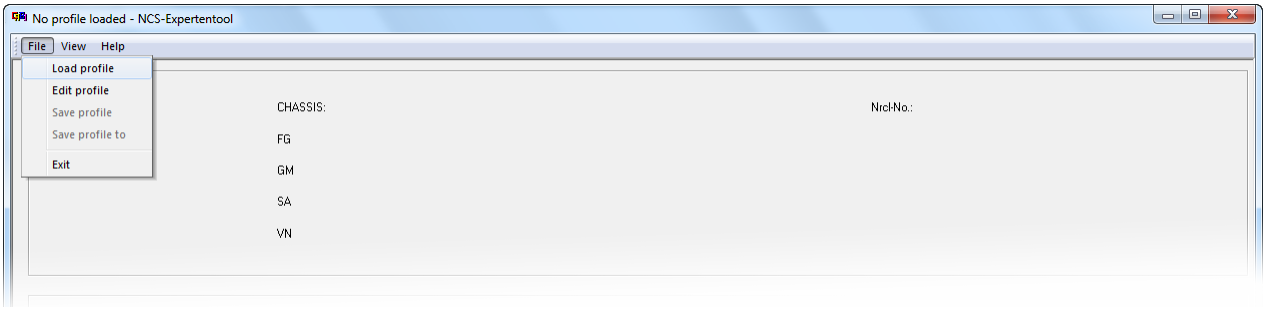
Pre-LCI to LCI Xenon AHL Conversion: Resetting and Coding ALC Modules

Adaptive Light Control modules, also known as Stepper Motor Controllers (SMC), are coded to operate specifically for the vehicle and side they are installed in. Thus, installing used ALC modules could result in directional aiming in the opposite direction of steering travel than is expected. Recoding them into their new position first requires that they be reset; otherwise, recoding them may have no effect.

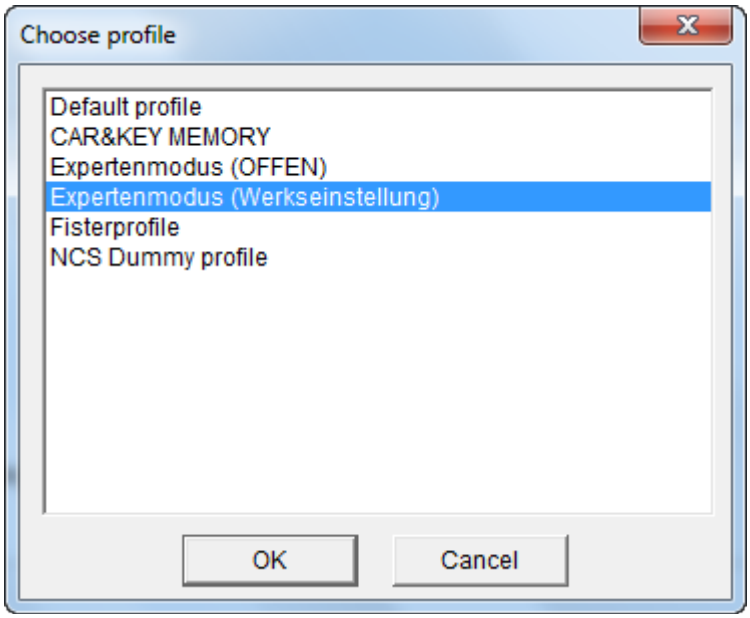
The procedures described herein were conducted with NCS Expert Tool version 4.0.1 running under Windows 7 x64. Vehicle was a 2008 335i Sport Sedan AT with FRM2 module standard, firmware version FRM2_E89.C09. The LSMC and RSMC modules coded had firmware version SMCDS_LI.CO7 and SMCDS_RE.CO7 respectively.

