



## 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	Φ260mm(10.2362 in)	
Oil pump system	Parachoid	
Friction elements	Clutch: 2EA	
	Brake: 3EA	
	OWC : 1EA	
Planetary gear	3EA	
Gear ration	1st	4.252
	2nd	2.654
	3rd	1.804
	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	0.100
(140)284.0	0.06
(165)329.0	0.03

## Inhibitor 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 N/H	OD/C-VFS N/H	35R/C-VFS N/H	26/B-VFS 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 installation 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
Valve body cover mounting bolt	13.7 ~ 15.7	1.4 ~ 1.6	10.1 ~ 11.6
Injection hole (eyebolt)	4.9 ~ 5.9	0.5 ~ 0.6	3.6 ~ 4.3
Oil drain plug	34.3 ~ 44.1	3.5 ~ 4.5	25.3 ~ 32.6
Torque converter mounting bolt	45.1 ~ 52.0	4.6 ~ 5.3	33.3 ~ 38.3
Starter mounting bolt	49.0 ~ 63.7	5.0 ~ 6.5	36.2 ~ 47.0
Automatic transaxle upper mounting bolt (TM=>Eng)	63.7 ~ 83.4	6.5 ~ 8.5	47.0 ~ 61.5
	32.4 ~ 49.0	3.3 ~ 5.0	23.9 ~ 36.2
Automatic transaxle lower 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 support bracket nut	78.5 ~ 98.1	8.0 ~ 10.0	57.9 ~ 72.3
Automatic transaxle mounting bracket bolt	88.3 ~ 107.9	9.0 ~ 11.0	65.1 ~ 79.6

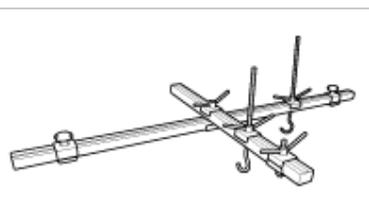
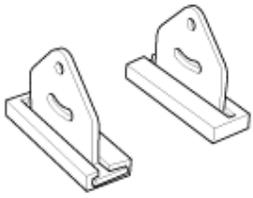
## Lubricants

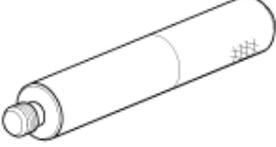
Item	Specified lubricant	Quantity
Transaxle fluid	ATF SP-IV or equivalent	7.8L (2.06 U.S. gal., 8.24 U.S.qt., 6.86 Imp.qt.)

## Automatic Transaxle System

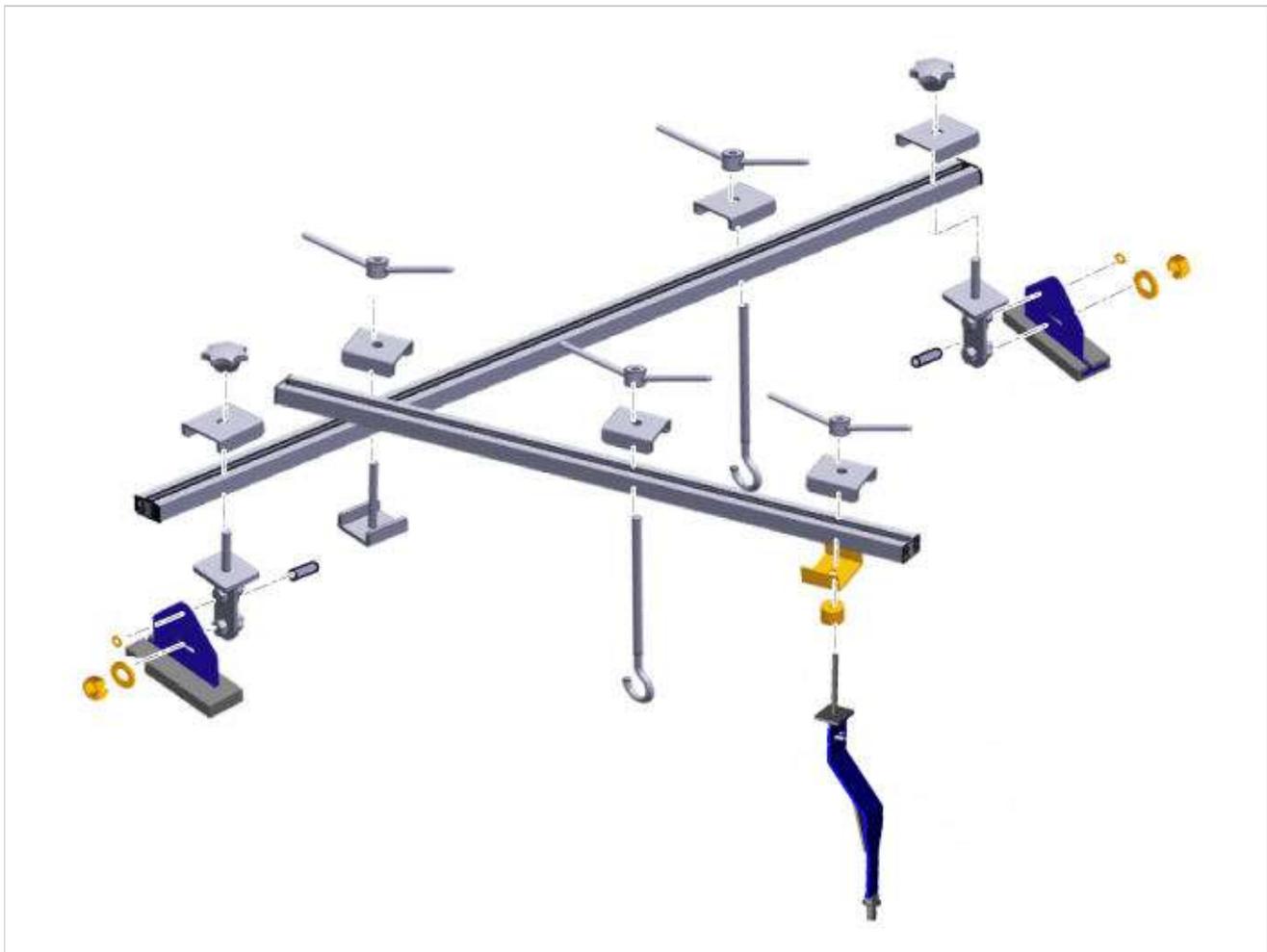


## Special Service Tools

Tools (Number and name)	Illustration	Use
09200-3N000 Engine support fixture (Beam)		Used for holding engine assembly when removing / installing transaxle. Used with the supporter (09200-2S200) and adapter (09200-1P100).
09200-2S200 Engine support fixture (Supporter)		Used for holding engine assembly when removing / installing transaxle. Used with the beam (09200-3N000) and adapter (09200-1P100).

<p>09200-1P100 Engine support fixture (Adaptor)</p>		<p>Used for holding engine assembly when removing / installing transaxle. Used with the beam (09200-3N000) and supporter (09200-2S200).</p>
<p>09453-3L240 Oil seal installer</p>		<p>Installation of transaxle oil seal. Used with the handle (09231-H1100).</p>
<p>09231-H1100 handle</p>		<p>Installation of transaxle oil seal. Used with the oil seal installer (09453-3L240).</p>
<p>09480-A3800 Inhibitor switch guide pin</p>		

※ Engine support fixture assembly drawing



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's home 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 solenoids).

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 backed up 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 fault 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 battery 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 for voltage 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.

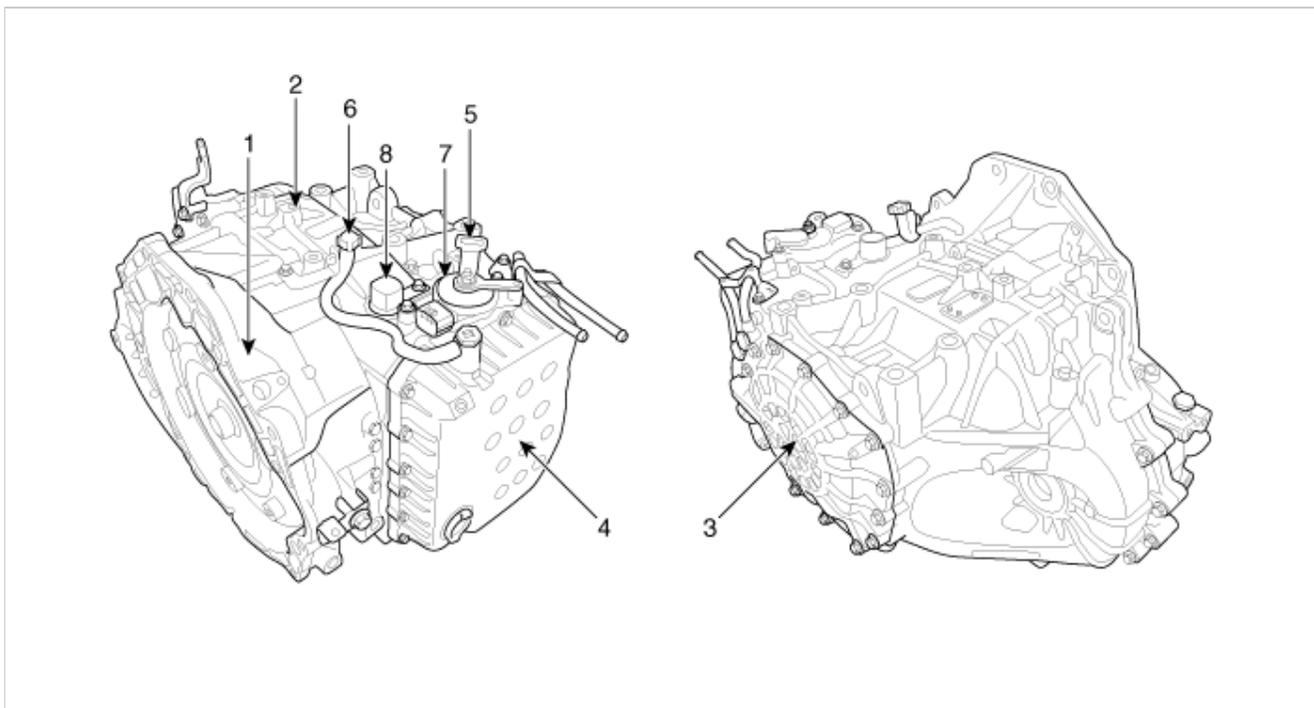
### ⚠ CAUTION

- 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



1. Converter housing
2. Automatic transaxle case
3. Rear cover
4. Valve body cover

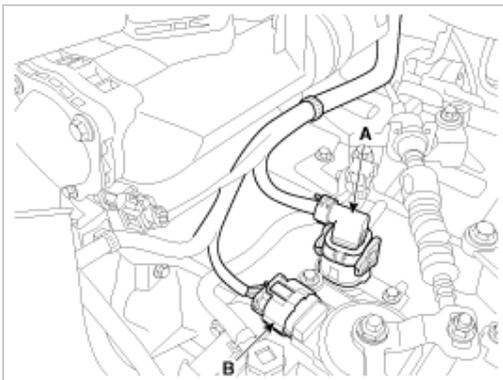
5. Manual control lever
6. Air breather hose
7. Inhibitor switch
8. Solenoid valve connector

## Automatic Transaxle System



### Removal

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

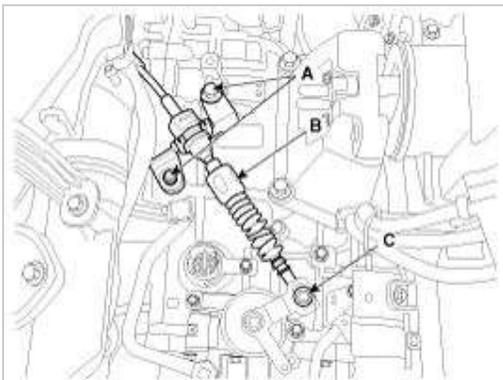


4. Remove the control cable (B) after removing the nut (C) and the bolt (A).

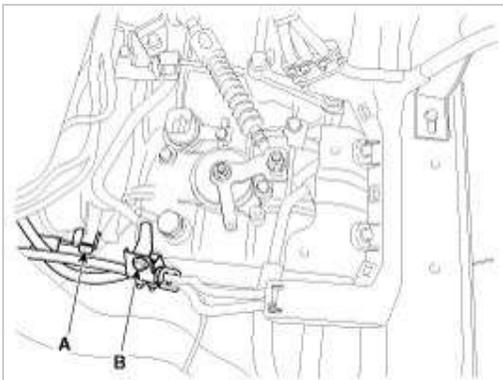
**Tightening torque**

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

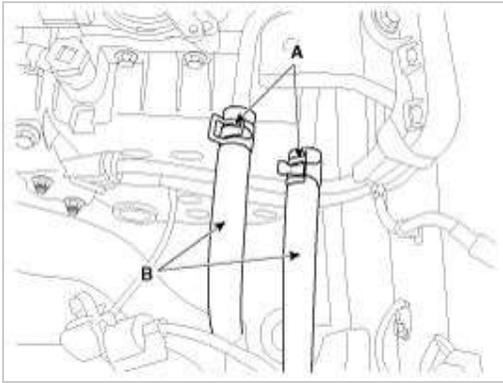
(C) 8.8 ~ 13.7 N.m (0.9 ~ 1.4 kgf.m, 6.5 ~ 10.1 lb-ft)



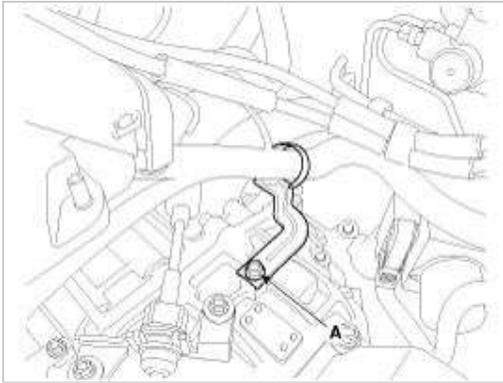
5. Remove the wiring bracket installation bolt (A, B).



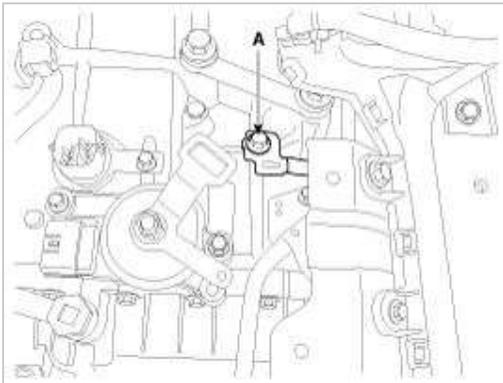
6. Disconnect the hose (B) after removing the automatic transaxle fluid cooler hose clamp (A).



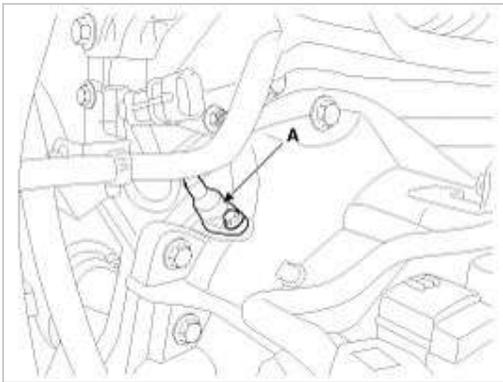
7. Remove the wiring bracket installation bolt (A).



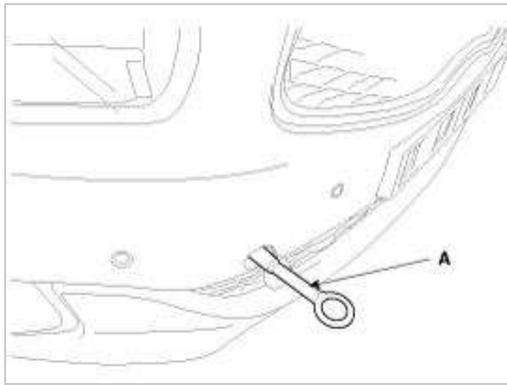
8. Remove the ground line after removing the bolt (A).



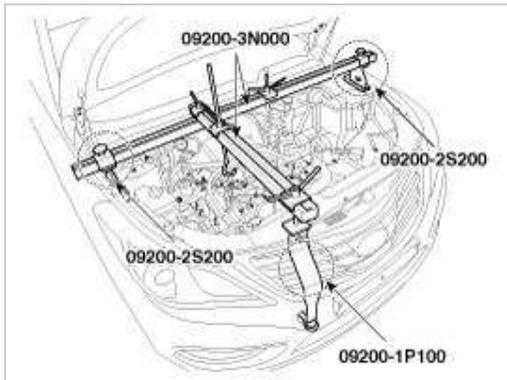
9. Remove the Crankshaft Position Sensor (A).



10. Install the towing eye (A).



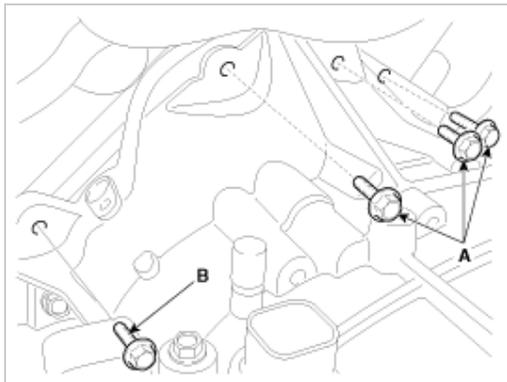
11. Assemble the engine support fixture.  
(Refer to Special Service Tools - "Engine support fixture assembly drawing")
12. Install the engine support fixture.



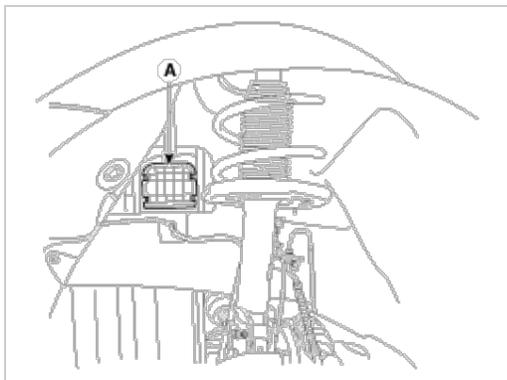
13. Remove the automatic transaxle upper mounting bolts (A, B).

**Tightening torque**

- (A): 63.7 ~ 83.4 N.m (6.5 ~ 8.5 kgf.m, 47.0 ~ 61.5 lb-ft)  
(B): 32.4 ~ 49.0 N.m (3.3 ~ 5.0 kgf.m, 23.9 ~ 36.2 lb-ft)



14. Remove the cover (A).



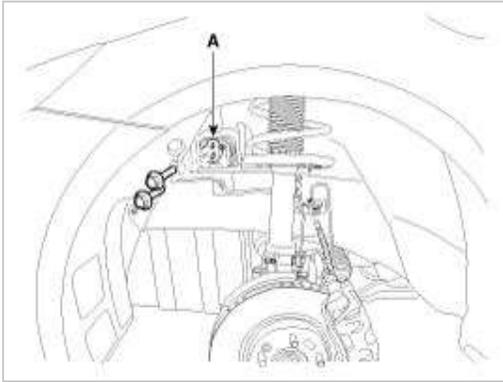
15. Remove the automatic transaxle mounting bracket bolt (A).

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**Tightening torque:**

88.2 ~ 107.8 N.m (9.0 ~ 11.0 Kgf.m, 65 ~ 79.5 lb-ft)

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16. Remove the automatic transaxle support bracket (A).

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**Tightening torque**

Bolt: 58.8 ~ 78.4 N.m (6.0 ~ 8.0 kgf.m, 43.3 ~ 57.8 lb-ft)

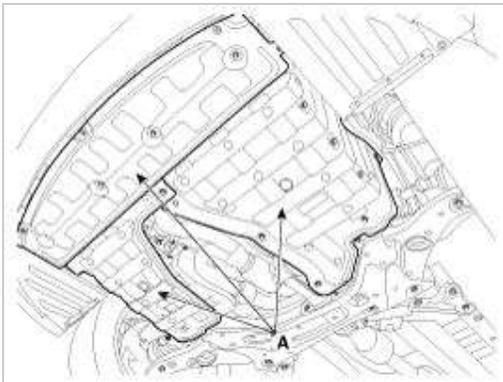
Nut: 78.5 ~ 98.1 N.m (8.0 ~ 10.0 kgf.m, 57.9 ~ 72.3 lb-ft)

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17. Lift the vehicle with a jack.

18. Remove the under cover (A).



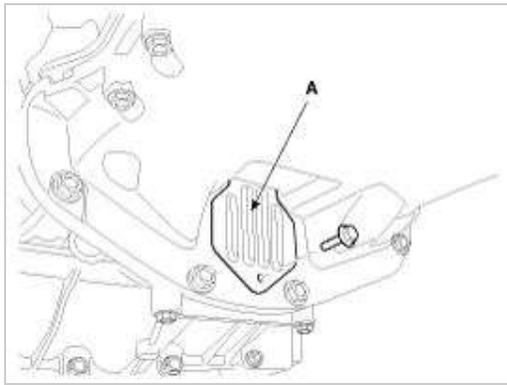
19. Remove the drive shaft assembly.  
(Refer to Driveshaft and axle - "Front Driveshaft")
20. Remove the sub frame assembly.  
(Refer to Suspension System - "Sub Frame")
21. Remove the bell housing cover (A).

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**Tightening torque:**

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

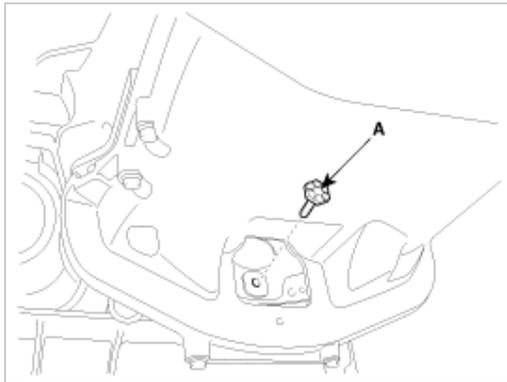
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22. Remove the torque converter mounting bolt (A-6ea) with rotating the crankshaft.

**Tightening torque:**

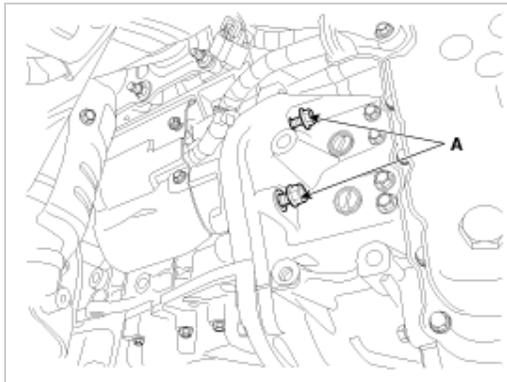
45.1 ~ 52.0 N.m (4.6 ~ 5.3 kgf.m, 33.3 ~ 38.3 lb-ft)



23. Remove the starter mounting bolt (A).

**Tightening torque:**

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

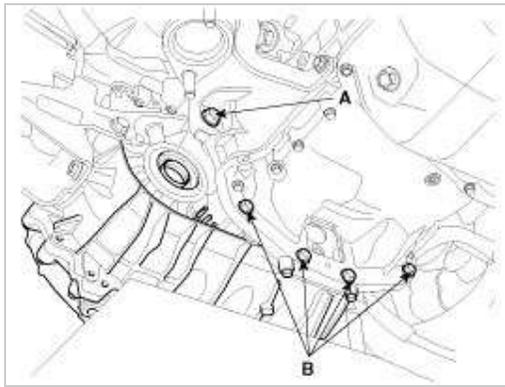


24. Remove the automatic transaxle with a jack after removing the mounting bolt (A-1ea, B-4ea).

**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)



## 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 (oil seal installer, 09453-3L240).

### NOTICE

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

- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- After replacing the automatic transaxle, clear the Diagnostic Trouble Code(DTC) using the GDS tool. DTC cannot be cleared by disconnecting the battery.
- When replacing the automatic transaxle, reset the automatic transaxle's values by using the GDS.

