



HYUNDAI

Technical Service Bulletin

GROUP EV SYSTEMS	NUMBER 24-EV-005H
DATE JULY 2024	MODEL(S) IONIQ ELECTRIC (AE EV)

SUBJECT: IONIQ EV DTC INSPECTION AND BSA REPLACEMENT

Description: Certain 2020-21MY IONIQ Electric (AE EV) vehicles may experience a condition of EV warning light ON with DTC P1AA600 – P1AB000. If any of the DTC's listed below are found, the Battery System Assembly (BSA) will be replaced, and the Battery Management System (BMS) software may need to be updated.

List of Applicable DTC(s): P1AA600, P1AA700, P1AA800, P1AA900, P1AAA00, P1AAB00, P1AAC00, P1AAD00, P1AAE00, P1AAF00, and P1AB000.

Applicable Vehicles:

- 2020 – 2021MY IONIQ Electric (AE EV) produced from 10/17/2019 – 05/17/2021.

Parts Information:

Part Number	Year	Description	Figure	Quantity	Remarks
37501-G7600AS	20-21MY	Battery System Assembly (BSA)		1	Use Web Parts Catalog to determine original BSA Part Number
37501-G7601AS					
00232-19113	Vehicles manufactured 05/07/2019 or later.	Blue Coolant BSC-2 (Low-Conductivity)		3 Bottles (1 Gallon Each)	Do not mix with water

NOTE 1: Battery System Assembly (BSA) replacement must have Warranty PA approval prior to ordering and replacing the BSA. **Upload a picture of the OLD High Voltage Battery Label and a screenshot of the DTC to STUI prior to contacting PA.**

NOTE 2: Be sure that Campaign T9E (if applicable) has been performed prior to BSA replacement to prevent cooling system debris contamination.

GDS Information:

System	Event#	Description
BMS	1018	AE EV PE - IMPROVED MONITORING LOGIC APPLICATION

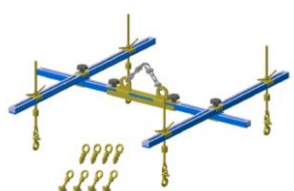
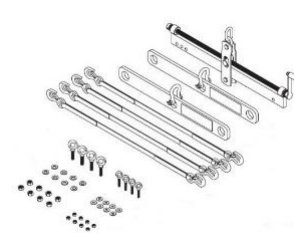
(*or use a later available event as listed in the GDS for ECM Upgrade screen if one is available.)

NOTICE

To avoid any potential damage to IONIQ vehicles, IONIQ repairs can only be performed at IONIQ certified dealers.

Circulate To: General Manager, Service Manager, Parts Manager, Warranty Manager, Service Advisors, Technicians, Body Shop Manager, Fleet Repair

SUBJECT:**IONIQ EV DTC INSPECTION AND BSA REPLACEMENT****SST Information:**

Tool Name	Tool #	Figure	Remarks
High Voltage Battery Lifting Fixture	09375-K4100		This tool has been shipped to all Hyundai dealers to lift and transport the High Voltage BSA.
High Voltage Battery Pack Transport Hanger	09375-G7100		This additional tool is needed to complement the above lifting fixture to fit 20MY and later IONIQ AE EV vehicles.
Bosch Battery Lift Fixture Sling Kit	09375-K4100-02		This tool can be used to lift and transport the High Voltage BSA. The contents of this tool can be used to lift the 100kW BSA without requiring an additional fixture.

NOTE 1: SST 09375-K4100 and 09375-G7100 must be used together to lift and transport the 100kW BSA on the 20-21MY IONIQ AE EV.

NOTE 2: SST 09375-G7100 and 09375-K4100-02 are available on a loan basis for Hyundai Dealers. Limited quantities available for loan so please contact hyundaitools@hmausa.com for details.

NOTE 3: Additional SST Tools can be ordered through Bosch at 1-866-539-4248 or hyundai.service-solutions.com.

NOTE 4: If further assistance is required, please contact hyundaitools@hmausa.com.

Warranty Information:

Model	Op. Code	Operation	Op. Time	Causal Part	Nature Code	Cause Code
IONIQ Electric (AE EV)	37501F08	DTC CHECK, BSA REPLACEMENT, AND BMS S/W UPDATE	4.6M/H	37501-G7**** (refer to parts catalog for full part number according to the VIN)	W11	ZZ3

NOTE 1: Normal warranty applies.

