



GROUP

MODEL

ELE

2022-2023MY
EV6 (CV)

NUMBER

DATE

290 (Rev 1, 05/24/2023)

April 2023

TECHNICAL SERVICE BULLETIN

SUBJECT: BMS DTC JUDGEMENT LOGIC IMPROVEMENT (P1AA600)

NOTICE

This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This bulletin provides information to update the software logic of the Battery Management System (BMS) on some 2022-2023MY EV6 (CV) vehicles produced from November 17, 2021 through February 3, 2023 which have a stored DTC P1AA600. The BMS ECU monitors voltage deviation; if over-voltage deviation between battery cells, poor insulation, abnormal cell voltage changes after charging, abnormal current change during charging, over-voltage, low voltage battery temperature deviation or average cell deviation during driving is detected, the BMU sets DTC P1AA600. This BMS DTC logic improvement will expand DTC P1AA600 into multiple DTCs to aid in proper diagnosis, which reduces the required time and steps outlined in the 'DTC Inspection' on KGIS to determine the fault using 'freeze frame' data (refer to table below). Follow the procedure outlined in this publication to apply the improved logic to the 'BMS' system using the KDS ECU Upgrade function as described in this bulletin. For confirmation that the latest reflash has been applied to a vehicle you are working on, verify the ROM ID using the table on page 3 of this bulletin.

DTC Description:

P1AA600 - Hybrid/EV Battery Abnormal Performance Detection

Current DTC	Info Code 1	Info Code 2	Expanded 'New' DTC(s)	Fault Description
P1AA600	1		P1AA700	Cell voltage deviation
	2		P1AA800	Insulation resistance breakdown
	4-64		P1AA900	Cell voltage movement
	128		P1AAA00	Cell voltage deviation while charging
		1	P1AAB00	Temperature too high
		2	P1AAC00	Cell voltage too high
		4	P1AAD00	Cell voltage too low
		8	P1AAE00	Temperature deviation
		16	P1AAF00	Abnormal voltage change detection logic issue

ECU Upgrade Procedure:

To correct this condition, the ECU should be reprogrammed using the KDS download, as described in this bulletin.

Upgrade Event Name
656. CV BMS DTC JUDGMENT LOGIC IMPROVEMENT
657. CV BMS DTC JUDGMENT LOGIC IMPROVEMENT

❗ IMPORTANT

This software update is not a remedy for DTC P1AA600. The DTC must be stored for this TSB to apply. Technicians are to save the freeze frame data for diagnosis purpose and applicable repair.

📄 NOTICE

- Confirm a fully charged battery (12.3 volts or higher is necessary) is used or utilize a fully charged jump starter box connected to the battery.
- **Ensure the KDS GDS is sufficiently charged at 60% or higher prior to reflash.**
- All ECU upgrades must be performed with the ignition set to the 'ON' position unless otherwise stated.
- **Damaged VCI II units should not be used and promptly replaced.**
- Be careful not to disconnect the VCI-II connected to the vehicle during the ECU upgrade procedure.
- **DO NOT start the engine during ECU upgrade.**
- DO NOT turn the ignition key 'OFF' or interrupt the power supply during ECU upgrade.
- **When the ECU upgrade is completed, turn the ignition 'OFF' and wait 10 seconds before starting the engine.**
- ONLY use approved ECU upgrade software designated for the correct application.

❗ IMPORTANT

It is recommended to ALWAYS check the Electronic Parts Catalog (EPC) to locate the ECU Part Number respective to Auto/Manual Mode ROM IDs. DO NOT reference the parts label affixed to the ECU.

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BMS DTC JUDGEMENT LOGIC IMPROVEMENT (P1AA600)**NOTICE**

Before attempting an ECU upgrade on any Kia model, make sure to first determine whether the applicable model is equipped with an immobilizer  security system. Failure to follow proper procedures may cause the PCM to become inoperative after the upgrade and any claims associated with this repair may be subject to chargeback.

