A·B·R·I·T·E·S
automotive solutions

ABRITES DIAGNOSTICS FOR OPEL/VAUXHALL

Buick/Cadillac/Chevrolet/GMC

User manual

version 3.0

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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You, as a purchaser of Abrites hardware products, are entitled of a two-year warranty. If the hardware product you have purchased has been properly connected, and used according to its respective instructions, it should function correctly. In case the product does not function as expected, you are able to claim warranty within the stated terms. Abrites Ltd. is entitled to require evidence of the defect or malfunction, upon which the decision to repair or substitute the product shall be made.

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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/flame 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.

Table of contents

List of revisions

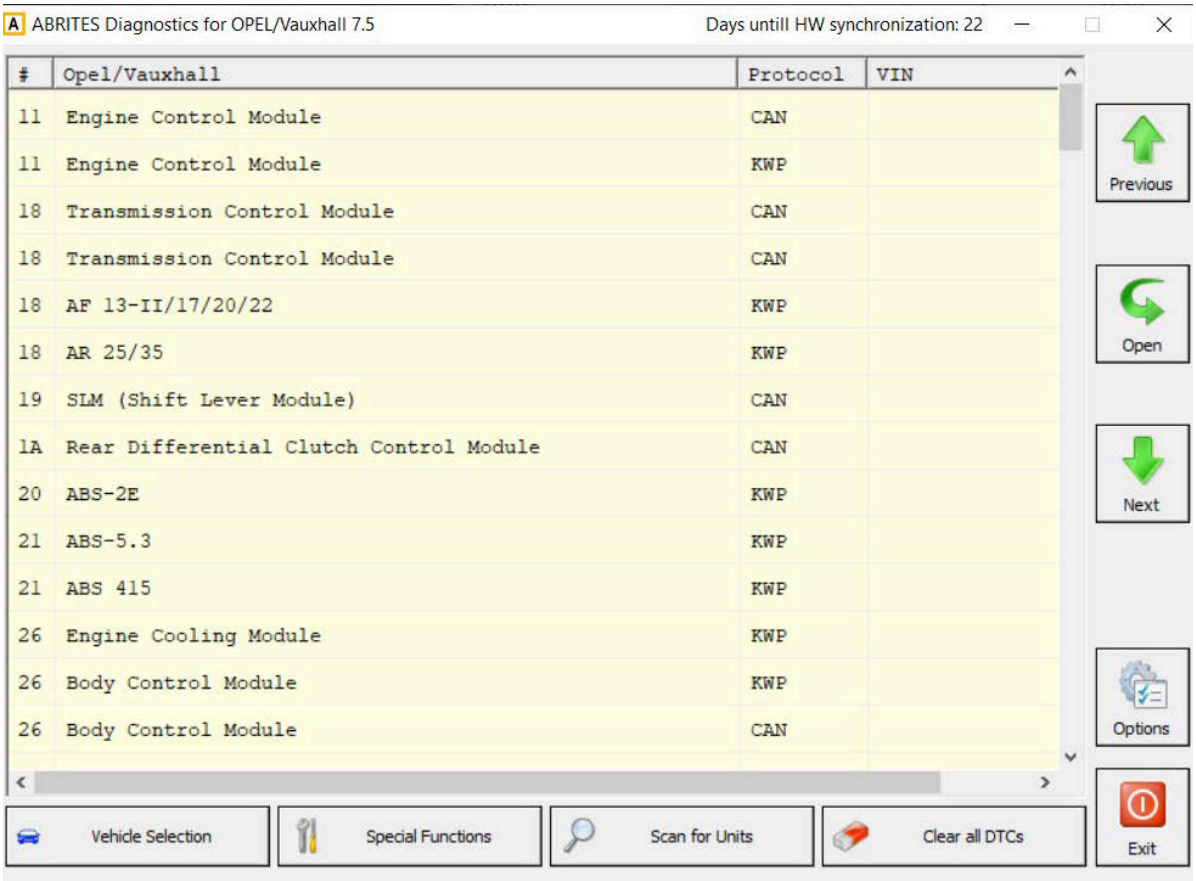
Date	Chapter	Description	Revision
02.10.2015	all	Total revision	2.0
26.03.2020	all	Total revision	3.0

1. Introduction

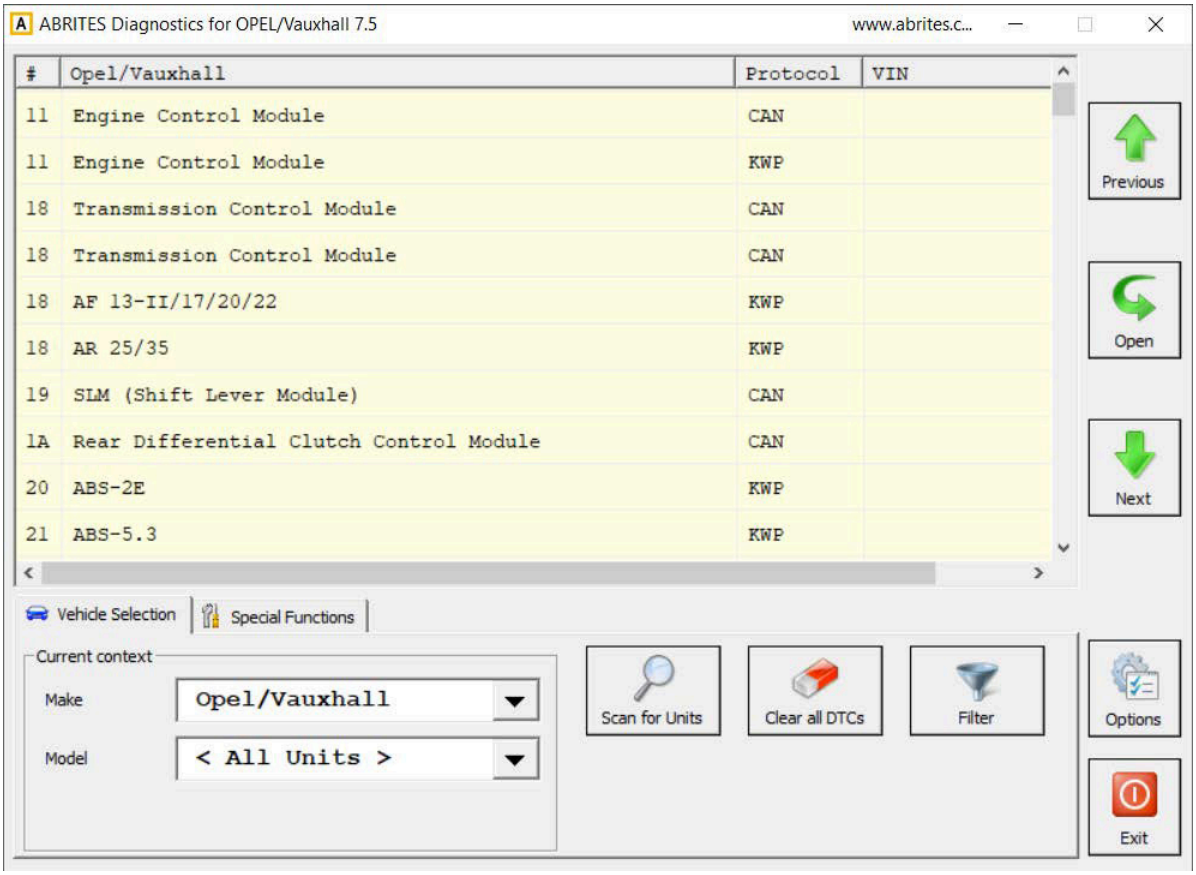
Abrites Diagnostics for Opel/Vauxhall" is a Windows PC based diagnostic software for Opel and Vauxhall vehicles. With the help of this software you can perform complete diagnostic operations of all vehicles. For proper operation of your diagnostic software you will need a corresponding interface for connection between your PC and vehicle named "AVDI". AVDI is an interface produced by Abrites Ltd. intended to act as an interface between the PC and the electronic control units. AVDI should be used with ABRITES software produced by Abrites Ltd. ABRITES is a trade mark of Abrites Ltd.

