 HYUNDAI NEW THINKING. NEW POSSIBILITIES. Technical Service Bulletin	GROUP	NUMBER
	AUTOMATIC TRANSMISSION	13-AT-018
	DATE	MODEL
	DECEMBER 2013	Sonata YF HEV
SUBJECT: EV DRIVE MOTOR INVERTER PERFORMANCE - DTC P0A78		
Description: If you are servicing a Sonata Hybrid with DTC P0A78, follow the Service Procedure on Page 2.		

Applicable Vehicles:	2011~ Sonata Hybrid (YF HEV)
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DTC LIST:

DTC	DESCRIPTION
P0A78	Drive motor 'A' Inverter performance

PARTS INFORMATION:

MODEL	PART	SECTION	PNC	PART NUMBER
Sonata YF HEV	Automatic transaxle (includes EV motor)	43-450	45000	00268-3D*** 45000-3D***
	Motor power cable	91-918	91885	91885-4R010
	HPCU Assembly	28-390A	36601	36601-3D00*

NOTE: New vehicles and vehicles with less than 500 miles must have an OE transmission installed.

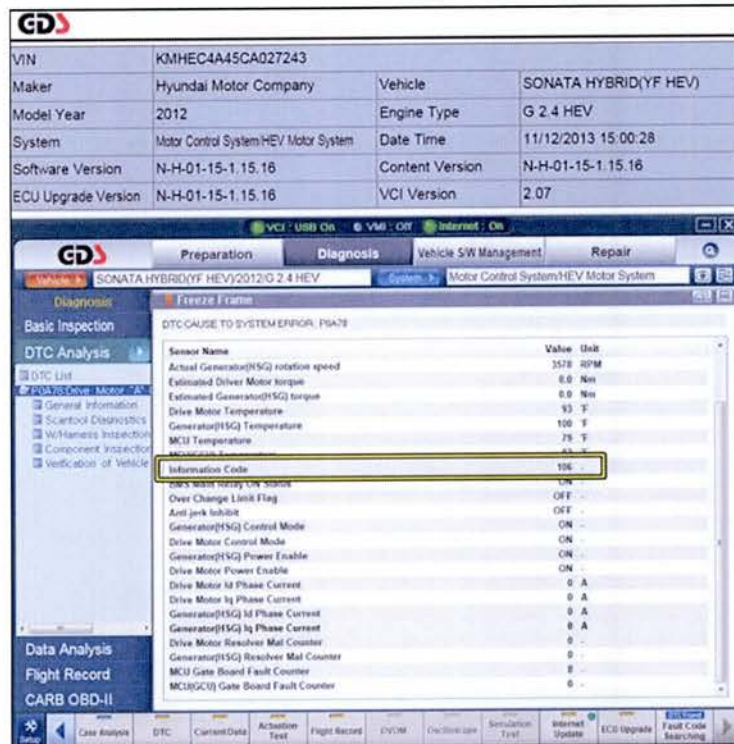
WARRANTY INFORMATION:

MODEL	OP CODE	OPERATION	OP TIME	CAUSAL PART	OP QTY	NATURE CODE	CAUSE CODE	
2011~ Sonata HEV (YF HEV)	45000R6M	Automatic transaxle (includes EV motor)	3.7	00268-3D*** (See Parts Catalog)	1	N69	C15	
	45000RH1	Additional	0.9					
	45000RQ0	GDS Operation	0.3					
		91885R1H	A/T TO HPCU high voltage cable	0.8	91885-4R010 (See Parts Catalog)	1	N69	C15
		91885RQ0	GDS Operation	0.3				
		36601R1H	HPCU Assy	1.4	36601-3D00* (See Parts Catalog)	1	N69	C15
		36601RQ0	GDS Operation	0.3				

NOTE: The Op Code for GDS operation can be claimed only one time per R.O., even if multiple claims are submitted.

SERVICE PROCEDURE:

1. Using a GDS, check for DTC in the "MCU" menu. Record the DTC and description.
2. Check the Freeze-frame data for an "Information Code". Refer to the Sonata Hybrid Shop Manual, DTC Section, DTC P0A78 for a description of the code.



