VELOSTER(FS) > 2012 > G 1.6 GDI > Dual Clutch Transmission(DCT) System

Dual Clutch Transmission(DCT) System > Specifications

Specifications

Model		D6GF1
Engine		Gasoline 1.6 GDI
Shift ratio	1st	3.615
	2nd	1.955
	3rd	1.303
	4th	0.943
	5th	0.939
	6th	0.743
	Reverse	4.531
Final gear ratio 1		4.813
Final gear ratio 2		3.667

Sensor

Speed Sensor

▷ Type: Hall effect sensor

▷ Specifications

Item		Specifications
Output voltage (V)	Low	0.7
	High	1.4

Motor

Clutch Actuator Motor

▷ Specifications

Item	Specifications
Operating condition (°C) °F	(20) 68
Output resistance (mΩ)	48 ± 7%

Inhibitor Switch

▷ Type: Single signal output type

▷ Specifications

Item	Specifications
Output type	Combined signal output
Input voltage (V)	12

Tightening torque

Item	N.m	kgf.m	lb-ft

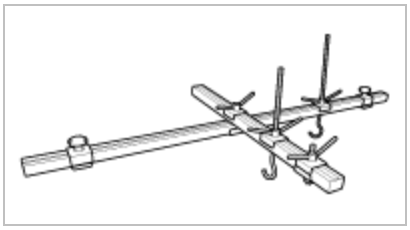
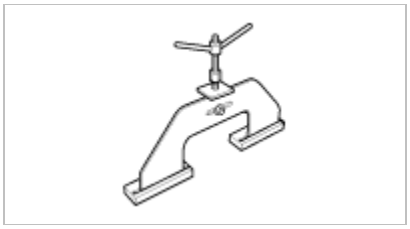
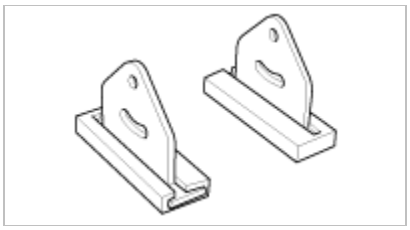
TCM mounting bolt/nut	9.8 ~ 11.8	1.0 ~ 1.2	7.2 ~ 8.7
Shift cable bracket bolt	19.6 ~ 26.5	2.0 ~ 2.7	14.4 ~ 19.5
Input speed sensor bolt	7.8 ~ 9.8	0.8 ~ 1.0	5.7 ~ 7.2
Shift lever assembly bolt	8.8 ~ 13.7	0.9 ~ 1.4	6.5 ~ 10.1
Inhibitor switch mounting bolt	9.8 ~ 11.8	1.0 ~ 1.2	7.2 ~ 8.7
Oil drain plug	58.8 ~ 78.4	6.0 ~ 8.0	43.2 ~ 57.6
Oil level plug	58.8 ~ 78.4	6.0 ~ 8.0	43.2 ~ 57.6
Starter motor mounting bolt	42.2 ~ 53.9	4.3 ~ 5.5	31.1 ~ 39.8
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 ~ 53.9	4.3 ~ 5.5	31.1 ~ 39.8
Transmission support bracket mounting bolt	88.3 ~ 107.9	9.0 ~ 11.0	65.1 ~ 79.6

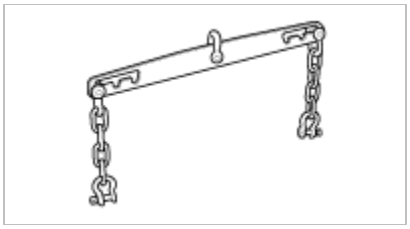
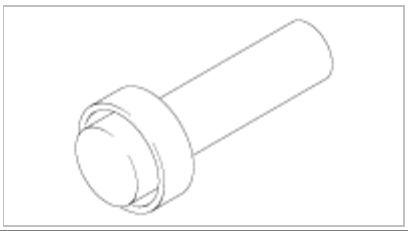
Lubricant

Item	Specified lubricant	Capacity
Transmission oil	API GL-4, SAE 75W/85 (fill for-life) HYUNDAI genuine transaxle fluid	Approx. 1.9 L (0.50 U.S gal., 2.01 U.S.qt.,1.67 Imp.qt.)

Dual Clutch Transmission(DCT) System > Special Service Tools

Special tools

Tool (Product number and name)	Shape	Function
09200-38001,09200-3N000 Engine support bar (beam)		Remove and install transmission. Supporter (SST No. : 09200-2S100, 2S200) and adapter (SST No. : 09200-4X000) are used together. ※09200-38001 tool can also be used for the task.
09200-2S100 Engine support bar (supporter)		Remove and install transmission Beam (SST No. : 09200-38001/3N000), supporter (SST No. : 09200-2S200) and adapter (SST No. : 09200-4X000) are used together.
09200-2S200 Engine support fixture (Supporter)		Beam (SST No. : 09200-38001/3N000), supporter (SST No. : 09200-2S100) and adapter (SST No. : 09200-4X000) are used together.

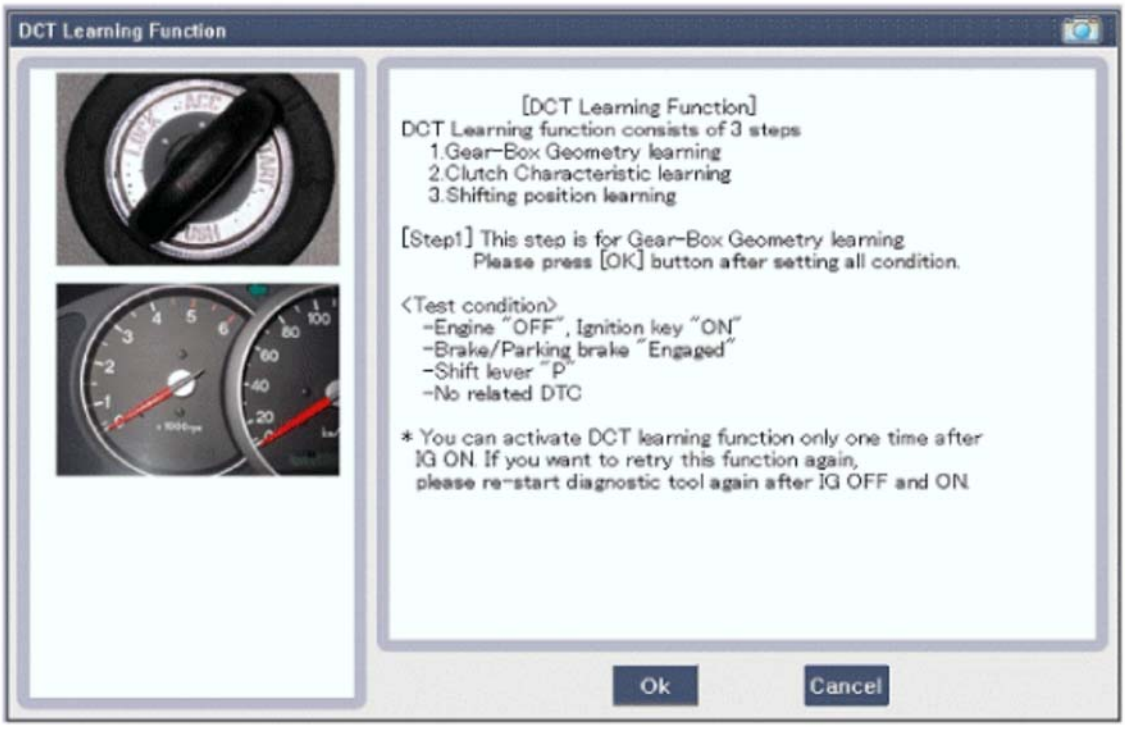
09200-4X000 Engine support bar (adapter)		Remove and install transmission Conventional engine support beam (SST No.: 09200-38001,09200-3N000) and supporter (SST No.: 09200-2S000) are used together.
09431-26100 Differential oil seal installer (for housing and case)		Install differential oil seal (for housing and case).

Dual Clutch Transmission(DCT) System > Repair procedures

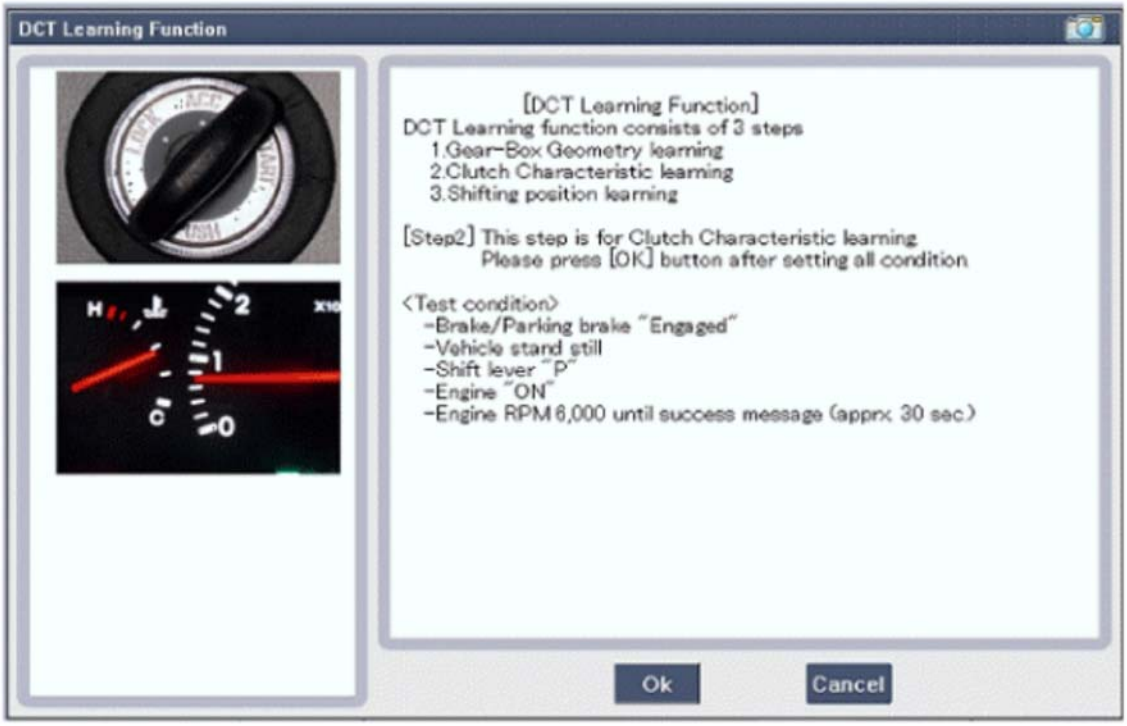
DCT(Dual Clutch Transmission) Learning

1. Learning Overview and Purpose
   A. Checks gear shift precision and normal clutch operation in the finished car to ensure accurate DCT(Dual Clutch Transmission) control by the TCM.
2. Conditions that Require Learning
   A. Perform learning when replacing DCT assembly, dual clutch, gear actuator, clutch actuator motor, and/or TCM.
   B. This comprises 3 steps.
      Step 1. Gear Position Learning
      Step 2. Clutch Characteristics Adjustment
      Step 3. Identification of Gear Shift Timing
   C. Tool: GDS or G-SCAN

