



ABRITES DIAGNOSTICS FOR FORD/MAZDA

User manual
version 3.8



Important notes

The Abrites software and hardware products are developed, designed and manufactured by Abrites Ltd. During the production process we comply to all safety and quality regulations and standards, aiming at highest production quality. The Abrites hardware and software products are designed to build a coherent ecosystem, which effectively solves a wide range of vehicle-related tasks, such as:

- Diagnostic scanning;
- Key programming;
- Module replacement,
- ECU programming;
- Configuration and coding.

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Safety information

The Abrites products are to be used by trained and experienced users in diagnostics and reprogramming of vehicles and equipment. The user is assumed to have a good understanding of vehicle electronic systems, as well as potential hazards while working around vehicles. There are numerous safety situations that cannot be foreseen, thus we recommend that the user read and follow all safety messages in the available manual, on all equipment they use, including vehicle manuals, as well as internal shop documents and operating procedures.

Some important points:

Block all wheels of the vehicle when testing. Be cautious when working around electricity.

Do not ignore the risk of shock from vehicle and building-level voltages.

Do not smoke, or allow sparks/flare near any part of the vehicle fuel system or batteries.

Always work in an adequately ventilated area, vehicle exhaust fumes should be directed towards the exit of the shop.

Do not use this product where fuel, fuel vapours, or other combustibles could ignite.

In case any technical difficulties occur, please contact the

Abrites Support Team by email at support@abrites.com.

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List of revisions

Date	Chapter	Description	Revision
24.06.2009		Initial version of the document	1.0
01.10.2015	ALL	Revised, updated, renewed	3.2
19.06.2017	ALL	Revised, updated, renewed	3.3
16.08.2017	ALL	Revised, updated, renewed	3.4
29.09.2017	ALL	Revised, updated, renewed	3.5
13.05.2020	13	Best Practices section added	3.6
13.05.2020	8.4.1	Key learning for Mazda CX-30/Mazda 3 2019+	3.7
28.08.2026	8.4.2	Section added	3.8

Overview

ABRITES diagnostics for Ford/Mazda is a professional software for diagnostic of Ford/Mazda vehicles.

Standard diagnostic functions:

- Read Vehicle Identification
- Read Fault Codes (DTC)
- Clear Fault Codes
- Device Scan
- Data Display / Measured values
- Diesel Engine Injectors Programming
- Programmable Module Installation
- Service Functions

Special functions:

- Read/Write EEPROM
- Mileage Recalibration
- Key Learning
- Advanced functions:
 - Custom Request
 - Dump Tool

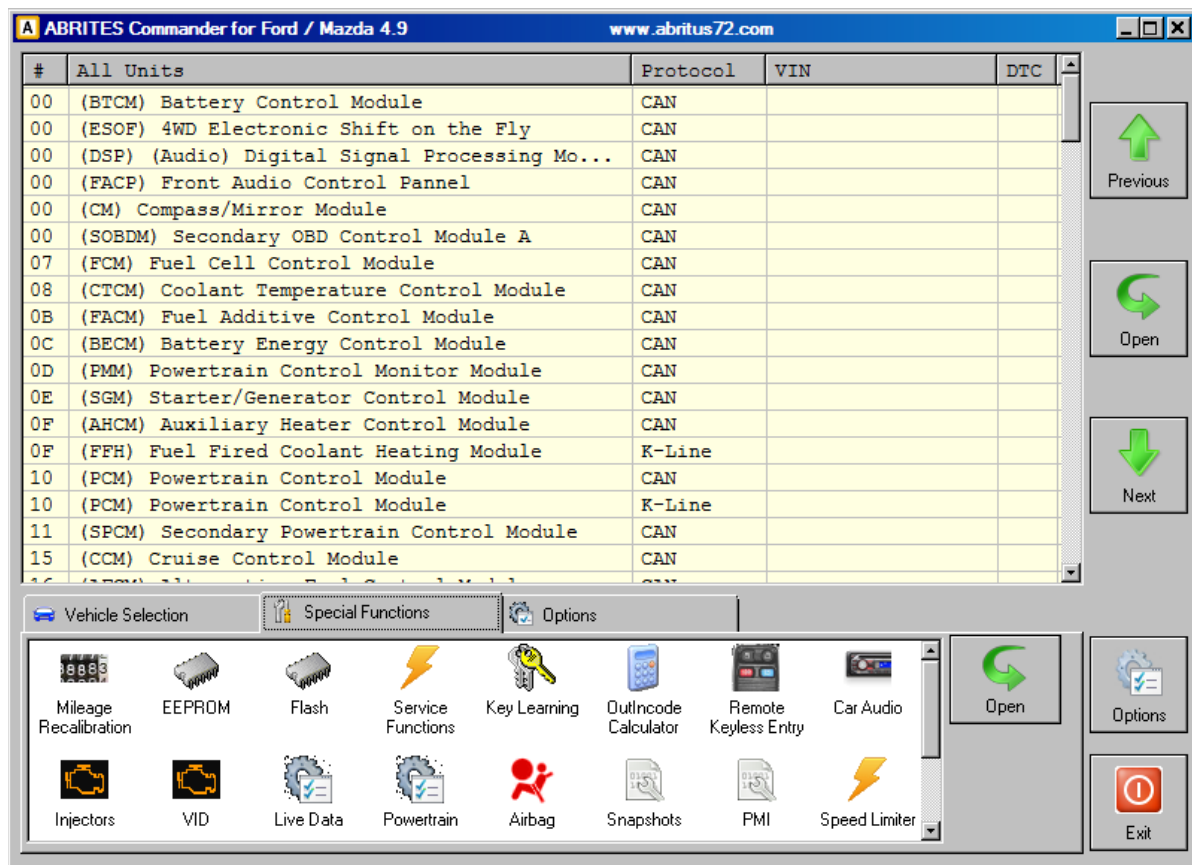
Supported protocols:

- High Speed CAN – 500kb, 6-14
- Mid Speed CAN – 125kb, 3-11
- K – line 7
- J1850 PWM – 2-10 (requires additional adapter)

Note: Depending on the purchased version some of these functions may not be available in your software

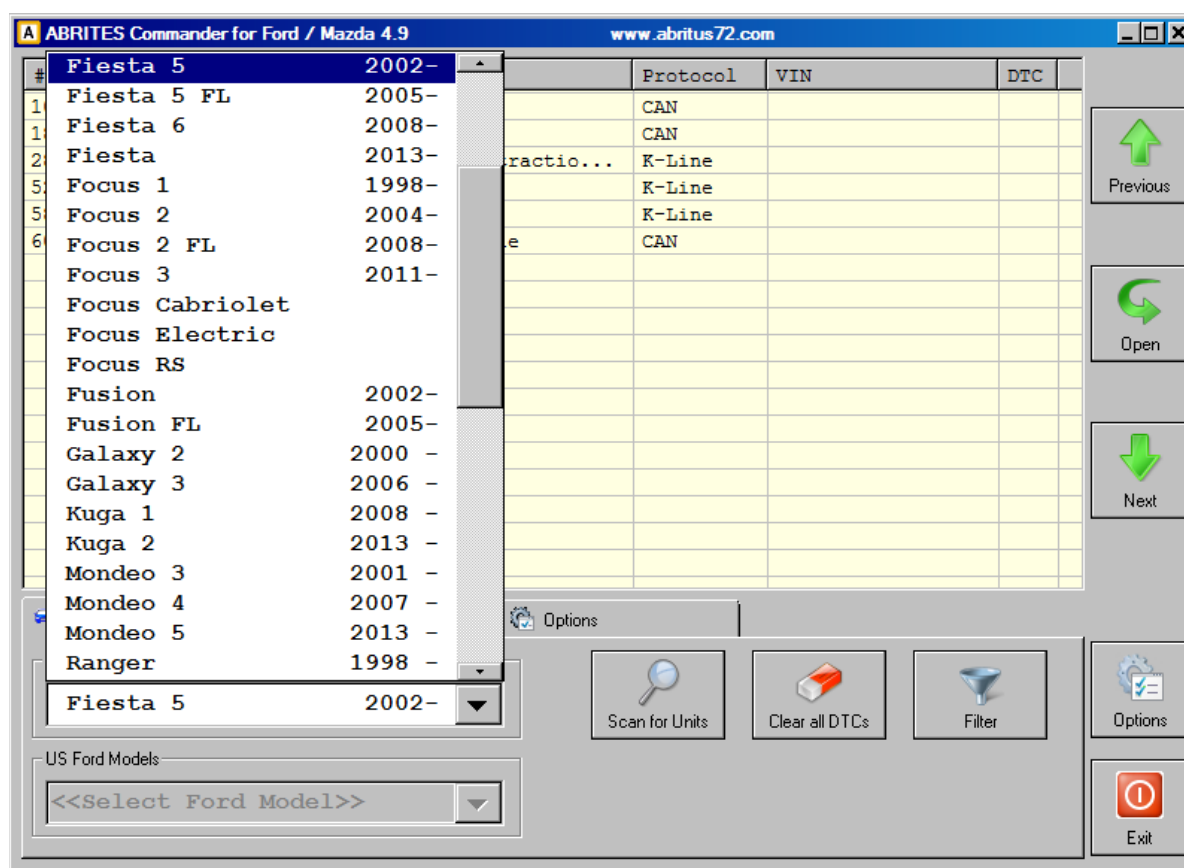
1. Getting Started

When you run ABRITES diagnostics for Ford/Mazda it will try to automatically detect the appropriate hardware interface and will connect with it. If the connection failed a message box with the explanation of the problem will appear.



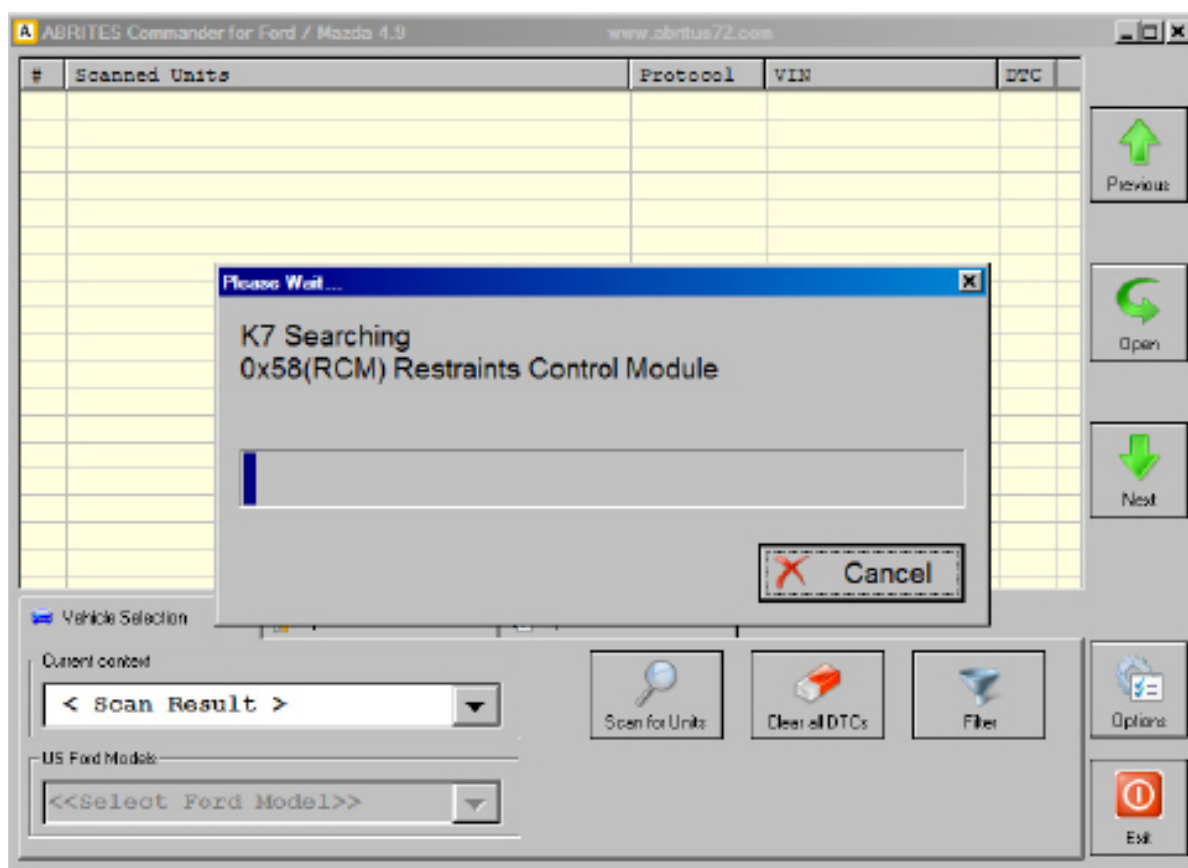
2. Vehicle Context

By default, when ABRITES diagnostics for Ford/Mazda is started in the main list all available electronic control units are displayed. You can reduce the number of displayed units by specifying the vehicle context. To change the vehicle context select a desired model.



3. Scanning for ECUs

The device scanning function is helpful when you want to perform a quick DTC check of all available device units in a vehicle. When you click on the “Scan all” button on the main screen, a progress window will appear. The behavior of the scanning can be changed by the “Device Scanning” option in the “Options” tab.



4. Options

The Abrites diagnostics for Ford/Mazda is a diagnostic software application, used together with AVDI (Abrites Vehicle Diagnostics Interface), that allows the user to perform standard and advanced diagnostics for Ford and Mazda vehicles.

Standard diagnostics include functions such as reading, identification and clearing of diagnostic trouble codes, module identification, extended module identification, service interval reset, actuator tests and many others.

The above described functions are standard features of the Abrites diagnostics for Ford/Mazda. They allow the user to determine the cause of an issue as well as provide assistance in repairing problems with the vehicles.

