



Technical Service Bulletin

GROUP
**ENGINE
ELECTRICAL**

NUMBER
19-EE-003H

DATE
APRIL, 2019

MODEL
**Sonata Hybrid
(YF HEV/LF HEV),
Sonata Plug-In (LF PHEV),
Ioniq Hybrid/Plug-In
(AE HEV/PHEV), Nexo (FE)**

SUBJECT: HYBRID/PLUG-IN/FUEL CELL LITHIUM BATTERY REPLACEMENT PROCEDURES

Description:

The following summarizes the service procedures for Lithium Battery replacement:

IMPORTANT

Do not disconnect or remove the 12V or High Voltage battery before the Battery Management System (BMS) DTC Analysis and Data Analysis screens are collected by GDS.

Section	Content	Pages
A.	Dealer uses GDS to collect the following: <ul style="list-style-type: none">• BMS DTC Analysis.• BMS Data Analysis.	3-4
B.	<ul style="list-style-type: none">• Dealer calls Techline to open a case.• Dealer sends BMS Data Analysis capture file(s) to Techline repository or email.	5
C.	If it qualifies, Techline approves Dealer's Lithium Battery replacement, and a Lithium Battery is shipped to the Dealer. Techline will call back with confirmation of the shipment estimated time of arrival.	5
D.	Once the replacement battery is on hand, dealer removes and replaces the battery.	6
E.	<ul style="list-style-type: none">• After replacement confirm the vehicle can go into Ready mode without warning lights on.• (For YF HEV only: Perform BMS Update per TSB 18-HC-003).• Clear DTC by GDS and make sure no battery related DTC return.• Perform SOC Calibration by GDS within the BMS software management.	6
F.	<ul style="list-style-type: none">• Secure the removed used Lithium Battery core in the shipping box from the replacement battery.• Dealer Parts Dept. requests battery return by KBI of the used battery core per TSB 19-EE-001.	7

Applicable Vehicles:

- 2011-2015MY Sonata Hybrid (YF HEV)
- 2016MY~ Sonata Hybrid (LF HEV)
- 2016MY~ Sonata Plug-In Hybrid (LF PHEV)
- 2017MY~ Ioniq Hybrid (AE HEV)
(High Voltage Battery and 12V Battery)
- 2017MY~ Ioniq Plug-In Hybrid (AE PHEV)
- 2019MY Nexo (FE) (High Voltage Battery and 12V Battery)

Warranty Information:

Model	Op Code	Operation	Op Time	Causal Part	Nature Code	Cause Code
Sonata Hybrid (YF HEV)	37510R1H	BATTERY PACK ASSY (MAIN HIGH VOLTAGE BATTERY)	Refer to WebLTS for current LTS Time	37511-*****	I3A	ZZ3
	37510RQ0	DIAGNOSTIC TOOL OPERATION				
Sonata Hybrid (LF HEV)	37510R2H	BATTERY PACK ASSY (MAIN HIGH VOLTAGE BATTERY)		37510-*****		
	37510RQ0	DIAGNOSTIC TOOL OPERATION				
Sonata Plug-In Hybrid (LF PHEV)	37510R2H	BATTERY PACK ASSY (MAIN HIGH VOLTAGE BATTERY)		37503-*****		
	37510RA1	PLUG IN HEV (MAIN)				
	37510RQ0	DIAGNOSTIC TOOL OPERATION				
Ioniq Hybrid (AE HEV) High Voltage Battery	37510R00	HIGH VOLTAGE BATTERY PACK ASSY		37501-*****		
	37510RQ0	DIAGNOSTIC TOOL OPERATION				
Ioniq Hybrid (AE HEV) 12V Battery	37513R00	BATTERY MANAGEMENT SYSTEM BMS	37507-*****			
	37513RQ0	DIAGNOSTIC TOOL OPERATION				
Ioniq Plug-In Hybrid (AE PHEV)	37503R1H	HIGH VOLTAGE BATTERY SYSTEM ASSY (PHEV)	37503-*****			
	37503RQ0	DIAGNOSTIC TOOL OPERATION				
Nexo (FE) High Voltage Battery	37510R00	HIGH VOLTAGE BATTERY PACK ASSY	37510-*****			
	37510RQ0	DIAGNOSTIC TOOL OPERATION				
Nexo (FE) 12V Battery	37513R00	BATTERY MANAGEMENT SYSTEM BMS	37507-*****			
	37513RQ0	DIAGNOSTIC TOOL OPERATION				

*****Refer to the part number of the battery ordered for the vehicle or the Parts Catalog for the full part number to be entered in the claim for Causal Part.

Service Procedure:

A-1. Perform the GDS **All Fault Search** function to review all stored DTC(s).

