

## Specifications

Item	Specifications	
Transaxle type	A6LF2	
Engine model	Gasoline 3.3 GDI	
Torque converter type	3-element, 1-stage, 2-phase type	
Torque converter size	Ø260 mm (10.2362 in.)	
Oil pump system	Parachoid	
Friction elements	Clutch: 2EA	
	Brake: 3EA	
	OWC : 1EA	
Planetary gear	3EA	
Gear ration	1st	4.651
	2nd	2.831
	3rd	1.842
	4th	1.386
	5th	1.000
	6th	0.772
	Reverse	3.393
Final gear ratio	3.041	
Fluid pressure balance piston	2EA	
Accumulator	4EA	
Solenoid valve	8EA (VFS:6EA, ON/OFF:2EA)	
Shift lever position	4 Range (P,R,N,D)	
Oil filter	1EA	

VFS: Variable Force Solenoid

## Sensors

**Input Speed Sensor**

Type: Hall effect sensor

## Specifications

Operation condition (°C)°F	((-40 ~ 150)) -40 ~ 302	
Air gap(mm)in.	(0.95 ~ 1.55) 0.950 ~ 1.55	
Output voltage(V)	High	1.18 ~ 1.68
	Low	0.59 ~ 0.84

**Output Speed Sensor**

Type: Hall effect sensor

### Specifications

Operation condition (°C)°F	((-)40 ~ 150)) -40 ~ 302	
Air gap(mm)in.	(1.45~1.9) 0.0571~0.0748	
Output voltage (V)	High	1.18 ~ 1.68
	Low	0.59 ~ 0.84

### Oil Temperature Sensor

Type: Negative thermal coefficient type

#### Specifications

Temp.(°C)°F	Resistance (kΩ)
(-40)-40	48.1
(-20)-4.0	15.6
(0)32.0	5.88
(20)68.0	2.51
(40)104.0	1.11
(60)140.0	0.61
(80)176.0	0.32
(100)212.0	0.18
(120)248.0	0.10
(140)284.0	0.06
(165)329.0	0.03

### Inhibiter Switch

Type: Combination of output signals from 4 terminals

#### Specifications

Power supply (V)	12
Output type	Pin to Pin

### Solenoid Valves

Direct control VFS[26/B, T/CON]

Control type : Normal low type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	0 ~ 539.37 (0 ~ 5.5, 0 ~ 78.23)
Current value(mA)	0 ~ 850
Internal resistance(Ω)	5.1 ± 0.3

Direct control VFS[UD/B, OD/C, 35R/C]

Control Type : Normal high type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	539.370 ~ 0 ( 5.5 ~ 0, 78.23 ~ 0)
Current value(mA)	0 ~ 850
Internal resistance(Ω)	5.1 ± 0.3

#### Line Pressure Control VFS

Control type : Normal high type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	539.370 ~ 0 ( 5.5 ~ 0, 78.23 ~ 0)
Current value(mA)	0 ~ 850
Internal resistance(Ω)	5.1 ± 0.3

#### ON/OFF Solenoid Valve(SS-A, SS-B)

Control type : Normal low type

Control pressure kpa (kgf/cm <sup>2</sup> , psi)	490.33 (5.0, 71.12)
Internal resistance(Ω)	10 ~ 11

#### Solenoid Valve Operation Table

	SS-A	SS-B	UD/B-VFS	OD/C-VFS	35R/C-VFS	26/B-VFS
			N/H	N/H	N/H	N/L
N, P	●		●		●	
1	Δ			Δ	●	
2				●	●	●
3		●		●		
4					●	
5		●	●			
6			●		●	●
L	●				●	
R	●	●	●			

● : Connected status

Δ : Connected at vehicle speed above 8km/h

Tightening Torques

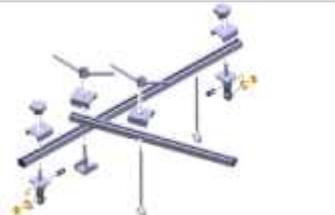
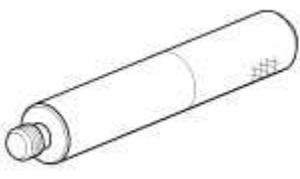
Item	N.m	Kgf.m	lb-ft
TCM mounting bolt/nut	9.8 ~ 11.8	1.0 ~ 1.2	7.2 ~ 8.7
Shift cable bracket mounting bolt	14.7 ~ 21.6	1.5 ~ 2.2	10.9 ~ 15.9
Input shaft speed sensor mounting bolt	9.8 ~ 11.8	1.0 ~ 1.2	7.2 ~ 8.7
Output shaft speed sensor mounting bolt	9.8 ~ 11.8	1.0 ~ 1.2	7.2 ~ 8.7
Shift lever assembly bolt	8.8 ~ 13.7	0.9 ~ 1.4	9.4 ~ 10.8
Inhibitor switch mounting bolt	9.8 ~ 11.8	1.0 ~ 1.2	7.2 ~ 8.7
Manual control lever	17.6 ~ 24.5	1.8 ~ 2.5	13.0 ~ 18.1
Valve body mounting bolt	9.8 ~ 11.8	1.0 ~ 1.2	7.2 ~ 8.7
Valve body cover mounting bolt	13.7 ~ 15.7	1.4 ~ 1.6	10.1 ~ 11.6
ATF Warmer mounting bolt	7.8 ~ 11.8	0.8 ~ 1.2	5.8 ~ 8.7
Oil drain plug	38.2 ~ 48.1	3.9 ~ 4.9	28.2 ~ 35.4
Torque converter mounting bolt	45.1 ~ 52.0	4.6 ~ 5.3	33.3 ~ 38.3
Starter motor mounting bolts	49.0 ~ 63.7	5.0 ~ 6.5	36.2 ~ 47.0
Automatic transaxle upper mounting bolt (TM=>Eng)	42.2 ~ 53.9	4.3 ~ 5.5	31.1 ~ 39.8
	49.0 ~ 63.7	5.0 ~ 6.5	36.2 ~ 47.0
Automatic transaxle upper mounting bolt (Eng=>TM)	78.5 ~ 98.1	8.0 ~ 10.0	57.9 ~ 72.3
	39.2 ~ 46.1	4.0 ~ 4.7	28.9 ~ 34.0
Automatic transaxle support bracket bolt	58.8 ~ 78.5	6.0 ~ 8.0	43.4 ~ 57.9
Automatic transaxle mounting bracket bolt	88.3 ~ 107.9	9.0 ~ 11.0	65.1 ~ 79.6

#### Lubricants

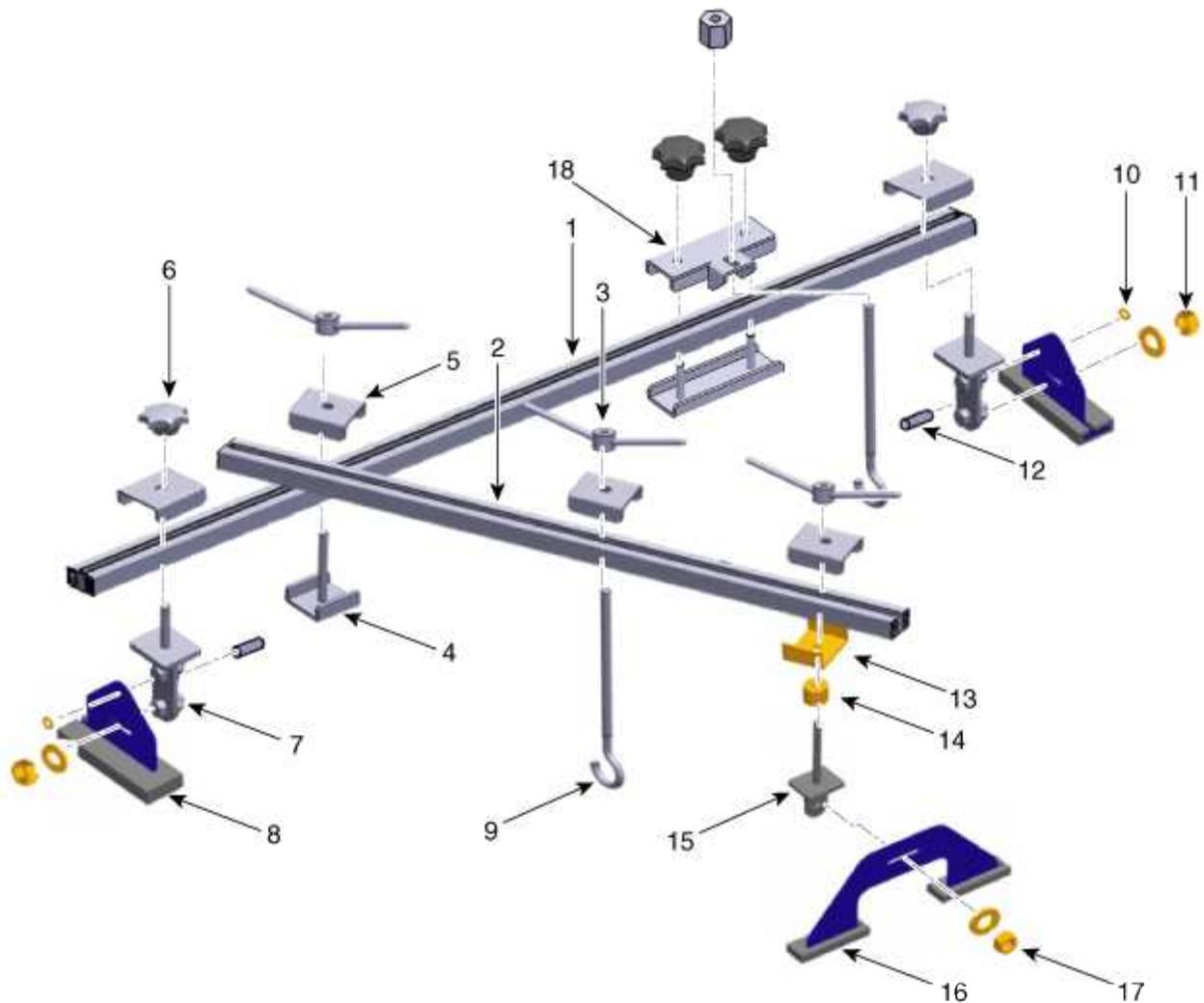
Item	Specified lubricant	Quantity
Transaxle fluid	ATF SP- or equivalent	7.8 L (2.06 U.S gal., 8.24 U.S.qt., 6.86 Imp.qt.)

#### Automatic Transaxle System

#### Special Service Tools

Tools (Number and name)	Illustration	Use
09200-3N000 Engine support fixture(Beam)		Removal and installation of the transaxle. Except lower supporter, use beam only engine support fixture supporter(SST No. : 09200-3N000)
09200-2S000 Supporter		Removal and installation of the transaxle. Use this beam (SST No. : 09200-3800) with the supporter (SST No. : 09200-2S000)
09200-2W000 Adapter		Removal and installation of the transaxle. Use this beam (SST No. : 09200-3800) with the adapter (SST No. : 09200-2W000)
09453-3L240 Oil seal installer(2WD)		Installation of transaxle case oil seal. (In case of 2WD vehicle use this tool to both sides when installing oil seal, and 4WD vehicle should use transaxle case side only.) [Using with bar (SST No.:09231-H1100)]
09453-2W100 Oil seal installer(4WD)		Installation of transaxle case oil seal. (In case of 4WD vehicle use this tool to housing side when installing oil seal.) [Using with bar (SST No.:09231-H1100)]
09231-H1100 Bar		Installation of transaxle case oil seal. [Using with oil seal installer (SST No.:09453-3L241, 09453-2W100)]
09480-A3800 Inhibitor switch guide pin		

### Engine support fixture special tool assembly drawing



1. 09200-3N000(Main bar)	10. 09200-3N000(Clip)
2. 09200-3N000(Sub bar)	11. 09200-3N000(Nut)
3. 09200-3N000(Handle)	12. 09200-3N000(Pin)
4. 09200-3N000(Stopper)	13. 09200-2S000(Stopper)
5. 09200-3N000(Stopper)	14. 09200-2S000(Spacer)
6. 09200-3N000(Knobe)	15. 09200-2S000(Adapter)
7. 09200-3N000(Adapter)	16. 09200-2S000(Nut)
8. 09200-2S000(Supporter)	17. 09200-2S000(Supporter)
9. 09200-3N000(Hanger)	18. 09200-2W000(Adapter)

## Automatic Transaxle System

### Fault Diagnosis

Features a fail-safe mechanism that provides "limp-home" 4th gear hold to enable the vehicle to be driven to the owner or dealer shop.

Fail-Safe: The TCM provides 4th gear hold and Reverse gear in the event of a malfunction.

Limp Home: Maintains minimal functionality (Drive(4th gear hold), Reverse) in the event of a malfunction, making it possible for the vehicle to reach the dealer shop.

### Self-diagnosis

Transaxle Control Module (TCM) is in constant communication with the control system's components (sensors and actuators). If an abnormal signal is received for longer than the predefined duration, TCM recognizes a fault, stores the fault code in memory, and then sends out a fault signal through the self-diagnosis terminal. Such fault codes are independently stored and will not be cleared even if the ignition switch is turned off, the battery is disconnected, or the TCM connector is disconnected.

#### **⚠ CAUTION**

- Disconnecting a sensor or an actuator connector while the ignition switch is in the "On" position generates a Diagnostic Trouble Code (DTC) and commits the code to memory. In such event, disconnecting the battery will not clear the diagnosis memory. The diagnosis tool must be used to clear the fault diagnosis memory.
- Before removing or installing any part, read the diagnostic trouble codes and then disconnect the battery negative terminal.
- Before disconnecting the cable from battery terminal, turn the ignition switch to OFF. Removal or connection of the cable during engine operation or while the ignition switch is ON could cause damage to the Transaxle Control Module (TCM).
- When checking the generator for the charging state, do not disconnect the battery '+' terminal to prevent the Engine Control Module (ECM) from damage due to the voltage.
- When charging the battery with the external charger, disconnect the vehicle side battery terminals to prevent damage to the TCM.

#### Checking Procedure (Self-diagnosis)

#### **⚠ CAUTION**

- When battery voltage is excessively low, diagnostic trouble codes can not be read. Be sure to check the battery level and the charging system before starting the test.

#### **Inspection Procedure (Using the GDS)**

1. Turn OFF the ignition switch.
2. Connect the GDS to the data link connector on the lower crash pad.
3. Turn ON the ignition switch.
4. Use the GDS to check the diagnostic trouble code.
5. Repair the faulty part from the diagnosis chart.
6. Erase the diagnostic trouble code.
7. Disconnect the GDS.

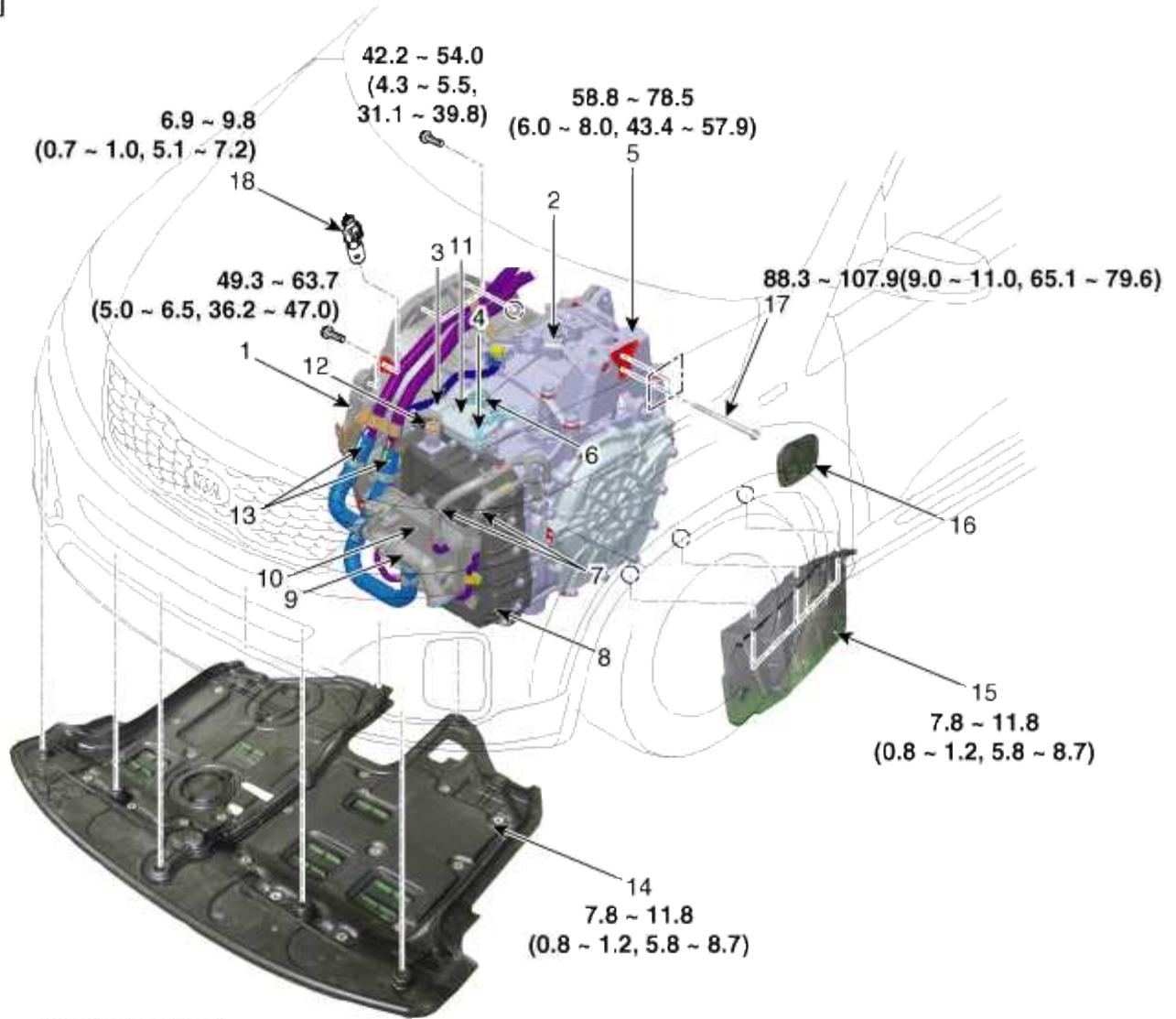
#### **⚠ CAUTION**

- After replacing the automatic transaxle, use the GDS to reset (erase the TCM learning values). Then perform Transaxle Control Module (TCM) learning to provide optimum shift quality.  
(Refer to Automatic Transaxle Control System - "Repair procedures")
- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- After servicing the automatic transaxle or TCM, clear the Diagnostic Trouble Code (DTC) using the GDS tool. Diagnostic Trouble Codes (DTC) cannot be cleared by disconnecting the battery.

#### Automatic Transaxle System

#### Components Location

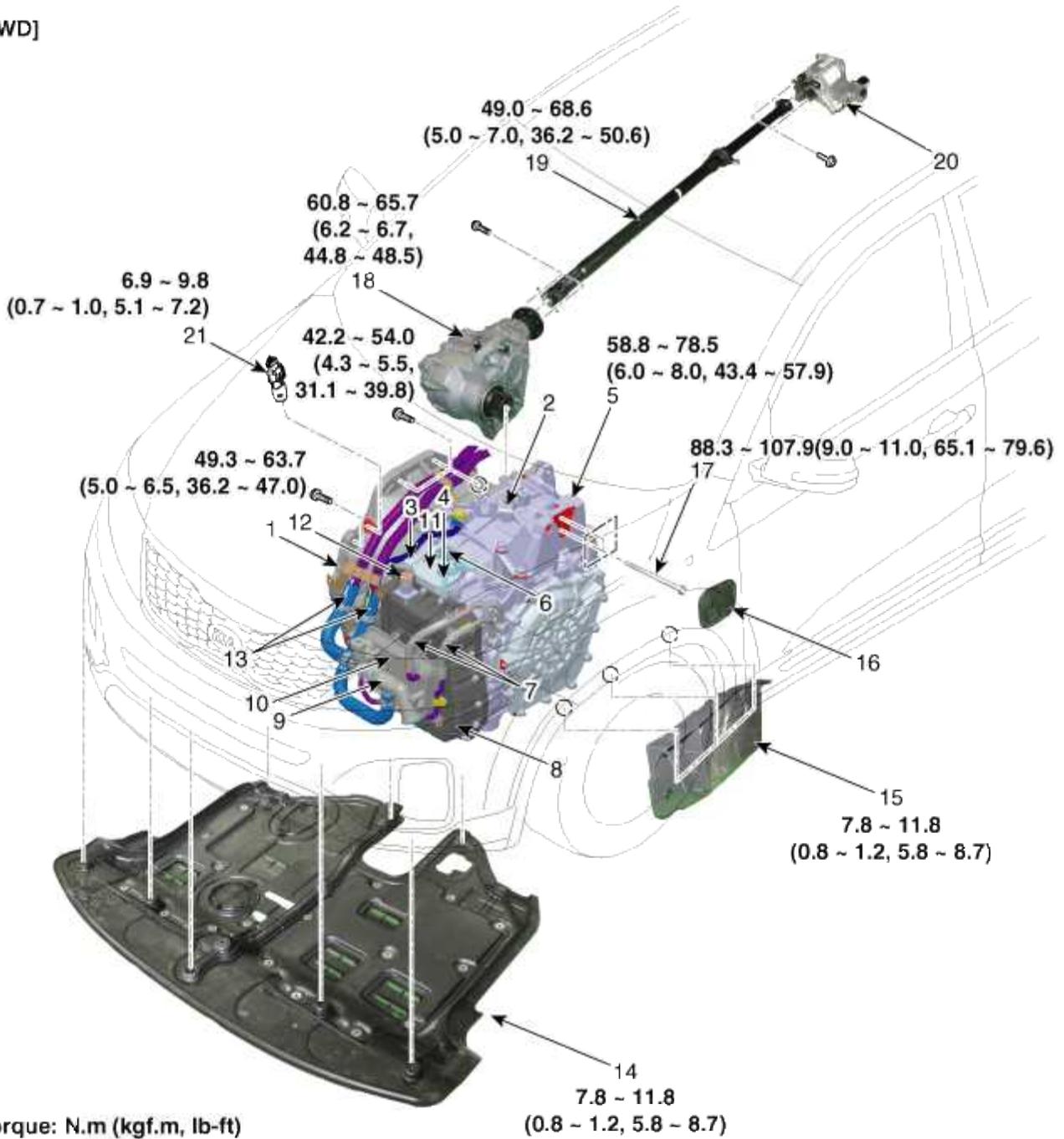
[2WD]



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

1. Automatic transaxle	10. ATF Warmer
2. Shift cable bracket	11. Inhibitor switch
3. Inhibitor switch connector	12. ATF Injection hole(eyebolt)
4. Manual control lever	13. Coolant hose&pipe assembly
5. Automatic transaxle mounting support bracket	14. Under cover
6. Solenoid valve connector	15. Side cover
7. ATF hose&pipe	16. Automatic transaxle mounting bracket cover
8. Valve body cover	17. Automatic transaxle mounting bracket bolt
9. Bypass valve	18. CKP Sensor

[4WD]



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

- |   |  |
|---|--|
| 1. Automatic transaxle                          | 12. ATF Injection hole(eyebolt)                |
| 2. Shift cable bracket                          | 13. Coolant hose&pipe assembly                 |
| 3. Inhibitor switch connector                   | 14. Under cover                                |
| 4. Manual control lever                         | 15. Side cover                                 |
| 5. Automatic transaxle mounting support bracket | 16. Automatic transaxle mounting bracket cover |
| 6. Solenoid valve connector                     | 17. Automatic transaxle mounting bracket bolt  |
| 7. ATF hose&pipe                                | 18. Transfer assembly                          |
| 8. Valve body cover                             | 19. Propeller shaft                            |
| 9. Bypass valve                                 | 20. Coupling Assembly                          |
| 10. ATF Warmer                                  | 21. CKP Sensor                                 |
| 11. Inhibitor switch                            |  |

## Automatic Transaxle System

### Removal

1. Remove the engine cover.  
(Refer to Engine Mechanical System - "Engine cover")
2. Remove the air cleaner assembly and air duct.  
(Refer to Engine Mechanical System - "Air cleaner")
3. Remove the battery and battery tray.  
(Refer to Engine Electrical System - "Battery")
4. Disconnect the inhibitor switch connect (A) and solenoid valve connector (B).



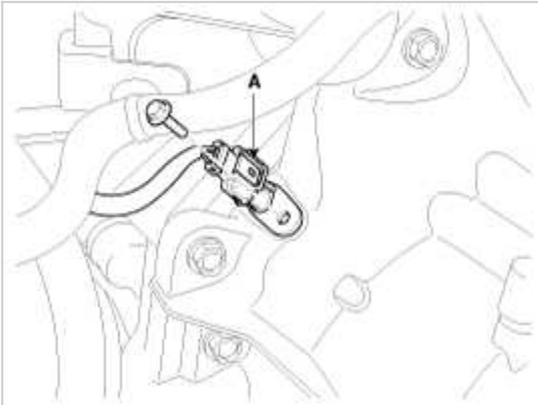
5. Remove the CKP sensor (A).

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**Tightening torque :**

(A) 6.9 ~ 9.8 N.m (0.7 ~ 1.0 kgf.m, 5.1 ~ 7.2 lb-ft)

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6. Remove the shift cable (B) after removing the nut (C) and the bolt (A).

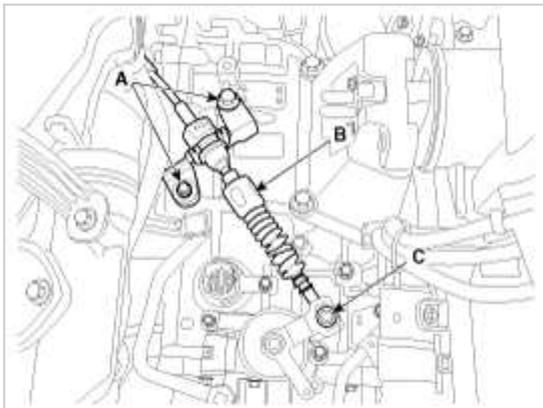
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**Tightening torque :**

(A) 14.7 ~ 21.6 N.m (1.5 ~ 2.2 kgf.m, 10.9 ~ 15.9 lb-ft)

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

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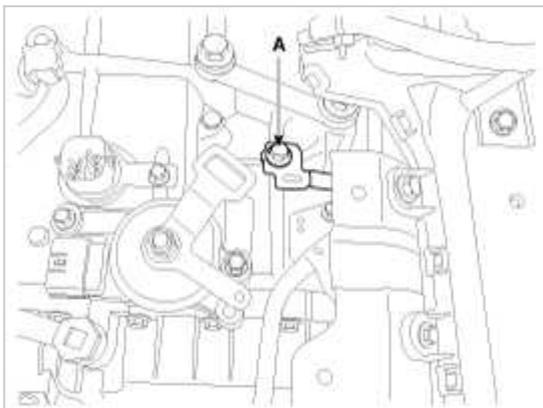
7. Remove the ground line after removing the bolt (A).

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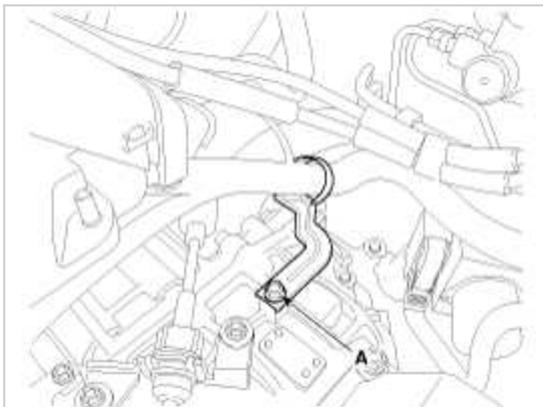
**Tightening torque :**

(A) 10.8 ~ 13.7 N.m (1.1 ~ 1.4 kgf.m, 8.1 ~ 10.1 lb-ft)

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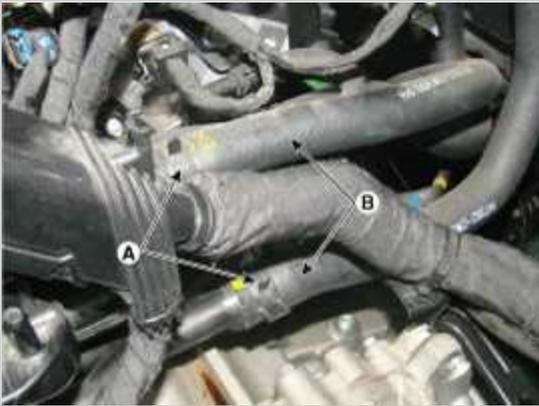


8. Remove the wiring bracket installation bolt (A).



9. Disconnect the coolant hose (B) after removing the automatic transaxle coolant hose clamp (A).

10. Remove the wiring mounting clip (C).



11. Remove the coolant pipe mounting bolts (A).

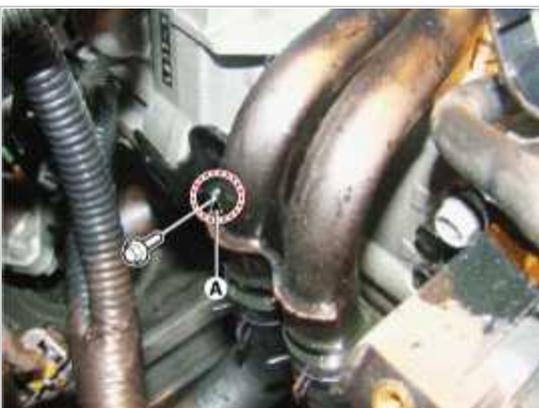
12. Remove the coolant pipe (B).

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**Tightening torque :**

(A) 8.8 ~ 13.7 N.m (0.9 ~ 1.4 kgf.m, 6.5 ~ 10.1 lb-ft)

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13. Remove the wiring bracket installation bolt (A).



14. Assembled the engine support fixture.

(Refer to Special Service Tools - " Engine support fixture special tool assembly drawing")

15. Remove the hood lift.

(Refer to Body-"Hood")

16. Using the engine support fixture (A), hold the engine and transaxle assembly safely.



17. Remove the automatic transaxle upper mounting bolts (A) and the starter motor mounting bolt (B).

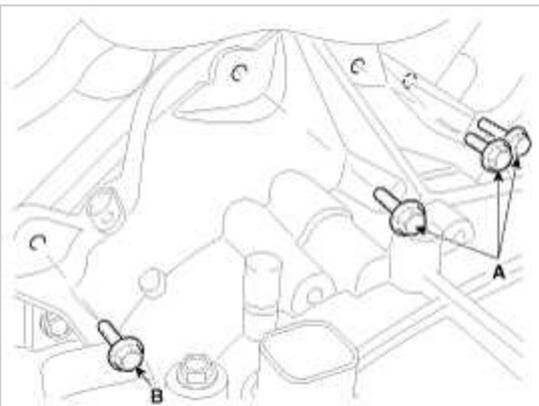
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**Tightening torque :**

(A) 42.2 ~ 54.0 N.m (4.3 ~ 5.5 kgf.m, 31.1 ~ 39.8 lb-ft)

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

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18. Remove the mounting bracket cover (A).



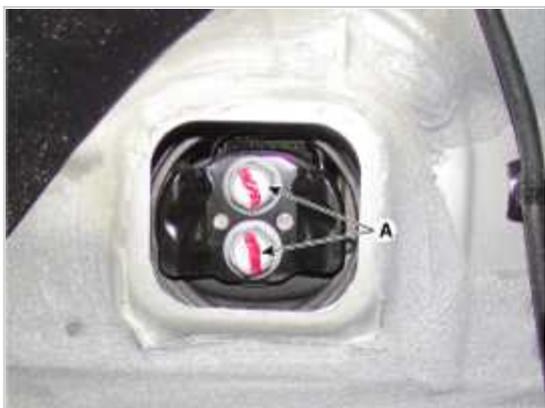
19. Remove the automatic transaxle mounting bracket bolt (A).

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**Tightening torque :**

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

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20. Remove the automatic transaxle mounting support bracket bolts (A).

21. Remove the automatic transaxle mounting support bracket (B).

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**Tightening torque :**

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

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22. Remove the under cover.

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

23. Remove the side cover (A).

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**Tightening torque :**

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

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24. Remove the following items;

**2WD**

A. Sub frame assembly.

(Refer to "Front suspension system" in SS group.)

B. Remove the drive shaft assembly.

(Refer to "Drive shaft assembly " in DS group.)

**4WD**

A. Sub frame assembly.

(Refer to "Front suspension system" in SS group.)

B. Front muffler.

(Refer to " Front Muffler")

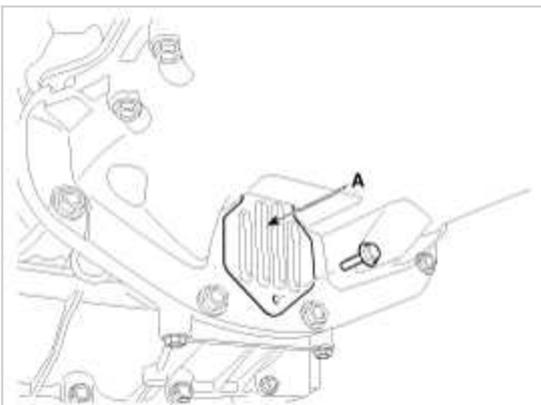
C. Drive shaft assembly.

(Refer to "Drive shaft assembly " in DS group.)

D. Transfer assembly.

(Refer to "Transfer assembly" in WD group.)