NOTE 2: Submit claim on Claim Entry Screen as "Warranty" type.

NOTE 3: This TSB includes Repair validation photos. Op times include VIN, Mileage, and Repair validation photos as outlined in the Digital Documentation Policy.

NOTE 4: The incident parts are subject to callback through the normal Warranty Technical Center (WTC) parts return process. **Claim is subject to debit if the part is not returned.**

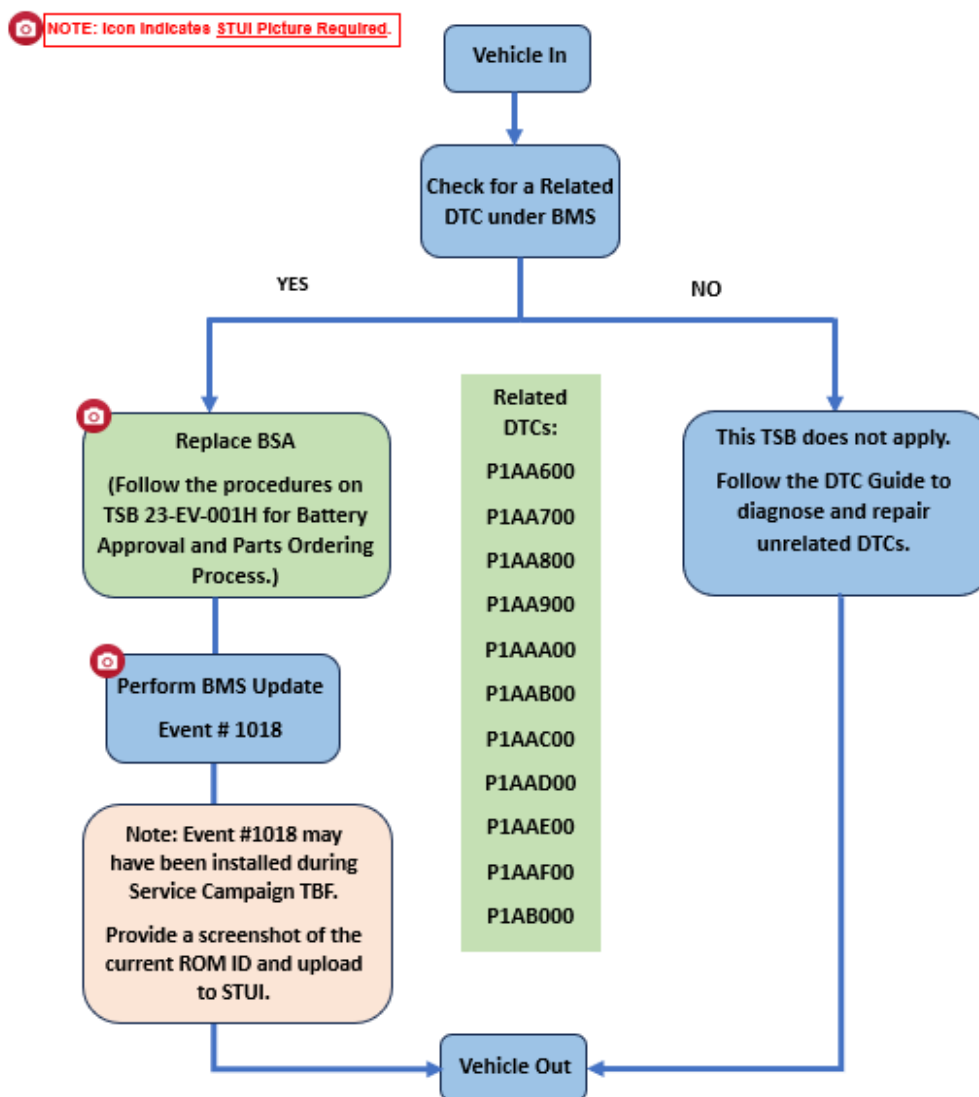
NOTE 5: If a part is found in need of replacement while performing this TSB and the affected part is still under warranty, submit a separate claim using the same repair order. If the affected part is out of warranty, submit a Prior Approval request for goodwill consideration prior to performing the work.

