ABRITES Diagnostics for

CHRYSLER DODGE JEEP

User Manual

www.Abrites.com

List of Revisions			
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1 INTRODUCTION

“ABRITES Diagnostics for CHRYSLER / DODGE / JEEP” is a Windows PC-based professional diagnostic software for vehicles from the CHRYSLER / DODGE / JEEP group. With the help of this software you can perform complete diagnostic operations of all CAN-based vehicles from the CHRYSLER / DODGE / JEEP group, which are in most cases unsupported from the producer diagnostic testers. The “ABRITES Diagnostics for CHRYSLER / DODGE / JEEP” provides also complete standard diagnostics (read faults, erase faults, current data, actuator tests) for CHRYSLER / DODGE / JEEP vehicles.
Our PC USB diagnostic interface currently supports K-Line, CAN-BUS and J1850 interface.
Diagnostics is performed via the OBD-II connector.

2 VEHICLE DIAGNOSTICS WITH "ABRITES DIAGNOSTICS FOR CHRYSLER / DODGE / JEEP"

The "ABRITES Diagnostics for CHRYSLER / DODGE / JEEP" consists basically of two parts:

- Standard diagnostic functions like reading/clearing fault codes (DTC), scanning available devices in the car, displaying actual values (measured parameters), performing actuator tests etc.
- Special functions like Key Learning, Mileage Recalibration, Engine Control Unit reading/writing and Dump Tool.

All devices, which may be present in the car, are listed in the main screen of the "ABRITES Diagnostics for CHRYSLER / DODGE / JEEP". If you want to connect to a specific device, please double click on it or select it ant press the "*Connect*" button. The "ABRITES Diagnostics for CHRYSLER / DODGE / JEEP" will try to connect to the device.

For the latest Chrysler/ Dodge/ Jeep vehicles please read the Abrites diagnostics for Fiat/ Alfa/ Lancia/ FCA manual.