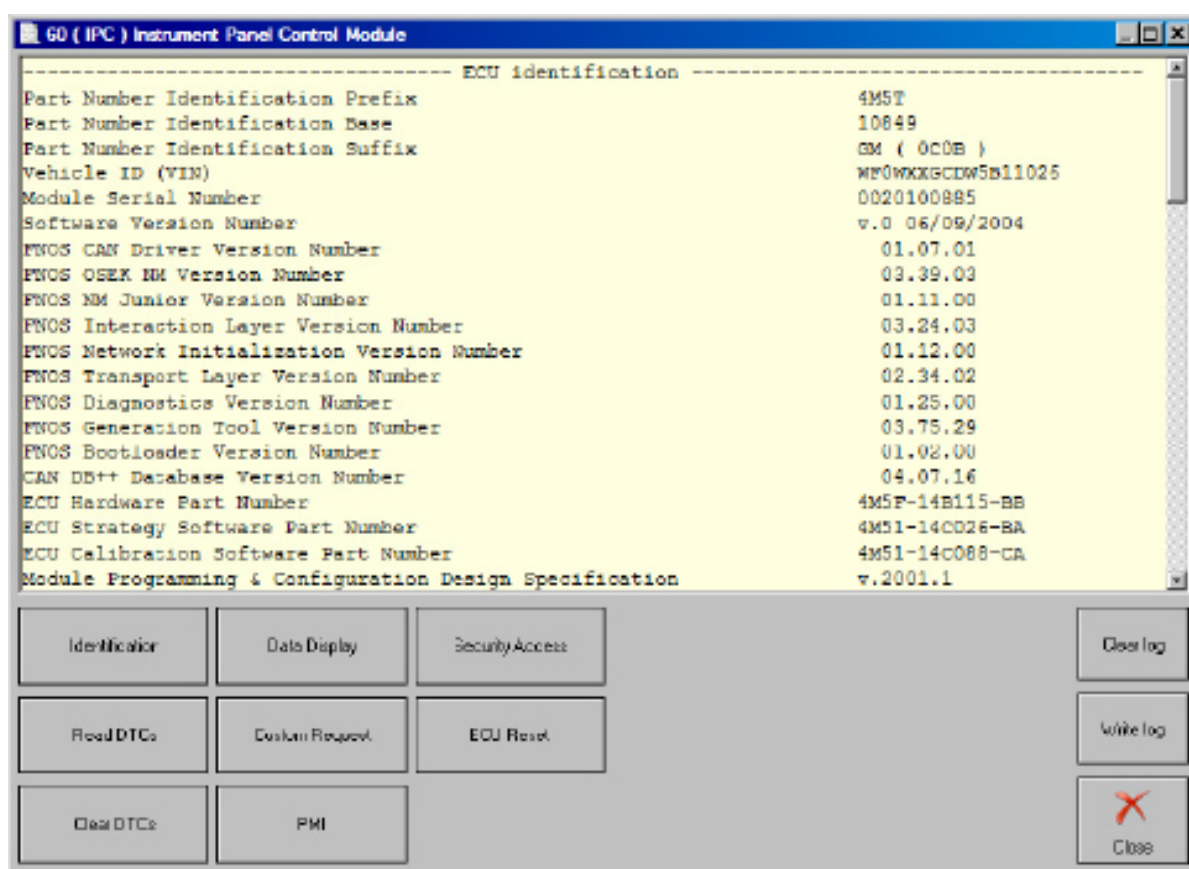
The advanced diagnostic functionality of the Abrites diagnostics for Ford/Mazda allows the user to perform key learning, module exchange and cluster calibration using new and used parts in a quick and comprehensible manner. The list of supported models is constantly being updated and currently includes almost every model.

The software is quick, easy and agile, and by being such it manages to exceed the user's expectations and provide a diagnostic level higher than the main dealer tools every time.

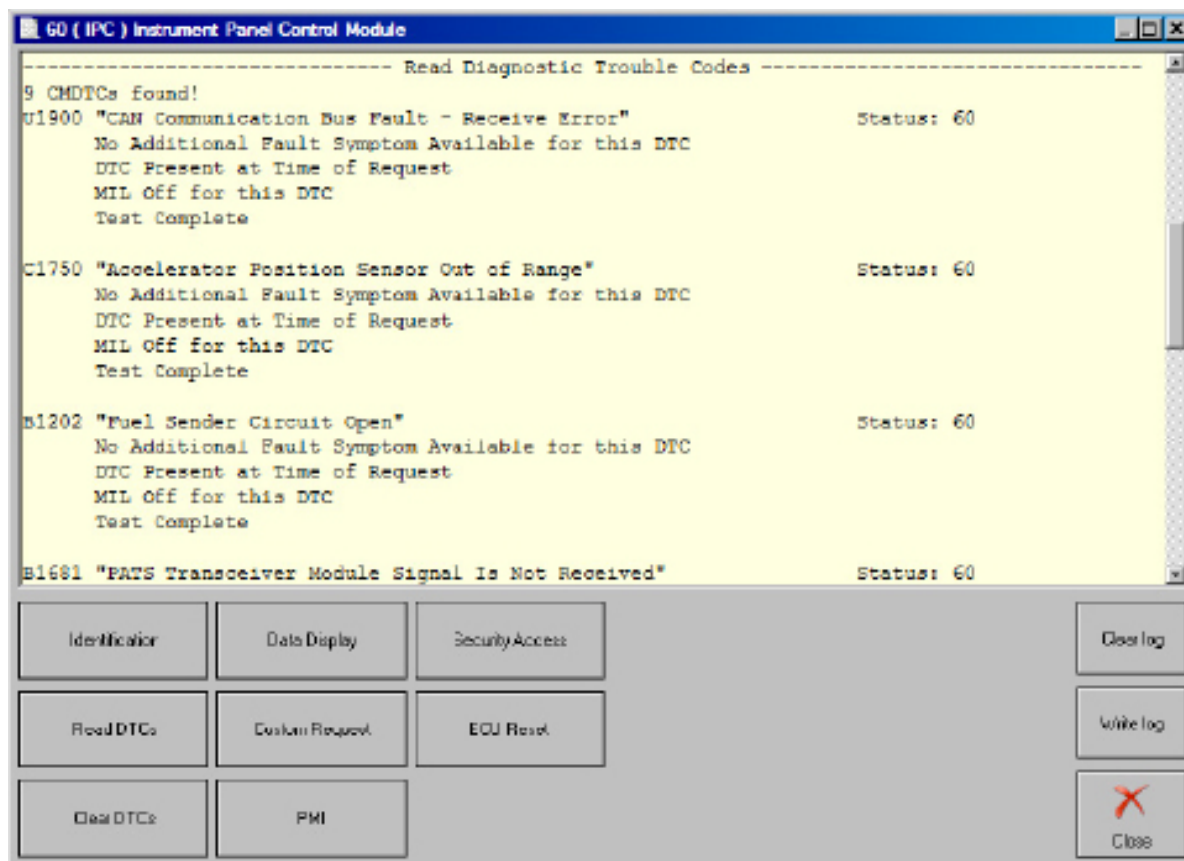
Diagnostic

5. ECU identification

With this function hardware and software variant, calibration level can be seen. This information is useful when an used ECU is needed to replace damaged original part.



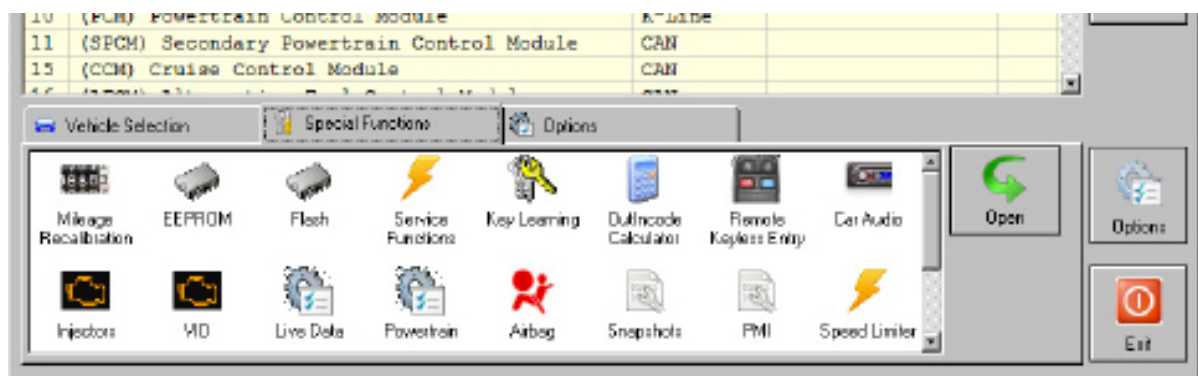
6. Read / Clear DTC



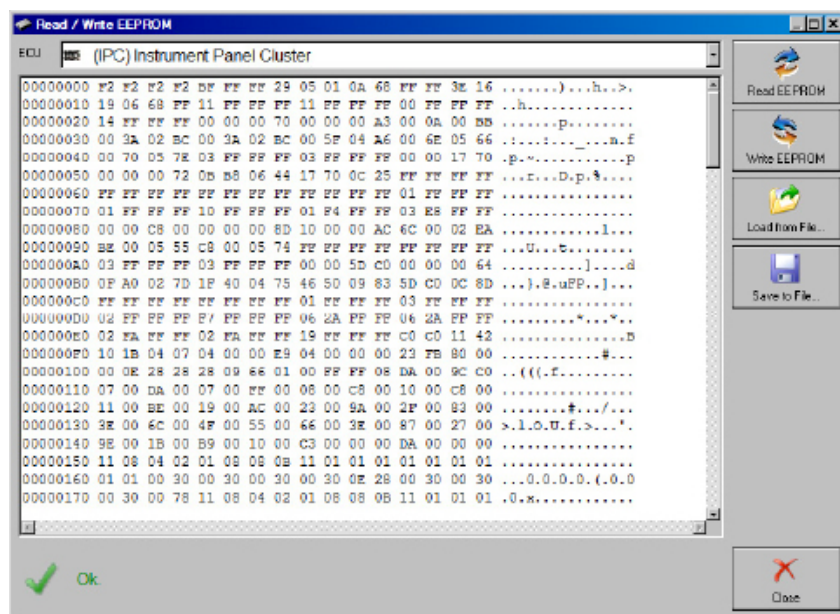
8. Special Functions

ABRITES diagnostics for Ford/Mazda provide some diagnostic functions, which are specific only to our product or they are not supported by the other similar diagnostic tools. These functions are separated in the Special Functions list.

The list is located in the bottom right corner of the main screen. You can run a special function by double clicking on it or by selecting it and clicking on the button Open in the right of the list.

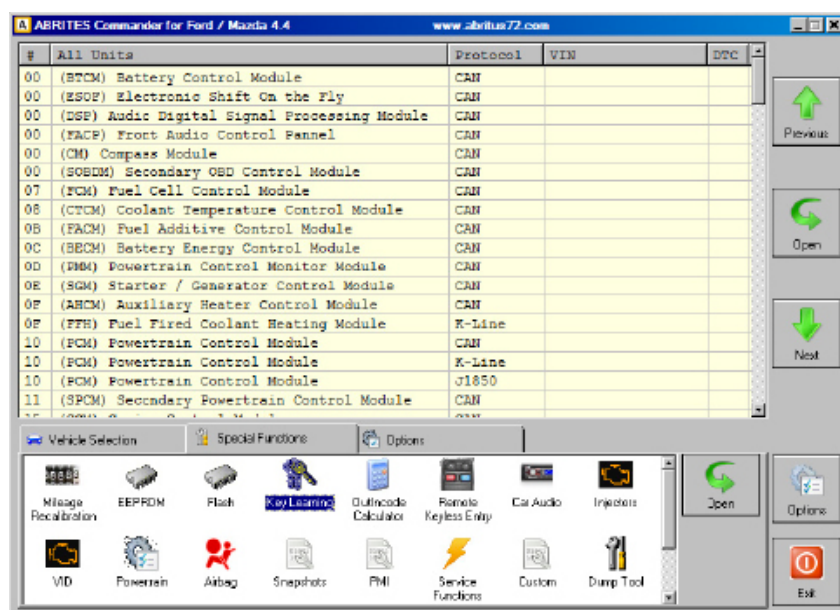


8.1 Memory Read / Write

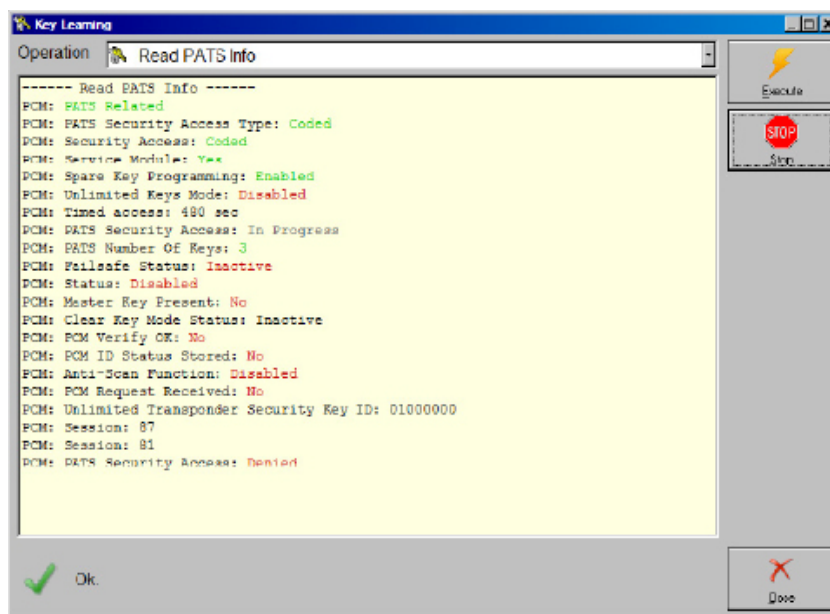


8.2 Key Learning

Go to the Special Functions screen. Select Key Learning.

