PRODUCT IMPROVEMENT CAMPAIGN

SUBJECT: KNOCK SENSOR DETECTION SYSTEM (KSDS) LOGIC IMPROVEMENT (PI1806)

✶ 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 some 2020MY Sportage (QL) produced from December 27, 2018 through September 18, 2019 equipped with 2.4L GDI and 2.0L T-GDI engines.

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.

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
459. QL THETA 2.0 Knock Sensor Detection System(KSDS) LOGIC IMPROVEMENT (20MY)

★ NOTICE

- **A fully charged battery is necessary before the 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

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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<div align="center">

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ECU LOGIC IMPROVEMENT (PI1806)

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★ 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. ☏

ROM ID INFORMATION TABLE:

Upgrade Event #459 (QL).

Model	EM	TM	IMMO	ECU P/No.	ROM ID Previous	ROM ID New
20MY (QL)	2.4L GDI (ULEV)	6AT	Yes	39171-2GRA1 39171-2GRB1	QPDKNC4ERG0A QPDKNC4ERG2A QPDKNC4ERG2B QPDKNC4ERG3A	QPDKNC4ERG3B
			No	39171-2GRC1 39171-2GRD1	QPDKNC4EMG0A QPDKNC4EMG2A QPDKNC4EMG2B QPDKNC4EMG3A	QPDKNC4EMG3B
	2.4L GDI (SULEV)		Yes	39171-2GRE1 39171-2GRF1	QPDKNS4ERG0A QPDKNS4ERG0B QPDKNS4ERG2A QPDKNS4ERG2B QPDKNS4ERG3A	QPDKNS4ERG3B
			No	39171-2GRG1 39171-2GRH1	QPDKNS4EMG0A QPDKNS4EMG0B QPDKNS4EMG2A QPDKNS4EMG2B QPDKNS4EMG3A	QPDKNS4EMG3B
20MY (QL)	2.0L T-GDI (ULEV)	6AT	Yes	39161-2GRA1	QPDKNC0ERG0A QPDKNC0ERG2A	(FWD) QPDKNC0ERG2B
			No	39161-2GRC1	QPDKNC0EMG0A QPDKNC0EMG2A	(FWD) QPDKNC0EMG2B
			Yes	39161-2GRB1	QPDKNC0ERG0K QPDKNC0ERG2K	(AWD) QPDKNC0ERG2L
			No	39161-2GRD1	QPDKNC0EMG0K QPDKNC0EMG2K	(AWD) QPDKNC0EMG2L

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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ECU LOGIC IMPROVEMENT (PI1806)

★ NOTICE

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

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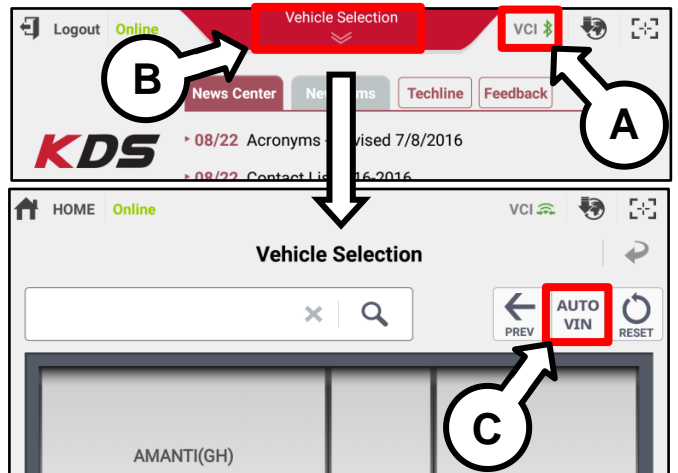
   ### ★ NOTICE

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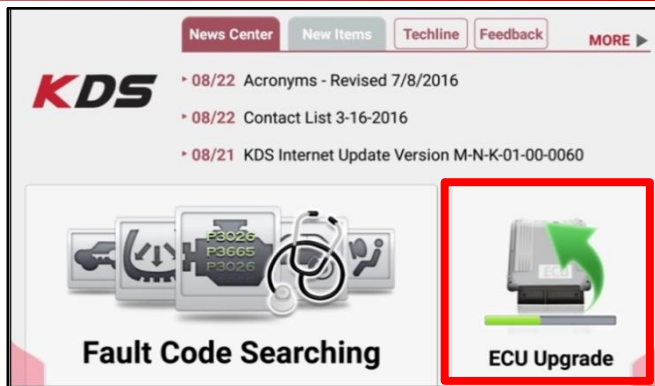
2. With the ignition ON, turn ON the KDS tablet. Select **KDS** from the home screen.

