 HYUNDAI NEW THINKING. NEW POSSIBILITIES. Technical Service Bulletin	GROUP CAMPAIGN	NUMBER 16-01-005
	DATE FEBRUARY 2016	MODEL(S) SONATA PHEV (LF PHEV)
SUBJECT: DISTANCE TO EMPTY (DTE) LOGIC UPDATE (SERVICE CAMPAIGN TZ5)		

  **HYUNDAI** **ECU Update**

★ IMPORTANT

***** Dealer Stock and Retail Vehicles *****

Dealers must perform this Service Campaign on all affected vehicles prior to customer retail delivery and whenever an affected vehicle is in the shop for any maintenance or repair.

When a vehicle arrives at the Service Department, access Hyundai Motor America's "Warranty Vehicle Information" screen via WEBDCS to identify open Campaigns.

Description:

This bulletin provides information related to an ECU Update of the Battery Management System (BMS) and Hybrid Control Unit (HCU) on certain 2016MY SONATA PHEV Plug-In Electric Vehicles. Over a period of time, the Distance To Empty (DTE) reading for the EV Mode in the dash cluster may decrease when the system is fully charged. This software updates the logic of the DTE to maintain the accurate reading. Follow the specific service procedure provided on the next page.

Applicable Vehicle: Certain 2016MY Sonata PHEV vehicles.

Warranty Information:

Op. Code	Operation	Op. Time
50C099R1	BMS & HCU UPDATE	0.5

NOTE: Submit claim using the Campaign claim Entry Screen.

GDS Information:

Applicable Systems: **Perform both BMS and HCU Updates as listed below:**

Event #	Description
BMS: 392	LF PHEV DTE LOGIC IMPROVEMENT (1 of 2 – BMS)
HCU: 393	LF PHEV DTE LOGIC IMPROVEMENT (2 of 2 – HCU)

NOTE:

- Refer to TSB **15-GI-001** for the tablet-based Mobile GDS ECU update procedures.
- Refer to TSB **15-GI-002** for the PC-based GDS ECU update procedures.

Service Procedure:

1. Perform BMS Update per the GDS event information provided on page-1.
2. Perform HCU Update per the GDS event information provided on page-1.
3. **IMPORTANT:** If the vehicle is cold, drive it a few minutes to warm the engine and transmission. Failure to warm up vehicle may lead to improper calibration in the next steps.
4. With **warm vehicle** perform the following GDS HEV Calibrations shown on pages 3-5:
 - a. Engine Clutch Fluid Pressure Sensor Calibration (found in HEV Control System - HCU)
 - b. Motor/HSG Resolver Calibration (found in Motor Control System - MCU)
5. Service is complete.

WARNING**GDS Vehicle Battery Voltage Warning:**

If voltage is below 12 volts as per the below GDS warning, then select **Back** and operate the vehicle in Ready Mode at least 20 minutes to reach an adequate battery state of charge that prevents ECU Update failure. Cycle OFF/ON the ignition before retrying ECU update again.

**NOTICE**

You must initially perform GDS ECU Update in Auto Mode.

- If the ECU Update starts but then fails in Auto Mode, perform the update in Manual Mode to recover.

ROM ID Information Table:

Model	System	P/N	ECM ROM ID	
			Previous	New
SONATA PHEV (LF PHEV)	BMS	37513-E6510(Main) 37513-E6610(Sub)	LFPHB 4420 R	LFPHB 4640 R
	HCU	36600-3D125	GLFPGNAHNS0-C000	GLFPGNAHNS1-C000

Manual Mode Password Information Table:

#392. BMS Update

MENU	PASSWORD
LF PHEV BMS 37513-E6510/E6610	6610

#393. HCU Update

MENU	PASSWORD
LF PHEV BMS 37513-E6510/E6610	3125

IMPORTANT: Both HEV Calibrations must be done with warm engine and transmission.

The screenshot shows the 'S/W Management' interface with a dark header and a teal navigation bar. The navigation bar has three tabs: 'Systems', 'Components', and 'Unfold All'. Below the navigation bar is a list of system components. Each component is represented by a row with a square icon, a text label, and a small icon on the right. Two rows are highlighted with red rectangular boxes: 'E/C Fluid Pressure Cal.' and 'Motor/HSG Resolver Calibration'. The list includes the following items:

- Airbag(Event #2)
- Weight Classification System
- Air Conditioner
- HEV Control System
 - System Identification
 - E/C Fluid Pressure Cal.**
 - Engine Test On
 - Engine Test Off
- HEV Motor System
 - System Identification
 - Motor/HSG Resolver Calibration**
 - Electric Water Pump Control
- HEV Battery System
- Low DC/DC Converter
- Active Air Flap
- Power Steering
- Tire Pressure Monitoring

Engine Clutch Fluid Pressure Sensor Calibration (found in HEV Control System - HCU):

S/W Management

■ E/C Fluid Pressure Cal.

● [Engine Clutch Fluid Pressure Sensor Calibration]

HCU needs to be learnt the kissing point at both ends of clutches to reduce shock while engine power is connected to a transmission.

[Case]

After the following items have been replaced or repaired.

1. HCU Unit
2. Engine
3. Motor / AT
4. Fluid Pressure Sensor

● [Condition]

1. Motor/HSG Resolver Calibration : 'Completed' State
2. 'Ready' Lamp ON on cluster
3. 'P' Range
4. Oil temperature : 30°C ~80°C (86°F ~ 176°F)
5. SOC: 30% ~80%
6. No DTC

To proceed, press **[OK]** button.

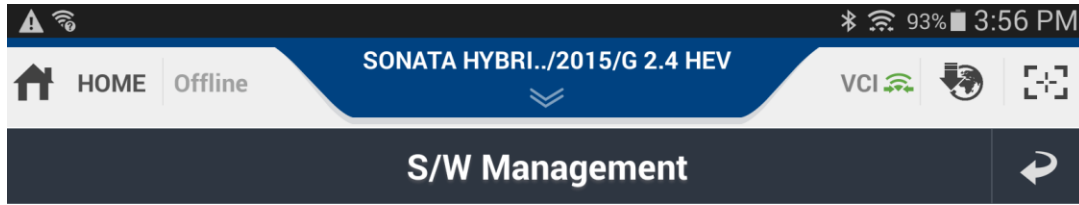
OK

Cancel



Do not touch any system buttons while performing this function.

Motor/HSG Resolver Calibration (found in Motor Control System - MCU):



• Motor/HSG Resolver Calibration

Purpose	To calibrate resolver offset after replace Motor Control Unit(MCU), Motor, Rear plate or HSG.
Enable Condition	<ul style="list-style-type: none"> 1.Gear Lever Position "P" 2.Ready Lamp "ON" 3.SOC : 30~80% 4.NO DTC
Concerned Component	Motor Control Unit(MCU), Resolver
Concerned DTC	P0C17
Fail Safe	Warning Lamp On
Etc	<ul style="list-style-type: none"> - Resolver that installed on Motor and HSG senses rotor position. - MCU uses signals from Resolver to control motor and HSG more precisely. - DTC P1C56 is stored in case of resolver calibration failure.

OK

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Do not touch any system buttons while performing this function.