

MB Light v2.0.

MANUAL.

We present to your attention a hardware system **MB_Light v2.0**.

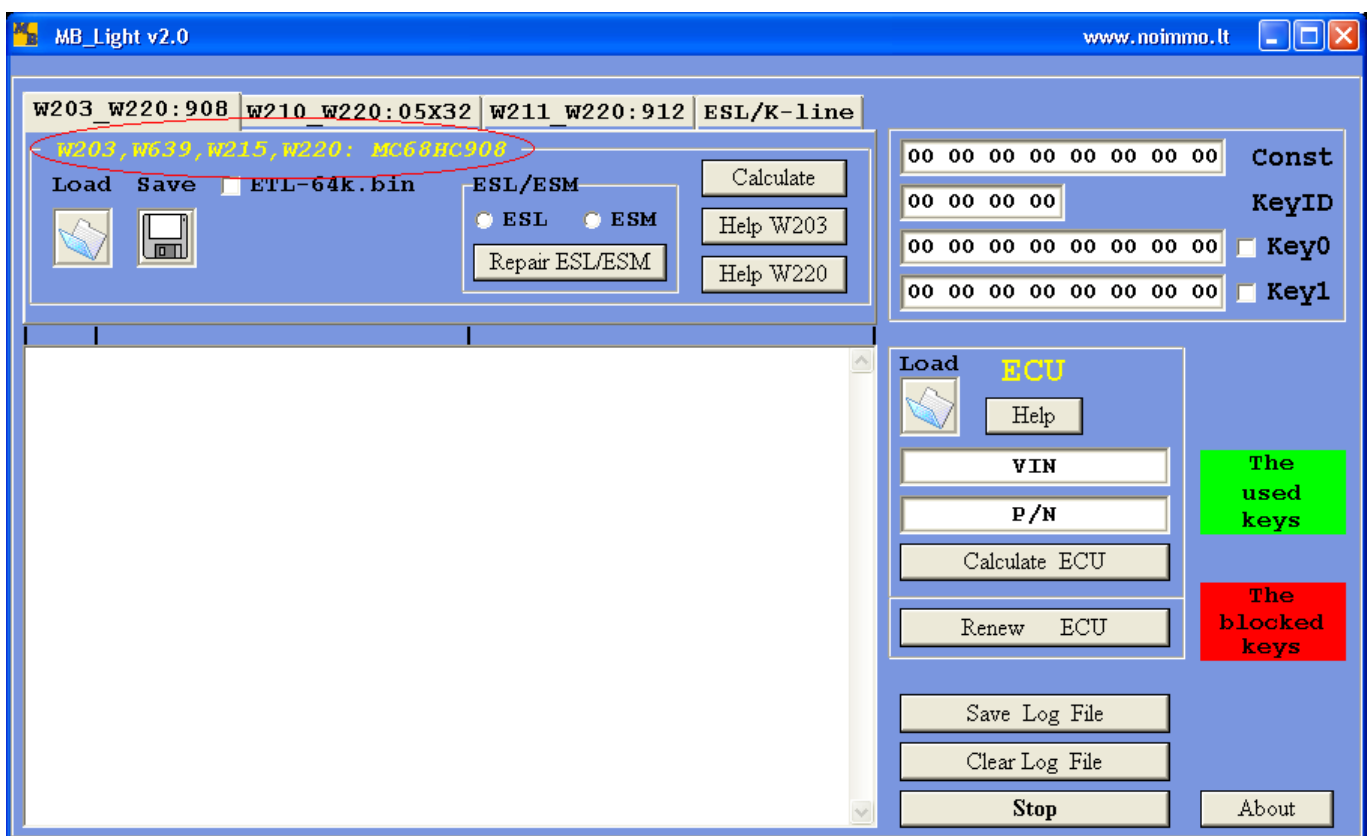
It's main function – extremely easy programming of “preprogrammed” keys to Mercedes. Besides, this program works independently with ESL dumps, ESM dumps etc.

Attention! This description does not claim to be completely updated. It might need updating and some newest changes might not be included. Apart from these instructions we advise to use **Help** directories in the corresponding windows.

After you have connected the main unit from our set to the USB port, you will need to install the drivers (included). The process of installing is not described here.

Run the program.

1. Work with bookmark W203_W220:908.



The program initially opens at bookmark **W203_W220:908**. It means we work with EIS which has a **MC68HC908AS60(AZ60)** processor. The list of cars with EIS based on this processor is encircled in red.

Below you can see **W203** and **W639** EIS processor.

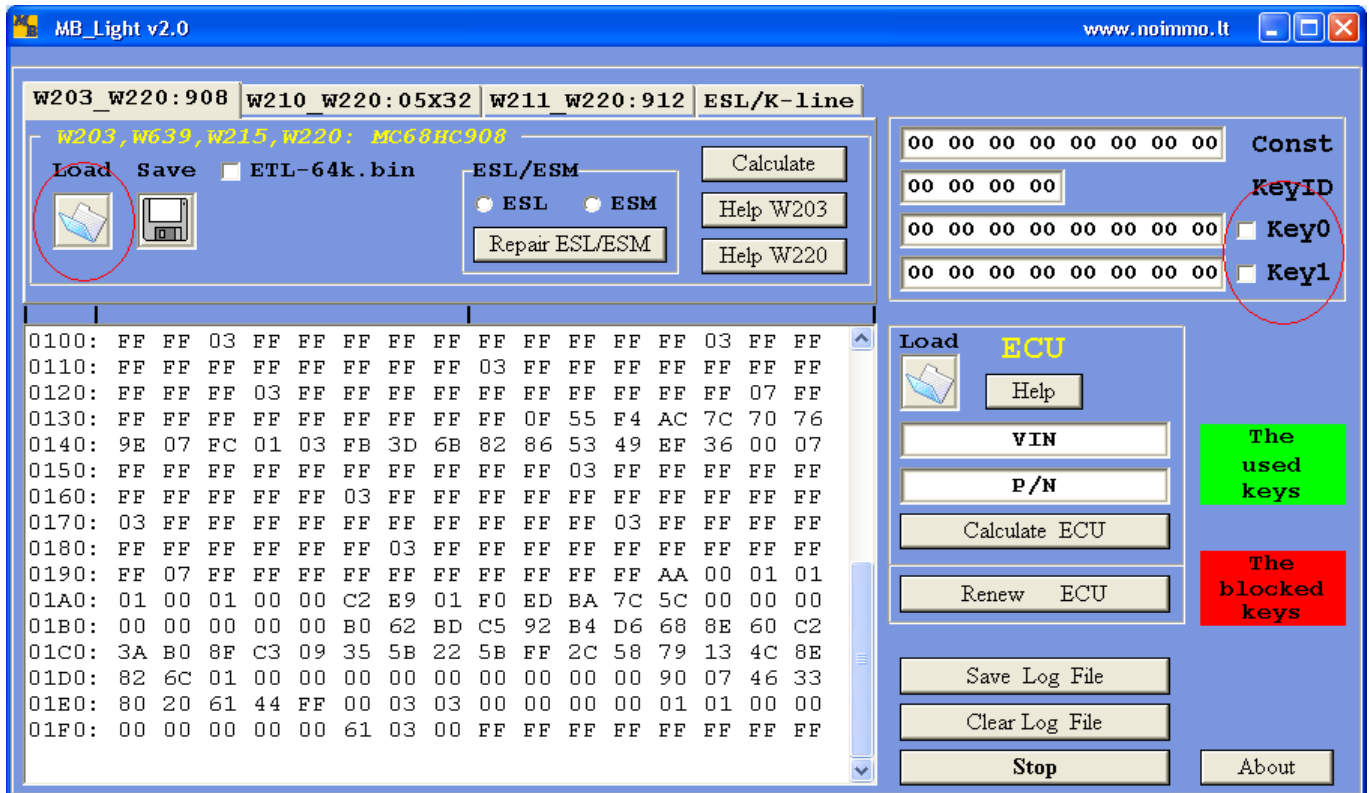


Below you can see **W215** and **W220** EIS processor.



The dump of the processor described here as **CPU KEYS** is considered a suitable programmer, you unsolder it beforehand if it is necessary (depends on the programmer you use). If you use **ETL** programmer then it is necessary to tick the window in front of **ETL-64k.bin**.

Press **Load** in the upper left window of the program and load the previously read processor dump. When loading completed you see the following.



We see Key0 and Key1 bookmarks in the top right part of the program.

Unfortunately we can't get the information about the number of the used keys from the dump based on 908 processor. But if there are blocked keys written on positions 0 or 1 they will be marked in red.

You have acquired two "preprogrammed" keys from us



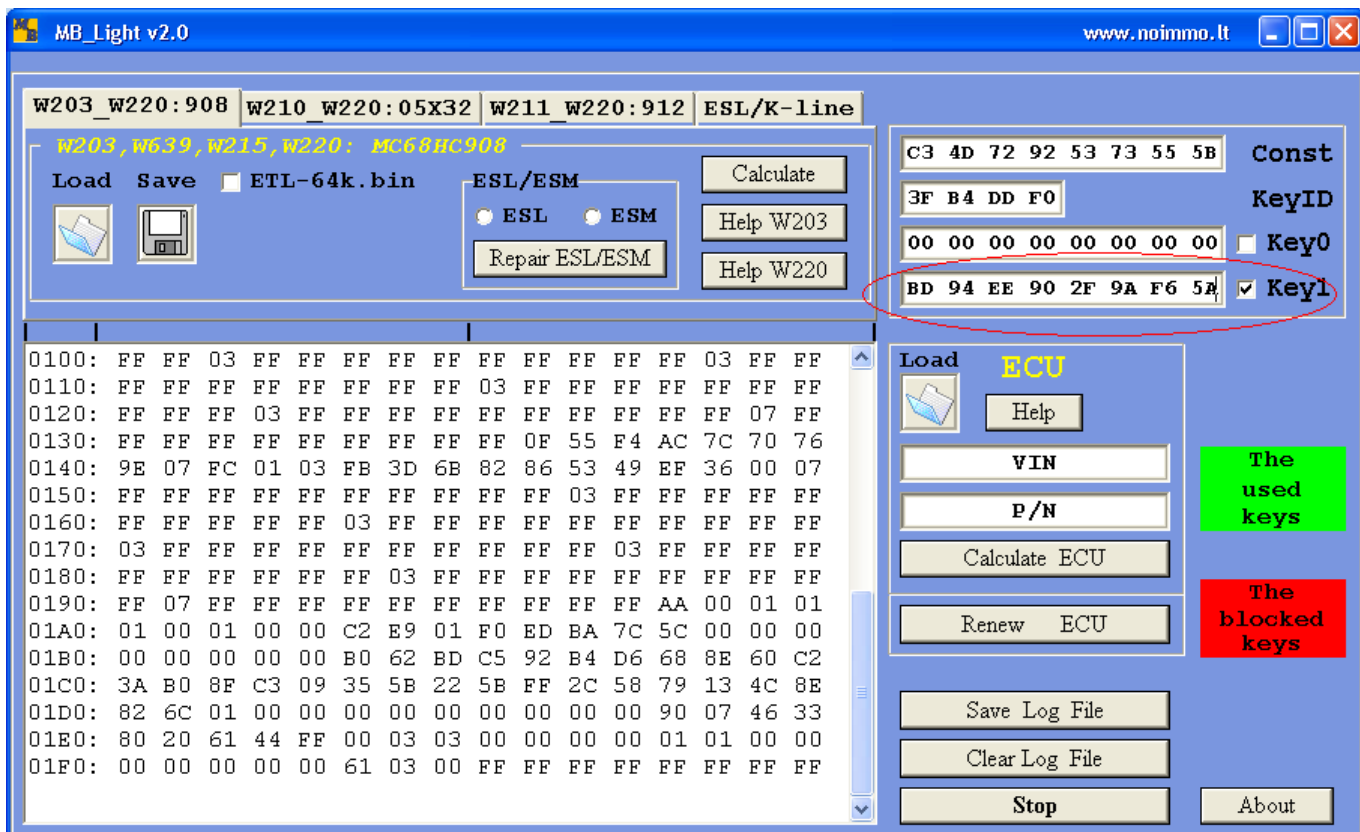
C3 4D 72 92 53 73 55 5B	Const.
3F B4 DD F0	KeyID
A9 4A E9 7B 2B B0 8B 8F	Key-0
BD 94 EE 90 2F 9A F6 5A	Key-1

There is also a table which goes with them

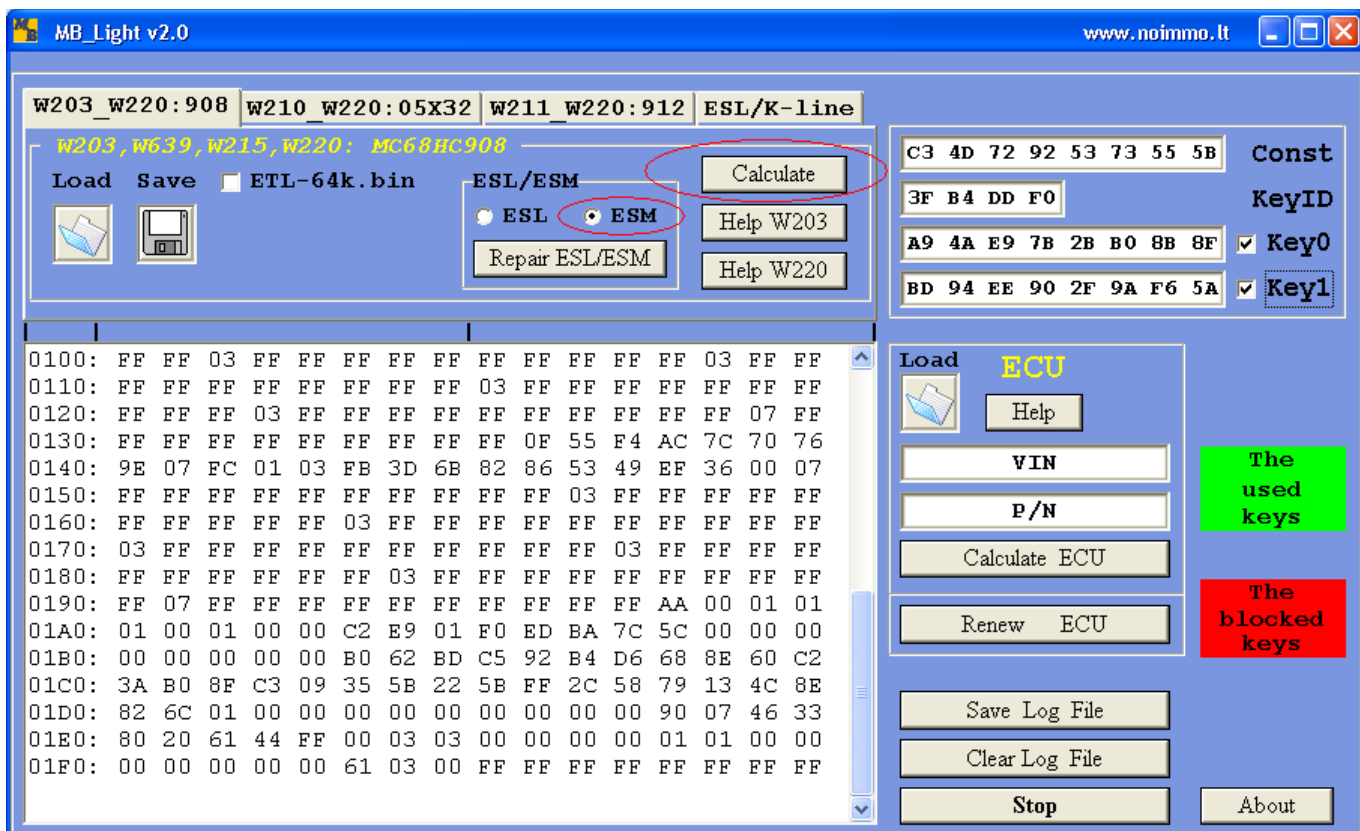
Note! An important characteristic of MB_Keyprog2_Light program is that after you have programmed our “preprogrammed” keys into the car the original functional keys won’t work anymore! The client won’t be able to order a key through a dealer either – this key won’t function. This happens because our program forcibly programmes the keys into the car changing the ID of the set of the keys which were programmed before. That is why the use of this program is recommended when all the original keys are lost or if the condition of the only left key is not satisfactory (unstable functioning – the car won’t start, damaged key surface)

If we program both preprogrammed keys into the car you must fill in the necessary information from the card into the corresponding fields of the program, don’t forget to tick the appropriate key numbers.

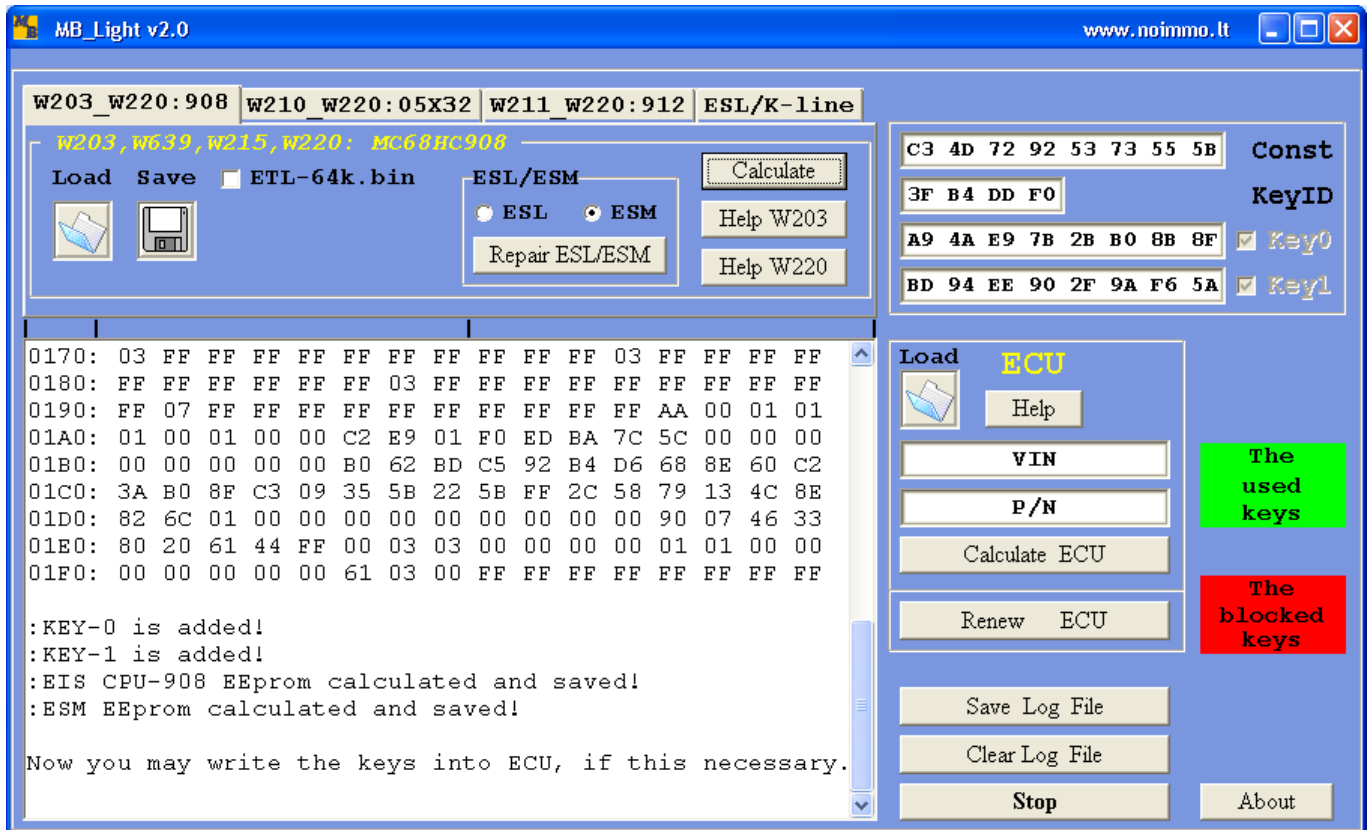
If you want to program only one key of the two then a question of identification appears. To identify the real number of any of the two preprogrammed keys look at the spring pin of the key (when you move it you remove the key blade or temporary plug). If the spring pin is black it is key0, if it is grey it is key1. Let’s see an example of the program window while programming key1 when key0 has been programmed into another car.



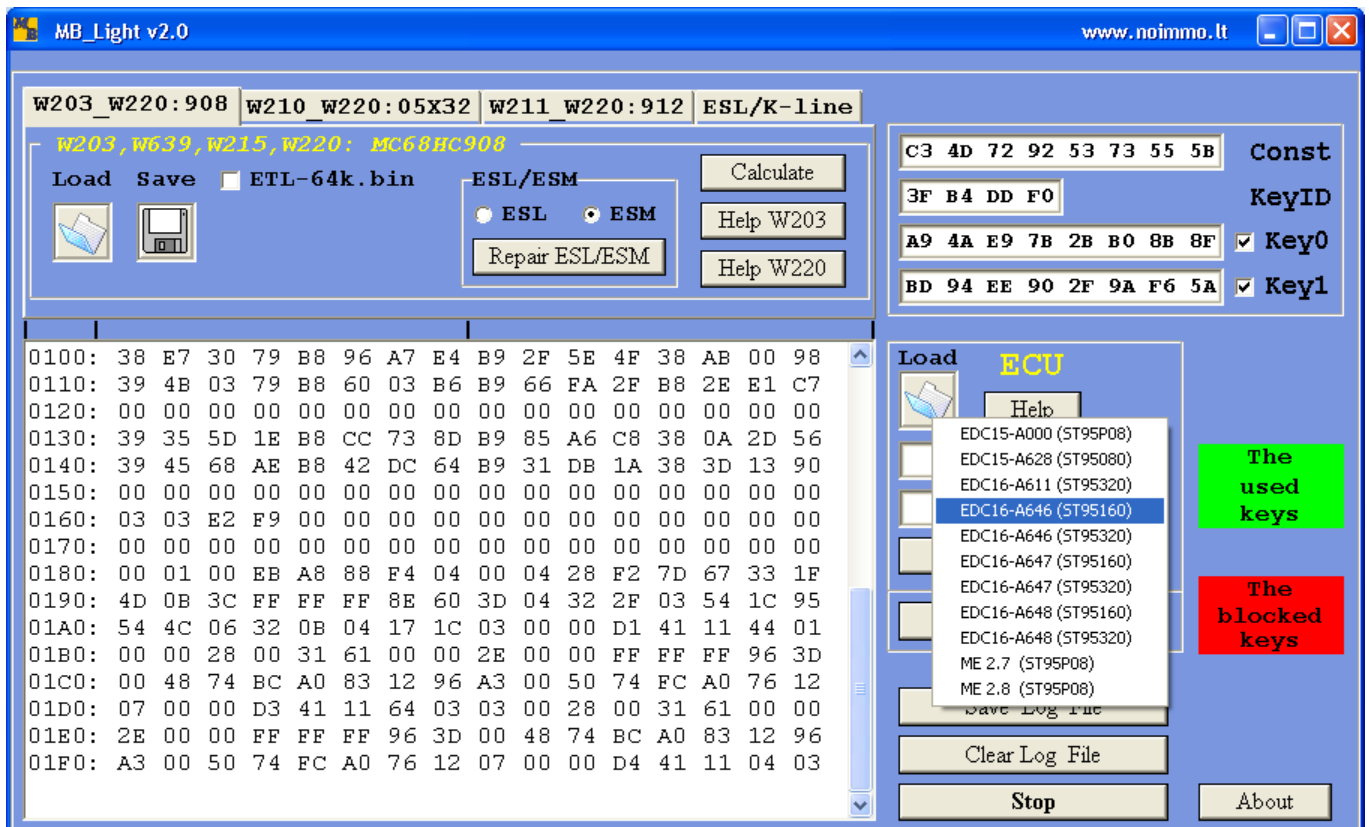
Now you must choose (put a dot) in the **ESL/ESM** window depending on which Mercedes you work with 203 or 220. For example, let's assume we work with Mercedes 220 (choose **ESM**) and you wish to program two preprogrammed keys 0 and 1.