25. Remove the dust cover (A).



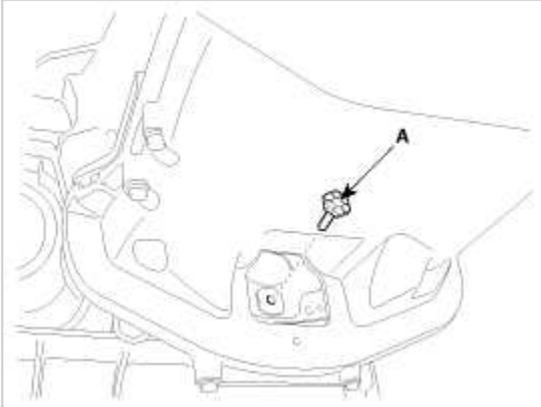
26. Remove the torque converter mounting bolts (A) with rotating the crankshaft.

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**Tightening torque :**

45.1 ~ 52.0 N.m (4.6 ~ 5.3 kgf.m, 33.3 ~ 38.3 lb-ft)

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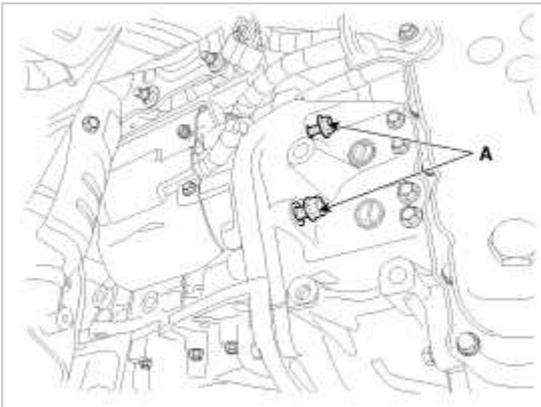
27. Remove the start motor mounting bolt (A).

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**Tightening torque :**

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

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28. Remove the automatic transaxle with a jack after removing the mounting bolts (A, B).

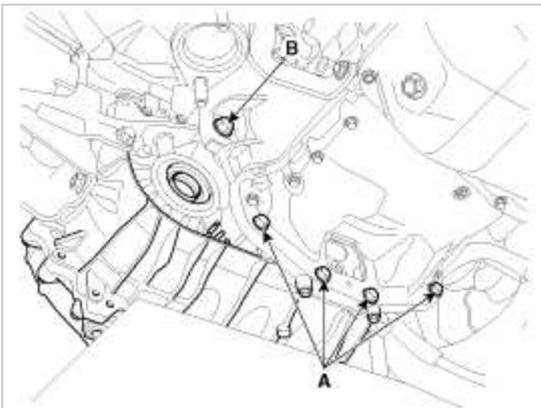
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**Tightening torque :**

(A) 39.2 ~ 46.1 N.m (4.0 ~ 4.7 kgf.m, 28.9 ~ 34.0 lb-ft)

(B) 78.5 ~ 98.1 N.m (8.0 ~ 10.0 kgf.m, 57.9 ~ 72.3 lb-ft)

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Installation

1. Install in the reverse order of removal.

**CAUTION**

If the oil seal on the transaxle case side is damaged and fluid is leaking, replace the oil seal with a new unit. When installing the new oil seal, use the specialized tool.

**2WD both side:** 09453-3L240

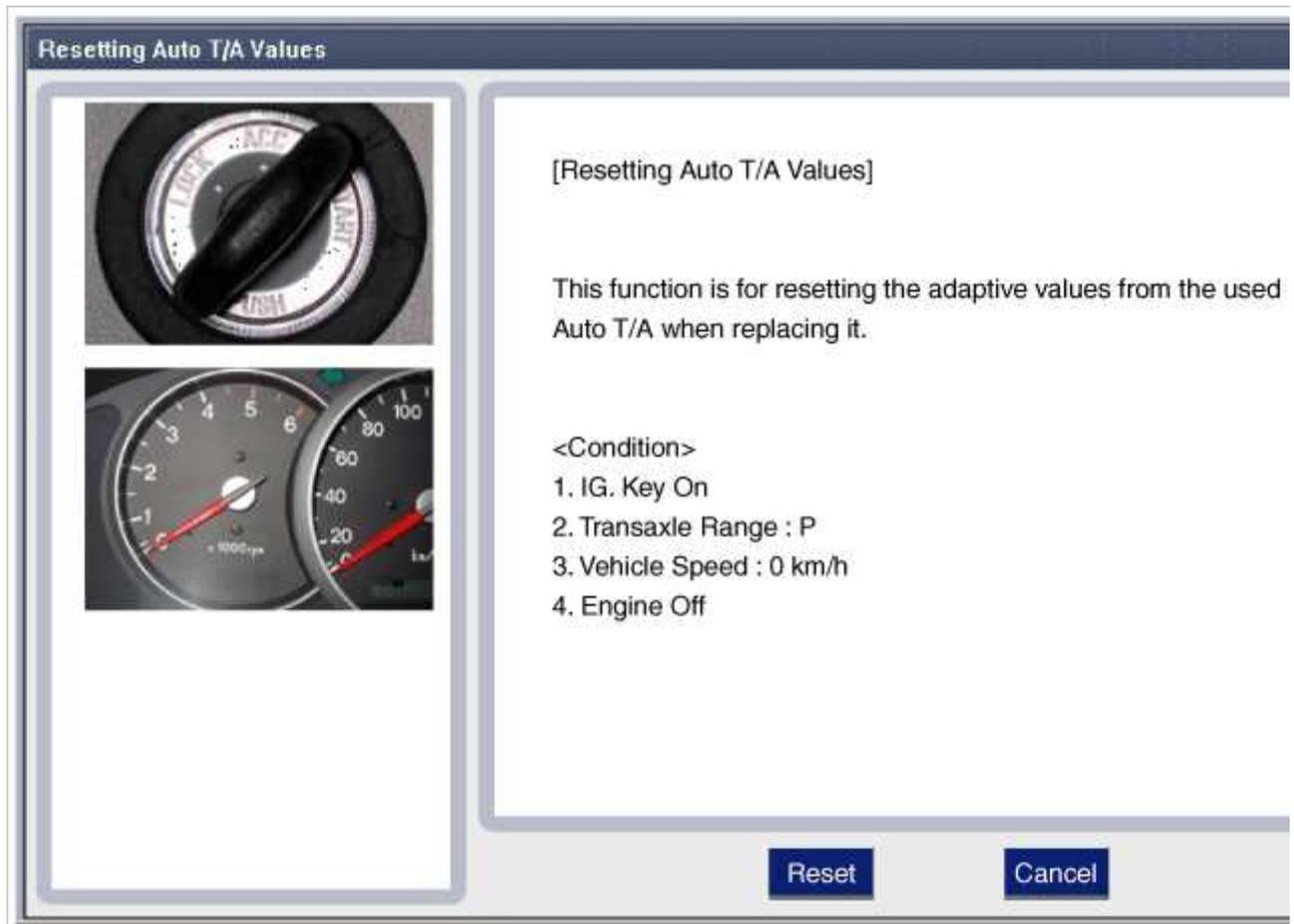
**4WD transaxle case side:** 09453-3L240

**4WD transaxle housing side :** 09453-2W100

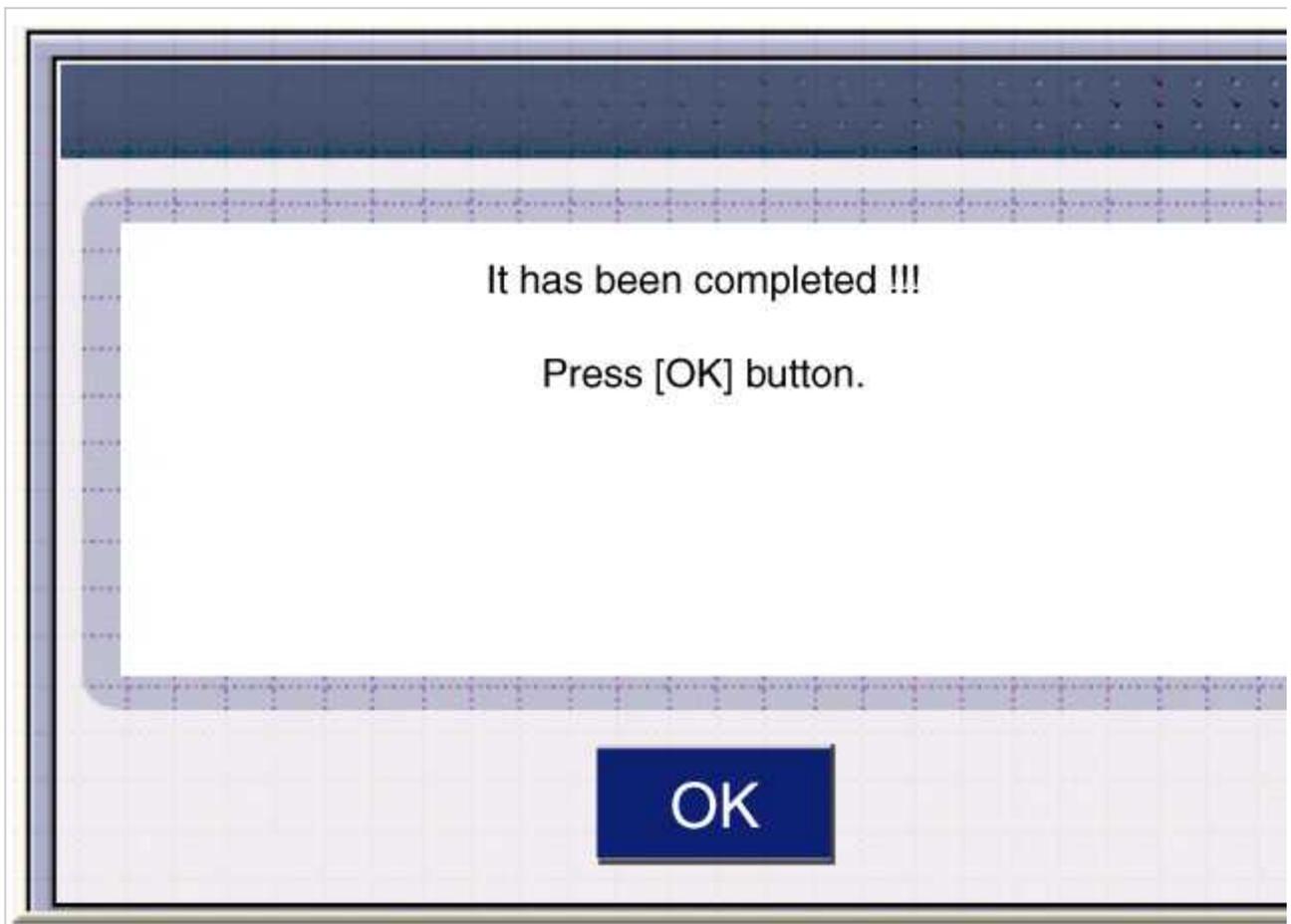
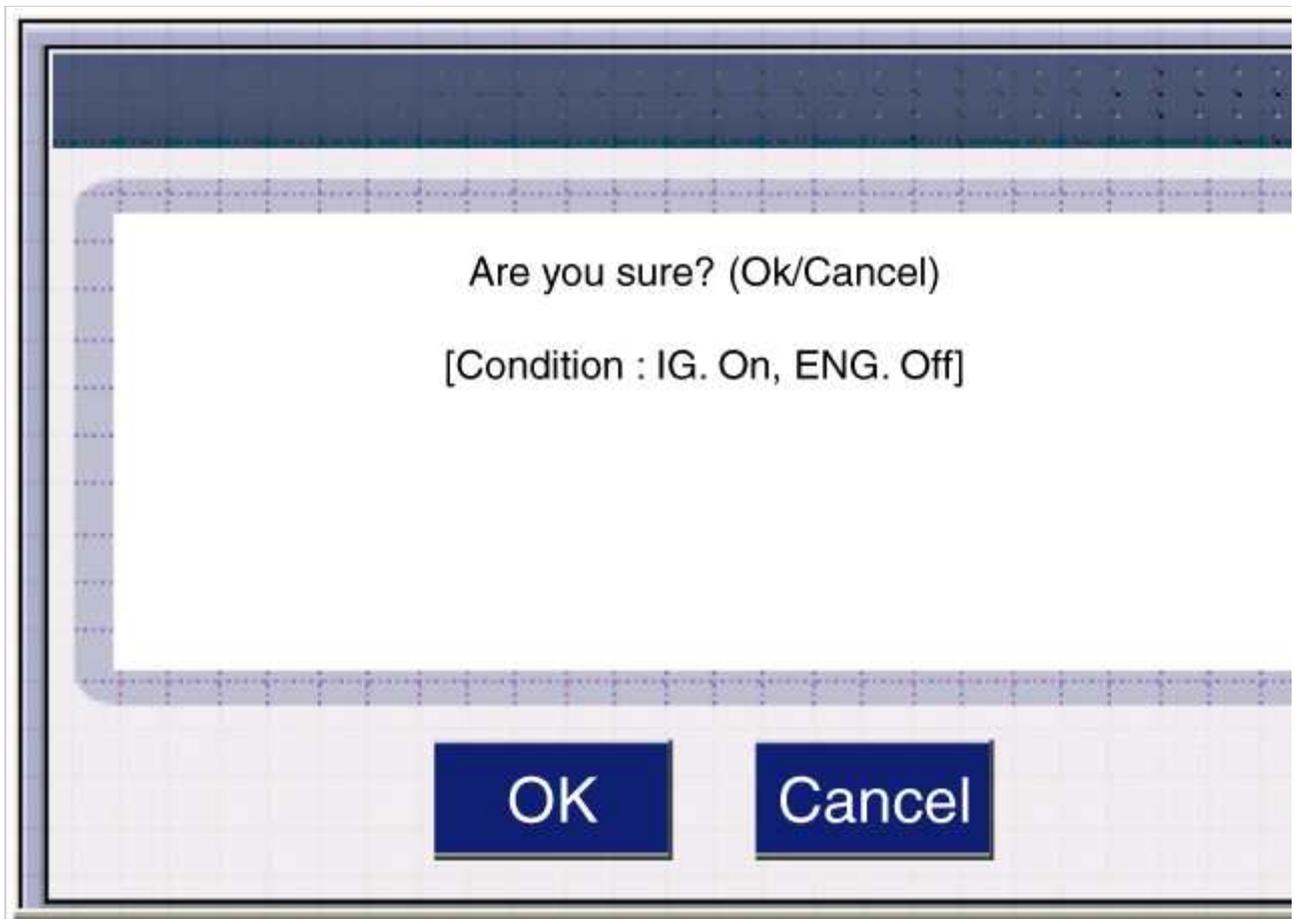
**NOTICE**

After replacement or reinstallation procedure of the automatic transaxle assembly, must perform procedures be

- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")
- After replacing the automatic transaxle, clear the Diagnostic Trouble Code(DTC) using the GDS tool. DTC be cleared by disconnecting the battery.
- When replacing the automatic transaxle, reset the automatic transaxle's values by using the GDS.



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- Perform TCM learning after replacing the transaxle to prevent slow transaxle response, jerky acceleration a startup.  
(Refer to Automatic Transaxle Control System - "Repair procedures")

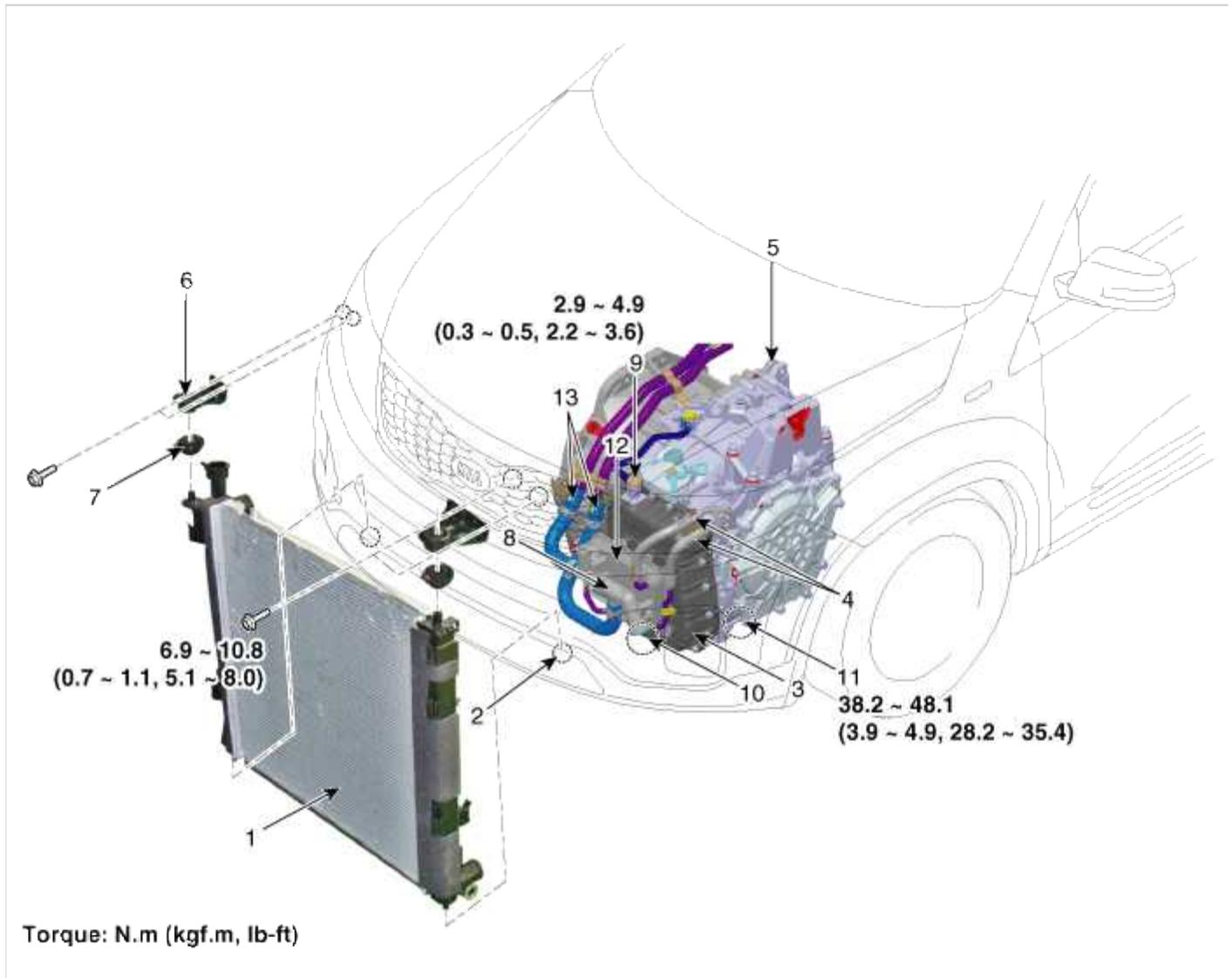
## Automatic Transaxle System

### Description

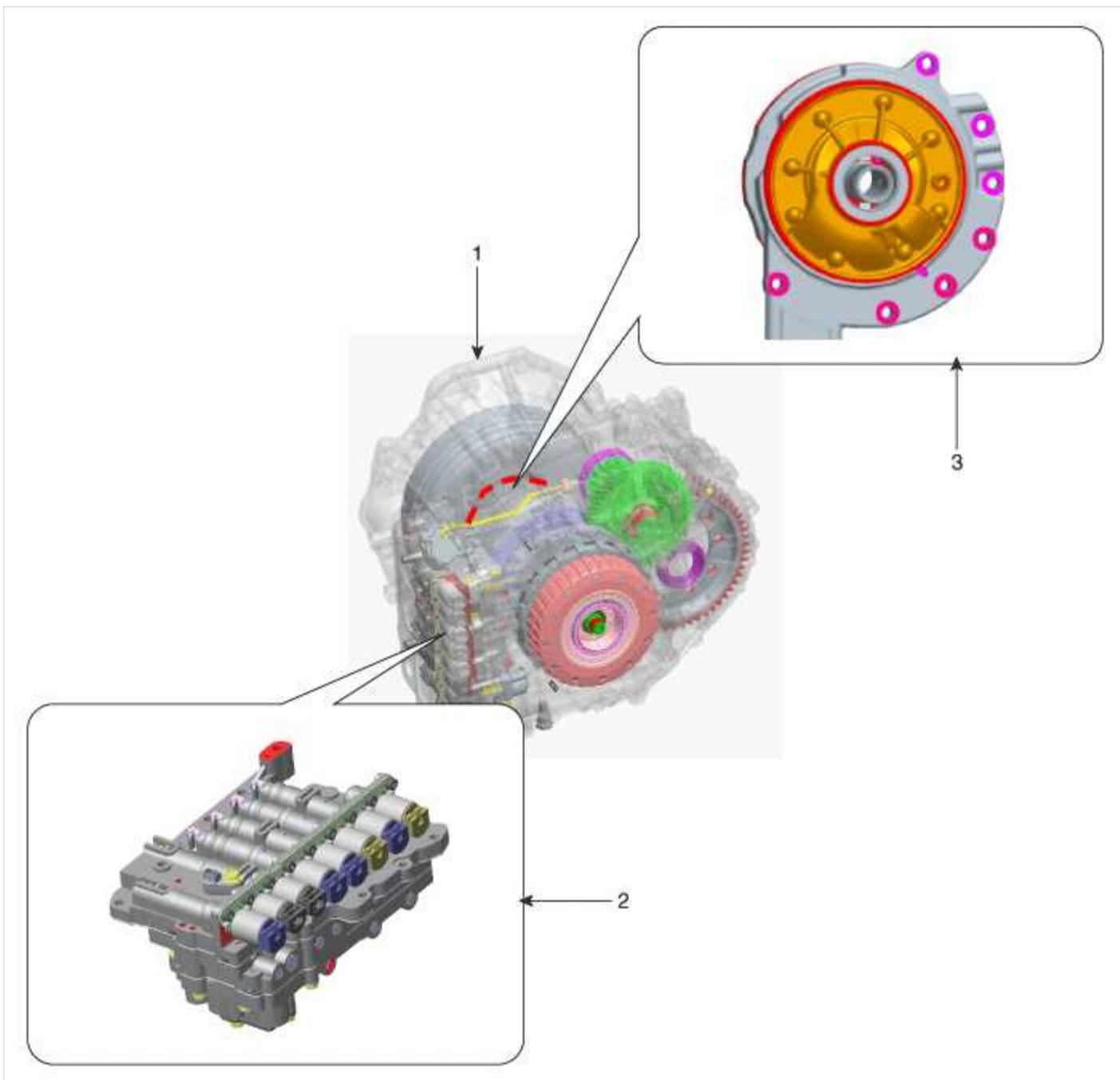
The hydraulic system consists of oil, an oil filter, an oil pump, and a valve body (valves and solenoid valves). The oil pump is powered by the engine. ATF passes through the oil filter and gets distributed along the oil channels. The oil becomes highly pressurized as it exits the oil pump and passes through the line pressure valve before being fed to the clutch & brake control valve, clutch, and brakes. TCM controls the hydraulic pressure using solenoid valves and controls clutch and brake operations.

## Automatic Transaxle System

### Component Location



1. Radiator(Automatic transaxle oil cooler)	8. Bypass valve
2. Mounting insulator	9. ATF injection hole(eyebolt)
3. Valve body cover	10. Oil level plug
4. ATF hose&pipe	11. Oil drain plug
5. Automatic transaxle	12. ATF Warmar
6. Radiator(Automatic transaxle oil cooler) upper mounting bracket	13. Coolant hose&pipe
7. Upper mounting insulator	



- |    |                     |
|----|---------------------|
| 1. | Automatic transaxle |
| 2. | Valve body assembly |
| 3. | Oil pump assembly   |

### Automatic Transaxle System

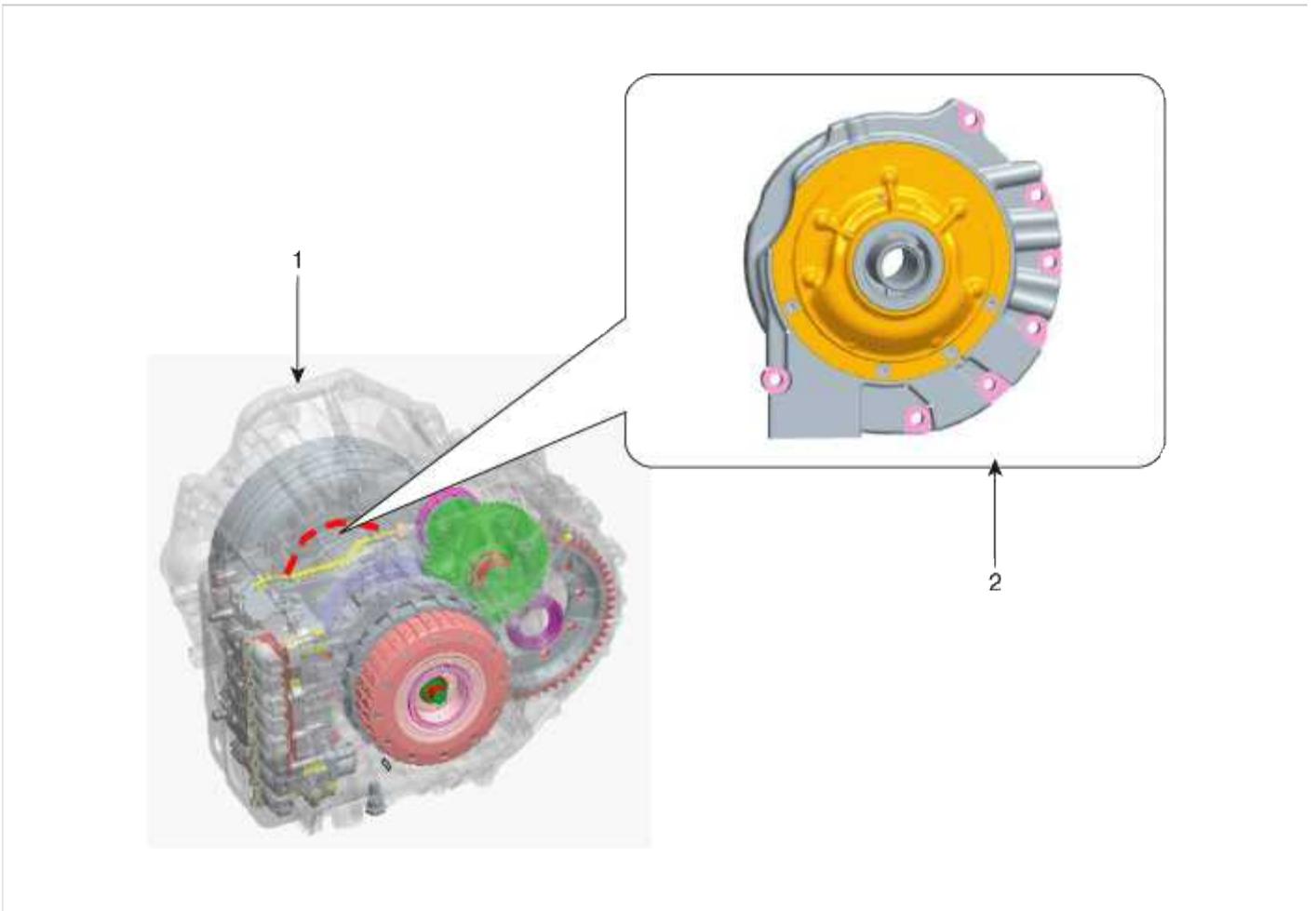
#### Description

The oil pump is built-in as a single unit with the 26Brake chamber. Rotation of the pump builds the hydraulic pressure the lubrication of the various parts of the transaxle and operation of the clutch and brakes. The oil also circulates thru torque converter and the cooler.



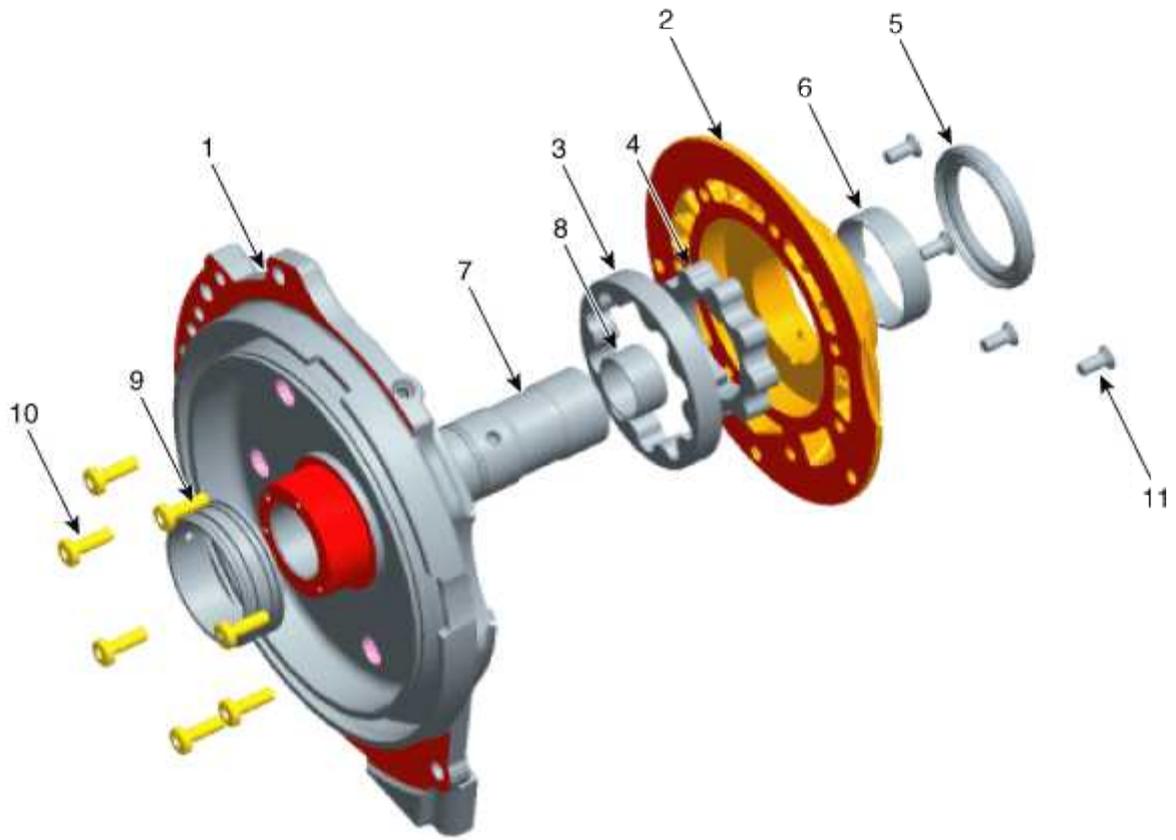
## Automatic Transaxle System

### Component Location



1. Automatic transaxle	
2. Oil pump assembly	

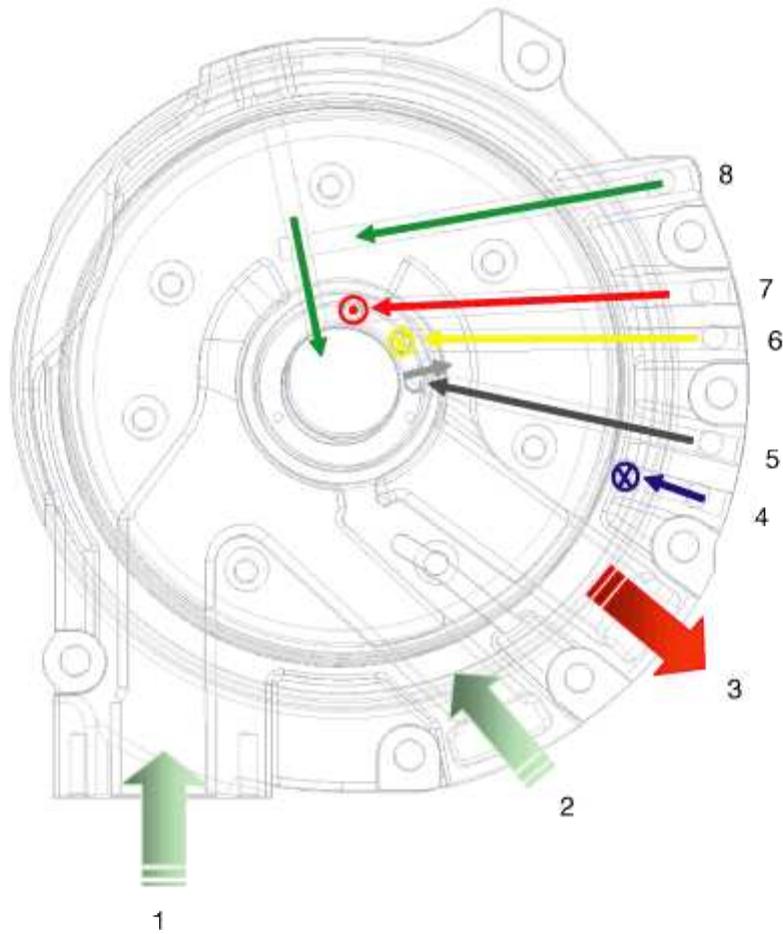
### Component



1. Reaction shaft support assembly  
 2. Oil pump housing  
 3. Driven gear  
 4. Drive gear  
 5. Oil seal  
 6. Bush-Housing

7. Reaction shaft  
 8. Bush- Reaction shaft  
 9. Sleeve  
 10. Flange bolt  
 11. Bolt

Oil pump operation flow

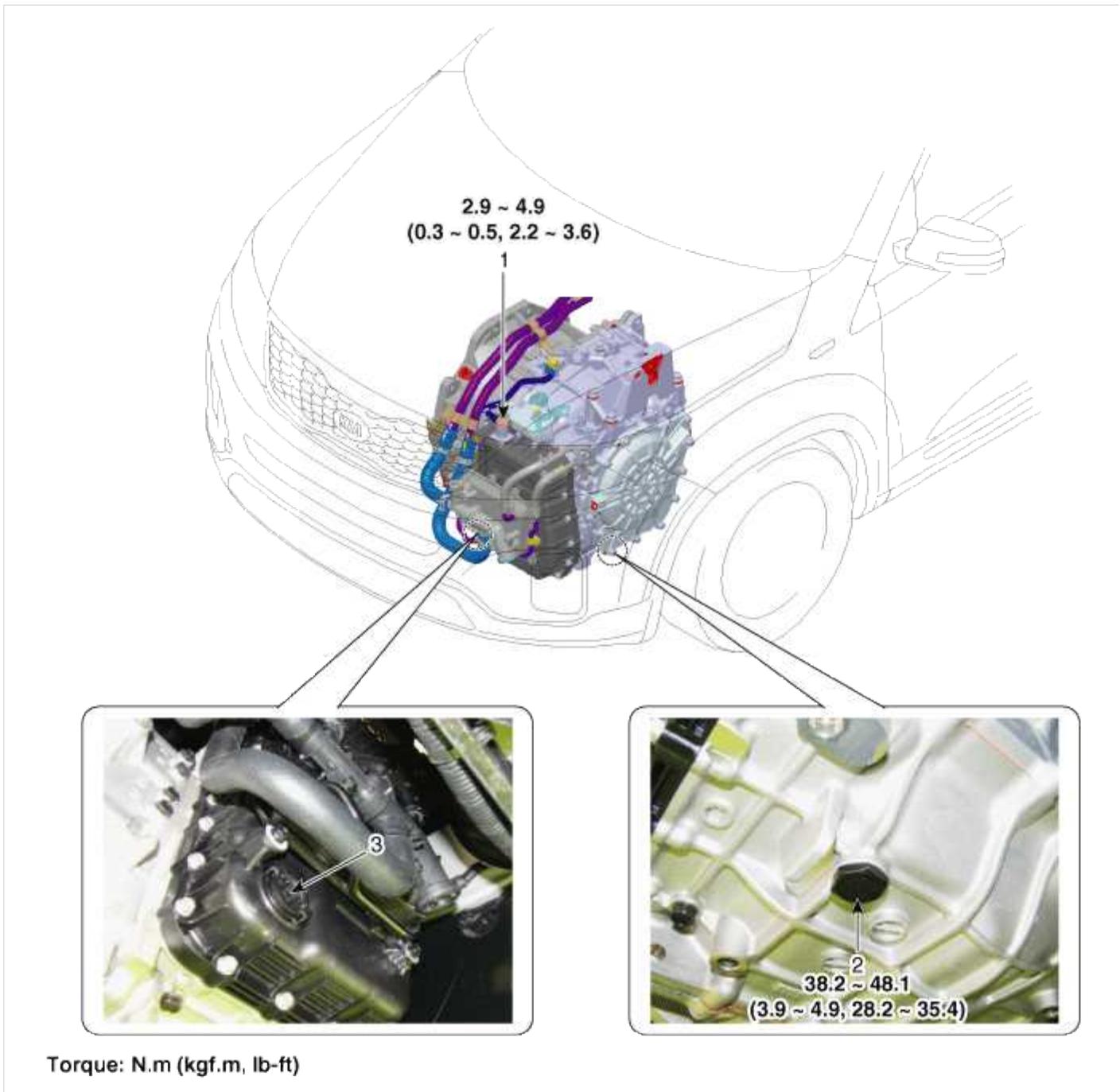


1. Inhale(Oil filter)	5. 35R/C operation pressure
2. Inhale(Valve body)	6. Lubrication
3. Outlet	7. Lock up clutch operation pressure
4. 26/B operation pressure	8. Lock up clutch cancellation

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Automatic Transaxle System

Component Location



- 1. ATF Injection hole(eyebolt)
- 2. Oil level plug
- 3. Oil drain plug

Automatic Transaxle System

Service Adjustment Procedure

**Oil level Check**

**NOTICE**

A check of ATF level is not normally required during scheduled services. If an oil leak is found, perform the oil level procedure after repairs are completed.

