 <b>HYUNDAI</b>   NEW THINKING. NEW POSSIBILITIES.  <b>Technical Service Bulletin</b>		GROUP	NUMBER
		<b>AUTOMATIC TRANSMISSION</b>	<b>12-AT-016-1</b>
		DATE	MODEL
		<b>NOVEMBER 2012</b>	Tucson (LM), Santa Fe (CM/AN), Sonata (YF), Elantra (UD/MD/GD/JK), Accent (RB), Azera (TG/HG), Veloster Turbo (FS)
<b>SUBJECT:</b>	<b>AUTOMATIC TRANSAXLE SOLENOID DTC</b> <b>P0741, P0743, P0748, P0753, P0758, P0763, P0768, P0773, P1778 AND P2709</b>		
<i><b>This TSB supersedes bulletin 12-AT-016 to add 2013 Santa Fe</b></i>			
<b>Description:</b> Do not replace the transmission for solenoid DTC listed above. Instead, follow the repair procedure and replace the related part.			

Applicable Vehicles:	Model Year(s)	Model
	2010 ~	Tucson (LM) & Santa Fe (CM)
	2011 ~	Sonata (YF)/HEV, Elantra (UD/MD) & Azera (TG)
	2012 ~	Accent (RB), Azera (HG)
	2013~	Veloster Turbo (FS), Elantra Coupe (JK), Elantra GT (GD) & Santa Fe (AN)

#### PARTS INFORMATION:

**NOTE:** Refer to the part number code in the parts catalog, valve body section, and order the correct solenoid part number.

MODEL	PART	PNC CODE	PART NUMBER
2010~ Tucson (LM) 2010~ Santa Fe (CM/AN) 2011~ Sonata (YF) 2011~ Sonata (YF HEV) 2011~ Elantra Sedan (UD/MD) 2011~ Azera (TG/HG) 2012~ Accent (RB) 2013~ Elantra GT (GD) 2013~ Elantra Coupe (JK) 2013~ Veloster Turbo (FS)	Torque converter solenoid (T/C)	46313C	46313-3B673
	Engine clutch solenoid (HEV)	46313C	46313-3B***
	Shift solenoid C (35R)	46313B	46313-3B***
	Shift solenoid B (26-B)	46313C	46313-3B***
	Shift solenoid A (UD)	46313B	46313-3B***
	Shift solenoid D (OD)	46313B	46313-3B030
	Shift solenoid F (SS-B)	46313D	46313-3B***
	Shift solenoid E (SS-A)	46313D	46313-3B***
	Pressure control solenoid (P/C)	46313A	46313-3B600
	Valve body internal harness	46307	46307-3B***
	Plastic oil pan gasket	45282E	45282-26100 45283-3****

