

HowTo: Remove ECU monitoring of pre-catalysers on ES9J4S V6 (Fix Anti-Pollution / Worn catalyser error)

A known problem of the ES9J4S engine is the Anti-pollution error that typically starts occurring after the engine has run ~200k km / ~135k mi. It effectively cripples the engine into limp-mode until the error is reset. Only 50 'after sales entries' are available from the factory, and every reset consumes an entry. After every entry has been used, it is no longer possible to remove the error, permanently putting the engine in limp mode. The instructions below describe how to disable the monitoring of the pre-catalysers, which ensures no fault codes are generated in the future. The procedure might look intimidating, but is actually quite simple and quick if followed properly.

That being said, using this how-to means you take full responsibility of whatever the outcome is.

I advise you to read through the entire thing before starting, so you know what to do beforehand. The procedure was taken from a user of a Finnish French car forum, 'ds-jekkeri'. Many thanks to him for putting the work into coming up with this solution. [Original thread can be found here](#). Let's get started!



Things you will need:

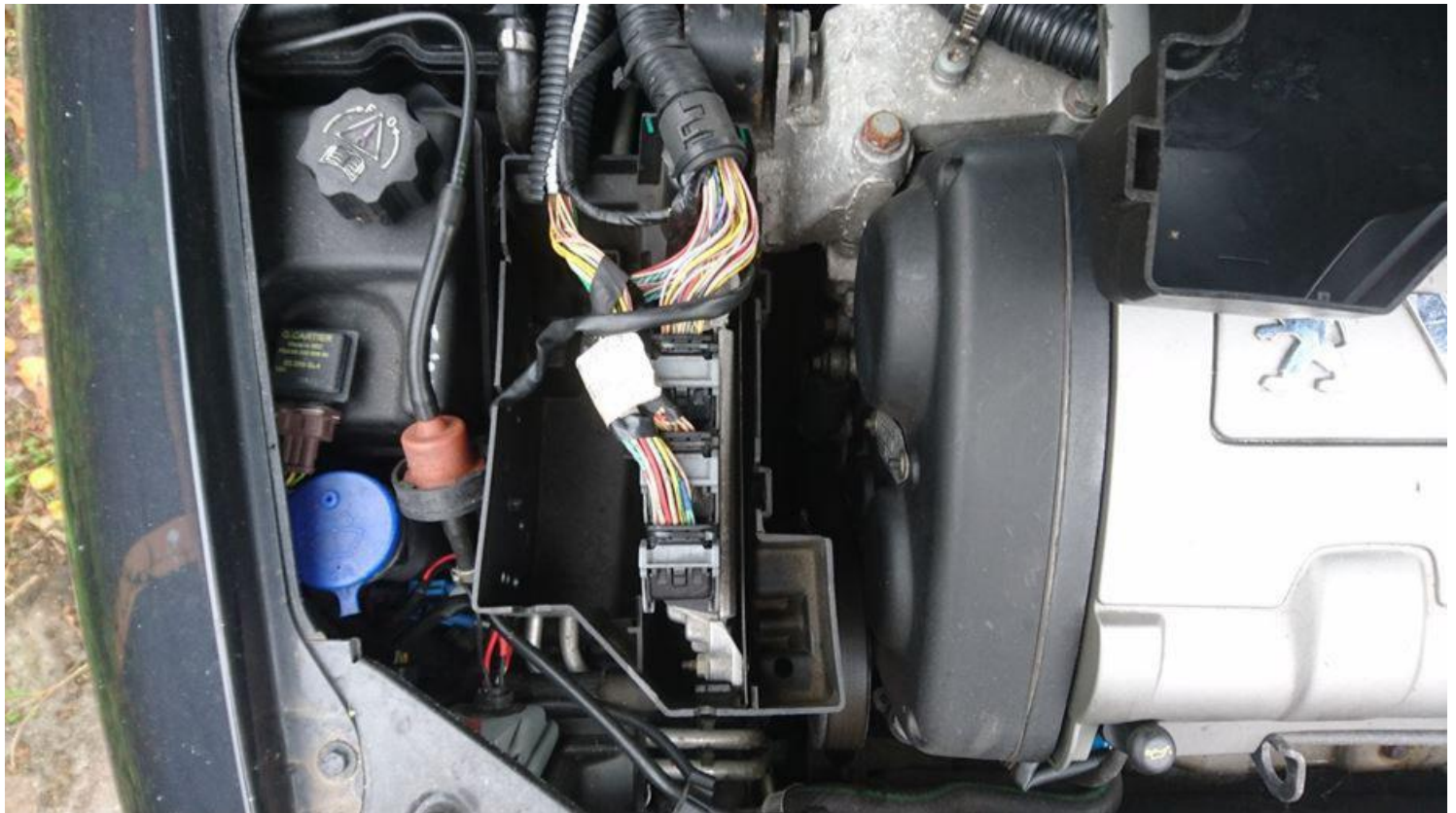
1. MMPS interface (V13 or up). You can get these off eBay for ~20 pounds.
2. If necessary, some way of securing wiring to a power source.
3. Some wiring. I highly recommend using three different colours to avoid any confusion.
4. Scissors, or preferably wire cutters and a wire stripper
5. A heat source. A hair dryer would be the best option here, but a heatgun or lighter can work too.
6. A stable DC power source that is able to provide between 13V and 14V.

Note: It is imperative the source produces no ripples for this to work. If you're not sure what this is, just use the Coupé's battery. It normally powers the ECU anyway, so this works fine.