**CAUTION**

When checking the oil level, be careful not to enter dust, foreign matters, etc. from fill hole.

1. Remove the ATF Injection hole(eyebolt) (A).



**⚠ CAUTION**

Always replace the O-Ring (A) of the eyebolt use new one whenever loosening eyebolt.



2. Add ATF SP-IV 700cc to the ATF injection hole.
3. Start the engine. (Don't step on brake and accelerator simultaneously).
4. Confirm that the temperature of the A/T oil temperature sensor is 50~60°C (122~140°F) with the GDS.
5. Shift the select lever slowly from "P" to "D", then "D" to "P" and repeat one more at idle.

**⚠ CAUTION**

Stop in each gear position for 3 seconds.

6. Lift the vehicle, then remove the oil level plug (A) from the valve body cover.



**⚠ CAUTION**

At this time, the vehicle must be a horizontal state.

7. If the oil flows out of the overflow plug in thin steady stream, the oil level is correct.  
Then finish the procedure and tighten the oil plug.

#### NOTICE

Oil level check (excess or shortage) method

- Excess: Drain quantity exceed 900cc for tow minutes. (50~60°C(122~140°F))
- Shortage: No drain.

#### CAUTION

If there is no damage at the automatic transaxle and the oil cooler, the oil cooler hose, transaxle case, valve bo tightening state are normal, ATF must drop out after performing above 1 to 7 procedures. After performing ab to 7 procedures, if the oil doesn't drop out, inspect the automatic transaxle assembly for oil leaks.

#### CAUTION

Replace the gasket before reinstalling the oil level plug.

### Oil level plug tightening torque :

Tightening up stopper

8. Lower the vehicle with the lift and then tighten the eyebolt.

Replacement

#### NOTICE

The ATF of the 6 speed automatic transaxle does not need to be replaced.If the vehicle is used in severe conditions business use, replace ATF every 60,000 miles.

Severe usage is defined as

- Driving in rough road (Bumpy, Gravel, Snowy, Unpaved road, etc.)
  - Driving in mountain road, ascent/descent
  - Repetition of short distance driving
  - More than 50% operation in heavy city traffic during hot weather above 32°C(89.6°F) .
  - Police, Taxi, Commercial type operation or trailer towing, etc
1. Remove the drain plug (A) and reinstall the drain plug after draining ATF totally.

### Drain plug tightening torque :

38.2 ~ 48.1 N.m (3.9 ~ 4.9 kgf.m, 28.2 ~ 35.4 lb-ft)



**CAUTION**

Replace the gasket before reinstalling the drain plug.

2. Fill the oil about 5 liters.
3. Check the oil level.  
(Refer to Hydraulic System - "Fluid")

Automatic Transaxle System

Description

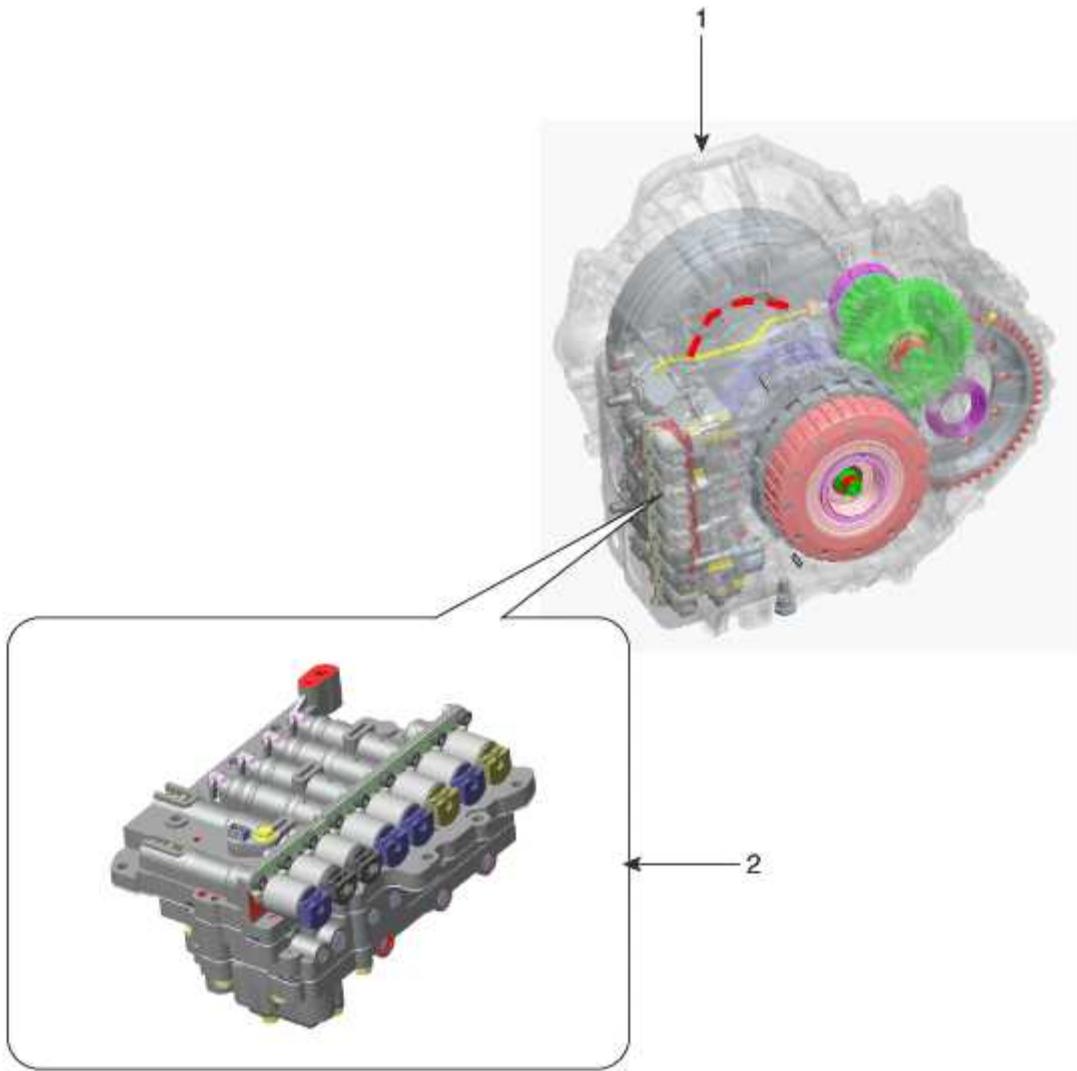
The valve body is essential to automatic transaxle control and consists of various valves used to control the oil feed from pump. Specifically, these valves consist of pressure regulator valves, oil redirection valves, shift valves, and manual valve. The valve body also features electronic solenoid valves that ensure smooth gear changes.



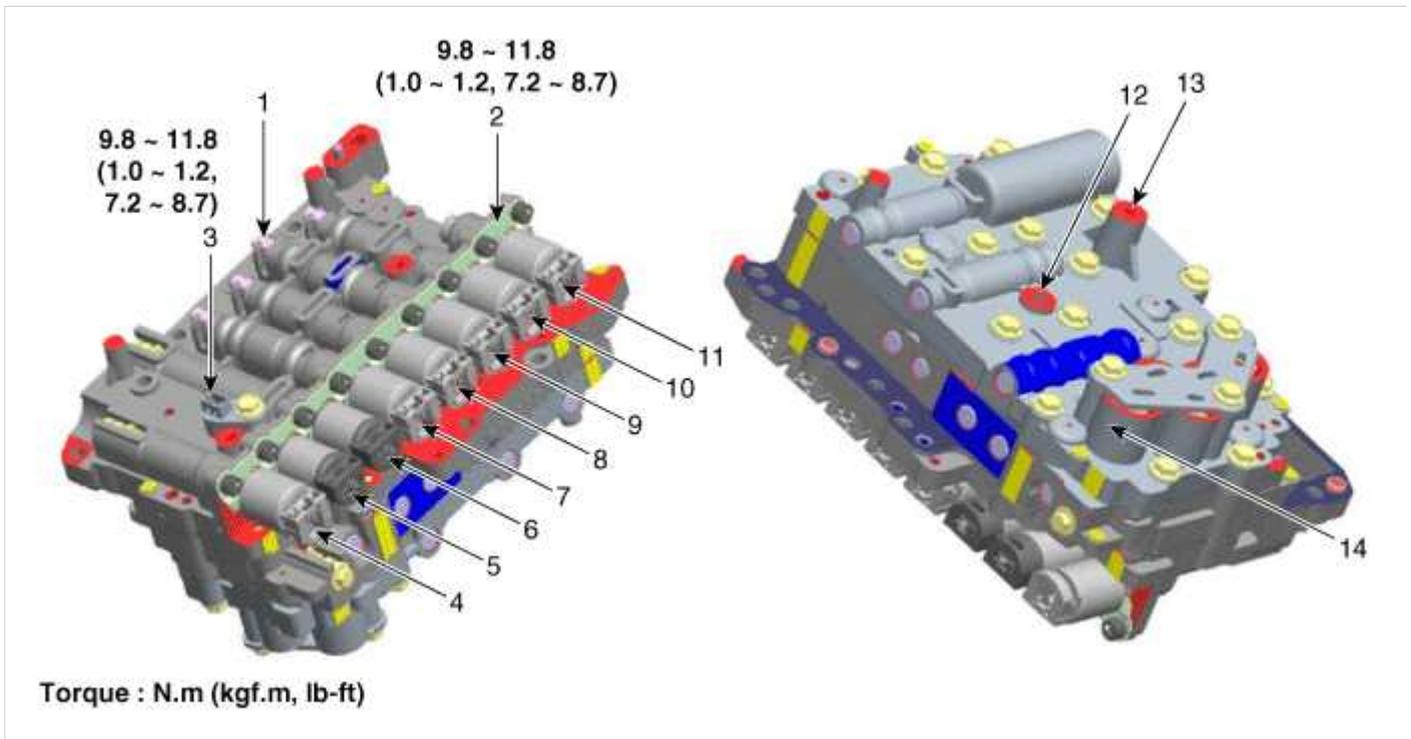
Automatic Transaxle System

Component Location

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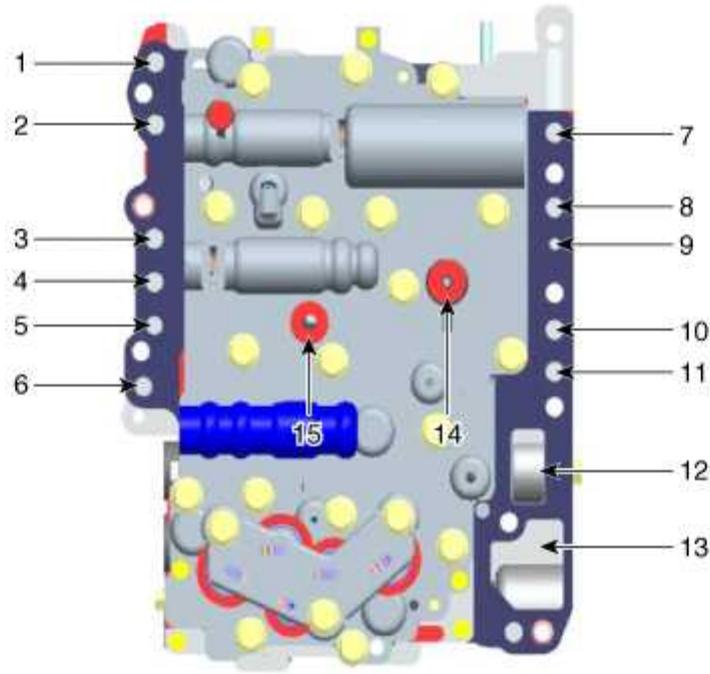


- |                              |  |
|------------------------------|--|
| 1.<br>Automatic<br>transaxle |  |
| 2. Valve<br>body<br>assembly |  |



- |  |  |
|--|--|
| 1. Pressure Control Valve(PCV) adjust screw      | 8. Underdrive Brake Control Solenoid Valve(UD/B)   |
| 2. Solenoid valve bracket                        | 9. 26 Brake Control Solenoid Valve(26/B)           |
| 3. Oil temperature sensor                        | 10. 35R Clutch Control Solenoid Valve(35R/C)       |
| 4. Line Pressure Control Solenoid Valve          | 11. Torque Converter Control Solenoid Valve(T/CON) |
| 5. SS-A Solenoid Valve(ON/OFF)                   | 12. LR/B pressure flow hole                        |
| 6. SS-B Solenoid Valve(ON/OFF)                   | 13. UD/B pressure flow hole                        |
| 7. Overdrive Clutch Control Solenoid Valve(OD/C) | 14. Accumulator                                    |

### Valve Body Flow



1. To cooler	9. Lubrication(front)
2. From cooler	10. 35R Clutch pressure
3. Lubrication(rear)	11. 26 Brake pressure
4. OD Clutch pressure	12. From oil pump
5. Reducing pressure (red2)	13. To oil pump
6. Reducing pressure (red1)	14. Underdrive(UD) Brake pressure
7. Damper release pressure	15. Low & reverse pressure
8. Damper apply pressure	

### Automatic Transaxle System

#### Removal

1. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")
2. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
3. Remove the under cover.  
(Refer to Engine Mechanical System - "Engine Room Under Cover")
4. Drain the coolant.  
(Refer to Engine Mechanical System - "Coolant")

5. Remove the drain plug (A) and reinstall the drain plug after draining ATF totally.

---

**Drain plug tightening torque :**

38.2 ~ 48.1 N.m (3.9 ~ 4.9 kgf.m, 28.2 ~ 35.4 lb-ft)

---



**⚠ CAUTION**

Replace the gasket before reinstalling the drain plug.

6. Remove the wiring bracket installation bolt (A).



7. Remove the ATF Injection hole(eyebolt) (A).



**CAUTION**

Replace the O-Ring (A) before reinstalling the eyebolt.



8. Disconnect the coolant hose (B) after removing the coolant hose clamp (A).

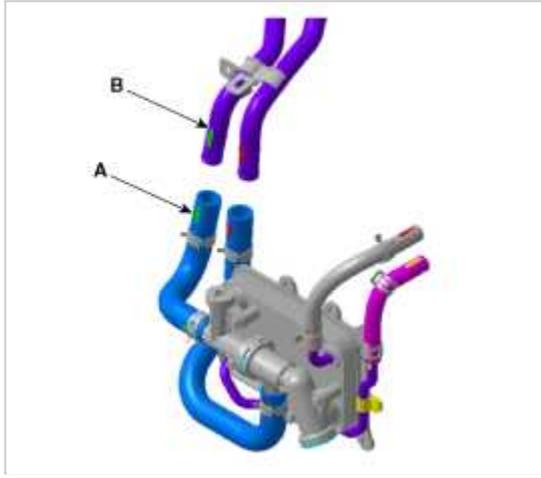


9. Disconnect the hose (B) after removing the automatic transaxle fluid cooler hose clamp (A).



**CAUTION**

When hose & pipe assembly  
Align marking of pipe (B), marking of hose (A), and matching color each other.



10. Remove the valve body cover (A).

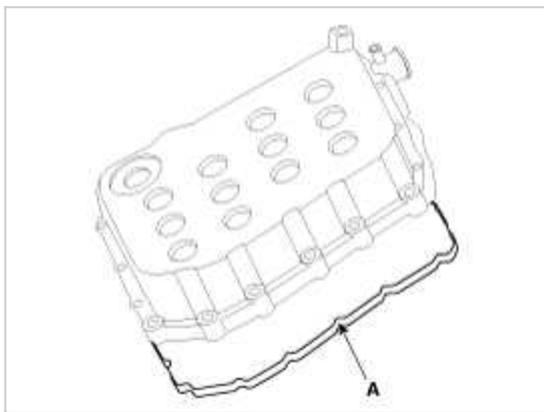
**Tightening torque :**

(A) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)



**CAUTION**

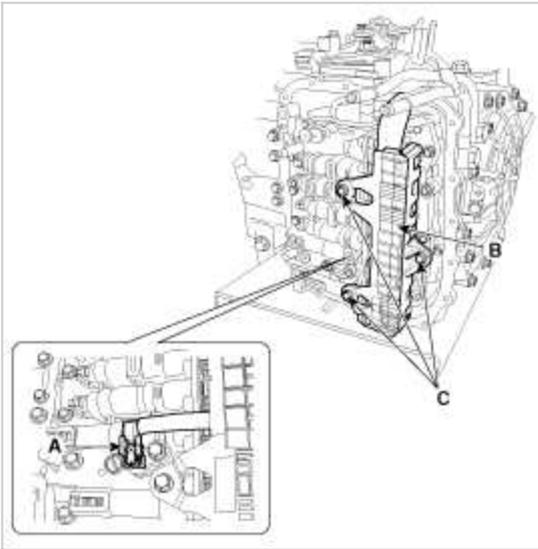
- Replace the gasket (A) before reinstalling the valve body cover.



11. Remove the bolts (C) after disconnecting the solenoid valve connector (B) and the oil temperature sensor connector (A).

**Tightening torque :**

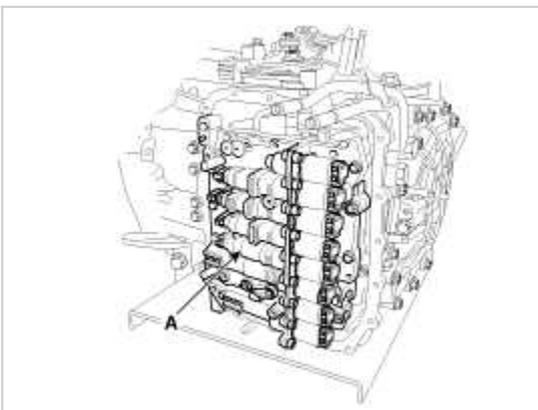
9.8 ~ 11.8 N.m (1.0 ~ 1.2 kgf.m, 7.2 ~ 8.7 lb-ft)



12. Remove the valve body assembly (A).

**Tightening torque :**

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



**Installation**

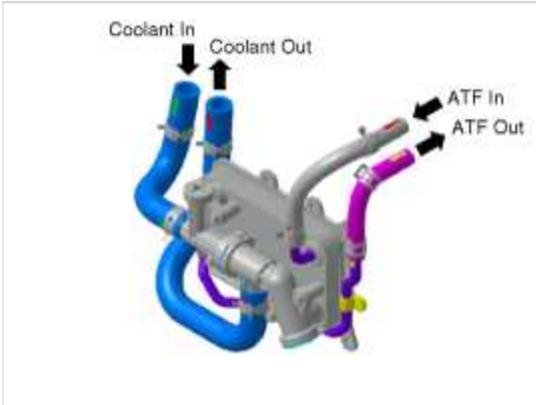
1. Install in the reverse order of removal.

**NOTICE**

- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")
- Adding Automatic Transaxle Fluid(ATF).  
(Refer to Hydraulic System - "Fluid")
- Perform Transaxle Control Module(TCM) learning after replacing the valve body to prevent slow transaxle response, jerky acceleration and jerky startup.  
(Refer to Automatic Transaxle Control System - "Repair procedures")

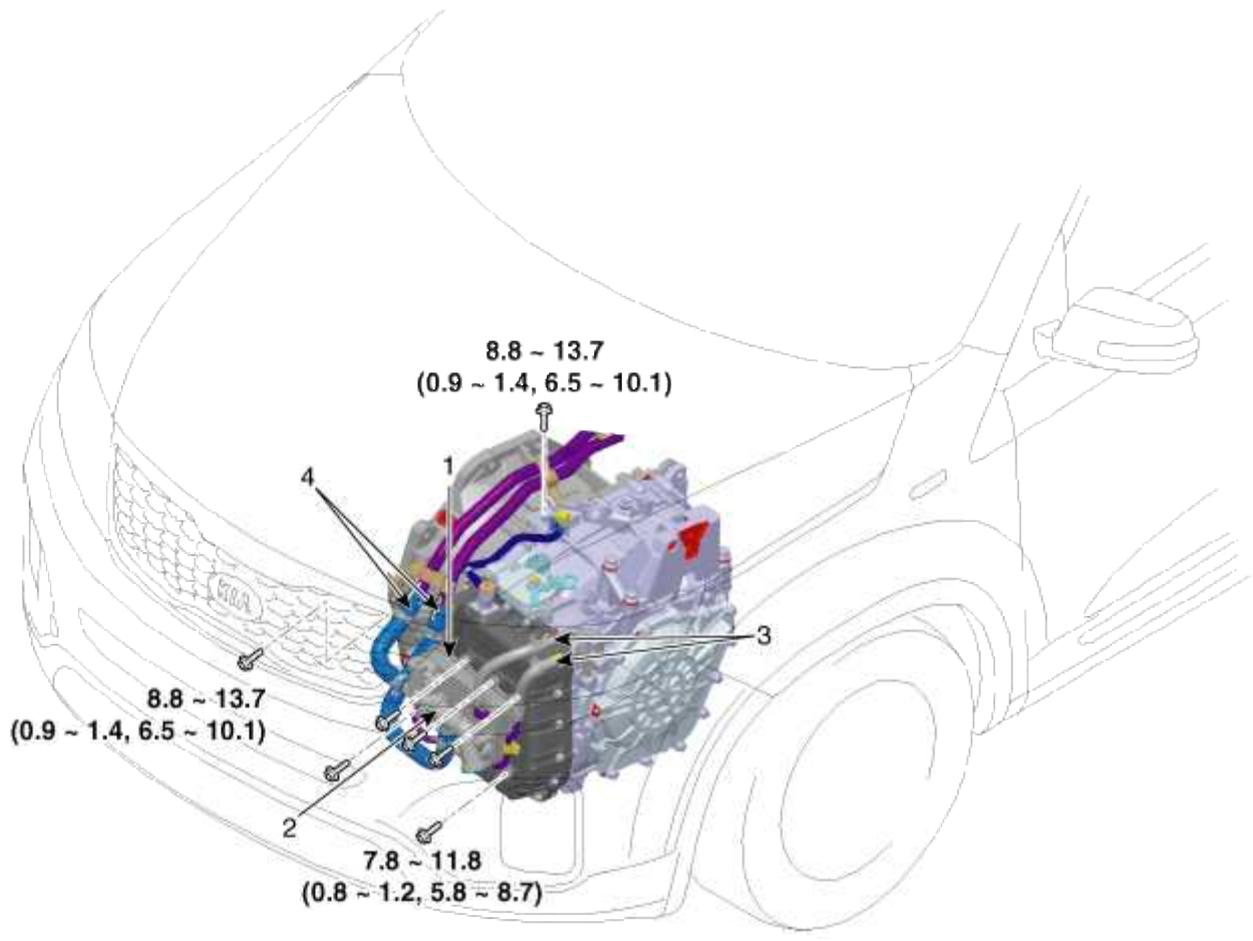
The ATF warmer is mounted on the valve body cover to reduce oil viscosity friction by increasing oil temperature under condition, which in turn improves fuel efficiency. It is serially mounted on the entry of the Electronic Throttle Controller shown in the diagram, and minimizes the effects of cabin heating system.

- Engine coolant is used for circulating heat in order to heat and cool the transaxle oil.
- Rapidly elevates the transaxle oil temperature during the initial cold start of the engine.
- Prevents over heating of the transaxle oil while the vehicle is moving.
- Transaxle oil warm-up and cooling can be done with a single system.
- The water coolant and oil are separate in order to exchange heat.



## Automatic Transaxle System

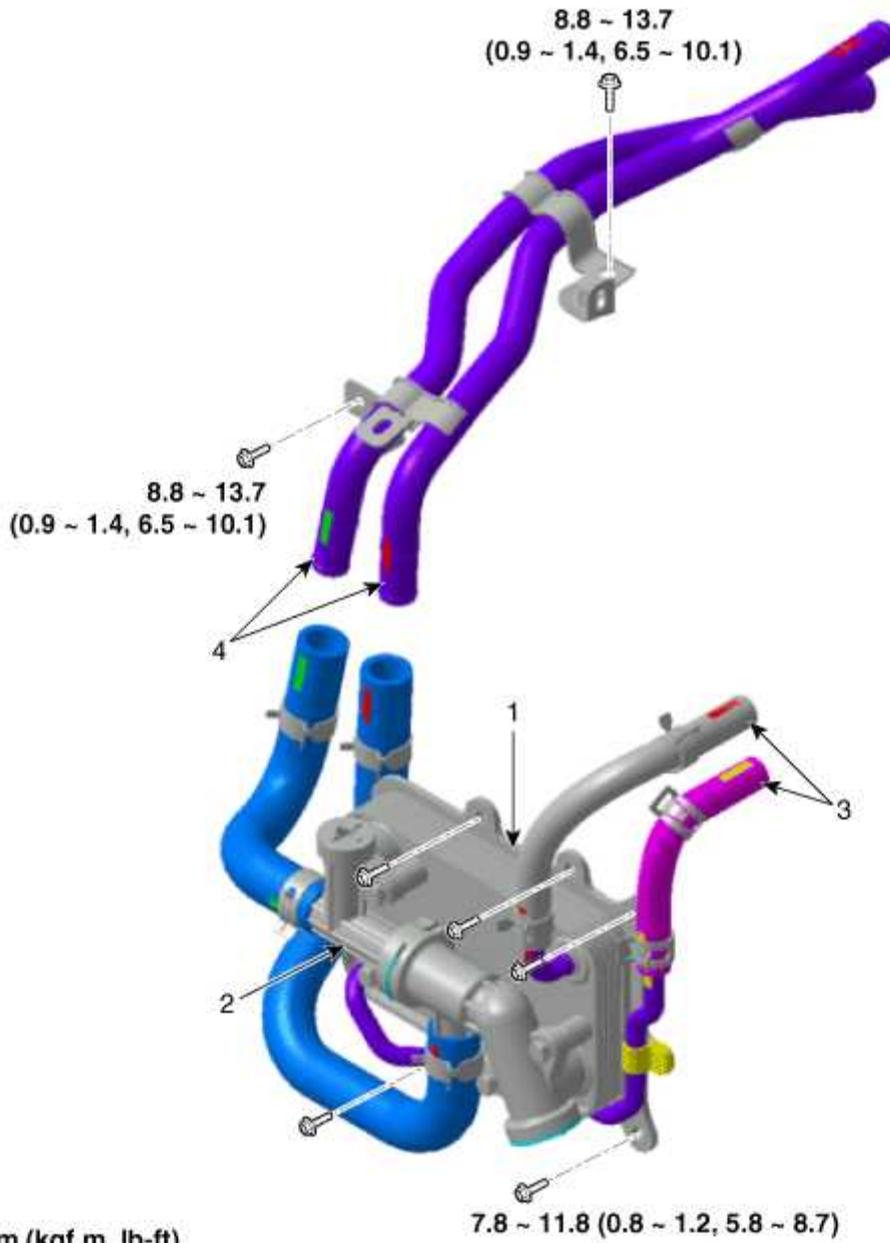
### Component Location



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

1. ATF Warmer	3. ATF hose & pipe
2. Bypass valve	4. Coolant hose & pipe

Component



1. ATF Warmer	3. ATF hose & pipe
2. Bypass valve	4. Coolant hose & pipe

## Automatic Transaxle System

### Removal

1. Drain the coolant.  
(Refer to Engine Mechanical System - "Coolant")
2. Remove the air cleaner assembly and air duct.  
(Refer to Engine Mechanical System - "Air cleaner")
3. Remove the battery and battery tray.  
(Refer to Engine Electrical System - "Battery")

4. Remove the under cover.  
(Refer to Engine Mechanical System - "Engine Room Under Cover")
5. Disconnect the coolant hose (B) after removing the coolant hose clamp (A).

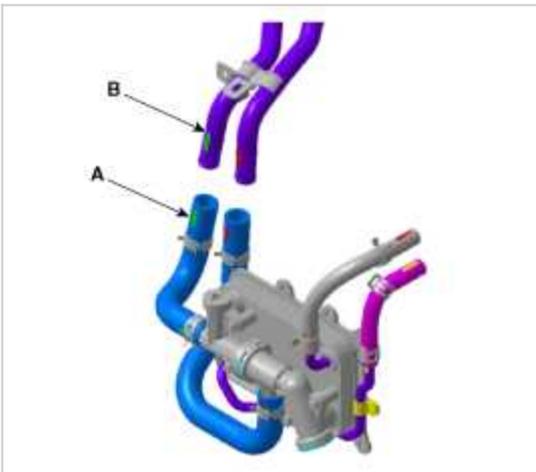


6. Disconnect the hose (B) after removing the automatic transaxle fluid cooler hose clamp (A).



**CAUTION**

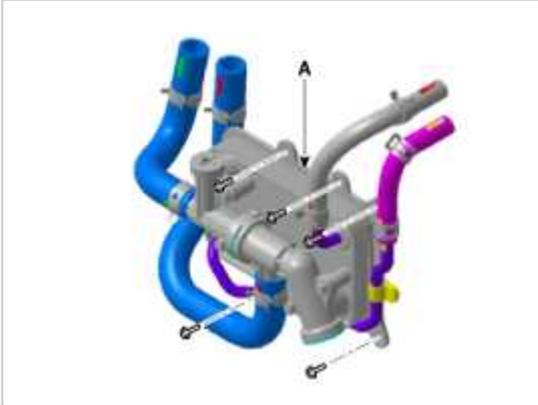
When hose & pipe assembly  
Align marking of pipe (B), marking of hose (A), and matching color each other.



