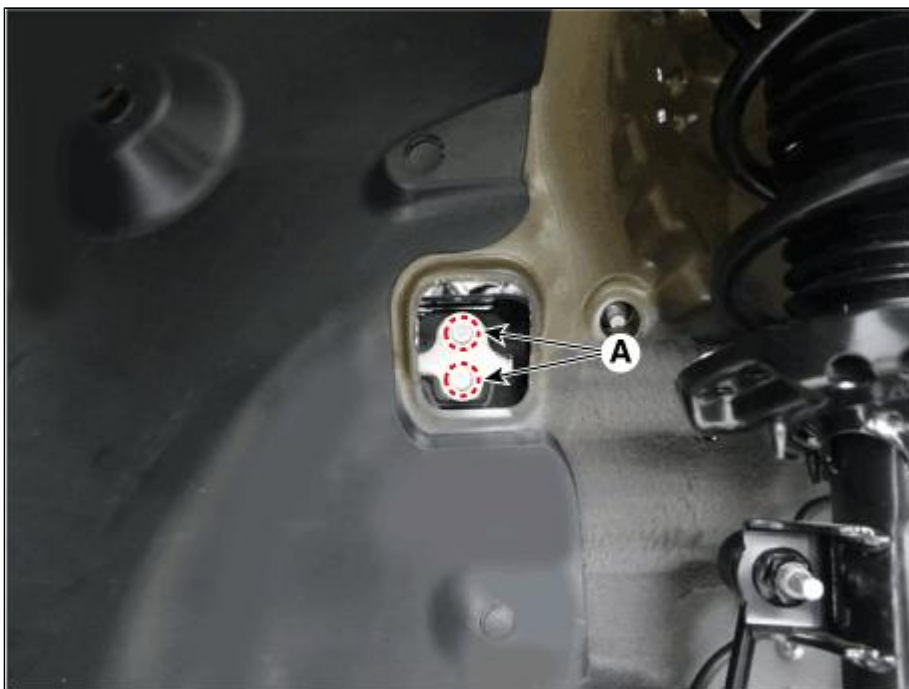
23. Remove the dust cover (A).



24. Remove the transmission bracket support mounting bolts (A).

Tightening torque :

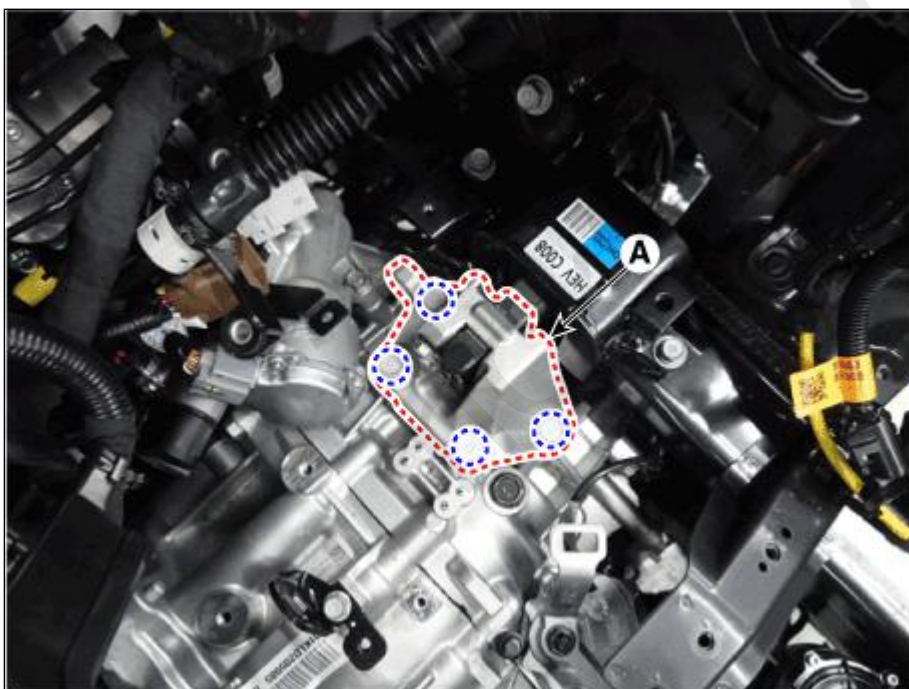
88.3 - 107.9 N.m (9.0 - 11.0 kgf.m, 65.1 - 79.8 lb-ft)



