	GROUP **Engine**	MODEL **2011~2012MY Optima (TF HEV)**
	NUMBER **132 [Rev 1, 06/25/2013]**	DATE **June 2013**

TECHNICAL SERVICE BULLETIN

SUBJECT:
ECM UPGRADE – DRIVING PERFORMANCE IMPROVEMENT (VER. 2)

*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.

This bulletin provides information related to a controller software upgrade for all 2011~2012MY Optima Hybrid vehicles. For confirmation that the latest reflash has been done to a vehicle you are working on, verify ROM ID using the tables in this TSB. The upgrade affects the following control units and areas of operation:

- **ECM :** Drivability improvement in cold weather.
- **TCM :** Improved control of engine clutch, quicker and more stable under various temperature, wear/life conditions.
- **HCU :** Improved auto cruise control function and better dynamic response going up and down hills.
- **MCU :** Improved control of electric motor, active suppression of shock, jerk, and vibration.
- **AHB :** Improved energy regeneration during braking (regenerative torque increase).
- **OPU :** Improvement of diagnostic function.
- **BMS :** Improved SOC balance control.

Global Diagnostic System (GDS)

File Under: <Engine>

Circulate To:	[X] **General Manager**	[X] **Service Manager**	[X] **Parts Manager**
[X] **Service Advisor(s)**	[X] **Technician(s)**	[X] **Body Shop Manager**	[X] **Fleet Repair**

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ECM Upgrade Procedure:

To implement these changes, the control units should be reprogrammed using the GDS download as described in this bulletin.

***NOTICE**

This ECM upgrade time is longer (approx. 20-30 minutes) than other typical ECM upgrades. Do NOT attempt ECM/PCM upgrade if the vehicle's battery voltage is below 12 Volts. Battery must be fully charged as stated below.

UPGRADE EVENT NAME
204.TF HEV DRIVING PERFORMANCE IMPROVEMENT (VER. 2)
205.TF HEV DRIVING PERFORMANCE IMPROVEMENT (VER. 2)-BMS

***NOTICE**

- **A fully charged battery is necessary before ECM/PCM upgrade can take place. It is recommended that the Midtronics GR8-1299 system be used in ECM/PCM mode during charging. DO NOT connect any other battery charger to the vehicle during ECM/PCM upgrade.**
- **All ECM upgrades must be done with the ignition key in the 'ON' position.**
- **Be careful not to disconnect any cables connected to the vehicle or GDS during the ECM upgrade procedure.**
- **DO NOT start the engine during ECM/PCM upgrade.**
- **DO NOT turn the ignition key 'OFF' or interrupt the power supply during ECM/PCM upgrade.**
- **When the ECM/PCM upgrade is completed, turn the ignition 'OFF' and wait 20 seconds before starting the engine.**
- **ONLY use approved ECM/PCM upgrade software designated for the correct model, year.**
- **Make sure all outstanding updates are installed before performing the ECM/PCM upgrade.**

⚠ CAUTION

Before attempting an ECM/PCM 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 ECM/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:

MODEL	SYSTEM	ECM P/N	IMMO	ROM ID		REMARK
				PREVIOUS	NEW	
OPTIMA (TF HEV)	ECM	39108-2G900 39108-2G910	Yes (+)	PBY4RAAC PBY4RABA PBY4RC0A	**PBY4RG2A**	**11MY**
		39108-2G901 39108-2G911	-	PCY4RC1A	**PCY4RG2A**	**12MY**
	TCM	39108-2G910	-	TTF2H24SA1	**TTF2H24SA5**	**11MY**
		39108-2G910	Yes (+)	TTF2H24SA3		**12MY**
	MCU	36690-3D000 36690-3D001	-	HM04500DR0 HM04500ER0 HM04501ER0 HM04503ER0 HM04505ER0 HM04506ER0 HM04507ER0	**HM04510ER0**	**-**
	HCU	39700-2G100 39700-2G101	-	GYFEANEH HS4-C000 GYFEANEH HS5-C000 GYFECNEH HS0-C000 GYFECNEH HS1-C000 GYFECNEH HS2-C000	**GYFECNEH HS3-C000**	**-**
	AHB	58620-4UXXX	-	D32BAF1F15-1-0916 D32BAG1F15-1-1228 D32BAH1F15-1-1408 D32BAI1G16-1-1420 D32BAJ1G16-1-1B15 D32BAK1H17-1-2430 D32BAL1I17-1-2717 D32BAM1J18-1-2822	**D32BAN1J19-1-2A18**	**-**
	OPU	46150-3D110	-	FLSN01 FLSN02	**FLSN03**	
	BMS	37513-4R000 (Type 1)	-	4600 4700 4800 4900	**5080**	**OLD**
		37513-4R000 (Type 2)	-	4920 4940 4960	**5060**	**NEW**