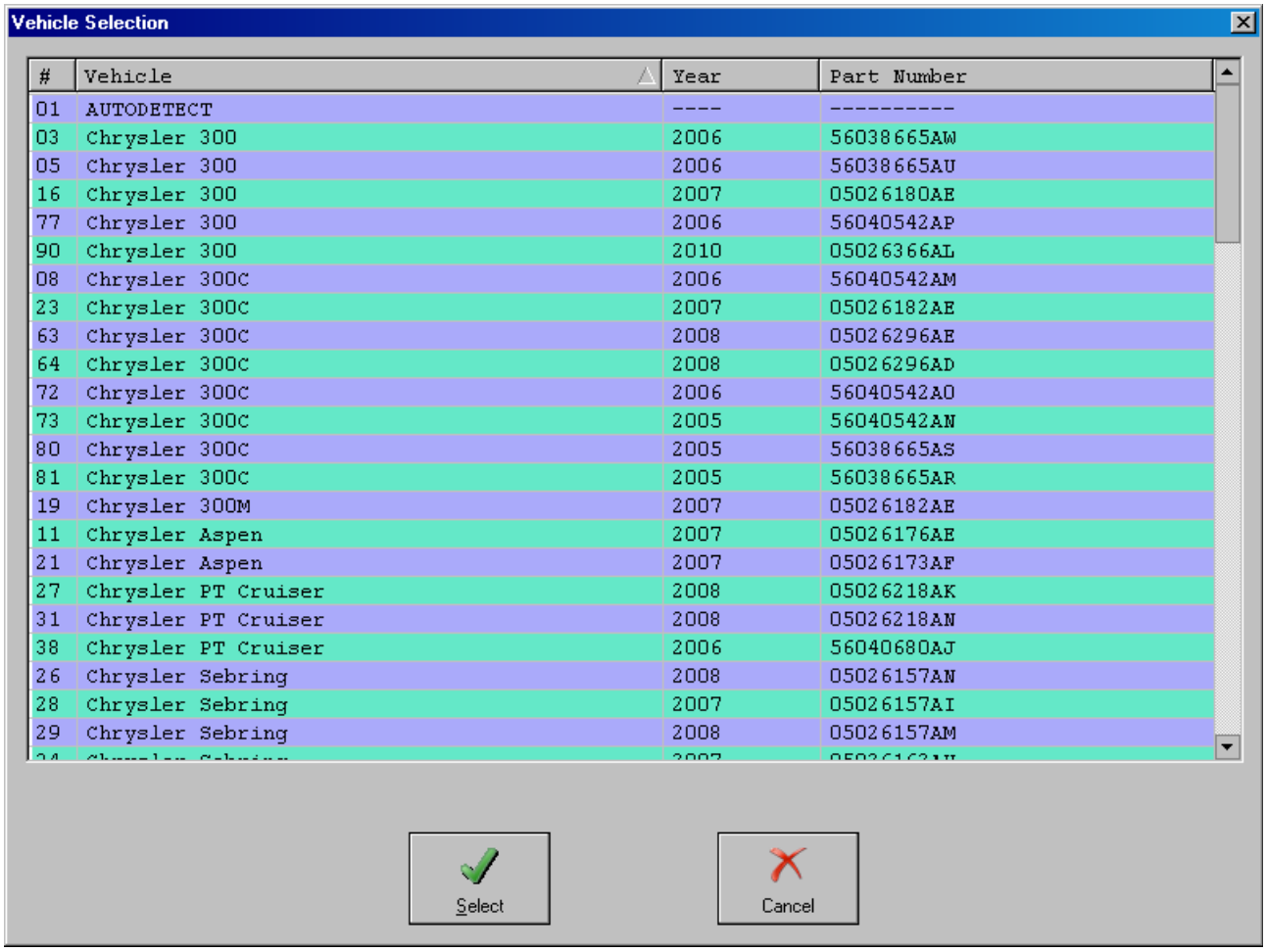
2.1 Special Functions

The appropriate special function is opened by selecting it from the list box and double-clicking on it, or by selecting it and then pressing the “Open” button.

1.1.1 “Immobilizer (SKIM)”

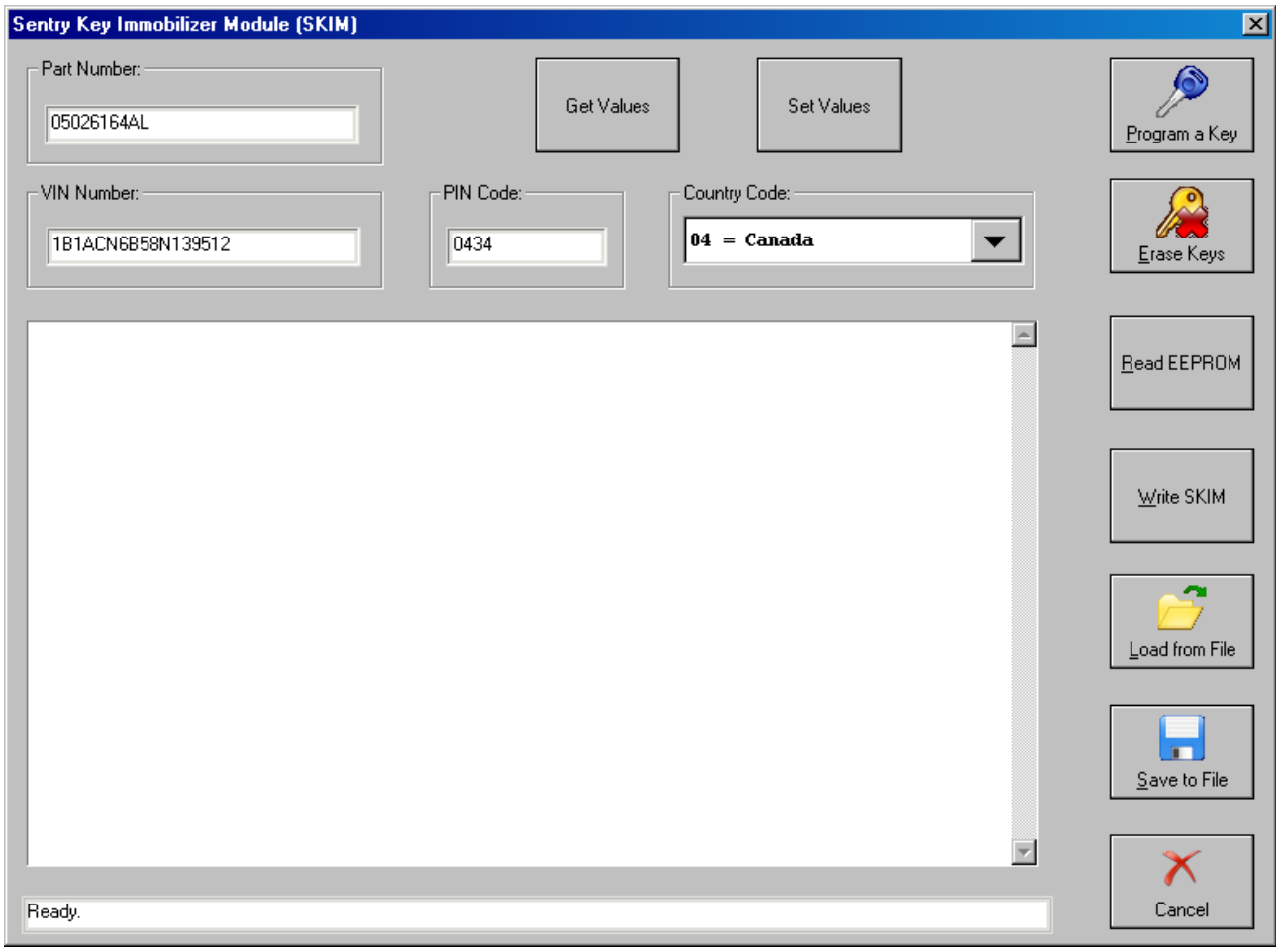
SKIM means **S**entry **K**ey **I**mmobilizer **S**ystem. It prevents unauthorized operation of the vehicle by disabling the engine. The system will shut the engine down after 2 seconds of running if an invalid key is used to start the vehicle. This system utilizes ignition keys which have an electronic chip (transponder) embedded into them. Only keys that have been programmed to the vehicle can be used to start and operate the vehicle for more than the two second validation time period.
During normal operation, the Sentry Key Indicator light, located on the instrument panel upper cover, will come on for 3 seconds immediately after the ignition is turned on for a bulb check. Afterwards, if the bulb remains on solid, this indicates a problem with the electronics. If the bulb begins to flash after the bulb check, this indicates that an invalid key has been used to start the vehicle or there is a communication failure between the transponder and the Sentry Key Immobilizer module. Both of these lamp conditions will result in the engine being shut down after 2 seconds of running. Keep in mind that a key which has not been programmed is also considered an invalid key even if it is cut to fit the ignition for that vehicle.
If the Sentry Key Immobilizer System indicator light comes on during normal vehicle operation (it has been running for longer than 10 seconds) a fault has been detected in the electronics and the vehicle should be serviced as soon as possible.
The Theft Alarm Light, located on top of the instrument panel, will illuminate for about 3 seconds when the ignition switch is first turned to the On position. If the vehicle electronics do not receive a valid signal from the ignition key, the theft alarm light will flash continuously to signal that the vehicle has been immobilized. If the Theft Alarm Light remains On during vehicle operation, it indicates a fault in the system electronics.
A four digit PIN is needed to service the Sentry Key Immobilizer System. This number can be found on your customer invoice that you were given upon receipt of your vehicle. However, if you lost your PIN Code the Abrites Diagnostics for Chrysler/Dodge/Jeep can read it from the SKIM module.