ROM ID INFORMATION TABLE:**Upgrade Event #656 (U.S. 23MY)**

Event	Model	System	ECU P/No.	ROM ID	
				Previous	New
656	23MY CV	BMS All US <u>w/</u> Electric Heater	375A0 CV150	5300 5400	5500
			375A0 CV050	5308 5408	5508
	22MY CV	BMS* <u>w/o</u> Electric Heater for other Country	375A0 CV100	5102 5202 5302 5402	5502
			375A0 CV000	510A 520A 530A 540A	550A

**For Non-US market vehicle located in the US (ex. Canada).*

Upgrade Event #657 (U.S. 22MY)

Event	Model	System	ECU P/No.	ROM ID	
				Previous	New
657	22MY CV	BMS All US <u>w/</u> Electric Heater	375A0 CV150	5100 5200	5500
			375A0 CV050	5108 5208	5508

To verify the vehicle is affected, be sure to check the Calibration Identification of the vehicle's ECM ROM ID and reference the Information Table as necessary.

NOTICE

Prior to performing the ECU upgrade, be sure to check that the KDS is fully charged.

1. Connect the VCI-II to the OBD-II connector, located under the driver's side of the instrument panel.

NOTICE

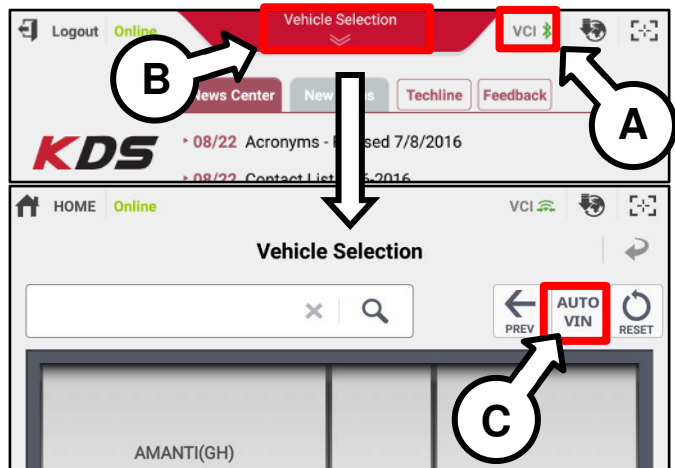
The ECU upgrade function on KDS operates wirelessly. It is not necessary to perform the upgrade via USB cable.



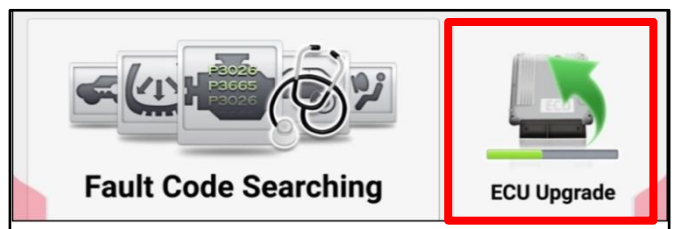
2. With the ignition **ON**, turn ON the KDS tablet. Select 'KDS' from the home screen.



3. Confirm communication with VCI (A) and then configure the vehicle (B) using the 'AUTO VIN' (C) feature.



4. Select 'ECU Upgrade'.



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5. The KDS will check the server for recently uploaded Events and then automatically download Upgrade Event #656 or #657. CV BMS DTC JUDGMENT LOGIC IMPROVEMENT

NOTICE

The vehicle must be identified in Vehicle Selection to download an Event for that vehicle.

After the download is complete, the program will shut down to install.
Please wait until the program restarts.

Event	Status
271.QF 2.4GDI DTC P0171,P0420 LOGIC IMPROVEMENT	Downloading
273.TF 2.4GDI DTC P0171,P0420 LOGIC IMPROVEMENT	Ready



KDS screenshot shown above is for demonstration purposes only. Events shown in screenshot are not applicable to this bulletin.