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**

A chime will be heard from the cluster during the ECM upgrade procedure. Also, because 6 ECMs are upgraded sequentially, the ignition will need to be cycled OFF ↔ ON a total of 6 times, according to the information displayed on the screen.

1. Connect the power supply cable to the GDS tool.

***NOTICE**

If attempting to perform the ECM upgrade with the power supply cable disconnected from the GDS tool, be sure to check that the GDS tool is fully charged before ECM upgrade. If the GDS tool is not fully charged, failure to perform the ECM upgrade may occur. Therefore, it is strongly recommended that the power supply be connected to the GDS tool.

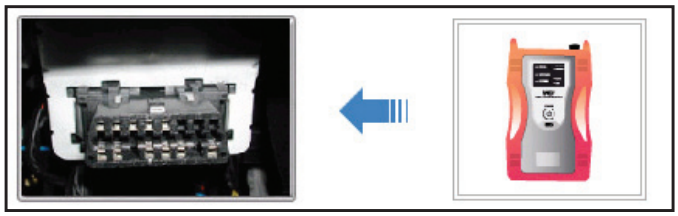
2. Connect the USB cable between the VCI and the GDS tool.

***NOTICE**

When performing the ECM upgrade using the GDS tool, wireless communication between the VCI and GDS tool is not available. Therefore, be sure to connect the USB cable between the VCI and the GDS tool.

3. Connect the Main 16-pin DLC cable (GHDM – 241000) to the VCI.

4. Connect the Main 16-pin DLC cable (GHDM – 241000) between the VCI and the OBD-II connector, located under the driver's side of the instrument panel.



5. With the ignition key **ON**, turn ON the VCI and GDS tool. Access the GDS vehicle identification number (VIN) screen and configure the vehicle using the **VIN Auto Detect** function.

***NOTICE**

Ignition ON, (engine off) for push button start vehicles: Without depressing the brake pedal, push the start button twice.

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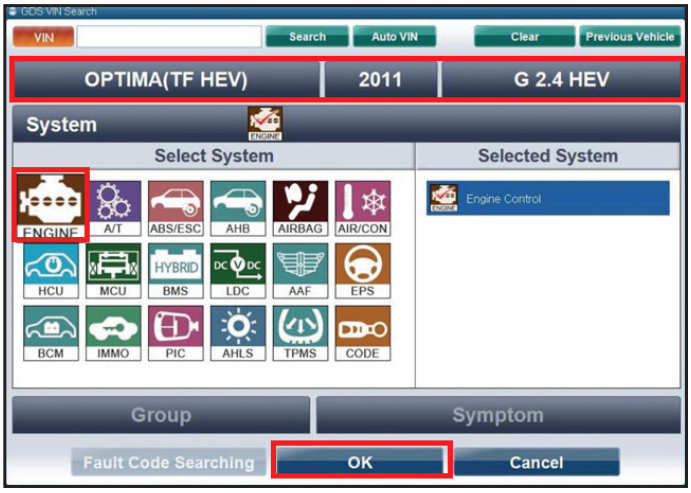
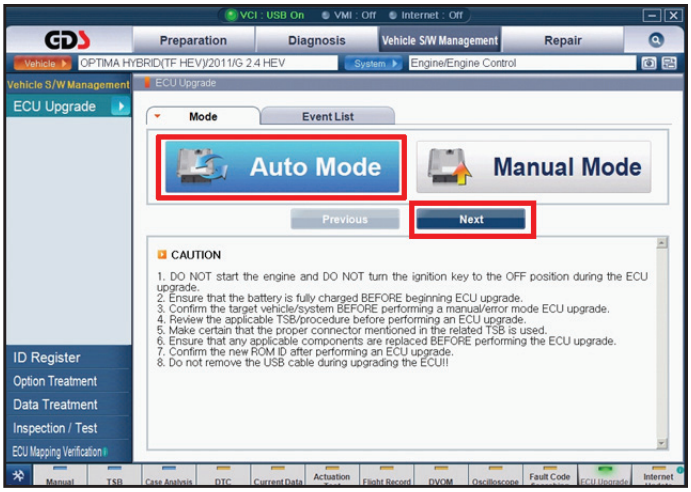
6. Select **ENGINE** system and click **OK**.