Service Procedure:

STUI

This TSB includes Repair validation photos. Refer to the latest Warranty Digital Documentation Policy for requirements.

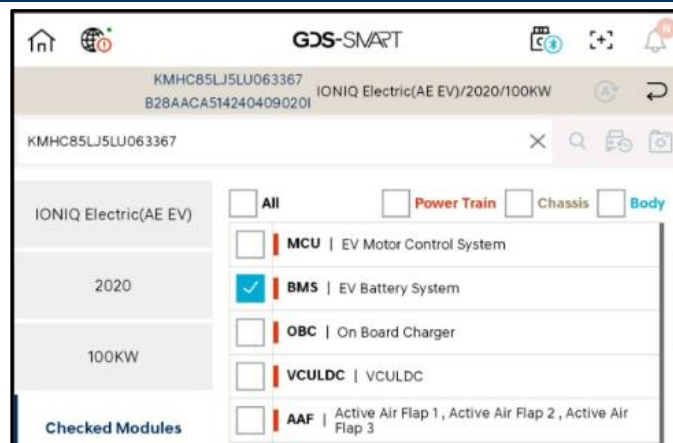
Inspection Procedure Overview:



- If the related DTC(s) exists, replace the BSA following the procedures on TSB 23-EV-001H (or latest version) and perform BMS Event #1018 software update (if applicable).
- If any other DTC(s) exists, this TSB does not apply. Follow the DTC Guide to appropriately diagnose and repair the vehicle.

A) DTC Check

- Using the GDS, perform a Fault Code Search under the BMS System.



- Check for any of the related DTCs to the right.

- **No:**
None of the DTCs listed to the right are found.
 - This TSB does not apply. Follow the DTC Guide to appropriately diagnose and repair the vehicle.
- **Yes:**
If related DTC is found, follow the service procedure in Section B (BSA Replacement) and Section C (BMS Software Update).

No	DTC	DTC Description
1	P1AA600	EV Battery Abnormal Performance Detection
2	P1AA700	Cell Voltage Deviation Error
3	P1AA800	Isolation Fault
4	P1AA900	Cell Voltage Variance
5	P1AAA00	Charging Current Variance (CV) Error
6	P1AAB00	EV Battery Pack Overtemperature
7	P1AAC00	Cell Over Voltage
8	P1AAD00	Cell Under Voltage
9	P1AAE00	Battery Pack Temperature Deviation Error
10	P1AAF00	Cell Voltage Sudden Change (MAVD)
11	P1AB000	Idle Voltage Variance (RDV)

**WARNING**

- When working on the high voltage system, make sure that you are familiar and comply with the "Safety Precautions, Cautions and Warnings." If you do not comply with the instructions, serious accidents due to electric shock or leakage may occur.
- When working on the high voltage system, make sure to cut off the high voltage first according to the "High Voltage Cut-off Procedure." If you do not comply with the instructions, serious accidents due to electric shock or leakage may occur.

**Information**

- Refer to TSB 23-EV-001H (*or latest version*) for EV Battery Approval, Receiving, and Replacement Procedures.
- Dealer Tools and Tech Training requirements per TSB 23-EV-001H (*or latest version*) must be satisfied for PA approval.
- Parts CSP order of a replacement BSA requires Warranty PA approval and VIN.

B) Battery System Assembly (BSA) Replacement

1. Refer to TSB 23-EV-001H for the complete instructions for EV Battery Approval, Handling, and Replacement Procedures.

NOTICE

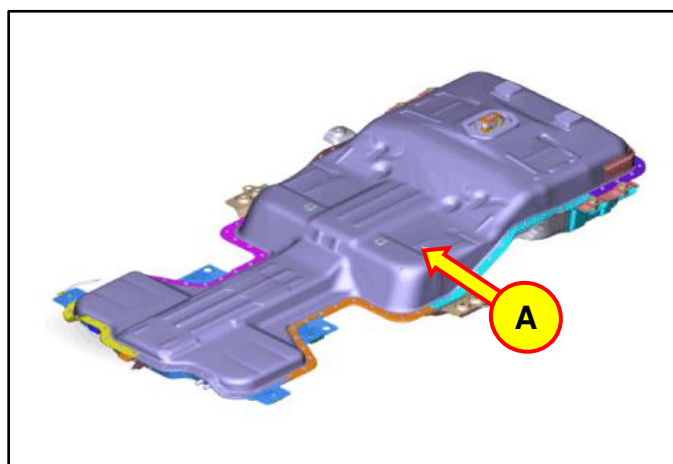
Battery System Assembly (BSA) can only be ordered and replaced once Warranty PA approval has been secured.