Resetting ALC (SMC) Modules

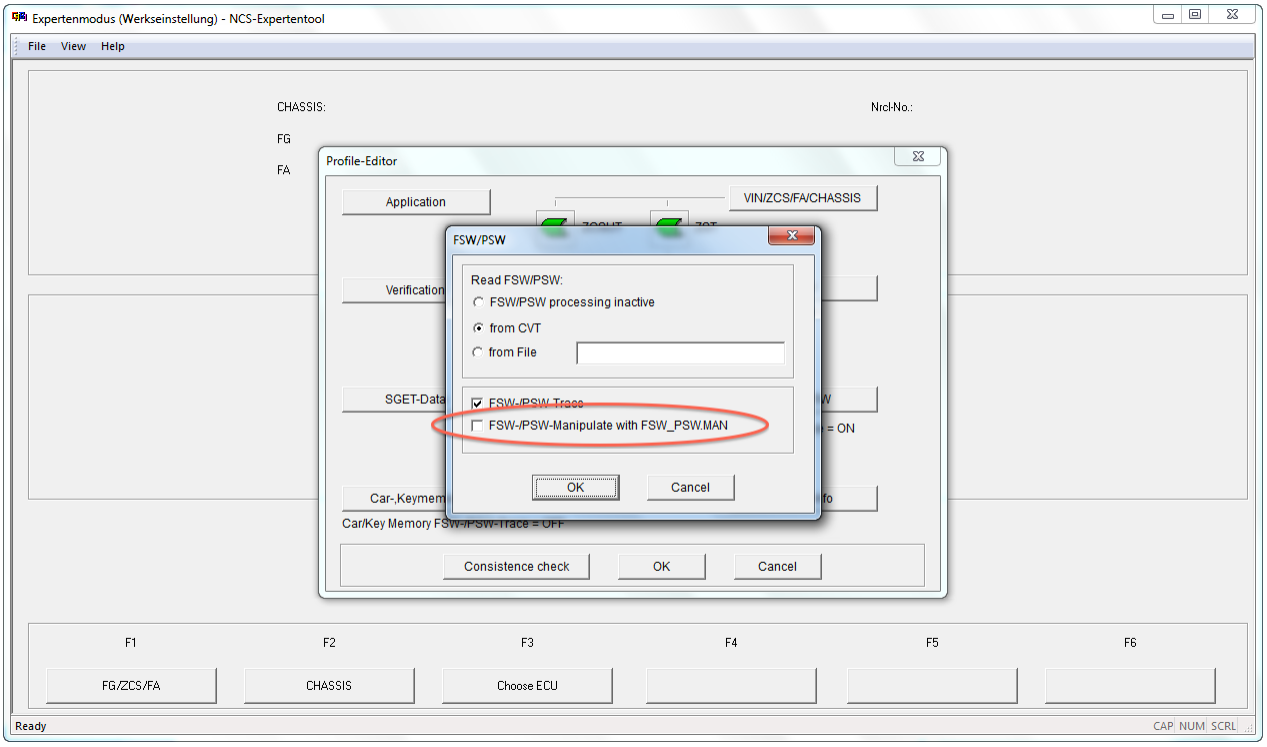
1. Launch NCS Expert Tool, and from the menu bar choose *File* -> *Load Profile* menu…



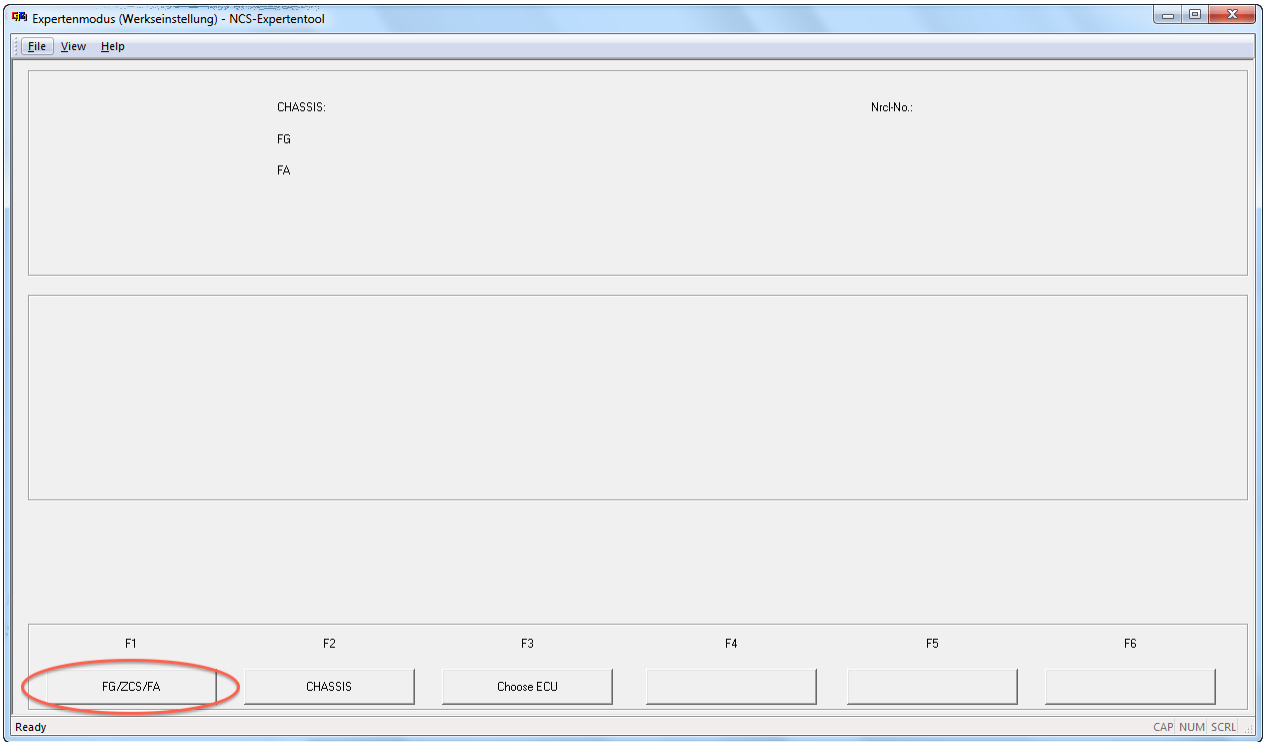
…select the “Expertmode Profile” or “ExpertmodusExpertmodus (Werkseinstellung)” (depending on what “expert” profiles you have available or installed), then click on **OK.**