6. Select Auto Mode.

CAUTION

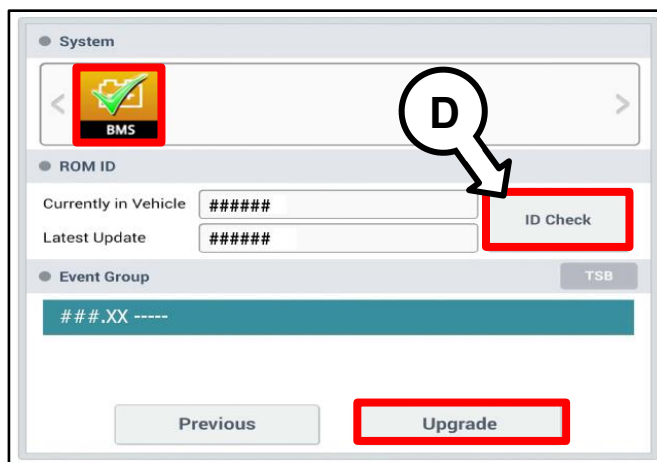
Do NOT attempt to perform a Manual Mode upgrade UNLESS Auto Mode fails. Always follow the instructions given on the KDS in either Auto or Manual mode.



7. Select the 'BMS' system under the System selection menu.

Touch ID Check (D) and confirm that the latest update is available (if applicable)

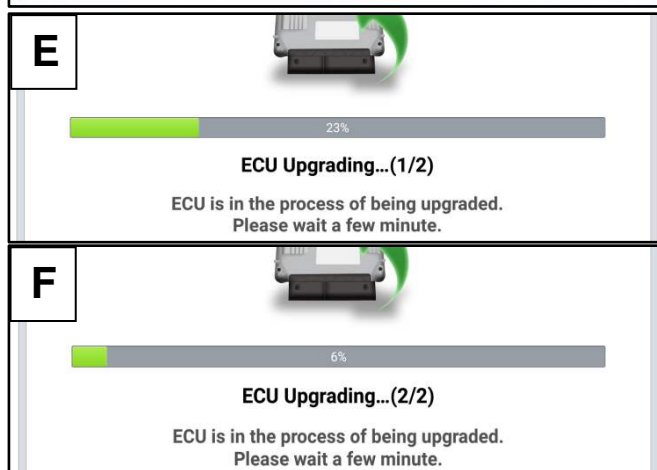
Select Upgrade Event #656 or #657 and select Upgrade to continue.



8. The ECU upgrade will begin and the progress of the upgrade will appear on the bar graph. Upgrade part (1/2) (E) will download the upgrade event to the VCI-II. Upgrade part (2/2) (F) will upgrade the ECU.

CAUTION

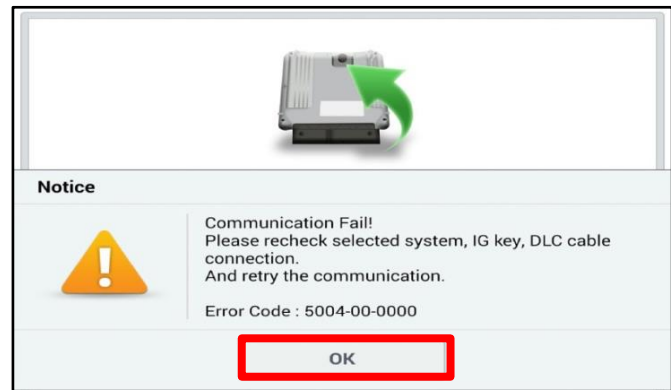
Do not touch the system buttons (like 'Back', 'Home', 'etc.') while performing ECU Upgrade.



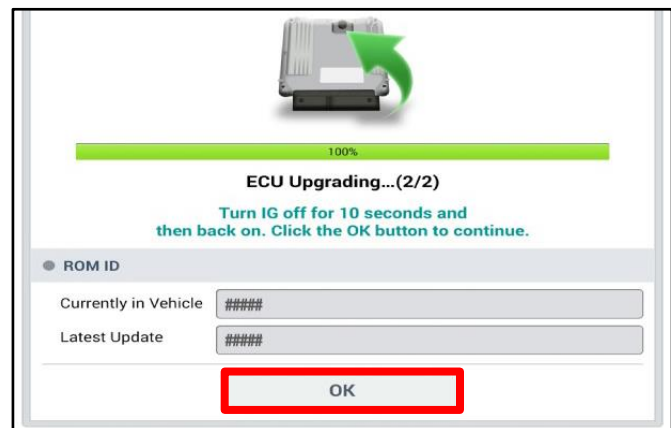
9. If a "Communication Fail" screen appears, verify that the VCI-II and KDS are communicating properly. Select 'OK' and restart the from step 4.

