

Troubleshooting

Trouble symptom	Probable cause	Remedy
Displayed the warning lamp "E" (Driving is only possible with 1/ R gear)	Not performed DCT learning	Perform the DCT manual learning procedure.
Impossible to driving with odd gear	Clutch actuator (Clutch motor 1 or position sensor 1 failure)	Replace the clutch actuator assembly.
	Gear actuator (Shift motor 1 or position sensor 1 failure, select solenoid 1 or position sensor 1 failure)	Replace the gear actuator assembly.
	Input speed sensor 1 failure	Replace the input speed sensor.
	Faulty gears (1, 3, 5, 7)	Replace the gear.
	Faulty clutch 1	Replace the dual clutch assembly.
	Faulty engagement bearing 1	Replace the Engagement Bearing Assembly
Impossible to driving with even gear	Clutch actuator (Clutch motor 2 or position sensor 2 failure)	Replace the clutch actuator assembly.
	Gear actuator (Shift motor 2 or position sensor 2 failure, select solenoid 2 or position sensor 2 failure)	Replace the gear actuator assembly.
	Input speed sensor 2 failure	Replace the input speed sensor.
	Faulty gears (2, 4, 6, R)	Replace the gear.
	Faulty clutch 2	Replace the dual clutch assembly.
	Faulty engagement bearing 2	Replace the Engagement Bearing Assembly
Impossible to driving	TCM failure	Replace the TCM.
	Odd / even system simultaneous failure	Replace the dual clutch assembly or gear.

	Inhibitor switch / shift lever sensor simultaneous failure	Replace the inhibitor switch.
Impossible to manual mode	Inhibitor switch failure	Replace the inhibitor switch.
	Shift lever sensor failure	Replace the shift lever.
	Manual mod switch failure	Replace the manual mod switch housing.
Noise	Oil level (Low)	Refill the oil with transmission after inspecting the parts (Oil seal, Drain plug, Filler plug).
	Oil (Wrong)	Replace the oil.
	Synchronizer ring (Worn or damaged)	Replace the synchronizer ring.
	Gear (Worn or damaged)	Replace the gear.
	Bearing (Worn or damaged)	Replace the bearing.
Oil leak	Oil level (High)	Inspect the oil level.
	Gasket (Damaged)	Replace the gasket.
	Oil seal (Worn or damaged)	Replace the oil seal.
Hard shifting or impossible to shift	Oil (Wrong)	Replace the oil.
	Shift fork (Worn)	Replace the shift fork.
	Synchronizer ring (Worn or damaged)	Replace the synchronizer ring.
	Gear (Worn or damaged)	Replace the gear.
	Hub sleeve (Worn or damaged)	Replace the hub sleeve.

Specifications

Transmission type		FF 7th DCT (D7UF1-2)
Egnine type		Gasoline 1.6 T-GDI
Gear ratio	1st	3.929
	2nd	2.318
	3rd	1.957
	4th	1.023
	5th	0.778
	6th	0.837
	7th	0.681
	Reverse	5.304
Final gear ratio	1st, 2nd, 4th, 5th	4.929
	3rd, 6th, 7th, R	3.632

Clutch Actuator

Item	Specification
Rated voltage	12V
Initialize the rod length	79 - 80 mm (3.1102 - 3.1496 in.)
Wear adjustment amount	0.25 mm (0.0098 in.) @ 1 Click

Gear Actuator

Item	Specification
Power supply	12V
Output type	CAN signals

Inhibitor Switch

- ▷ Type: Combination of output signals from 4 terminals
- ▷ Specifications

Item	Specifications
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Output type	Combination of output signals
Power supply (V)	12

Input speed sensor

Item	Specification
Type	Hall effect sensor
Operating condition	-40 to 257°F (-40 to 125°C)
Output signal	High: 11.8 - 16.8 mA
	Low: 5.9 - 8.4 mA

Tightening
Torques

Item	N.m	kgf.m	lb-ft
Clutch engagement bearing	9.8 - 11.8	1.0 - 1.2	7.2 - 8.7
TCM mounting bolt	7.8 - 9.8	0.8 - 1.0	5.8 - 7.2
Clutch actuator & TCM assembly mounting bolt	19.6 - 26.5	2.0 - 2.7	14.5 - 19.5
Fork cover mounting bolt	3.9 - 5.9	0.4 - 0.6	2.9 - 4.3
Gear actuator mounting bolt	19.6 - 26.5	2.0 - 2.7	14.5 - 19.5
Input shaft speed sensor mounting bolt	9.8 - 11.8	1.0 - 1.2	7.2 - 8.7
Posistion sensor mounting bolt	17.7 - 24.5	1.8 - 2.5	13.0 - 18.1
Electronic shift actuator mounting bolt	20.6 - 26.5	2.1 - 2.7	15.2 - 19.5
Oil drain plug	44.1 - 58.8	4.5 - 6.0	32.5 - 43.4
Oil filler plug	58.8 - 78.5	6.0 - 8.0	43.4 - 57.9
Stater motor mounting bolt	49.0 - 63.7	5.0 - 6.5	36.2 - 47.0
Transmission bracket support mounting bolt	88.3 - 107.9	9.0 - 11.0	65.1 - 79.6
Transmission bracket mounting bolt	58.9 - 78.5	6.0 - 8.0	43.4 - 57.8
Transmission upper mounting bolt (Transmission=>Engine)	42.2 - 53.9	4.3 - 5.5	31.1 - 39.8
Transmission lower mounting bolt (Engine=>Transmission)	42.2 - 48.1	4.3 - 4.9	31.1 - 35.4

42.2 - 53.9

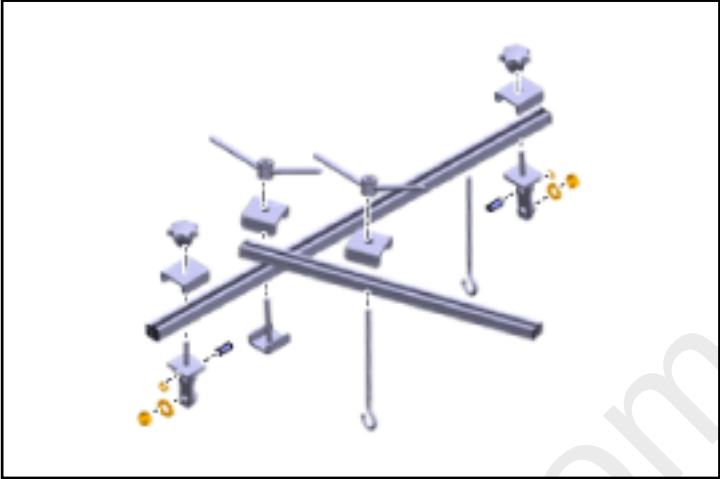
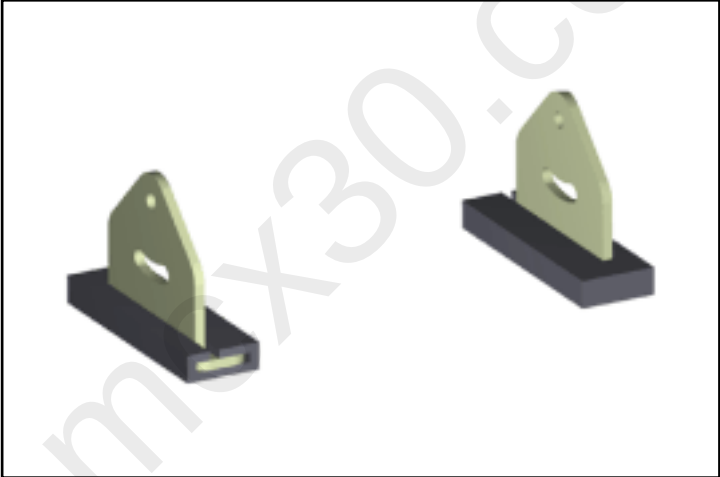
4.3 - 5.5

31.1 - 39.8

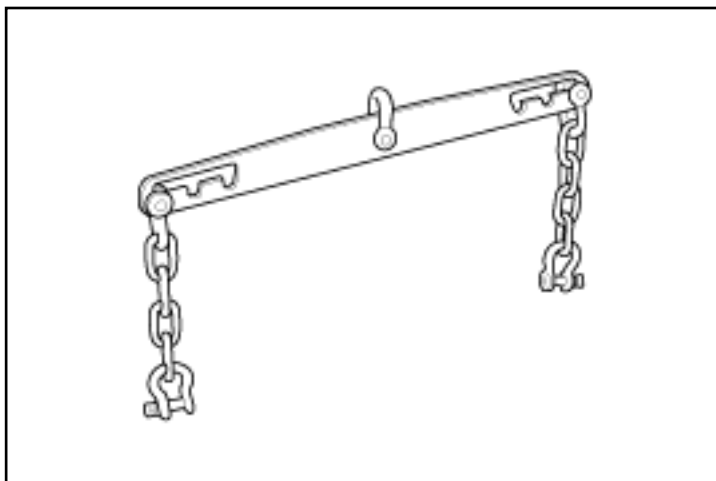
Lubricants

Item	Specified lubricant	Quantity
Input shaft 1/2 spline	Extreme pressure grease for vehicle	0.15 - 0.25 g
Clutch Engagement Fork	Extreme pressure grease for vehicle	0.1 - 0.2 g
Transmission oil	SAE 70W, API GL-4 Recommended transmission oil - SK : HK D DCTF TGO-10 - H.K.SHELL : SPIRAX S6 GHDE 70W DCTF - S-OIL : 7 DCTF HKM	1.6 - 1.7 ℓ (0.42 - 0.45 U.S.gal., 1.69 - 1.80 U.S. qt., 1.41 - 1.50 Imp qt)

Special Service
Tools

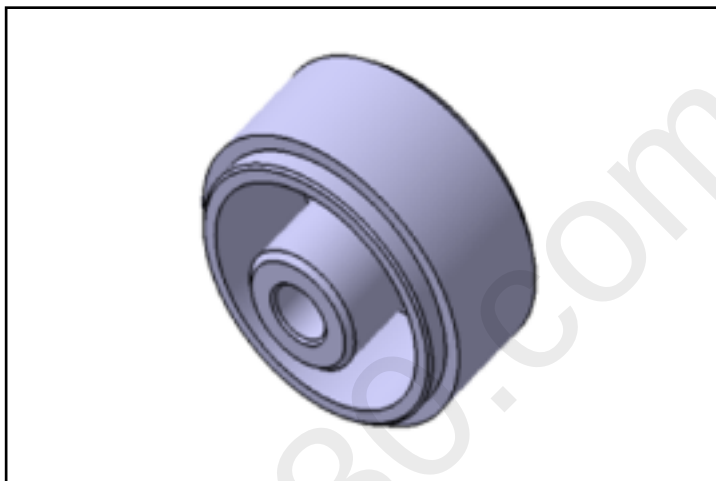
Tool (Number and Name)	Illustration	Use
Engine support fixture (Beam) 09200-3N000		Removal and installation of the transmission. Use this beam (SST No. : 09200-3N000) with the supporter (SST No. : 09200-2S200). ※Permit operating with 09200-38001.
09200-2S200 Engine support fixture (Supporter)		Removal and installation of the transaxle. with the beam (SST No. : 09200-38001/3N000).
09200-L1200 Engine support fixture (Front)		Removal and installation of the transaxle.

09200-4X000
Engine
support fixture
(Adapter)



Removal and
installation of the
transaxle.
Use this beam
(SST No. : 09200-
3N000)

09473-D3500
Oil seal
installer



Used for installing
driven gear oil seal
Used with the
handle (09231-
H1100)
[4WD]

09453-3L240
Oil seal
installer



Used for installing
differential oil seal
Used with the
handle (09231-
H1100)

Handle
09231-H1100



Used for installing
differential oil
seal
Used with the
installer (09453-
3L240)

09430-2C110
Position
sensor neutral
fixed jig



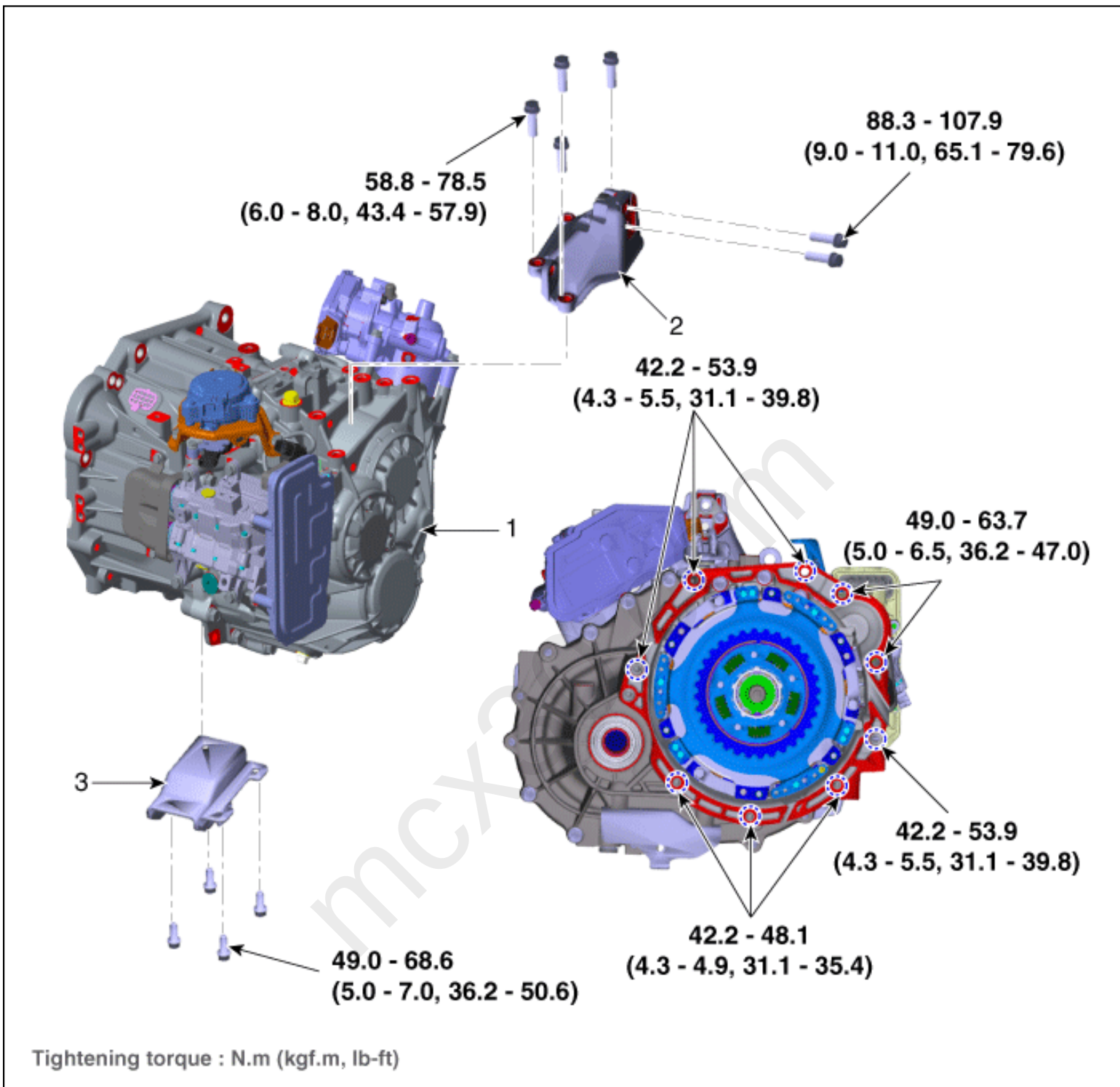
Used to align the
neutral position
when installing the
position sensor.

Dual clutch
remover
09430-C1180



Used for removing
dual clutch
assembly

Dual clutch Installer 09430-2A240	 A 3D rendering of a dual clutch installer tool. It features a central grey body with a silver pin at the top and a black cylindrical component at the bottom. Four green arms extend from the sides, each with a red dot at its end.	Used for installing dual clutch assembly
Clutch actuator adjuster 0K430-Q5300	 A 3D rendering of a clutch actuator adjuster tool. It is a grey, cylindrical tool with a hexagonal base and a threaded rod extending from one end.	Used for adjusting clutch actuator
Clutch actuator remover & installer 0K430-Q5100	 A 3D rendering of a clutch actuator remover and installer tool. It is a grey plastic case with a handle, shown open to reveal a grid of compartments containing various colored pins (red, green, yellow, and black).	Removal and installation of the clutch actuator assembly.

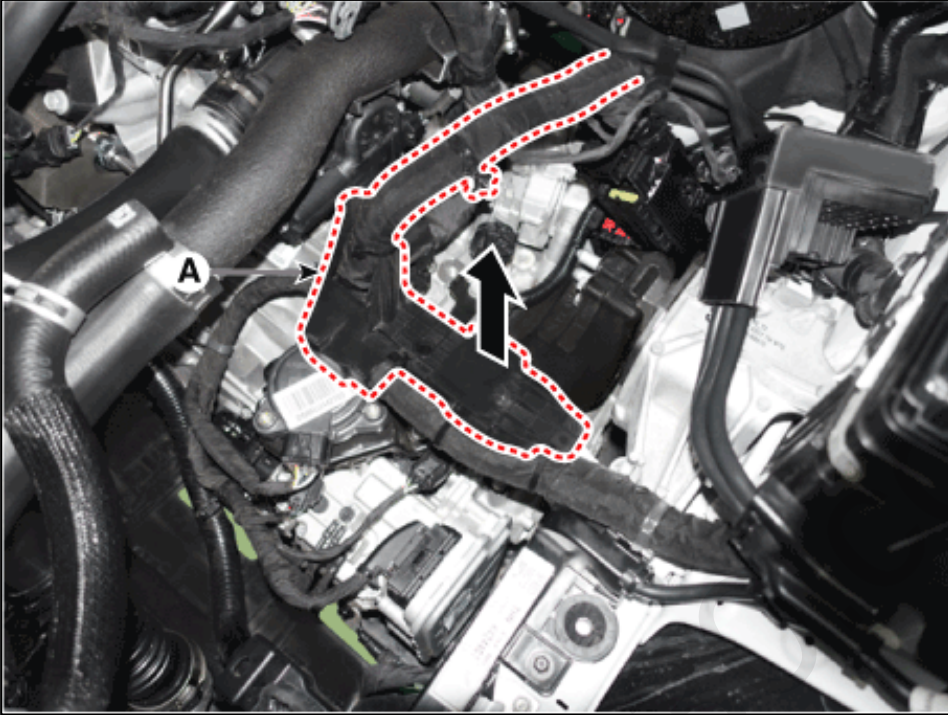


1. DCT (Dual Clutch Transmission) assembly
2. DCT support bracket

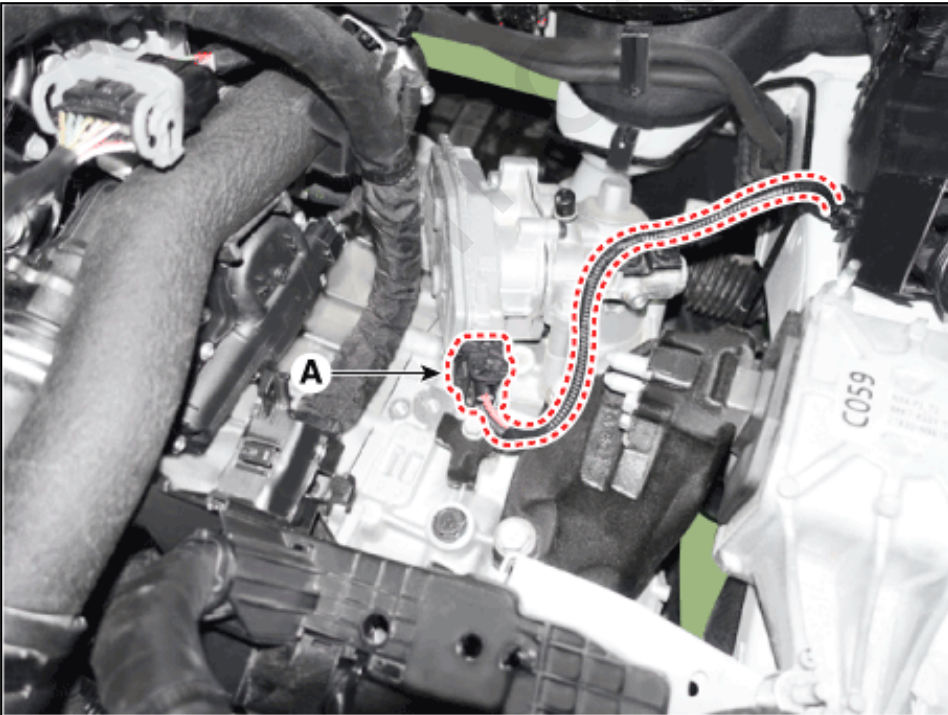
3. Roll rod support bracket

Removal

1. Turn ignition switch OFF and disconnect the negative (-) battery cable.
2. Remove the air cleaner assembly and air duct.
(Refer to Engine Mechanical System - "Air cleaner")
3. Remove the ECM.
(Refer to Engine Control / Fuel System - "Engine Control Module (ECM)")
4. Remove the battery and battery tray.
(Refer to Engine Electrical System - "Battery")
5. Disconnect the wiring bracket (A).



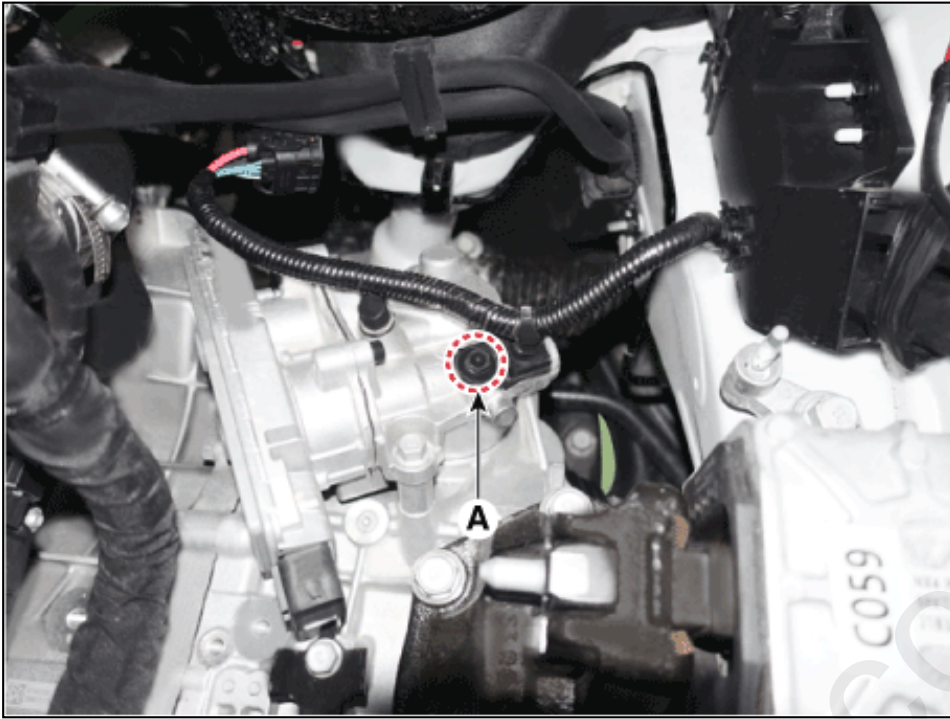
6. Disconnect the gear actuator connector (A).



7. Loosen the mounting bolts (A) and then remove the wiring bracket.

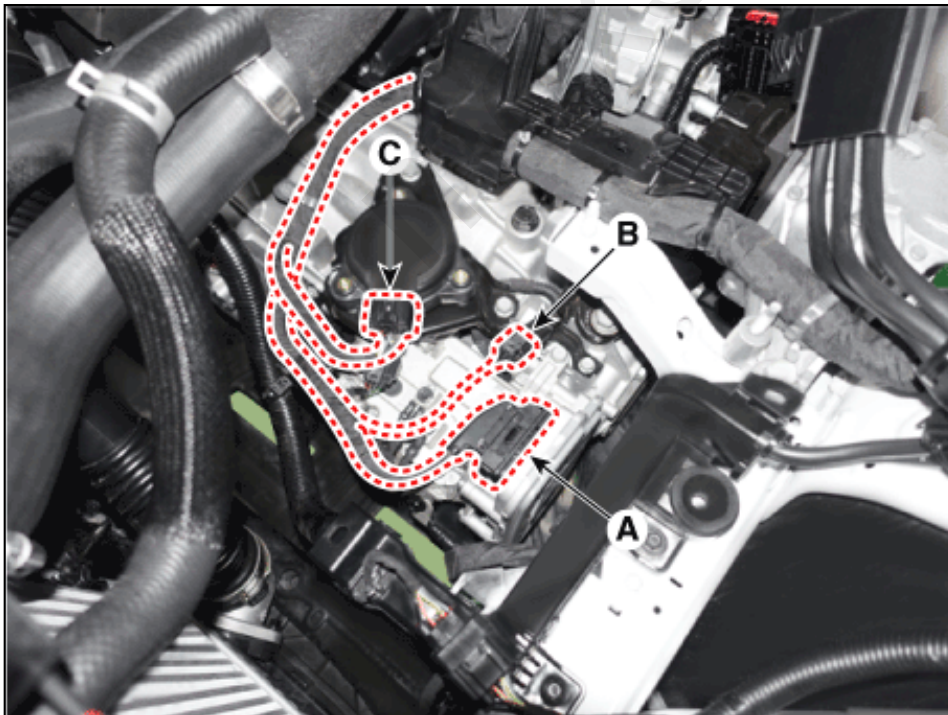
Tightening torque :

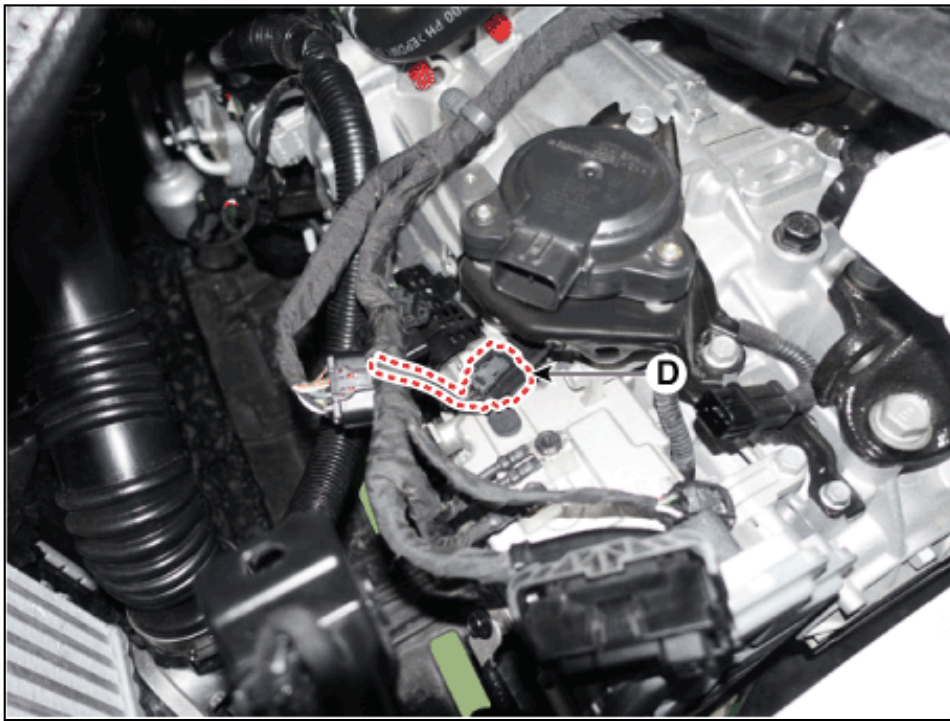
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



8. Disconnect the connectors in the illustration below

- A.TCM connector
- B.Input speed sensor connector
- C.Electronic shift actuator connector
- D.Position sensor connector

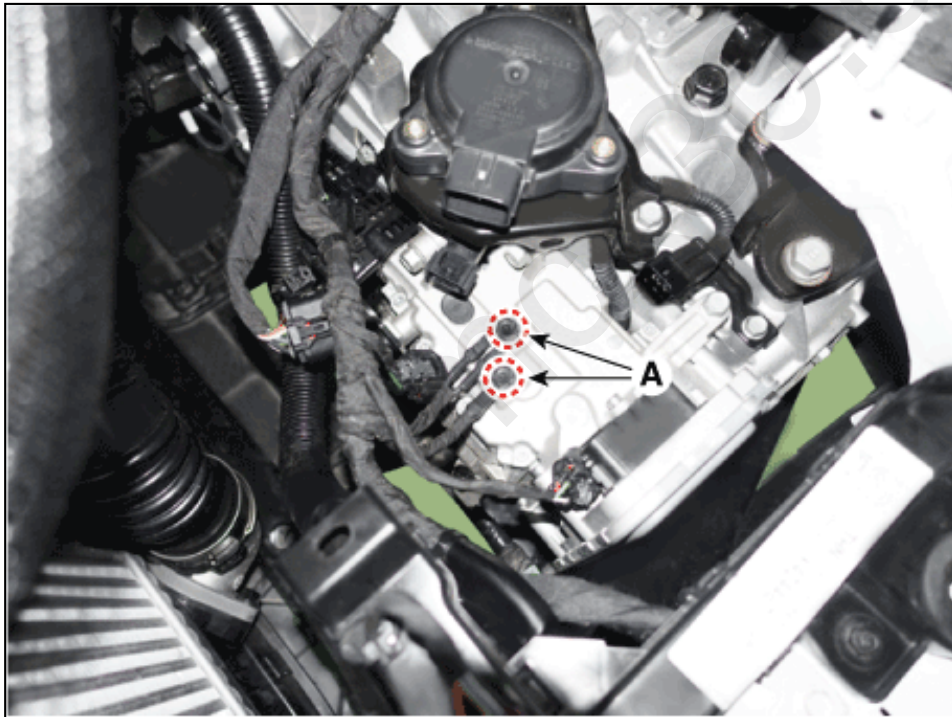




9. Loosen the ground mounting bolt (A).

Tightening torque :

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

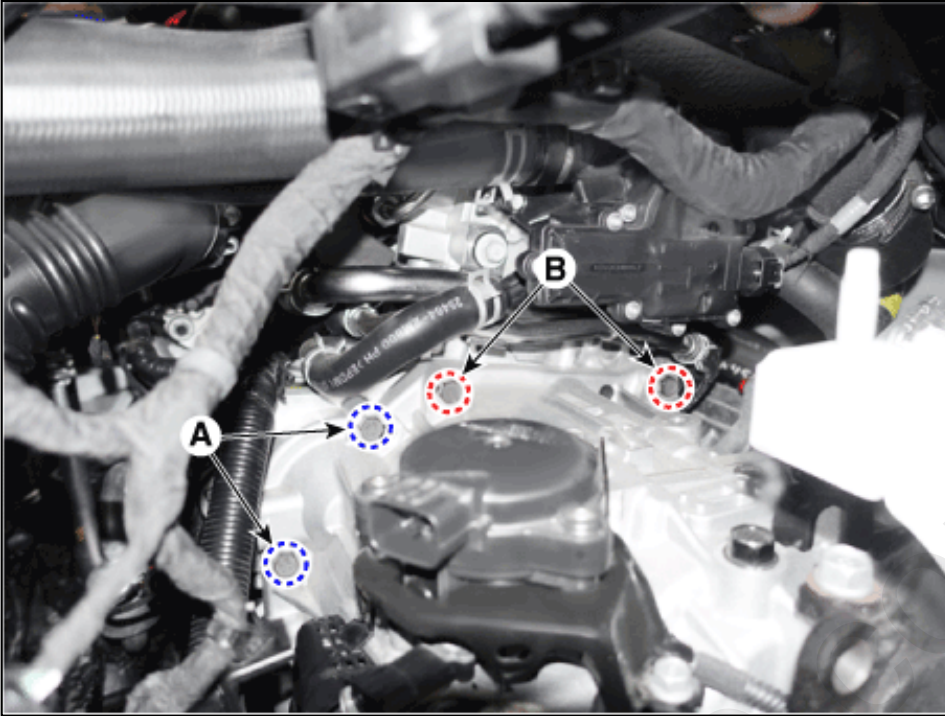


10. Loosen the starter mounting bolts (A) and the transmission upper mounting bolts (B).

Tightening torque :

(A) : 49.0 - 63.7 N.m (5.0 - 6.5 kgf.m, 36.2 - 47.0 lb-ft)

(B) : 42.2 - 53.9 N.m (4.3 - 5.5 kgf.m, 31.1 - 39.8 lb-ft)



11. Assemble the engine support fixture use a (Beam SST No.: 09200 - 3N000, Adapter SST No.: 09200-4X000, Engine support fixture (supporter) SST No.: 09200-2S200, Engine support fixture (front) SST No.: 09200-L1200).
12. Using the engine support fixture (A), hold the engine and transaxle assembly safely.

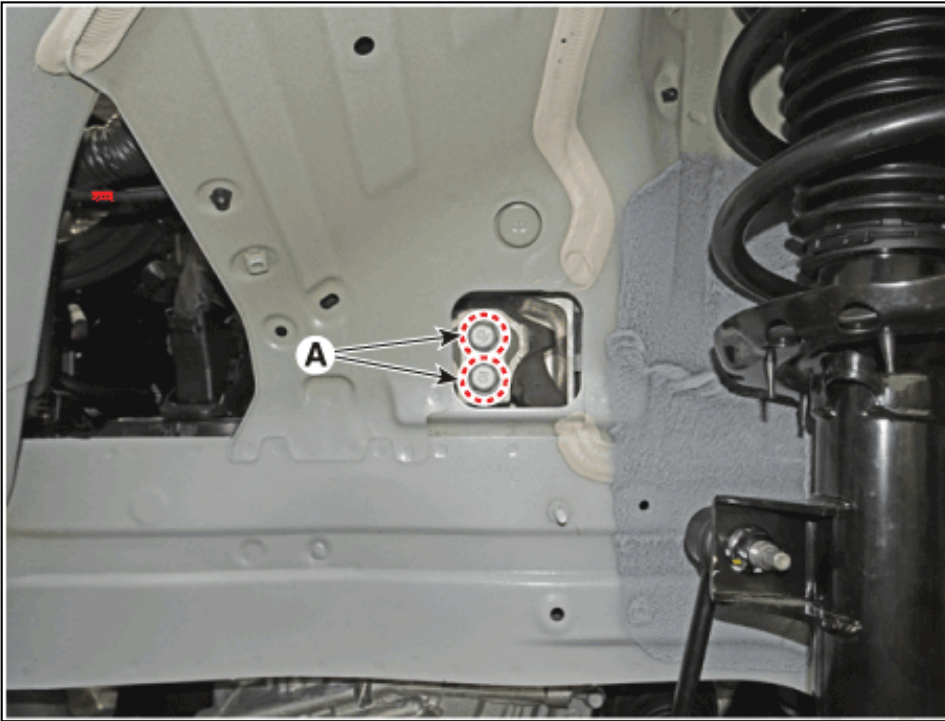


13. Remove the front wheel guard.
(Refer to Body (Interior and Exterior) - "Front Wheel Guard")

14. Loosen the transmission bracket support mounting bolts (A).

Tightening torque :

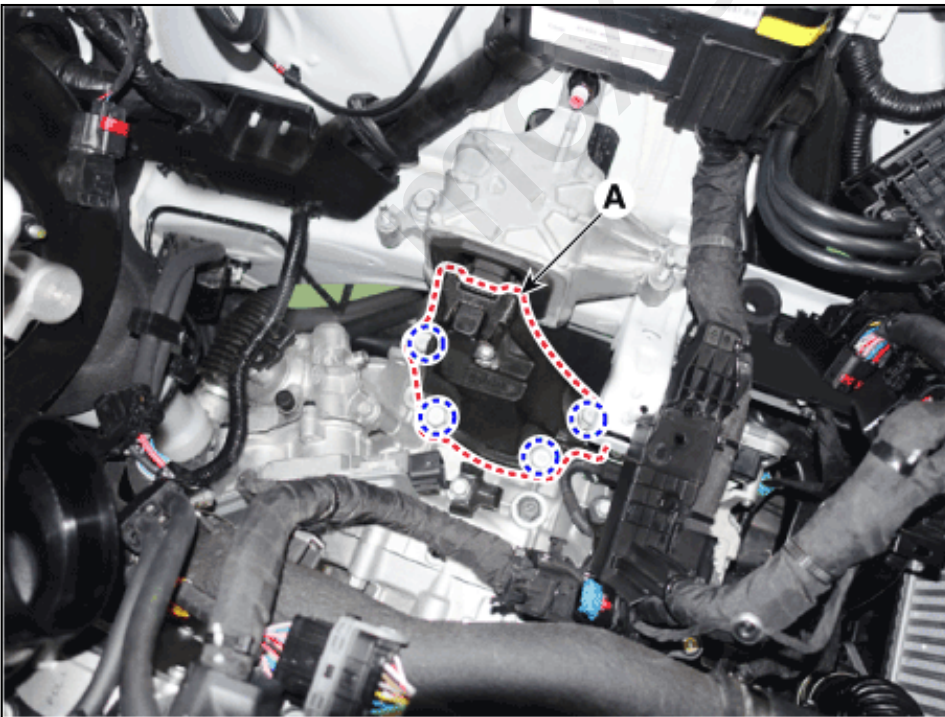
107.9 - 127.5 N.m (11.0 - 13.0 kgf.m, 79.6 - 94.0 lb-ft)



15. Loosen the bolts and then removing the transmission bracket (A).

Tightening torque :

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

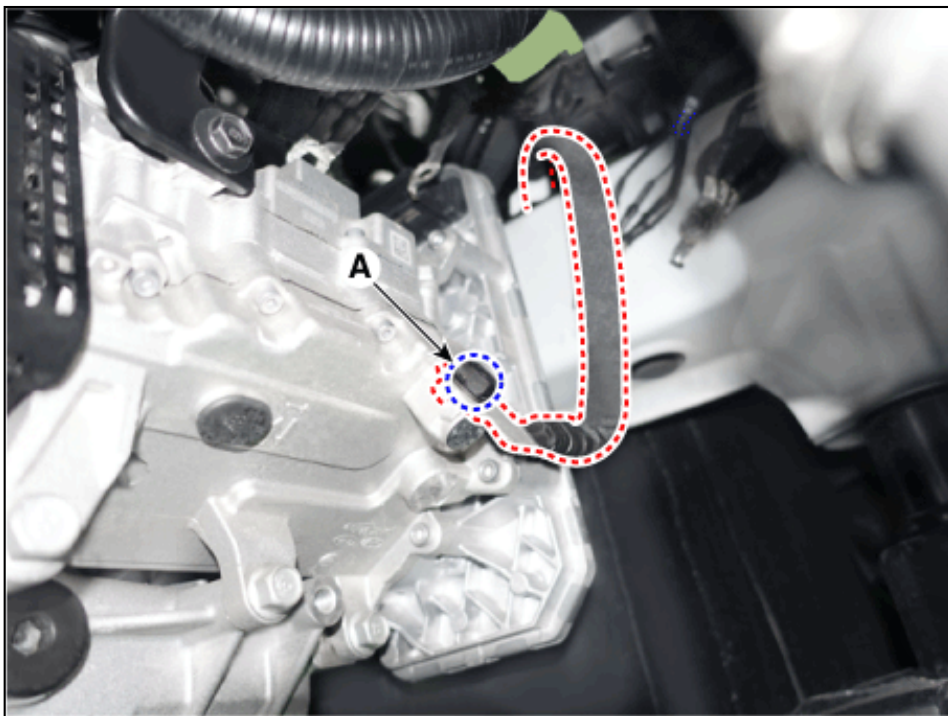


16. Remove the engine room under cover.
(Refer to Engine Mechanical System - "Engine Room Under Cover")

17. Loosen the ground mounting bolt (A).

Tightening torque :

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



18. Loosen the mounting bolts (A) and then remove the wiring bracket.

Tightening torque :

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

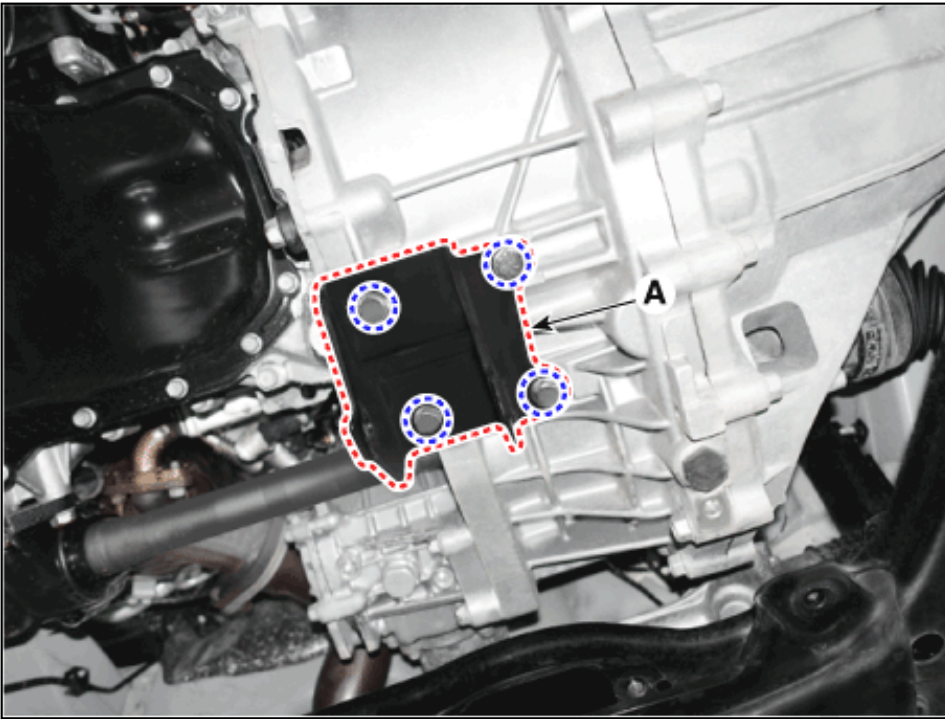


19. Remove the front sub frame
(Refer to Suspension System - "Front Sub Frame")

20. 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)



21. Remove the driveshaft assembly.

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

22. In case of 4WD vehicle, remove the transfer assembly.

(Refer to 4 Wheel Drive (4WD) System - "Front Wheel Transfer Assembly")

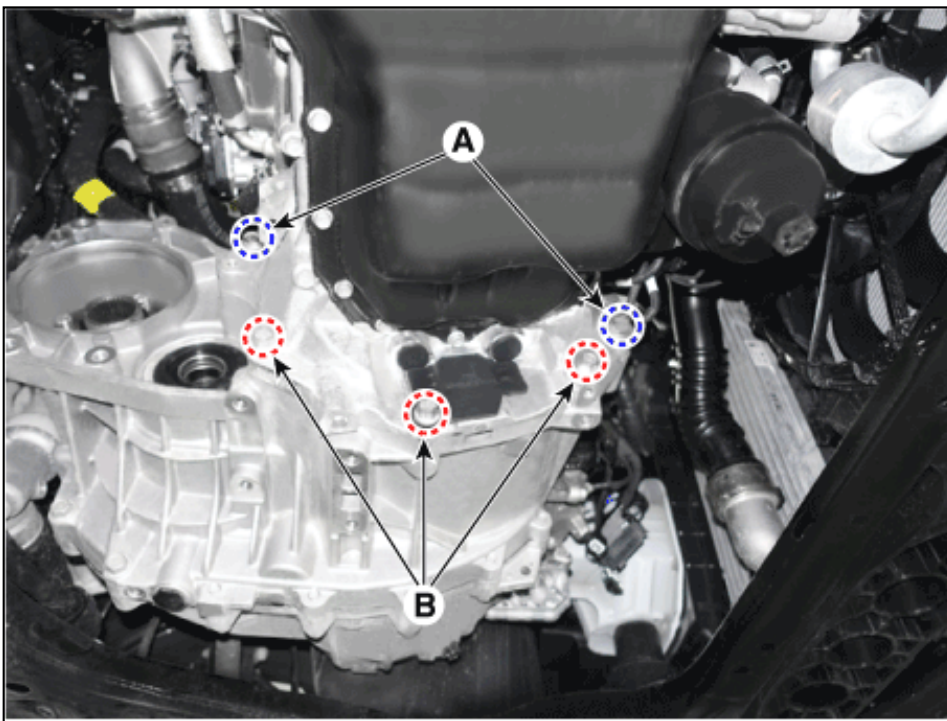
23. Support the transmission safely by using the jack.