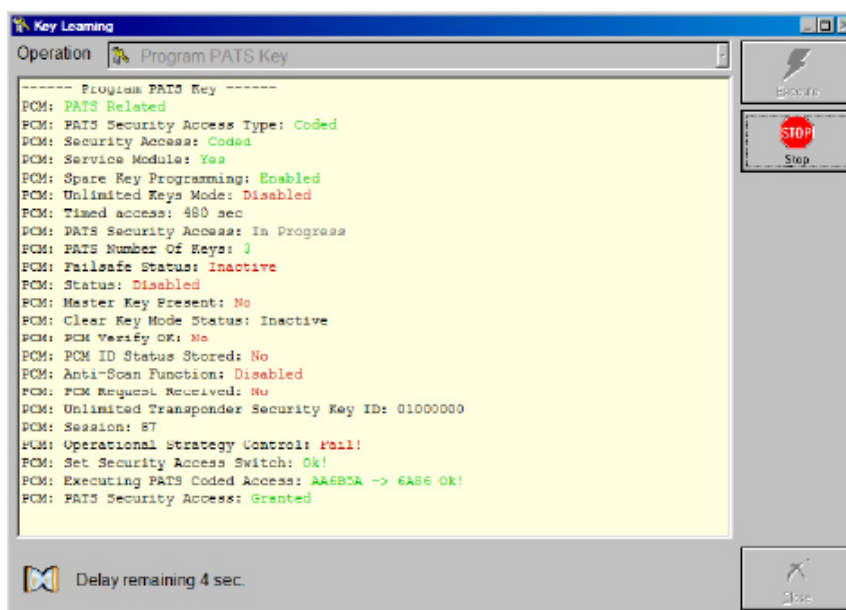


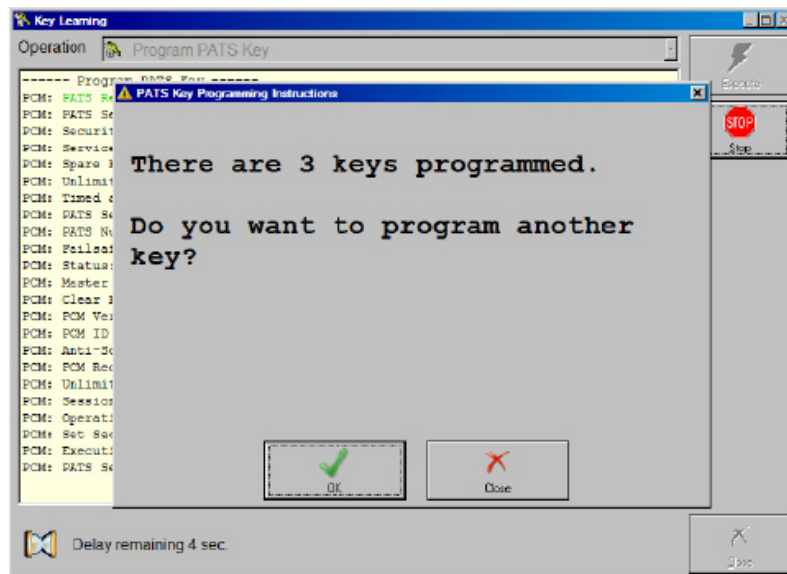
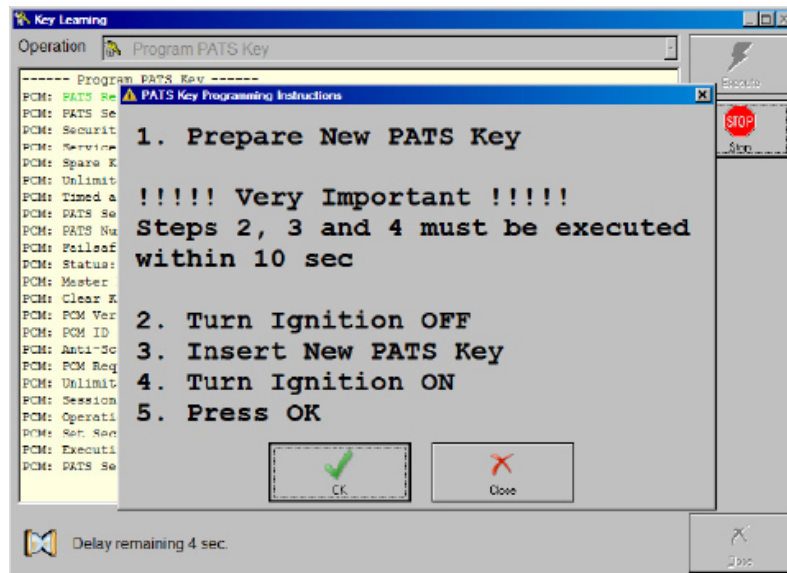
8.3 PATS Information



8.4 PATS Key Learning

This procedure will add keys to the PATS system memory.
Keys already known to the PATS system will not be erased.





Note: The steps to make keys when the alarm is on are as follows:

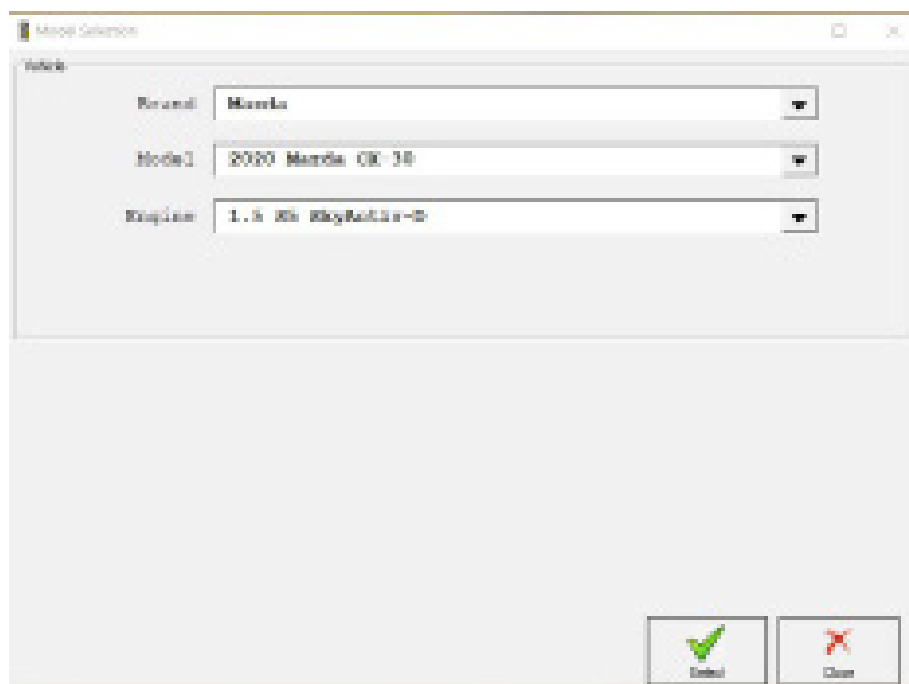
1. Open the car - the alarm will go off (start 15 minutes countdown)
 2. Open all car doors
 3. Counting down on 12th minute the alarm will stop, the hazard lights will continue blinking
 4. Wait for the hazard lights to stop blinking and this is another 3 minutes- we have 9 minutes left
 5. Wait 9 minutes more and as soon as you hear the double "Beep" sound, you have 1 minute timeframe to program new keys. (You program the keys between the 15th and 16th minute.)
- Should the 16 minutes pass and you're still not ready, the alarm will go off again and the same method should be applied.

8.4.1 Key learning for Mazda CX-30 / Mazda 3 2019+

Using the latest MZ001 special function for Mazda you can easily program keys for the Mazda CX-30/ Mazda 3 models, produced after 2019. This function requires no additional hardware other than your AVDI and a valid AMS.

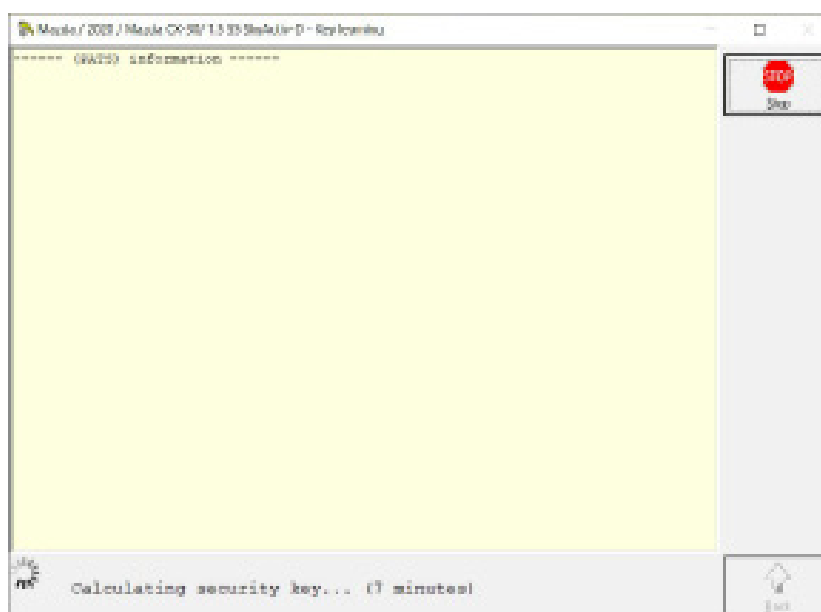
The procedure is simple and the only specific is that it requires seven minutes of waiting time in the beginning to read the BCM. Please do not disconnect the AVDI and have a steady power supply of 12V going to the vehicle's battery during this time. The function programs the key completely during this operation, starting the vehicle, remote and keyless (if available) are included.

1. Select the model you are working with



NB! In the cases of all keys lost it is always a good idea to delete previous keys before starting the key programming, this can be done by selecting the "Delete all keys (smart or mechanical)" option. Make sure to remove all keys from the car (at least 2 meters or 6ft.) before erasing.

2. Once you have selected the key learning menu and you have chosen the model of the car you will be working with make sure to press the “Execute” button and then the software will lead you the rest of the way. In the beginning you will see that the software will start calculating the security key to access the BCM. This is where you need to wait 7 minutes.



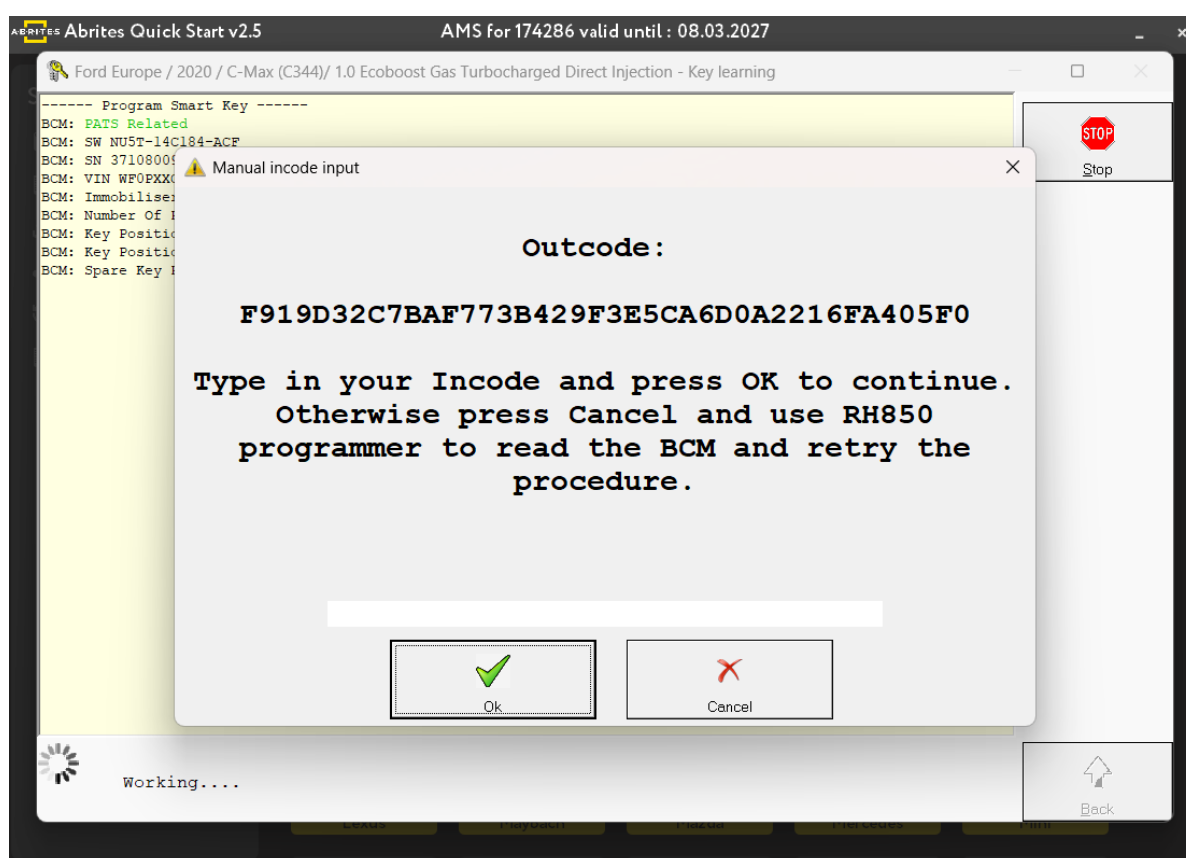
3. Once the access is granted you will here two or three distinct beeping sounds.
4. Follow the on-screen instructions closely and you will be able to program keys.



8.4.2 Key programming for 2021+ vehicles

The key programming procedure for 2021+ vehicles offers two execution paths:

Once you start the key programming procedure, the software prompts you to either enter the incode calculated from the software-generated outcode (if possible) or use the ZN085 – RH850/V850 programmer to read the vehicle's BCM on bench to complete the key programming process.

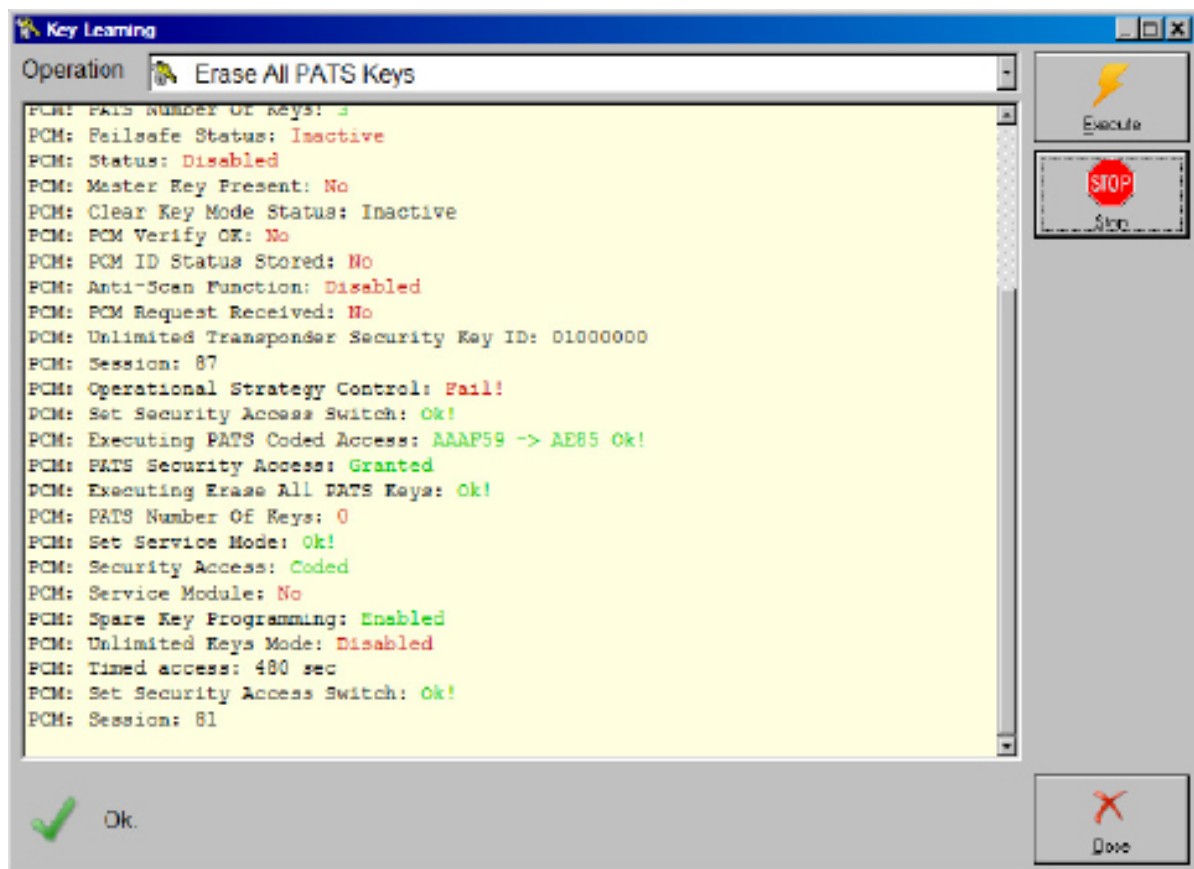


The supported vehicles are the ones listed below:

- F150 2021+
- Ford Maverick 2023+
- Ford Mustang Mach-e 2021+
- Ford Transit 2021+
- Models equipped with RH850 (1573) processors in the BCM

