	GROUP	MODEL
	ELE	**2017-2019MY Optima (JF P/HEV)**
	NUMBER	DATE
	192 (Rev 1, 01/18/2023)	**April 2020**

TECHNICAL SERVICE BULLETIN

SUBJECT: SERVICE ACTION: BMS/OPU/MCU LOGIC IMPROVEMENT (SA411)

★ **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 the procedure to improve the logic of the Battery Management System (BMS), Oil Pump Control Unit (OPU) and Motor Control Unit (MCU) on some 2017-2019MY Optima (JF P/HEV) vehicles, produced from August 25, 2016 through September 13, 2018 (refer to page 8) in order to improve the BMS diagnosis logic, OPU judgment logic for DTC P1B77 (High Voltage Battery Pre-Charging fault) and MCU communication logic. To correct this concern, apply the improved logic to the following three (3) systems: BMS, OPU and MCU 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. Before conducting the procedure, verify that the vehicle is included in the list of affected VINs.

★ **NOTICE**

A Service Action is a repair program without customer notification that is performed during the warranty period. Any dealer requesting to perform this repair outside the warranty period will require DPSM approval.

Repair status for a VIN is provided on WebDCS (Service → Warranty Coverage → Warranty Coverage Inquiry → Campaign Information). Not completed Recall / Service Action reports are available on WebDCS (Consumer Affairs → Not Completed Recall → Recall VIN → Select Report), which includes a list of affected vehicles.

This issue number is SA411.

Circulate To:	☒ General Manager	☒ Service Manager	☒ Parts Manager
☒ Service Advisors	☒ Technicians	☒ Body Shop Manager	☐ Fleet Repair

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ECU Upgrade Procedure:

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

Upgrade Event Name
422. JF HEV/PHEV - BMS DIAGNOSIS LOGIC IMPROVEMENT
423. JF HEV/PHEV - OPU P1B77 DTC LOGIC IMPROVEMENT
424. JF HEV/PHEV - MCU COMMUNICATION LOGIC IMPROVEMENT

★ NOTICE

- **A fully charged battery is necessary before ECU upgrade can take place. It is recommended that the Midtronics GR8-1299 be used in ECU mode during reflashing or the use of a fully charged jump starter box.**
- **DO NOT connect any other battery charger to the vehicle during ECU upgrade.**
- **Ensure the KDS or GDS is sufficiently charged prior to reflash.**
- **All ECU upgrades must be done with the ignition key in the 'ON' position.**
- **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 model and model year.**

★ NOTICE

Before attempting an ECU upgrade on any Kia model, make sure to first determine whether the particular 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.

★ NOTICE

To verify the vehicle is affected, be sure to check the version of the vehicle's control unit ROM ID with reference to the 'ROM ID Information Table' below before attempting to upgrade the control unit software.

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> ℹ️ **IMPORTANT**
>
> **Repeat step 7 – 13 outlined in the procedure as <u>there are three (3) different systems</u> requiring the logic improvement upgrade.**

ROM ID INFORMATION TABLE:

Upgrade Events #422, 423 and 424 (JF P/HEV)

Model	System	IMMO 🔑	ECU P/No.	ROM ID Previous	ROM ID New
JF HEV	BMS	Yes	37513-E6000	LFHEB4200R LFHEB4220R LFHEB4240R LFHEB4260R LFHEB4300R LFHEB4320R	LFHEB4340R
			37513-G0000	YGHEB4200R YGHEB4220R YGHEB4240R YGHEB4280R	YGHEB4300R
JF PHEV		Yes	37513-A8510	LFPJB4642R LFPJB4722R LFPJB4742R LFPJB4762R LFPJB4772R	LFPJB4792R
			37513-A8520	LFPJB4802R LFPJB4812R	LFPJB4832R
JF HEV	OPU	Yes	46190-3D610 46190-3D700	26	27
JF PHEV		Yes	46190-3D650 46190-3D750		
JF HEV	MCU	Yes	36600-3D130 36600-3D132	GJFEGDAHMS1-C000 GJFEG5AHMS1-C000 GJFEHNAHMS2-C000 GJFEHDAHMS0-C000	GJFEKDAHMS1-C000
JF PHEV		Yes	36600-3D136	GJFPHDAHMS2-C000 GJFPHEAHMS0-C000 GJFPHNAHMS0-C000 GLFPHDAHMS0-C000	GLFPHDAHMS1-C000

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.

