TECHNICAL NOTE - DIAGNOSTICS

Date 07-2014 | EN | G0013/11

Supersedes and replaces G0013/10 dated 07/2013

|| Modifications to the previous versions are highlighted by two vertical lines

MAGNUM DXi / PREMIUM DXi
KERAX DXi – MIDLUM DXi

ELECTRICS - ELECTRONICS

Concerns: Workshop – Reception – Stores

I – SUBJECT: PROGRAMMING AN ELECTRONIC CONTROL UNIT

This Technical Note describes the method for carrying out programming, specifically when replacing an ECU.

The programming operation absolutely must begin with the original equipment ECU connected to the vehicle.

The diagnostic tool reads the information stored in the ECU to be replaced in order to retain the settings specific to the vehicle (notably associated with the bodybuilder equipment). The diagnostic tool instructs you when to connect the new ECU.

If the ECU to be replaced is to be destroyed (or can no longer be used), begin the programming operation directly with the new ECU (in this case, certain settings may be lost).

Since ECUs contain parameters specific to a vehicle, it is recommended to avoid swapping ECUs between two vehicles and programming them.

II – REPLACEMENT OF AN ECU FOR TEST PURPOSES

For carrying out tests, the ECU must be replaced by an identical reference.

|| **In order not to lock out the vehicle, contact your Technical Support before performing tests using a more recent ECU than the original ECU:** programming of the ECU results in a modification to the configurations in the Fleet file. This modification is made automatically for programming of a more recent ECU. Reinstallation and programming of an original ECU does not update the Fleet file and the inaccurate configurations are retained. Only Aftermarket may reinstate the configuration of the original ECU manually.

III – METHOD

III – 1. Programming the ECU without a change of reference

Cases of application:

– Programming the same ECU.

– Programming following the replacement of the ECU without any change to its reference.

III – 1.1 Normal mode

1 - In case of a change of ECU, the ECU to be replaced must be connected to the vehicle.

2 - Select the programming operation (and not a campaign) concerning the ECU to be programmed (see Appendix).

3 - Click on the arrow.

4 - Click the triangle to start the operation.

5 - Check (tick) the requested boxes to confirm the conditions then click "Continue".

The conditions may vary depending on the ECUs.

6a– <u>If the ECU is to be replaced</u>:

– Switch off the vehicle ignition.

– Disconnect the ECU to be replaced in order to connect the new ECU in its place.

– Switch the ignition back on.

– Click OK to confirm.

6b– <u>If the ECU is not to be replaced</u>:

– Confirm directly.

7 - Enter your static password.

8 - Click OK to confirm.

9 - Follow the instructions of the diagnostic tool (switch off then switch back on).

Following the programming of some units, calibration is necessary (see Appendix).

III – 1.2 Intermediate storage mode

If the programming operation is not carried out at the dealership, use the intermediate storage method.

The intermediate storage method requires three stages:

1st stage: **Storage of the new software**

The diagnostic tool must be connected to the computer network (workshop or cable terminal) in order to store the programming file(s) and the parameters of the ECU(s) in the diagnostic tool (the diagnostic tool need not necessarily be connected to the vehicle).

– Click on "Tools", "Administrate software..."

– In the field "Chassis ID", enter the vehicle manufacturing number (with the letter J in front of the number) or the VIN no.

– Select the ECU to be programmed.

– In the "Action" field, select "Replace Control Unit".
– Click on "Add".
– Select the ECU.
– Click on "Send order".
– Enter your password.
– Click on "OK".

The programming file is stored on your diagnostic tool.

– To check this, click on the "Available Software" tab.
– Click on "Cancel" to exit the menu.

If you have downloaded a file that does not correspond to the vehicle or that you do not wish to use, you should send it back.

– Tick the "Report" box for the software to be sent back.
– Click on "Send report".

2nd stage: **Programming**

In order to program the vehicle ECU(s), the diagnostic tool should be connected to the vehicle (the diagnostic tool need not necessarily be connected to the network).

At this stage, you no longer need to be connected to the IT network (the operation can be carried out on the customer's premises).

– Select the programming operation (and not a campaign) concerning the ECU to be programmed (see Appendix).
– Launch the operation with the arrow.

This stage can be carried out some time after the file storage stage, during a maintenance operation for instance.
In this case, it is imperative that you go back to the intermediate storage mode to carry out the programming.

3rd stage: **Programing report/Fleet file update**

Send a programming report once the programming is complete (the diagnostic tool need not necessarily be connected to the vehicle).

