

GROUP Engine

MODEL 2011~2012MY Optima (TF HEV)

NUMBER

DATE 132 [Rev 1, 06/25/2013] 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, guicker 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 Svstem (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.



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.

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	OVOTEM			ROM ID		DEMADIZ
WODEL	STSTEM			PREVIOUS	NEW	KEIWARN
	ECM	39108-2G900 39108-2G910	Yes (+)	PBY4RAAC PBY4RABA PBY4RC0A	PBY4RG2A	11MY
		39108-2G901 39108-2G911	-	PCY4RC1A	PCY4RG2A	12MY
		39108-2G910	-	TTF2H24SA1		11MY
	ТСМ	39108-2G910	Yes (+)	TTF2H24SA3	TTF2H24SA5	12MY
	MCU	36690-3D000 36690-3D001	-	HM04500DR0 HM04500ER0 HM04501ER0 HM04503ER0 HM04505ER0 HM04506ER0 HM04507ER0	HM04510ER0	-
OPTIMA (TF HEV)	HCU	39700-2G100 39700-2G101	-	GYFEANEH HS4-C000 GYFEANEH HS5-C000 GYFECNEH HS0-C000 GYFECNEH HS1-C000 GYFECNEH HS2-C000	GYFECNEH HS3-C000	-
	АНВ	58620-4UXXX	-	D32BAF1F15-1-0916 D32BAG1F15-1-1228 D32BAH1F15-1-1408 D32BAI1G16-1-1420 D32BAJ1G16-1-1B15 D32BAK1H17-1-2430 D32BAL1117-1-2717 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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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 \leftrightarrow ON a total of 6 times, according to the information displayed on the screen.

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



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.



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.
- 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.



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.

	VCI : Off O	VMI : Off S Internet : Off						
GDS FEEDBACK Techline I User's Guide Notice Configuration Search								
Vehicle DOPTIMA HYE	BRID(TF HEV)/2011/G 2.4 HEV	System > Engine/Engine Co	ontrol					
Preparation	Diagnosis	Vehicle S/W Management	Repair					
Vehicle Info 0	Basic Inspection	ECU Upgrade	Replacement					
Hot Fix	DTC Analysis	ID Register	Component Info					
▶By DTC	Data Analysis	Option Treatment	Circuit Diagram					
By Symptom	Case Analysis	Data Treatment						
▶By Model	Flight Record	Inspection / Test						
▶By VIN		ECU Mapping Verification						
	CARB OBD-II							
Go to »								
kiatechinfo.com								
and the state	and and a		and the second					
Manual TSB Case	e Analysis DTC Current Data Actu	ation Flight Record DVOM Oscillosco	pe Fault Code ECU Upgrade Interne					

8. Select Auto Mode, then Next.



 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**.

		: USB On 🛛 VMI : O	f 💿 Internet : Off					
GD	Preparation	Diagnosis	Vehicle S/W Management	Repair	0			
Vehicle > OPTIMA H	BRID(TF HEV)/2011/G 2.4	HEV Sys	em > Engine/Engine Control		0 2			
Vehicle S/W Management	ECU Upgrade							
ECU Upgrade 🌗	System	Event List						
≻ Mode Auto Mode	BCM AAF	Previous	ск					
Preparation 1) Connect the DLC(Data Link Connector) of VCI to the OBD-II connector of Vehicle side. The second								
ID Register	- Training							
Option Treatment	2) Turn on VCLuni							
Data Treatment	2) Turn on VCI unit 3) Check the system then, Click the OK button to continue.							
Inspection / Test								
ECU Mapping Verification					×			
* Manual TSB	Case Analysis DTC C	urrent Data Actuation FI	ght Record DVOM Oscilloscope	Fault Code ECU Upgra	de linternet			

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

	VCI : I	JSB On 🔍 VMI : C	off Sinternet: Off		
GD	Preparation	Diagnosis	Vehicle S/W Management	Repair	0
Vehicle 🕨 OPTIMA H	YBRID(TF HEV)/2011/G 2.4 H	EV Sy	stem 🕨 Engine/Engine Control		0 2
Vehicle S/W Management	ECU Upgrade				
ECU Upgrade 🌗	Event Group	Event List			TSB
Mode	Current ROM ID	PBY4RC0A			
Auto Mode	 Latest ROM ID 	PBY4RG2A			
System ENGINE	204.TF HEV DRIVING P	Previous	ROVEMENT(VER.2)	1	
	Event selection 1. Review and under: 2. Select reprogram 3. Click the Upgrade	stand related TSB ning event from U button to begin E	for vehicle reprogramming. pgrade Event pull down mer CU upgrade.	nu above.	×
ID Register					
Option Treatment					
Data Treatment					
Inspection / Test					
ECU Mapping Verification					*
*		Actuation		Fault Code	Internet

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**.