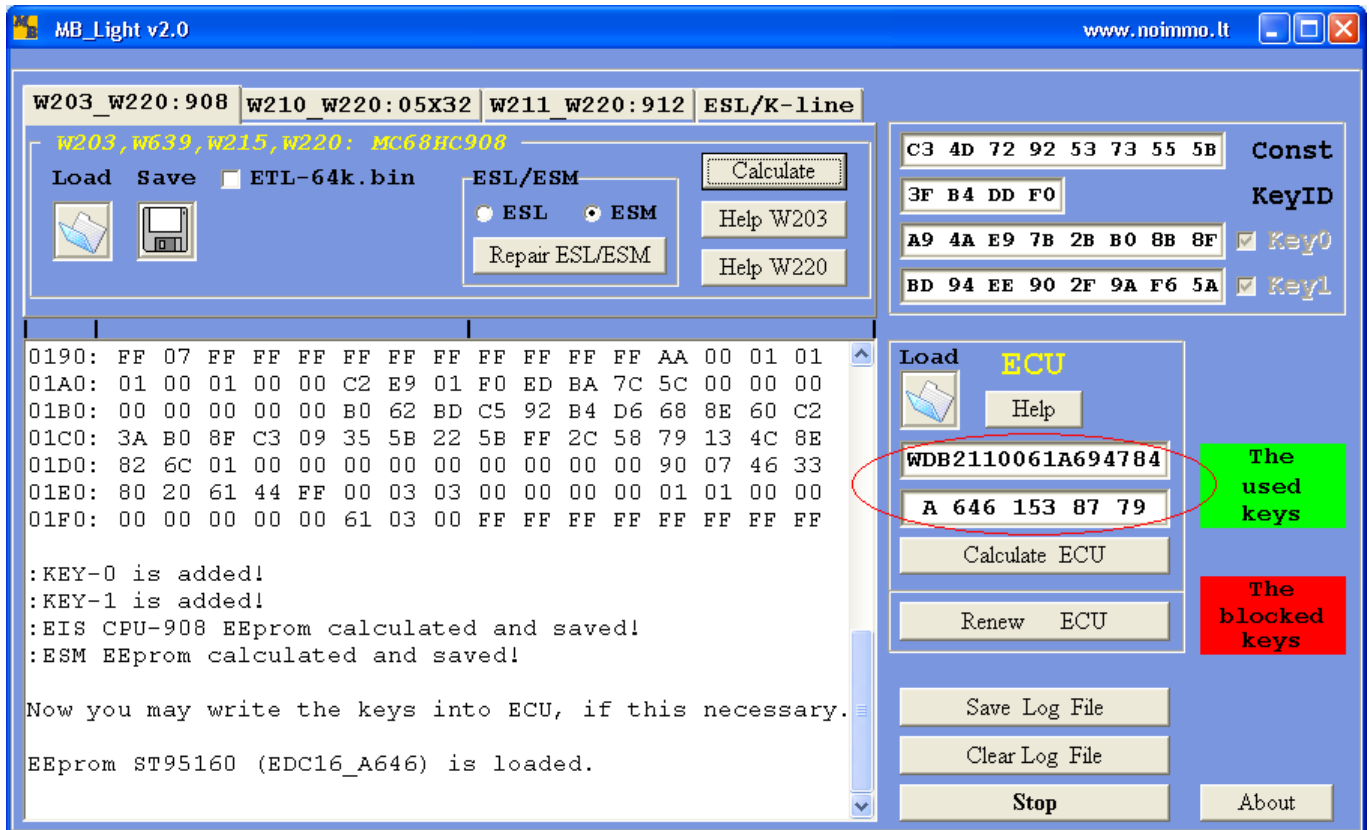
Now press **Calculate** and you see the following



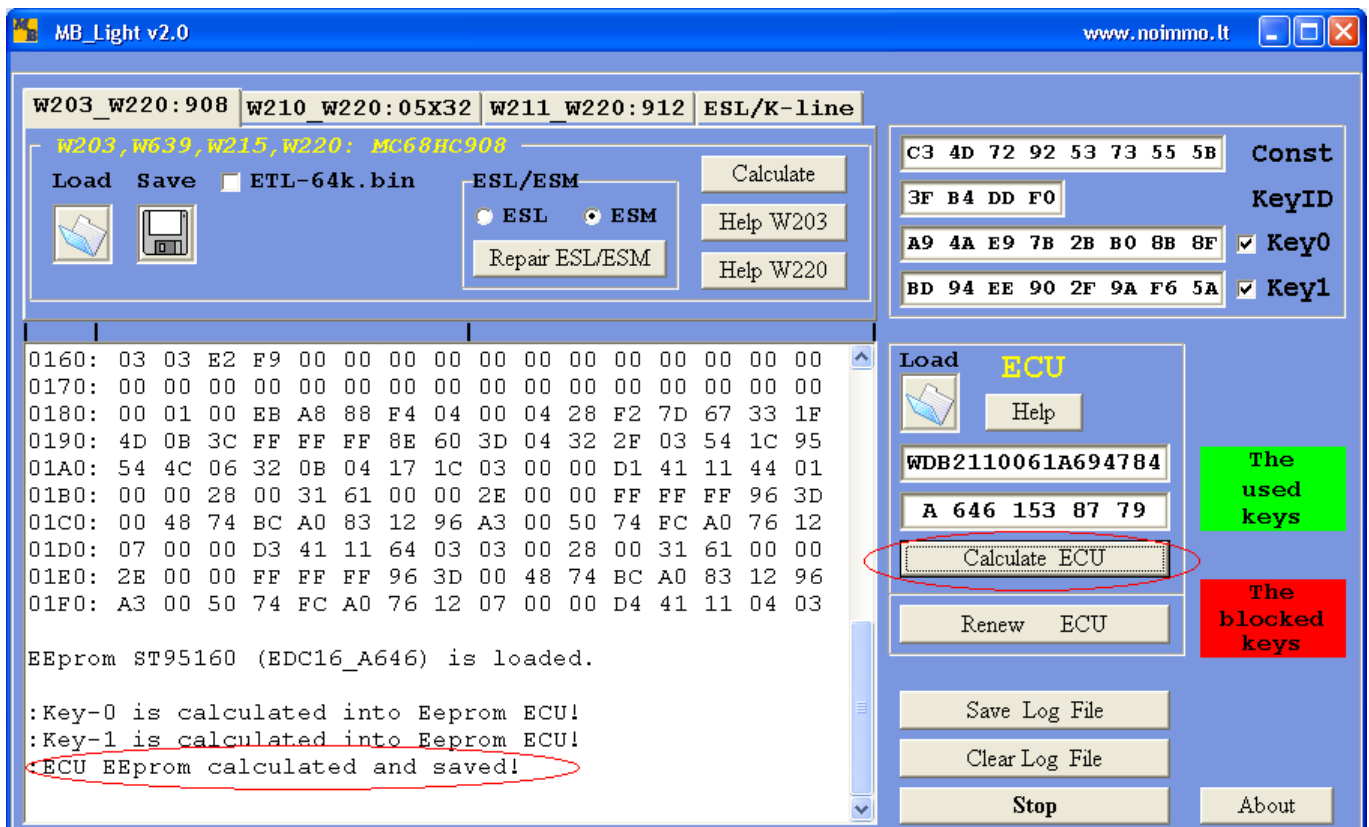
The following dumps will be automatically saved to the same directory where the previously read EIS processor dump has been loaded from. The new processor dump under the name of **EIS_CPU-908_New.bin** and the new ESM dump under the name of **ESM_New.bin**. Now you can generate a new ECU dump where our new keys will be located. To do it load the previously read ECU dump in the ECU window by choosing the corresponding version.



If loading is successful you see



You see the VIN-code and the factory ECU number in the circled windows. If you chose the correct dump while loading you will see the right VIN-code at the least. If the VIN-code field is empty you have chosen the wrong version while loading the file. Press **Calculate**, you see



The new ECU dump is automatically saved in the initial directory with **_New** added to its initial name.

Now you see the dumps for EIS, ECU and ESM processor programming

You can see the location of EEPROM 93c56 chip on the ESM board.

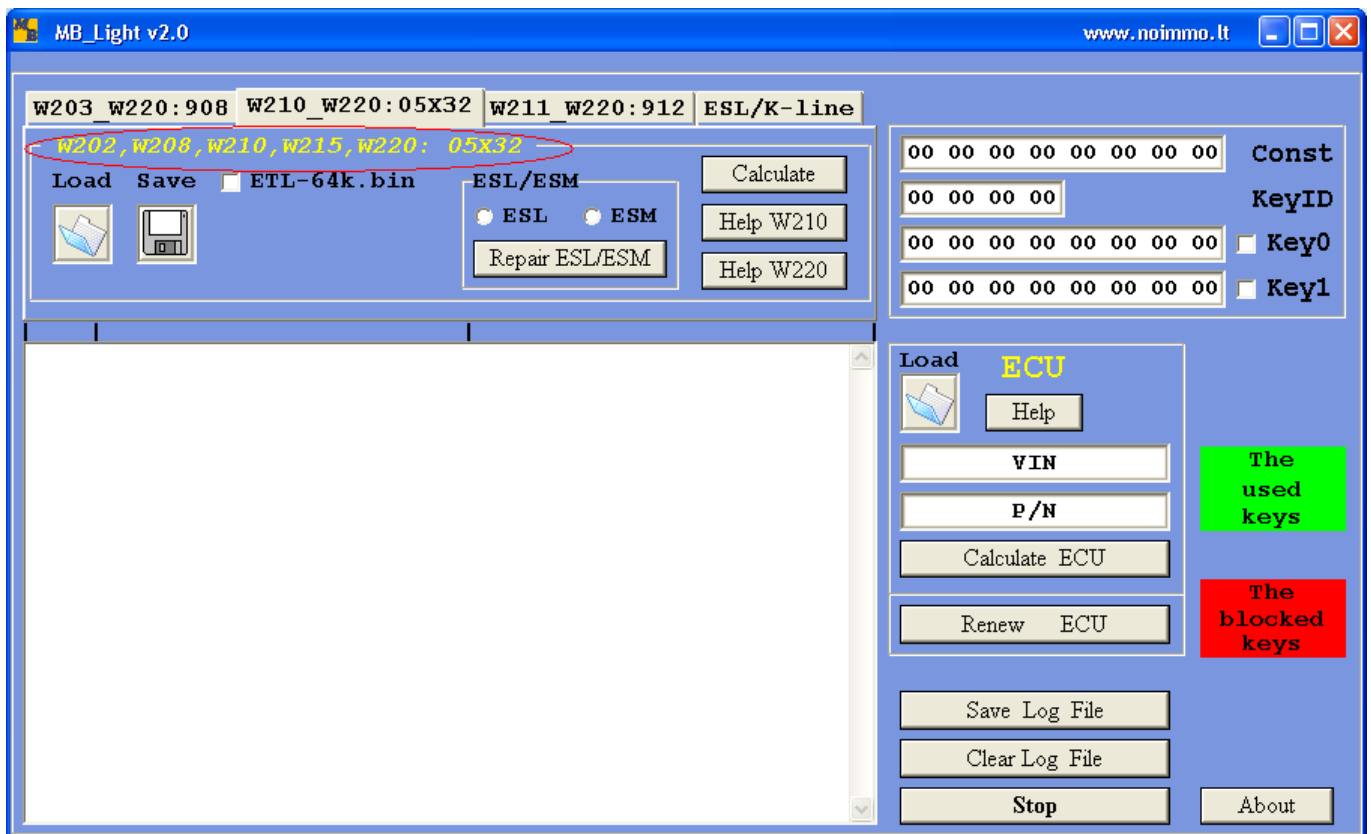


Write the previously generated and automatically saved dump into the EIS processor.

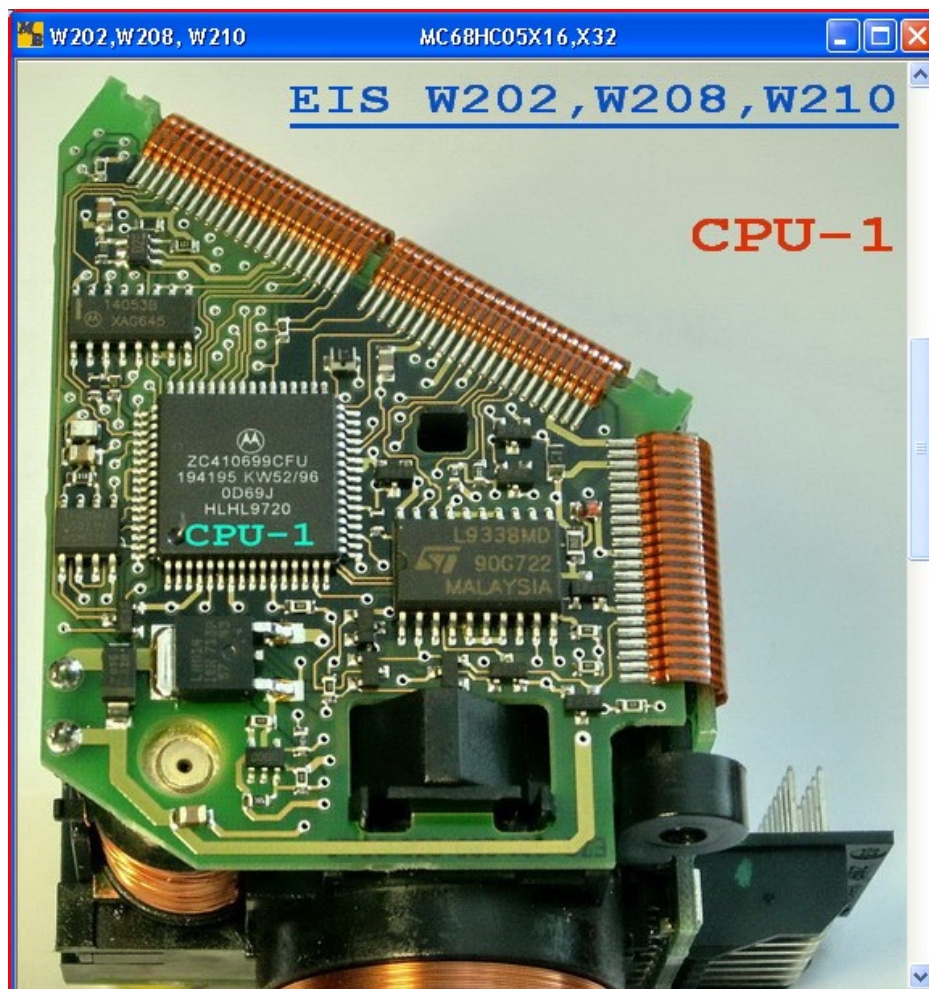
You might have to insert the key into the EIS several times (up to 32!) till the key is accepted. Normally you succeed the first time.

Return the car to the customer!

2. Work with W210_W220:05x32.



The list of the cars which have **MC68HC05X32** processor in their EIS – marked in red.
Below you can see the location of the processor **CPU1** in the EIS of Mercedes 210



Below you can see the location of **CPU2** processor in Mercedes 210

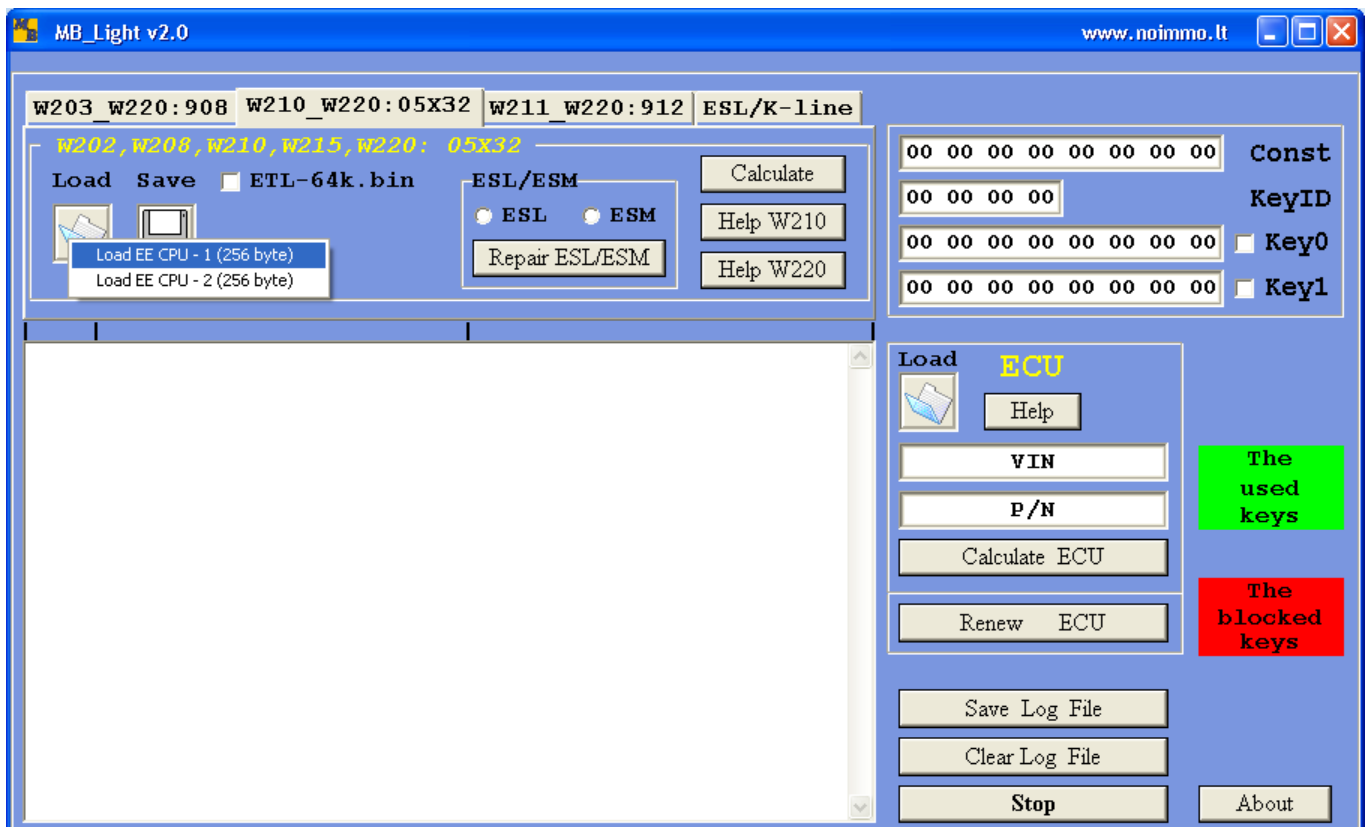


Below you can see **CPU1** and **CPU2** processor in the EIS of Mercedes 220

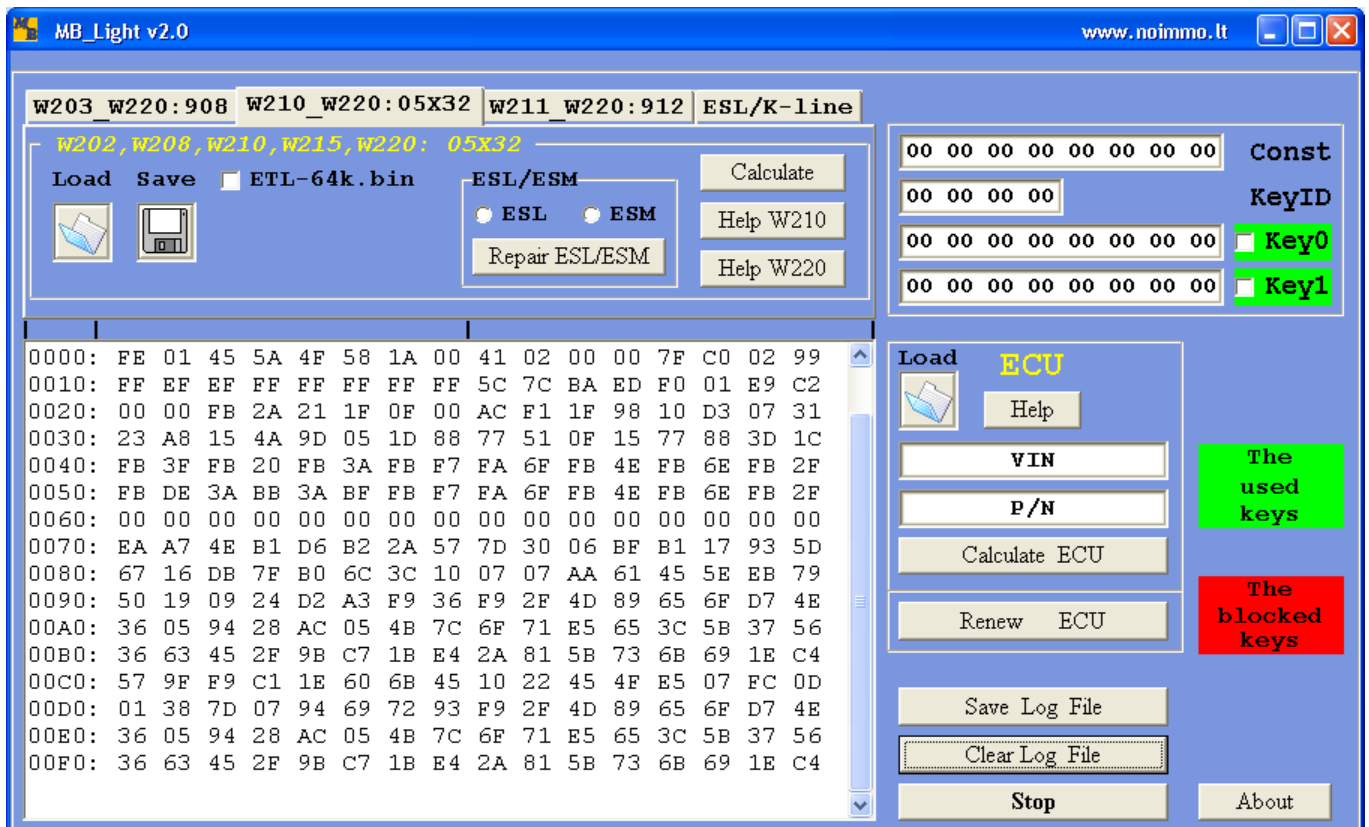


Let's examine the process of programming of two preprogrammed keys into Mercedes 210. We should read the contents of **CPU1** and **CPU2** processors from the EIS. Remember these processors are protected from reading and attempts to read them with a programmer which is not able to get round this protection might damage the original dump! If you use **ETL** programmer you should tick **ETL-64k.bin** window.

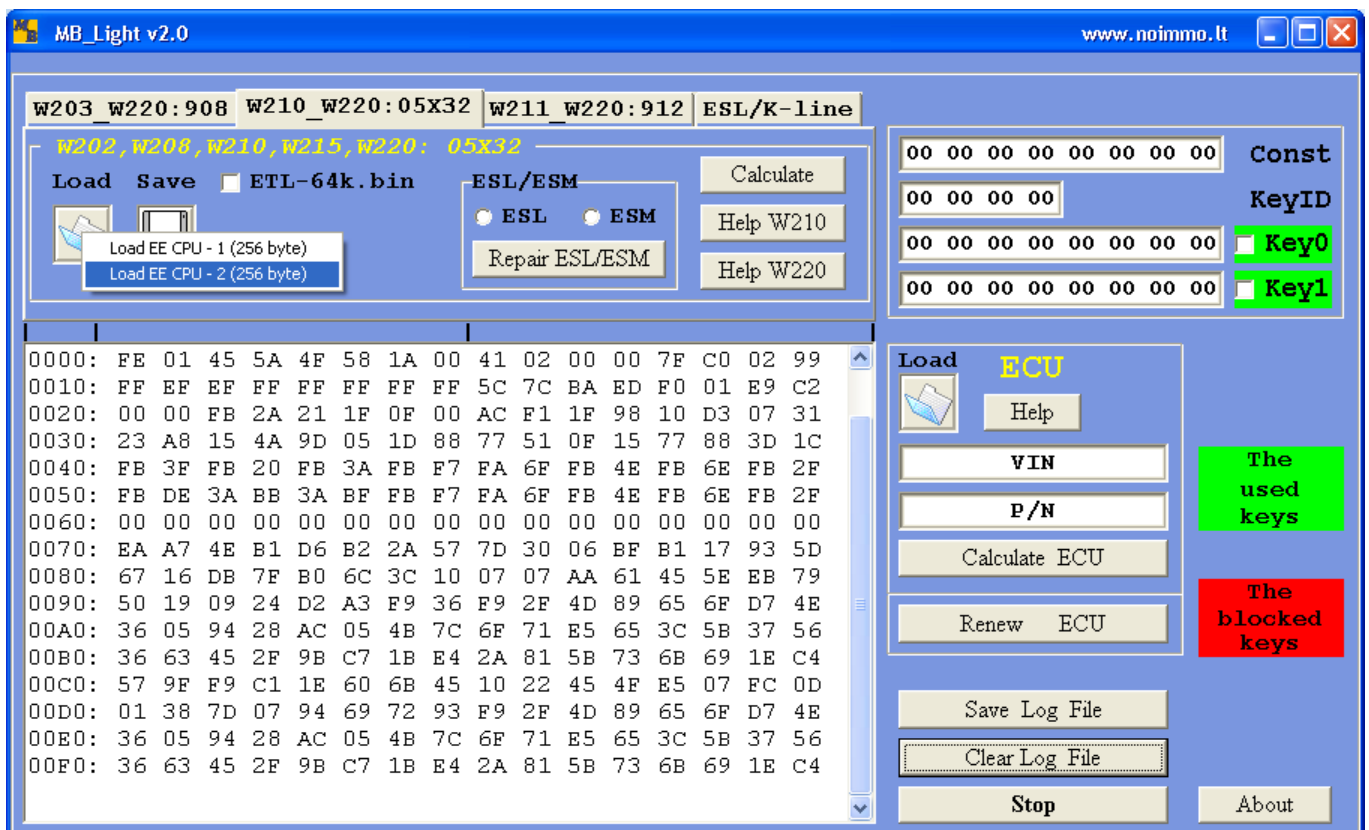
Load the read **CPU1** dump into the program



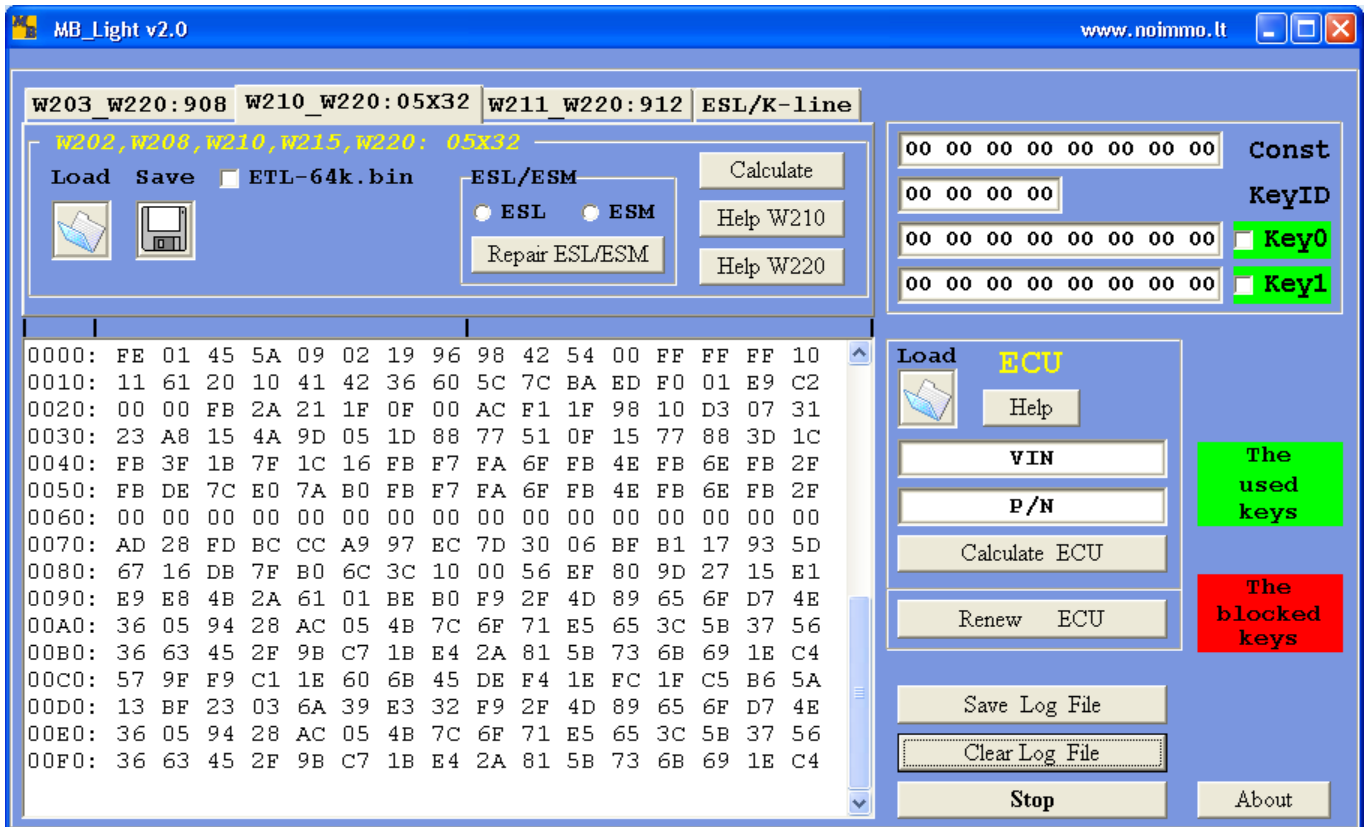
When loading is finished you see



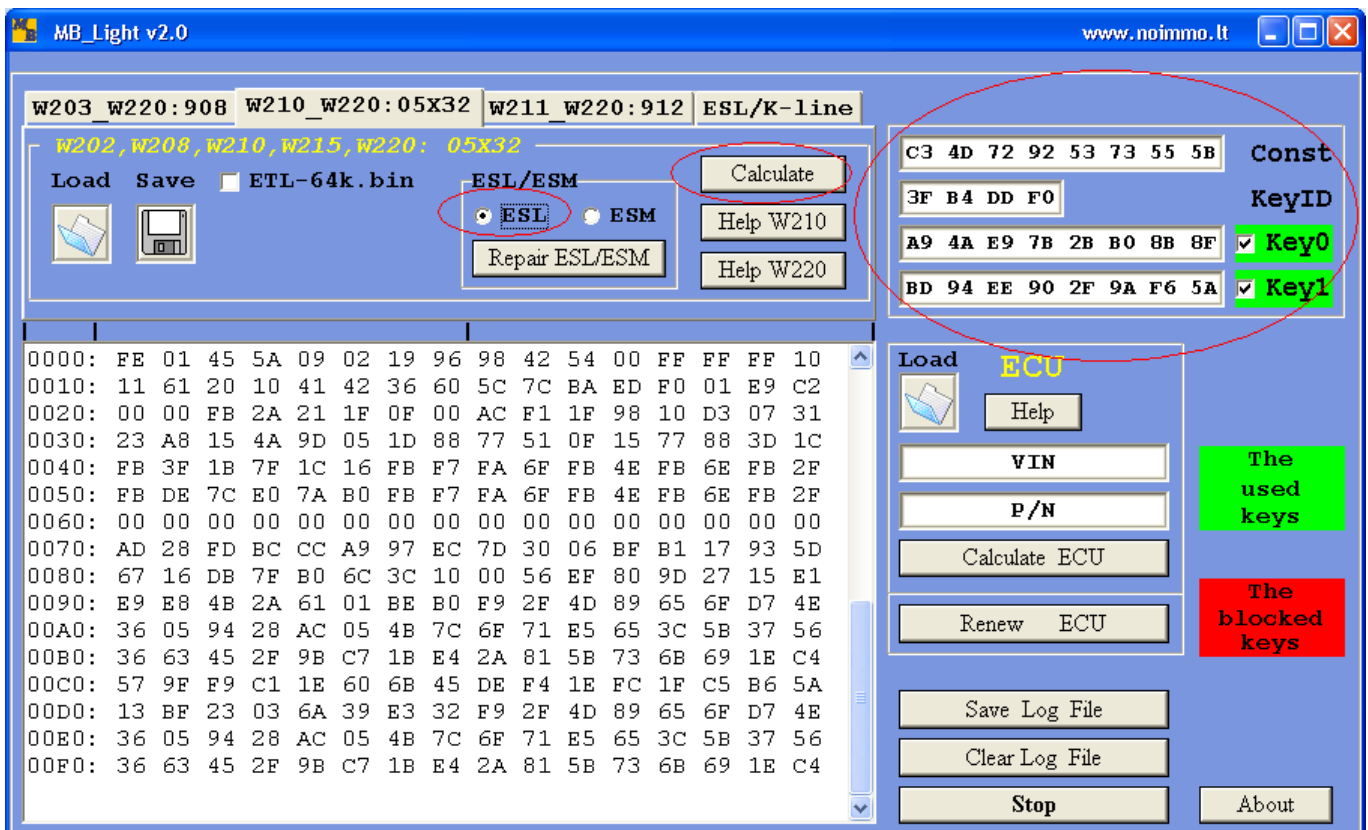
Load the read CPU2 dump into the program.



