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Technical Service Bulletin

GROUP	NUMBER
AUTOMATIC TRANSMISSION	**12-AT-023**
DATE	MODEL
OCTOBER 2012	AZERA (TG), SONATA (NF), SANTA FE (CM), ENTOURAGE (EP), XG300/350 (XG)

SUBJECT: **AUTOMATIC TRANSAXLE (5-SPEED) OIL TEMPERATURE SENSOR DTC P0711, P0712 & P0713**

Description: An improperly functioning oil temperature sensor may cause the following Diagnostic Trouble Codes.

Do not replace the 5-speed transaxle for the DTC listed below. Instead, follow the Service Procedure and replace the referenced part.

DTC	Description
P0711	Transmission Fluid Temperature Sensor - Rationality check
P0712	Transmission Fluid Temperature Sensor - Circuit Low Input
P0713	Transmission Fluid Temperature Sensor - Circuit High Input

	Model Years	Model
Applicable Vehicles:	2006~10	Azera
	2007~08	Entourage
	2003~ 06	Santa Fe 3.5L
	2007~09	Santa Fe 3.3L
	2006~10	Sonata
	2001~05	XG300/350

PARTS INFORMATION:

MODEL	YEAR	OIL TEMPERATURE SENSOR	HARNESS	V/B GASKET
2006~10	Azera	46386-3A050	46308-3A550	None
2007~08	Entourage	46386-3A050	46308-3A550	None
2007~09	Santa Fe 3.3L	46386-3A050	46308-3A550	None
2006~10	Sonata	46386-3A050	46308-3A550	None
2001~05	XG300/350	46386-3A050	46308-39550	46264-39510

SUBJECT:	AUTOMATIC TRANSAXLE (5-SPEED) OIL TEMPERATURE SENSOR DTC P0711, P0712 & P0713

WARRANTY INFORMATION (OIL TEMPERATURE SENSOR ONLY):

MODEL	OP CODE	OPERATION	OP TIME	CAUSAL PART	NATURE CODE	CAUSE CODE
2006~10 Azera (TG)	46386R00	Replace oil temperature sensor	1.9	46386-3A050	N27	C15
2007~08 Entourage (EP)			1.9			
2007~09 Santa Fe (CM)			1.9			
2006~10 Sonata (NF)			1.9			
2001~05 XG300/350 (XG)			1.9			
ALL	46386RQ0	GDS	0.3			

WARRANTY INFORMATION (OIL TEMPERATURE SENSOR AND HARNESS):

MODEL	OP CODE	OPERATION	OP TIME	CAUSAL PART	NATURE CODE	CAUSE CODE
2006~10 Azera (TG)	95449R00	Replace oil temperature sensor and valve body harness	2.9	46386-3A050	N27	C15
2007~10 Entourage (EP)	95449R00		1.9			
2007~09 Santa Fe (CM)	46307R00		1.8			
2006~10 Sonata (NF)	95449R00		1.5			
2001~05 XG300/350 (XG)	95449R00		2.7			

SERVICE PROCEDURE:

1. Using a GDS, check for DTC in the "Automatic Transaxle" menu. **Record the DTC and description.** Delete the DTC
2. Attach a GDS to the Data Link Connector (DLC) and select:
   - Vehicle and A/T menu.
   - "Current Data"
   - Fluid Temperature Sensor.

   If the fluid temperature sensor reading is:
   - The value shown below, the harness **currently** does not have an open/short. Go to Step 4.
   - Not as shown below, go to Step 3.

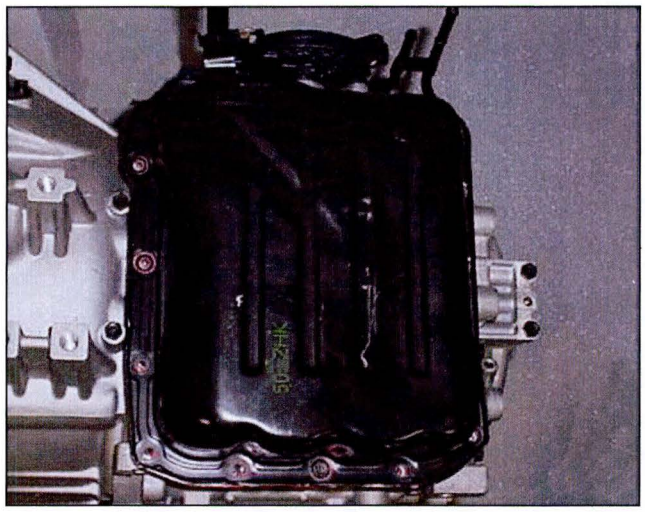
ATF TEMPERATURE	GDS VALUE
ATF cold	Same as outside temperature
ATF hot	158-212°F (70-100°C)

3. 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 no damage, go to Step 4.
4. Refer to the DTC recorded in Step 1 and follow the repair procedure shown below:

DTC		REPAIR PROCEDURE
P0711	Transmission Fluid Temperature Sensor - Rationality check	Go to Step 5 and replace the oil temperature sensor
P0712	Transmission Fluid Temperature Sensor - Circuit Low Input	
P0713	Transmission Fluid Temperature Sensor - Circuit High Input	

5. Drain the engine coolant from the radiator.
6. Remove the lower radiator hose from the radiator.
7. Drain the ATF.
8. Remove the bolts and remove the oil pan from the transaxle.

