HYUNDAI **Technical Service Bulletin**	GROUP **CAMPAIGN**	NUMBER **23-01-073H-1**
	DATE **October 2023**	MODEL(S) **KONA ELECTRIC (OS EV)**

SUBJECT:	KONA EV DTC INSPECTION AND BMS UPDATE (SERVICE CAMPAIGN 9A4)

This TSB supersedes TSB 23-01-073H with updated part tables for 19-20 MY vehicles.

> ★ **IMPORTANT**
>
> 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.
> Access the "Vehicle Information" screen via WEBDCS to identify open campaigns.

Description: Certain 19-23MY Kona Electric (OS EV) vehicles may experience a condition of EV warning light ON with DTC P1AA6 to P1AAF found stored. The Battery Management System (BMS) software update will be performed to enhance battery diagnostics logic.

Flowchart summary of the service procedure is provided on page 2 summarized as follows:

- Vehicles that do not have EV Warning Light On will only need the BMS software update.
- Certain vehicles incurring EV Warning Light On and DTC P1AA6 found stored with Freeze Frame Data Information Code 1=128 will only require the BMS Update.
- Certain other DTC P1AA6 Information Code 1-2 values or DTC P1AA7 to P1AAF will require the Battery System Assembly (BSA) to be replaced and then the BMS Update to be performed.

Applicable Vehicles (Certain):
- 2019-23MY Kona Electric (OS EV) produced from 8/28/2018 to 3/8/2023

GDS Information:

System	Event #	Description
BMS	999*	OS EV NEW LOGIC (RDV) BMS UPGRADE

* or select the latest available Event # that displays in GDS.

Warranty Information:

MODEL	OP CODE	OP NAME	CAUSAL PART	OP TIME	NATURE	CAUSE
Kona Electric (OS EV)	30D055R1	DTC (INFO CODE) CHECK AND BATTERY MANAGEMENT SYSTEM SOFTWARE UPDATE	375A0-K4000	0.4 M/H	I3A	ZZ3
	Refer to pages 9-10	BSA REPLACE	*Refer to Pages 9-10*	*Refer to pages 9-10*		

NOTE 1: The BMS software update and if necessary BSA replace are to be submitted on the Claim Entry Screen as "Campaign" type.

NOTE 2: If a part is found in need of replacement while performing this campaign 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 work.

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

NOTE 4: Each BSA replacement labor op code will include reimbursement for bolts, washers, and coolant. Please refer to TSB 23-EV-001H parts information chart for the applicable part numbers.'
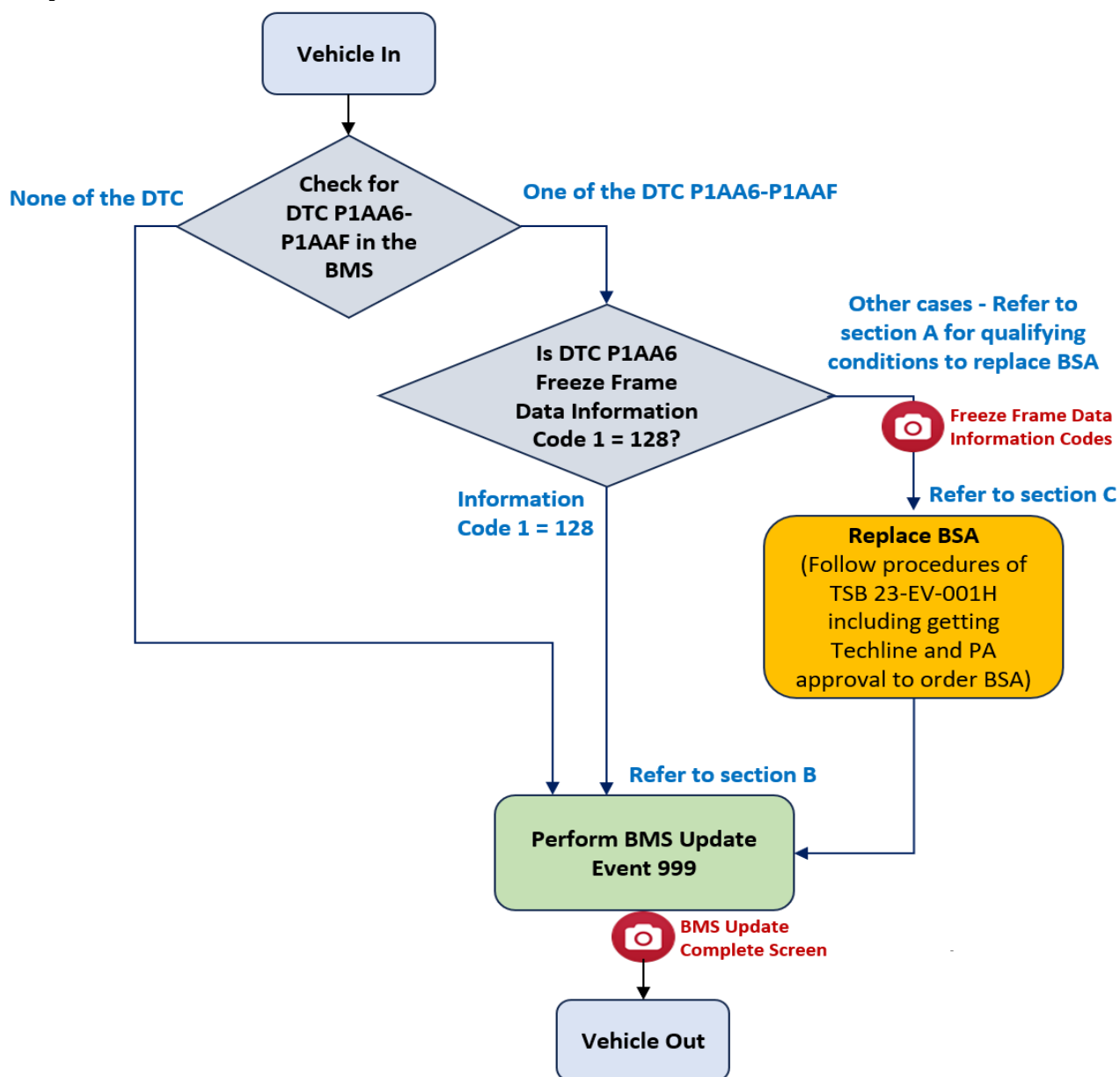