2. Using the Abrites diagnostics for Opel/ Vauxhall

The Abrites diagnostics for Opel Vauxhall is installed together with the rest of the Abrites diagnostic software applications as a part of the Abrites diagnostic suite provided to the user via e-mail. The user can start the software by clicking on the appropriate icon from the Abrites "Quick start" menu.
Once the application is started the main software screen will open:



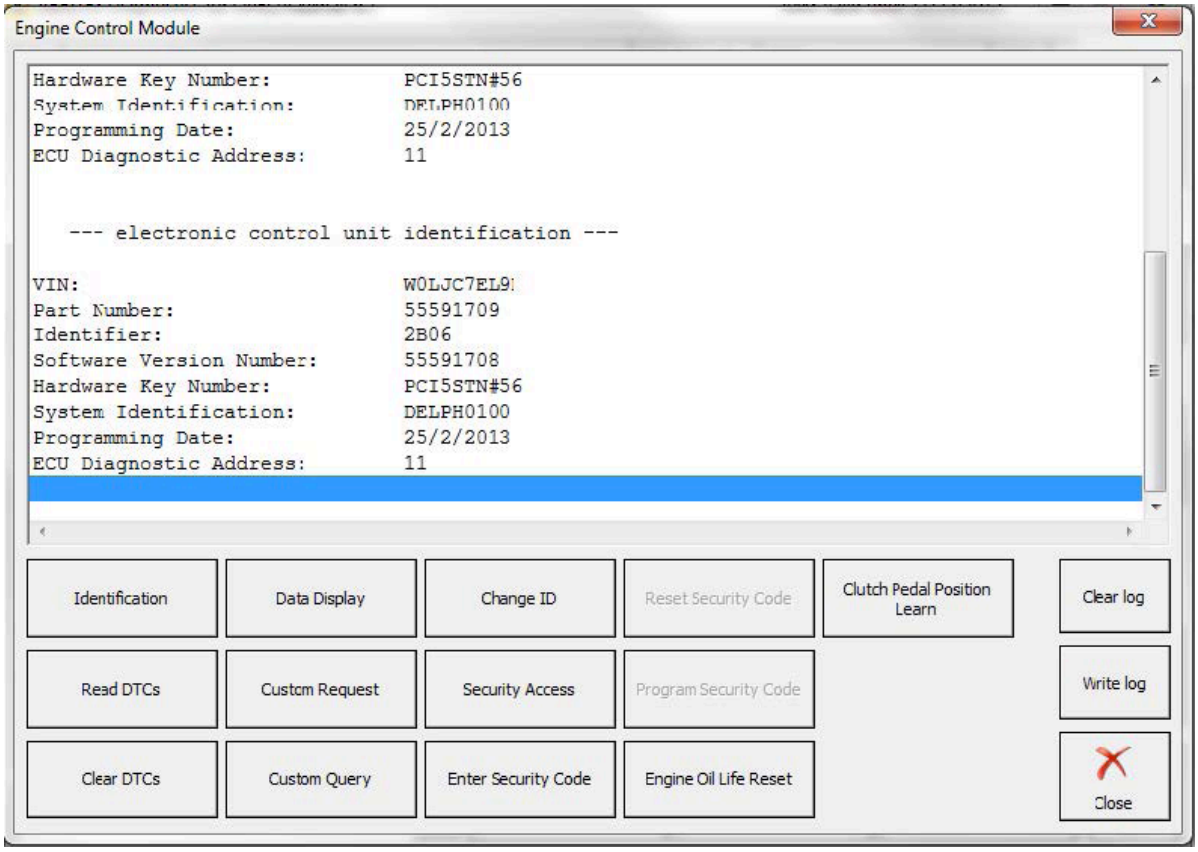
This is the main screen of the software and it shows all the navigation buttons as well as the ones for vehicle selection, scanning and general diagnostic trouble code (DTC) clearing. Once the Diagnostics is connected to the vehicle and the scanning of the available modules is performed the existing modules for the particular car will be displayed. From the drop down menu you can manually choose the brand and model of the vehicle you are working with.



This screen will display all the modules that are installed in the vehicle, as well as the protocols they use for communication, their VIN numbers and the number of diagnostic trouble codes (DTC) in each electronic module. The options here will allow you to clear all the diagnostic codes automatically for all units.

2.1 Module Identification

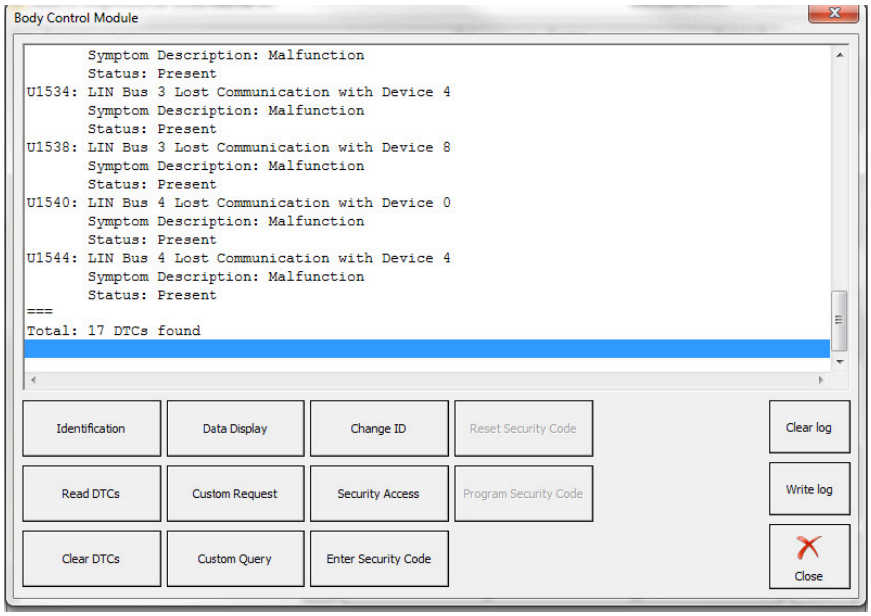
Once a single module is selected (using a double click from the diagnostic menu) the menu for this specific module is displayed:



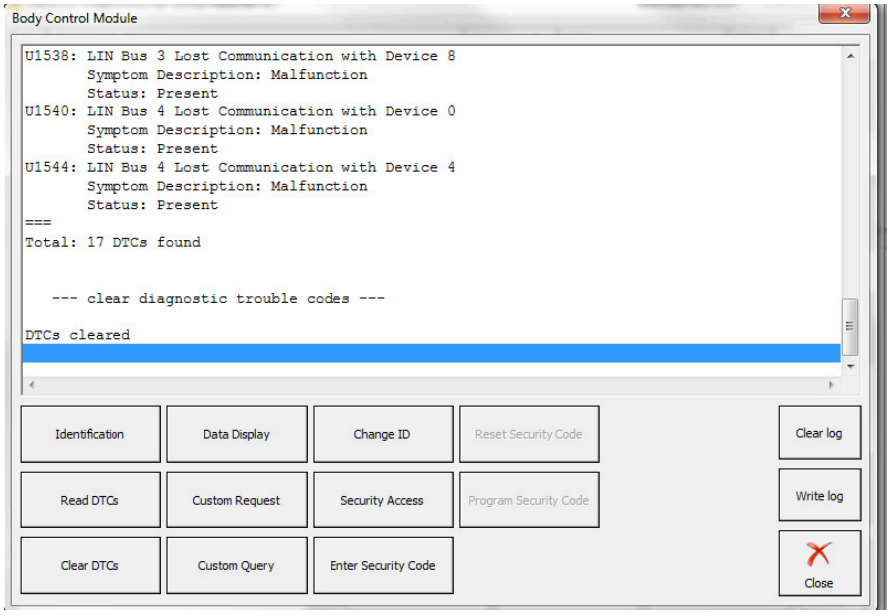
The first option from the list of buttons is the identification option. This displays all the relevant data connected to the electronic module including: VIN, part number, ID, software version, date of programming, electronic unit manufacturer and other options.

2.2 Read and Clear Diagnostic Trouble Codes (DTCs)

When selecting the Read DTC button the diagnostic trouble codes from the selected electronic control module are displayed in a list in order to be viewed and analyzed.