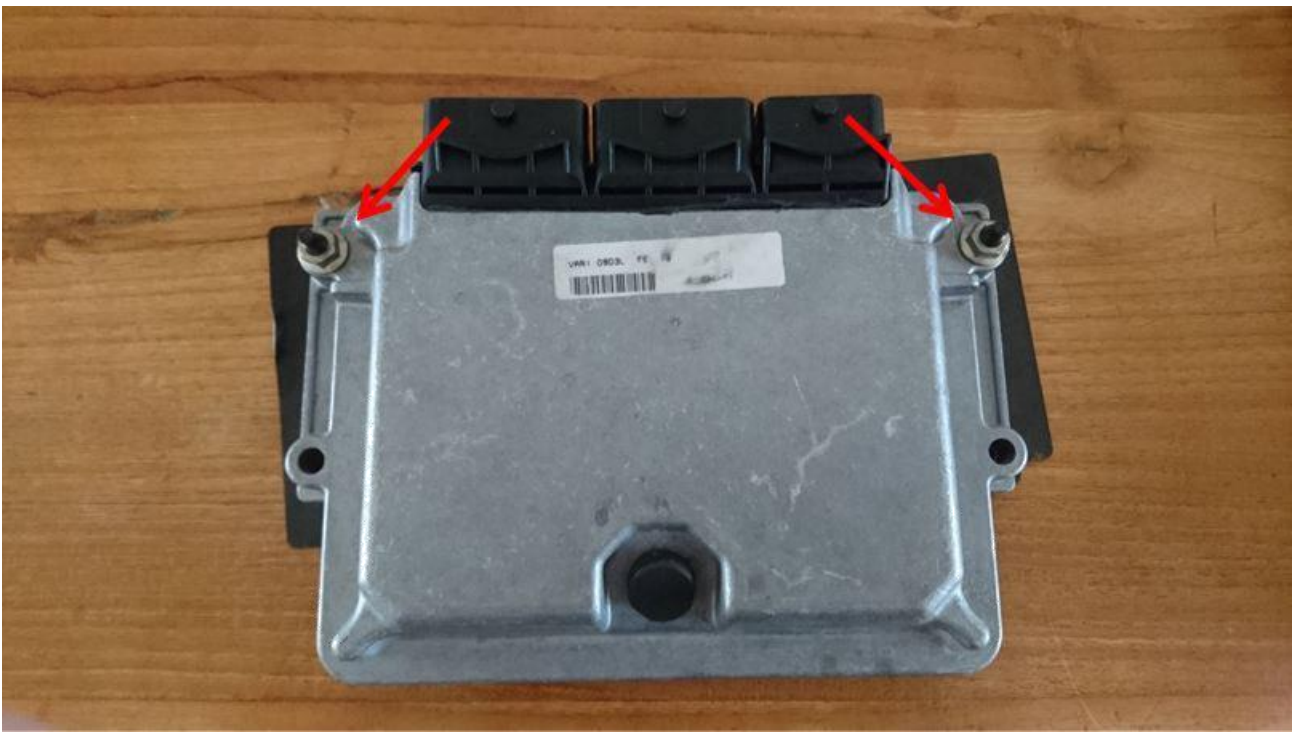
7. Some heatshrink
8. A laptop with a decent battery life that runs Windows XP, or has a virtual machine running XP
9. Some sort of a probe. I used a solid, sturdy piece of wire, but an actual electrical probe might be better.
10. MPPS Software (Usually comes with the MPPS interface). Make sure the software and drivers are installed and working prior to starting the procedure.
11. Tools: T15 Torx / 10mm socket / (Thin) flathead screwdriver
12. A multimeter, to check the voltage of the power source (Can be skipped if using a power source with display, as in the original thread by ds-jekkeri)
13. (Not pictured) A somewhat steady hand. An additional pair of hands is also quite welcome.
14. (Not pictured) TunerPro software package. TuperPro is freeware and can be found [here](#).
15. (Not pictured) Ultimo Checksum Corrector. This can be found in several places on the web with a little effort. If you're unable to find it on your own, PM me on the [406CoupeClub forum](#).



We'll start off by taking out the ECU, which is in the black case on the left.

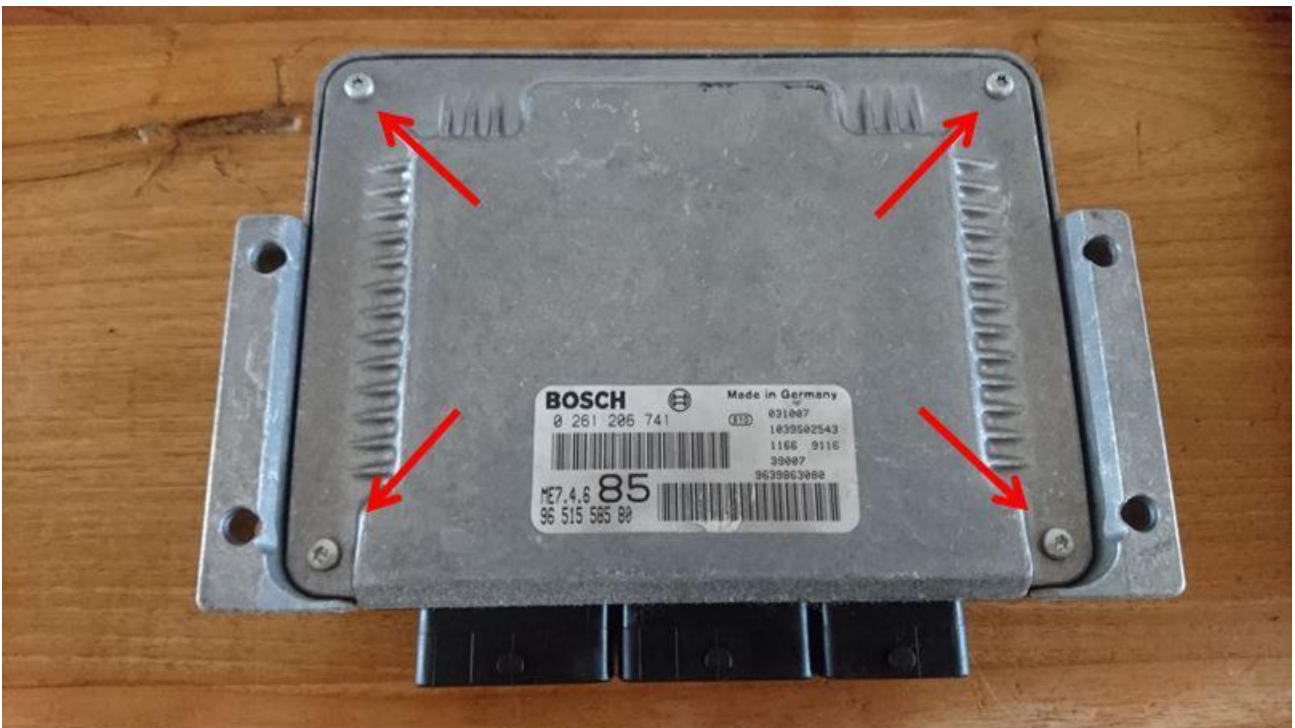


The ECU has three connectors going into it, which can be released by pressing down on the securing pins, and moving the brace downward.
If you're using the car's battery as a power source, this would be the time to take it out as well.



With the ECU out, we can start removing the casing to gain access to its circuit board. Use the 10mm socket to remove the two indicated nuts. Remove the black backing plate.

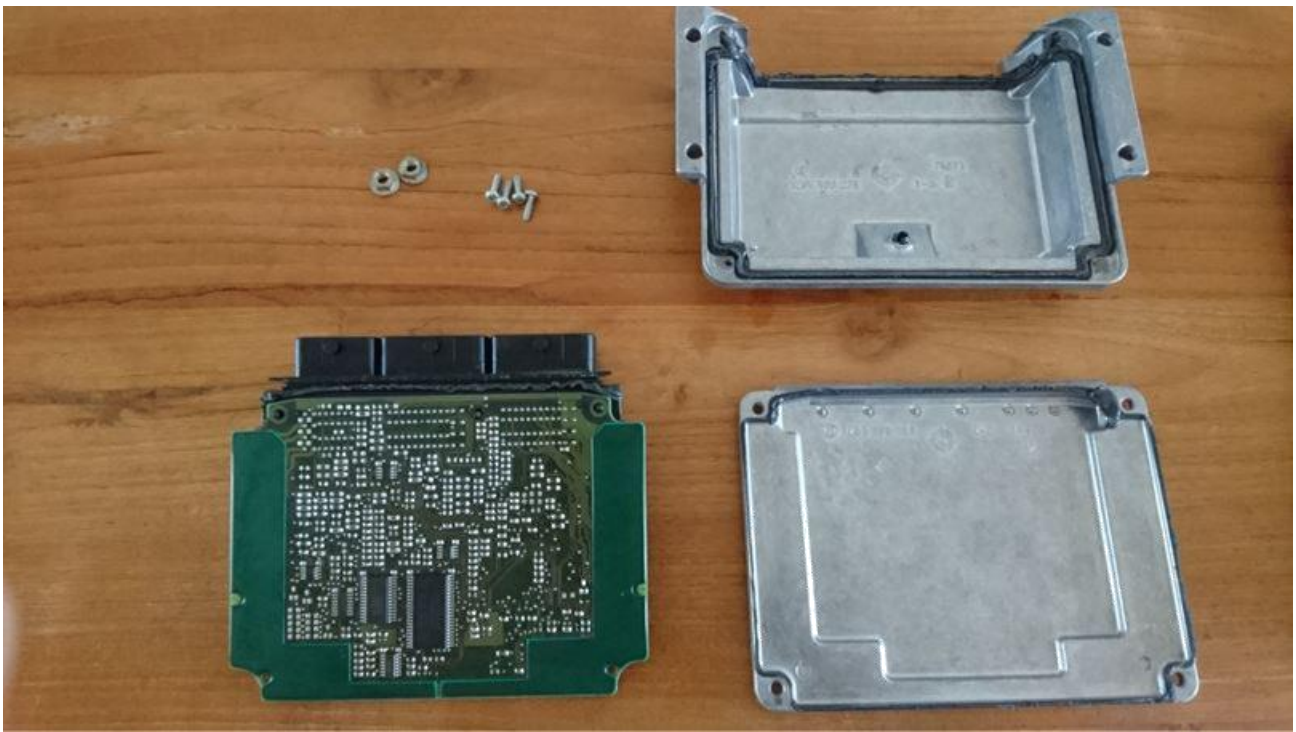
At this point, also take note of the connectors on the ECU. One small, and two larger ones.