8.5 PATS Erase All Keys

This procedure will erase all stored keys from the PATS system memory. Once completed a minimum of 2 new keys must be programmed,



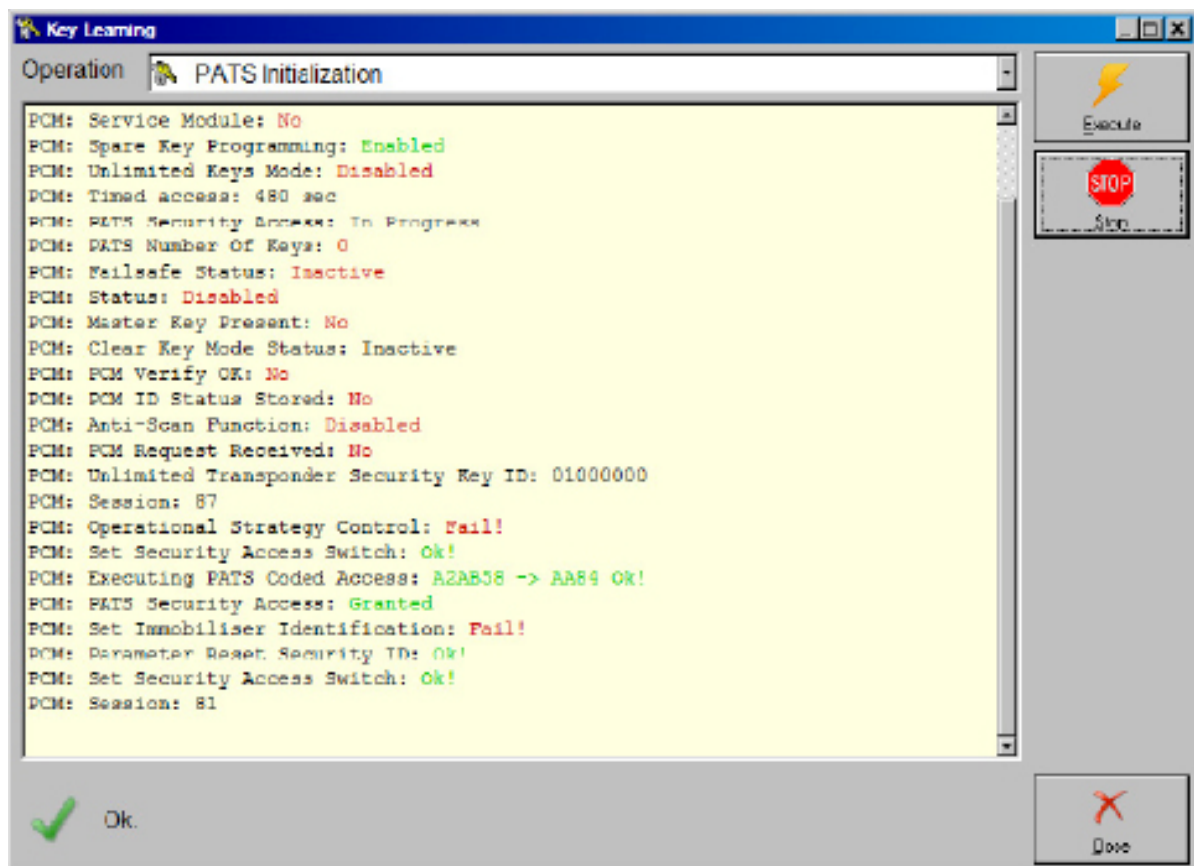
8.6 PATS Initialization

This procedure is used to match the PCM to IPC (HEC) and/or BCM or FIP as appropriate. It is important that the key in the ignition is programmed to the vehicle, otherwise module initialization is not possible.

PCM - Powertrain Control Module

HEC - Hybrid Electrical Cluster (instrument cluster)

FIP - Fuel Injection Pump



8.7 Spare Key Programming Enable / Disable

Enables or disables the spare key programming procedure as listed in the Owners manual.

8.8 Unlimited Key Mode Enable / Disable

Unlimited key mode is intended for use by those customers who need more than 8 keys for their vehicle.

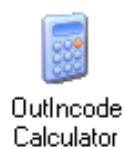
The unlimited key mode is set up by creating a special, unique unlimited transponder security key code and programming this key code into all of the vehicle keys so they contain the same key code.

The customer must choose an 8-digit number (except for 00000000 or 00000001) to be programmed into all of their vehicles keys (or, to all of the keys they want programmed to one vehicle). All customer vehicles keys (or all keys for one vehicle) need to use the same number. Valid digits are 0-9 and the letters A-F.

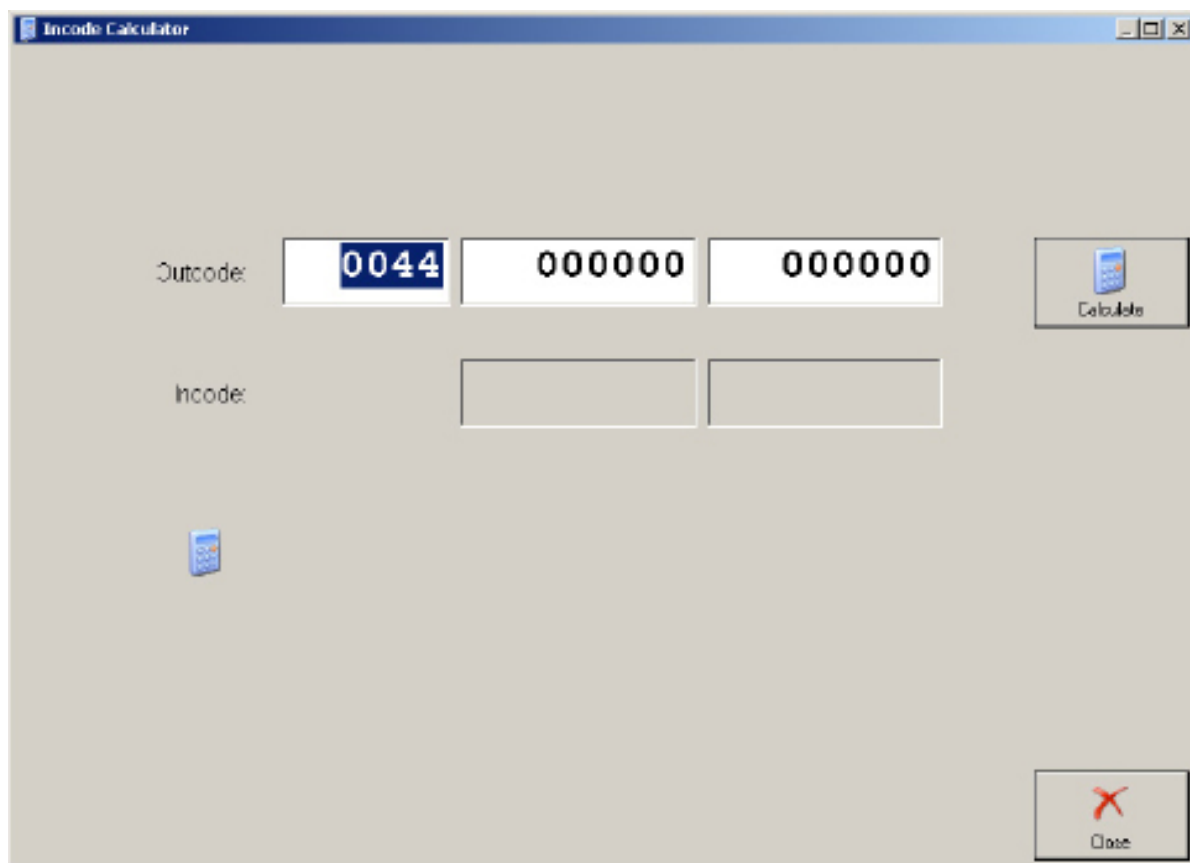
If the PID UNL_KEY_ID is not available, unlimited key mode is turned on, and must be turned off before viewing the stored code. At this time, unlimited keys may be programmed to the vehicle. To view/change the stored code, follow the procedure for disabling the unlimited key mode below. Monitor the PID UNL_KEY_ID and compare its value against the code chosen in Step 1. It should not be the same key code.

8.9 PATS OUT – IN code Calculator

The special function “PATS INcode Calculator” is commonly used together with Ford/Mazda IDS. Open Special Functions list control and select OutIncode Calculator icon.

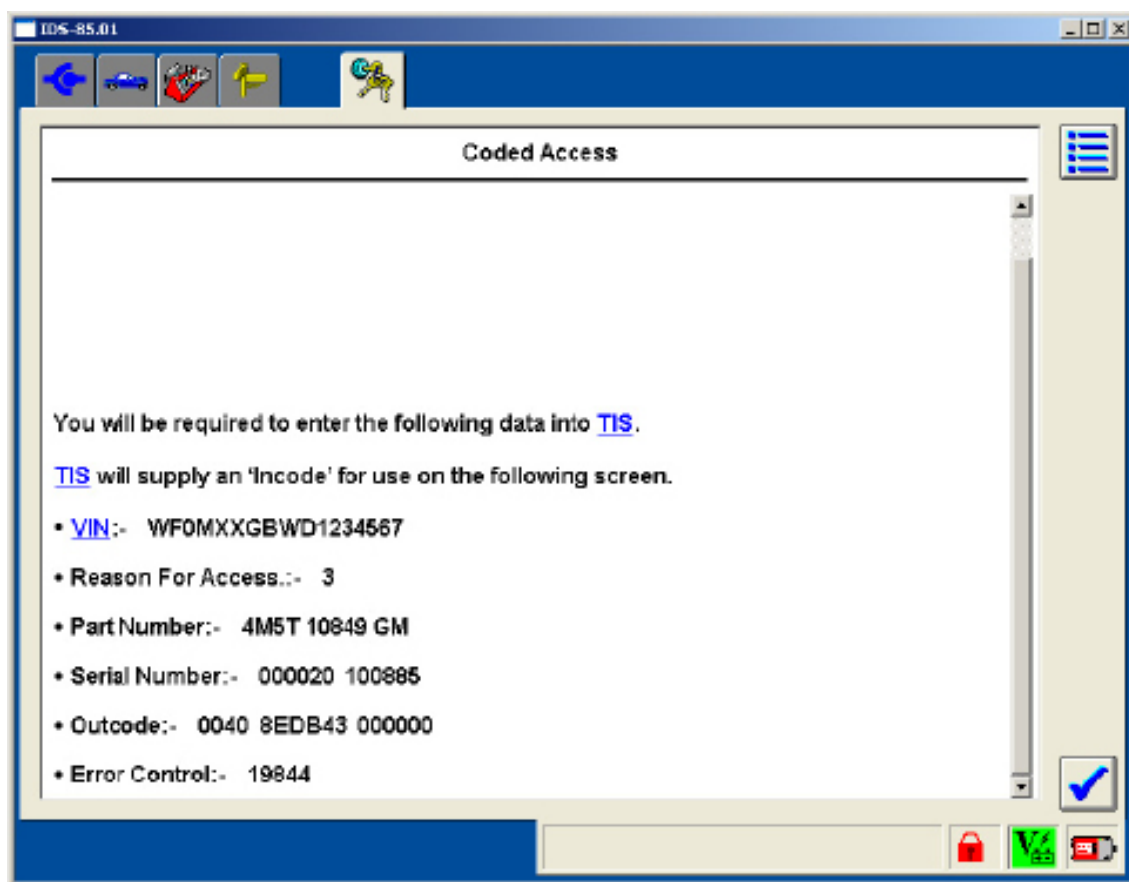


Following dialog appears on the display:



The screenshot shows a window titled "Incode Calculator". It contains two rows of input fields. The first row is labeled "Outcode:" and has three text boxes containing "0044", "000000", and "000000". The second row is labeled "Incode:" and has two empty text boxes. To the right of the "Outcode:" row is a button with a calculator icon and the text "Calculate". To the right of the "Incode:" row is a button with a red "X" icon and the text "Close". There is also a small calculator icon in the bottom left corner of the dialog.

Start Ford IDS and connect to the car. Follow instructions and lets IDS read vehicle data. For example let you have this IDS screen.



The essential here is the line:

Outcode:- 0040 8EDB43 000000

This is "SINGLE" outcode.

It is used during key erasing or programming operation.

If ECU initialization is needed. IDS returns "DOUBLE" outcode:

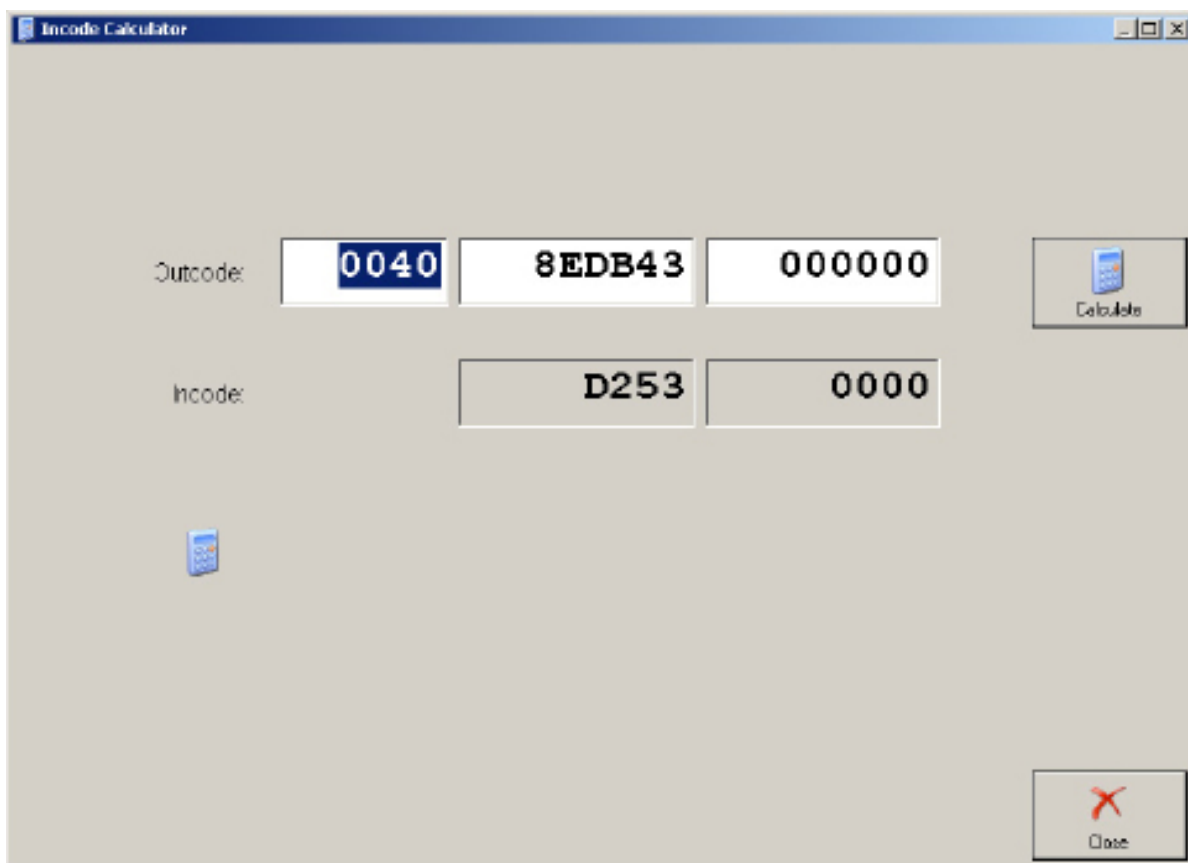
Outcode:- 0044 8EDB43 ABCDEF

Note that "SINGLE" outcode has xx40 in the first digits group, and "DOUBLE" outcode has xx44.