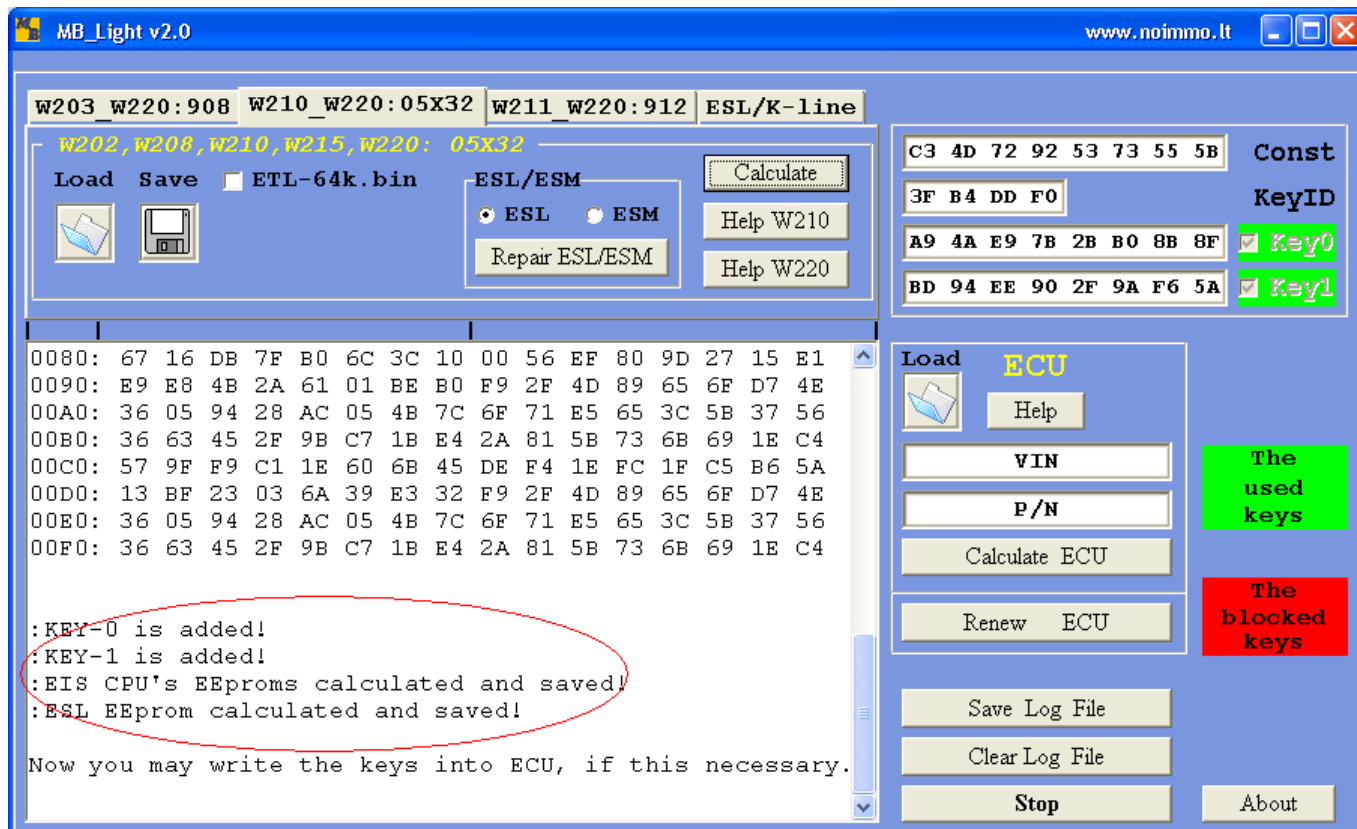
When loading is finished you see



You see that KEY-0 and Key-1 are lit in green. It means that there were two active keys in the first two positions in this EIS and there were no blocked keys among them. Let's assume all the keys are lost and program two new preprogrammed keys to positions 0 and 1.

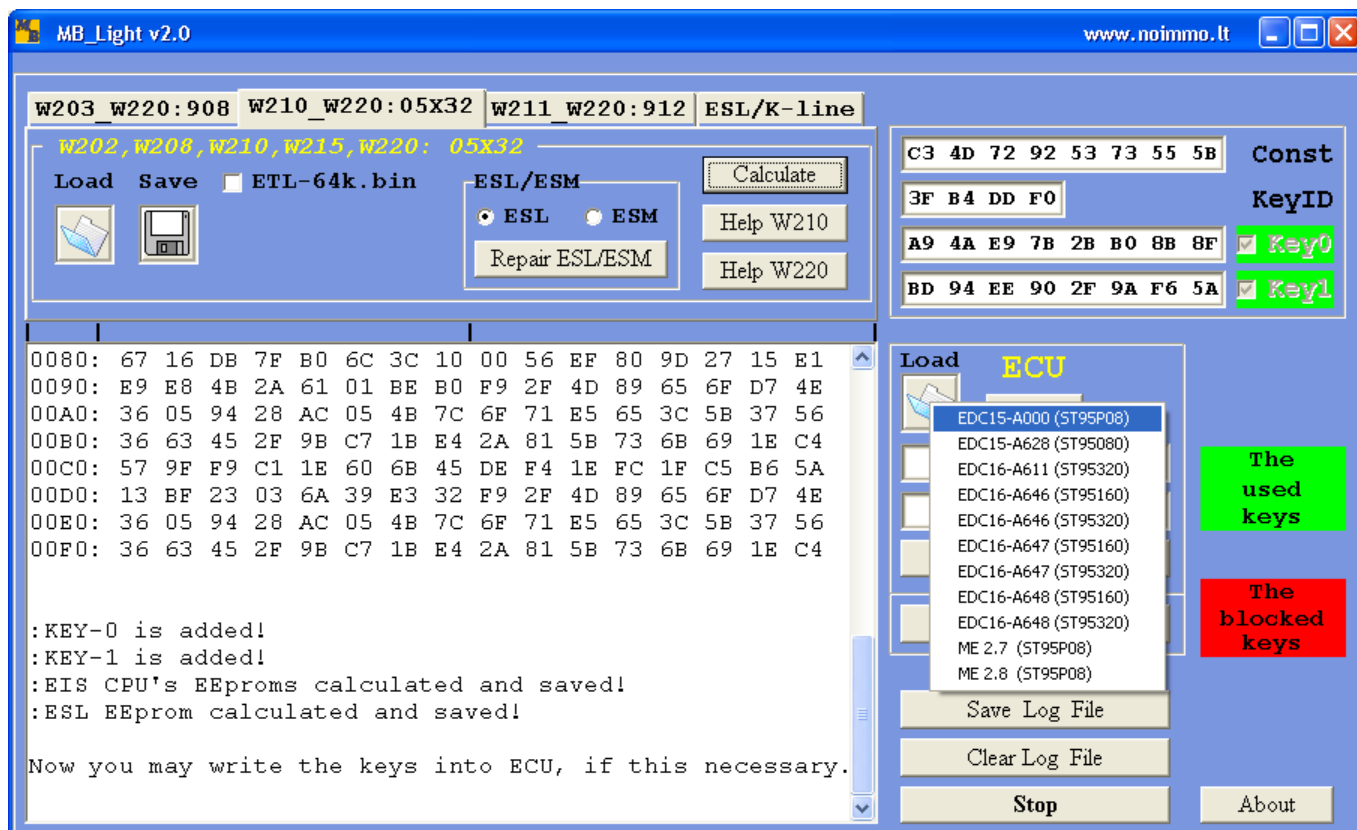


Choose **ESL** in the **ESL/ESM** window, tick the keys and press **Calculate**, when finished you see

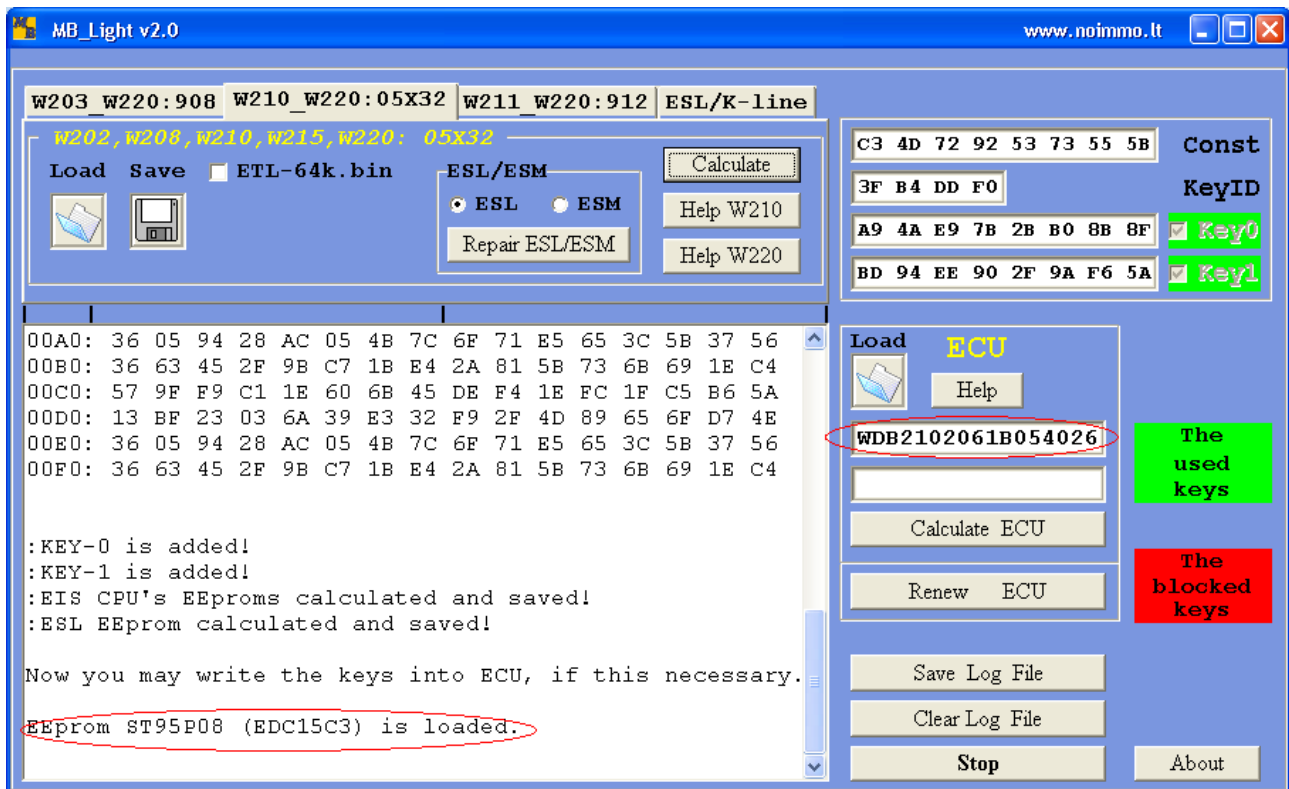


Now the following dumps will be automatically saved to the same directory where the previously read dumps have been loaded from. The new EIS processor dumps will have the following names - **EIS_CPU-1_New.bin** and **EIS_CPU-2_New.bin** and the new ESL dump under the name of **ESL_New.bin**.

Now you can generate a new ECU dump where our new keys will be located. To do it load the previously read ECU dump in the ECU window by choosing the corresponding version.

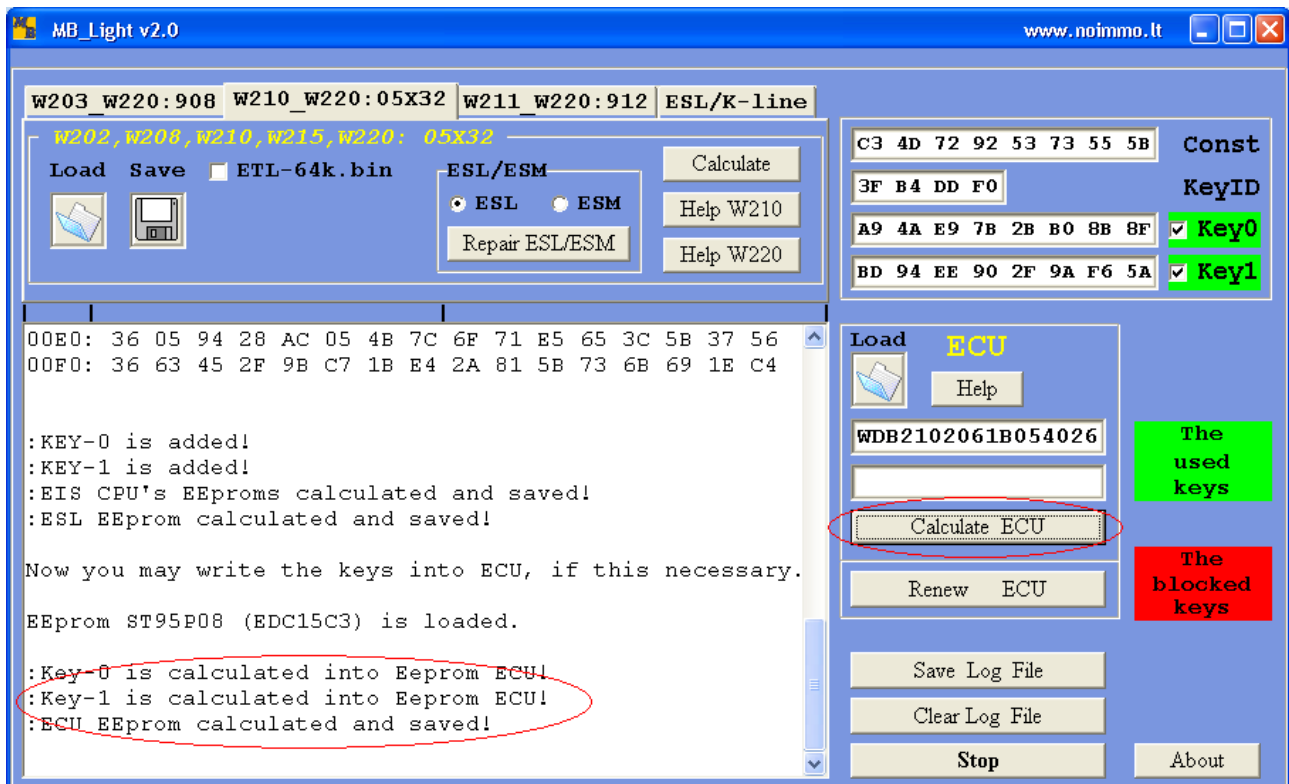


If loading is successful you see



If the correct dump was chosen while loading you will see the right VIN-code at the least. If the VIN-code field is empty you chose the wrong version while loading the file.

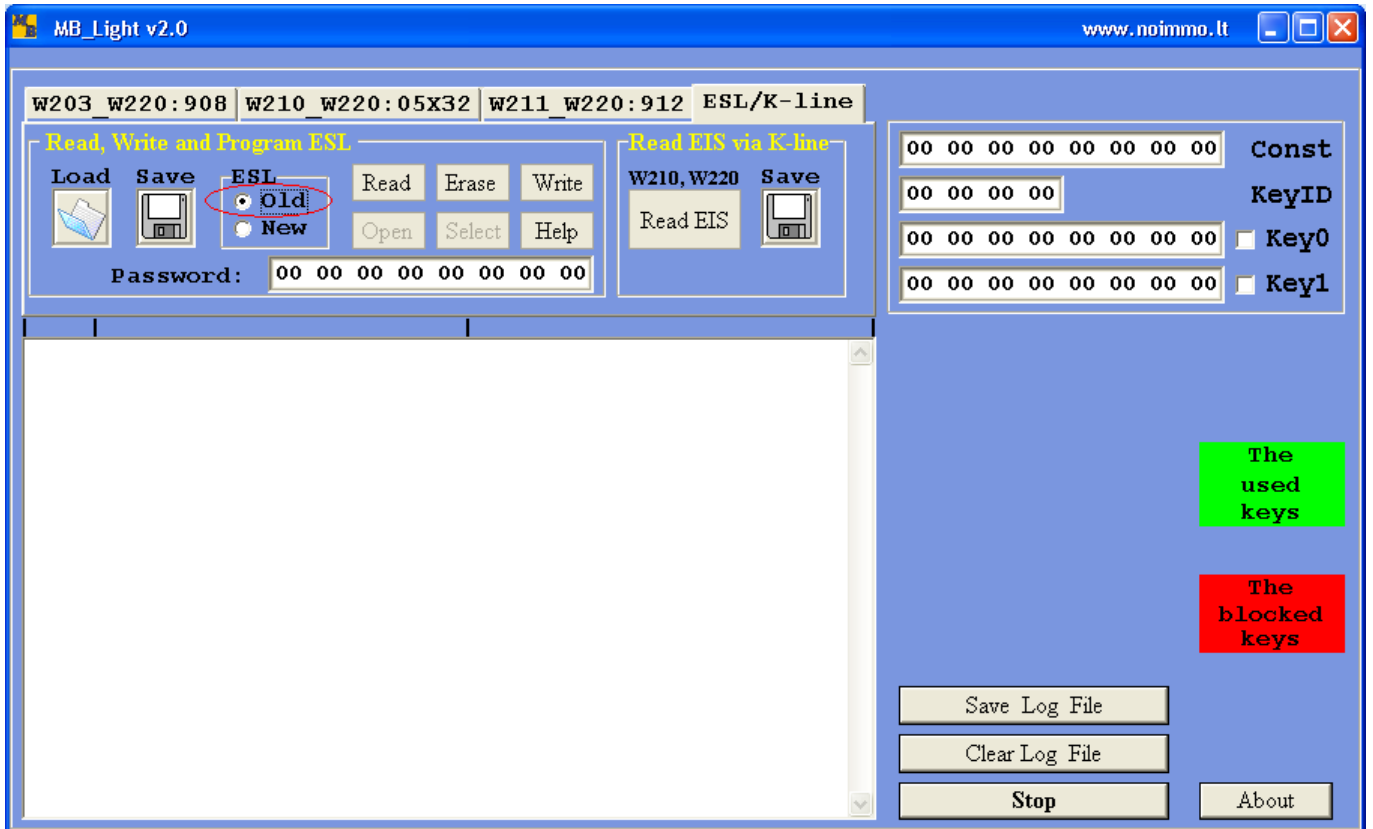
Press **Calculate ECU** and you see



The new ECU dump is automatically save in the initial directory with **_New** added to its initial name.

Now we have all the dumps for EIS, ECU and ESL writing

3. Work with ESL/K-line bookmark (Old)



You must distinguish the old and new types of ESL! Below you can see the old ESL type which was used in W202, W208, W210 models years of production before 2000.



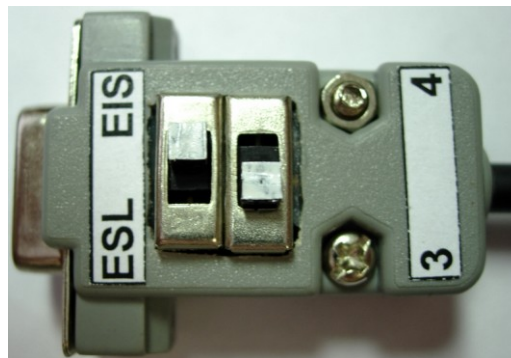
Rarely could you see ESL in old type boxes which had a similar to new type in-circuits. In general these types differ from each other by a number of electrical, mechanical and software features. We'll describe only one of them. In the old type ESL(**CPU3** There are two processors and **CPU4** in our classification), which are not protected by a special password and can be erased. You should erase them before the procedure of writing the new dumps to these processors. If while working with the old type ESL (visually) you find out that a fast erase is not possible choose **ESL** type **NEW** and continue to work as if with the new type which is described below

In this example we deal with a usual old type ESL.

With the help of our device we can read the contents of **CPU1** and **CPU2** ESL processor, as well as the contents of **CPU3** and **CPU4** ESL processors through the diagnostic connector.

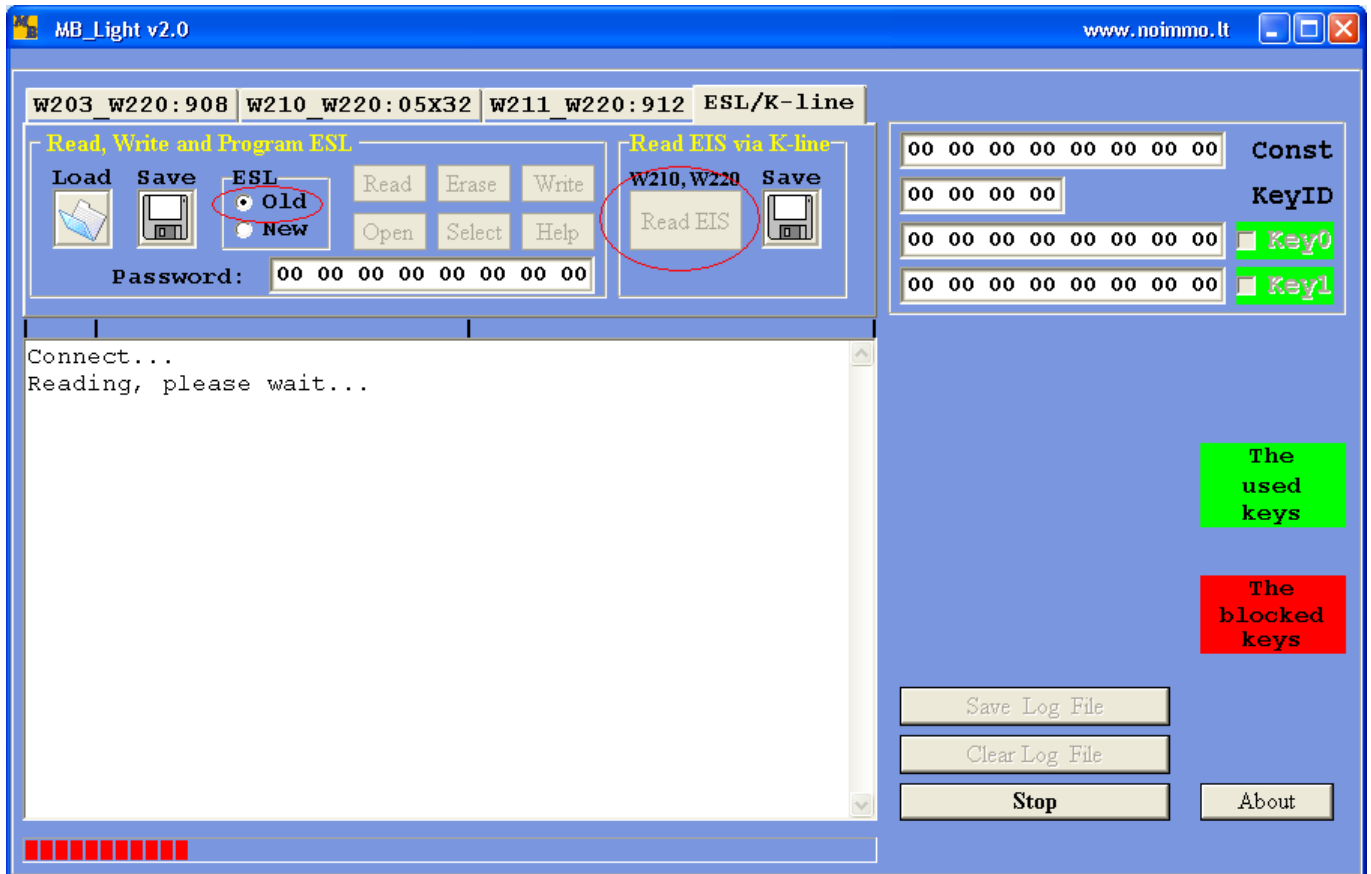
Connect the diagnostic connector.