NOTICE

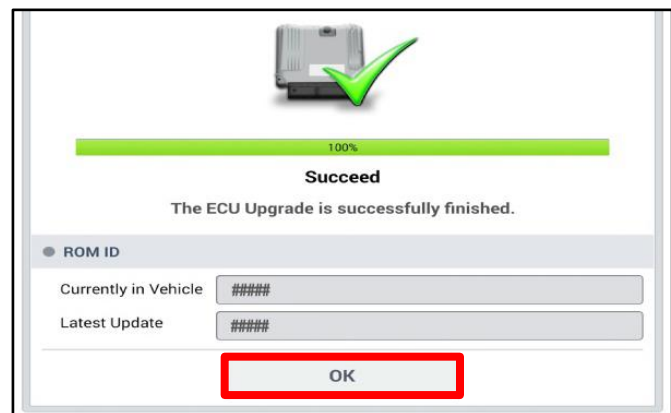
If an error notice continues to appear or if the upgrade cannot be performed, DO NOT disconnect the KDS/VCI-II. Contact GIT America Help Desk at (888) 542-4371 or Techline.



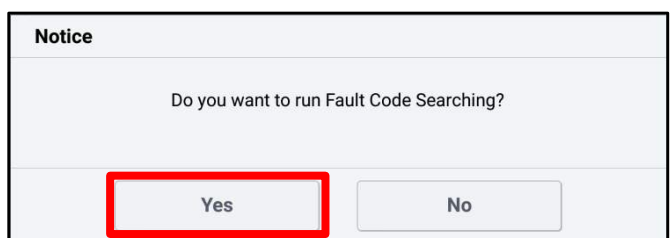
10. When instructed on the KDS, turn the ignition OFF for ten (10) seconds then back on. Select 'OK' to continue.



11. Once the upgrade is complete, select 'OK' to finalize the procedure.



12. When prompted, select 'YES' to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.



13. Start the engine to confirm normal operation of the vehicle.

Manual Upgrade Procedure:

 NOTICE

The manual upgrade should **ONLY** be performed if the automatic upgrade fails.

If the automatic upgrade fails, turn the ignition 'OFF' for about 10 seconds then place it back in the 'ON' position to reset the control unit BEFORE performing manual upgrade.

See table below for 'Manual Mode' passwords.

Manual Mode ECU Upgrade Passwords

Event	Menu	Password
#656	CV BMS: 375A0-CV150	5650
	CV BMS: 375A0-CV050	5658
	CV BMS: 375A0-CV100**	5652
	CV BMS: 375A0-CV000**	5655
#657	CV BMS: 375A0-CV150	7100
	CV BMS: 375A0-CV050	7008

**For Non-US market vehicle located in the US (ex. Canada).*

1. Within the ECU Upgrade screen displayed, select **Manual Mode**.
2. Select the '**BMS**' system under the System selection menu. Select **Upgrade Event #656 or #657** and select **Upgrade** to continue.
3. Select the appropriate control unit part number with reference to the ROM ID Information Table on page 3, and select **OK**.
4. Enter the appropriate password from the Manual Mode password table above and select **OK**.
5. The upgrade will begin and the progress of the upgrade will appear on the bar graph.
6. When instructed on the KDS, turn the ignition **OFF** for ten (10) seconds then back on. Select **OK**.
7. Once the upgrade is complete, select **OK** to finalize the procedure.
8. When prompted, select **YES** to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.
9. Start the engine to confirm proper operation of the vehicle.

SUBJECT:

BMS DTC JUDGEMENT LOGIC IMPROVEMENT (P1AA600)**AFFECTED VEHICLE RANGE:**

Model	Production Date Range
EV6 (CV)	November 17, 2021 to February 3, 2023

REQUIRED TOOL:

Tool Name	Figure	Comments
KDS		Kia Diagnostic System

WARRANTY INFORMATION:**N Code: I3N C Code: ZZ3**

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
W	375A0 CV050	0	CV BMS Software Logic Improvement	375A0F06	0.3 M/H	N/A	0