Be sure that you enter xx44 (PATS Outcode Prefix) as it is provided from IDS.

Enter digits from Outcode line in the three edit boxes and press button "Calculate".

After a short time calculated INCode will appear in InCode edit box. Enter calculated value in IDS.



8.10 Vehicle Identification Data (VID) Block

VID block is a array of 128 bytes present in PCM (Powertrain Control Module) in most of Ford/Mazda models.

VID consists of are many configurable vehicle parameters:

VIN

Tyre Size

Axle Ratio

Anti-Lock Brake System

Auxiliary Cabin Heaters

Cooling Pack

Air Conditioning

Transmission

Body Type

Driveline

Speed Control

Generator

Vehicle Speed Output

Vehicle Type

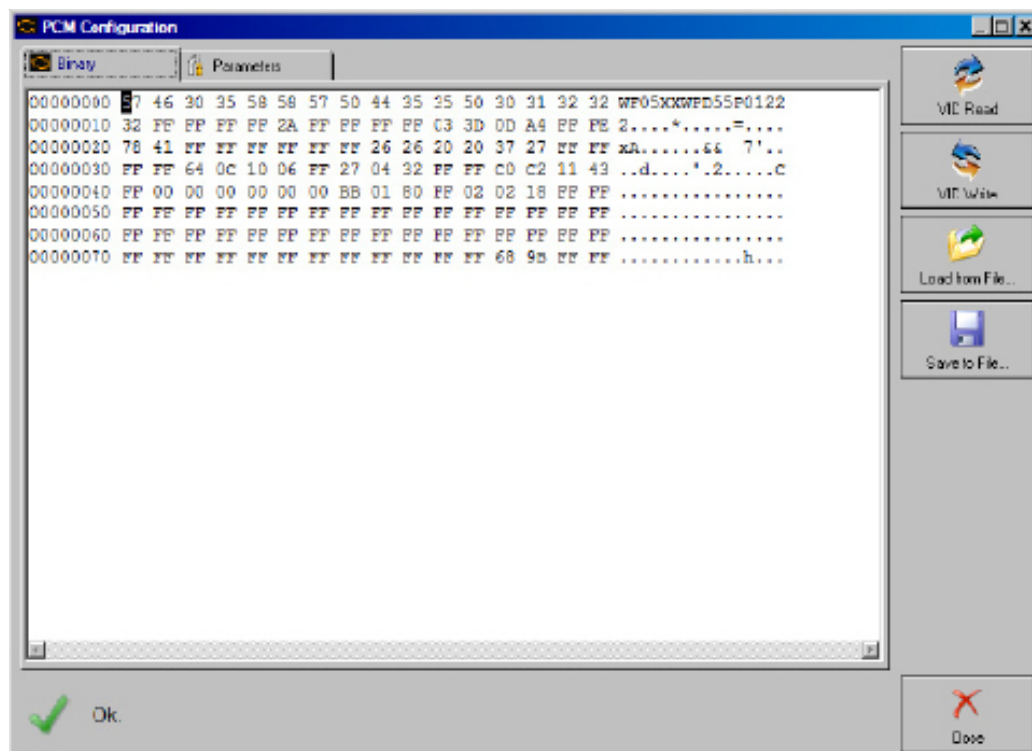
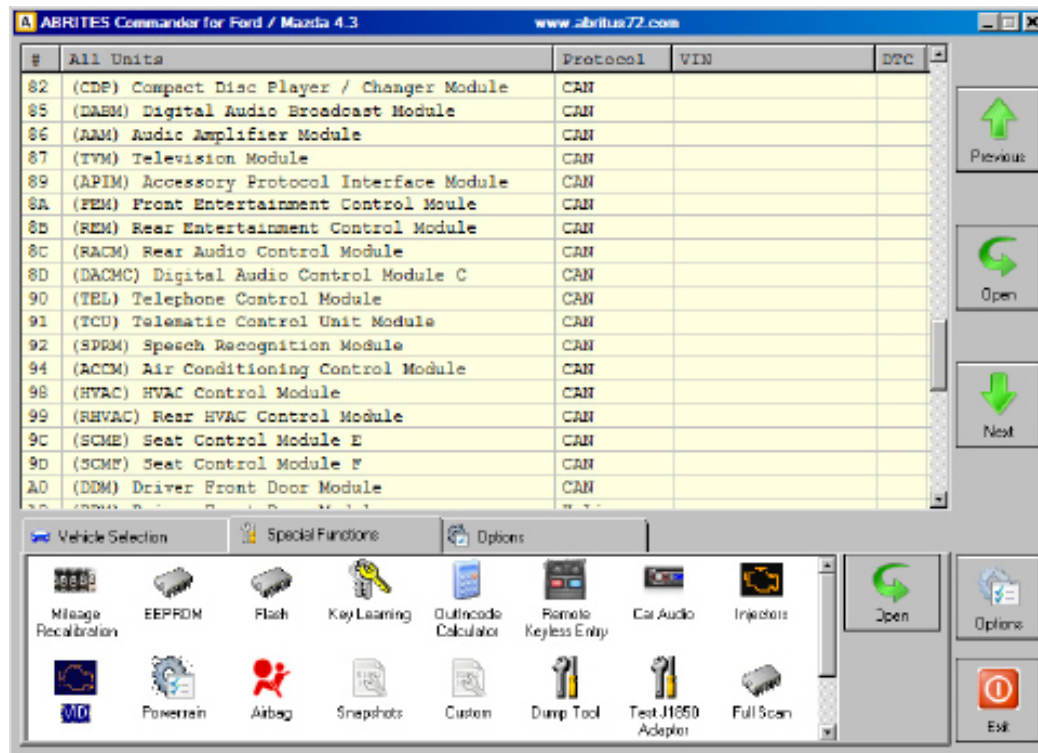
Fuel Type

Octane Of Fuel

Octane Adjust / Spark Retard

Country

Go to the Special Functions screen. Select VID.



PCM Configuration

Binary Parameters

Parameter	Value
VIN	WP05XKWP055P01222
Tyre Size	829
Axle Ratio	3.492
Anti-Lock Brake System	Equipped
Auxiliary Cabin Heaters	Equipped
Cooling Pack	North Africa / Gulf Coast Countries
Air Conditioning	Equipped
Transmission	Manual
Body Type	
Driveline	Front Wheel Drive
Speed Control	
Generator	120 Amp
Vehicle Speed Output	Message from ABS via CAN
Vehicle Type	Focus
Fuel Type	Gasohol
Octane Of Fuel	91 RON
Octane Adjust / Spark Retard	Normal
Country	European

✓ Ok

ⓧ Done

VEE Read

VEE Write

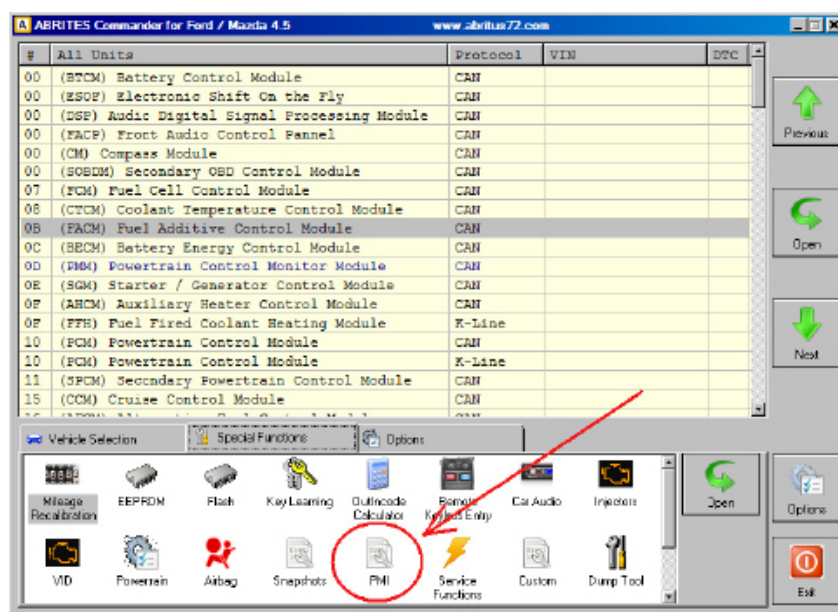
Load from File...

Save to File...

8.11 Programmable Module Installation (PMI)

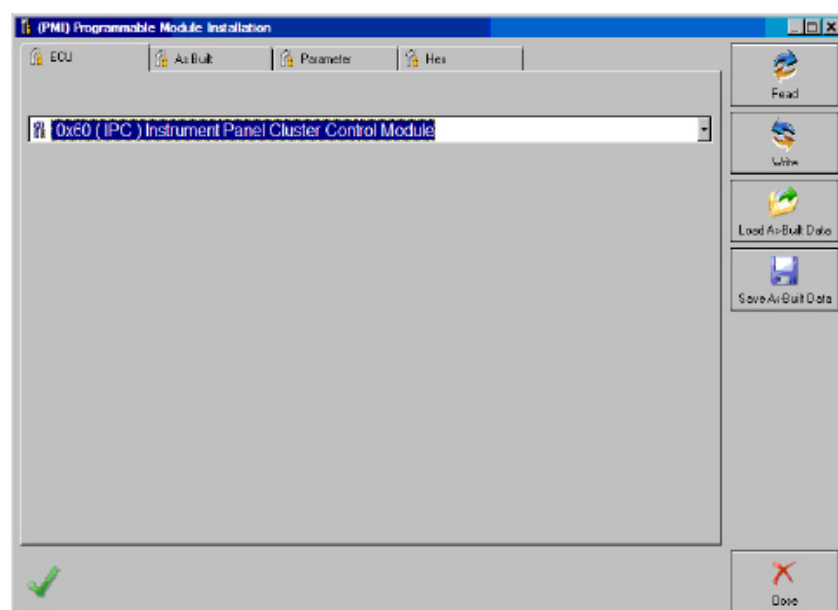
Step 1

Go to the Special Functions screen. Select PMI.



Step 2

Following Dialog Appears. Select ECU from combobox.



Step 3

If the original ECU is available, you can read PMI data.

Use “Read” button.

Step 4

If the original ECU is not available, you can obtain vehicle PMI data from Motorcraft website. Connect to internet and open online form Motorcraft website:

<https://www.motorcraftservice.com/AsBuilt>

Enter the VIN in the box and press “Submit” button at the bottom.

The screenshot shows the Ford Service Info website. At the top, there is a navigation bar with the Ford logo, 'FORD SERVICE INFO.COM', and a 'Motorcraft' logo. Below the navigation bar, the main heading is 'Module Build Data (As-Built)'. Under this heading, there are two steps: 'Step 1. enter a VIN (Vehicle Identification Number)' and 'Step 2. Submit the As-Built Request'. A text input field is provided for the VIN. Below the input field, there is a 'Submit' button. A warning message states: 'Warning: Inaccurate or no data will be displayed if an invalid VIN is entered (please verify VIN accuracy by running Check). Also, AS-Built data only applies to some 1999 to current model year vehicles.' At the bottom of the page, there is a footer with various links and social media icons.

Step 5

The “Module Reprogramming” page will open with the “VIN” and “Vehicle Data” at the top. Below this are two columns, the one on the left is PCM data and the one on the right is BCE data. Only programmable modules available in that vehicle will be listed under BCE Modules. Some modules may have more than one line of data. If a module is not listed, then it is not a programmable module.

Module Reprogramming

VIN: WFGWXXGCDW5B01234

Vehicle Data: 3735 FFFF FF09

[click here](#) if module data required is not available below.

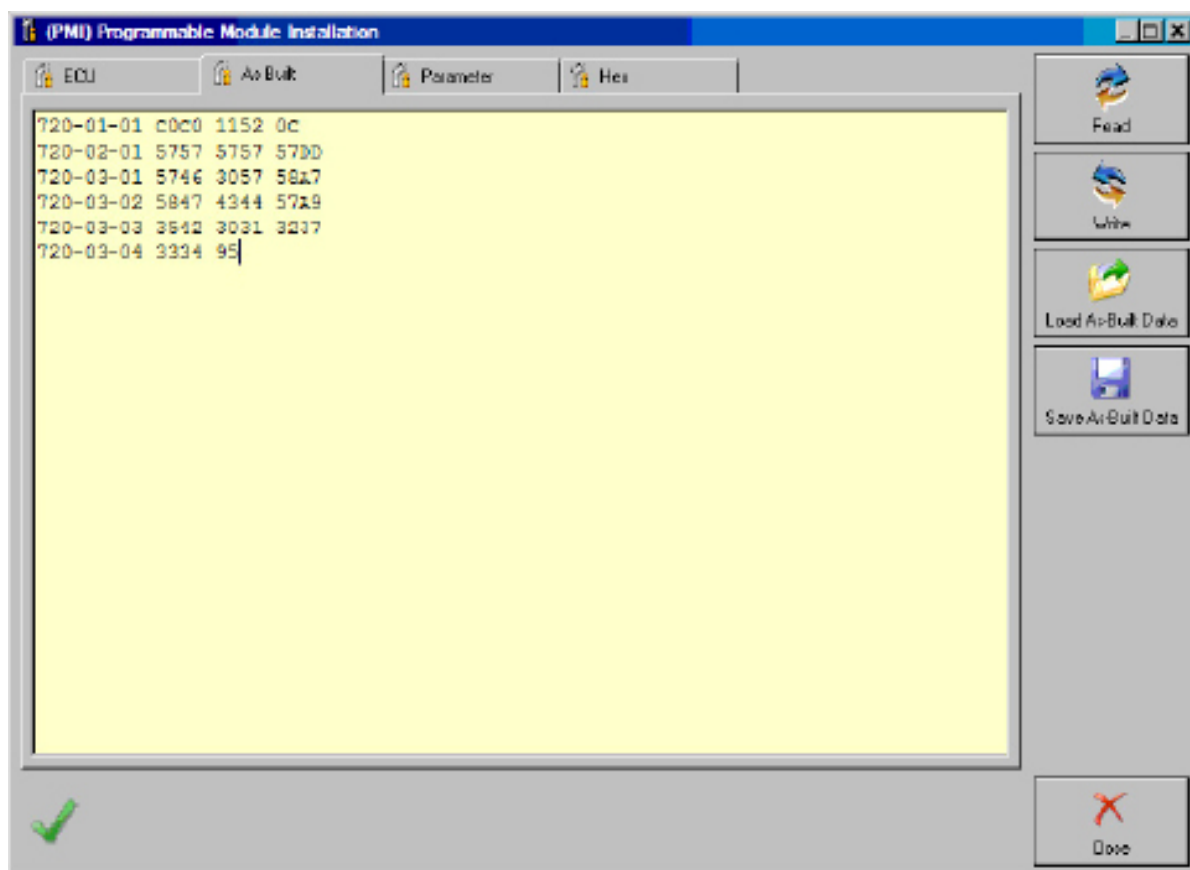
PCM Module	BCE Modules	TSB SSM Instructions
PCM 1 FFFF FFFF 0310	720-01-01 C0C0 1152 0C	
PCM 2 410D A4FF FF02	720-02-01 5757 5757 57DD	
PCM 3 7841 FFFF FFC9	720-03-01 5746 3057 58A7	
PCM 4 FFFF FF26 265D	720-03-02 5847 4344 57A9	
PCM 5 2020 3727 FFB2	720-03-03 3542 3031 3237	
PCM 6 FFFF FFFF FF11	720-03-04 3334 95	
PCM 7 FFFF FFFF FF12		
PCM 8 FFFF FFFF FF13	726-01-01 640C 50FE ED	
PCM 9 FFFF FFFF FF14	726-02-01 2704 1080	
	727-01-01 0203 083D	
	730-01-01 5746 3057 58B5	
	736-01-01 5746 3057 58B0	
	741-01-01 5746 3057 58C6	
	760-01-01 5746 3057 58E5	
	760-01-02 5847 4344 57E7	
	760-01-03 3542 3031 3275	
	760-01-04 3334 D3	
	760-02-01 006A	

Step 6

Find data for desired ECU by ID.

