PRODUCT IMPROVEMENT CAMPAIGN

SUBJECT:
NU 2.0L GDI - KNOCK SENSOR DETECTION SYSTEM (KSDS) ECU LOGIC IMPROVEMENT (PI2107)

> 🗎 **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 related to a software update to the Engine Control Unit (ECU) to install the Knock Sensor Detection System (KSDS), in order to protect the engine from excessive connecting rod bearing damage. This update is for certain 2017-2019MY Soul (PS) vehicles equipped with Nu 2.0L GDI engines, produced from July 29, 2016 through December 21, 2018.

The KSDS detects vibrations indicating the onset of excessive connecting rod bearing wear. It is designed to alert the driver at an early stage of bearing wear before the occurrence of severe engine damage, including engine failure. If vibrations caused by bearing wear start to occur, the Malfunction Indicator Lamp (MIL) will blink continuously, and the vehicle will be placed in Limp Home Mode. This will reduce further damage to the engine and ensure that the vehicle occupants are not exposed to the risk of a more severe engine failure. At that time, Diagnostic Trouble Code ("DTC") P1326, specific to the KSDS, will be recorded in the ECU. The vehicle can continue to be operated for a limited time in Limp Home Mode, but it will accelerate slowly and have a reduced maximum speed. Also, engine RPMs will be limited to approximately 1800-2000 RPM.

Kia is requesting the completion of this Product Improvement Campaign on all affected vehicles. Before conducting the procedure, verify the vehicle is included in the list of affected VINs. Also, please have your KDS connected to the internet regularly to get the latest software updates available.

> 🗎 **NOTICE**
>
> **To assure complete customer satisfaction, always remember to refer to WebDCS Warranty Coverage (validation) Inquiry Screen (Service → Warranty Coverage → Warranty Coverage Inquiry) for a list of any additional campaigns that may need to be performed on the vehicle before returning it to the customer.**

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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
578. PS NU 2.0GDI Knock Sensor Detection System (KSDS) ECU UPGRADE (17~19MY)

📄 NOTICE

- Confirm a <u>fully charged battery</u> (12.3 volts or higher is necessary) is used <u>or</u> 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 <u>not</u> 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' <u>or</u> 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.

📄 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.

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ROM ID INFORMATION TABLE:

Upgrade Event #578

Model	Model Year	SCC	Wheel Size	EM	IMMO	ECU P/No.	ROM ID Previous	ROM ID New
PS (Nu 2.0L GDI)	2017	-	16"/17" Inch	ULEV	Yes	39131 2EHB0	GGPS HNUAQS00C00	GGPS HNUAQK00C00
					No	39133 2EHB0	GGPS HNUAPS00C00	GGPS HNUAPK00C00
				SULEV	Yes	39131 2EHB2	GGPS HNSAQS00C00	GGPS HNSAQK00C00
					No	39133 2EHB2	GGPS HNSAPS00C00	GGPS HNSAPK00C00
			18" Inch	ULEV	Yes	39131 2EHB4	GGPS HNUAQSR0C00	GGPS HNUAQKR0C00
					No	39133 2EHB4	GGPS HNUAPSR0C00	GGPS HNUAPKR0C00
				SULEV	Yes	39131 2EHB5	GGPS HNSAQSR0C00	GGPS HNSAQKR0C00
					No	39133 2EHB5	GGPS HNSAPSR0C00	GGPS HNSAPKR0C00
	2018	-	16"/17" Inch	ULEV	Yes	39131 2EHB6	GGPS INUAQS00C00 GGPS INUAQS01C00 GGPS INUAQS02C00 GGPS INUAQS03C00	GGPS INUAQK03C00
					No	39133 2EHB6	GGPS INUAPS00C00 GGPS INUAPS01C00 GGPS INUAPS02C00 GGPS INUAPS03C00	GGPS INUAPK03C00
				SULEV	Yes	39131 2EHB7	GGPS INSAQS00C00 GGPS INSAQS01C00 GGPS INSAQS02C00 GGPS INSAQS03C00	GGPS INSAQK03C00

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PS (Nu 2.0L GDI)	2018		16"/17" Inch		No	39133 2EHB7	GGPS INSAPS00C00 GGPS INSAPS01C00 GGPS INSAPS02C00 GGPS INSAPS03C00	GGPS INSAPK03C00
			18" Inch	ULEV	Yes	39131 2EHB8	GGPS INUAQSR0C00 GGPS INUAQSR1C00 GGPS INUAQSR2C00 GGPS INUAQSR3C00	GGPS INUAQKR3C00
					No	39133 2EHB8	GGPS INUAPSR0C00 GGPS INUAPSR1C00 GGPS INUAPSR2C00 GGPS INUAPSR3C00	GGPS INUAPKR3C00
				SULEV	Yes	39131 2EHB9	GGPS INSAQSR0C00 GGPS INSAQSR1C00 GGPS INSAQSR2C00 GGPS INSAQSR3C00	GGPS INSAQKR3C00
					No	39133 2EHB9	GGPS INSAPSR0C00 GGPS INSAPSR1C00 GGPS INSAPSR2C00 GGPS INSAPSR3C00	GGPS INSAPKR3C00

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.