To read through the automobile diagnostic connector the switches on the socket must be in the following position

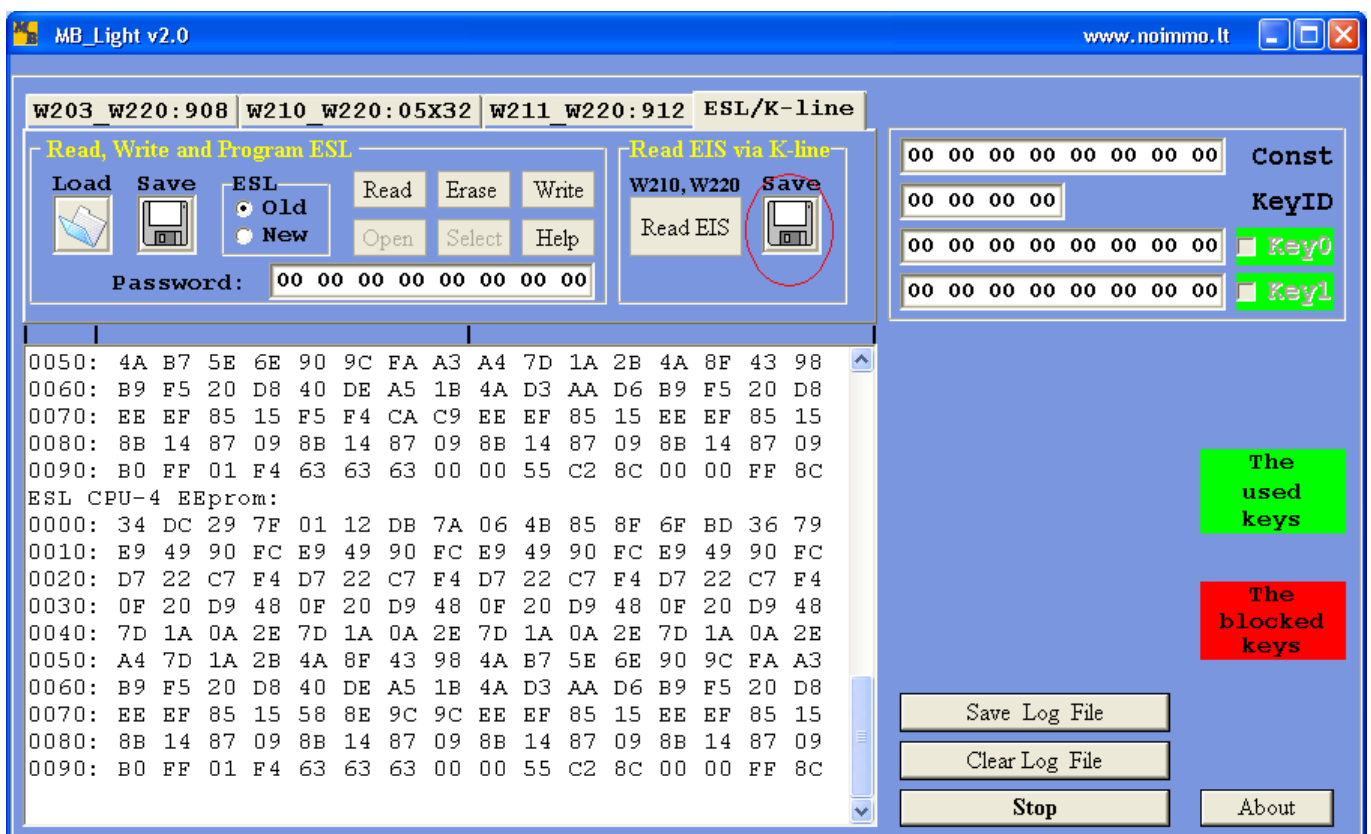


Before the procedure of reading you must insert the faulty key in the EIS (another auto key, the bottom of a disposable lighter any object which matches the size).

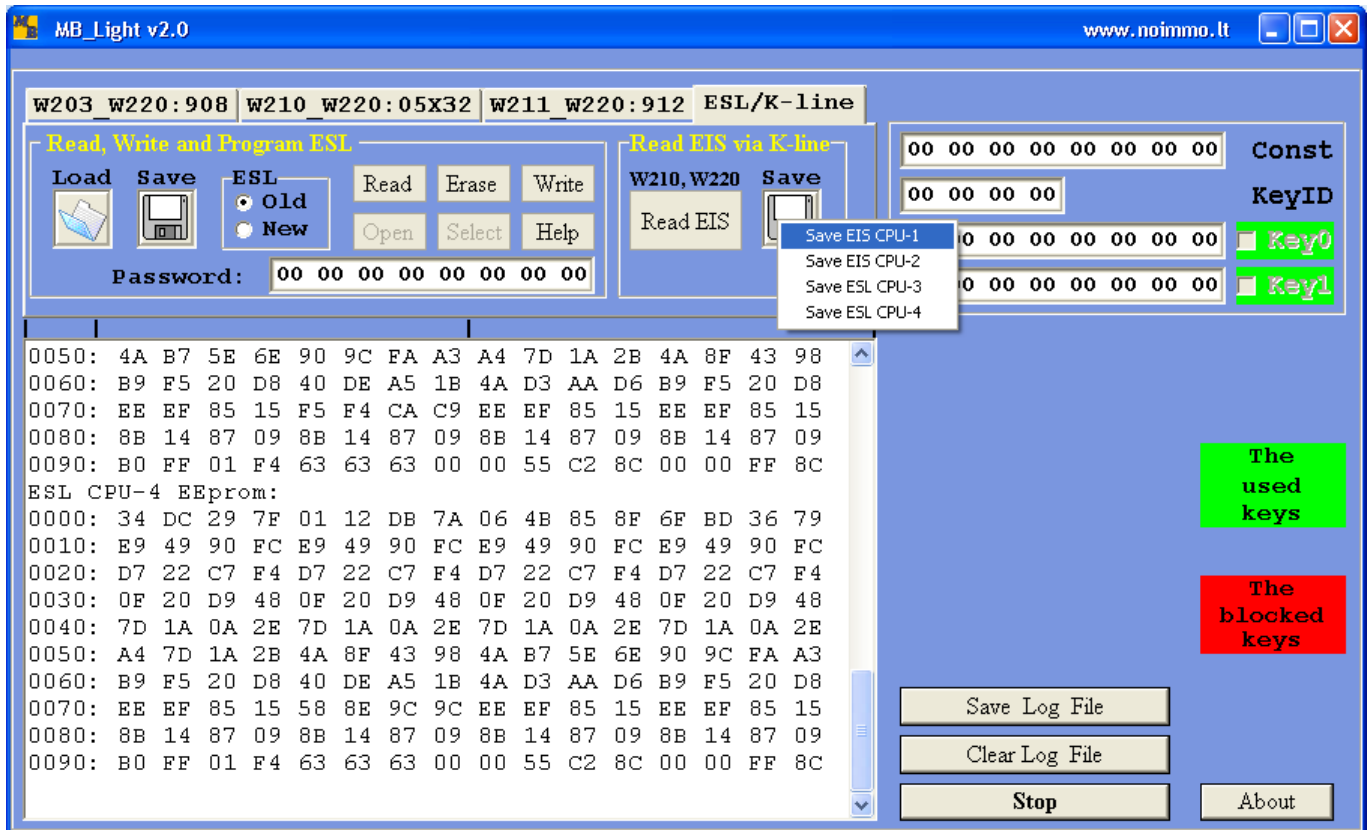
Press **Read EIS**



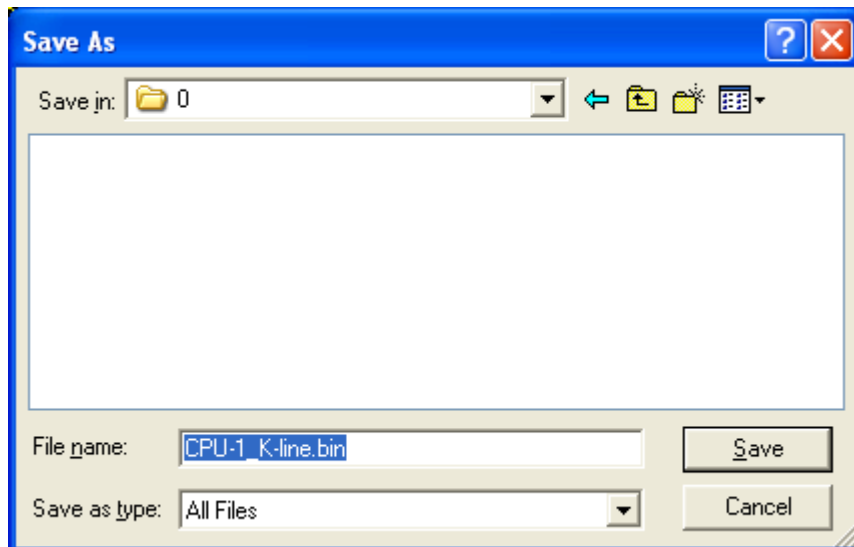
When read you see



Press Save and save the read dumps one by one to the hardware of your computer

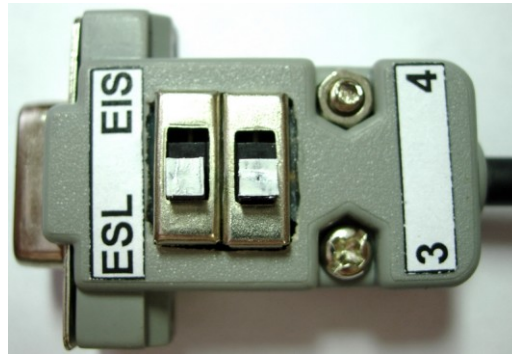


Note that the file name is given automatically!

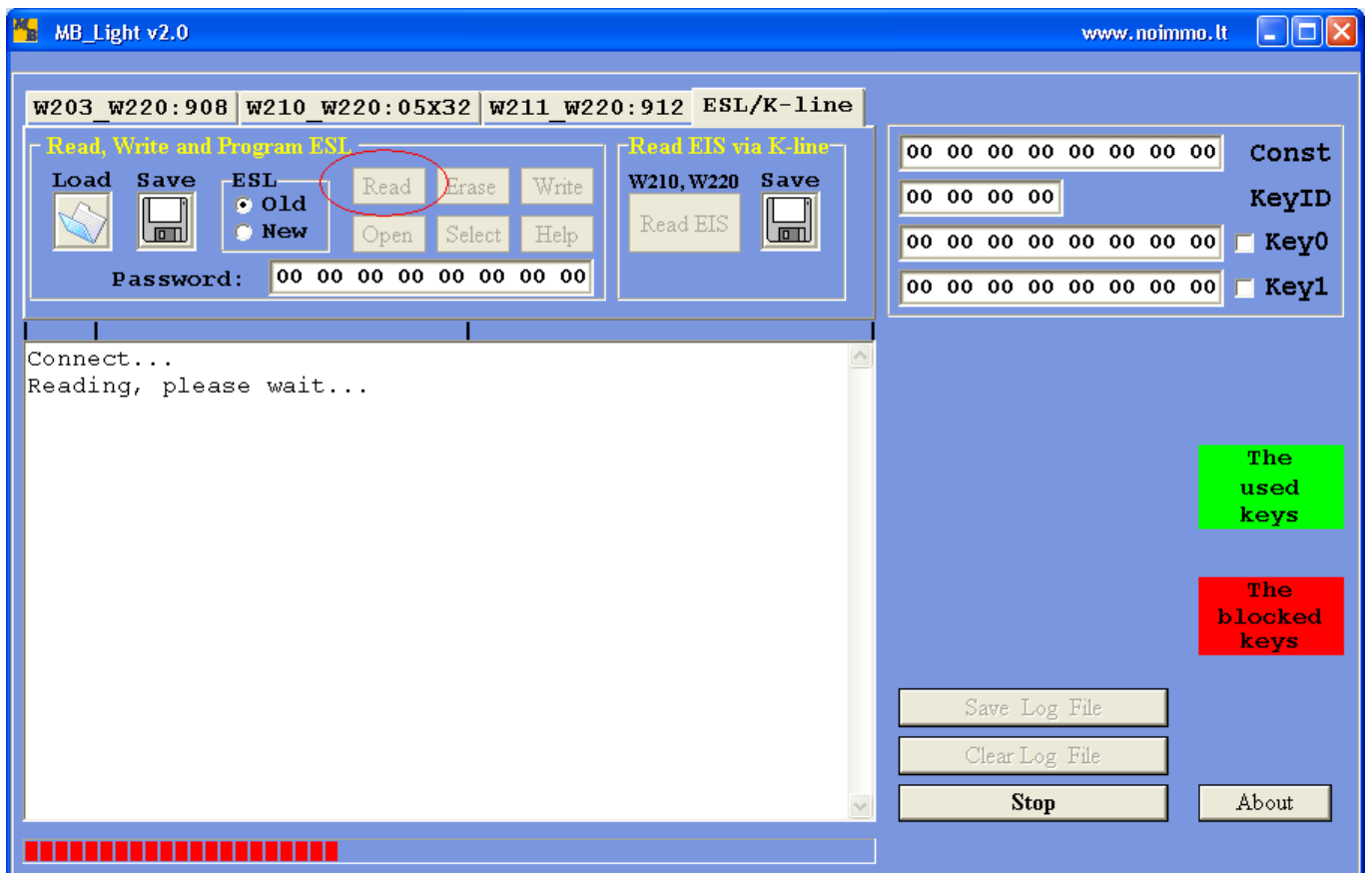


Disconnect the ESL connector and connect the appropriate connector from our set. **If you have not done the previous reading** through the diagnostic connector we recommend to read and save the original ESL dumps to the hardware of your computer.

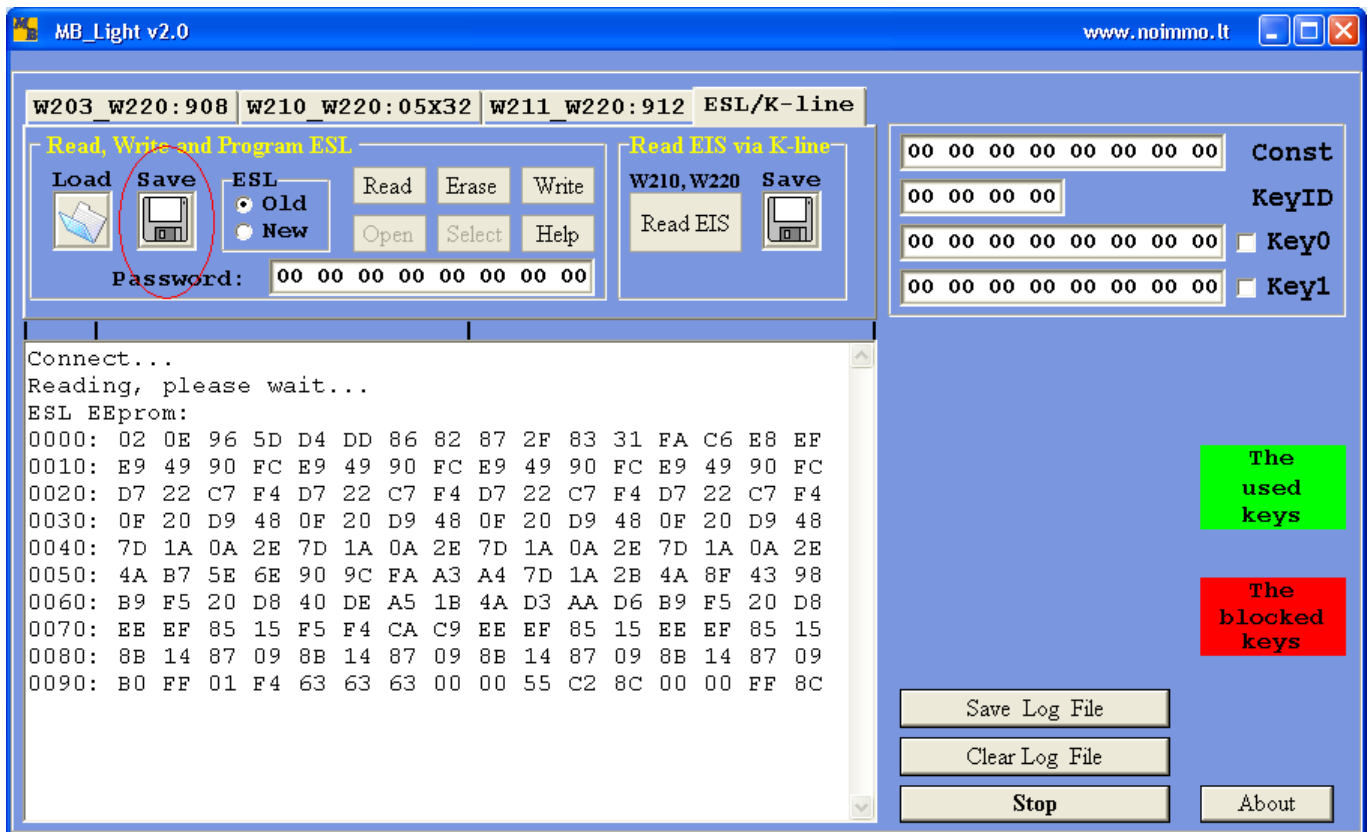
To read and later write CPU3 processor the switches on the connector must be in the following position.



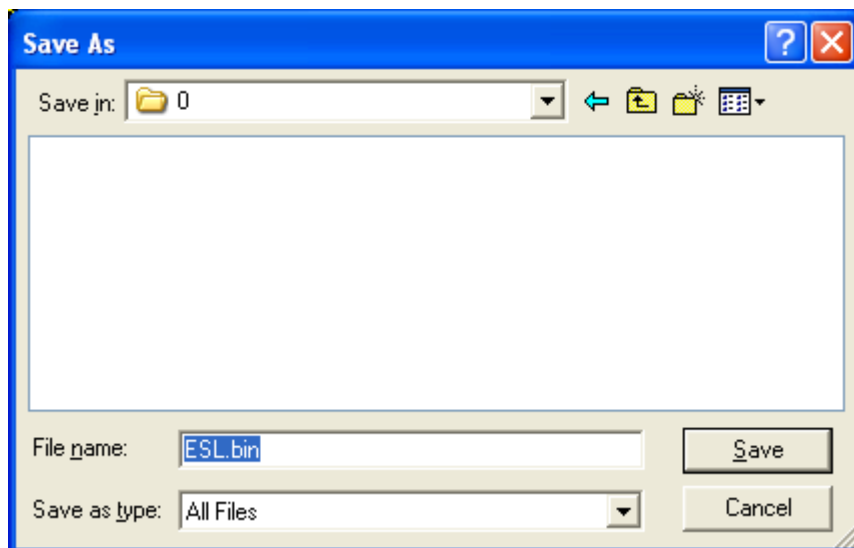
Press **Read** – the process of reading CPU3 processor starts



When finished you see

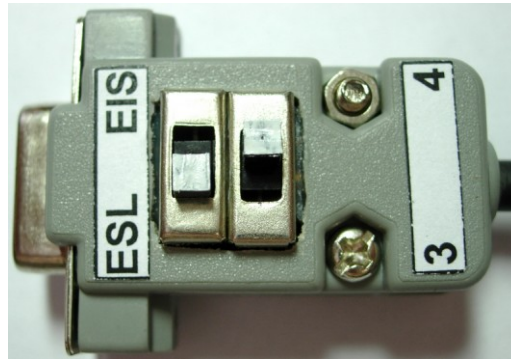


Press **Save** and save dump to the hardware

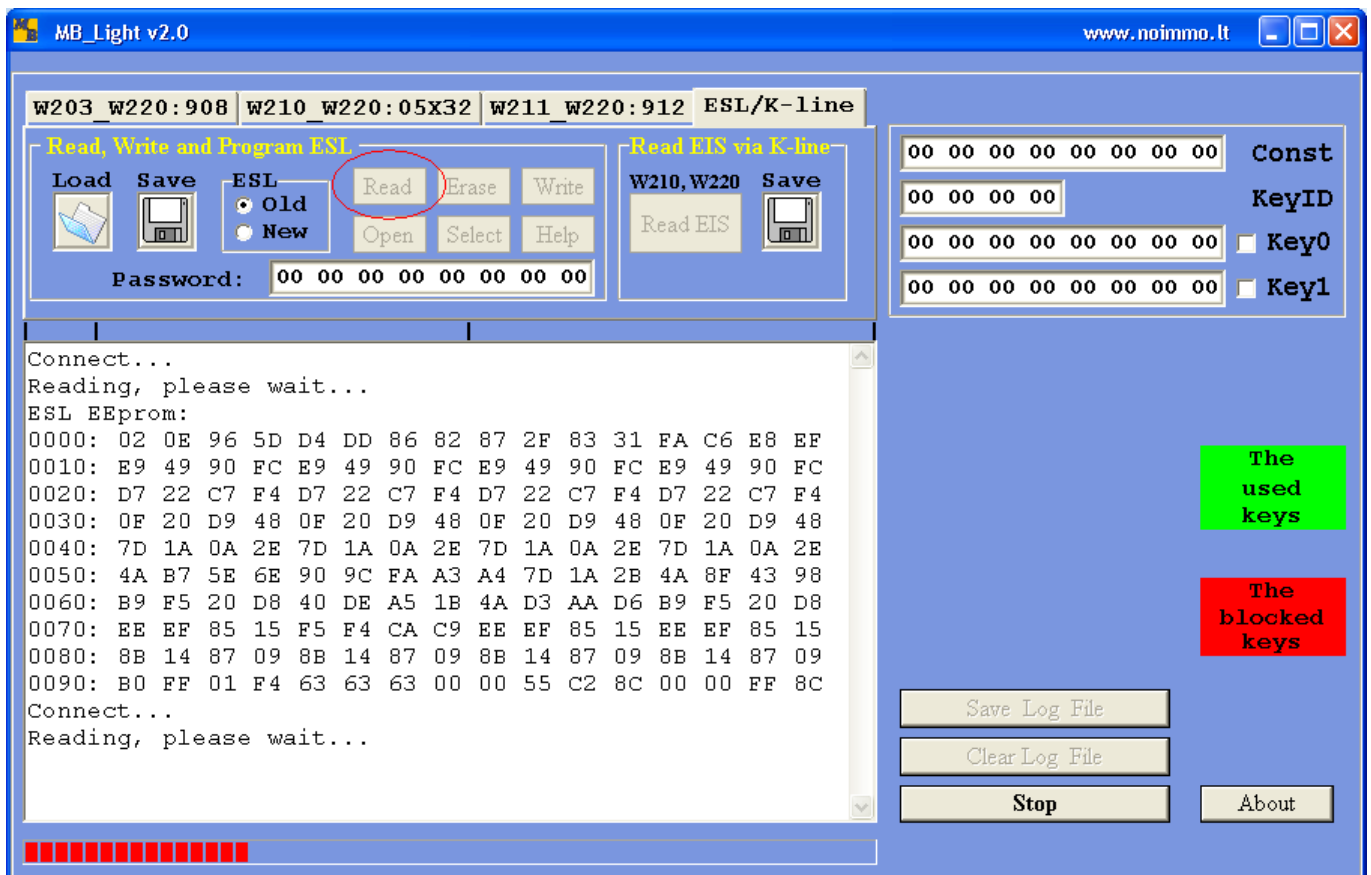


In this case you must add **3** to **ESL** name

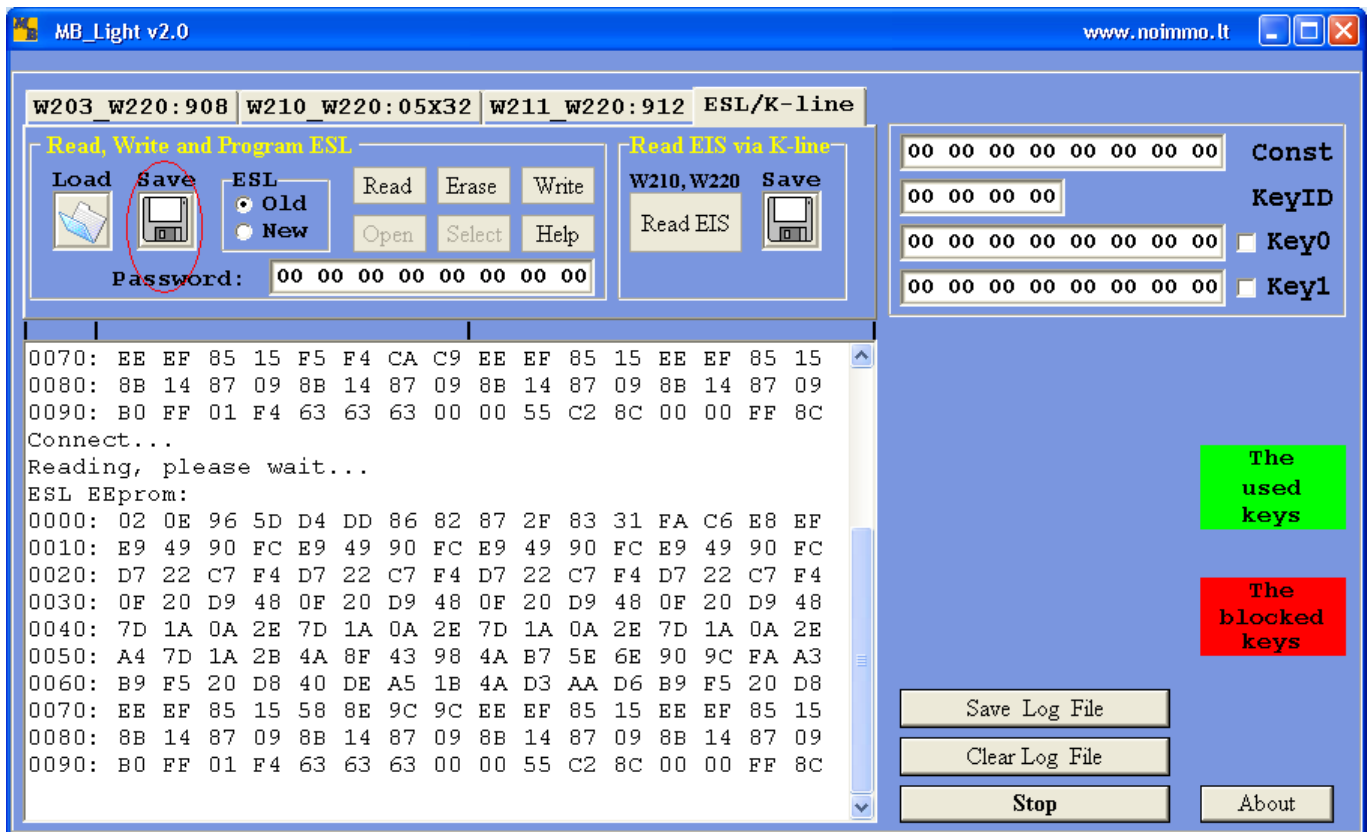
To read the contents of **CPU4** processor you must move the switches on the connector to the following position