## 7. Remove the ATF Warmer (A).

Tightening torque :

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



### Installation

1. Install in the reverse order of removal.

#### NOTICE

- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")

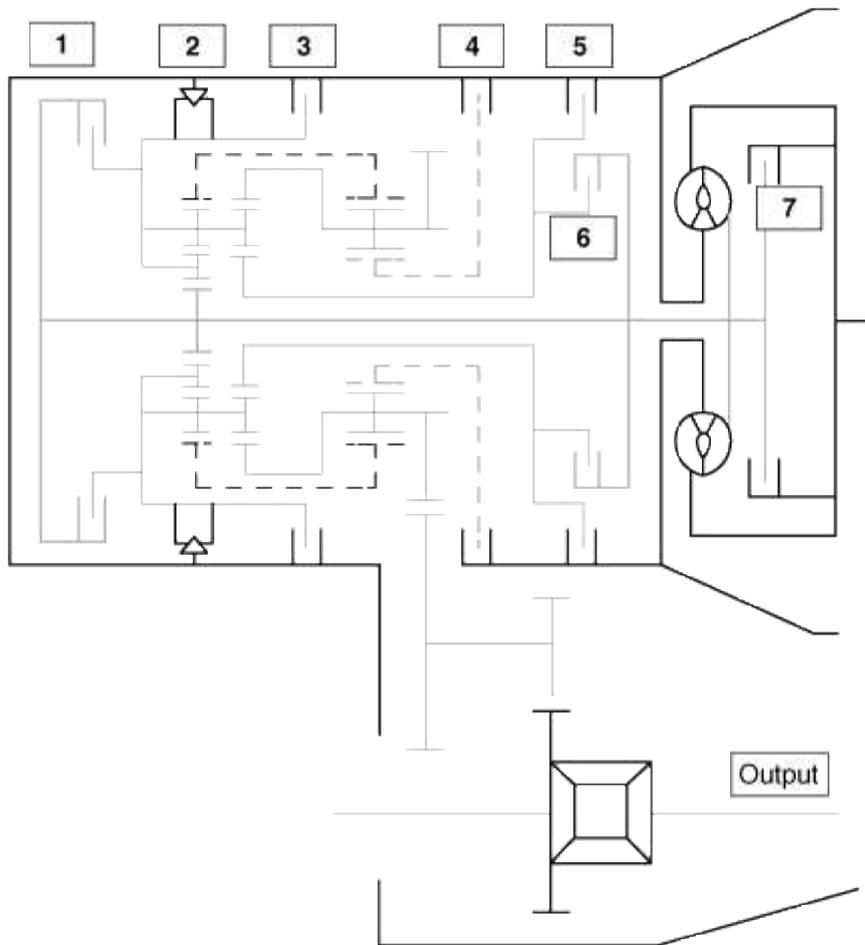
### Automatic Transaxle System

#### Description

The 6-speed automatic transaxle consists of an overdrive clutch (OD/C), a one-way clutch (OWC), a lower and rev (LR/B), an underdrive brake (UD/B), a 26 brake (26/B), and a 35R clutch (35R/C). These clutches and brakes are by controlling the hydraulic pressure.

### Automatic Transaxle System

#### Component Location

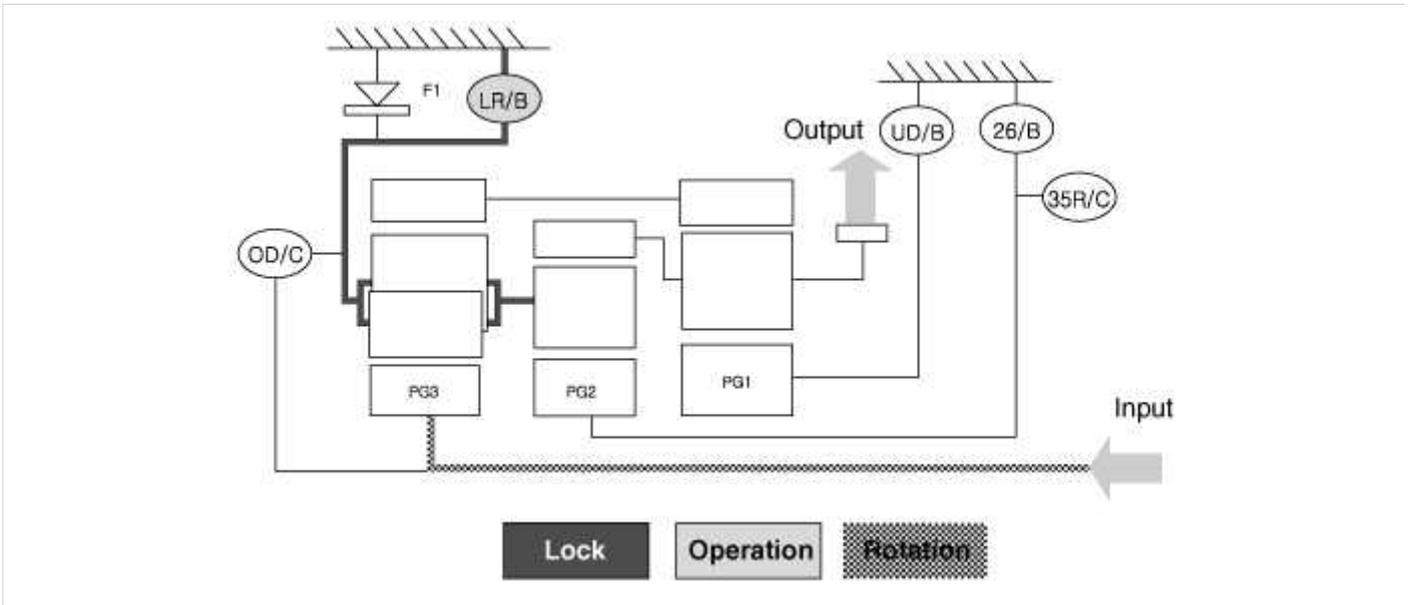


- |                               |                        |
|-------------------------------|------------------------|
| 1. Overdrive Clutch (OD/C)    | 5. 26 Brake(26/B)      |
| 2. One way Clutch (OWC)       | 6. 35R Clutch (35R/C)  |
| 3. Low & Reverse Brake (LR/B) | 7. Damper Clutch (D/C) |
| 4. Underdrive Brake (UD/B)    |                        |

**Automatic Transaxle System**

**Power Flow Chart**

P,N	UD/B	LR/B	26/B	35R/C	OD/C	OWC
		•				



**Direction of Rotation**

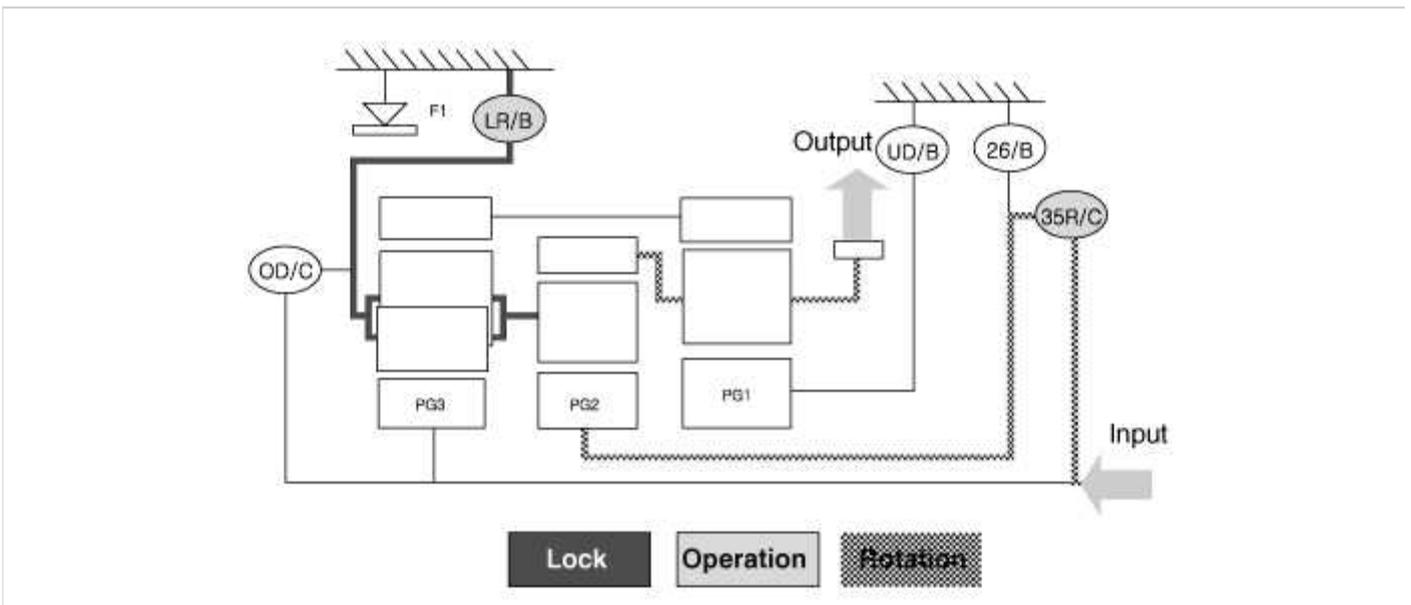
Lower & Reverse Brake (LR/B) Activation → Overdrive (O/D) Hub Lock → Mid & Rear P/C Lock

Input Shaft Rotation → Rear Sun Gear Rotation → Rear Inner Pinion Rotation (Reverse) → Rear Outer Pinion Rotation → Rear Annulus Gear Rotation → Front Annulus Gear Rotation → Front Pinion Rotation → Front Sun Gear Rotation (Reverse) → Underdrive (U/D) Hub Rotation (Reverse)

Input shaft rotation → Overdrive Clutch (OD/C) Retainer Rotation

Input shaft rotation → 35R Clutch Rotation

	UD/B	LR/B	26/B	35R/C	OD/C	OWC
R		•		•		



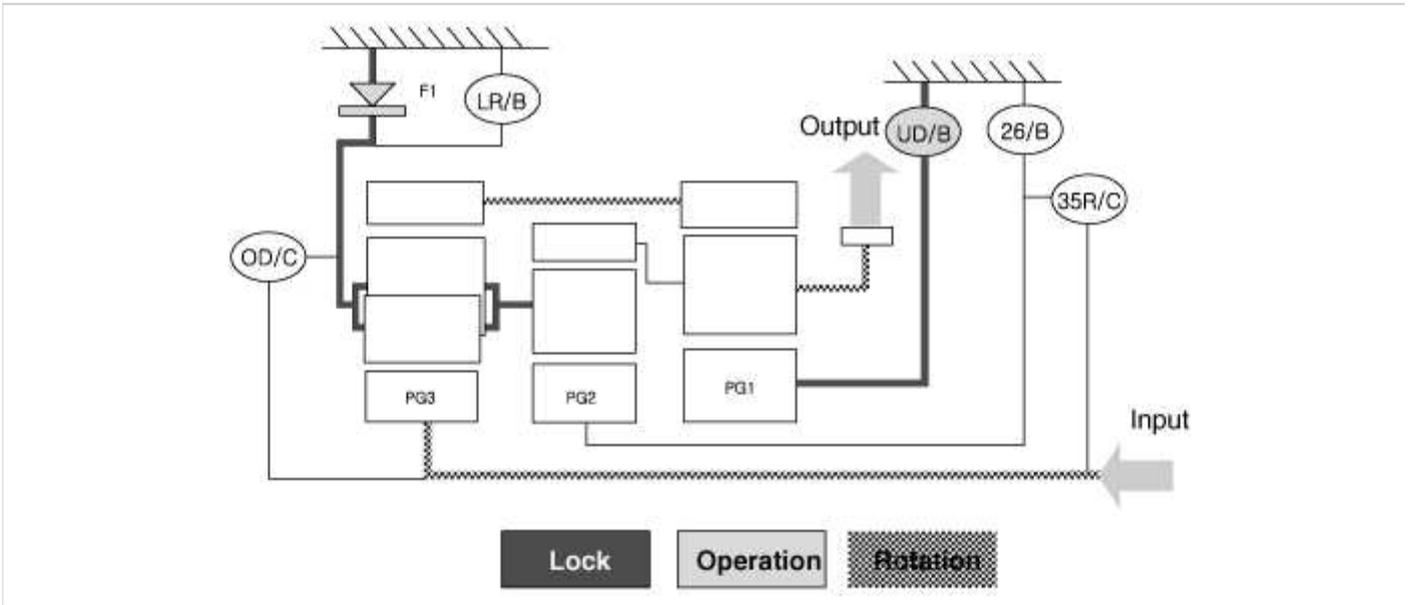
**Power Delivery Route**

Middle carrier locked and middle sun gear in rotation

Rotating the middle planetary gear's sun gear while its carrier is locked in place slows down and reverse rotates the gear (front carrier), resulting in power transfer to the front carrier.

The rear planetary gear's rear and front annulus gears rotate at a reduced rate, resulting in reverse, zero load rotation of the front planetary gear's front sun gear.

D1	UD/B	LR/B	26/B	35R/C	OD/C	OWC
	•	(○)				•



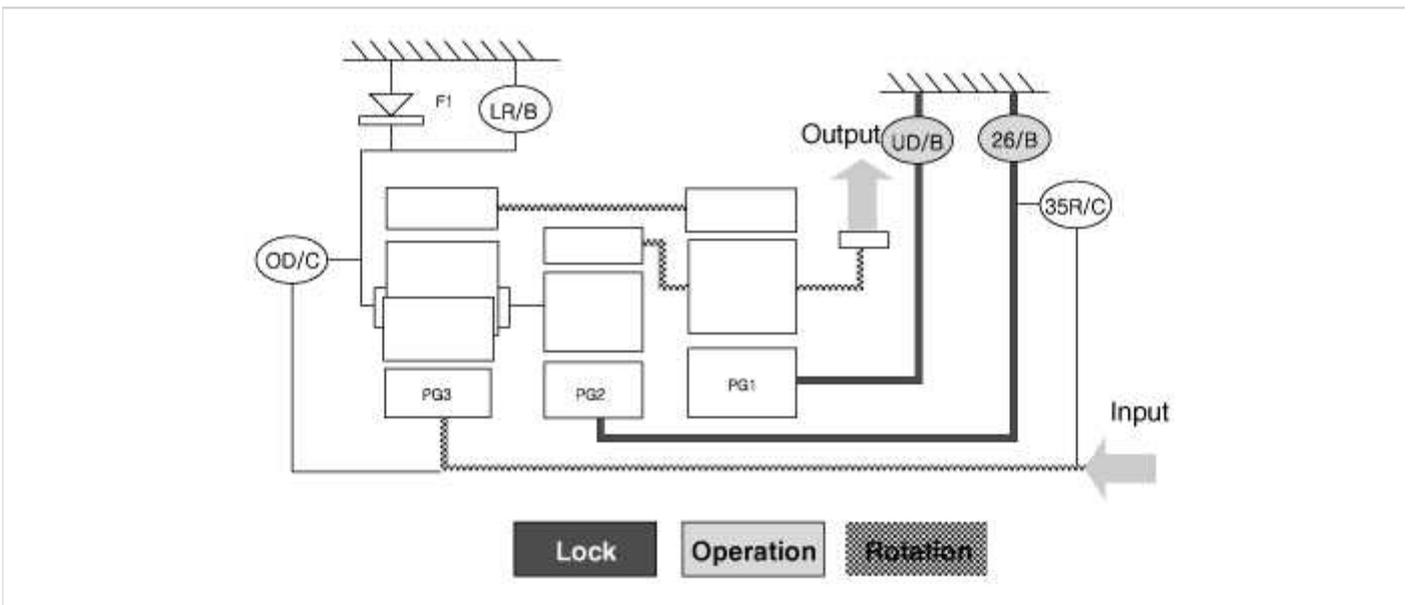
#### Power Delivery Route

Front sun gear and middle & rear carrier locked and rear sun gear in constant rotation

When the rear sun gear is rotated, power is reduced at the rear planetary gear and then delivered to the rear and front gears. The power is then reduced again at the front planetary gear, whose sun gear is locked in place, and then delivered to the front carrier.

Here, the middle annulus gear, which comprises of a single unit with the front carrier, rotates and results in reverse rotation of the middle sun gear.

D2	UD/B	LR/B	26/B	35R/C	OD/C	OWC
	•		•			



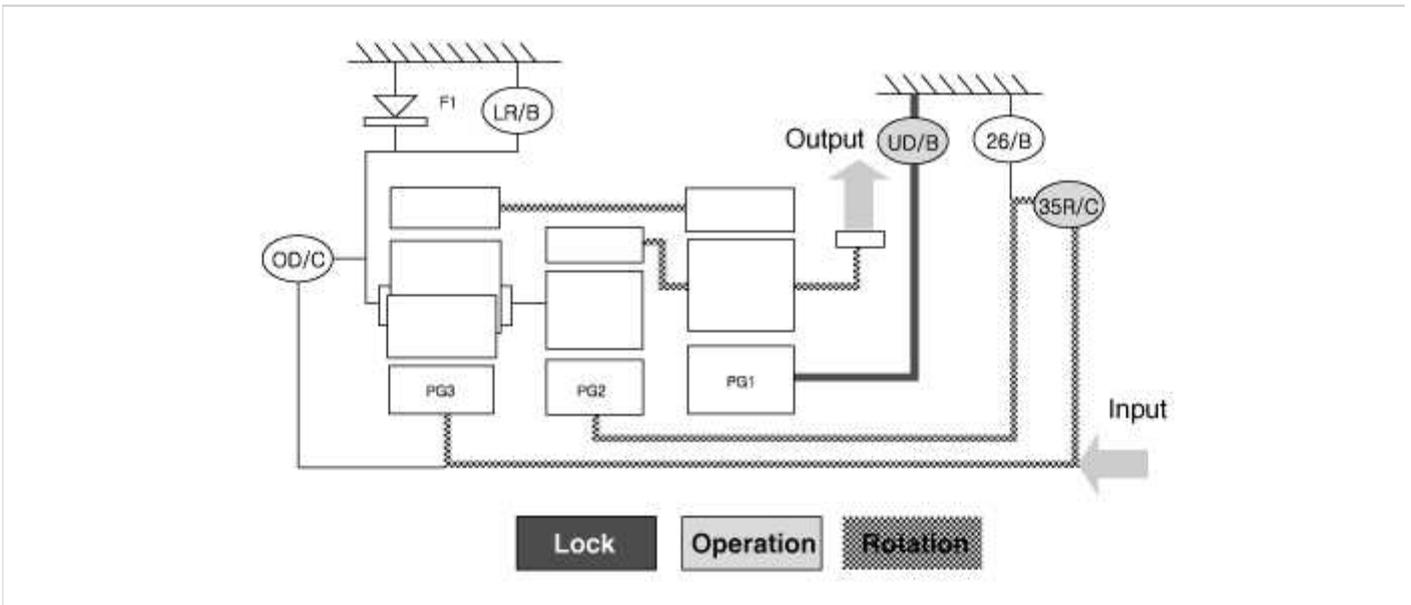
#### Power Delivery Route

Front sun gear and middle sun gear locked and rear sun gear in constant rotation

Rotating the rear sun gear delivers power to the rear & front annulus gears, and reaction from the front carrier and

annulus gear, to which the sun gear is attached, transfers to the middle and rear carriers, resulting in power equilibrium power transfer to the front carrier.

D3	UD/B	LR/B	26/B	35R/C	OD/C	OWC
	•			•		

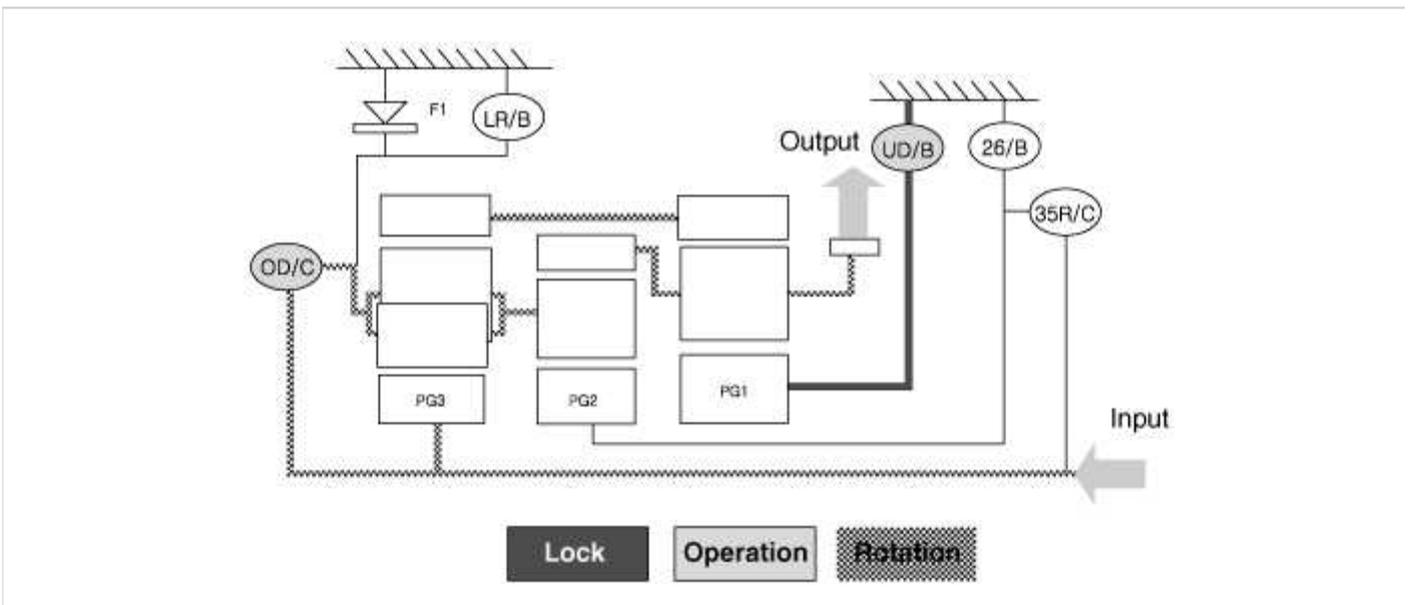


#### Power Delivery Route

Front sun gear locked and middle and rear sun gears in rotation

Rotating the middle sun gear and the rear sun gear transfers power to the rear and front annulus gears, and reaction front carrier and the middle annulus gear, to which the sun gear is attached, transfers to the middle and rear carriers, resulting in power equilibrium and power transfer to the front carrier.

D4	UD/B	LR/B	26/B	35R/C	OD/C	OWC
	•				•	



#### Power Delivery Route

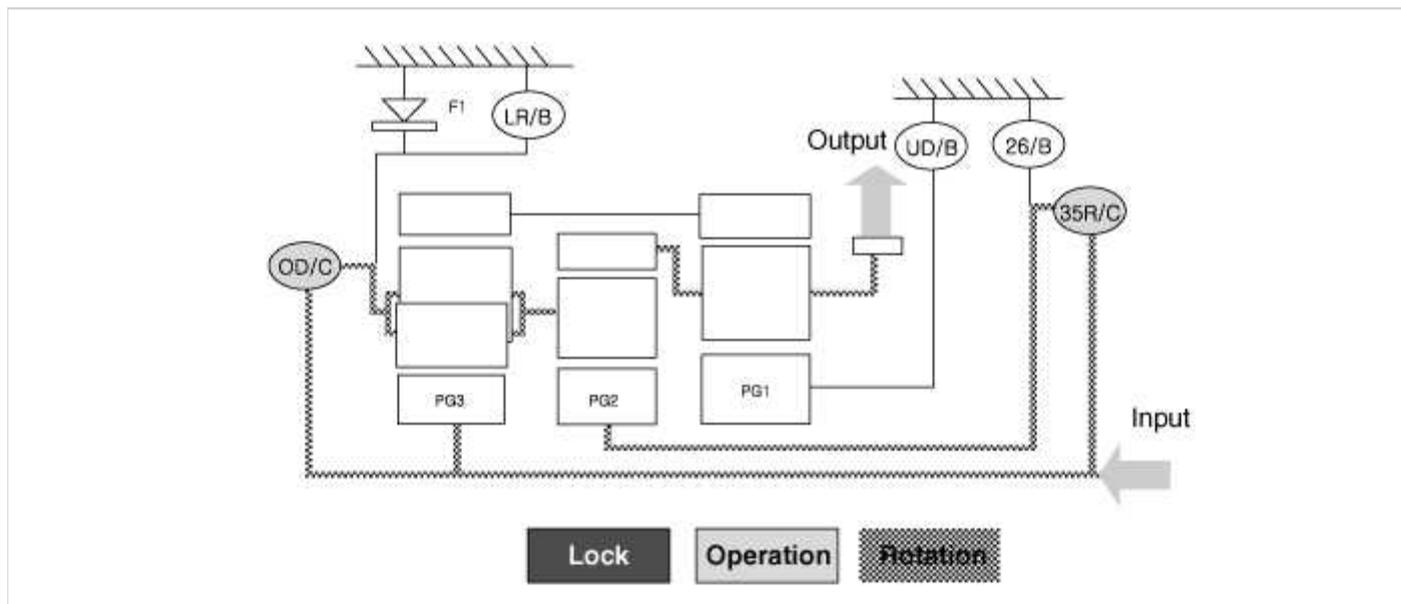
Front sun gear locked and rear carrier and rear sun gears in rotation

Activation of the overdrive clutch (OD/C) synchronizes the rear planetary gear's carrier and sun gears. The 1:1 rot

passes through the rear and front annulus gears and reaches the front planetary gear's front carrier, to which the sun gear is attached.

Here, the middle planetary gear's middle sun gear rotates at a faster rate in the normal direction and at zero load due to the actions of the reduced annulus gear and the carrier having a 1:1 rotation ratio.

D5	UD/B	LR/B	26/B	35R/C	OD/C	OWC
			•	•		



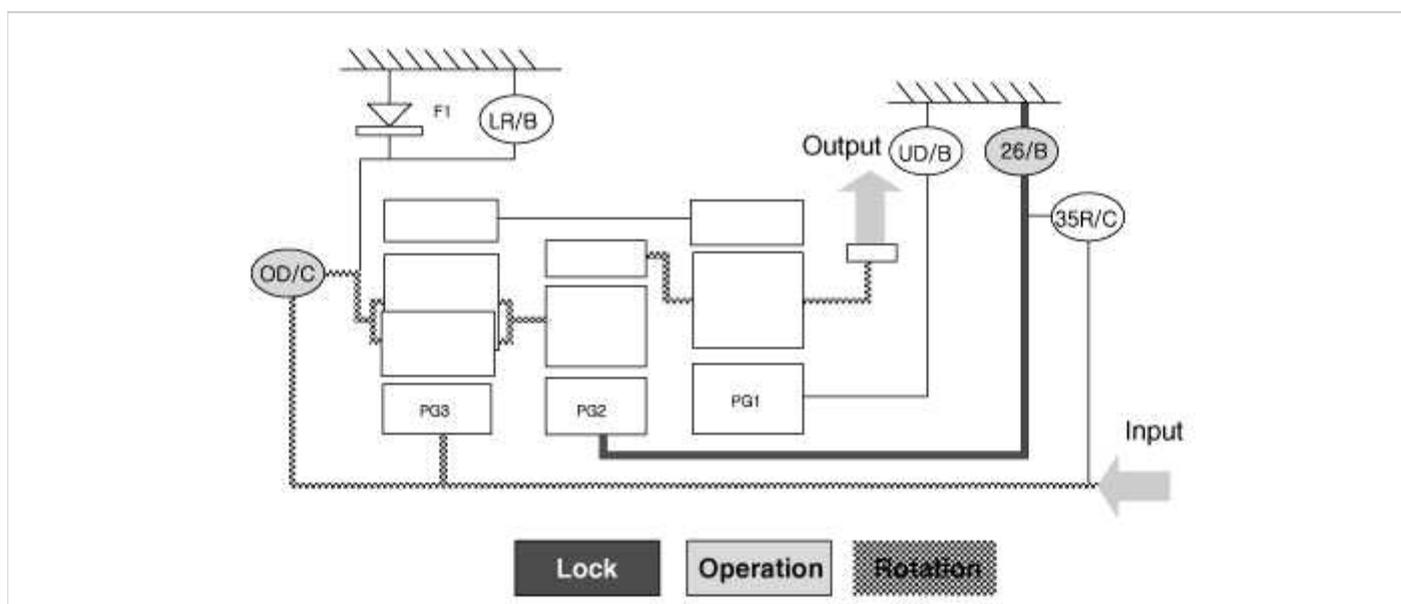
#### Power Delivery Route

Middle and rear carriers, middle sun gear, and rear sun gear in rotation

The middle planetary gear's middle carrier and sun gear rotate simultaneously, resulting in the 1:1 rotation ratio being transferred to the middle annulus gear (front carrier).

Here, the rear planetary gear rotates in a 1:1 rotation ratio, as it would when the 4th gear is engaged; however, the planetary gear remains unrestrained and the front sun gear rotates in the normal direction, at a zero load, and at a rotation ratio of 1:1.

D6	UD/B	LR/B	26/B	35R/C	OD/C	OWC
			•		•	



## Power Delivery Route

Middle carrier in rotation and middle sun gear locked

When the middle planetary gear's sun gear is locked in place and the train's carrier's allowed to rotate, the middle a increases its rate of rotation and transfers power to the front carrier.

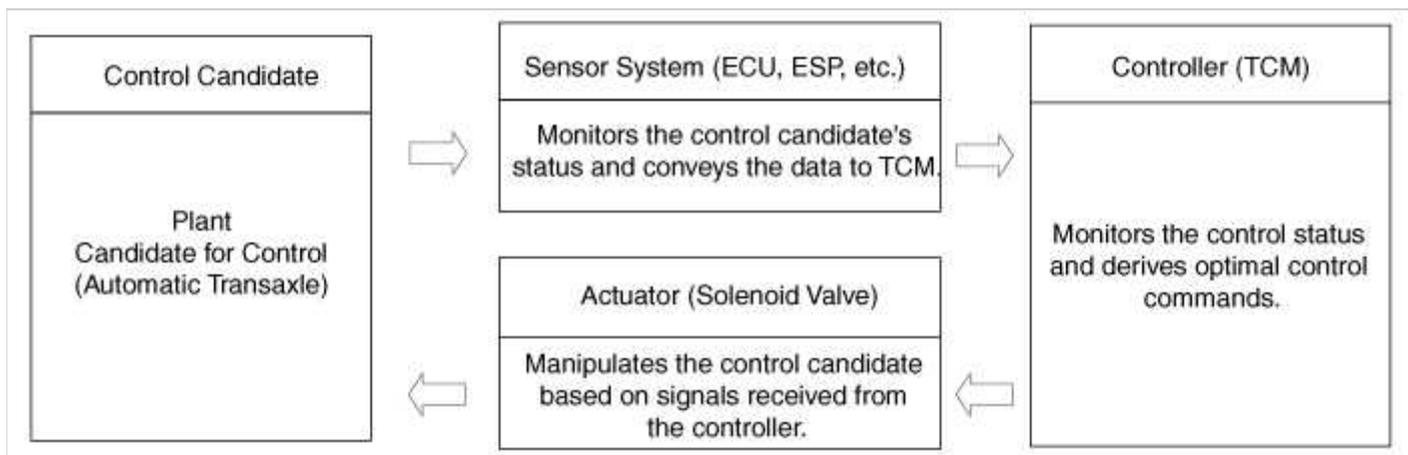
Here, the rear planetary gear maintains a 1:1 rotation ratio as it would when 4th or 5th gear is engaged; however, t planetary gear remains unrestrained and the front sun gear rotates at a faster rate in the normal direction and at zero l

## Automatic Transaxle System

### Description

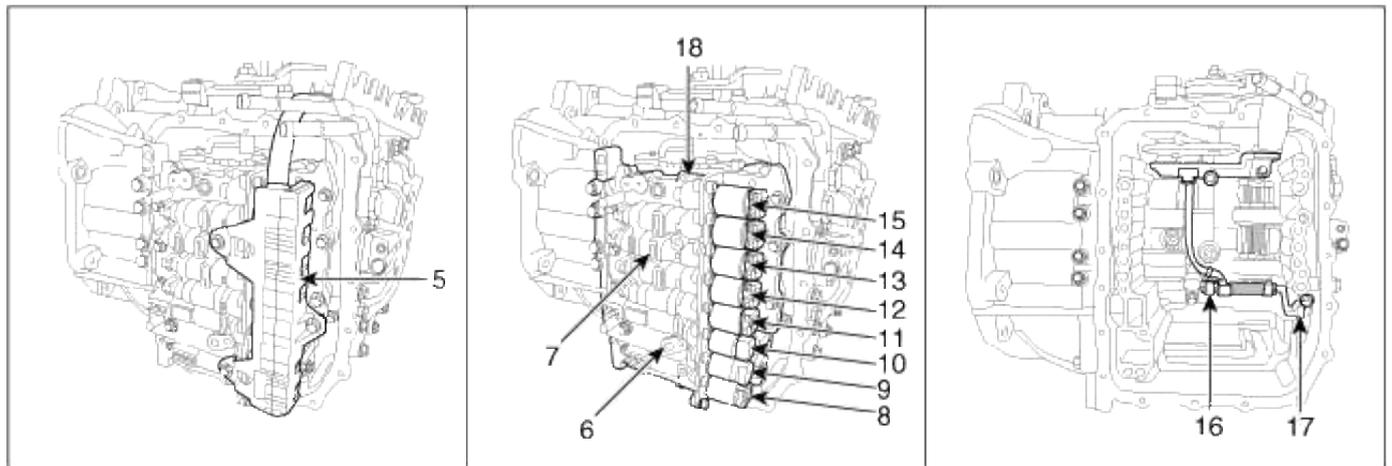
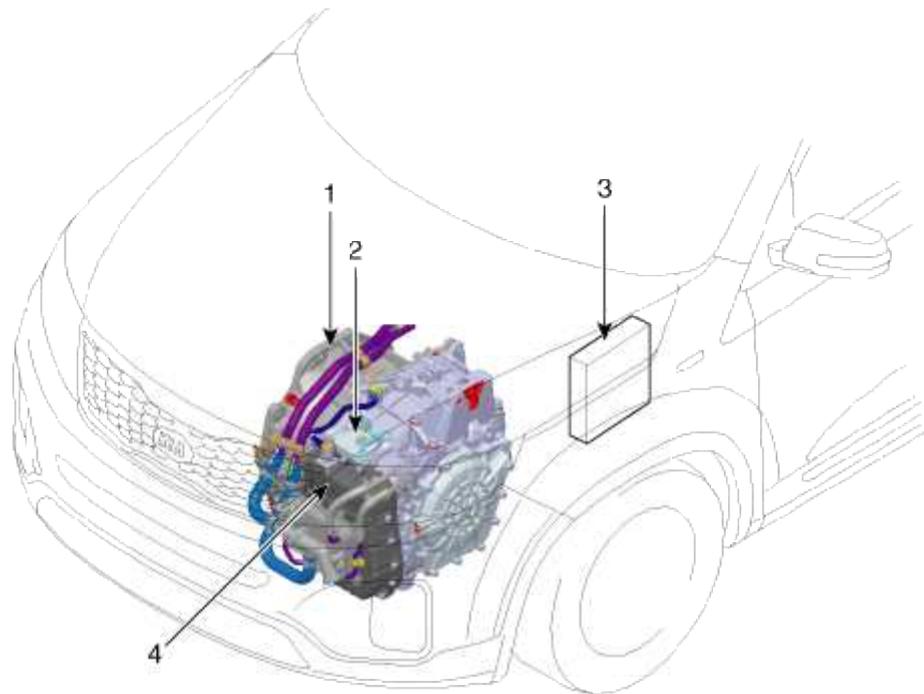
Automatic transaxle system relies on various measurement data to determine the current control status and extrapolat necessary compensation values. These values are used to control the actuators and achieve the desired control output problem with the drivetrain, including the transaxle, has been identified, perform self-diagnosis and basic transaxle insp and fluid inspection) and then check the control system's components using the diagnosis tool.