 HYUNDAI Technical Service Bulletin	GROUP ELECTRIC VEHICLE SYSTEMS	NUMBER 23-EV-001H
	DATE January 2023	MODEL All EV Models
SUBJECT: ELECTRIC VEHICLE (EV) BATTERY APPROVAL, HANDLING, AND REPLACEMENT PROCEDURES		
(This bulletin revises 22-EV-002H EV Battery Approval and Parts Ordering process)		
WARNING - Carefully follow all steps of this TSB. The Special Tools and TSB procedures are very important for safe handling of a large heavy EV battery. - The removed EV battery must be carefully handled to avoid physical damage per the procedures of this TSB, as it may be returned for repair and future reuse. - Do not disconnect or remove the 12V or EV battery until the required GDS data is collected.		
Applicable Vehicles:	Current applicable Models: • Ioniq 5 (NE1) • (and future Ioniq models approval procedures will be similar). • Kona Electric (OS EV) • Ioniq Electric (AE EV)	

2. Replace the Battery System Assembly (BSA).

Refer to Shop Manual:

**Battery Control System > High Voltage
Battery System > Repair Procedures**



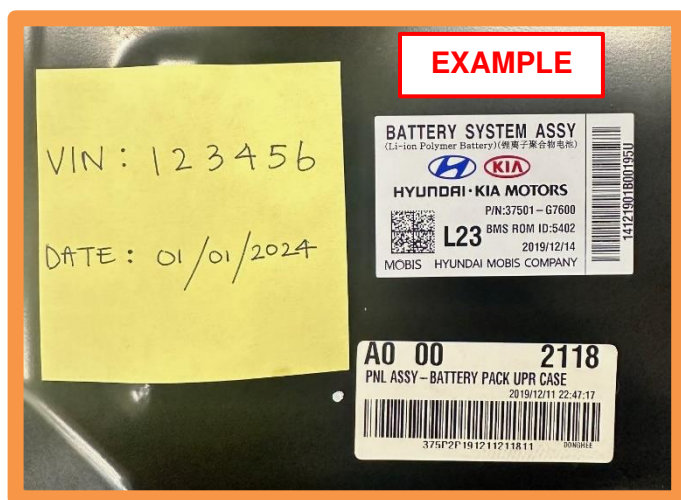
- 3.

STUI



Using STUI, take a photo of the **NEW Battery System Assembly (BSA) label** with the last 6 digits of the VIN and the date of repair on a piece of paper.

Upload the photo to STUI.



4. Reinstall in the reverse order of removal.

5. Refill the motor cooling system with coolant and complete the bleeding procedure.

Refer to Shop Manual:

**Battery Control System > High Voltage
Battery System > Cooling System > Electric
& High Voltage Battery Cooling System >
Coolant > Repair Procedures**

NOTICE

Be sure to use the updated Blue Coolant (BSC-2) when re-filling and bleeding the cooling system.

• Electronic Water Pump Operation

Purpose	To bleed air and circulate the water after repair work is done on HSG/HPCU or Electric Water Pump(EWP).
Enable Condition	1. Engine Off 2. Ignition Switch On 3. NO DTC
Concerned Component	Motor Control Unit(MCU), Electric Water Pump(EWP)
Concerned DTC	-
Fail Safe	-
Etc	-

6. Go to Section C after the BSA replacement to check and perform the BMS software update (if applicable).

C) BMS Software Update

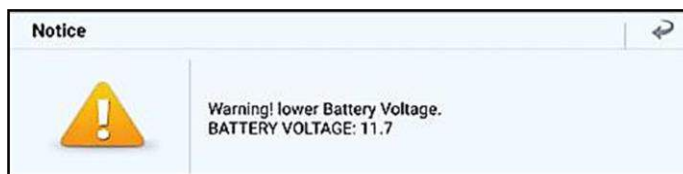
NOTICE

You must initially perform the 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.