   Torque: 6~7 lb.ft (0.9~1.0 kgf.m)

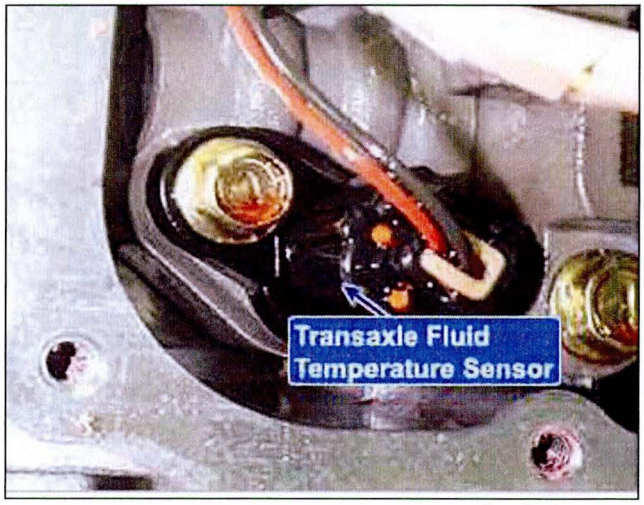


NOTE:

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

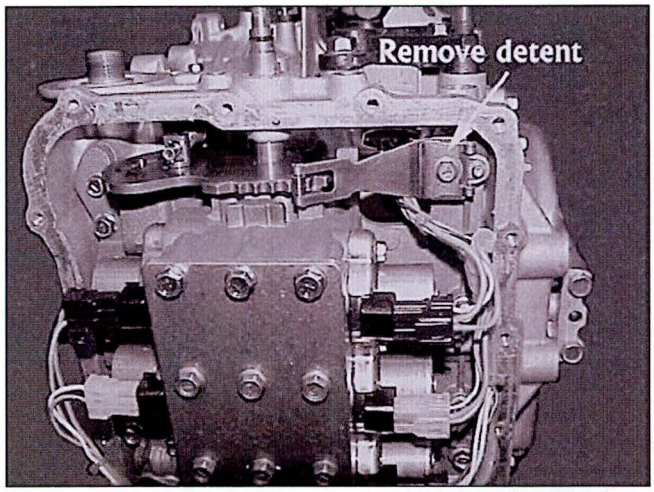
9. Replace the fluid temperature sensor.

   Reconnect the harness to the sensor.



VALVE BODY HARNESS REPLACEMENT – IF HARNESS HAS OPEN/SHORT CIRCUIT

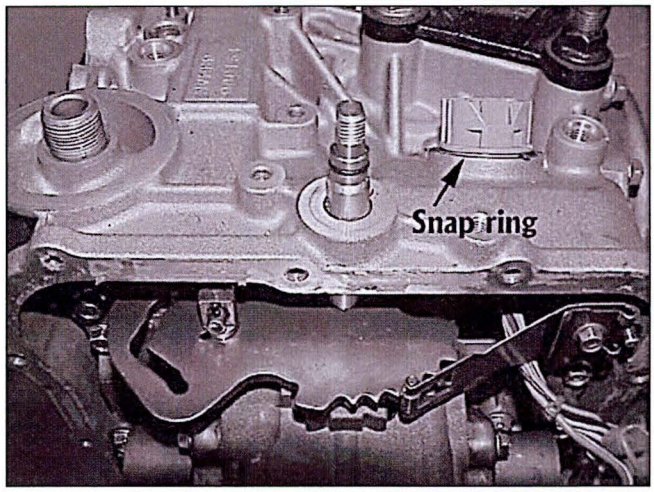
10. Remove the manual control shaft detent.



11. Disconnect the control harness at the solenoid connector.

    Remove the snap ring to the solenoid connector.

    Disconnect the connectors to the solenoids and temperature sensor on the valve body.

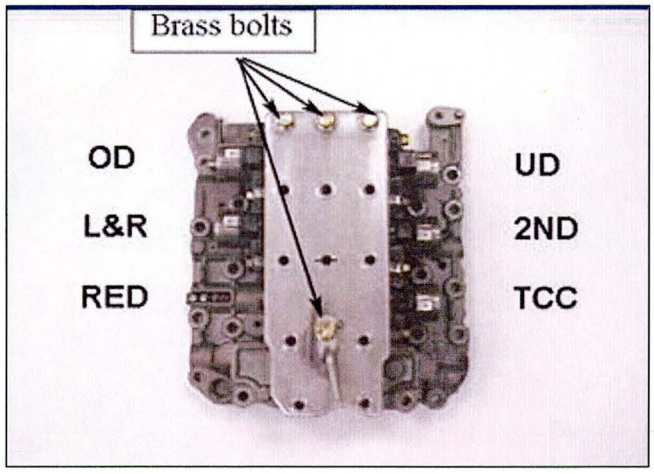


12. Remove all the valve body bolts except the four brass bolts shown.

    Remove the valve body and gasket.