Enter As-Built vehicle data in diagnostics.

Note that you must enter data without leading spaces, one entry per line.

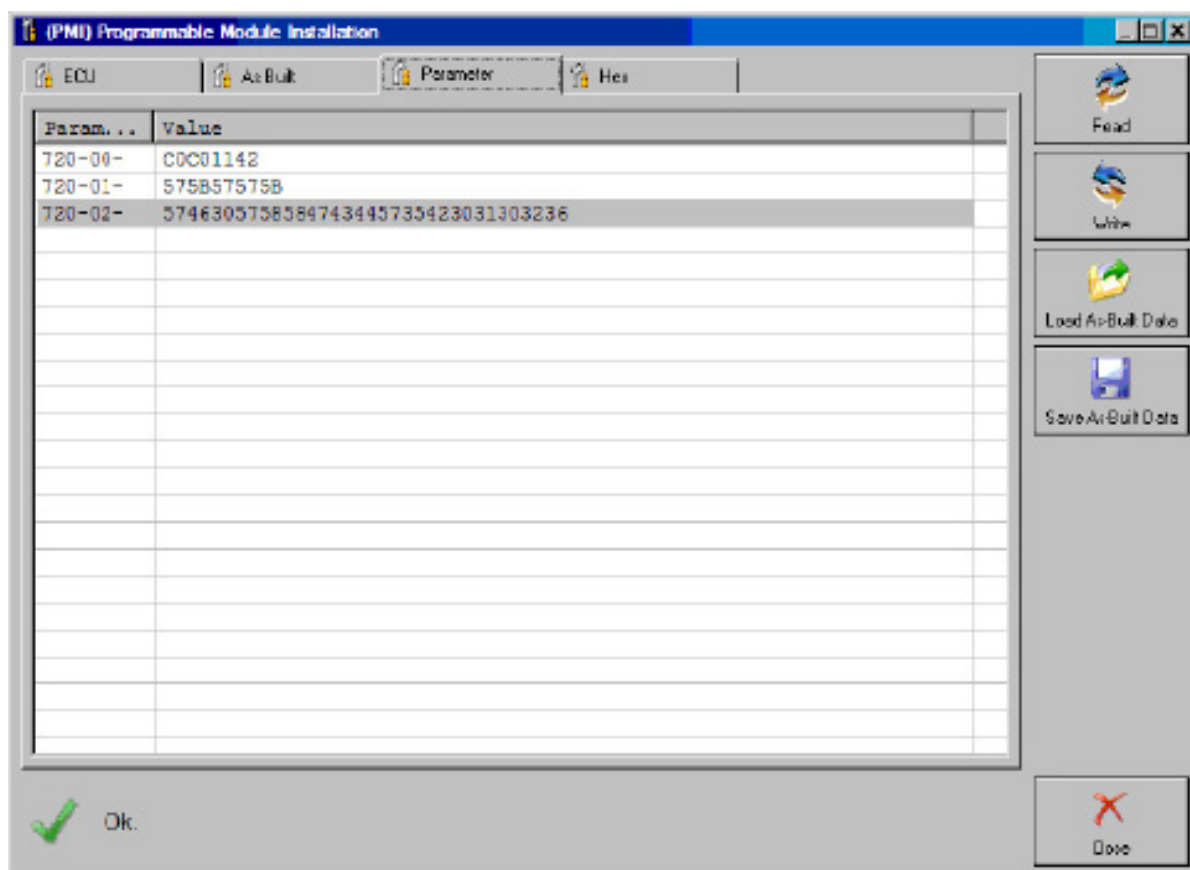


Step 7

Another view format.

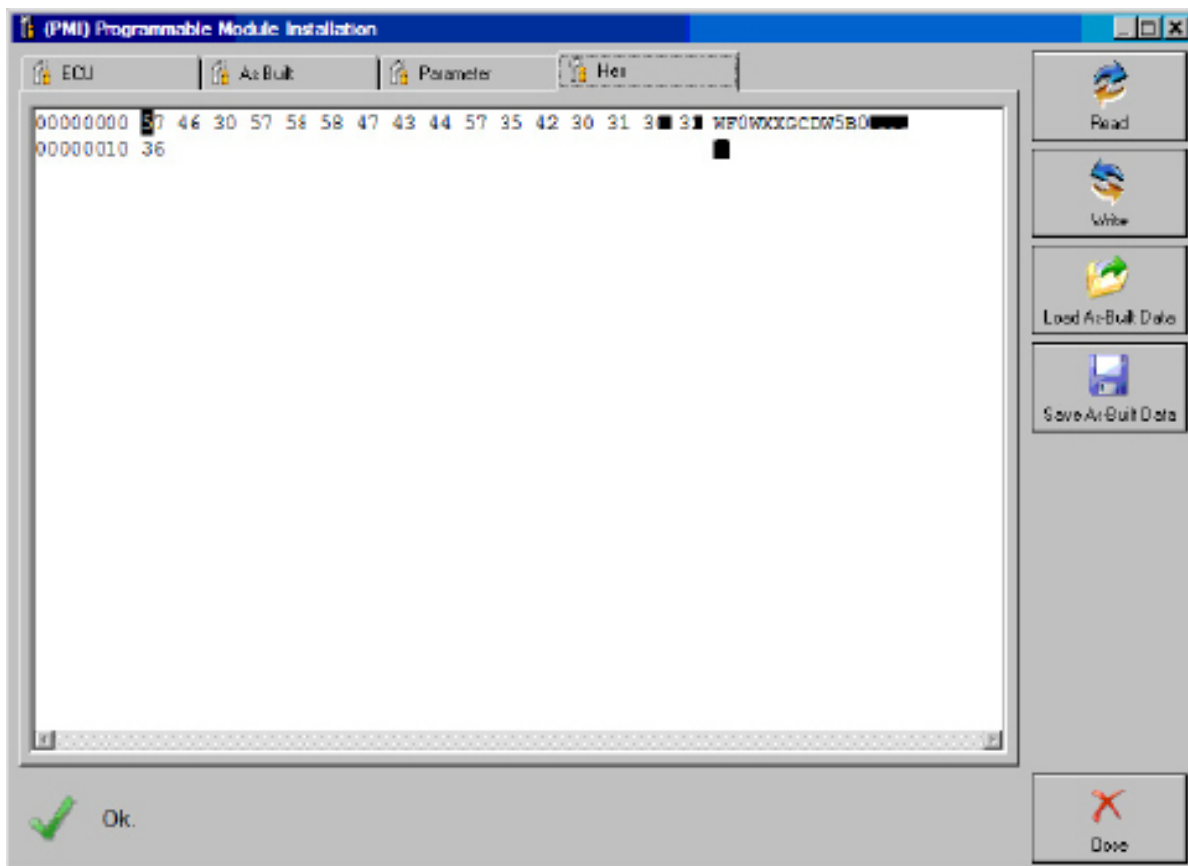
Here you can see whole PMI data block.

Double-click on data block to see and edit it in binary editor.



Step 8

If needed edit As Built data before writing.

**Step 9**

Turn Ignition OFF and properly connect new ECU.

Use "Write" button to enter data in newly installed ECU.

Step 10

During the write process, automatic backup of PMI data is performed.

If something going wrong, you can find backup PMI file in AVDI log folder.

PMI backup files have format "Backup_yyyymmdd_hh.mm.ss.pmi".

Use "Load" and "Write" buttons to restore data.

8.12 Fuel Injector Programming (TDCi Engines)

Fuel Injector Correction Factors

There are 3 common situations that demand this function.

After Injector replacement.

Fuel Injection system calibration

Drivability problems like Lack of power, Black smoke and the presence of DTC's P2336, P2337, P2338 can often be fixed by re-entering the existing 4 injector codes. Support for more than 4 injectors has been added.

Note:

- On earlier model years (pre-2003) it is not possible to read the actual injector codes.
- It is important to check the codes carefully before entering them.
- After entering an injector code the fuel system will initially run without any pilot injector sequence. The car must be driven for a few kilometers.

Engine Type: Duratorq-Turbo Diesel Common Rail Injection

Capacity: 1.6L

Implement this service function if a new fuel injector has been installed.

Each injector has an individual 9 digit code called an injector correction factor.

This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance.

Perform this procedure to enter the required injector correction factor.

The injector correction factor is located on the head of the injector.

The injector correction factor is 8 digits long.

Ignore the last digit of the 9 digit code printed on the fuel injector.

Enter the injector correction factors in cylinder order.

To update or enter a new code, select the required injector and enter the relevant 8 digit code.

Enter all of the required codes, then press the return key displayed on the screen.

Engine Type: Duratorq-Turbo Diesel Common Rail Injection

Capacity: 1.8L

Capacity: 2.0L

The data required for each injector can be found on the injector body.

It consists of 16 characters - numbers and letters.

If you are certain that the original injectors are still fitted to the engine, you may find the data on a label on the engine.

Engine Type: Duratorq-Turbo Diesel Common Rail Injection**Capacity: 2.2L****Capacity: 2.4L****Capacity: 3.2L**

Carry out this procedure if the Fuel Injector has been replaced:

Each injector has an individual 16 digit code called an injector correction factor.

This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance.

Perform this procedure to enter the required injector correction factor.

The injector correction factor is located on the injector body.

To update or enter a new code, select the required injector and enter the relevant 16 digit code.

Enter all of the required codes, then press the return key displayed on the screen.

If a label listing the injector code is still present (on top of the engine), remove it.

Information on the label is no longer correct and could mislead other service technicians

The Pilot Correction Learn procedure must now be performed

Engine Type: Duratorq-Turbo Diesel Common Rail Injection**Capacity: 2.2L**

Perform this procedure if the following new component has been installed: Fuel Injector Each injector has an individual 6 digit code called an injector correction factor. This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance. Perform this procedure to enter the required injector correction factor. The injector correction factor is located on the injector body. Enter the injector correction factors in cylinder order. To update or enter a new code, select the required injector and enter the relevant code. Enter all of the required codes, then press the return key displayed on the screen.

Engine Type: Duratorq-Turbo Diesel Common Rail Injection StgV**Capacity: 2.0L**

Perform this procedure if the following new component has been installed: Fuel Injector

Each injector has an individual 20 digit code called an injector correction factor. This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance. Perform this procedure to enter the required injector correction factor. The injector correction factor is located on the injector body. Enter the injector correction factors in cylinder order. To update or enter a new code, select the required injector and enter the relevant code. Enter all of the required codes, then press the return key displayed on the screen.

This function is required by service centres when an Injector needs to be replaced, or there is a driveability problem.

For 1.6 TDCi engines the each injector has an 8-digit calibration code stamped on the body.

For 1.8 , 2.0 , 2.2 and 2.4 TDCi engines the each injector has a 16-digit calibration code stamped on the body.

These codes relate to the electrical and structural characteristics of each injector, which are defined during production. The PCM must know the calibration codes for each injector in order to treat and operate the injectors in the correct manner. This helps to reduce emissions and improve performance. The code must be programmed in by communicating and downloading the code into the PCMs memory.

There are three common situations which demand this function.

1. After Injector replacement.
2. Fuel injection system 'calibration'.
3. To cure drivability problems. Lack of power, black smoke and the presence of DTC's:

P2336 - Cylinder 1 Above Knock Threshold

P2337 - Cylinder 2 Above Knock Threshold

P2338 - Cylinder 3 Above Knock Threshold

P2339 - Cylinder 4 Above Knock Threshold

can often be fixed by re-entering the existing 4 injector codes.

Fuel Injectors Programming is used on the following vehicles:

Model	Engine	MY	
Fiesta	1.6 TDCi	2004 -	
Focus	1.8 TDCi	2001 - 2005	FFDA/F9DA/F9DB
Focus	2.0 TDCi	2001 - 2005	FIFA
Focus (new shape)	1.6 TDCi	2005 -	
Focus C-Max	1.6 TDCi	2005 -	
Mondeo	2.0 TDCi	2000 - 2006	HJBA/HJBB/HJBC/FMBA/N7BA§
Mondeo	2.2 TDCi	2000 - 2006	
Transit	2.0 TDCi	2000 - 2005	
Transit	2.4 TDCi	2000 - 2005	H9FA
Transit Connect	1.8 TDCi	2002 - 2006	

NOTE:

On earlier model years (approx pre-2003) it is not possible to read the actual injector codes. On these vehicles you will see '00 00 00 00 00 00 00 00' or 'FF FF FF FF FF FF FF FF' or a mixture.

After entering an injector code the fuel system will initially run without any pilot injection sequence. The car must be driven for a few miles to correct this. The codes of the ORIGINAL injectors fitted to vehicle can be found on a label, which is fitted to the side of the engine or on the engine rocker top (if it has not yet been removed).

The codes of the ORIGINAL injectors fitted to vehicle can be found on a label, which is fitted to the side of the engine or on the engine rocker top (if it has not yet been removed).

The codes on the label are in the following format:



(1&2) X11111112222222X

(3&4) X33333334444444X

Where:

1111111 is the code for injector 1,

2222222 is the code for injector 2,

3333333 is the code for injector 3,

4444444 is the code for injector 4.

NOTE:

The injectors are in the physical order, NOT firing order.