24. Loosen the transmission lower mounting bolts (A, B).

Tightening torque :

(A) : 42.2 - 53.9 N.m (4.3 - 5.5 kgf.m, 31.1 - 39.8 lb-ft)

(B) : 42.2 - 48.1 N.m (4.3 - 4.9 kgf.m, 31.1 - 35.4 lb-ft)



25. After separating the transmission from the engine, remove the transmission by lowering the jack slowly.

- ☐
 - Be careful not to damage other nearby systems or parts when removing the transmission assembly.

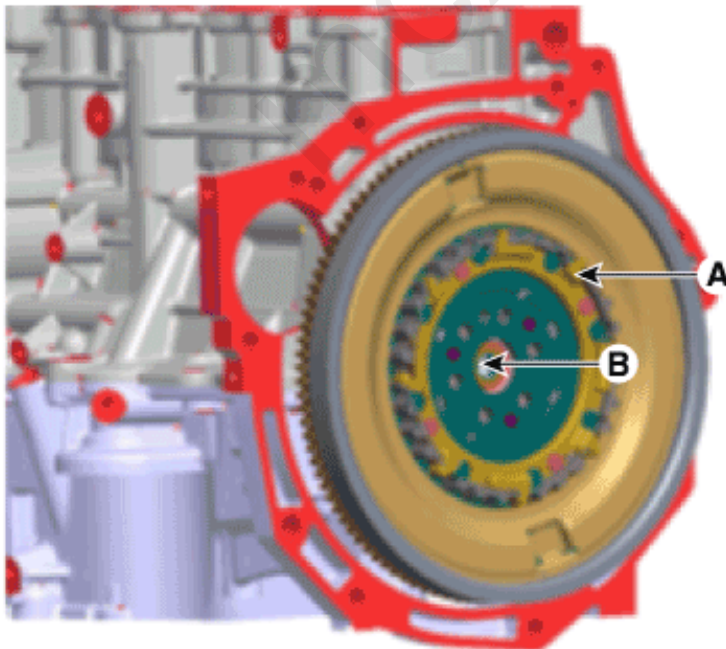
Installation

1. To install, reverse the removal procedure.

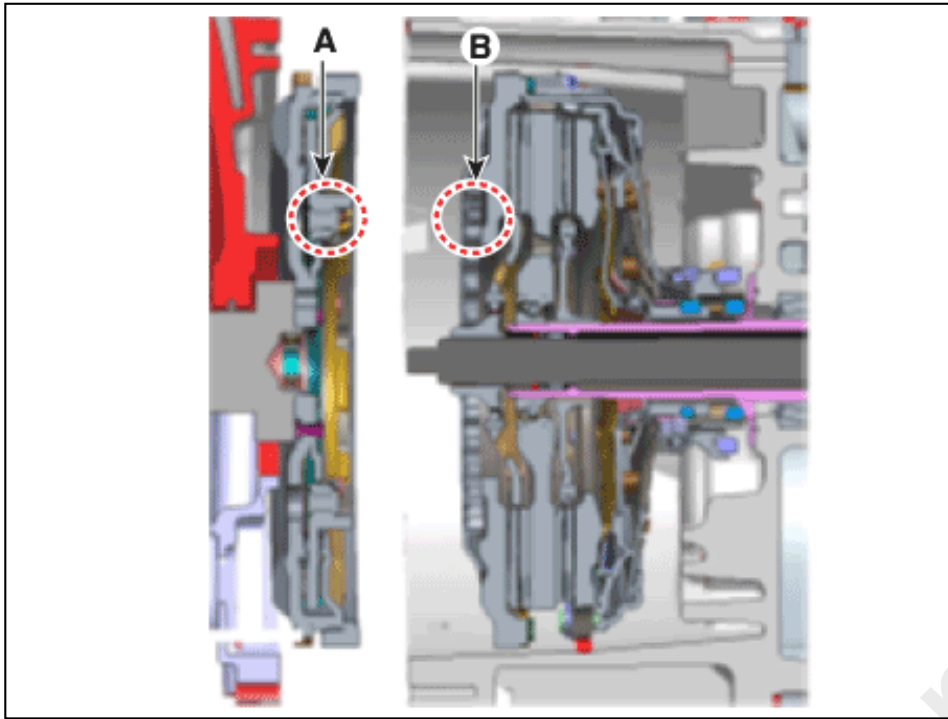
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Matters that require attention when installing the dual clutch transmission (DCT) to engine

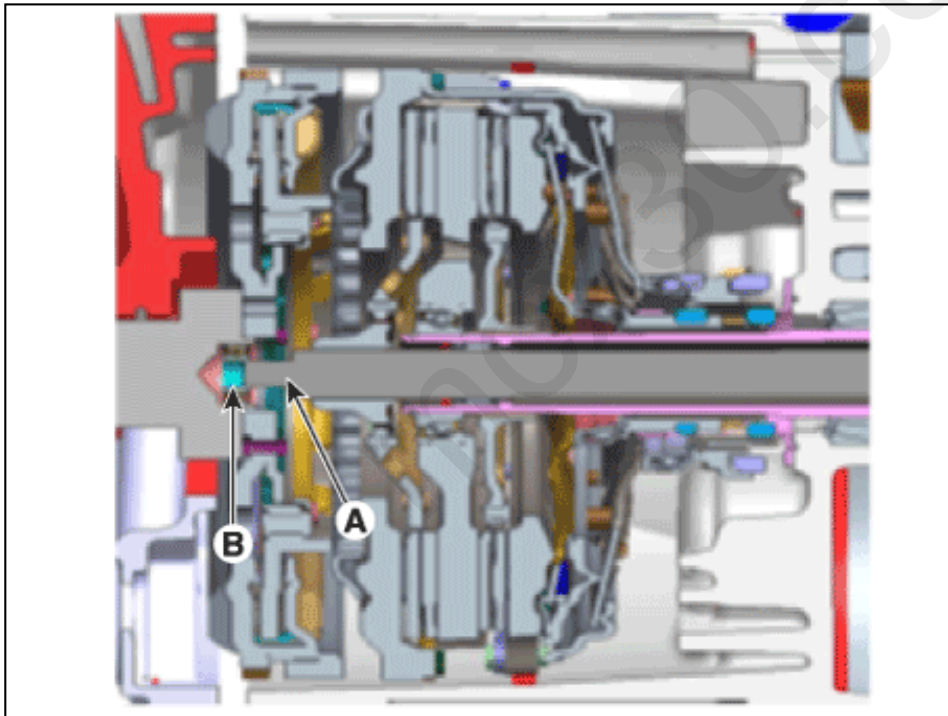
1) Check the pilot bearing (B) and external damper (A) on the side of engine for any dents, damages and deformations before installing the DCT.



2) Align the external damper spline (A) with the dual clutch spline (B).



3) Assemble the DCT (A) to the knock bushing on the engine side (B) and then insert the input shaft to the engine pilot bearing.



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

**Follow the separated each procedure as below according to reinstallation or replacing with a new dual clutch transmission.
In case of the reinstallation**

1. If the differential oil seal is damaged and oil is leaking, replace the oil seal with a new one. When installing the new oil seal, use the special tool.

Item	Special service tool	
	Installer	Handle
transmission case side, clutch housing side oil seal	09453-3L240	09231-H1100
Driven gear oil seal (in case of the 4WD vehicle)	09473-D3500	09231-H1100

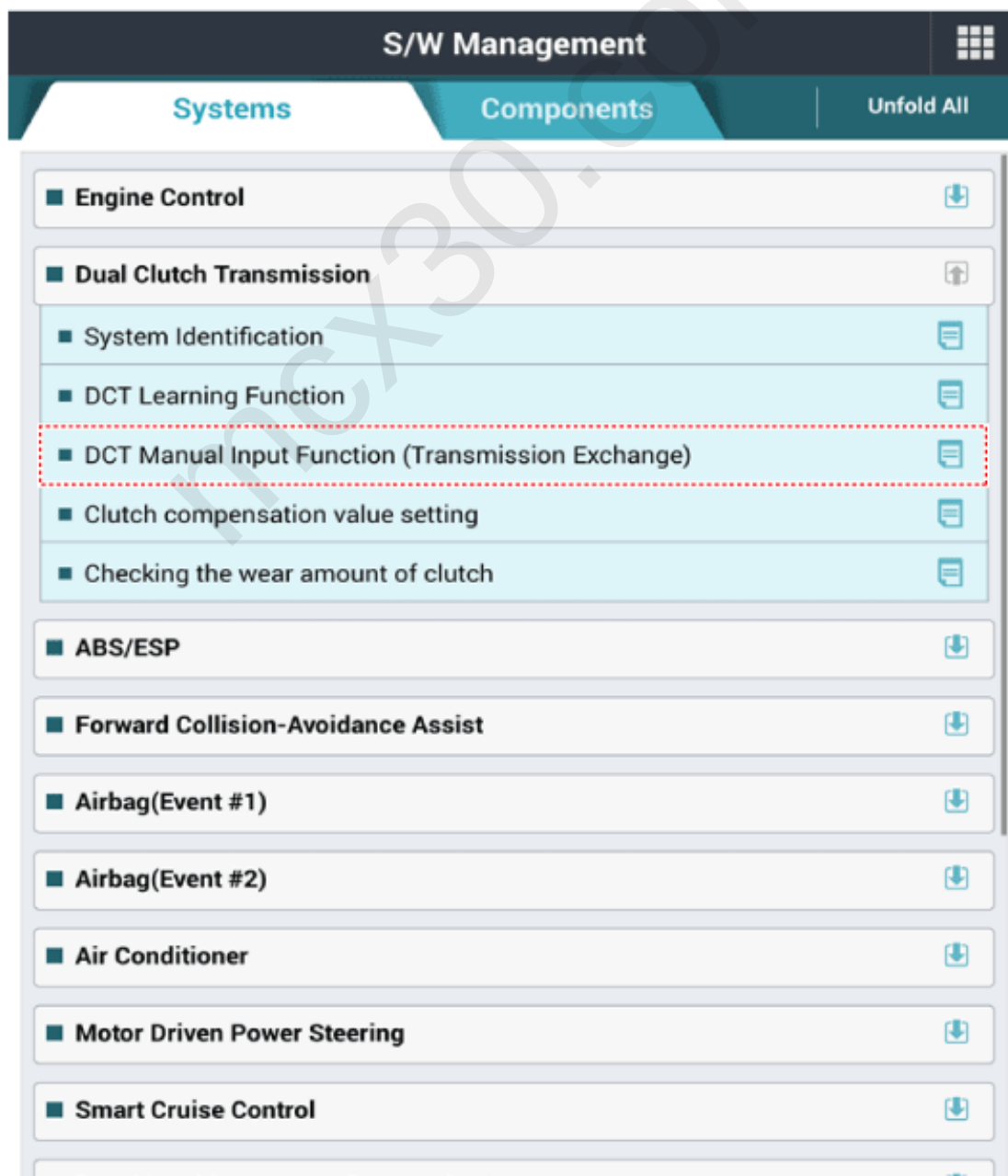
2. After installing the DCT, check the oil level after refilling the DCT with oil.

(Refer to DCT (Dual Clutch Transmission) System - "Transmission Gear Oil")

3. Clear the diagnostic trouble codes (DTC) using the diagnostic tool. Even though disconnecting the battery negative terminal, the DTCs will not be cleared. So, be sure to clear the DTCs using the diagnostic tool.

In case of the 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. Even though disconnecting the battery negative terminal, the DTCs will not be cleared. So, be sure to clear the DTCs using the diagnostic tool.
3. Perform clutch characteristics input procedure using the diagnostic tool. (One of two procedure must be performed.)
 - 1)Clutch characteristics input (Manual Teaching)



■ Smart Cruise Control



■ Rear View Monitor with Parking Guidance



■ Blind-Spot Collision Warning



■ Lane Keeping Assist



Do not touch any system buttons while performing this function.

S/W Management

■ DCT Manual Input Function (Transmission Exchange)

● [DCT Manual Input Function (Transmission Exchange)]

This function allows users to enter barcode information from QR code attached to the transmission and insert it to TCU when changing the transmission.

● [Condition]

1. Engine Status : Ignition Key On, Engine Stop
2. Shift Lever : P
3. Vehicle Speed : 0 Km/h

After pressing **[OK]** button, recognize the QR code attached to the transmission.



OK

Cancel



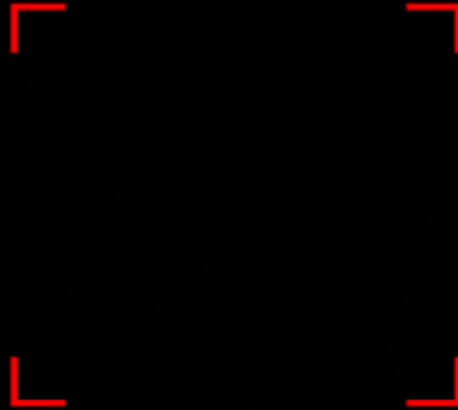
Do not touch any system buttons while performing this function.



Do not touch any system buttons while performing this function.

S/W Management

■ DCT Manual Input Function (Transmission Exchange)



[Example]
QR code zone

Please adjust the QR code on the transmission to the bright screen.

[Caution]

1. The recognition may not be smooth if it is too dark or light is reflected.
2. The recognition may not be smooth if the QR code is contaminated or damaged.

In case recognition is not possible, switch to manual mode.

Manual

Cancel



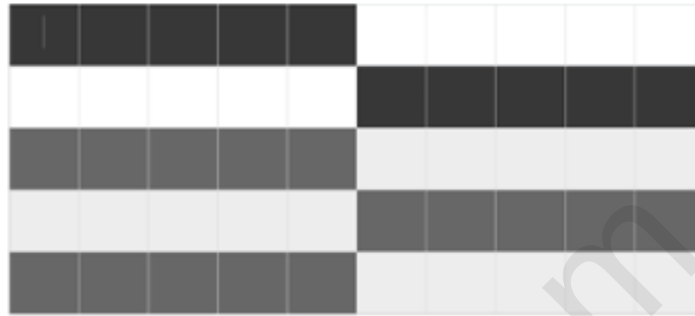
Do not touch any system buttons while performing this function.

S/W Management

■ DCT Manual Input Function (Transmission Exchange)

● [DCT Manual Input Function (Transmission Exchange)]

Enter the barcode attached to the transmission on the blank below in order.



OK

Cancel



Do not touch any system buttons while performing this function.

2)Clutch compensation value setting.

S/W Management

Systems

Components

Unfold All

■ Engine Control

■ Dual Clutch Transmission

■ System Identification

■ DCT Learning Function

■ DCT Manual Input Function (Transmission Exchange)

■ Clutch compensation value setting

■ Checking the wear amount of clutch

■ ABS/ESP

■ Forward Collision-Avoidance Assist

■ Airbag(Event #1)

■ Airbag(Event #2)

■ Air Conditioner

■ Motor Driven Power Steering

■ Smart Cruise Control

■ Rear View Monitor with Parking Guidance

■ Blind-Spot Collision Warning

■ Lane Keeping Assist

!

Do not touch any system buttons while performing this function.

3)Clutch touch point learning.

S/W Management

Systems

Components

Unfold All

■ Engine Control

■ Dual Clutch Transmission

■ System Identification

■ DCT Learning Function

■ DCT Manual Input Function (Transmission Exchange)

■ Clutch compensation value setting

■ Checking the wear amount of clutch

■ ABS/ESP

■ Forward Collision-Avoidance Assist

■ Airbag(Event #1)

■ Airbag(Event #2)

■ Air Conditioner

■ Motor Driven Power Steering

■ Smart Cruise Control

■ Rear View Monitor with Parking Guidance

■ Blind-Spot Collision Warning

■ Lane Keeping Assist

!

Do not touch any system buttons while performing this function.

General
Information

1. Check & Change intervals

Check & Replenishmen	Change		Capacity	Oil specification
	Normal Use	Severe Use		
60000 km / 4 years (40000 miles / 4 years)	No service required	120000 km (80000 miles)	1.6 - 1.7L (0.42 - 0.45 U.S. gal., 1.69 - 1.80 U.S. qt., 1.41 - 1.50 lmp qt)	API Service GL-4, SAE 70W • Recommended oil –SK : HK D DCTF TGO-10 –H.K.SHELL : SPIRAX S6 GHDE 70W DCTF –S-OIL : 7 DCTF HKM

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Severe usage is defined as

- Frequent driving on rough road (Bumpy road, gravel road, snow road, unpaved road. etc.)
- Frequent driving on mountain road, ascent/descent.
- Driving for patrol, taxi, commercial car or vehicle towing.
- Frequent driving under high speed (over 170km)
- More than 50% driving in heavy city traffic during hot weather above 32°C (90°F)
- driving in areas using salt or other corrosive materials or in very cold weather.
- Towing a trailer or using a camper on roof rack.
- Manual transmission oil should be changed any time.

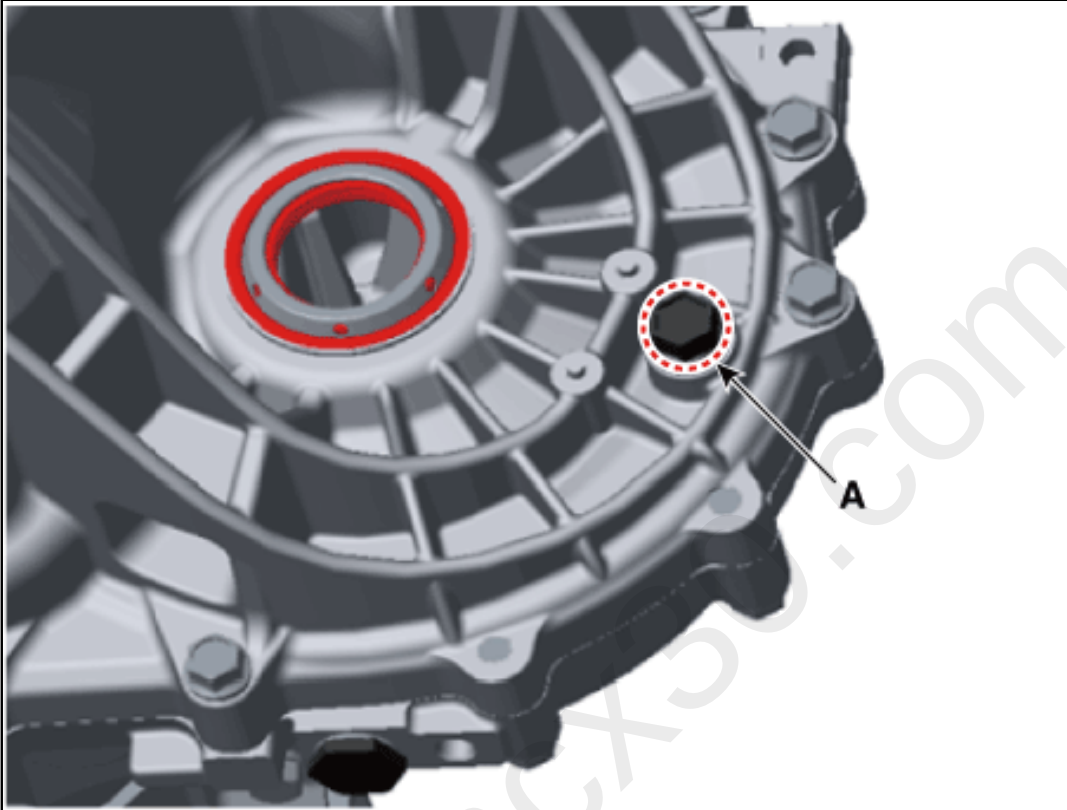
Manual transmission have been submerged in water.

Inspection



- In principle, the transmission oil is maintenance-free, and no exchange is required.
But it must be inspected and replenished every 4 years or 40,000 miles.

1. Uplift the vehicle with lift.
2. Remove the engine room under cover.
(Refer to Engine Mechanical System - "Engine Room Under Cover")
3. Loosen the oil filler plug (A).

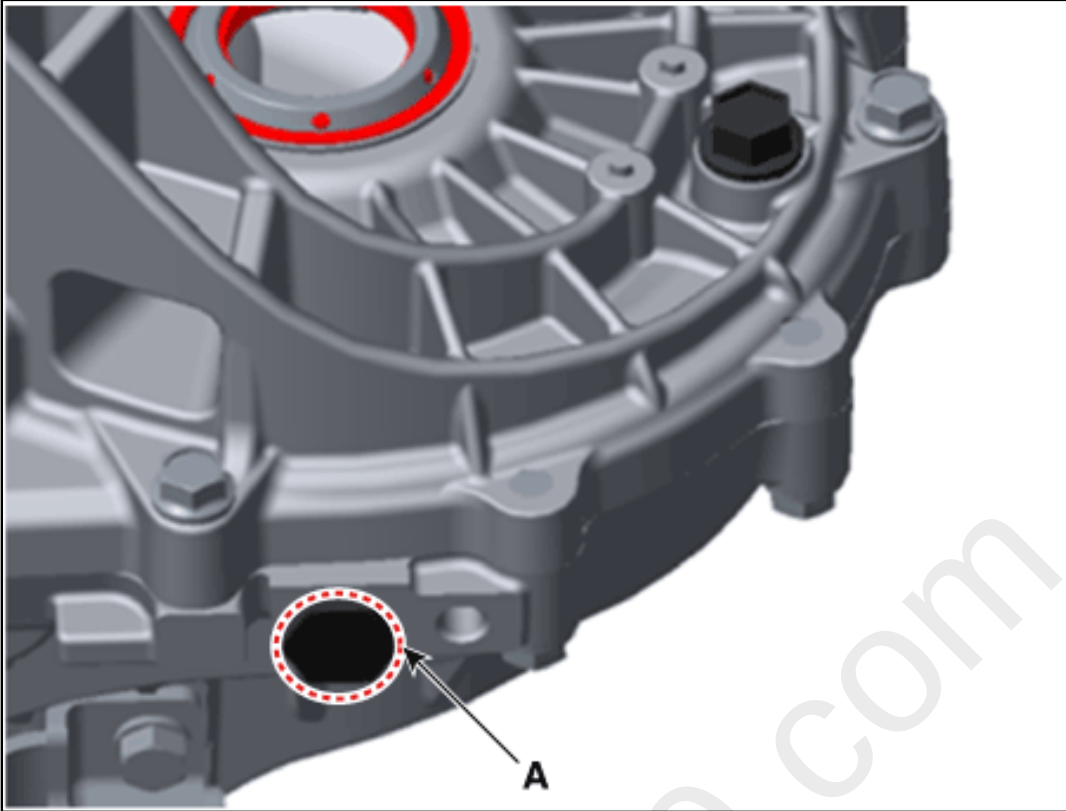


4. Check the oil level.



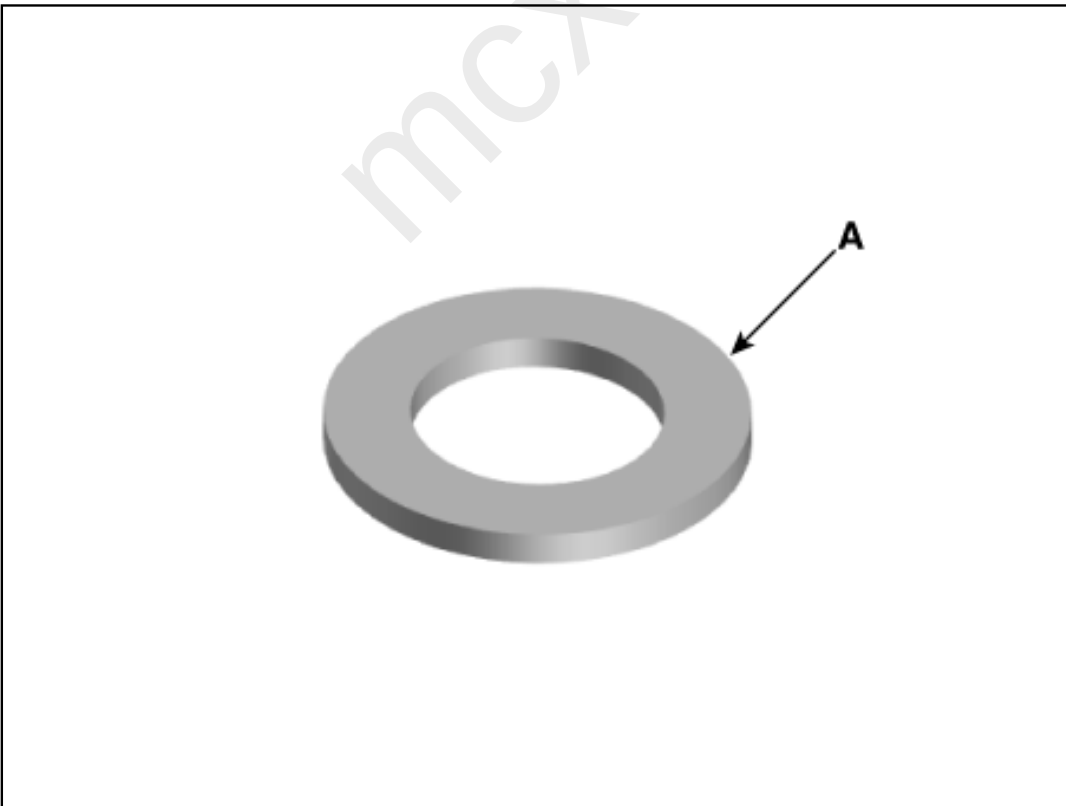
- For the accuracy, inspect the oil level after the oil is completely drained.
- Loosen the drain plug (A) and wait for over 10 minutes until the oil is drained enough.
- Install the drain plug (A) after drain the oil.
- After the inspection, inject the oil through the filler plug hole according to the specification.
(Specified fluid : 1.6 - 1.7L (0.42 - 0.45 U.S.gal., 1.69 - 1.80 U.S. qt., 1.41 - 1.50 Imp qt))

- While draining, some of the oil flows into the transmission part and the oil may be less than the specification by 0.1 - 0.15 L (0.03 - 0.04 U.S.gal., 0.10 - 0.16 U.S. qt., 0.09 - 0.13 Imp qt.) This is normal and additional oil injection is not required.



- The existing gasket (A) must be replaced with a new one. (Do not reuse it.)

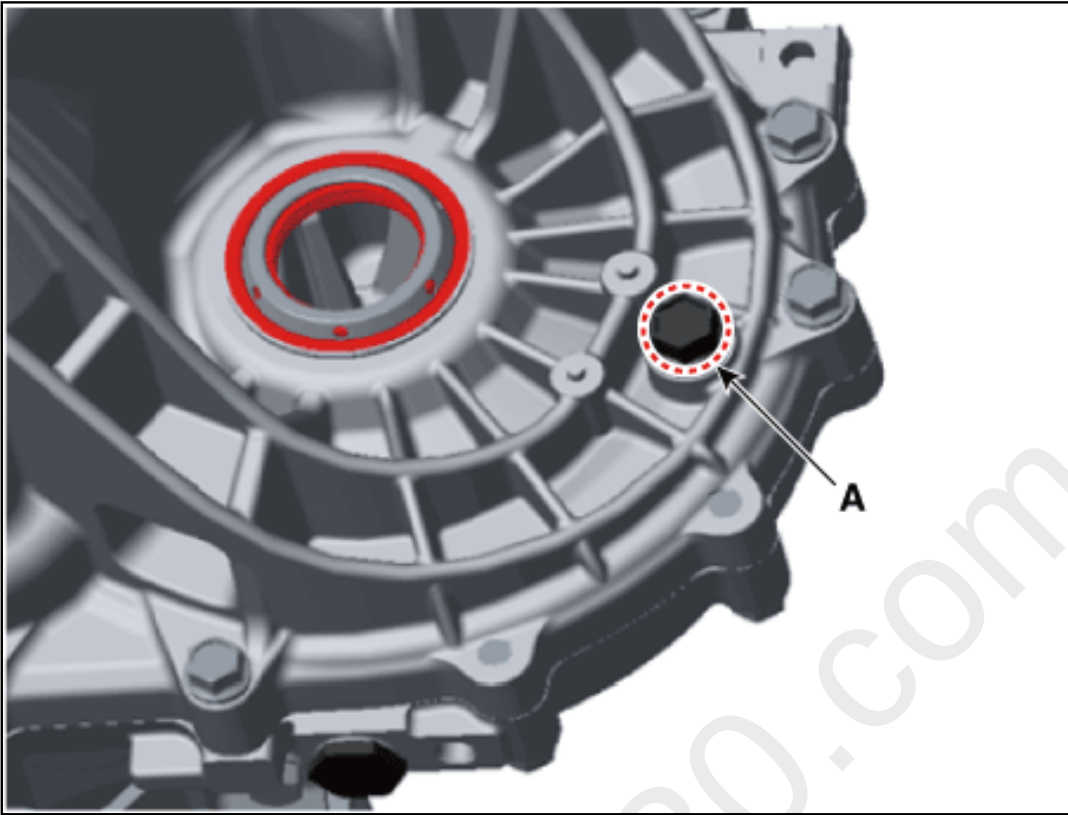
New gasket part no.: 45323-39000



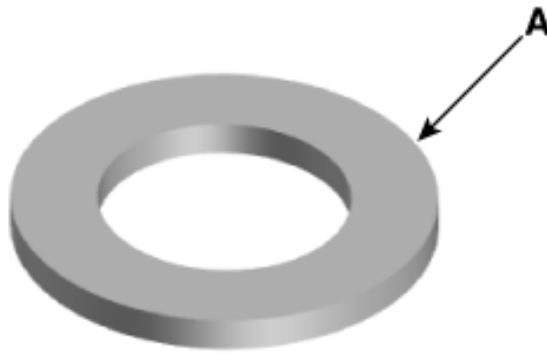
5. Install the filler plug (A) with new gasket.

Tightening torque :

58.9 - 78.5 N.m (6.0 - 8.0 kgf.m, 43.4 - 57.8 lb-ft)



- The existing gasket (A) must be replaced with a new one. (Do not reuse it.)



6. Install the engine room under cover.

(Refer to Engine Mechanical System - "Engine Room Under Cover")

Clutch Actuator & TCM

Assembly/Replacement



In principle, the Dual Clutch Transmission (DCT) oil is not changed under normal driving conditions. However, under harsh driving conditions, it must be changed every 80,000 miles.

Harsh driving conditions are as follows:

- Frequent driving on rough road (Bumpy road, gravel road, snow road, unpaved road. etc.)
 - Frequent driving on mountain road, ascent/descent.
 - Driving for patrol, taxi, commercial car or vehicle towing.
 - Frequent driving under high speed (over 170km)
 - More than 50% driving in heavy city traffic during hot weather above 32°C (90°F)
 - driving in areas using salt or other corrosive materials or in very cold weather.
 - Towing a trailer or using a camper on roof rack.
 - Manual transmission oil should be changed any time.
- Manual transmission have been submerged in water.

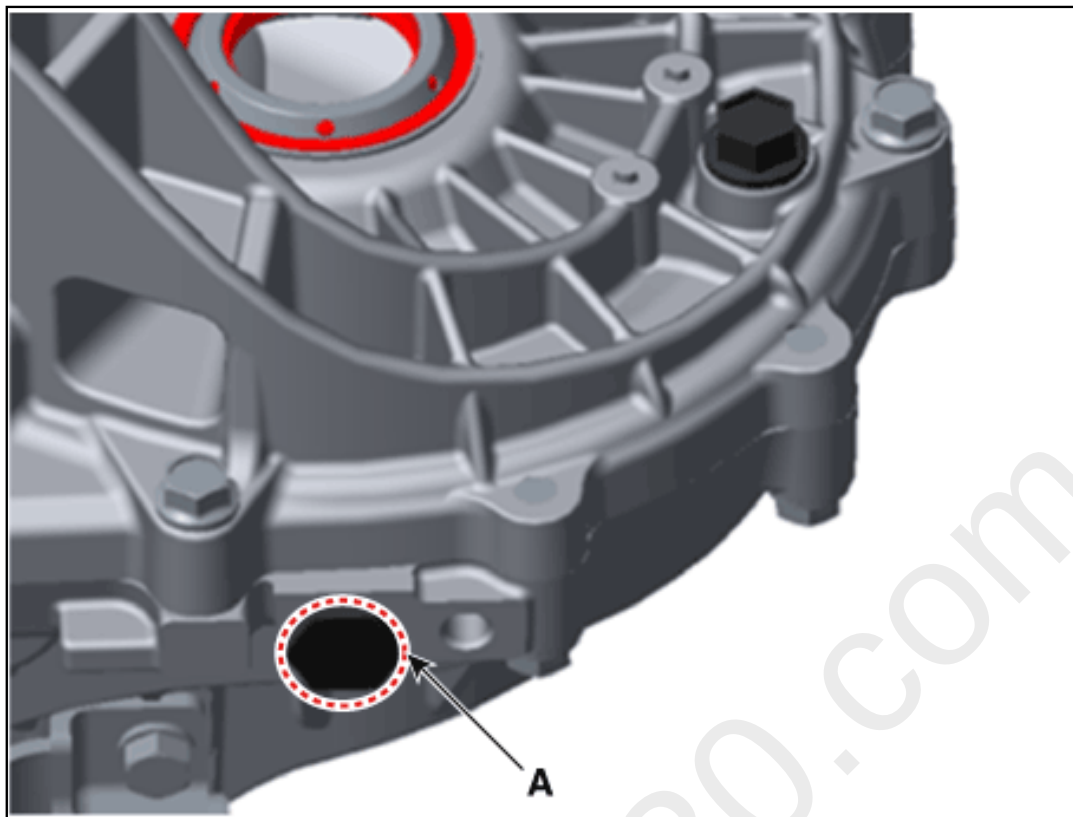
1. Remove the engine room under cover.

(Refer to Engine Mechanical System - "Engine Room Under Cover")

2. Remove the drain plug (A) and drain all the oil. Then install the drain plug with a new gasket.

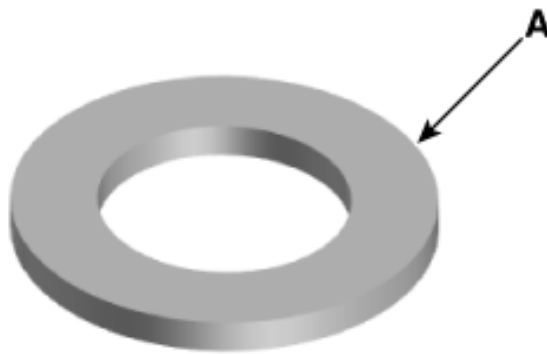
Tightening torque :

44.1 - 48.8 N.m (4.5 - 6.0 kgf.m, 32.5 - 43.4 lb-ft)



- The existing gasket (A) must be replaced with a new one. (Do not reuse it.)

New gasket part no.: 45323-39000



3. Add new oil through the filler plug hole (A) and, fill it just below the plug opening.

Standard oil :

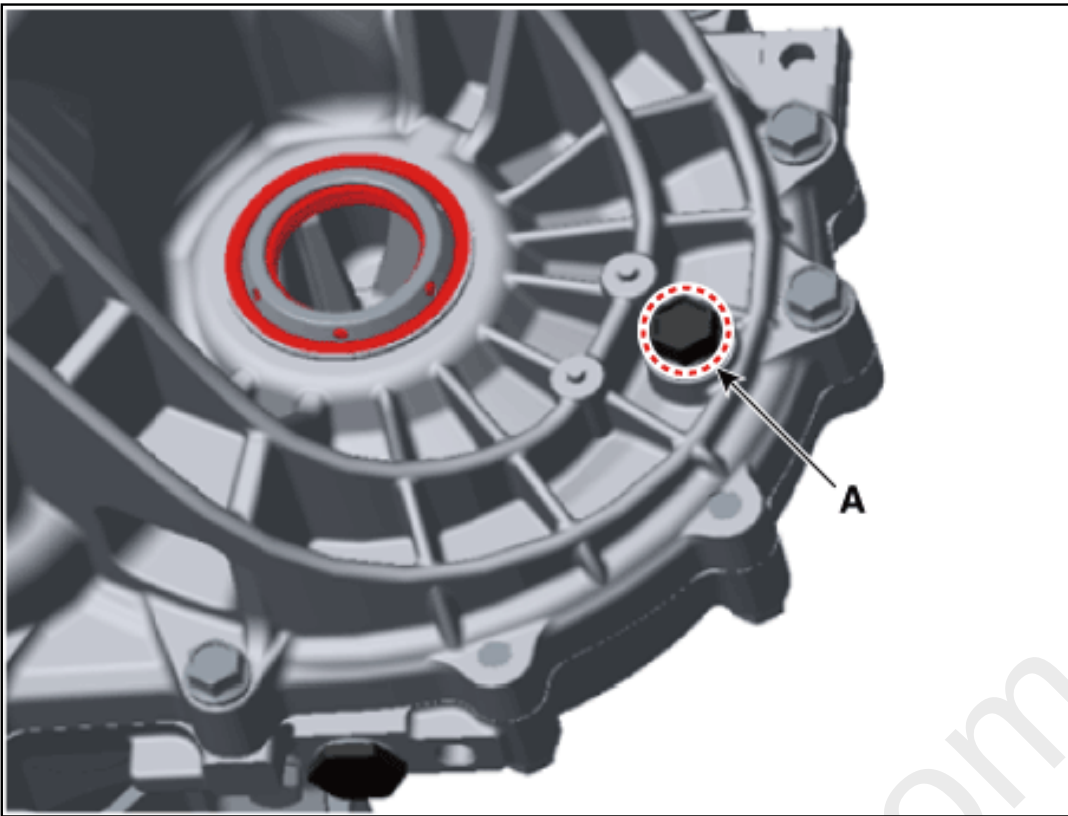
API Service GL-4, SAE 70W

Recommmend oil:

SK : HK D DCTF TGO-10, H.K.SHELL : SPIRAX S6 GHDE 70W DCTF, S-OIL : 7 DCTF HKM

Oil capacity :

1.6 - 1.7L (0.42 - 0.45 U.S.gal., 1.69 - 1.80 U.S. qt., 1.41 - 1.50 lmp qt)



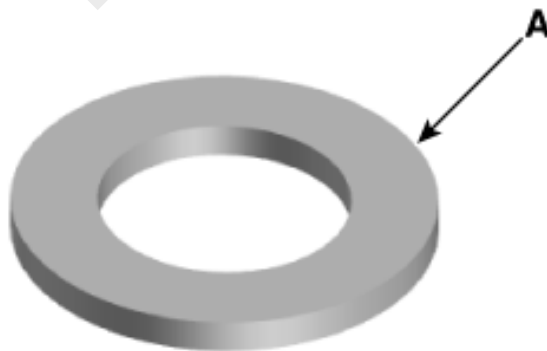
4. Install the filler plug bolt (A) with new gasket.

Tightening torque :

58.9 - 78.5 N.m (6.0 - 8.0 kgf.m, 43.4 - 57.8 lb-ft)



- The existing gasket (A) must be replaced with a new one. (Do not reuse it.)