25. Remove the transmission bracket (A).

Tightening torque :

58.8 - 78.5 N.m (6.0 - 8.0 kgf.m, 43.4 - 57.9 lb-ft)



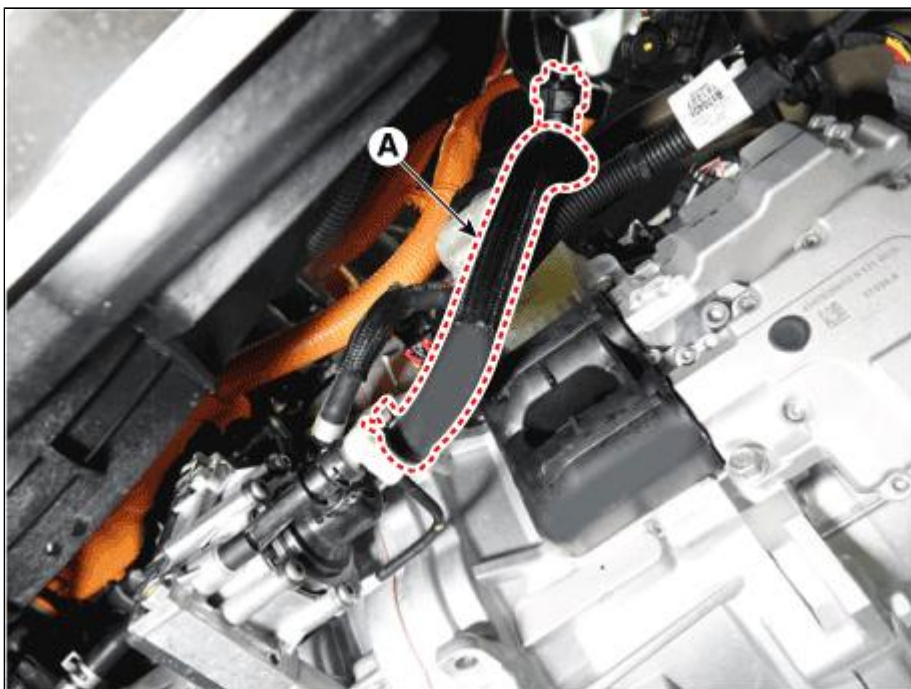
26. Remove the sub frame.

(Refer to Suspension System - "Sub Frame")

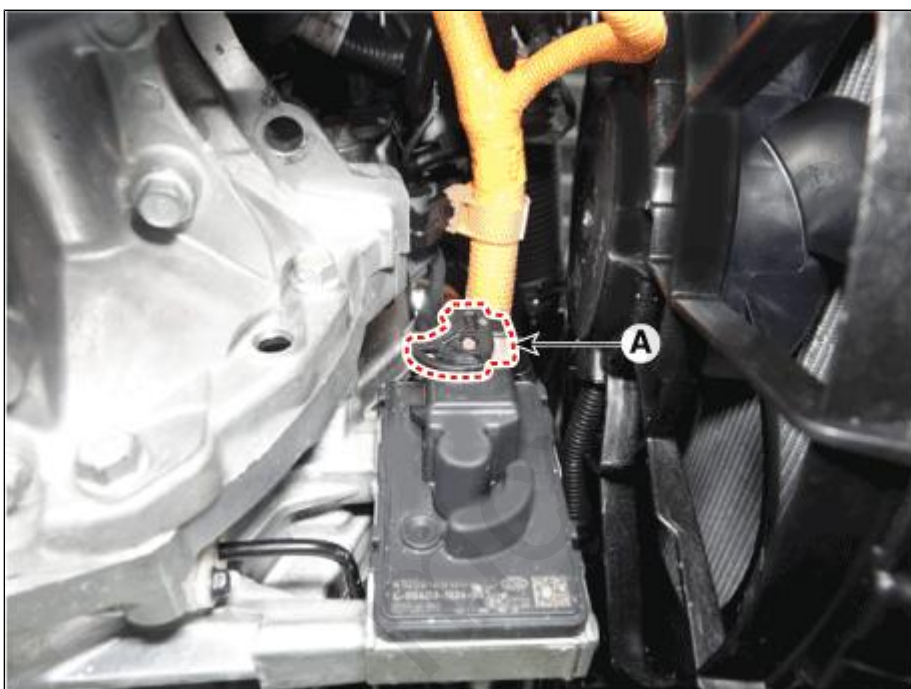
27. Remove the front drive shaft assembly.