Service Procedure:

STUI 📷

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

Table Of Contents:

Section	Pages	Description
A	4-5	DTC CHECK
B	6-8	BMS SOFTWARE UPDATE
C	8-10	BSA REPLACE (only when applies)

Summary of Service Procedure Flow:


```
                          ┌─────────────┐
                          │ Vehicle In  │
                          └─────────────┘
                                 │
                                 ▼
None of the DTC          ◇ Check for DTC P1AA6-        One of the DTC P1AA6-P1AAF
       ┌─────────────────  P1AAF in the BMS  ◇─────────────┐
       │                                                    │
       │                                                    ▼
       │                           ◇ Is DTC P1AA6      Other cases - Refer to
       │                           Freeze Frame        section A for qualifying
       │                           Data Information     conditions to replace BSA
       │                           Code 1 = 128? ◇──────┐  📷 Freeze Frame Data
       │                                    │           │     Information Codes
       │              Information Code 1 = 128          │
       │                                    │      Refer to section C
       │                                    │           ▼
       │                                    │     ┌──────────────────┐
       │                                    │     │  Replace BSA      │
       │                                    │     │ (Follow procedures│
       │                                    │     │ of TSB 23-EV-001H │
       │                                    │     │ including getting │
       │                                    │     │ Techline and PA   │
       │                                    │     │ approval to order │
       │                                    │     │      BSA)         │
       │                                    │     └──────────────────┘
       │         Refer to section B         │           │
       │                                    ▼           │
       │                          ┌──────────────────┐  │
       └─────────────────────────▶│ Perform BMS      │◀─┘
                                  │ Update Event 999 │
                                  └──────────────────┘
                                        │  📷 BMS Update
                                        │     Complete Screen
                                        ▼
                                  ┌─────────────┐
                                  │ Vehicle Out │
                                  └─────────────┘
```

A. DTC CHECK

A1.   Perform BMS system Fault Search by GDS.

A2.   Check for any of **DTC P1AA6, P1AA7, P1AA8, P1AA9, P1AAA, P1AAB, P1AAC, P1AAD, P1AAE or P1AAF** found stored as an active or history DTC?

> **No – (None of the above listed DTC** are found stored**):**
> **Go to section B** - Perform BMS Software Update.

> **Yes – (DTC P1AA6** is found stored**):**
> **Go to next step A3.** - Check the DTC P1AA6 Freeze Frame Information Code 1-2 values to determine next steps.