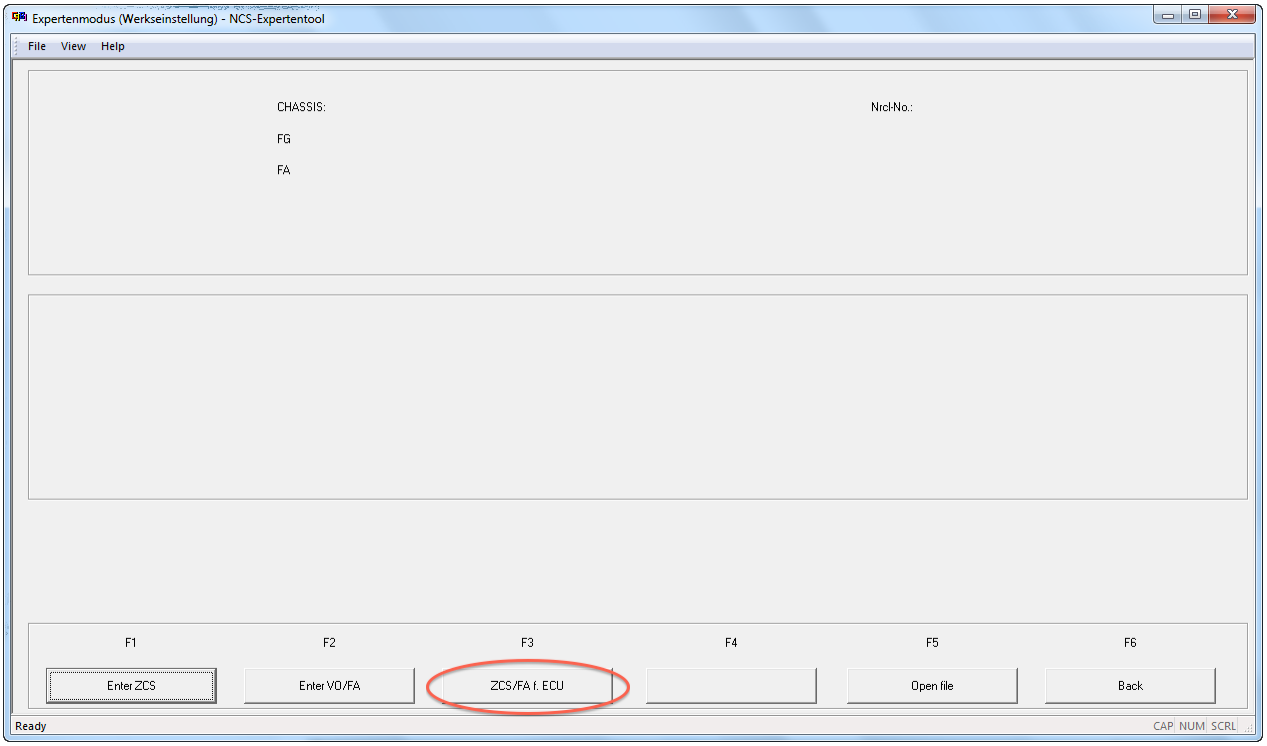
These “expert” profiles should ***not*** have the “FSW-/PSW-Manipulate with FSW_PSW.MAN” option enabled; if necessary, edit the profile to disable this option to prevent errors from occurring during the reset procedures (save the profile under a unique name).



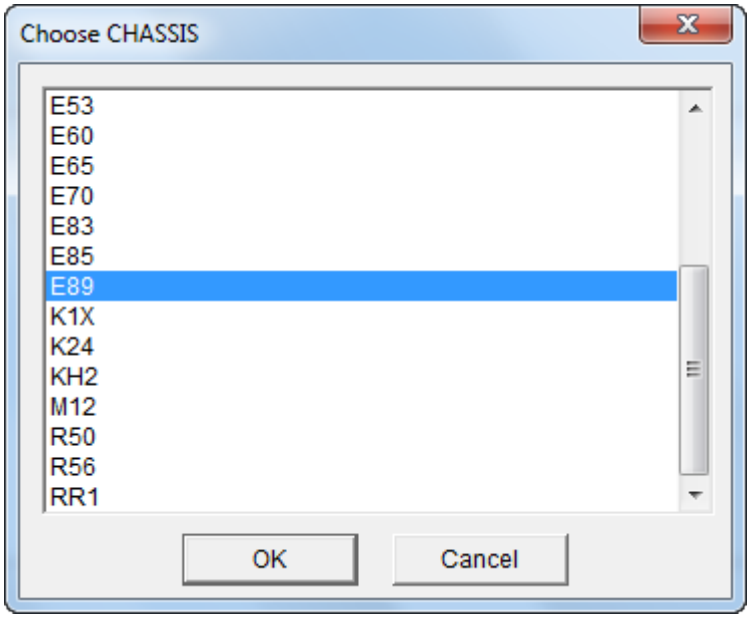
2. Click on the **FG/ZCS/FA** button (or press [F1])...