### Control System Composition

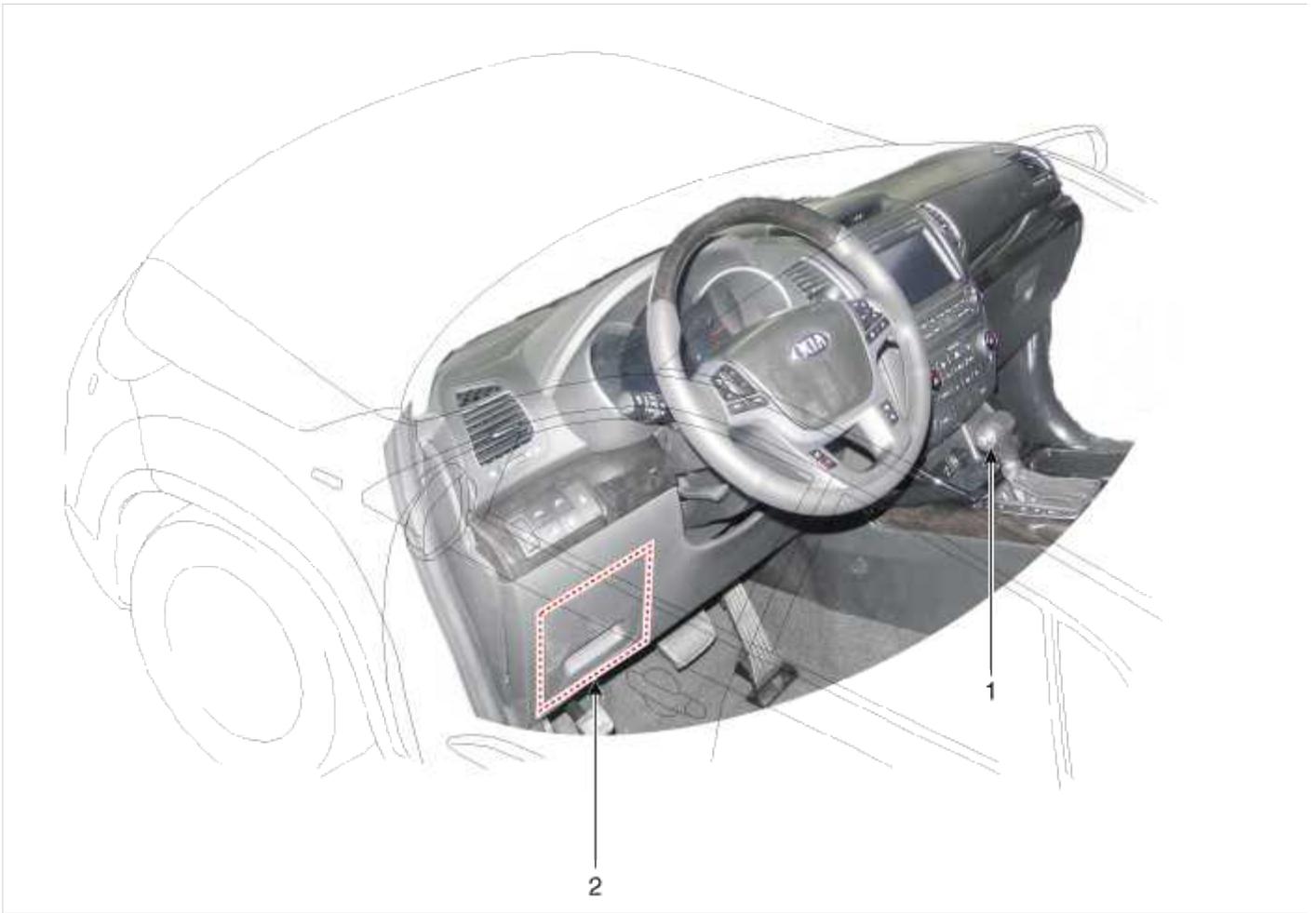


## Automatic Transaxle System

### Component Location



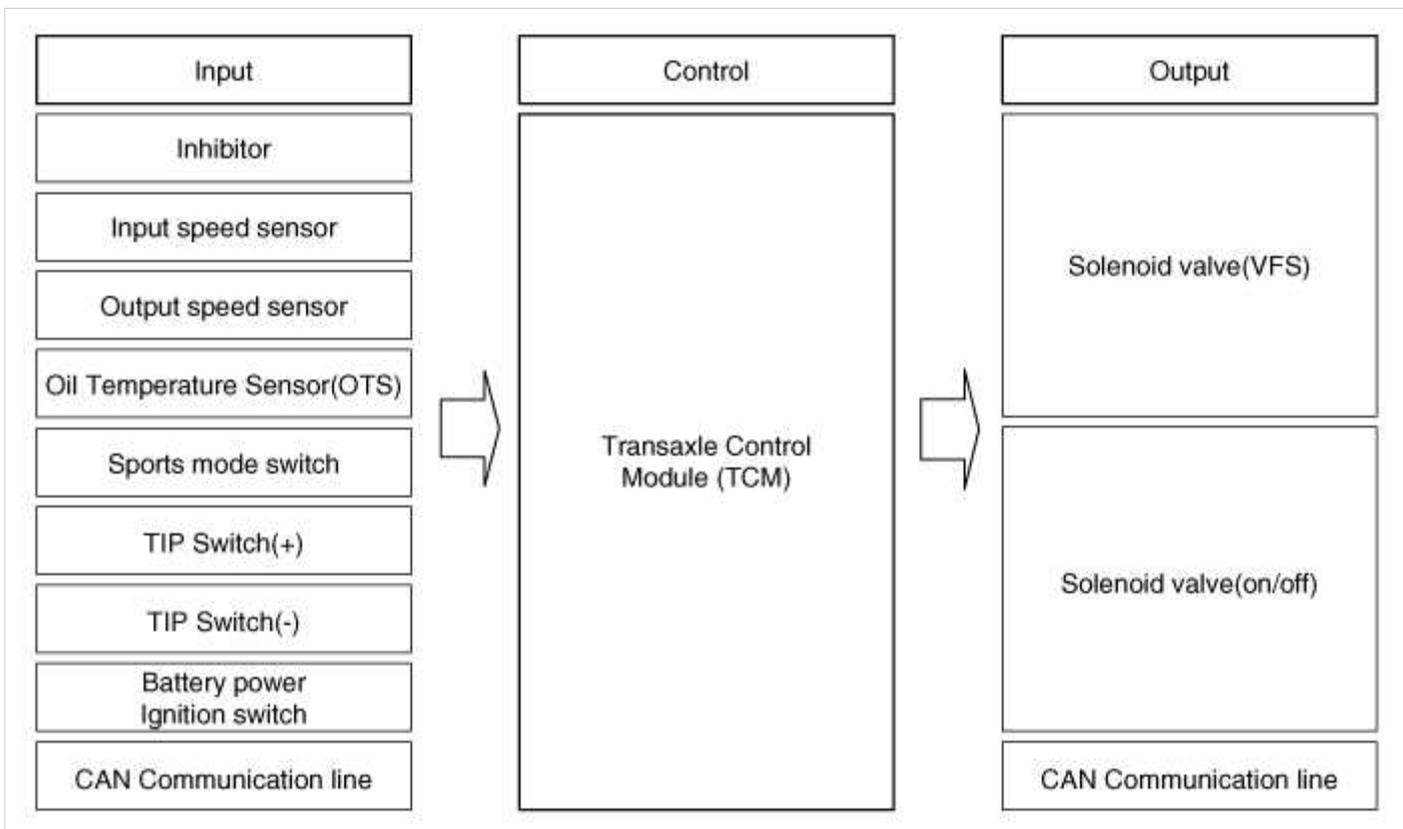
- |   |  |
|---|--|
| 1. Automatic transaxle                  | 10. SS-B Solenoid Valve(ON/OFF)                    |
| 2. Inhibitor switch                     | 11. Overdrive Clutch Control Solenoid Valve(OD/C)  |
| 3. Transaxle Control Module (TCM)       | 12. Underdrive Brake Control Solenoid Valve(UD/B)  |
| 4. Valve body cover                     | 13. 26 Brake Control Solenoid Valve(26/B)          |
| 5. Solenoid valve connect               | 14. 35R Clutch Control Solenoid Valve(35R/C)       |
| 6. Oil temperature sensor               | 15. Torque Converter Control Solenoid Valve(T/CON) |
| 7. Valve body assembly                  | 16. Output speed sensor                            |
| 8. Line Pressure Control Solenoid Valve | 17. Input speed sensor                             |
| 9. SS-A Solenoid Valve(ON/OFF)          | 18. Valve body assembly                            |



- |                              |  |
|------------------------------|--|
| 1. Shift lever               |  |
| 2. Data Link Connector (DLC) |  |

### Automatic Transaxle System

### Circuit Diagram



## Automatic Transaxle System

### Adjustment

#### Transaxle Control Module(TCM) Learning

When shift shock is occurred or parts related with the transaxle are replaced, TCM learning should be performed. In the following case, TCM learning is required.

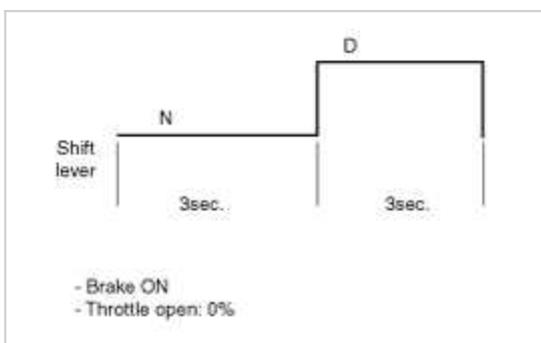
- Transaxle assembly replacement
- TCM replacement
- TCM upgrading

#### TCM learning procedure

1. Automatic Transaxle Fluid (ATF) temperature: 40 ~ 100°C (104 ~ 212°F)

2. Static learning

Repeat the below shift pattern four times or more with stepping on the brake.



3. Driving learning

Drive the vehicle from a stop in D through all gears 1st, 2nd, 3rd, 4th, 5th and 6th gear while holding the throttle at the specified Throttle Position Sensor (TPS) value (15~25%).

## Automatic Transaxle System

### Description

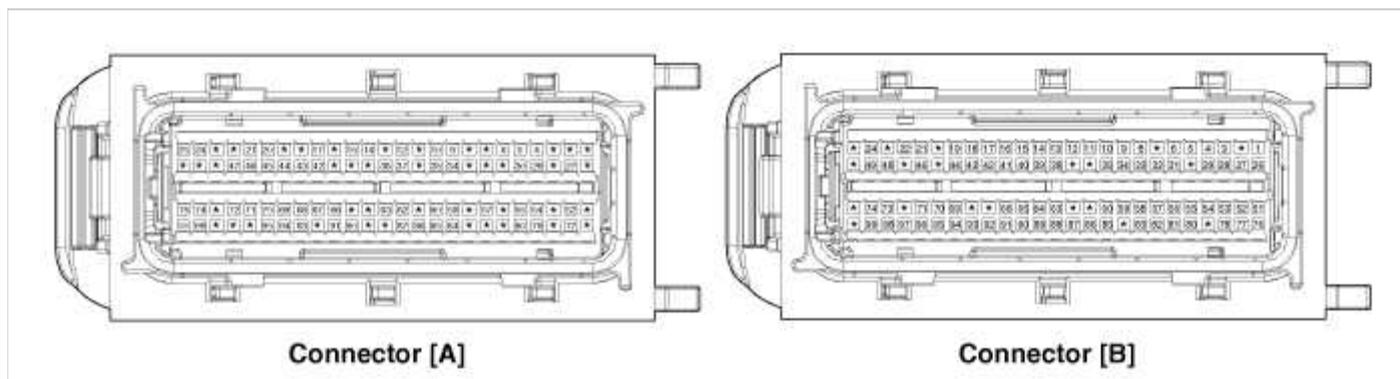
Transaxle Control Module (TCM) is the automatic transaxle's brain. The module receives and processes signals from sensors and implements a wide range of transaxle controls to ensure optimal driving conditions for the driver. TCM is programmed for optimal response to any on-road situation. In the event of a transaxle failure or malfunction, TCM stores fault information in memory so that the technician may reference the code and quickly repair the transaxle.

#### Functions

- Monitors the vehicle's operating conditions to determine the optimal gear setting.
- Performs a gear change if the current gear setting differs from the identified optimal gear setting.
- Determines the need for damper clutch (D/C) activation and engages the clutch accordingly.
- Calculates the optimal line pressure level by constantly monitoring the torque level and adjusts the pressure accordingly.
- Diagnoses the automatic transaxle for faults and failures.

### Automatic Transaxle System

#### 1. TCM connector and terminal function



#### 2. TCM terminal function

##### Connector [A]

Pin	Description	Pin	Description
1	-	45	Inhibitor switch signal 'S2'
2	-	46	Inhibitor switch signal 'S3'
3	-	47	Inhibitor switch signal 'S4'
4	-	48	-
5	-	49	-
6	-	50	-
7	-	51	-
8	-	52	-
9	-	53	-
10	CAN communication line (HIGH)	54	Sports mode down switch
11	-	55	-
12	-	56	-
13	-	57	-
14	-	58	-
15	-	59	-
16	-	60	-

17	-	61	-
18	-	62	-
19	-	63	-
20	-	64	-
21	-	65	-
22	-	66	-
23	-	67	-
24	-	68	-
25	-	69	-
26	-	70	-
27	Ignition switch	71	-
28	-	72	-
29	Sports mode up switch	73	-
30	-	74	-
31	-	75	-
32	-	76	-
33	-	77	-
34	-	78	-
35	CAN communication line Low	79	Sports mode Select switch
36	-	80	-
37	-	81	-
38	-	82	-
39	-	83	-
40	-	84	Shift lock solenoid
41	-	85	Reverse lamp relay
42	-	86	P/N relay
43	-	87	-
44	Inhibitor switch signal 'S1'	88	-

### Connector [B]

Pin	Description	Pin	Description
1	Overdrive clutch control solenoid valve (VFS)	52	Underdrive brake control solenoid valve (VFS)
3	Input speed sensor signal	53	SS-B Solenoid valve (ON/OFF)
4	Output speed sensor signal	54	Output speed sensor power
26	Torque converter control solenoid valve (VFS)	55	Oil temperature sensor (-)
27	35R Clutch control solenoid valve (VFS)	57	Oil temperature sensor (+)
28	SS-A Solenoid valve (ON/OFF)	76	Solenoid valve power 1
29	Input speed sensor power	77	Solenoid valve power 2
51	Line pressure control solenoid valve (VFS)	78	26 Brake control solenoid valve (VFS)

### 3. TCM Terminal input/ output signal

#### Connector [A]

Pin No.	Signal	Condition	Type	Level
29	Sports mode up switch	Up ON	Input	0V/Battery voltage level
		Other		9V < Battery voltage level < 16V
44	Inhibitor switch signal "S1"	ON	Input	9V < Battery voltage level < 16V
		OFF		0V/Battery voltage level
45	Inhibitor switch signal "S2"	ON	Input	9V < Battery voltage level < 16V
		OFF		0V/Battery voltage level
46	Inhibitor switch signal "S3"	ON	Input	9V < Battery voltage level < 16V
		OFF		0V/Battery voltage level
47	Inhibitor switch signal "S4"	ON	Input	9V < Battery voltage level < 16V
		OFF		0V/Battery voltage level
54	Sports mode down switch	Down ON	Input	0V/Battery voltage level
		Other		9V < Battery voltage level < 16V
79	Sports mode select switch	Sport mode	Input	0V/Battery voltage level
		Other		9V < Battery voltage level < 16V
84	Shift lock solenoid	High	Output	0V/Battery voltage level
		Low		9V < Battery voltage level < 16V
85	Rear lamp relay	R ON	Output	0V/Battery voltage level
		Other		9V < Battery voltage level < 16V
86	P/N relay	P-R change	Output	Min. Operation voltage: Battery voltage $\geq$ 6.0V
				Max. Operation voltage: Battery voltage $\leq$ 16.0V
				P/N range position

#### Connector [B]

Pin No.	Signal	Condition	Type	Level
---------	--------	-----------	------	-------

1	Overdrive clutch control solenoid valve		Output	0V/Battery voltage level
				9V < Battery voltage level < 16V
				Power supply : V_SOL1
3	Input speed sensor signal	High	Input	0.7V/1.4V
		Low		
4	Output speed sensor signal	High	Input	0.7V/1.4V
		Low		
26	Torque converter control solenoid valve		Output	0V/Battery voltage level
				9V < Battery voltage level < 16V
27	35R clutch control solenoid valve		Output	0V/Battery voltage level
				9V < Battery voltage level < 16V
28	SS-A Solenoid valve (ON/OFF)	High	Output	0V/Battery voltage level
		Low		9V < Battery voltage level < 16V
29	Input speed sensor power	ON	Power	0V/7.5V
		OFF		
51	Line pressure control solenoid valve		Output	0V/Battery voltage level
				9V < Battery voltage level < 16V
52	Underdrive brake control solenoid valve		Output	0V/Battery voltage level
				9V < Battery voltage level < 16V
				Power supply : V_SOL2
53	SS-B Solenoid valve (ON/OFF)	High	Output	0V/Battery voltage level
		Low		9V < Battery voltage level < 16V
54	Output speed sensor power	ON	Power	0V/7.5V
		OFF		
55	Oil temperature sensor (-)		Ground	0V
76	Solenoid valve power 1	ON	Power	0V/Battery voltage level
		OFF		9V < Battery voltage level < 16V
77	Solenoid valve power 1	ON	Power	0V/Battery voltage level
		OFF		9V < Battery voltage level < 16V

78	26 brake control solenoid valve		Output	0V/Battery voltage level
				9V < Battery voltage level < 16V
				Power supply : V_SOL2

## Automatic Transaxle System

### Removal

#### **CAUTION**

When replacing the TCM, the vehicle equipped with the immobilizer must be performed procedure as below.

#### **[In the case of installing used TCM]**

1. Perform "TCM Neutral mode" procedure with GDS.  
(Refer to Body Electrical System - "Immobilizer System")
2. After finishing "TCM Neutral mode", perform "Key teaching" procedure with GDS.  
(Refer to Body Electrical System - "Immobilizer System")

#### **[In the case of installing new TCM]**

Perform "Key teaching" procedure with GDS.  
(Refer to Body Electrical System - "Immobilizer System")

#### **CAUTION**

When replacing the TCM, the vehicle equipped with the smart key system (Button start) must be performed proced below.

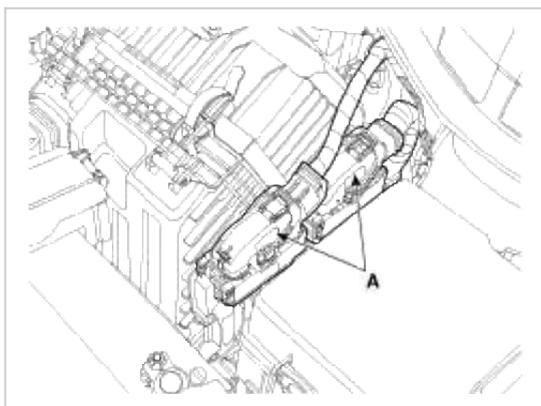
#### **[In the case of installing used TCM]**

1. Perform "TCM Neutral mode" procedure with GDS.  
(Refer to Body Electrical System - "Immobilizer System")
2. After finishing "TCM Neutral mode", insert the key (or press the start button) and turn it to the IGN ON and OFF position. Then the TCM learns the smart key information automatically.

#### **[In the case of installing new TCM]**

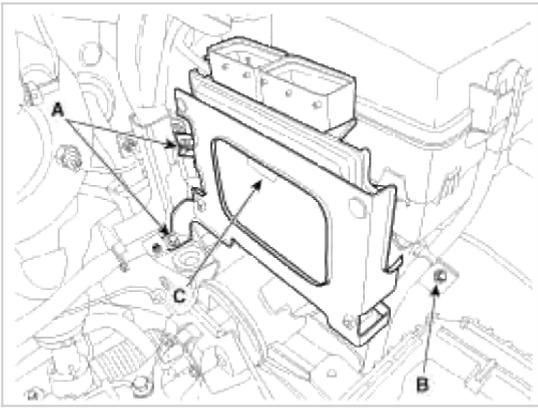
Insert the key (or press the start button) and turn it to the IGN ON and OFF position. Then the TCM learns the sm information automatically.

1. Turn ignition switch OFF and disconnect the negative (-) battery cable.
2. Disconnect the TCM Connector (A).

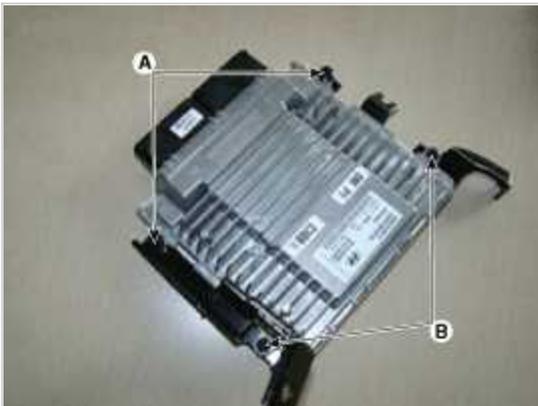


3. Remove the battery.  
(Refer to Engine Electrical System - "Battery")
4. Remove the air cleaner assembly.  
(Refer to Engine Mechanical System - "Air Cleaner")

5. Remove the mounting bolts (A) and nut (B), and then remove the TCM (C).



6. After removing the installation nuts (A) and screws (B), remove the TCM (C) from the bracket.



#### Installation

#### **CAUTION**

When replacing the TCM, the vehicle equipped with the immobilizer must be performed procedure as below.

#### **[In the case of installing used TCM]**

1. Perform "TCM Neutral mode" procedure with GDS.  
(Refer to Body Electrical System - "Immobilizer System")
2. After finishing "TCM Neutral mode", perform "Key teaching" procedure with GDS.  
(Refer to Body Electrical System - "Immobilizer System")

#### **[In the case of installing new TCM]**

Perform "Key teaching" procedure with GDS.  
(Refer to Body Electrical System - "Immobilizer System")

#### **CAUTION**

When replacing the TCM, the vehicle equipped with the smart key system (Button start) must be performed proced below.

#### **[In the case of installing used TCM]**

1. Perform "TCM Neutral mode" procedure with GDS.  
(Refer to Body Electrical System - "Immobilizer System")
2. After finishing "TCM Neutral mode", insert the key (or press the start button) and turn it to the IGN ON and OFF position. Then the TCM learns the smart key information automatically.

#### **[In the case of installing new TCM]**

Insert the key (or press the start button) and turn it to the IGN ON and OFF position. Then the TCM learns the sm: information automatically.

1. Install in the reverse order of removal.

---

**TCM installation bolt:**

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

**TCM bracket installation bolt/nut:**

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

---

**CAUTION**

- Perform TCM learning after replacing the transaxle to prevent slow transaxle response, jerky acceleration and jerky startup.  
(Refer to Automatic Transaxle Control System - "Repair procedures")

**TCM Problem Inspection Procedure**

1. **TEST TCM GROUND CIRCUIT:** Measure resistance between TCM and chassis ground using the backside of harness connector as TCM side check point. If the problem is found, repair it.

---

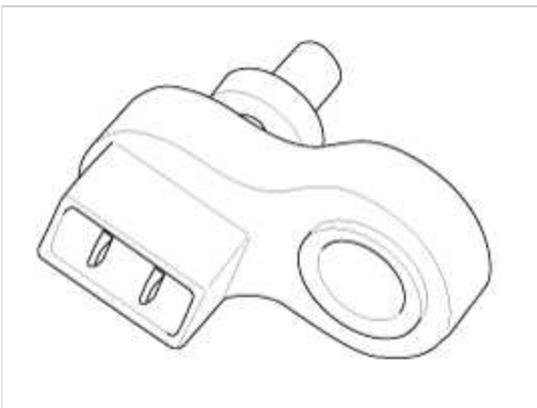
Specification: Below 1Ω

---

2. **TEST TCM CONNECTOR:** Disconnect the TCM connector and visually check the ground terminals on TCM side harness side for bent pins or poor contact pressure. If the problem is found, repair it.
3. If problem is not found in Step 1 and 2, the TCM could be faulty. If so, make sure there were no DTC's before swap the TCM with a new one, and then check the vehicle again. If DTC's were found, examine this first before swapping.
4. **RE-TEST THE ORIGINAL TCM:** Install the original TCM (may be broken) into a known-good vehicle and check the vehicle. If the problem occurs again, replace the original TCM with a new one. If problem does not occur, this is not a problem (Refer to "Intermittent Problem Inspection Procedure" in Basic Inspection Procedure).

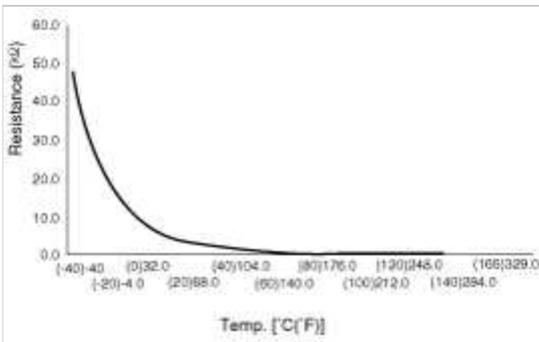
**Automatic Transaxle System****Description**

Transaxle Oil Temperature Sensor(OTS) monitors the automatic transaxle fluid's temperature and conveys the reading to the TCM. It is a Negative Thermal Coefficient(NTC) sensor whose resistance has an inversely proportional relationship with the temperature level. Data produced by this sensor is used to identify damper clutch activation and deactivation zones within the low temperature and high temperature range and to compensate hydraulic pressure levels during gear changes.

**Automatic Transaxle System****Specifications**

Type: Negative Thermal Coefficient Type(NTC)

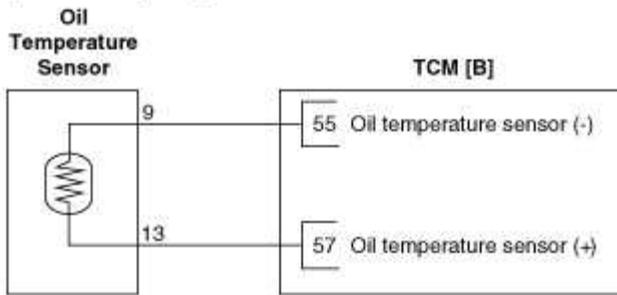
Temp.(°C)°F	Resistance (kΩ)
(-40)-40	48.1
(-20)-4.0	15.6
(0)32.0	5.88
(20)68.0	2.51
(40)104.0	1.11
(60)140.0	0.61
(80)176.0	0.32
(100)212.0	0.18
(120)248.0	0.10
(140)284.0	0.06
(165)329.0	0.03



## Automatic Transaxle System

### Circuit Diagram

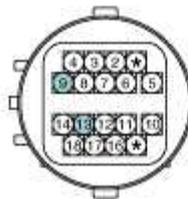
[Circuit Diagram]



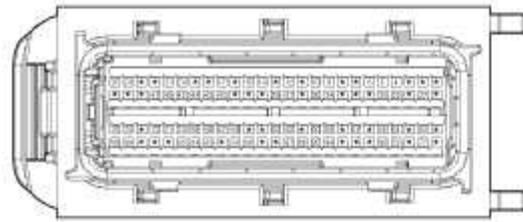
[Connection Information]

Terminal	Connected to	Function
9	TCM (55)	Oil temperature sensor (-)
13	TCM (57)	Oil temperature sensor (+)

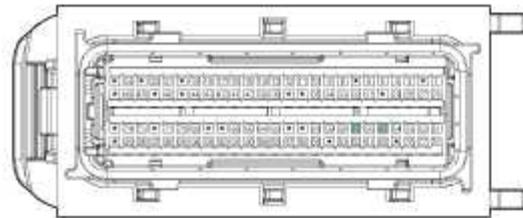
[Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

Automatic Transaxle System

Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")
3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.
5. Check that the resistance is within the specification.

Removal

1. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
2. Remove the under cover.  
(Refer to Engine Mechanical System - "Engine Room Under Cover")
3. Drain the coolant.  
(Refer to Engine Mechanical System - "Coolant")
4. Remove the drain plug (A) and reinstall the drain plug after draining ATF totally.

---

**Drain plug tightening torque :**

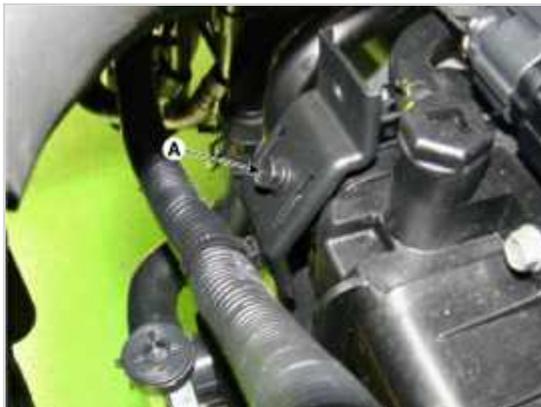
38.2 ~ 48.1 N.m (3.9 ~ 4.9 kgf.m, 28.2 ~ 35.4 lb-ft)

---

**⚠ CAUTION**

Replace the gasket before reinstalling the drain plug.

5. Remove the wiring bracket installation bolt (A).



6. Remove the ATF Injection hole(eyebolt) (A).



**CAUTION**

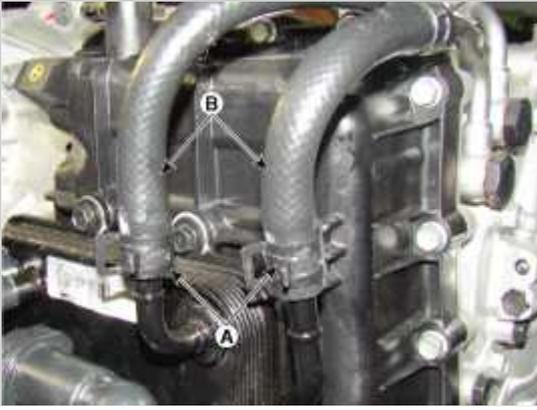
Replace the O-Ring (A) before reinstalling the eyebolt.



7. Disconnect the coolant hose (B) after removing the coolant hose clamp (A).

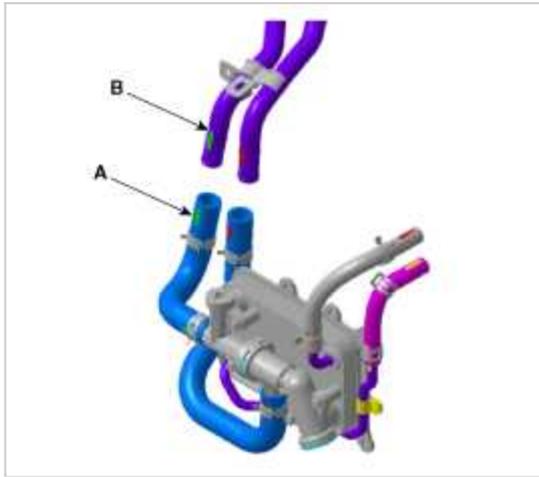


8. Disconnect the hose (B) after removing the automatic transaxle fluid cooler hose clamp (A).



**CAUTION**

When hose & pipe assembly  
Align marking of pipe (B), marking of hose (A), and matching color each other.



9. Remove the valve body cover (A).

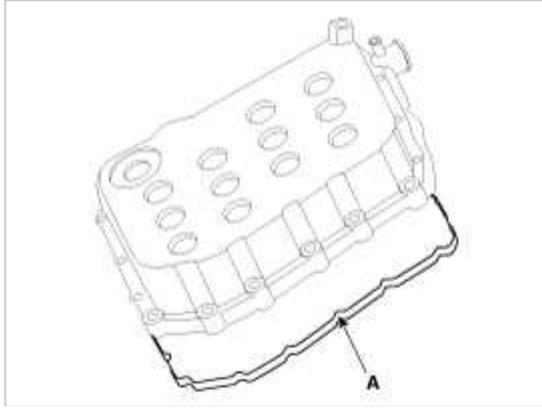
**Tightening torque :**

(A) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

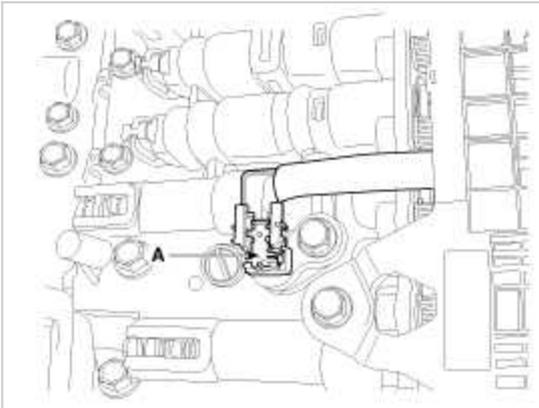


**⚠ CAUTION**

- Replace the gasket (A) before reinstalling the valve body cover.