5. Install the engine room under cover.

(Refer to Engine Mechanical System - "Engine Room Under Cover")

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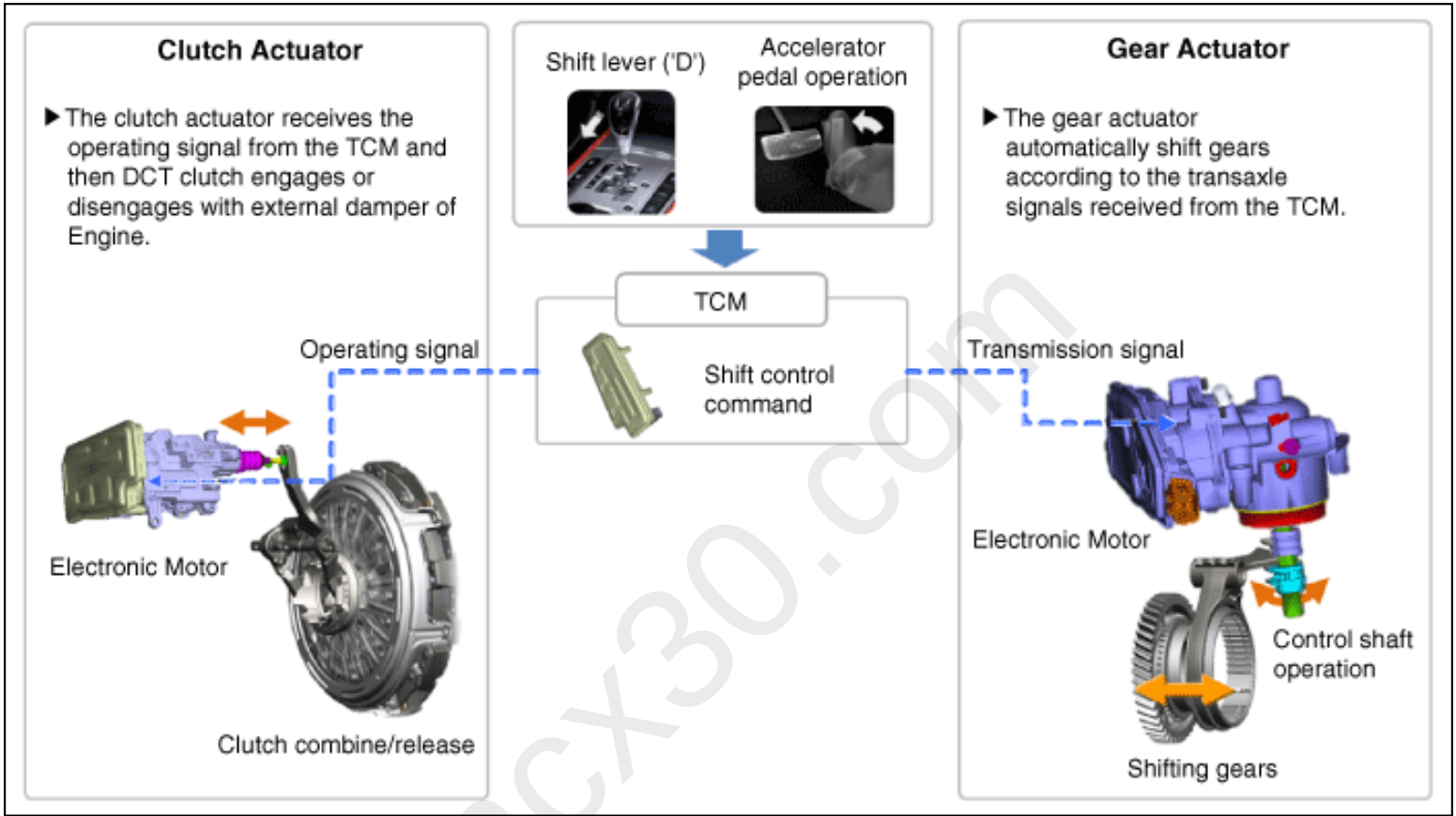
Description

The Dual Clutch Transmission (DCT) control system measures required data to identify the state of the control target and computes the appropriate compensation value if adjustment is necessary. The actuator is controlled according to the computed compensation value to obtain desired output.

If transmission or driving-performance-related failure is detected, first perform self-diagnosis and basic transmission inspection (oil check).

Then use the diagnostic tool to inspect the transmission control system components.

Operation principle

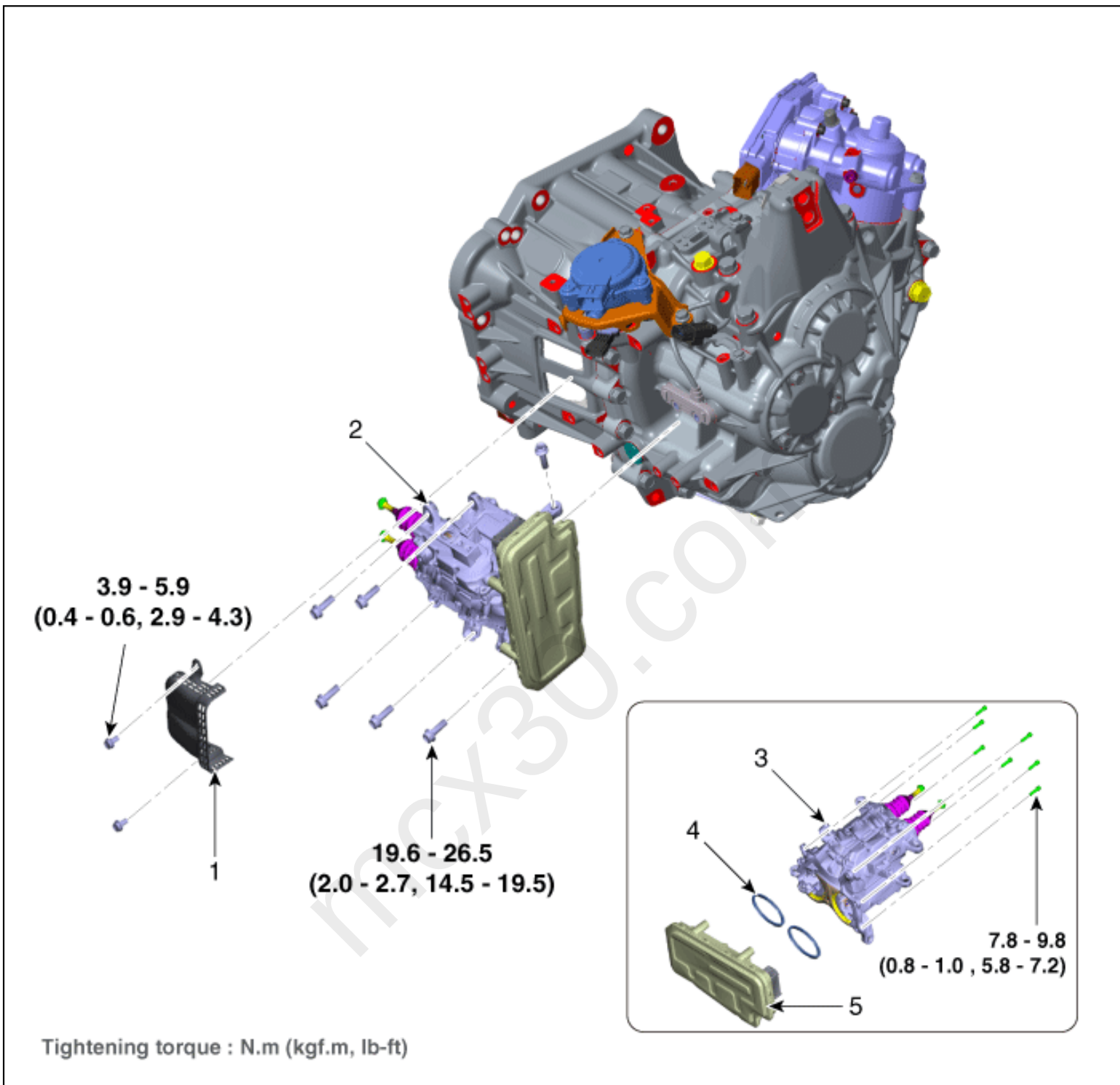


Description

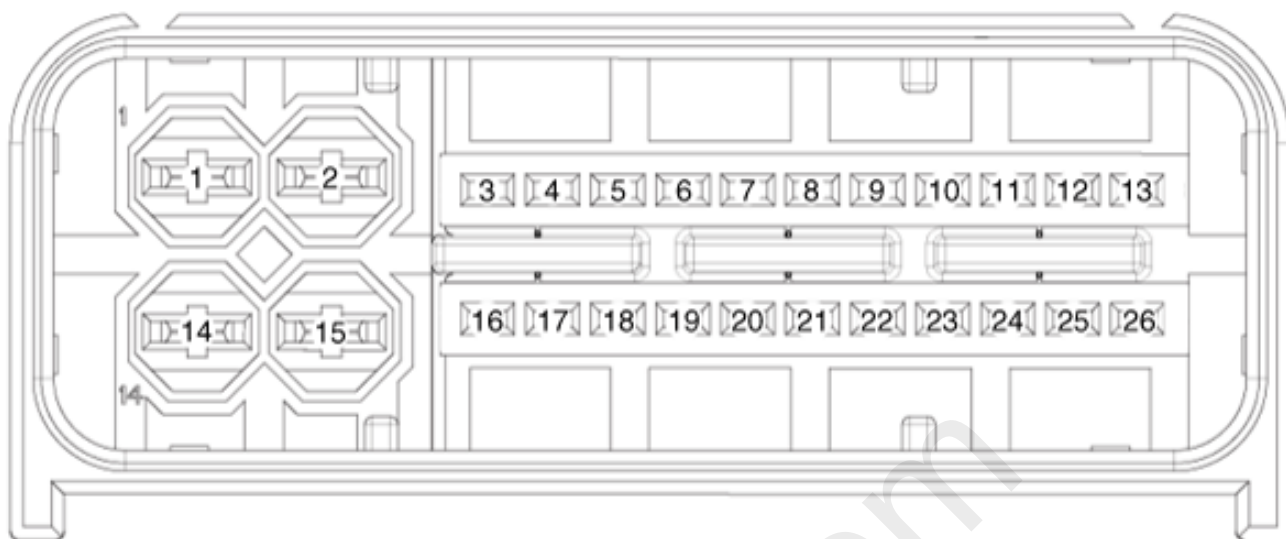
•Function

The Transmission Control Module (TCM) is like the brain for the Dual Clutch Transmission (DCT). It receives information from various sensors for a wide range of transmission controls to provide an optimal driving environment for the driver. The TCM is programmed for optimal operation in all driving conditions. If the TCM malfunctions, store the failure information in memory and provide the error information to a mechanic for fast and accurate repair.

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Connector and Terminal Function



Pin	Description	Pin	Description
1	Ground 2 (Power)	14	Battery power 2 (Motor)
2	Ground 1 (Power)	15	Battery power 1 (Motor)
3	Shift lock solenoid	16	Battery voltage (Low Power)
4	Paddle shift "Up"	17	P-CAN 1 Low
5	Paddle shift "Down"	18	P-CAN 1 High
6	Inhibitor switch signal "R"	19	Local-DCT 1 Low
7	Inhibitor switch signal "N"	20	Local-DCT 1 High
8	Inhibitor switch signal "D"	21	Local-DCT 2 Low
9	Inhibitor switch signal "P"	22	Local-DCT 2 High
10	-	23	PT-Local 1 Low
11	Ignition voltage	24	PT-Local 1 High
12	Input speed sensor signal 2 (Even)	25	Input speed sensor signal 1 (Odd)
13	Input speed sensor power 2 (9 V)	26	Input speed sensor power 1 (9 V)

Inspection

Transmission Control Module (TCM) Inspection Procedure

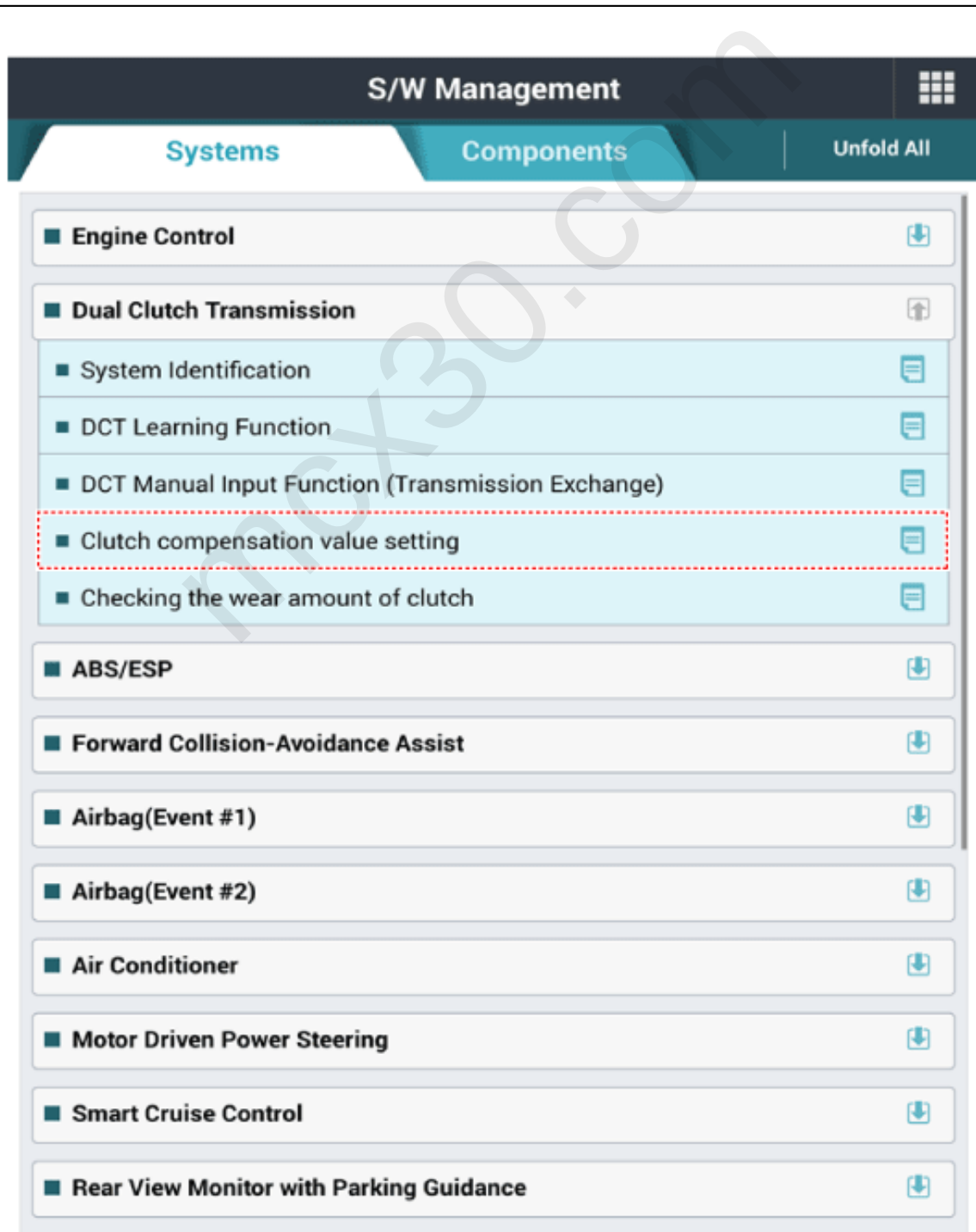
1. Inspecting TCM ground circuit: Measure the resistance between the TCM and chassis ground.
(Check the terminal connected to the chassis ground while using the back of the harness connector as the base point for TCM.)

Normal reading (resistance): Below 1Ω

2. Inspecting the TCM connector: Disconnect the TCM connector and visually inspect to see whether there is a bend on the ground terminal of the harness connector. Also visually check the connection pressure.
3. If no problem is found during inspection in step 1 and step 2, then the problem is with the TCM itself. In this case, replace the TCM and inspect the vehicle again.
4. Re-inspecting TCM: Install the TCM that was determined to have malfunctioned from step 3 in another vehicle. Reset the error code and then check the operation in that vehicle. If the vehicle operates without any problems, then inspect the first vehicle with the initial problem again.

Removal

1. Prior to replacing the TCM, check the TCM clutch compensation value with the diagnostic tool tool.



■ Smart Cruise Control

■ Rear View Monitor with Parking Guidance

■ Blind-Spot Collision Warning

■ Lane Keeping Assist



Do not touch any system buttons while performing this function.

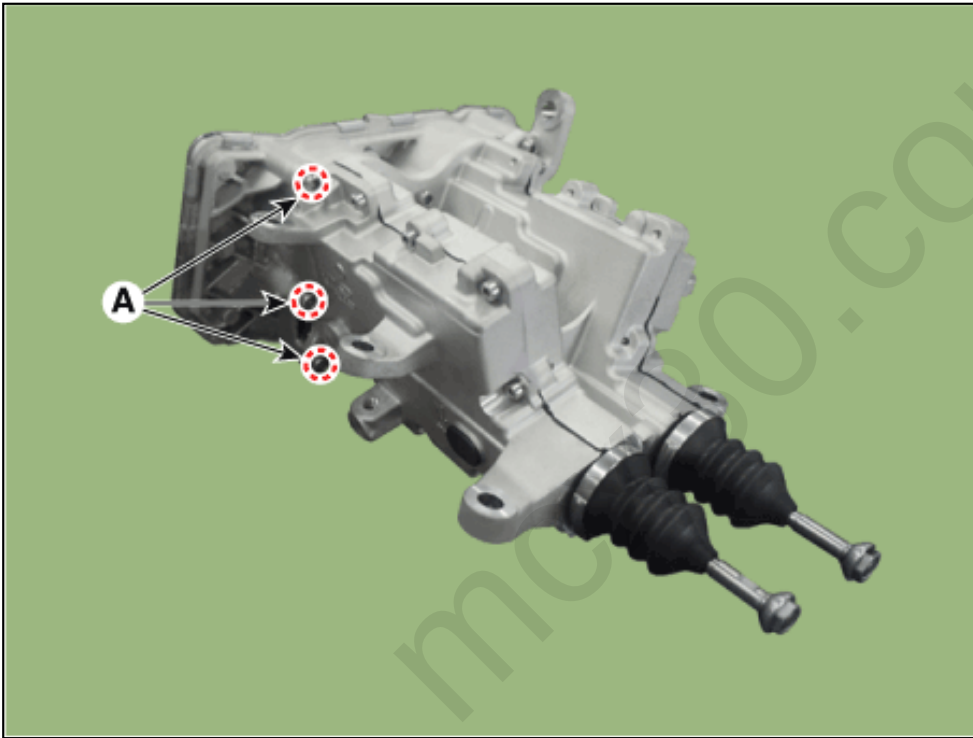
2. Turn ignition switch OFF and disconnect the battery negative (-) terminal.
3. Remove the clutch actuator assembly.

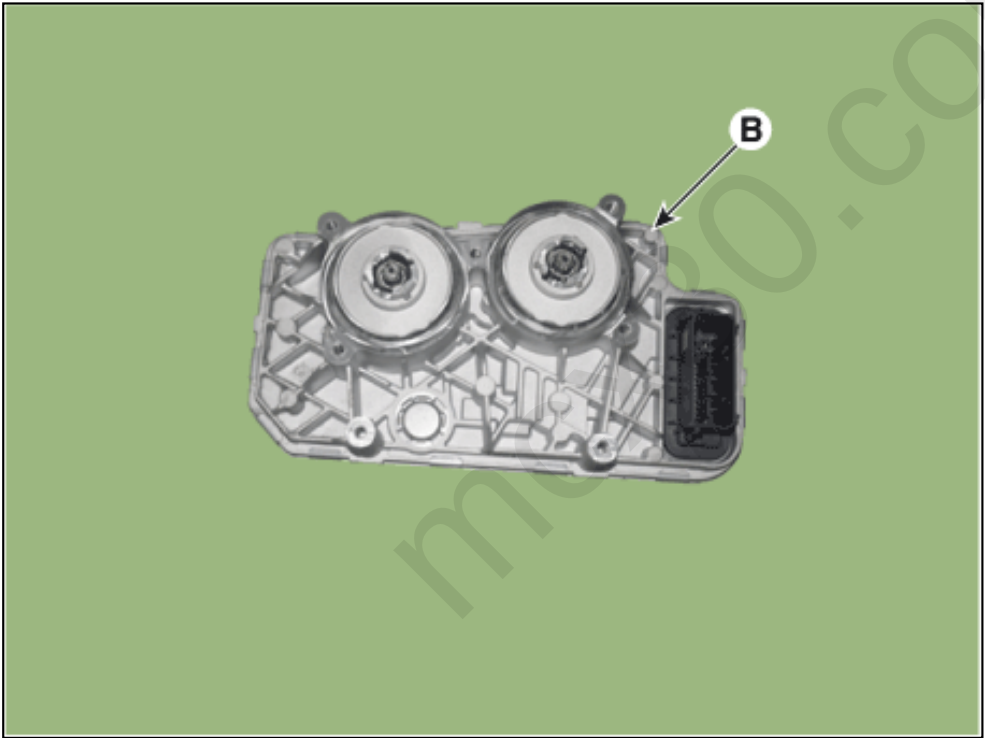
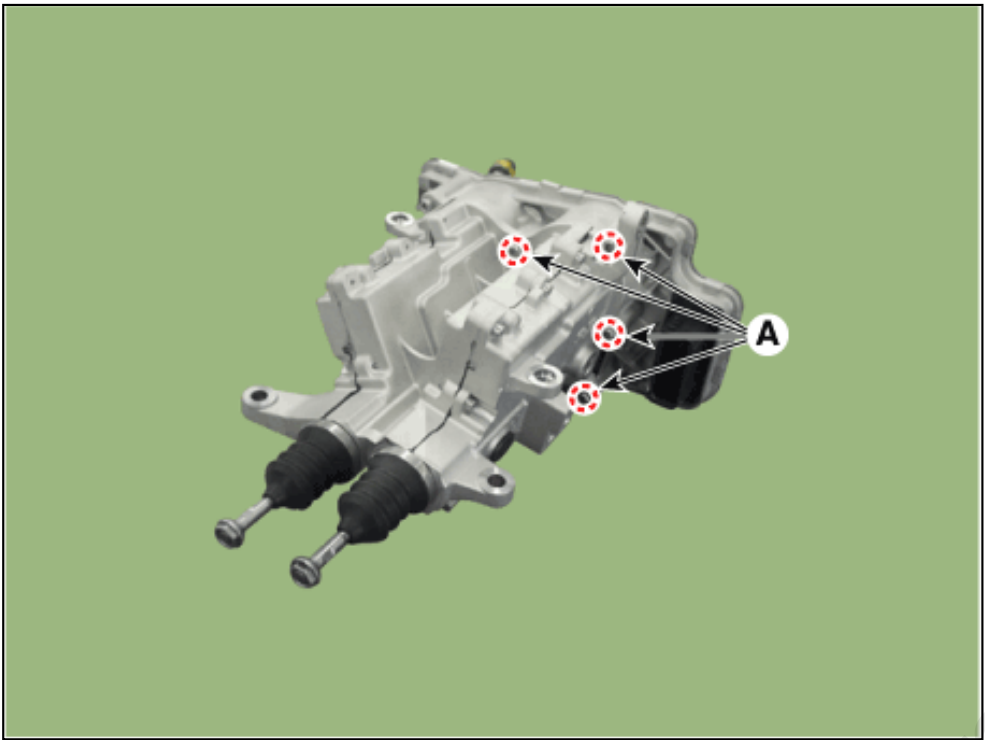
(Refer to Dual Clutch Transmission Control System - "Clutch Actuator & TCM Assembly")

4. Loosen the bolts (A) and then removing the TCM (B).

Tightening torque:

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



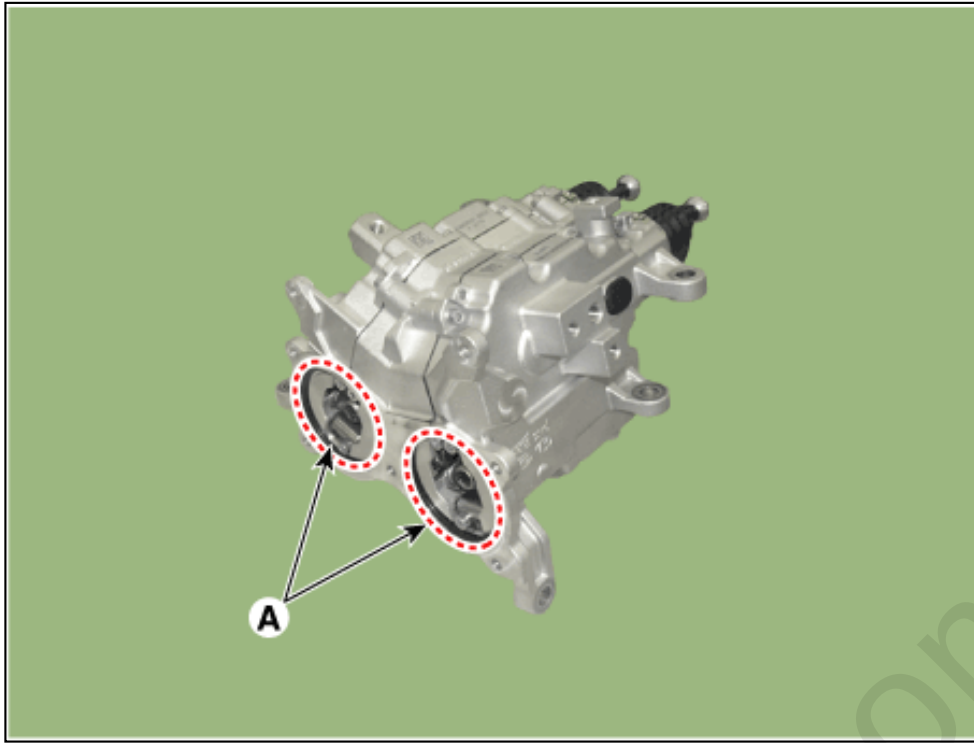


Installation

1. To install, reverse the removal procedure.



- The existing O-rings (A) must be replaced with a new one. (Do not reuse it.)



2. Perform the clutch compensation value setting procedure using the diagnostic tool after replacing TCM.



- Before performing the DCT learning procedure using diagnostic tool, perform the learning process after leaving for 5 minutes in the idle state. Because it may be a problem to operation of wear compensation device when entering the DCT learning function at battery low voltage condition.
- When performing the DCT learning function, Perform the DCT learning function twice to ensure accuracy and reliability of the clutch touch point.
- When the ignition is turned off after completing the 2 steps of the DCT learning procedure, the operation of wear compensation device will be performed. It takes up to 6 minutes for the operation of the wear compensation device to be completed, during which time it should not be started engine.
- The engine must be started after at least 6 minutes to ensure that the wear compensation device is fully operated. (keep the engine off for at least 6 minutes)
- If the engine is started while the wear compensation device is operating, sufficient operation of the wear compensation device is not possible, so the excessive operation of the wear compensation device may occur in the next engine starting cycle

S/W Management

Systems

Components

Unfold All

■ Engine Control	
■ Dual Clutch Transmission	
■ System Identification	
■ DCT Learning Function	
■ DCT Manual Input Function (Transmission Exchange)	
■ Clutch compensation value setting	
■ Checking the wear amount of clutch	
■ ABS/ESP	
■ Forward Collision-Avoidance Assist	
■ Airbag(Event #1)	
■ Airbag(Event #2)	
■ Air Conditioner	
■ Motor Driven Power Steering	
■ Smart Cruise Control	
■ Rear View Monitor with Parking Guidance	
■ Blind-Spot Collision Warning	
■ Lane Keeping Assist	

 Do not touch any system buttons while performing this function.

3. Perform the clutch touch point learning procedure using the diagnostic tool after replacing TCM

S/W Management

Systems

Components

Unfold All

■ Engine Control

■ Dual Clutch Transmission

■ System Identification

■ DCT Learning Function

■ DCT Manual Input Function (Transmission Exchange)

■ Clutch compensation value setting

■ Checking the wear amount of clutch

■ ABS/ESP

■ Forward Collision-Avoidance Assist

■ Airbag(Event #1)

■ Airbag(Event #2)

■ Air Conditioner

■ Motor Driven Power Steering

■ Smart Cruise Control

■ Rear View Monitor with Parking Guidance

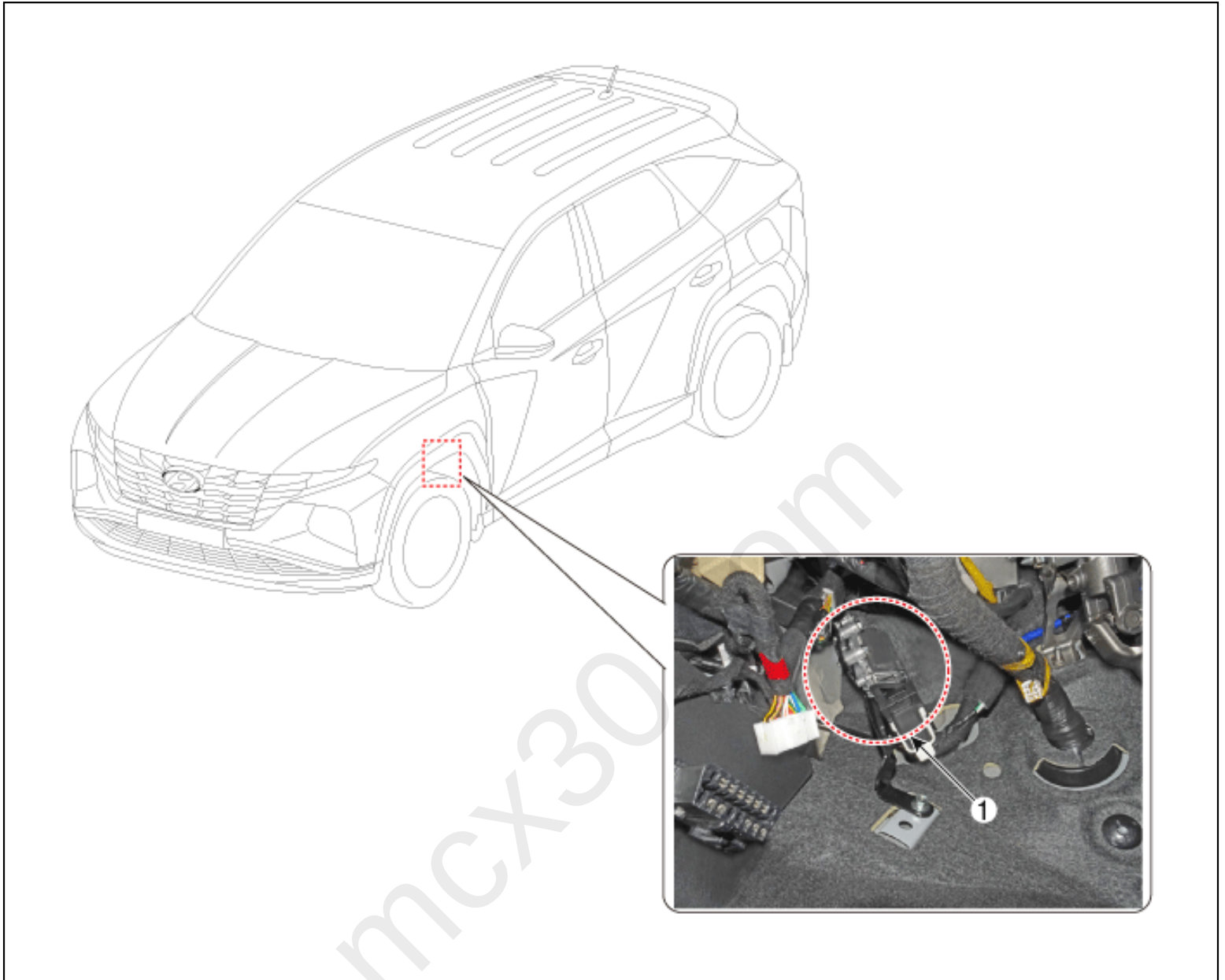
■ Blind-Spot Collision Warning

■ Lane Keening Assist

!

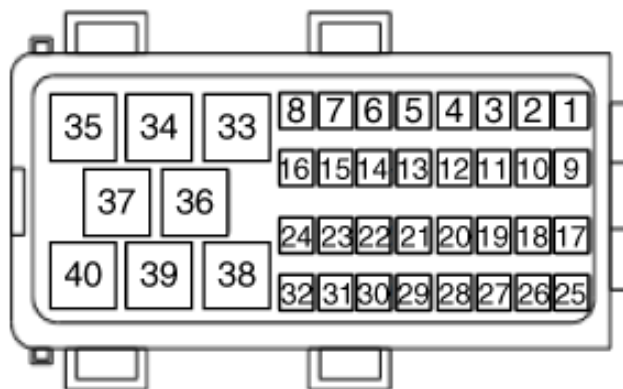
Do not touch any system buttons while performing this function.

Component
Location



1. Shift by wire Control Unit (SCU)

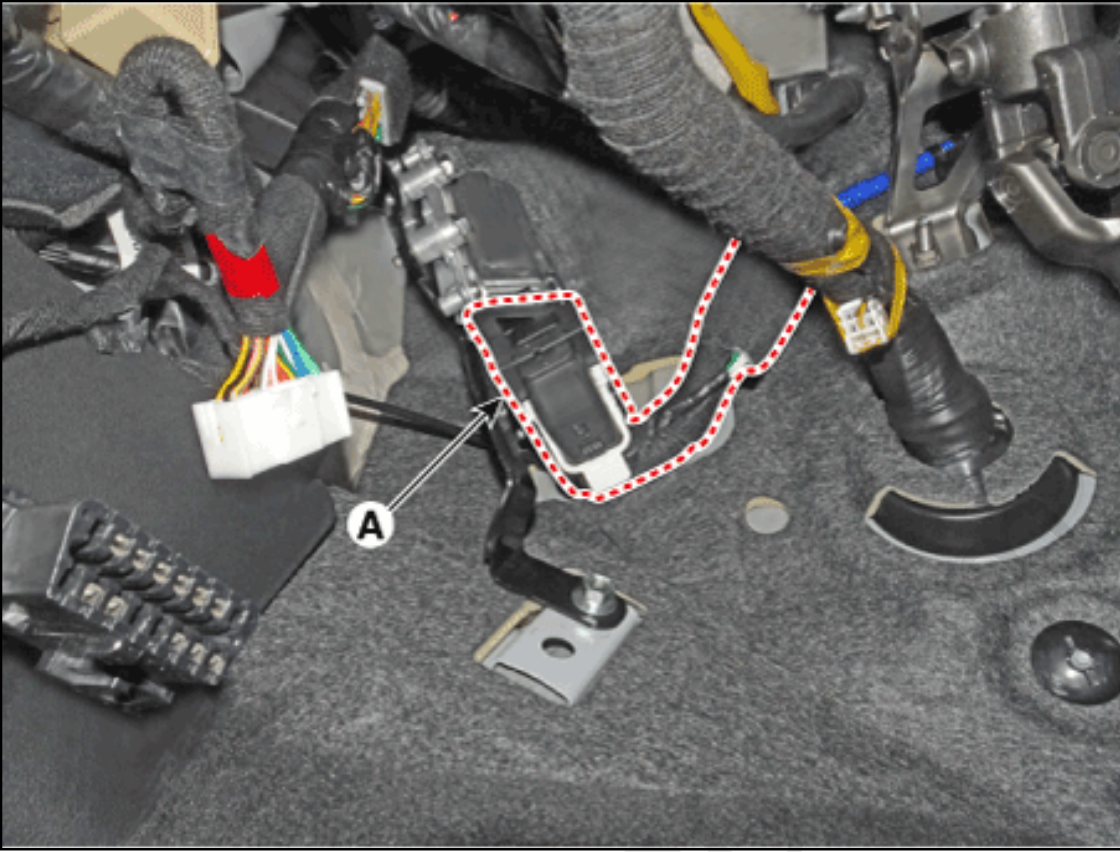
Schematic
Diagrams



Pin	Function	Pin	Function
1	Power	21	-
2	Ground	22	-
3	H-CAN High	23	-
4	H-CAN Low	24	-
5	P-CAN High	25	-
6	P-CAN Low	26	-
7	Position sensor ground	27	Position sensor signal 1
8	-	28	Position sensor signal 2
9	-	29	P position output signal
10	Position sensor power 5 V	30	-
11	Electronic shift actuator sensor power 5 V	31	Back-up lamp signal
12	IG 1	32	-
13	Electronic shift actuator sensor signal 2	33	Electronic shift actuator motor U
14	Electronic shift actuator sensor signal 1	34	Electronic shift actuator motor V
15	Electronic shift actuator sensor ground	35	Electronic shift actuator motor W
16	-	36	Power
17	-	37	Electronic shift actuator power
18	-	38	Ground
19	-	39	-
20	-	40	

Removal

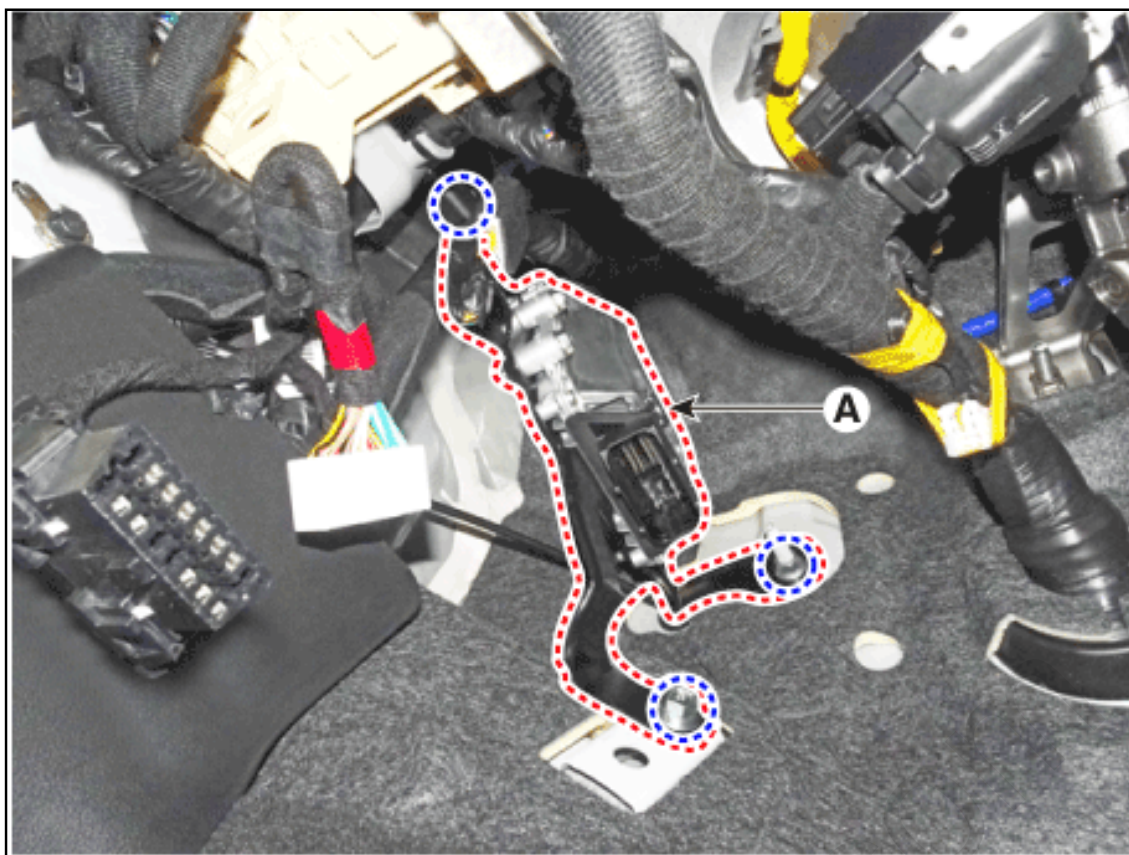
1. Turn ignition switch OFF and disconnect the negative (-) battery cable.
2. Disconnect the SBW control unit connector (A).



3. Loosen the nut and bolts and then removing the SBW control unit bracket assembly (A).

Tightening torque :

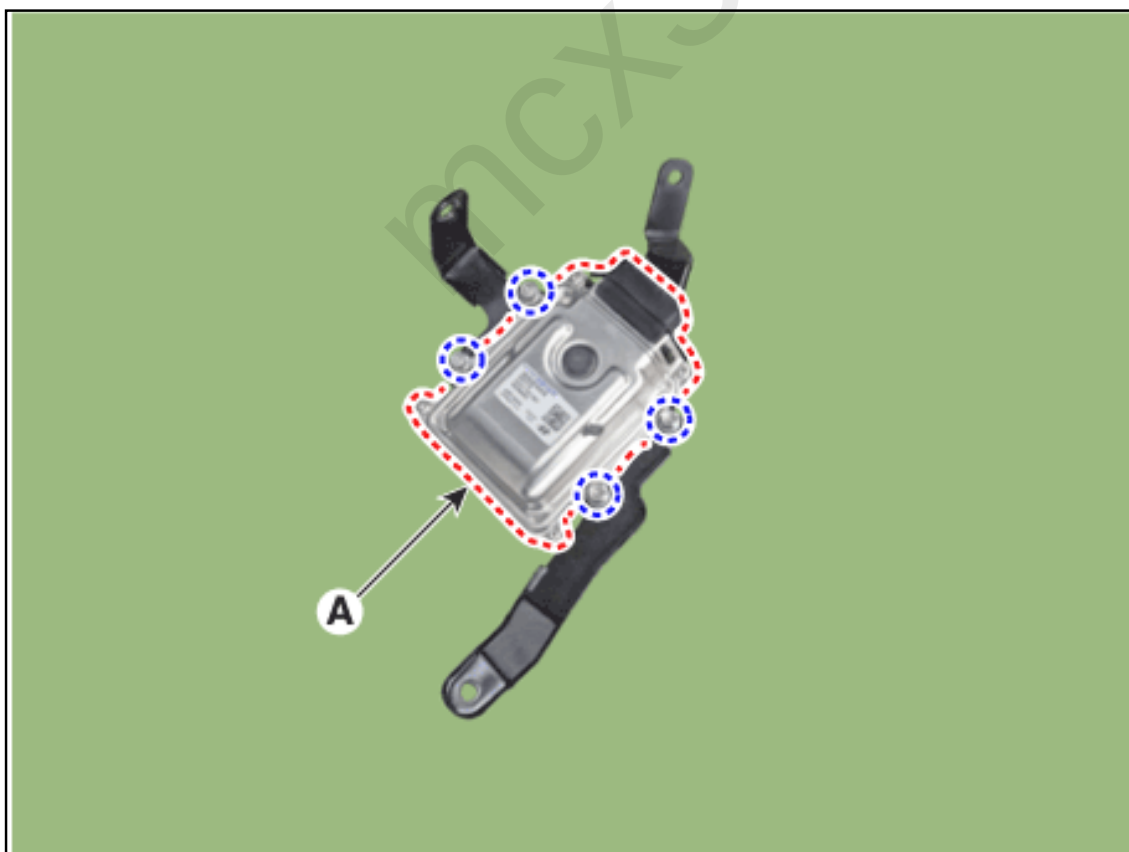
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



4. Loosen the bolts and then removing the SBW control unit (A) from the bracket.

Tightening torque :

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





Installation

1. To install, reverse the removal procedure.

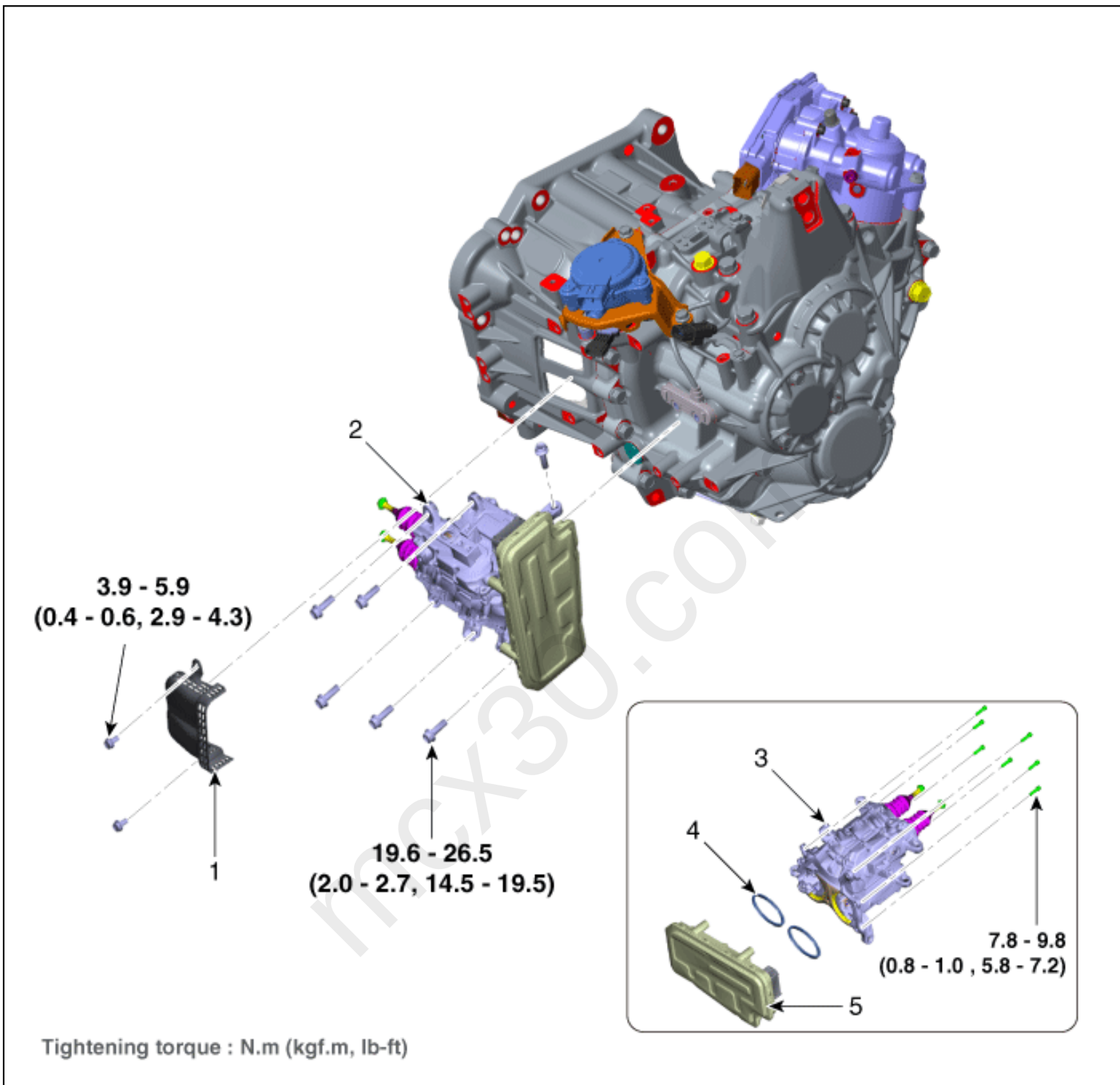
Description

- **Components location :** DCT (Dual Clutch Transmission)

- **Function**

The clutch actuator receives signals from the Transmission Control Module (TCM) and controls the clutch.