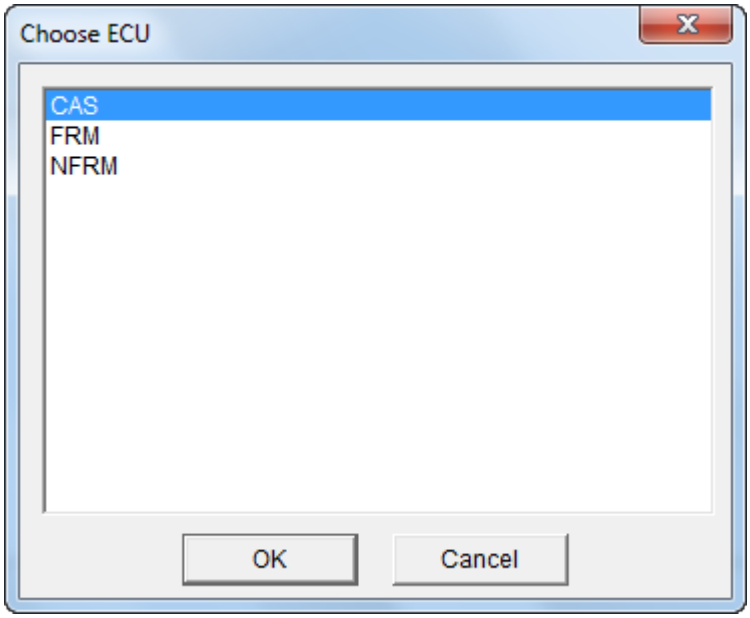
...then the **ZCS/FA f. ECU** button ([F3]).