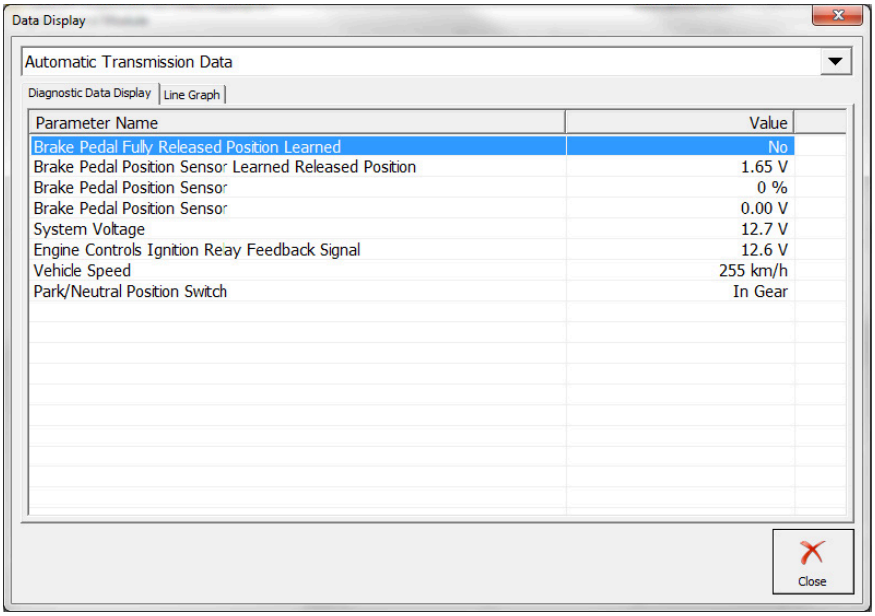
The software shows the trouble codes, their descriptions and their occurrence. Given these details, an analysis of the trouble codes can be made in order to determine the source of the issue.
When this analysis is perormed the diagnostic trouble codes can be cleared.



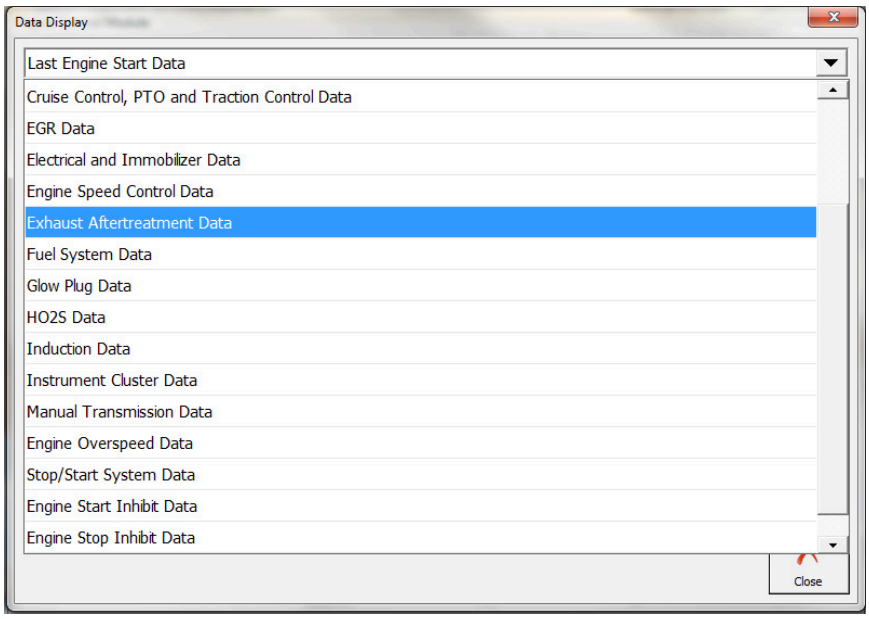
When selecting the "Clear DTCs" button you will be able to clear the diagnostic codes immediately. If a DTC is not cleared upon second reading after clearing – the issue should be revised and repaired if needed.

2.3 Live Data Display

Displaying live data from the electronic control modules in real time offers much needed assistance when analyzing the cause of an issue. It helps to determine co-relations between events for example if the there is a delay between pressing the accelerator pedal and the climbing of the RPM of the engine.



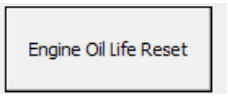
All the data is displayed in a table. The information provided by this function can be irreplaceable for determining the cause of a fault. Additional options for the data display are also available. There is an option to test and view many details.

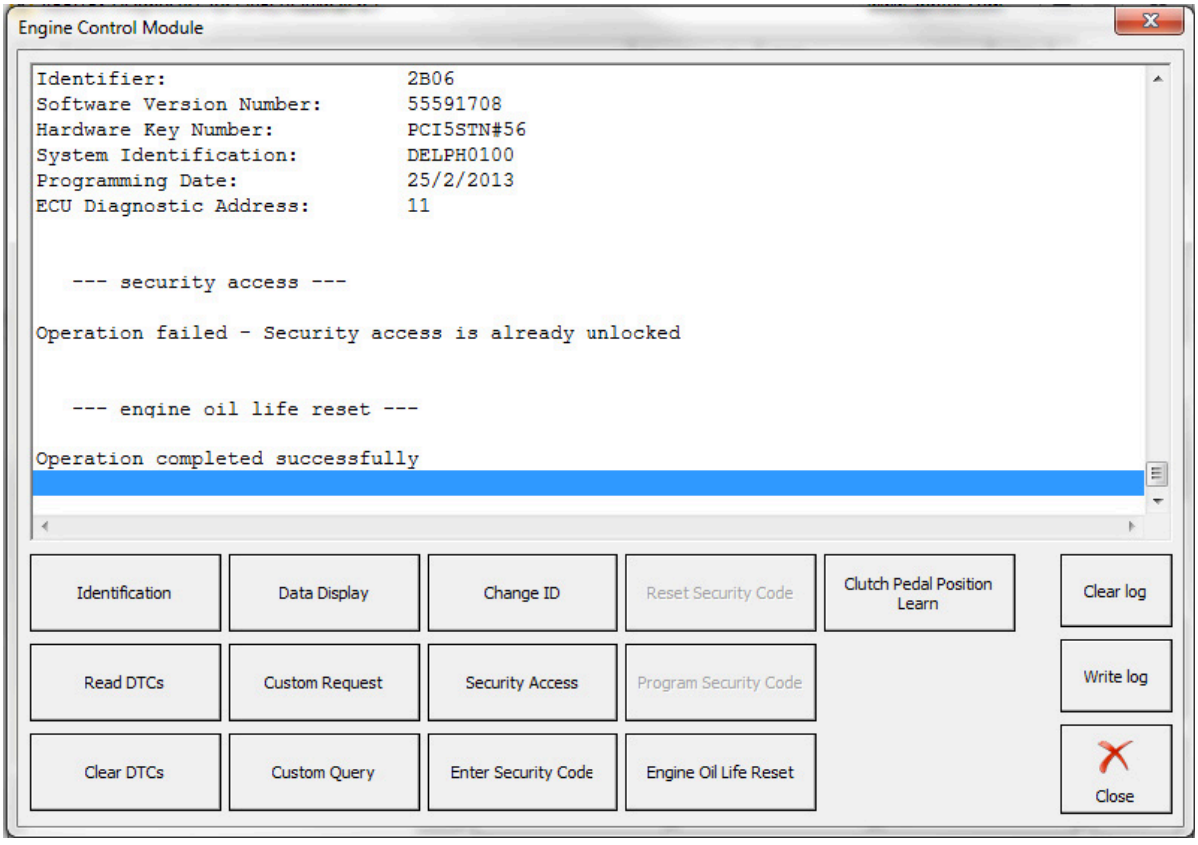


The option to activate and deactivate features is also available.

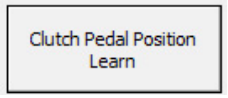
2.4 Engine Oil Change Reset

Once a workshop performs a maintenance on a vehicle, a part of which an oil change may be they need to be able to "tell" the vehicle's electronic modules that the maintenance has been performed. Once the Engine oil reset button is pressed the software will reset the vehicle's counter thus telling the vehicle that it's oil has been changed.