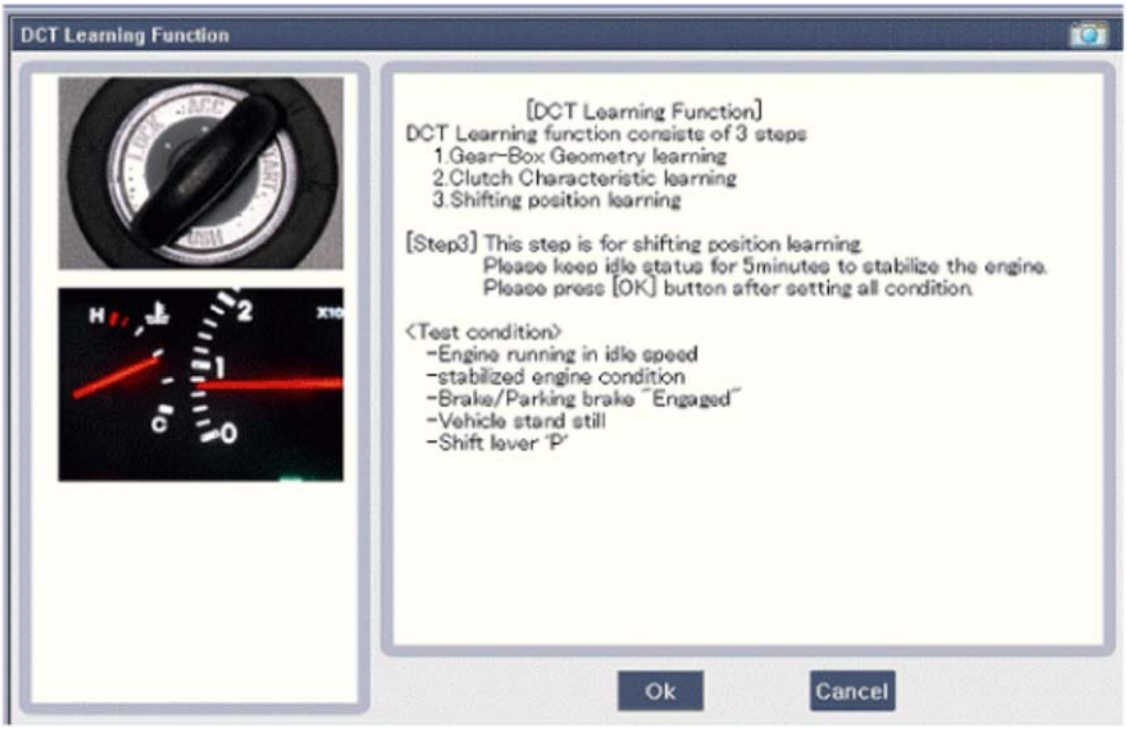
DCT Manual Learning - Step 1



DCT Manual Learning - Step 2



DCT Manual Learning - Step 3



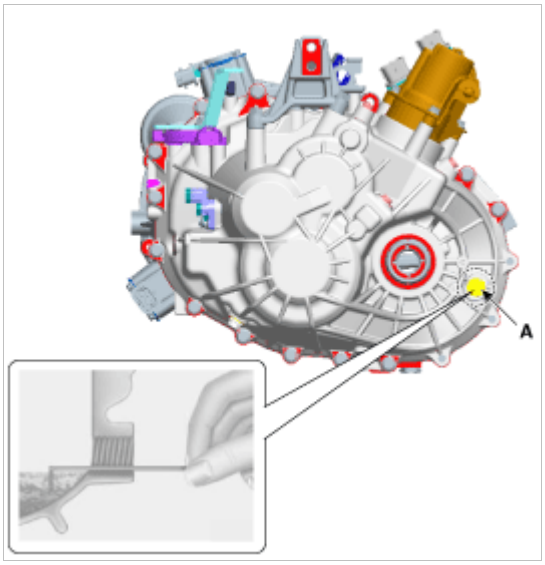
Inspection

NOTE

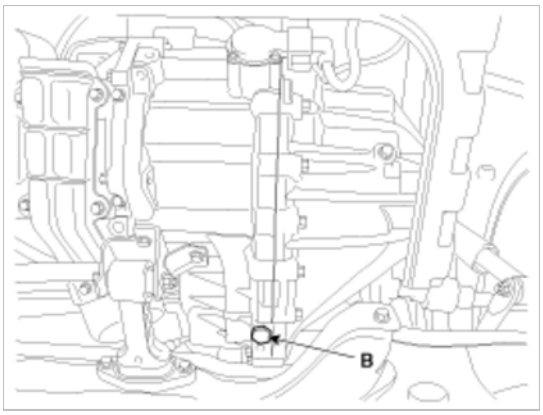
In principle, the transmission oil is maintenance-free, and no exchange is required.
But it must be inspected and replenished every 4 years or 40,000 miles.

1. Park the vehicle on flat ground and turn off the engine.

2. Remove the oil filler plug (A), and check the oil state and oil level.



3. If the oil is dirty, loosen the oil drain plug (B) and drain the oil. Then fill with new oil.



Replacement

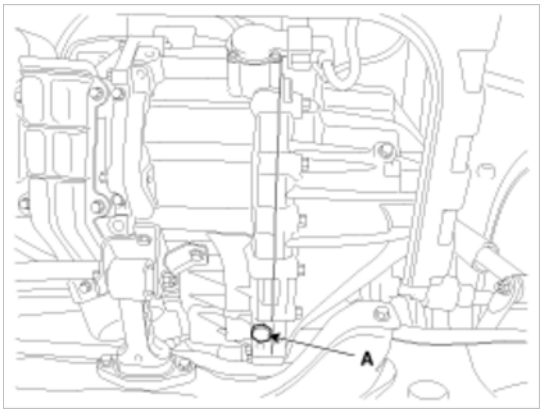
NOTE

In principle, the 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:

- High frequency driving on rough roads (bumpy roads, sand and gravel roads, snow-covered roads, and unpaved roads)
- Frequent driving on mountain trails and inclines
- In case the vehicle is used as a police vehicle, taxi, or for commercial or towing purposes
- Frequent high speed driving (over 170 km/h)
- In case of driving 50% or more of the total mileage in hot temperatures above 32°C(90°F) and congested traffic

1. Remove the drain plug (A) and drain all the oil. Then replace the drain plug.

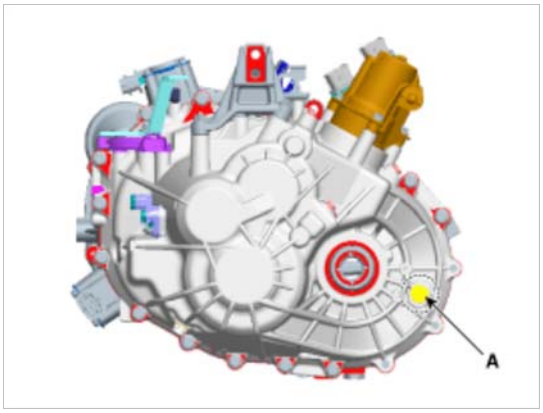
Drain plug tightening torque:
58.8 ~ 78.4 N.m (6.0 ~ 8.0 kgf.m, 43.2 ~ 57.6 lb-ft)



CAUTION

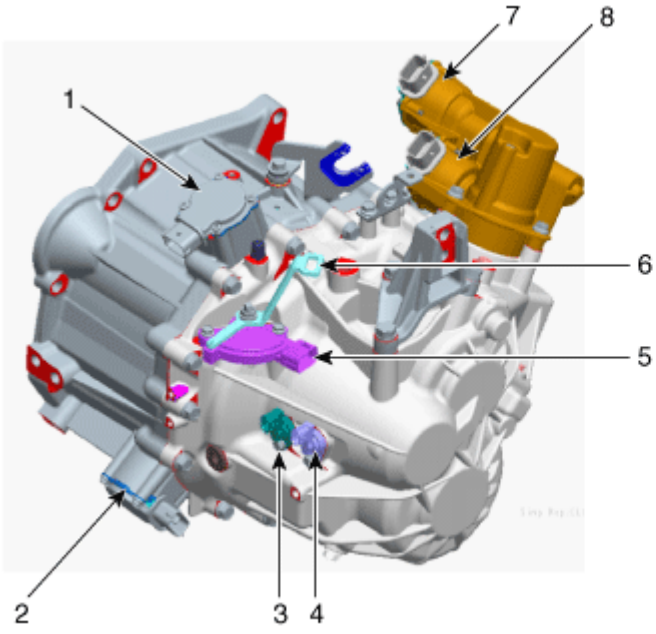
The drain plug gasket must be replaced with a new one.

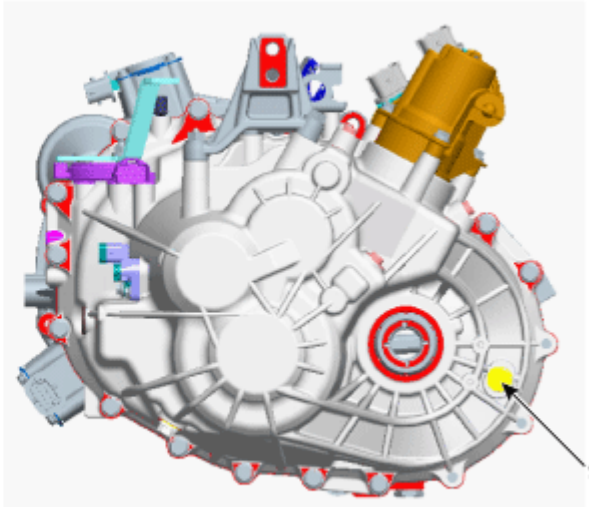
2. Remove the oil filler plug (A) and fill with approximately 1.9 liters of new oil. Then replace the removed oil filler plug.



Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Assembly > Dual Clutch Transmission(DCT) > Components and Components Location

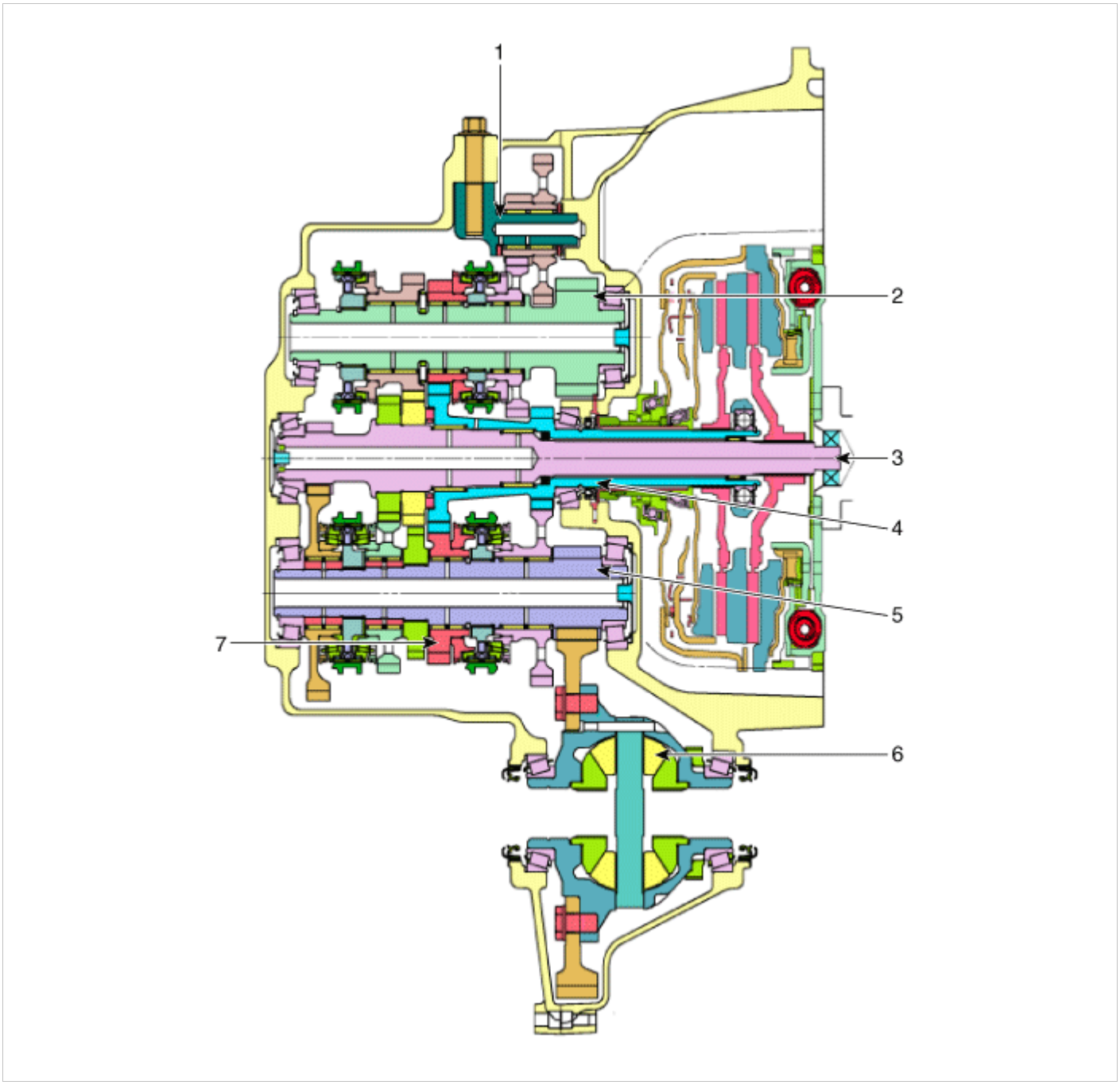
Components





1. Odd clutch actuator motor 2. Even clutch actuator motor 3. Input shaft speed sensor 2 4. Intput shaft speed sensor 1 5. Inhibitor switch	6. Manual control lever 7. Shift motor 8. Select motor 9. Filler plug

Cross Sectional Drawing

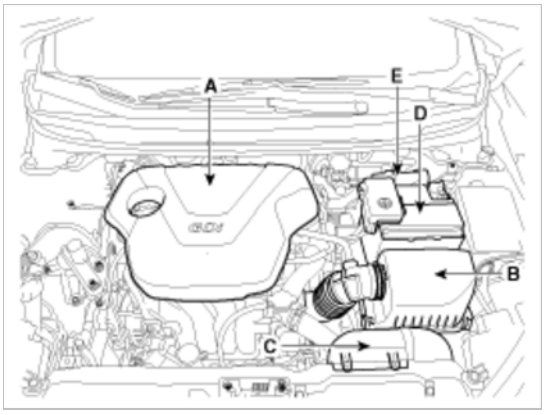


1. Reverse Idler shaft 2. 5/6/R output shaft 3. 1/3/5 input shaft 4. 2/4/6/R input shaft	5. 1/2/3/4 output shaft 6. Differential Assembly 7. Parking gear

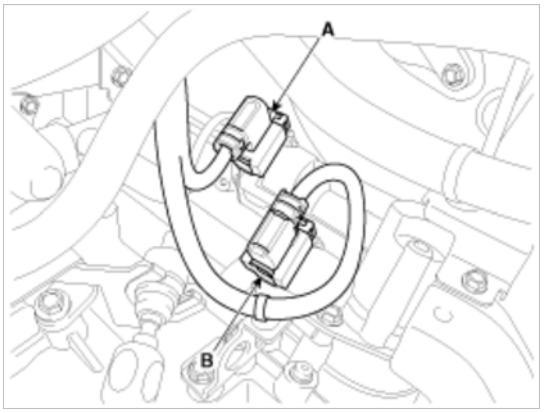
Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Assembly > Dual Clutch Transmission(DCT) > Repair procedures

Removal

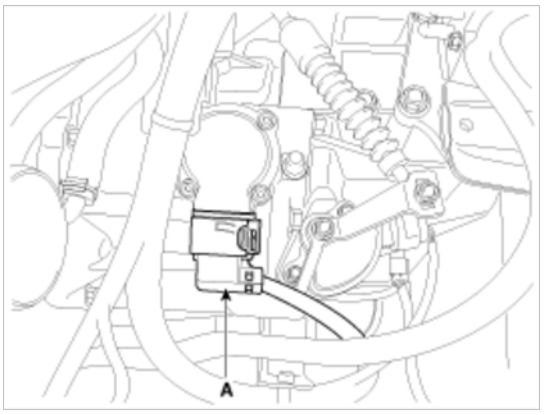
1. Remove the following parts first:
   A. Engine cover (A)
      (Refer to the Intake and Exhaust System of EM Group.)
   B. Air cleaner assembly (B) and air duct (C)
      (Refer to the Intake and Exhaust System of EM Group.)
   C. Battery and Tray (D)
      (Refer to the Charging System of EE Group.)
   D. ECM (E)
      (Refer to the Engine Control Module of FL Group.)



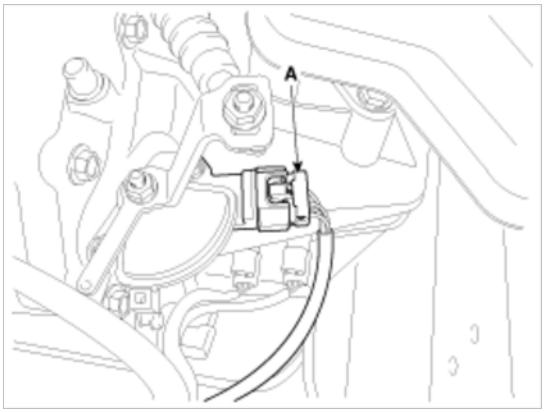
2. Disconnect the shift actuator connector (A) and select actuator connector (B). Then remove the wire fixing clip.



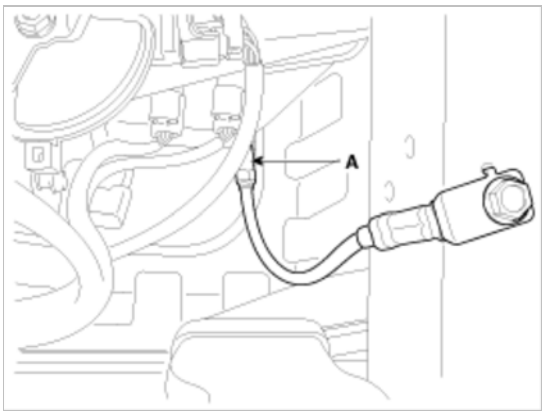
3. Disconnect the odd clutch actuator motor connector (A), and then remove the wire fixing clip.



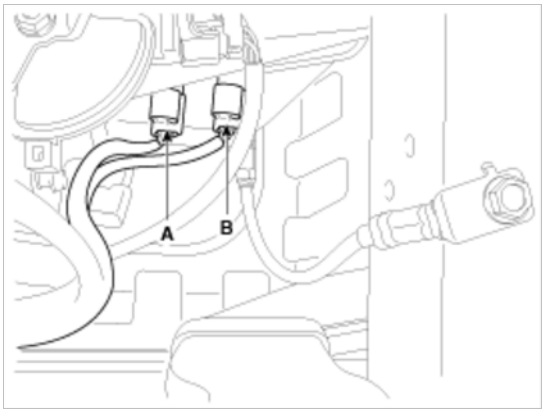
4. Disconnect the inhibitor switch connector (A).



5. Remove 1 bolt (A), and then disconnect the ground wire.

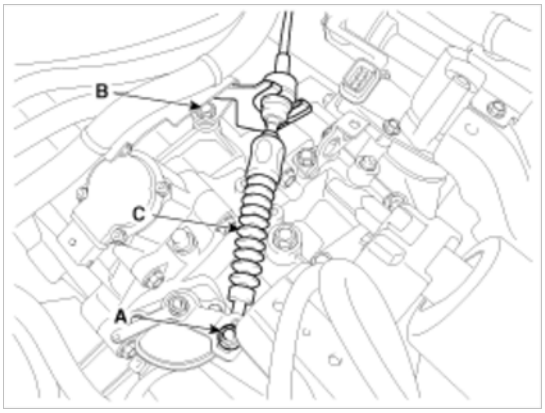


6. Disconnect the input shaft speed sensor 2 (A) and input shaft speed sensor 1 (B) connectors.



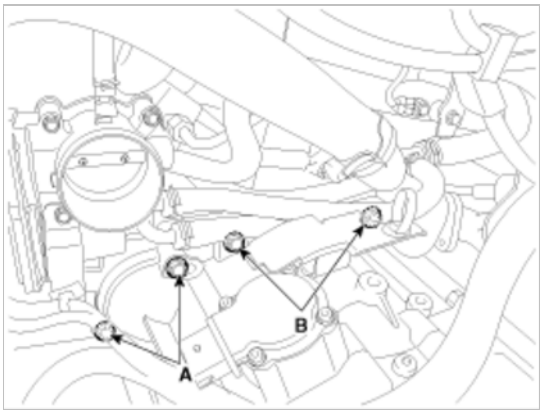
7. Remove the nut (A) and bolt (B). Then remove the shift cable (C).