Printed TSB copy is for reference only; information may be updated at any time. Always refer to KGIS for the latest information.

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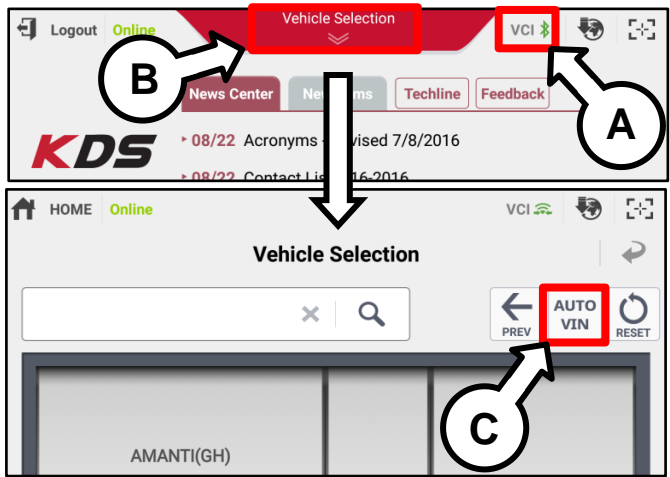
   > **✶ NOTICE**
   >
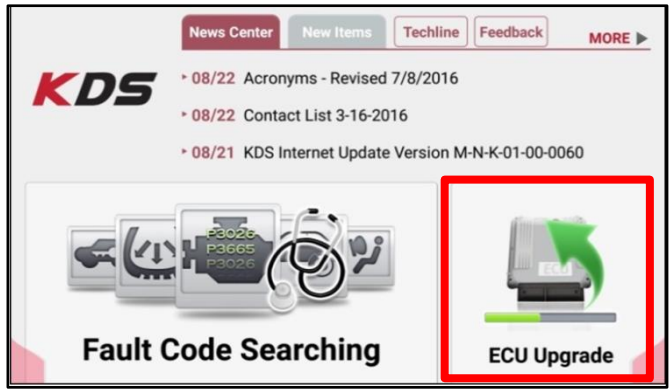   > **The ECU upgrade function on KDS operates wirelessly. It is not necessary to perform the upgrade via USB cable.**

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.
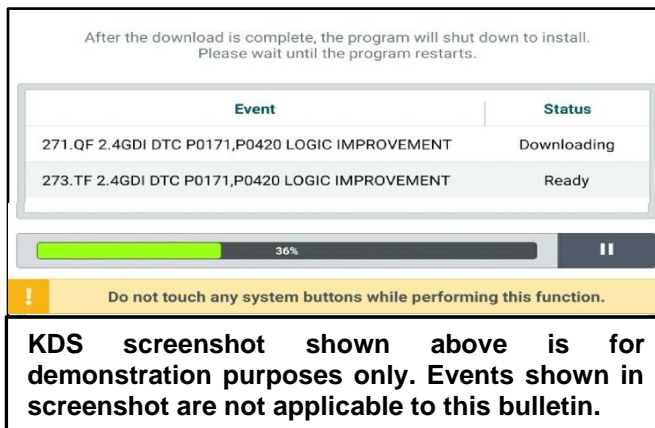
4. Select **ECU Upgrade**.

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5. The KDS will check the server for recently uploaded Events and then automatically download **Upgrade Event #422 (BMS), #423 (OPU), #424 (MCU).**
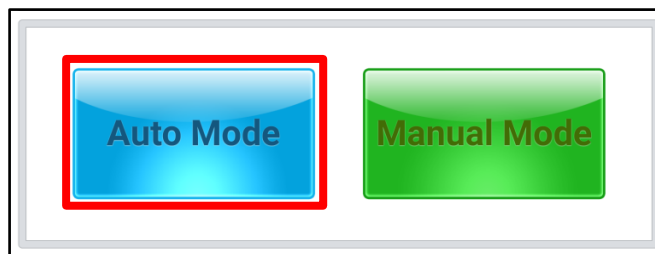
> ⭐ **NOTICE**
>
> **The vehicle must be identified in Vehicle Selection to download an Event for that vehicle.**

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

36%

⚠ Do not touch any system buttons while performing this function.