**SUBJECT:**

AUTOMATIC TRANSAXLE SOLENOID DTC

**P0741, P0743, P0748, P0753, P0758, P0763, P0768, P0773, P1778 AND P2709****WARRANTY INFORMATION:**

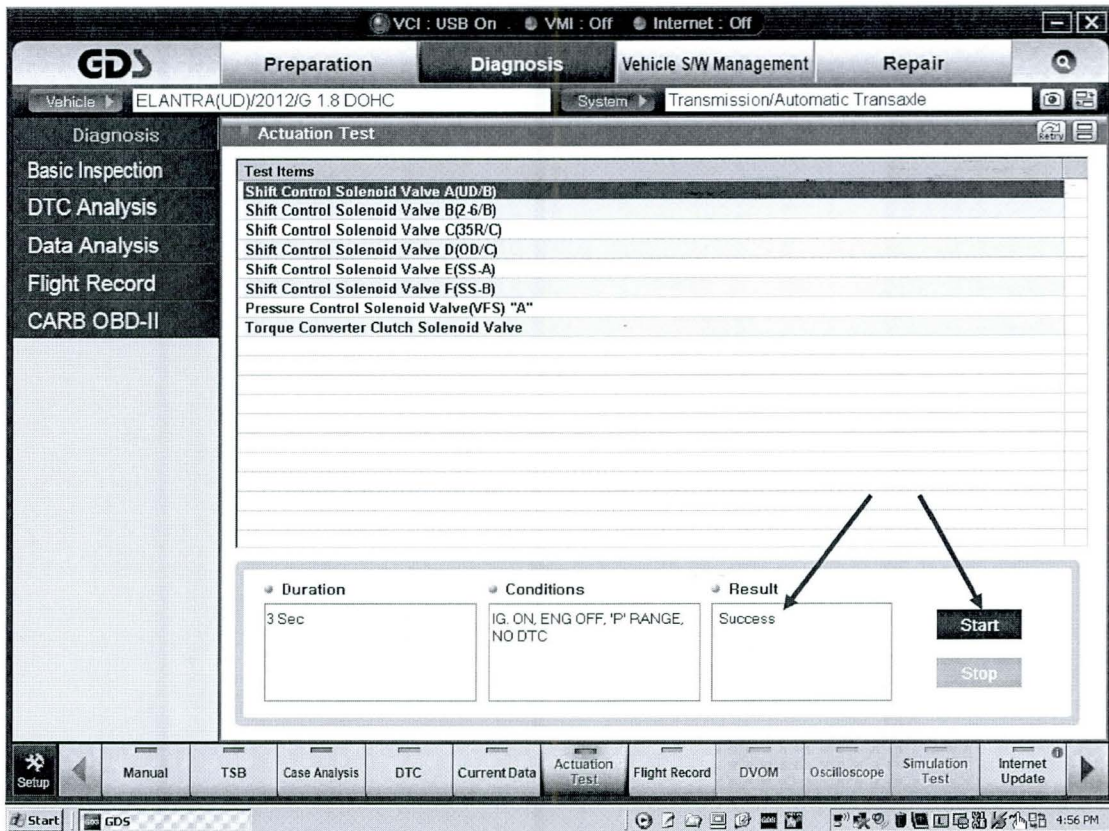
MODEL	OP CODE	OPERATION	OP TIME	CAUSAL PART	OP QTY	NATURE CODE	CAUSE CODE
2010~ Tucson (LM)	45775R00	Replace solenoid and valve body harness	1.6	See Parts Catalog for 46313-3B***	1	N69	C15
2010~ Santa Fe (CM)			2.6				
2013~ Santa Fe (AN)			1.6				
2011~ Elantra (MD/UD)			1.6				
2011~ Sonata (YF)			1.6				
2011 Azera (TG)			2.6				
2012~ Azera (HG)			1.6				
2012~ Accent (RB)			1.9				
2013~ Veloster Turbo (FS)			1.6				
2013~ Elantra Coupe (JK)			1.6				
2013~ Elantra GT (GD)			1.6				
2011~ Sonata HEV (HEV)			1.6				
	45775RH1	Additional	1.4				
All	45775RQ0	GDS Operation	0.3				



**SERVICE PROCEDURE:**

1. Using a GDS, check for DTC in the "Automatic Transaxle" menu. **Record the DTC and description.** Delete the DTC.
2. From the GDS, select the following parameters.
  - Vehicle and A/T menu.
  - "Actuation Test"

Press the "Start" button and look for a "Success" indication.



3. If the test results show:
  - "Success" – The GDS requested the TCM to activate the solenoids. Use chassis ears or stethoscope to listen for solenoid operation. If the solenoids are audible, the harness currently has no open/short circuit. Go to Step 5.
  - "Failure" - The GDS did not request the TCM to activate the solenoids. Go to Step 4.
4. Visually check the wiring harness between the PCM and transmission for a damaged wire or short circuit to ground. Check for a damaged pin or pin not fully inserted into the connector.
  - If damage exists, repair or replace the ECM control harness and drive the vehicle to confirm the repair.
  - If not, go to Step 5.

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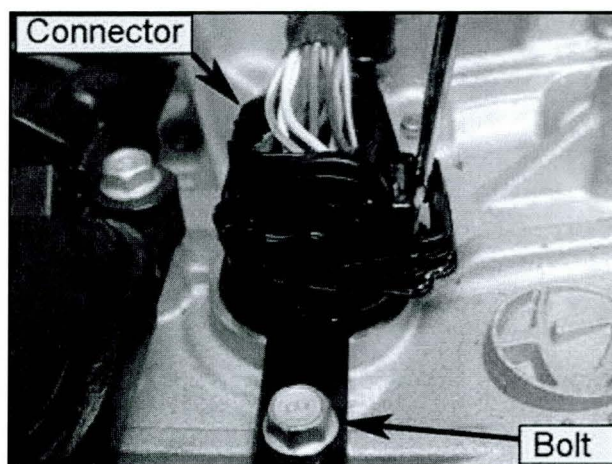
5. Refer to the DTC recorded in Step 1 and follow the repair procedure shown below:

DTC		REPAIR PROCEDURE
P0741	Torque converter clutch system	Replace the transaxle if P0743 is not found.  Go to Step 6 and replace the related solenoid <u>and</u> valve body harness
P1778	Engine clutch solenoid (HEV)	
P0743	Torque converter (T/C)	
P0763	Shift solenoid C (35R)	
P0758	Shift solenoid B (26-B)	
P0753	Shift solenoid A (UD)	
P0768	Shift solenoid D (OD)	
P2709	Shift solenoid F (SS-B)	
P0773	Shift solenoid E (SS-A)	
P0748	Pressure control solenoid (P/C)	

6. Record the radio stations.  
Remove the battery and battery tray.
7. Remove the undercover below the transmission.
8. Drain the radiator and remove the lower radiator hose from the radiator, if necessary.  
Drain the ATF.
9. Use a screwdriver to release the tab and remove the solenoid connector on top of the case.

Remove the bolt that secures the connector and push the connector into the transmission.

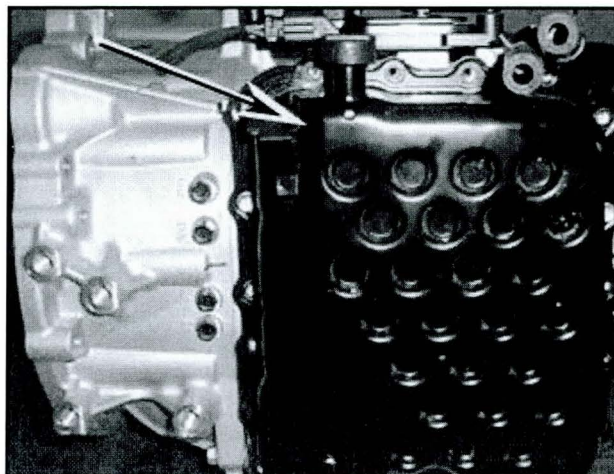
Disconnect the vent hose on the top of the oil pan.



10. Remove the oil pan bolts and remove the pan.

**CAUTION**

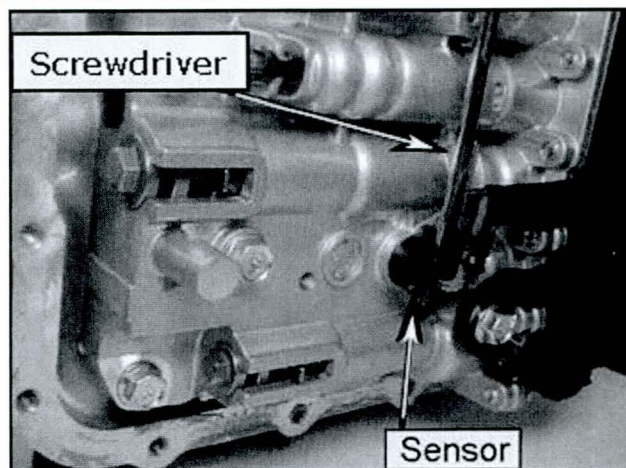
Use rubber hammer to tap the oil pan cover on a corner until the cover is loose.



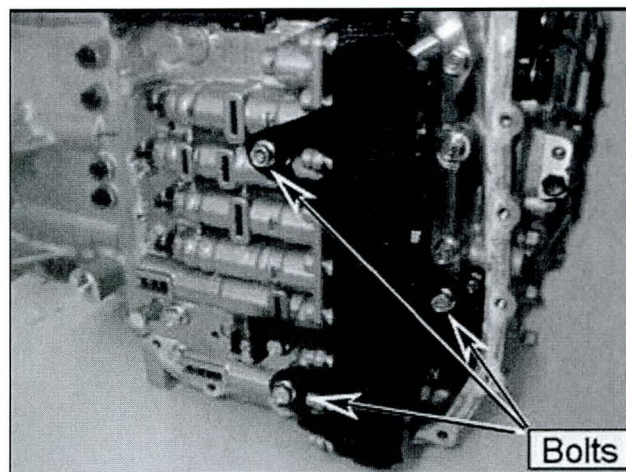


**SUBJECT:****AUTOMATIC TRANSAXLE SOLENOID DTC  
P0741, P0743, P0748, P0753, P0758, P0763, P0768, P0773, P1778 AND P2709**

