

**HYUNDAI**NEW THINKING.
NEW POSSIBILITIES.**Technical Service Bulletin**GROUP
**AUTOMATIC
TRANSMISSION**NUMBER
14-AT-004DATE
MARCH 2014MODEL
SONATA (YF HEV)**SUBJECT:**EV MOTOR TEMPERATURE SENSOR
DTC P0A2B, P0A2C, P0A2D & P0A2F*This TSB supersedes TSB 13-AT-017 to revise the Service Procedure***Description:** If you are servicing a Sonata Hybrid with the DTCs listed below, follow the Service Procedure on Page 2.**Applicable Vehicles:** 2011~ Sonata Hybrid (YF HEV)**DTC LIST:**

DTC	DESCRIPTION
P0A2B	Drive motor A temperature sensor circuit range/performance
P0A2C	Drive motor A temperature sensor circuit low
P0A2D	Drive motor A temperature sensor circuit high
P0A2F	Drive motor A temperature sensor circuit over temperature

PARTS INFORMATION:

MODEL	PART	SECTION	PNC	PART NUMBER
2011~ Sonata Hybrid (YF HEV)	Automatic transaxle (includes EV motor)	43-450	45000A	45000-3D*** 00268-3D***
	Control wiring	91-914	91400D	91400-4R***
	Extension motor wire	39-361A	36595	36595-3D000
	HPCU Assembly	28-390A	36601	36601-3D00*

MODEL	OP CODE	OPERATION	OP TIME	CAUSAL PART	NATURE CODE	CAUSE CODE
2011~ Sonata Hybrid (YF HEV)	45000R6M	Automatic transaxle	3.7	45000-3D*** (See Parts Catalog)	N69	C15
	45000RH1	Additional	0.9			
	45000RQ0	GDS operation	0.3			
	91401R00	Control wiring assembly	0.8	91400-4R*** (See Parts Catalog)	N69	C15
	91401RQ0	GDS operation	0.3			
	37561R1H	Wiring harness-volt & temp sensor	1.1	36595-3D000	N69	C15
	37561RQ0	GDS operation	0.3			

NOTE: The Op Code for GDS operation can be claimed only one time per repair.

SERVICE PROCEDURE:

1. Depress the brake pedal and press the Start button two times to activate “EV Ready” mode. Attach a GDS, check for DTC in the “MCU” menu. **Record the DTC and description.**

Check the Freeze Frame data to check the Drive Motor Temperature when the DTC was set.

