This bulletin provides the procedure to improve the logic of the Engine Control Unit (ECU) on some 2019-2020 Forte GT (BDm) vehicles equipped with Gamma 1.6L-T GDI ULEV engines, produced from February 15, 2019 through March 11, 2020, which may exhibit check engine lamp with misfire and/or cooling system related DTC’s outlined in the table below. To correct this concern, apply the improved logic to the ECU 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 the vehicle is included in the list of affected VINs.

<table>
<thead>
<tr>
<th>DTC</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0300</td>
<td>Random/Multiple Cylinder Misfire Detected</td>
</tr>
<tr>
<td>P0301</td>
<td>Cylinder 1 Misfire Detected</td>
</tr>
<tr>
<td>P0302</td>
<td>Cylinder 2 Misfire Detected</td>
</tr>
<tr>
<td>P0303</td>
<td>Cylinder 3 Misfire Detected</td>
</tr>
<tr>
<td>P0304</td>
<td>Cylinder 4 Misfire Detected</td>
</tr>
<tr>
<td>P0128</td>
<td>Coolant Thermostat - (Coolant Temperature Below Thermostat Regulating Temperature)</td>
</tr>
</tbody>
</table>

**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 SA419.
SERVICE ACTION: GAMMA 1.6L-T GDI ULEV MIL ON DTC P0128 AND/OR DTC P0300~304 JUDGEMENT LOGIC IMPROVEMENT (SA419)

ECU Upgrade Procedure:

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

<table>
<thead>
<tr>
<th>Upgrade Event Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>489. BDM GAMMA 1.6TGDI ULEV MIL ON DTC JUDGMENT LOGIC IMPROVEMENT (P0128)</td>
</tr>
</tbody>
</table>

**NOTICE**

- A fully charged battery is necessary before ECU upgrade can take place. It is recommended that a battery charger is used in ECU mode during reflashing or the use of a fully charged jump starter box connected to the battery.
- 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.
SUBJECT: SERVICE ACTION: GAMMA 1.6L-T GDI ULEV MIL ON DTC P0128 AND/OR DTC P0300~304 JUDGEMENT LOGIC IMPROVEMENT (SA419)

**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 #489

<table>
<thead>
<tr>
<th>Model</th>
<th>EM</th>
<th>TM</th>
<th>IMMO</th>
<th>ECU P/No.</th>
<th>ROM ID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Previous</td>
</tr>
<tr>
<td>BDm</td>
<td>Gamma 1.6L-T GDI ULEV</td>
<td>6MT</td>
<td>Yes</td>
<td>39118 2B929</td>
<td>TBDMJNU06F000601</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No</td>
<td>39118 2B930</td>
<td>TBDMJNU06E000601</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td>39118 2B931</td>
<td>TBDMJNU06F000H01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No</td>
<td>39118 2B932</td>
<td>TBDMJNU06E000H01</td>
</tr>
</tbody>
</table>

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.
SERVICE ACTION: GAMMA 1.6L-T GDI ULEV MIL ON DTC P0128 AND/OR DTC P0300~304 JUDGEMENT LOGIC IMPROVEMENT (SA419)

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.

   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.
5. The KDS will check the server for recently uploaded Events and then automatically download Upgrade Event #489.

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

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 ENGINE system under the System selection menu.
   Touch ID Check (D) and confirm that the latest update is available.
   Select Upgrade Event #489 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.

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

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.
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

<table>
<thead>
<tr>
<th>Menu</th>
<th>Password</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD GAMMA 1.6TGDI ULEV 6MT +IMMO/SMK : 39118-2B929</td>
<td>2929</td>
</tr>
<tr>
<td>BD GAMMA 1.6TGDI ULEV 6MT -IMMO : 39118-2B930</td>
<td>2930</td>
</tr>
<tr>
<td>BD GAMMA 1.6TGDI ULEV 7DCT +IMMO/SMK : 39118-2B931</td>
<td>2931</td>
</tr>
<tr>
<td>BD GAMMA 1.6TGDI ULEV 7DCT -IMMO : 39118-2B932</td>
<td>2932</td>
</tr>
</tbody>
</table>

1. Within the ECU Upgrade screen displayed, select **Manual Mode**.
2. Select the **ENGINE** system under the System selection menu. Select **Upgrade Event #489** 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.
SUBJECT: SERVICE ACTION: GAMMA 1.6L-T GDI ULEV MIL ON DTC P0128 AND/OR DTC P0300~304 JUDGEMENT LOGIC IMPROVEMENT (SA419)

AFFECTED VEHICLE RANGE:

<table>
<thead>
<tr>
<th>Model</th>
<th>Production Date Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forte (BDm)</td>
<td>February 15, 2019 to March 11, 2020</td>
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</tbody>
</table>

WARRANTY INFORMATION:

| N Code: N99   | C Code: C99 |

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>Causal P/N</th>
<th>Qty.</th>
<th>Repair Description</th>
<th>Labor Op Code</th>
<th>Op Time</th>
<th>Replacement P/N</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>39118 2B929</td>
<td>0</td>
<td>(SA419) Gamma 1.6T GDI ECU Logic Improvement</td>
<td>200M01R0</td>
<td>0.3 M/H</td>
<td>N/A</td>
<td>0</td>
</tr>
</tbody>
</table>

* NOTICE

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference SA419 when accessing the WebDCS system.