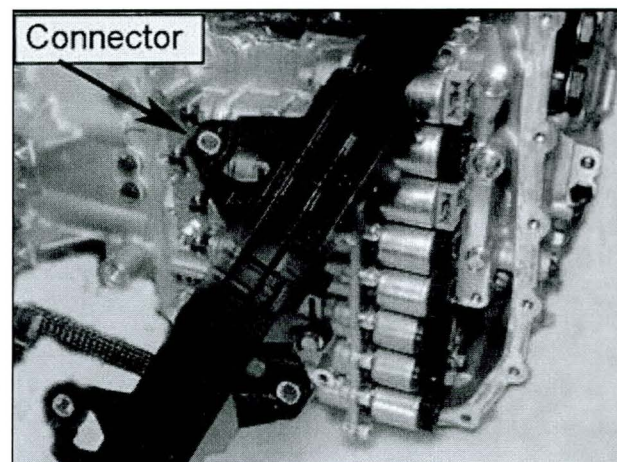
11. Use a small screwdriver to pry the connector from the oil temperature sensor.



12. Remove three bolts to the solenoid valve connector.



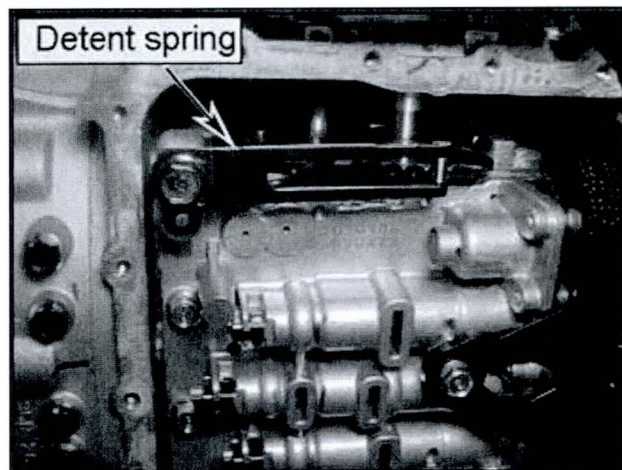
13. Pull the solenoid connector outward and move the connector out of position.



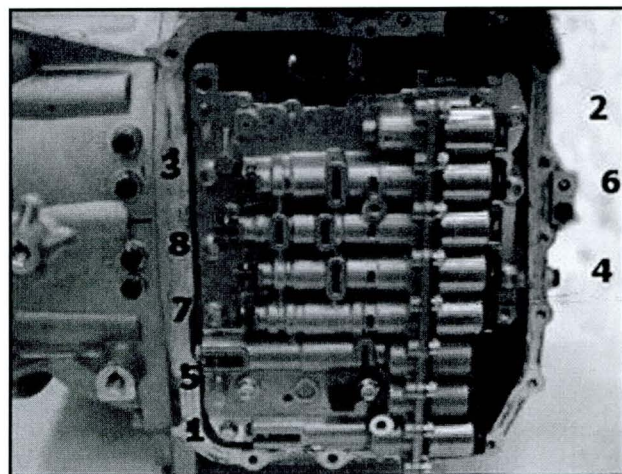
**SUBJECT:****AUTOMATIC TRANSAXLE SOLENOID DTC****P0741, P0743, P0748, P0753, P0758, P0763, P0768, P0773, P1778 AND P2709**

14. Remove the bolt that secures the detent spring and remove the spring.

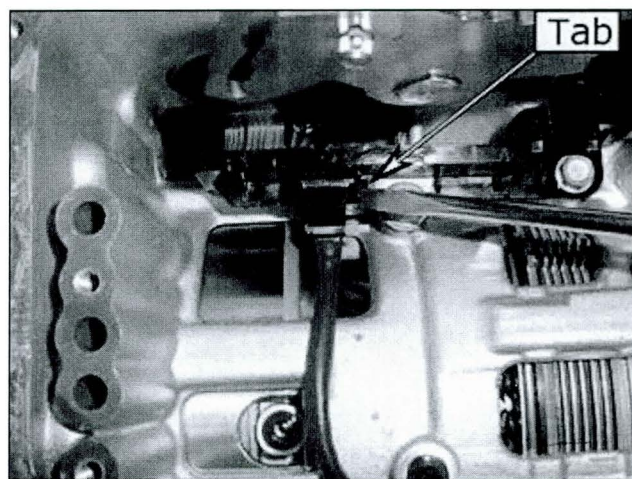
Torque: 8~11 lb.ft (1.2~1.6 kgf.m)