> **Yes – (**Under**of DTC P1AA7, P1AA8, P1AA9, P1AAA, P1AAB, P1AAC, P1AAD, P1AAE or P1AAF** are found stored**):**
> **Go to section C.** - Take STUI photo of Freeze Frame Data, Replace BSA and perform BMS Update if needed.

A3.   Check the DTC P1AA6 Freeze Frame Data and locate **Information Code1-2**:

■ DTC CAUSE TO SYSTEM ERROR : P1AA600		
Sensor Name	**Value**	**Unit**
MCU Controllable	NO	-
VCU Ready	YES	-
VCU Main Relay Off Request	NO	-
VCU EV Ready	NO	-
FATC Main Relay Off Request	NO	-
Accumulative Operating Time	96397	Sec.
Information Code1	2	No.
Information Code2	0	No.
Information Code3	132	No.
Information Code4	1	No.
Quick Charge Relay ON Status	NO	-
Charging Lamp Status	Charging Fail	-
OPD Active ON	OFF	-
Winter Mode Status	OFF	-
Information Code5	0	No.
Information Code6	6	No.
Quick Charge Outlet Temperature	24	℃
Battery WCS Inlet Temperature	24	℃
Battery Heater Temperature	24	℃

A4.   Find the **DTC** in the chart below,

..... then if **DTC P1AA6** also check the **Information Codes1-2** values,

.... then find the corresponding value in the last column **"BSA Replace?"**:

- ➢ **"BSA Replace?" = NO** – **Go to section B**. (BMS Update only)

- ➢ **"BSA Replace?" = YES** – **Go to section C**. (BSA Replace and BMS Update)

- ➢ **"BSA Replace?" =** Techline Review (Whether or not BSA is to be replaced will be decided after Techline review of the BMS Data with Engineering).

Battery Incident Condition	Early BMS Software			Later BMS Software	BSA Replace?
	DTC	Info code 1	Info code 2	DTC	
Cell voltage deviation error	P1AA600	1	-	P1AA700	**YES**
Insulation resistance error		2	-	P1AA800	**YES**
Abnormal cell voltage change after charging		4~64	-	P1AA900	**YES**
Abnormal current change during charging (CV section)		**128**	-	P1AAA00	**P1AA600- NO** P1AAA00 *Techline review
Overtemperature		-	1	P1AAB00	**YES**
Overvoltage		-	2	P1AAC00	**YES**
Low voltage		-	4	P1AAD00	**YES**
Battery temperature deviation error		-	8	P1AAE00	**YES**
MAVD		-	16	P1AAF00	**YES**
RDV	-	-	-	P1AB000	*Techline review

NOTE: *Techline review with Engineering to decide if BSA replace based on BMS data

B. BMS SOFTWARE UPDATE

B1.

> ⚠️ **WARNING**
>
> **GDS Vehicle Battery Voltage**:
> - If the voltage is below 12 volts as per the GDS warning, then select **Back** and run the vehicle at least 20 minutes to reach an adequate battery state of charge to prevent an ECU Update failure. Cycle the ignition **OFF/ON** before retrying the ECU update again.
>
> | Notice | ↵ |
> |---|---|
> | ⚠️ | Warning! lower Battery Voltage. BATTERY VOLTAGE: 10.8 |

> ℹ️ **Information**
>
> **GDS ECU Updates must be performed in Auto Mode.**
> - If ECU Update starts but then fails in Auto Mode, perform update in Manual Mode to recover.
> - Turn off ignition for 30 seconds and try Manual Mode recovery.
> - If unsuccessful, re-attempt Manual Mode after disconnecting the cables from the 12V battery terminals and performing cap discharge (connecting bar or heavy wire between "**+**" to "**-**" cables).

B2.   Perform the BMS Update in Auto Mode.