– After programming the ECU, it is essential to send a programming report to the central IT systems in order to update the Fleet file. Connection to the IT network (workshop terminal or wired-in link) is necessary.
– If need be, activate the intermediate storage mode.
– In the "Tools/Administrate software" menu, click on the "Software used" tab.
– Click on "Send report".
– Enter your static password.
– Click on "OK".
– The Fleet file is then updated, guaranteeing subsequent correct programming of the vehicle’s ECUs.

Once the software is stored in the diagnostic tool, you have 28 days to carry out the programming and to send in the programming report If you do not return the report, the Fleet file will be updated automatically after 28 days.

If the programming modification to the ECU(s) is not completed within this timescale, this will create a difference between the contents of the Fleet file and the ECU(s) on the vehicle, which could lead to possible functional problems when working on the ECU(s) at a later date.

The dealer's liability is engaged.

III – 2. Programming the ECU with a change of reference

If testing: ask for advice from your Technical Support in order to replace the ECU by a more recent reference. Technical Support has to obtain the agreement of an Aftermarket expert.

If replacing an ECU outside the dealership, apply the procedure described in **§ III – 2.2**.
In the correspondence table in **§ IV**, the part reference for potential replacement ECU **(2)** can be found, in the "diagnostic tool part reference" column. Simply search for the reference shown in the "ECU hardware reference" or "service exchange reference" column to find the diagnostic tool reference.
Example: ECU Hardware Reference: **7421662738**,
or Service Exchange Reference: **7485013106**,
then Diagnostic Tool Reference: **21348449**.

III – 2.1 Normal mode

– Perform operations 1 to 6 of § III – 1.1.

The diagnostic tool detects that the reference of the new ECU is not the same as the one that was previously fitted on the vehicle. It suggests that you use the conversion kit which will be used to import the data corresponding to the new ECU and to update the Fleet file.

– Select "Yes" and follow the operations proposed by the diagnostic tool to finish the programming.

In case of a problem, call your Technical Support and pass on the following information:

– Chassis No.
– The number of the ECU.
– The reference of the ECU.

III – 2.2 Intermediate storage mode

The diagnostic tool must be connected to the IT network (workshop or cable terminal).

– Start the diagnostic tool.
– Select "Tools", "Intermediate storage".
– Select "Service and maintenance", "1700-22-03-04 conversion kit".
– Confirm by clicking the arrow.
– Run the application using the arrow.
– Fill in the vehicle manufacturing number preceded by the letter J.

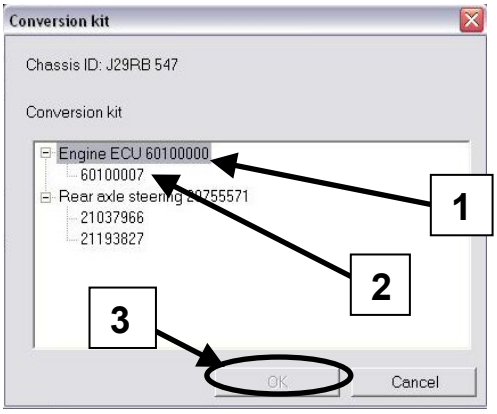
– Confirm.

– The number on the 1st line **(1)** shows the reference of the ECU to be replaced. The number **(2)** indicates the reference of the potential replacement ECU.

→ Select the part reference of the new ECU.

– Confirm **(3).** The data corresponding to the ECU will be imported into the diagnostic tool.

– Carry out the operations described in § III – 1.2.



IV – CORRESPONDENCE TABLE FOR ECU REFERENCES

The references indicated in the diagnostic tool correspond to the references of the ECUs minus the first two digits (74).
Correspondences with the diagnostic tool for ECUs with a reference 5010XXXXXX are found in the table below.

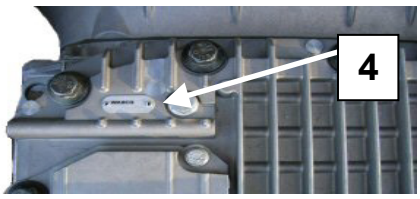
It includes only the references of ECUs currently available from the Parts department.
Contact your Technical Support if your part reference is not shown.