10. Disconnect the oil temperature sensor connector (A).



11. Remove the oil temperature sensor (A) after removing a bolt.

---

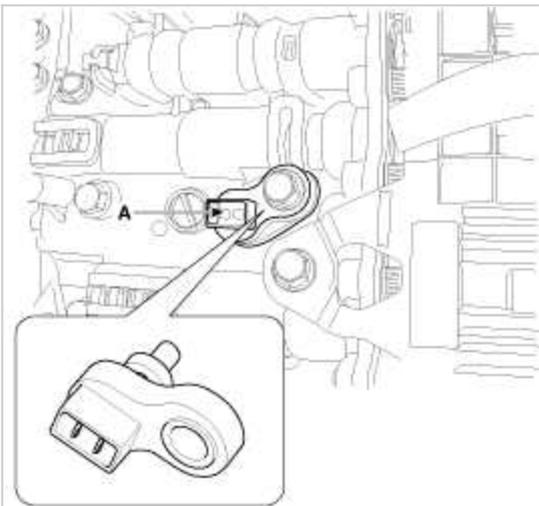
**Tightening torque :**

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

---

**⚠ CAUTION**

Be careful not to damage the harness lock connector.



Installation

1. Install in the reverse order of removal.

**NOTICE**

- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")
- Adding Automatic Transaxle Fluid(ATF).  
(Refer to Hydraulic System - "Fluid")

**Automatic Transaxle System**

**Description**

Input speed sensor (A) is a vital unit that measures the rate of rotation of the input shaft inside the transaxle and delivers readings to the Transaxle Control Module(TCM). The sensor provides critical input data that's used in feedback control, damper clutch control, gear setting control, line pressure control, clutch activation pressure control, and sensor fault alarm.



**Automatic Transaxle System**

**Specifications**

Type: Hall effect sensor

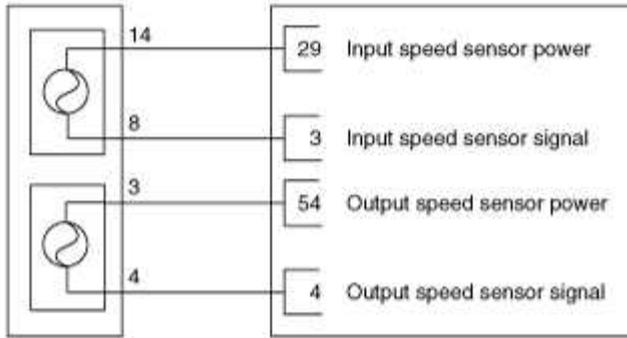
Operation condition (°C)°F	((-40 ~ 150)) -40 ~ 302	
Air gap(mm)in.	(0.95 ~ 1.55) 0.950 ~ 1.55	
Output voltage(V)	High	1.18 ~ 1.68
	Low	0.59 ~ 0.84

**Automatic Transaxle System**

**Circuit Diagram**

[Circuit Diagram]

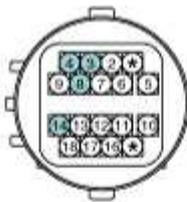
Input & Output Speed Sensor



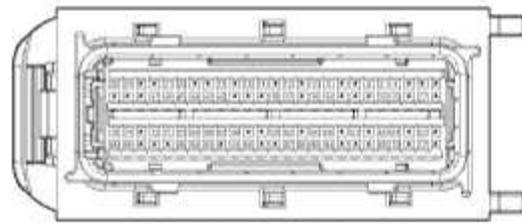
[Connection Information]

Terminal	Connected to	Function
14	TCM (29)	Input speed sensor power
8	TCM (3)	Input speed sensor signal
3	TCM (54)	Output speed sensor power
4	TCM (4)	Output speed sensor signal

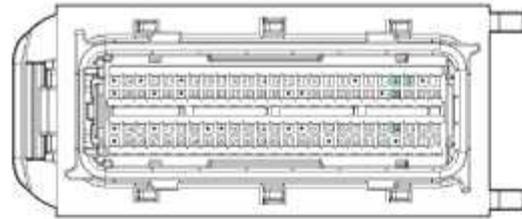
[Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

Automatic Transaxle System

Signal Waveform

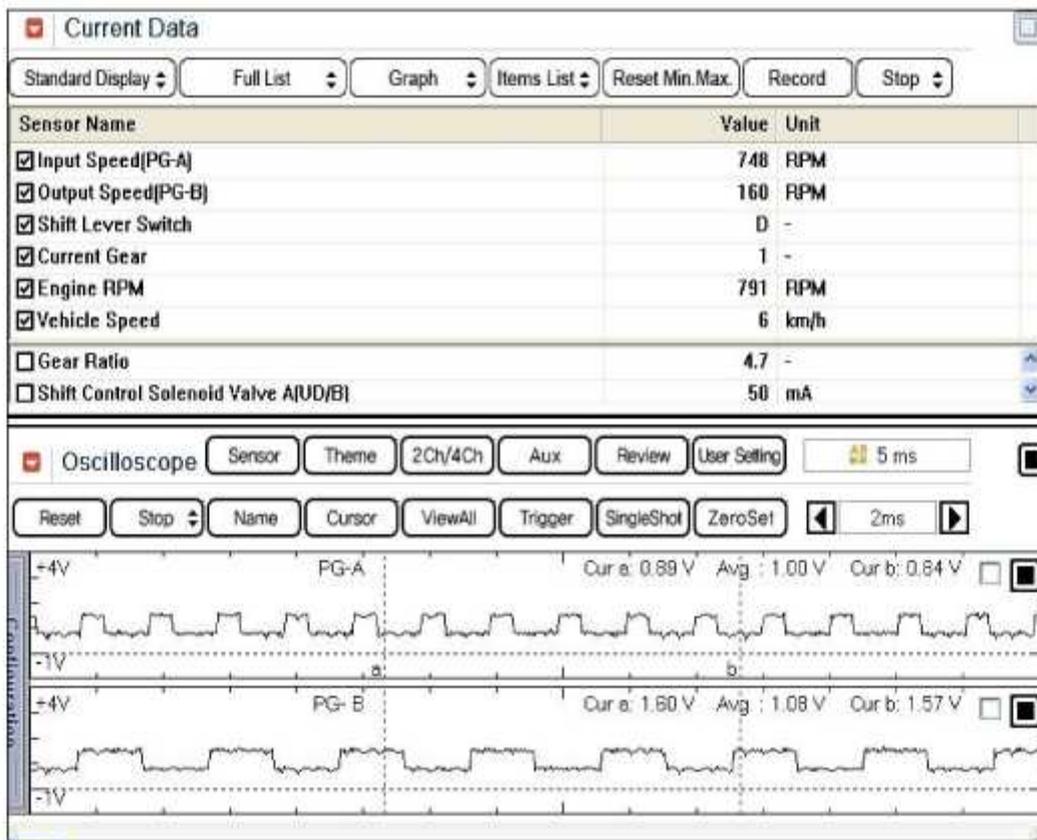


Fig.1

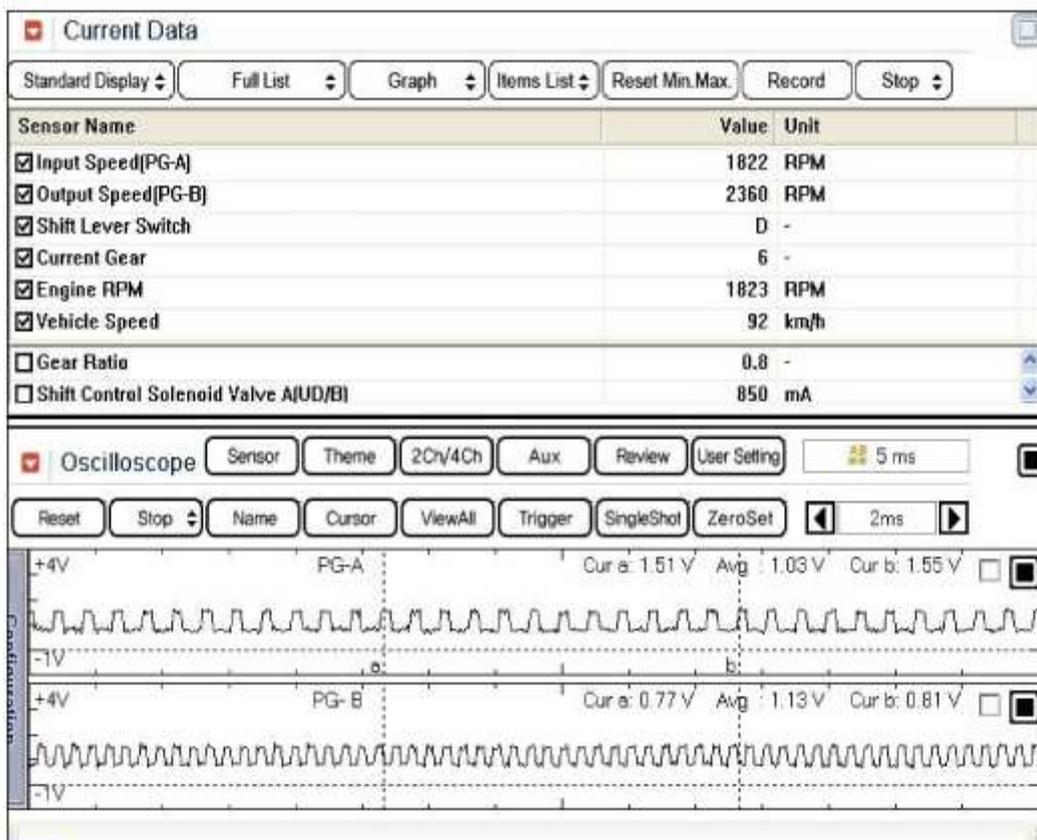


Fig.2

## Automatic Transaxle System

### Inspection

1. Check signal waveform of Input & output speed sensor using the GDS.

---

**Specification :** Refer to "Signal Wave Form" section.

---

#### Removal

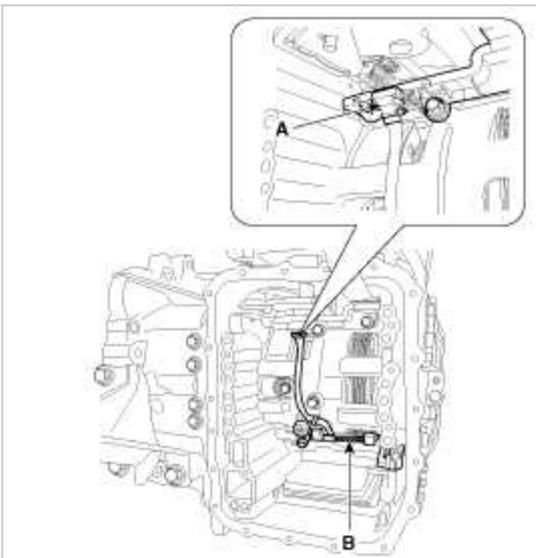
1. Remove the valve body assembly.  
(Refer to Hydraulic System - "Valve Body")
2. Disconnect the input & output speed sensor connector (A).
3. Remove the input & output speed sensor (B) after removing the bolts (2ea).

---

#### Tightening torque :

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

---



#### Installation

1. Install in the reverse order of removal.

#### NOTICE

- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")
- Adding Automatic Transaxle Fluid(ATF).  
(Refer to Hydraulic System - "Fluid")

### Automatic Transaxle System

#### Description

The output speed sensor (A) is a vital unit that measures the rate of rotation of the transaxle's turbine shaft and output delivers the readings to the Transaxle Control Module(TCM). The sensor provides critical input data that's used in fe control, damper clutch control, gear setting control, line pressure control, clutch activation pressure control, and sensc analysis.



## Automatic Transaxle System

### Specifications

Type: Hall effect sensor

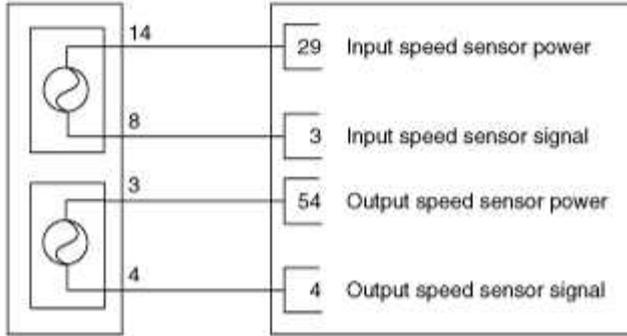
Operation condition (°C)°F	((-)40 ~ 150)) -40 ~ 302	
Air gap(mm)in.	(1.45~1.9) 0.0571~0.0748	
Output voltage (V)	High	1.18 ~ 1.68
	Low	0.59 ~ 0.84

## Automatic Transaxle System

### Circuit Diagram

[Circuit Diagram]

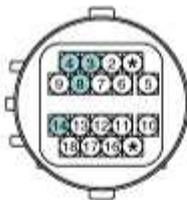
Input & Output Speed Sensor



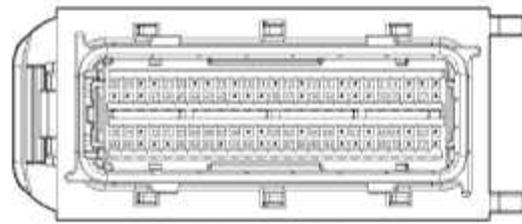
[Connection Information]

Terminal	Connected to	Function
14	TCM (29)	Input speed sensor power
8	TCM (3)	Input speed sensor signal
3	TCM (54)	Output speed sensor power
4	TCM (4)	Output speed sensor signal

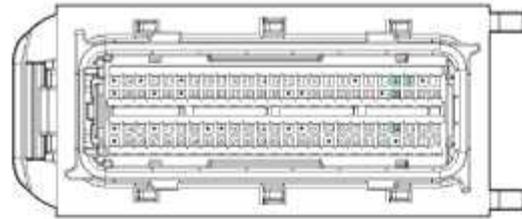
[Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

Automatic Transaxle System

Signal Waveform

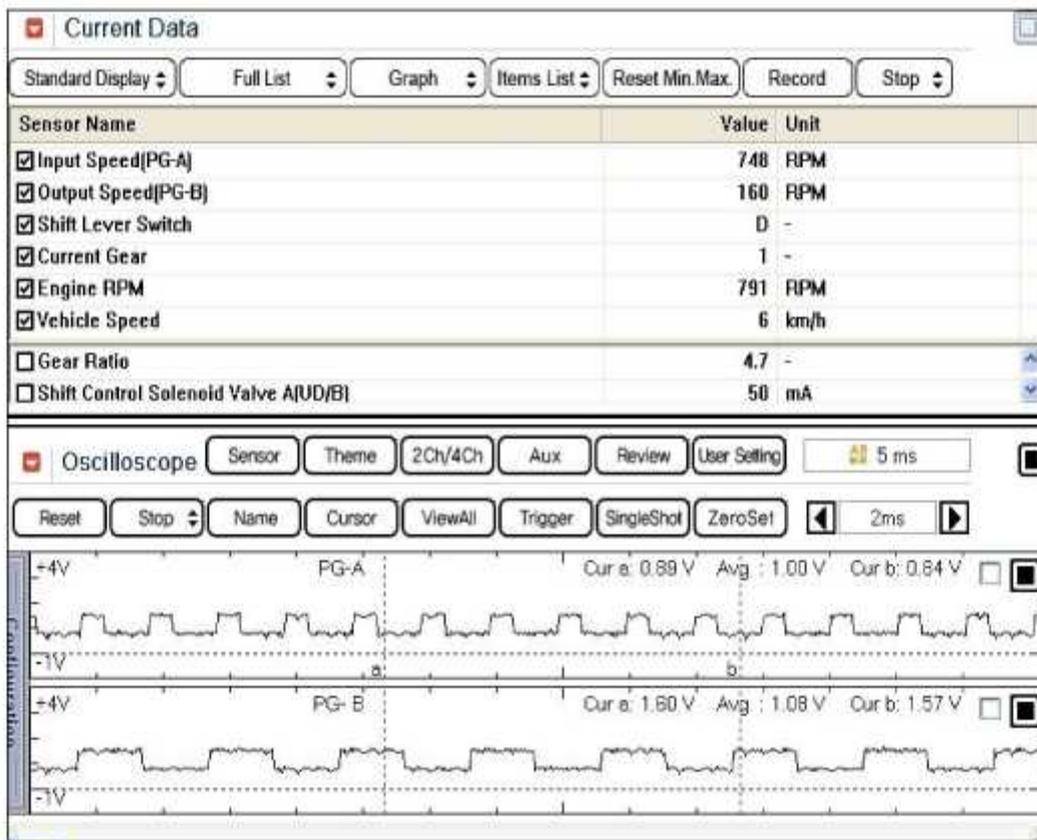


Fig.1

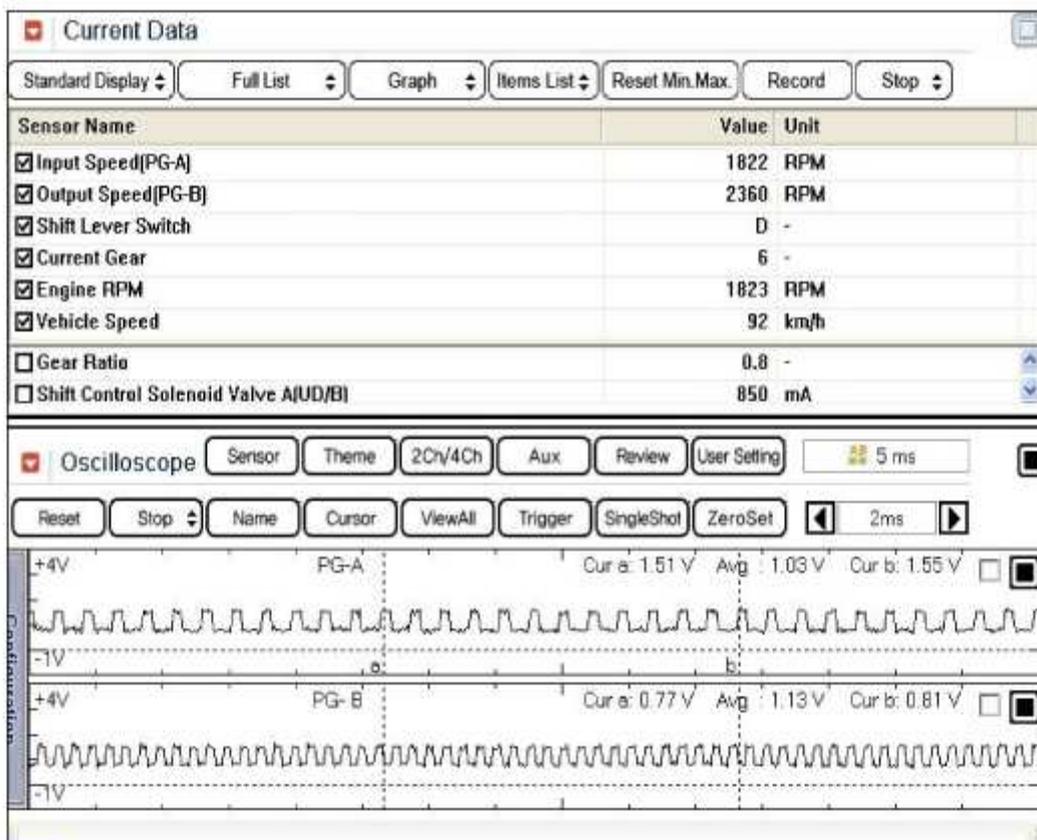


Fig.2

Automatic Transaxle System

Inspection

1. Check signal waveform of Input & output speed sensor using the GDS.

---

**Specification :** Refer to "Signal Wave Form" section.

---

#### Removal

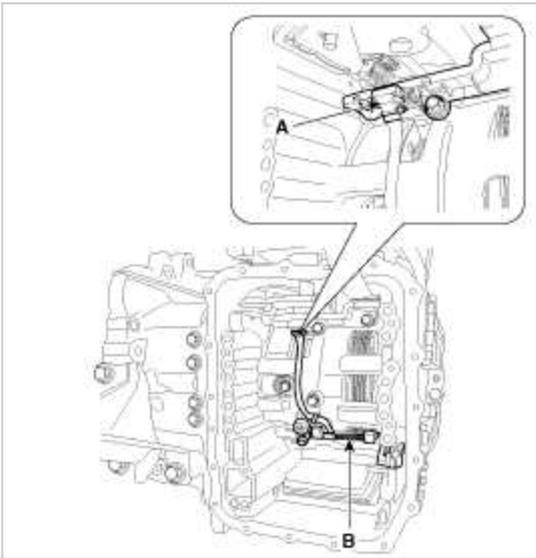
1. Remove the valve body assembly.  
(Refer to Hydraulic System - "Valve Body")
2. Disconnect the input & output speed sensor connector (A).
3. Remove the input & output speed sensor (B) after removing the bolts (2ea).

---

#### Tightening torque :

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

---



#### Installation

1. Install in the reverse order of removal.

#### NOTICE

- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")
- Adding Automatic Transaxle Fluid(ATF).  
(Refer to Hydraulic System - "Fluid")

#### Automatic Transaxle System

#### Description

Torque converter control solenoid valve (T/CON) is attached to the valve body. This variable force solenoid valve controls the hydraulic pressure inside the torque converter.



## Automatic Transaxle System

### Specifications

Direct control VFS[T/CON]

Control type : Normal low type

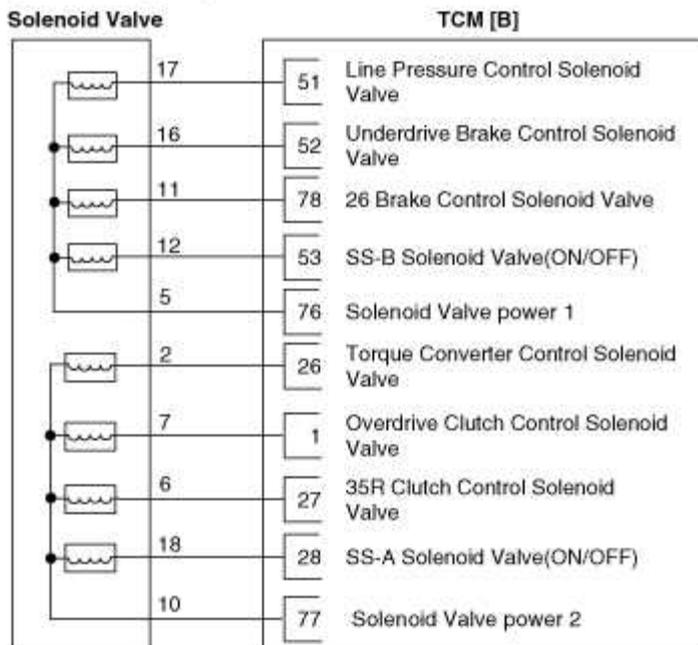
Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	0 ~ 539.37 (0 ~ 5.5, 0 ~ 78.23)
Current value(mA)	0 ~ 850
Internal resistance( $\Omega$ )	5.1 $\pm$ 0.3

## Automatic Transaxle System

### Circuit Diagram

cardiagn.com

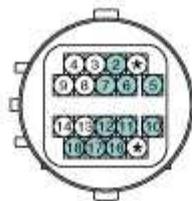
[Circuit Diagram]



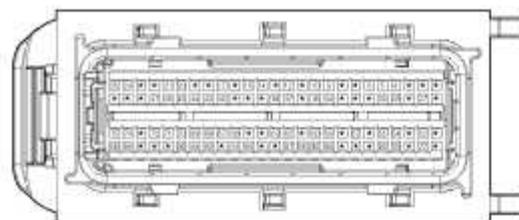
[Connection Information]

Terminal	Connected to	Function
17	TCM(51)	Line Pressure Control Solenoid Valve
16	TCM(52)	Underdrive Brake Control Solenoid Valve
11	TCM(78)	26 Brake Control Solenoid Valve
12	TCM(53)	SS-B Solenoid Valve(ON/OFF)
5	TCM(76)	Solenoid Valve power 1
2	TCM(26)	Torque Converter Control Solenoid Valve
7	TCM(1)	Overdrive Clutch Control Solenoid Valve
6	TCM(27)	35R Clutch Control Solenoid Valve
18	TCM(28)	SS-A Solenoid Valve(ON/OFF)
10	TCM(77)	Solenoid Valve power 2

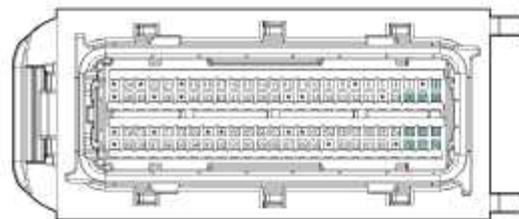
[Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

Automatic Transaxle System

Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")

3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.
5. Check that the resistance is within the specification.

#### Removal

1. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")
2. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
3. Remove the under cover.  
(Refer to Engine Mechanical System - "Engine Room Under Cover")
4. Drain the coolant.  
(Refer to Engine Mechanical System - "Coolant")
5. Remove the drain plug (A) and reinstall the drain plug after draining ATF totally.

---

#### Tightening torque :

38.2 ~ 48.1 N.m (3.9 ~ 4.9 kgf.m, 28.2 ~ 35.4 lb-ft)

---



#### **CAUTION**

Replace the gasket before reinstalling the drain plug.

6. Remove the wiring bracket installation bolt (A).



7. Remove the ATF Injection hole(eyebolt) (A).



**CAUTION**

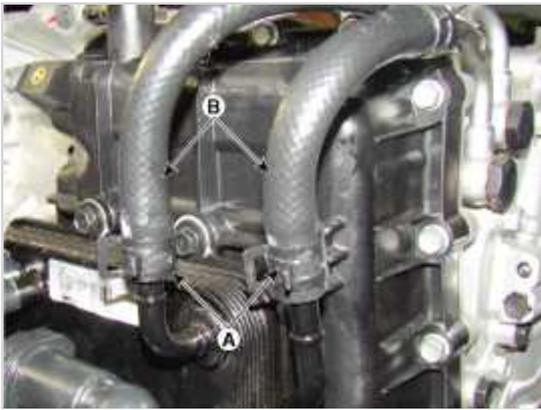
Replace the O-Ring (A) before reinstalling the eyebolt.



8. Disconnect the coolant hose (B) after removing the coolant hose clamp (A).

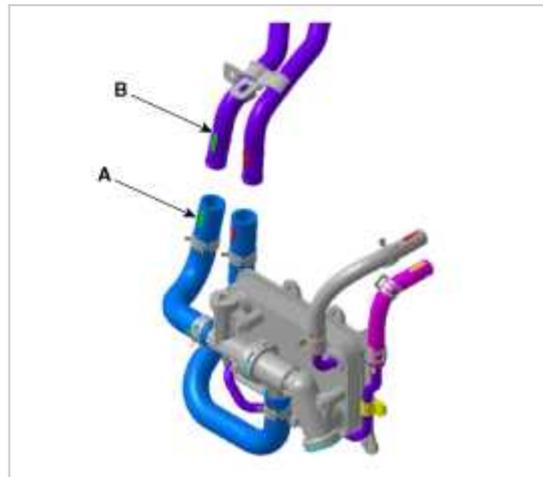


9. Disconnect the hose (B) after removing the automatic transaxle fluid cooler hose clamp (A).



**CAUTION**

When hose & pipe assembly  
Align marking of pipe (B), marking of hose (A), and matching color each other.



10. Remove the valve body cover (A).

---

**Tightening torque:**

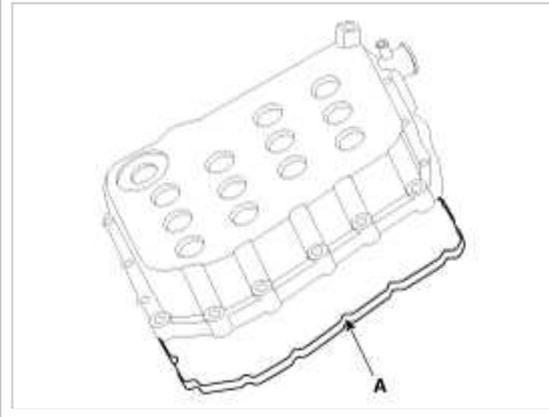
(A) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

---



**CAUTION**

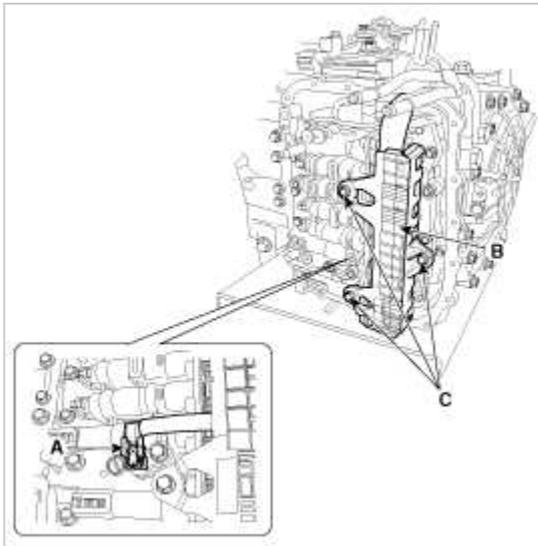
- Replace the gasket (A) before reinstalling the valve body cover.



11. Remove the bolts (C) after disconnecting the solenoid valve connector (B) and the oil temperature sensor connector.

**Tightening torque :**

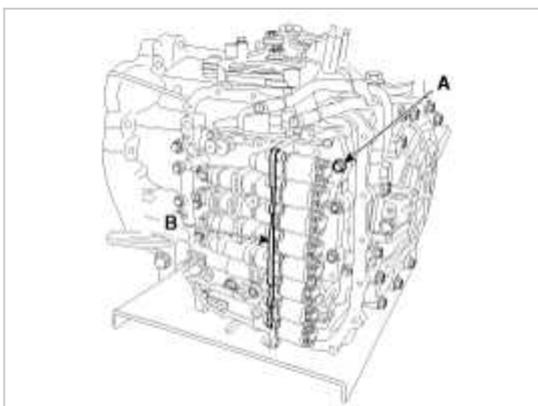
9.8 ~ 11.8 N.m (1.0 ~ 1.2 kgf.m, 7.2 ~ 8.7 lb-ft)



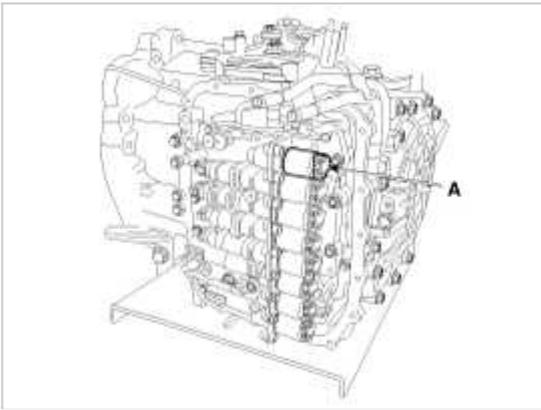
12. Remove the solenoid valve support bracket (B) and the valve body mounting bolt (A-1ea).

**Tightening torque :**

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



13. Remove the torque converter control solenoid valve (A).



#### Installation

1. Install in the reverse order of removal.

#### NOTICE

- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")
- Adding Automatic Transaxle Fluid(ATF).  
(Refer to Hydraulic System - "Fluid")
- Perform Transaxle Control Module(TCM) learning after replacing the valve body to prevent slow transaxle response, jerky acceleration and jerky startup.  
(Refer to Automatic Transaxle Control System - "Repair procedures")

#### Automatic Transaxle System

#### Description

26Brake control solenoid valve(26/B) is attached to the valve body. This variable force solenoid valve directly controls hydraulic pressure inside the 26Brake.



#### Automatic Transaxle System

#### Specifications

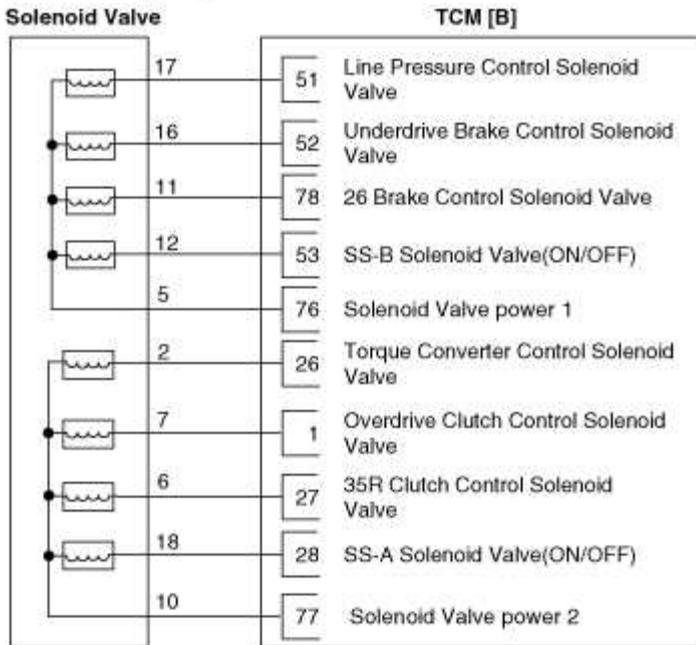
Direct control VFS[26/B]

Control type : Normal low type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	0 ~ 539.37 (0 ~ 5.5, 0 ~ 78.23)
Current value(mA)	0 ~ 850
Internal resistance(Ω)	5.1 ± 0.3

Circuit Diagram

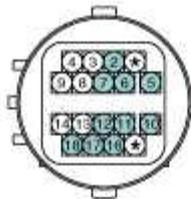
[Circuit Diagram]



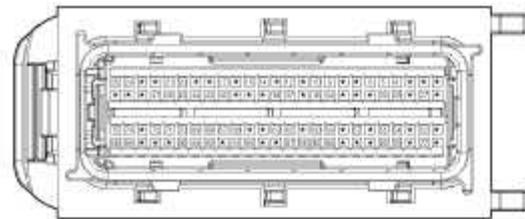
[Connection Information]

Terminal	Connected to	Function
17	TCM(51)	Line Pressure Control Solenoid Valve
16	TCM(52)	Underdrive Brake Control Solenoid Valve
11	TCM(78)	26 Brake Control Solenoid Valve
12	TCM(53)	SS-B Solenoid Valve(ON/OFF)
5	TCM(76)	Solenoid Valve power 1
2	TCM(26)	Torque Converter Control Solenoid Valve
7	TCM(1)	Overdrive Clutch Control Solenoid Valve
6	TCM(27)	35R Clutch Control Solenoid Valve
18	TCM(28)	SS-A Solenoid Valve(ON/OFF)
10	TCM(77)	Solenoid Valve power 2

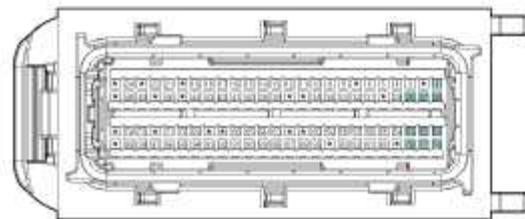
[Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")

3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.