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

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KNOCK SENSOR DETECTION SYSTEM (KSDS)
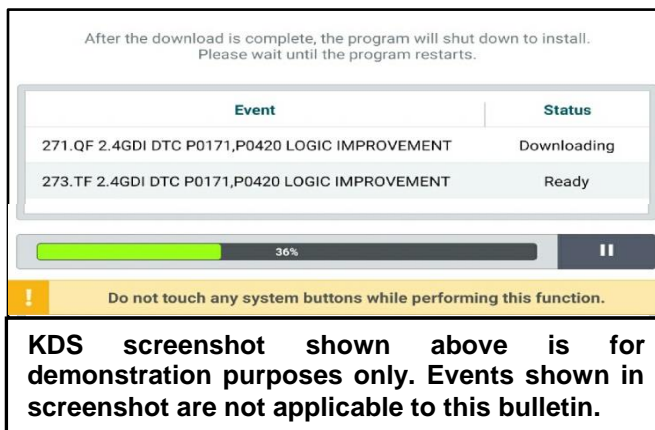# ECU LOGIC IMPROVEMENT (PI1806)

4.   Select **ECU Upgrade**.

5.   The KDS will check the server for recently uploaded Events and then automatically download **Upgrade Event #459 (QL).**

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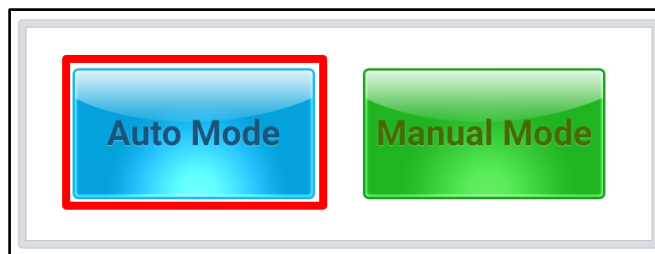

KDS screenshot shown above is for demonstration purposes only. Events shown in screenshot are not applicable to this bulletin.

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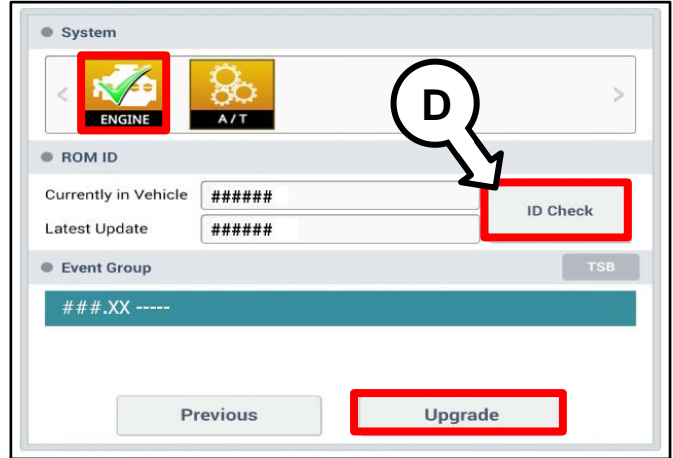
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7. Select the **ENGINE** system under the System selection menu.

   Touch **ID Check** (D) and confirm that the latest update is available.
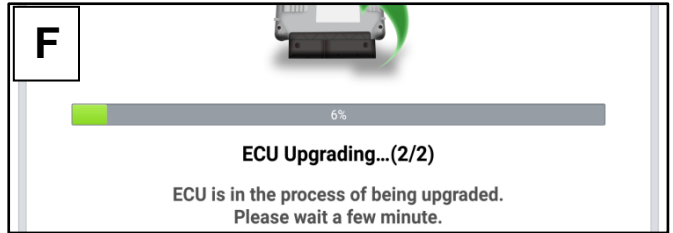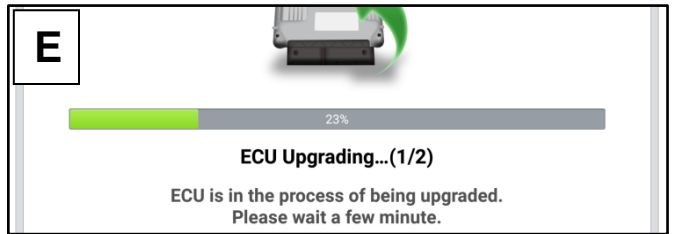
   Select **Upgrade Event #459 (QL)** and select **Upgrade** to continue.