#### Resetting Auto T/A Values



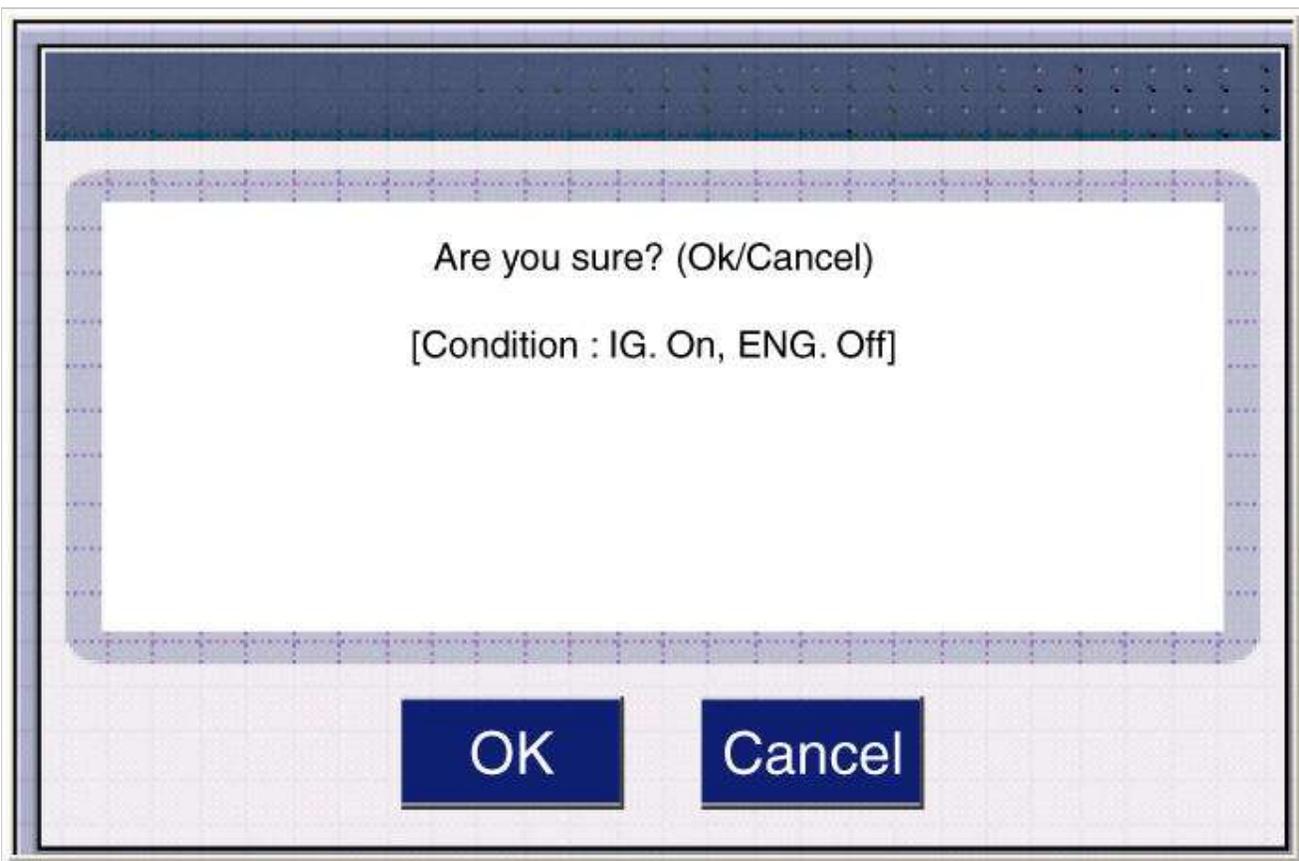
[Resetting Auto T/A Values]

This function is for resetting the adaptive values from the used Auto T/A when replacing it.

<Condition>

1. IG. Key On
2. Transaxle Range : P
3. Vehicle Speed : 0 km/h
4. Engine Off

Reset Cancel



• 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")

## Automatic Transaxle System



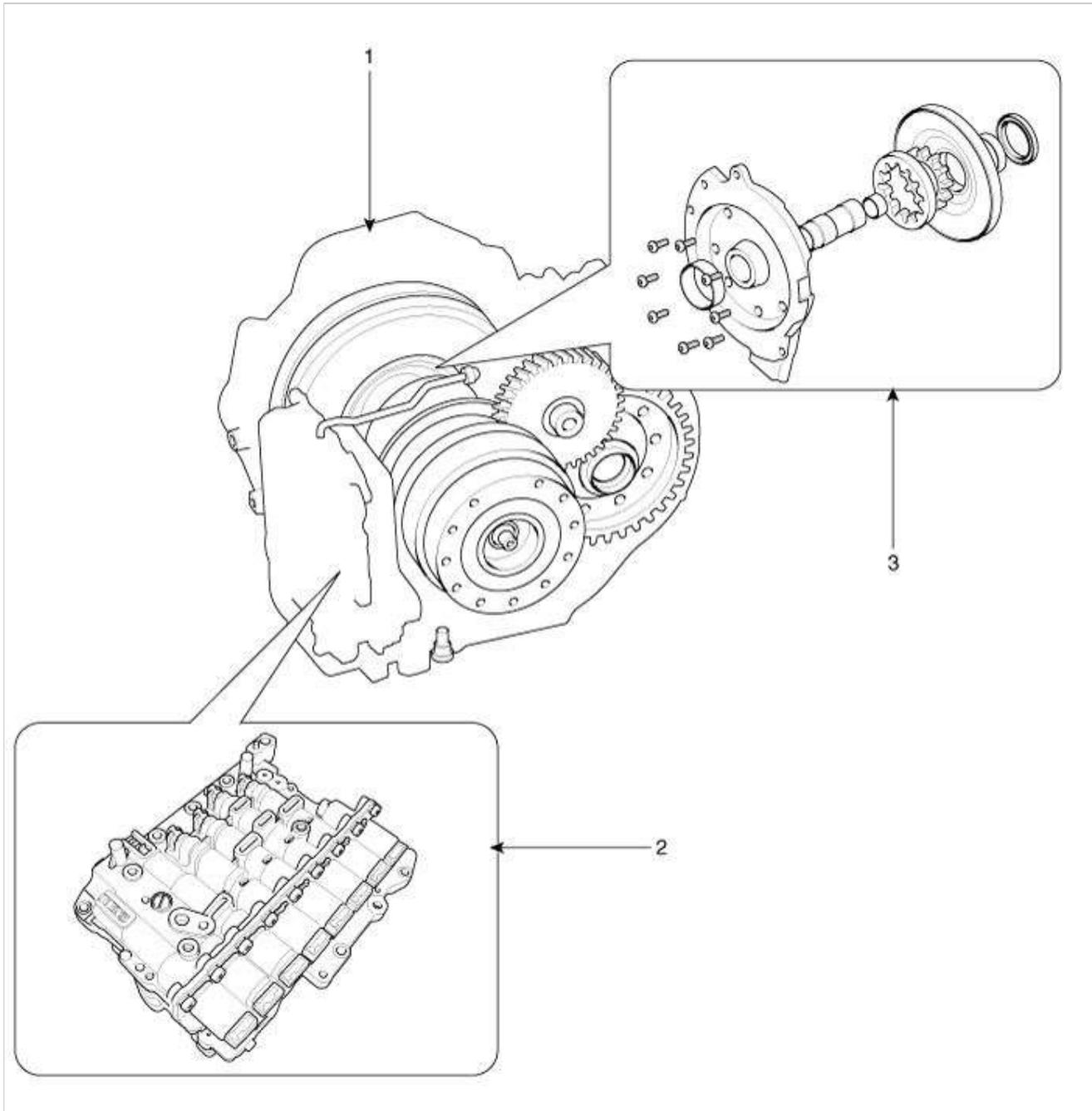
### Description

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



### Components Location

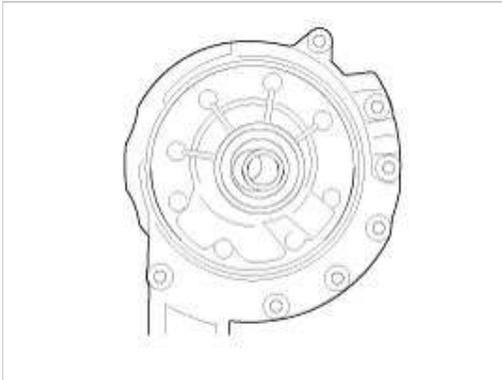


1. Automatic transaxle
2. Valve body assembly
3. Oil pump assembly



## Description

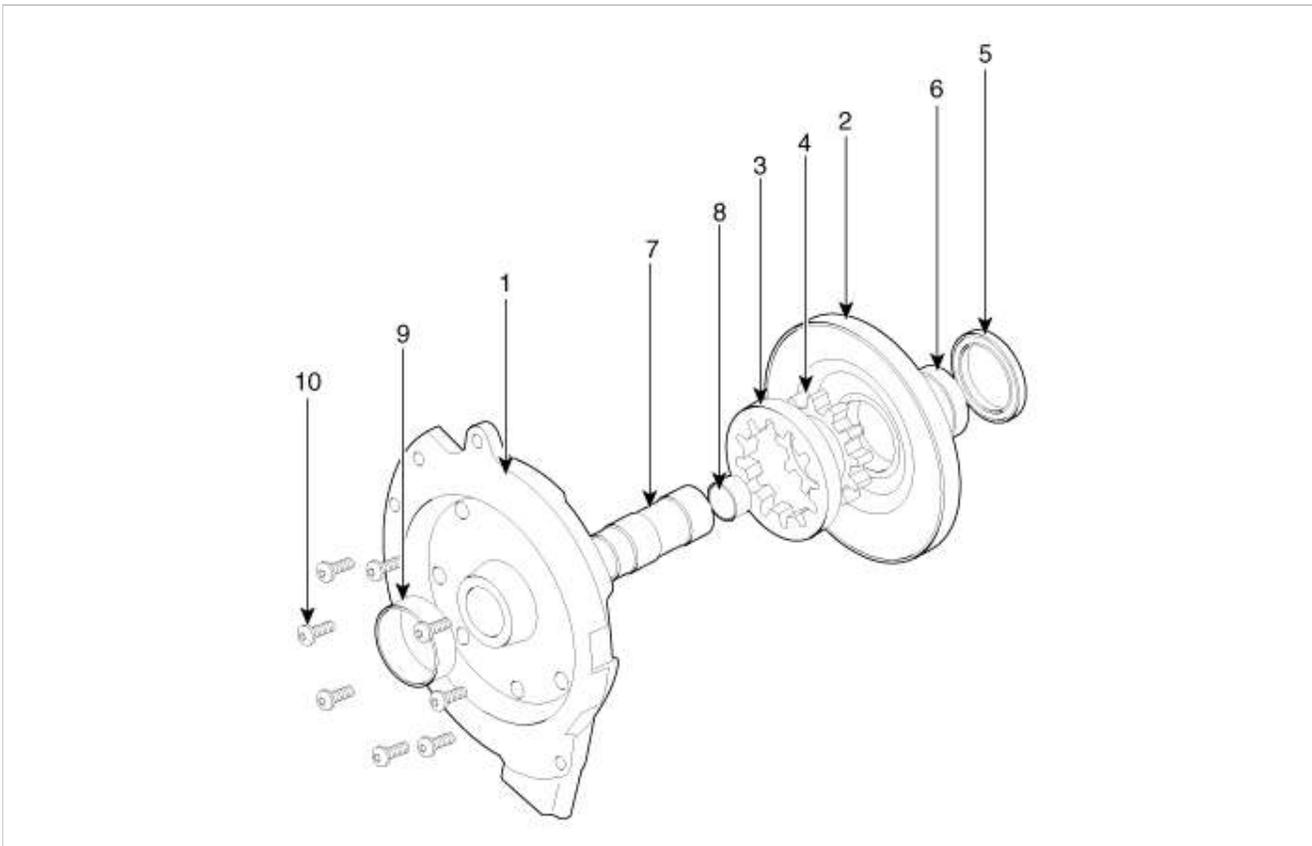
The oil pump is built-in as a single unit with the 26 Brake chamber. Rotation of the pump builds the hydraulic pressure needed for the lubrication of the various parts of the transaxle and operation of the clutch and brakes. The oil also circulates through the torque converter and the cooler.



Automatic Transaxle System



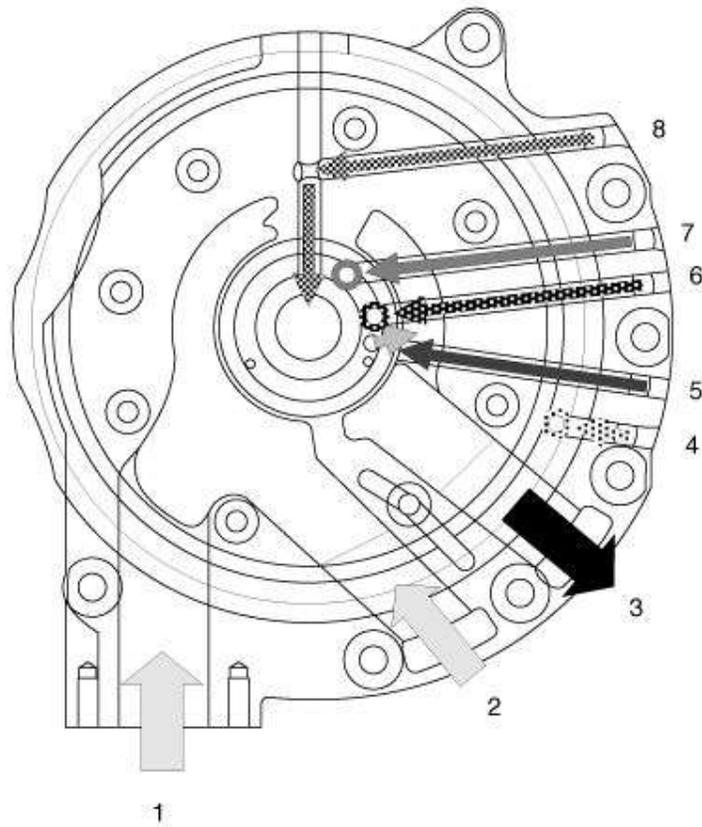
## Components



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. Bolt

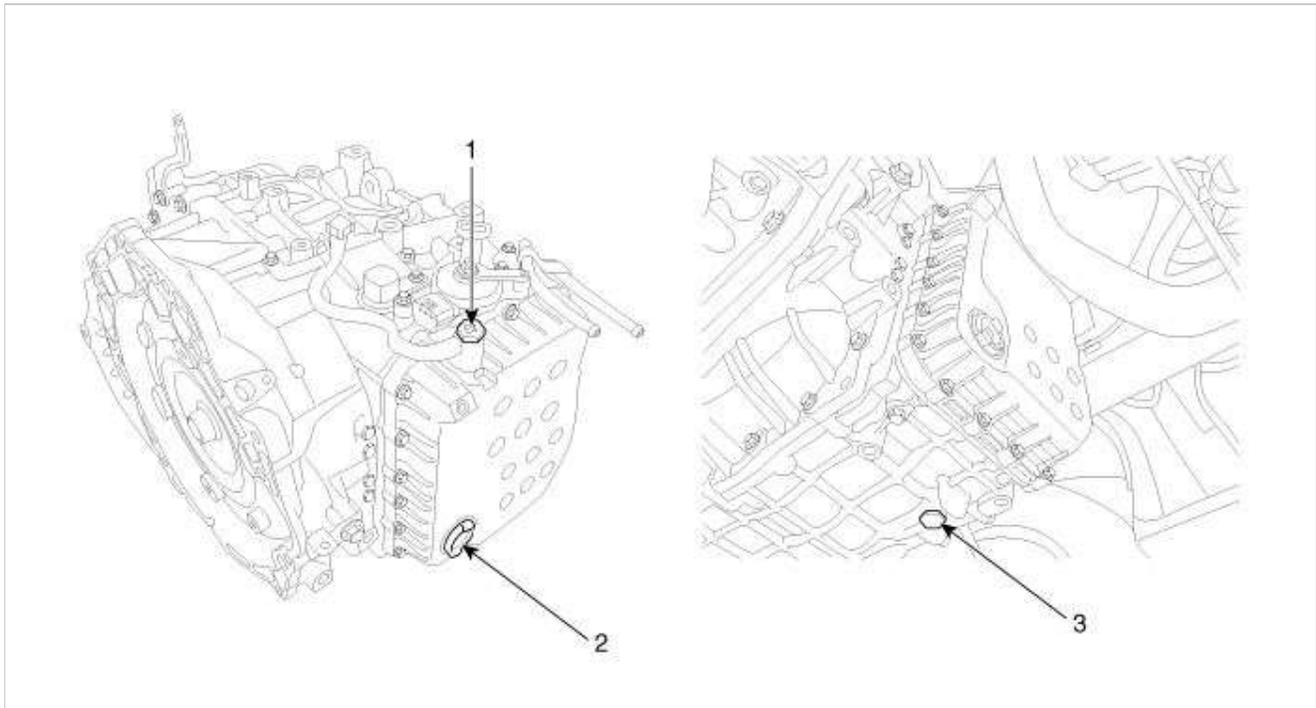
## Oil Pump Operation Flow



- 1. Inhale(Oil filter)
- 2. Inhale(Valve body)
- 3. Outlet
- 4. 26/B operation pressure

- 5. 35R/C operation pressure
- 6. Lubrication
- 7. Line up clutch operation pressure
- 8. Line up clutch cancellation





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

#### Automatic Transaxle System



### Service Adjustment Procedure

#### Oil level Check

##### **NOTICE**

A check of Automatic Transaxle Fluid(ATF) level is not normally required during scheduled services. If an oil leak is found, perform the oil level check 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 eyebolt (A).

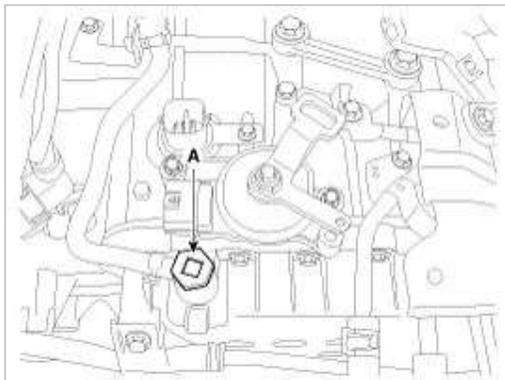
##### **Eyebolt tightening torque:**

4.9 N.m ~ 5.9 N.m (0.5 ~ 0.6 kgf.m, 3.6 ~ 4.3 lb.ft)

##### **CAUTION**

Always replace the gasket of the eyebolt use new one whenever loosening eyebolt.

2. Add ATF SP-IV 700cc to the ATF injection hole.

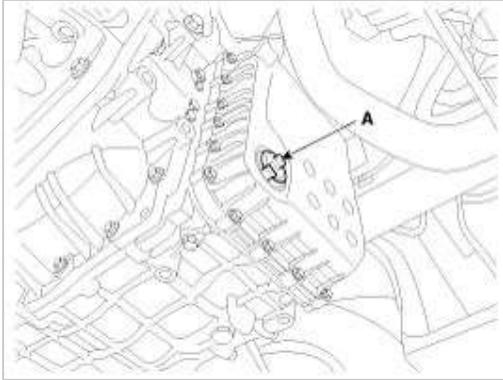


3. Start the engine. (Don't step on brake and accelerator simultaneously.)
4. Confirm that the temperature of the Automatic Transaxle(AT) Oil Temperature Sensor(OTS) is 50~60°C(122~140°F) with the GDS.
5. Shift the select lever slowly from "P" to "D", then "D" to "P" and repeat one more at idle.

**⚠ 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 at a level 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: Oil flows out in thick stream.
- Shortage: No oil flows out of the overflow plug.

**⚠ CAUTION**

If there is no damage at the automatic transaxle and the oil cooler, the oil cooler hose, transaxle case, valve body tightening state are normal, ATF must drip out after performing above 1 to 7 procedures. After performing Steps 1 to 7, if the oil doesn't flow out in a thin steady stream, inspect the transaxle for an oil leak. If no oil leaks are found, perform Steps 2~7 again.

**⚠ CAUTION**

Replace the gasket of the oil level plug and use new one whenever loosening the oil level plug.

**To tighten oil level plug:**

Turn the oil level plug clockwise until it is set.

8. Put down the vehicle with the lift and then tighten the eyebolt.

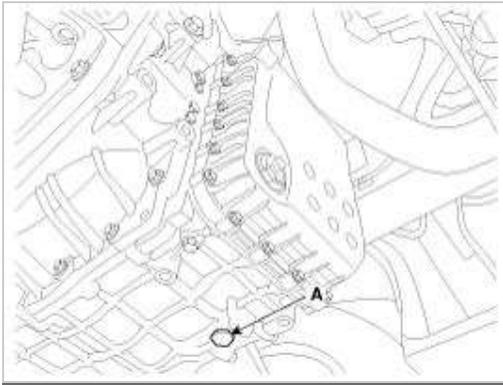
## Replacement

**NOTICE**

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

- 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 drain the ATF totally. Reinstall the drain plug.



**Drain plug tightening torque:**

34.3 ~ 44.1 N.m (3.5 ~ 4.5 kgf.m, 25.3 ~32.6 lb-ft)

**⚠ CAUTION**

The gasket of the drain plug use new one.

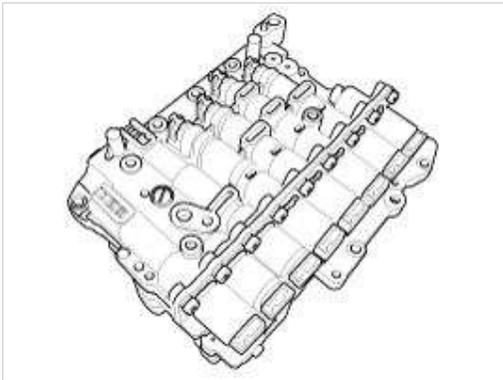
2. Fill the oil about 5 liters through eyebolt.
3. Check the oil level.  
(Refer to Hydraulic System - "Fluid")

**Automatic Transaxle System**



**Description**

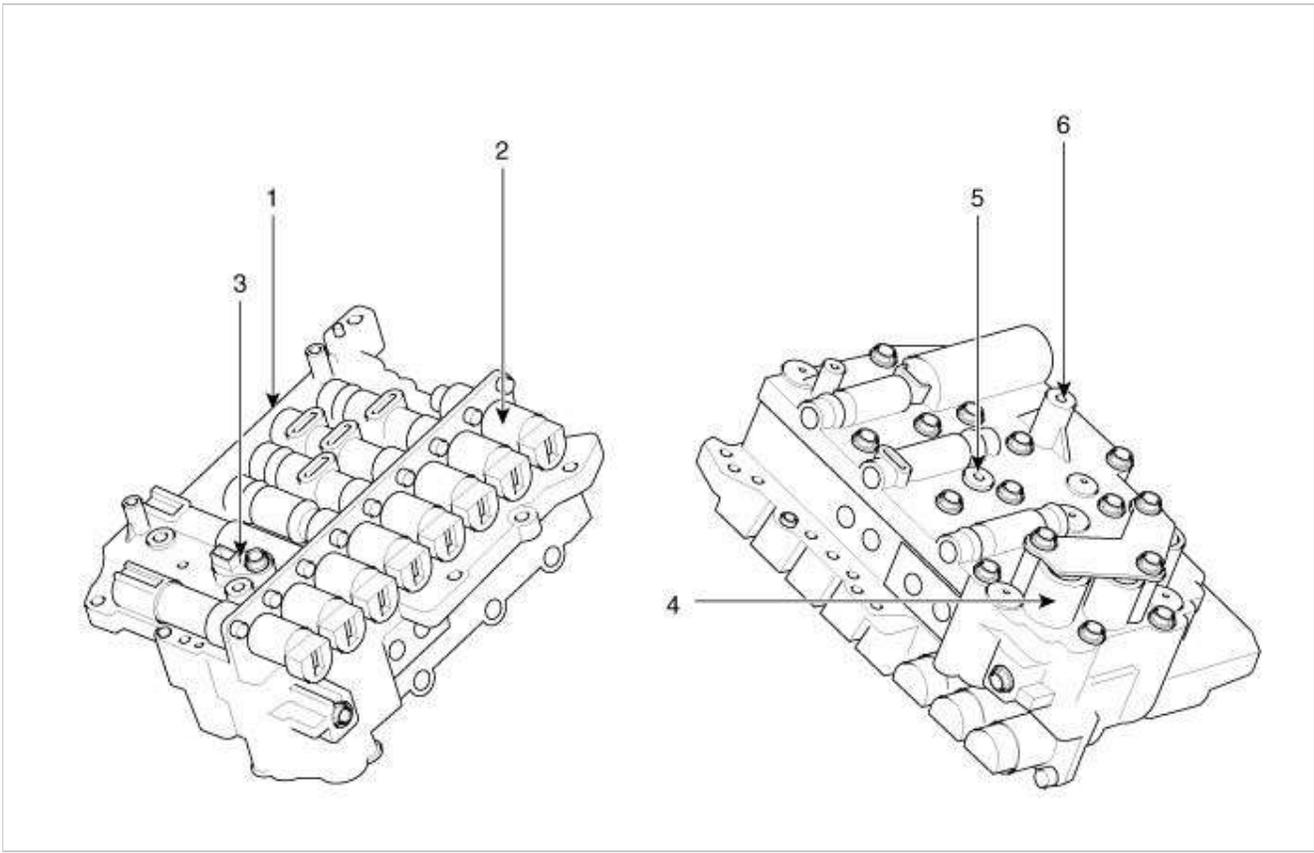
The valve body is essential to automatic transaxle control and consists of various valves used to control the oil feed from the oil pump. Specifically, these valves consist of pressure regulator valves, oil redirection valves, shift valves, and manual valves. The body also features electronic solenoid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



**Automatic Transaxle System**



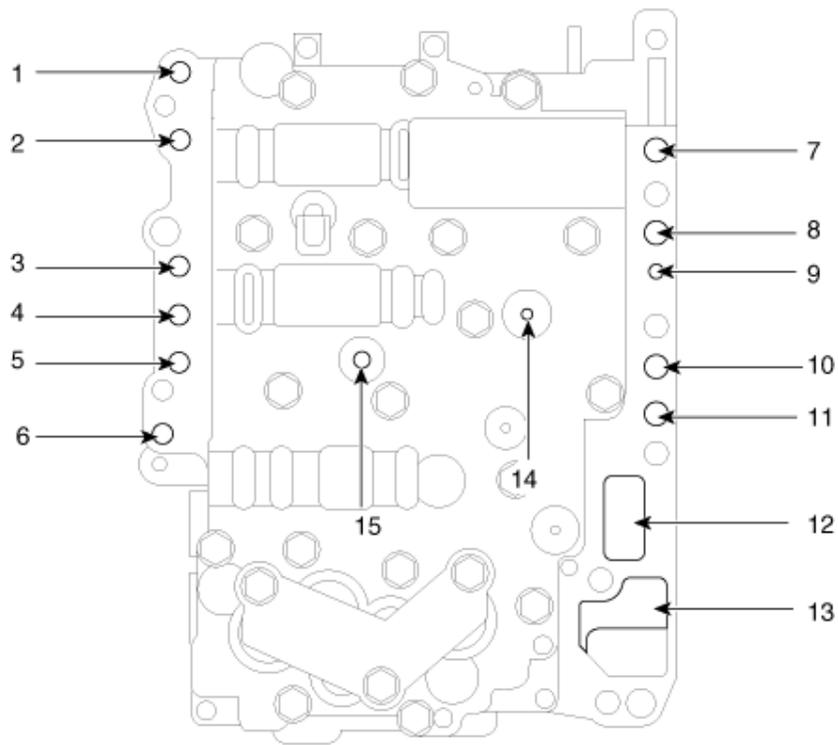
**Components Location**



- 1. PCV adjust screw
- 2. Solenoid valve
- 3. Oil temperature sensor

- 4. Accumulator
- 5. Low & reverse brake(LR/B) pressure flow hole
- 6. Under drive brake (UD/B) pressure flow hole

### Valve Body Flow



- |                             |                            |
|-----------------------------|----------------------------|
| 1. To cooler                | 9. Lubrication(front)      |
| 2. From cooler              | 10. 35R clutch pressure    |
| 3. Lubrication(rear)        | 11. 26 brake pressure      |
| 4. Overdrive pressure       | 12. From oil pump          |
| 5. Reducing pressure (red2) | 13. To oil pump            |
| 6. Reducing pressure (red1) | 14. Underdrive pressure    |
| 7. From damper pressure     | 15. Low & reverse pressure |
| 8. To damper pressure       |                            |

### Automatic Transaxle System

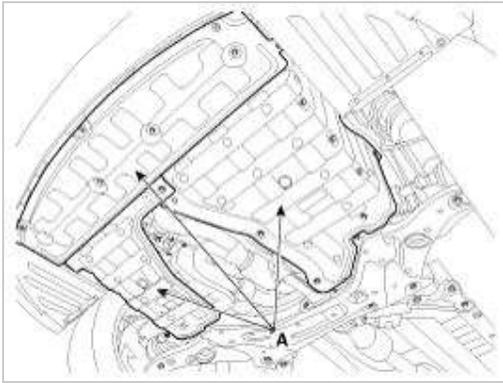


#### Removal

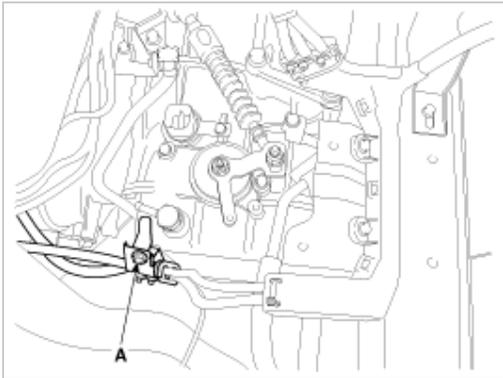
1. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
2. Remove the under cover (A).