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ROM ID INFORMATION TABLE (continued):

Upgrade Event #578

Model	Model Year	SCC	Wheel Size	EM	IMMO 🚗	ECU P/No.	ROM ID Previous	ROM ID New
PS (Nu 2.0L GDI)	2019	-SCC	16"/17" Inch	ULEV	Yes	39131 2EHC6	GGPS NUAQS00C00 GGPS JNUAQS01C00 GGPS JNUAQS02C00	GGPS JNUAQK02C00
					No	39133 2EHC6	GGPS JNUAPS00C00 GGPS JNUAPS01C00 GGPS JNUAPS02C00	GGPS JNUAPK02C00
				SULEV	Yes	39131 2EHC7	GGPS JNSAQS00C00 GGPS JNSAQS01C00 GGPS JNSAQS02C00	GGPS JNSAQK02C00
					No	39133 2EHC7	GGPS JNSAPS00C00 GGPS JNSAPS01C00 GGPS JNSAPS02C00	GGPS JNSAPK02C00
			18" Inch	ULEV	Yes	39131 2EHC8	GGPS JNUAQSR0C00 GGPS JNUAQSR1C00 GGPS JNUAQSR2C00	GGPS JNUAQKR2C00
					No	39133 2EHC8	GGPS JNUAPSR0C00 GGPS JNUAPSR1C00 GGPS JNUAPSR2C00	GGPS JNUAPKR2C00
				SULEV	Yes	39131 2EHC9	GGPS JNSAQSR0C00 GGPS JNSAQSR1C00 GGPS JNSAQSR2C00	GGPS JNSAQKR2C00

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				No	39133 2EHC9	GGPS JNSAPSR0C00 GGPS JNSAPSR1C00 GGPS JNSAPSR2C00	GGPS JNSAPKR2C00
	+SCC	16"/17" Inch	ULEV	Yes	39131 2EHD6	GGPS JNUAQS00C01 GGPS JNUAQS01C01	GGPS JNUAQK01C01
				No	39133 2EHD6	GGPS JNUAPS00C01 GGPS JNUAPS01C01	GGPS JNUAPK01C01
			SULEV	Yes	39131 2EHD7	GGPS JNSAQS00C01 GGPS JNSAQS01C01	GGPS JNSAQK01C01
				No	39133 2EHD7	GGPS JNSAPS00C01 GGPS JNSAPS01C01	GGPS JNSAPK01C01
		18" Inch	ULEV	Yes	39131 2EHD8	GGPS JNUAQSR0C01 GGPS JNUAQSR1C01	GGPS JNUAQKR1C01
				No	39133 2EHD8	GGPS JNUAPSR0C01 GGPS JNUAPSR1C01	GGPS JNUAPKR1C01
			SULEV	Yes	39131 2EHD9	GGPS JNSAQSR0C01 GGPS JNSAQSR1C01	GGPS JNSAQKR1C01
				No	39133 2EHD9	GGPS JNSAPSR0C01 GGPS JNSAPSR1C01	GGPS JNSAPKR1C01

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.

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📄 **NOTICE**

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

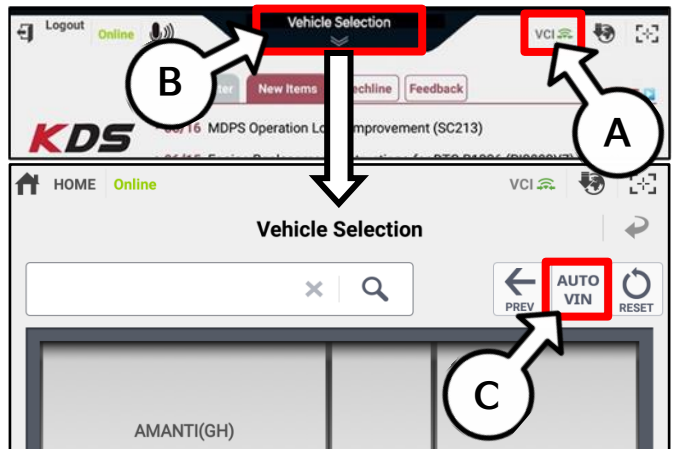1. Connect the VCI-II to the OBD-II connector, located under the driver's side of the instrument panel.