7. Select **ECU Upgrade**.

8. Select **Auto Mode**, then **Next**.



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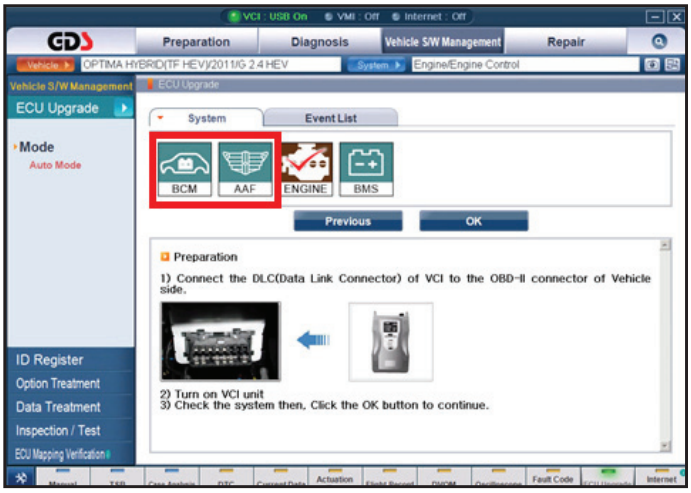
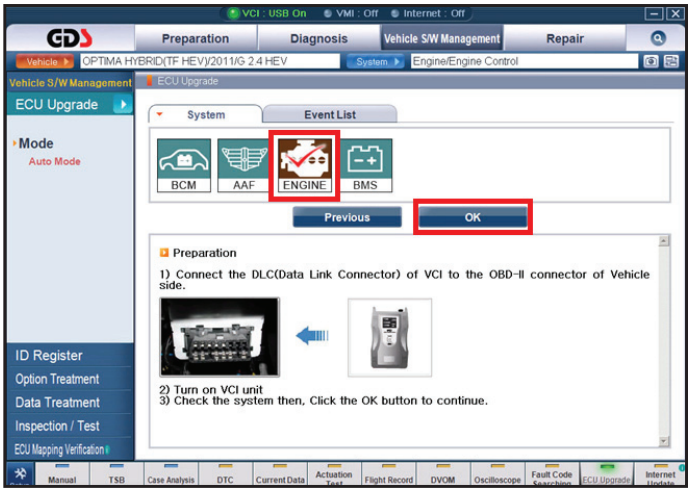
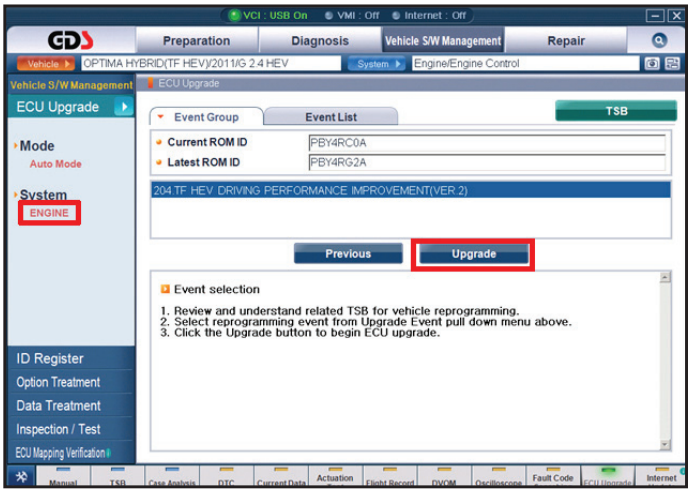
9. Perform any other outstanding reflash operations before proceeding with events 204 & 205.