Flip the ECU over, and start removing the four T15-Torx bolts on this side.

With the bolts removed, the case can now be opened up. As is visible in the following image, the case is sealed shut with some black, caulk-like substance. In order to get the lid to come off, you can use your flathead screwdriver to make your way around the perimeter and gently pry it off bit by bit.

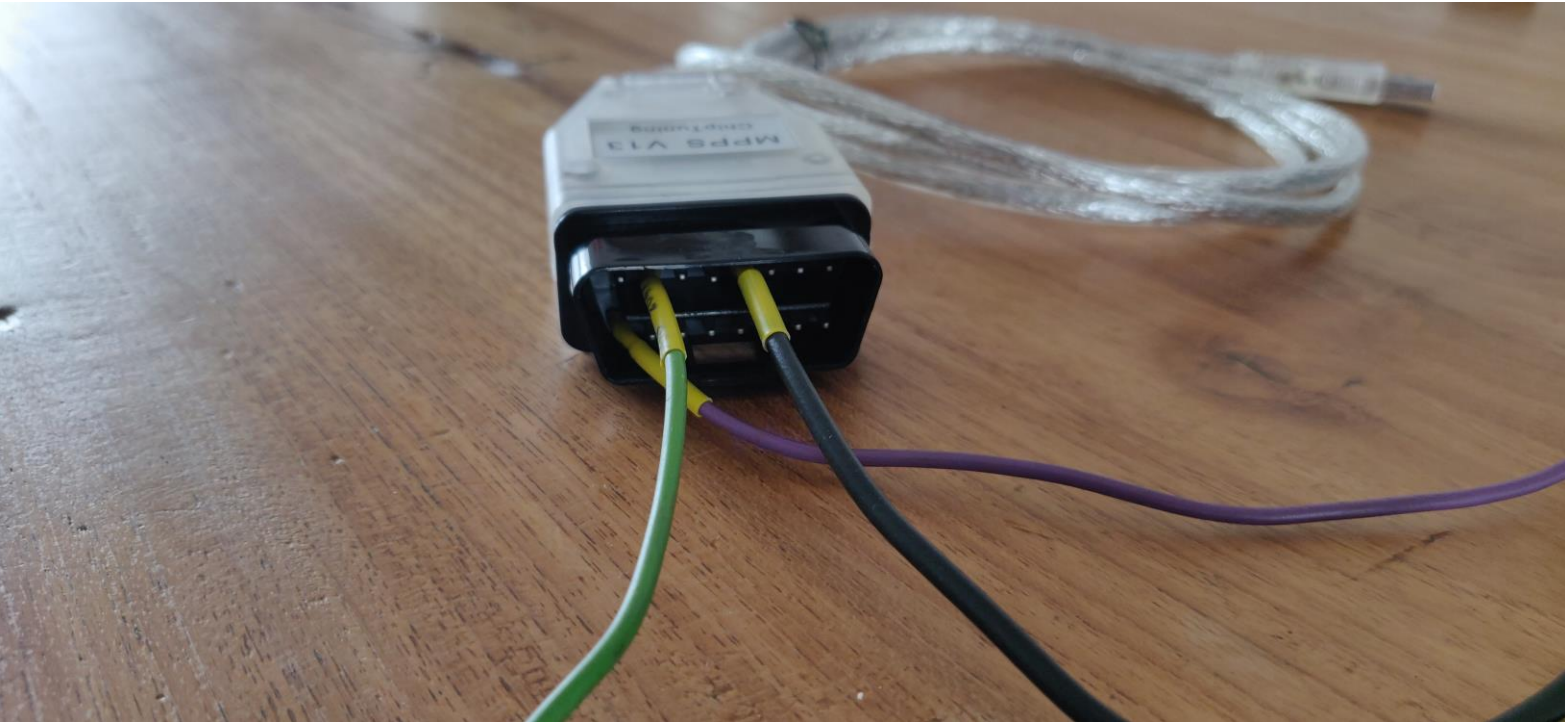
If you're having issues here, carefully applying some heat from the hair drier or heatgun could help out.



With the casing removed, we now have the ECU's circuit exposed, which we need to gain access to its programming. Move aside the casing and its fasteners for now, and take out the wires, heatshrink, and cutters.

In the next part, you'll need to make some connections between the interface, ECU and power supply. The original post suggested to skim some wires and put heatshrink over it, creating a solid connection to the interface and ECU's pins, while simultaneously isolating them from the other pins. (See images below)

This is where the hair drier comes in. In my experience, heatguns tend to produce enough heat to melt some plastics, which we want to avoid at all costs here. A hair drier usually provides enough heat to make the heatshrink react, but is cool enough to avoid melting plastics. A heatgun on low-setting might work too however.