FUNCTION	MID	ECU HARDWARE REFERENCE	DIAGNOSTIC TOOL REFERENCE	STANDARD EXCHANGE REFERENCE
EBS	136	**5010457739**	**20557432**	
		5010457643	**20557434**	
IC04	140	**5010614106**	**20572846**	
		5010614107	**20572847**	
		5010614178	**20584877**	
		5010614179	**20584878**	
		5010614564	**20749352**	
		5010614565	**20749354**	
IC05	140	**5010614132**	**25551590**	
		5010614205	**20713514**	
		5010614538	**20740418**	
VECU	144	**7420554487**	**20554492**	
		7420758802	**20758890**	
		7420908555	**20908541**	
		7421067823	**21067963**	
		7421313712	**21313717**	
		7421720483	**21874621**	
IMMO	163	**5010577931**	**20559399**	
		5010614376	**20718132**	
FMS	179	**5010577930**	**20527285**	
RASEC	184	**5010600865**	**20755571**	
APM	185	**5010457472**	**20569631**	
		5010457873	**20575329**	
		7421352785	**21352785**	**7485003347**
		7421743619	**21743619**	**7485013162**
		7421778549	**21778549**	**7485013248**
		7421788090	**21788090**	**7485013362**
		7422277957	**22277957**	**7485020105**

FUNCTION	MID	ECU HARDWARE REFERENCE	DIAGNOSTIC TOOL REFERENCE	STANDARD EXCHANGE REFERENCE
ADS	233	**7421162862**	**20781269**	**7485003064**
		7421200985	**21239209**	**7485003182**
		7421210644	**21239209**	**7485003183**
		7421350673	**21348449**	**7485003338**
		7421582905	**21348449**	**7485003906**
		7421662738	**21348449**	**7485013106**
		7421687109	**21348449**	**7485013128**
		7421911394	**21348449**	**7485013283**
		7421966584	**21348449**	**7485013315**
		7422169013	**21348449**	**7485013736**
VECU + BBM	144 249	**7420554491**	VECU **20554492**	
			BBM **20554494**	
		7420758804	VECU **20758890**	
			BBM **20758812**	
		7420908557	VECU **20908541**	
			BBM **26758812**	
		7421067824	VECU **21067963**	
			BBM **21072657**	
		7421313713	VECU **21313717**	
			BBM **21313718**	
		7421720486	VECU **21874621**	
			BBM **21874624**	
EMS	128	**7420561252**	**20561252**	
		7420814604	**20814604**	**7485000776**
		7420814604	**21695313**	**7485000776**
		7420977019	**20977019**	**7485000847**
		7421300122	**21300122**	**7485003360**
		7421248717	**21248717**	**7485013481**
		7422346791	**22346791**	**7485020122**
		7424425463	**24425463**	
		7420814550	**20814550**	
		7421695319	**21695319**	
		7460100000	**60100000**	
		7460100007	**60100007**	
		7460100008	**60100008**	
		7420995620	**20995620**	**7485003986**
		7421248719	**21248719**	**7485013482**
		7422346792	**22346792**	**7485020116**

Special case of the TECU:

The diagnostics tool reference for this ECU is located on the plate **(4)** on the gearbox cover.



LIST OF ECUS			
ECU	**ECU**	**DESIGNATION**	**CALIBRATION AFTER PROGRAMMING**
MID 128	EMS 2	Engine electronic control unit	
MID 130	TECU	Transmission electronic control unit (automated manual transmission)	✓
MID 136	EBS/ESP	Electronic Braking System/Electronic Stability Program	✓
MID 140	IC04/IC05	Display	
MID 141	DMAX GW or TGW	Datamax Gateway or telemetry gateway (optifleet)	
MID 142	RT LINK	Renault Action Link	
MID 144	VECU (*)	Vehicle electronic control unit	
MID 150	ECS	Electronic Controlled Suspension	✓
MID 163	IMMO	Engine immobiliser	✓ (only on ECU from Parts)
MID 166	TPM		
MID 176	HPCU	Hybrid power control unit on chassis	
MID 179	FMS - GW	FMS Gateway interface ECU	
MID 184	RASEC	Steerable rear axle ECU	
MID 185	APM	Air Pressure Management	
MID 201	MCU or PEC	Converter ECU for 600V DC	
MID 203	TTU	Transport information management	
MID 206	RADIO	Radio ECU (global audio)	
MID 214	AECU	Alarm ECU	
MID 216	FCU	Flasher Control Unit	
MID 220	TACHO	Tachograph	✓(Only for the KITAS pulse sensor and by an authorised agent)
MID 223	GLGW/GS ECU	Gearbox lever interface ECU	
MID 230	HIOM	Hybrid power control unit in cab	
MID 233	ADS	AdBlue dosage management	
MID 246	BMU	ESS battery management ECU	
MID 247	DCU	Converter ECU for 24V DC	
MID 249	BBM	Bodybuilder module	

(*) See **G0007**: Recovery of Diagmax/Infomax data before programming the VECU on DXi Euro 3 vehicles.