(Refer to Driveshaft and Axle - "Front Driveshaft")

28. Separate the hybrid motor cooling hose (A).



29. Disconnect the engine clutch actuator connector (A).



30. Loosen the bolts and then separate the electric water pump (A).



31. Loosen the bolt and then removing the crank shaft position sensor (A).

Tightening torque:

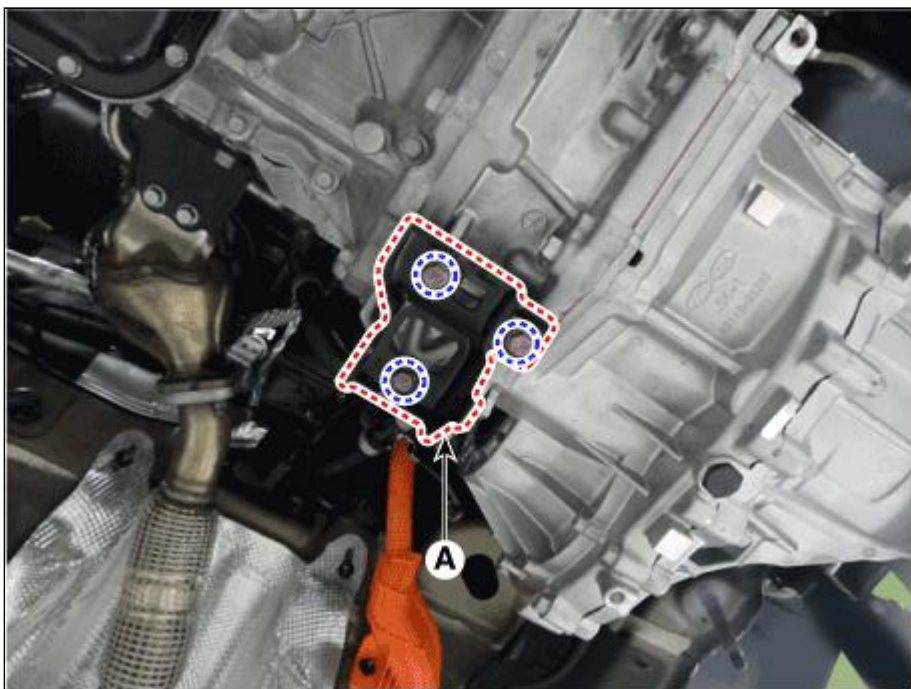
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



32. Loosen the bolts and then removing the roll rod support bracket (A).

Tightening torque :

49.0 - 68.6 N.m (5.0 - 7.0 kgf.m, 36.2 - 50.6 lb-ft)



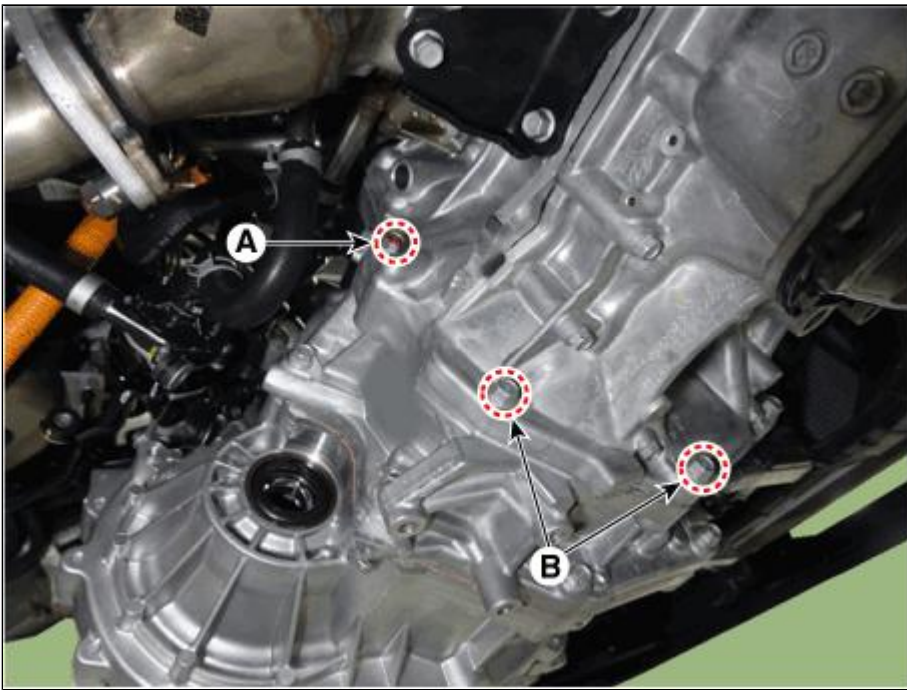
33. Support the hybrid motor and transmission safely by using the jack.
34. Loosen the hybrid motor lower mounting bolts (A, B).