3. Put on safety gloves.

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

Pull up on the tab and pull out the safety switch.

Go to Step 4.

**WARNING**

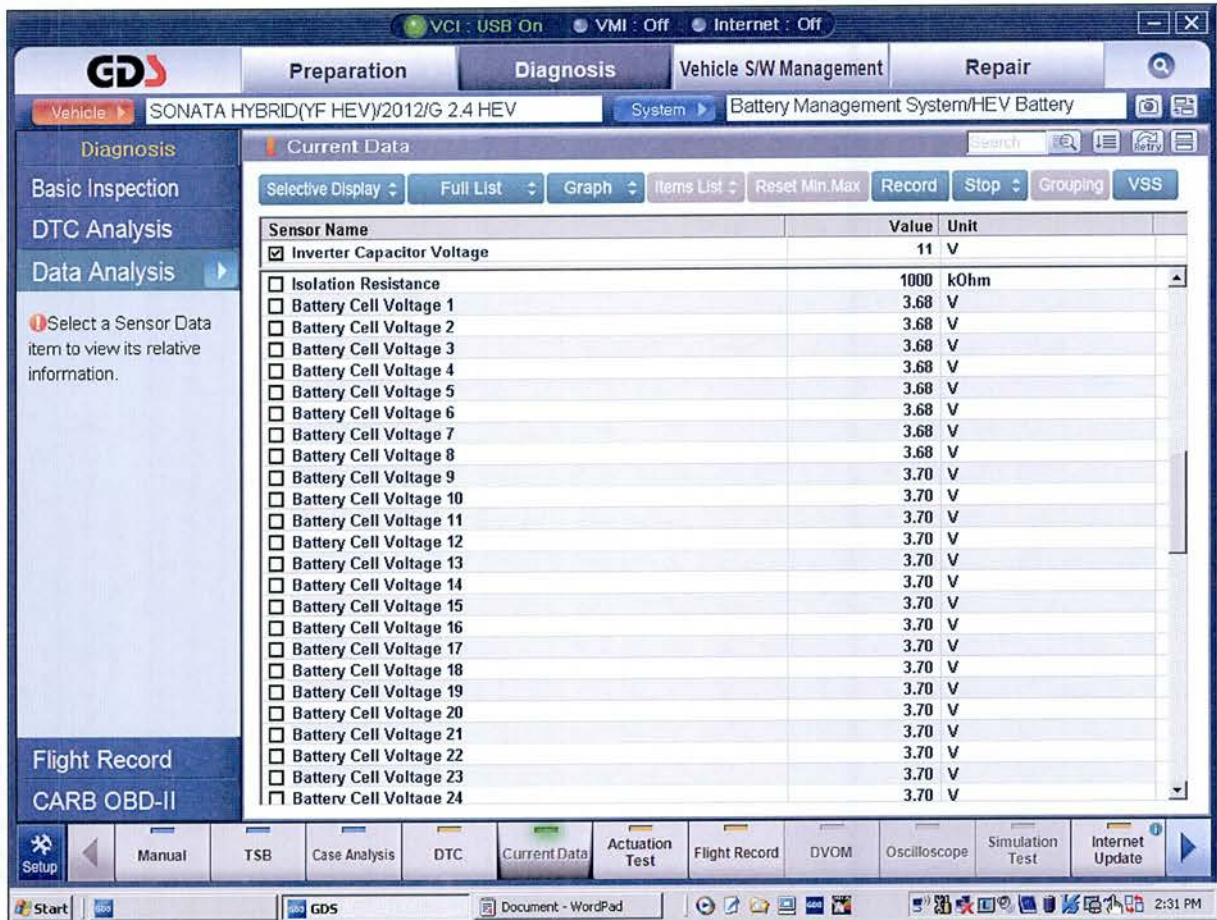
Failure to perform this procedure may result in accidental injury or death.



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

Attach a GDS and select the following: **BMS** menu, **Current Data** and **Inverter Capacitor Voltage**. Confirm the **Inverter Capacitor Voltage** is less than 15V.

- If so, the system voltage is safe for the technician. Turn off the ignition and disconnect the negative battery cable. Go to Step 5.
- If not, wait until the voltage is within specification before performing any repairs.