#### Tightening torque:

7.8 ~ 11.7 N.m (0.8 ~ 1.2 kgf.m, 5.7 ~ 8.6 lb-ft)



3. Replace new gasket and the plug after draining the automatic transaxle fluid by removing the drain plug.  
(Refer to Hydraulic System - "Fluid")
4. Remove the wiring bracket bolt (A).



5. Remove the valve body cover (B) and eyebolt (A).

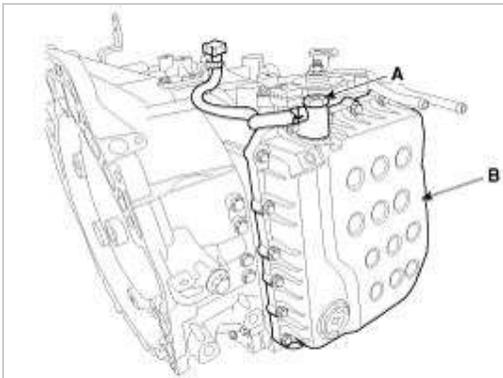
**Tightening torque**

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

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

**CAUTION**

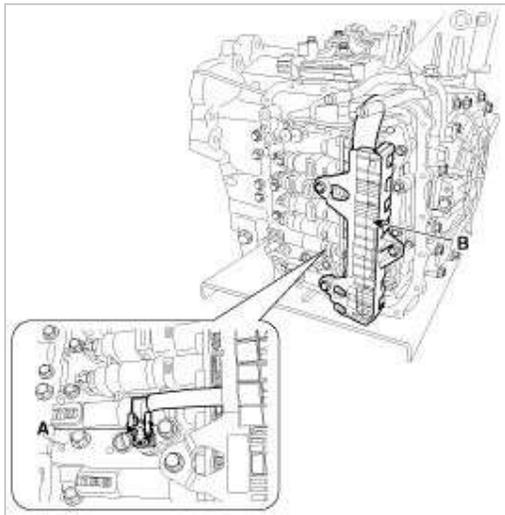
Always replace the gasket of the eyebolt use new one whenever loosening eyebolt.



6. Remove the bolt (3ea) 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)



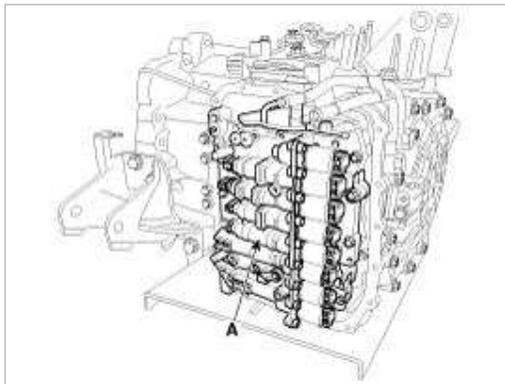
7. Remove the valve body assembly (A).

---

**Tightening torque:**

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

---



### Installation

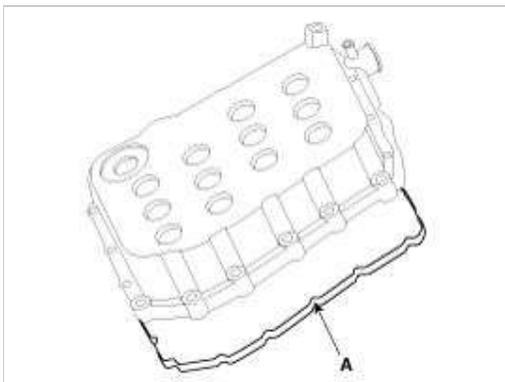
1. Installation is the reverse of removal.

#### **CAUTION**

After replacement or reinstallation procedure of the valve body assembly, must perform procedures below.

#### **NOTICE**

- 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")
- Use new valve body gasket (A).



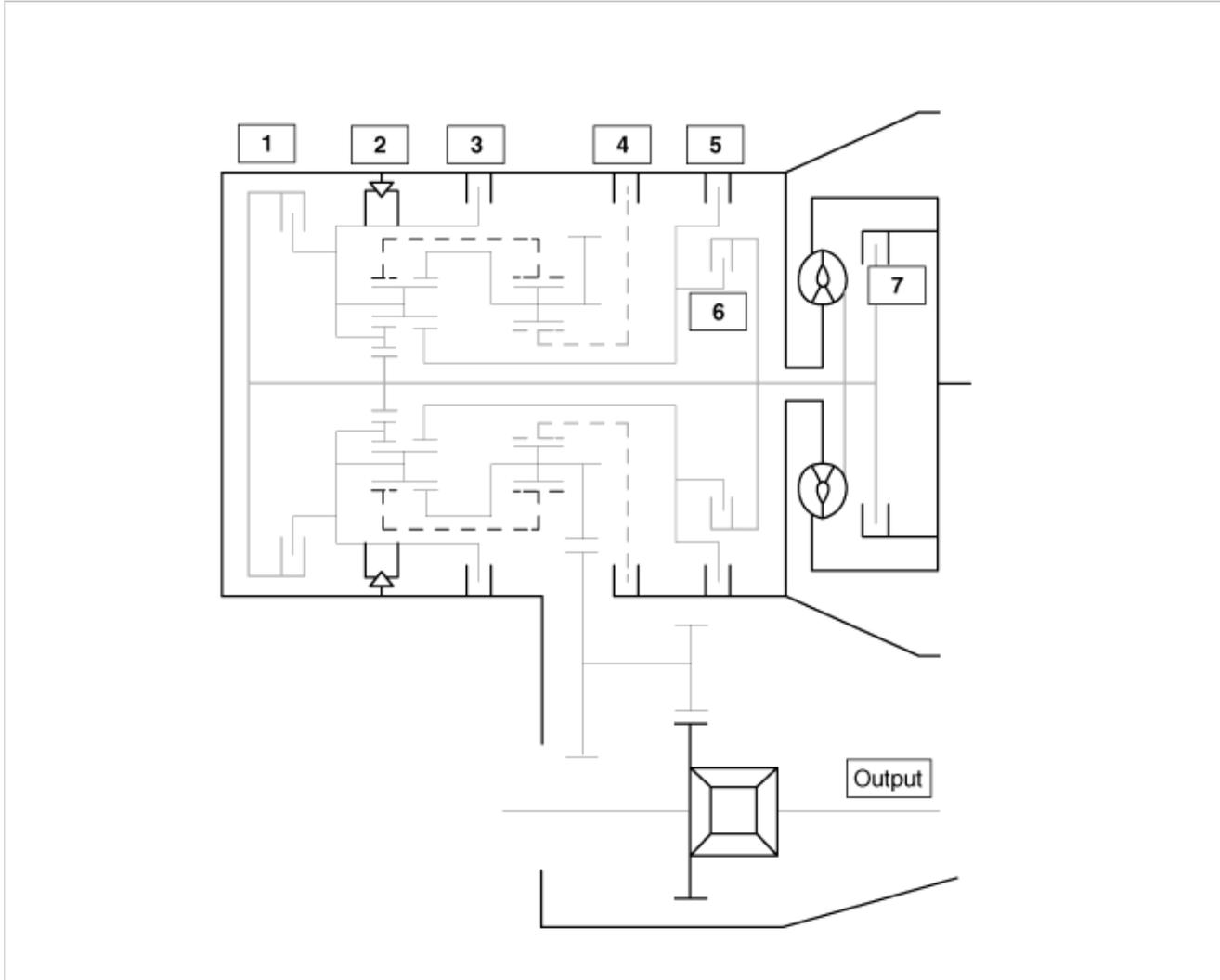


### Description

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



### Components Location



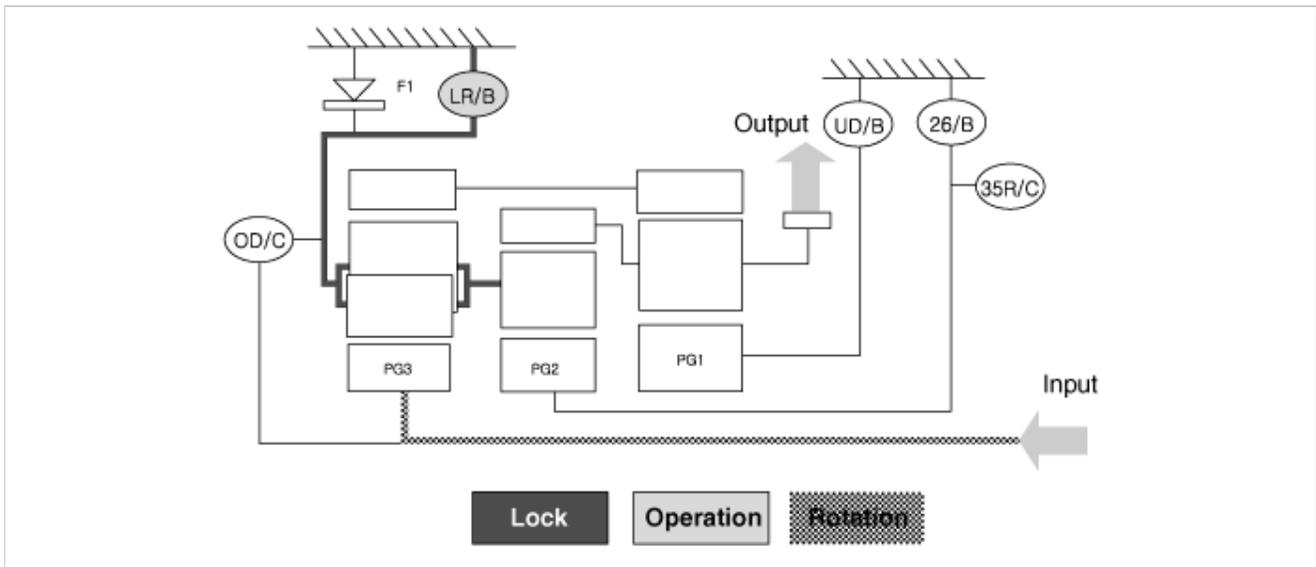
1. Overdrive clutch (OD/C)	5. 26 brake (26/B)
2. One way clutch (OWC)	6. 35R clutch (35R/C)
3. Low & Reverse brake (LR/B)	7. Damper clutch (D/C)
4. Underdrive brake (UD/B)	

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### Power Flow Chart

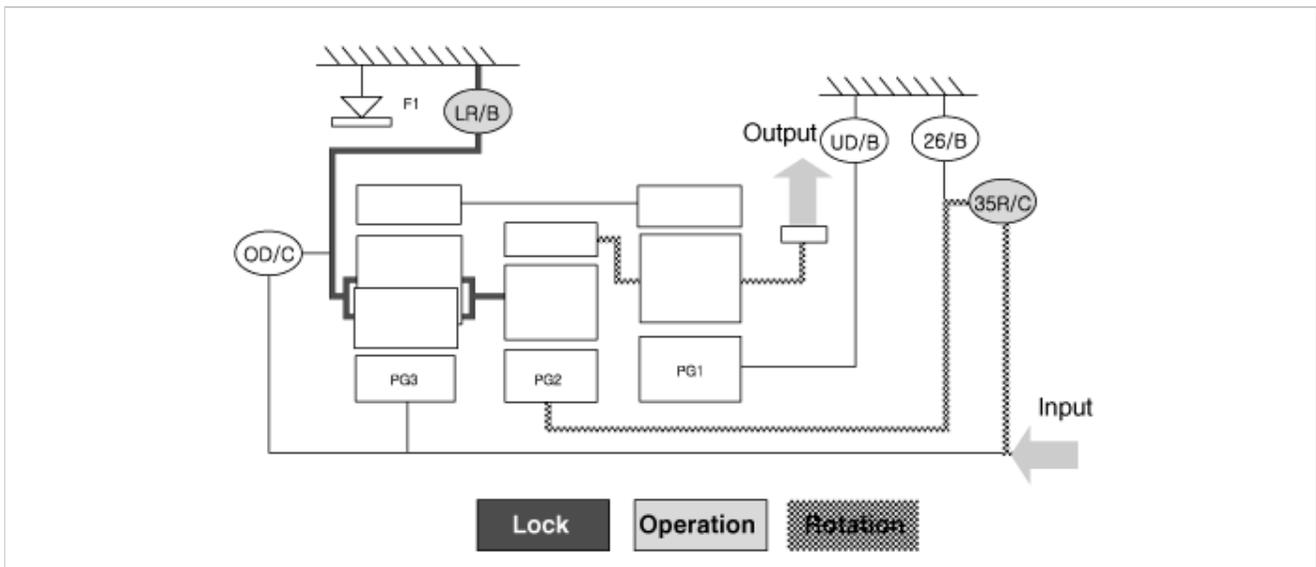
P,N	UD/B	LR/B	26/B	35R/C	OD/C	OWC
		•				



▣ 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

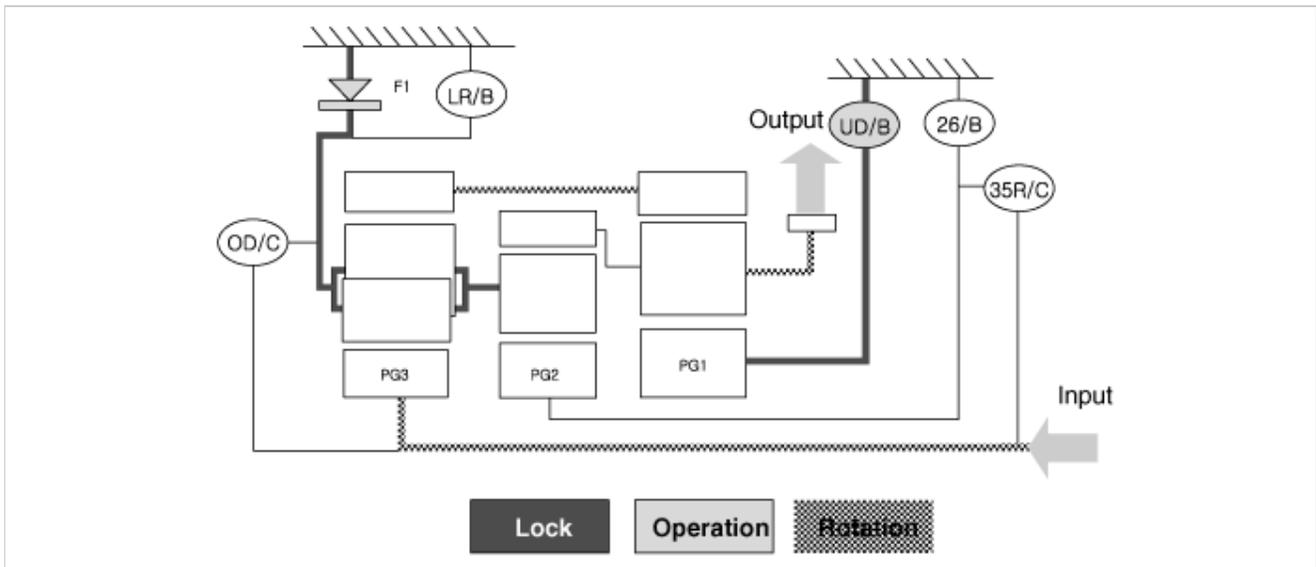
R	UD/B	LR/B	26/B	35R/C	OD/C	OWC
		•		•		



▣ 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 annulus 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.

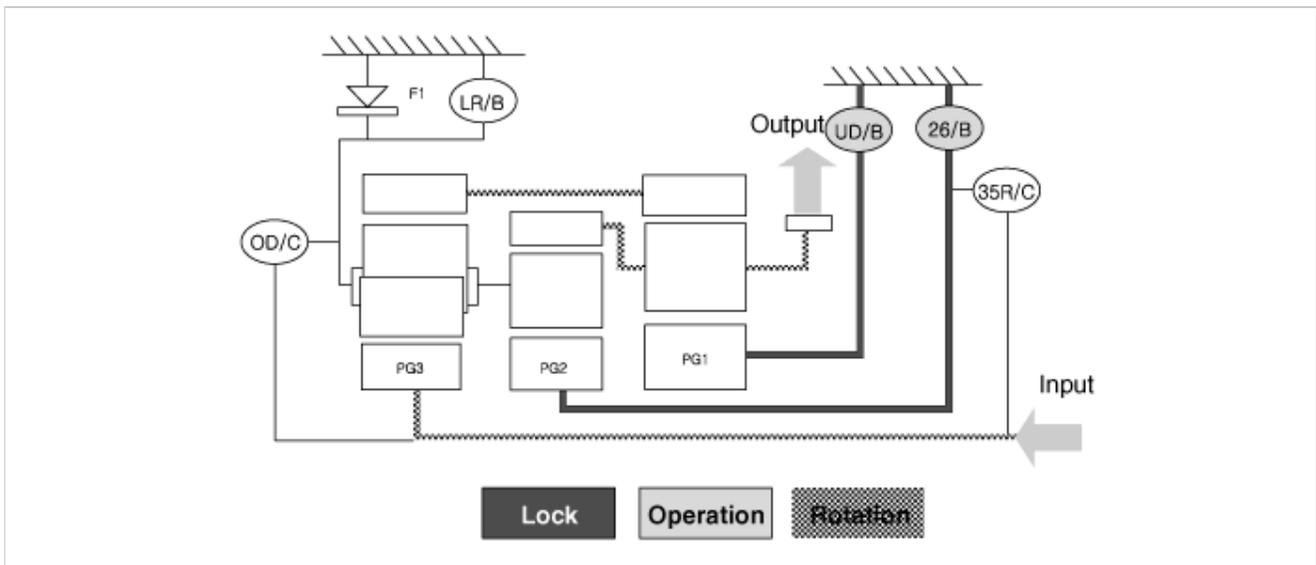
D1	UD/B	LR/B	26/B	35R/C	OD/C	OWC
	•	(o)				•



▣ 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 annulus 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, zero load rotation of the middle sun gear.

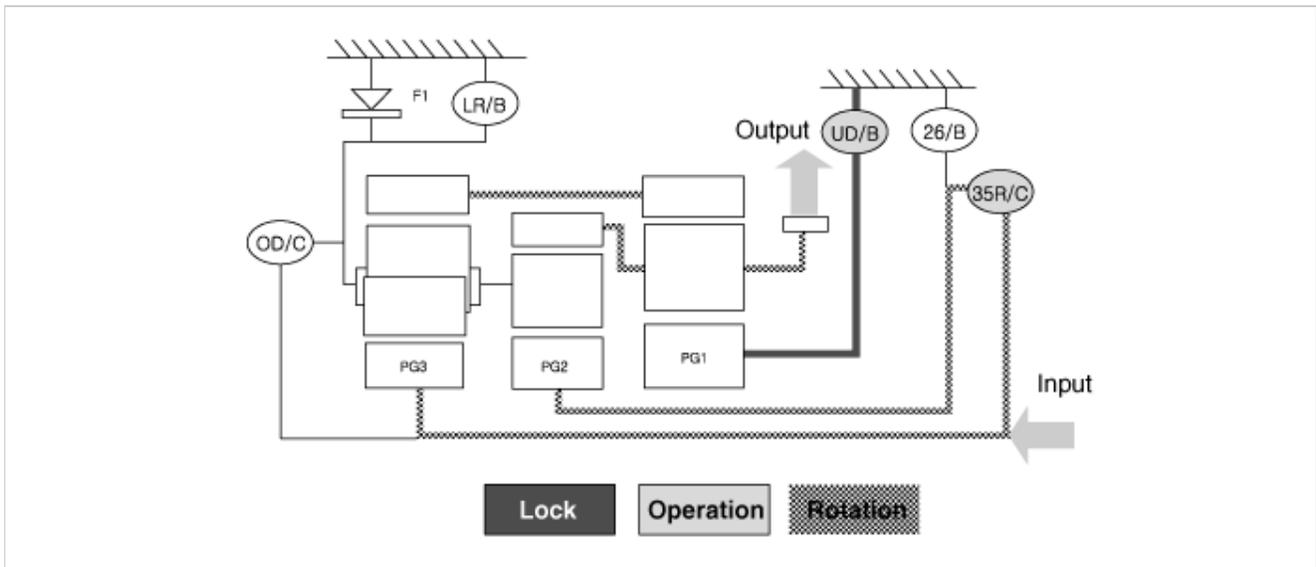
D2	UD/B	LR/B	26/B	35R/C	OD/C	OWC
	•		•			



▣ 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 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.

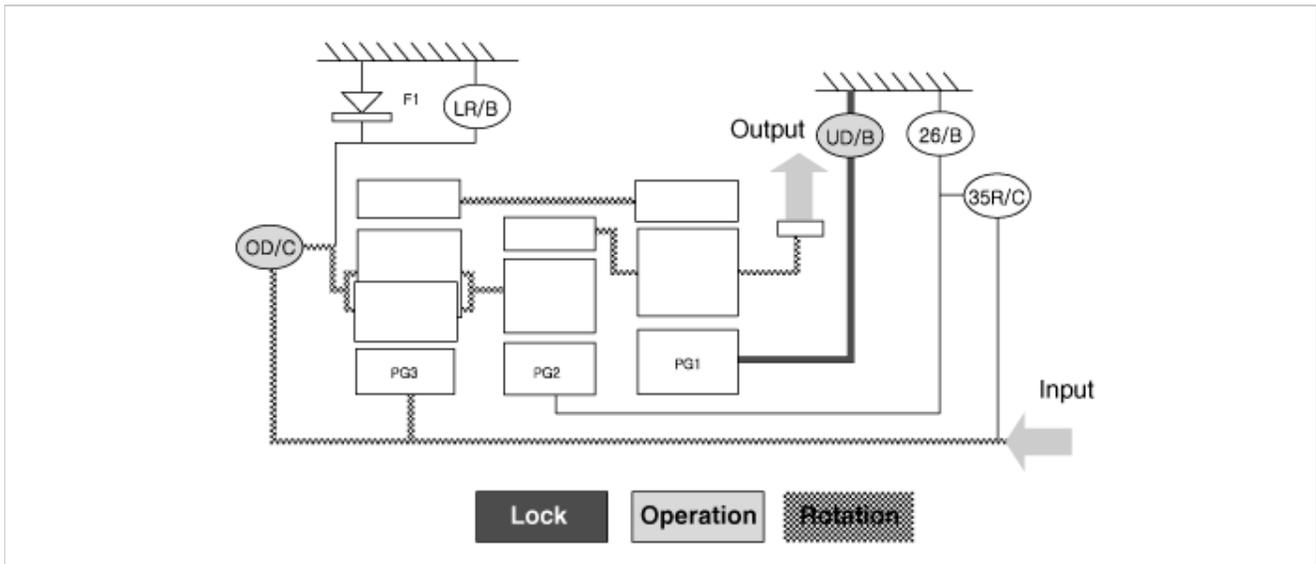
D3	UD/B	LR/B	26/B	35R/C	OD/C	OWC
	•			•		



▣ 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 from the 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.