5. Check that the resistance is within the specification.

#### Removal

#### NOTICE

Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve, replace the valve body assembly.

(Refer to Hydraulic System - "Valve Body")

#### Automatic Transaxle System

#### Description

The line pressure control solenoid valve is attached to the valve body. This variable force solenoid valve directly controls the hydraulic pressure inside the line pressure.



#### Automatic Transaxle System

#### Specifications

Direct control VFS[LINE Pressure]

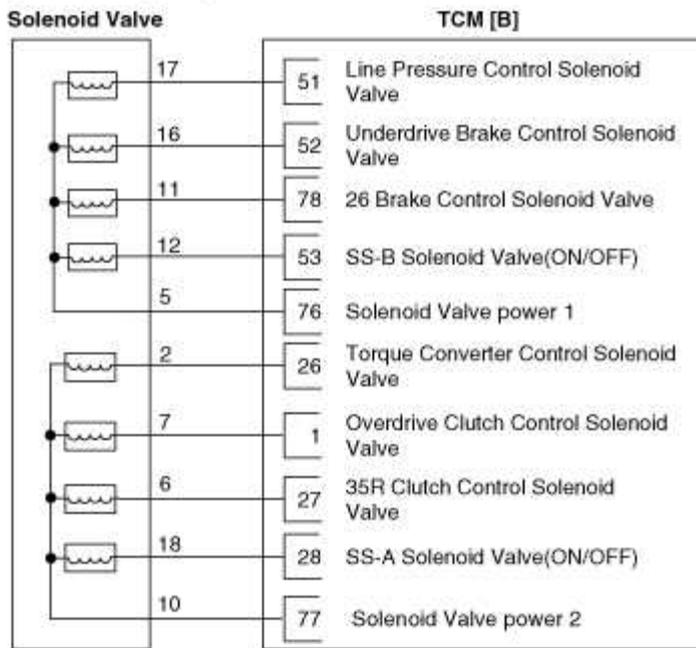
Control type : Normal high type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	539.370 ~ 0 ( 5.5 ~ 0, 78.23 ~ 0)
Current value(mA)	0 ~ 850
Internal resistance(Ω)	5.1 ± 0.3

#### Automatic Transaxle System

## Circuit Diagram

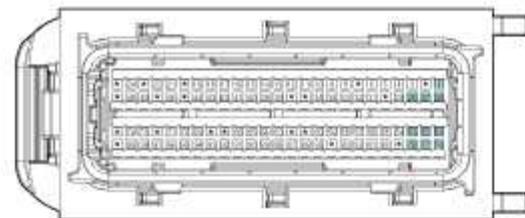
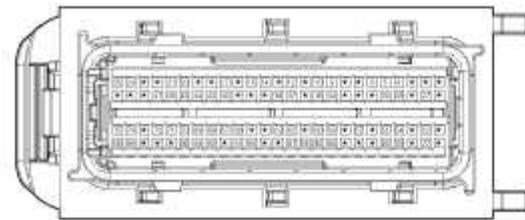
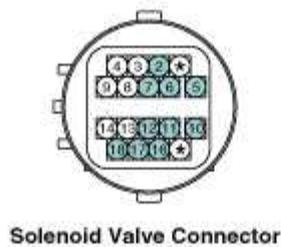
### [Circuit Diagram]



### [Connection Information]

Terminal	Connected to	Function
17	TCM(51)	Line Pressure Control Solenoid Valve
16	TCM(52)	Underdrive Brake Control Solenoid Valve
11	TCM(78)	26 Brake Control Solenoid Valve
12	TCM(53)	SS-B Solenoid Valve(ON/OFF)
5	TCM(76)	Solenoid Valve power 1
2	TCM(26)	Torque Converter Control Solenoid Valve
7	TCM(1)	Overdrive Clutch Control Solenoid Valve
6	TCM(27)	35R Clutch Control Solenoid Valve
18	TCM(28)	SS-A Solenoid Valve(ON/OFF)
10	TCM(77)	Solenoid Valve power 2

### [Harness Connector]



## Automatic Transaxle System

### Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")

3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.

5. Check that the resistance is within the specification.

Removal

**NOTICE**

Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve, replace the valve body assembly.

(Refer to Hydraulic System - "Valve Body")

Automatic Transaxle System

Description

35R Clutch control solenoid valve(35R/C) is attached to the valve body. This variable force solenoid valve directly controls hydraulic pressure inside the 35R Clutch.



Automatic Transaxle System

Specifications

Direct control VFS[35R/C]

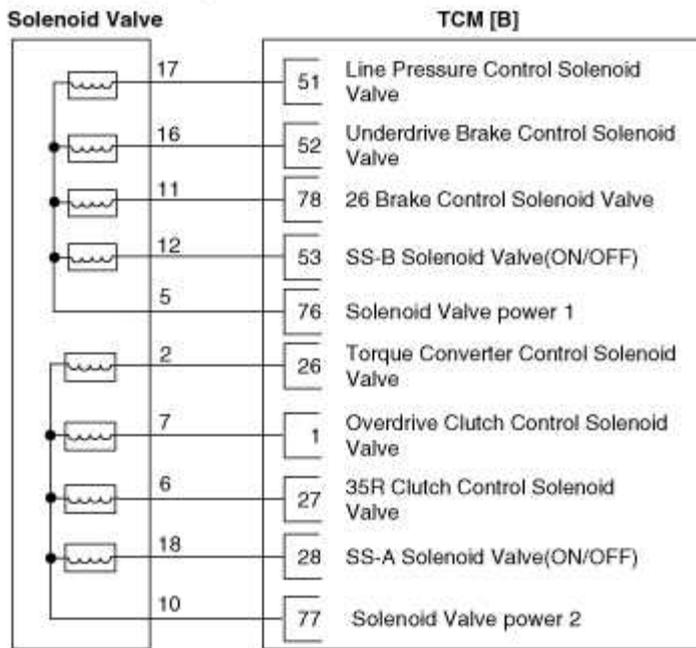
Control type : Normal high type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	539.370 ~ 0 ( 5.5 ~ 0, 78.23 ~ 0)
Current value(mA)	0 ~ 850
Internal resistance( $\Omega$ )	5.1 $\pm$ 0.3

Automatic Transaxle System

## Circuit Diagram

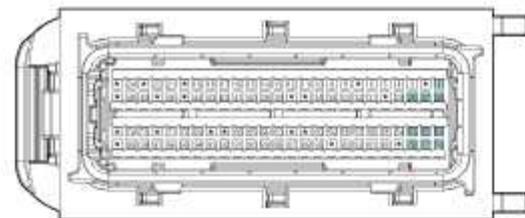
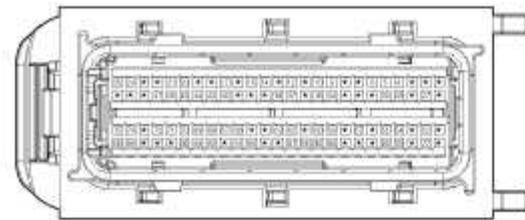
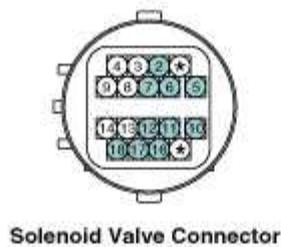
### [Circuit Diagram]



### [Connection Information]

Terminal	Connected to	Function
17	TCM(51)	Line Pressure Control Solenoid Valve
16	TCM(52)	Underdrive Brake Control Solenoid Valve
11	TCM(78)	26 Brake Control Solenoid Valve
12	TCM(53)	SS-B Solenoid Valve(ON/OFF)
5	TCM(76)	Solenoid Valve power 1
2	TCM(26)	Torque Converter Control Solenoid Valve
7	TCM(1)	Overdrive Clutch Control Solenoid Valve
6	TCM(27)	35R Clutch Control Solenoid Valve
18	TCM(28)	SS-A Solenoid Valve(ON/OFF)
10	TCM(77)	Solenoid Valve power 2

### [Harness Connector]



## Automatic Transaxle System

### Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")

3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.

5. Check that the resistance is within the specification.

Removal

#### NOTICE

Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve, replace the valve body assembly.

(Refer to Hydraulic System - "Valve Body")

#### Automatic Transaxle System

Description

Underdrive brake control solenoid valve(UD/B) is attached to the valve body. This variable force solenoid valve directly controls the hydraulic pressure inside the underdrive brake.



#### Automatic Transaxle System

Specifications

Direct control VFS[UD/B]

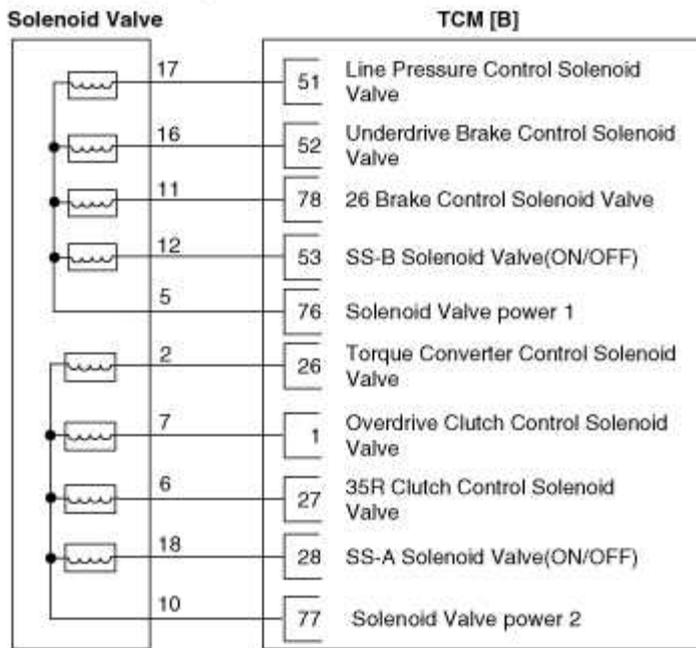
Control type : Normal high type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	539.370 ~ 0 ( 5.5 ~ 0, 78.23 ~ 0)
Current value(mA)	0 ~ 850
Internal resistance( $\Omega$ )	5.1 $\pm$ 0.3

#### Automatic Transaxle System

## Circuit Diagram

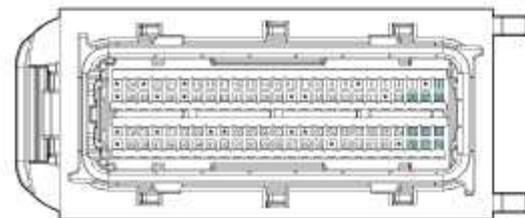
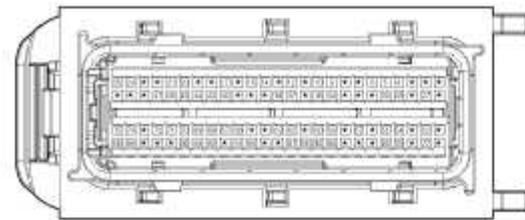
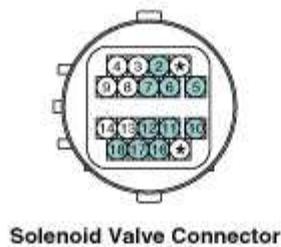
### [Circuit Diagram]



### [Connection Information]

Terminal	Connected to	Function
17	TCM(51)	Line Pressure Control Solenoid Valve
16	TCM(52)	Underdrive Brake Control Solenoid Valve
11	TCM(78)	26 Brake Control Solenoid Valve
12	TCM(53)	SS-B Solenoid Valve(ON/OFF)
5	TCM(76)	Solenoid Valve power 1
2	TCM(26)	Torque Converter Control Solenoid Valve
7	TCM(1)	Overdrive Clutch Control Solenoid Valve
6	TCM(27)	35R Clutch Control Solenoid Valve
18	TCM(28)	SS-A Solenoid Valve(ON/OFF)
10	TCM(77)	Solenoid Valve power 2

### [Harness Connector]



## Automatic Transaxle System

### Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")

3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.

5. Check that the resistance is within the specification.

#### Removal

#### NOTICE

Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve, replace the valve body assembly.

(Refer to Hydraulic System - "Valve Body")

#### Automatic Transaxle System

#### Description

Overdrive clutch control solenoid valve(OD/C) is attached to the valve body. This variable force solenoid valve directs the hydraulic pressure inside the overdrive clutch.



#### Automatic Transaxle System

#### Specifications

Direct control VFS[OD/C]

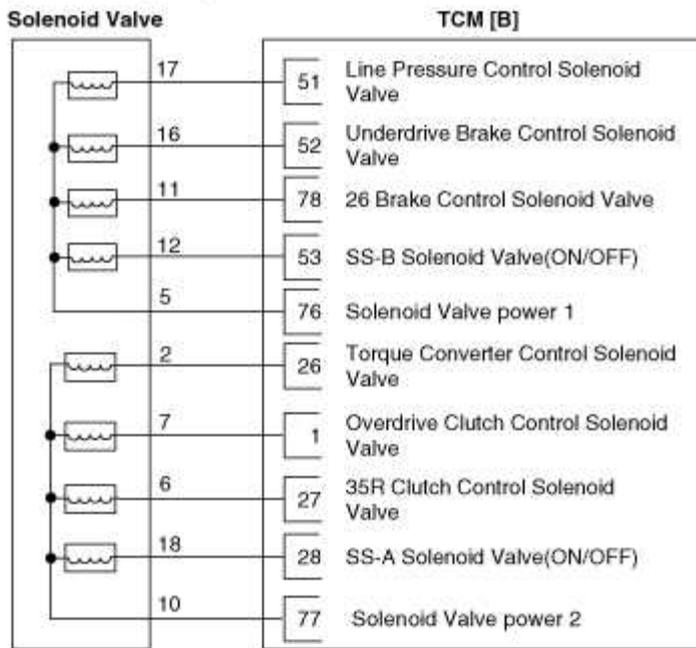
Control type : Normal high type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	539.370 ~ 0 ( 5.5 ~ 0, 78.23 ~ 0)
Current value(mA)	0 ~ 850
Internal resistance( $\Omega$ )	5.1 $\pm$ 0.3

#### Automatic Transaxle System

## Circuit Diagram

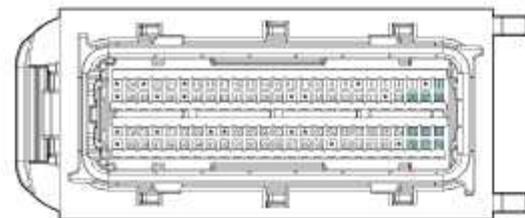
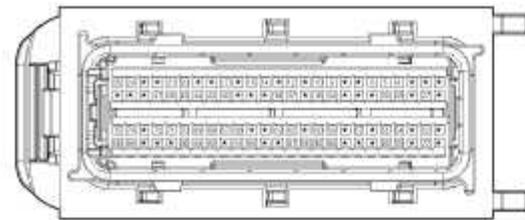
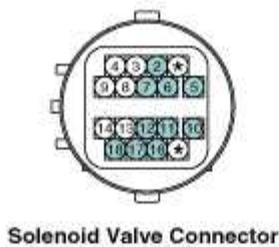
### [Circuit Diagram]



### [Connection Information]

Terminal	Connected to	Function
17	TCM(51)	Line Pressure Control Solenoid Valve
16	TCM(52)	Underdrive Brake Control Solenoid Valve
11	TCM(78)	26 Brake Control Solenoid Valve
12	TCM(53)	SS-B Solenoid Valve(ON/OFF)
5	TCM(76)	Solenoid Valve power 1
2	TCM(26)	Torque Converter Control Solenoid Valve
7	TCM(1)	Overdrive Clutch Control Solenoid Valve
6	TCM(27)	35R Clutch Control Solenoid Valve
18	TCM(28)	SS-A Solenoid Valve(ON/OFF)
10	TCM(77)	Solenoid Valve power 2

### [Harness Connector]



## Automatic Transaxle System

### Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")

3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.

5. Check that the resistance is within the specification.

#### Removal

#### NOTICE

Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve, replace the valve body assembly.

(Refer to Hydraulic System - "Valve Body")

#### Automatic Transaxle System

#### Description

SS-A solenoid valve is attached to the valve body and is an on/off solenoid valve that is used to change gears. SS-A Solenoid valve(ON/OFF) is installed at valve body.



#### Automatic Transaxle System

#### Specifications

ON/OFF Solenoid Valve(SS-A)

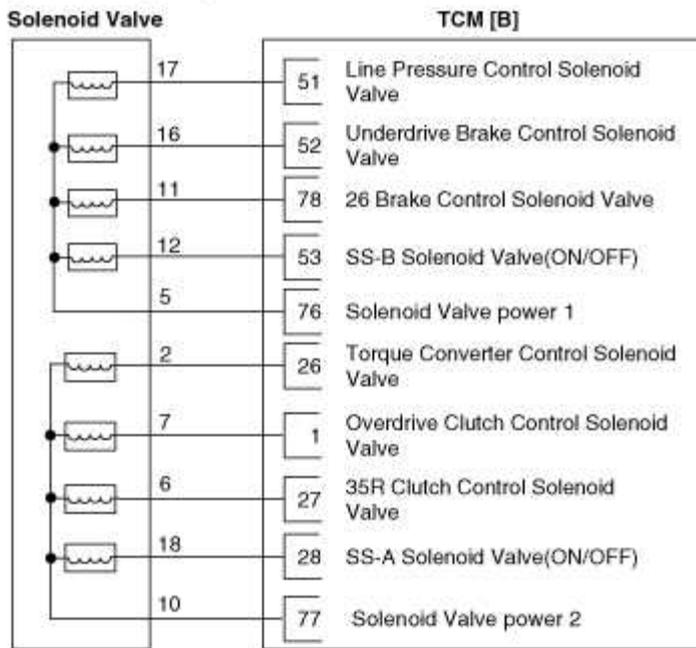
Control type : Normal low type

Control pressure kpa (kgf/cm <sup>2</sup> , psi)	490.33 (5.0, 71.12)
Internal resistance( $\Omega$ )	10 ~ 11

#### Automatic Transaxle System

## Circuit Diagram

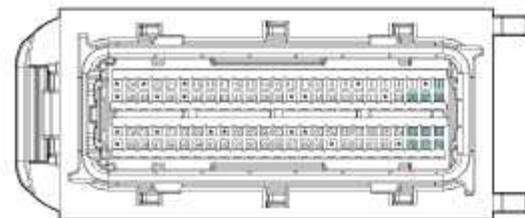
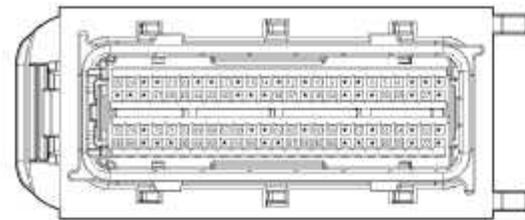
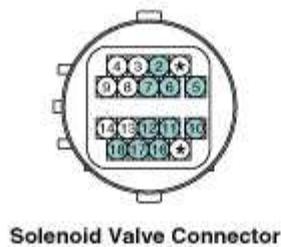
### [Circuit Diagram]



### [Connection Information]

Terminal	Connected to	Function
17	TCM(51)	Line Pressure Control Solenoid Valve
16	TCM(52)	Underdrive Brake Control Solenoid Valve
11	TCM(78)	26 Brake Control Solenoid Valve
12	TCM(53)	SS-B Solenoid Valve(ON/OFF)
5	TCM(76)	Solenoid Valve power 1
2	TCM(26)	Torque Converter Control Solenoid Valve
7	TCM(1)	Overdrive Clutch Control Solenoid Valve
6	TCM(27)	35R Clutch Control Solenoid Valve
18	TCM(28)	SS-A Solenoid Valve(ON/OFF)
10	TCM(77)	Solenoid Valve power 2

### [Harness Connector]



## Automatic Transaxle System

### Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")

3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.
5. Check that the resistance is within the specification.

#### Removal

1. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")
2. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
3. Remove the under cover.  
(Refer to Engine Mechanical System - "Engine Room Under Cover")
4. Drain the coolant.  
(Refer to Engine Mechanical System - "Coolant")
5. Remove the drain plug (A) and reinstall the drain plug after draining ATF totally.

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#### Tightening torque :

38.2 ~ 48.1 N.m (3.9 ~ 4.9 kgf.m, 28.2 ~ 35.4 lb-ft)

---



#### **CAUTION**

Replace the gasket before reinstalling the drain plug.

6. Remove the wiring bracket installation bolt (A).



7. Remove the ATF Injection hole(eyebolt) (A).



**CAUTION**

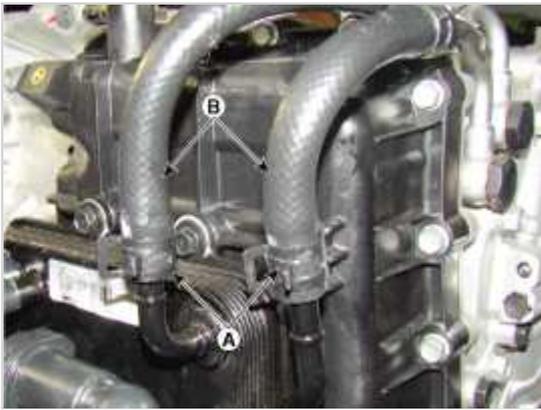
Replace the O-Ring (A) before reinstalling the eyebolt.



8. Disconnect the coolant hose (B) after removing the coolant hose clamp (A).

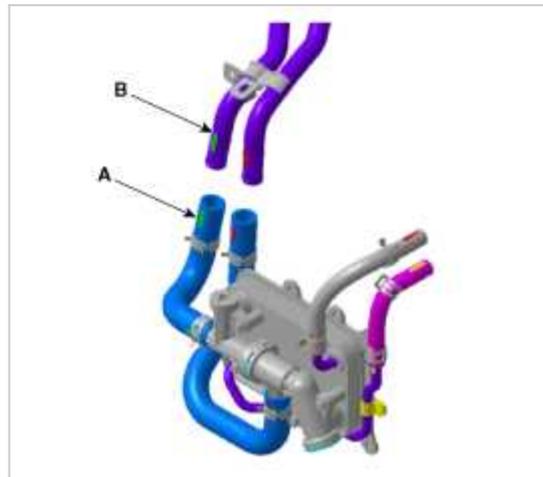


9. Disconnect the hose (B) after removing the automatic transaxle fluid cooler hose clamp (A).



**CAUTION**

When hose & pipe assembly  
Align marking of pipe (B), marking of hose (A), and matching color each other.



10. Remove the valve body cover (A).

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**Tightening torque:**

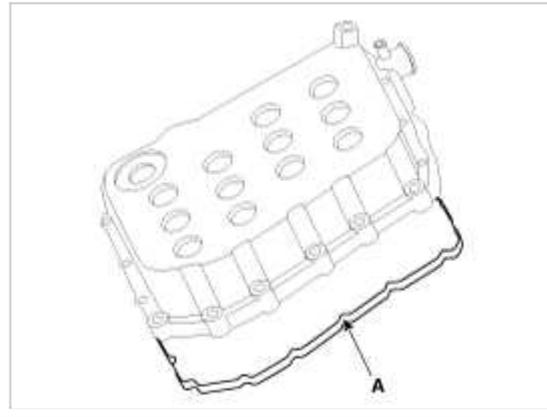
(A) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

---



**CAUTION**

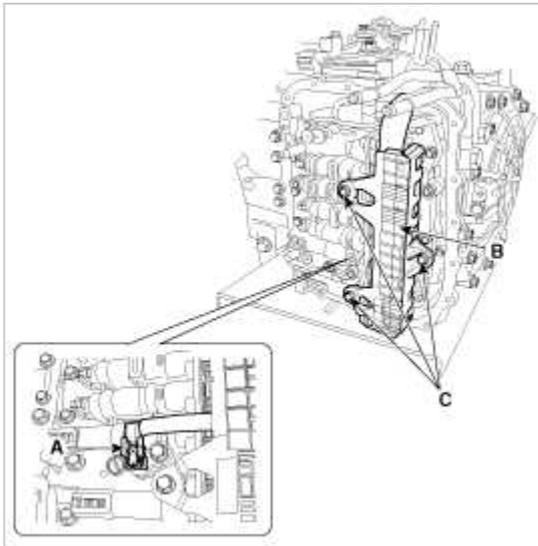
- Replace the gasket (A) before reinstalling the valve body cover.



11. Remove the bolts (C) after disconnecting the solenoid valve connector (B) and the oil temperature sensor connector.

**Tightening torque :**

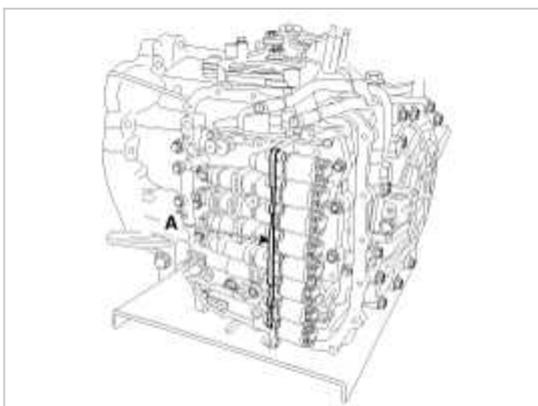
9.8 ~ 11.8 N.m (1.0 ~ 1.2 kgf.m, 7.2 ~ 8.7 lb-ft)



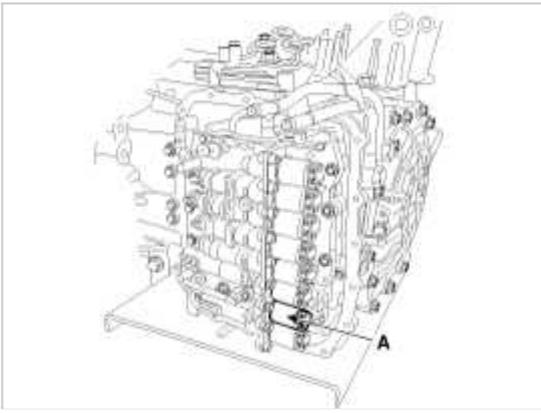
12. Remove the solenoid valve support bracket (A).

**Tightening torque :**

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

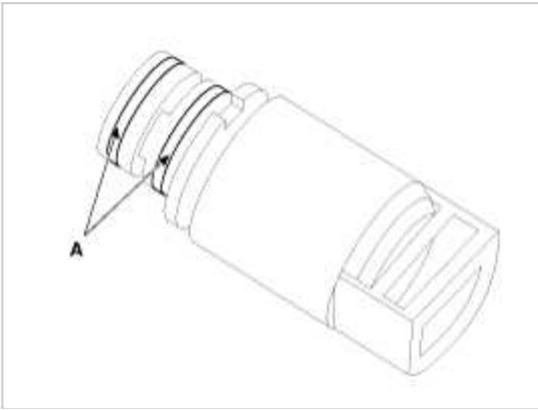


13. Remove the solenoid valve (A).



**CAUTION**

- When installing, apply the ATF oil or white vaseline to the O-ring (A) not to be damaged.



Installation

1. Install in the reverse order of removal.

**NOTICE**

- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")
- Adding Automatic Transaxle Fluid(ATF).  
(Refer to Hydraulic System - "Fluid")
- Perform Transaxle Control Module(TCM) learning after replacing the valve body to prevent slow transaxle response, jerky acceleration and jerky startup.  
(Refer to Automatic Transaxle Control System - "Repair procedures")

Automatic Transaxle System

Description

SS-B solenoid valve is attached to the valve body and is an on/off solenoid valve that is used to change gears. SS-B Solenoid valve(ON/OFF) is installed at valve body.



## Automatic Transaxle System

### Specifications

#### ON/OFF Solenoid Valve(SS-B)

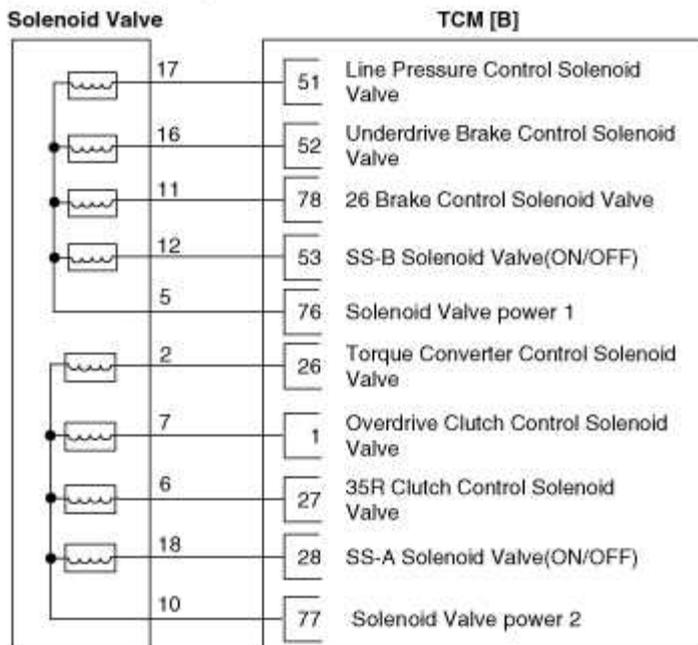
Control type : Normal low type

Control pressure kpa (kgf/cm <sup>2</sup> , psi)	490.33 (5.0, 71.12)
Internal resistance( $\Omega$ )	10 ~ 11

## Automatic Transaxle System

### Circuit Diagram

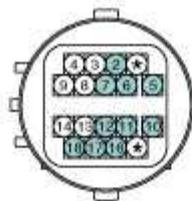
[Circuit Diagram]



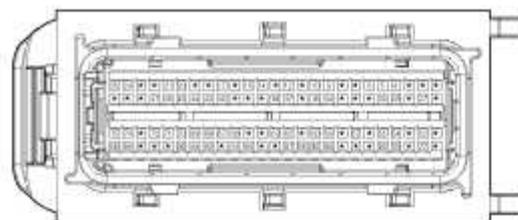
[Connection Information]

Terminal	Connected to	Function
17	TCM(51)	Line Pressure Control Solenoid Valve
16	TCM(52)	Underdrive Brake Control Solenoid Valve
11	TCM(78)	26 Brake Control Solenoid Valve
12	TCM(53)	SS-B Solenoid Valve(ON/OFF)
5	TCM(76)	Solenoid Valve power 1
2	TCM(26)	Torque Converter Control Solenoid Valve
7	TCM(1)	Overdrive Clutch Control Solenoid Valve
6	TCM(27)	35R Clutch Control Solenoid Valve
18	TCM(28)	SS-A Solenoid Valve(ON/OFF)
10	TCM(77)	Solenoid Valve power 2

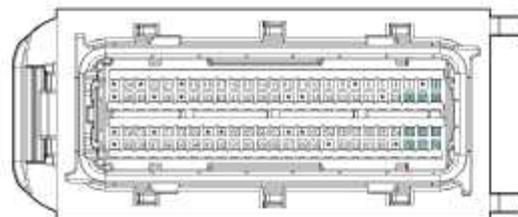
[Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

Automatic Transaxle System

Inspection

1. Turn ignition switch OFF.
2. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")

3. Disconnect the solenoid valve connector (A).



4. Measure resistance between sensor signal terminal and sensor ground terminal.
5. Check that the resistance is within the specification.

#### Removal

1. Remove the air duct.  
(Refer to Engine Mechanical System - "Air cleaner")
2. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
3. Remove the under cover.  
(Refer to Engine Mechanical System - "Engine Room Under Cover")
4. Drain the coolant.  
(Refer to Engine Mechanical System - "Coolant")
5. Remove the drain plug (A) and reinstall the drain plug after draining ATF totally.

---

#### Tightening torque :

38.2 ~ 48.1 N.m (3.9 ~ 4.9 kgf.m, 28.2 ~ 35.4 lb-ft)

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#### **CAUTION**

Replace the gasket before reinstalling the drain plug.

6. Remove the wiring bracket installation bolt (A).



7. Remove the ATF Injection hole(eyebolt) (A).



**CAUTION**

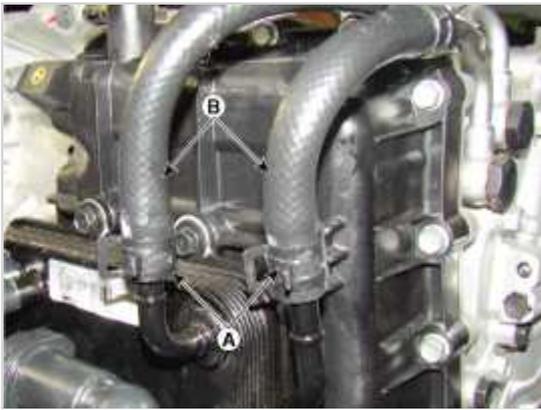
Replace the O-Ring (A) before reinstalling the eyebolt.