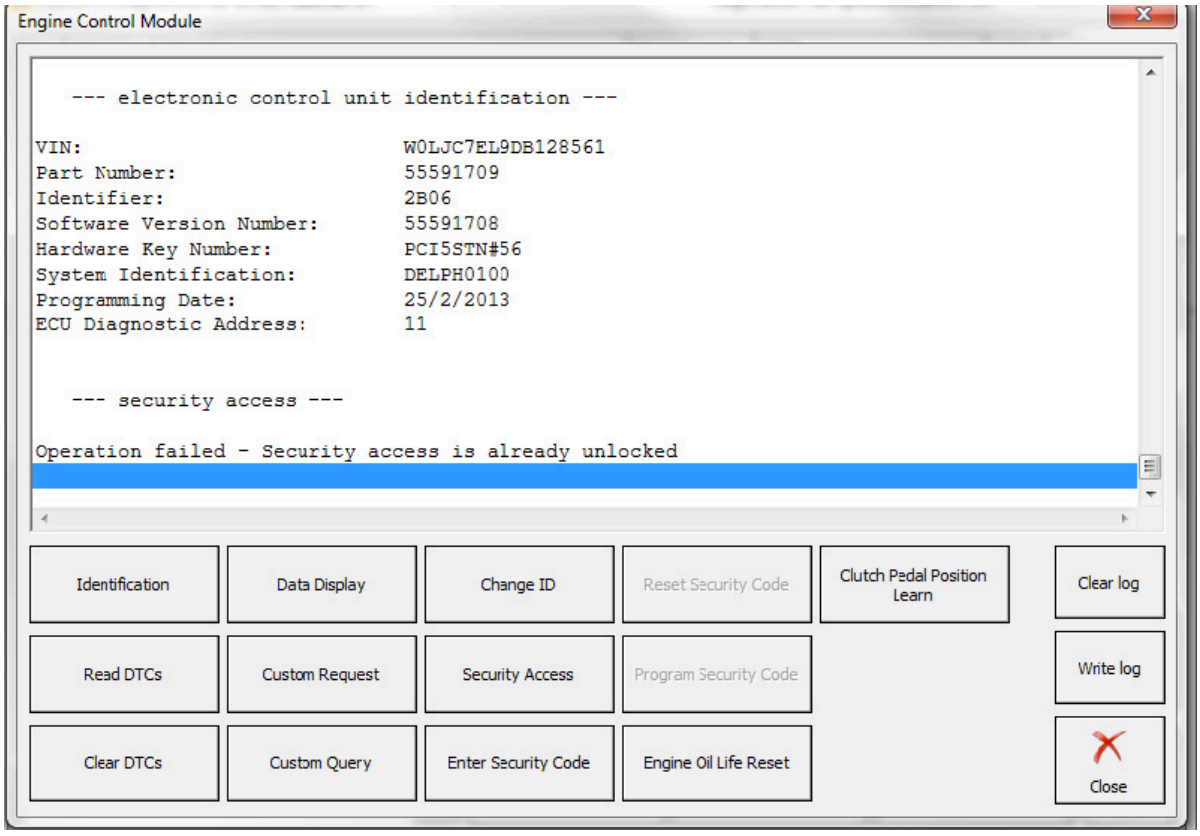


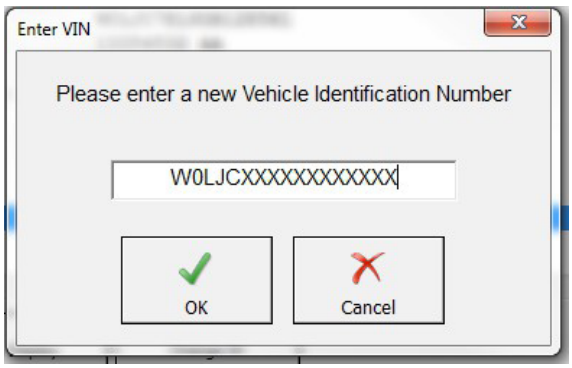
The "Clutch pedel position learn" button allows the clutch position to be learned by on board diagnostics (OBD):

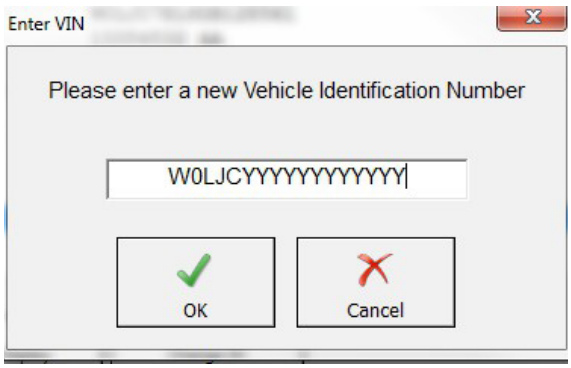


2.5 Security access and ID change

Every time a second hand module is adapted to a vehicle in order to adapt this unit you will need to use the security code of the vehicle and the module in order to replace it. Once this module is replaced you will also need to change the ID of the module in order to match the vehicle thus ensuring it's correct operation:

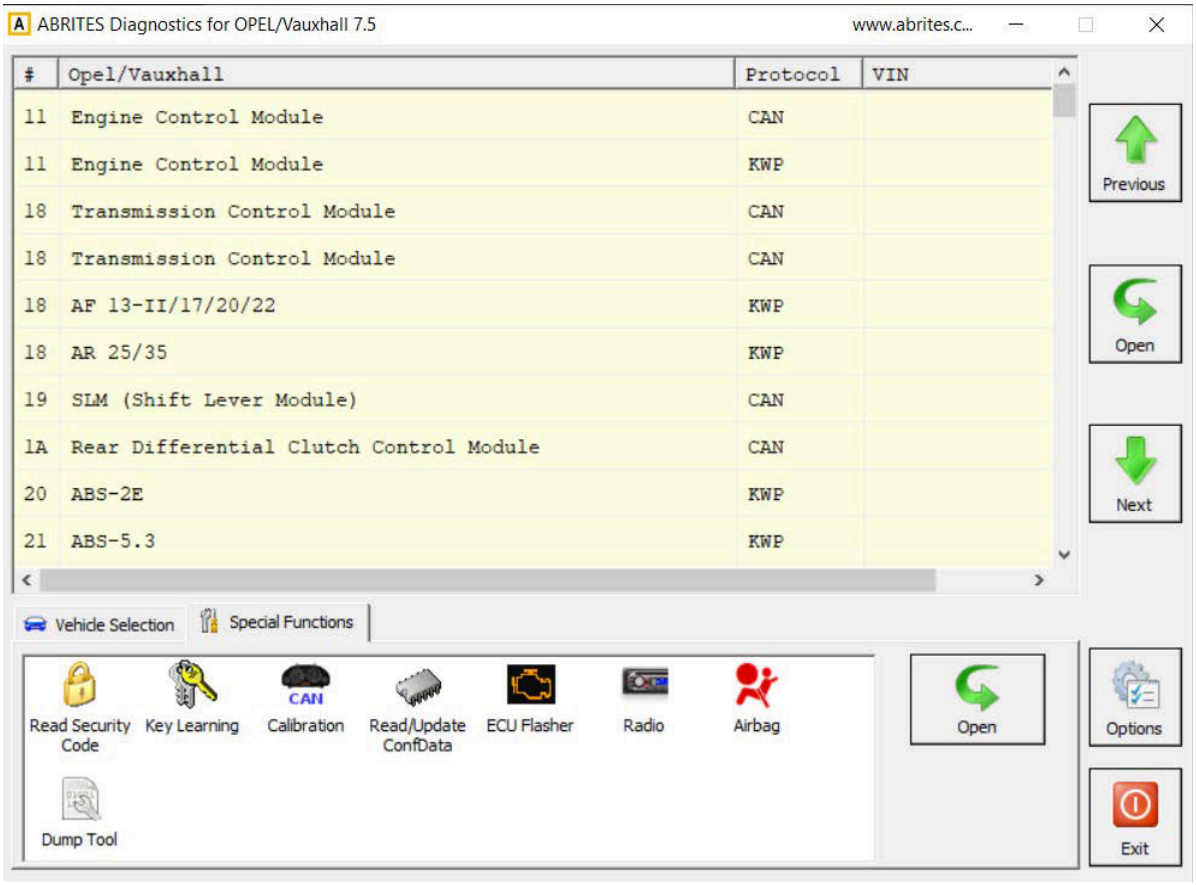






3. Special Functions

Special functions are designed to assist when performing advanced diagnostics on vehicles from the Opel and Vauxhall brands. These special functions include Engine control unit flash management, Pin code reading and key management and advanced module configuration of electronic modules.These functions are separated in the Special Functions list. The list is located at the bottom 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 on the right of the list.