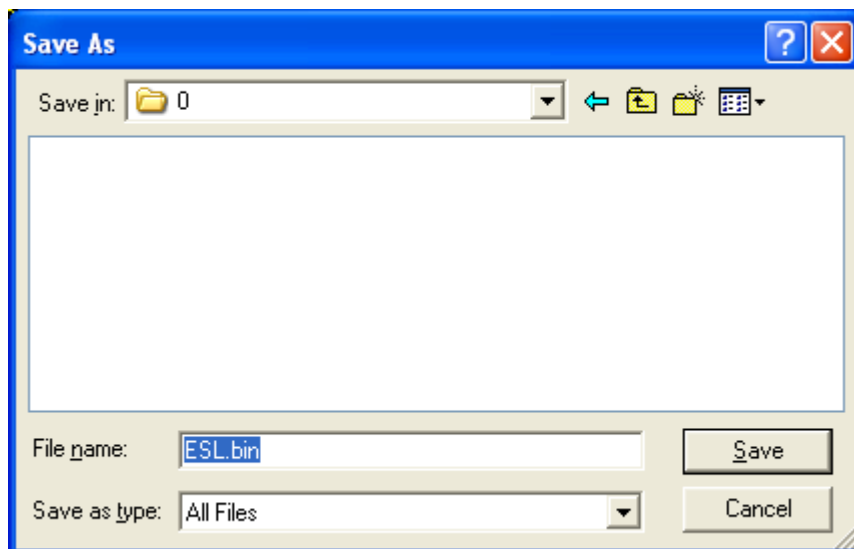
Press **Read** – the process of reading **CPU4** processor starts



When finished you see

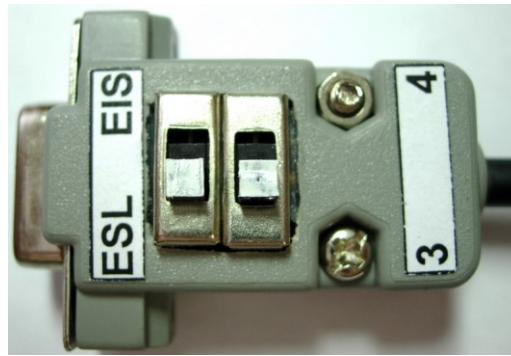


Press **Save** and save the dump to the hardware

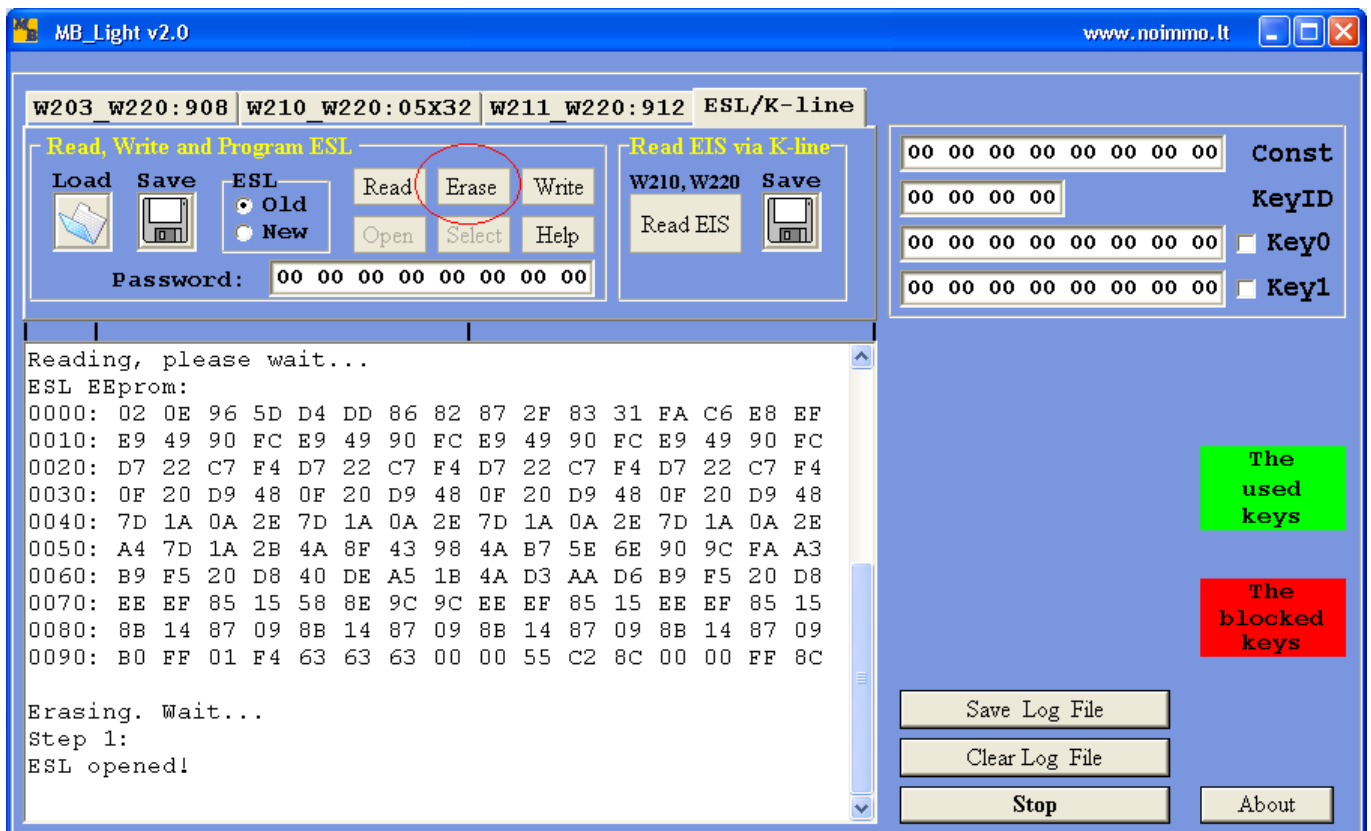


In this case add **4** to **ESL** name

After you have saved the original dumps start the procedure of erasing. Move the switches to the position to work with **CPU3**

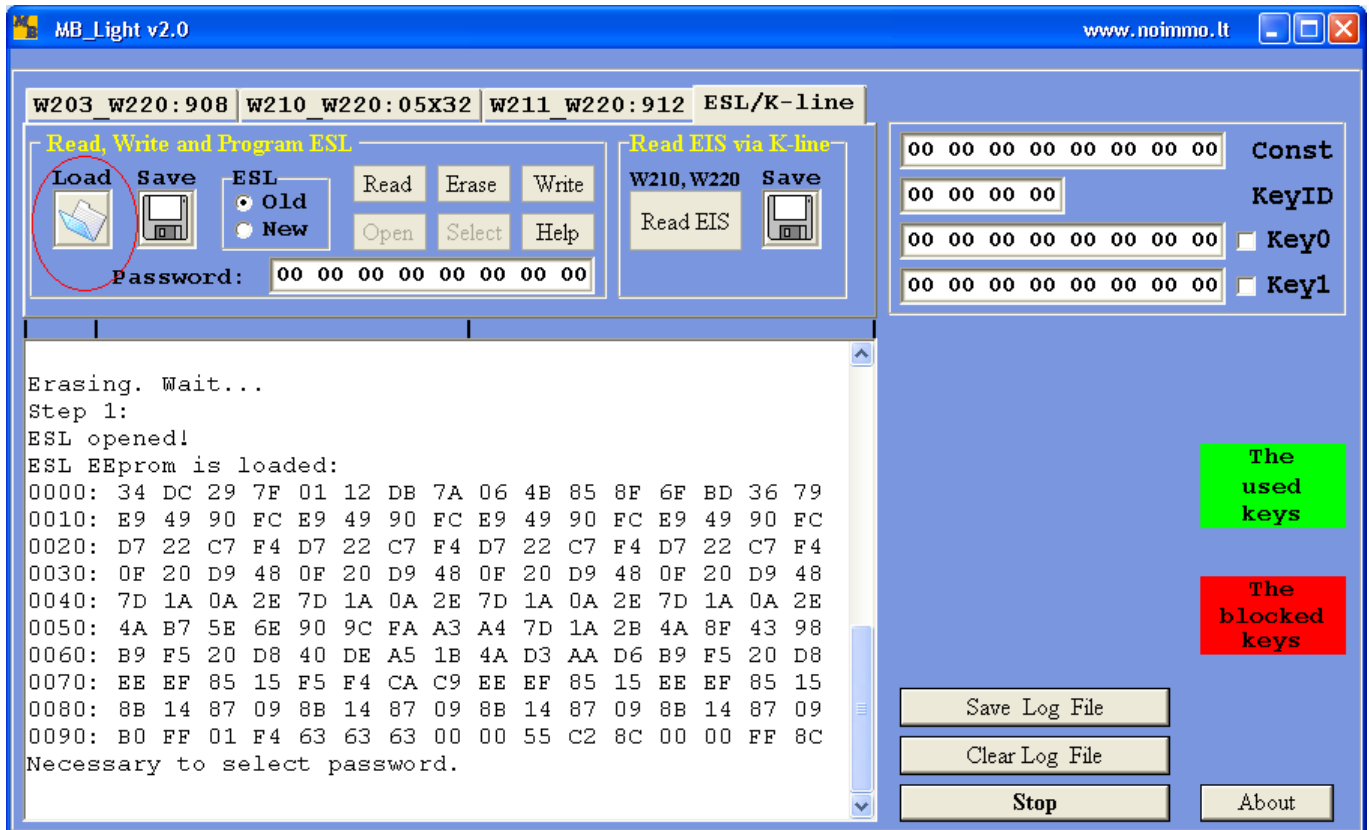


Press Erase and when finished you see

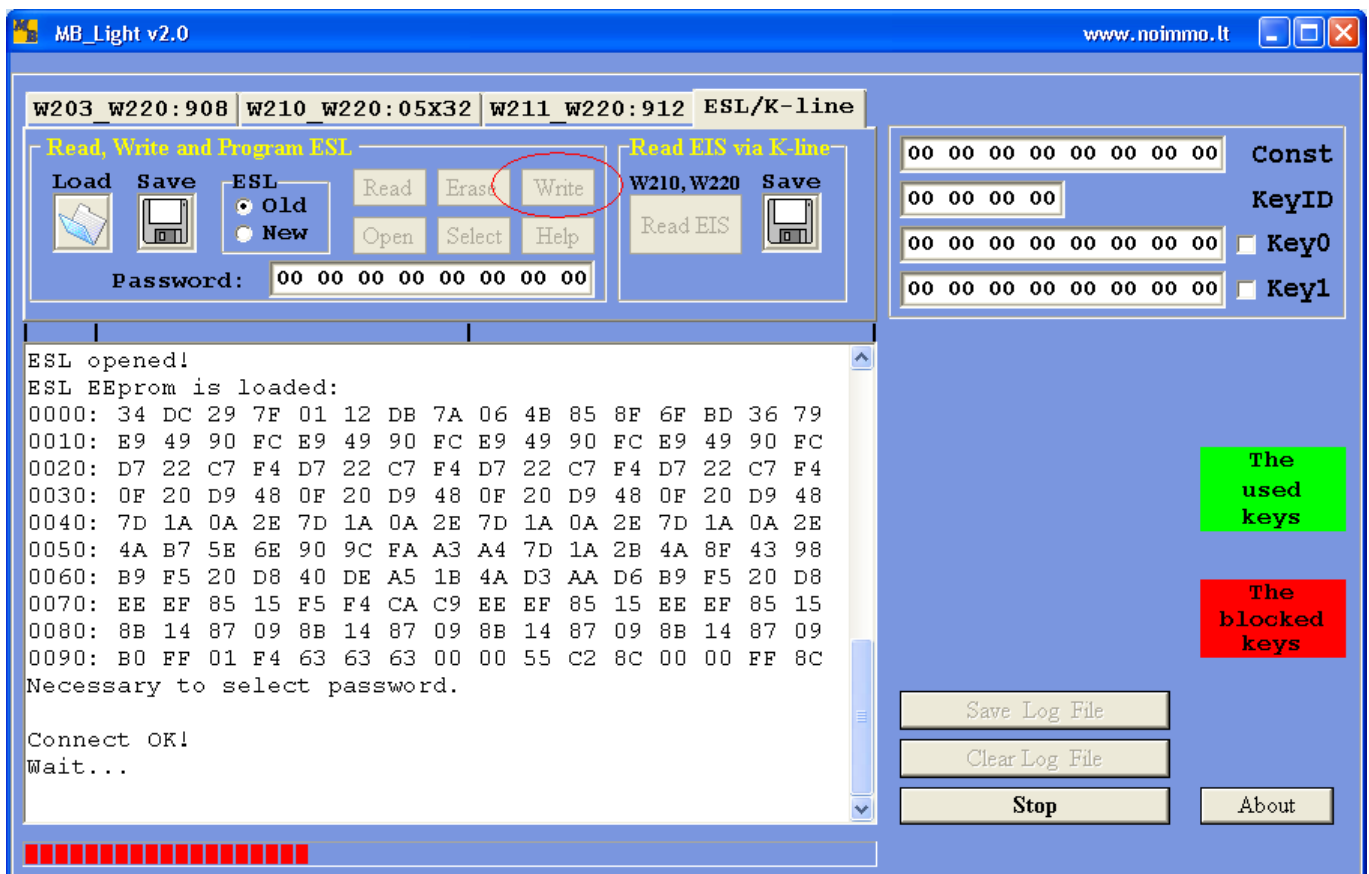


After the contents of **CPU3** processor have been erased the ESL must unlock the steering column. The vehicle can be rowed!

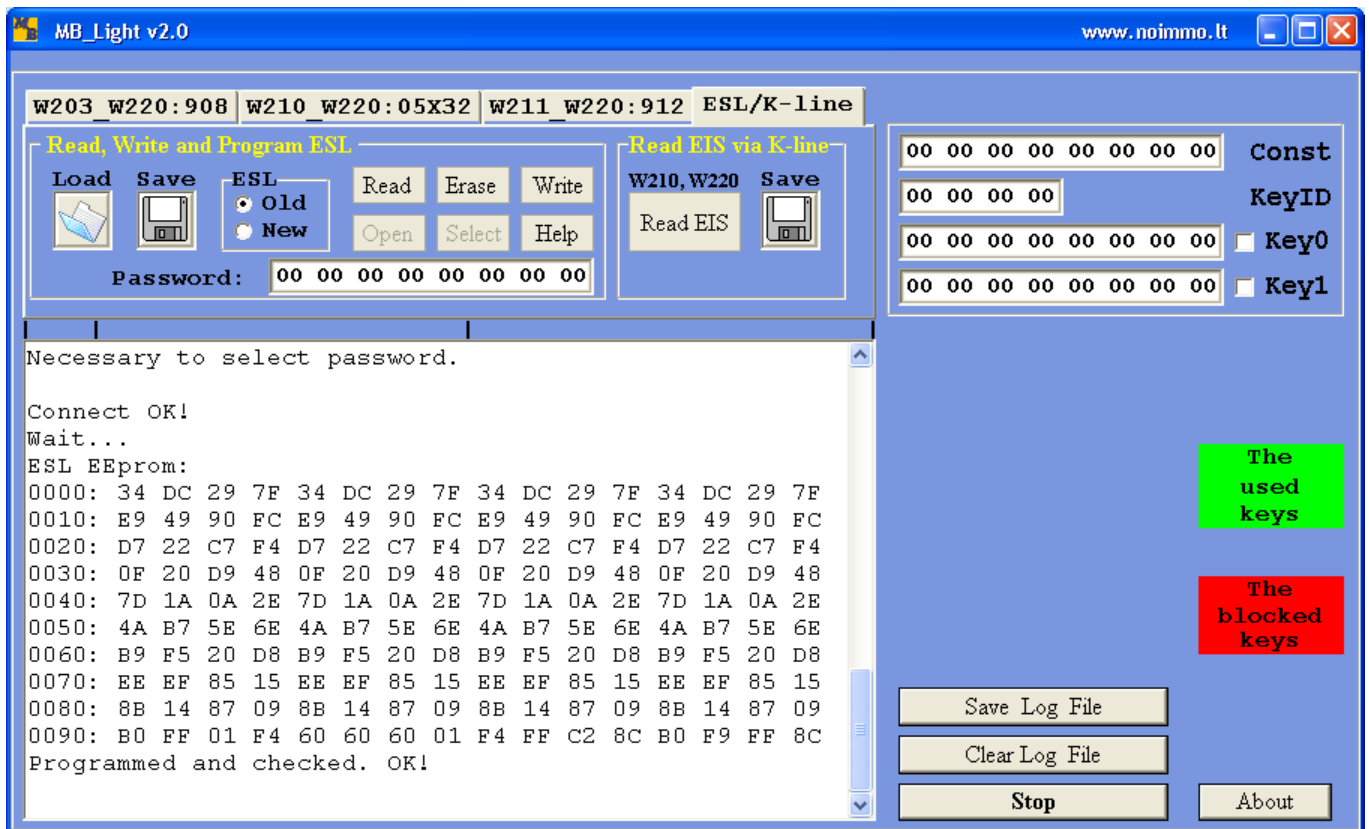
Press **Load** and load **ESL_New** dump which has been generated earlier to the program



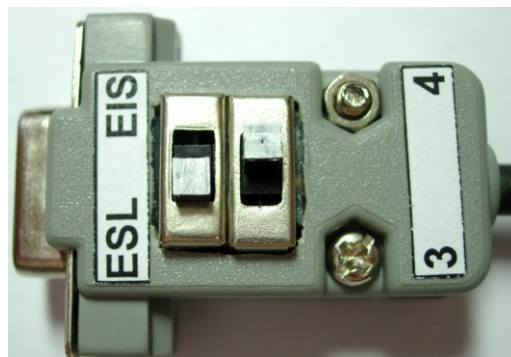
Press **Write**, you see



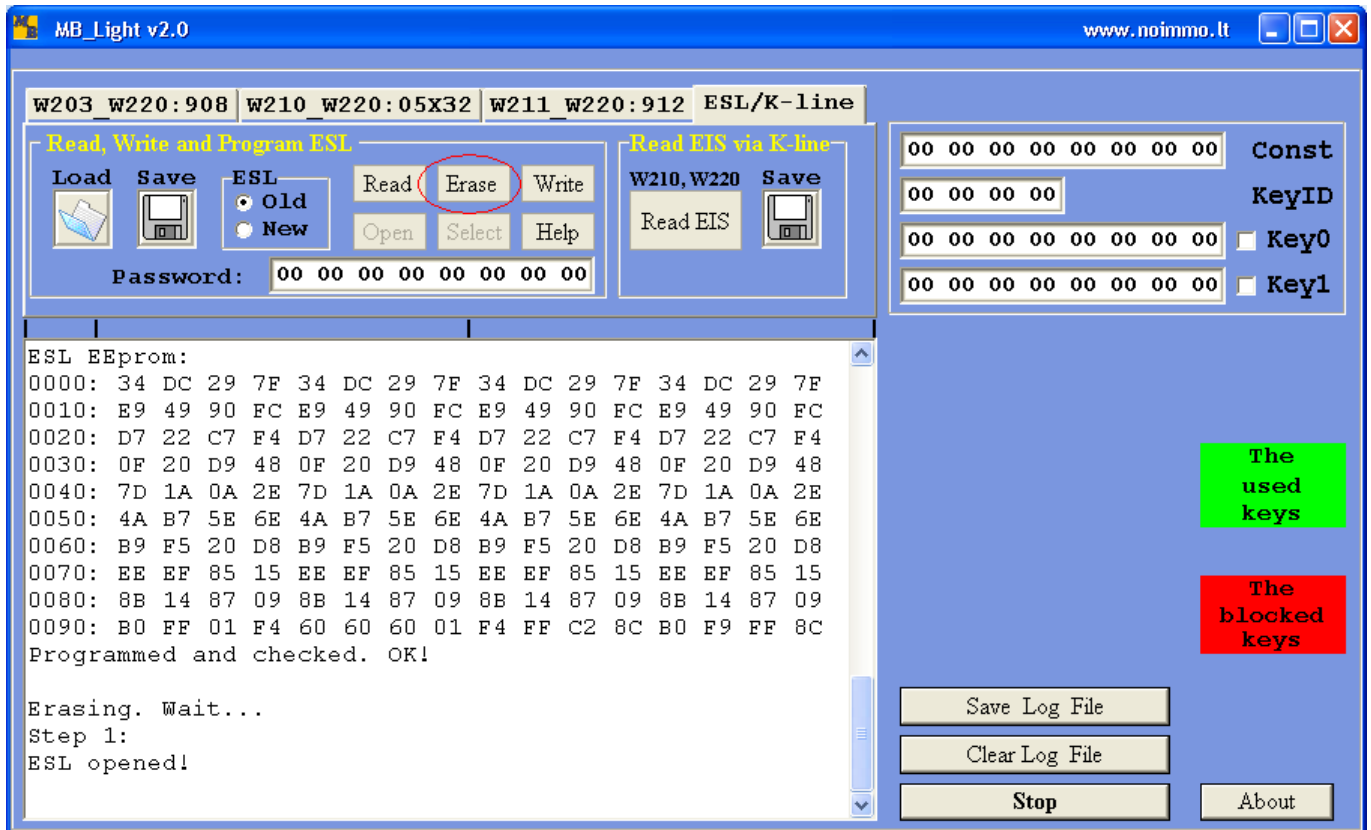
When finished you see



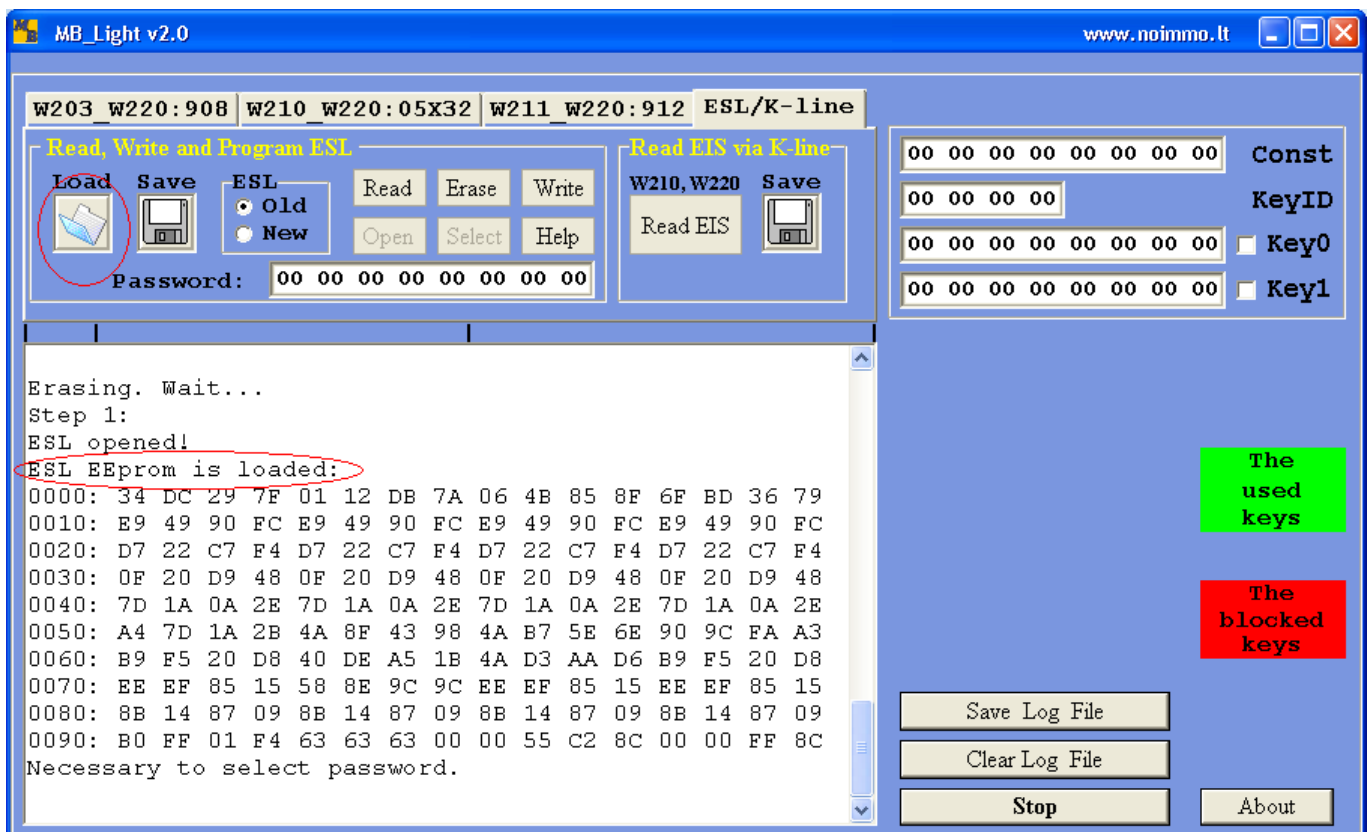
Move the switches to the position to work with CPU4