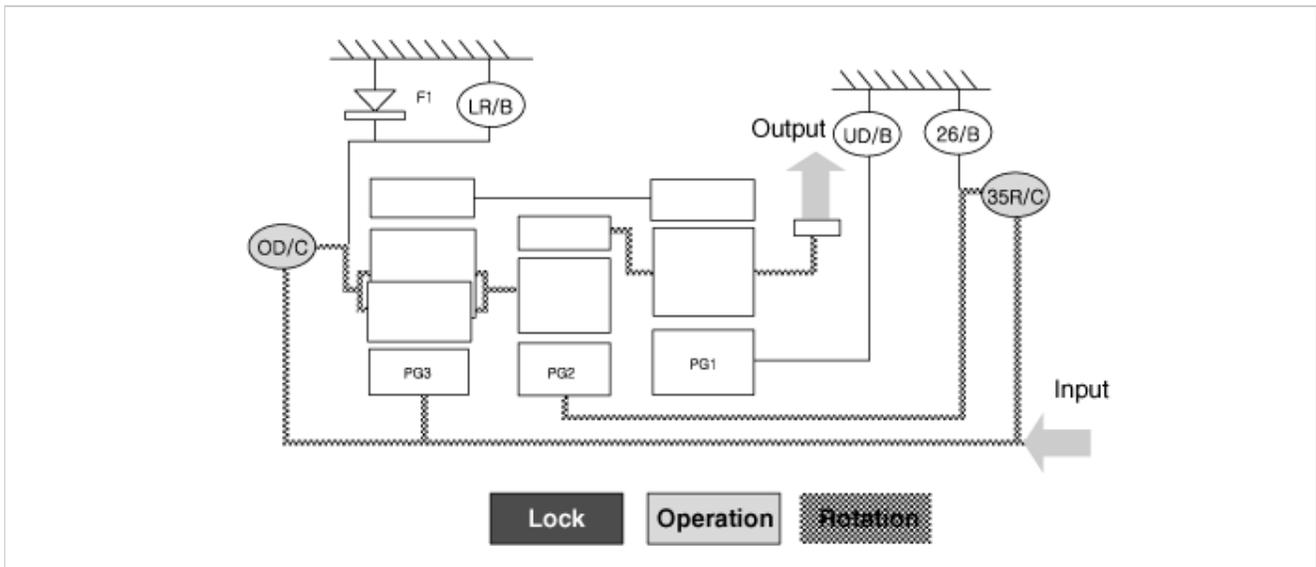
D4	UD/B	LR/B	26/B	35R/C	OD/C	OWC
	•				•	



▣ 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 rotation ratio 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.

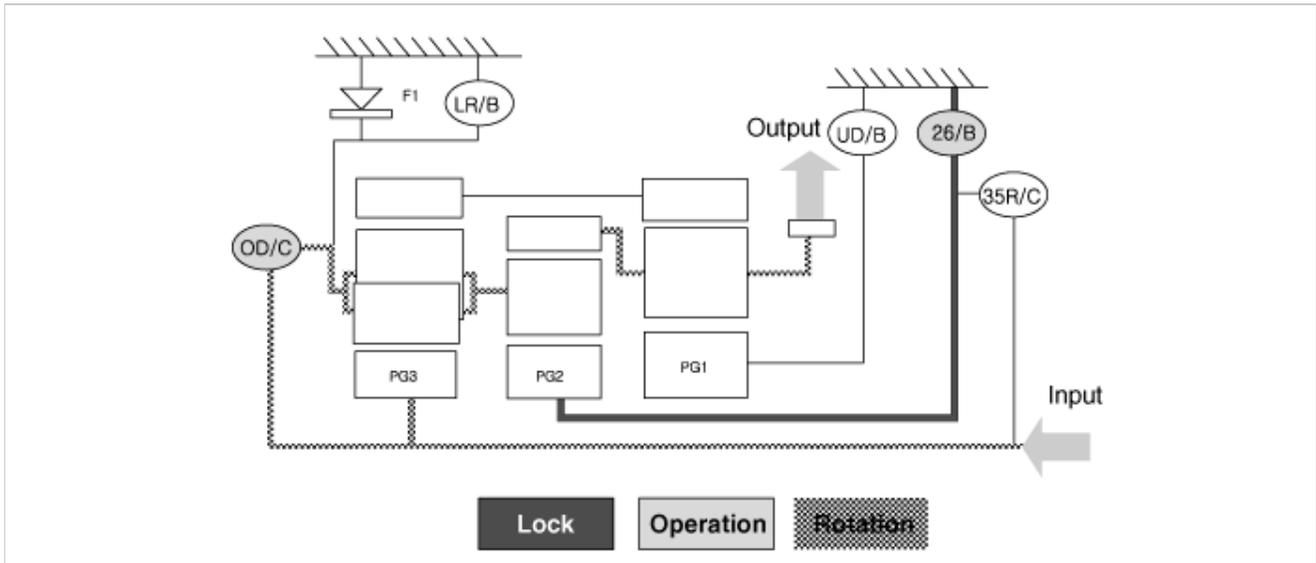
D5	UD/B	LR/B	26/B	35R/C	OD/C	OWC
				•	•	



▣ 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 front 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 annulus gear 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, the front planetary gear remains unrestrained and the front sun gear rotates at a faster rate in the normal direction and at zero load.

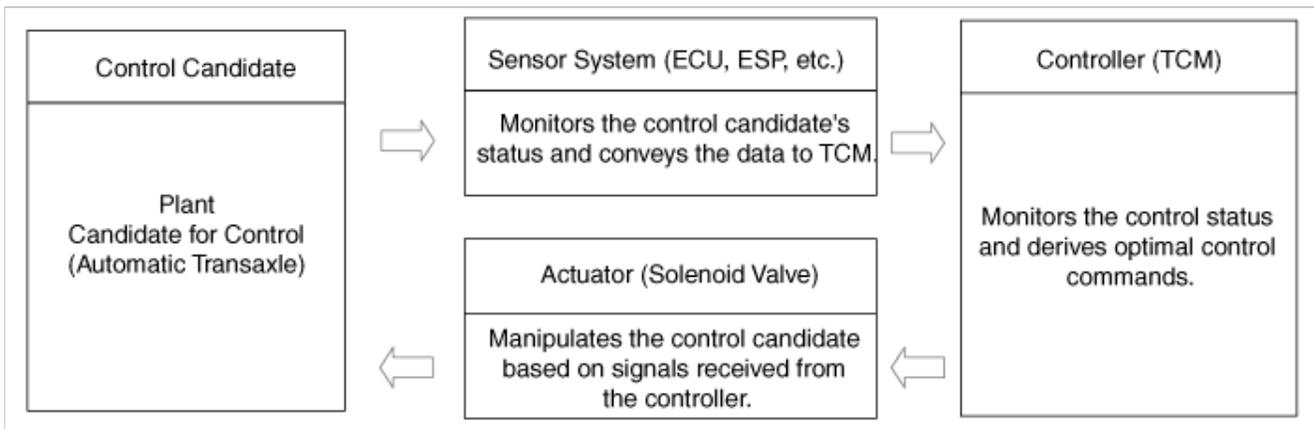
**Automatic Transaxle System**



**Description**

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

### Control System Composition



### Fault Diagnosis

Features a fail-safe mechanism that provides "limp-home" 4th gear hold to enable the vehicle to be driven to the owner's home 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 solenoids). 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 backed up 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 fault 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 battery cable during engine operation or while the ignition switch is ON could cause damage to the 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 for voltage 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



### Adjustment

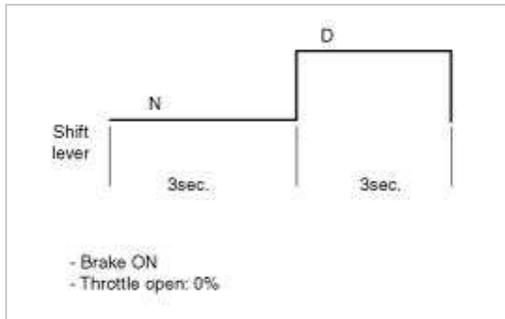
#### Transaxle Control Module(TCM) Learning

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. 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.

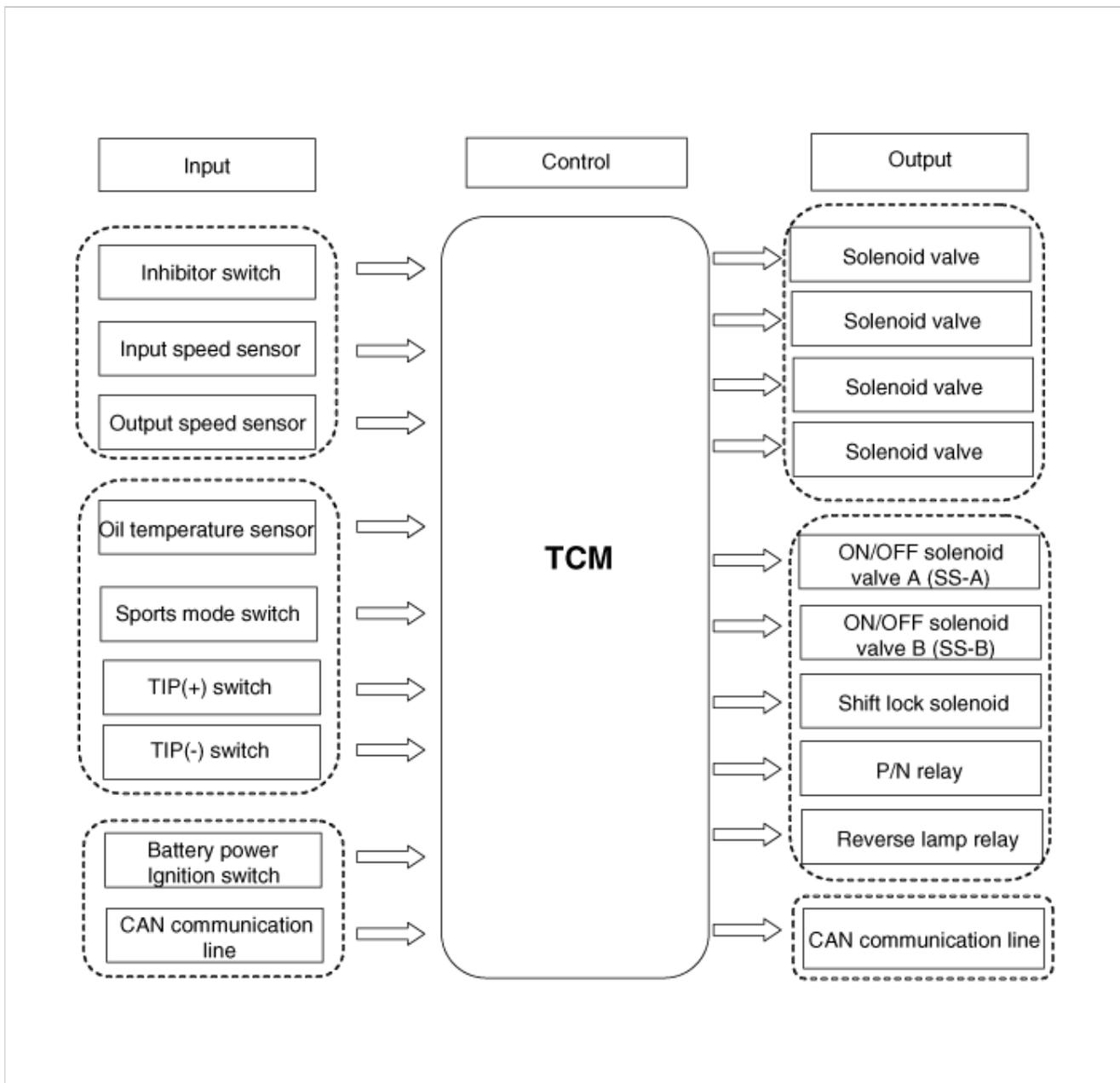


3. Driving learning  
Drive the vehicle from a stop in D through all gears 1st, 2nd, 3rd, 4th, 5th and 6th gear while holding the throttle steady at the specified TPS value (15~25%).

## Automatic Transaxle System



### Circuit Diagram

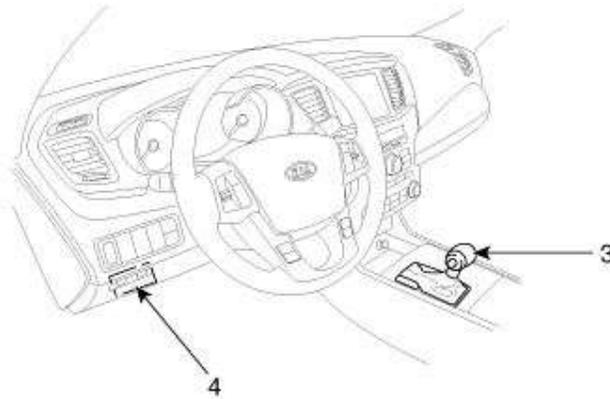
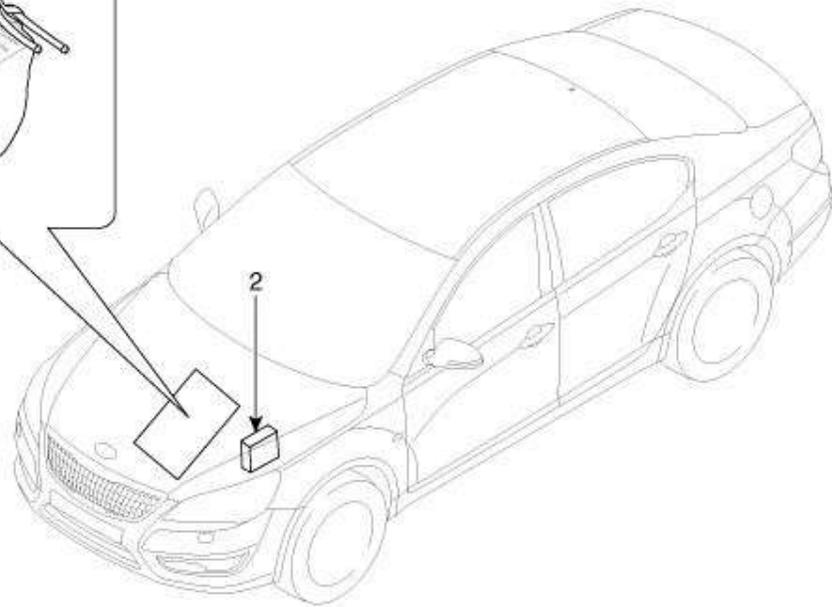
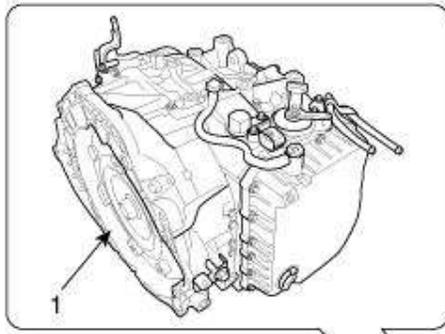


Automatic Transaxle System



**Components Location**

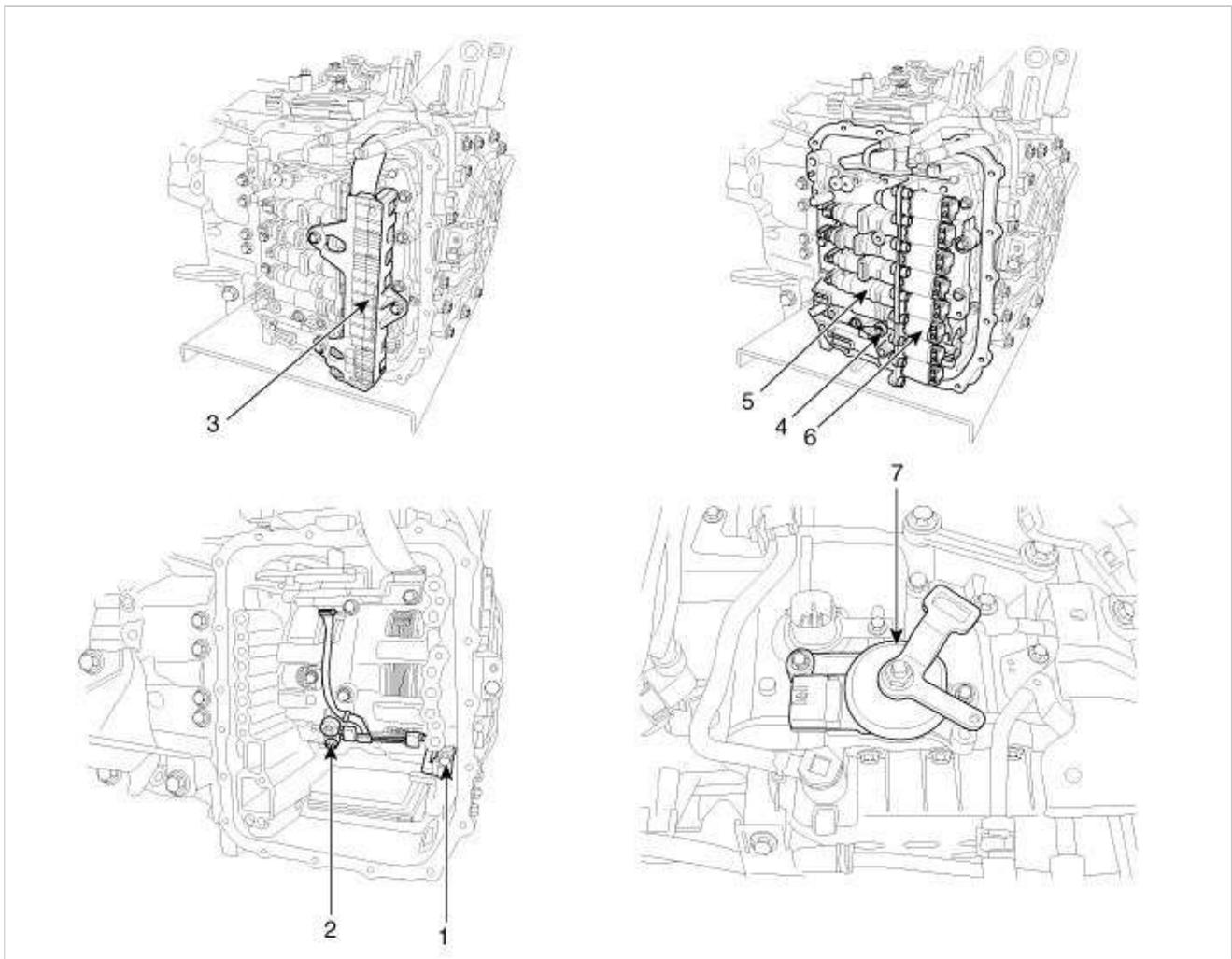
[Vehicle Components]



- 1. Automatic transaxle
- 2. Transaxle Control Module (TCM)

- 3. Shift lever
- 4. Data Link Connector (DLC)

### [Transaxle Components]



- 1. Input speed sensor
- 2. Output speed sensor
- 3. Solenoid valve connect
- 4. Oil Temperature Sensor (OTS)

- 5. Valve body assembly
- 6. Solenoid valve
- 7. Inhibitor switch

## Automatic Transaxle System

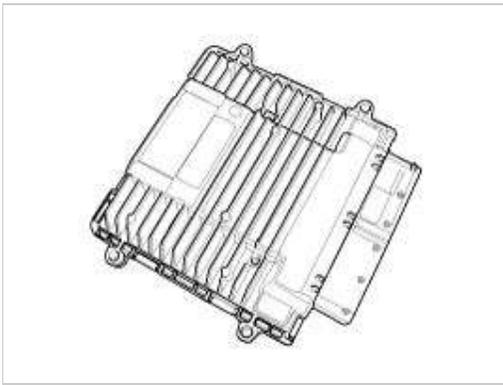


### Description

Transaxle Control Module (TCM) is the automatic transaxle's brain. The module receives and processes signals from various 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 the fault information in memory so that the technician may reference the code and quickly repair the transaxle.

### Functions

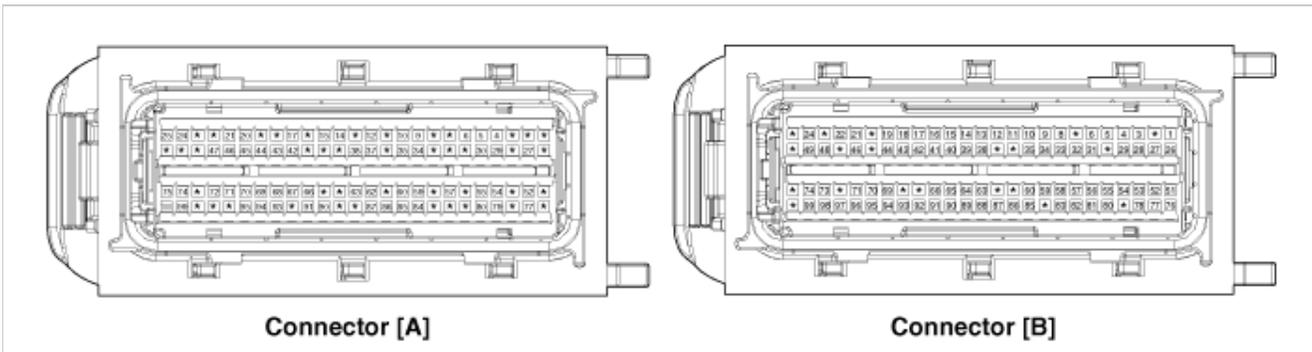
- Monitors the vehicle's operating conditions to determine the optimal gear setting.
- Performs a gear change if the current gear setting differs from the identified optimal gear setting.
- Determines the need for Damper Clutch (D/C) activation and engages the clutch accordingly.
- Calculates the optimal 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 ≥ 6.0V
				Max. Operation voltage: Battery voltage ≤ 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 procedure as below.

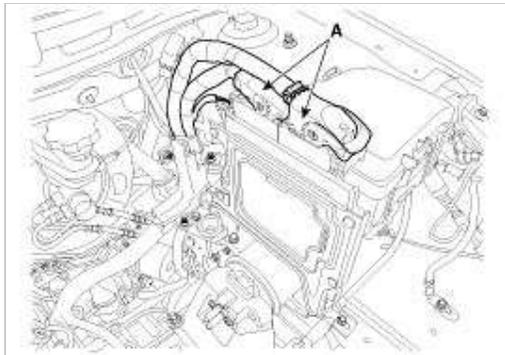
**[In the case of installing used TCM]**

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

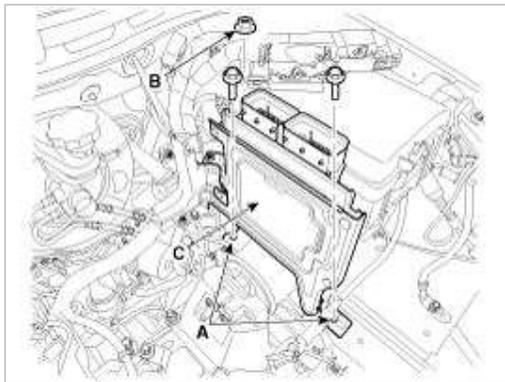
**[In the case of installing new TCM]**

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

1. Turn ignition switch OFF and disconnect the negative (-) battery cable.
2. Remove the battery.  
(Refer to Engine Electrical System - "Battery")
3. Remove the air cleaner assembly.  
(Refer to Engine Mechanical System - "Air Cleaner")
4. Disconnect the TCM Connector (A).



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



**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 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", 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 smart key 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

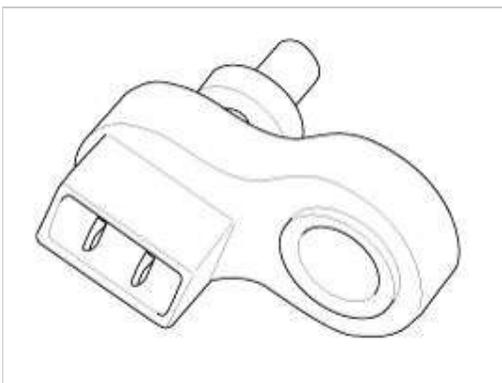
1. TEST TCM GROUND CIRCUIT: Measure resistance between TCM and chassis ground using the backside of TCM harness connector as TCM side check point. If the problem is found, repair it.  
Specification: Below 1Ω
2. TEST TCM CONNECTOR: Disconnect the TCM connector and visually check the ground terminals on TCM side and 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 swapping the TCM with a new one, and then check the vehicle again. If DTC's were found, examine this first before swapping TCM.
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 intermittent problem (Refer to "Intermittent Problem Inspection Procedure" in Basic Inspection Procedure).

### Automatic Transaxle System



## Description

Transaxle oil temperature sensor monitors the automatic transaxle fluid's temperature and conveys the readings to TCM. It is an 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

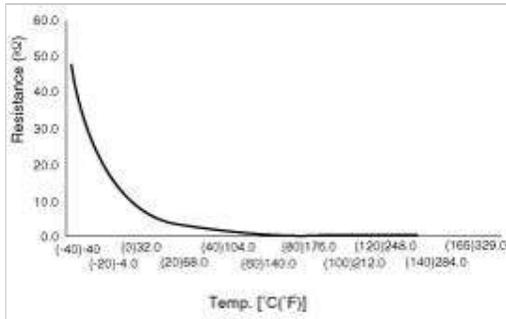


## Specifications

▷ Type: Negative Thermal Coefficient(NTC) Type

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
(150)302.0	0.05

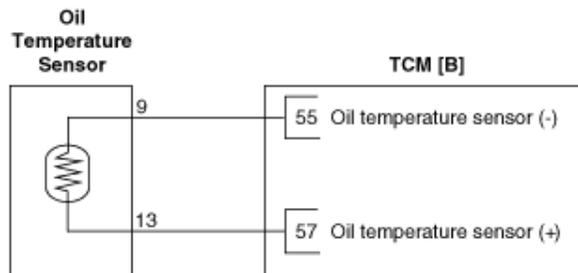


Automatic Transaxle System



## Circuit Diagram

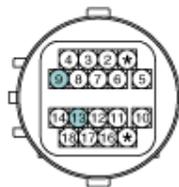
### [Circuit Diagram]



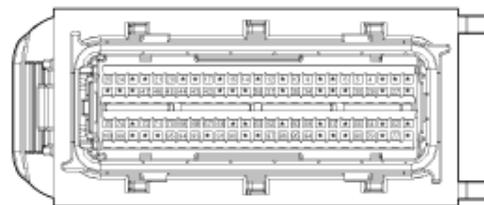
### [Connection Information]

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

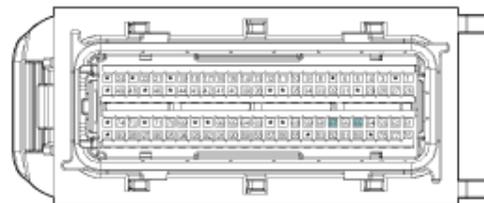
### [Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]





## Inspection

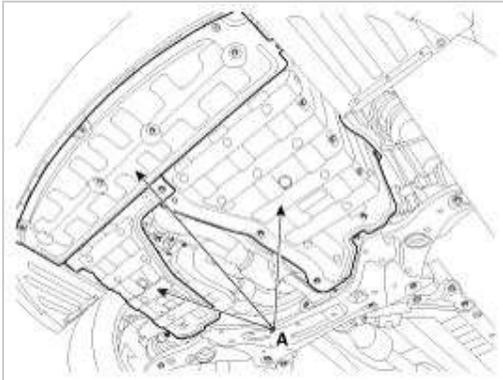
1. Turn ignition switch OFF.
2. Disconnect the solenoid valve connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. Check that the resistance is within the specification.