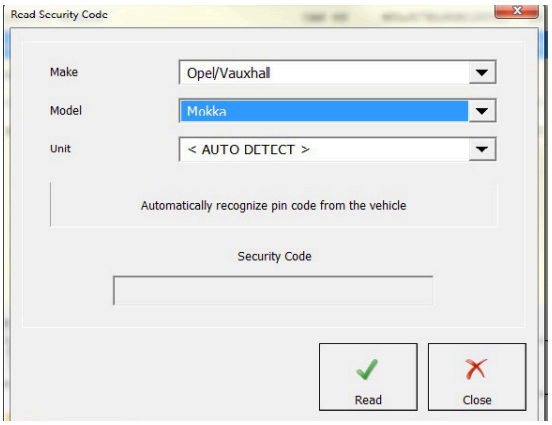
Special functions are opened from the appropriate tab of the main diagnostic screen of the Abrites diagnostics for Opel/Vauxhall. Each of the icons in this window represent a special function.

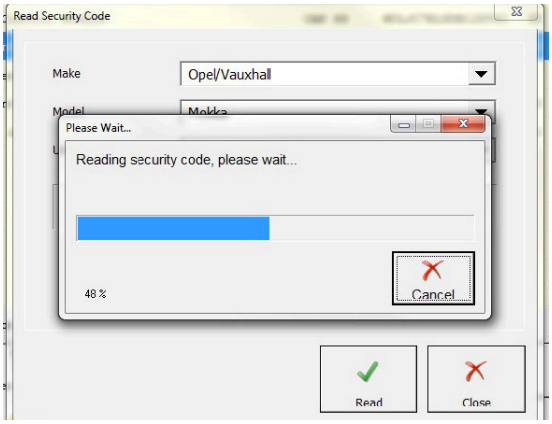
3.1 Read Security Code (PIN Code reading and key management)

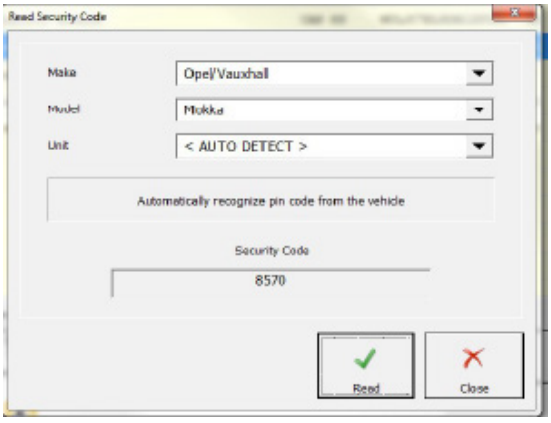
This special function works for Opel and Vauxhall vehicles, as well as the following brands: Buick, Cadillac, Chevrolet, GMC. Security code is required for any immobiliser-related operation. In general, it can be found in the Car Pass or can be obtained from your local dealer. Read Security Code function is an instrument for extracting the security code from the car and thereby, eliminate the need from contacting the dealer.

In order to perform key learning for Opel and Vauxhall vehicle the Security Code (PIN code) isneeded. In order to learn keys the first step is to read the Security Code.

Once the function is selected the model should be selected and you need to press “Read”.
The complete list of supported vehicles can be seen in the software menu, in the Abrites website and webstore, under the dedicated license.





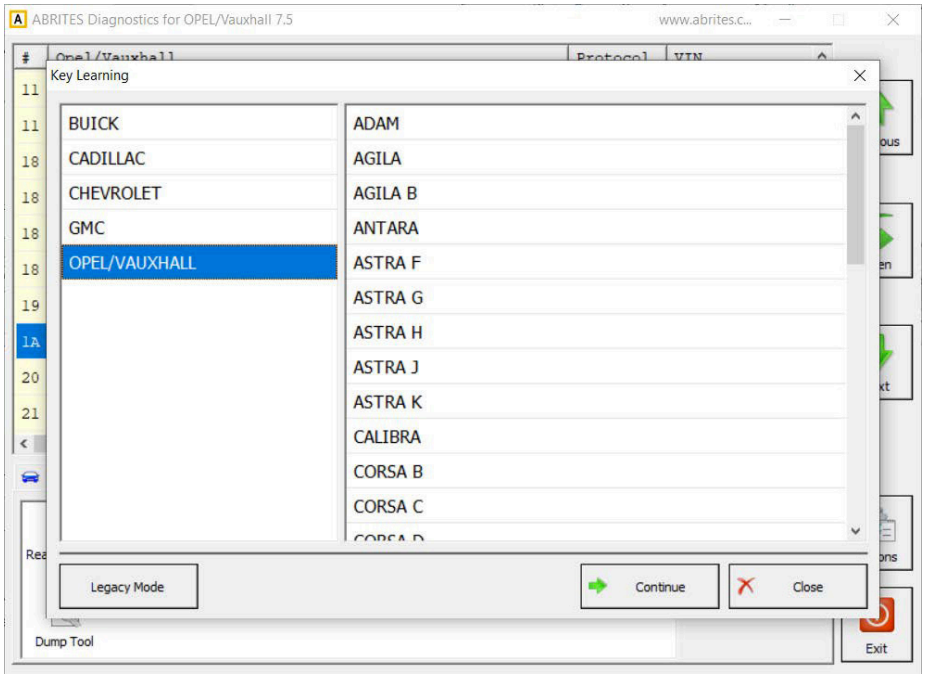


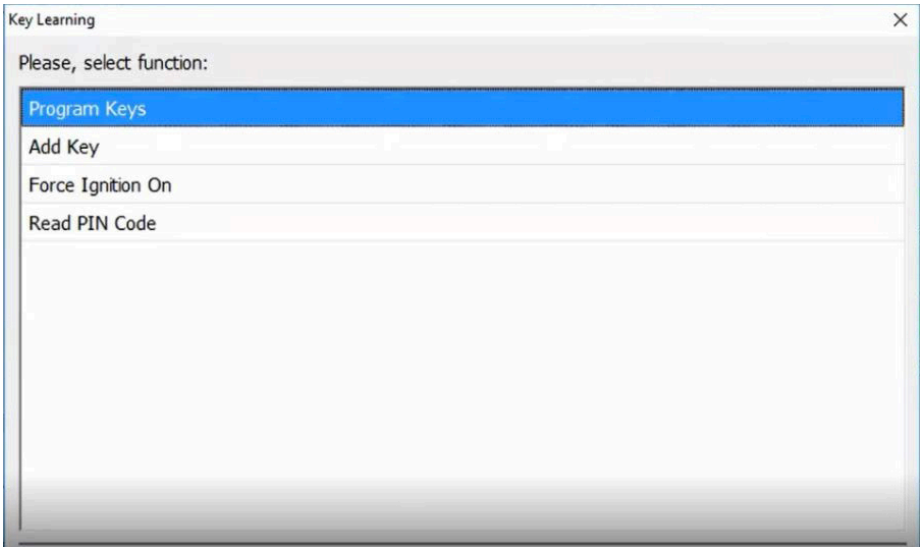
To read the security code you have to select the brand, vehicle model, and the electronic control unit from which the security code should be extracted. The list of the units depends on the brand and vehicle model and is updated whit every new software version. Next you have to click on the read button and to wait until the reading process is complete.
When the security code is extracted it will be shown in the box with a label “Security Code.”