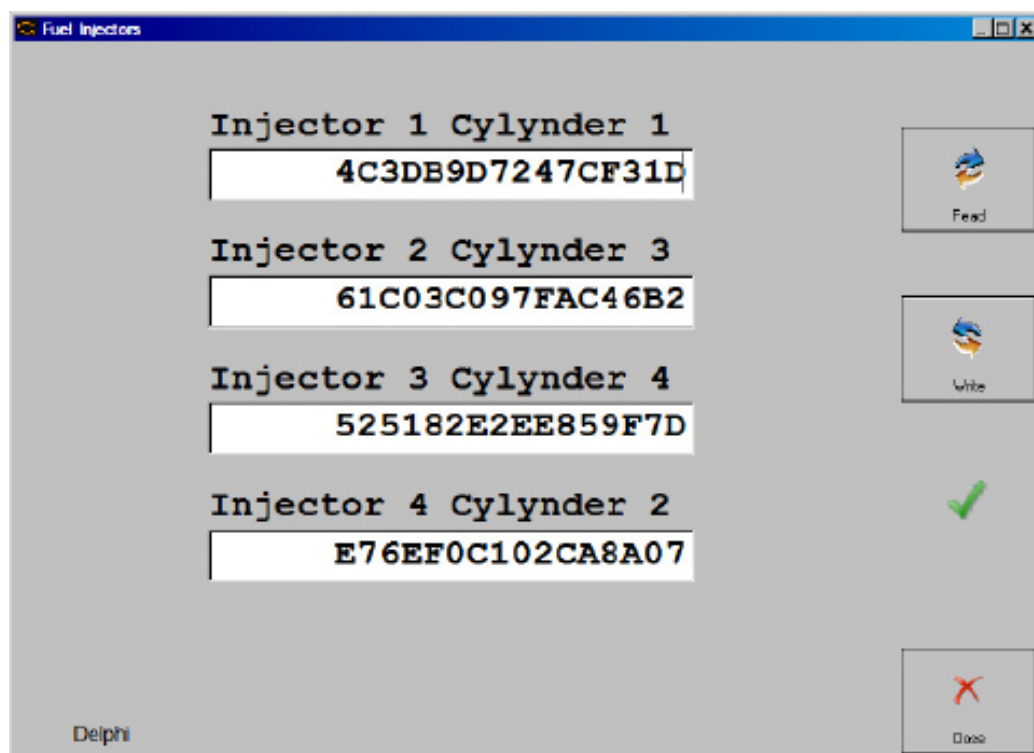
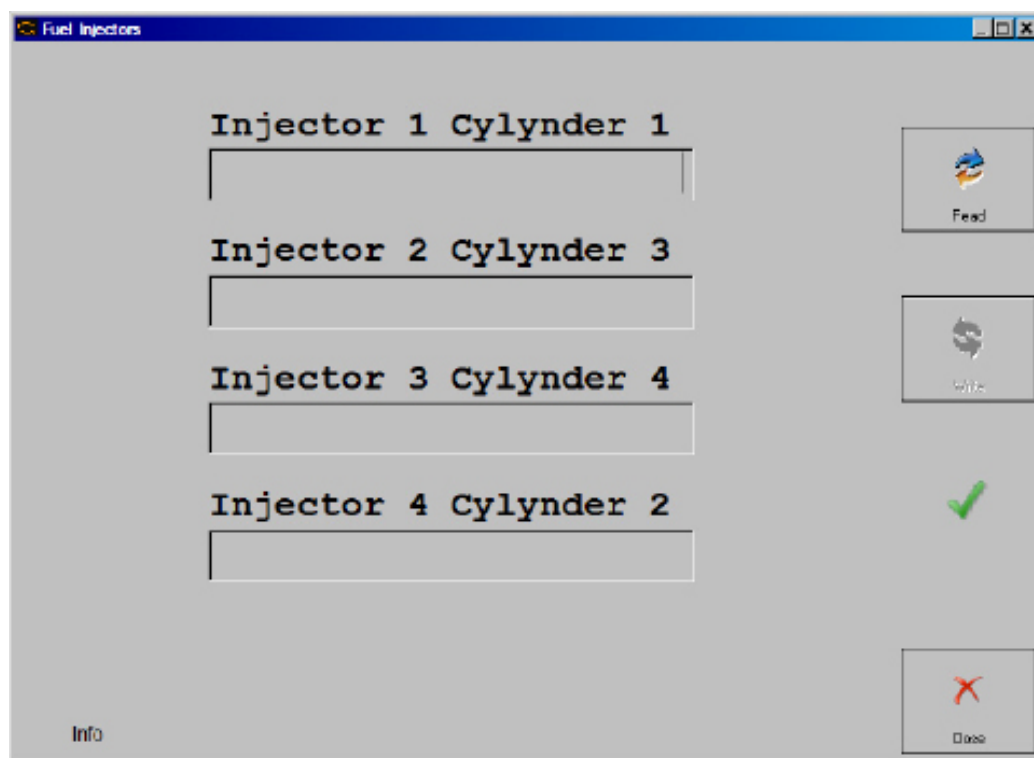
When replacing an Injector the code stamped on the body of the new Injector must be programmed into the PCM, NOT the code on the label.

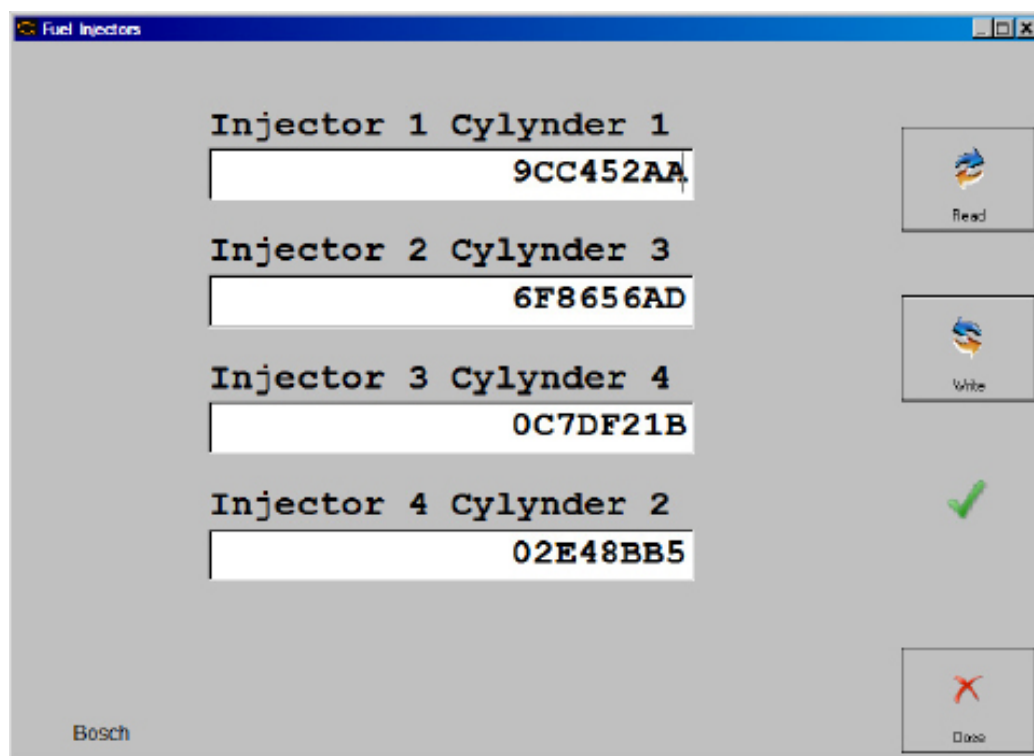
Duratorq-Turbo Diesel Common Rail Injection 2.4L Carry out this procedure if the following component has been replaced: **Fuel Injector** Each injector has an individual 16 digit code called an injector correction factor. This code applies individual compensation for each injector as a means of reducing the fuel delivery tolerance. Perform this procedure to enter the required injector correction factor. The injector correction factor is located on the injector body. To update or enter a new code, select the required injector and enter the relevant 16 digit code. Enter all of the required codes, then press the return key displayed on the screen.

WARNING:

Before attempting Injector Programming it is necessary for the vehicle to be left stationary with the Engine off for at least 8 hours. This is to ensure that the engine is stone cold before Injector Programming is performed. Failure to follow these instructions may result in failure of the Injector Programming function and/or drivability problems.







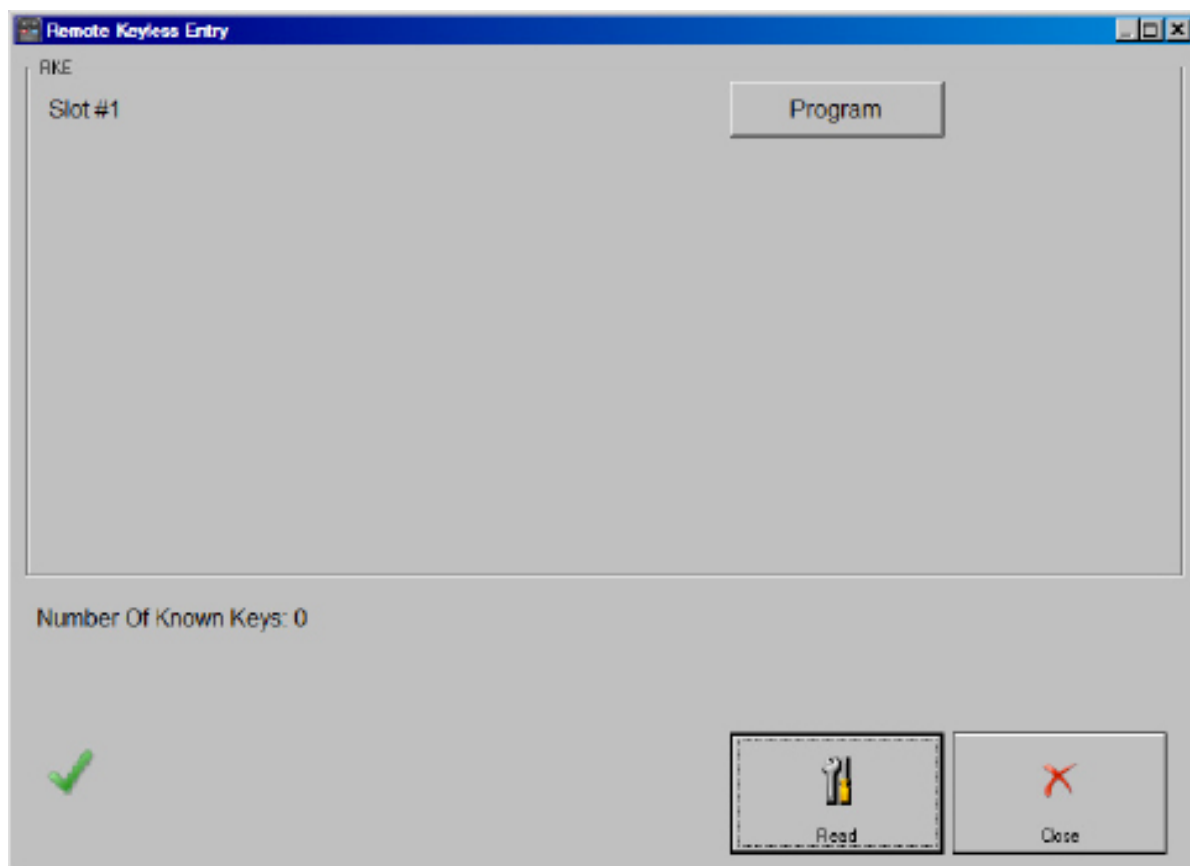
Remote Keyless Entry

Go to the Special Functions screen.

Select Remote Keyless Entry.



Following Dialog Appears



Turn ignition OFF and press button "Read" to get number of programmed smart keys.

Press button "Erase" to erase all of programmed smart keys.

Press button "Program" to program 1 smart key. You will be prompted to remove Key Cover and to place the key in emergency slot in the steering column shroud

All of smart key operations must be performed while ignition is OFF.

Ford Mondeo 2016 for an exaple and other models have the following Emergency Key slot position:



Manual reprogram a remote transmitter.

The following procedure has to be used to program the remote control key.

1. Turn ignition from OFF to RUN 4 times within 6 seconds with the 4-th time ending in OFF.
2. The system will chime to confirm programming mode entry.
3. Press any button on the first remote transmitter.
4. System will chime to confirm programming.
5. Repeat steps 2 and 4 for all subsequent remote transmitters.
6. Turn ignition to the RUN position to exit the programming mode.

Note:

All keyfobs for the vehicle must be programmed at the same time. Any of the keyfobs which are not programmed during this procedure will no longer function.

Up to 4 transmitters can be programmed.

Note: After programming Smart keys in Mazda, you may experience the **“Keyless System Inspection Required”** error message on the dash. This happens when keys that are intended for Mazda3, Mazda6 are programmed on Mazda CX3 and CX5 and vice versa. The only solution is to erase all Smart Keys and use the correct keys for the model. If there is even one wrong key programmed, the same error will show up. It has no effect on the overall performance of the car:



8.13 Dump Tool

Dump Tool is an instrument for editing the content of the EEPROM files of specific electronic control units. You have to select a unit and load a dump file. Then when you click on the “Parameters...” button you will see a pop-up window with all available parameters related to the chosen unit. Typical parameters are odometer, security code and VIN. For the airbag units the option clear crash data is available. You can modify them by clicking on the parameter value. When complete with modifications click on the OK button. The dump data will be updated accordingly. All necessary check sums will be regenerated.

9. Service Functions

9.1 Powertrain Control Module (PCM)

9.1.1 Reset Keep Alive Memory (KAM)

This procedure will reset the Learned Values stored in the Powertrain Control Module (PCM) such as idle and fuel.

9.1.2 Reset the Diesel Particulate Filter (DPF) Learned Values

This procedure must be carried out if a new diesel particulate filter is installed

The powertrain control module will continually learn the characteristics of certain components over time. There may be differences in the characteristics from the old and new components which will result in differences in the learned values. If a new component is installed the difference in learned values may result in poor driveability or set a diagnostic trouble code. This service function will reset the learned values of the old component. The learning process of the new component may occur immediately or over a number of drive cycles.

9.1.3 Reset the Water in Fuel (WIF) Warning Indicator

Execute this procedure only if water is detected in the fuel. After performing this procedure the WIF warning indicator is extinguished.

9.1.4 Reset the Knock Sensor Learned Values

Execute this procedure only if a full set of replacement injectors has been fitted.
The engine must not be running.

9.1.5 Reset the Fuel Metering Valve Learned Values

Execute this procedure if High Pressure Fuel Pump has been renewed.
The engine must not be running.

9.1.6 Reset the Intake Air Throttle Valve Learned Values

Execute this procedure if Intake Air Throttle Valve has been installed.

9.1.7 Reset the Exhaust Gas Recirculation (EGR) Valve Learned Values

Execute this service function if a new exhaust gas recirculation valve has been Installed.

9.1.8 Reset the Differential Pressure Sensor Learned Values

This procedure will return the learned values back to the nominal settings.

9.1.9 Reset the High Pressure Fuel System Learned Values

This service function must be performed if any new components associated with the high pressure fuel pressure system have been installed.

The powertrain control module will continually learn the characteristics of certain components over time. There may be differences in the characteristics from the old and new components which will result in differences in the learned values. If a new component is installed the difference in learned values may result in poor driveability or set a diagnostic trouble code. This service function will reset the learned values of the old component. The learning process of the new component may occur immediately or over a number of drive cycles.