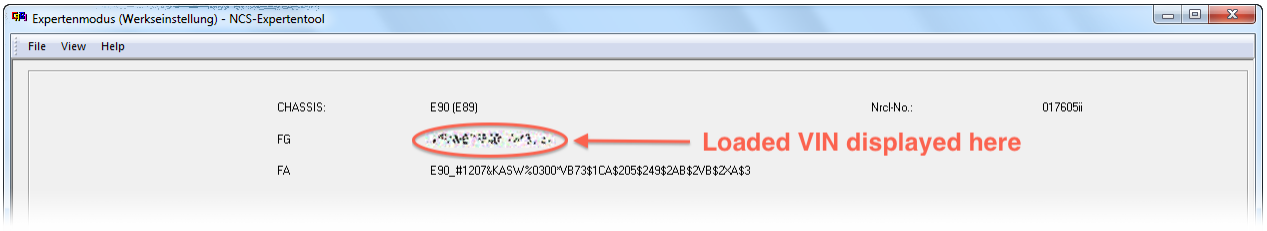


3. Select the “E89” chassis, click on **OK**...



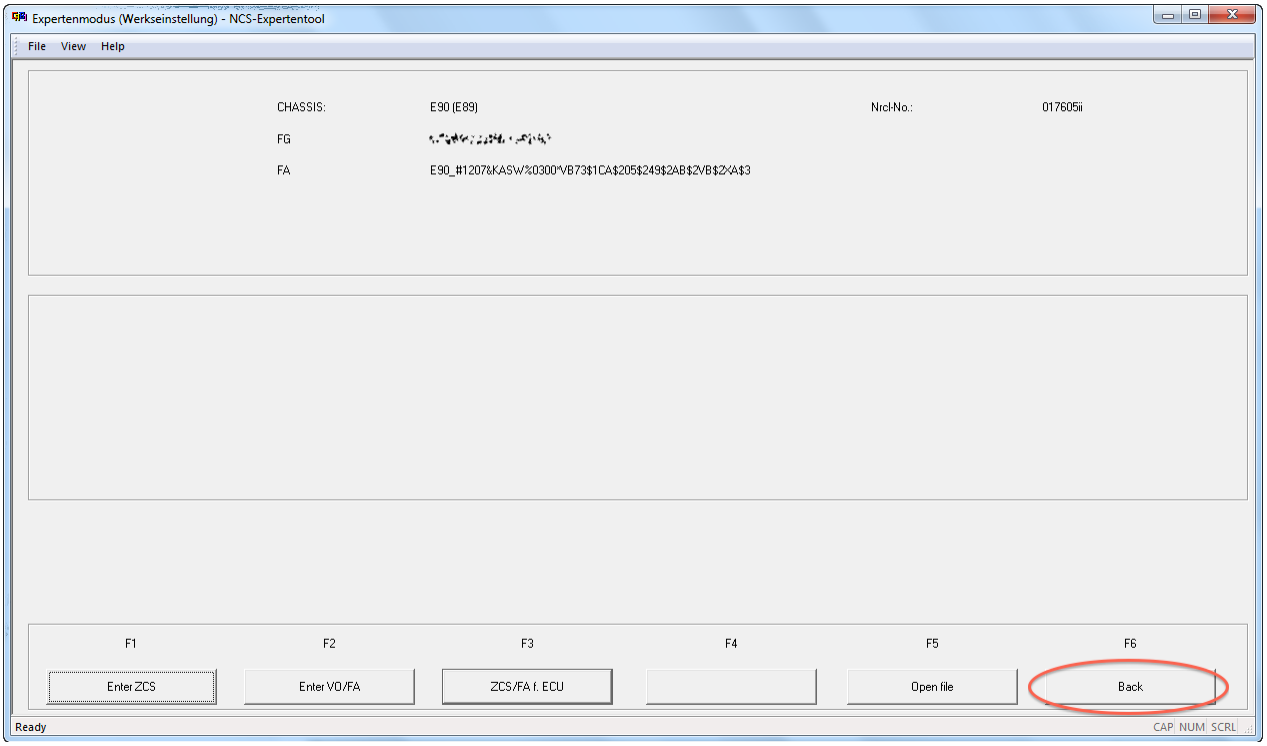
...select “CAS”, “FRM”, or “NFRM” ECU (it doesn’t matter which), then **OK**.



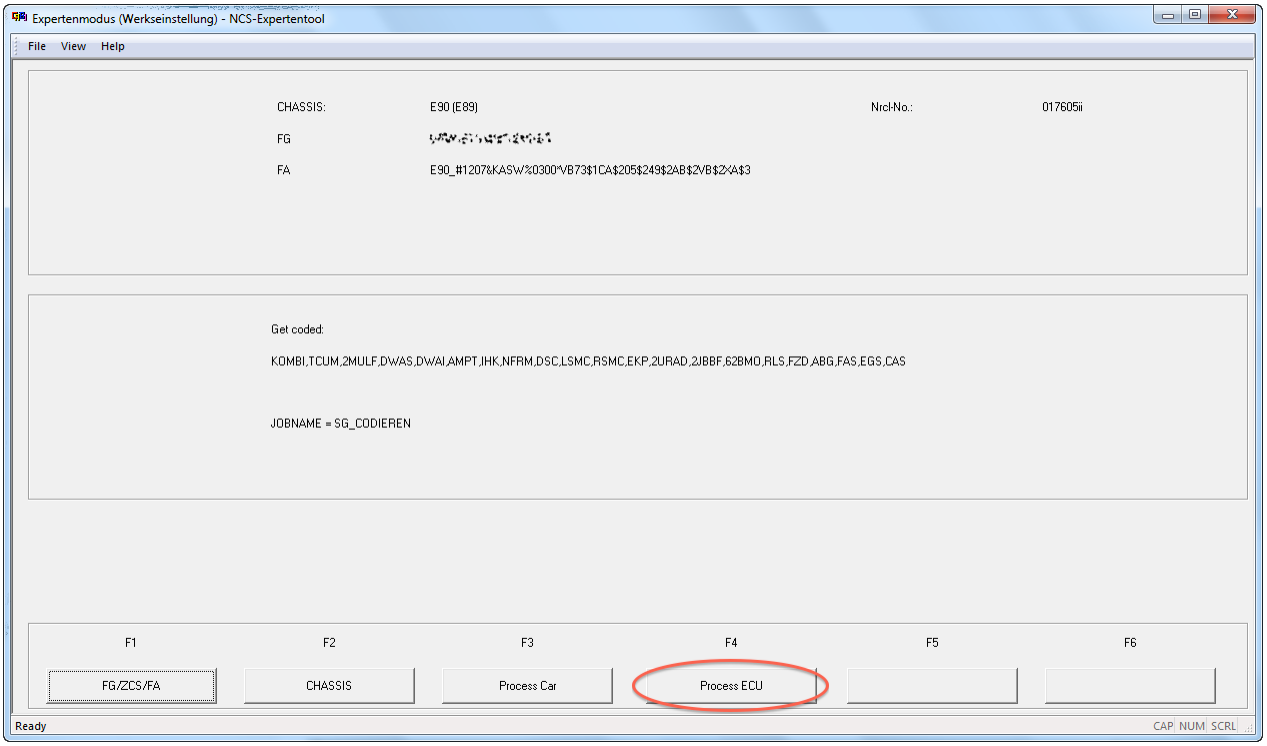


This preloads the VIN into NCS Expert Tool so it won’t need to be manually entered for follow-on operations. NCS Expert is now ready to process ECUs.