Tightening torque:
(A) 8.8 ~ 13.7 N.m (0.9 ~ 1.4 kgf.m, 6.5 ~ 10.1 lb-ft)
(B) 19.6 ~ 26.5 N.m (2.0 ~ 2.7 kgf.m, 14.4 ~ 19.5 lb-ft)

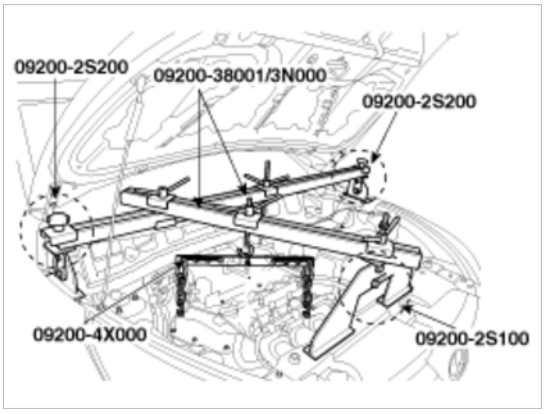


8. Remove the DCT(Dual Clutch Transmission) upper mounting bolts (A: 2ea, B: 2ea).

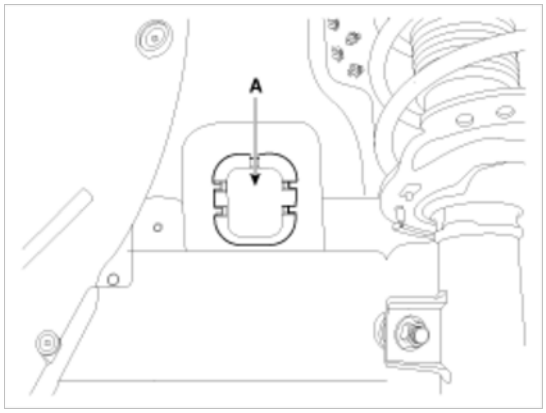
Tightening torque:
(A,B) 42.2 ~ 53.9 N.m (4.3 ~ 5.5 kgf.m, 31.1 ~ 39.8 lb-ft)



9. Use the special tools to support the engine and transmission assembly. (Supporter SST No.: 09200 - 2S100/2S200, beam SST No.: 09200 - 38001/3N000, adapter SST No.: 09200 - 4X000)

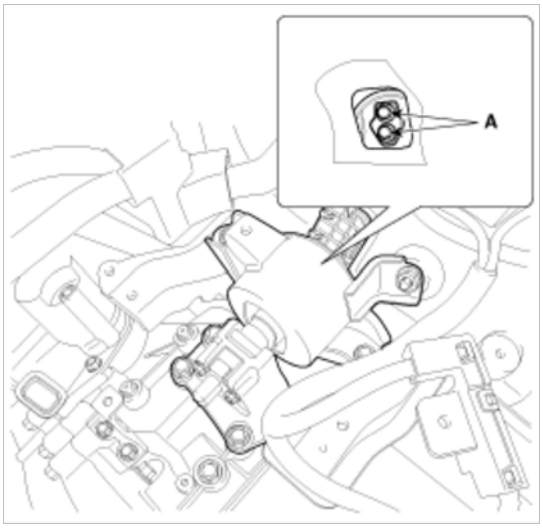


10. Remove the mounting cover (A).



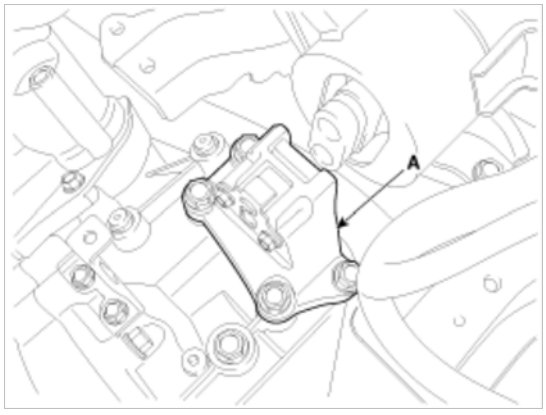
11. Support the DCT(Dual Clutch Transmission) on the lower section, and remove the DCT support bracket mounting bolt (A).

Tightening torque:
88.3 ~ 107.9 N.m (9.0 ~ 11.0 kgf.m, 65.1 ~ 79.6 lb-ft)



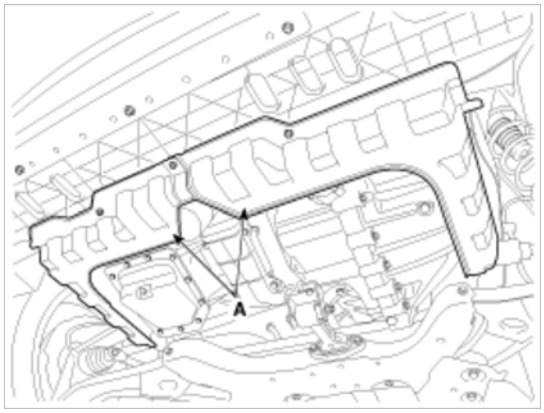
12. Loosen the mounting bolt and then remove the DCT(Dual Clutch Transmission) support bracket (A).

Tightening torque:
88.3 ~ 107.9 N.m (9.0 ~ 11.0 kgf.m, 65.1 ~ 79.6 lb-ft)

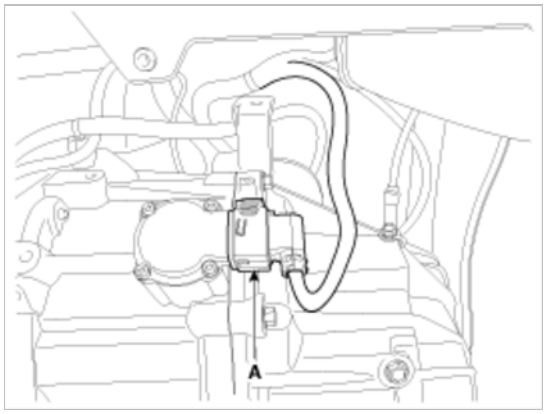


13. Remove the under cover (A).

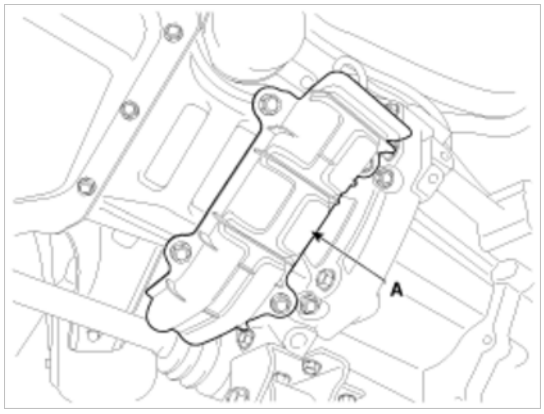
Under cover tightening torque:
6.9 ~ 10.8 N.m (0.7 ~ 1.1 kgf.m, 5.1 ~ 8.0 lb-ft)



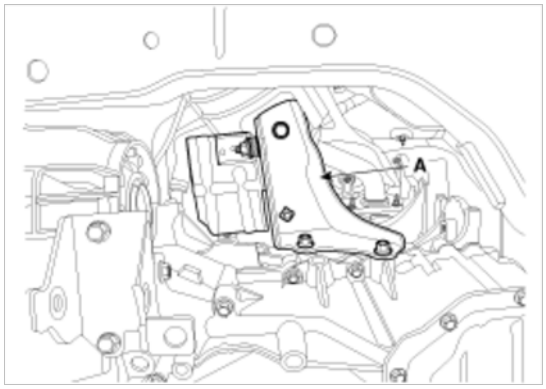
14. Disconnect the even clutch actuator motor connector (A).



15. Remove the sub frame assembly.
    (Refer to the "Front Suspension System(Sub Frame)" in SS Group.)
16. Drive shaft
    (Refer to "Drive shaft assembly " in DS group.)
17. Loosen the mounting bolt and then remove the bracket (A).

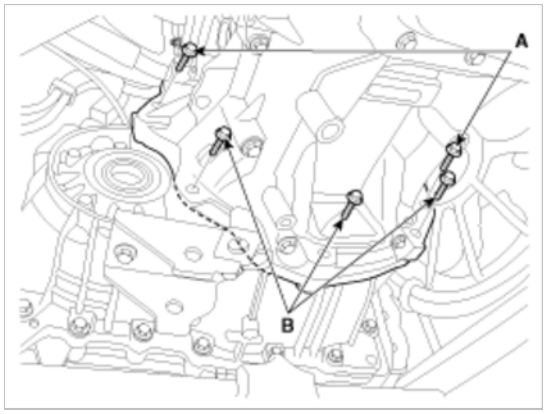


18. Remove the drive shaft cover (A).



19. Support the DCT(Dual Clutch Transmission) with only a jack, and then loosen the mounting bolts (A: 2, B: 3). Then lower the jack slowly, and remove the DCT(Dual Clutch Transmission) assembly.

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

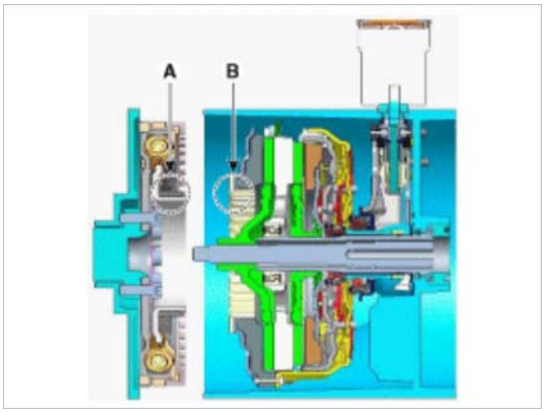


Installation

NOTE

If the transmission case oil seal is damaged, and there is leak, then replace the oil seal with a new one.
Use the oil seal installer (09431-26100) when you install the oil seal.

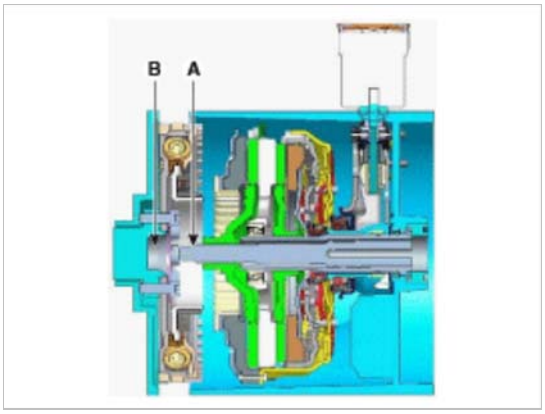
1. Align the external damper spline (A) on the engine side with the dual clutch spline (B).



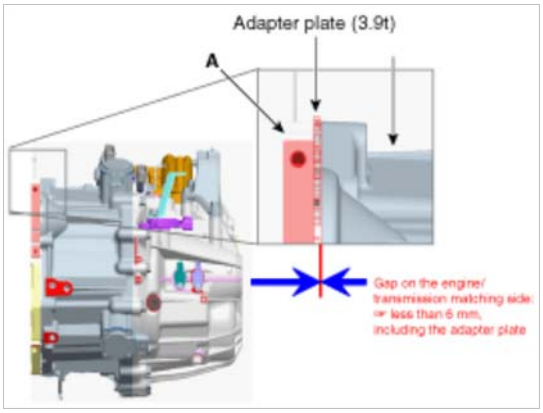
2. First insert the input shaft (A) to the engine pilot bearing (B) and then affix the transmission towards the engine.

CAUTION

If the shaft is not aligned, the dual clutch interferes with the external damper, and may cause the support washer to be damaged or broken. The broken chip may enter the inside.

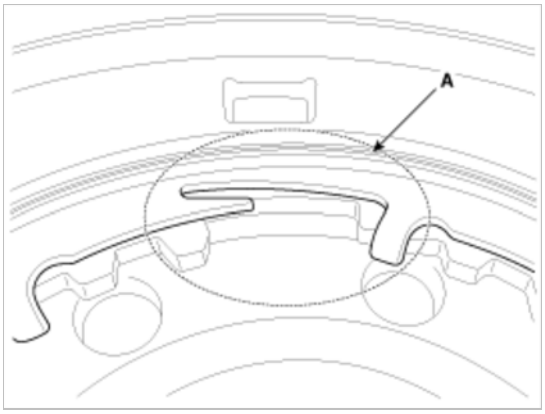


3. Make sure that there is no gap on the matching side when assembling the engine block (A) and the transmission. Then tighten the bolts (engine and transmission mounting bolts).



CAUTION

If the bolt is tightened while there is a gap, then the external damper finger (A) may be damaged or broken. The damaged chips may lodge between the clutches and create a persistent contact problem.