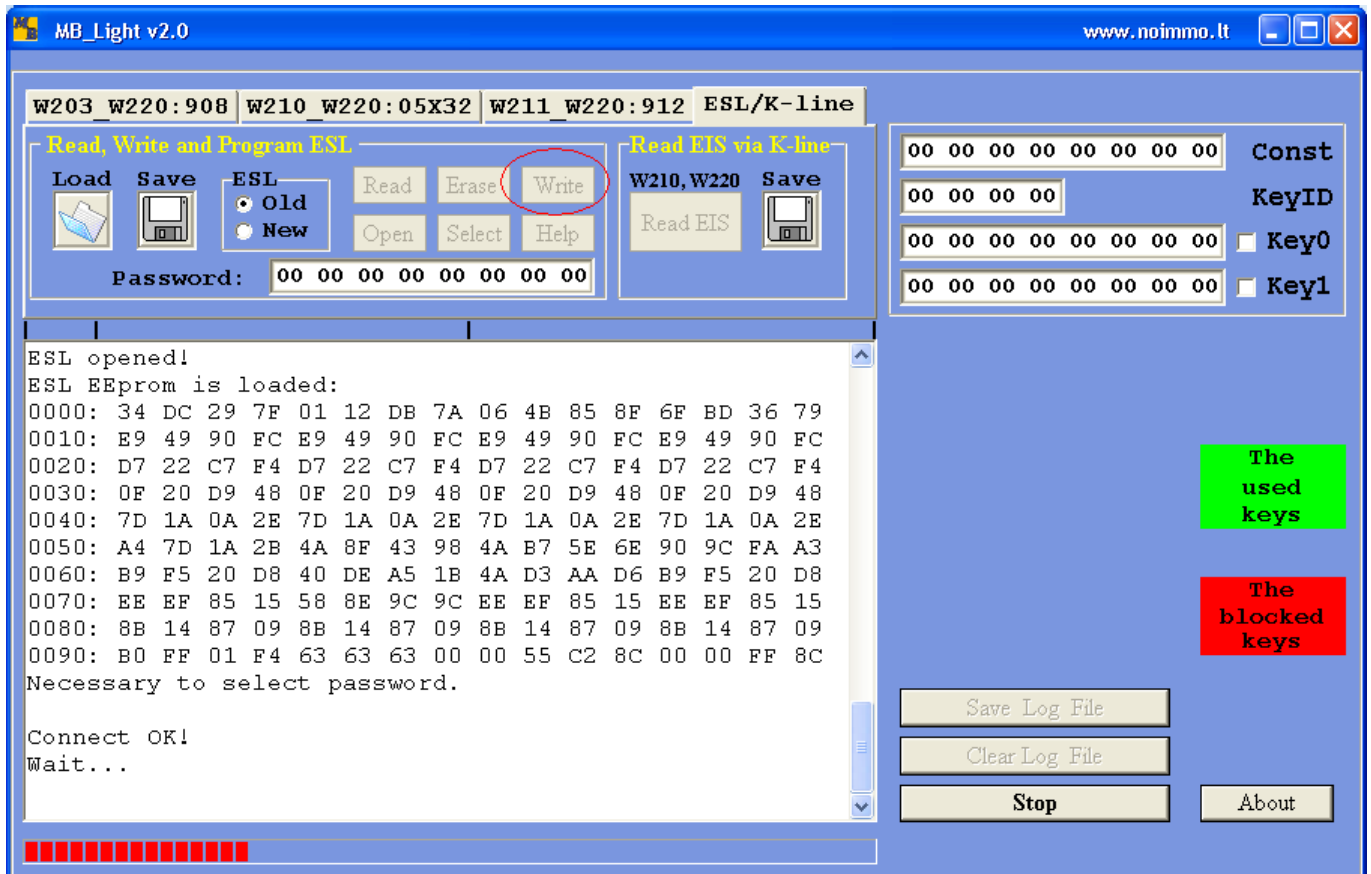
Press **Erase** and when finished you see



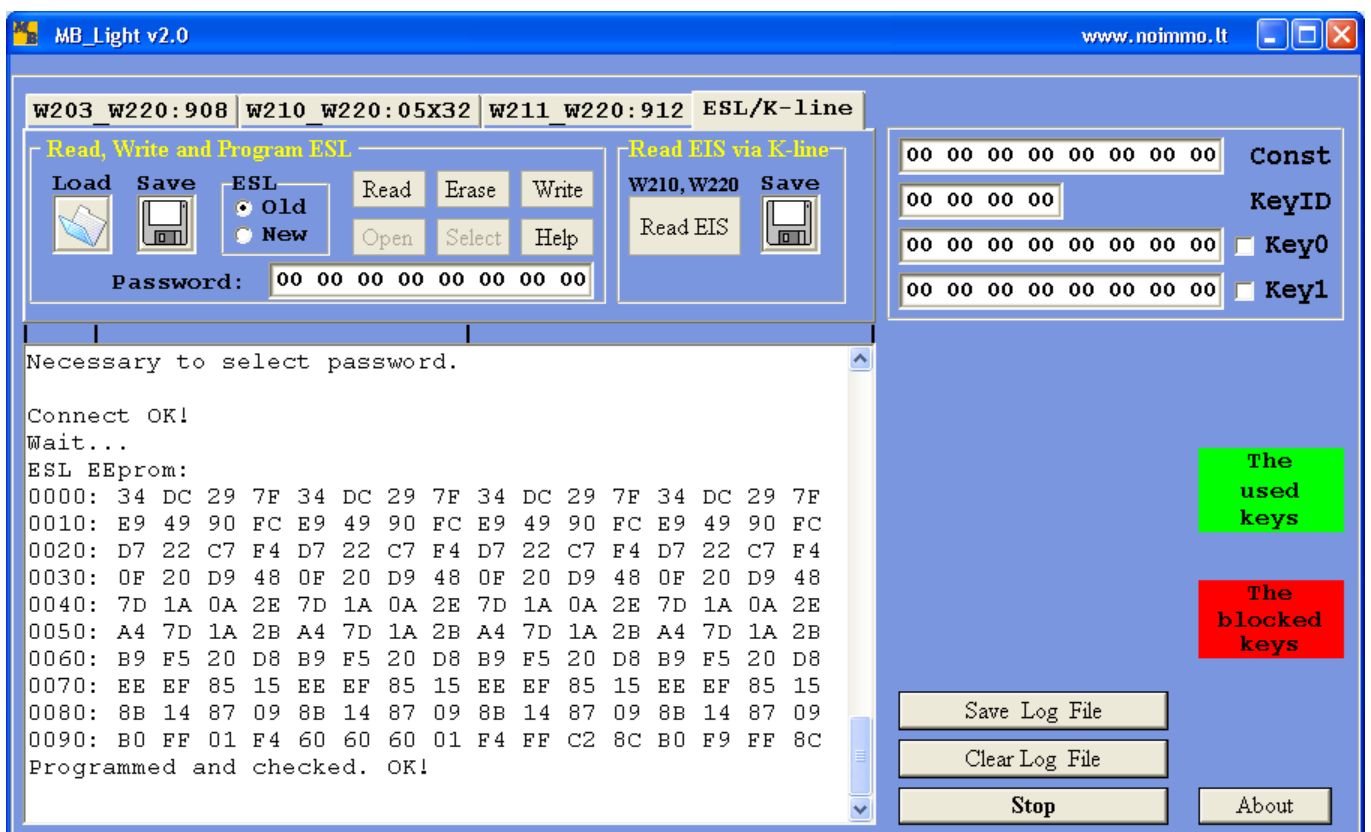
Press **Load** and load (the same) **ESL_New** dump which has been generated earlier to the program



Press **Write** and see the following



When finished you see



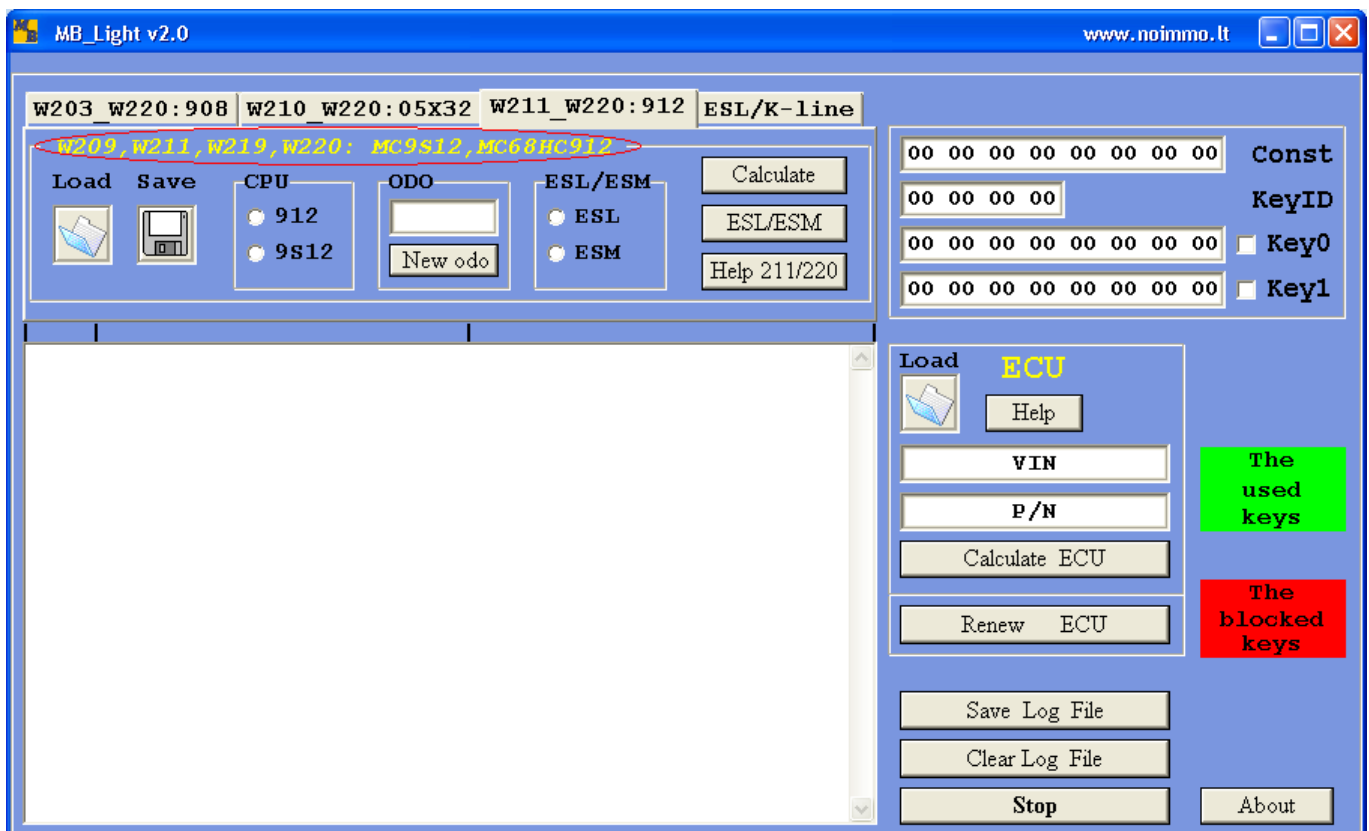
Disconnect our device and connect the ESL connector back to it

Write the dumps (which have been generated earlier and automatically saved) to EIS processors. Write the correct dump versions to the key processors. Write the dump and the written keys to the ECU (it's actual only for "restyled" 210s, keys couldn't be written in older models in their ECUs – they had a "characteristic" of ECU matching this EIS).

You may need to insert the key in the EIS several times (up to 32!), till the key is "accepted". Normally you succeed the first time.

Return the car to the customer!

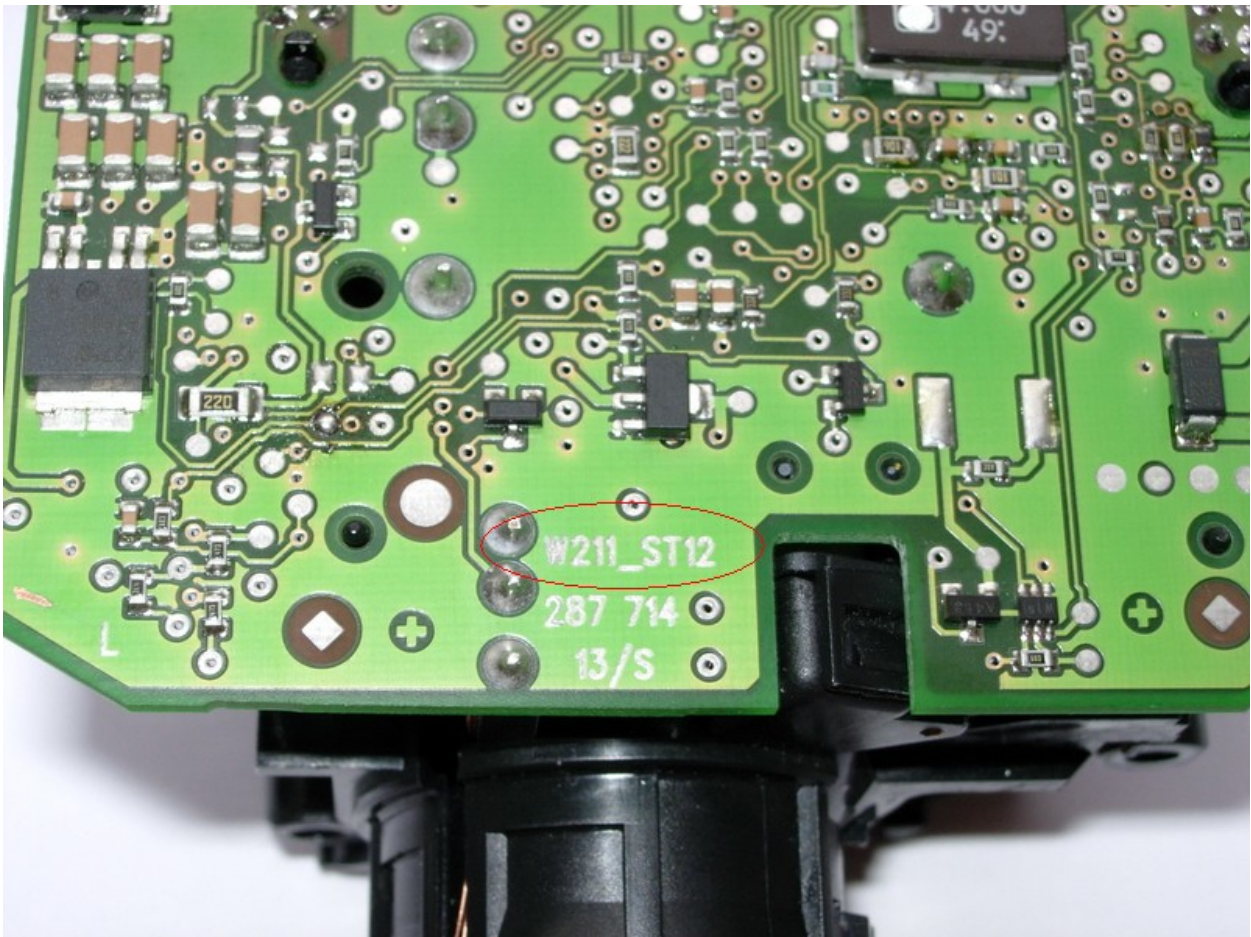
4. Operation with bookmark W211_W220:912.



The cars which have **MC9S12** processor in their EIS are marked in red.

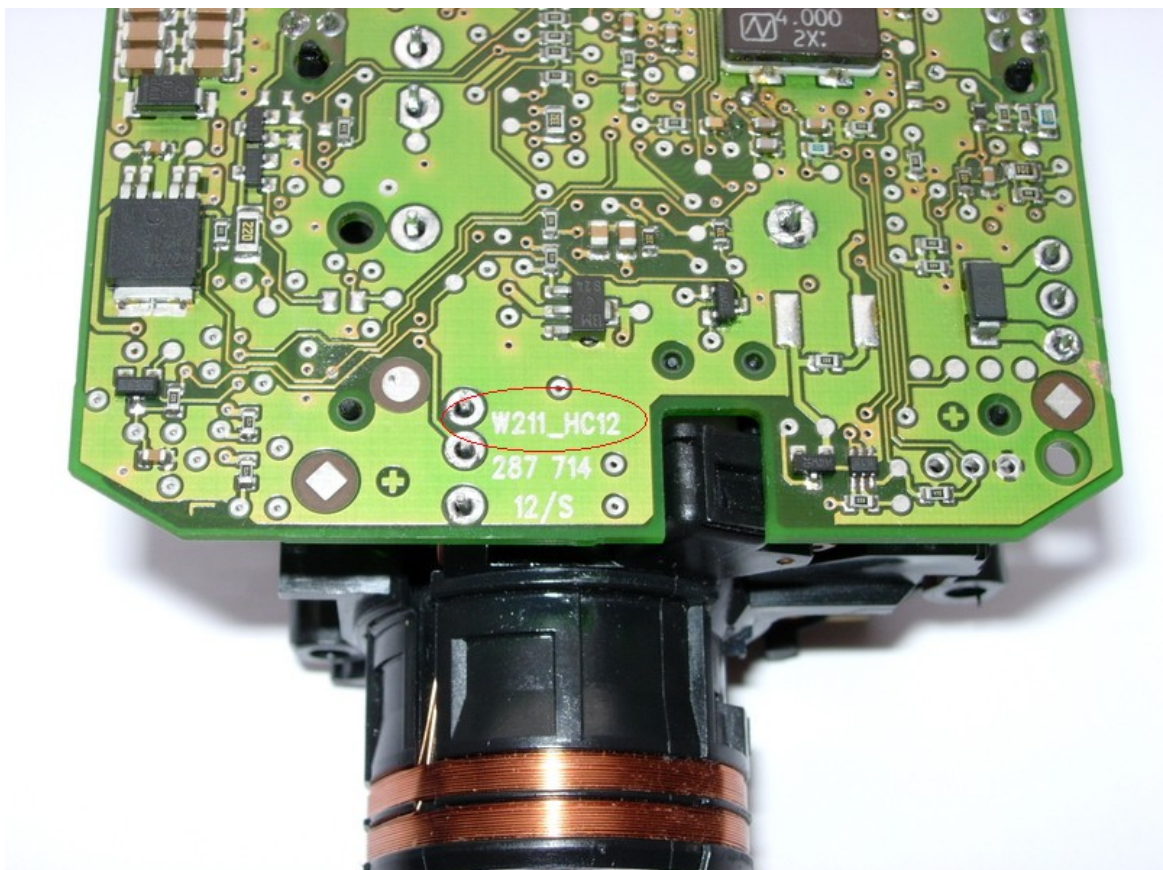
How can you identify the type of processor correctly? Before, you could identify the type by the mask on the box after unsoldering the processor. Now many use the programmers for in-circuit (onboard) programming (without unsoldering), e.g. **Rosfar** programmer

Disassemble the EIS. You see **ST 12** inscription on the main board



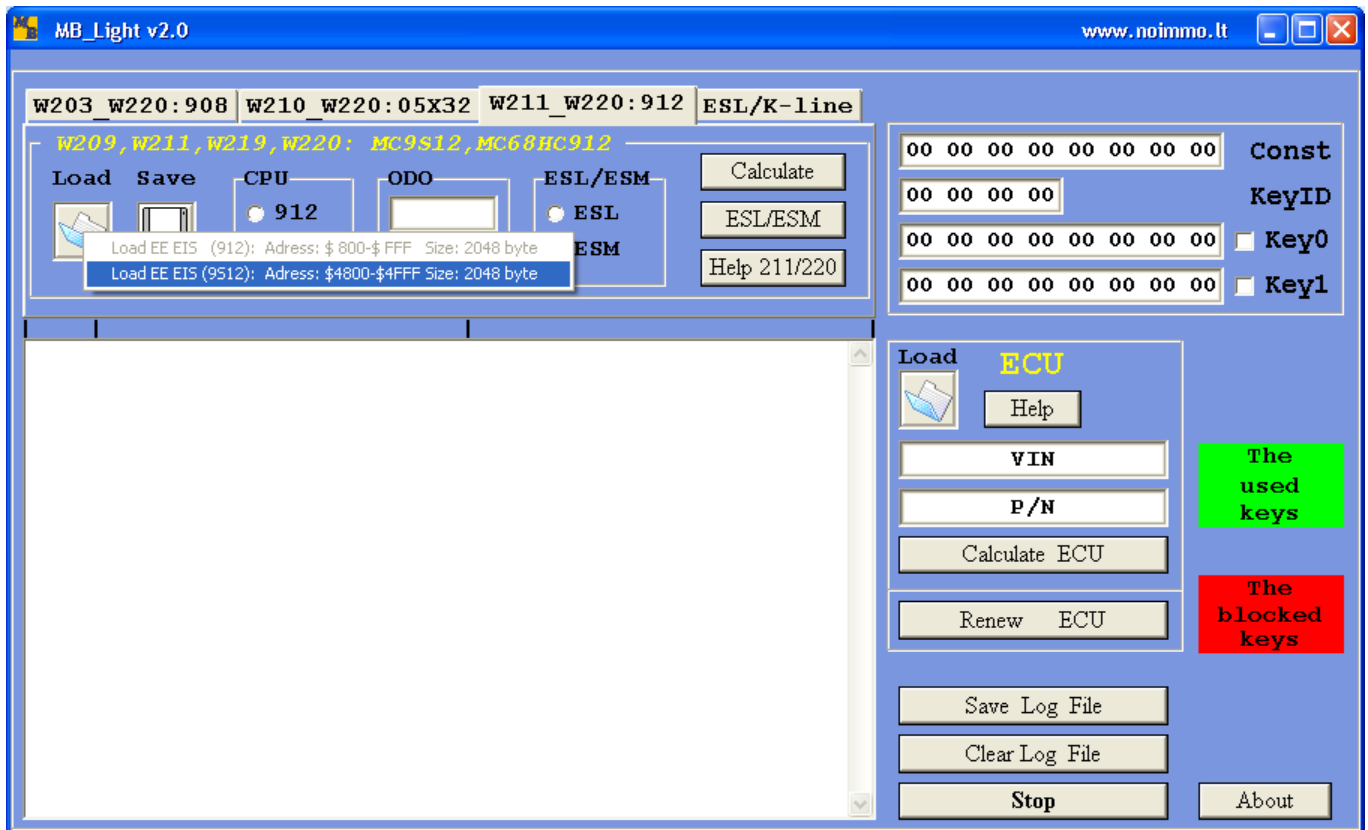
It means you should choose **9S12** type of the processor in your program window.

If you see **HC12** inscription on the board

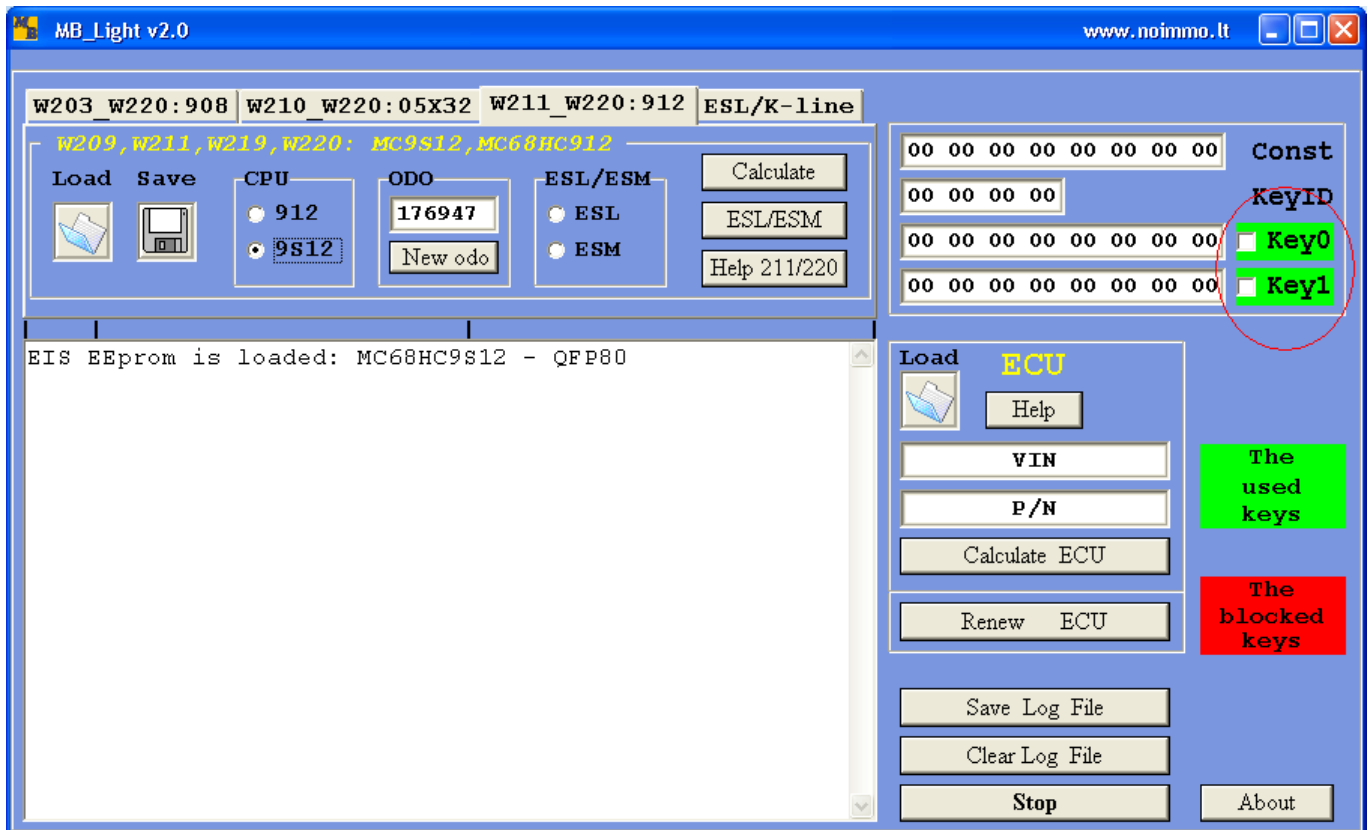


it means you should choose **912** processor type in your **CPU** program window

Let's study the work of the program with **9S12** as an example. After you have chosen the corresponding processor in the **CPU** window load the dump you read from the EIS processor