15. Remove the valve body bolts in the order shown and remove the valve body.



16. Use a screwdriver to depress the locking tab and pull outward on the connector to the input and output speed sensor.





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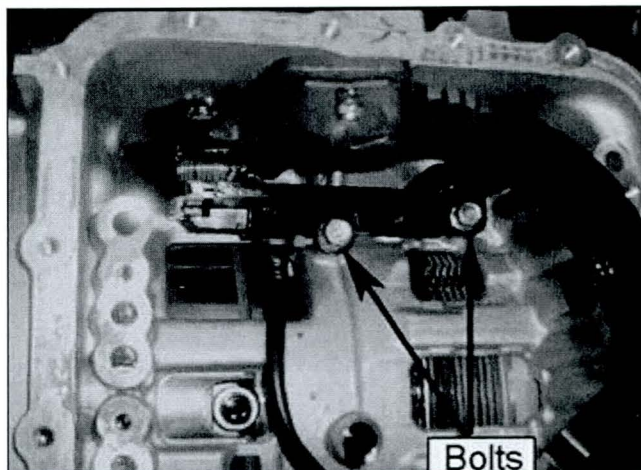
17. Remove two bolts that secure the valve body harness to the case.

Pull the connector downward out of the case.

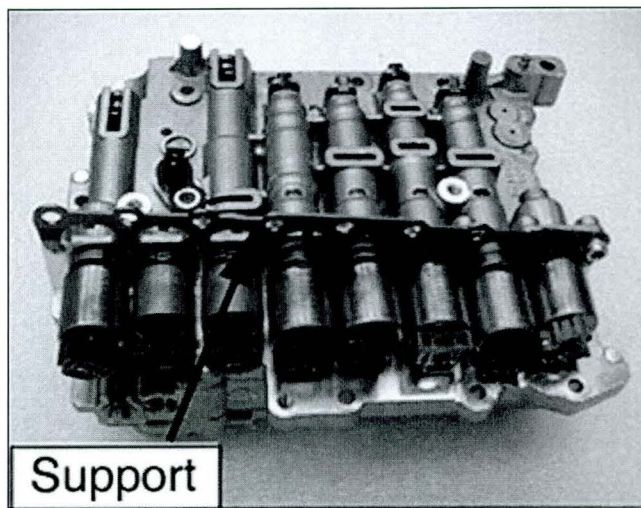
Install a new harness and insert the connector into the case. Attach the retainer and bolt on top of the case as shown in Step 9.

Install the bolts that secure the harness.

Torque: 7~9 lb.ft (1.0~1.0 kgf.m)

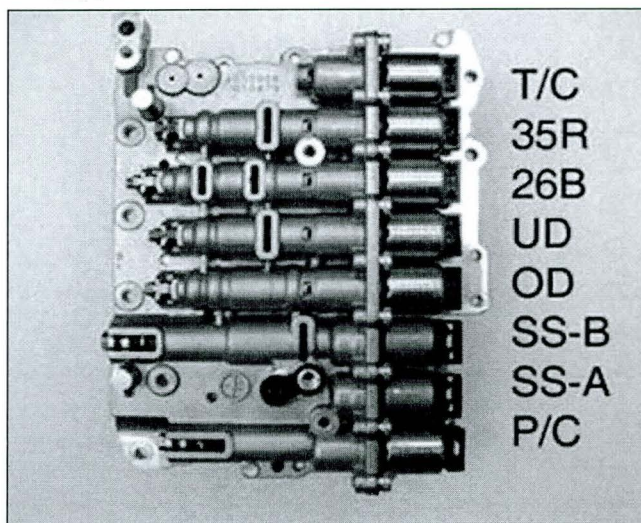


18. Use a 5mm hex socket and remove 9 Allen bolts that secure the solenoid support. Remove the solenoid support.



19. Refer to the DTC recorded in Step 1 and replace the related solenoid

DTC		SOLENOID
P0743	T/C	TC solenoid (T/C)
P1778	T/C	HEV clutch solenoid
P0763	35R	Shift solenoid C (35R)
P0758	26B	Shift solenoid B (26-B)
P0753	UD	Shift solenoid A (UD)
P0768	OD	Shift solenoid D (OD)
P2709	SS-B	Shift solenoid F (SS-B)
P0773	SS-A	Shift solenoid E(SS-A)
P0748	P/C	P/C solenoid