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



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

	() vc	I : USB On 🛛 VMI : I	Off 🔮 Internet : Off		$-\mathbf{X}$
GD	Preparation	Diagnosis	Vehicle S/W Management	Repair	0
Vehicle 🕨 OPTIMA Hy	(BRID(TF HEV)/2012/G 2.	4 HEV	stem > Engine/Engine Control		() ()
Vehicle S/W Management	ECU Upgrade				
ECU Upgrade 🛛 🕨	 Event Group 	Event List		TSB	
Mode Auto Mode	 Current ROM ID Latest ROM ID 	PCY4RC1A PCY4RG2A			
System	204.TF HEV DRIVING	PERFORMANCE IMP	ROVEMENT(VER.2)		
Event Group 204.TF HEV DRIVING PERFO		Ma ak	ke sure that No.205 event so should be performed.		
ID Register	CAUTION •During the ECU Up Failure to follow the 1. DO NOT operate as				2
Option Treatment	2, DO NOT disturb or 3, DO NOT turn off th				
Data Treatment	4, DO NOT start the v 5, DO NOT operate at		OK		
Inspection / Test				_	
ECU Mapping Verification	L				¥
* Manual TSB	Case Analysis DTC	Actuation	Elinht Record DVOM Oscilloscope	Fault Code	Internet

17. Select BMS, and then click OK.



 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.



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



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

	(💽 VCI :	USB On 🛛 🗧 VMI :	Off Sinternet: Off		-×
GD	Preparation	Diagnosis	Vehicle SIW Management	Repair	0
Wence OPTIMA HYE	BRID(TF HEV)/2011/G 2.41	HEV 🧾	ystem > Engine/Engine Control		•
Vehicle S/W Management	ECU Upgrade				
ECU Upgrade 🌗	· Event Group	Event List		TSI	3
Mode Auto Mode	Current ROM ID Latest ROM ID	4900 5080			
System BMS	205.TF HEV DRIVING F	PERFORMANCE IM Information	PROVEMENT(VER 2)-BMS		
Event Group SSLTF HEV DRIVING PERFORM		The ECU	Upgrade is successfully finished. ROM ID : 5000		
ID Register	CAUTION +During the ECU Up Failure to follow the 1. DO NOT operate as				×
Option Treatment Data Treatment	2, DO NOT disturb or 3, DO NOT turn off th 4, DO NOT start the v 5, DO NOT operate at		ок		
Inspection / Test ECU Mapping Verification					×
* Manual TSB	Case Analysis DTC Cu	Actuation	Flight Record DVOM Oscilloscope	Fault Code	de Internet

- 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.



Perform both calibration events in succession.

	C VC	I:USB On 🛛 🔍 VMI :	Off S Internet : Off		- X					
GD	Preparation	Diagnosis	Vehicle S/W Management	Repair	0					
Vehicle > OPTIMA HYS	BRID(TF HEV)/2011/G 2	4 HEV	sten 🕨 Brake/Active Hydraulic	Booster	02					
Vehicle S/W Management	Vehicle S/W Managem	ent			(A)					
ECU Upgrade	ID Register									
ID Register	System Iden	tification								
Option Treatment 🚺										
This item is not supporte	Data Treatment									
	Pressure Sensor Calibration									
	Pedal Travel Sensor (PTS) Calibration									
() >										
Data Treatment										
Inspection / Test										
ECU Mapping Verification										
* Manual TSB	Case Analysis DTC	Current Data Actuation	Flight Record DVOM Oscilloscop	Fault Code ECU Upo	rade Internet					

27. Test drive vehicle to confirm proper operation.

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: <u>DO NOT</u> 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.
- 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.

Upgrade event #205:

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

1. Select $BMS \rightarrow ID$ Register \rightarrow System Identification.

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



- 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 \leftrightarrow **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.

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