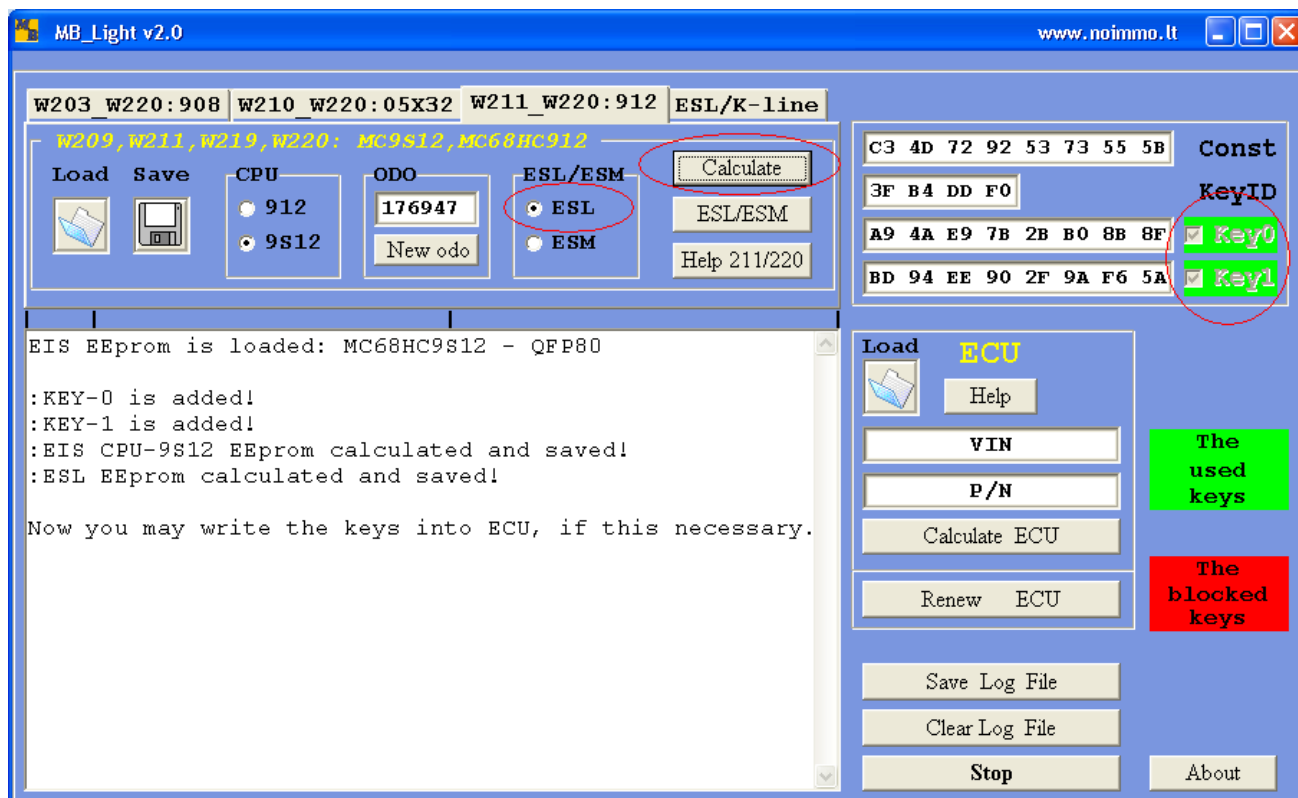
When loading is finished you see



You see that two active keys are written at 0 and 1 positions. Let's assume we have to write two preprogrammed keys. Fill in the information from the card in the corresponding fields in front of **Key-0** and **Key-1**

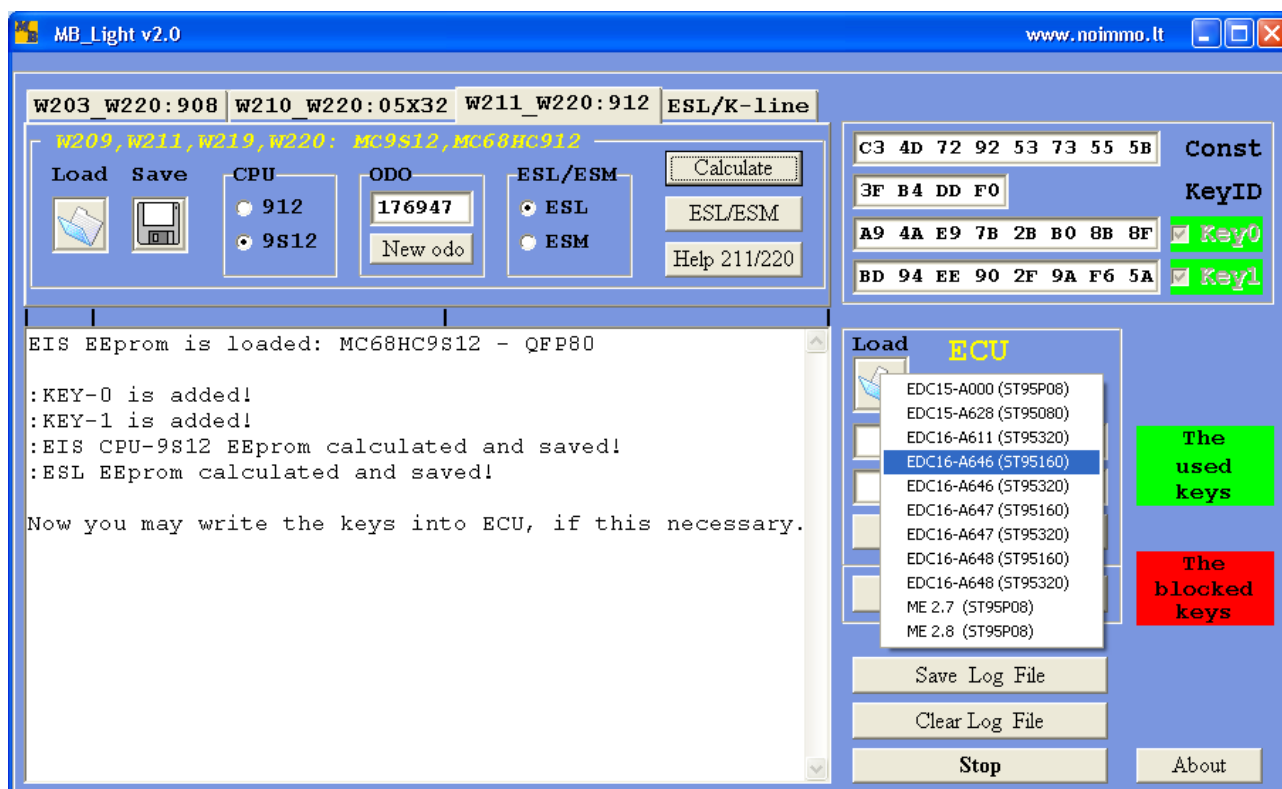
As in our example we work with Mercedes 211 we choose **ESL** in **ESL/ESM** window.

Press **Calculate**

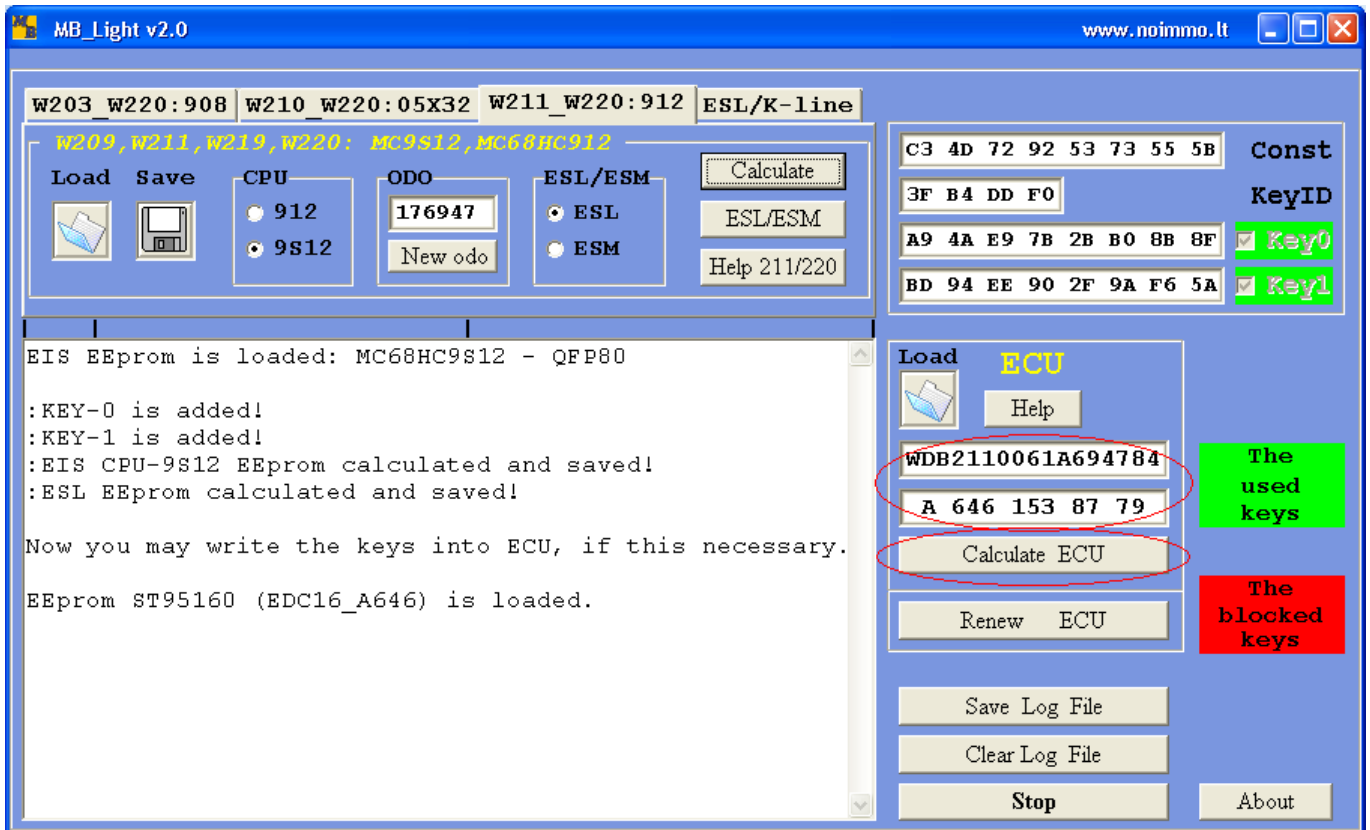


In the initial directory (where we loaded the EIS processor dump from) automatically (!) the following dumps are saved. The new dump **EIS_CPU-9S12_New.bin**, the new ESL dump **ESL_New.bin**.

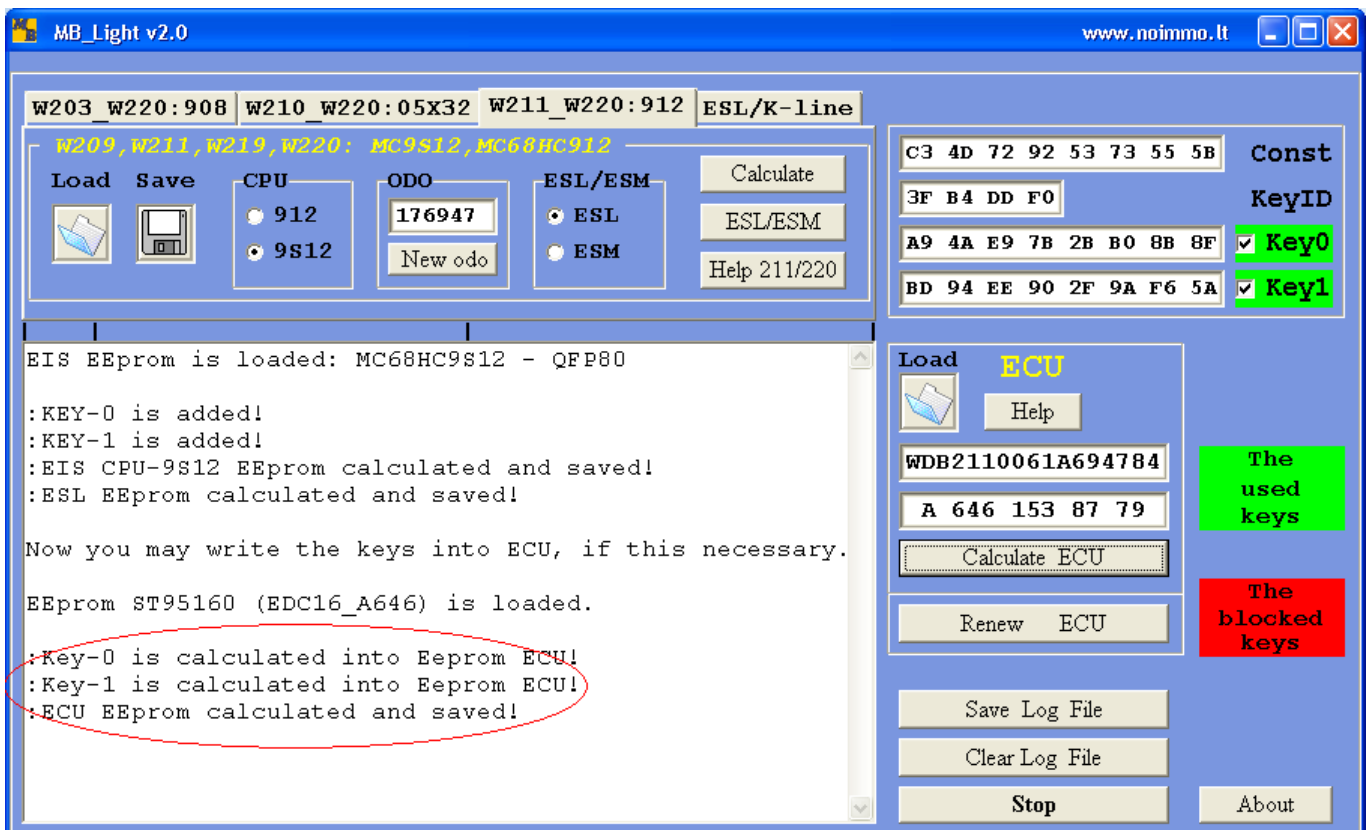
Now you can generate a new ECU dump, where our new keys will be located. To do so load the previously read ECU dump in the **ECU** window.



If loading is successful you see



In the circled windows you see VIN-code and the factory number. If the correct dump has been chosen while loading you will see the right VIN-cod . If the VIN-code field is empty it means you have chosen the wrong version while loading. Press **Calculate ECU** and you see.



The new ECU dump is automatically saved in the initial directory with adding **_New** to its initial name.

Now you have a new dump for EIS processor programming, new key programming, ECU and ESL programming.

5. Operation with ESL/K-Line bookmark (New)

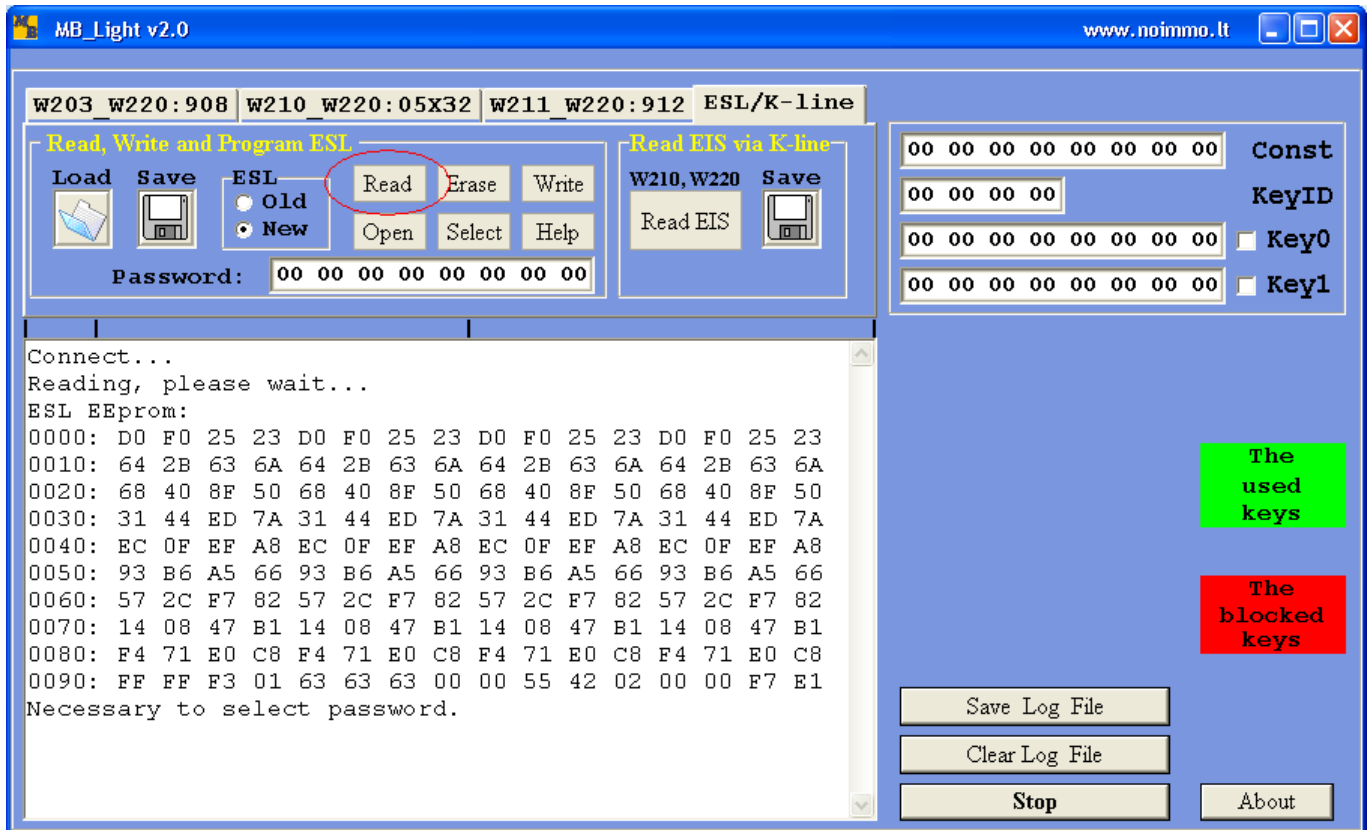
You must distinguish between the old and new ESL types! Below you can see the new ESL type which was used in W203, W209, W211 types.



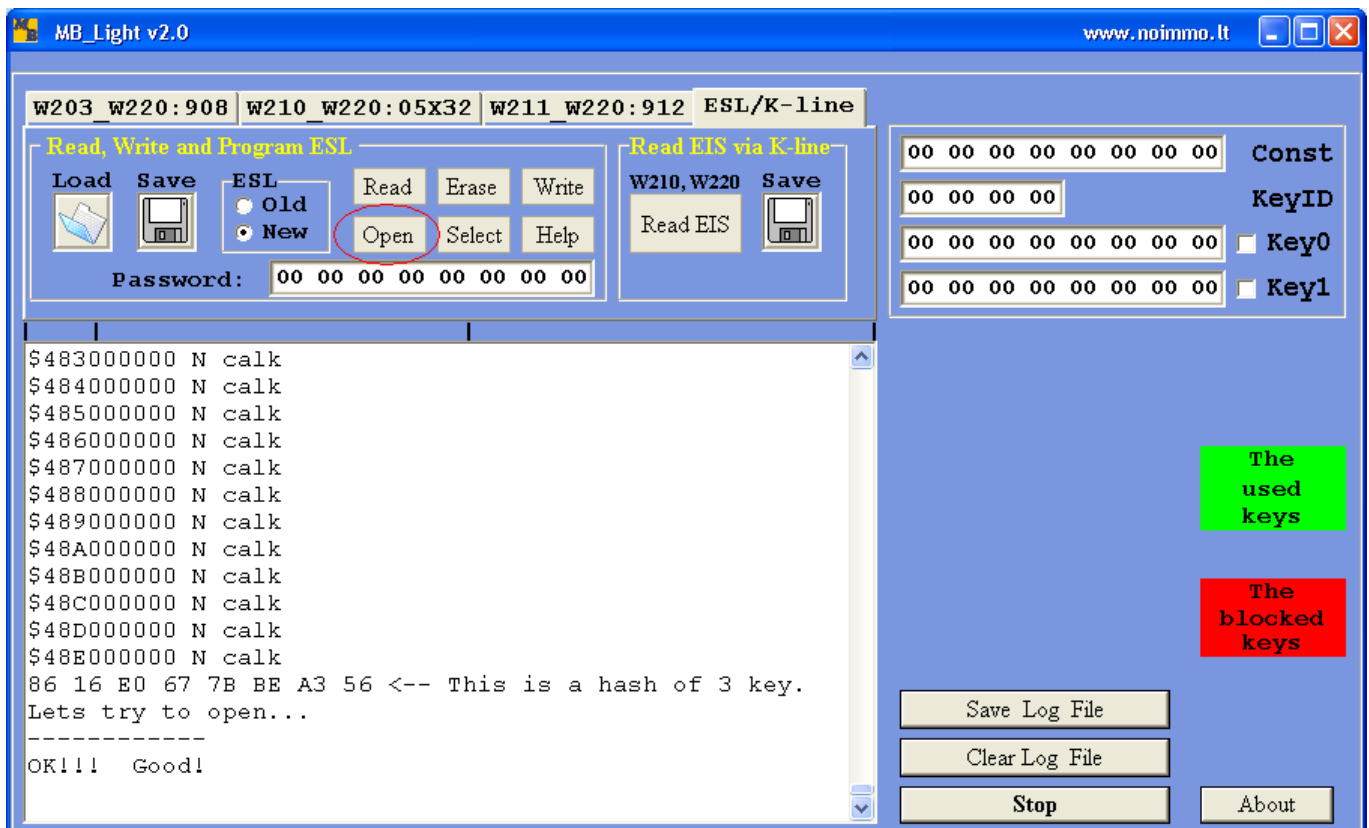
Connect the diagnostic connector. Disconnect the ESL connector and connect the appropriate connector from our set. To work with the new ESL processor the switches on the connector must be in the following position



Press **Read**, when finished you see

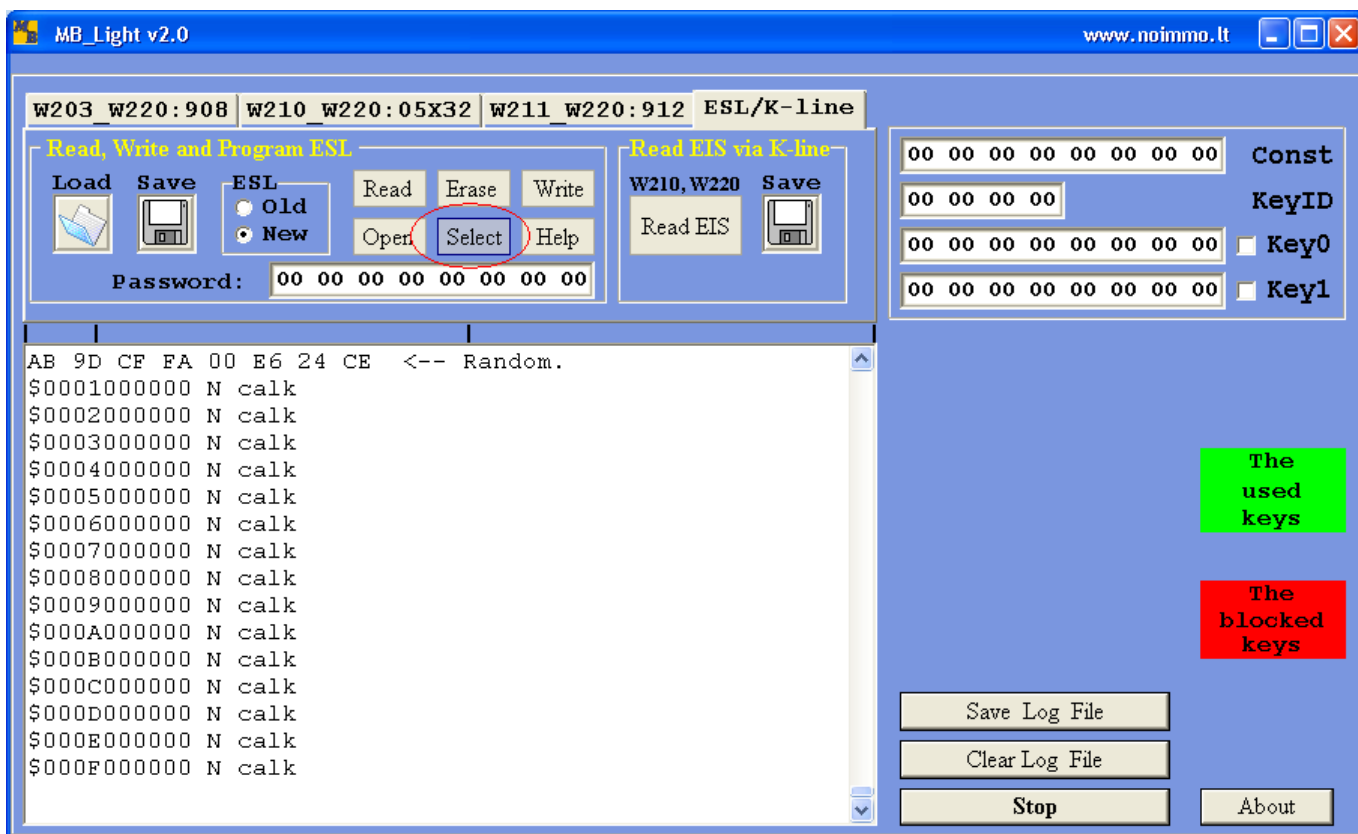


If you only need to unblock the steering column then press **Open**, in this case an automatic process of all eight keys hashes selection starts and the ESL opens

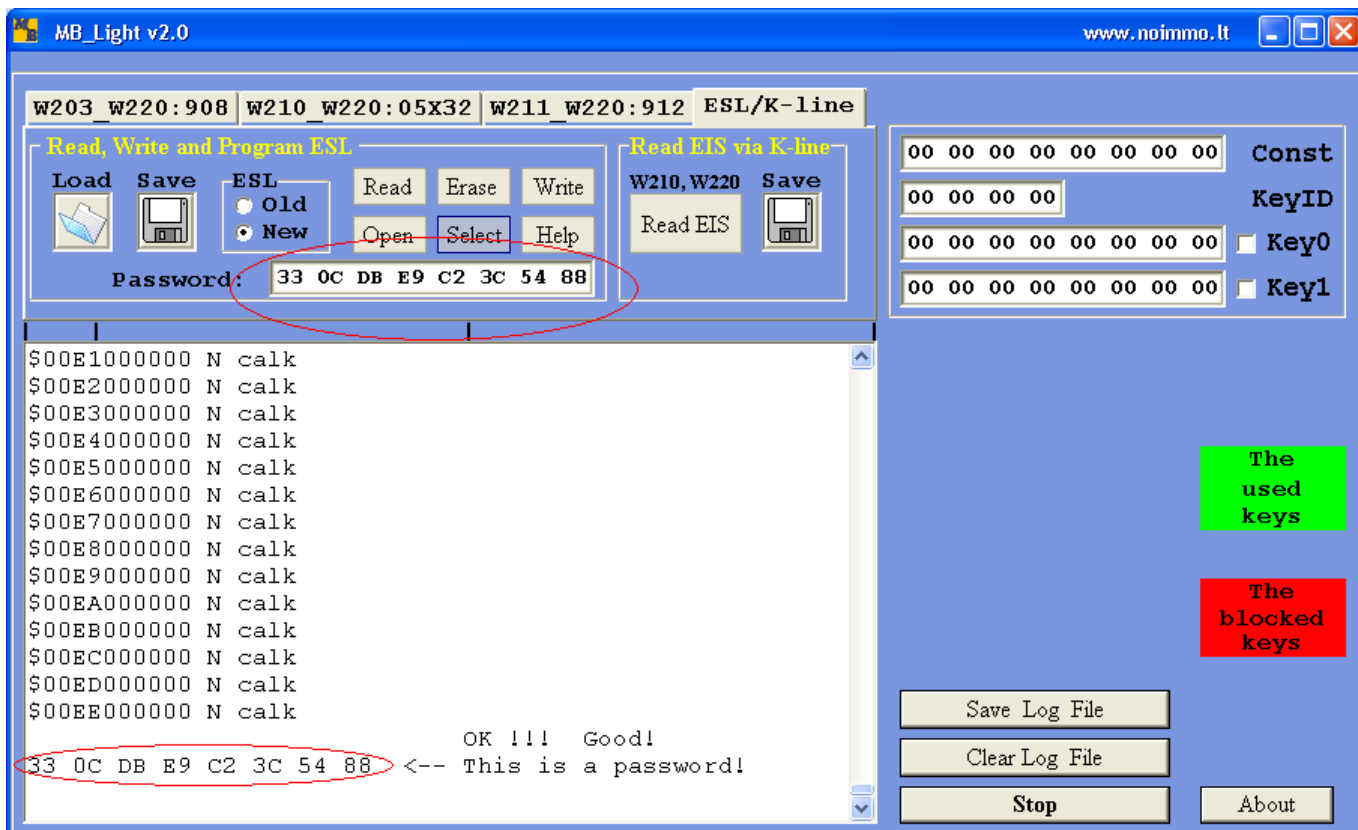


To write a new dump to the ESL, it is necessary to erase previously, which is not possible without the correct password selection