When you select this special function the following screen appears:



At this moment you must select the appropriate vehicle. If you do not know which vehicle to choose you may check the Part Number of the SKIM module and select the vehicle whose Part Number matches. You may also select “AUTODETECT” and the software will try to detect which is the best match.

After you are ready with the selection you must press the button 'Select'. The following screen appears:



Here it is important to note that if you know the PIN Code of the vehicle you can enter it in the field “PIN Code:”. After this you can click the buttons “Program a Key” and “Erase Keys”.
However, if you don’t know the PIN Code – you must press the button “Get Values”. The software will read the PIN Code from the SKIM module and will display it.

Programming Keys

Below is the procedure, which you must follow in order to program new keys. We give an example for programming 2 keys:

1. Press the button “Program Keys”.
2. Insert the first valid key into the ignition and turn the ignition On for at least 3 seconds but no longer than 15 seconds.
Turn the ignition Off and remove the first key.
3. Insert the second valid key and switch the ignition On within 15 seconds. After ten seconds a chime will sound and the Theft Alarm Light will begin to flash.

Turn the ignition Off and remove the second key.
3. Insert a blank Sentry Key into the ignition and switch the ignition On within 60 seconds. After 10 seconds a single chime will sound. The Theft Alarm Light will stop flashing, and turn On for 3 seconds; then turn Off.
The new Sentry Key has been programmed. The Remote Keyless Entry (RKE) transmitter will also be programmed during this procedure.
Repeat this process to program up to a total of 8 keys.

Erasing Keys

If a programmed key is lost, you need to erase the available keys from the systems memory. This will prevent the lost key from starting the vehicle. All of the remaining keys must then be reprogrammed.

1.1.2 "Dump Tool"

By using this special function it is possible to calculate odometer values, display PIN codes, etc.. This application needs the EEPROM dump from the corresponding control unit. After the dump is loaded, some modifications will be made and you need to store the resulting dump as a new file, which you can program with a special programmer into the device that the dump is from. The dump tool receives as input a dump file from the corresponding unit (input dump is loaded with the "Load dump" button). The dump file can be read either via OBDII but also with a programmer (especially for units where reading via OBDII is not possible). As output the dump tool displays some data extracted from the input file and/or makes some modifications to the input data. If modifications were made (for some sub-functions there are no modifications made, only data are visualized) the user has to write the modified dump to the desired file (with the "Save dump" button), and then this modified dump should be saved back to the device via OBDII or with a programmer. If data are read/written with a programmer the user must make sure that the proper byte order is used. Because most of the programmers are reading the data on 16bit words, the byte order in the dump depends on the used programmer – some programmers produce dumps starting with the least significant byte, and some produce dumps starting with the most significant byte. This means that for the same unit two different programmers can produce different dumps. For that purpose a button "Swap bytes" is provided. This buttons changes alternatively the byte order into the dump. So, if after loading the dump file into the dump tool data cannot be extracted or modified, please try to swap the bytes to get a correct result.

3 APPENDIX

3.1 Supported models for key learning

The list of supported models is available at www.abrites.com