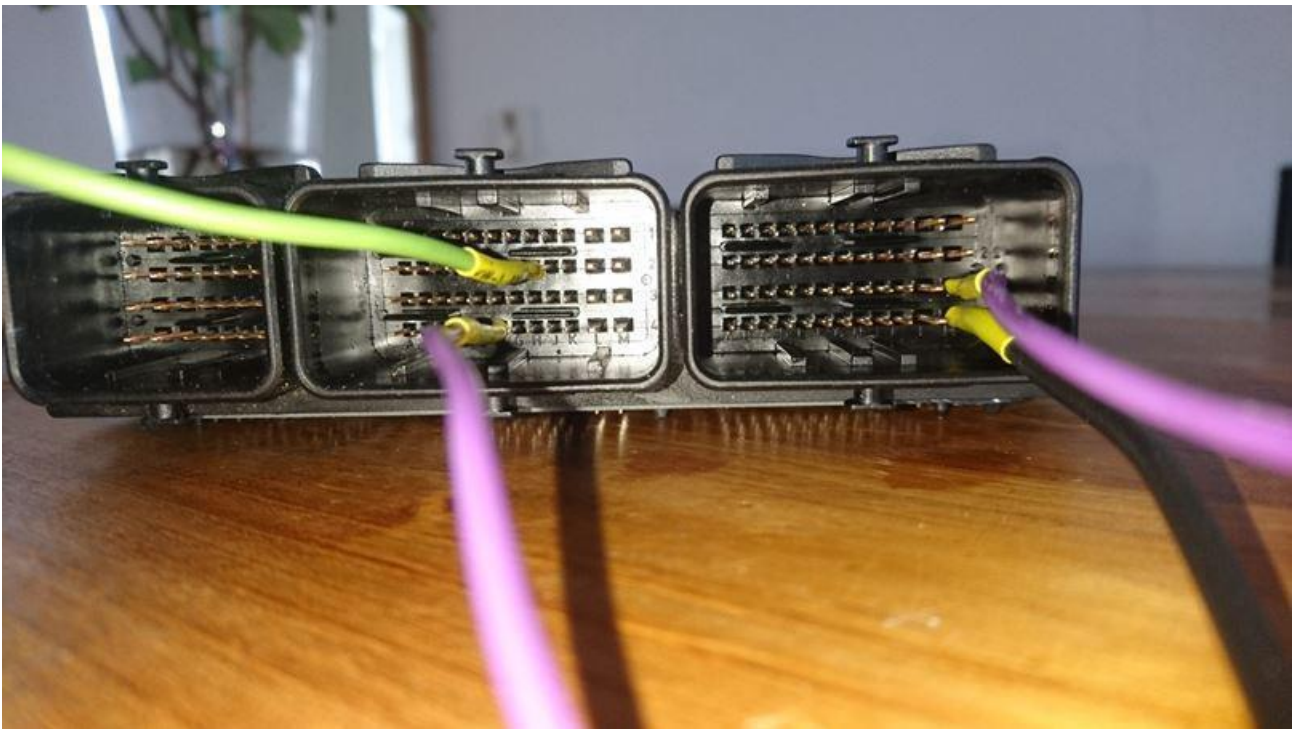
On the MPPS interface, you will need to insert wires on pins 4 (GND), 7 (Data) and 16 (+12V). Please note that the pin layout is mirrored relative to the OBDII layout, as the connector goes into the port of the car. As such, numbering starts on the right-most corner and moves to the left bottom when looking at its face.

In the image above, black is connected to pin 4 (GND), green to 7 (Data) and purple to 16 (+12V).

Now onto the ECU...

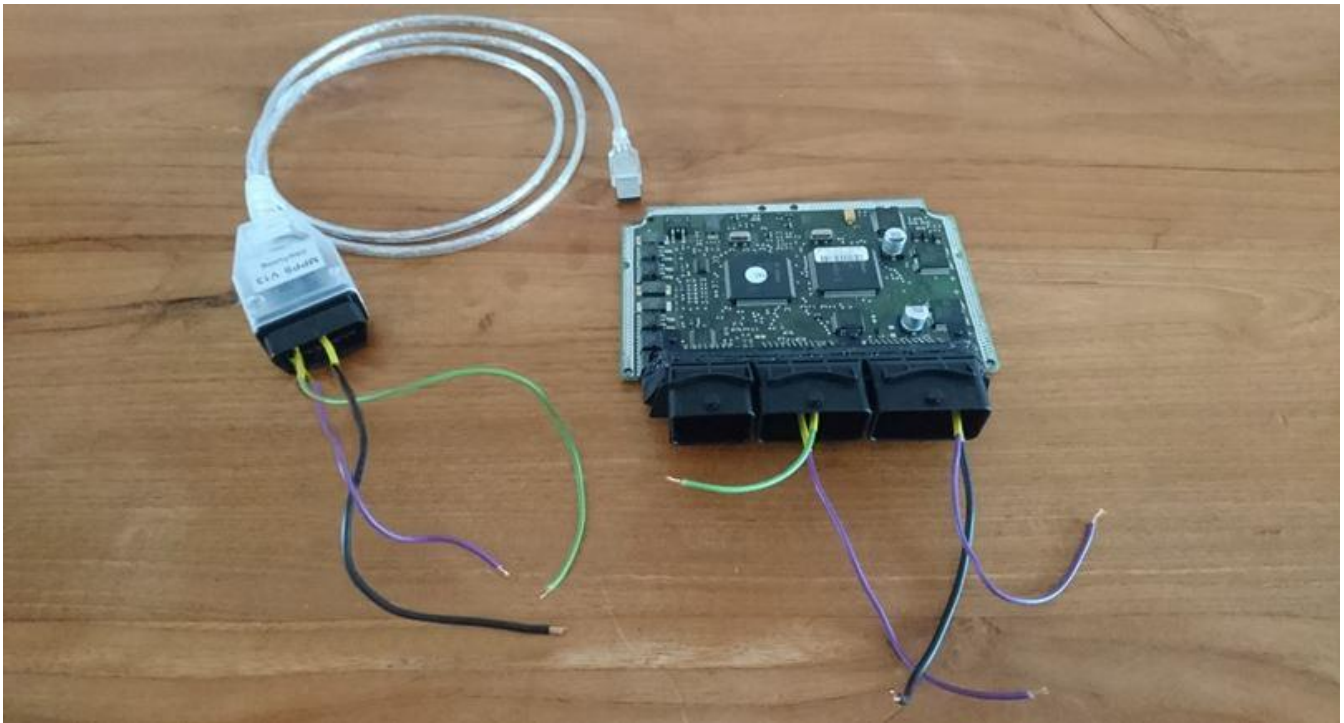


Remember the three connectors on the ECU from earlier on? We will be using the two rectangular ones in our process, the smaller one can be ignored. As you can see in the above image, the pins on the connectors are numbered, moving from A to M horizontally, and 1 to 4 vertically. Both rectangular connectors have identical numbering.



The following connections need to be made:

Middle connector: H2 (Data) / F4 (+12V).
Far-side connector: M3 (+12V) / M4 (GND).



At this point, your setup should look something like this.

Next, it's time to wire everything together. If you've kept up with the colours, it's as simple as putting them together. Otherwise, the layout should be the following:

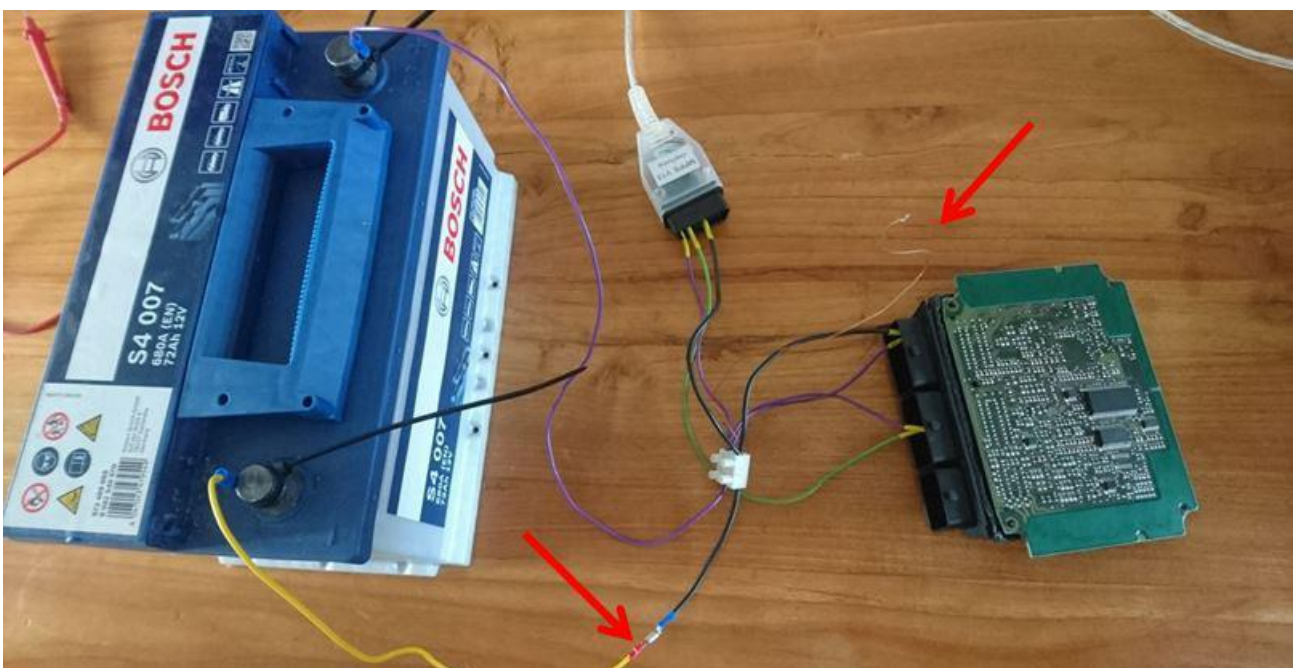
	MPPS Interface	ECU: Middle connector	ECU: Far-side connector
Data	7	H2	-
+12V	16	F4	M3
GND	4	-	M4