Use the Auto Mode ID Check to verify the BMS ROM ID before updating the software.
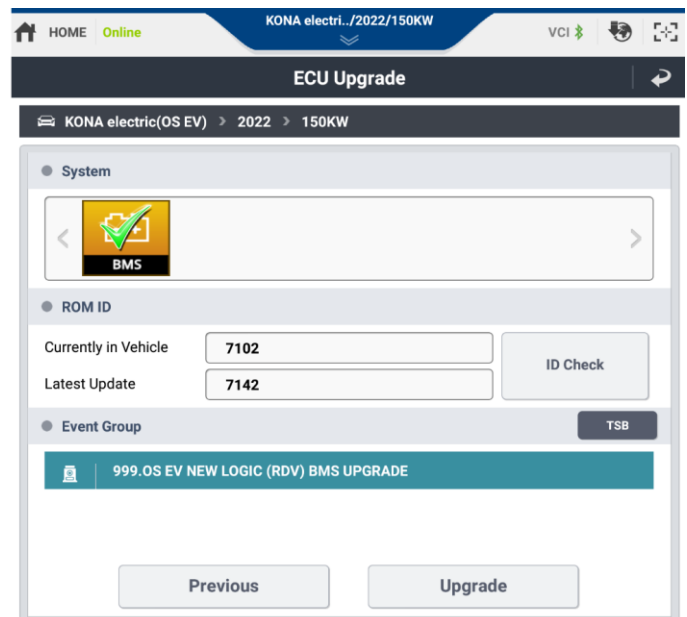
B3.   After the ECU Upgrade process shows 100% complete, cycle the ignition key to OFF for at least 10 seconds to reset the control unit.

B4.   Take a screenshot of the ECU Update complete screen and upload to STUI.

ROM ID Information table:

VEHICLE	SYSTEM	P/NO	ROM ID	
			OLD	**NEW**
OS EV	BMS	375A0-K4052	6400 6500 6700 6730 6740 6770 6780 6790 6800 6820 6840 6860 6880 6900	6890
		375A0-K4002	6402 6502 6702 6732 6742 6772 6782 6792 6802 6822 6842 6862 6882 6902	6892

		375A0-K4452	6504 6734 6744 6774 6784 6794 6804 6824 6844 6864 6884 6904	6894
		375A0-K4402	6506 6736 6746 6776 6786 6796 6806 6826 6846 6866 6886 6906	6896
		375A0-K4053	6960 6980 7020 7040 7050 7060 7080 7100 7120	7140
		375A0-K4003	6962 6982 7022 7042 7052 7062 7082 7102 7122	7142
		375A0-K4453	6964 6984 7024 7044 7054 7064 7084 7104 7124	7144
		375A0-K4403	6966 6986 7026 7046 7056 7066 7086 7106 7126	7146

Manual Mode Password Information:
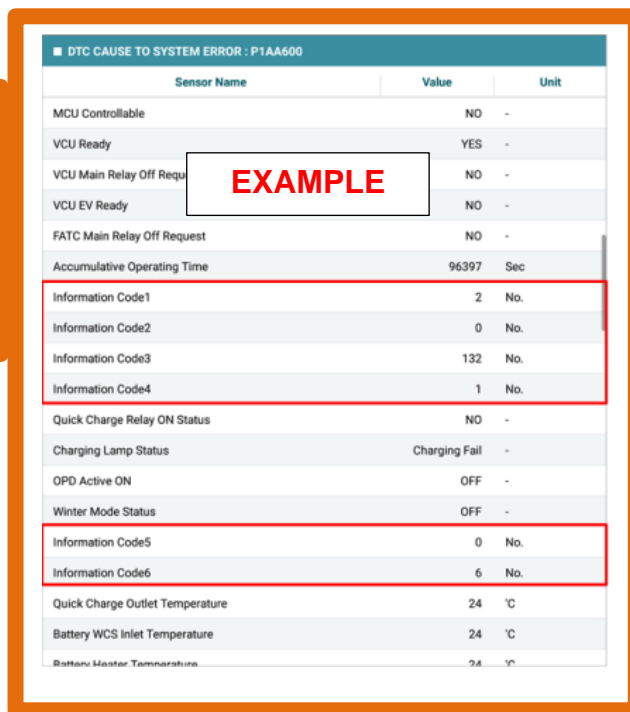
MENU	PASSWORD
OS EV BMS 375A0-K4052	**5285**
OS EV BMS 375A0-K4002	**0201**
OS EV BMS 375A0-K4452	**2966**
OS EV BMS 375A0-K4402	**2814**
OS EV BMS 375A0-K4053	**9511**
OS EV BMS 375A0-K4003	**3167**
OS EV BMS 375A0-K4453	**3160**
OS EV BMS 375A0-K4403	**0956**

C. BATTERY SYSTEM ASSEMBLY (BSA) REPLACE (only when applicable)

C1.   Take STUI photo of the DTC Freeze Frame data with the Information Codes 1-5 visible:

STUI 📷

Take a screenshot of the **DTC Freeze Frame Data showing Information Codes 1-5** using your particular tablet's screenshot save method and upload to STUI.