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.**
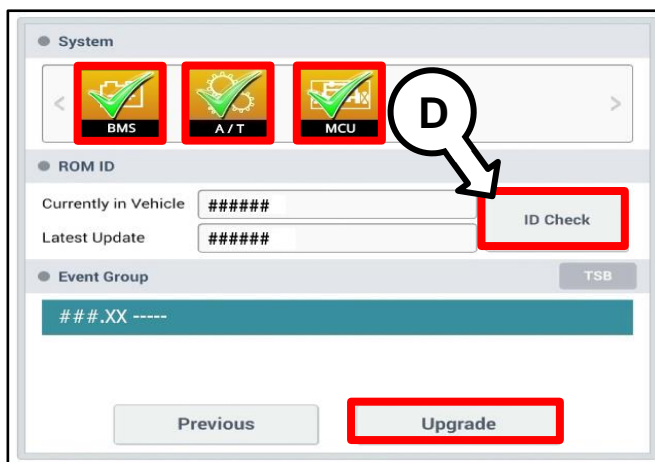
Auto Mode   Manual Mode

7. Select the **applicable** system under the System selection menu.

> **#422 – BMS System**
>
> **#423 – A/T System**
>
> **#424 – MCU System**
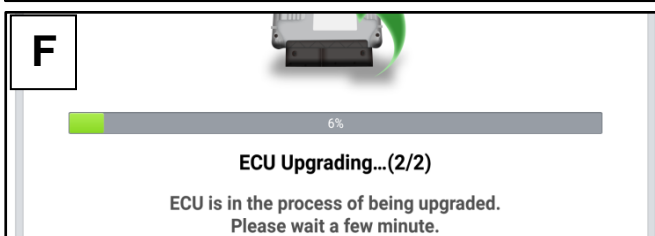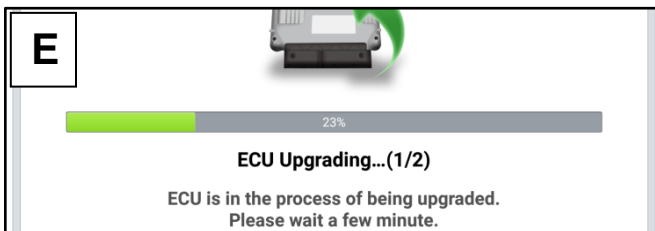
Touch **ID Check** (D) and confirm that the latest update is available.

Select **Upgrade Event #422, or 423, or 424** and select **Upgrade** to continue. **Repeat steps 7 – 13 for each event.**

● System

BMS   A/T   MCU   **D**

● ROM ID

Currently in Vehicle ######
Latest Update ######   ID Check

● Event Group

###.XX -----   TSB

Previous   Upgrade

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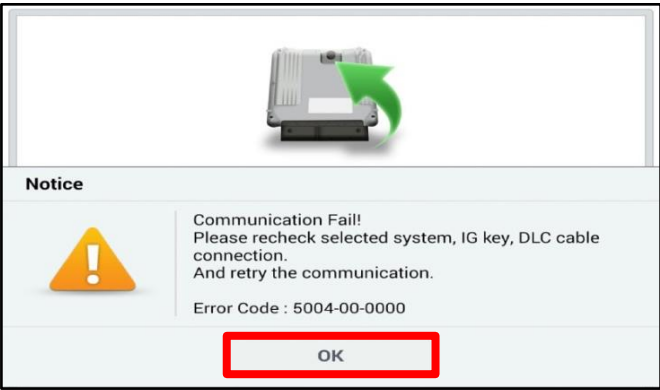
> ⚠ **CAUTION**
>
> **Do not touch the system buttons (like 'Back', 'Home', 'etc.') while performing ECU Upgrade.**

E

23%

ECU Upgrading...(1/2)

ECU is in the process of being upgraded. Please wait a few minute.

F

6%

ECU Upgrading...(2/2)

ECU is in the process of being upgraded. Please wait a few minute.

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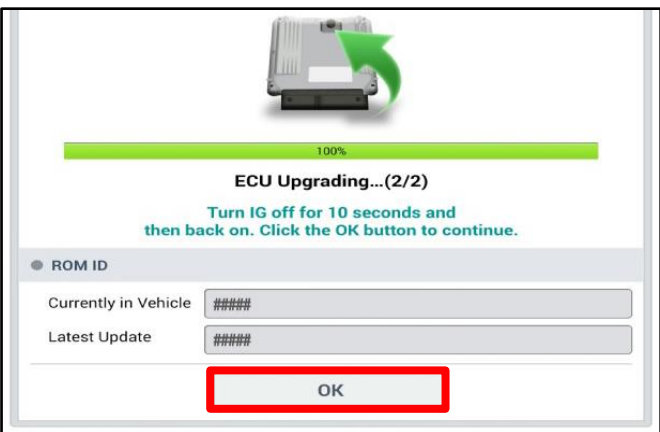TSB: SA411 (Rev 1) Optima (JF P/HEV) April 2020