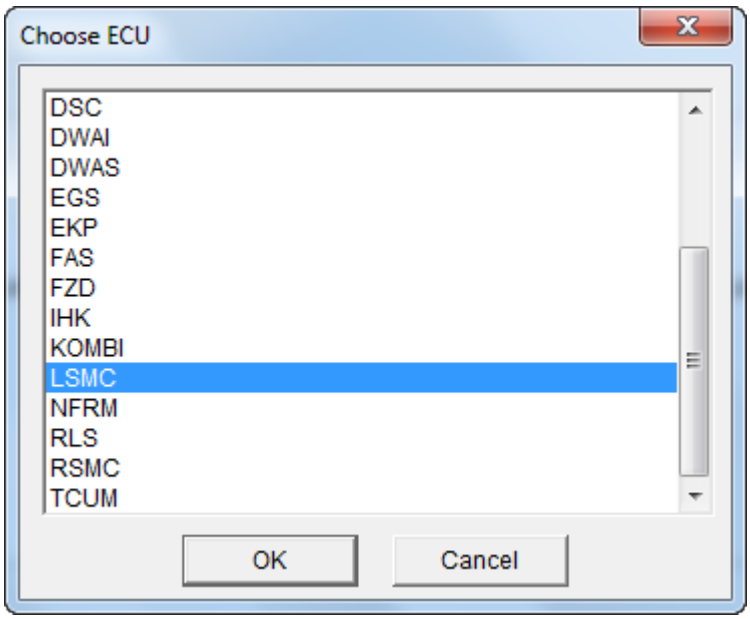
4. Click on the **Back** button ([F6])…

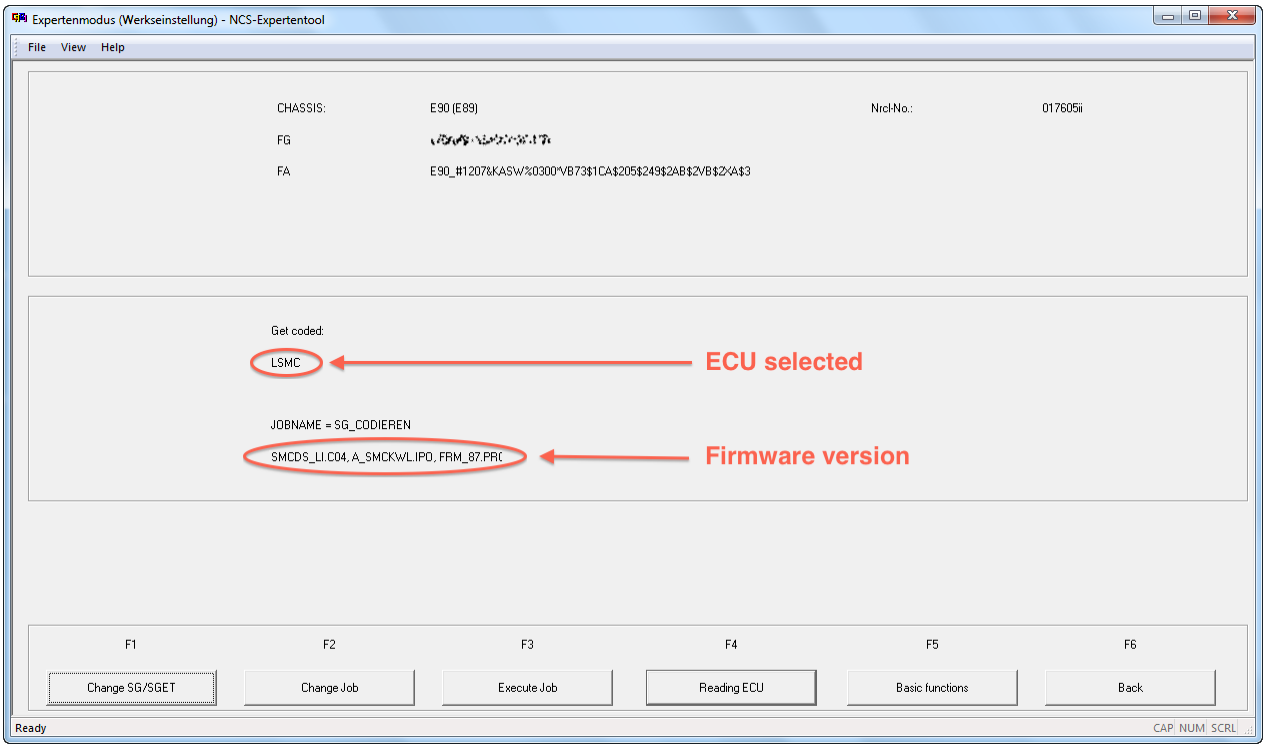


…then **Process ECU** button ([F3]).