BMS DTC Search Result:

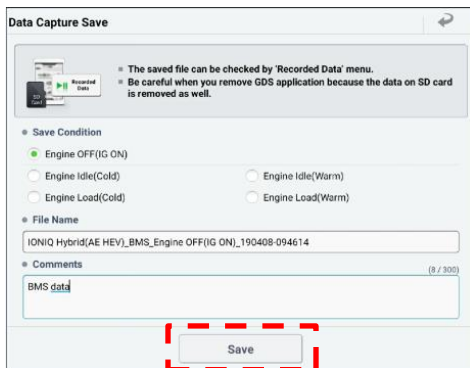
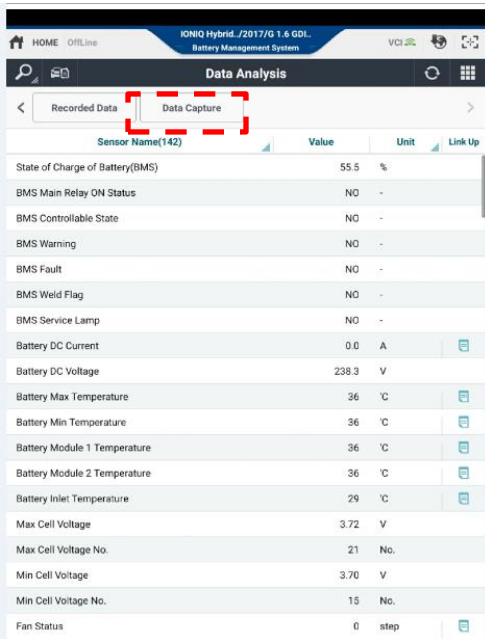
- Review for any BMS system DTC stored. Verify in the shop manual if any have a possible cause of Lithium Battery.
- If BMS DTC does not apply to a potential battery problem, this TSB doesn't apply.

A-2. Capture all data from the GDS **BMS Data Analysis** function as follows:

(Preferred) GDS has an SD card:



- Use the GDS **Data Capture** function that can be found by scrolling to the right at the top of the GDS screen:



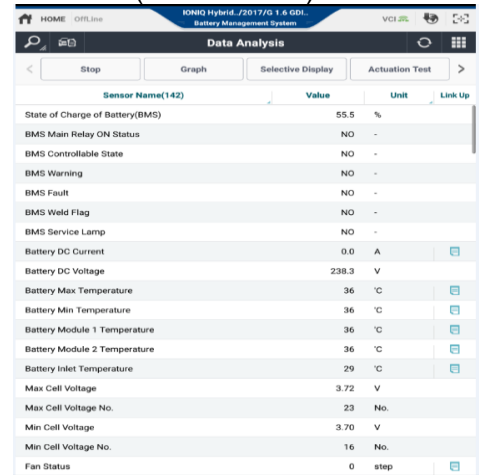
- Selecting the **Save** button creates a PDF file of the multiple pages of all the data of the Data Analysis.

GDS does not have an SD card:

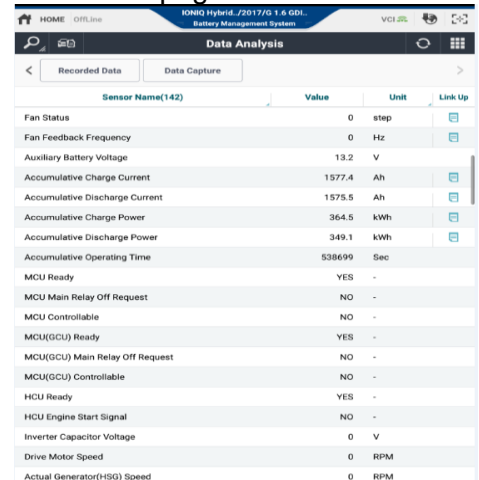


Capture first page of Data Analysis by either:

- Manual tablet screenshot (press LOCK and HOME buttons together).
- Camera shot (with flash off).



- Note the parameter at the bottom of the screen and manually scroll down until that parameter shows at the top of the screen.
- Capture a manual tablet screenshot or camera shot of the 2nd page of data.



- Continue the above steps page by page until all Data Analysis pages are captured & saved.

- B-1. Contact Techline at **1-800-325-6604** to open a Techline Case to request approval of a Lithium Battery replacement. Note the Techline case number assigned.
- B-2. Upload the following to the Techline Repository or email to: hmatechlinefax@hmausa.com:
 - BMS Data Analysis Data Capture file(s).

NOTE: Be sure to include Dealer Number, VIN and Techline Case# in the subject line of each Techline Repository or email submission, so Techline can match to your case.