10. Once all outstanding reflashes have been completed, select **Engine**, and click **OK**.



11. Select Upgrade Event: **204.TF HEV DRIVING PERFORMANCE IMPROVEMENT (VER.2)**, then click **Upgrade** and **OK** on battery voltage check screen.



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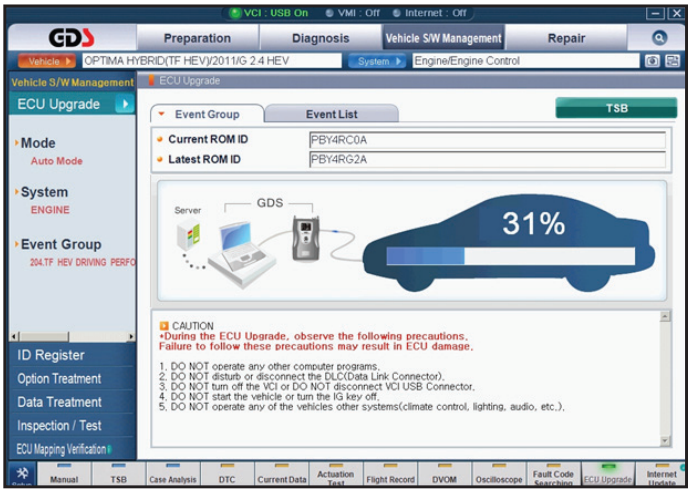
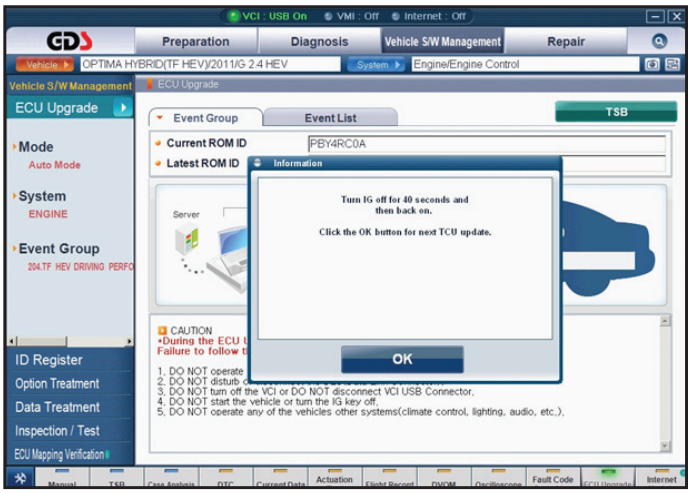
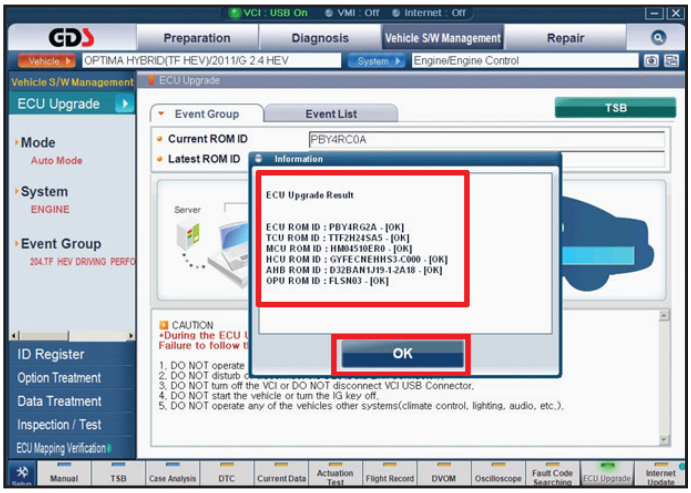
12. Upgrade will begin and the progress of the upgrade will appear on the bar graph.



13. Follow the guidelines displayed on the screen during upgrade procedure and make sure to cycle the ignition **OFF** ↔ **ON** a total of six (6) times.