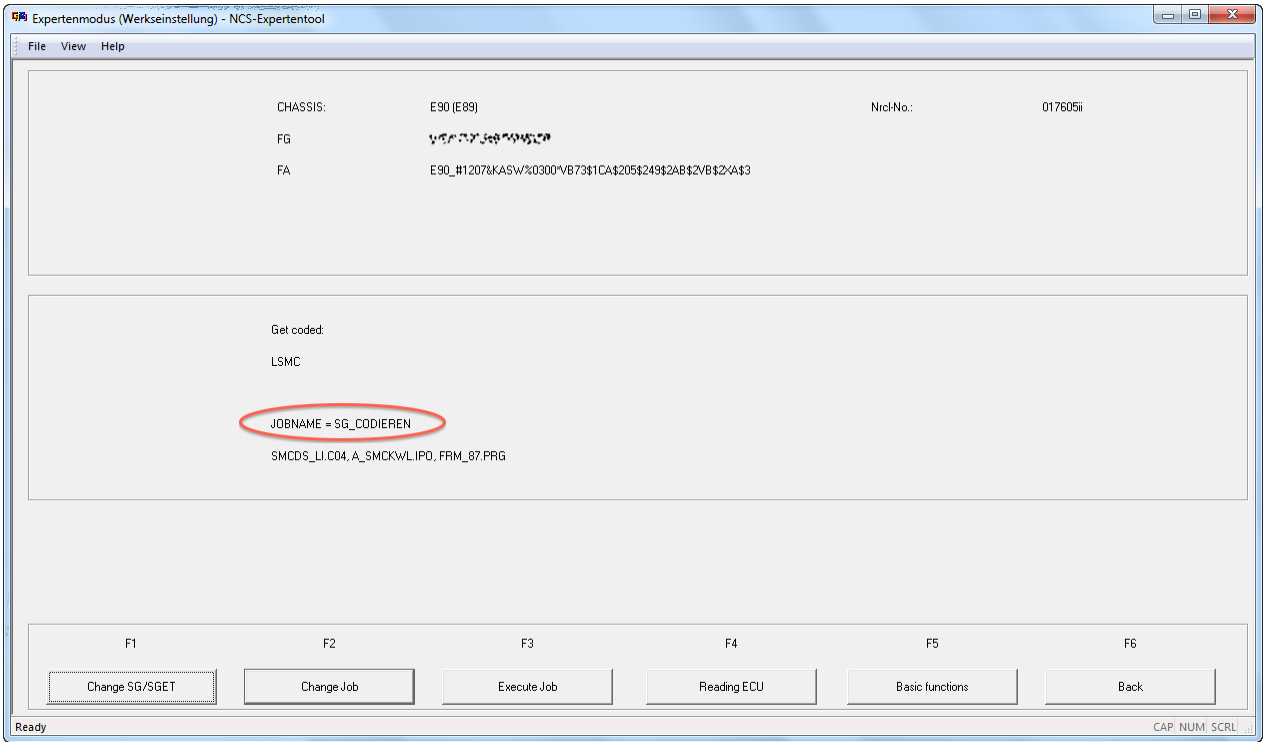
5. Select the Stepper Motor Control module that needs to be reset (either “LSMC” or “RSMC”) from the ECU list, then **OK**.