NOTICE**GDS Vehicle Battery Low Voltage Warning:**

If voltage is below 12 volts as per the below GDS warning, then select **Back** and attach a battery charger to ensure an adequate battery state of charge for reliable update results. Turn ignition back on, and then retry the ECU update again.

**Information**

Before performing the AUTO software updates, write down or take a picture of the current ROM ID in case MANUAL update is required. This information will be used to select the correct MANUAL passcode/event.

1. Perform the BMS Update in Auto Mode.

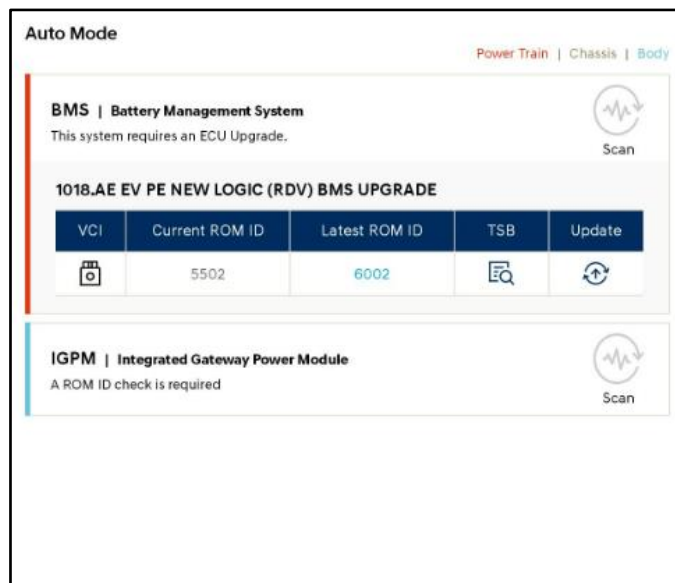
Use the Auto Mode ID check to verify the ECU ROM ID before updating the software.

**Information**

Refer to TSB 24-GI-012H for additional tablet-based GDS-Smart ECU update information.

NOTICE

BMS Upgrade Event # 1018 may have been installed during Service Campaign TBF, reference the current ROM ID to the ROM ID information table on Page 8 to determine if the update is necessary.

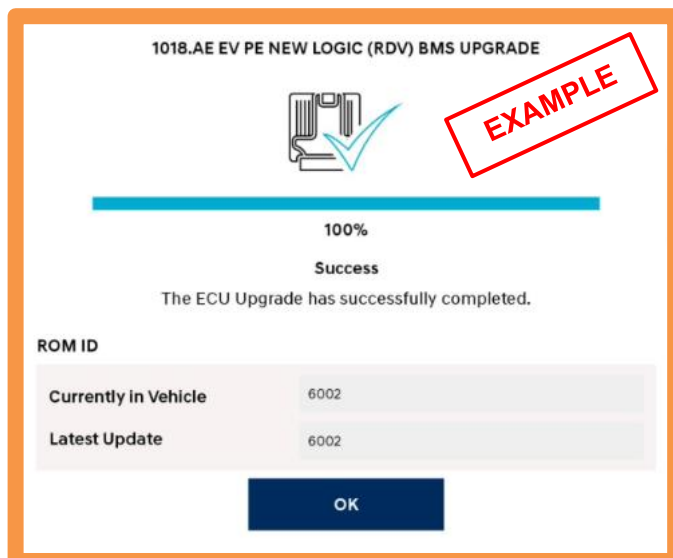


2.

STUI

Take a screenshot of the BMS Update Complete screen using your particular tablet's screenshot save method and upload to STUI.

If there is not a BMS Upgrade available, please verify Event # 1018 has been installed, and provide a screenshot of the current ROM ID and upload to STUI.



3. After the ECU Upgrade process shows 100% complete, cycle the ignition key to OFF for at least 10 seconds to reset the control unit.
4. Perform an All-Systems Fault Code search and erase the history of the DTC that had incidentally occurred from the ECU update.
5. Start the vehicle to confirm proper operation of the vehicle.
6. Service procedure is now completed.

ROM ID Information Table: Event # 1018 (BMS)

Model	MY	BMS Part Number	ROM ID	
			OLD	NEW
Ioniq Electric (AE EV)	20-21MY	375A0-G7602	5402	6002
			5502	
			5802	
			5822	
			5842	

Manual Mode Password: Event #1018

ECM Menu	Password
AE EV PE BMS 375A0-G7602	7402