14. Review the ECM upgrade results and click **OK**.



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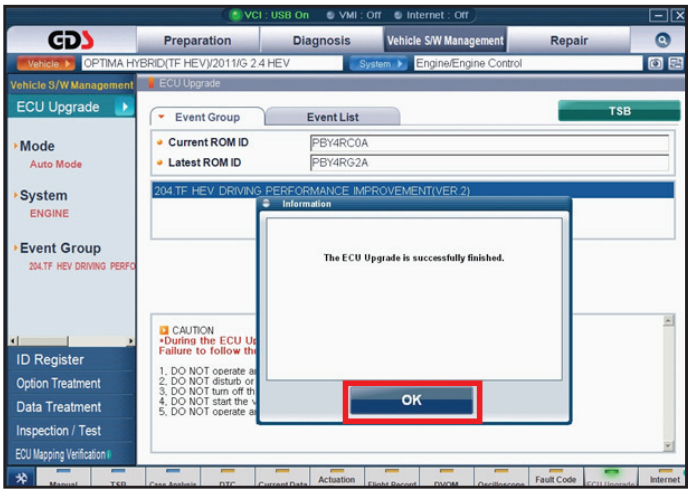
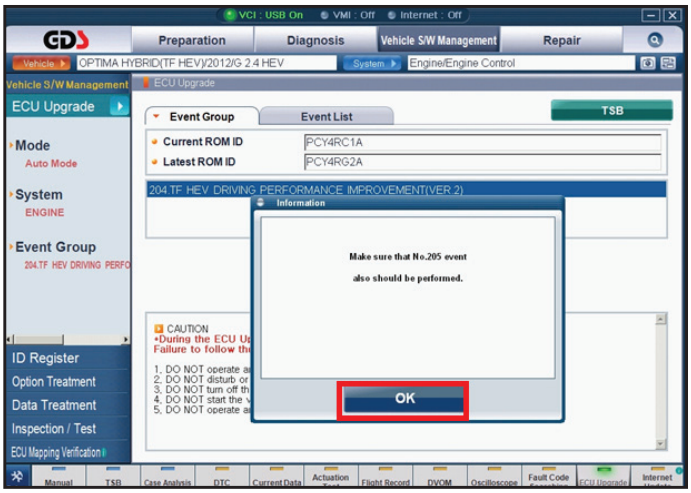
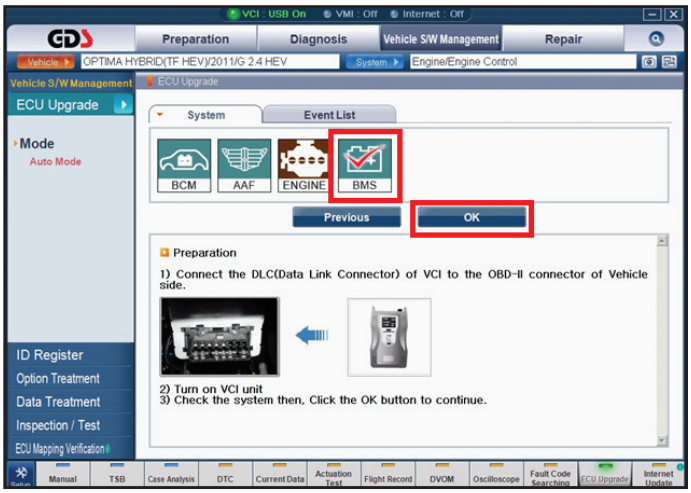
15. Click **OK** on the final screen. Upgrade Event 204 is now complete.