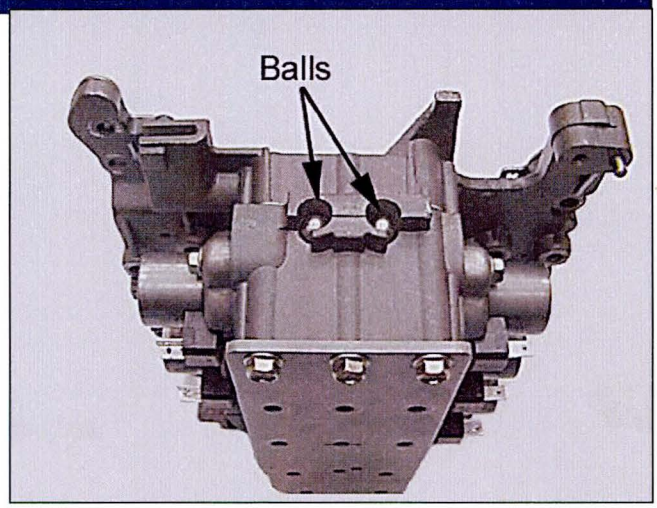
    Remove the solenoid harness.

    Install the new solenoid harness. Insert the connector into the transaxle case and install the snap ring.



13. Confirm the two steel balls are installed on the valve body.

    For XG300/350 only: Install a new valve body gasket, P/N 46264-39510, to the valve body.

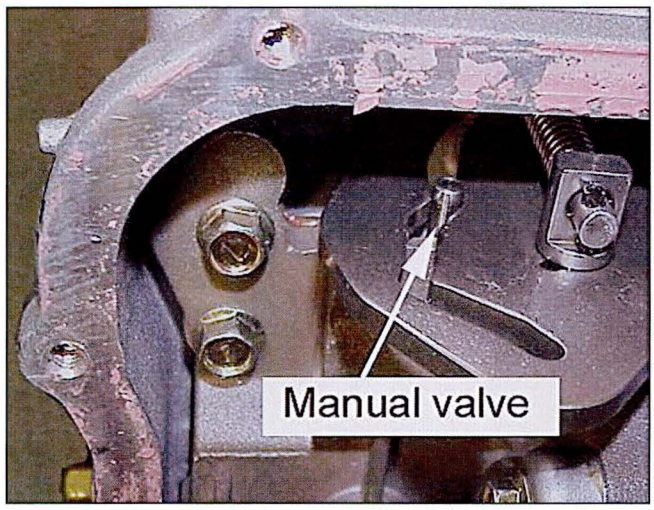


14. Carefully align the manual valve on the valve body to the manual control shaft and reinstall the valve body.

    Install the bolts and tighten the bolts beginning with the inside bolts and continuing outward. Torque: 7-8 lb.ft (10-120 kg.cm).

    Reconnect the solenoid harness to the solenoids and oil temperature sensor. Adjust the solenoid harness to prevent contact with the valve body or control shaft detent.

    Reinstall the control shaft detent.



15. Apply Permatex Ultra Gray Gasket Sealant or Hyundai Ultra Gray Gasket Sealant, (P/N 00231-13800) to the oil pan and reinstall the pan. Tighten the bolts to 6-7 lb.ft (0.9-1.0 kgf.m).
16. Reinstall the radiator hose and add engine coolant to the radiator.
17. Add Hyundai SP-III ATF and check the fluid level with the engine idling and transaxle in Neutral, with the parking brake applied.
18. Test drive the vehicle until the ATF is at normal operating temperature (70-100°C, 159-212°F). Adjust the ATF level to within the "HOT" mark on the dipstick according to the related shop manual or TSB 06-40-016.
19. Check for any oil leaks.
    Confirm the oil temperature sensor reads correctly according to Step 2.

20. Test drive the vehicle for two drive cycles (two key-on to key-off driving cycles).
    - If the DTC do not occur again, return the vehicle to the customer.
    - If the DTC return, perform the following repairs:

DTC		REPAIR PROCEDURE
P0711	Transmission Fluid Temperature Sensor - Rationality check	• Repair or replace the control harness between the PCM and the transmission. • Test drive the vehicle for two drive cycles. If the DTC return again, replace the PCM.
P0712	Transmission Fluid Temperature Sensor - Circuit Low Input	
P0713	Transmission Fluid Temperature Sensor - Circuit High Input	

21. Clear the codes and test drive the vehicle for two drive cycles (two key-on to key-off driving cycles). If the DTC do not occur again, return the vehicle to the customer.