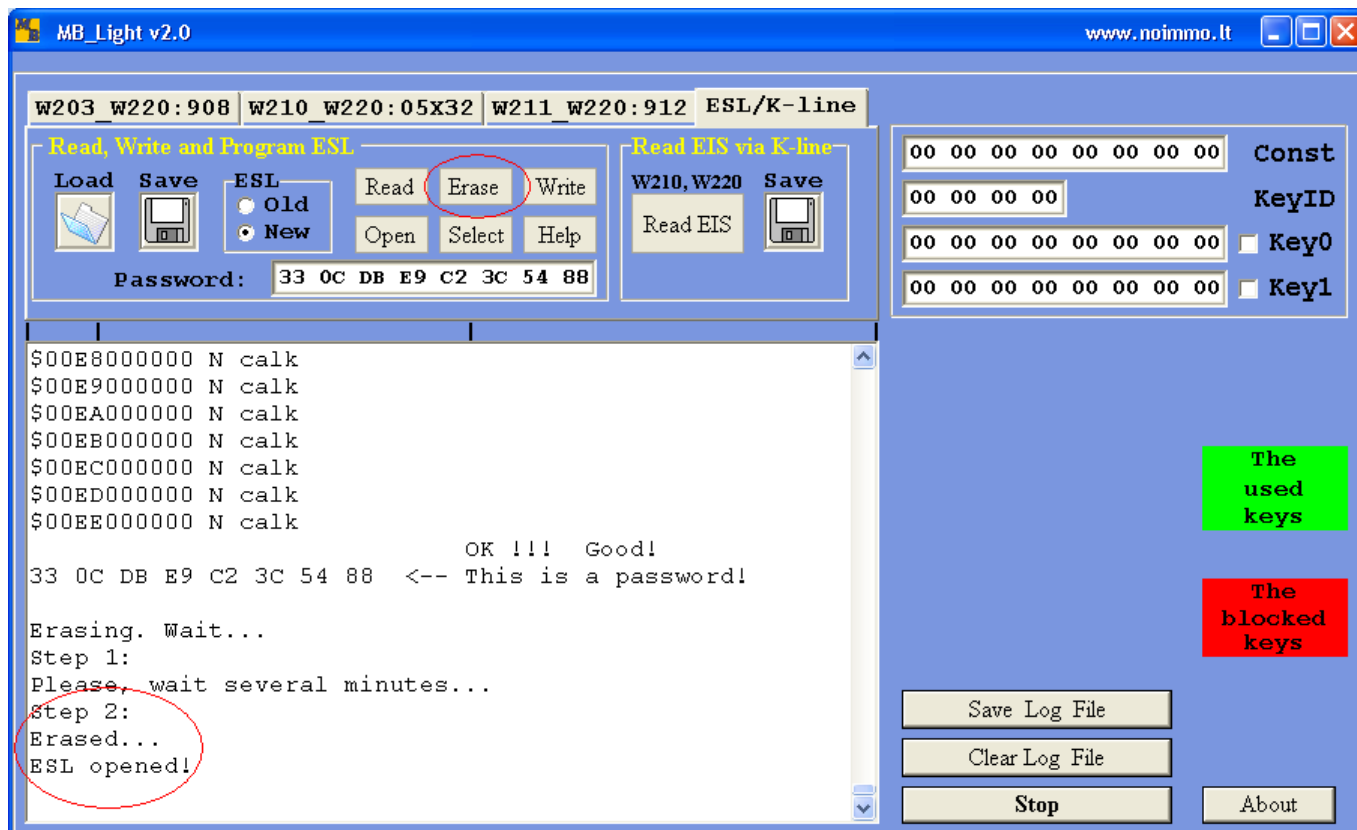
If you have not used the **Open** function before the operation of the password selection it is necessary to press **Read**. Then press **Select**, the password selection starts.



When the password is found you will see.

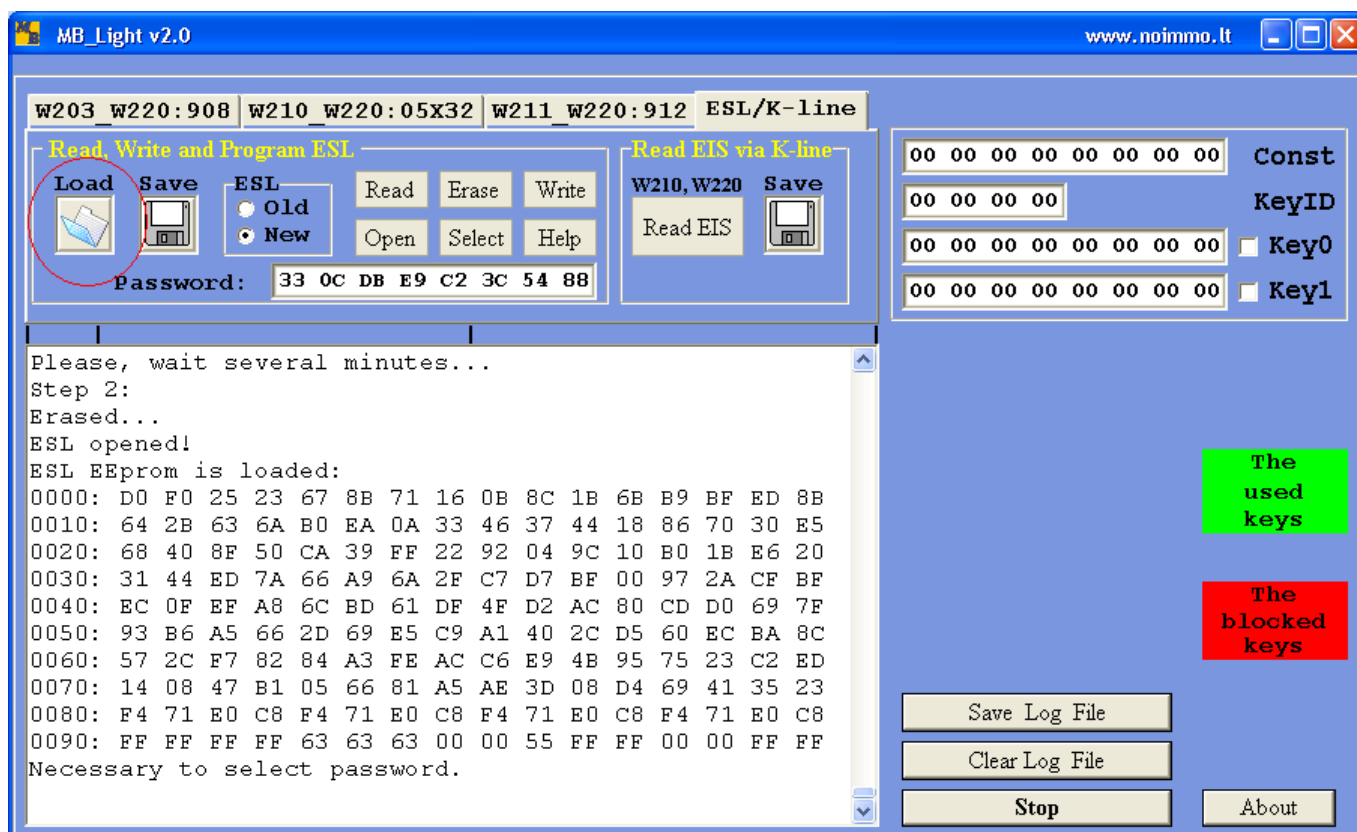


If you are not going to erase in this session, you should write the found password on paper, in order to save your time next time. In our example after successful finding of the password press **Erase** immediately and you get

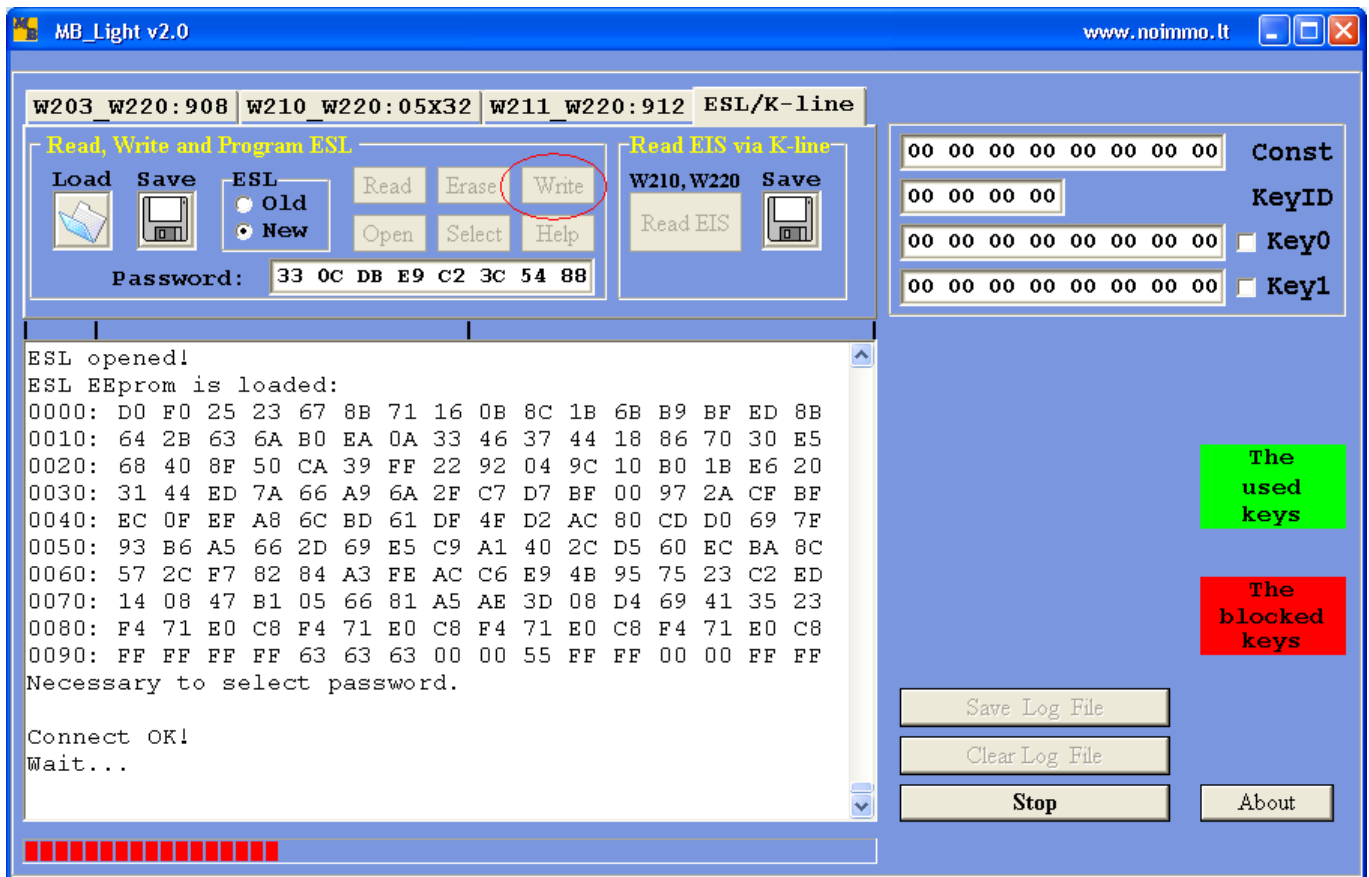


Now your ESL is ready for the new dump writing. In the same way you can prepare a used ESL for writing and put it away for “better times”

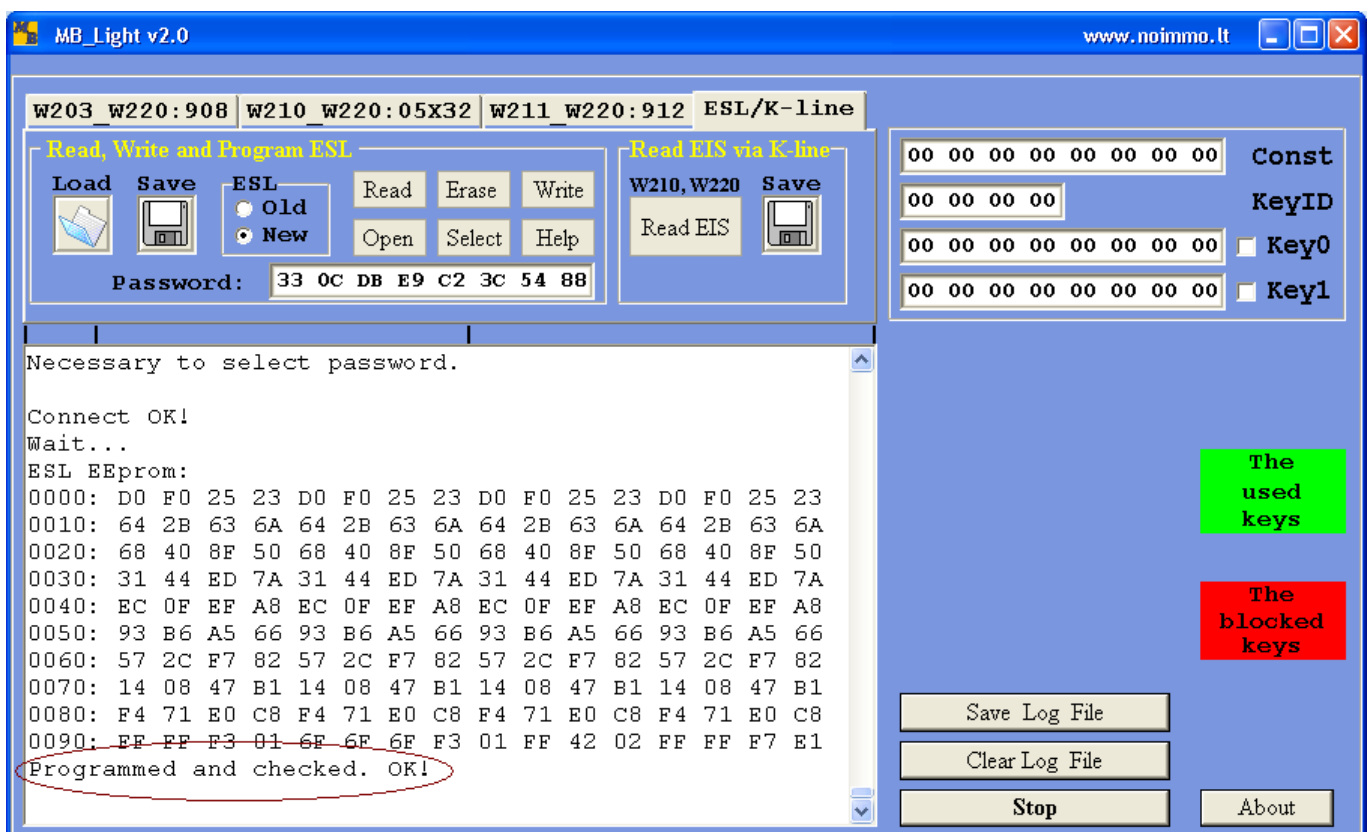
Load the previously generated **ESL_New.bin** file to the program



Press Write



when finished you see



Disconnect the device and connect the ESL connector

Write the dump to the EIS processor which has been generated and automatically saved before. Write the dump with the written key to the ECU.

You may need to insert the key in the EIS several times (up to 32!) till the key is accepted. Normally you succeed the first time.

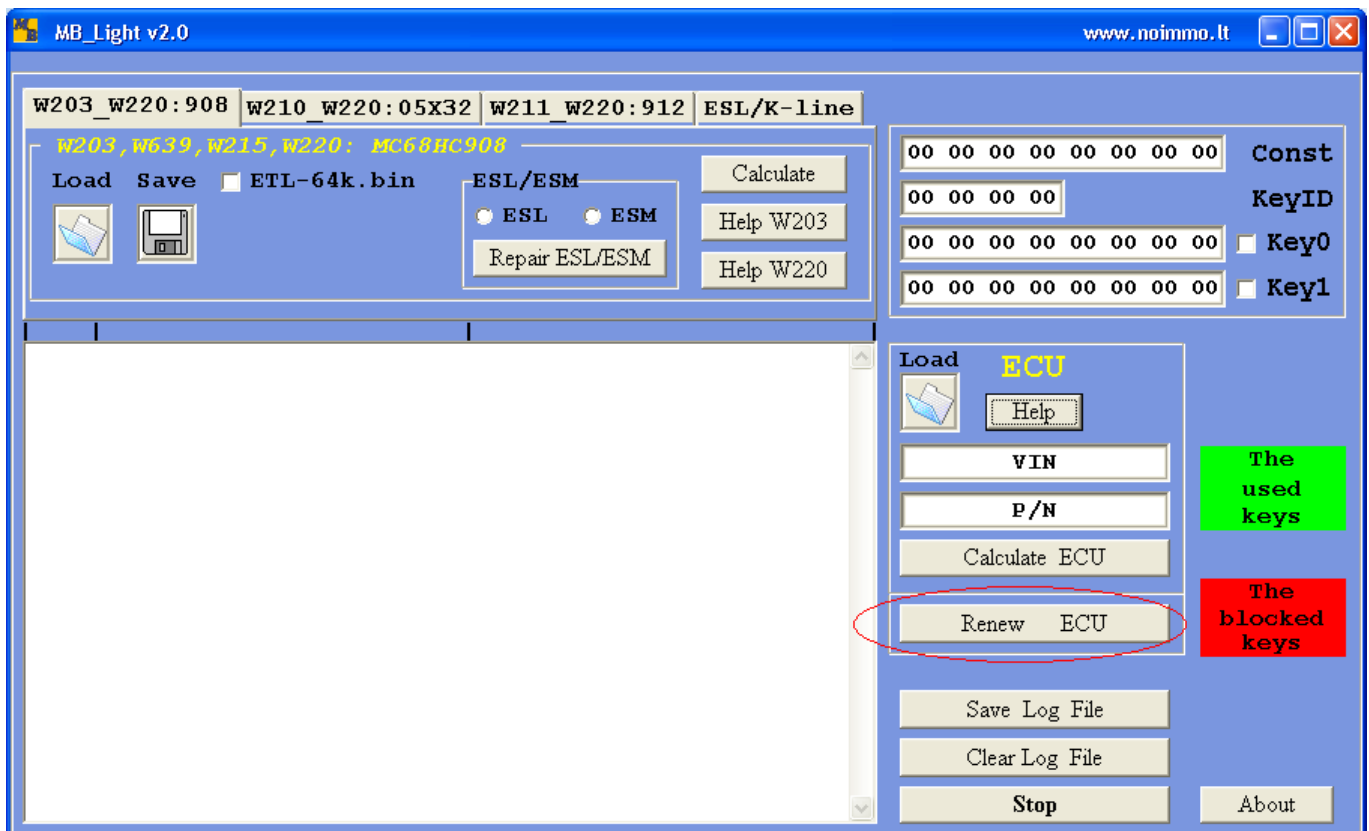
Return the key to the client.

6. Supplementary options

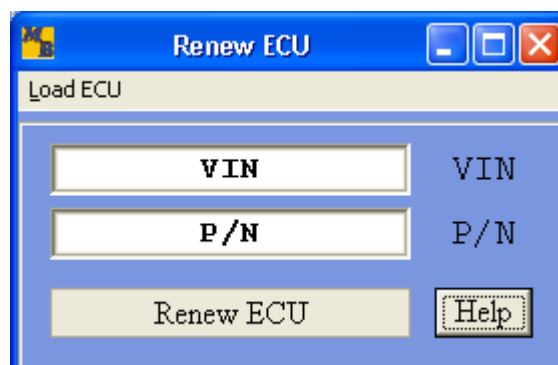
Renew ECU.

If you have a dealer's device **Star Diagnosis** you may generate a new ECU dump on the base of the original ECU dump for further use with the help of the dealer's device. In this case you don't need to care about programming keys into the ECU. You use another used ECU instead of the faulty ECU.

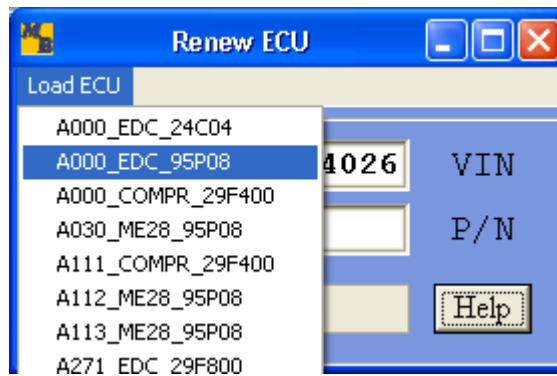
Press **Renew ECU**



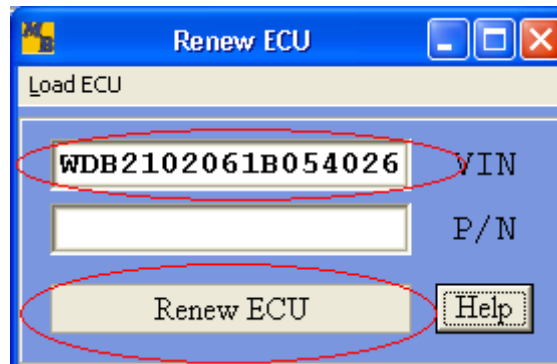
You see a new window



Load the previously read ECU dump

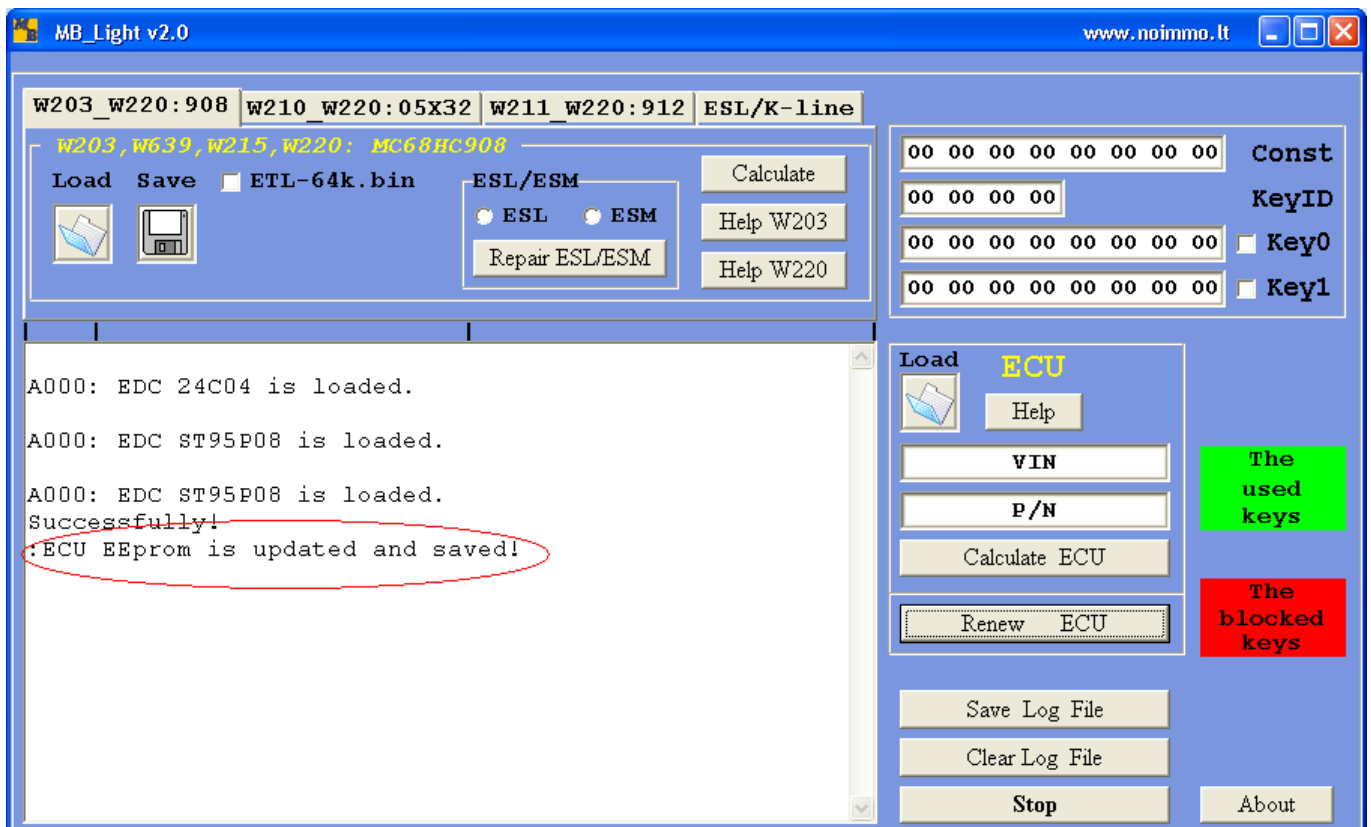


When finished you see



You see the VIN-code and the ECU factory number. If you chose the right dump while loading you will see the right VIN-code at the least. If the field of the VIN-code is empty you chose the wrong version while loading the file. Press **Renew ECU** (in the small window), after that the small window shuts.

You see in the main window



The new dump is automatically saved in the initial load directory. **_Renew** is added to the initial name.