## Removal

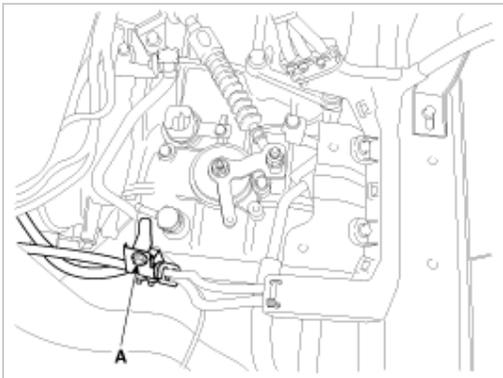
1. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
2. Remove the under cover (A).

### Tightening torque:

7.8 ~ 11.7 N.m (0.8 ~ 1.2 kgf.m, 5.7 ~ 8.6 lb-ft)



3. Replace new gasket and the plug after draining the automatic transaxle fluid by removing the drain plug.  
(Refer to Hydraulic System - "Fluid")
4. Remove the wiring bracket bolt (A).



5. Remove the valve body cover (B) and eyebolt (A).

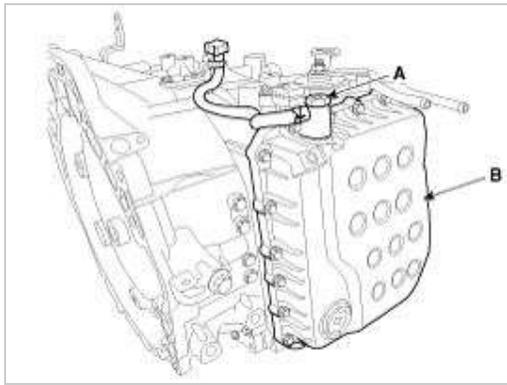
### Tightening torque:

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

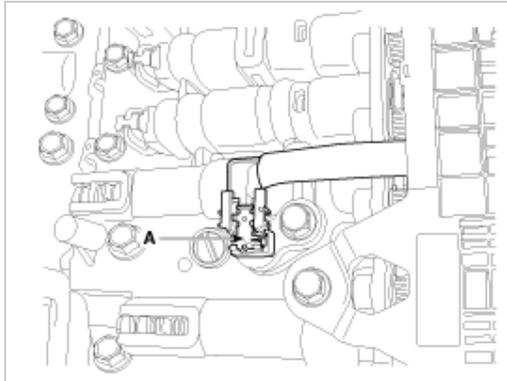
(B) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

### **CAUTION**

Always replace the gasket of the eyebolt use new one whenever loosening eyebolt.



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



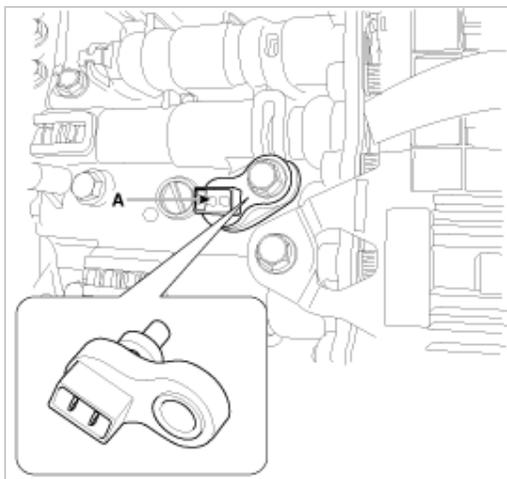
7. Remove the oil temperature sensor (A) after removing a bolt.

---

**Tightening torque:**

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

---



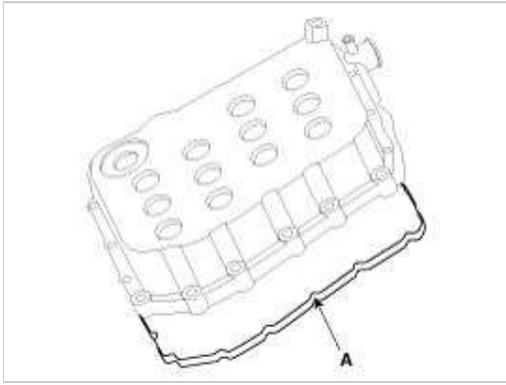
### Installation

1. Installation is the reverse of removal.

#### **NOTICE**

After replacement or reinstallation procedure of the valve body assembly, must perform procedures below.

- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- Use new valve body gasket (A).

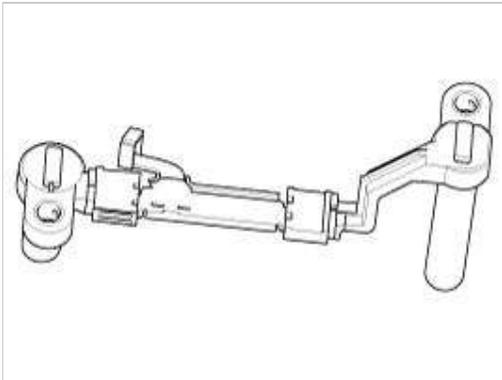


Automatic Transaxle System



### Description

Input speed sensor is a vital unit that measures the rate of rotation of the input shaft inside the transaxle and delivers the 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 analysis.



Automatic Transaxle System



### Specifications

▷ Type: Hall effect sensor

Operation condition [°C(°F)]		((-40~150)) -40~302
Air gap(mm)in.		(0.95~1.65)0.037~0.065
Output voltage(V)	High	1.18~1.68
	Low	0.59~0.84

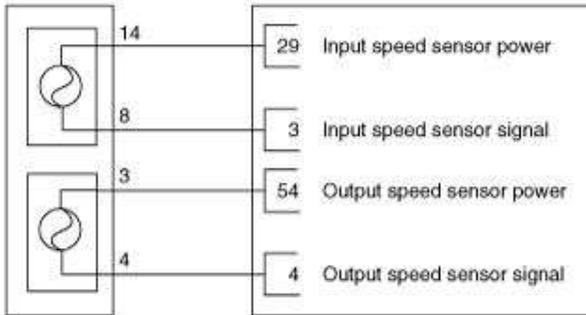
Automatic Transaxle System



### Circuit Diagram

[Circuit Diagram]

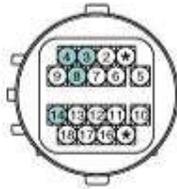
Input & Output Speed Sensor



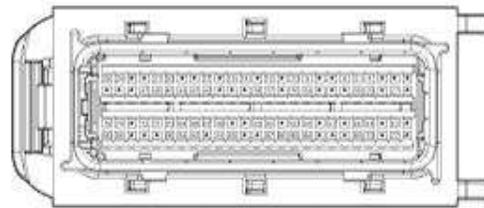
[Connection Information]

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

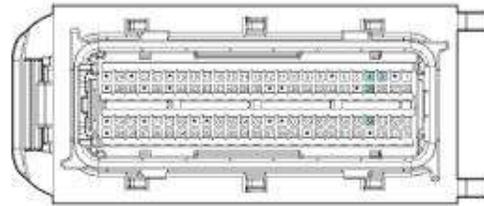
[Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

Automatic Transaxle System



Signal Waveform

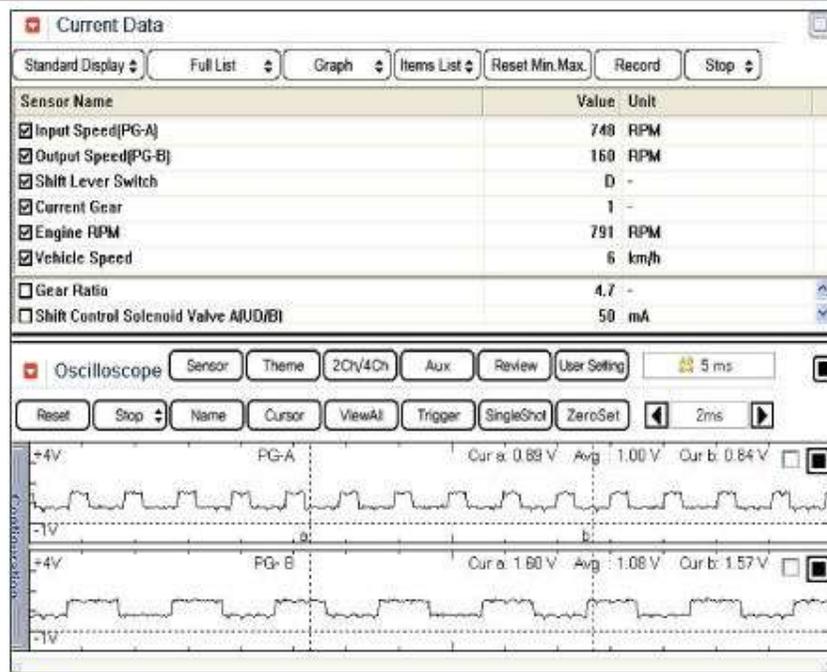


Fig.1

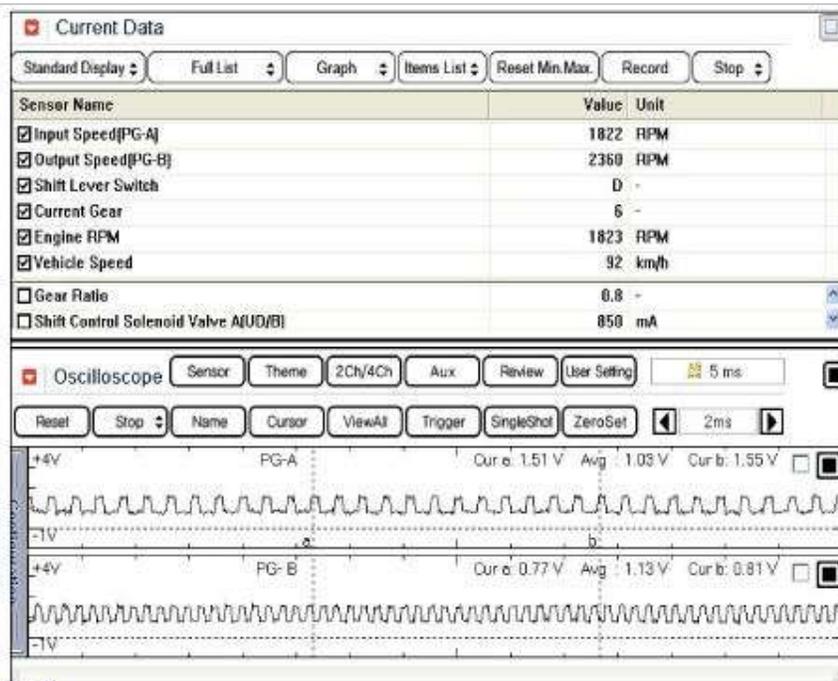


Fig.2

Fig 1) Input/Output speed sensor at low speed

Fig 2) Input/Output speed sensor at high speed

### Automatic Transaxle System



### Inspection

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

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

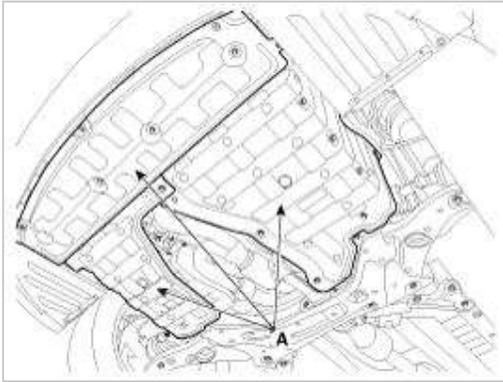
### Removal

1. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")

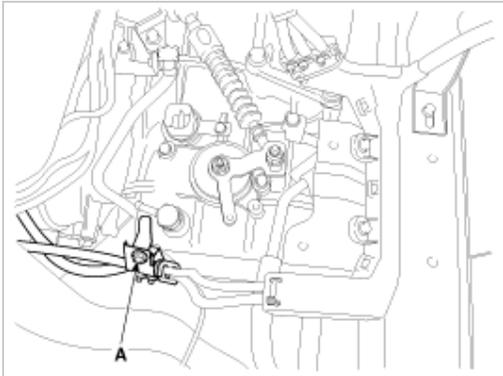
2. Remove the under cover (A).

**Tightening torque:**

7.8 ~ 11.7 N.m (0.8 ~ 1.2 kgf.m, 5.7 ~ 8.6 lb-ft)



3. Replace new gasket and the plug after draining the automatic transaxle fluid by removing the drain plug.  
(Refer to Hydraulic System - "Fluid")
4. Remove the wiring bracket bolt (A).



5. Remove the valve body cover (B) and eyebolt (A).

**Tightening torque:**

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

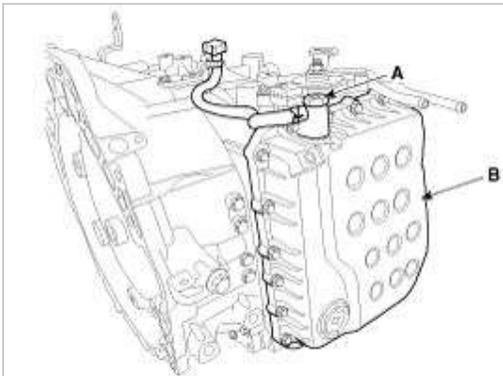
(B) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

**CAUTION**

Always replace the gasket of the eyebolt use new one whenever loosening eyebolt.

**NOTICE**

Remove installation bolts in the engine compartment first and then remove others under the vehicle.



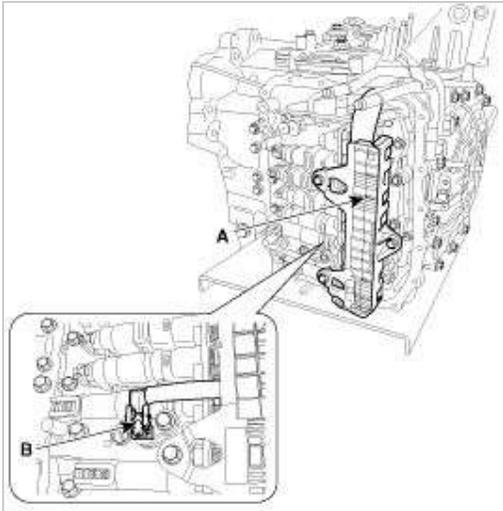
6. Remove the bolt (3ea) after disconnecting the solenoid valve connector (A) and the oil temperature sensor connector (B).

**Tightening torque:**

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

**CAUTION**

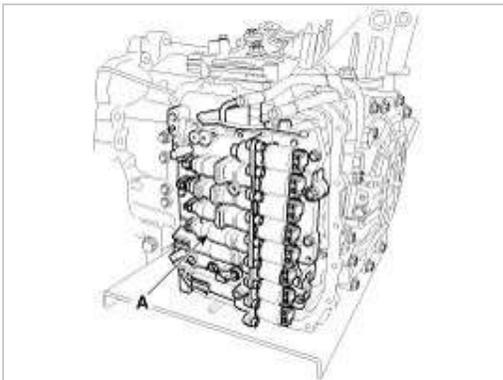
Be careful not to damage the harness lock connector.



7. Remove the valve body assembly (A).

**Tightening torque:**

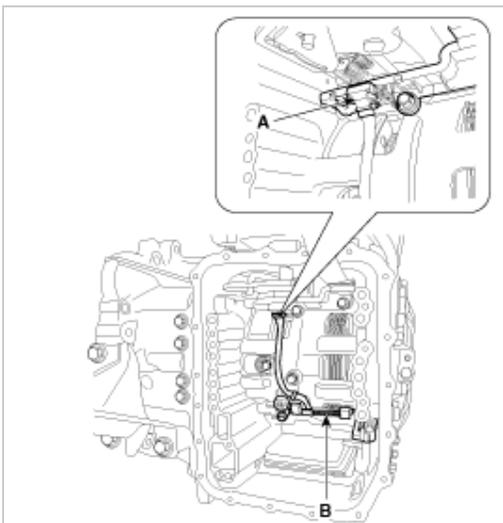
9.8 ~ 11.8 N.m (1.0 ~ 1.2 kgf.m, 7.2 ~ 8.7 lb-ft)



8. Disconnect the input & output speed sensor connector(A).
9. 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)



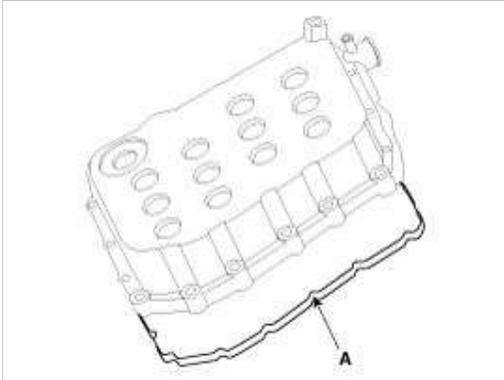
**Installation**

1. Installation is the reverse of removal.

## NOTICE

After replacement or reinstallation procedure of the valve body assembly, must perform procedures below.

- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- Use new valve body gasket (A).

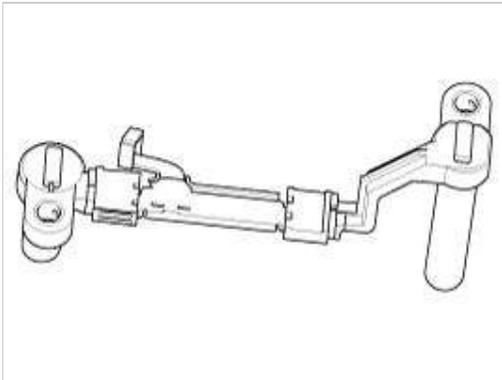


Automatic Transaxle System



## Description

The output speed sensor is a vital unit that measures the rate of rotation of the transaxle's turbine shaft and output shaft, and delivers the 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 analysis.



Automatic Transaxle System



## Specifications

▷ Type: Hall effect sensor

Operation condition [°C(°F)]		((-)40~150) -40~302
Air gap(mm)in.		(0.8~1.25) 0.032~0.049
Output voltage	High	1.18~1.68
	Low	0.59~0.84

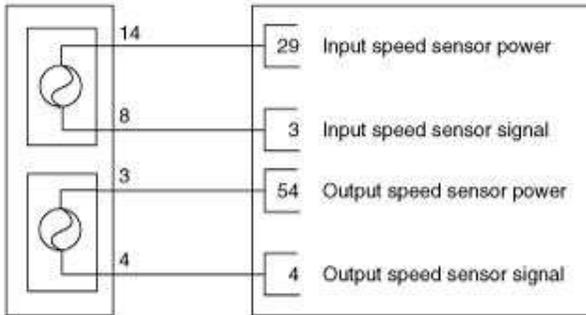
Automatic Transaxle System



## Circuit Diagram

[Circuit Diagram]

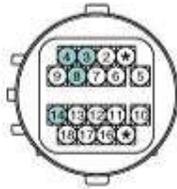
Input & Output Speed Sensor



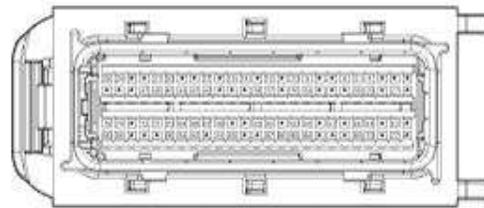
[Connection Information]

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

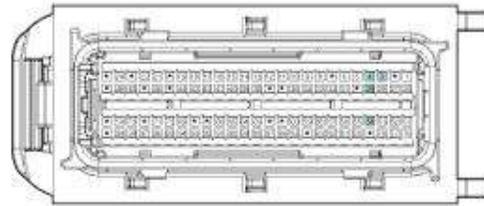
[Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

Automatic Transaxle System



Signal Waveform

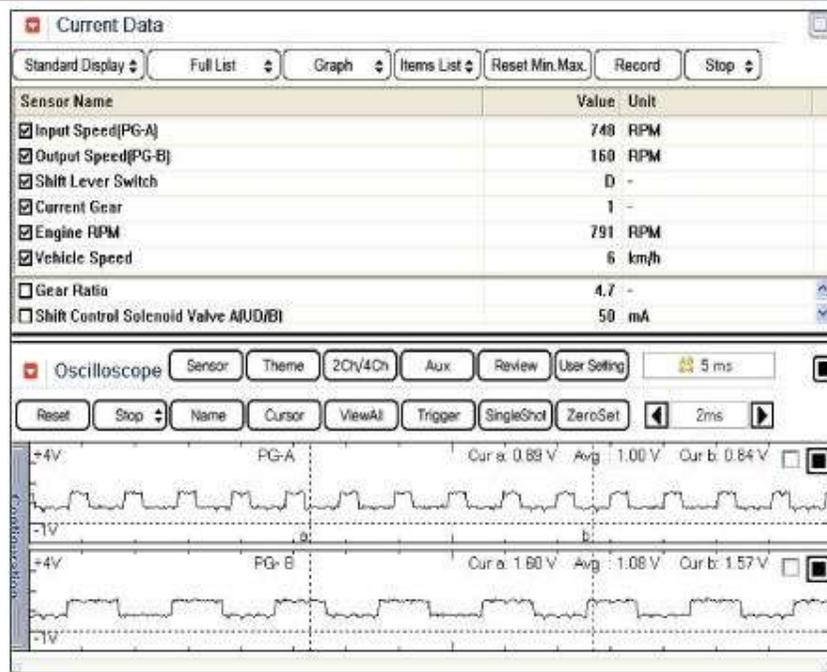


Fig.1

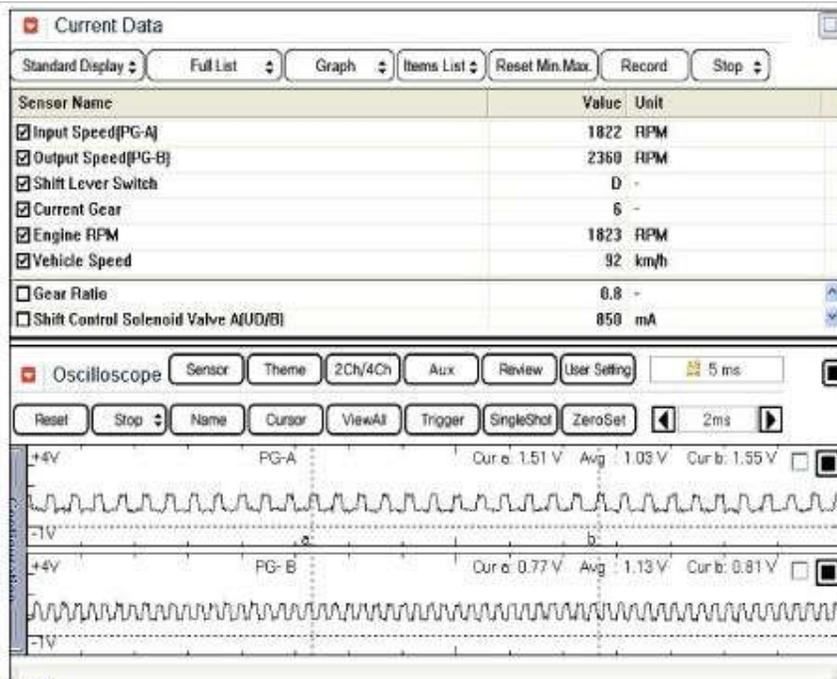


Fig.2

Fig 1) Input/Output speed sensor at low speed

Fig 2) Input/Output speed sensor at high speed

### Automatic Transaxle System



### Inspection

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

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

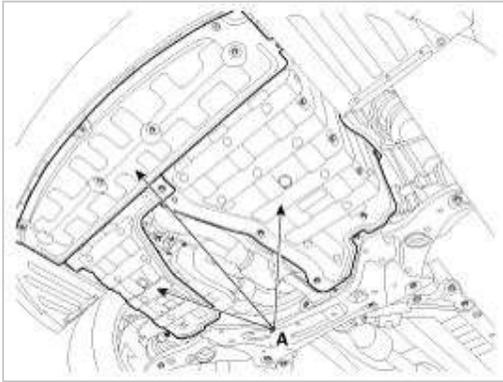
### Removal

1. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")

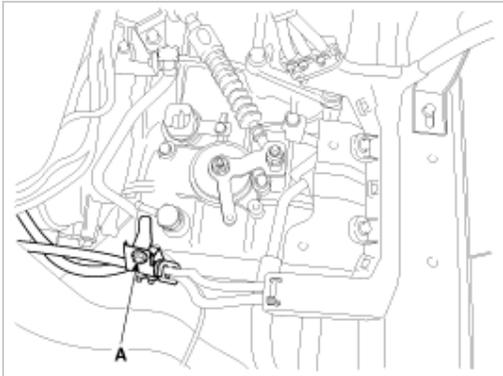
- Remove the under cover (A).