16. Click **OK** button to perform Upgrade Event 205.



17. Select **BMS**, and then click **OK**.



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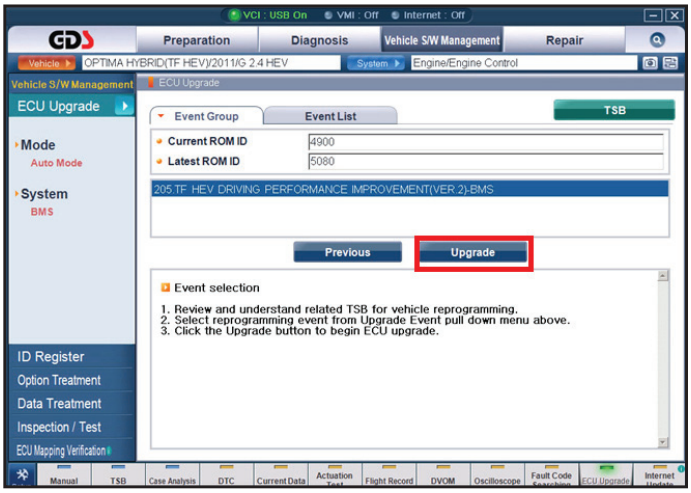
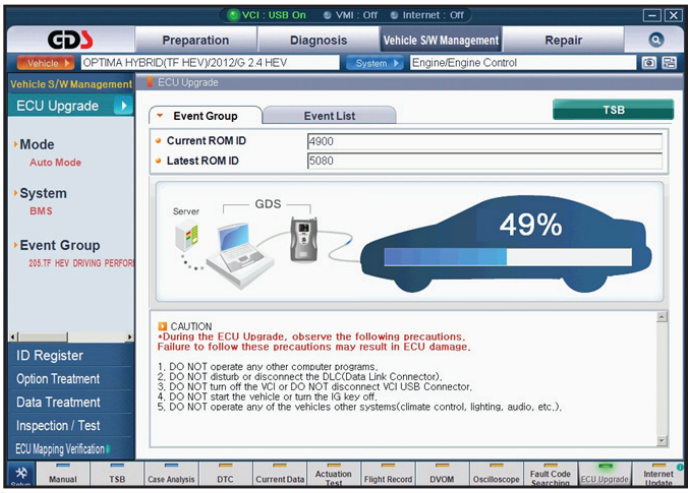
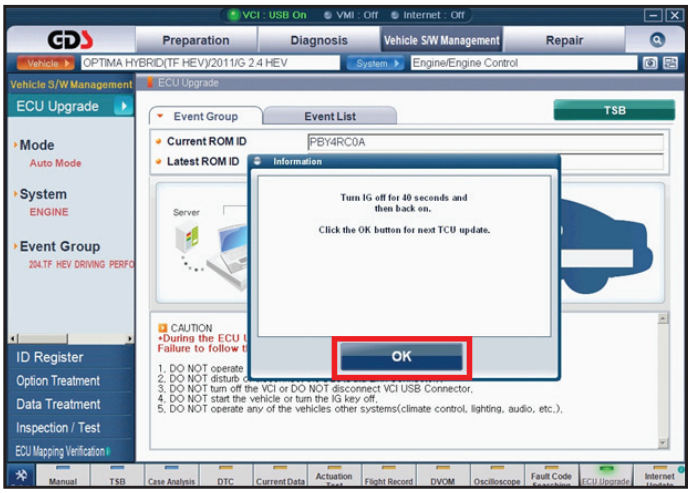
18. Select Upgrade Event: **205.TF HEV DRIVING PERFORMANCE IMPROVEMENT (VER.2)-BMS**, then click **Upgrade** button and **OK** on battery voltage check screen.



19. Upgrade will begin and the progress of the upgrade will appear on the bar graph.



20. Follow the on screen instructions to cycle the ignition **OFF** ↔ **ON** one (1) time, then click **OK**.



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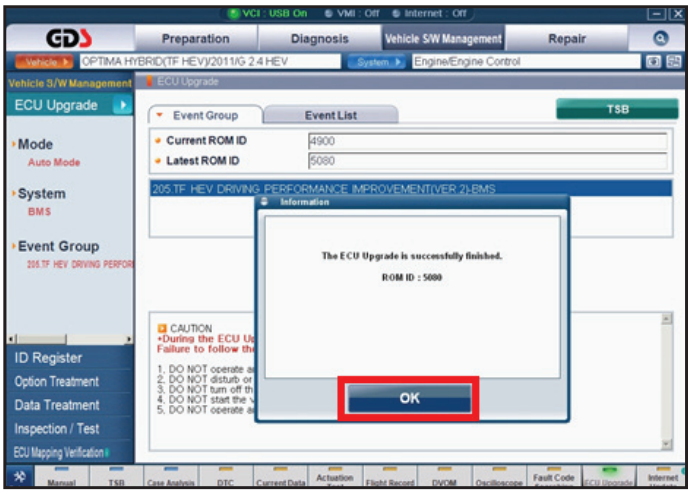
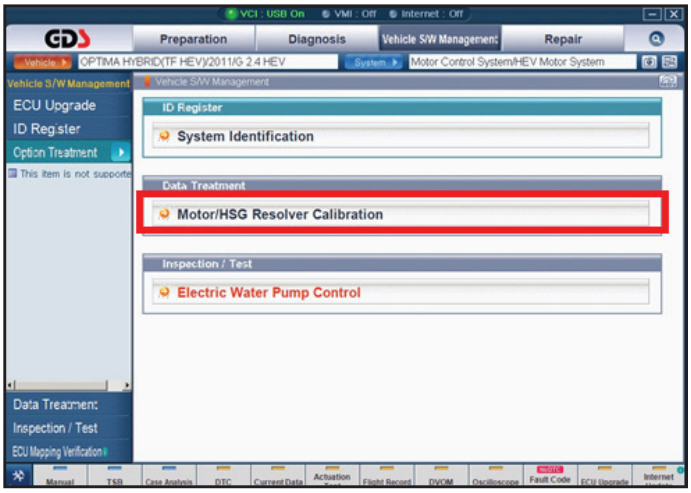
21. Click **OK** on the final screen. Upgrade event 205 is now complete.