   📄 **NOTICE**

   The ECU upgrade function on KDS operates wirelessly. It is not necessary to perform the upgrade via USB cable.
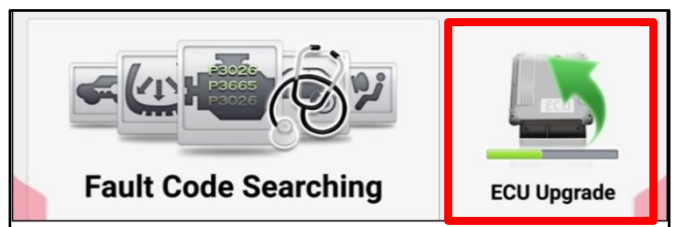
2. With the ignition **ON**, turn ON the KDS tablet. Select **'KDS'** from the home screen.

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 #578**.

> 📄 **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 **ENGINE** system under the System selection menu.
   Touch ID Check (D) and confirm that the latest update is available.
   Select **Upgrade Event #578** and select **Upgrade** to continue.

● System

ENGINE   A/T   **D**

● ROM ID

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

● Event Group   TSB

###.XX -----

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)

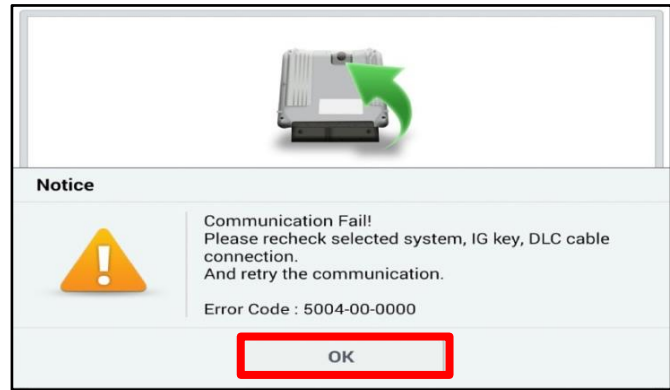ECU is in the process of being upgraded. Please wait a few minute.
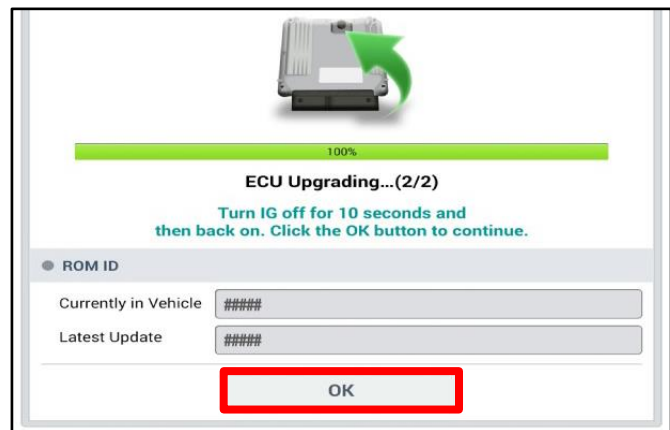
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9. If a "Communication Fail" screen appears, verify that the VCI-II and KDS are communicating properly. Select **'OK'** and restart the procedure from step 4.
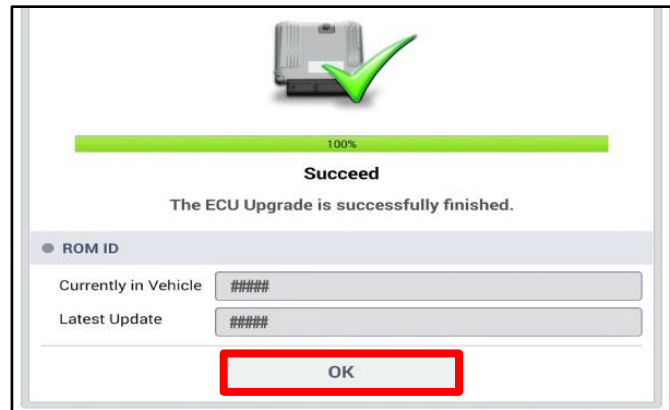
> 📄 **NOTICE**
>
> **If an error notice continues to appear or if the upgrade cannot be performed, DO NOT disconnect the KDS/VCI-II. Contact GIT America Help Desk at (888) 542-4371 or Techline.**
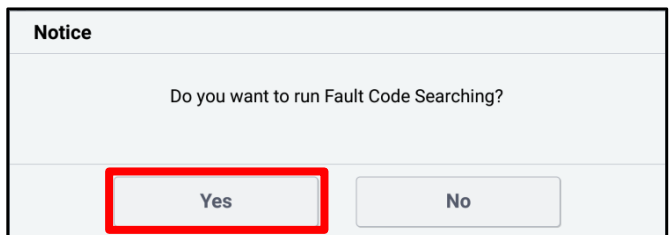