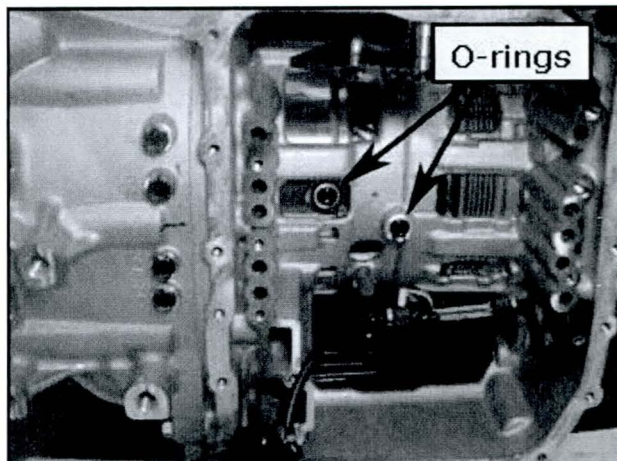




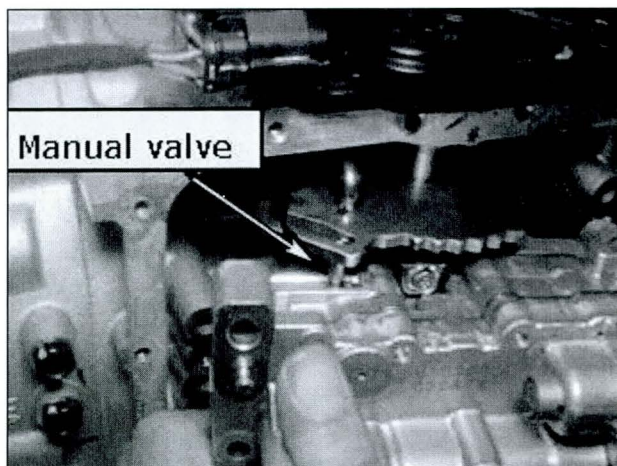
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20. Confirm the O-rings are installed correctly in the case.

Reconnect the input and output speed sensor connector to the harness.

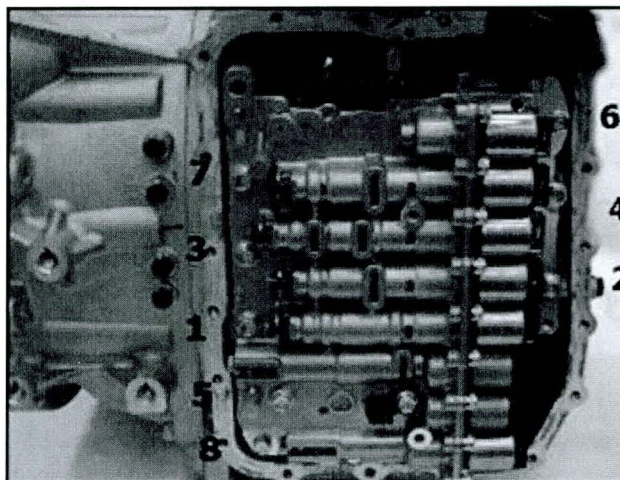


21. Align the manual shaft to the shift lever and install the valve body.



22. Install the valve body bolts and torque the bolts to specification in the order shown.

Toque: 7~9 lb.ft (1.0~1.2 kgf.m)

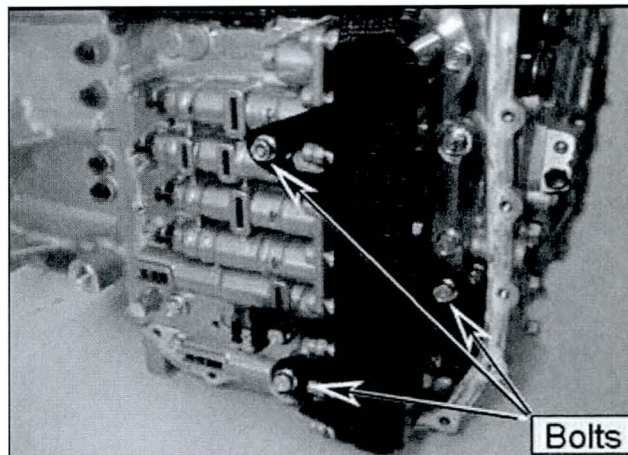




23. Reconnect the solenoid harness to the solenoids and oil temperature sensor.

Install the bolts to the solenoid harness connector and torque to specification.