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.
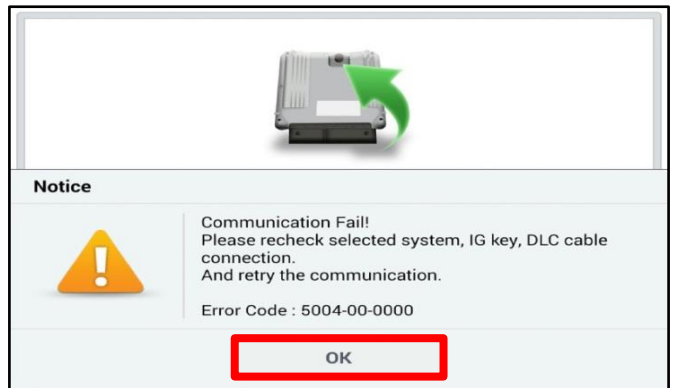
   ⚠ **CAUTION**

   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. Touch **OK** and restart the procedure from step 4.
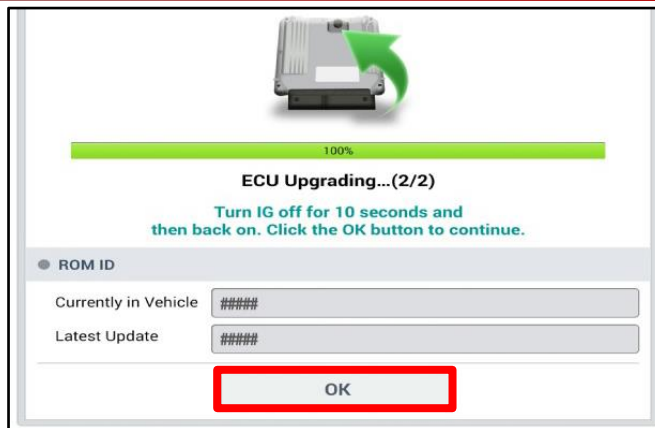
   ✶ **NOTICE**

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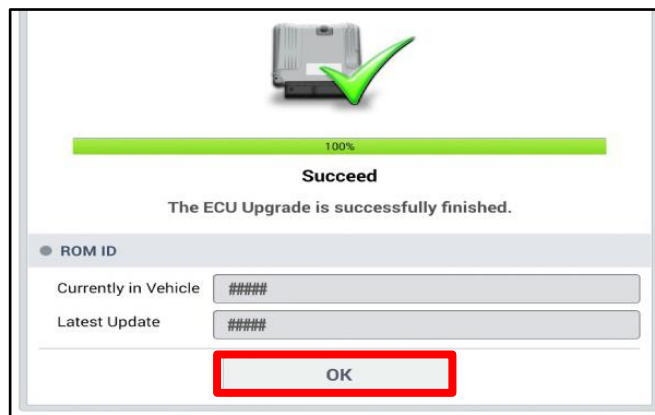
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10. When instructed on the KDS, turn the ignition **OFF** for ten (10) seconds then back on. Touch **OK** to continue.

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

★ NOTICE

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.

Manual Mode ECU Upgrade Passwords

Menu	Password
QL 2.4 GDI -IMMO 20MY(ULEV) : 39171-2GRC1/D1	5909
QL 2.4 GDI +IMMO/SMK 20MY(ULEV) : 39171-2GRA1/B1	5910
QL 2.4 GDI -IMMO 20MY(SULEV) : 39171-2GRG1/H1	5911
QL 2.4 GDI +IMMO/SMK 20MY(SULEV) : 39171-2GRE1/F1	5912
QL 2.0 TGDI -IMMO 20MY(ULEV/2WD) : 39161-2GRC1	5917
QL 2.0 TGDI +IMMO/SMK 20MY(ULEV/2WD) : 39161-2GRA1	5918
QL 2.0 TGDI -IMMO 20MY(ULEV/4WD) : 39161-2GRD1	5919
QL 2.0 TGDI +IMMO/SMK 20MY(ULEV/4WD) : 39161-2GRB1	5920

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

2. Select the **ENGINE** system under the System selection menu. Select **Upgrade Event #459 (QL)** 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**.

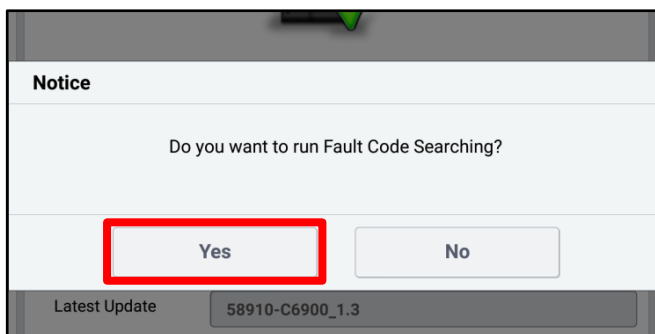5. The upgrade will begin and the progress of the upgrade will appear on the bar graph.

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
Sportage (QL)	December 27, 2018 through September 18, 2019

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.
R	39100 2GHS2	0	(PI1806) KSDS Logic Improvement (QL)	190129R0	0.3 M/H	N/A	0

★ NOTICE

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference PI1806 when accessing the WebDCS system.

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