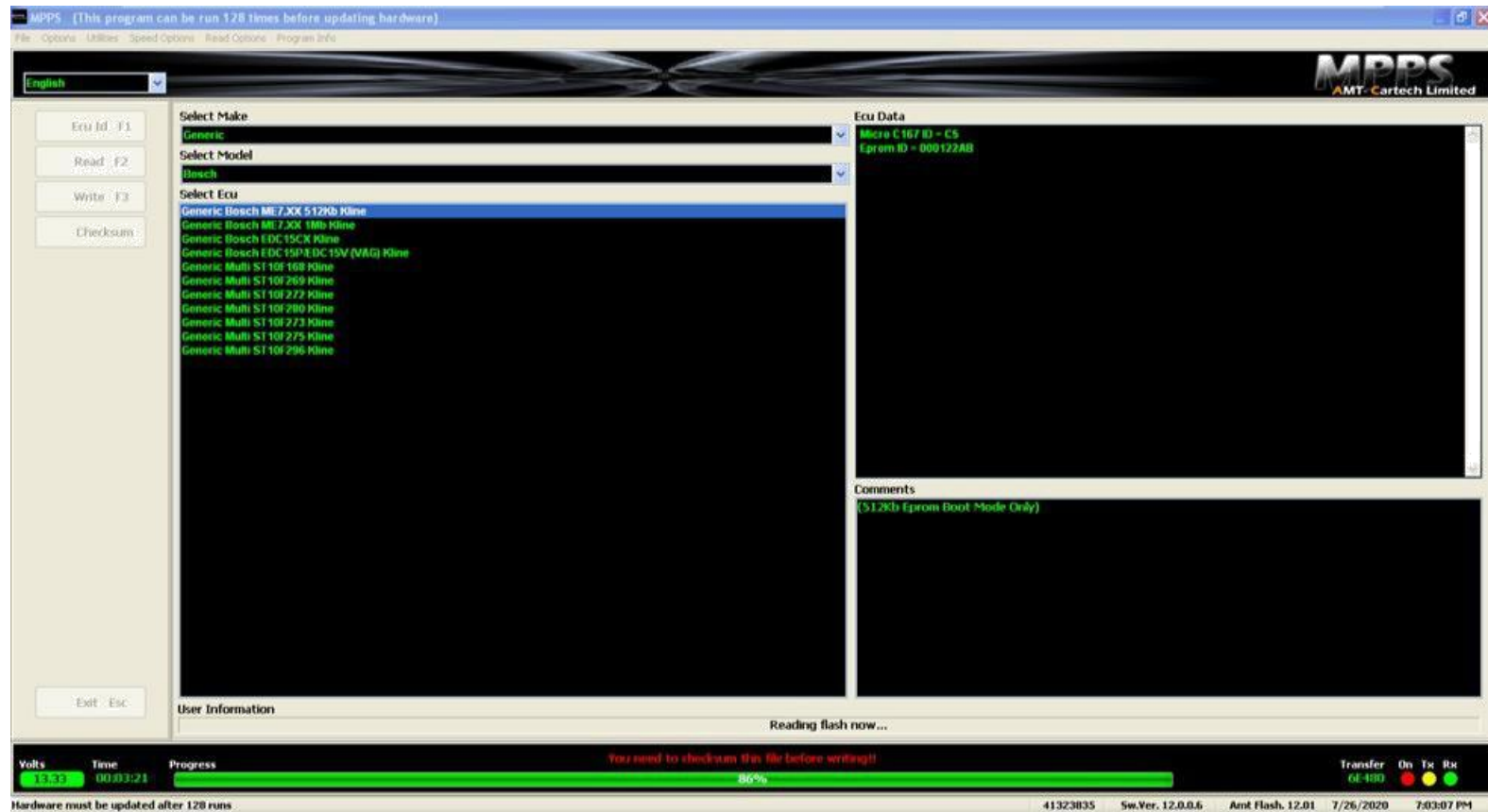
Next, you'll also want to secure the probe into the GND net. I used a piece of solid, tough wire, as indicated by the arrow in the image below. Looking back on it, I could've picked a better colour for you to see here.

Please also take note of the connection indicated by the other arrow. You should have something similar in place, or have a second set of hands to help you out with the following steps.

In the image below, my circuit is complete, and the ECU is powered. At this point however, you should leave either the GND or +12V disconnected for a little longer.

Lastly, you want to check your power source's voltage here. It should be no lower than 12,6V and no higher than 14,5V according to the original post. They use a voltage of 13,6V, which I did as well.