**Tightening torque:**

7.8 ~ 11.7 N.m (0.8 ~ 1.2 kgf.m, 5.7 ~ 8.6 lb-ft)



- Replace new gasket and the plug after draining the automatic transaxle fluid by removing the drain plug. (Refer to Hydraulic System - "Fluid")
- Remove the wiring bracket bolt (A).



- Remove the valve body cover (B) and eyebolt (A).

**Tightening torque:**

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

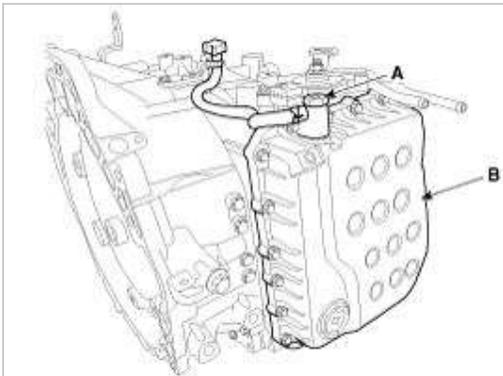
(B) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

**CAUTION**

Always replace the gasket of the eyebolt use new one whenever loosening eyebolt.

**NOTICE**

Remove installation bolts in the engine compartment first and then remove others under the vehicle.



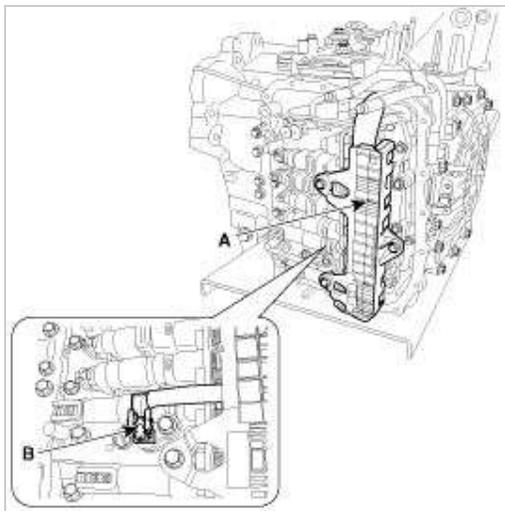
- Remove the bolt (3ea) after disconnecting the solenoid valve connector (A) and the oil temperature sensor connector (B).

**Tightening torque:**

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

**CAUTION**

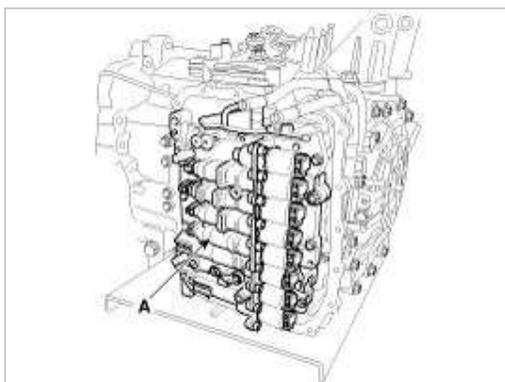
Be careful not to damage the harness lock connector.



7. Remove the valve body assembly (A).

**Tightening torque:**

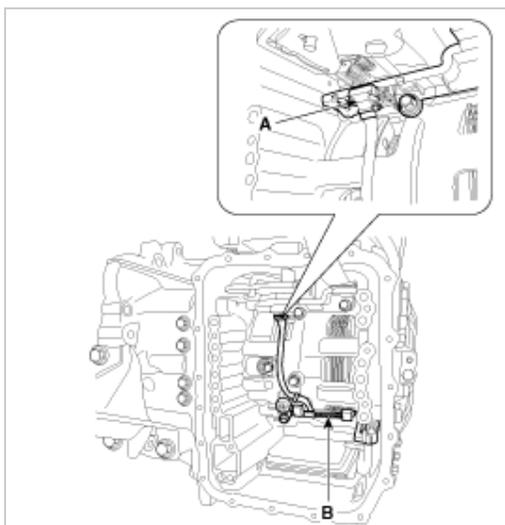
9.8 ~ 11.8 N.m (1.0 ~ 1.2 kgf.m, 7.2 ~ 8.7 lb-ft)



8. Disconnect the input & output speed sensor connector(A).
9. 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)



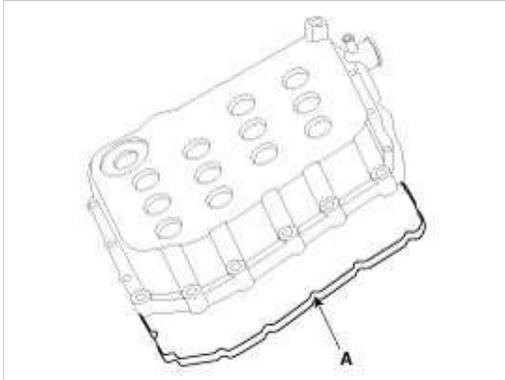
**Installation**

1. Installation is the reverse of removal.

## NOTICE

After replacement or reinstallation procedure of the valve body assembly, must perform procedures below.

- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- Use new valve body gasket (A).



Automatic Transaxle System



## Description

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



Automatic Transaxle System



## Specifications

Direct control VFS[T/CON]

▷ Control type : Normal low type

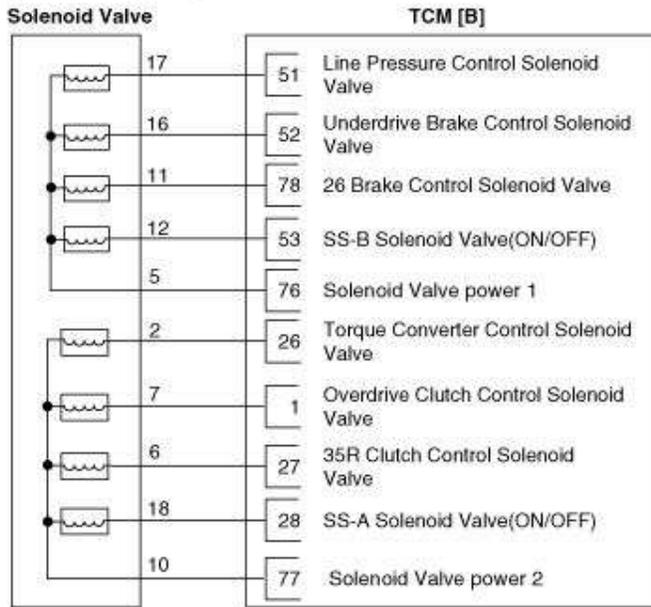
Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	9.81~ 500.14 (0.1~ 5.1, 1.42 ~ 72.54)
Current value(mA)	50 ~ 850
Internal resistance(Ω)	5.1

Automatic Transaxle System



## Circuit Diagram

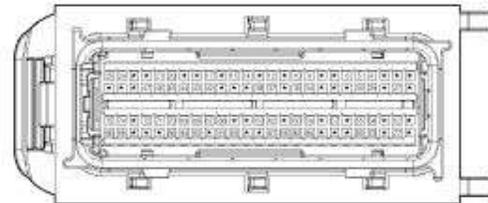
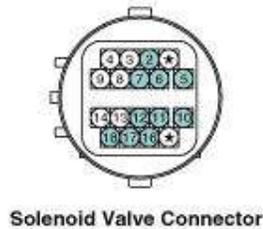
### [Circuit Diagram]



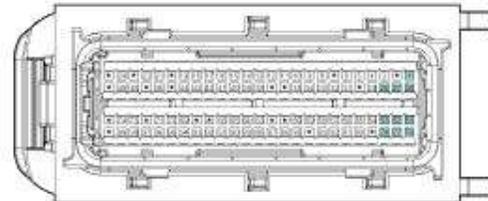
### [Connection Information]

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]



**Connector [A]**



**Connector [B]**

## Automatic Transaxle System

### Inspection

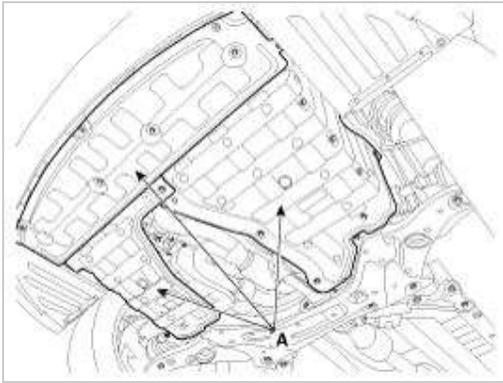
1. Turn ignition switch OFF.
2. Disconnect the solenoid valve connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. Check that the resistance is within the specification.

### Removal

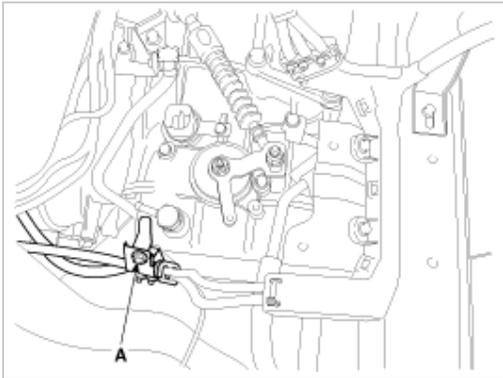
1. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
2. Remove the under cover (A).

### Tightening torque:

7.8 ~ 11.7 N.m (0.8 ~ 1.2 kgf.m, 5.7 ~ 8.6 lb-ft)



3. Replace new gasket and the plug after draining the automatic transaxle fluid by removing the drain plug.  
(Refer to Hydraulic System - "Fluid")
4. Remove the wiring bracket bolt (A).



5. Remove the valve body cover (B) and eyebolt (A).

**Tightening torque:**

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

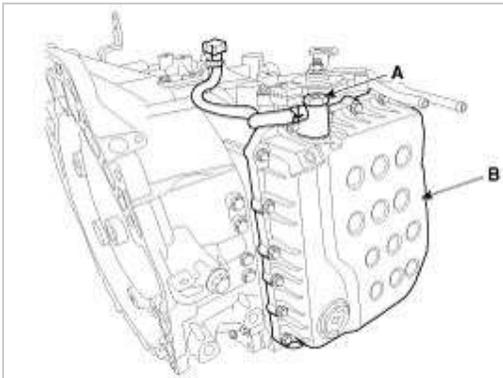
(B) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

**CAUTION**

Always replace the gasket of the eyebolt use new one whenever loosening eyebolt.

**NOTICE**

Remove installation bolts in the engine compartment first and then remove others under the vehicle.



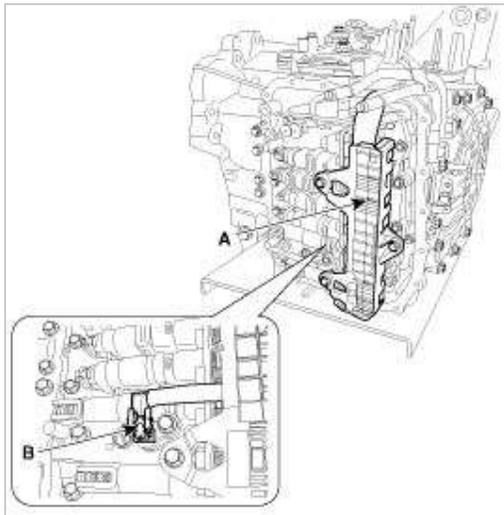
6. Remove the bolt (3ea) after disconnecting the solenoid valve connector (A) and the oil temperature sensor connector (B).

**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.



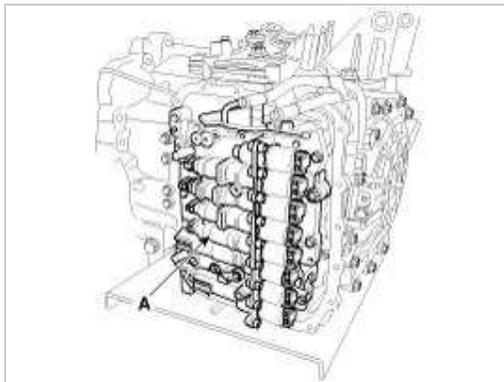
7. Remove the valve body assembly (A).

---

**Tightening torque:**

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

---



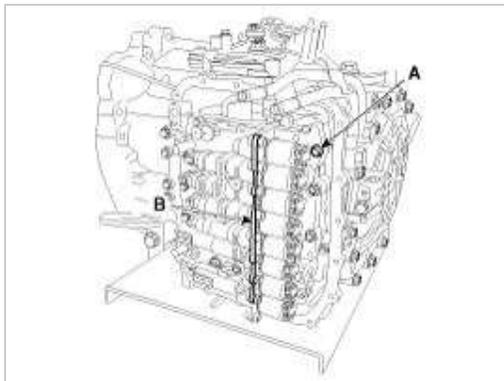
8. Remove the solenoid valve support bracket (B) and the valve body mounting bolt (A-1ea).

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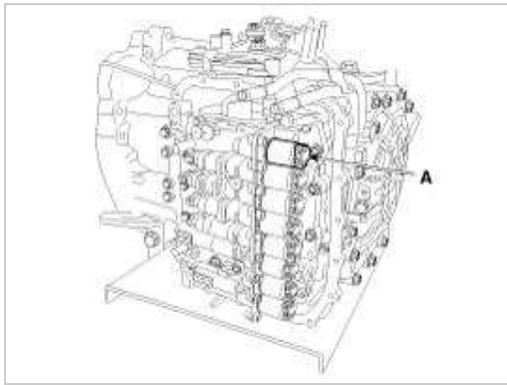
**Tightening torque:**

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

---



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

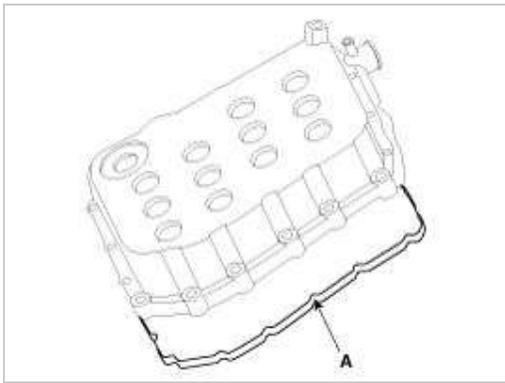


## Installation

1. Installation is the reverse of removal.

### NOTICE

- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- Use new valve body gasket (A).

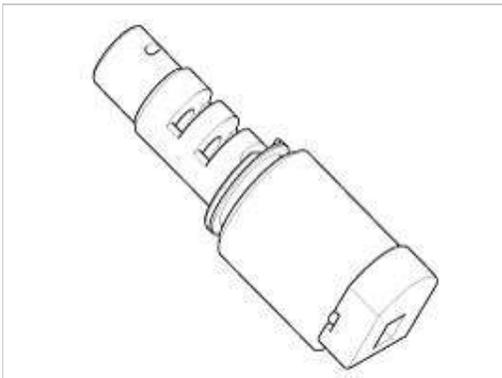


Automatic Transaxle System



## Description

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



Automatic Transaxle System



## Specifications

Direct control VFS[26/B]

▷ Control type : Normal low type

Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	
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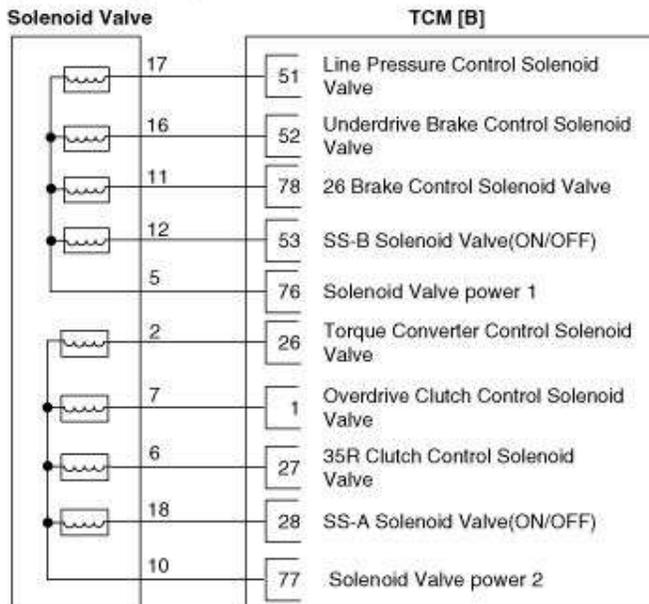
	9.81 ~ 500.14 (0.1 ~ 5.1, 1.42 ~ 72.54)
Current value(mA)	50~850
Internal resistance( $\Omega$ )	5.1

## Automatic Transaxle System



### Circuit Diagram

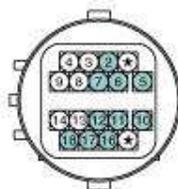
#### [Circuit Diagram]



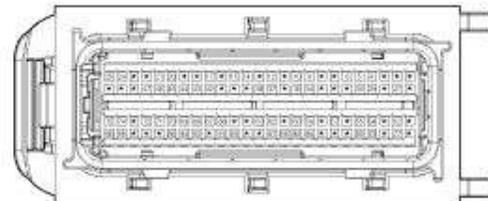
#### [Connection Information]

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

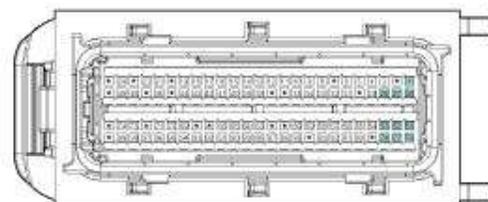
#### [Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

## Automatic Transaxle System



### Inspection

1. Turn ignition switch OFF.
2. Disconnect the solenoid valve connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. 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, the hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve; also replace the valve body assembly.

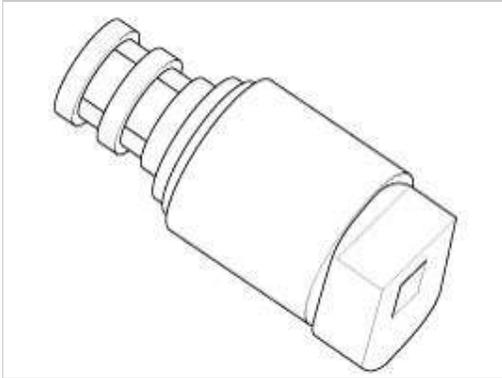
(Refer to Hydraulic System - "Valve Body")

### Automatic Transaxle System



## Description

Line Pressure(L/P) 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 low type

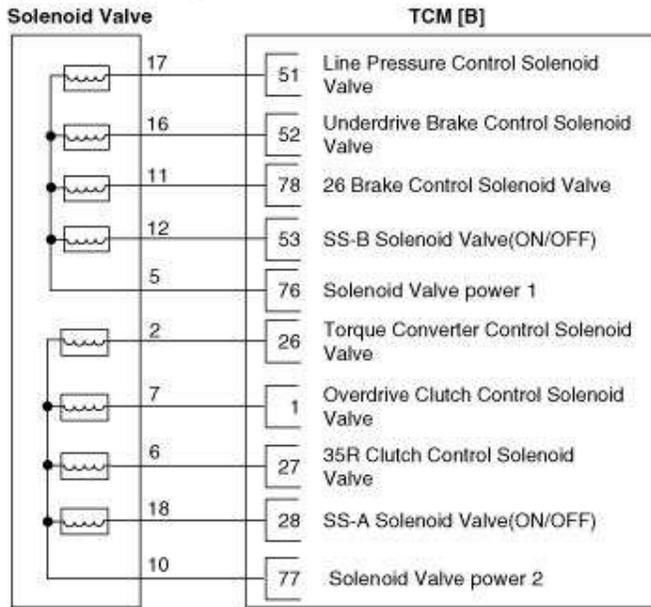
Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	500.14 ~ 9.81 (5.1~ 0.1, 72.54 ~ 1.42)
Current value(mA)	50 ~ 850
Internal resistance(Ω)	5.1

### Automatic Transaxle System



## Circuit Diagram

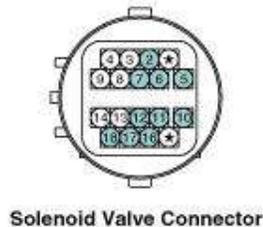
### [Circuit Diagram]



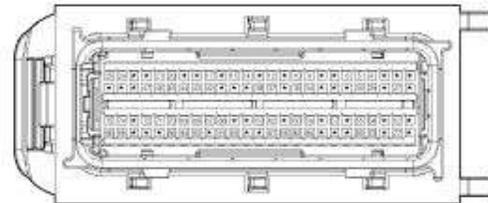
### [Connection Information]

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

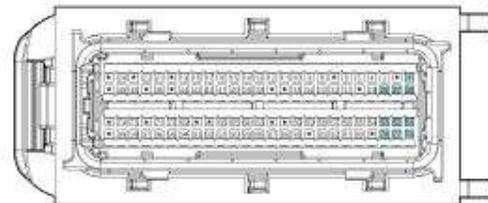
### [Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

## Automatic Transaxle System

### Inspection

1. Turn ignition switch OFF.
2. Disconnect the solenoid valve connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. Check that the resistance is within the specification.

### Removal

#### NOTICE

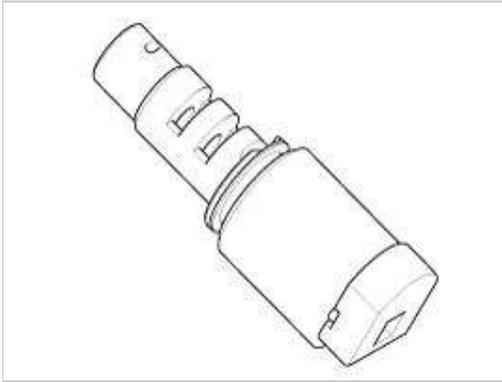
Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, the hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve; also replace the valve body assembly.

(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 the hydraulic pressure inside the 35R clutch.



Automatic Transaxle System



## Specifications

Direct control VFS[35R/C]

▷ Control type : Normal low type

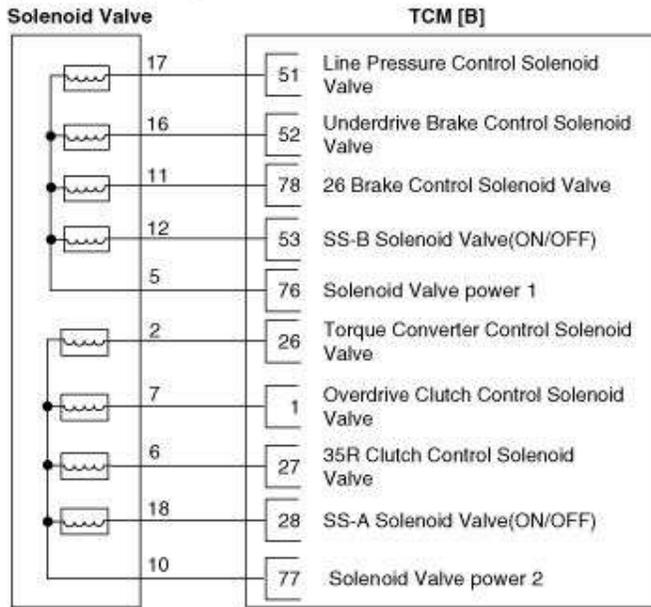
Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	500.14 ~ 9.81 (5.1~ 0.1, 72.54 ~ 1.42)
Current value(mA)	50 ~ 850
Internal resistance(Ω)	5.1

Automatic Transaxle System



## Circuit Diagram

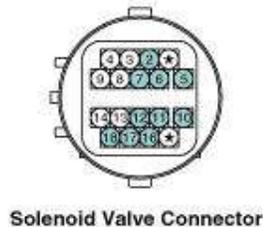
### [Circuit Diagram]



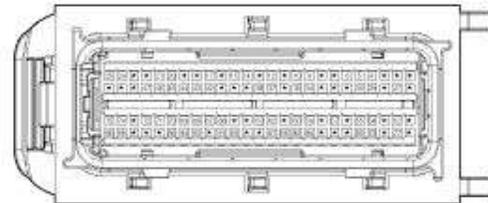
### [Connection Information]

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

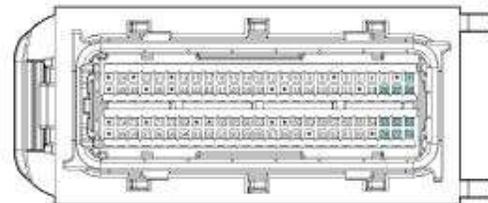
### [Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

## Automatic Transaxle System

### Inspection

1. Turn ignition switch OFF.
2. Disconnect the solenoid valve connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. Check that the resistance is within the specification.

### Removal

#### NOTICE

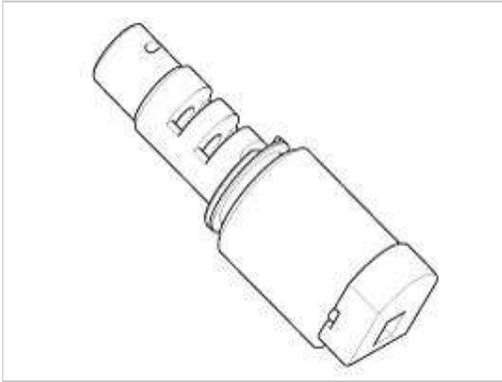
Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, the hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve; also replace the valve body assembly.