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1. Fork cover
2. Clutch actuator & TCM assembly
3. Clutch actuator assembly

4. O-ring
5. DCT control module (TCM)

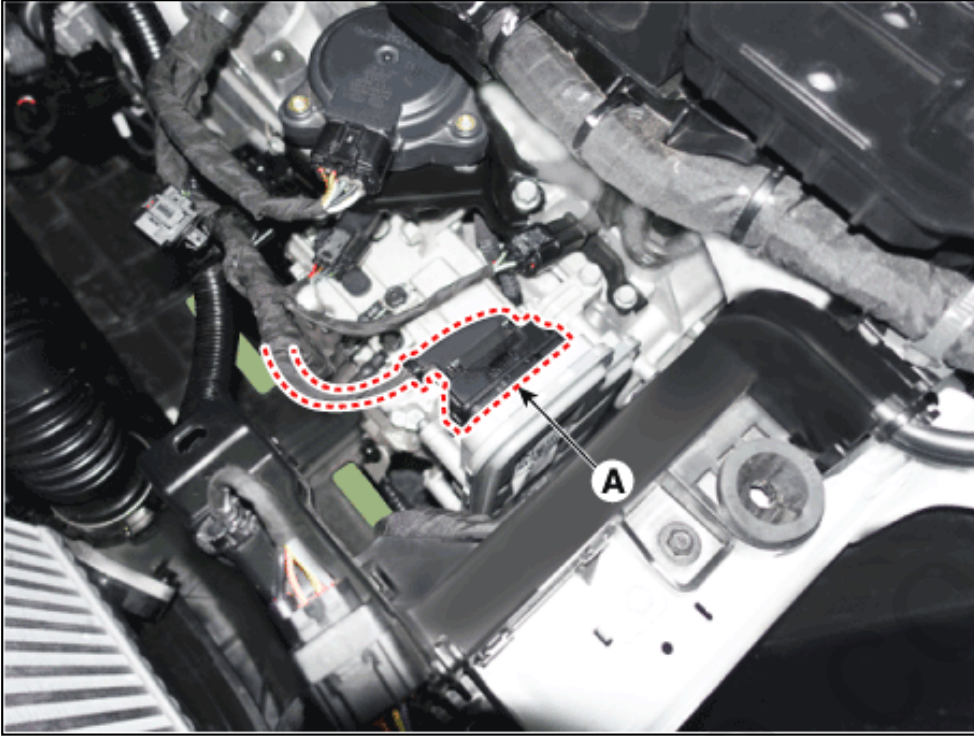
Specification

Item	Specification
Rated voltage	12V
Rod length	79 - 80 mm (3.1102 - 3.1496 in.)
Wear adjustment amount	0.25 mm (0.0098 in.) @ 1 Click

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Removal

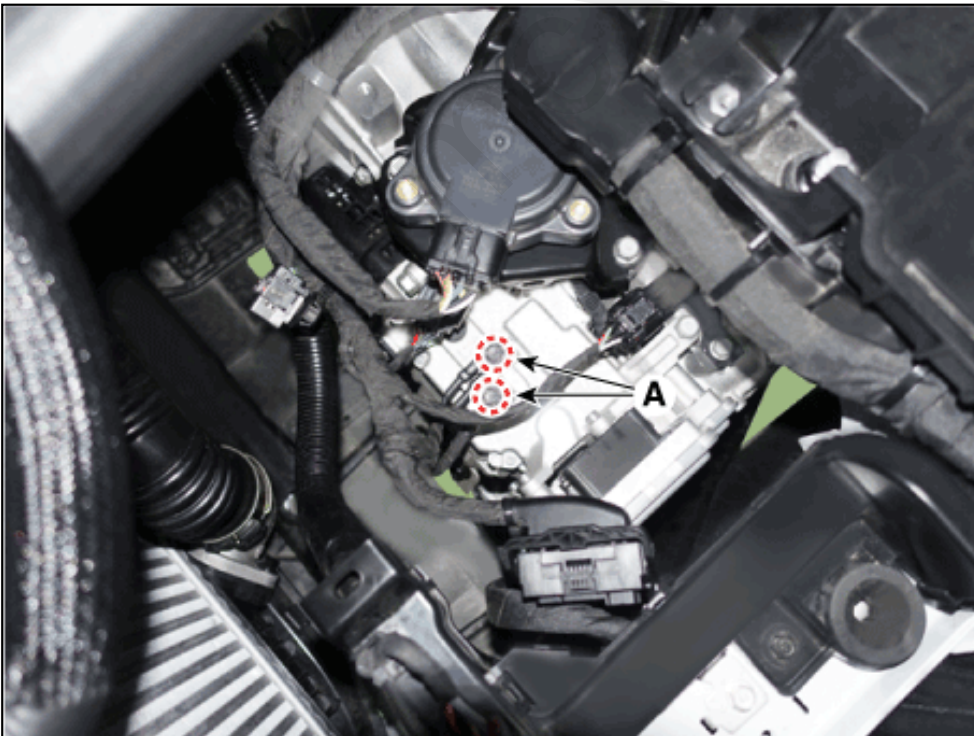
1. Turn ignition switch OFF and disconnect the battery negative (-) terminal.
2. Remove the air cleaner assembly and air duct.
(Refer to Engine Mechanical System - "Air cleaner")
3. Disconnect the TCM connector (A).



4. Loosen the ground mounting bolt (A).

Tightening torque :

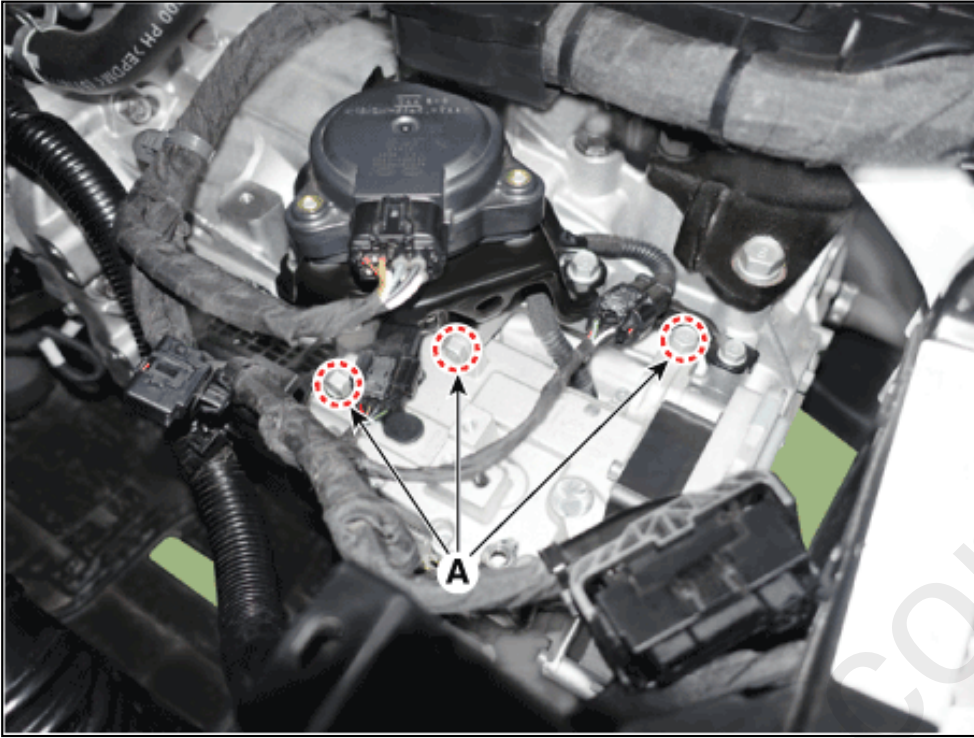
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



5. Loosen the clutch actuator upper mounting bolts (A).

Tightening torque :

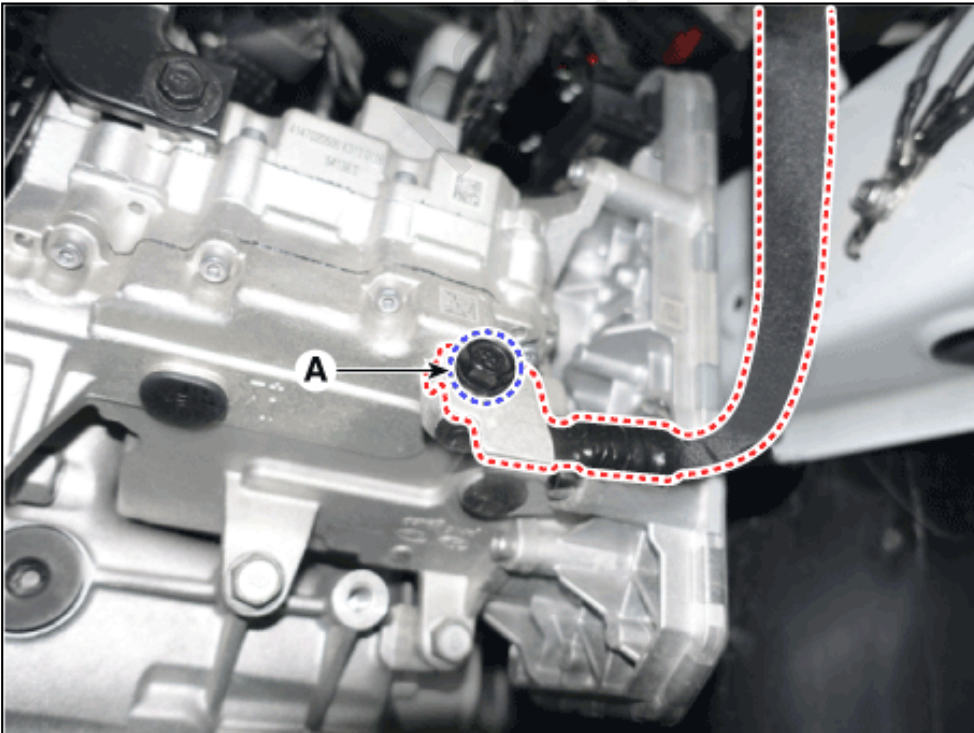
19.6 - 26.5 N.m (2.0 - 2.7 kgf.m, 14.5 - 19.5 lb-ft)



6. Remove the engine room under cover.
(Refer to Engine Mechanical System - "Engine Room Under Cover")
7. Loosen the ground mounting bolt (A).

Tightening torque :

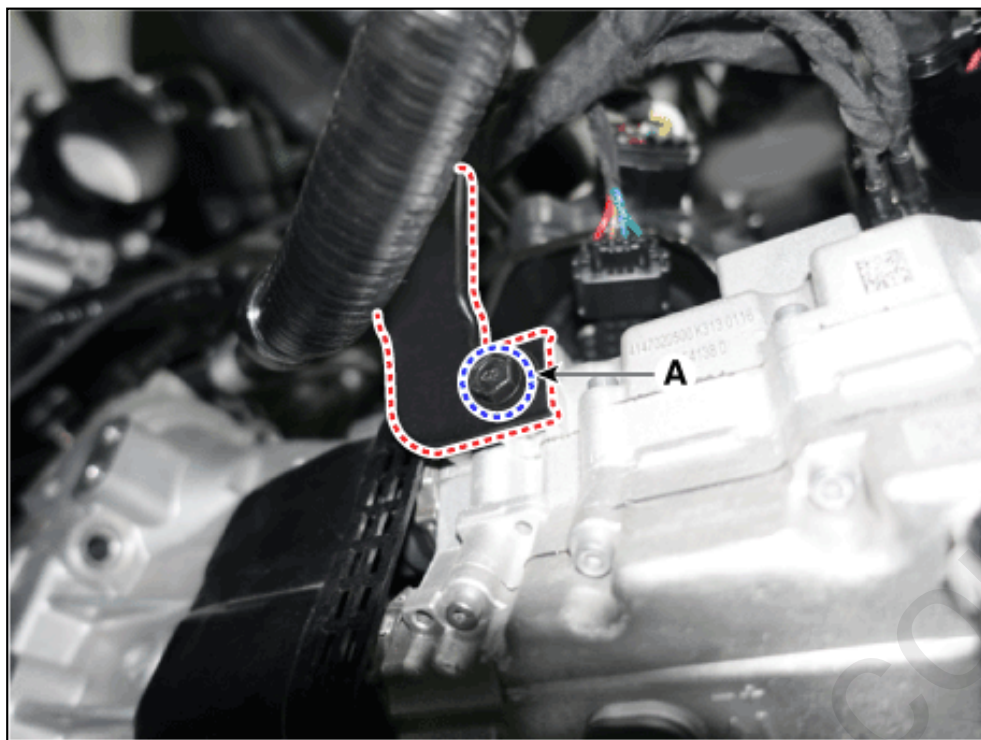
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



8. Loosen the bolt (A) and then removing the wiring bracket.

Tightening torque :

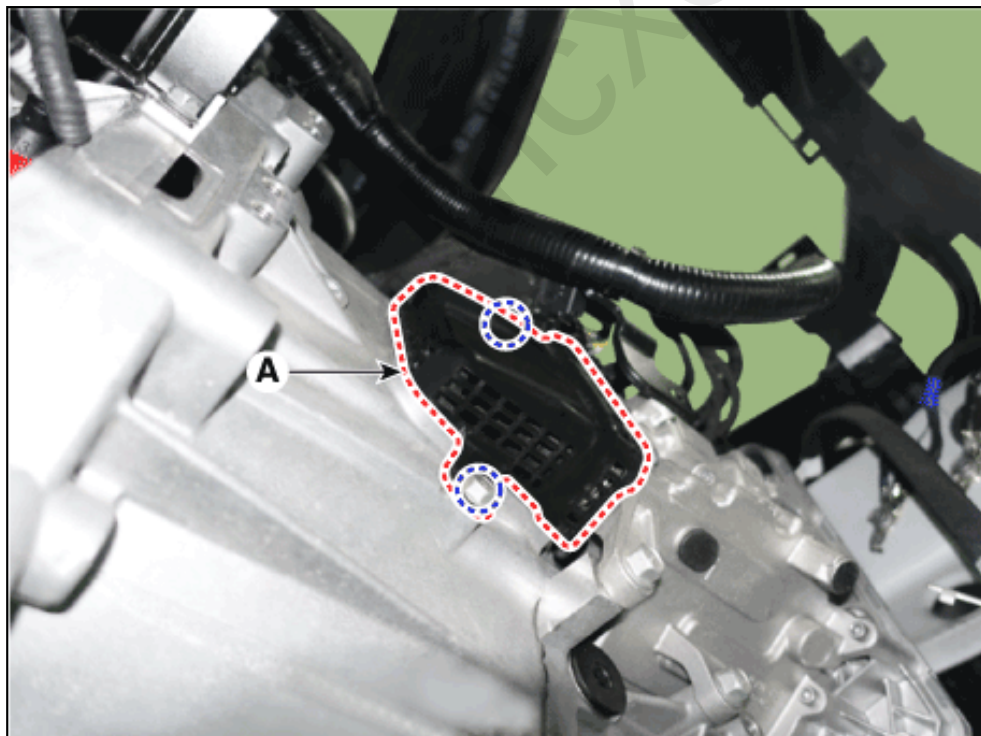
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



9. Loosen the bolts and then removing the fork cover (A).

Tightening torque :

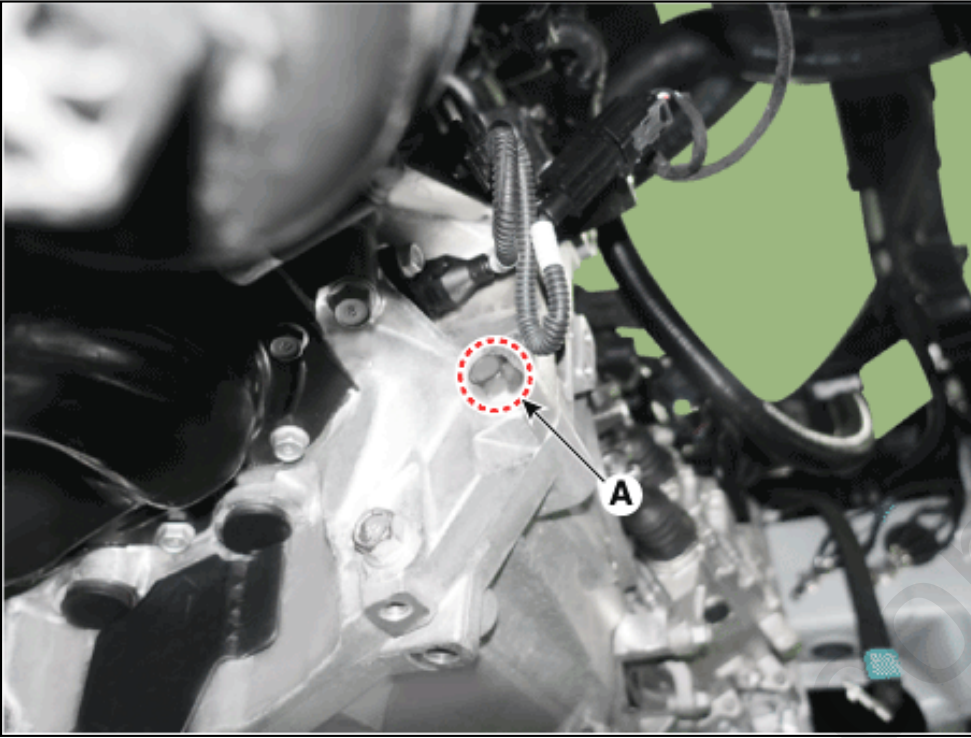
3.9 - 5.9 N.m (0.4 - 0.6 kgf.m, 2.9 - 4.3 lb-ft)



10. Loosen the transmission lower mounting bolt (A).

Tightening torque :

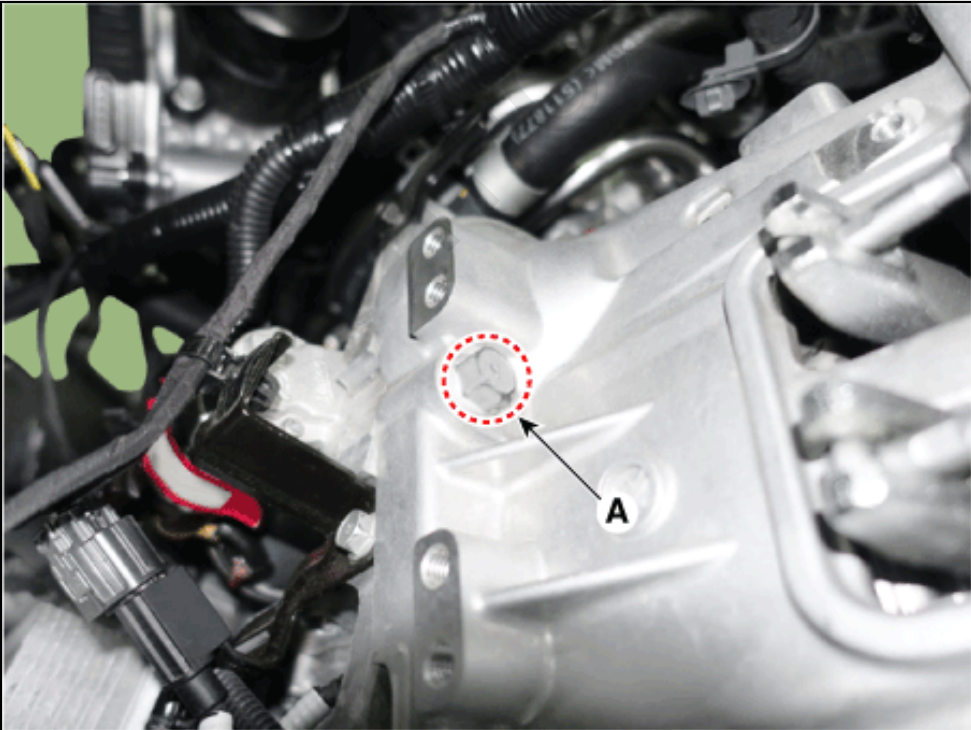
42.2 - 53.9 N.m (4.3 - 5.5 kgf.m, 31.1 - 39.8 lb-ft)



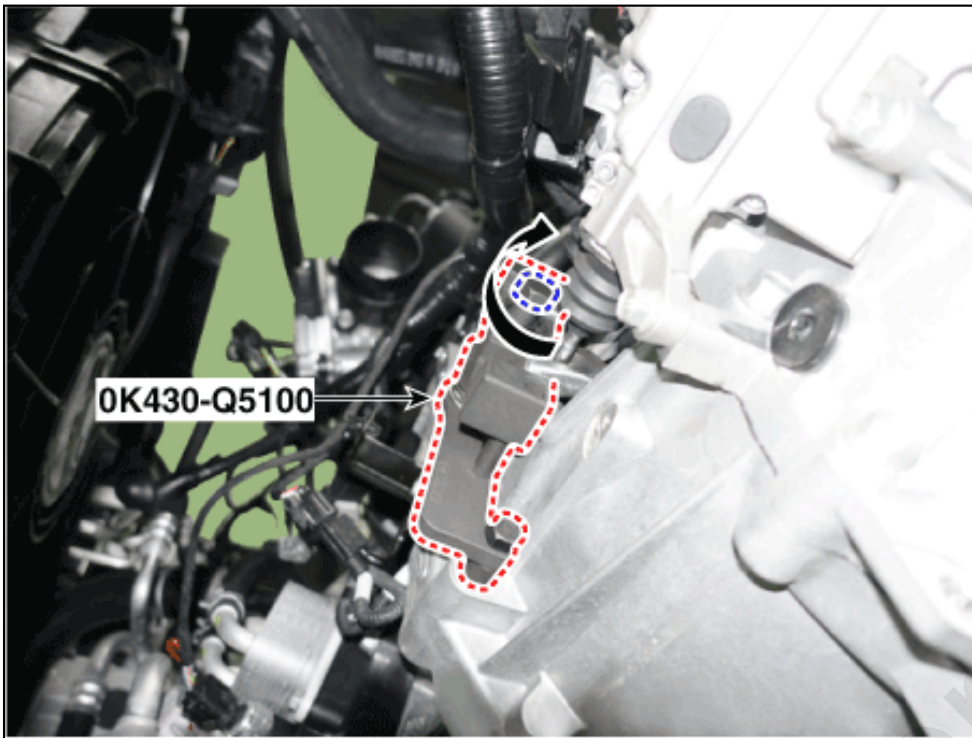
11. Loosen the starter mounting bolt (A)

Tightening torque :

49.0 - 63.7 N.m (5.0 - 6.5 kgf.m, 36.2 - 47.0 lb-ft)



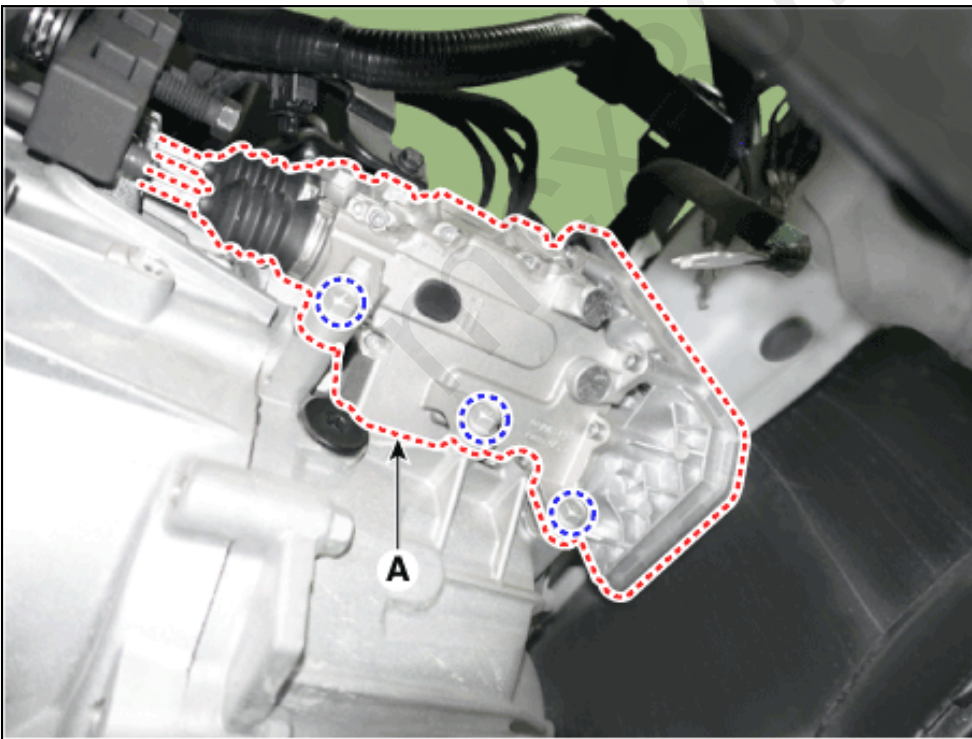
12. Fix the clutch engagement fork after installing special service tool (0K430-Q5100) (A).



13. Loosen the clutch actuator lower mounting bolts and then removing the clutch actuator (A).

Tightening torque :

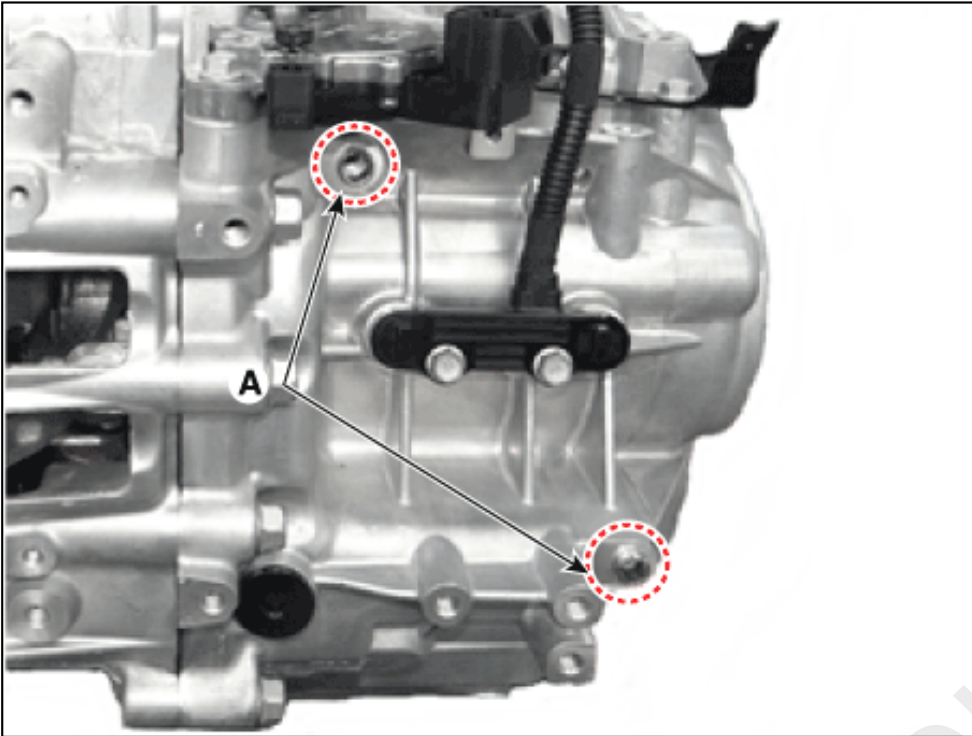
19.6 - 26.5 N.m (2.0 - 2.7 kgf.m, 14.5 - 19.5 lb-ft)



Installation

1. To install, reverse the removal procedures.

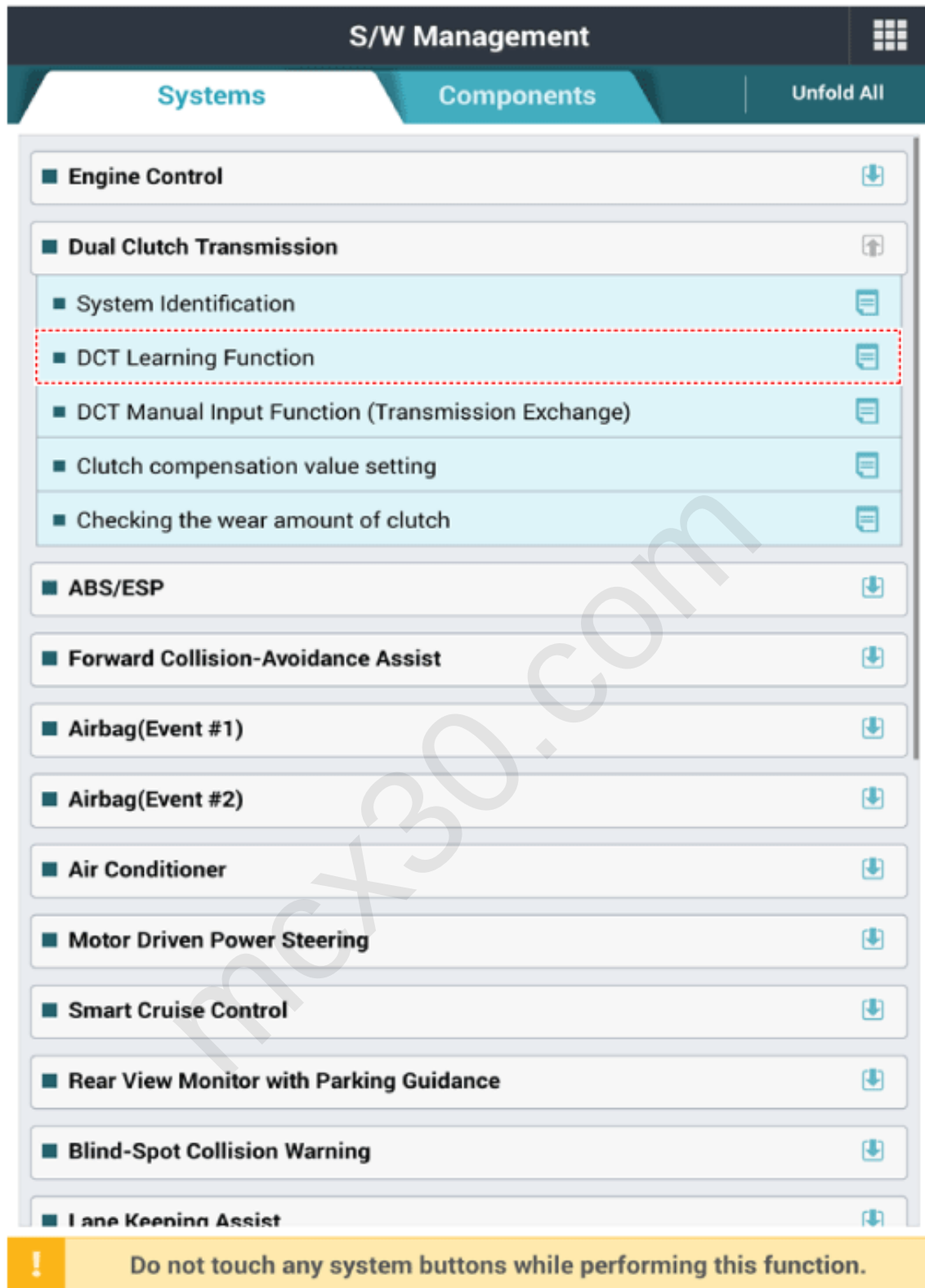
2. Check the assembled state of the dowel pins (A) before installing the clutch actuator assembly.



3. Perform the clutch touch point learning procedure using the diagnostic tool.



- Before performing the DCT learning procedure using diagnostic tool, perform the learning process after leaving for 5 minutes in the idle state. Because it may be a problem to operation of wear compensation device when entering the DCT learning function at battery low voltage condition.
- When performing the DCT learning function, Perform the DCT learning function twice to ensure accuracy and reliability of the clutch touch point.
- When the ignition is turned off after completing the 2 steps of the DCT learning procedure, the operation of wear compensation device will be performed. It takes up to 6 minutes for the operation of the wear compensation device to be completed, during which time it should not be started engine.
- The engine must be started after at least 6 minutes to ensure that the wear compensation device is fully operated. (keep the engine off for at least 6 minutes)
- If the engine is started while the wear compensation device is operating, sufficient operation of the wear compensation device is not possible, so the excessive operation of the wear compensation device may occur in the next engine starting cycle



- Even if you removed and reinstalled the clutch actuator, be sure to perform the touch point learning.
- If you have replaced the dual clutch assembly or clutch actuator, be sure to perform the touch point learning.

Adjustment



- If you replaced the dual clutch assembly or clutch actuator, be sure to perform wear compensation by referring to the following table.

Replaced Par	Wear Compensation (Clutch Actuator)
Dual Cclutch assembly	Need to initialize rod length
Dual clutch assembly + Clutch actuator&TCM assembly	Rod length adjustment is not required
Only Clutch actuator&TCM assembly	
Only Clutch actuator or TCM assembly	

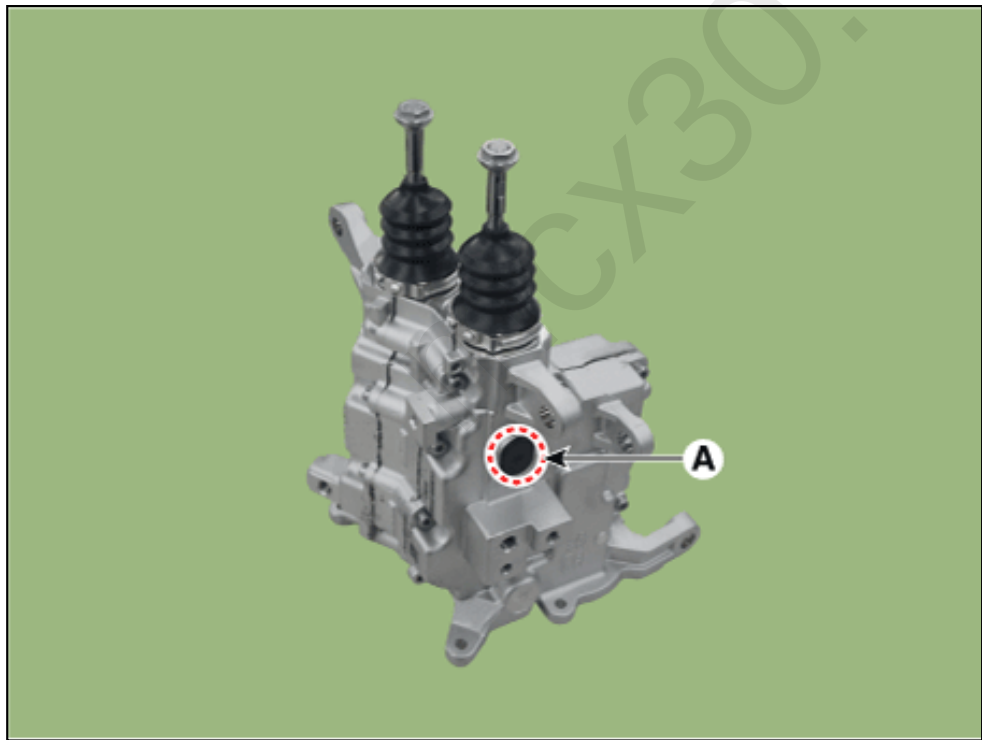
- If the rod length is less than 52 mm (2.0472 in.), replace all of the dual clutch assembly, clutch actuator, and engagement bearing.

Initializing the rod length (When only the dual clutch assembly is replaced or Both dual clutch assembly and clutch actuator is replaced)



- Be sure to perform it when you have replaced the dual clutch assembly but reuse the clutch actuator.
- Perform the procedure when both the dual clutch assembly and clutch actuator are replaced.
- It is performed to adjust the rod length of an old clutch actuator to that of a new clutch actuator.

1. Remove the clutch actuator assembly.
(Refer to Clutch Actuator & TCM Assembly - "Removal")
2. Remove sealing rubber (A) from old part clutch actuator.



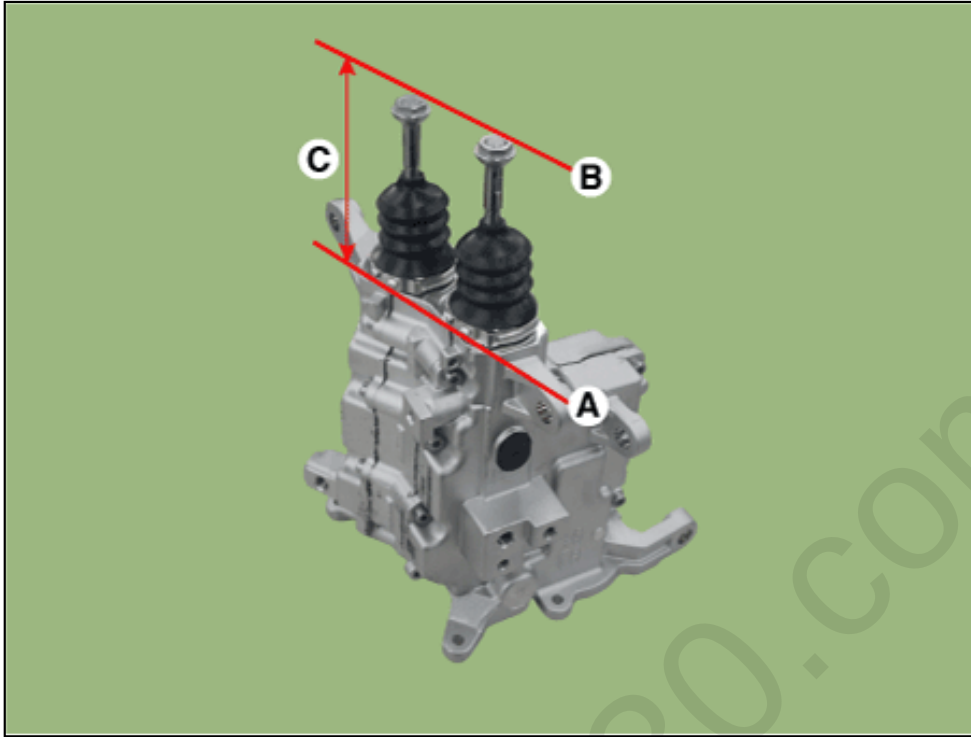
3. Slightly pull the rod of the clutch actuator removed from the vehicle and measure length of each rod (C). If the length is shorter than the initialization length, you need to perform initialization.

Rod length (C) : Length from the reference plane (A) to the end of the rod (B).