General Instructions on how to Upload to Techline Repository are found at Technical Training – Techline Procedures:

Bulletin No.	Date	Subject	Views
	03/19/2019	GDS / Repository File Upload With No SD Card	54
	03/19/2019	GDS / Repository File Upload With SD Card	32
	03/19/2019	WTC Lubrication, Oil Drain, Air Filter, Air Filter & Air Filter Assembly (Down Level Part)	25
	03/06/2019	CAN PRE-DIAGNOSIS WORKSHEET #53 (19 ADA) C-CAN	54
	03/06/2019	CAN PRE-DIAGNOSIS WORKSHEET #52 (19 AD) C-CAN	19
	03/05/2019	CAN PRE-DIAGNOSIS WORKSHEET #14 (17-18 DH) C-CAN	35
	01/23/2019	CAN PRE-DIAGNOSIS WORKSHEET #51 (19 OS EV) P-CAN	121
	01/23/2019	CAN PRE-DIAGNOSIS WORKSHEET #50 (19 OS EV) C-CAN	48
	01/23/2019	CAN PRE-DIAGNOSIS WORKSHEET #49 (18-19 OS) P-CAN	28
	01/23/2019	CAN PRE-DIAGNOSIS WORKSHEET #48 (18-19 OS) C-CAN	47
	12/17/2018	CAN PRE-DIAGNOSIS WORKSHEET #45 (17-18 G80) P-CAN	104
	10/15/2018	CAN PRE-DIAGNOSIS WORKSHEET #10 (13-17 GD) C-CAN	211
	10/08/2018	CAN PRE-DIAGNOSIS WORKSHEET #15 (17-18 G90) C-CAN	119
	08/09/2018	WTC YouTube Video: Outside Power Mirror Actuator R&R	105
	08/08/2018	CAN PRE-DIAGNOSIS WORKSHEET #8 (11-16 UD/MD) C-CAN	221
	08/02/2018	CAN PRE-DIAGNOSIS WORKSHEET #40 (17-18 AE HEV) P-CAN	97
	07/25/2018	CAN PRE-DIAGNOSIS WORKSHEET #13 (11-16 VI) C-CAN	198
	07/06/2018	CAN PRE-DIAGNOSIS WORKSHEET #42 (16-17 LF-HEV) P-CAN	140
	06/18/2018	CAN PRE-DIAGNOSIS WORKSHEET #20 (17-18 AE HEV) C-CAN	136
	05/10/2018	CAN PRE-DIAGNOSIS WORKSHEET #32 (16-18 LF-HEV) C-CAN	210

- C. Once Techline approval is received, the Lithium Battery will be shipped out to the Dealer. Shipping can take 2-5 days depending on location since the Lithium Battery can only be shipped by Hazmat ground transportation.

Dealer will be contacted by Techline to confirm whether the battery was shipped and provide an estimated time of arrival (ETA).

D. After the Lithium Battery is on hand at Dealer, remove the battery from the vehicle per the specific shop manual instructions for each model.

Begin by removing the service plug from the battery and wait 5+ minutes for inverter discharge.

Shop Manual Example - Ioniq HEV: High Voltage Battery System – Repair Procedures:

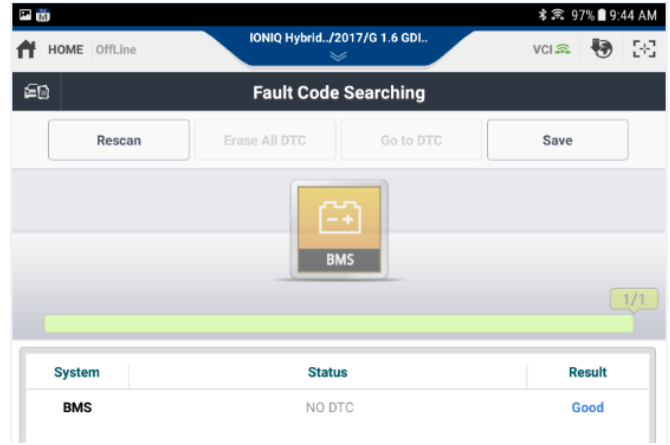
E-1. After installation is complete, check that the vehicle will go into READY mode and there are no warning lights on.



E-2. For 2011-2015 Sonata Hybrid (YF HEV) battery replacement only: Perform BMS Update per TSB 18-HC-003.

E-3. Check All Fault Search DTC and clear DTC. Make sure no BMS battery related DTC returns.

See an example of a screen with no DTC, confirming that proper battery installation had occurred.



E-4. Perform the **SOC Calibration** found in the S/W Management , High Voltage Battery System section of GDS.



F. Place the original used Lithium Battery core in the shipping box in a similar manner as was received for the replacement battery.

Dealer Parts Dept. must follow TSB 19-EE-001 to schedule pickup by KBI of the used battery core as soon as possible. KBI will provide specific instructions.