(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[35R/C]

▷ Control type : Normal low type

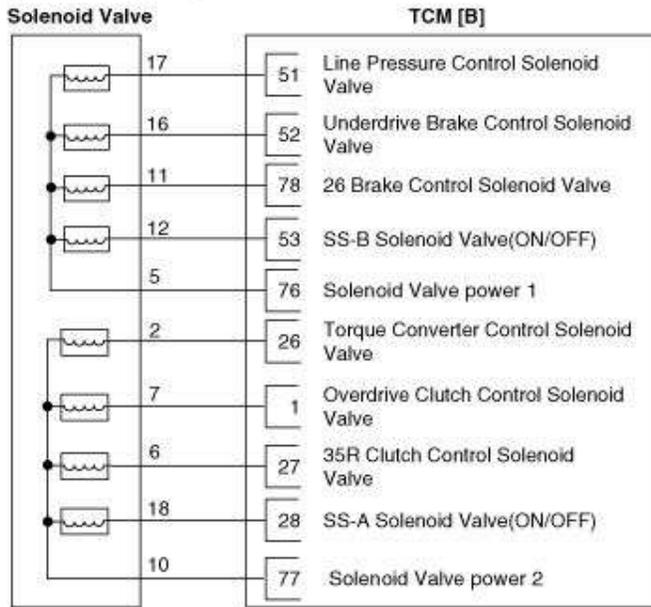
Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	500.14 ~ 9.81 (5.1 ~ 0.1, 72.54 ~ 1.42)
Current value(mA)	50~850
Internal resistance( $\Omega$ )	5.1

Automatic Transaxle System



## Circuit Diagram

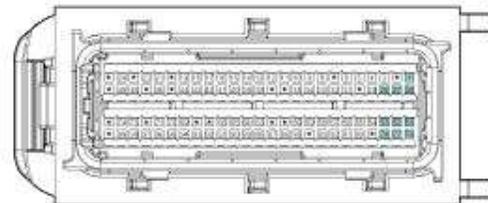
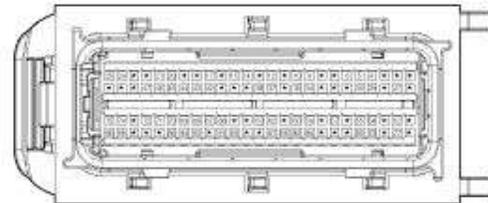
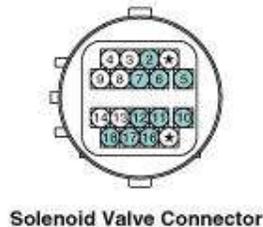
### [Circuit Diagram]



### [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. Disconnect the solenoid valve connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. Check that the resistance is within the specification.

### Removal

#### NOTICE

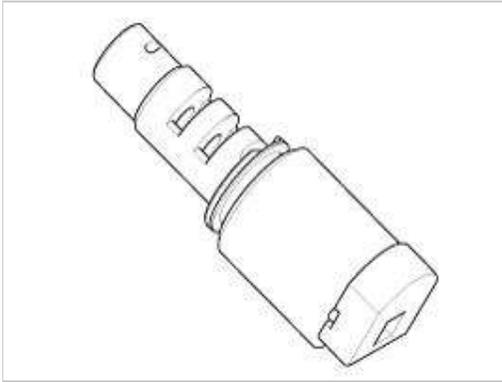
Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, the hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve; also replace the valve body assembly.

(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 directly controls the hydraulic pressure inside the overdrive clutch.



Automatic Transaxle System



## Specifications

Direct control VFS[35R/C]

▷ Control type : Normal low type

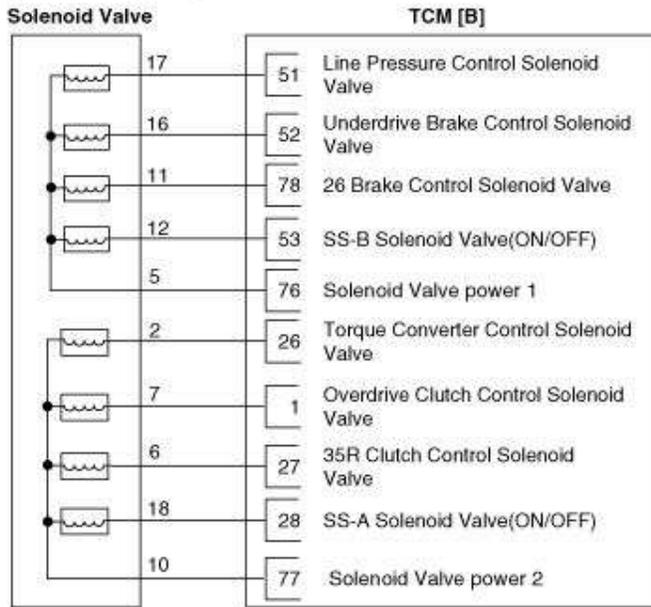
Control Pressure kpa (kgf/cm <sup>2</sup> , psi)	500.14 ~ 9.81 (5.1 ~ 0.1, 72.54 ~ 1.42)
Current value(mA)	50~850
Internal resistance(Ω)	5.1

Automatic Transaxle System



## Circuit Diagram

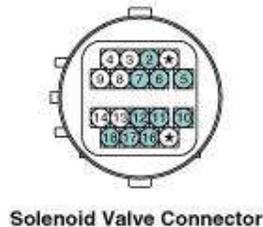
### [Circuit Diagram]



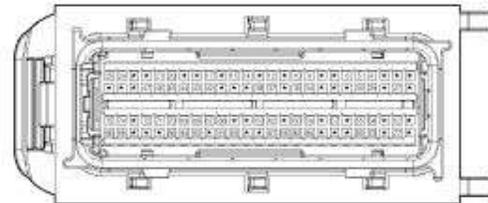
### [Connection Information]

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

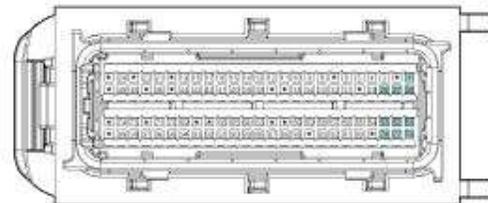
### [Harness Connector]



Solenoid Valve Connector



Connector [A]



Connector [B]

## Automatic Transaxle System

### Inspection

1. Turn ignition switch OFF.
2. Disconnect the solenoid valve connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. Check that the resistance is within the specification.

### Removal

#### NOTICE

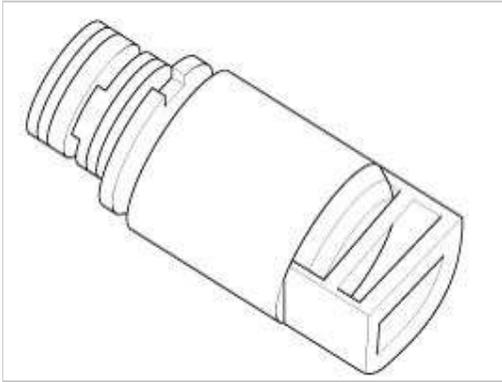
Replacing an on/off solenoid valve (SS-A, SS-B) does not require additional hydraulic pressure adjustment; however, the hydraulic pressure will need to be adjusted after replacing the VFS solenoid valve. If replacing the VFS solenoid valve; also replace the valve body assembly.

(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, SS-B)

▷ Control type : Normal low type

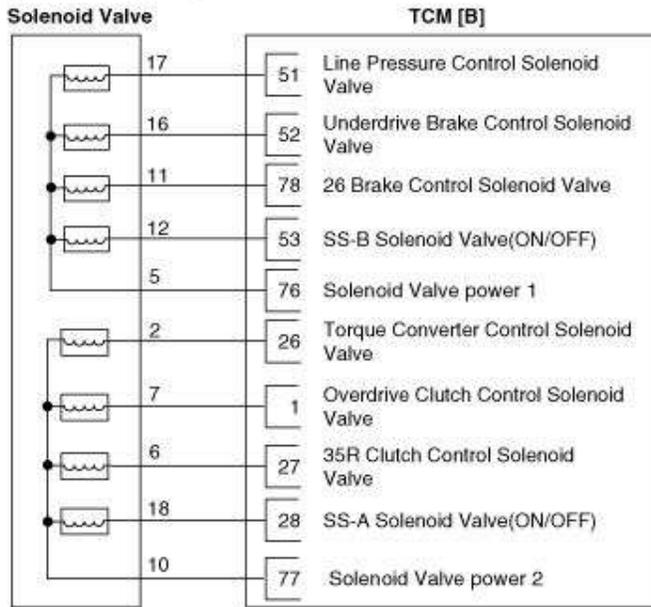
Control pressure kpa (kgf/cm <sup>2</sup> , psi)	490.33(5.0, 71.12)
Internal resistance(Ω)	10~11

Automatic Transaxle System



## Circuit Diagram

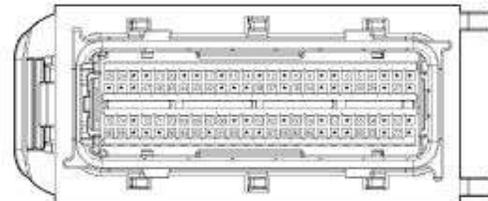
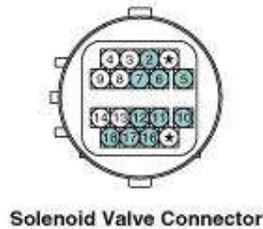
### [Circuit Diagram]



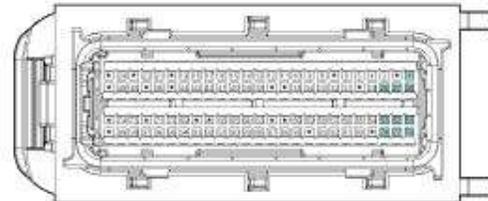
### [Connection Information]

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]



**Connector [A]**



**Connector [B]**

## Automatic Transaxle System

### Inspection

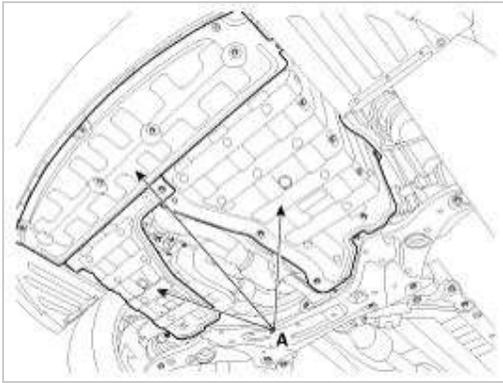
1. Turn ignition switch OFF.
2. Disconnect the solenoid valve connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. Check that the resistance is within the specification.

### Removal

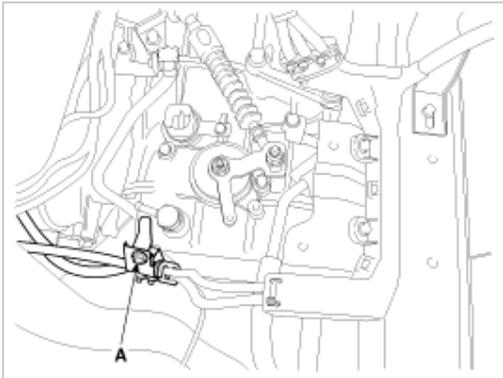
1. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
2. Remove the under cover (A).

### Tightening torque:

7.8 ~ 11.7 N.m (0.8 ~ 1.2 kgf.m, 5.7 ~ 8.6 lb-ft)



3. Replace new gasket and the plug after draining the automatic transaxle fluid by removing the drain plug.  
(Refer to Hydraulic System - "Fluid")
4. Remove the wiring bracket bolt (A).



5. Remove the valve body cover (B) and eyebolt (A).

**Tightening torque:**

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

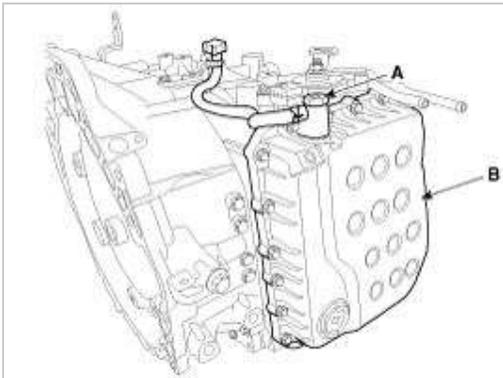
(B) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

**CAUTION**

Always replace the gasket of the eyebolt use new one whenever loosening eyebolt.

**NOTICE**

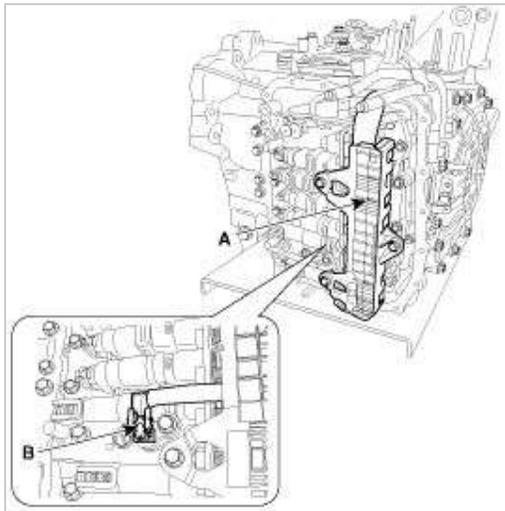
Remove installation bolts in the engine compartment first and then remove others under the vehicle.



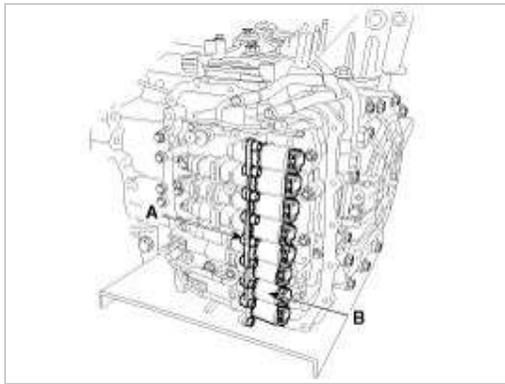
6. Remove the bolt (3ea) after disconnecting the solenoid valve connector (A) and the oil temperature sensor connector (B).

**Tightening torque:**

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



7. Remove the solenoid valve (B) after removing the solenoid support (A).

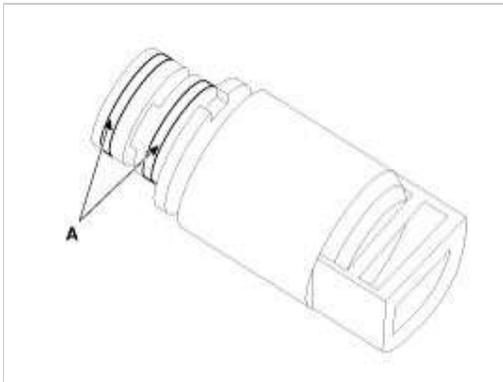


## Installation

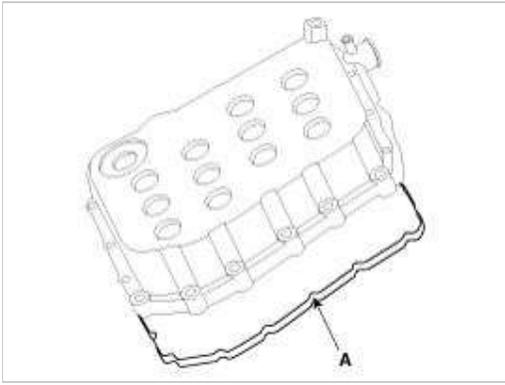
1. Installation is the reverse of removal.

### NOTICE

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



- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- Use new valve body gasket (A).

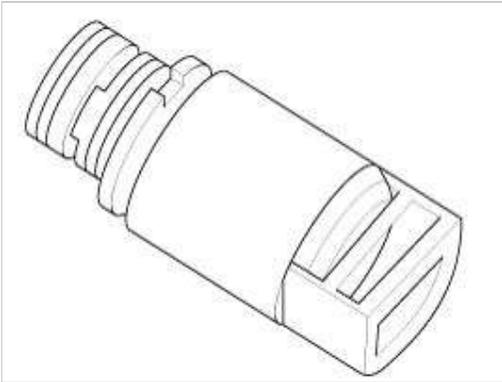


Automatic Transaxle System



### 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-A, SS-B)

▷ Control type : Normal low type

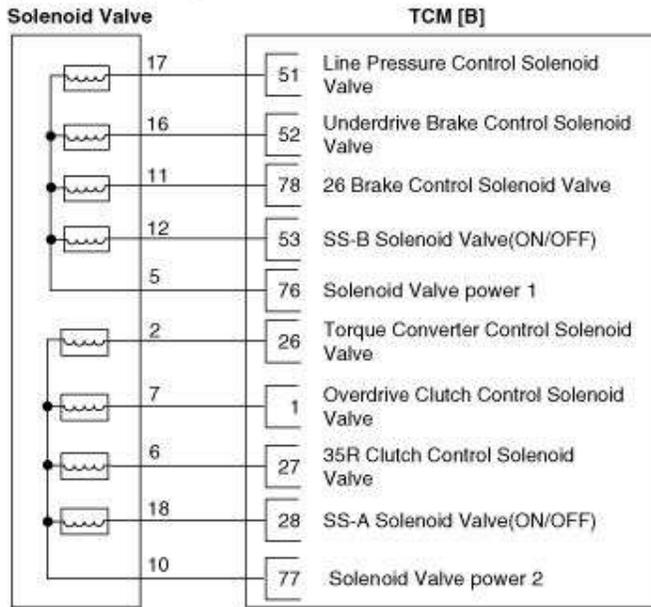
Control pressure kpa (kgf/cm <sup>2</sup> , psi)	490.33(5.0, 71.12)
Internal resistance(Ω)	10~11

Automatic Transaxle System



### Circuit Diagram

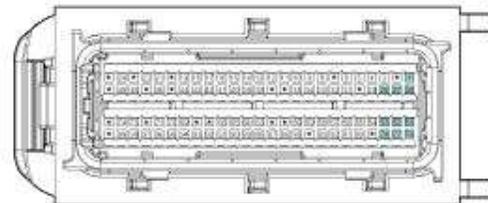
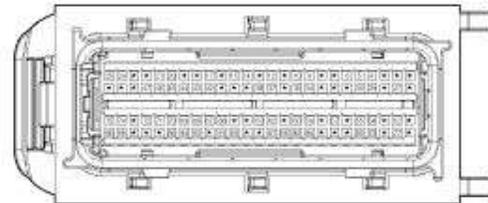
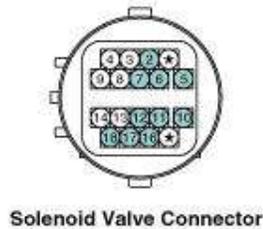
[Circuit Diagram]



[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. Disconnect the solenoid valver connector.
3. Measure resistance between sensor signal terminal and sensor ground terminal.
4. Check that the resistance is within the specification.

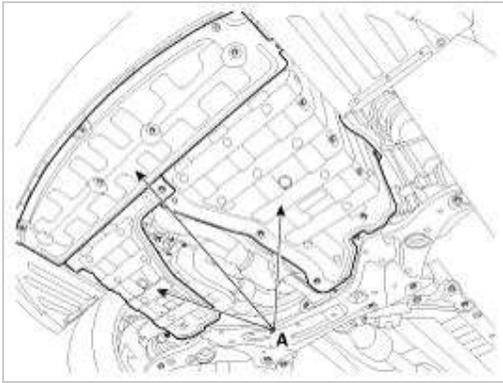
**Removal**

1. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
2. Remove the under cover (A).

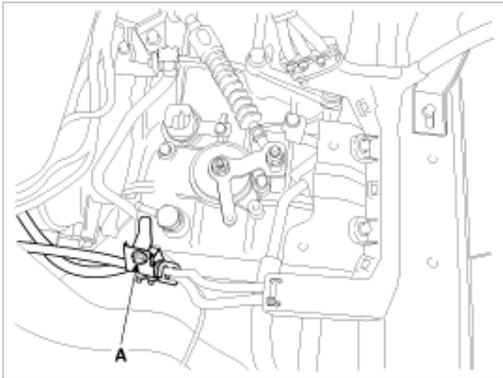
**Tightening torque:**

7.8 ~ 11.7 N.m (0.8 ~ 1.2 kgf.m, 5.7 ~ 8.6 lb-ft)





3. Replace new gasket and the plug after draining the automatic transaxle fluid by removing the drain plug.  
(Refer to Hydraulic System - "Fluid")
4. Remove the wiring bracket bolt (A).



5. Remove the valve body cover (B) and eyebolt (A).

**Tightening torque:**

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

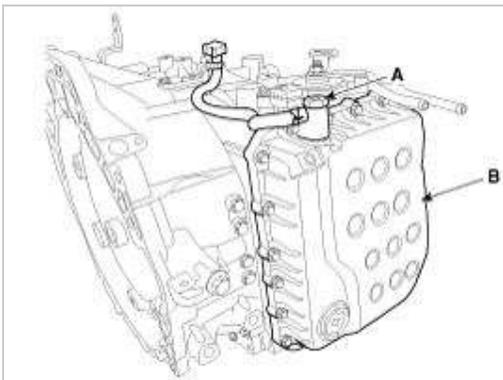
(B) 13.7 ~ 15.7 N.m (1.4 ~ 1.6 kgf.m, 10.1 ~ 11.6 lb-ft)

**CAUTION**

Always replace the gasket of the eyebolt use new one whenever loosening eyebolt.

**NOTICE**

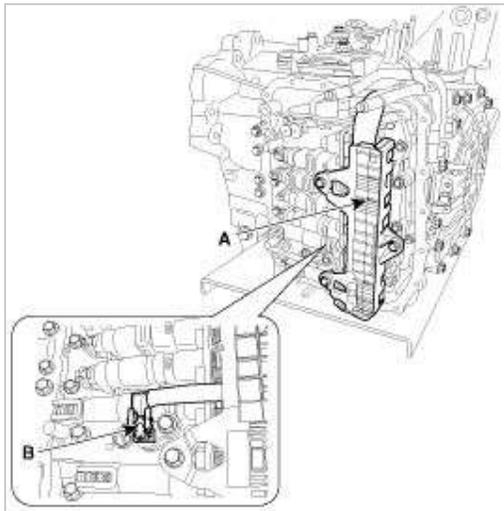
Remove installation bolts in the engine compartment first and then remove others under the vehicle.



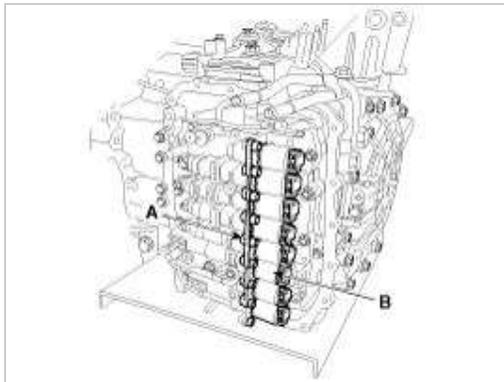
6. Remove the bolt (3ea) after disconnecting the solenoid valve connector (A) and the oil temperature sensor connector (B).

**Tightening torque:**

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



7. Remove the solenoid valve (B) after removing the solenoid support (A).

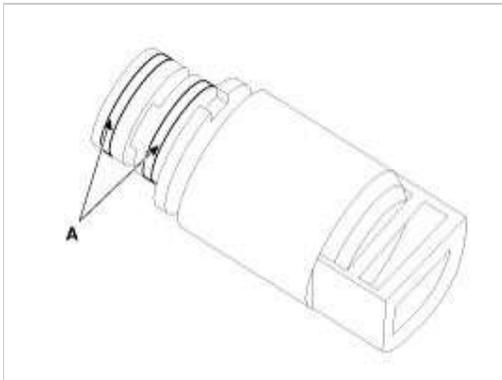


## Installation

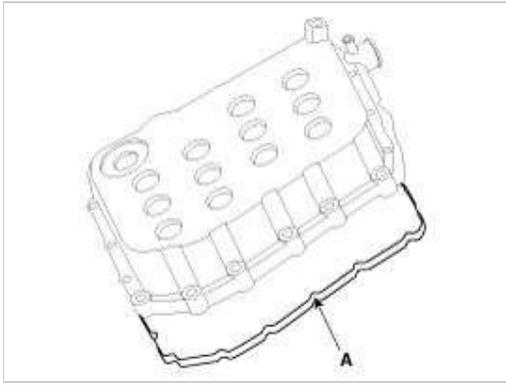
1. Installation is the reverse of removal.

### NOTICE

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



- Adding automatic transaxle fluid.  
(Refer to Hydraulic System - "Fluid")
- Use new valve body gasket (A).



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

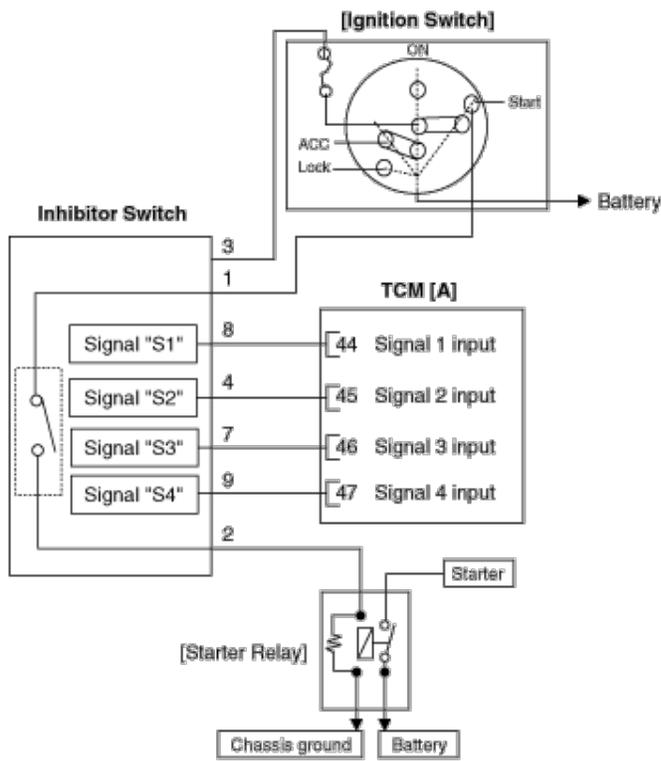
	P	P-R	R	R-N	N	N-D	D
S1	12V	12V	0	0	0	0	0
S2	0	12V	12V	12V	0	0	0
S3	0	0	0	12V	12V	12V	0
S4	0	0	0	0	0	12V	12V

Automatic Transaxle System



## Circuit Diagram

[Circuit Diagram]



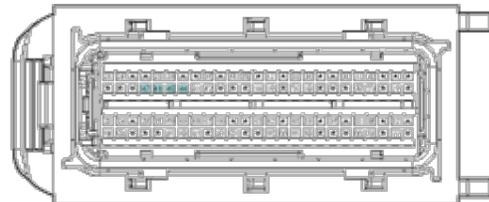
[Connection Information]

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

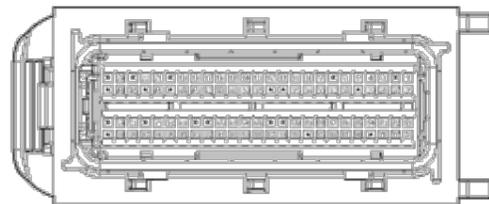
[Harness Connector]



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.