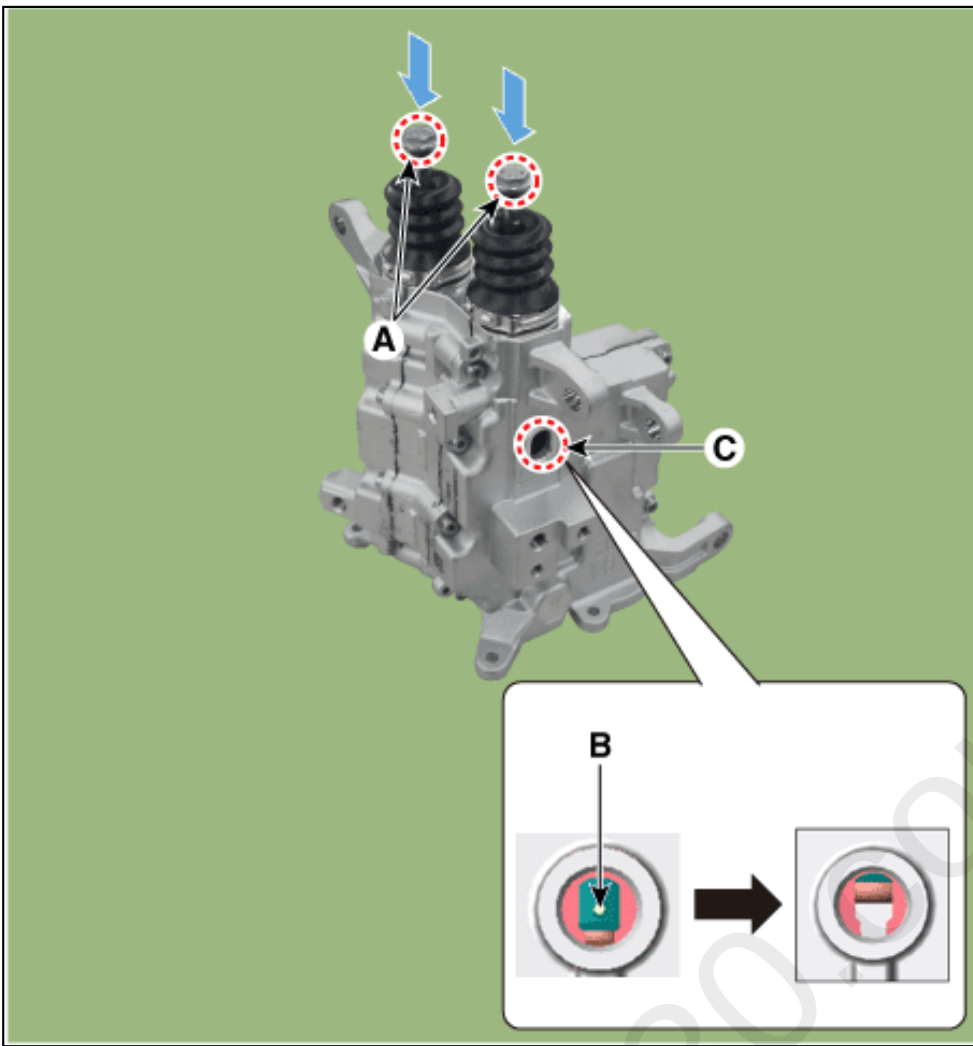
(**Initializ rod length** : 79 - 80 mm (3.1102 - 3.1496 in.))

1)Clutch actuator 1

2)Clutch actuator 2



4. Press the end part of rod (A) and release the pressing force when you see the nut bump (B).

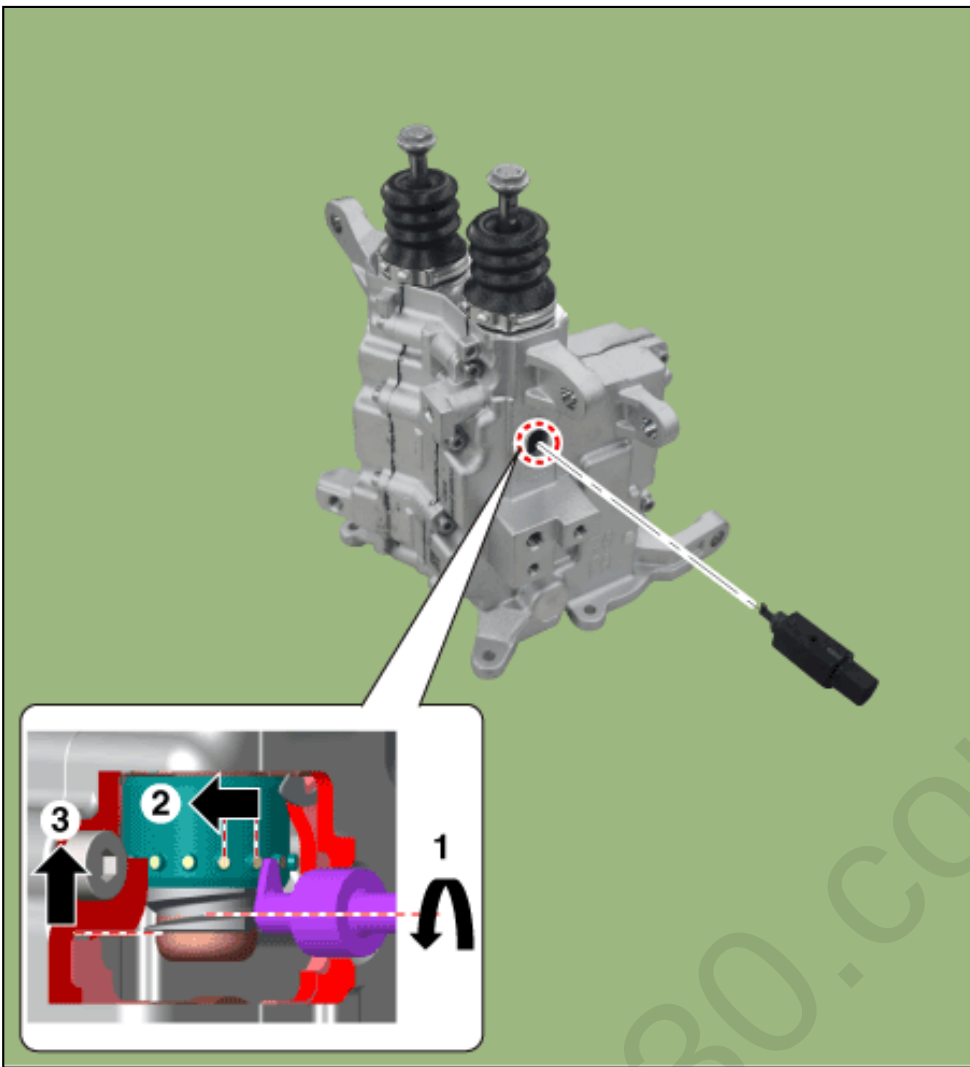


- Light inside of the hole (C) and check the nut bump (B) inside of it.
- Repeat the operation if the nut bump (B) does not come down to the assembly hole position.
- The nut bump (B) can be moved up a little by sealing boot if the pressing force is released.

5. Insert a special tool (0K430-Q5300) (A) to a sealing rubber hole.
Rotate the SST counter-clockwise and adjust the length of the clutch actuator's rod.

Increasing (+) rod length : Rotate counter-clockwise / once +0.25mm (+0.0098 in.)

Shortening (-) rod length : Rotate clockwise / once -0.25mm (-0.0098 in.)



• Perform the same procedure for the opposite side rod.



- Be aware not to break the clutch actuator caused by break away inner parts when the SST over rotates clockwise.
- If the rod length is not initialized to 79 - 80 mm (3.1102 - 3.1496 in.) during initialization of wear compensation, DCT shift shock may occur or driving may be impossible.

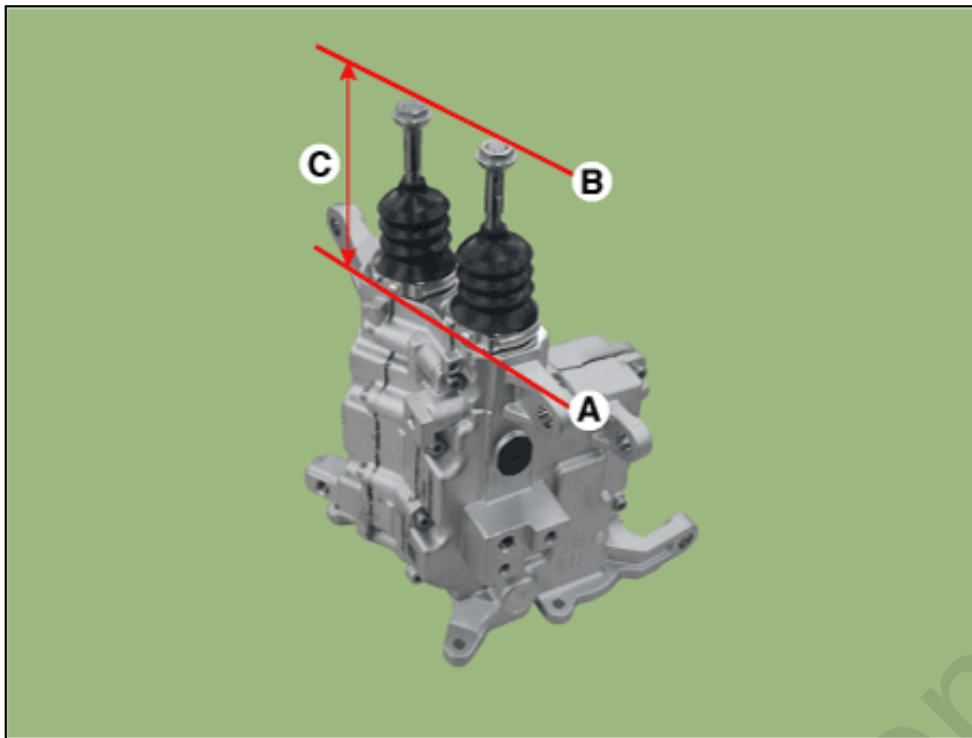
6. Slightly pull the rod of the clutch actuator and check whether the "length of the rod which the final adjustment is finished" is same with the "rod's initialized length".

Rod length (C) : Length from the reference plane (A) to the end of the rod (B).

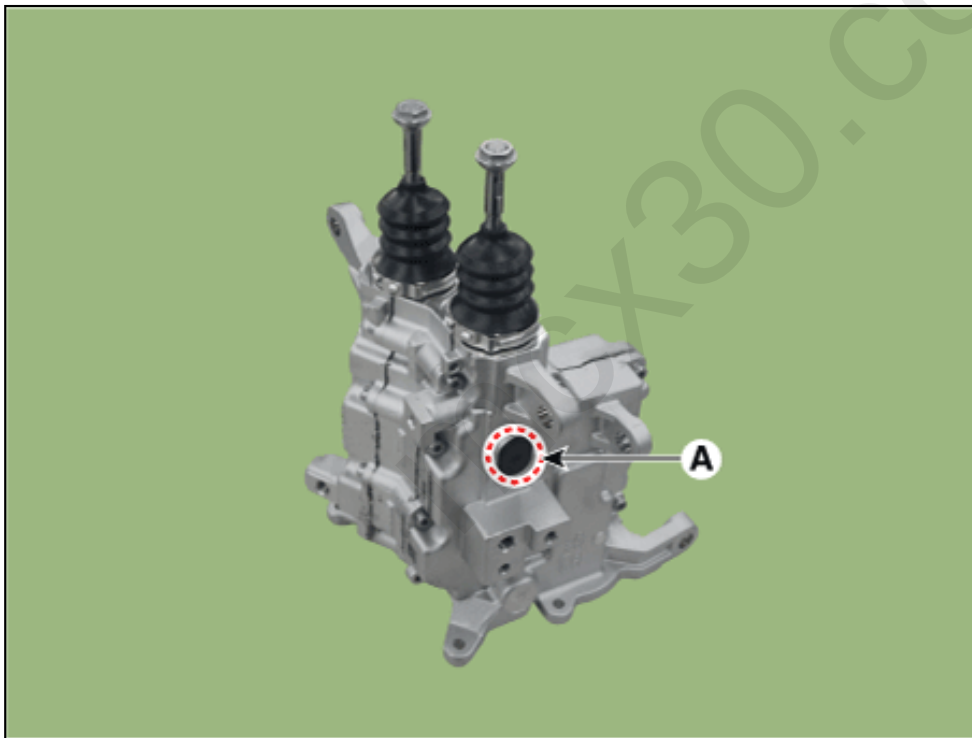
(**Initializ rod length :** 79 - 80 mm (3.1102 - 3.1496 in.))

1) Clutch actuator 1

2)Clutch actuator 2



7. Install the sealing rubber (A).



8. Remove the clutch actuator assembly from the special tool (0K430-Q5300).

Description

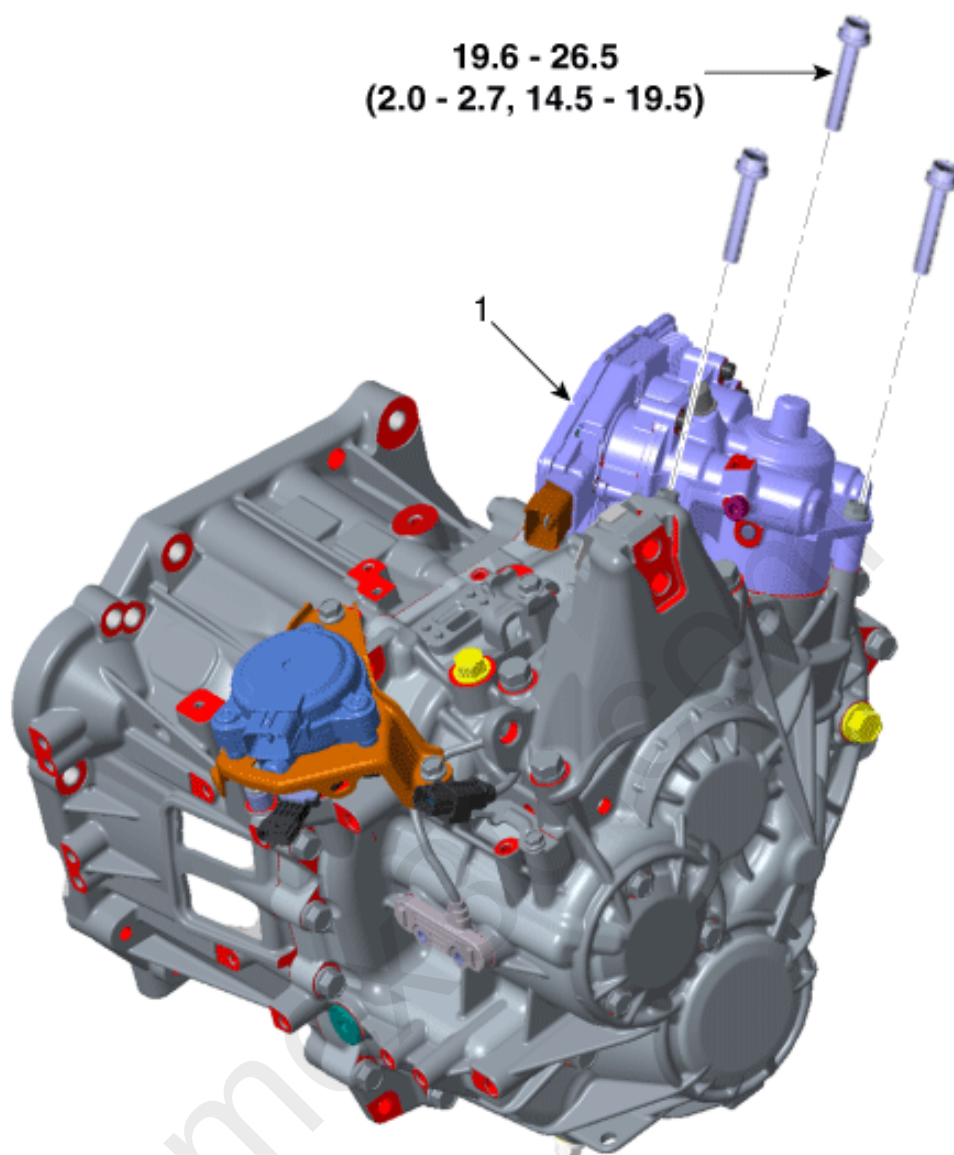
- **Components location** : DCT (Dual Clutch Transmission)

- **Function**

The gear actuator comprises the shift motor and select solenoid and the controller.

The gear actuator receives CAN signals from TCM to control the shift motor and the select solenoid for gear shifting.

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Tightening torque : N.m (kgf.m, lb-ft)

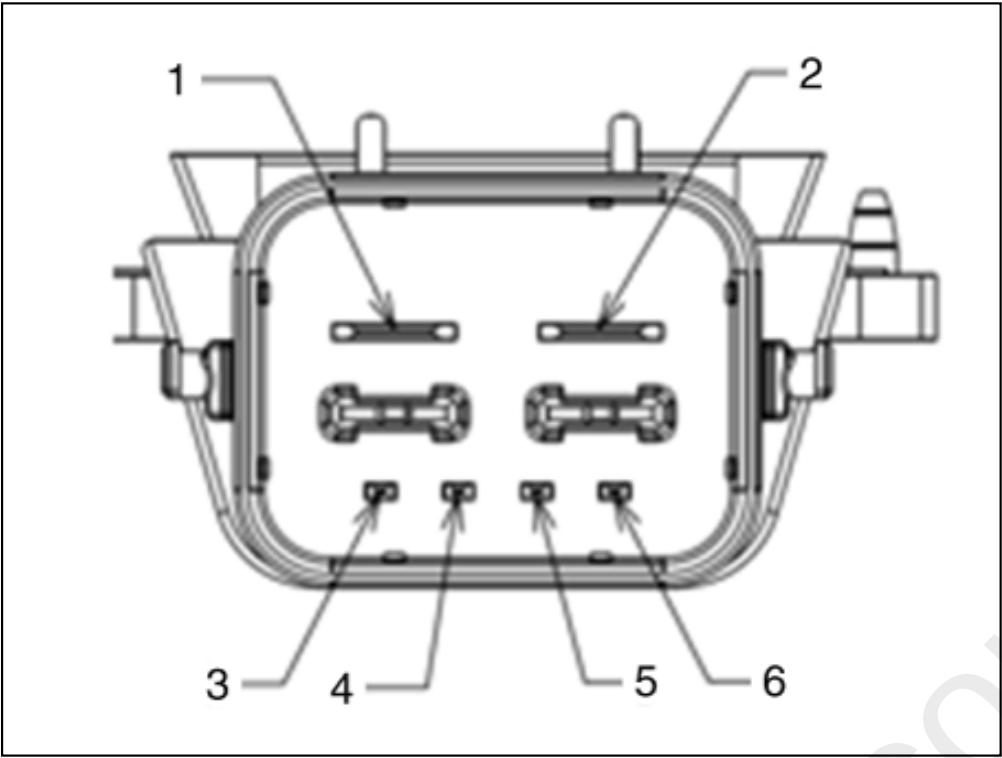
1. Gear actuator assembly

Specification

Item	Specification
Operation condition	-40 ~ 257°F (-40 ~ 125°C)
Rated voltage	12V

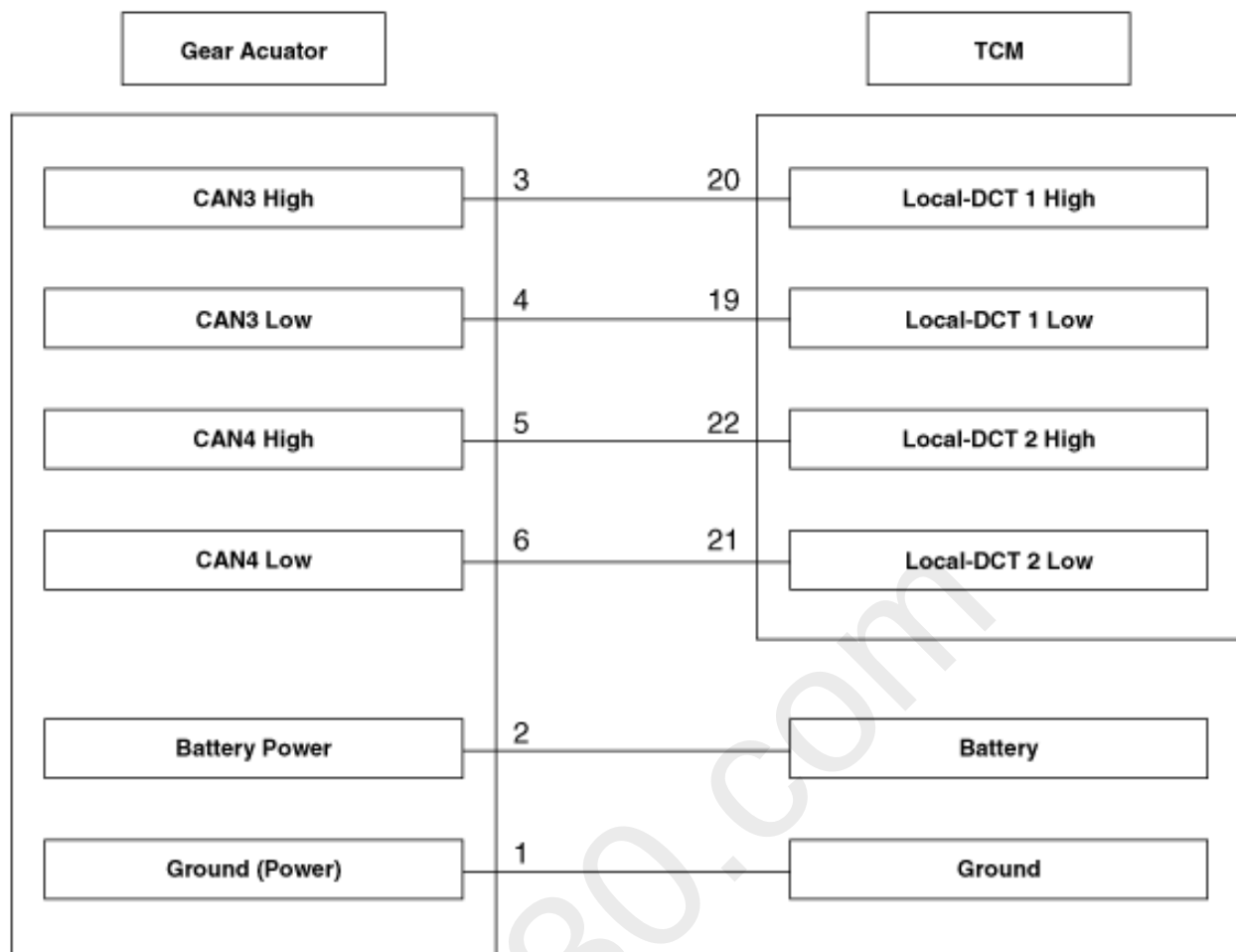
mcx30.com

[Connector and Terminal
Function]



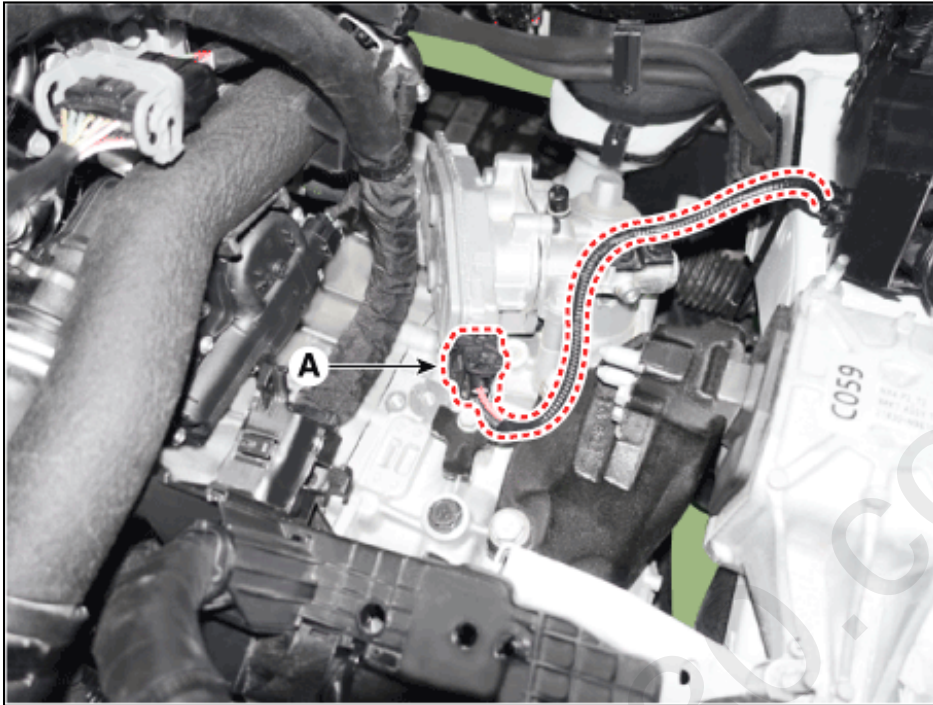
Pin	Description	Pin	Description
1	Ground (Power)	4	CAN3 Low
2	Battery Power	5	CAN4 High
3	CAN3 High	6	CAN4 Low

[Circuit Diagram]



Removal

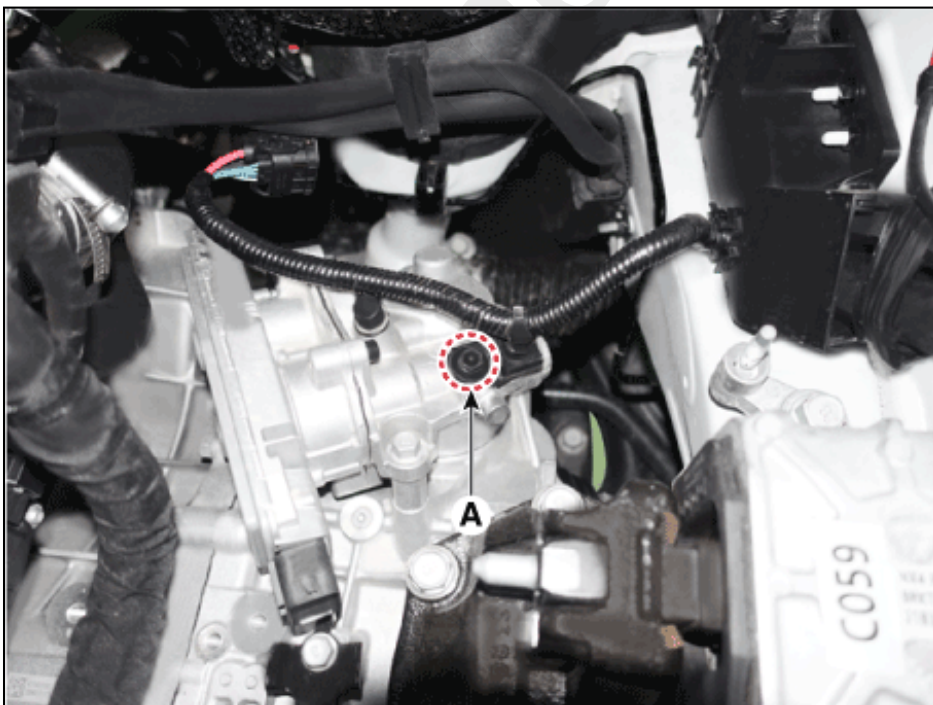
1. Turn ignition switch OFF and disconnect the negative (-) battery cable.
2. Remove the air cleaner assembly and air duct.
(Refer to Engine Mechanical System - "Air cleaner")
3. Remove the ECM.
(Refer to Engine Control / Fuel System - "Engine Control Module (ECM)")
4. Remove the battery and battery tray.
(Refer to Engine Electrical System - "Battery")
5. Disconnect the gear actuator connector (A).



6. Loosen the mounting bolts (A) and then remove the wiring bracket.

Tightening torque :

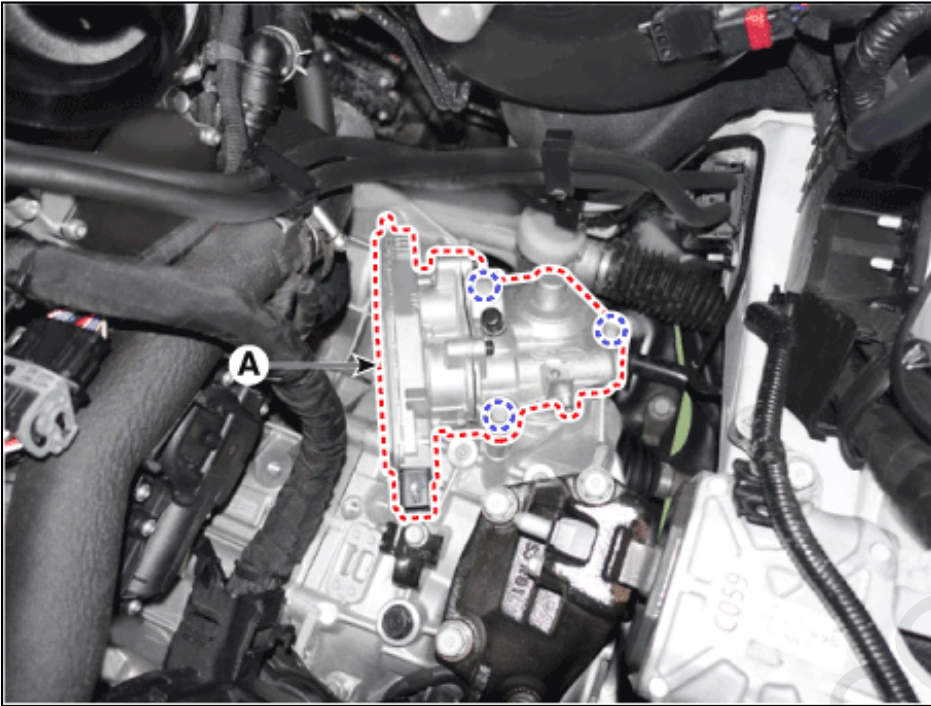
9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 7.2 - 8.7 lb-ft)



7. Loosen the bolts and then removing the gear actuator (A).

Tightening torque :

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



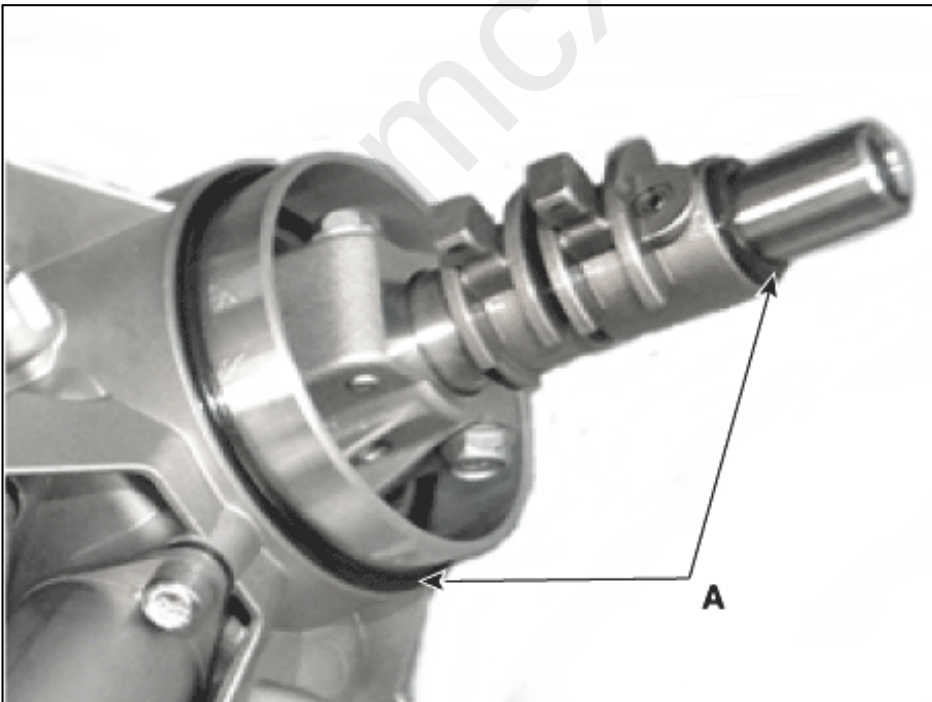
Installation

1. To install, reverse the removal procedure.



• Check the details below before installing the gear actuator assembly.

- 1) Check that the gear actuator is placed in the "neutral" state.
- 2) Check the assembled state of the O-rings (A).



- 3) Apply gear oil to the surface of O- rings.
- 4) Check the assembled state of the dowel pins.

- Perform the clutch touch point learning procedure using the diagnostic tool after replacing the gear actuator assembly.

S/W Management

Systems

Components

Unfold All

■ Engine Control

■ Dual Clutch Transmission

■ System Identification

■ DCT Learning Function

■ DCT Manual Input Function (Transmission Exchange)

■ Clutch compensation value setting

■ Checking the wear amount of clutch

■ ABS/ESP

■ Forward Collision-Avoidance Assist

■ Airbag(Event #1)

■ Airbag(Event #2)

■ Air Conditioner

■ Motor Driven Power Steering

■ Smart Cruise Control

■ Rear View Monitor with Parking Guidance

■ Blind-Spot Collision Warning

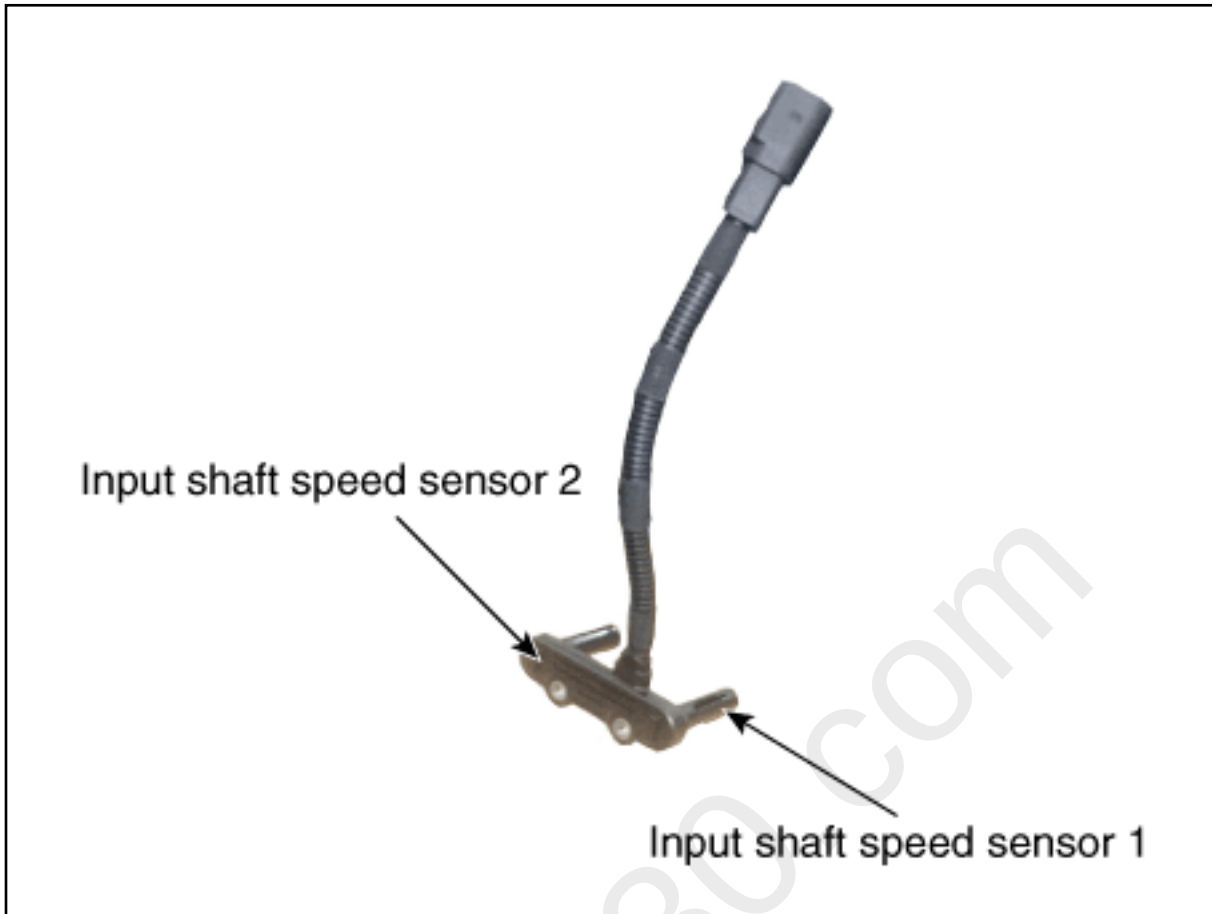
■ Lane Keeping Assist

!

Do not touch any system buttons while performing this function.

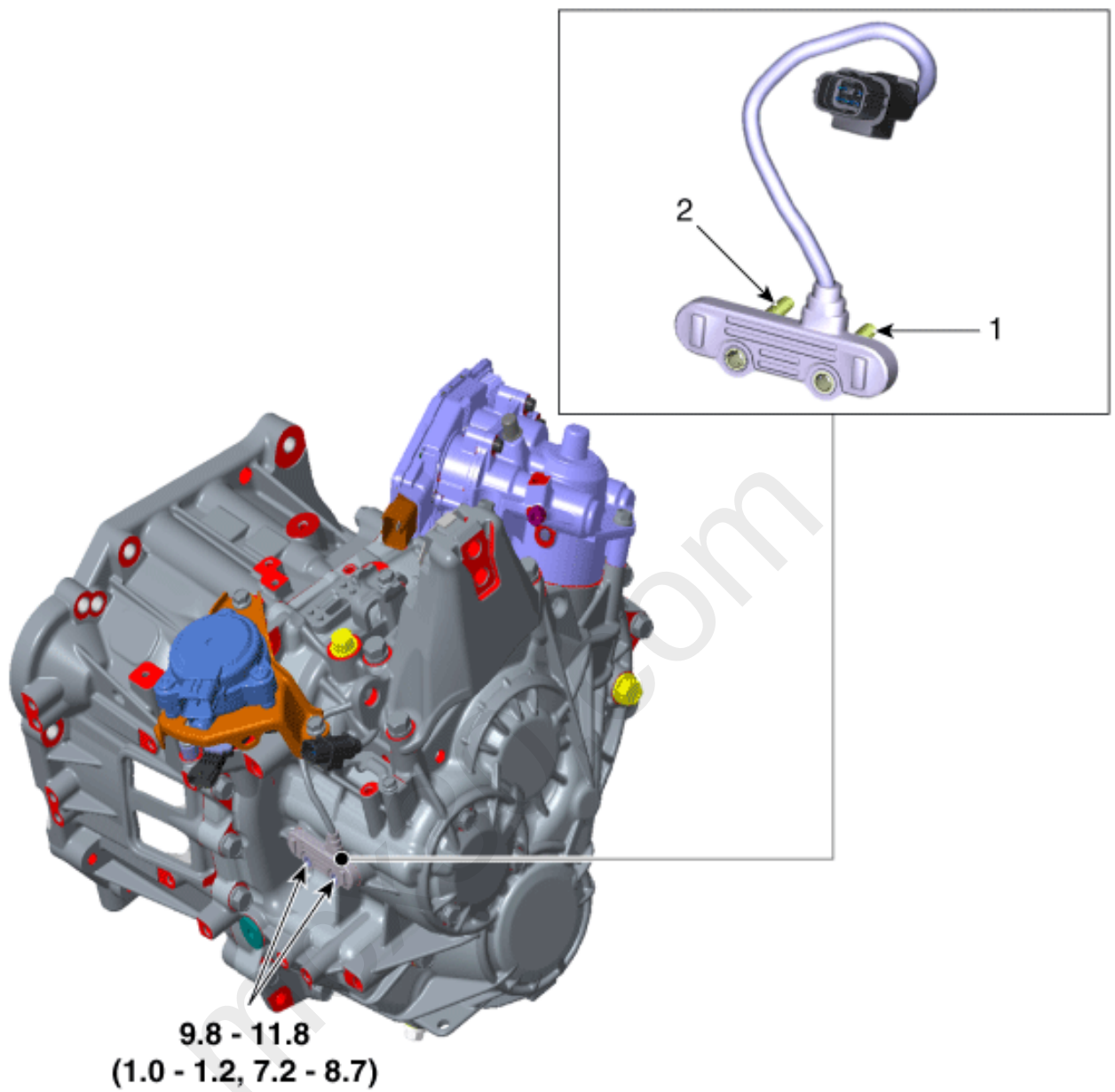
Description

- **Components location :** DCT (Dual Clutch Transmission)



- **Function**

The input shaft speed sensor is important in that it detects the input shaft RPM and sends this information to the Transmission Control Module (TCM). It provides important input information for electric control. The information is needed in all operations, including feedback control, gear shift control and failure detection of other sensors.