Tightening torque :

(A) 39.2 - 48.1 N.m (4.0 - 4.9kgf.m, 28.9 - 35.4 lb-ft)

(B) 48.1 - 53.9 N.m (4.9 - 5.5kgf.m, 35.4 - 39.8 lb-ft)





35. After separating the hybrid motor and transmission from the engine, remove the transmission by lowering the jack slowly.

⚠ CAUTION

â Be careful not to damage other system or parts near by when removing the hybrid motor and ç transmission assembly.

36. Remove the hybrid motor assembly from the dual clutch transmission.
(Refer to Hybrid Motor System - "Hybrid Motor Assembly")

Installation

1. To install, reverse the removal procedures.

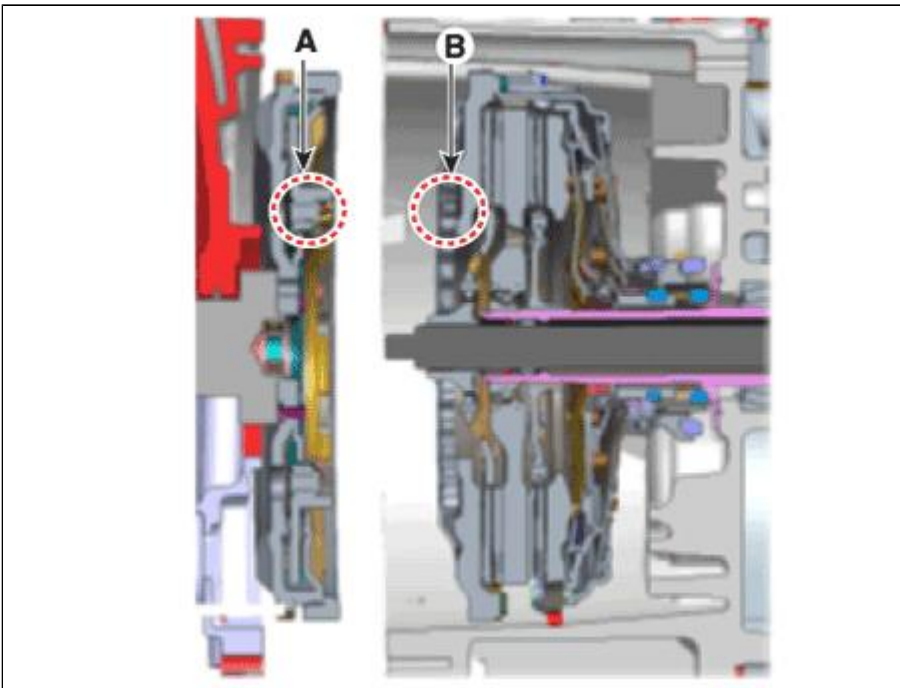
⚠ CAUTION

Matters that require attention when installing the dual clutch transmission (DCT) to hybrid motor.