3.2 Key Learning

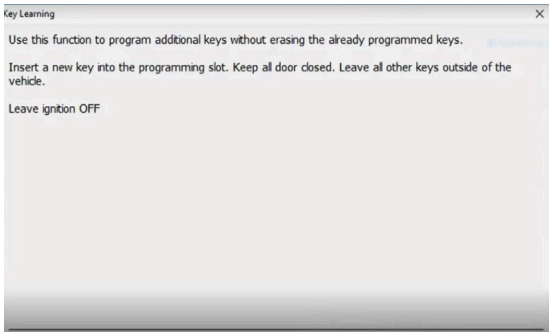
After the code is read you can open the key learning screen you will have the PIN in the field:

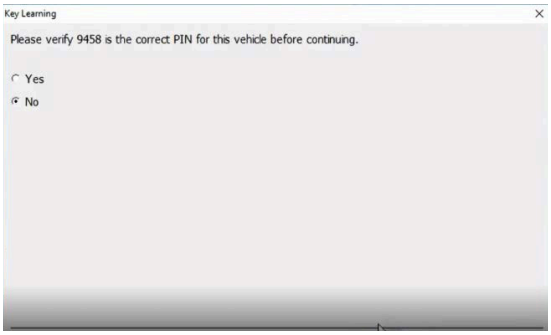
Key Learning is an instrument for programming transponder keys to immobiliser. The complete list of su ported vehicles can be seen on the picture below and in the Abrites website and webstore, under the dedicated license.

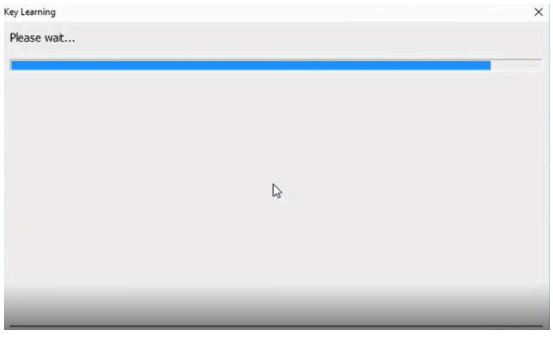


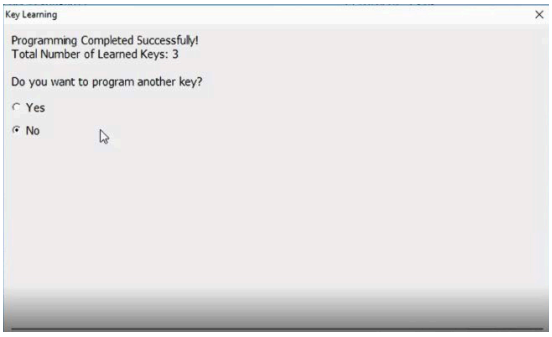


After the model has been chosen, you will see the options - you can program keys, add key, force ignition on, and read PIN code. Using the add key option would let you program additional keys, without erasing the already programmed keys. The software works as a guided function and provides the steps that need to be taken. The software would apply the PIN code that has already been read, and would ask for verification. At the end, the software would ask if you want to program another key, if not, the procedure is completed and key was programmed successfully.







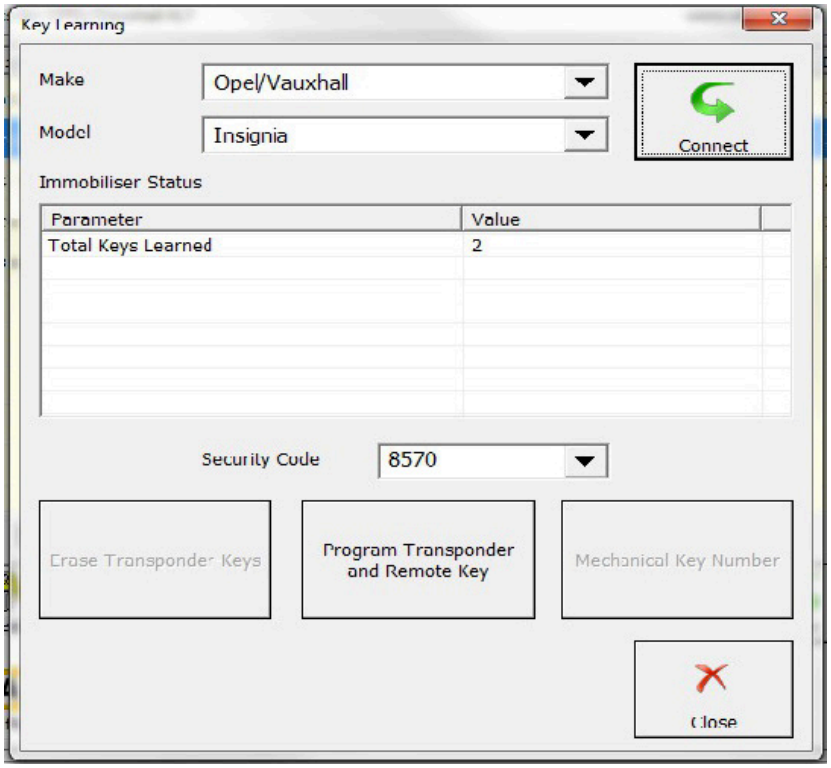


3.2.1 Legacy Mode

Legacy mode serves as the older version of the key learning special function, and it has all the capabilities for older vehicles.

- Using this tool you can:
- Erase all transponder keys
- Program transponder-key
- View mechanical key number
- Program mechanical key number

From this window keys can be learned to the vehicle via on board diagnostics (OBD).



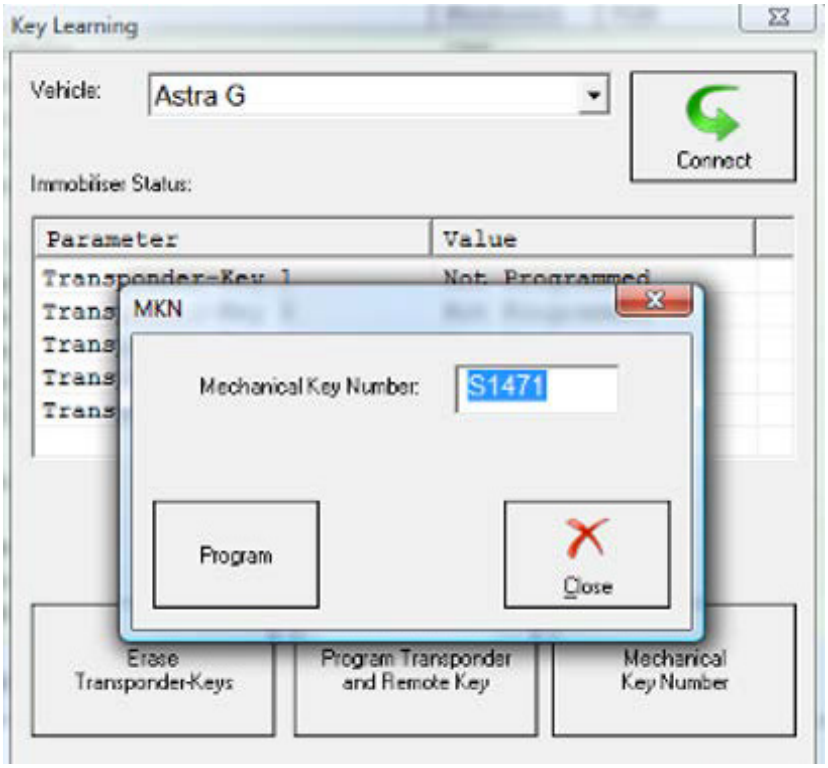
With the button Erase Transponder-Keys you can erase all transponder keys. This function is useful, for example when a car-key is lost or it's stolen. When you erase all keys, you can reprogram only those keys which are available.

Important: Erasing transponder-keys will not erase the programmed remote controls for the car.

With the button Program Transponder and Remote Key, you can learn a transponder key to the immobiliser. With this function you can program only new keys or repr gram already programmed keys (keys which were erased but belong to the same car). Only one key can be programmed at once. If you want to program two or more keys, please repeat the procedure accordingly.