Tightening torque : N.m (kgf.m, lb-ft)

1. Input shaft speed sensor 1 (Odd)

2. Input shaft speed sensor 2 (Even)

Specification

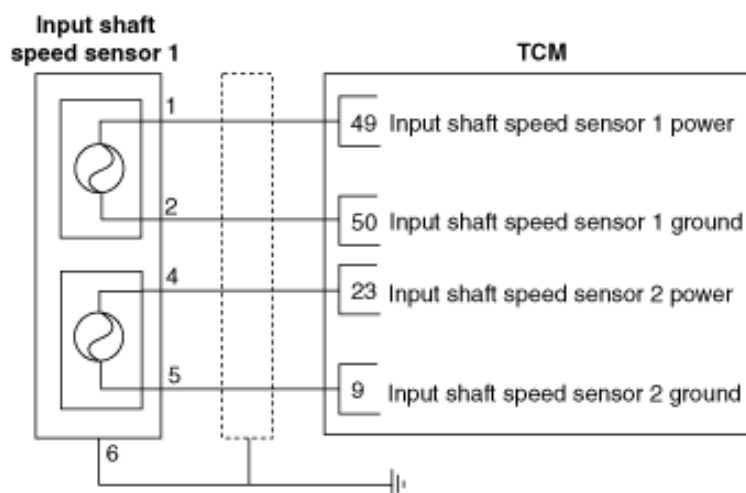
Item	Specification
Type	Hall effect sensor
Operation condition (°C)°F	(-40 to 150) -40 to 302
Output signal (mA)	High: 11.8 - 16.8
	Low: 5.9 - 8.4

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Circuit Diagram

[Circuit Diagram]

[Connection Information]

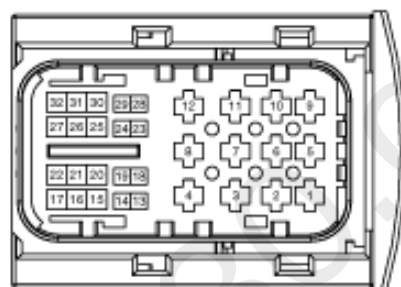


Terminal	Connected to	Function
1	TCM(49)	Input shaft speed sensor 1 power
2	TCM(50)	Input shaft speed sensor 1 ground
3	-	-
4	TCM(23)	Input shaft speed sensor 2 power
5	TCM(9)	Input shaft speed sensor 2 ground
6	Sensor ground	Sensor Shield

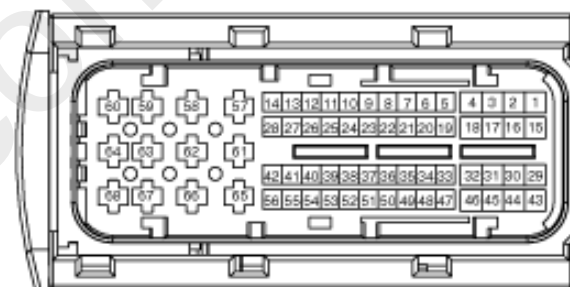
[Harness Connector]



C528
Input shaft speed sensor
connector



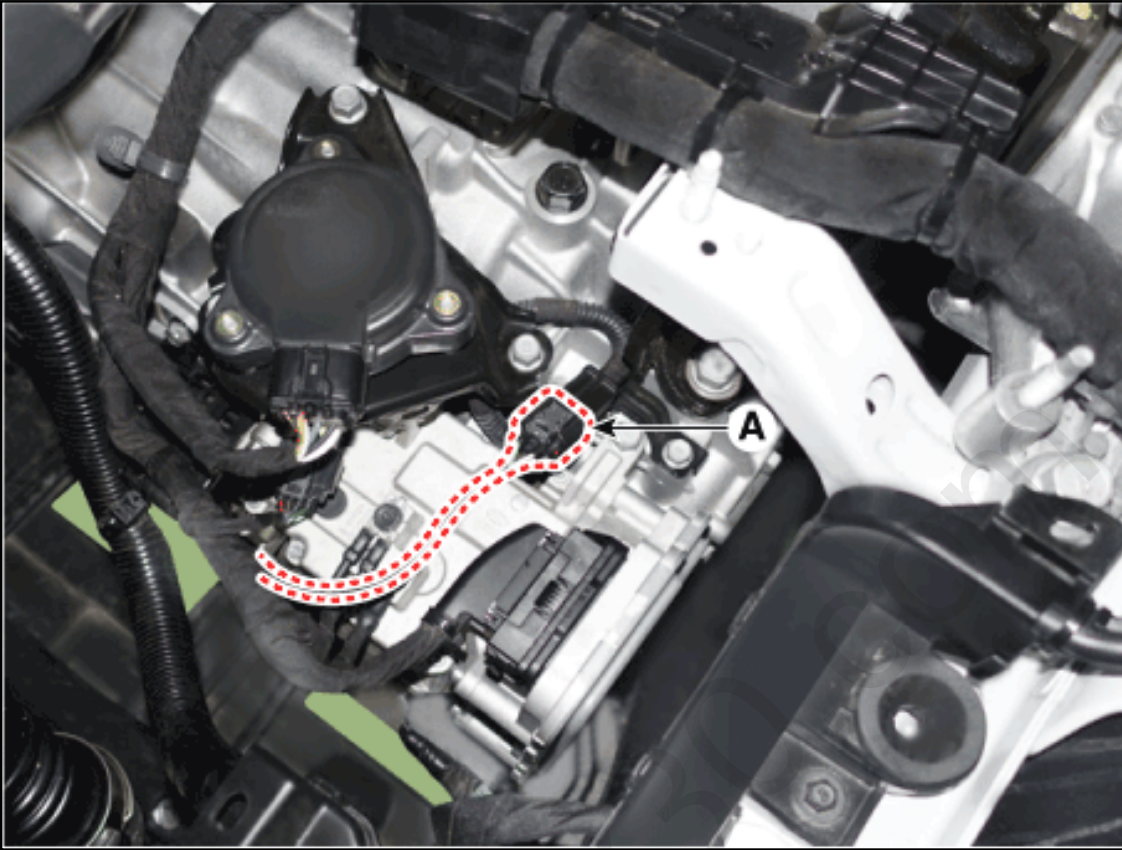
Connector [A]
TCM



Connector [B]
TCM

Removal

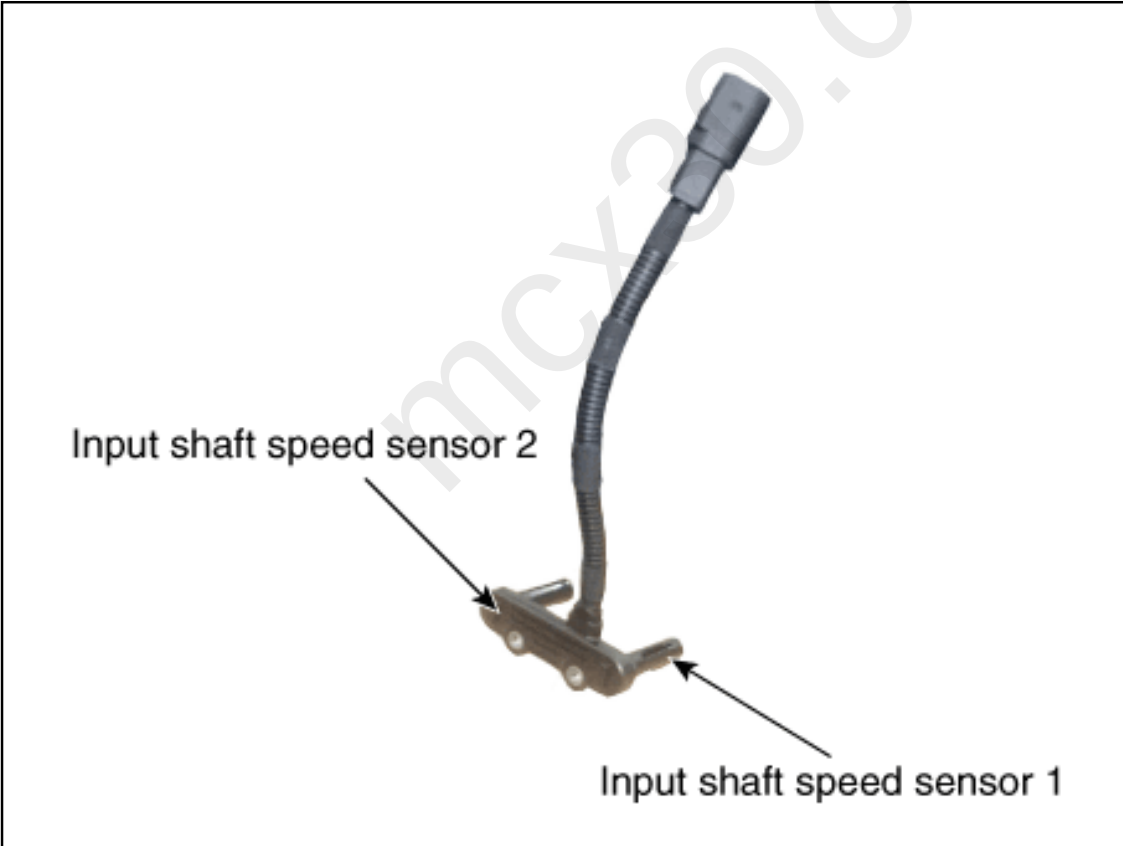
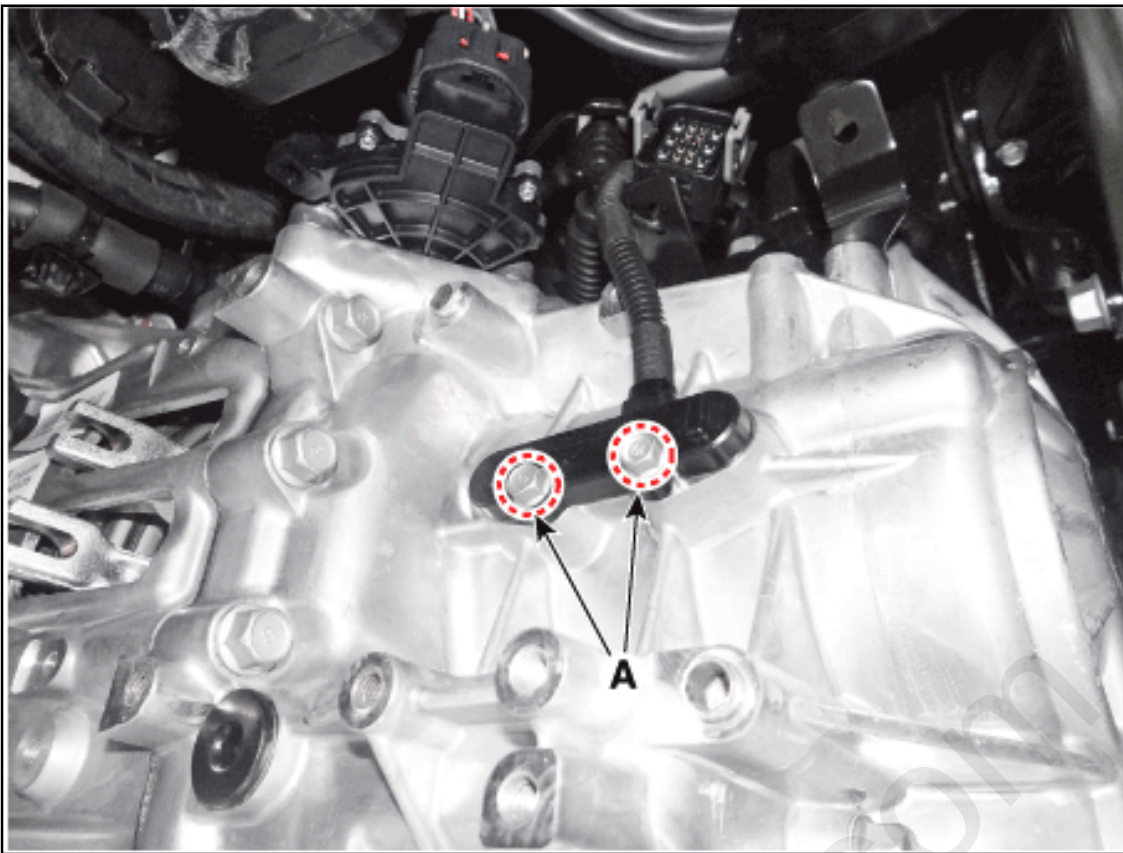
1. Turn ignition switch OFF and disconnect the negative (-) battery cable.
2. Remove the air cleaner assembly and air duct.
(Refer to Engine Mechanical System - "Air cleaner")
3. Disconnect the input speed sensor connector (A).



4. Remove the clutch actuator assembly.
(Refer to Dual Clutch Transmission Control System - "Clutch Actuator & TCM Assembly")
5. Remove the input shaft speed sensor after removing the bolts (A).

Tightening torque :

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

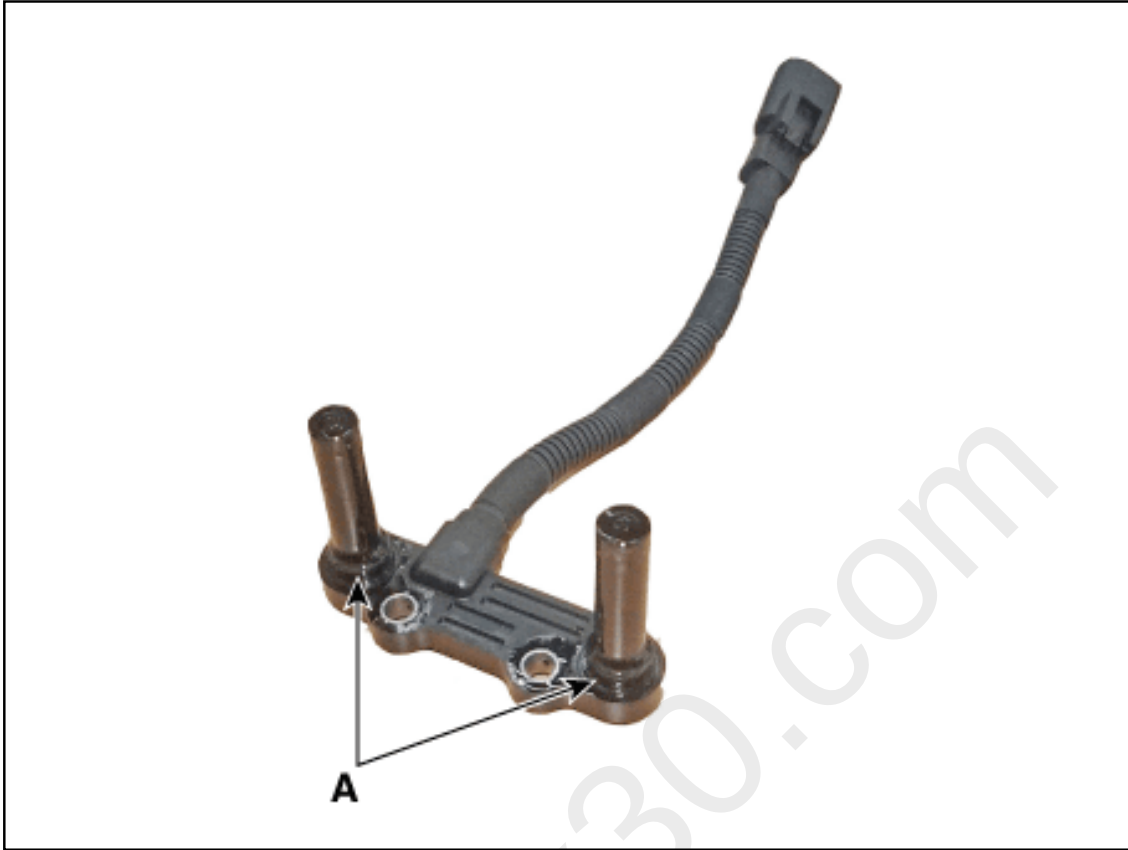


Installation

1. To install, reverse the removal procedure.

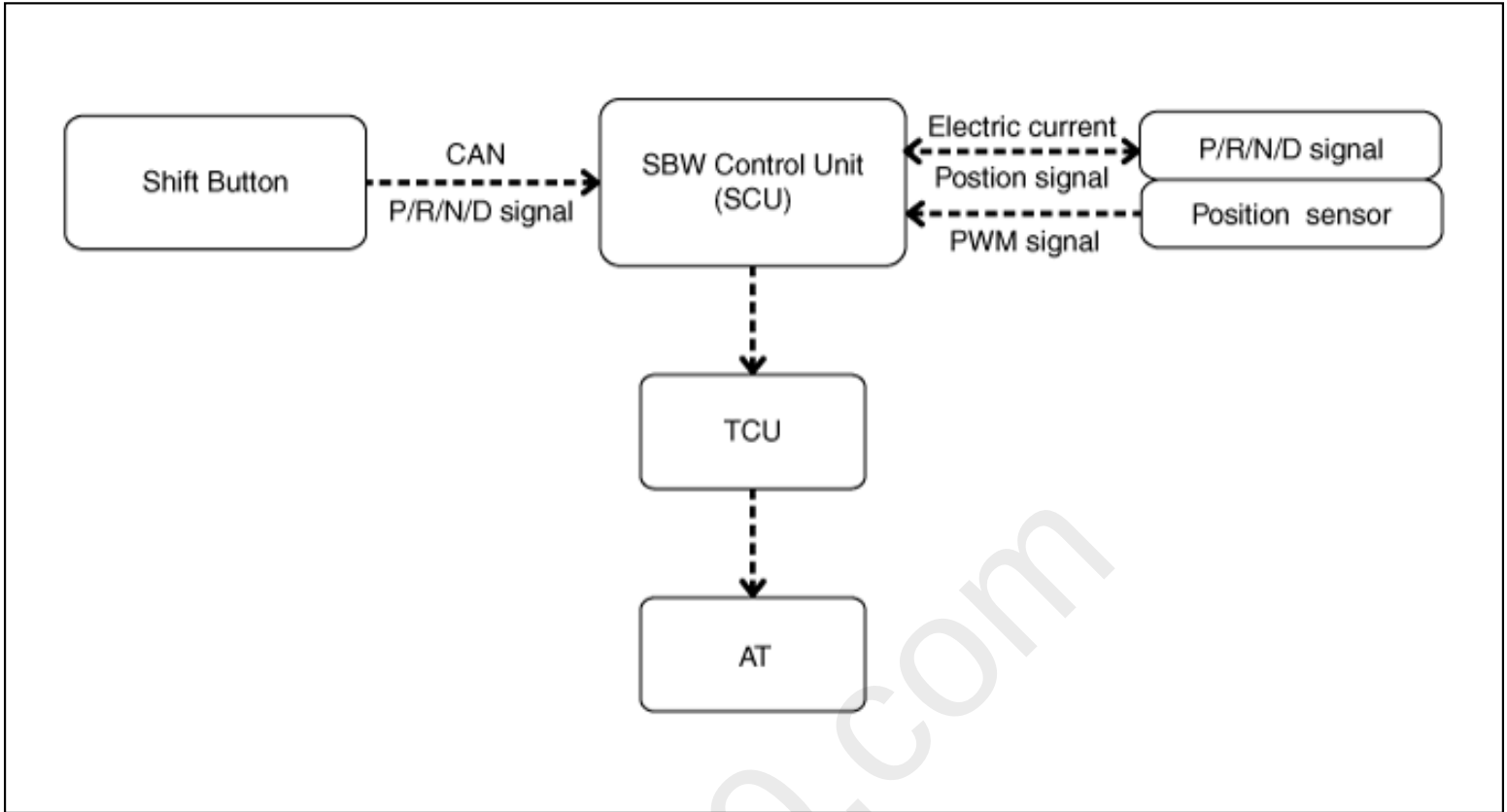


- Before installing the input speed sensor, check the assembled state of the O-rings (A) and should apply gear oil to the surface of O-rings.



Description

Controls the 4 position of P(Parking), R, N, D using the rotation of the motor of according to the electric signal when the shift button is operated.

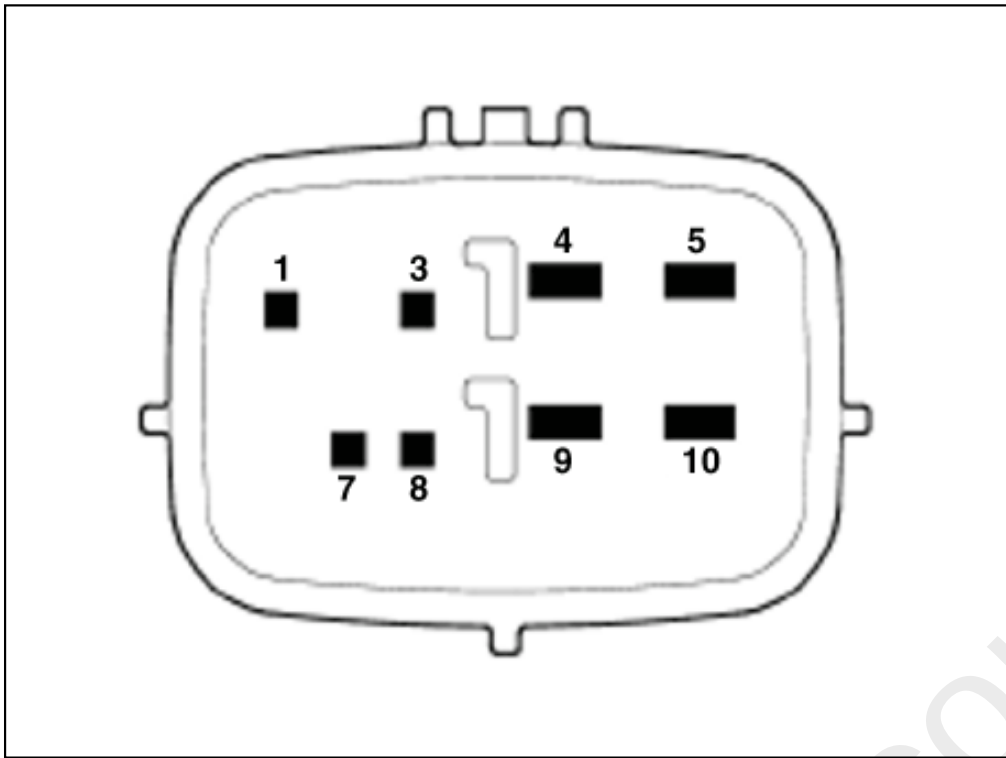


Specification

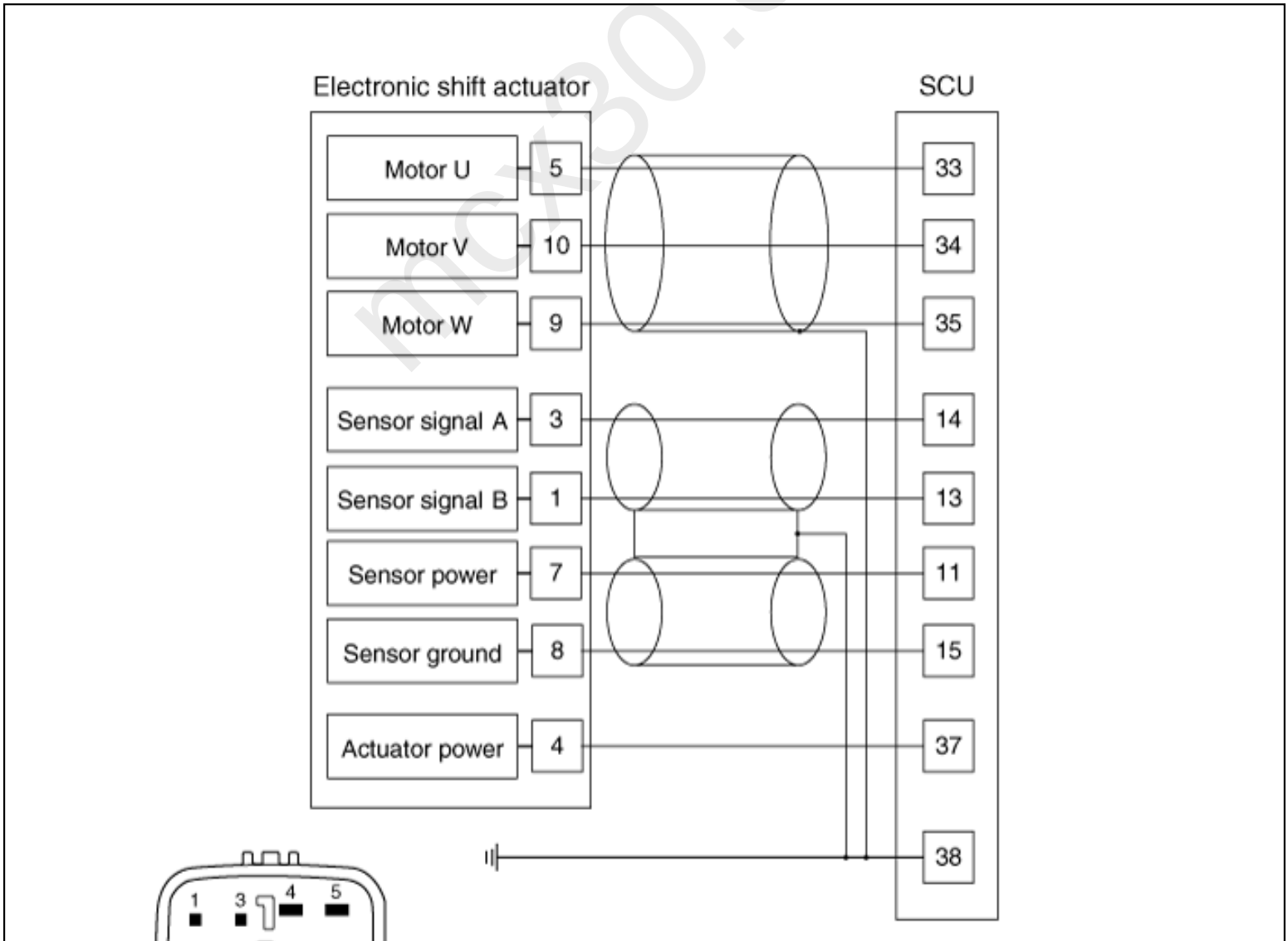
Item		Specification
Motor	Voltage(V)	10 - 16
	Electric current (A)	36.41 @ 16V, - 40°C (- 104°F)
	Coil resistance (Ω)	1.15 - 1.40 @ 20°C (60°F)
Sensor	Voltage(V)	4.7 - 5.3
	Electric current (mA)	10 - 20

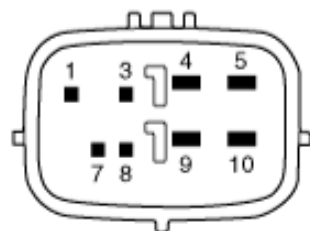
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[Connector and Terminal
Function]

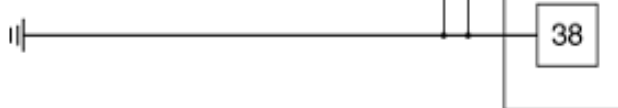


[Circuit Diagram]





Electronic shift actuator connector



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Removal

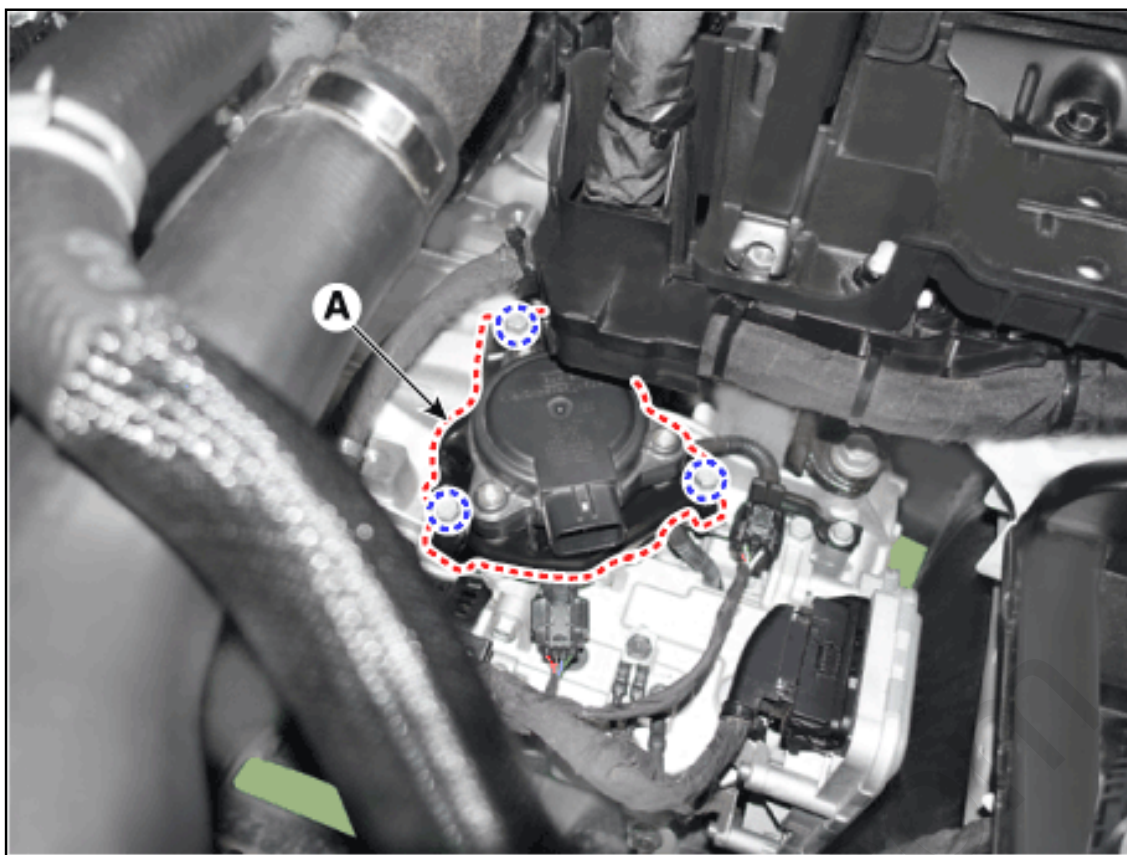
1. Turn ignition switch OFF and disconnect the negative (-) battery cable.
2. Remove the air cleaner assembly and air duct.
(Refer to Engine Mechanical System - "Air cleaner")
3. Disconnect the electronic shift actuator connector (A).



4. Loosen the bolts and then removing the electronic shift actuator (A).

Tightening torque :

20.6 - 26.5 N.m (2.1 - 2.7 kgf.m, 15.2 - 19.5 lb-ft)

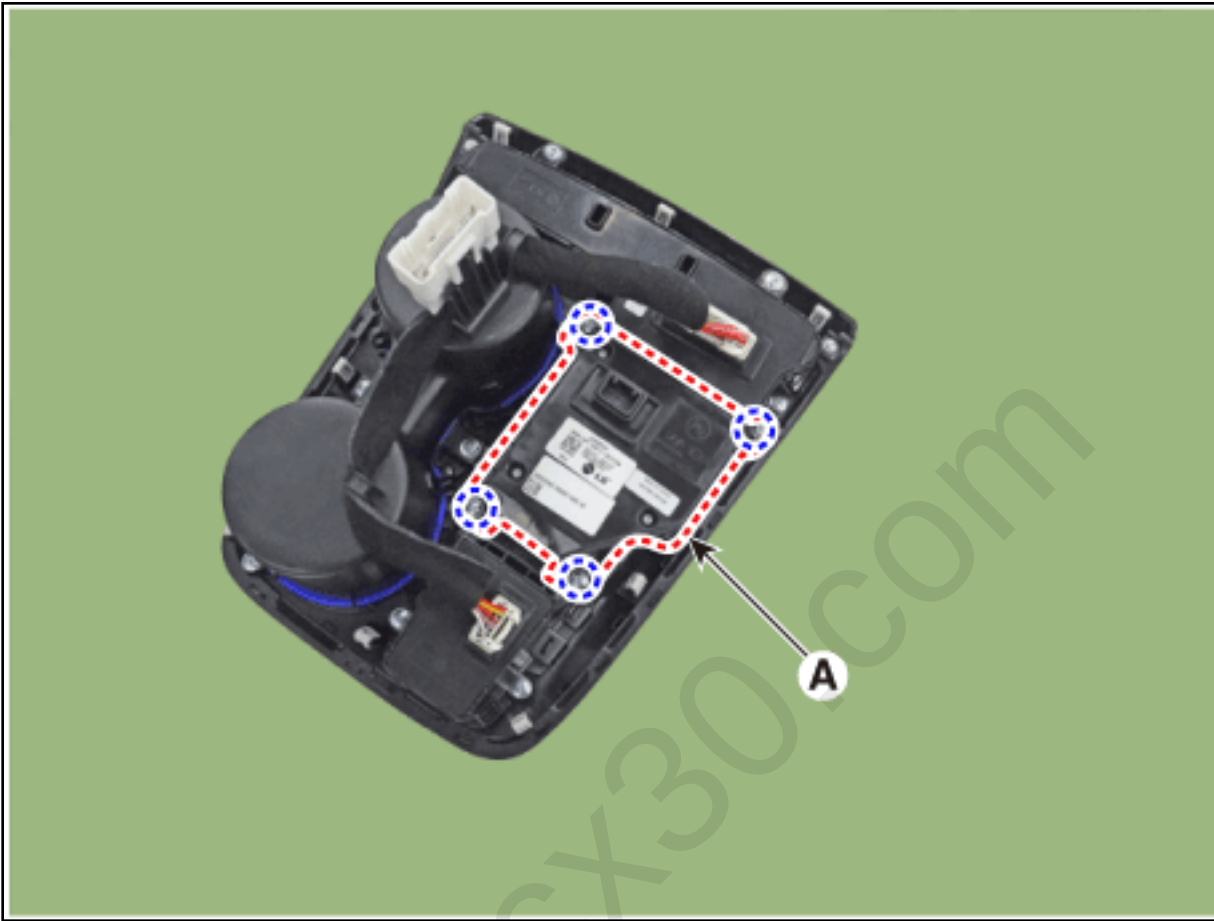


Installation

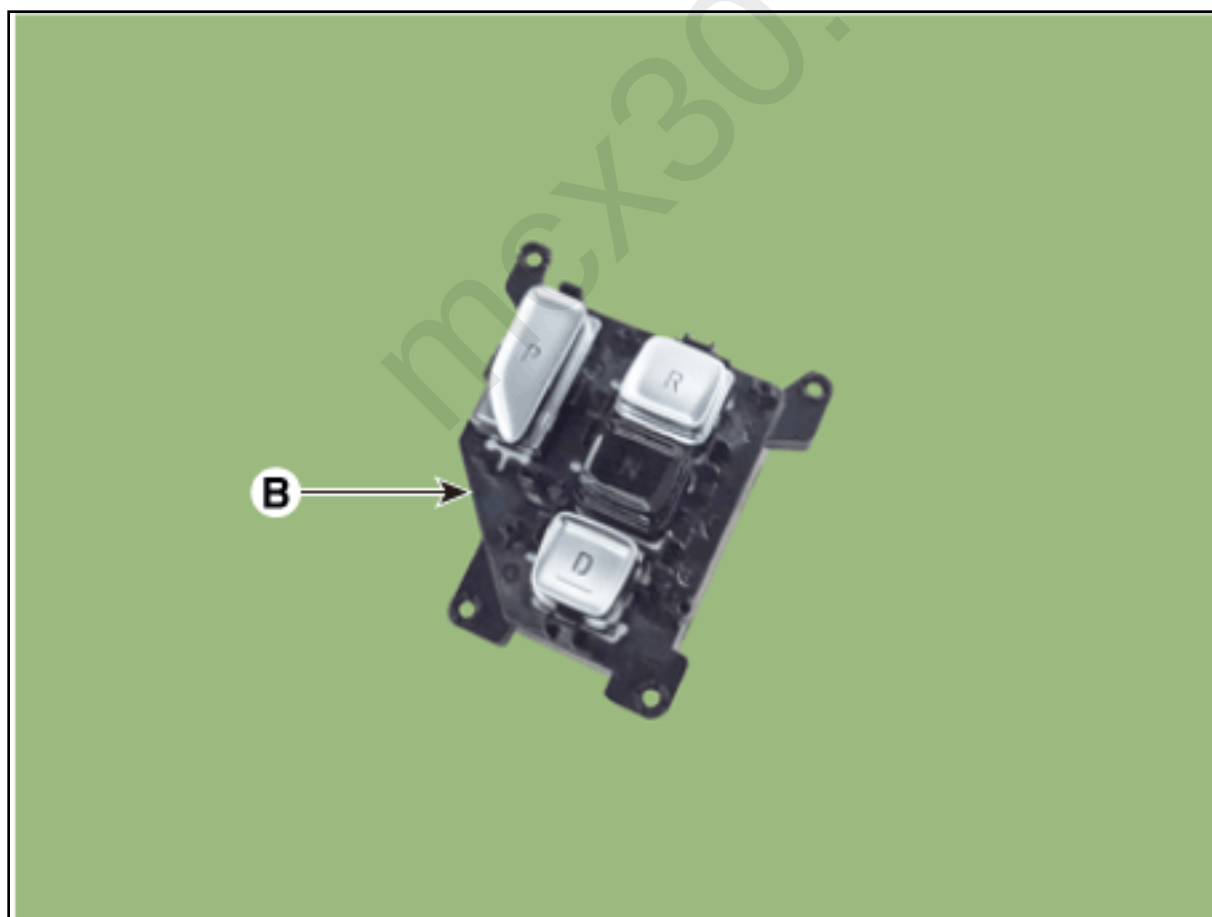
1. To install, reverse the removal procedure.

Removal

1. Turn ignition switch OFF and disconnect the negative (-) battery cable.
2. Remove the console upper cover.
(Refer to Body (Interior and Exterior) - "Floor Console Assembly")
3. Loosen the screw and then removing the electric shift button (A).



4. Loosen the screw and then removing the upper cover (A) from electric shift button (B).



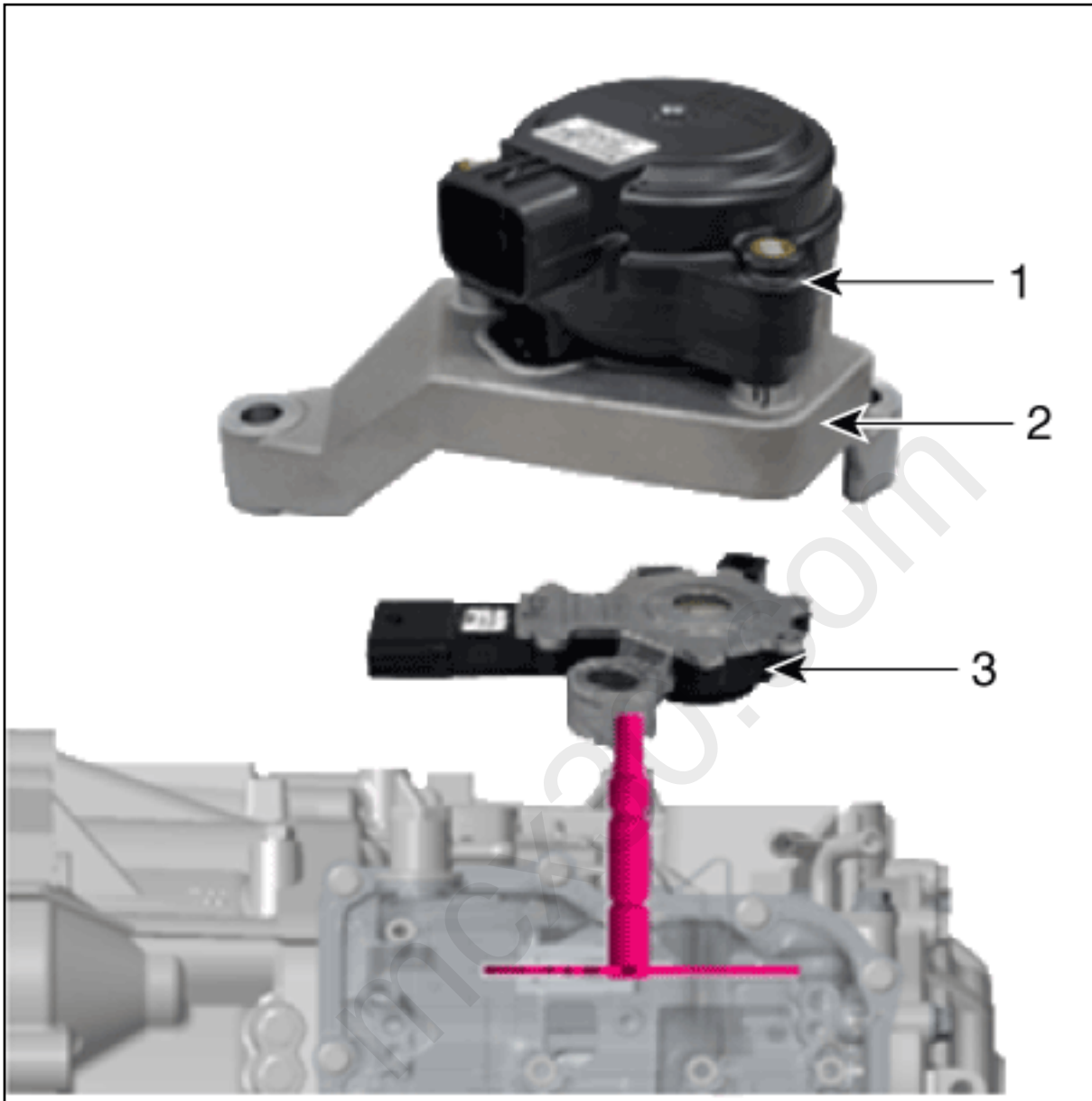
Installation

1. To install, reverse the removal procedure.

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Description

- Output position signal(P,R,N,D) by the actuator operation to the controller (SBW Control Unit_SCU).



1. Electronic Shift Actuator
2. Bracket
3. Position sensor

Troubleshooting

Major Symptom	Expected Cause	Items to Check and Measures
Shock when shifting to and from D/R Motor run-up when shifting to and from D/R	Faulty position sensor "N" setting	Use the "N" setting jig and adjust the "N" setting. (Refer to "Automatic Transaxle System – Position Sensor")
	Faulty oil pressure in the valve body	Replace valve body assembly or inspect/replace transaxle assembly
Faulty engine start Current gear not indicated in the Cluster Warning Lamp ON Engine stall while stopped Creeping not possible Auto parking release disabled	Faulty CAN terminating resistance/circuit	Check TCM/battery management system module. Check TCM wiring connector connection.
	Faulty position sensor circuit fuse	Check fuse and junction box terminal, and repair.
	Faulty position sensor wiring connector	Check for foreign substance in the wiring connector, and check for gap on the terminal.
		Check sealing on unused pin, and check for corrosion on the terminal.
	Faulty reverse lamp circuit	Check reverse lamp ground, and reassemble if necessary.
	Faulty position sensor wiring ground	Check wiring ground, and reassemble if necessary.
	Position sensor faulty code	Inspect in accordance with the inspection flow, then replace position sensor if necessary.

Specification

Item	Specification	
Power supply (V)	4.5 - 5.5V	
Output type	Shifting range	Non-contact (2 channel PWM signal)

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Removal



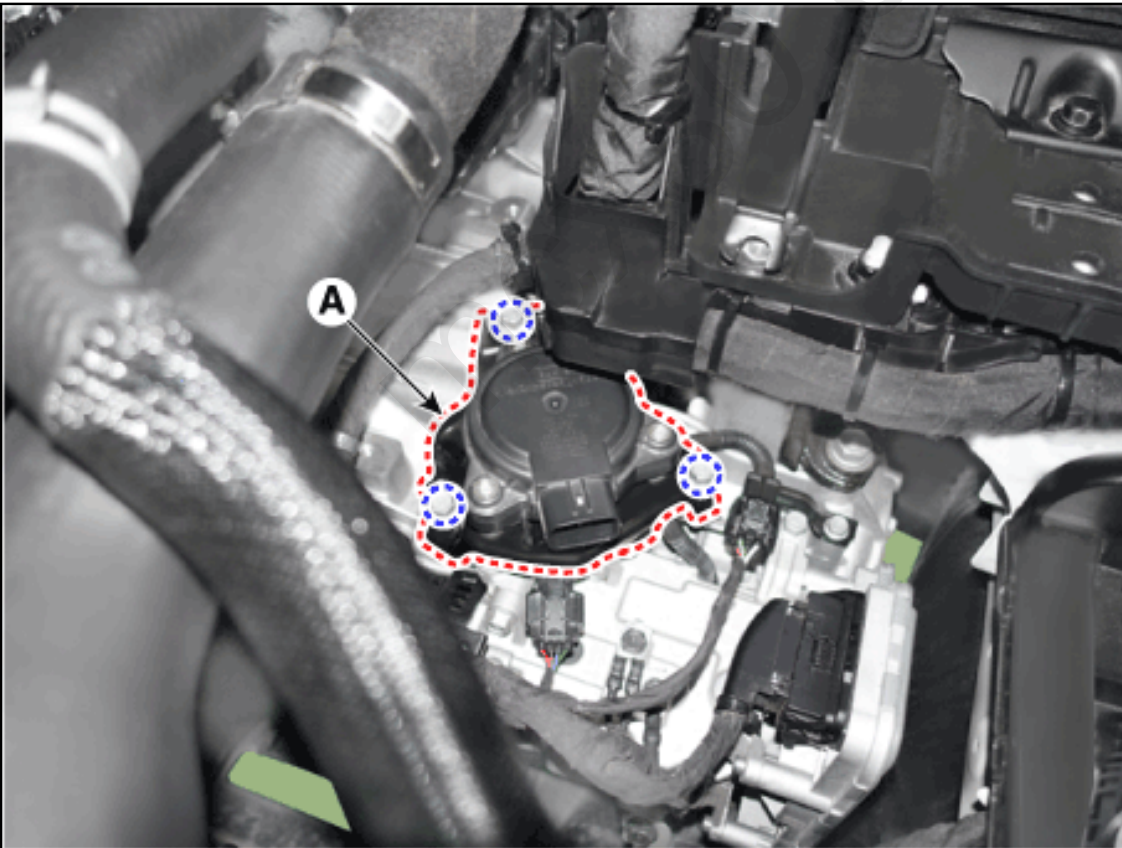
- Before removal, press the brake pedal while the ignition switch is ON and press the N button (A) for a long time to position it in the N position, then remove the battery (-) terminal.