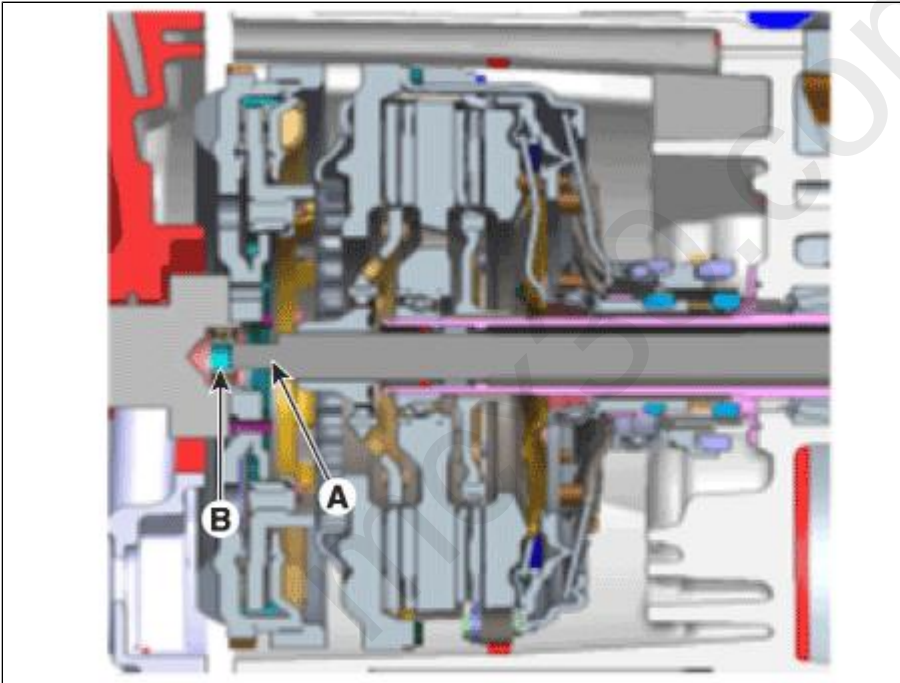
- 1) Check the pilot bearing (A) and connector on the side of motor for any dents, damages and deformations before installing the DCT.



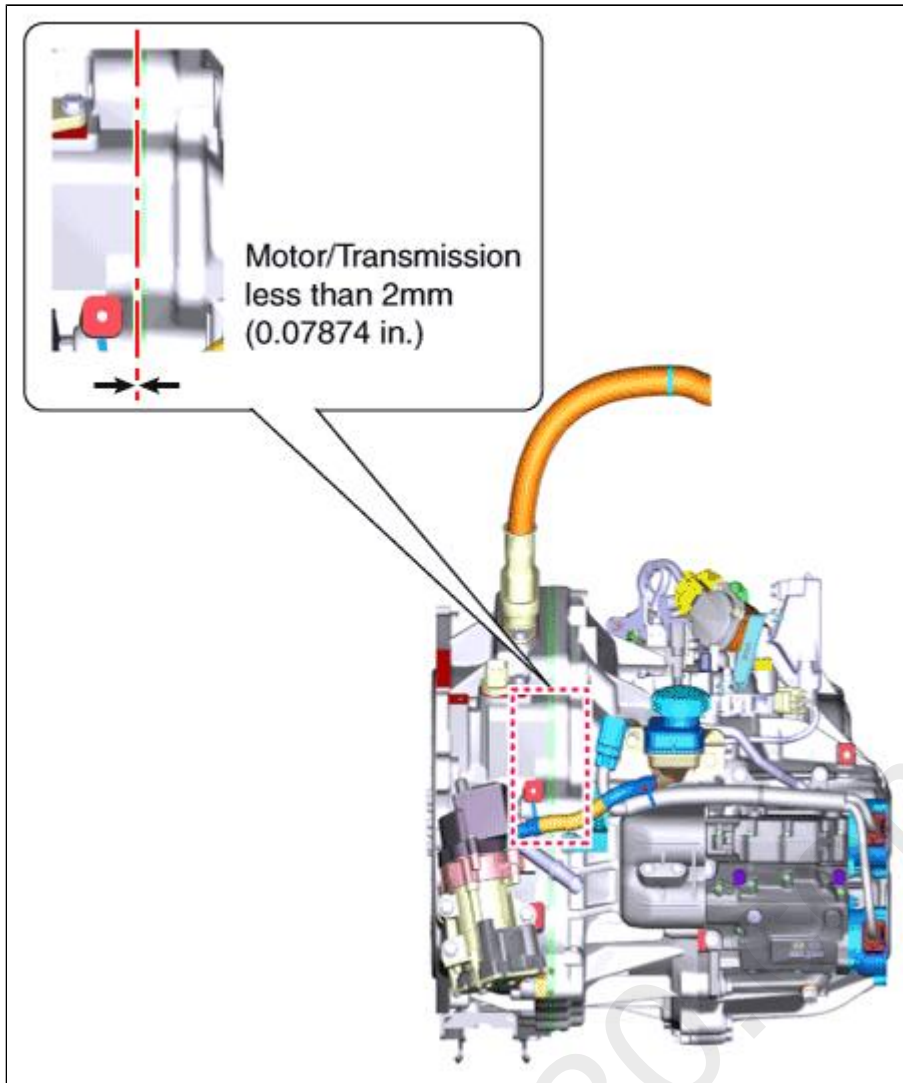
- 2) Align the connector on the side of motor (A) with the dual clutch spline (B).