4. Refill DCT(Dual Clutch Transmission) oil.
   (Refer to the DCT(Dual Clutch Transmission)" Procedure" in this group.)
5. Always use the GDS to delete the error code (DTC) after DCT(Dual Clutch Transmission) and TCM maintenance. The error code (DTC) cannot be deleted by disconnecting the battery terminal.
6. You must perform TCM learning after you change the transmission to prevent delayed transmission shift and shock during acceleration or when starting to move.
   (Refer to the DCT(Dual Clutch Transmission)" Procedure" in this group.)

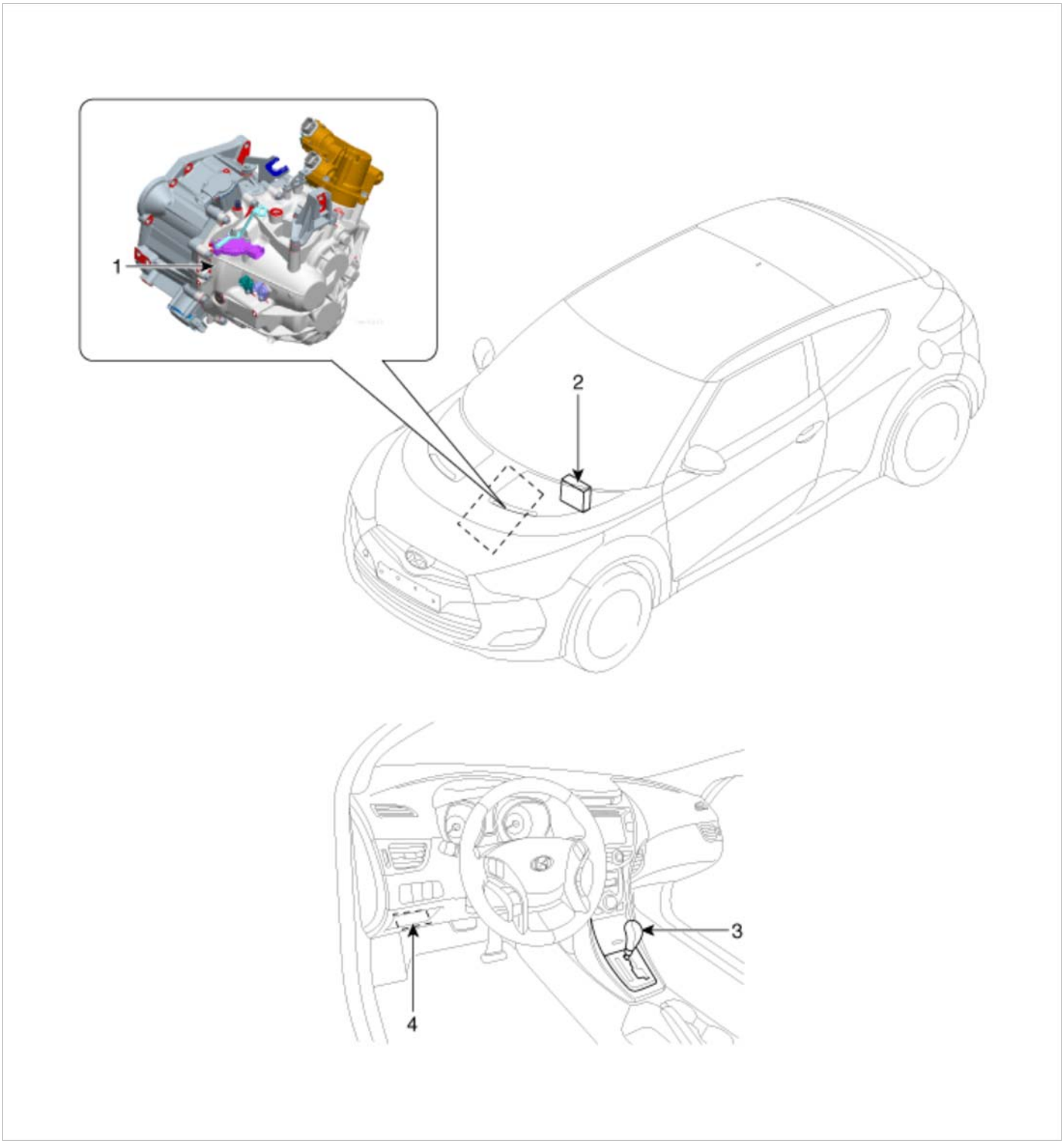
Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Description and Operation

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.

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Components and Components Location

Component Location



1. DCT (Dual Clutch Transmission) 2. DCT Control Module	3. Shift Lever 4. Data Link Connector (DLC)

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > DCT Control Modle (TCM) > Description and Operation

Description

The Transmission Control Module (TCM) is like the brain for the 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.

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > DCT Control Modle (TCM) > Repair procedures

Inspection

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.)

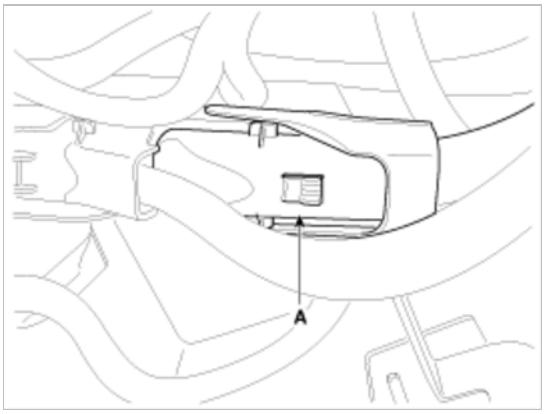
   Normal reading (resistance): Below 1Ω

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.

Replacement

1. Turn off the ignition switch and then disconnect the battery (-) cable.
2. Remove the lower cover on the crash pad.
   (Refer to the Interior (Crash Pad) of the BD Group.)
3. Disconnect the TCM connector (A).
4. Remove the mounting bolt and nut. Then remove the TCM (B).

   TCM mounting bolt/nut:
   9.8 ~ 11.8 N.m (1.0 ~ 1.2 kgf.m, 7.2 ~ 8.7 lb-ft)

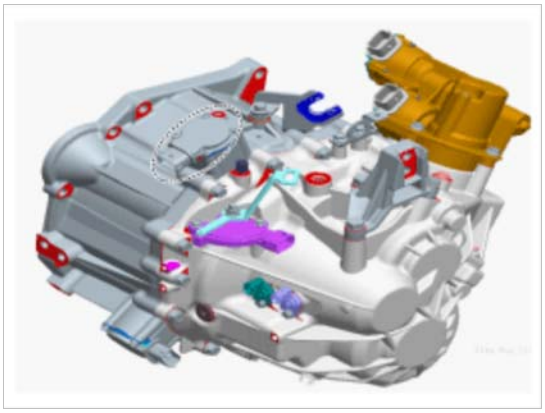


5. Installation is the reverse of removal.

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Clutch Actuator Motor 1 (Odd Gear) > Description and Operation

Description

The clutch actuator motor is mounted on the DCT.
The clutch actuator motor comprises an actuator motor that controls the odd clutch and an actuator motor that controls the even clutch.
The odd actuator motor receives signals from the TCM and controls the odd clutch. The even actuator motor receives signals from the TCM and controls the even clutch.



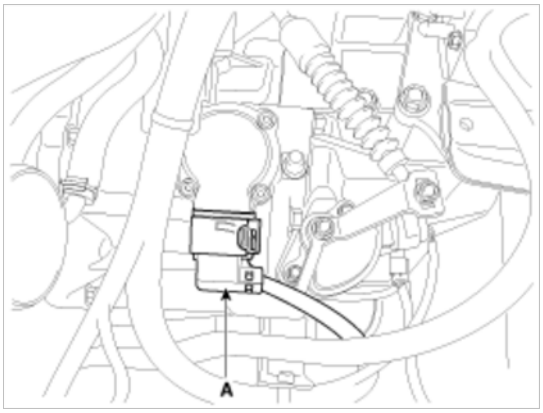
Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Clutch Actuator Motor 1 (Odd Gear) > Repair procedures

Inspection

1. Turn off the ignition switch.
2. Disconnect the clutch motor connector.
3. Measure the resistance on the clutch motor terminal.
4. Refer to the specifications and check that the measured resistance is as specified.

Removal

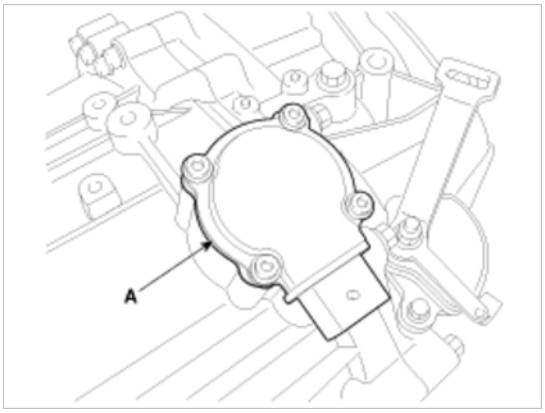
1. Remove the following parts first:
   A. Air cleaner assembly and air duct
      (Refer to the Intake and Exhaust System of EM Group.)
   B. Battery and tray
      (Refer to the Charging System of EE Group.)
   C. ECM
      (Refer to the Engine Control Module of FL Group.)
2. Disconnect the clutch actuator motor connector (A).



3. Loosen the mounting screw, and then remove the clutch actuator motor (A).

Tightening Torque :

4.4 ~ 5.4 N.m (0.45 ~ 0.55 kgf.m, 3.3 ~ 4.0 lb-ft)



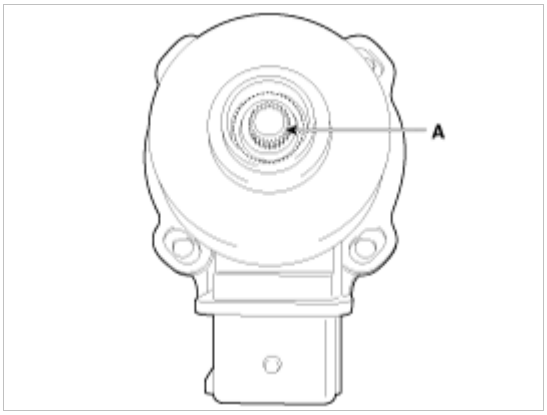
Installation

1. Installation is the reverse of removal.

NOTE

Clutch actuator spline (A) with grease before installation.

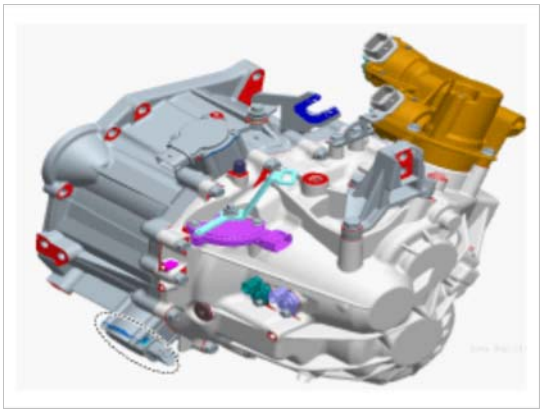
Specified grease [CSG-101M (0.1ml)]



Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Clutch Actuator Motor 2 (Even Gear) > Description and Operation

Description

The clutch actuator motor is mounted on the DCT.
The clutch actuator motor comprises an actuator motor that controls the odd clutch and an actuator motor that controls the even clutch.
The odd actuator motor receives signals from the TCM and controls the odd clutch. The even actuator motor receives signals from the TCM and controls the even clutch.