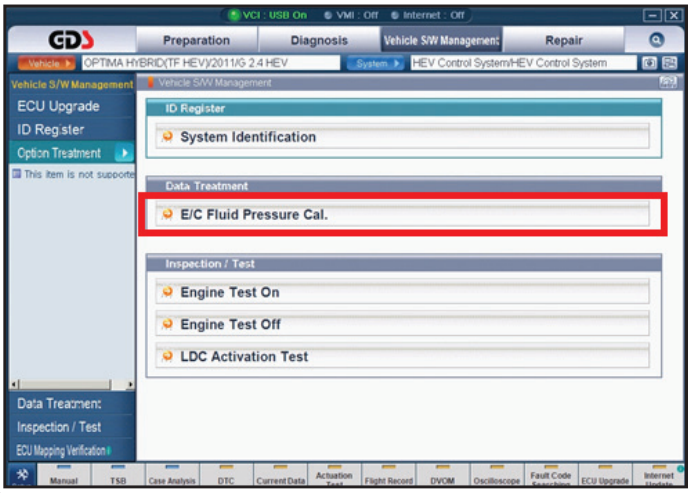
22. Check if any incidental Diagnostic Trouble Codes DTC(s) have been created by the upgrade process; clear any DTC(s) that may be present.

23. Place vehicle in **READY** mode.

24. Perform a **Motor/HSG Resolver Calibration** under **System → MCU → Option Treatment → Motor/HSG Resolver Calibration**.



25. Perform an Electronic Clutch Fluid Pressure Calibration under **System → HCU → Option Treatment → E/C Fluid Pressure Cal.**



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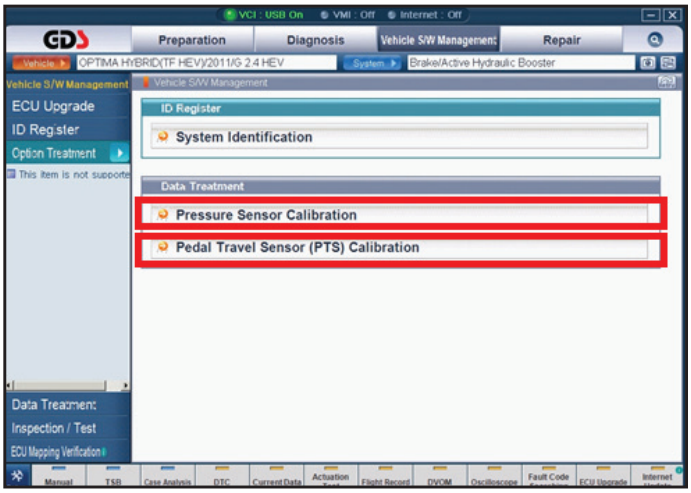
26. Perform a Pressure Sensor Calibration and a Pedal Travel Sensor (PTS) Calibration under **System → AHB → Option Treatment → Pressure Sensor Calibration → Pedal Travel Sensor (PTS) Calibration**.



NOTICE

Perform both calibration events in succession.

27. Test drive vehicle to confirm proper operation.

CAUTION

Before attempting an ECM/PCM 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 ECM/PCM to become inoperative after the upgrade and any claims associated with this repair may be subject to chargeback.