3.2.1.1. Mechanical key number

To view mechanical key number click on the button Mechanical Key Number. For Astra H, Corsa D, Vectra C/Signum and Zafira B a valid security code shall be entered first. For all other models the security code is not required.



If you want to program a new mechanical key number, enter it in the edit box and click on the Program button. If the security code is required, you will see a warning message asking you to enter it first.

3.2.2 Programming keys for Vivaro and Movano

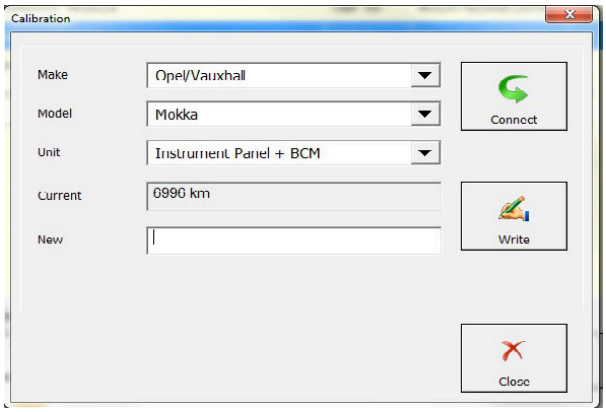
In contrast to the other Opel models, for Movano and Vivaro all transponderkeys are programmed at once. That's why when you select Movano or Vivaro the only enabled button is "Program transponder-key". When you click on the button the software will ask you how many keys you want to program. Then you should follow the instructions provided by the software when to enter the next key and when to remove it. At the end of the procedure all previously programmed keys will be deleted and only the currently programmed keys will be available.

NOTE: ABRITES software for OPEL/Vauxhall doesn't require entering a security code for key programming of Vivaro or Movano. It's automatically extracted and entered by the software.

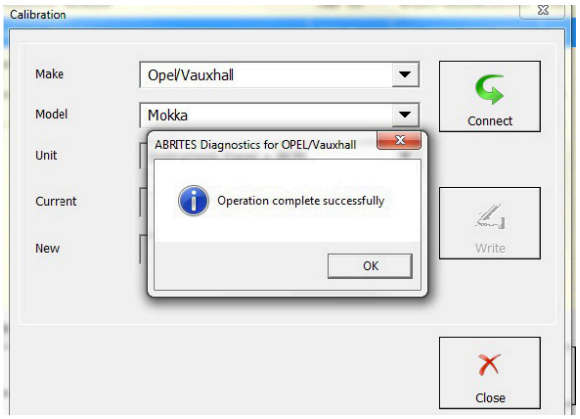
3.3 CAN Calibration (Odometer Correction)

When replacing an electronic module within a vehicle be it a new module or a used one the calibration of this module is vital for the correct operation of this vehicle.
The first step is to connect to the vehicle, then select it and select the unit that is to be calibrated. The current value will then be displayed.

You will need to input the correct value and press the “Write” button.



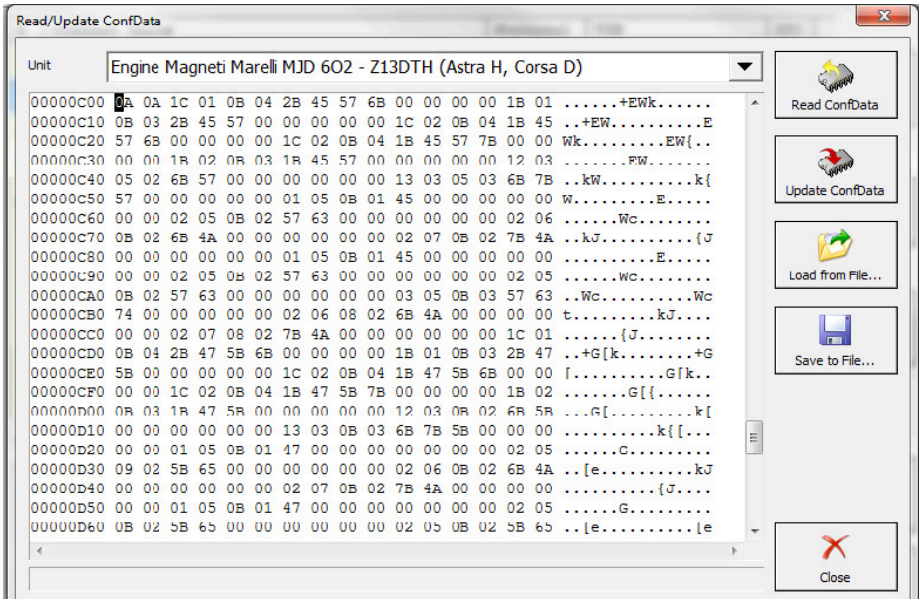
The operation then completes successfully and the new value is updated.



Note: While writing the odometer of the Corsa C Instrument Panel, the trip button should be hold pressed. When the operation is completed with success, a manual reset of the instrument shall be performed, either by disconnecting a battery or by removing a fuse F3 for a few minutes.

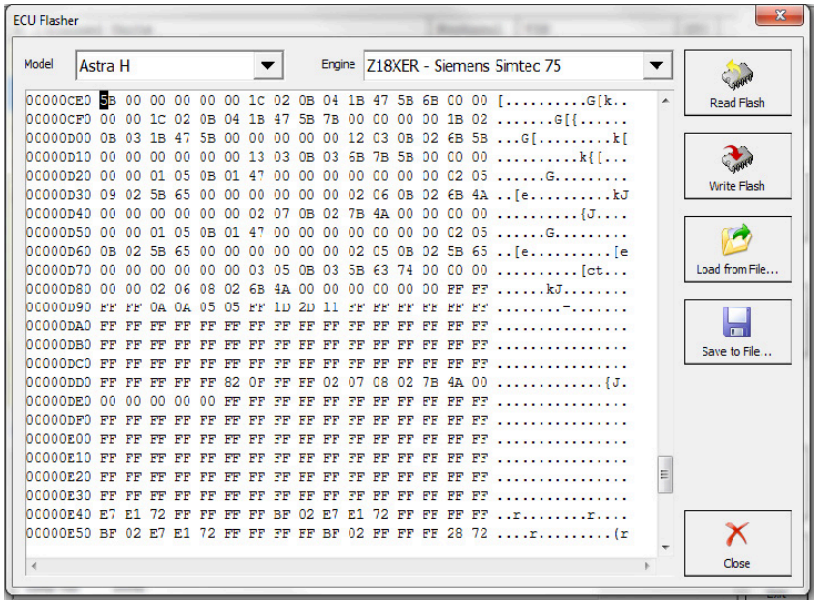
3.4 Reading and updating Configuration Data

This function allows the reading and updating of the Configuration data from the ECUs of Opel/ Vauxhall vehicles. It allows also the saving of data locally to a PC.



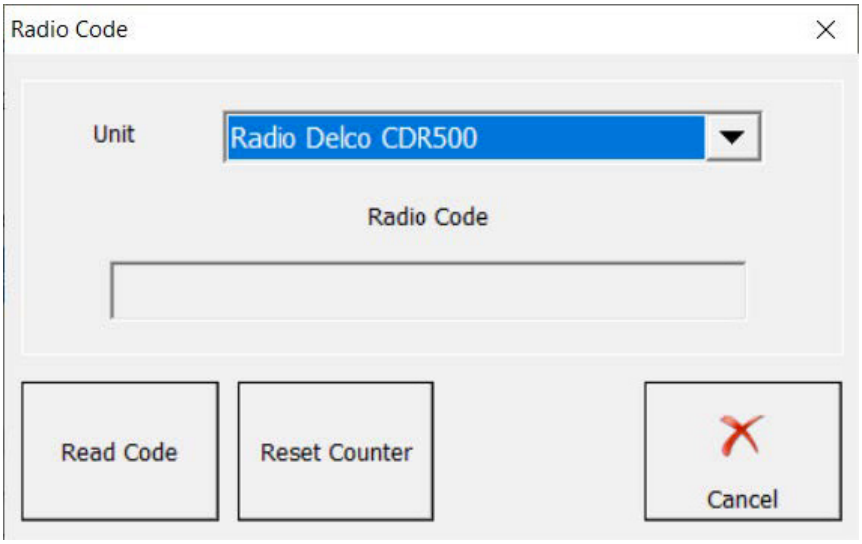
3.5 ECU Flasher

ECU flasher allows the reading, saving locally and updating of the flash data from the ECU.