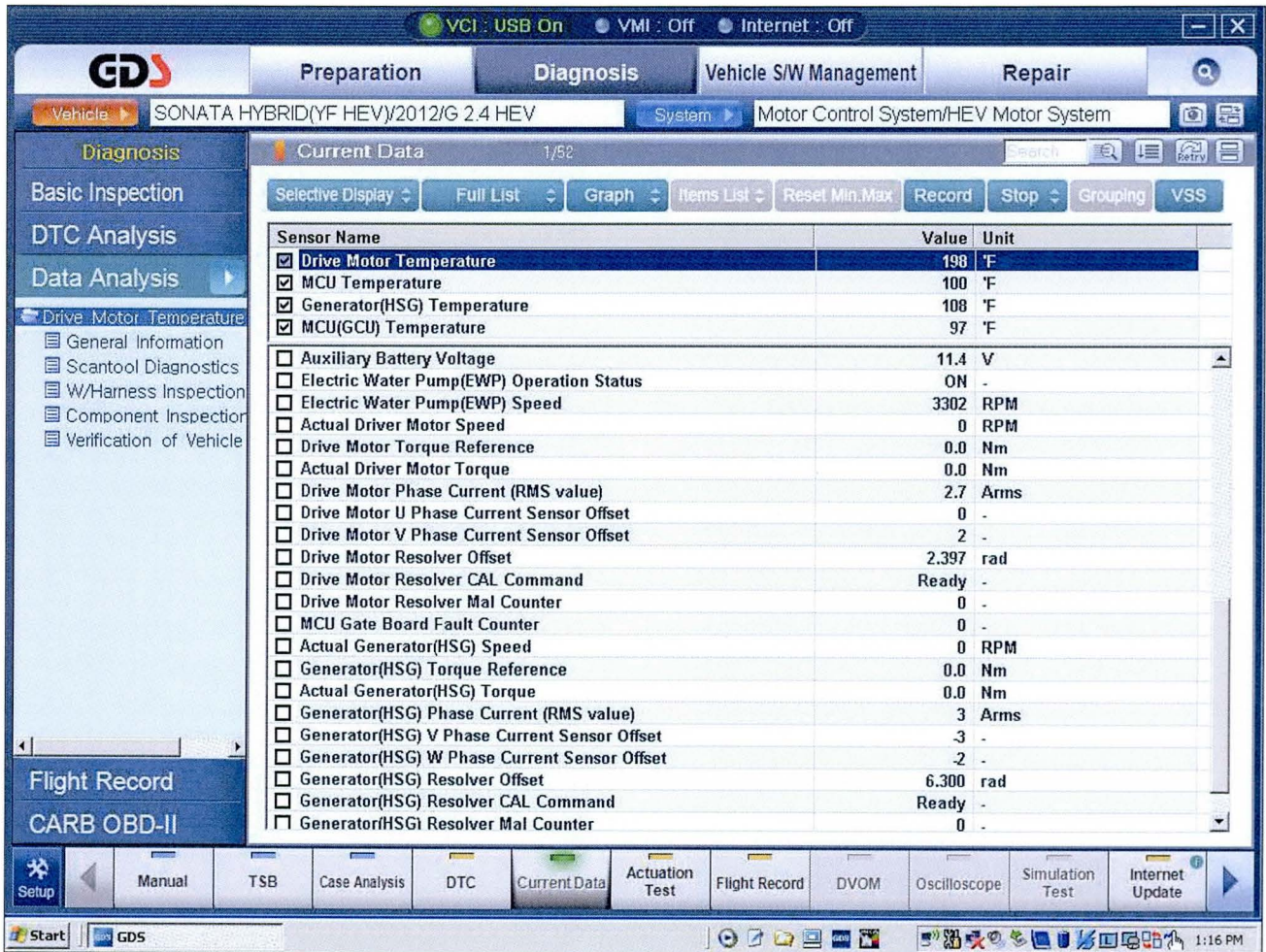
Delete the DTC.

- Using GDS, select **MCU** menu, “**Current Data**” and **Drive Motor, MCU, HSG and MCU (GCU)** temperatures.
 Confirm the drive motor temperature is within specification according to the chart below.
 Turn “EV ready” off.
 Go to Step 3 to continue the diagnosis.

Transmission Condition	Drive motor temperature
Cold (Parked more than 8 hours)	Same as outside temperature
Operating temperature	<ul style="list-style-type: none"> Less than 365°F (185°C) More than 36°F (20°C) above MCU, HSG and MCU (GCU) temperatures

NOTICE


A Drive Motor Temperature of 417°F indicates a fault in the motor temperature circuit.



3. Open the rear trunk and open the cover to the safety switch.

Put on safety gloves and pull up on the black tab and pull out the safety switch.

Go to Step 4.