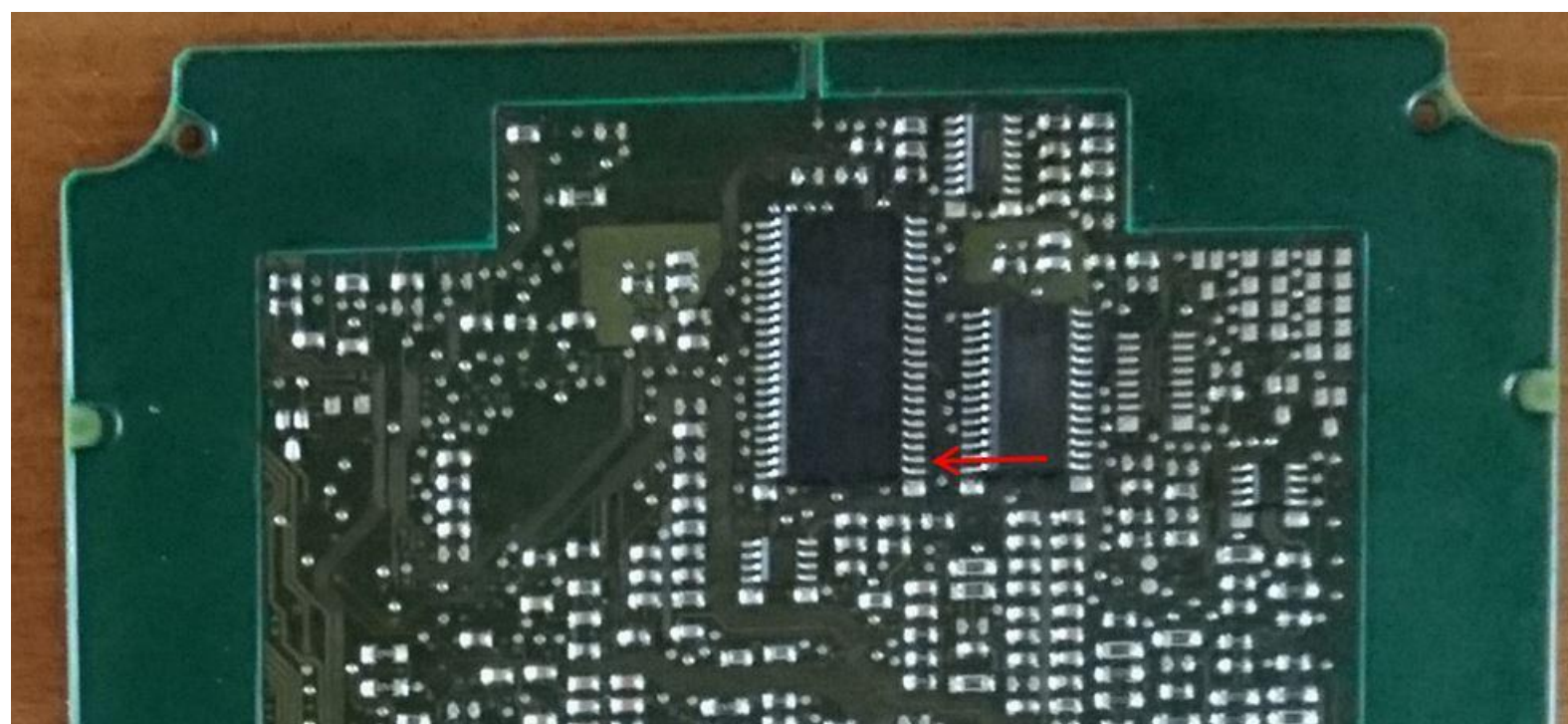




Next step is to get your laptop out and running on battery power to avoid any interference from the wall socket. Now plug in the MPPS interface and open up the software. It should look something like the above image. Select the following:

- Select Make: Generic
- Select Model: Bosch
- Select Ecu: Generic Bosch ME7.XX 512Kb Kline

Next, press the “Read” button on the left, or press F2. The software will now prompt you to put the ECU into bootmode by holding pin 24 to GND. Leave it hanging on this prompt for now, and move over to the ECU.



In order to put the ECU into bootmode, we need to hold pin 24 on the EEPROM to GND for five seconds after connecting the power supply. This would be the second-from-the-bottom pin on the right side of the left chip, indicated by the arrow (mind the orientation of the ECU here). We will do this by making use of our probe, which we connected to GND earlier on.

Please make sure you’re able to keep the probe on this pin for five full seconds. **You do not** want to run the risk of it slipping off onto another pin as it might cause parts of the ECU to short-circuit. It really isn’t too hard, but if you’re uncertain of your ability to do so, take some time to practice doing this without any power supplied to the ECU, or ask a friend to help you out.

Important: If you’re using a power source that requires you to turn it on before using, do this now. You don’t want to run the risk of damaging the ECU with any

voltage spikes that might occur upon startup.

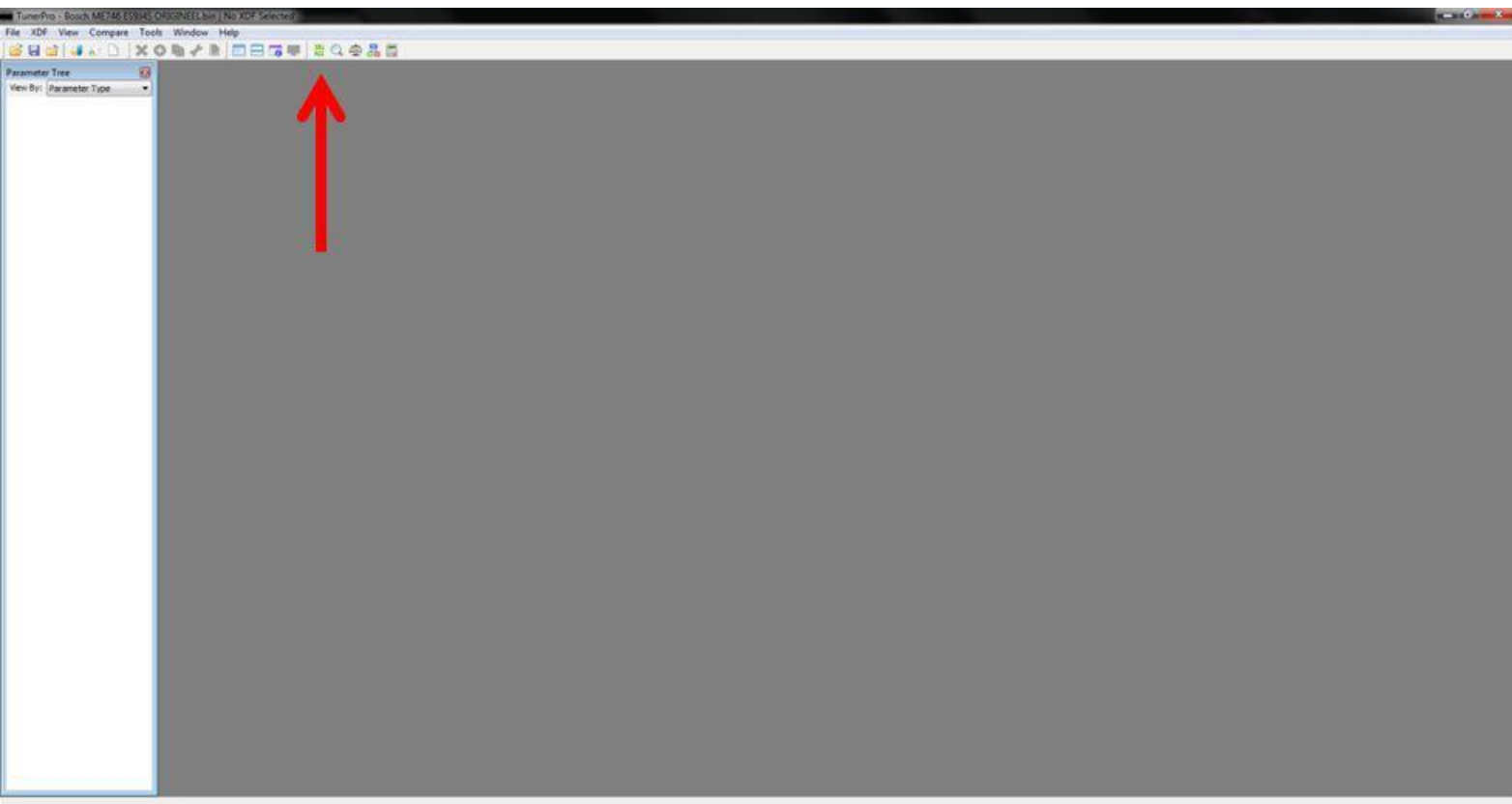
When you're ready, hold the probe to pin 24 and connect the power to the ECU. Hold down on pin 24 for 5 full seconds before releasing the probe and moving it out of the way. The ECU should now be in bootmode, which means you may press 'OK' on the MPPS prompt to start reading from the EEPROM.