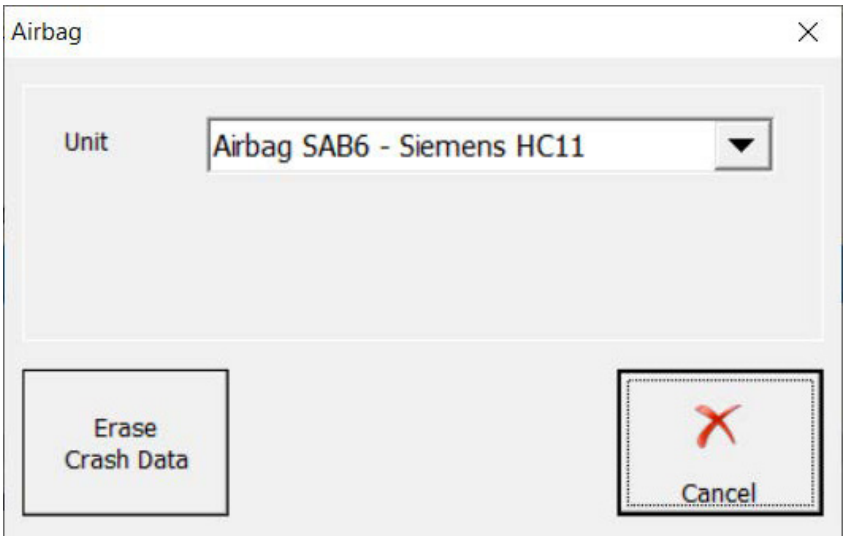
3.6 Radio Code

This is a function dedicated to reading out the radio codes of the radio (multimedia modules) from the vehicles in order to aid adaptation or, as often the case is, to retrieve the multimedia unit to operation after loss of power.



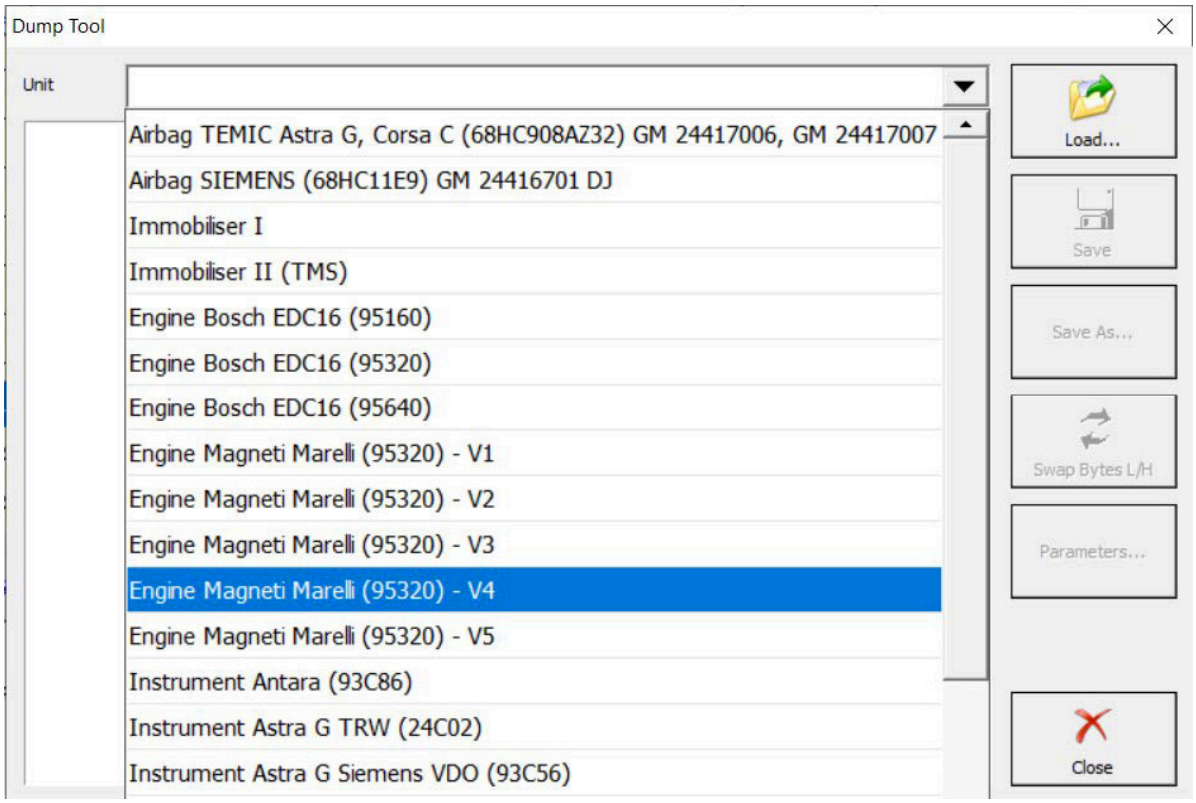
3.7 Airbag

Special function airbag is vital to workshops carrying out damage repairs as in case the vehicle has been repaired after an accident the crash data needs to be cleared. This procedure needs to be pe formed even after regular maintenance of the airbag module where the gas container is replaced.



3.8 Dump tool

Special function "Dump tool" will allow you to work with Configuration data dumps of different modules: You will be able to load files read with a programmer, save them edit parameters on them etc. Abrites Diagnostics for Opel/Vauxhall User Manual 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 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. When complete with modifications click on the OK button. The dump data will be updated accordingly. All necessary check sums will be regenerated. Note that the dump files are loaded in a hexadecimal editor, which can be used by advanced users as a tool for manual editing of the EEPROM content.



You will be able to load files read with a programmer, save them edit parameters on them etc.

Some of the functionalities of this tool are listed below, but are not limited to this list:
Supported electronic control units and their parameters:

- Airbag TEMIC (68HC908) GM24 417 006, GM24 417 007
- Airbag SIEMENS (68HC11E9) GM 24416701 DJ
  - Clear crash data
- Immobiliser II (TMS)
  - Security Code
- Engine Bosch EDC16 (95160)
- Engine Bosch EDC16 (95320)
- Engine Bosch EDC16 (95640)
  - Odometer
- Engine Magneti Marelli (95320) - V1
- Engine Magneti Marelli (95320) - V2
- Engine Magneti Marelli (95320) - V3
  - Odometer
- Instrument Astra G SIEMENS VDO (93C56)
  - Odometer
- Instrument Astra H SIEMENS VDO (M35080)
  - Odometer
  - Security code
  - Vehicle Identification Number
- Instrument Corsa D Johnson Controls (M35080)

- Odometer
- Security code
- Vehicle Identification Number

4. Appendix

Further information on the capabilities of the Opel/Vauxhall software:

There is no dedicated special function on unit exchange, but here is some information how AVDI can be useful in such cases.
With the use of the Opel/Vauxhall software users can exchange units in some cases.

First generation uses K-line communication channel

ECU and immobiliser are synchronized. Unit exchange is done via the diagnostics menu. If, for example, the ECU has been changed, you need to go into the diagnostics menu > immobiliser > adapt or synchronize. This would allow the two units to work together and procedure should be completed. Models example: Vectra B, Zafira A, etc.

Second generation uses CAN communication

In this generations 6 modules are synchronized: ECU, BCM, Instrument Cluster, ABS, Airbag, EPS. New or virgin units are accepted for adaptation. When exchanging a used unit, you need the PIN code of the donor car. You need to reset the PIN Code, thus, making the unit "virgin". In that state, the unit is installed in the car, and once Ignition is ON, the module will be synchronized with the car.
Note: After the procedure, the module would require the PIN code of the (host) car to be written to it.
Models Example: Astra H, Corsa D, Zafira B, etc

Third generation also uses CAN communication

Here are applied the same rules as in the previous generation.
N.B. When exchanging ECU, sometimes it is required to write the flash again, which is not supported by AVDI.
Also, it is required to change the VIN in the exchanged module, which is not fully supported by AVDI, and it works for certain modules only.