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***NOTICE**

Do NOT attempt to perform a Manual Mode upgrade unless Auto Mode fails. Always follow the instructions given on the GDS tool in either Auto or Manual mode. See table for Manual Mode passwords.

MANUAL MODE ECM UPGRADE PASSWORDS:
***DO NOT* perform Manual Mode ECM upgrade unless Auto Mode fails.**

Upgrade event #204:

MENU	PASSWORD
TF 11MY HEV ECM/TCM/MCU/HCU/AHB/OPU	**2910**
TF 12MY HEV ECM/TCM/MCU/HCU/AHB/OPU	**2911**

1. Within the **ECM Upgrade** screen, select **Manual Mode** in the left column, select **Engine** and then select **Upgrade Event 204**. Select the appropriate control unit part number by referring to the ROM ID Information Table on Page 3 and click **OK**.
2. Enter the appropriate password from the table above, and then click **OK**.
3. Upgrade will begin and the progress of the upgrade will appear on the bar graph.
4. Following the guidelines displayed on the screen during upgrade procedure, cycle the ignition **OFF** ↔ **ON** a total of six (6) times.
5. Review the ECM upgrade results and click **OK**.
6. Click **OK** on the final screen. Upgrade Event 204 is now complete.

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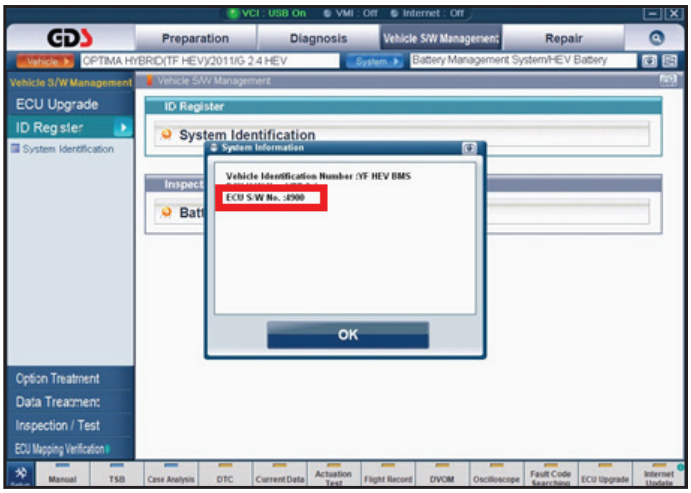
Upgrade event #205:

MENU	PASSWORD
TF 11/12MY HEV BMS TYPE 1	**4000**
TF 11/12MY HEV BMS TYPE 2	**4001**

1. Select **BMS** → **ID Register** → **System Identification**.

   Note the current ROM ID under "ECM S/W No".



2. Return to the GDS main screen. Within the **ECM Upgrade** screen, select **Manual Mode,** then **BMS** and then **Upgrade Event 205**. Select the appropriate control unit part number by comparing the current **ECM S/W ROM ID** (step 1) to the Information in the ROM ID Information Table on Page 3 (BMS section). Then, click **OK**.
3. Enter the appropriate password from the table above, and then click **OK**.
4. Upgrade will begin and the progress of the upgrade will appear on the bar graph.
5. Following the guidelines displayed on the screen during upgrade procedure, cycle the ignition **OFF** ↔ **ON** a total of one (1) time.
6. Click **OK** on the final screen, which indicates upgrade is complete. The next screen indicates ECM upgrade results. **Upgrade event 205** is now complete.
7. Check if any incidental Diagnostic Trouble Codes DTC(s) have been created by the upgrade process; clear any DTC(s) that may be present.
8. Place vehicle in **READY** mode.
9. Perform the recalibration operations listed in steps 24-26 above.
10. Test drive vehicle to confirm proper operation.

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AFFECTED VEHICLE PRODUCTION RANGE:

Model	Production Date Range
Optima (TF HEV)	2011~2012MY

WARRANTY CLAIM INFORMATION:

Claim Type	Causal P/N	Qty.	N Code	C Code	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty
W	39108 2G911	0	N94	C40	(ENG 132) ECM Upgrade	39110F7F	0.6 M/H	N/A	0