- 3) Insert the input shaft (A) to the engine pilot bearing (B) and then assemble the DCT to the knock bushing on the hybrid motor side.



- 4) After adhering the DCT with hybrid motor by pushing the DCT, tighten the mounting bolts after checking that there is no gap (less than 2mm) between the clutch housing and the hybrid motor housing. (If the bolt is tightened while there is a gap, then the spline of external damper or clutch will be damaged or broken.)



2. Observe each separate procedure below for reinstallation or replacement with a new dual clutch transmission.

When reinstalling

1. If the differential oil seal is damaged and oil is leaking, replace the oil seal with a new one. When installing a new oil seal, use the special tool (09430-C1190, 09231-H1100).
2. After installing the DCT, check the oil level after refilling the DCT with oil.
(Refer to Dual Clutch Transmission System - "Transmission Gear oil")
3. Clear the diagnostic trouble codes (DTC) using the diagnostic tool. Disconnecting the battery negative terminal will not clear the DTCs. Clear the DTCs using the diagnostic tool at all times.

When replacing with a new dual clutch transmission

1. After replacing the new DCT, it need not oil refill & level check procedure because oil is already filled with specified quantity inside new DCT.
2. Clear the diagnostic trouble codes (DTC) using the diagnostic tool. Disconnecting the battery negative terminal will not clear the DTCs. Clear the DTCs using the diagnostic tool at all times.
3. Perform clutch characteristics input procedure using the diagnostic tool. (One of two procedures must be performed.)
 - 1) Clutch characteristics input (Manual Teaching)



2) Clutch touch point learning



4. After replacing the Dual Clutch Transmission (DCT), perform the following sequence using the diagnostic tool.
- (1) When exchanging a part in addition to the engine clutch set (Dual clutch transmission, Hybrid motor, Engine clutch actuator)



■ Modular Clutch Actuator



- System Identification 
- Engine clutch learning(when exchanging a part in addition to the engine clutch set) 
- Engine clutch learning(when exchanging the engine clutch set) 



Do not touch any system buttons while performing this function.



- Engine clutch learning(when exchanging a part in addition to the engine clutch set)

Purpose	This function is to initialize the existing learning data and perform the engine clutch system learning again after exchanging the hydraulic line, MCA (actuator), transmission, and motor.
Enable Condition	1. Vehicle state: IG ON, HEV Not Ready 2. Gearstick : P-stage 3. Parking brake engagement 4. No accelerator pedal operation
Concerned Component	-
Concerned DTC	-
Fail Safe	-
Etc	1. No gear shift during learning 2. If the learning fails, delete the fault code and perform the learning again 3. Need to enter HEV Ready without IG OFF after MCA initialization



Do not touch any system buttons while performing this function.

S/W Management

■ Engine clutch learning(when exchanging a part in addition to the engine clutch set)

● [Engine clutch learning(when exchanging a part in addition to the engine clutch set)]

This function is to initialize the existing learning data and perform the engine clutch system learning again after exchanging the hydraulic line, MCA (actuator), transmission, and motor.

●[Condition]

1. Vehicle state: IG ON, HEV Not Ready
2. Gearstick : P-stage
3. Parking brake engagement
4. No accelerator pedal operation

⚠[Caution]

1. No gear shift during learning
2. If the learning fails, delete the fault code and perform the learning again
3. Need to enter HEV Ready without IG OFF after MCA initialization

[OK] Button : Initialize MCA

[Cancel] Button : Optional function completed

OK

Cancel



Do not touch any system buttons while performing this function.

S/W Management

- Engine clutch learning(when exchanging a part in addition to the engine clutch set)

● [Engine clutch learning]

MCA initialization is completed.

For the engine clutch learning, with IG ON and brake ON, press SSB to turn the ignition key ON (HEV Ready) \and click the **[OK]** button.

[Caution]

MCA initialization needs to be performed again under IG ON during IG OFF

[OK] Button : Perform the engine clutch learning

[Retry] button: Initialize MCA again

OK

Retry



Do not touch any system buttons while performing this function.

S/W Management

■ Engine clutch learning(when exchanging a part in addition to the engine clutch set)

● **[Engine clutch learning]**

The parameter is completely initialized

MCA position learning is completed

Information

The function has been completed.

Erase history DTC if it remains.

[OK] button: End optional function

OK

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!
Do not touch any system buttons while performing this function.

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