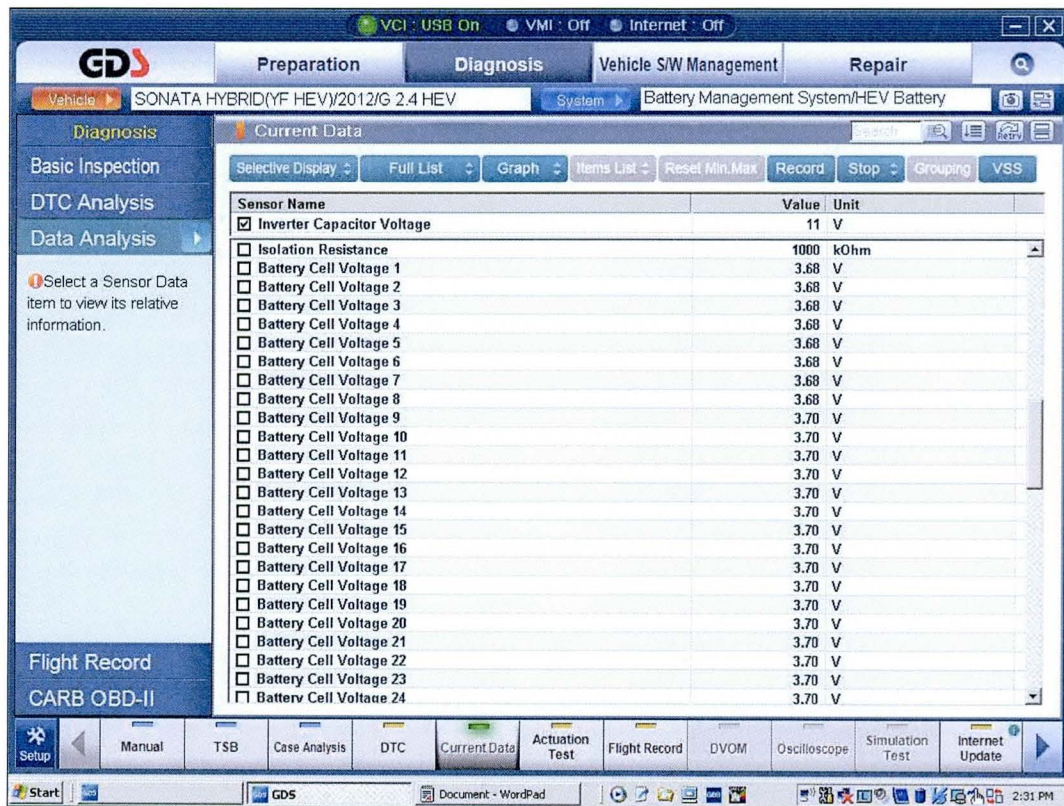
 **WARNING**
Failure to perform this procedure may result in accidental injury or death.



4. Without depressing the brake pedal, push the Start-Stop button 2 times to power the cluster.

Attach a GDS and select **BMS** menu, **Current Data** and **Inverter Capacitor Voltage**. Confirm the **Inverter Capacitor Voltage** is less than 30V.

- If less than 30V, the system voltage is safe for the technician. Turn off the ignition and disconnect the negative battery cable. Go to Step 5.
- If more than 30V, wait until the voltage is within specification before performing any repairs.



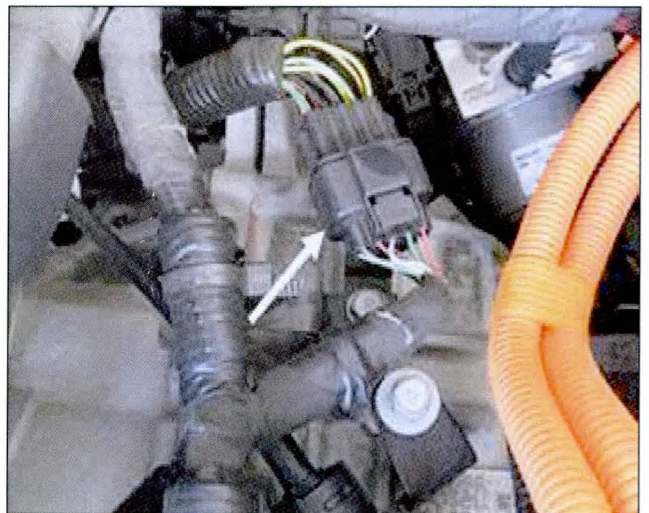
5. Remove the air intake duct.



6. Remove the air intake hose and air cleaner assembly.



7. Disconnect the connector to the extension motor wire and temperature sensor.



8. Use a DVOM to measure the resistance between the two pins shown. Record the resistance.

Specification:

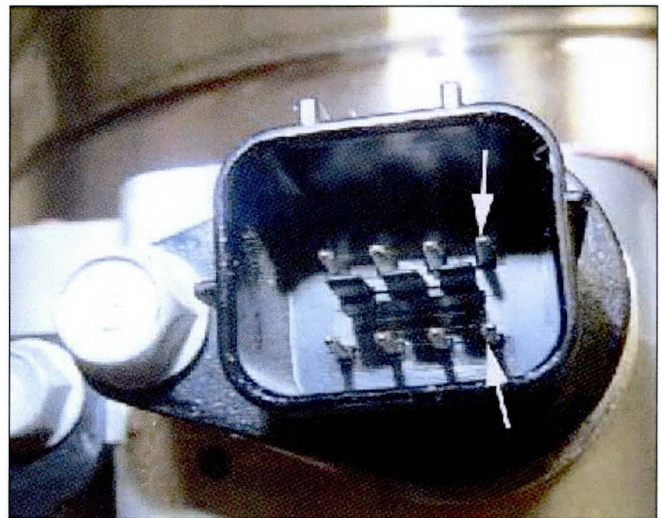
EV motor temperature	Resistance
68°F (20°C)	120~133 kΩ
Normal operating temp	3~15 kΩ



9. Disconnect the extension motor wire connector to the temperature sensor at the transaxle.

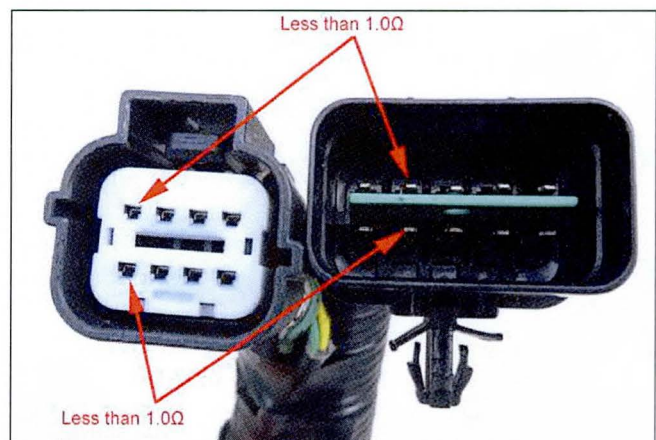
Measure the resistance between the two pins shown. Specification:

EV motor temperature	Resistance
68°F (20°C)	120~133 kΩ
Normal operating temp	3~15 kΩ



If the resistance is:

- Different than the value found in Step 8, go to Step 10 and retest the extension wire.
 - Not within specification, replace the automatic transaxle and go to Step 11.
 - Within specification, replace the HPCU.
10. If Step 8 and 9 showed different values, use a DVOM to measure the resistance between the pins as shown. If the resistance is:
- Less than 1 ohm, the harness is ok. Go to Step 9 and retest.
 - More than 1 ohm, replace the extension motor wire.

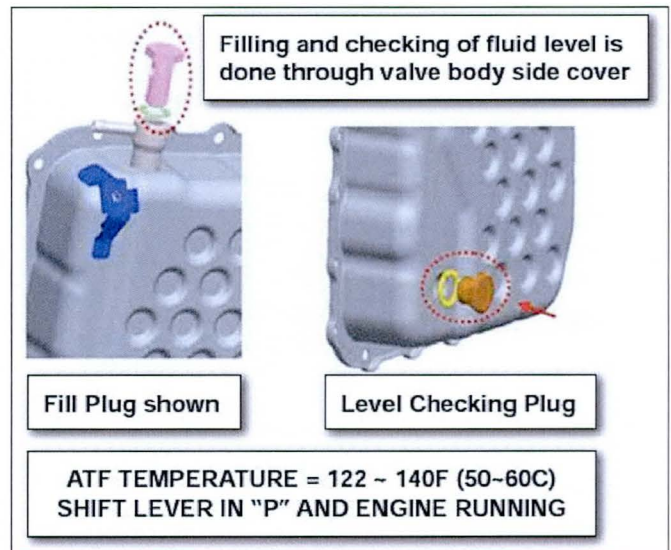


11. If transaxle was replaced, remove the fill plug.

Use a funnel to add approximately 5~6 quarts of SP-4-M 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 from the level checking plug in a thin steady stream.



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

12. Clear the DTC in the BlueLink system according to instructions in TSB 12-BE-005-2.
13. Drive the vehicle for two key-on/key-off cycles to confirm the DTC do not return. If the DTC return, repair or replace the control wiring harness.