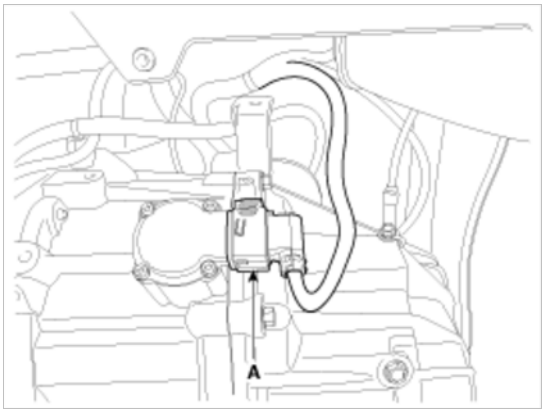
Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Clutch Actuator Motor 2 (Even Gear) > Repair procedures

Inspection

1. Turn off the ignition switch.
2. Disconnect the clutch motor connector.
3. Measure the resistance on the clutch motor terminal.
4. Refer to the specifications and check that the measured resistance is as specified.

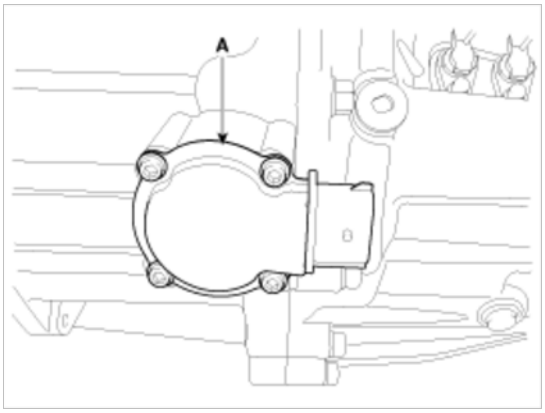
Removal

1. Remove the following parts first:
   A. Air cleaner assembly and air duct
      (Refer to the Intake and Exhaust System of EM Group.)
   B. Battery and tray
      (Refer to the Charging System of EE Group.)
   C. ECM
      (Refer to the Engine Control Module of FL Group.)
2. Disconnect the clutch actuator motor connector (A).



3. Loosen the mounting screw, and then remove the clutch actuator motor (A).

Tightening Torque :
4.4 ~ 5.4 N.m (0.45 ~ 0.55 kgf.m, 3.3 ~ 4.0 lb-ft)



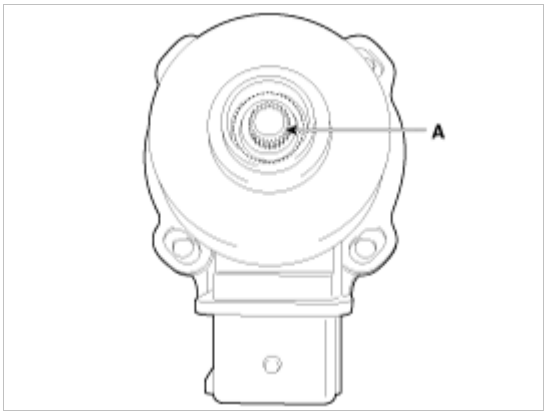
Installation

1. Installation is the reverse of removal.

NOTE

Clutch actuator spline (A) with grease before installation.

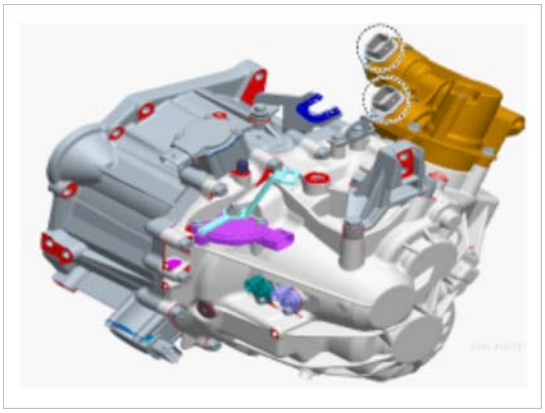
Specified grease [CSG-101M (0.1ml)]



Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Gear Actuator Motor > Description and Operation

Description

The gear actuator motor is mounted on the complete shaft.
The gear actuator motor comprises the shift motor and select motor.
The gear actuator shift motor and select motor receive signals from the TCM to control the gear.



Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Gear Actuator Motor > Repair procedures

Inspection

1. Turn off the ignition switch.
2. Disconnect the gear actuator motor connector.
3. Measure the resistance on the gear actuator motor terminal.
4. Refer to the specifications and check that the measured resistance is as specified.

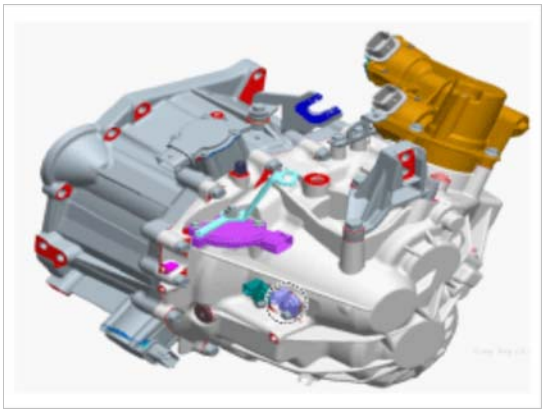
Removal

1. Remove the gear actuator assembly.
   (Refer to "Gear actuator" in this group)

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Input Speed Sensor 1 > Description and Operation

Description

The input shaft speed sensor is important in that it detects the input shaft RPM and sends this information to the 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.



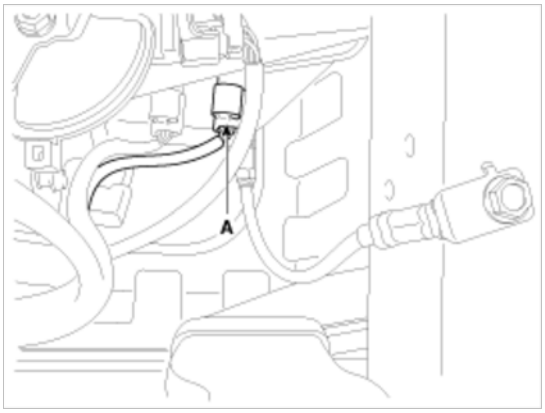
Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Input Speed Sensor 1 > Repair procedures

Inspection

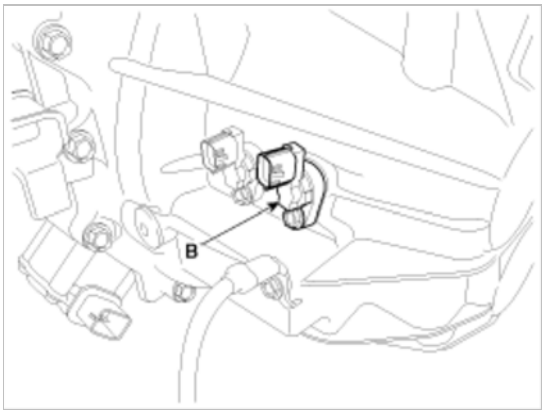
Refer to DTC code "P2765, P2766" Input Shaft Speed Sensor.

Removal

1. Remove the under cover.
2. Disconnect the input shaft speed sensor connector (A).



3. Loosen the mounting bolt and then remove the input shaft speed sensor (B).



Installation

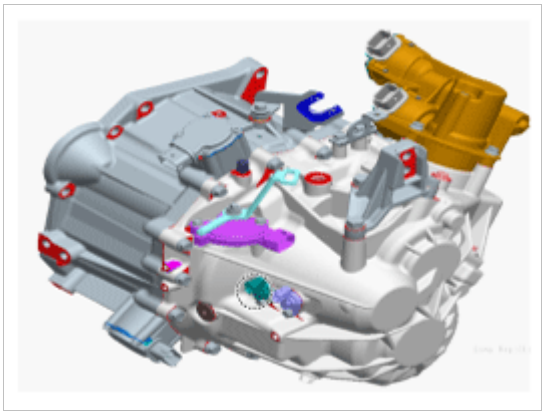
1. Installation is the reverse of removal.

Tightening torque : 1.0 ~ 1.2 kgf.m

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Input Speed Sensor 2 > Description and Operation

Description

The input shaft speed sensor is important in that it detects the input shaft RPM and sends this information to the 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.



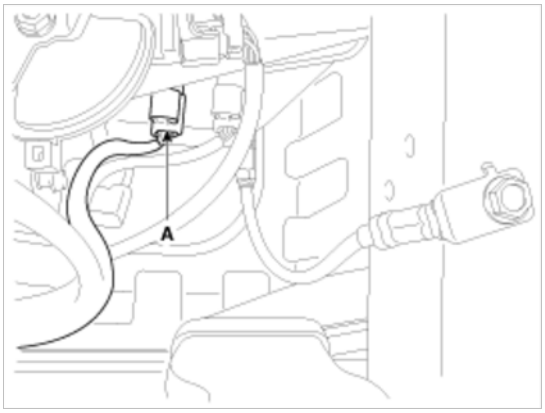
Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Input Speed Sensor 2 > Repair procedures

Inspection

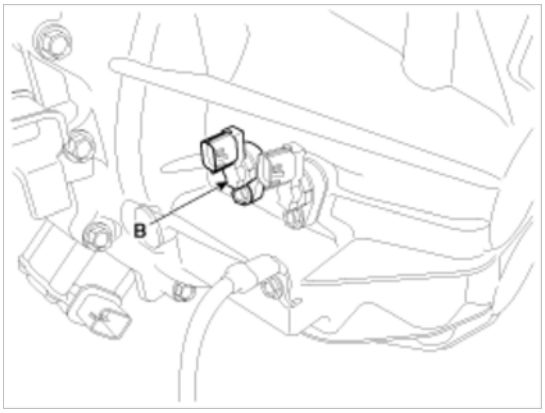
Refer to DTC code "P2765, P2766" Input Shaft Speed Sensor.

Removal

1. Remove the under cover.
2. Disconnect the input shaft speed sensor connector (A).



3. Loosen the mounting bolt and then remove the input shaft speed sensor (B).



Installation

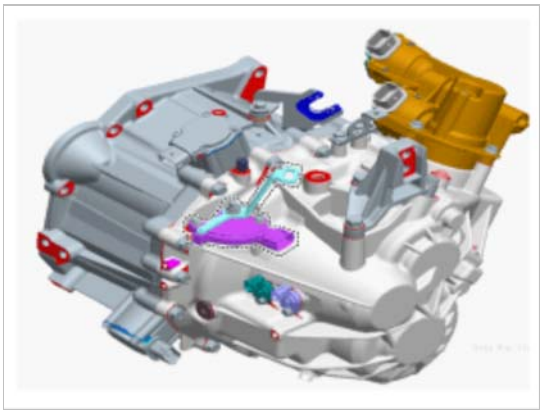
1. Installation is the reverse of removal.