**Specification** :Approx. 12V

## 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".

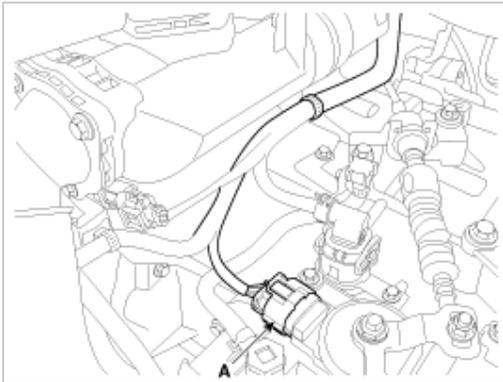
**Specification** :See below "Signal Code Table"

### Signal Code Table

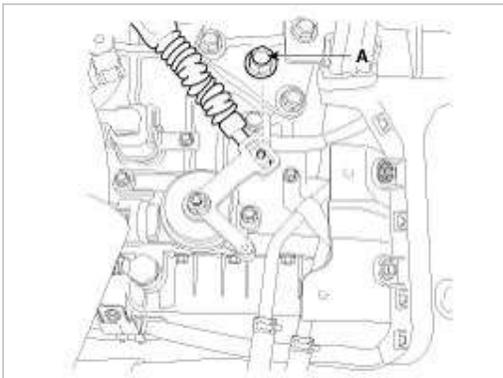
	P	P-R	R	R-N	N	N-D	D
Signal "1"	12V	12V	0	0	0	0	0
Signal "2"	0	12V	12V	12V	0	0	0
Signal "3"	0	0	0	12V	12V	12V	0
Signal "4"	0	0	0	0	0	12V	12V

## Removal

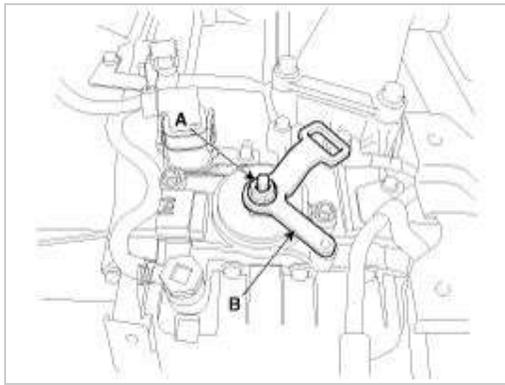
1. Place the shift lever into the "N" position.
2. Remove the air cleaner assembly.  
(Refer to Engine Mechanical System - "Air cleaner")
3. Remove the battery and the battery tray.  
(Refer to Engine Electrical System - "Battery")
4. Disconnect the inhibitor switch connector (A).



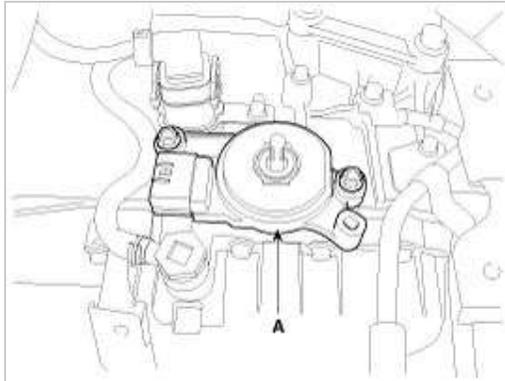
5. Remove the shift cable mounting nut (A).



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).

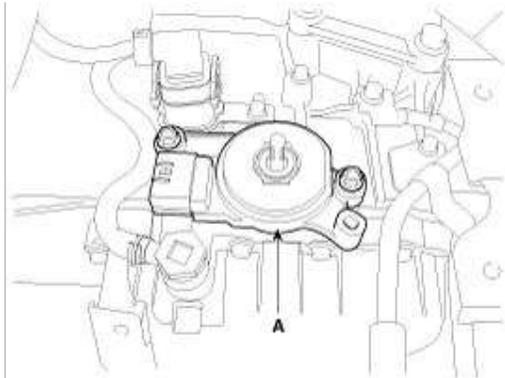


### Installation

1. Check that the shift lever is placed in the "N" position
2. Install the inhibitor switch (A).

#### NOTICE

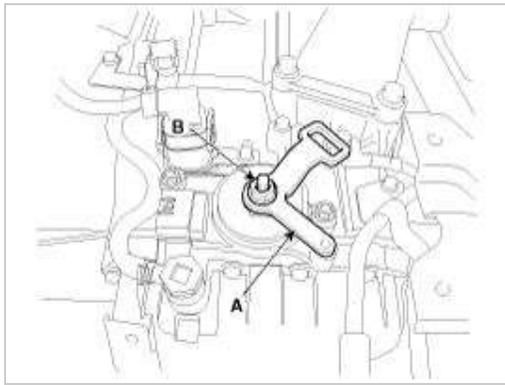
Lightly tighten the inhibitor switch mounting bolts so that necessary adjustments can be made.



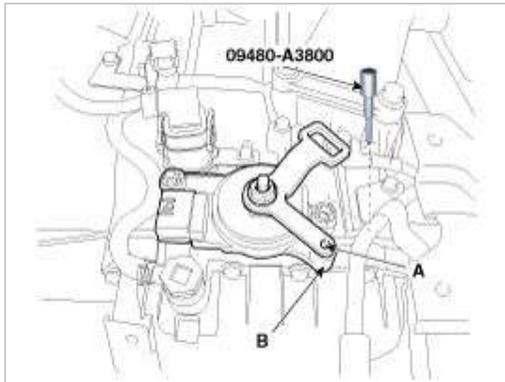
3. Install the manual control lever (A).

#### NOTICE

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



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

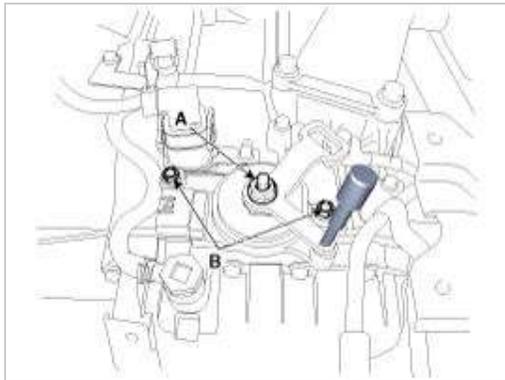


- Tighten the nut (A) and bolts (B) with the specified torque.

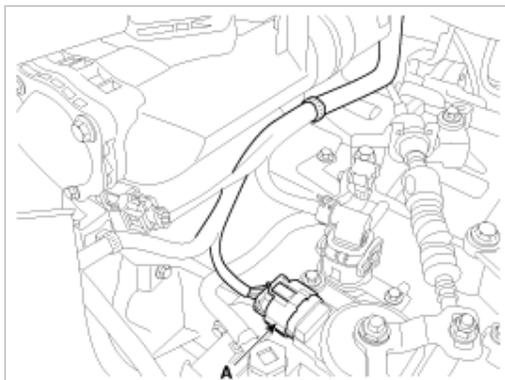
**Tightening torque:**

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)



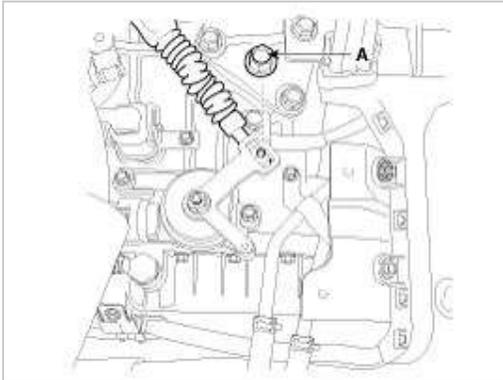
- Remove the SST (09480-A3800) from the hole.
- Connect the inhibitor switch connector (A).



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

**NOTICE**

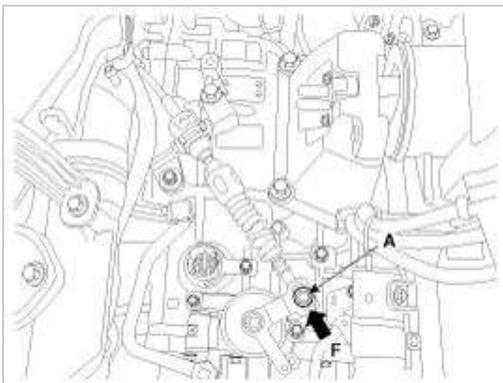
Lightly tighten the shift cable mounting nut (A) so that necessary adjustments can be made.



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)

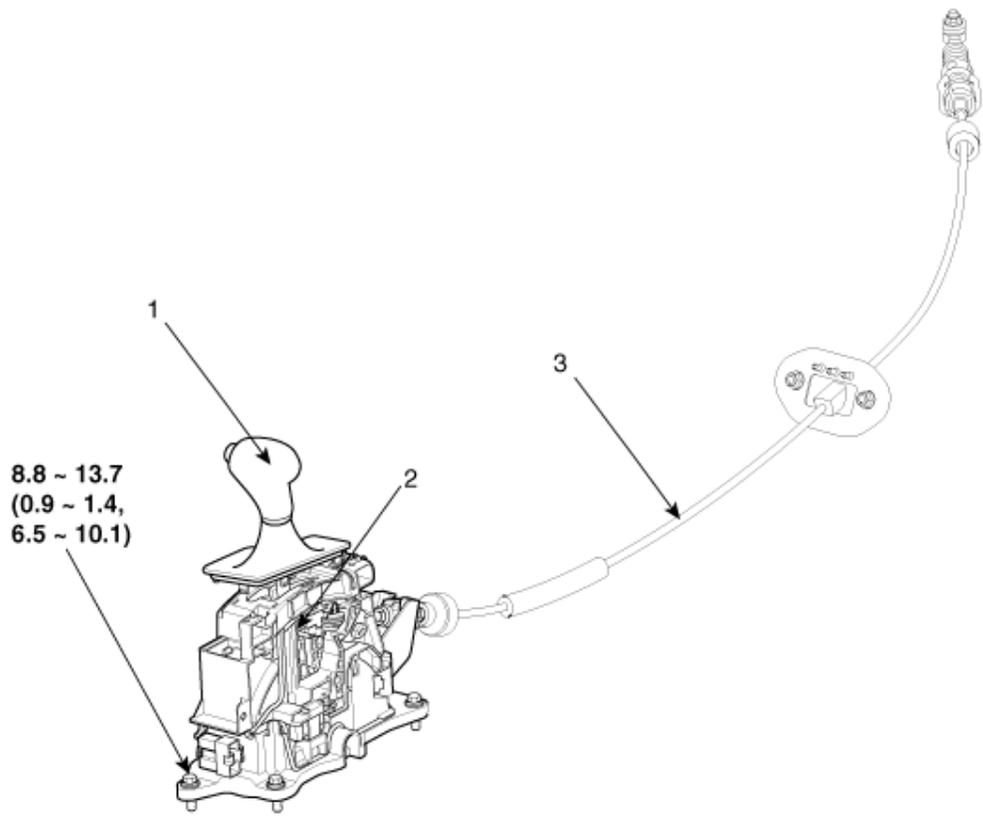


10. Install the battery and battery tray.  
(Refer to Engine Electrical System - "Battery")
11. Install the air cleaner assembly.  
(Refer to Engine Mechanical System - "Air cleaner")

**Automatic Transaxle System**



**Components**



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

1. Shift lever knob & Boots assembly  
2. Shift lever assembly

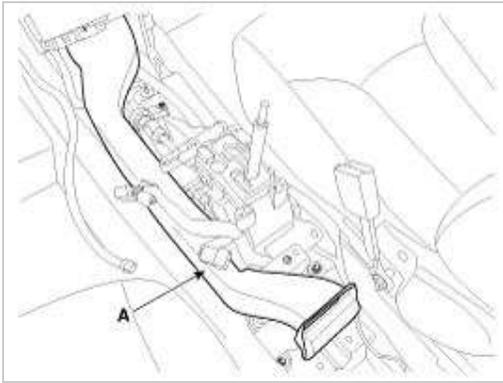
3. Control cable assembly

**Automatic Transaxle System**

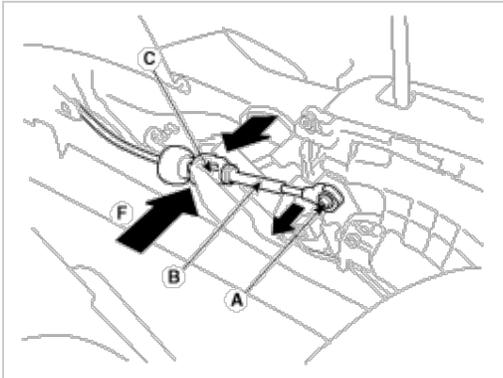


**Removal**

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



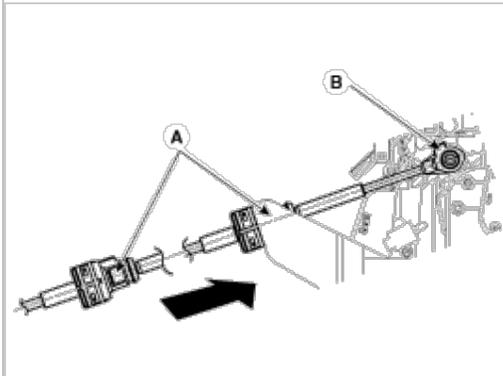
3. Disconnect the shift cable (A) and then remove the shift cable (B) after pressing the shift cable socket (C) in the direction of "F".



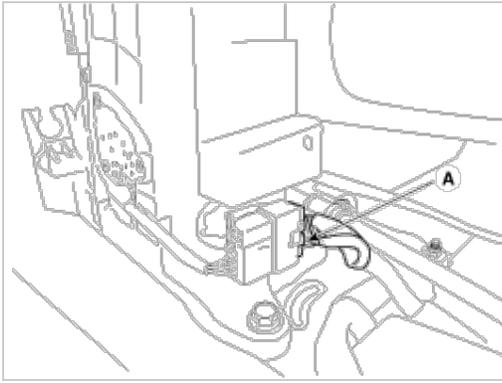
#### NOTICE

#### Installing method for shift cable lever side

- Install the cable socket part to the lever assembly securely after adjusting the wings (A) of cable socket part upward.
- Install the cable socket part to the lever assembly securely after adjusting the projection (B) to prevent wrong assembly upward.



4. Shift lever assembly connector (A).



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

**Tightening torque:**

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



**Inspection**

1. Check the damage and operation of the control cable.
2. Check the damage of the boot.
3. Check the damage and corrosion of the bushing.
4. Check the damage or weakening of the spring.

**Installation**

1. Installation is the reverse of removal.

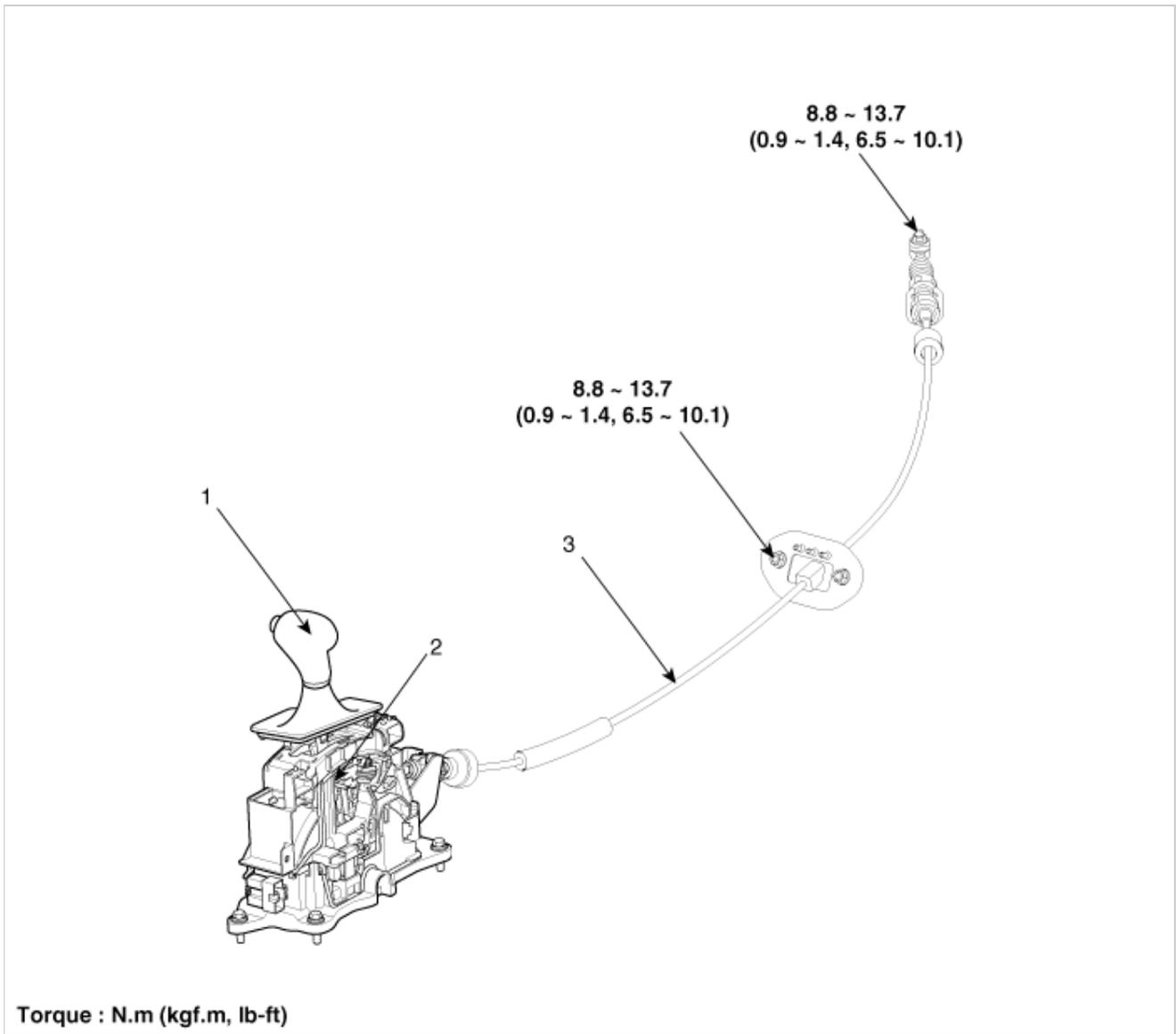
**CAUTION**

Set room side lever and T/M side lever to "N" position.

Automatic Transaxle System



**Components**



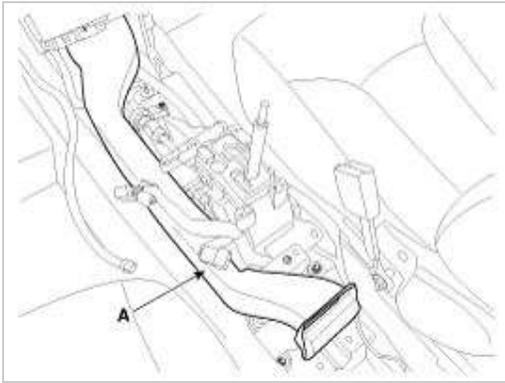
<p><b>Torque : N.m (kgf.m, lb-ft)</b></p> <p>1. Shift lever knob &amp; Boots assembly</p> <p>2. Shift lever assembly</p>	<p>3. Control cable assembly</p>
--	----------------------------------

**Automatic Transaxle System**

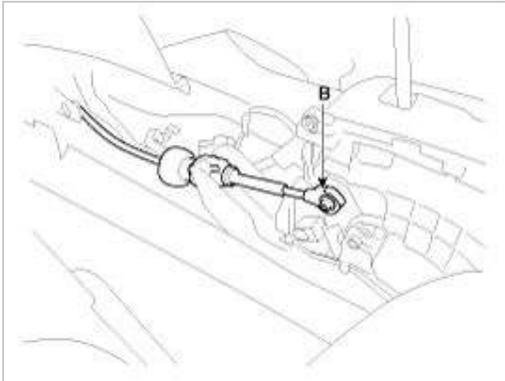


**Removal**

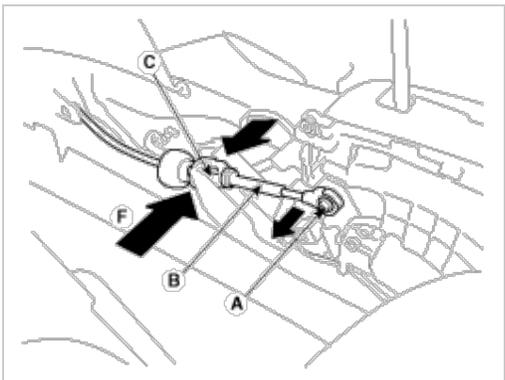
1. Remove the center console assembly.  
(Refer to Body - "Console")
2. Remove the duct (A).



3. Remove the control cable (B).



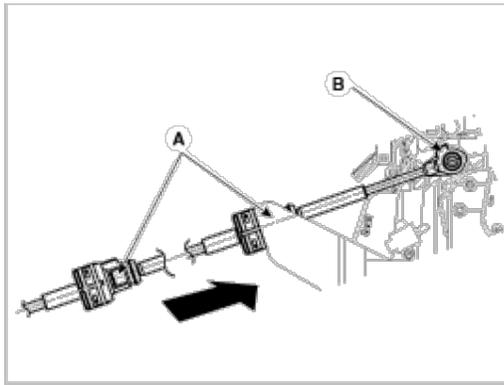
4. Disconnect the shift cable (A) and then remove the shift cable (B) after pressing the shift cable socket (C) in the direction of "F".



#### NOTICE

#### Installing method for shift cable lever side

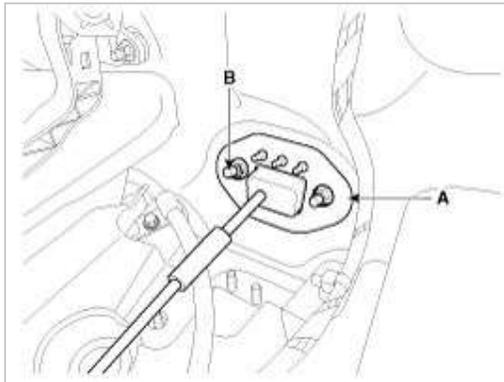
- Install the cable socket part to the lever assembly securely after adjusting the wings (A) of cable socket part upward.
- Install the cable socket part to the lever assembly securely after adjusting the projection (B) to prevent wrong assembly upward.



5. Remove the control cable assembly in the vehicle after removing the nuts (B) and the retainer (A).

**Tightening torque:**

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

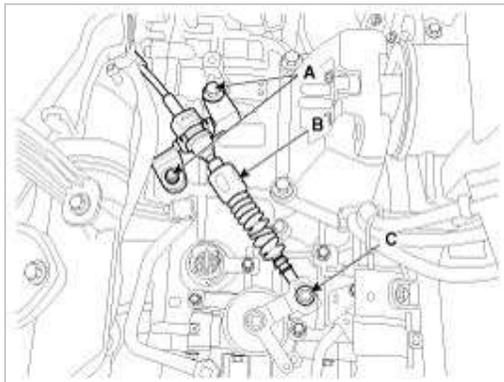


6. Remove the nut (C).  
 7. Remove the control cable (B) after removing the nut (C) and the bolt (A).

**Tightening torque**

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

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



8. Remove the control cable inside of cab.

**Installation**

1. Installation is the reverse of removal.

**NOTICE**

Make sure vehicle does not roll before setting room side shift lever and Automatic Transaxle(AT) side manual control lever to "N" position.

**Adjustment**

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

- 1.

Make sure vehicle does not roll before setting room side shift lever and Automatic Transaxle(AT) side manual control lever to "N" position.

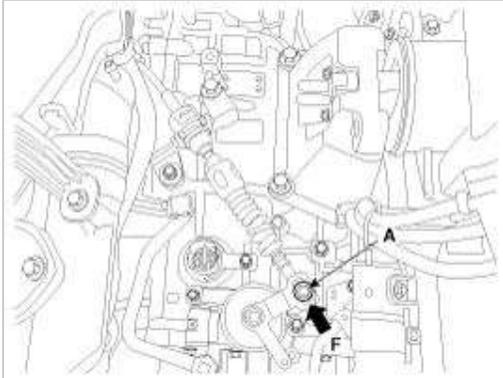
2. Connect room side shift lever and control cable.
3. Push cable to "F" direction shown to eliminate FREE PLAY.
4. Tighten adjusting nut (A).

---

**Tightening torque:**

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

---



5. After adjusting, check to be sure that this part operates as designed at each range of Automatic Transaxle(AT) side corresponding to each position of room lever.