Note: In doing this part myself, I had to retry putting the ECU into bootmode a few times. The important part here is to take your time and stay calm throughout the endeavour.

Once MPPS starts reading, it might take a few minutes to complete, after which another prompt should come up to save your file. Here, use any file name you like. My advice is to include 'original' in the title, and save the file in a secure place so you always have a copy of the factory programming.

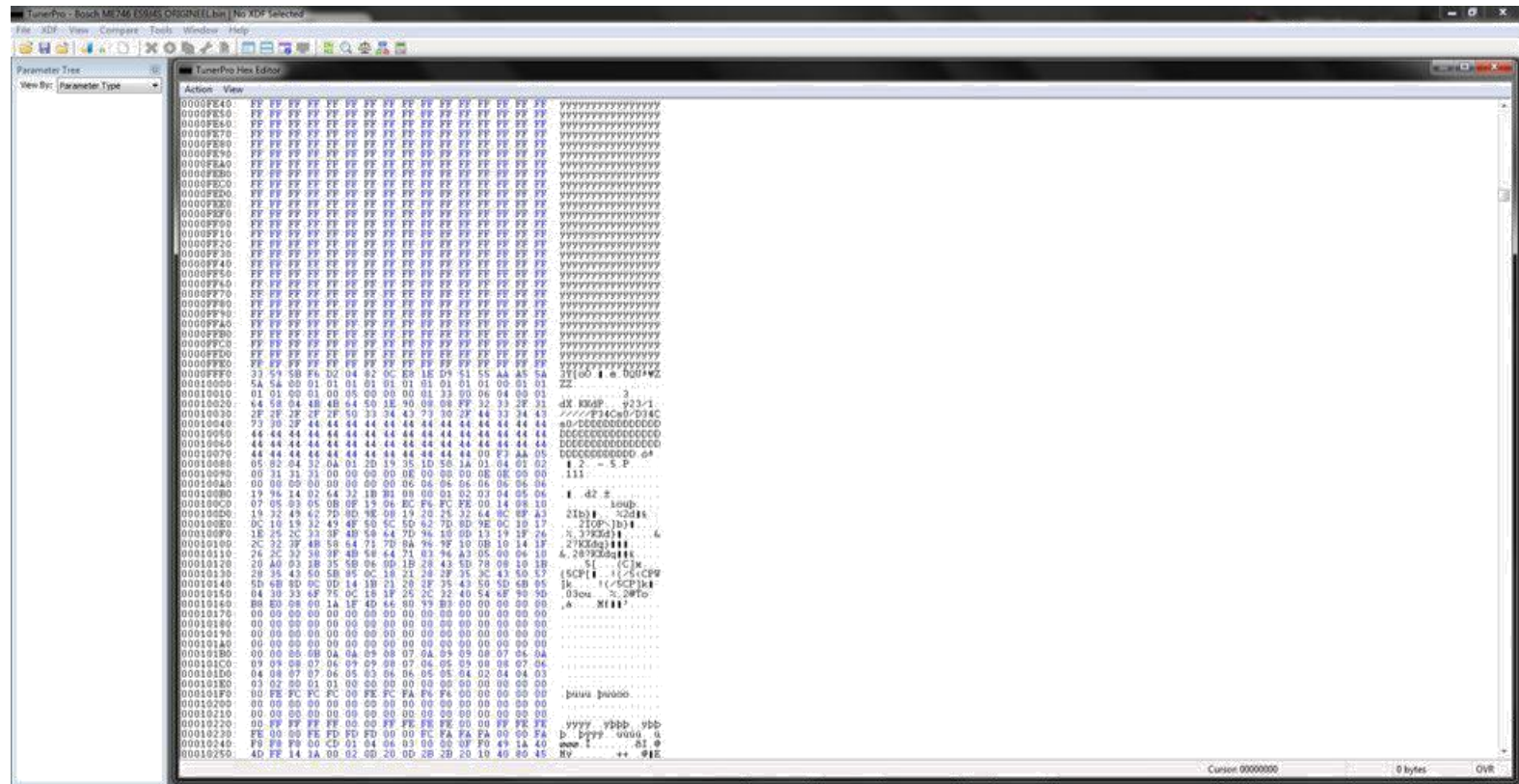
Moreover, for some reason MPPS doesn't give always give the file an extension/type. Make sure to save the file as a '.bin'. This is done by including the extension in the file name, i.e.: 'My406CoupeECU-Original.bin'

Finally, when prompted with "Key off", remove the power supply from the ECU and move on to the next step.



With the EEPROM's contents secured, we'll move on to editing the programming to finally turn off the pre-catalyser monitoring. This is done through the TunerPro software. Open up TunerPro, and load the .bin file. When it's loaded, press the icon indicated by the arrow in the above image. This will open up the Hex-Editor:

Note: Your file might look different from mine, due to differences between vehicles, such as keys/immobilizer etc. Don't worry, the procedure is the same for any ES9J4S engine with the Bosch ME7.4.6 ECU.



Here, we're looking for the "CDKAT" flag. This switch determines whether the ECU will monitor the downstream lambda sensors. On stock programming, this is set to '1', which we'll turn into a '0' to turn it off.

Since hardly any translation of the programming is readily available, 'ds-jekkeri' from the Finnish forum had to reverse-engineer the ECU's programming to figure out which HEX-address contained this flag. After an ungodly amount of work, it seems to be located at 00010009 (or 0x0100009).

To provide you with a little insight of how these files work, and what to modify, see the example below:

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00000000																
00000010																
00000020						X										
00000030																