Notice

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. Select **'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, select **'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

13. Start the engine to confirm normal 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

Menu	Password
PS Nu 2.0GDI AT ULEV +IMMO/SMK (17MY): 39131-2EHB0	3120
PS Nu 2.0GDI AT ULEV -IMMO (17MY): 39133-2EHB0	3121
PS Nu 2.0GDI AT SULEV +IMMO/SMK (17MY): 39131-2EHB2	3122
PS Nu 2.0GDI AT SULEV -IMMO (17MY): 39133-2EHB2	3123
PS Nu 2.0GDI AT ULEV +IMMO/SMK (17MY): 39131-2EHB4	3124
PS Nu 2.0GDI AT ULEV -IMMO (17MY): 39133-2EHB4	3125
PS Nu 2.0GDI AT SULEV +IMMO/SMK (17MY): 39131-2EHB5	3126
PS Nu 2.0GDI AT SULEV -IMMO (17MY): 39133-2EHB5	3127
PS Nu 2.0GDI AT ULEV +IMMO/SMK (18MY): 39131-2EHB6	3128
PS Nu 2.0GDI AT ULEV -IMMO (18MY): 39133-2EHB6	3129
PS Nu 2.0GDI AT SULEV +IMMO/SMK (18MY): 39131-2EHB7	3130
PS Nu 2.0GDI AT SULEV -IMMO (18MY): 39133-2EHB7	3131
PS Nu 2.0GDI AT ULEV +IMMO/SMK (18MY): 39131-2EHB8	3132
PS Nu 2.0GDI AT ULEV -IMMO (18MY): 39133-2EHB8	3133
PS Nu 2.0GDI AT SULEV +IMMO/SMK (18MY): 39131-2EHB9	3134
PS Nu 2.0GDI AT SULEV -IMMO (18MY): 39133-2EHB9	3135
PS Nu 2.0GDI AT ULEV -SCC +IMMO/SMK (19MY): 39131-2EHC6	3136
PS Nu 2.0GDI AT ULEV -SCC -IMMO (19MY): 39133-2EHC6	3137
PS Nu 2.0GDI AT SULEV -SCC +IMMO/SMK (19MY): 39131-2EHC7	3138
PS Nu 2.0GDI AT SULEV -SCC -IMMO (19MY): 39133-2EHC7	3139
PS Nu 2.0GDI AT ULEV -SCC +IMMO/SMK (19MY): 39131-2EHC8	3140
PS Nu 2.0GDI AT ULEV -SCC -IMMO (19MY): 39133-2EHC8	3141
PS Nu 2.0GDI AT SULEV -SCC +IMMO/SMK (19MY): 39131-2EHC9	3142
PS Nu 2.0GDI AT SULEV -SCC -IMMO (19MY): 39133-2EHC9	3143
PS Nu 2.0GDI AT ULEV +SCC +IMMO/SMK (19MY): 39131-2EHD6	3144
PS Nu 2.0GDI AT ULEV +SCC -IMMO (19MY): 39133-2EHD6	3145
PS Nu 2.0GDI AT SULEV +SCC +IMMO/SMK (19MY): 39131-2EHD7	3146
PS Nu 2.0GDI AT SULEV +SCC -IMMO (19MY): 39133-2EHD7	3147
PS Nu 2.0GDI AT ULEV +SCC +IMMO/SMK (19MY): 39131-2EHD8	3148
PS Nu 2.0GDI AT ULEV +SCC -IMMO (19MY): 39133-2EHD8	3149
PS Nu 2.0GDI AT SULEV +SCC +IMMO/SMK (19MY): 39131-2EHD9	3150
PS Nu 2.0GDI AT SULEV +SCC -IMMO (19MY): 39133-2EHD9	3151

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(KSDS) ECU LOGIC IMPROVEMENT (PI2107)

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

2. Select the **ENGINE** system under the System selection menu. Select **Upgrade Event #578** 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.

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AFFECTED VEHICLE RANGE:

Model	Production Date Range
Soul (PS)	July 29, 2016 to December 21, 2018

REQUIRED TOOL:

Tool Name	Figure	Comments
KDS		Kia Diagnostic System

WARRANTY INFORMATION:

N Code: X99   C Code: X99

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
R	39171 2ELC0	0	(PI2107) KSDS Logic Improvement (PS)	210149R0	0.3 M/H	N/A	0

> 📄 **NOTICE**
>
> VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference **PI2107** when accessing the WebDCS system.