Tightening torque : 1.0 ~ 1.2 kgf.m

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Inhibitor Switch > Description and Operation

Description

The inhibitor switch is mounted on the transmission case. It includes the electric switch plate circuit and is directly connected with the transmission lever via transmission cable.
When the driver shifts the transmission lever, the contact point on the switch plate varies and the electric current process changes, and engages the gear intended by the driver.
In addition, the inhibitor switch cuts off power from the circuit to prevent the motor from running if the driver attempts to start the engine from any gear positions other than P or N.



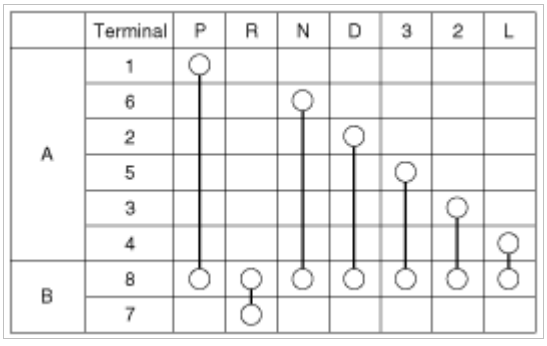
Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Inhibitor Switch > Repair procedures

Inspection

1. Inspect for loosened connectors, faulty connections, bends, corrosion, contamination, deformation, or damage.
2. Disconnect the inhibitor switch connector.
3. Check the voltage on the power supply terminal and the ground of the inhibitor switch wiring.

Normal voltage: Approximately 12 V

4. Use the following signal code chart to check the electric current flow for each terminal in each gear.



Removal

1. Remove the following parts first:
   A. Air cleaner assembly and air duct

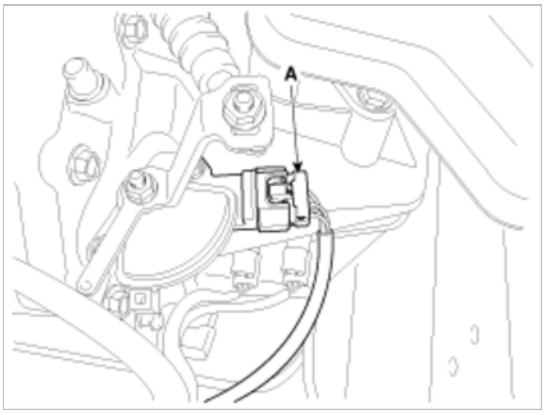
(Refer to the Intake and Exhaust System of EM Group.)

B. Battery and tray
(Refer to the Charging System of EE Group.)

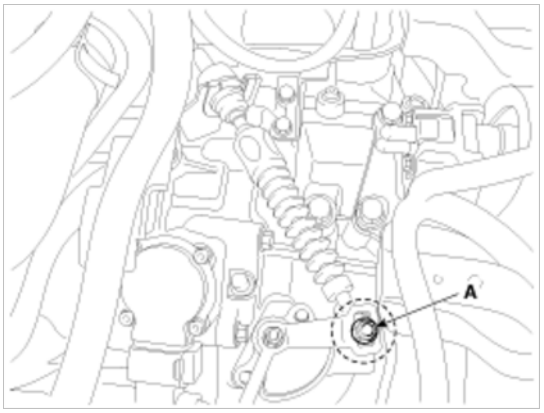
C. ECM (Refer to the Engine Control Module of FL Group.)

> NOTE
>
> Place the gear shift lever and manual control lever to the N position when performing maintenance on the inhibitor switch.

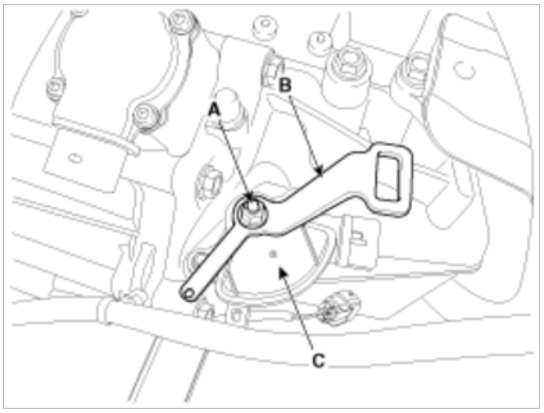
2. Disconnect the inhibitor switch connector (A).



3. Remove the shift cable mounting nut (A).



4. Loosen the nut (A), and then remove the manual control lever (B).
5. Loosen the mounting bolt, and then remove the inhibitor switch (C).



Installation

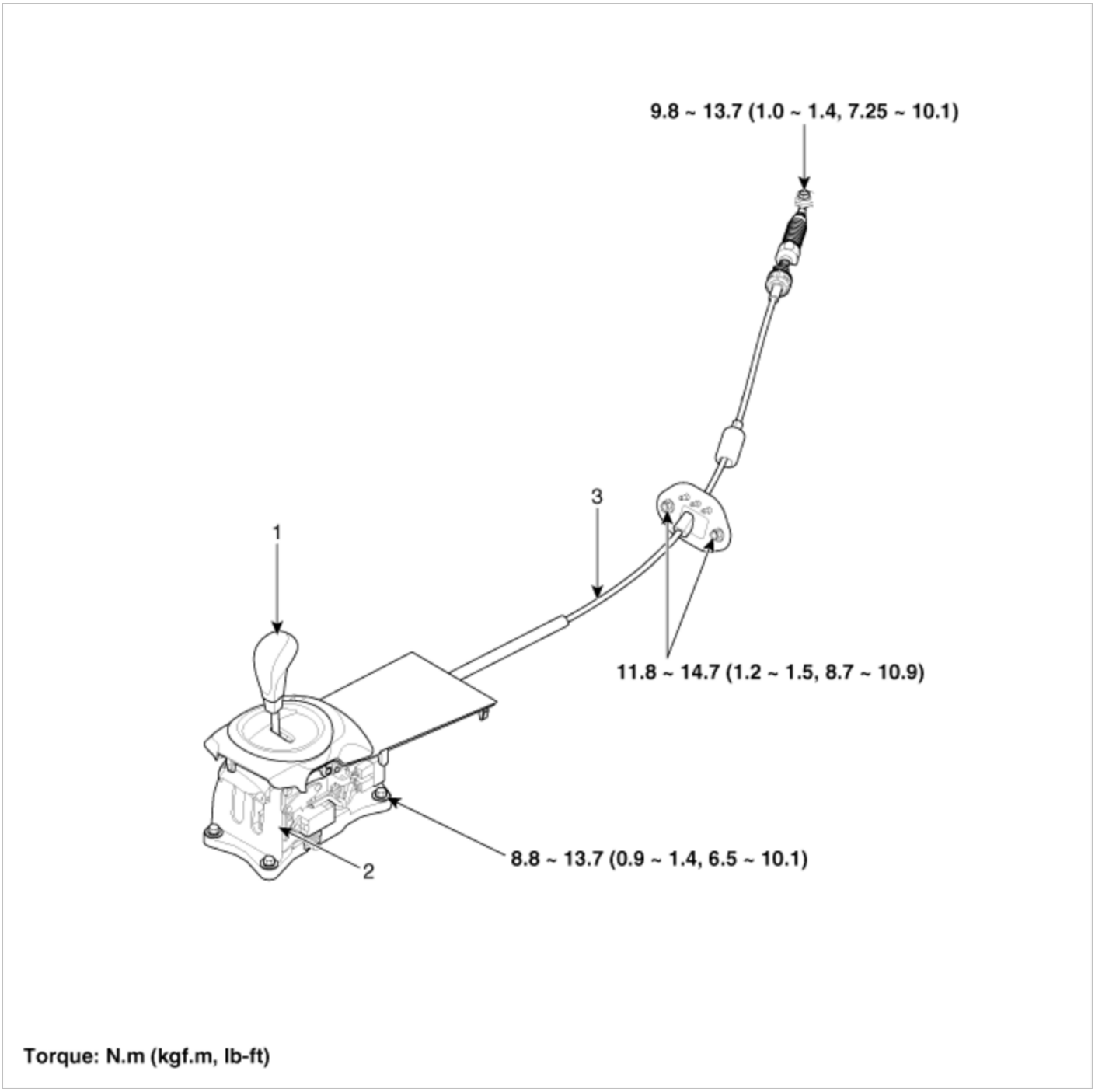
1. Installation is the reverse of removal.

NOTE

- Fix the inhibitor manual control lever in the N jig hole when you assemble the shift cable.
- Adjust the shift cable after you install the inhibitor switch.
  (Refer to the Dual Clutch Transmission (DCT) Control System" Shift lever" in this group)

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Shift Lever > Components and Components Location

Components



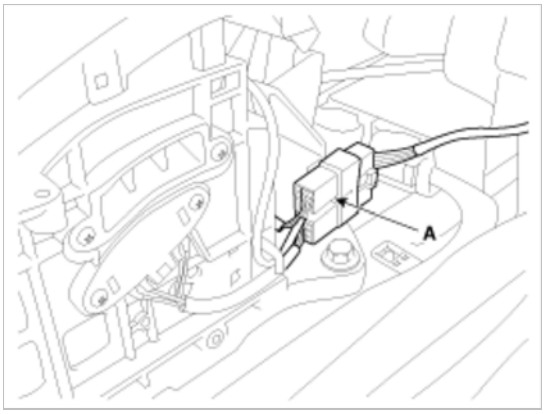
1. Shift lever knob	3. Control cable assembly

2. Shift lever assembly

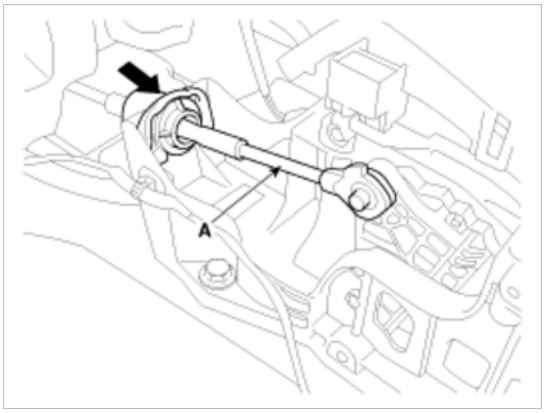
Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Shift Lever > Repair procedures

Removal

1. Remove the floor console assembly.
   (Refer to the Interior (Console) of BD Group.)
2. Disconnect the sports mode connector (A).

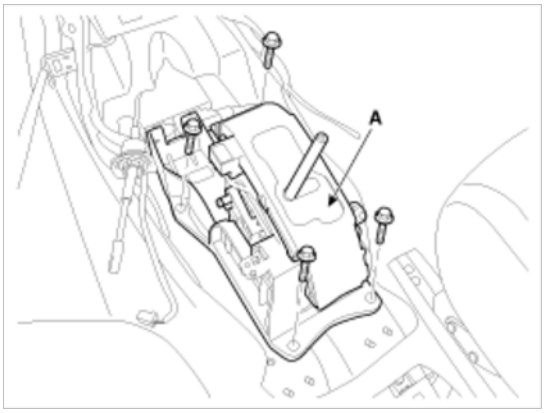


3. Remove the control cable (A).



4. Remove the bolt and then the shift lever assembly (A).

Tightening torque:
9.8 ~ 14.7 N.m (1.0 ~ 1.5 kgf.m, 7.2 ~ 10.8 lb-ft)



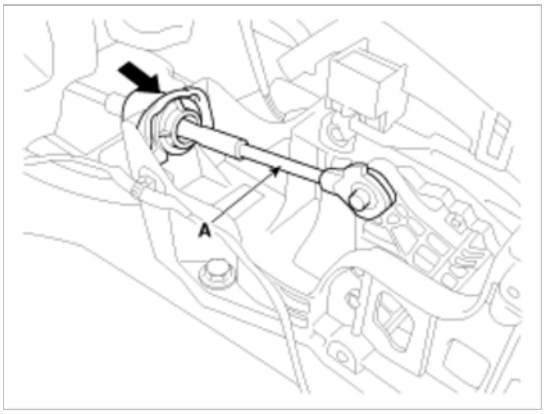
Installation

1. Installation is the reverse of removal.

> NOTE
>
> Install the cable after placing the shift lever and the transmission manual control lever in the N position.