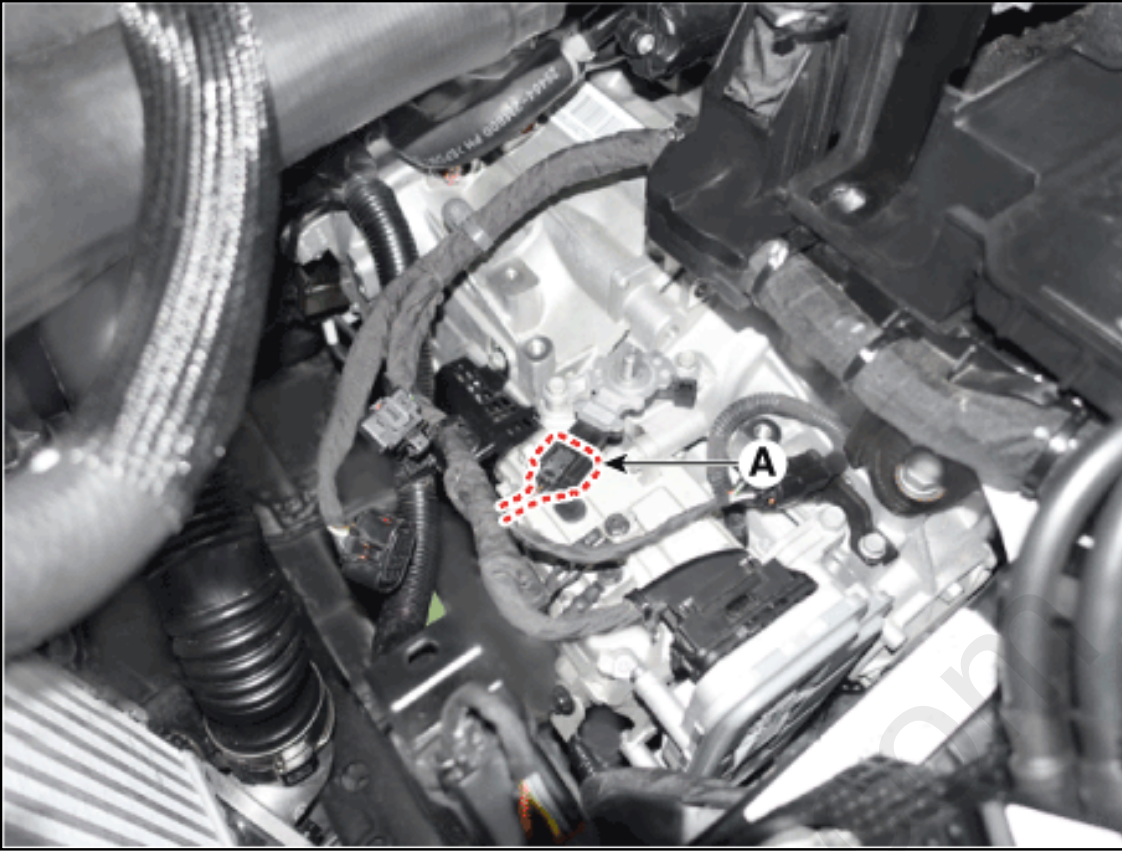
1. Turn ignition switch OFF and disconnect the battery negative (-) terminal.
2. Remove the air cleaner assembly and air duct.
(Refer to Engine Mechanical System - "Air cleaner")
3. Disconnect the electronic shift actuator connector (A).



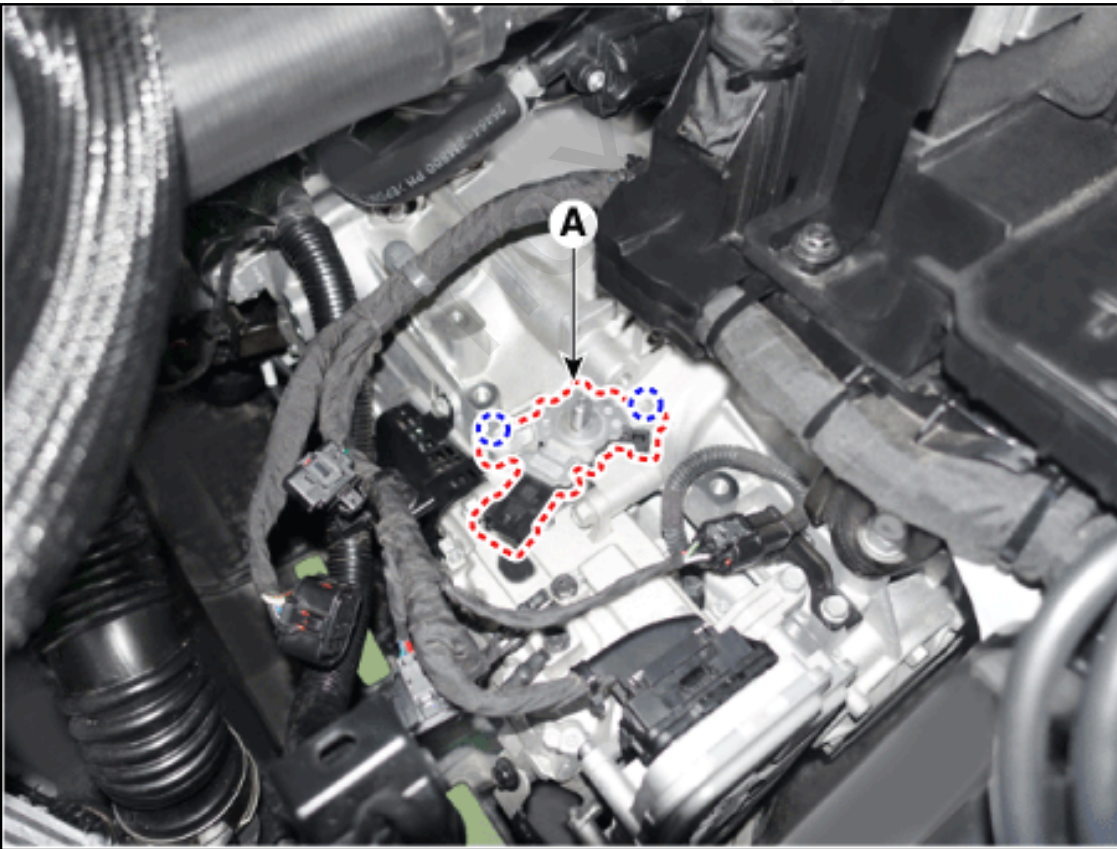
4. Loosen the bolts and then removing the electronic shift actuator (A).



5. Disconnect the position sensor connector (A).



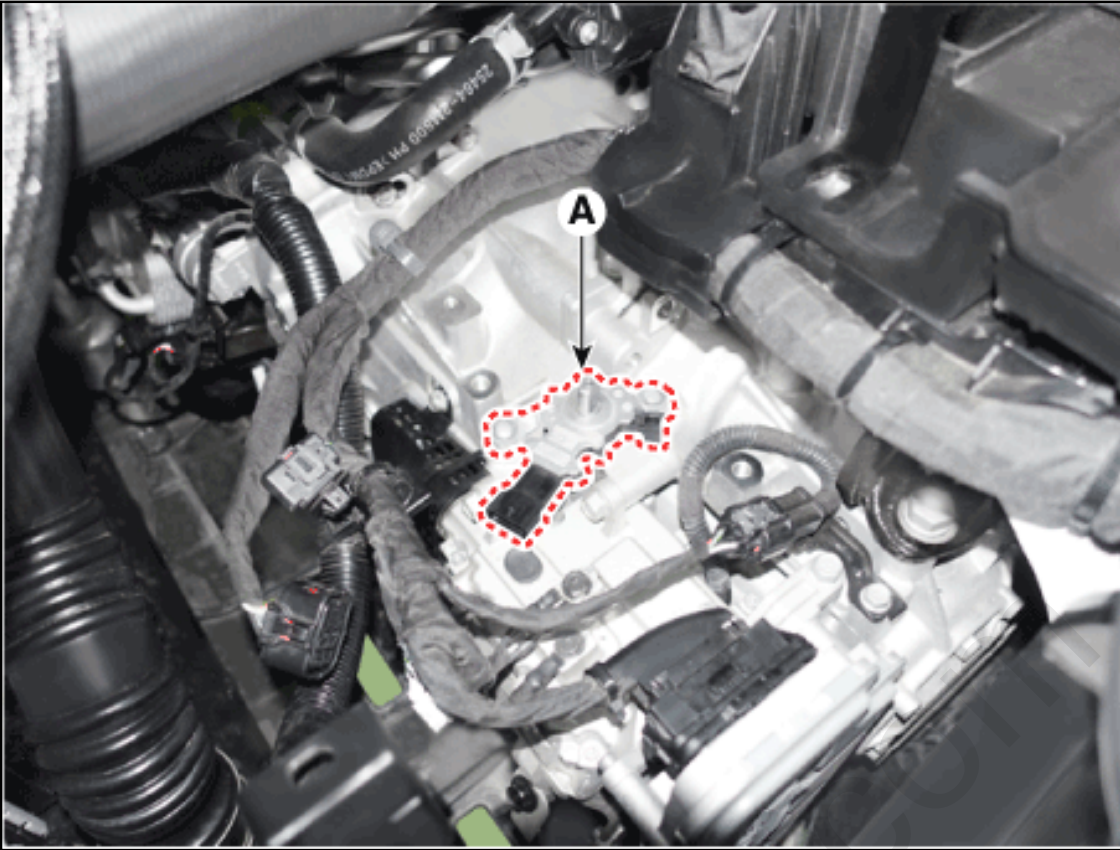
6. Loosen the bolts and then removing the position sensor (A).



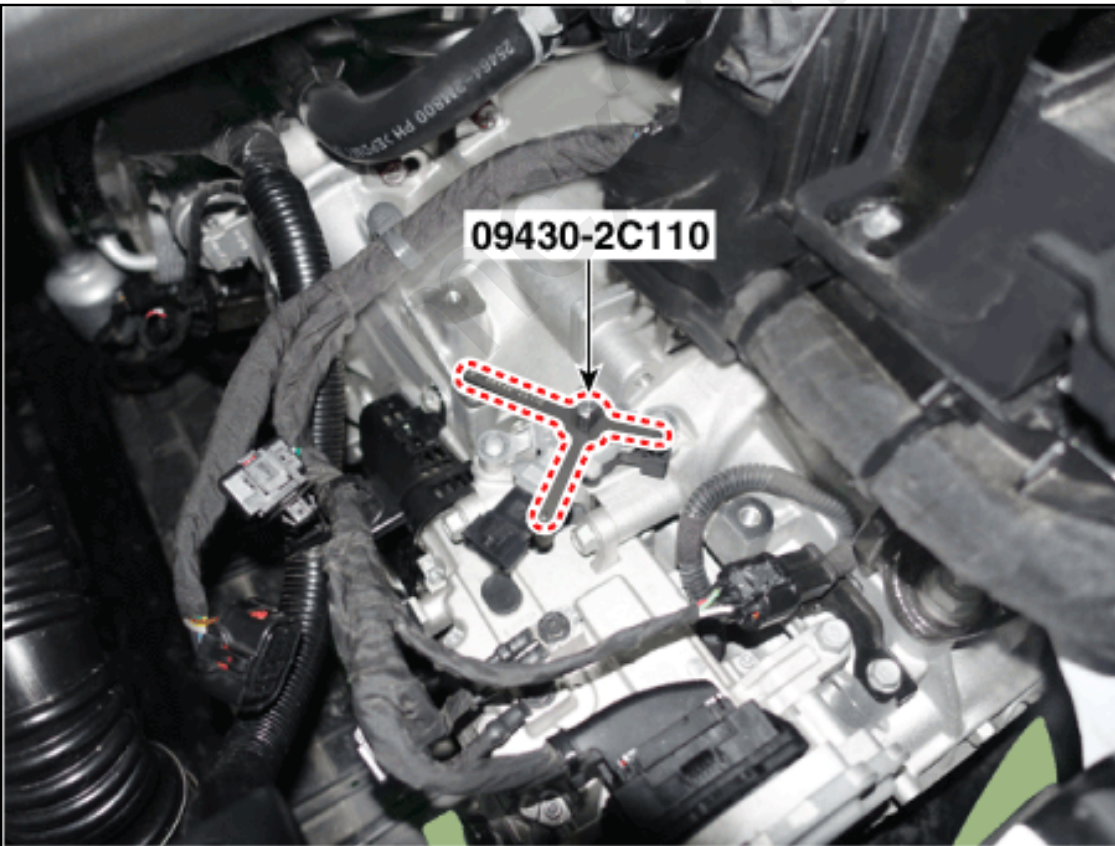
Installation

1. Check that the shaft is in the "N" position.

2. Install the position sensor (A) and then lightly tighten the bolts.



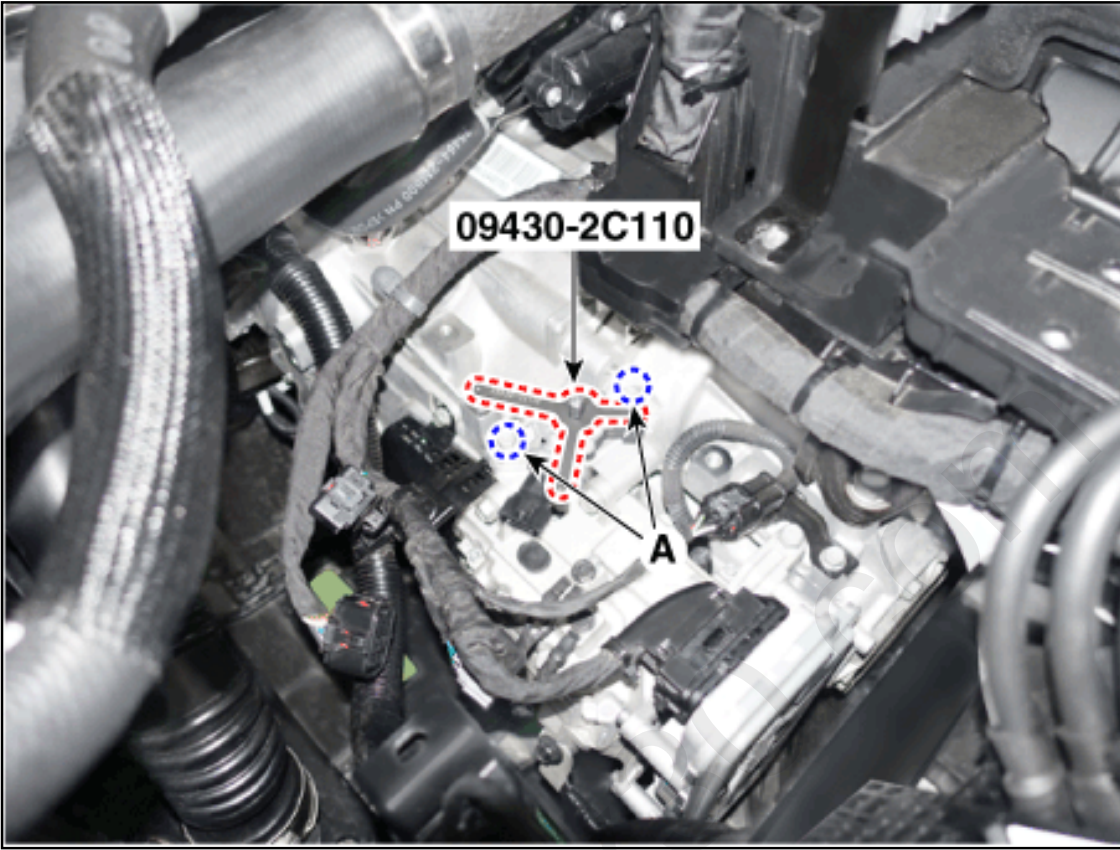
3. Install the position sensor "N" fixing SST(No.:09430-2C110).



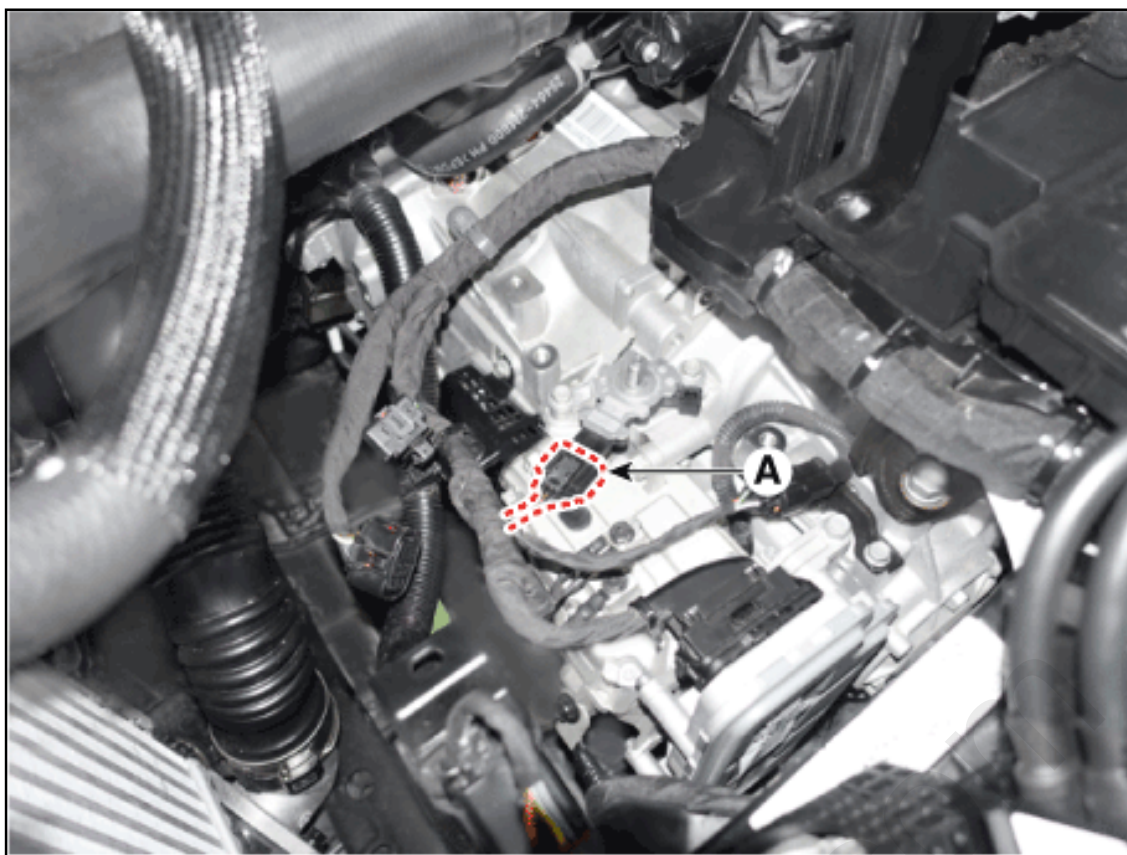
4. Tighten position sensor mounting bolts (A) to the specified torque and then remove the position sensor "N" fixing SST(No.:09430-2C110).

Tightening torque :

9.8 - 11.8 N.m (1.0 - 1.2 kgf.m, 28.9 - 33.9 lb-ft)



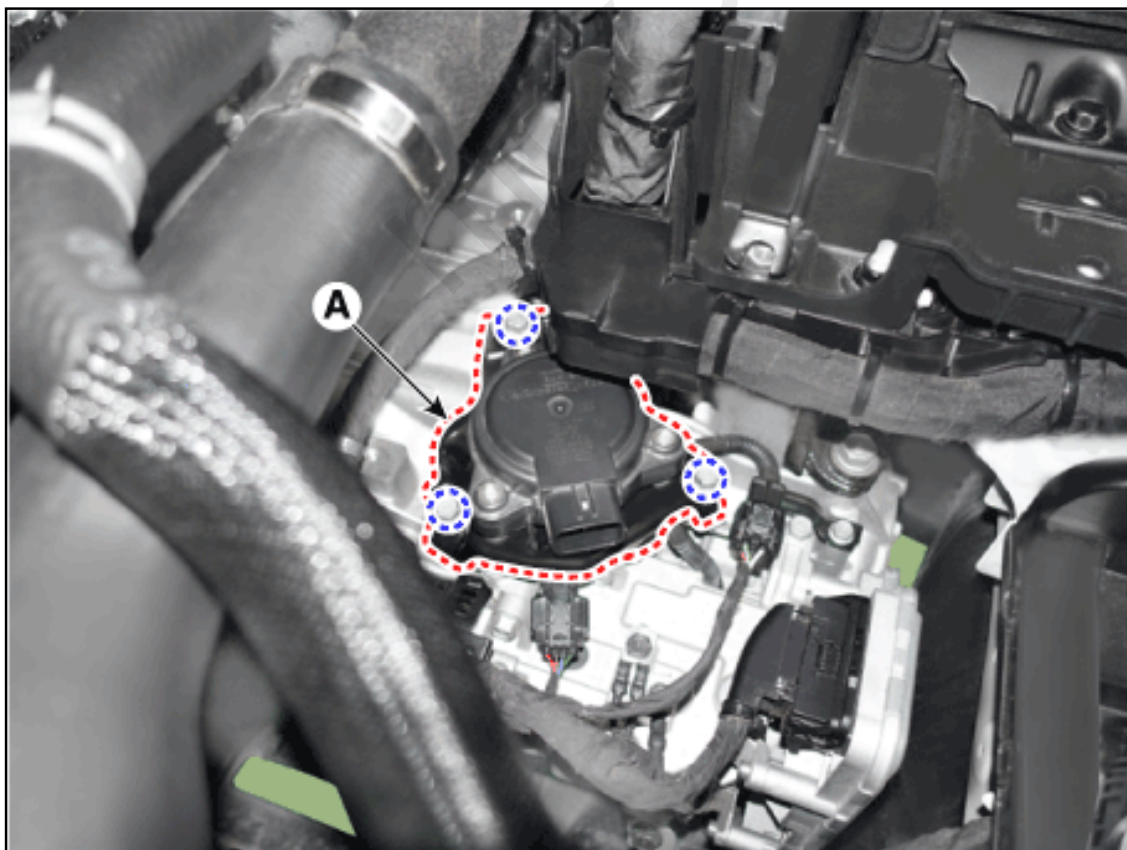
5. Connect the position sensor connector (A).



6. Install the electronic shift actuator (A).

Tightening torque :

20.6 - 26.5 N.m (2.1 - 2.7 kgf.m, 15.2 - 19.5 lb-ft)



7. Connect the electronic shift actuator connector (A).



8. Install the air cleaner assembly and air duct.

(Refer to Engine Mechanical System - "Air cleaner")

9. Connect the negative (-) battery cable.



- Check that operating surely at each range of the position sensor corresponding to each position of electric shift button.

Description

- **Components location :** DCT (Dual Clutch Transmission)

- **Function**

The dual clutch is installed within the transmission.

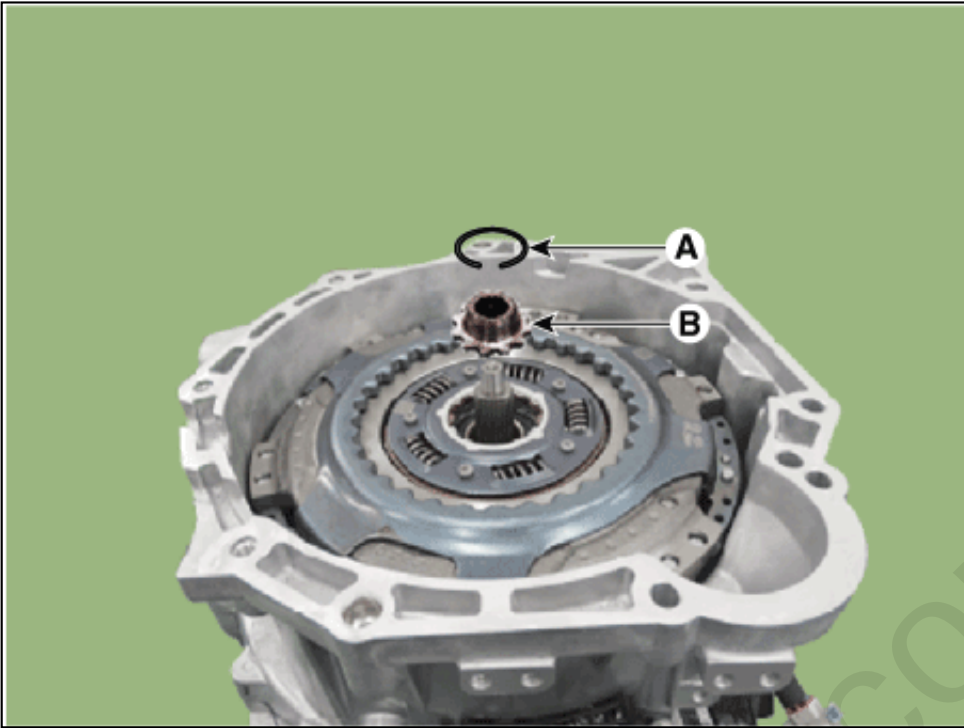
The dual clutch comprises an odd clutch and an even clutch. The odd clutch transfers and cuts off engine power to the transmission when shifting odd gears.

The even clutch transfers and cuts off engine power to the transmission when shifting even gears.

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Removal

1. Remove the dual clutch transmission from the vehicle.
(Refer to Dual Clutch Transmission Assembly - "DCT (Dual Clutch Transmission)")
2. Remove the retaining ring (A) and then removing the spline hub (B).



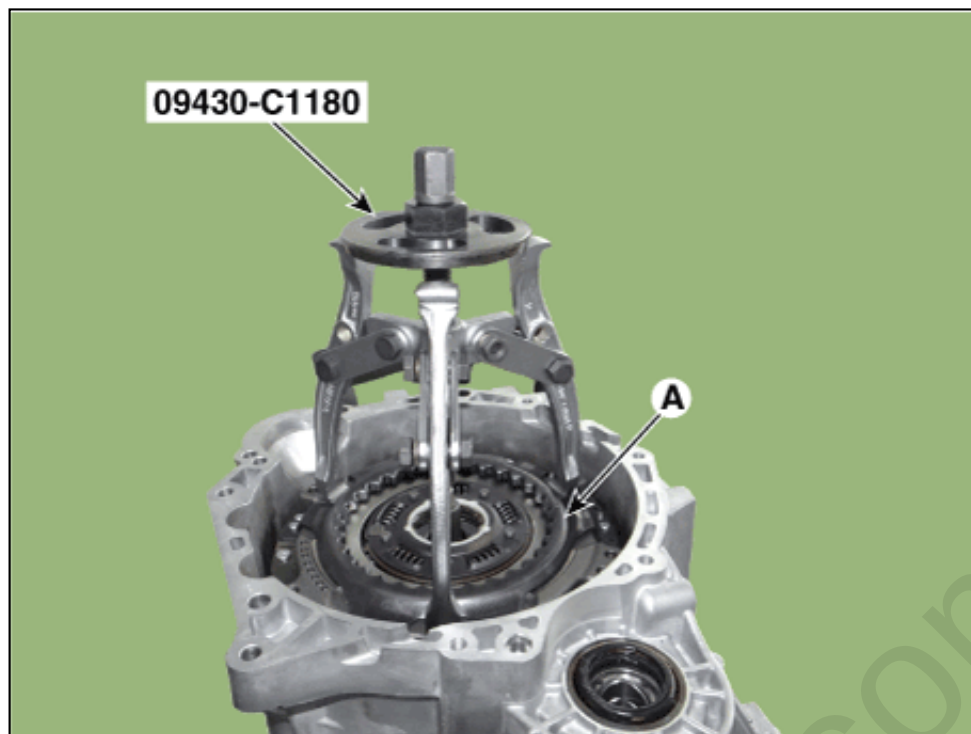
3. Remove the snap ring (A).



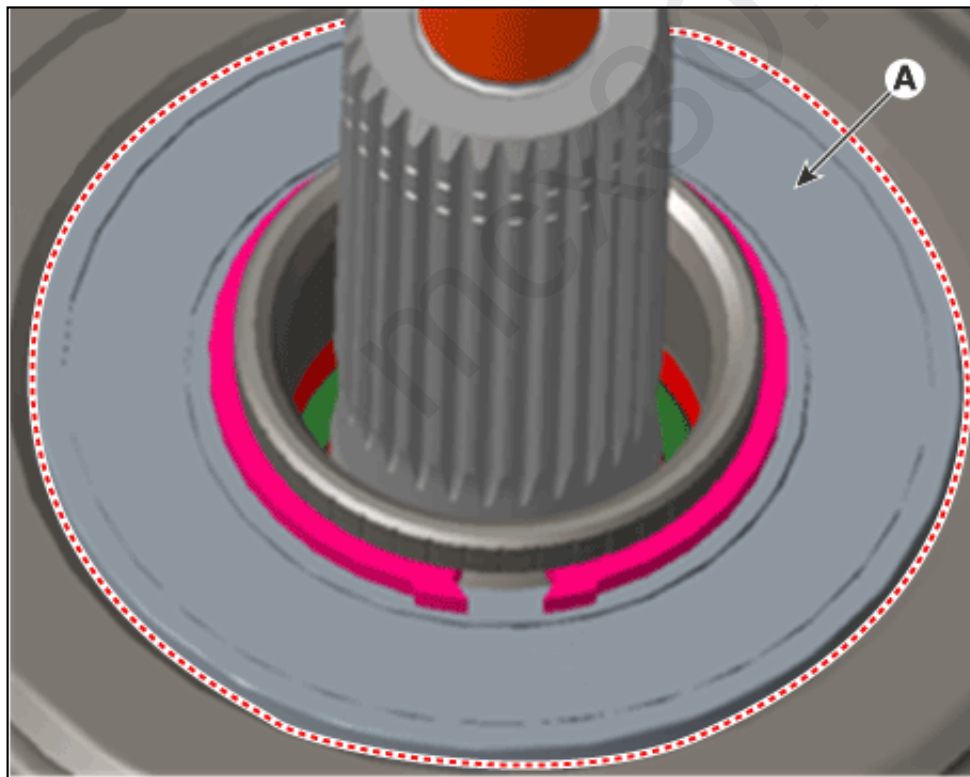
- The snap ring can deform when it removed by forced removal and can't reuse it.
- If it's difficult to remove the snap ring for stuck, release the stuck by using a rubber hammer with a center cylinder of dual clutch installer (09430-2A240) and then remove the snap ring.
- Be careful to damage dual clutch assembly support bearing rubber seal.



- 1) When removing is not possible due to snap ring jamming, place the center cylinder (09430-2A240) and hit it with a rubber hammer. When it loosens, remove it.



- 2) In case of the dual clutch reuse, make sure not to damage the dual clutch support bearing rubber seal (A) when removing the snap ring.

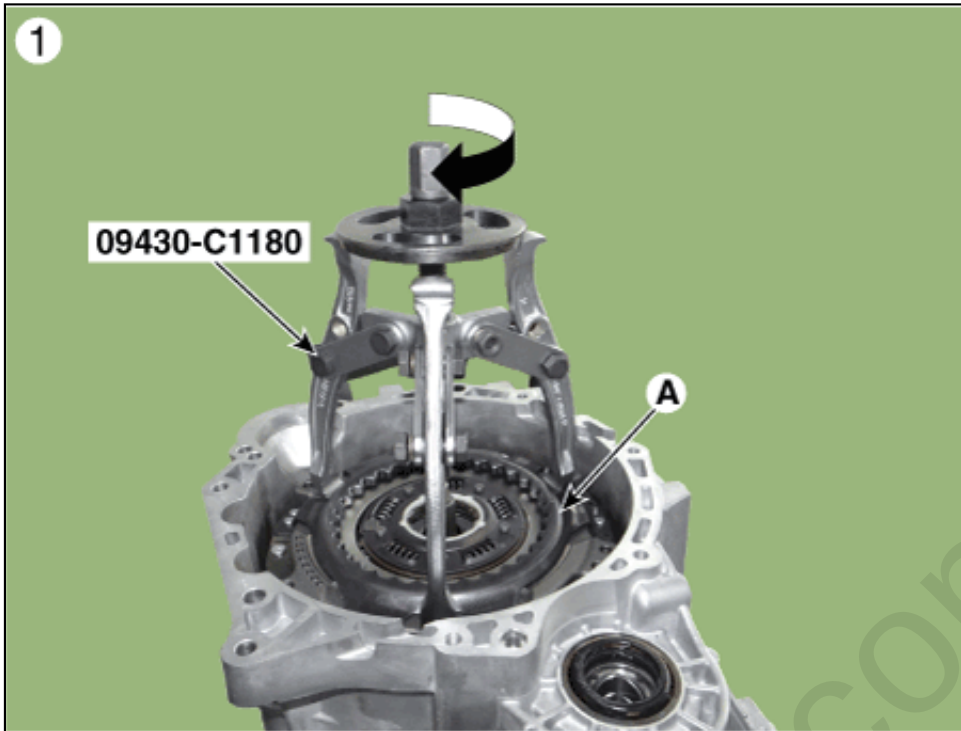


4. Remove the dual clutch assembly (A).

1) Attach the special tool (09430-C1180) to the dual clutch assembly and remove it with a wrench or a spanner.

2) Use a special tool (09430-C1180) to detach the dual clutch from the transmission housing.

※ When detaching the dual clutch from the transmission housing, make sure not to drop the dual clutch.

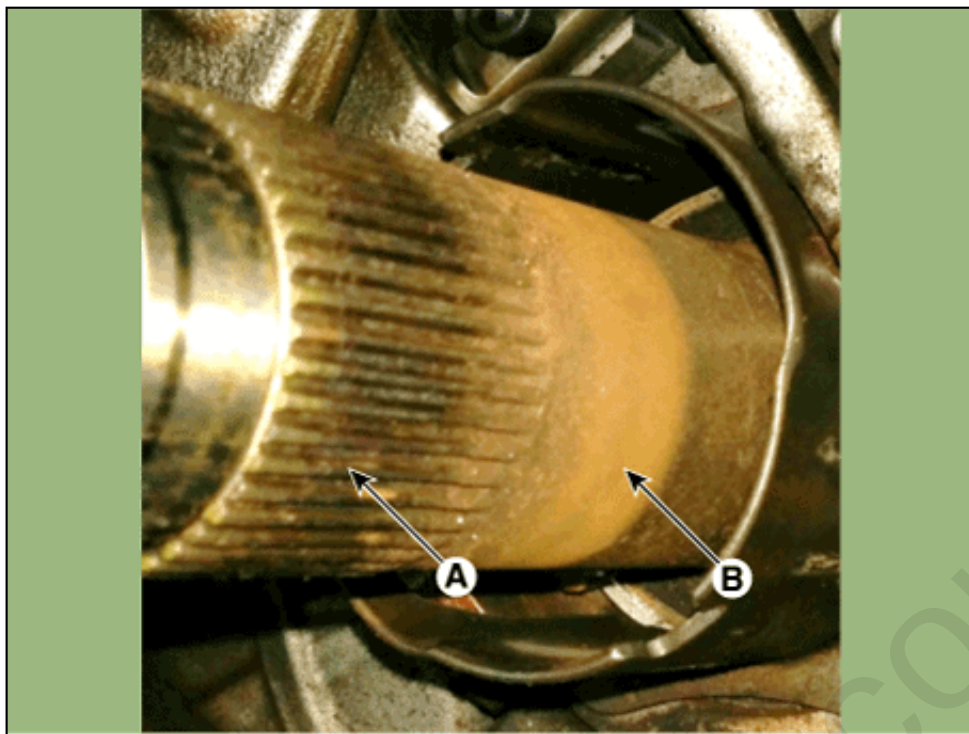


Installation



1) Remove the dust and foreign matters from the input shaft spline (A) and shaft (B).

※ Do not use steel soles and sandpapers, WD40 and anti-corrosive lubricant. (It could cause a corrosion of the rubber or oil seals.)

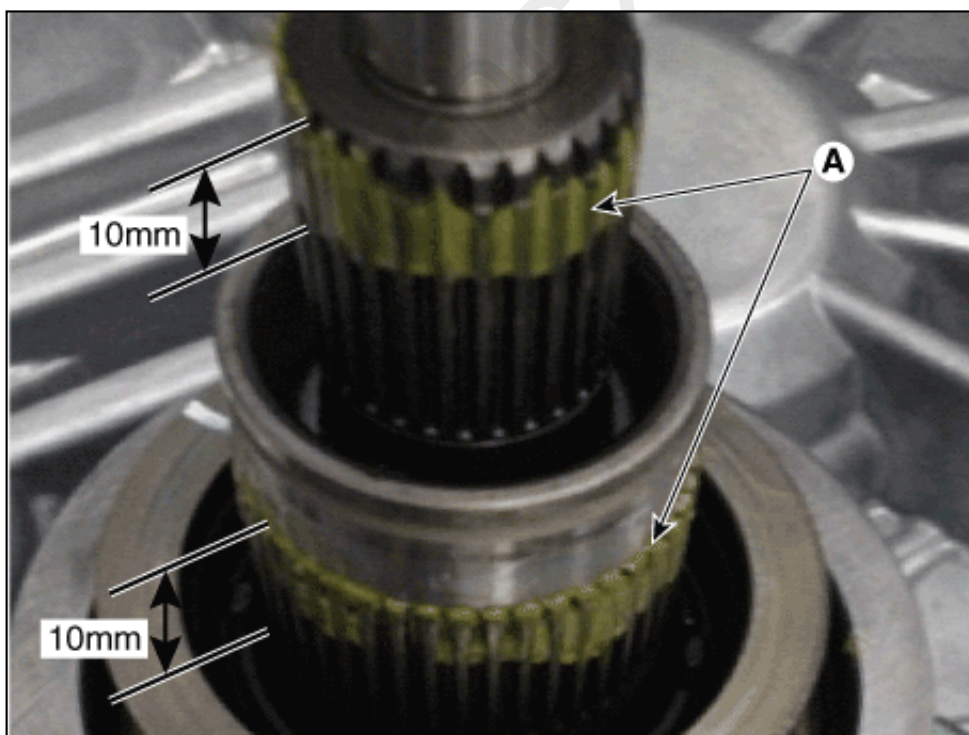


2) Check the grease on the input shaft spline part (A). If there is no grease, apply it to the 10mm point from the each end of the spline.

※ Grease overspraying may result excessive scattering and this may cause the clutch to slip.

Specified grease : Extreme pressure grease for vehicle

Quantity : 0.15 - 0.25g



1. Fix the special tool (09430-C1180) to the dual clutch assembly at three places at 120-degree intervals, then move to the top of the housing.



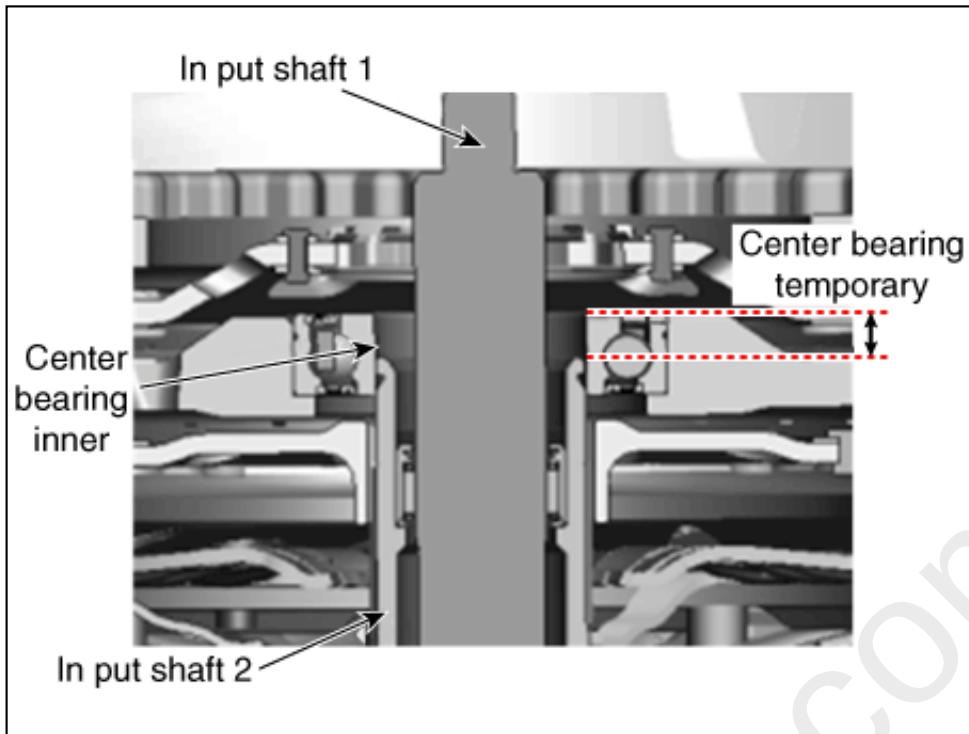
2. Assemble the dual clutch to the input shaft 2 temporarily.