9.1.10 Fuel Injector Correction Factors

Execute this procedure if a Fuel Injector has been replaced.

9.1.11 Relearn Vehicle Data

Execute this procedure to force a previously configured PCM to relearn new configuration data from BCM.

9.1.12 Reset the Mass Air Flow (MAF) Sensor Learned Values

Execute this service function if a new mass air flow sensor has been installed.

9.1.13 Reset the Fuel Pressure Relief Valve Open Count Learned Value

This procedure clears the counters that store the total number of times the fuel rail pressure relief valve has opened.

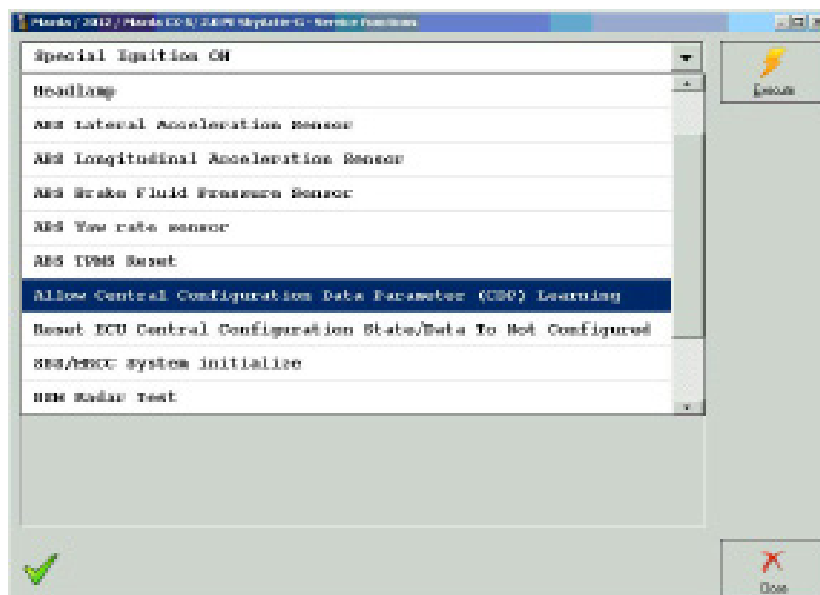
9.1.14 Reset the Fuel Pressure Relief Valve Open Duration Learned Value

This procedure clears the counters that store the total time the fuel rail pressure relief valve has opened.

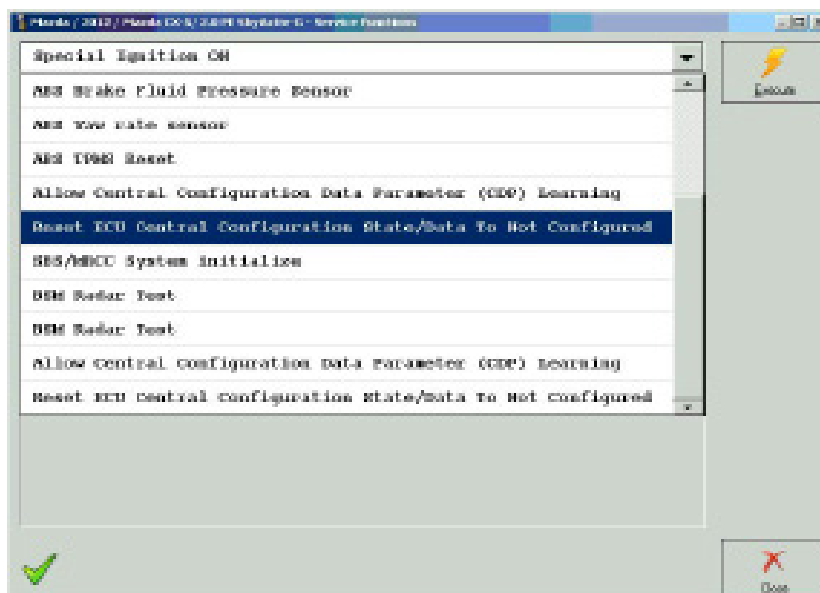
9.1.15 Speed Limiter

This procedure sets maximum vehicle speed.

3. Enter the "Allow Central Configuration data parameter (CDP) Learning Menu:



4. Execute the "Reset ECU Central Configuration State/Data to Not Configured" function



9.3 Body Control Module (BCM)

9.3.1 Set Vehicle Power Mode

This application enables the setting of the vehicle power mode.

9.4 Restraints Control Module (RCM)

9.4.1 Clear Restraint Control Module (RCM) Crash Data Memory

This routine will clear the crash data memory in the Restraints Control Module.

9.4.2 Restraints Control Module (RCM) Module Central Car Configuration (CCC) Update

Carry this procedure out if RCM module has been replaced

9.4.3 Tyre pressure measurement system sensors

Ford Focus and C-Max very often have an issue with the Tyre pressure measurement system sensors that get defective and display an error. There are different types of sensors and people often use a 2nd set of tyres that have no sensors. The photo below shows the error on the dash on a 2016 Focus:





The issue does not affect the overall driveability of the car, but according to the European regulations, all cars must have these sensors. It is up to the owner of the vehicle whether he will fix the error with replacing the sensors or put tyres without the sensors and clearing the warning.

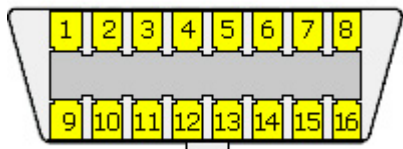
The function requires the user to enter the CenralCarConfiguration menu and set the parameter value to 100. The module in the list is named "Tyre pressure mode system".

9.4.4 Passenger Air Bag Deactivation (PAD) Switch Activation

The following procedure will activate/deactivate the passenger air bag switch.

10. Ford OBD-II diagnostic interface pinout and wiring

16 pin J1962 OBD-2 car proprietary connector at the Ford car.



Diagnostic interface for all model Ford vehicles.

Pin	Signal	Description
1		
2	J1850 PWM Bus+	
3	LS CAN High	Low speed (125Kb) CAN bus or UBP
4	CGND	Chassis ground
5	SGND	Signal ground
6	HS CAN High	High speed (500 Kb) CAN bus
7	K-LINE	(ISO 9141-2 and ISO/DIS 14230-4)
8		
9		
10	J1850 PWM Bus-	
11	LS CAN Low	Low speed (125Kb) CAN bus.
12		
13	FEPS	Flash EEPROM Program Signal. +18V
14	HS CAN Low	High speed (500 Kb) CAN bus.
15		
16	+12V	Battery power

Interfaces used:

1996 - 2004 : ISO 9141

1996 - 2007 : UBP

1996 - 2001 : J1850-PWM only

2002 - 2006 : J1850-PWM or CAN

after 2006 : CAN

11. Troubleshooting

Below you can find a list of typical problems and how to solve them:

Problem:

When starting the “ABRITES diagnostics for Ford/Mazda” a message box with the text “Connection Error: Interface not connected!” appear:

Solution:

Be sure that the USB interface drivers are installed properly. You can look at the device manager, the USB interface should appear as “USB Serial Port (COMxx)” where “xx” is the number of the port.

Try to reconnect the USB connector of the interface

Try to reconnect the OBD2 connector of the interface

Be sure that the interface is connected with the car properly

12. Abbreviations

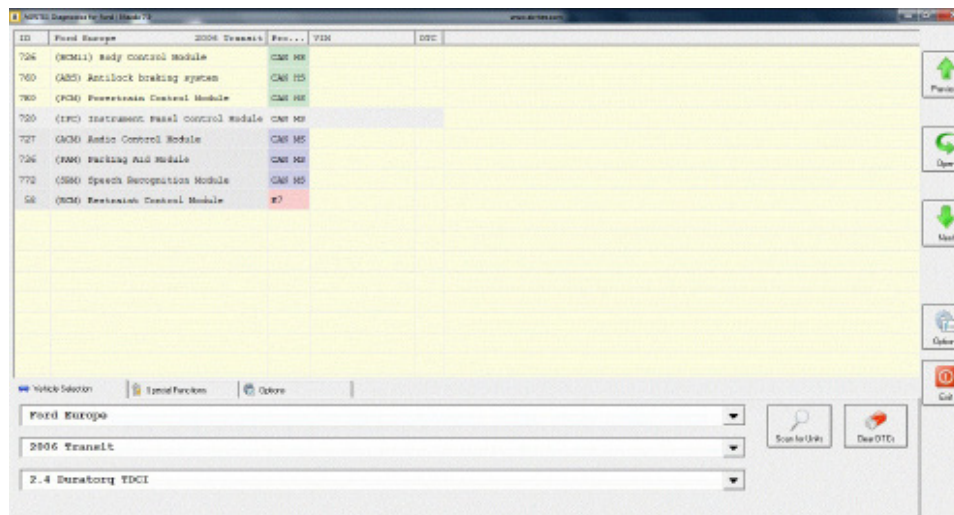
CAN	Controller Area Network
DTC	Diagnostic Trouble Code
ECM	Engine Control Module
ECU	Electronic Control Unit
IPC	Instrument Panel Cluster
TCM	Transmission Control Module
SLM	Shift Lever Module
TPMS	Tire Pressure Monitoring System
ACC	Adaptive Cruise Control
TC	Traction Control
ESP	Electronic Stability Program
EPS	Electro Power Steering
EHPS	Electro Hydraulic Power Steering
SAS	Steering Angle Sensor
SADS	Semi Active Damping System
CIM	Column Integrated Module
BCM	Body Control Module
PATS	Passive Anti Theft System.
DLC	Data Link Connector
PCM	Powertrain Control Module
KOEO	Key ON Engine OFF Test
KOER	Key ON Engine Running Test
RKE	Remote Keyless Entry

13. Best Practices

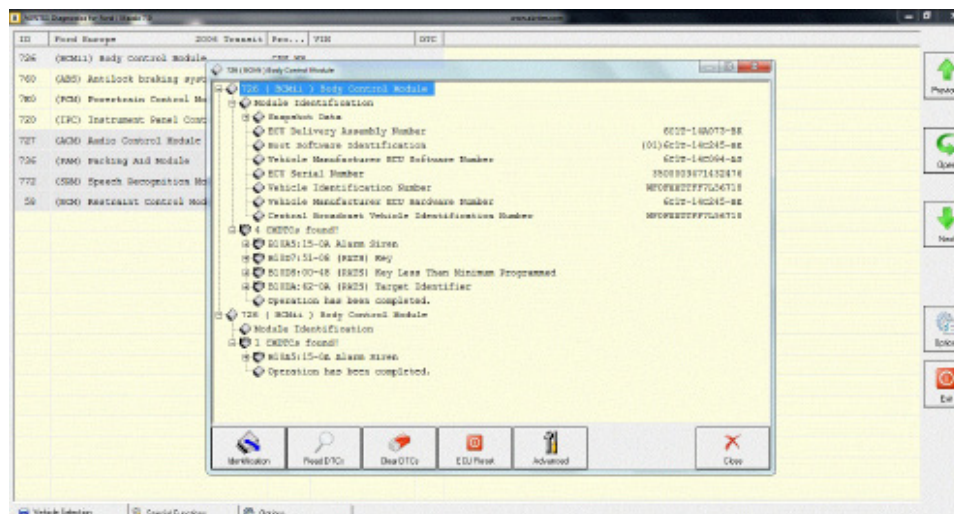
When doing all keys lost on a Ford Transit 2006, 2010, 2013+, when the alarm has been activated, the BCM is blocked and denies entering diagnostic session. This won't allow programming/deleting keys and the procedure will fail.

The following few steps are the workaround to this issue:

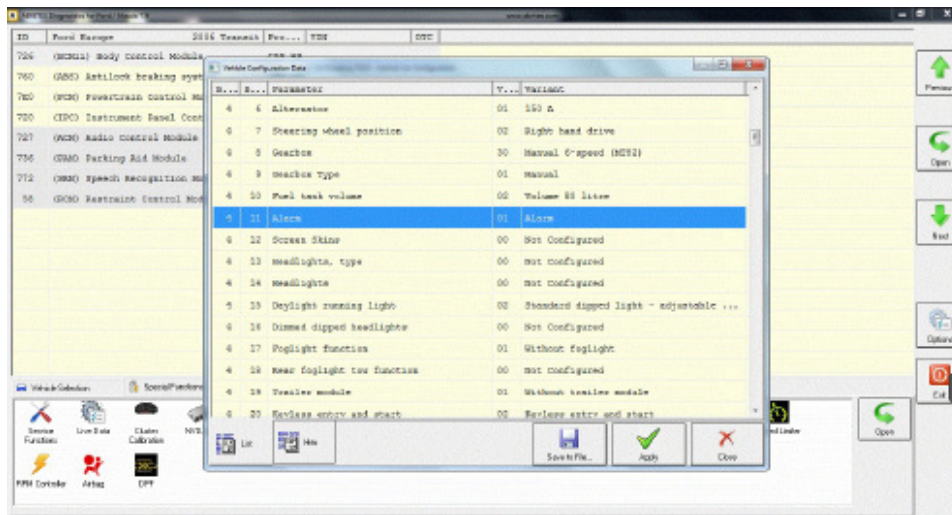
1. Select the CCC function - Central Car Configuration



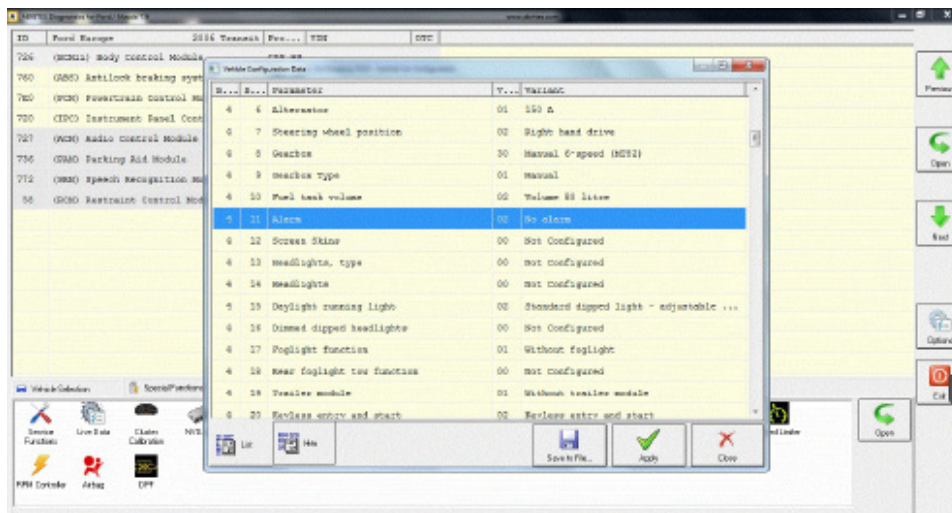
2. Read the config from the Master BCM module



3. Find parameter "11 Alarm"- there is a value "01 Alarm" Edit it to "02 No Alarm" and write it



4. Now you can enter the function to erase/program keys- the BCM is no longer blocked



5. Once done, enter the CCC and enable the alarm using the original parameter