Torque: 7~9 lb.ft (1.0~1.2 kgf.m)



24. **STEEL OIL PAN:**

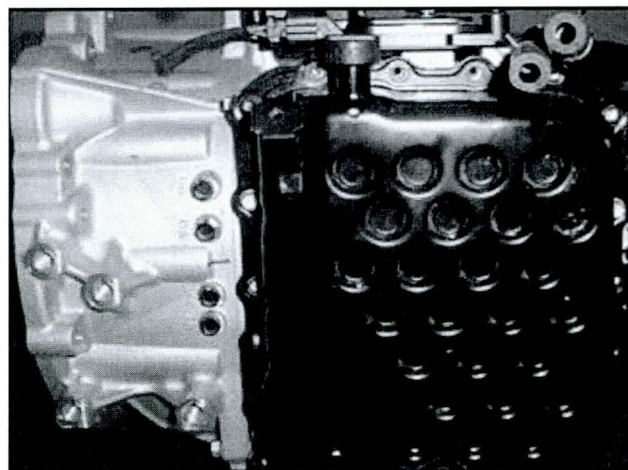
Apply Permatex Ultra Gray Sealer or Hyundai Ultra Gray Gasket Sealer, P/N 00232-19039, to the oil pan and reinstall the pan.

**PLASTIC OIL PAN:**

Install a new gasket to the oil pan and reinstall the pan.

Tighten the bolts to specification.

Torque: 10~12 lb.ft (1.4~1.6 kgf.m)



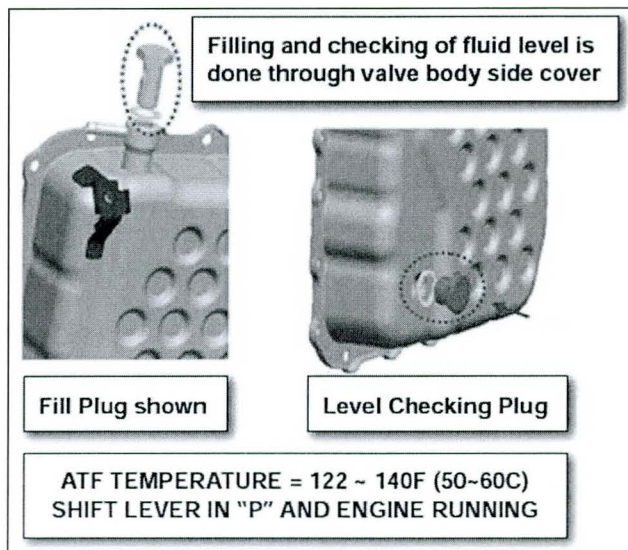
25. Add ethylene glycol engine coolant to the radiator and check the level according to the appropriate shop manual, "Engine" Section.
26. Reconnect the battery.  
Input the radio stations recorded in Step 6.
27. Remove the transaxle fill plug.

Use a funnel to add approximately 5~6 quarts of SPH-IV ATF through the fill plug opening. Reinstall the fill plug.

Attach the GDS to the DLC and select vehicle, A/T menu, Current Data and "Oil Temperature Sensor".

Start the engine and shift to Park. When the ATF is 122°F~140°F (50~60°C), remove the level checking plug. The level is correct when oil flows out of the level checking plug in a thin steady stream.

Collect and dispose of any excess fluid in accordance with local regulations.



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28. Clear the codes and test drive the vehicle for two driving cycles (two key-on to key-off driving cycles, including 1-2-3-4-5-6 upshifts and 6- 5-4-3-2-1 downshifts). If the DTC returns, perform the following repairs

DTC	REPAIR PROCEDURE
P0743	<ul style="list-style-type: none"><li>• Replace the control wiring harness between the PCM and transmission. If the solenoid DTC do not return, return the vehicle to the customer.</li><li>• If the solenoid DTC returns again, replace the PCM.</li></ul>
P1778	
P0753	
P0758	
P0763	
P0768	
P0773	
P2709	
P0741	
P0748	

29. Drive the vehicle to confirm the transmission is operating as designed.