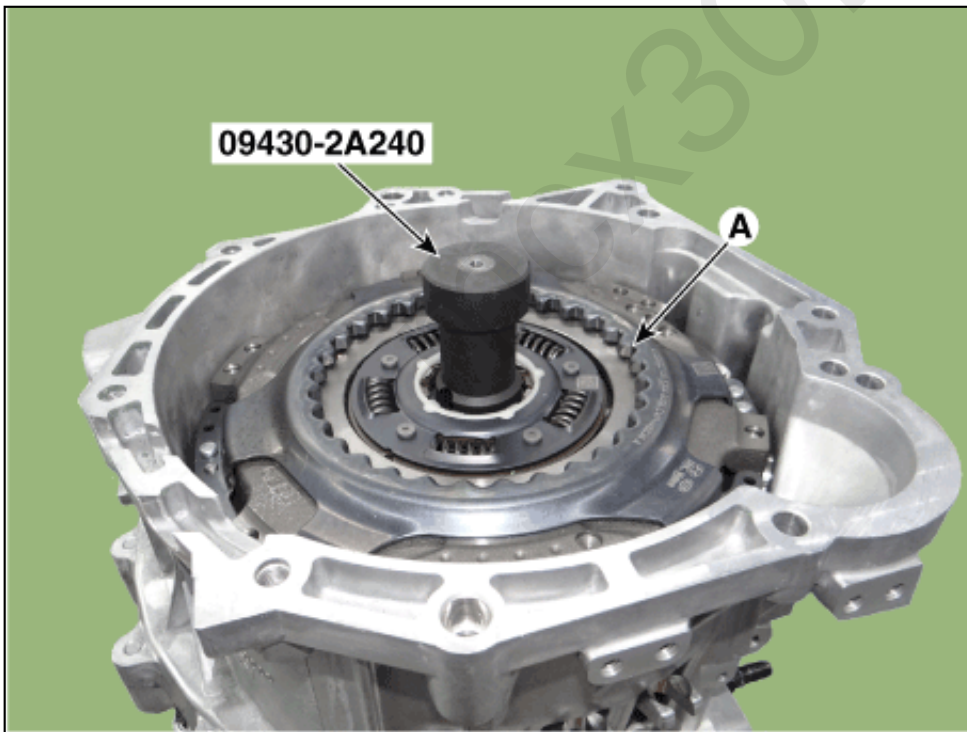


Dual clutch temporary assembly condition

- 1) In the input shaft 2, the center bearing inner ring should be properly and temporarily inserted.
- 2) When the clutch is press-fitted in an unstable temporary assembly, it may cause damage to the clutch.

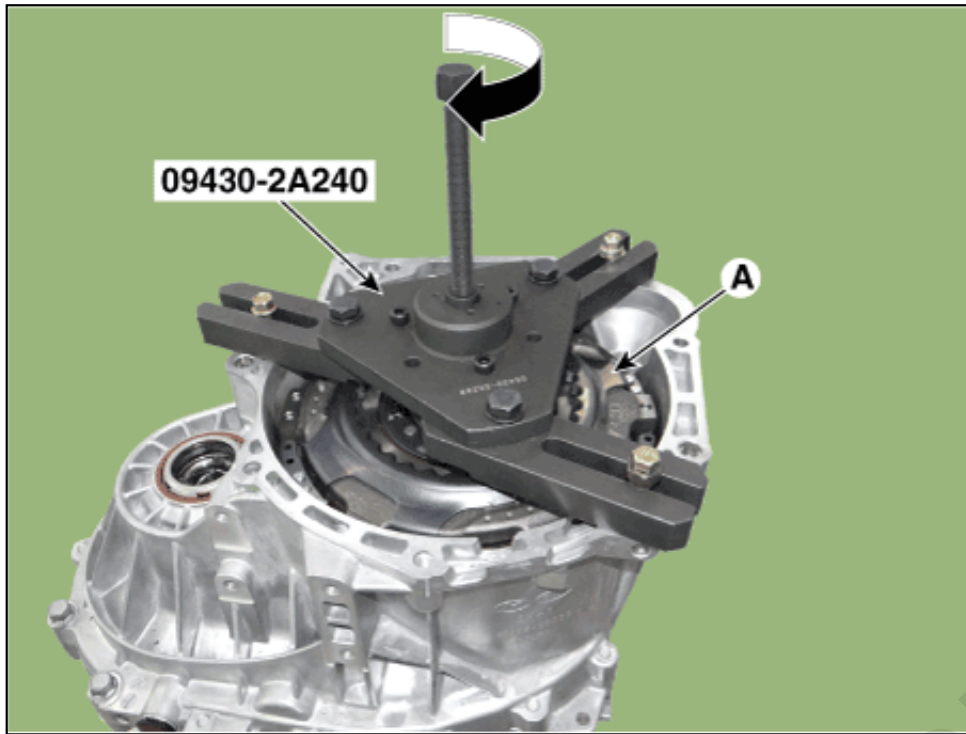


3. Install the SST (No.:09430-2A240) on the support bearing within the dual clutch assembly (A).



4. Install the SST (No. : 09430-2A240) on the clutch housing side.

5. Install the dual clutch assembly (A) using the SST (No. : 09430-2A240).

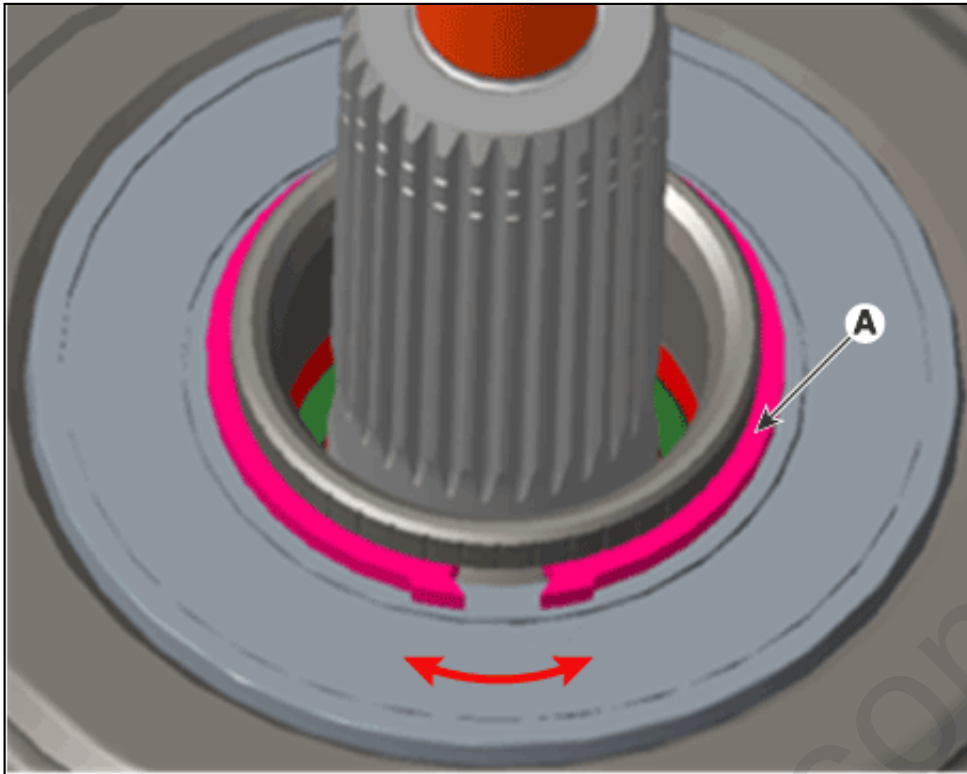


6. Install the snap ring (A).

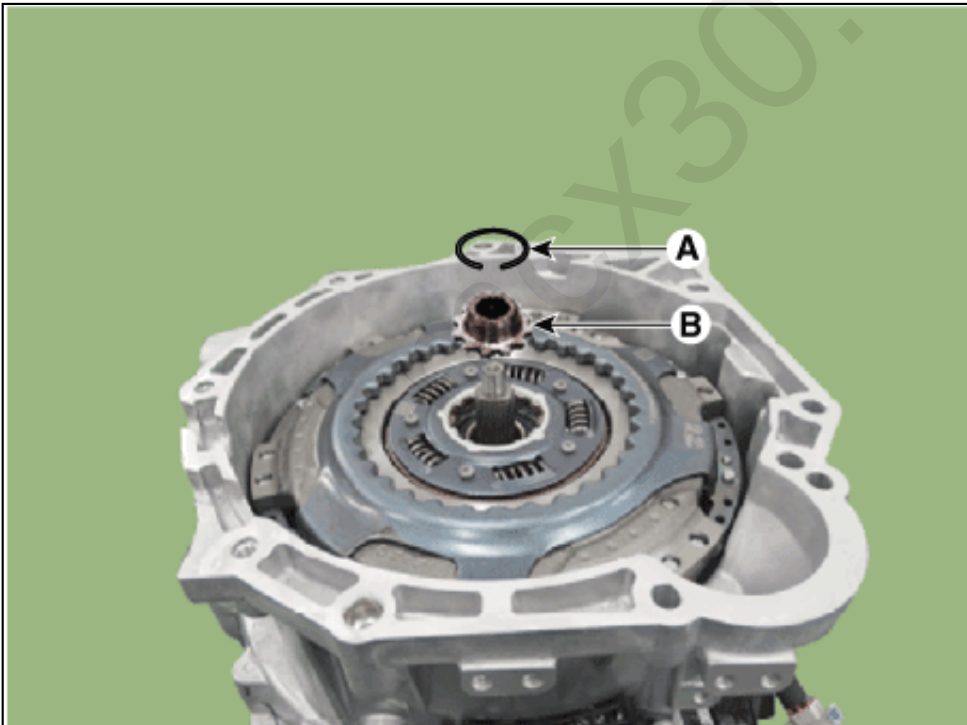




- After tightening the snap ring (A), see if it can properly rotate to the right or the left.

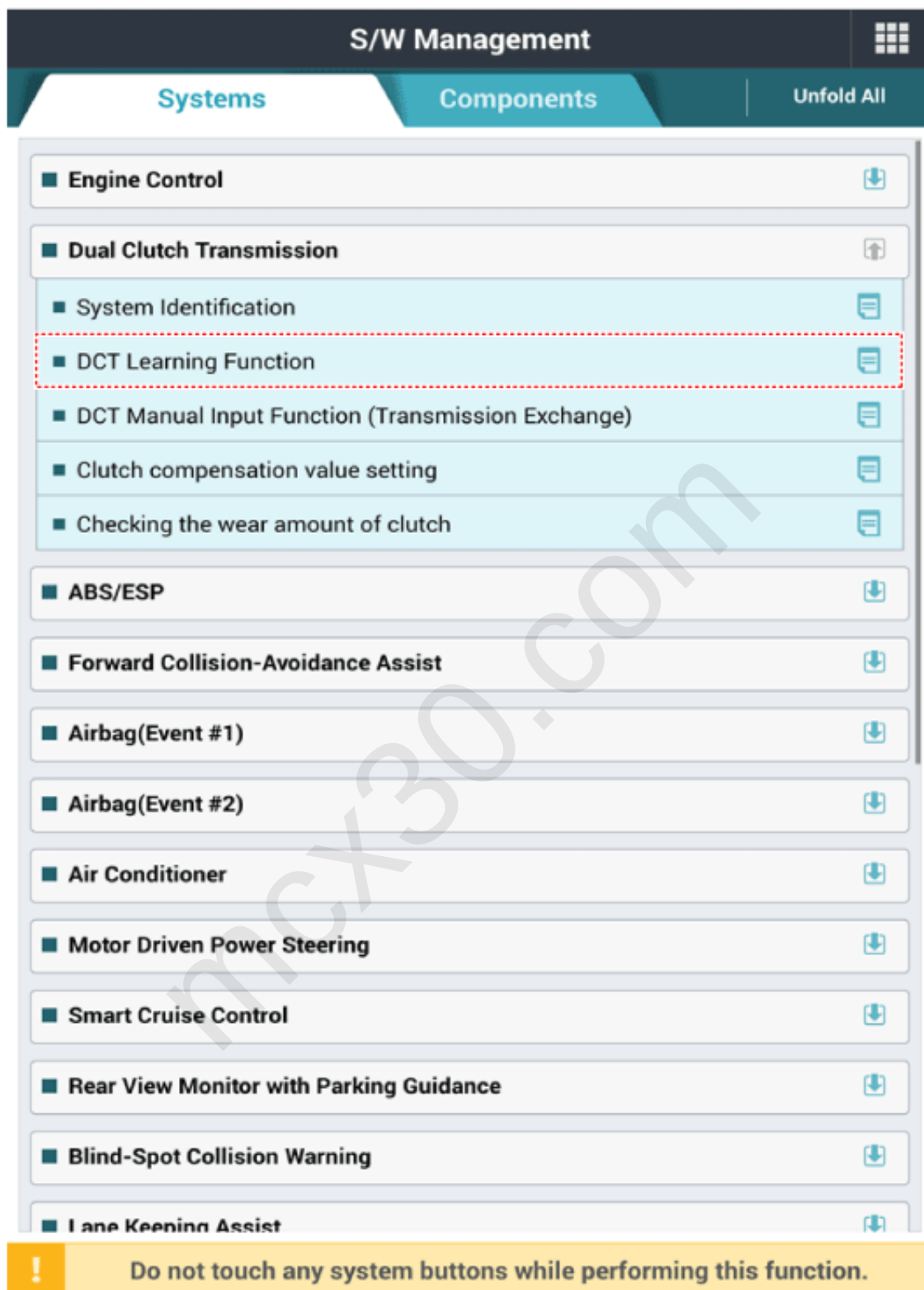


7. Install the spline hub (B) and the install the retaining ring (A).



8. Install the dual clutch transmission in the vehicle.
(Refer to Dual Clutch Transmission Assembly - "DCT (Dual Clutch Transmission)")
9. Perform the work procedures for abrasion compensation reset after installing the new dual clutch assembly.
(Refer to Clutch Actuator & TCM Assembly - "Adjustment")

10. Perform the clutch touch point learning procedure using the GDS after replacing the dual clutch assembly.





• DCT Learning Mode

Purpose	To reset the TCM adaptive values after Double Clutch Transmission(DCT) or TCM is replaced.
Enable Condition	1. Engine Off 2. Ignition Switch On 3. Gear lever position "P" 4. Brake Status : On 5. No DTC
Concerned Component	DCT, TCU
Concerned DTC	P17C0, P17C000
Fail Safe	Cluster will be displayed "E" and set DTC and only enable to operate 1st gear and reverse gear.
Etc	1.All values will be erased after starting DCT learning mode. 2.User can perform only once after IG On. Restart this function, after IG Off -> IG On and restart diagnostic tool.

OK



Do not touch any system buttons while performing this function.

S/W Management

■ DCT Learning Function

● [DCT Learning Function]

This function should be carried out when replacing TCU and clutch packs.

Must perform in both IG ON and Idle status sequentially.

Please check the operating condition.

● [CONDITION]

1. Engine Status : Ignition ON, Engine OFF
2. Brake Status : ON
3. Shift Lever : P
4. No DTC

It may take up to 30 seconds.

* DCT learning process is available only one time after IG ON. If you want to perform this function again, please turn IG OFF and ON before retrying.

OK

Cancel

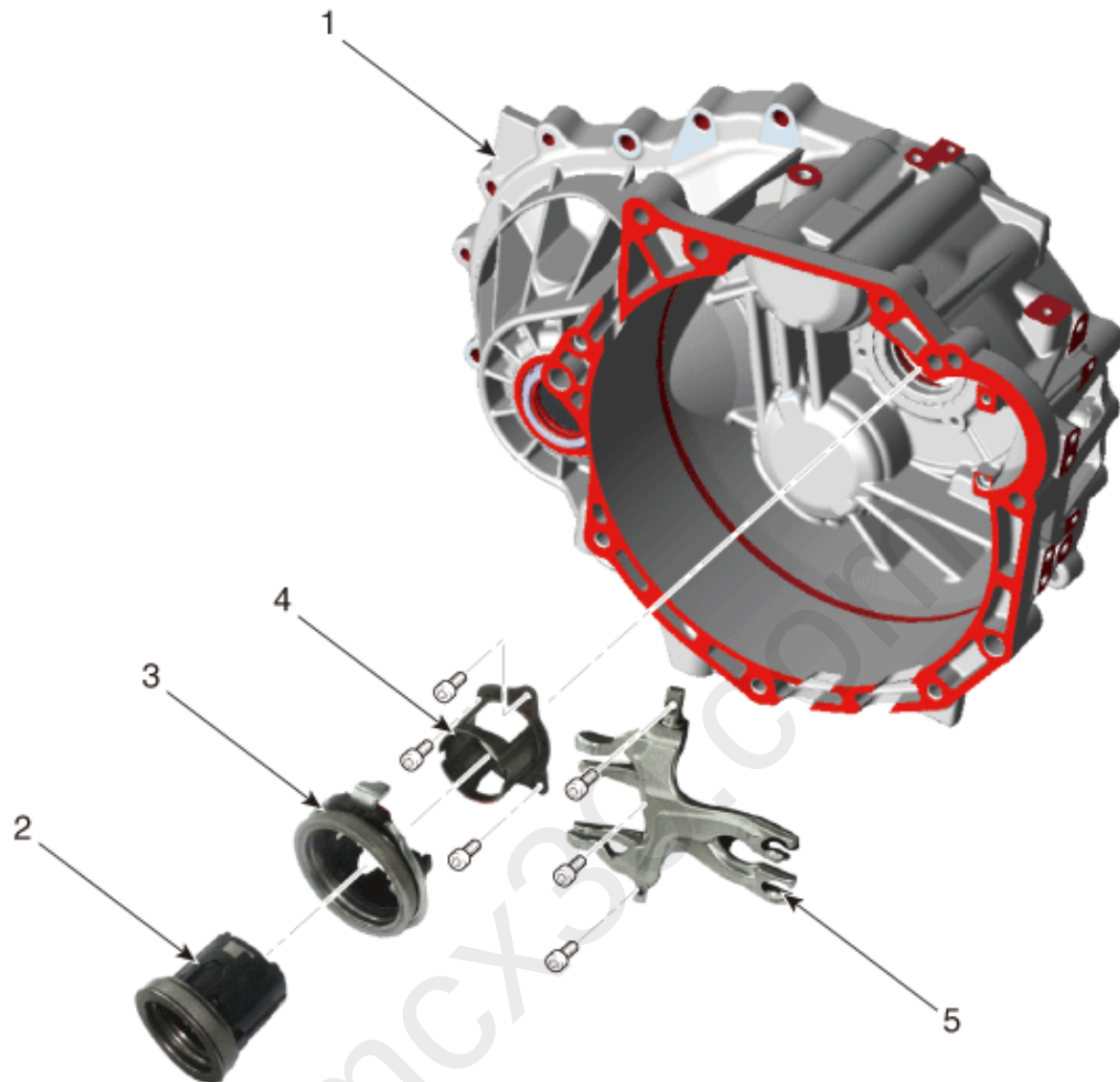


Do not touch any system buttons while performing this function.



- Even if you removed and reinstalled the clutch actuator, be sure to perform the touch point learning.
- If you have replaced the dual clutch assembly or clutch actuator, be sure to perform the touch point learning.

Components

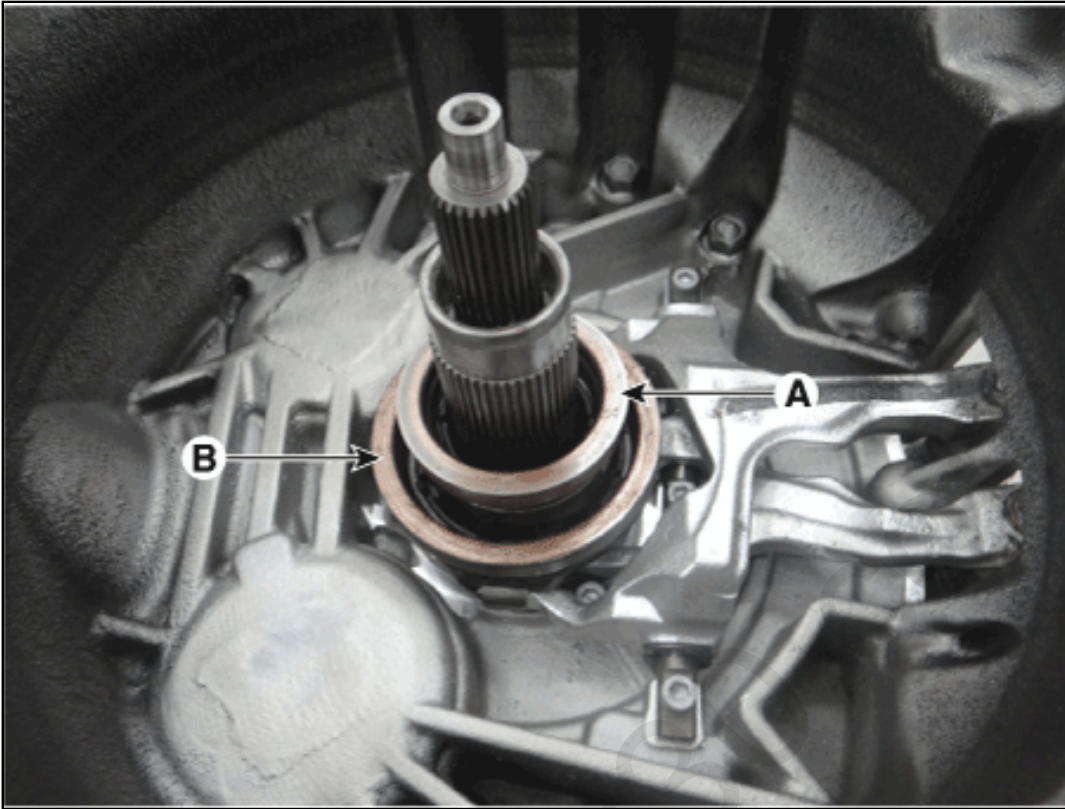


- 1. Clutch housing
- 2. Engagement bearing 2 (Even)
- 3. Engagement bearing 1 (Odd)

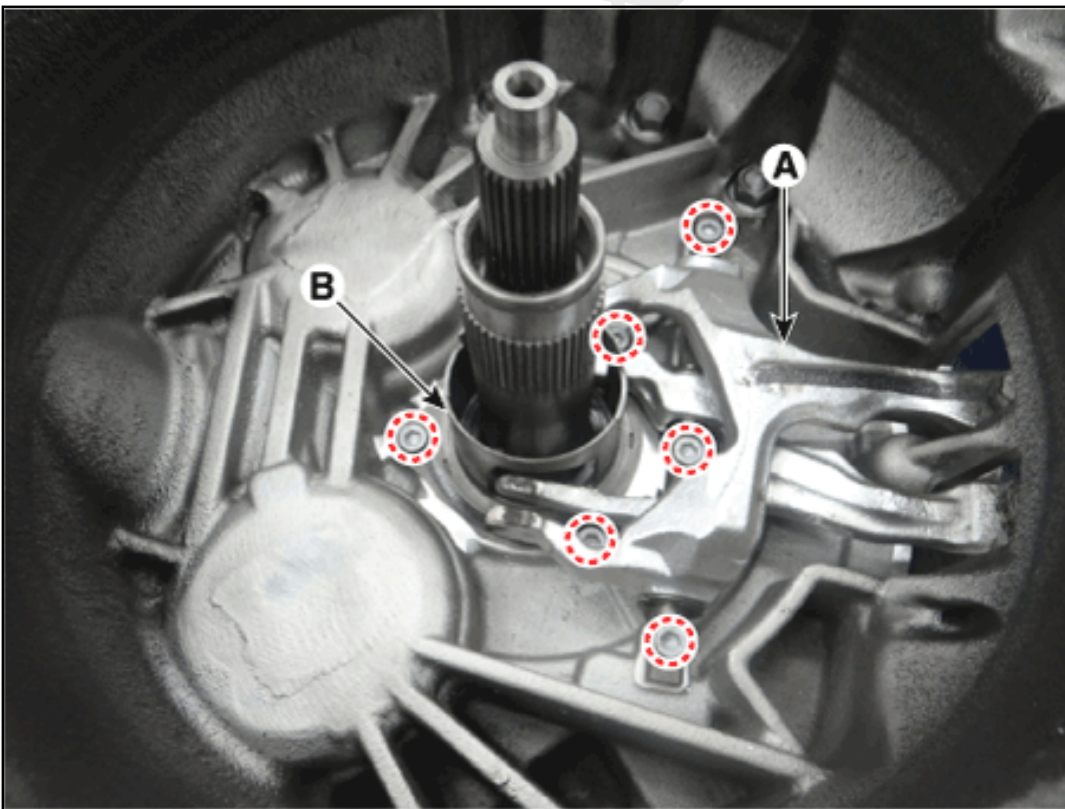
- 4. Engagement bearing sleeve
- 5. Clutch engagement fork

Removal

1. Remove the dual clutch transmission from the vehicle.
(Refer to Dual Clutch Transmission Assembly - "DCT (Dual Clutch Transmission)")
2. Remove the dual clutch assembly.
(Refer to Dual Clutch System - "Dual Clutch Assembly")
3. Remove the clutch engagement bearing 1 (A) and 2 (B).



4. Remove the clutch engagement fork (A) and engagement bearing sleeve (B).



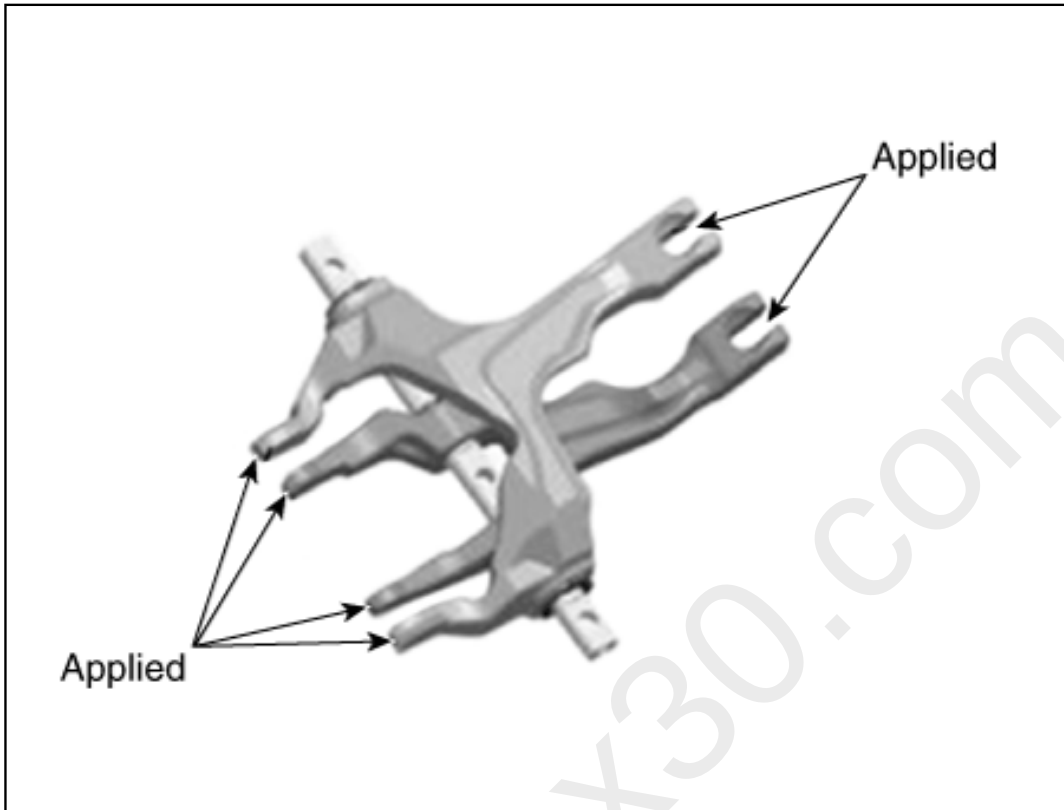
Installation



- Apply coat of grease when installing the clutch fork.

Spec grease: CASMOLY 9508

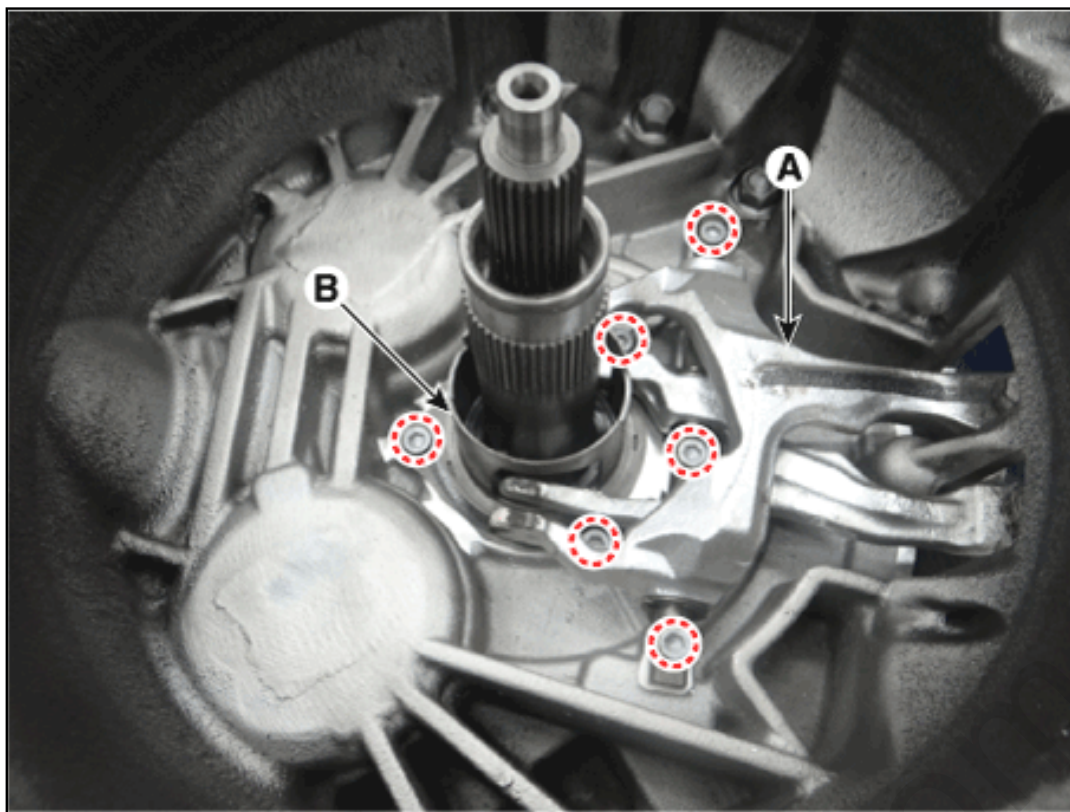
Amount : 0.2g



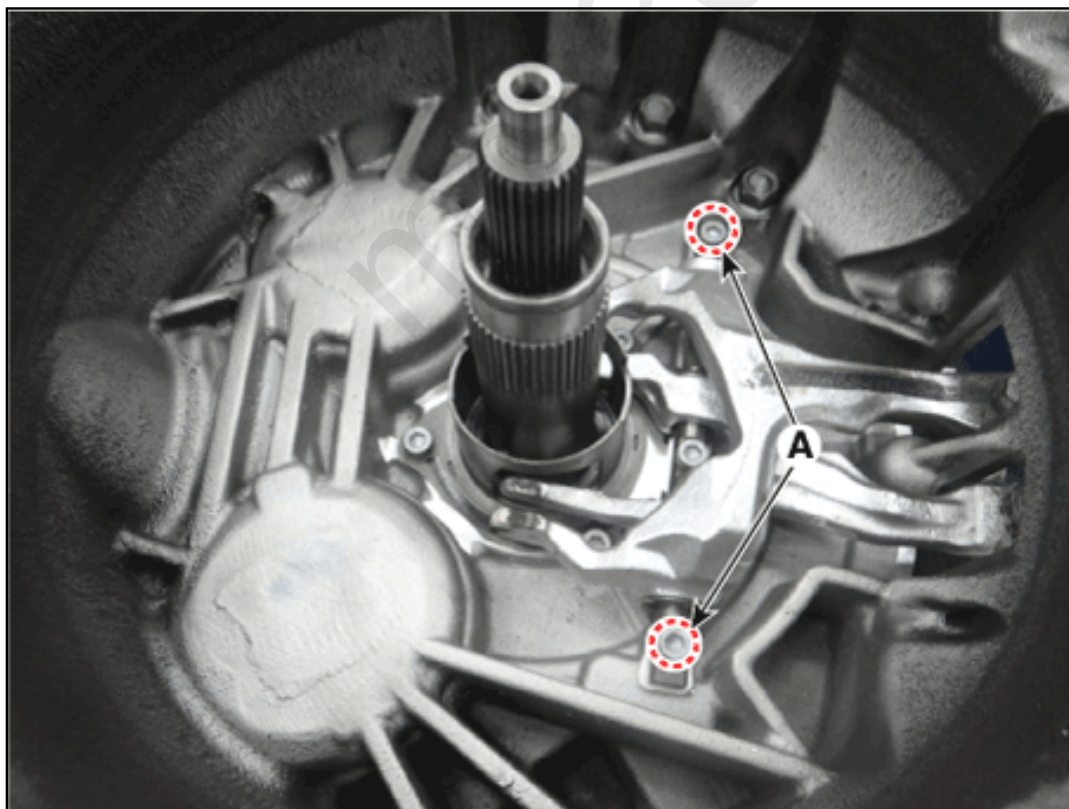
1. Install the clutch engagement fork (A) and engagement bearing sleeve (B).

Tightening torque :

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



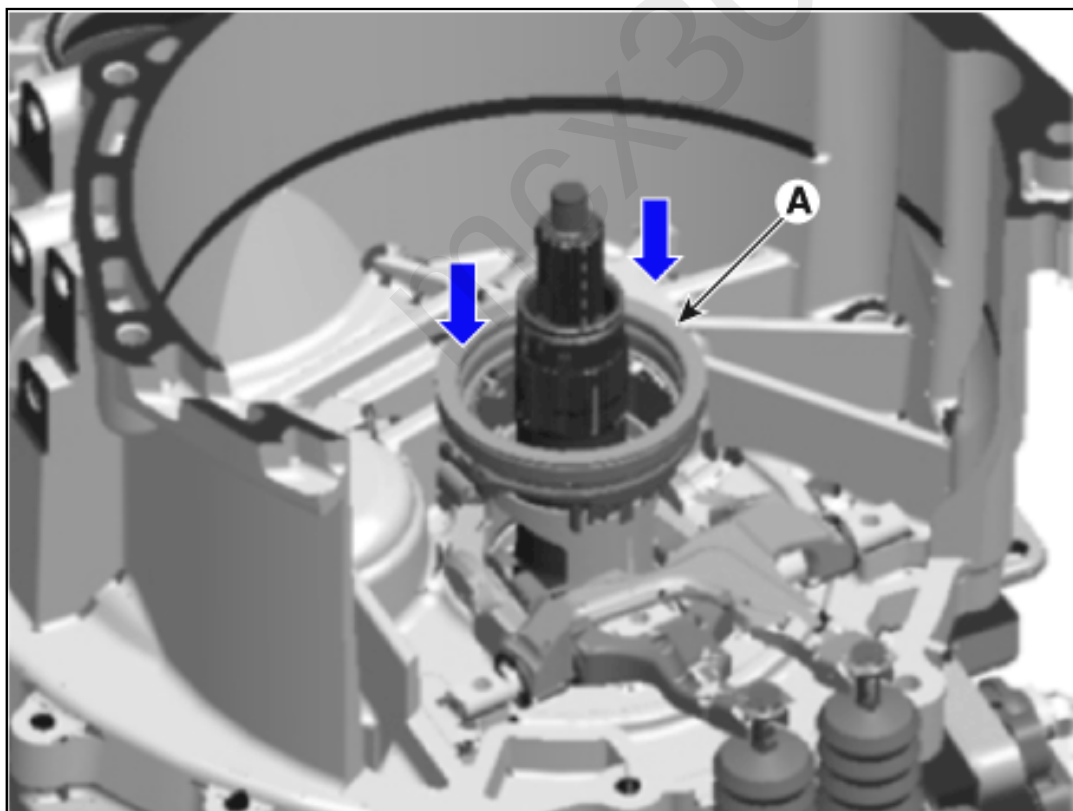
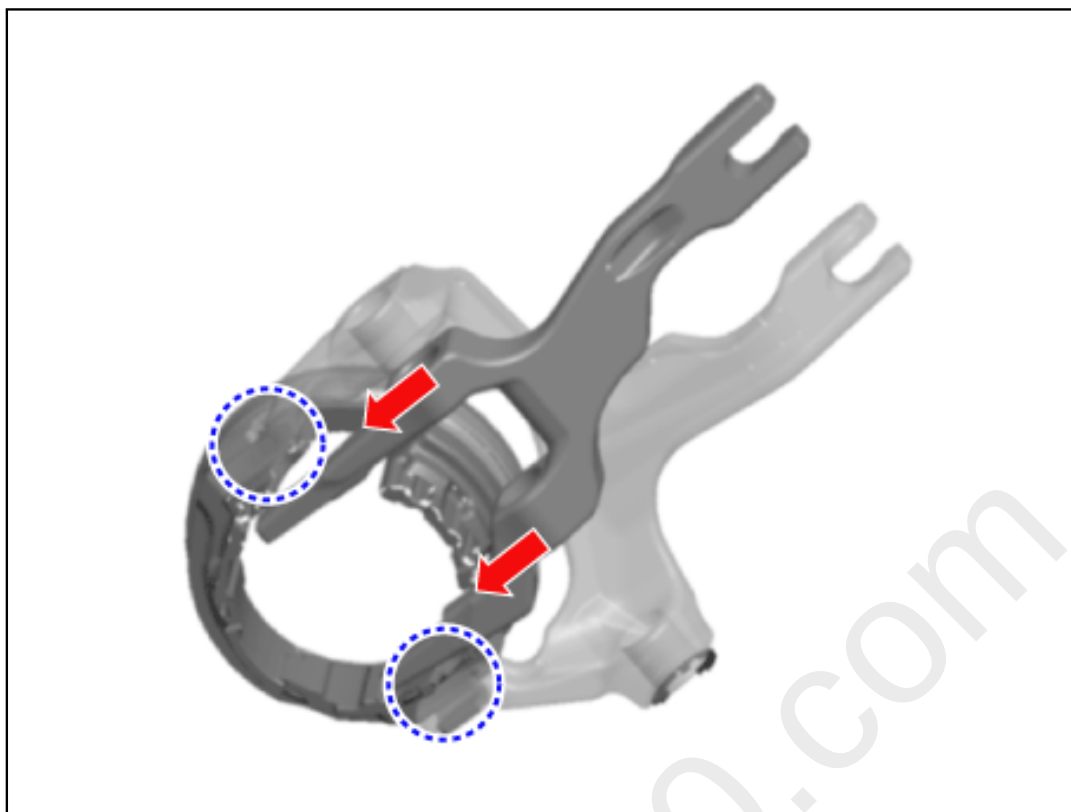
- Check dowel pins (A-2ea) when installing the fork assembly. Replace the dowel pin with new part if it is damaged or deformed.
- Take caution of the direction of fork assembly shaft when installing.



2. Install the engagement bearing 1 (A).



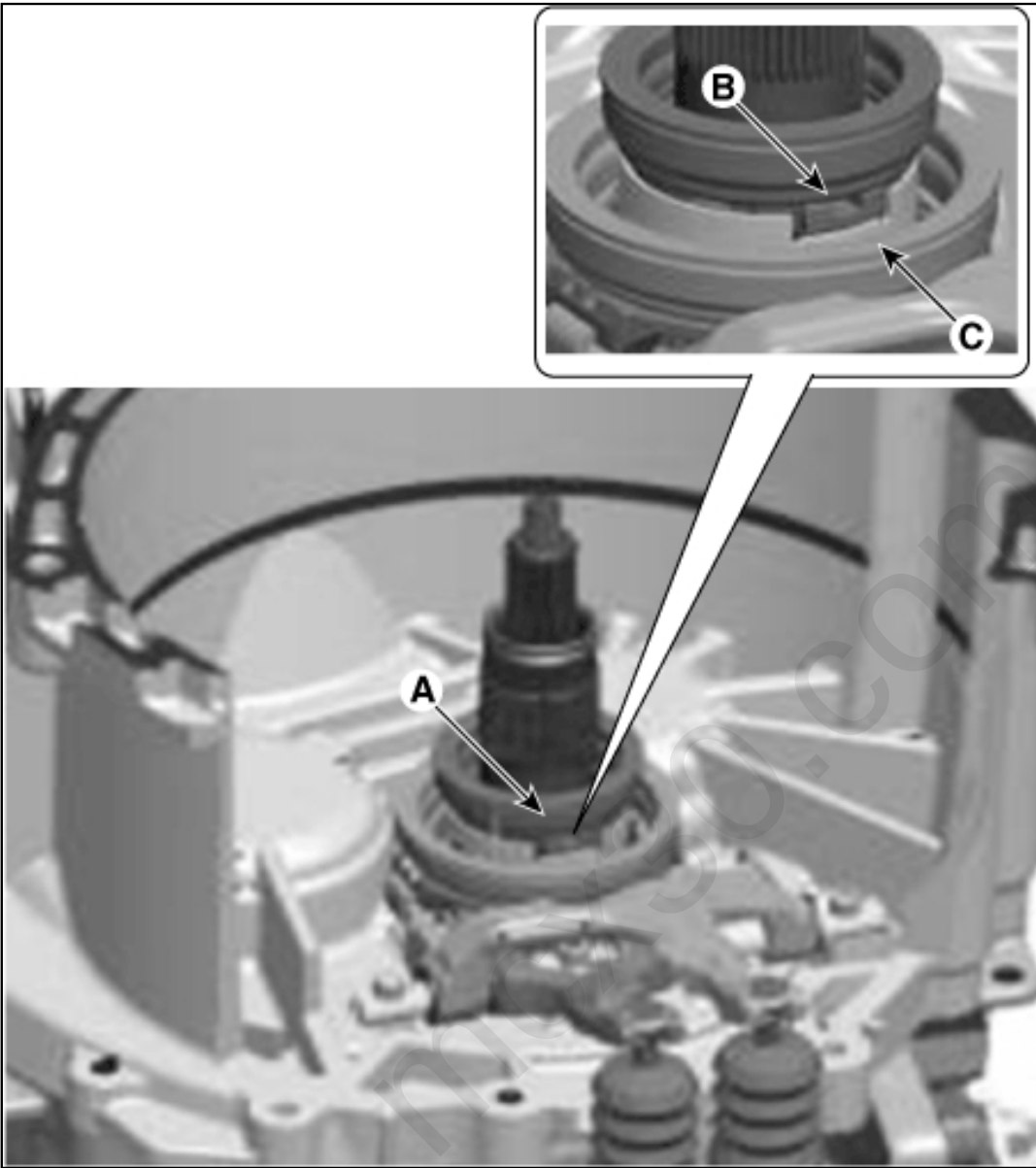
- Align the fork with the bearing plastic guide direction.



3. Install the engagement bearing 2 (A).



- Take caution and make sure that the bearing plastic stopper (B) is settled in the sleeve (C).



- Apply coat of spec grease on the 1st input shaft spline (A) after installing the bearing.

- Apply proper amount of transmission oil on the 2nd input shaft spline (B).
(Be careful not to get oil on the spline when applying coat of oil.)

Spec grease: CASMOLY 9508

Amount: 0.15 - 0.25g