5. Remove the air intake duct.



6. Remove the protector on the HPCU.



7. Pull out the yellow tab and pull up on the black tab and remove the EV motor power cable from the HPCU Assembly.



8. Terminal to ground measurement:

Measure the resistance between one terminal and ground.

*** NOTE**

- Use a connector from the J35616-F Pin Test Kit to probe the connector.
- If not available, insert a solderless terminal into the connector and insert the DVOM probe to obtain the measurement.

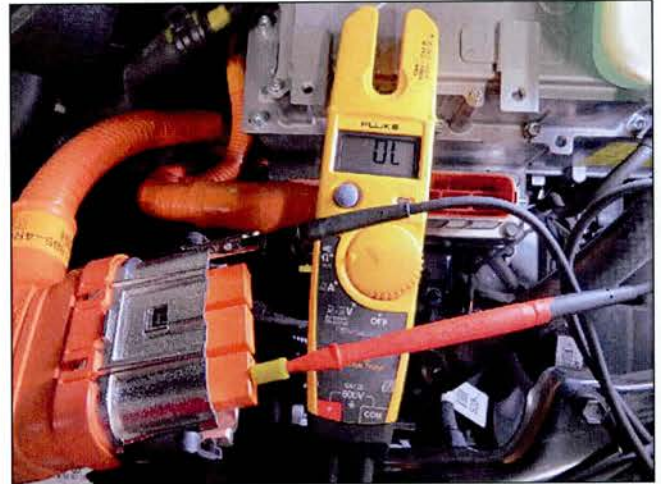
Check the other two terminals in the same manner.

The resistance should be within the specification shown below.

Specification: Open circuit (More than 10 MΩ)

If the values are:

- **Within specification:** If Step 10 also shows within specification, replace the HPCU.
- **Not within specification:** Go to Step 10 and check the terminals at the EV motor.



9. Disconnect the EV motor power cable at the EV motor.



10. Measure the resistance between each terminal and ground.

Specification: Open circuit (More than 10 MΩ)

If the values are:

- **Within specification:** Replace the motor power cable.
- **Not within specification:** replace the automatic transmission. Go to Step 11.



11. Remove the transaxle fill plug.

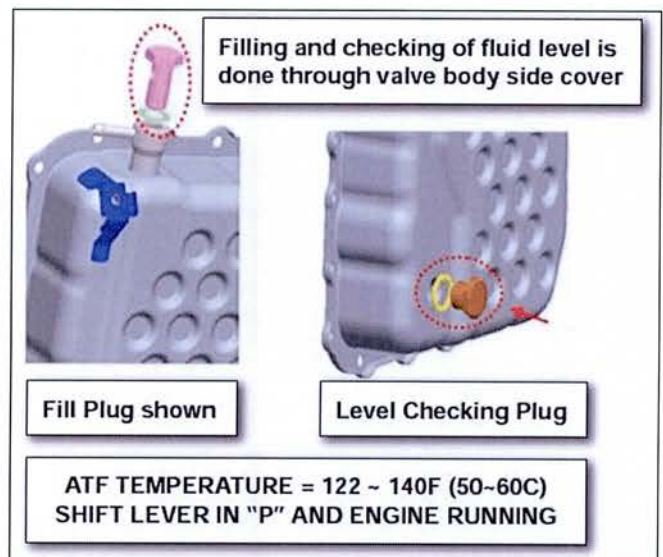
Use a funnel to add approximately 5~6 quarts of SP-4-M ATF through the fill plug opening. Reinstall the fill plug.

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. Attach a GDS and erase all DTC.
13. Clear the DTC in the BlueLink system according to instructions in TSB 12-BE-005-2.



14. Calibrate the Motor/HSG Resolver after replacing the HPCU or automatic transmission. Attach a GDS and select **HCU** menu, **Option Treatment** and **Motor/HSG Resolver Calibration**.
15. Calibrate the E/C Fluid Pressure after replacing the HPCU or automatic transmission. Attach a GDS and select **HCU** menu, **Option Treatment** and **E/C Fluid Pressure Calibration** to relearn the engine clutch.
16. Drive the vehicle for two key-on/key-off cycles to confirm the DTC do not return.