8. Disconnect the coolant hose (B) after removing the coolant hose clamp (A).

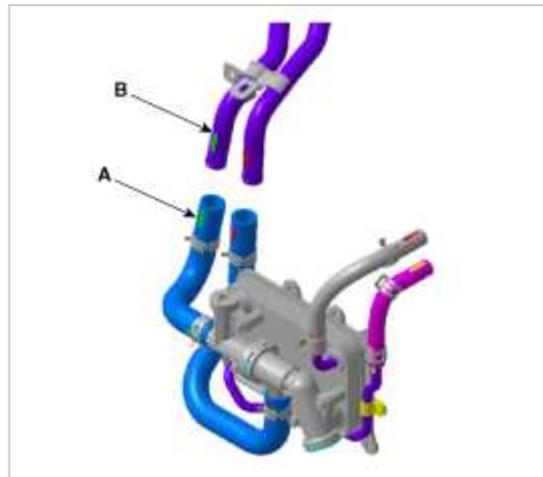


9. Disconnect the hose (B) after removing the automatic transaxle fluid cooler hose clamp (A).



**CAUTION**

When hose & pipe assembly  
Align marking of pipe (B), marking of hose (A), and matching color each other.



10. Remove the valve body cover (A).

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**Tightening torque:**

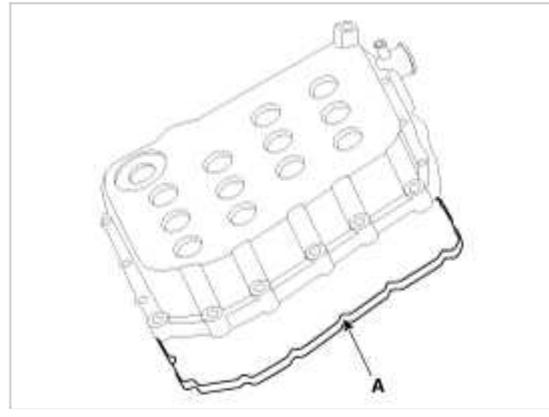
(A) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

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**CAUTION**

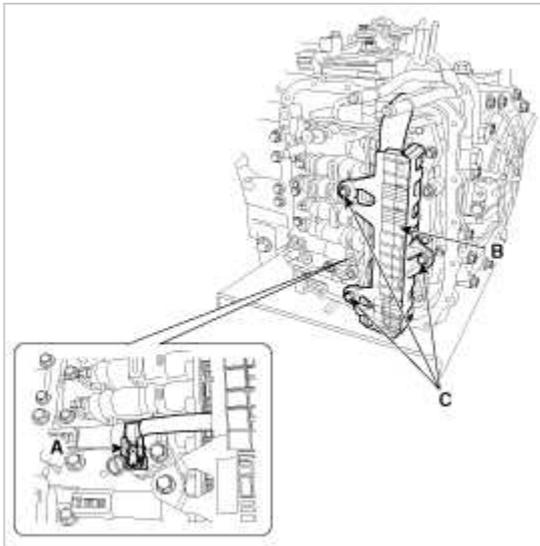
- Replace the gasket (A) before reinstalling the valve body cover.



11. Remove the bolts (C) after disconnecting the solenoid valve connector (B) and the oil temperature sensor connector.

**Tightening torque :**

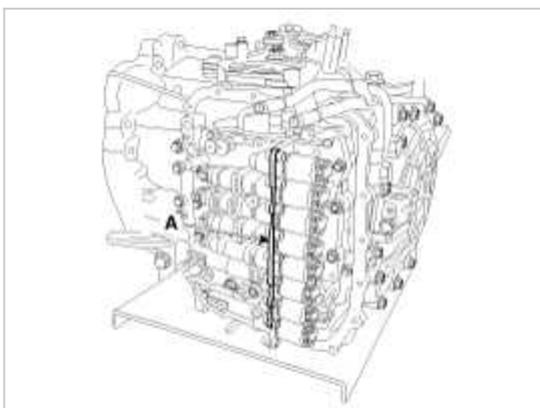
9.8 ~ 11.8 N.m (1.0 ~ 1.2 kgf.m, 7.2 ~ 8.7 lb-ft)



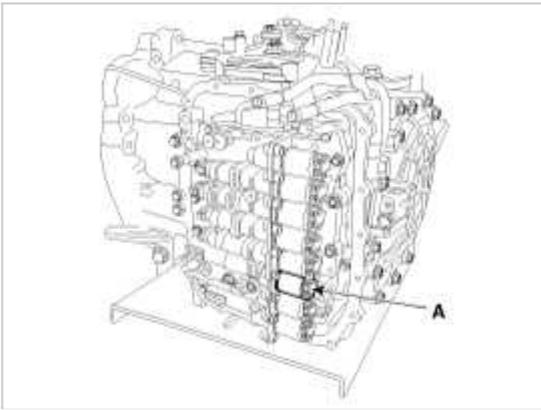
12. Remove the solenoid valve support bracket (A).

**Tightening torque :**

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

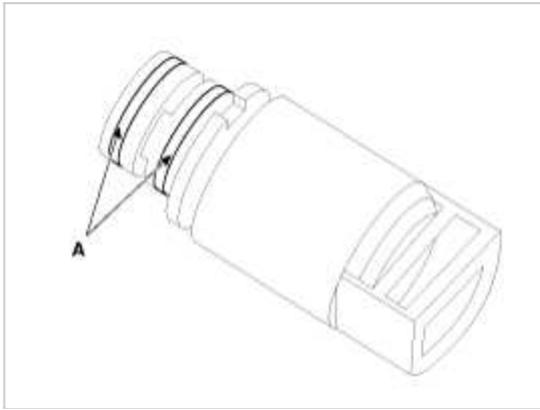


13. Remove the solenoid valve (A).



**CAUTION**

- When installing, apply the ATF oil or white vaseline to the O-ring (A) not to be damaged.



Installation

1. Install in the reverse order of removal.

**NOTICE**

- Adding coolant.  
(Refer to Engine Mechanical System - "Coolant")
- Adding Automatic Transaxle Fluid(ATF).  
(Refer to Hydraulic System - "Fluid")
- Perform Transaxle Control Module(TCM) learning after replacing the valve body to prevent slow transaxle response, jerky acceleration and jerky startup.  
(Refer to Automatic Transaxle Control System - "Repair procedures")

Automatic Transaxle System

Description

Inhibitor Switch monitors the lever's position(P, R, N, D) and is used to control gear setting signals.



## Automatic Transaxle System

### Specifications

Type: Combination of output signals from 4 terminals

### Specifications

Power supply (V)	12
Output type	Pin to Pin

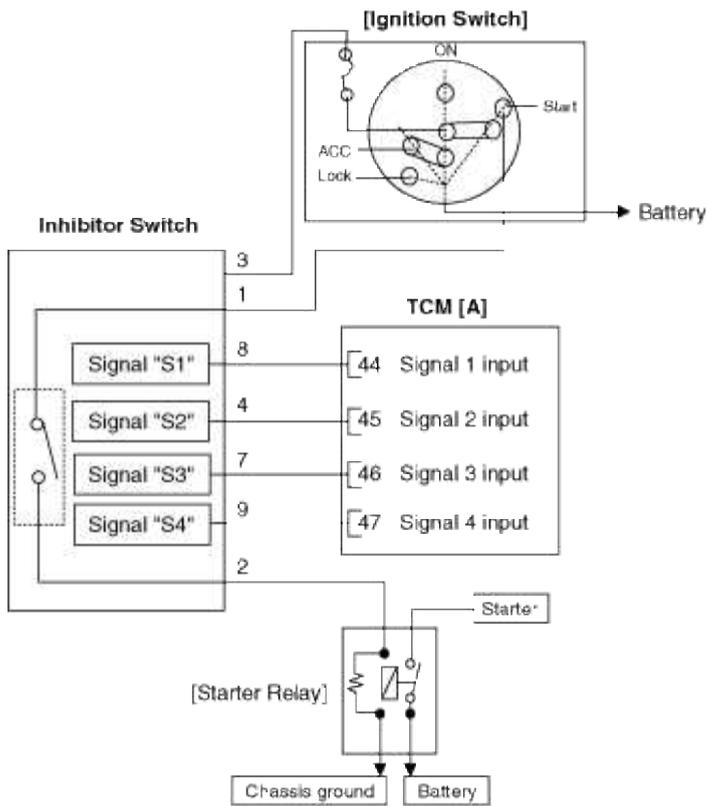
### Signal Code Table

	P	P-R	R	R-N	N	N-D	D
S1	12V	12V	0	0	0	0	0
S2	0	12V	12V	12V	0	0	0
S3	0	0	0	12V	12V	12V	0
S4	0	0	0	0	0	12V	12V

## Automatic Transaxle System

### Circuit Diagram

[Circuit Diagram]



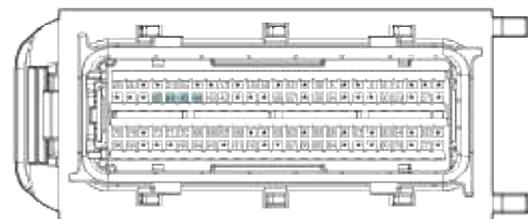
[Connection Information]

Terminal	Connected to	Function
8	TCM (44)	Signal 1 input
4	TCM (45)	Signal 2 input
7	TCM (46)	Signal 3 input
9	TCM (47)	Signal 4 input
3	Ignition switch	Ignition ON
1	Ignition switch	Starter power(ON)
2	Starter relay	Starter relay

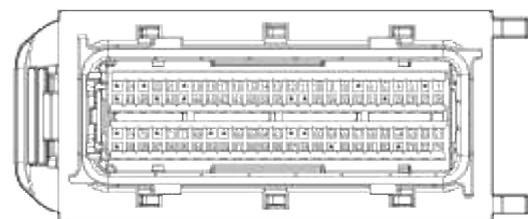
[Harness Connector]



Inhibitor Switch Connector



Connector [A]



Connector [B]

Automatic Transaxle System

Inspection

**NOTICE**

- Thoroughly check connectors for looseness, poor connection, bending, corrosion, contamination, deterioration, or damage.

Power Circuit Inspection

1. Disconnect the Inhibitor switch connector.
2. Ignition KEY "ON" & Engine "OFF".

3. Measure voltage between supplied power and ground at inhibitor circuit.

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**Specification :** Approx. 12V

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#### Signal Circuit Inspection

1. Connect the Inhibitor switch connector.
2. Ignition KEY "ON" & Engine "OFF".
3. Measure voltages between each terminal and chassis ground during shift lever changed "P, R, N, D".

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**Specification :** See below "Signal Code Table"

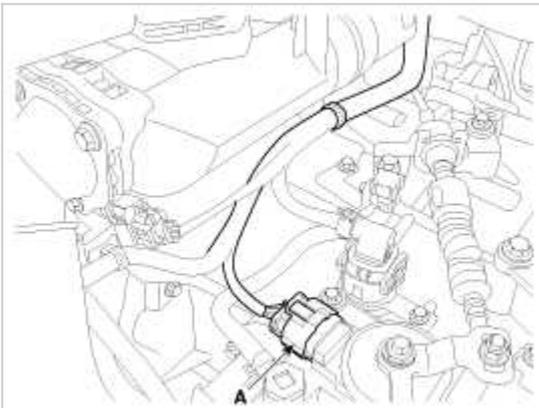
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#### Signal Code Table

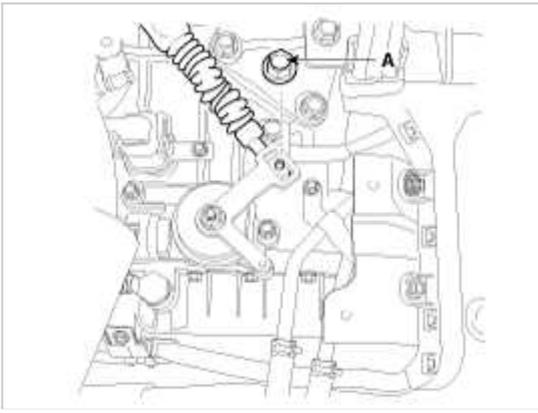
	<b>P</b>	<b>P-R</b>	<b>R</b>	<b>R-N</b>	<b>N</b>	<b>N-D</b>	<b>D</b>
Signal "1"	12V	12V	0	0	0	0	0
Signal "2"	0	12V	12V	12V	0	0	0
Signal "3"	0	0	0	12V	12V	12V	0
Signal "4"	0	0	0	0	0	12V	12V

#### Removal

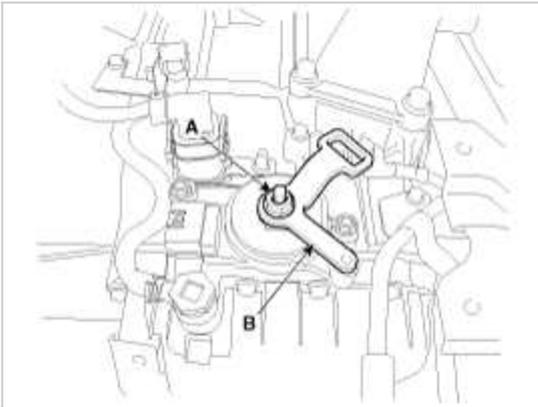
1. Place the shift lever into the "N" position.
2. Remove the air cleaner assembly.  
(Refer to Engine Mechanical System - "Air cleaner")
3. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
4. Disconnect the inhibitor switch connector (A).



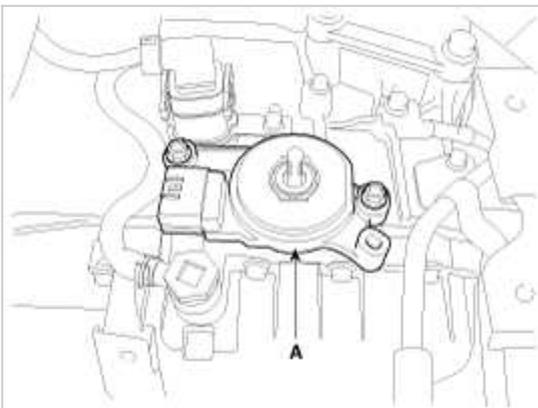
5. Remove the shift cable mounting nut (A).



6. Remove the manual control lever (B) and the washer after removing a nut (A).



7. Remove the inhibitor switch (A) after removing the bolts (2ea).



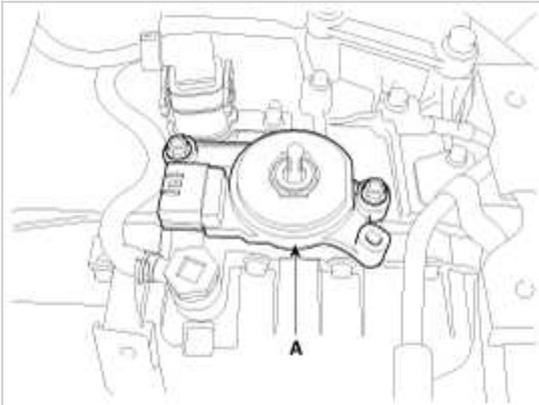
#### Installation

1. Check that the shift lever is placed in the "N" position

2. Install the inhibitor switch (A).

**NOTICE**

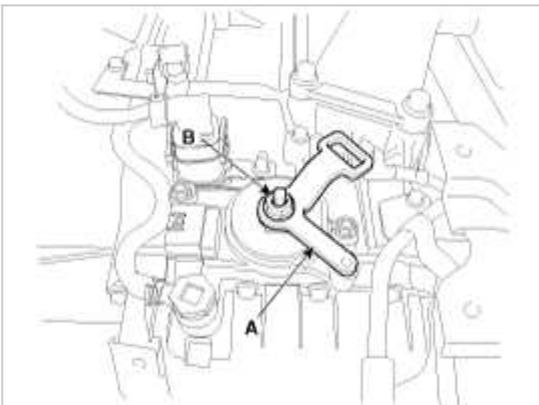
Lightly tighten the inhibitor switch mounting bolts so that necessary adjustments can be made.



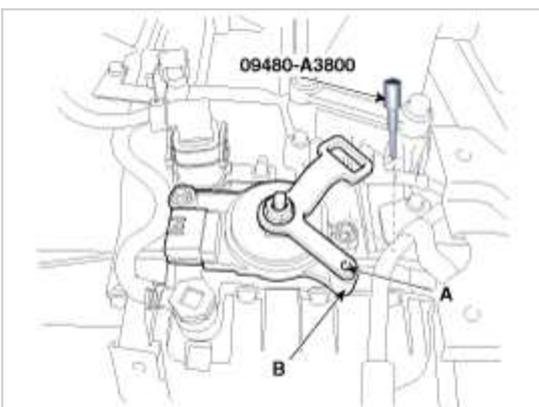
3. Install the manual control lever (A).

**NOTICE**

Lightly tighten the manual control lever nut (B) so that necessary adjustments can be made.



4. Align the hole (A) in the manual control lever with the "N" position hole (B) of the inhibitor switch and then insert inhibitor switch guide pin (09480-A3800).

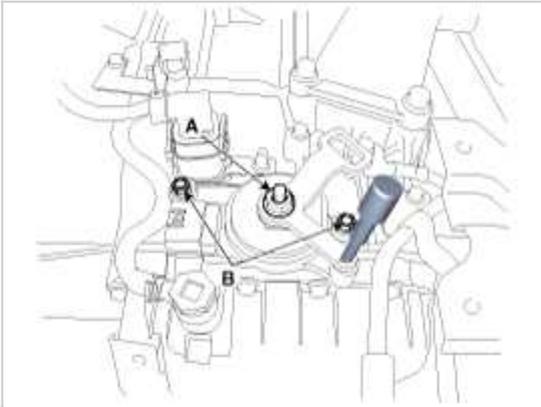


5. Tighten the nut (A) and bolts (B) with the specified torque.

**Tightening torque:**

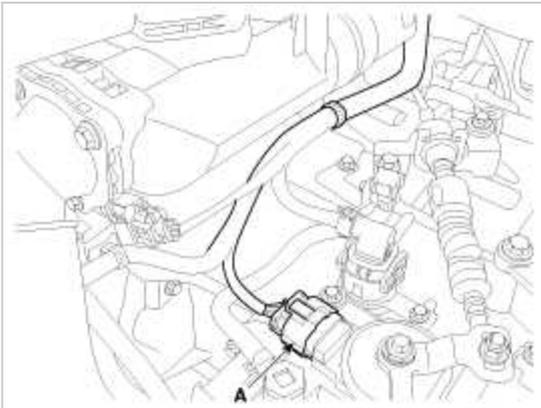
A : 17.7~24.5 N.m (1.8~2.5 kgf.m, 13.0 ~ 18.1 lb-ft)

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



6. Remove the SST (09480-A3800) from the hole.

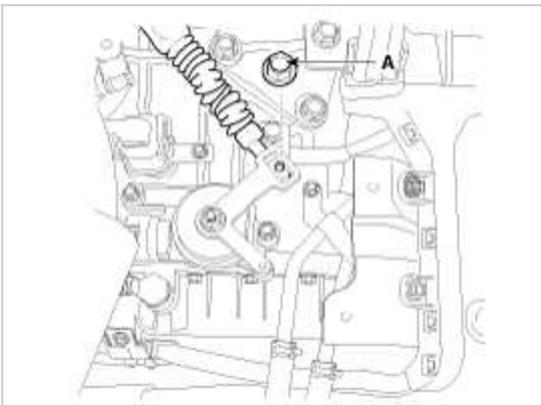
7. Connect the inhibitor switch connector (A).



8. Install the shift cable by tightening nut (A).

**NOTICE**

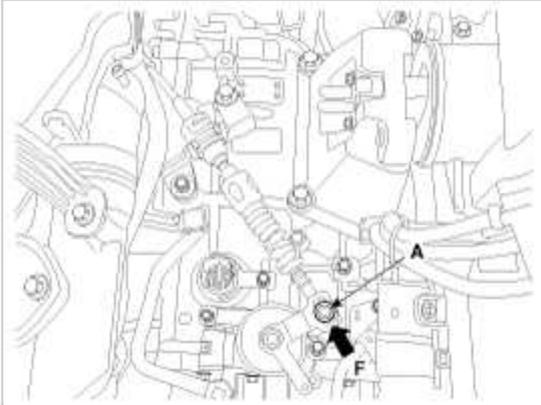
Lightly tighten the shift cable mounting nut (A) so that necessary adjustments can be made.



9. Push the shift cable to the arrow "F" to eliminate free play and then tighten the nut (A) with the specified torque.

**Tightening torque:**

8.8 ~ 13.7 N.m (0.9 ~ 1.4 kgf.m, 6.5 ~ 10.1 lb-ft)



10. Install the battery and battery tray.

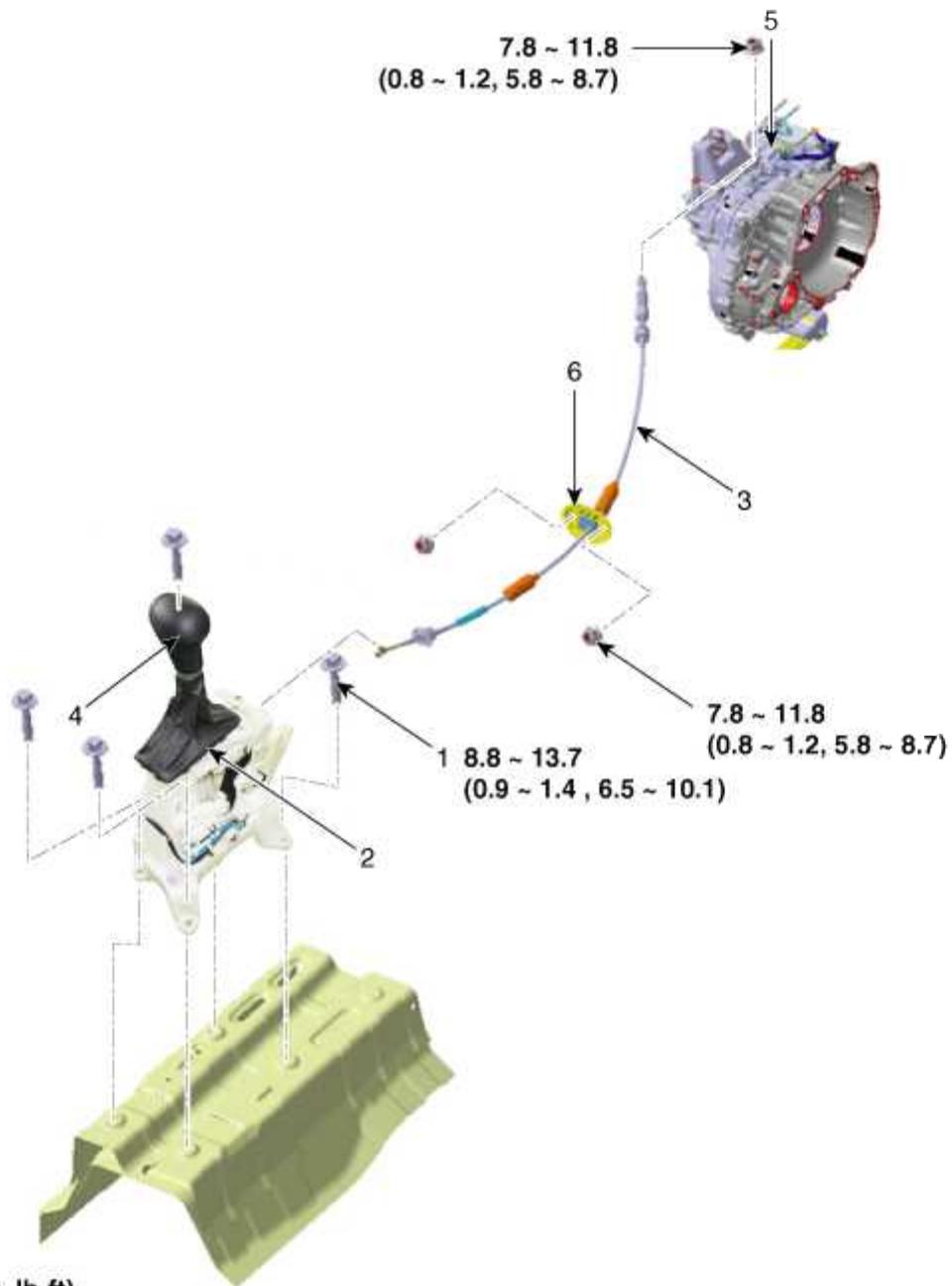
(Refer to Engine Electrical System - "Battery")

11. Install the air cleaner assembly.

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

Automatic Transaxle System

Components



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

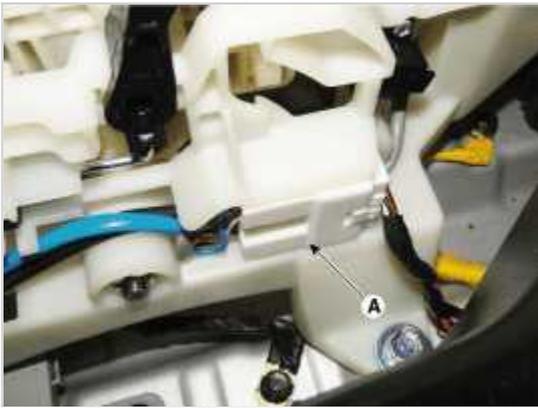
- |                              |                                      |
|------------------------------|--------------------------------------|
| 1. Shift lever mounting bolt | 4. Shift lever knob & boots assembly |
| 2. Shift lever assembly      | 5. Manual control lever              |
| 3. Shift cable assembly      | 6. Retainer                          |

#### Automatic Transaxle System

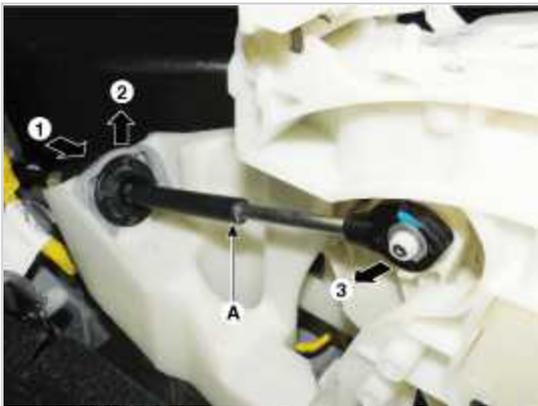
##### Removal

1. Remove the floor console.  
(Refer to Body - "Floor console")
2. Remove the air duct.

3. Disconnect the sports mode connector (A).



4. Disconnect the shift cable (A).



5. Remove the shift lever assembly (A) by removing the bolts (C-4ea).

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**Tightening torque :**

8.8 ~ 13.7 N.m (0.9 ~ 1.4 kgf.m, 6.5 ~ 10.1 lb-ft)

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Installation

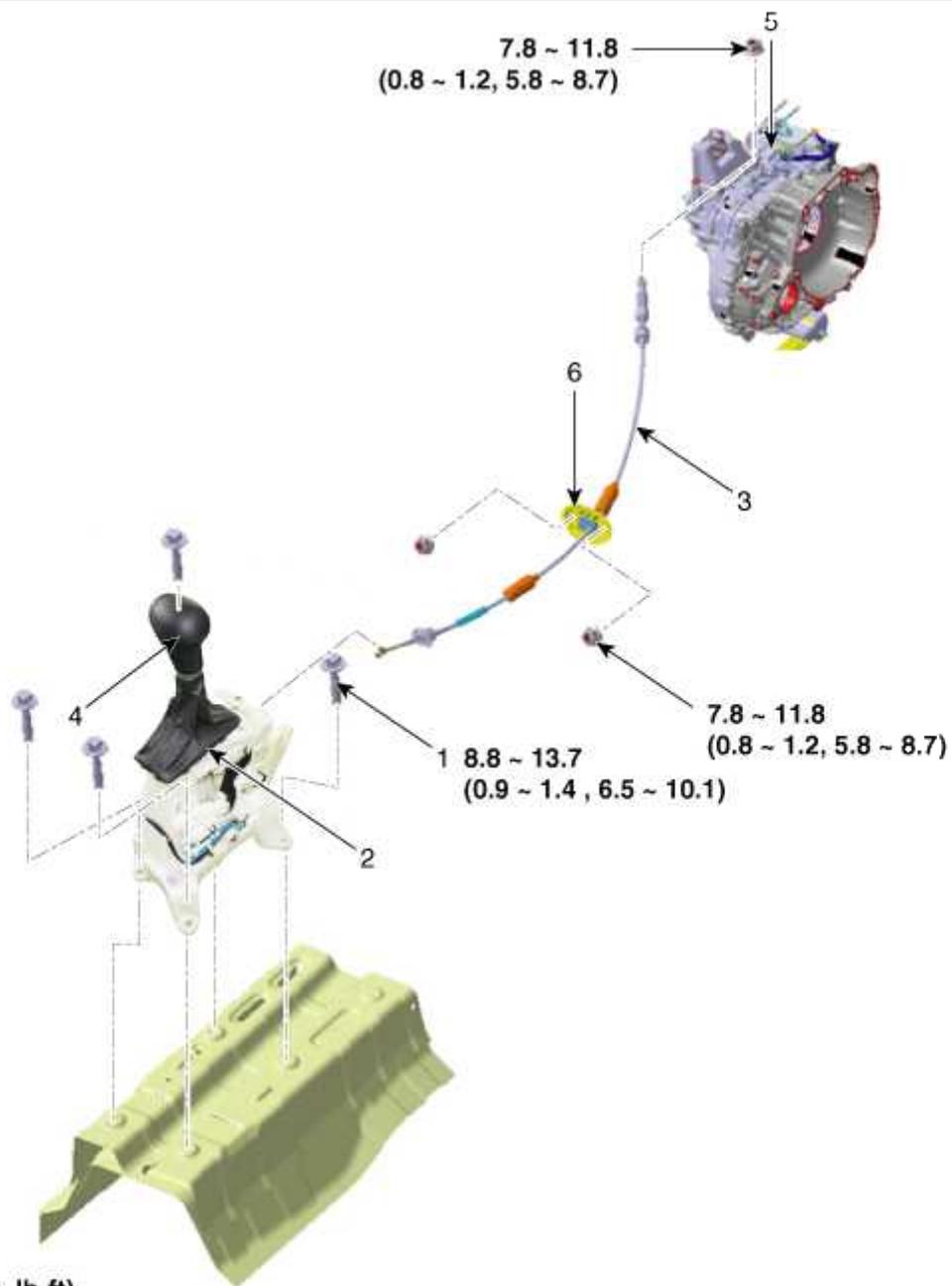
1. Install in the reverse order of removal.

**CAUTION**

Set shift lever and inhibitor switch manual control lever to "N" position.

Automatic Transaxle System

Components

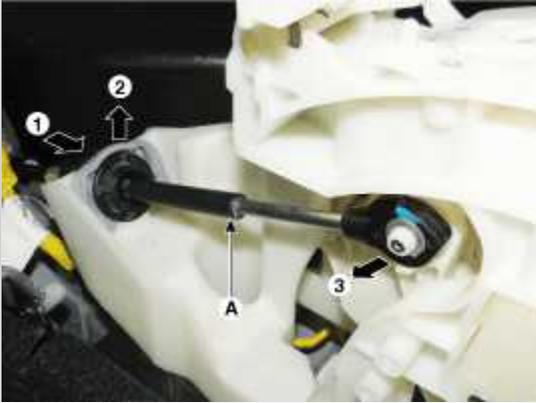


- |                              |                                      |
|------------------------------|--------------------------------------|
| 1. Shift lever mounting bolt | 4. Shift lever knob & boots assembly |
| 2. Shift lever assembly      | 5. Manual control lever              |
| 3. Shift cable assembly      | 6. Retainer                          |

Automatic Transaxle System

## Removal

1. Remove the floor console.  
(Refer to Body - "Floor console")
2. Remove the air duct.
3. Disconnect the shift cable (A).



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

---

### Tightening torque :

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

---



5. Remove the nut (C) from the manual control lever.

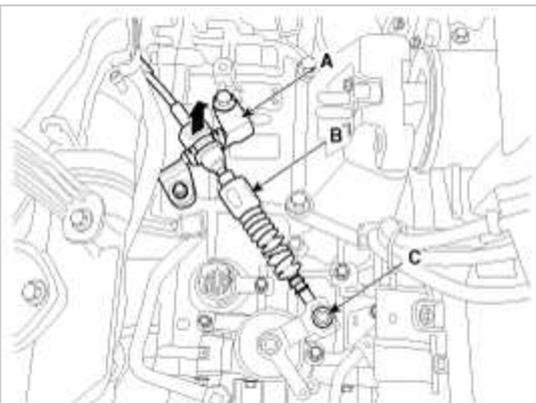
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### Tightening torque:

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

---

6. Remove the cable (B) from the bracket (A) at transaxle assembly side.
7. Remove the shift cable by pulling it toward the interior.



## Installation

1. Install in the reverse order of removal.

### **CAUTION**

Set shift lever and inhibitor switch manual control lever to "N" position.

## Adjustment

### **Adjusting method for T/M control cable**

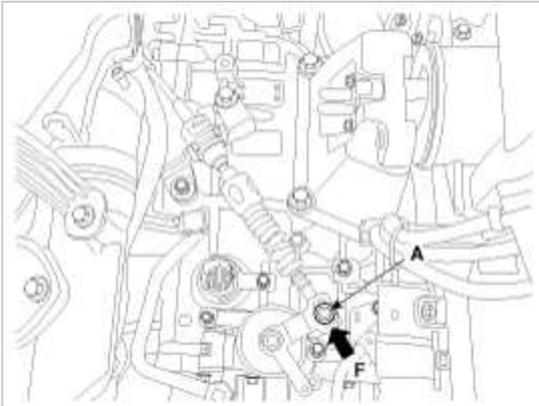
1. Set room side shift lever and T/M side manual control lever to "N" position.
2. Connect room side shift lever and shift cable.
3. Push cable to "F" direction shown to eliminate FREE PLAY.
4. Tighten adjusting nut (A).

---

### **Tightening torque :**

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

---



5. After adjusting according check to be sure that this part operates surely at each range of T/M side corresponding position of shift lever.