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9. If a "Communication Fail" screen appears, verify that the VCI-II and KDS are communicating properly. Touch **OK** and restart the procedure from step 4.
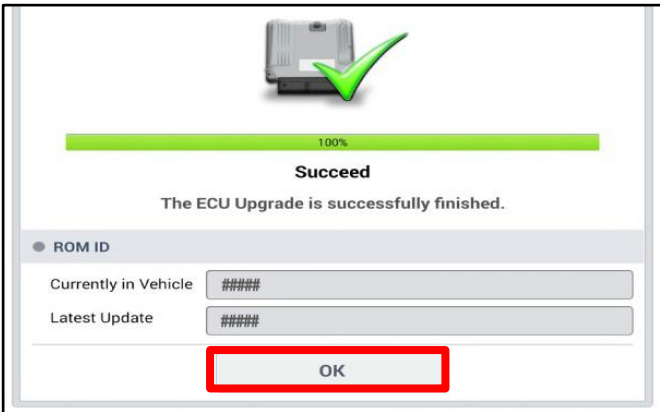
> ★ **NOTICE**
>
> **If an error notice continues to appear or if the upgrade cannot be performed, DO NOT disconnect the KDS/VCI-II. Contact GIT America Help Desk at (888) 542-4371 or Techline.**
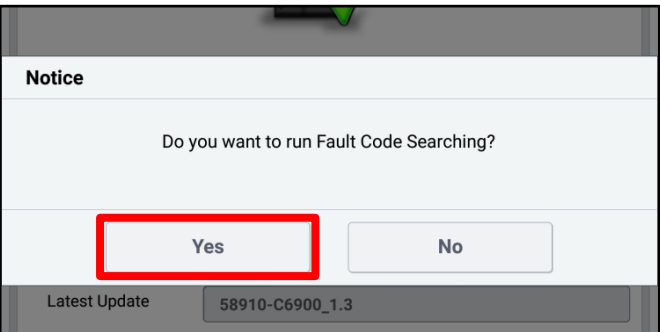

Notice

Communication Fail!
Please recheck selected system, IG key, DLC cable connection.
And retry the communication.

Error Code : 5004-00-0000

OK

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

100%

ECU Upgrading...(2/2)

Turn IG off for 10 seconds and then back on. Click the OK button to continue.

● ROM ID

| Currently in Vehicle | #### |
| Latest Update | #### |

OK

11. Once the upgrade is complete, touch **OK** to finalize the procedure.

100%

Succeed

The ECU Upgrade is successfully finished.

● ROM ID

| Currently in Vehicle | #### |
| Latest Update | #### |

OK

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.

Notice

Do you want to run Fault Code Searching?

Yes   No

Latest Update   58910-C6900_1.3

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

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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

System	Menu	Password
BMS	JF HEV BMS : 37513-E6000	6000
	JF HEV BMS : 37513-G0000	1300
	JF PHEV BMS : 37513-A8510	8510
	JF PHEV BMS : 37513-A8520	8520
OPU	JF HEV OPU : 46190-3D610/700	3700
	JF PHEV OPU : 46190-3D650/750	3700
MCU	JF HEV MCU : 36600-3D130/32	3232
	JF PHEV MCU : 36600-3D136	3236

1. Within the ECU Upgrade screen displayed, select **Manual Mode**.

2. Select the **applicable** system (BMS/OPU/MCU) under the System selection menu. Select **Upgrade Event #422, 423 and 424** 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. Touch **OK** to continue.

7. Once the upgrade is complete, touch **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.

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AFFECTED VEHICLE RANGE:

Model	Production Date Range
Optima (JF HEV)	June 27, 2017 to September 13, 2018
Optima (JF PHEV)	August 25, 2016 to August 23, 2018

WARRANTY INFORMATION:
N Code: N99   C Code: C99

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
V	37513 E6000	0	(SA411) BMS, OPU, MCU Logic Improvement	200129R0	0.5 M/H	N/A	0

Note: Use the newly updated Op Code. Do NOT use the old Op Code 190119R0.

★ NOTICE

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference SA411 when accessing the WebDCS system.