EXAMPLE

■ DTC CAUSE TO SYSTEM ERROR : P1AA600		
Sensor Name	**Value**	**Unit**
MCU Controllable	NO	-
VCU Ready	YES	-
VCU Main Relay Off Requ	NO	-
VCU EV Ready	NO	-
FATC Main Relay Off Request	NO	-
Accumulative Operating Time	96397	Sec
Information Code1	2	No.
Information Code2	0	No.
Information Code3	132	No.
Information Code4	1	No.
Quick Charge Relay ON Status	NO	-
Charging Lamp Status	Charging Fail	-
OPD Active ON	OFF	-
Winter Mode Status	OFF	-
Information Code5	0	No.
Information Code6	6	No.
Quick Charge Outlet Temperature	24	℃
Battery WCS Inlet Temperature	24	℃
Battery Heater Temperature	24	℃

C2.   Refer to TSB 23-EV-001H for the complete procedures for BSA Replace:
- Techline Approval (from inspection of Freeze Frame Data submitted via STUI)
- PA Approval to allow for BSA Parts Ordering
- Required Tools and Technician Training
- BSA Replacement Procedures

C3.   After BSA is replaced, go to Section B to perform BMS Update if it will apply.

BSA Parts Information:

PART NAME	MODEL	PART NUMBER	REMARK
BATTERY SYSTEM ASSEMBLY (BSA)	Kona Electric (OS EV)	**37501-K4xxxxx*** (*as called out in Parts Catalog based on VIN)	**Only as Needed per step A4.** See TSB 23-EV-001H for BSA replace procedures including Techline and PA approval required.
NOTE. Choose correct coolant and bolts P/N as indicated by TSB 23-EV-001H.			

BSA Replace Warranty Information:
Follow these Instructions to choose the correct Opcode for BSA Replace:
1. **Choose the correct TABLE A vs TABLE B**:
   a. **TABLE A – BSA REPLACE + BMS UPDATE**
   b. **TABLE B – BSA REPLACE (No BMS Update)**
2. Then match your exact **BSA Part Number** received to the **CAUSAL PART** column to determine the **OP CODE** and **OP TIME:**

TABLE A - BSA Replace + <u>BMS Update</u> (NOTE: Must have STUI BMS Update complete photo uploaded**)**

MODEL YEAR	MODEL	OP CODE	OP NAME	CAUSAL/ REPLACEMENT PART	OP TIME	NATURE	CAUSE
19MY		30D055R2	DTC (INFO CODE) CHECK, BSA REPLACEMENT, AND BATTERY MANAGEMENT SYSTEM SOFTWARE UPDATE	37501-K4000AS	3.6 M/H	I3A	ZZ3
20MY		30D055R8		37501-K4001AS			
		30D055RF		37501-K4051AS			
		30D055RL		37501-K4051QQH			
	Kona Electric (OS EV)	30D055RR		37501-K4004AS			
		30D055RT		37501-K4054AS			
		30D055RN		37501-K4005AS			
		30D055RP		37501-K4055AS			
21-23MY		1. Campaign Claim 30D055R1 for the BMS Update. 2. Claim additional Normal Warranty for BSA Replace – Refer to WebLTS for opcode**.**		37501-K4005	0.4 + Refer to WebLTS for LTS		
				37501-K4055			

TABLE B - BSA Replace (No BMS Update):

MODEL YEAR	MODEL	OP CODE	OP NAME	CAUSAL/ REPLACEMENT PART	OP TIME	NATURE	CAUSE
19MY	Kona Electric (OS EV)	30D055R3	DTC (INFO CODE) CHECK AND BSA REPLACEMENT	37501-K4000AS	3.4 M/H	I3A	ZZ3
20MY		30D055R9		37501-K4001AS			
		30D055RG		37501-K4051AS			
		30D055RM		37501-K4051QQH			
		30D055RS		37501-K4004AS			
		30D055RU		37501-K4054AS			
21-23MY		30D055RO		37501-K4005AS			
		30D055RQ		37501-K4055AS			
		Claim additional Normal Warranty for BSA Replace – Refer to WebLTS for opcode.		37501-K4005	Refer to WebLTS for LTS		
				37501-K4055			