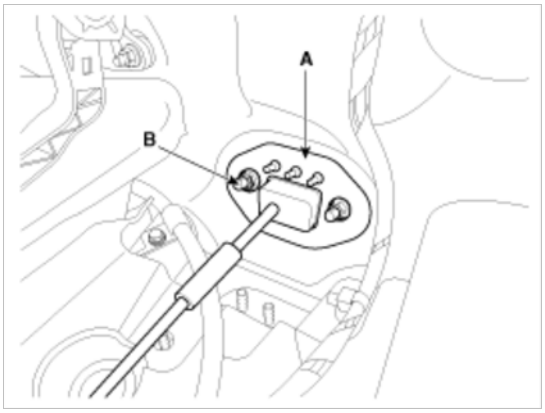
Changing the Shift Cable

1. Remove the floor console assembly.
   (Refer to the Interior (Console) of BD Group.)
2. Remove the control cable (A).



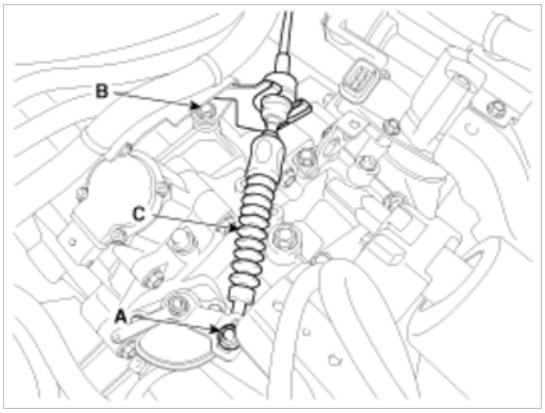
3. Remove the retainer (A) and nut (B).

Tightening torque:
11.8 ~ 14.7 N.m (1.2 ~ 1.5 kgf.m, 8.7 ~ 10.8 lb-ft)



4. Remove the cable (B) from the cable bracket (A) on the A/T.
5. Remove the nut (C) from the manual control lever.
6. Remove the shift cable by pulling it toward the interior.

Tightening torque:
9.8 ~ 14.7 N.m (1.0 ~ 1.5 kgf.m, 7.2 ~ 10.8 lb-ft)



7. Installation is the reverse of removal.

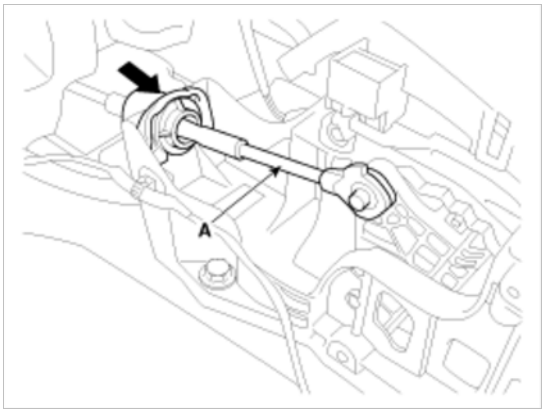
NOTE

- Install the cable after placing the shift lever and the transmission manual control lever in the N position.
- Adjust the control cable.
  (Refer to the Control Cable Adjustment Procedure.)

Adjustment

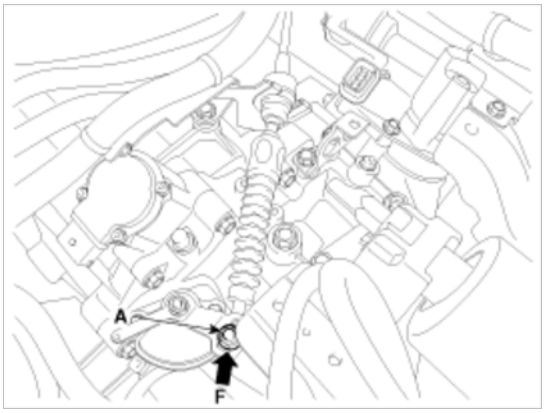
Adjusting the Control Cable

1. Place the shift lever in the interior, and the transmission manual control lever, to the N position.
2. Connect the shift lever (A) in the interior with the control cable (B).



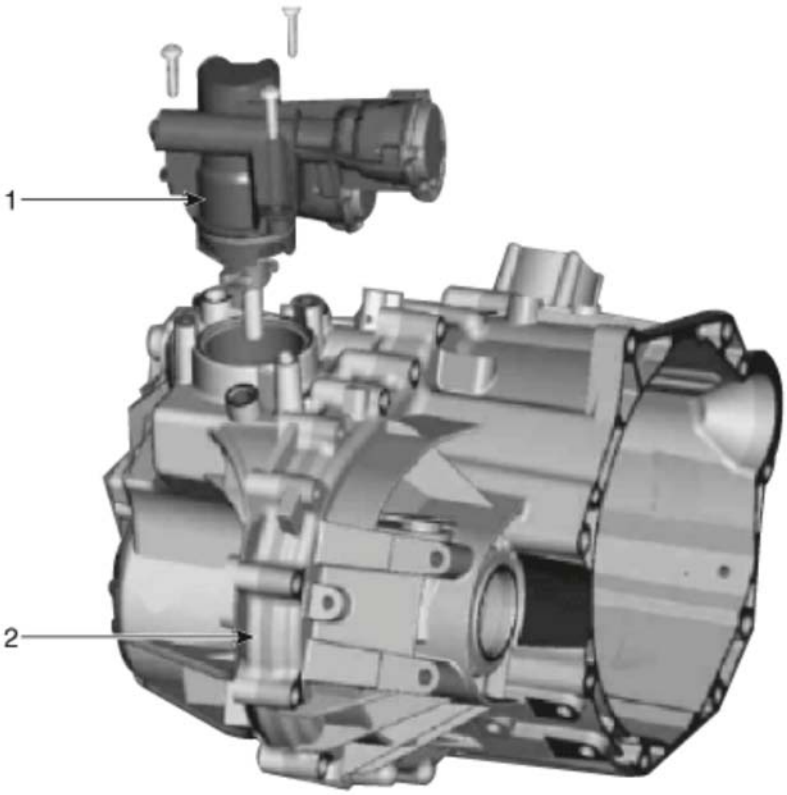
3. Lightly push the shift cable towards F to tighten the cable.
4. Tighten the nut (A) to the specified torque.

Tightening torque:
9.8 ~ 14.7 N.m (1.0 ~ 1.5 kgf.m, 7.2 ~ 10.8 lb-ft)



Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Gear Actuator > Components and Components Location

Component Location

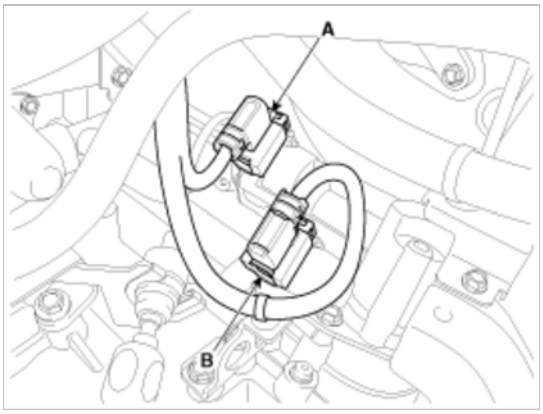


1. Gear actuator	2. DCT(Dual Clutch Transmission)

Dual Clutch Transmission(DCT) System > Dual Clutch Transmission Control System > Gear Actuator > Repair procedures

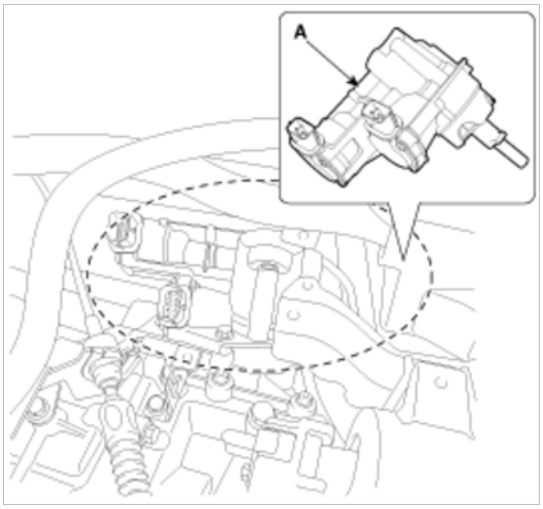
Removal

1. Remove the following parts first:
   A. Air cleaner assembly and air duct
      (Refer to the Intake and Exhaust System of EM Group.)
   B. Battery and tray
      (Refer to the Charging System of EE Group.)
   C. ECM (Refer to the Engine Control Module of FL Group.)
2. Place the shift lever in the N position.
3. Disconnect the shift actuator connector (A) and select actuator connector (B), and then remove the wire fixing clip.



4. Loosen the mounting bolt, and then remove the gear actuator (A).

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

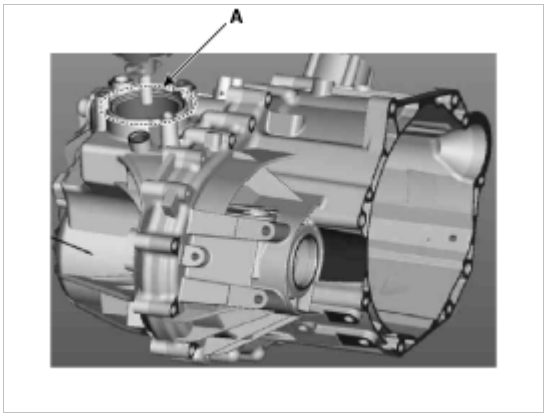


Installation

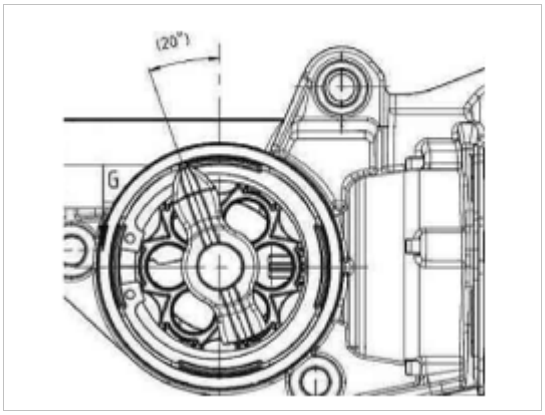
1. Installation is the reverse of removal.

CAUTION

- Make sure that no debris falls into the hole (A).



- Check the angle of the gear actuator finger (A), and also check whether the transmission lever is in the N position.



Dual Clutch Transmission(DCT) System > Dual Clutch System > Description and Operation

Description

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.