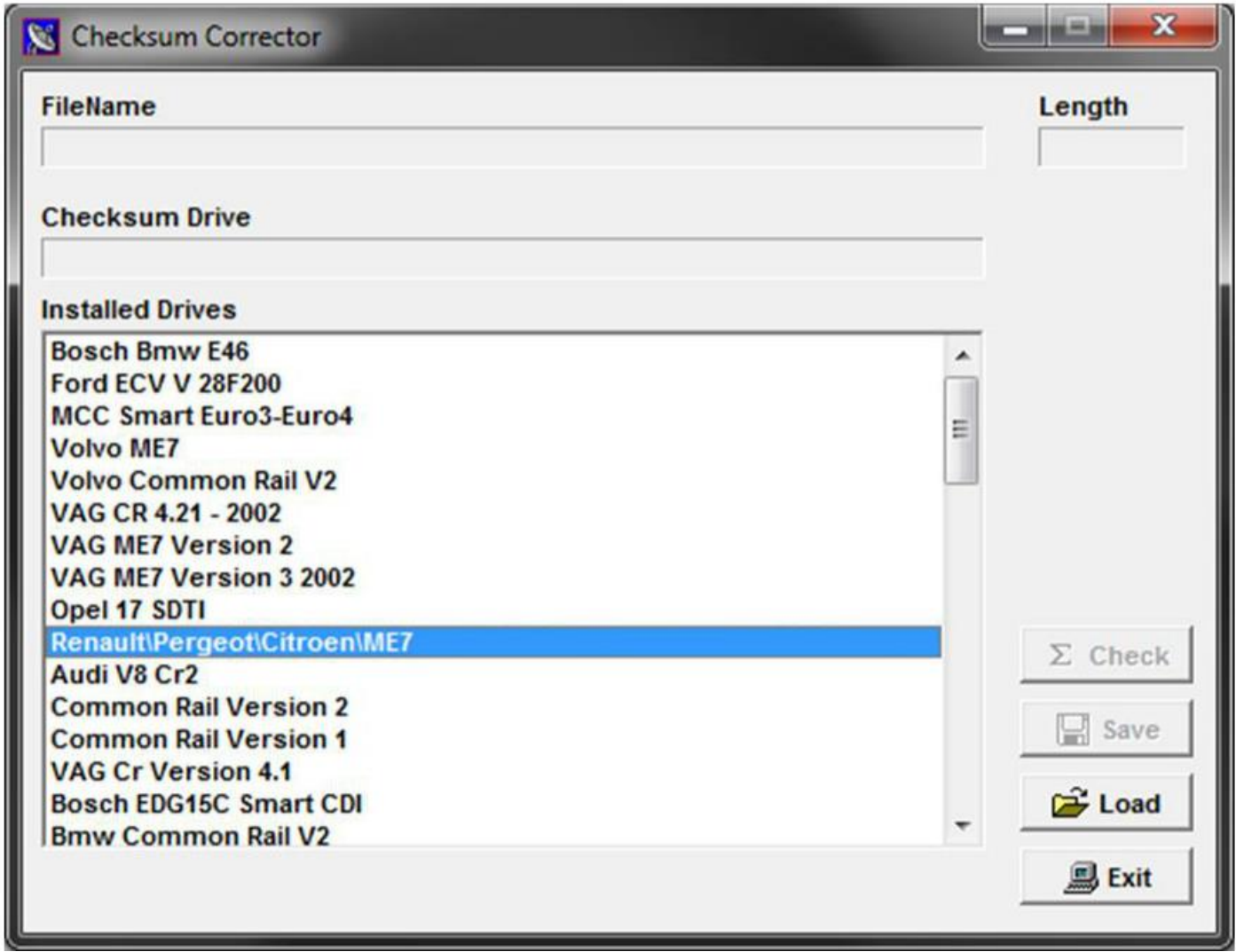
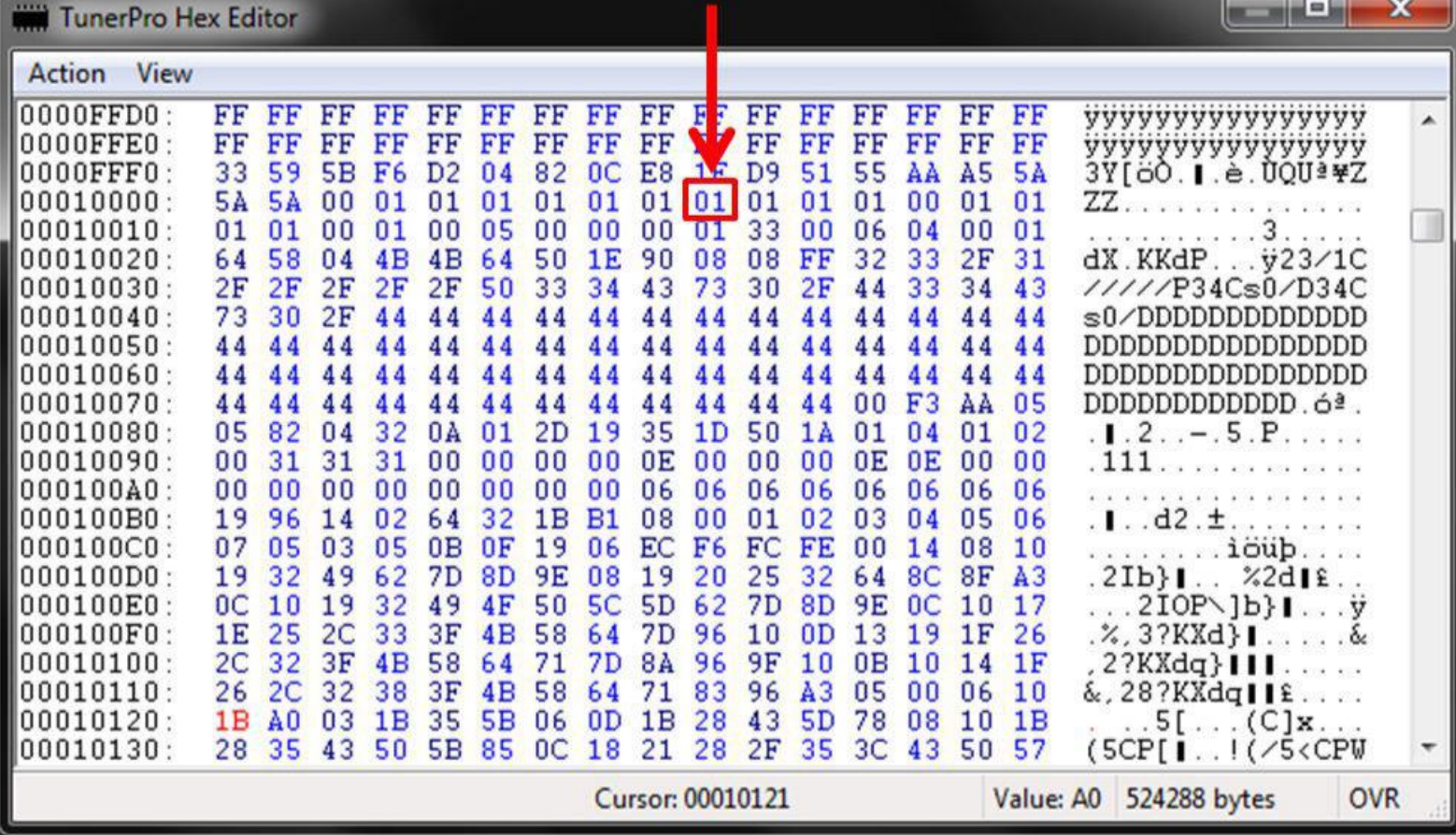
HEX formatting starts out at 00000000 (or 0x0000000) and moves to 00000009, and thereafter 0000000A to 0000000F before moving onto the next row and starting over at 00000010.

As such, the red X in the above table is positioned at 00000025 (or 0x0000025).

Since we wish to change the '01' at 00010009 into a '00', we look for 00010000 in the left column, and move to the tenth position to its right. Here, change the '01' to a '00'.

After you're done, go to Action > Commit changes. Now close the Hex Editor, and save your modified file by going to File > Save Bin As..

Save your file under a different name than the original file, and close TunerPro.



Almost there! The last step involves recalculating the file's checksum. The checksum is a data-integrity tool that makes sure everything in the ECU checks out before starting the engine. After every modification, the checksum needs to be recalculated. Failing to do so will prevent the engine from starting.

Here, we'll be using our last tool: "Ultimo Checksum Corrector". Load your modified .bin file, select 'Renault\Peugeot\Citroen\ME7 as driver, and press 'Check'. The software will ask you to provide it with the original .bin file, after which it completes its calculations and saves the modified .bin file.

That's it! Your file is now ready to be transferred back onto your EEPROM. Writing the file back to the ECU is performed in the same manner as extracting it. Plug in the interface, boot up the MPPS software, select 'Write' or press F3. The software will prompt you with some messages, after which you will need to hold pin 24 to GND for five seconds after plugging in the power supply again to enter bootmode. MPPS will then start to transfer the data.

Upon completion, the ECU may be reassembled and put back into the vehicle. As always, Installation is the opposite of removal.