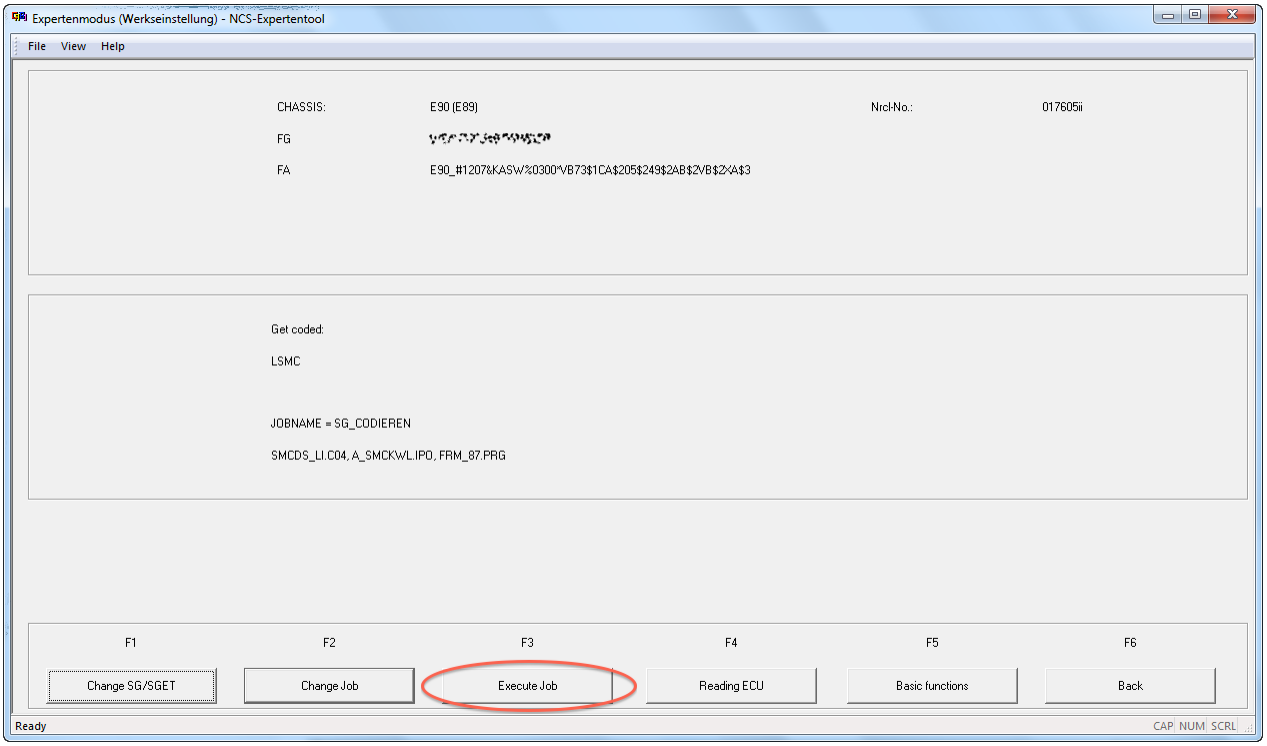


The name of the ECU and its firmware version is read from the vehicle and displayed.

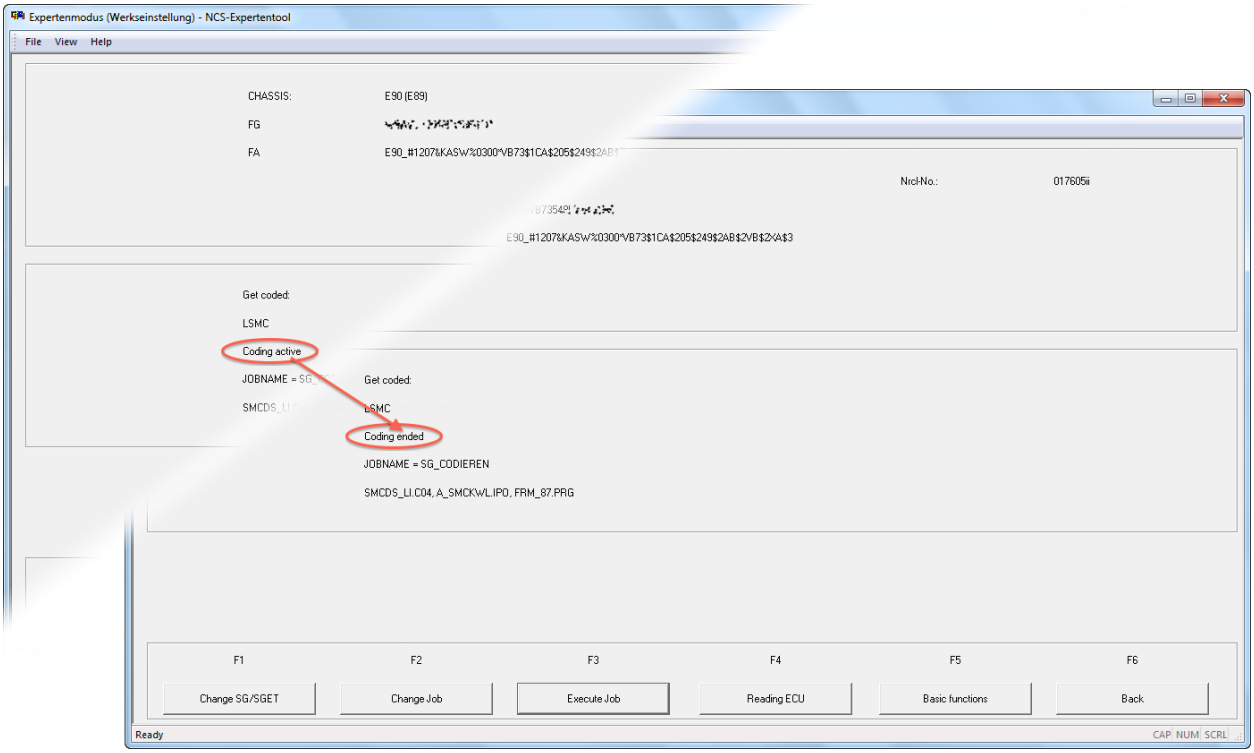
6. Verify the ‘”JOBNAME” is “SG_CODIEREN” (“Write Coding”)…



…click on **Execute Job** ([F3])…

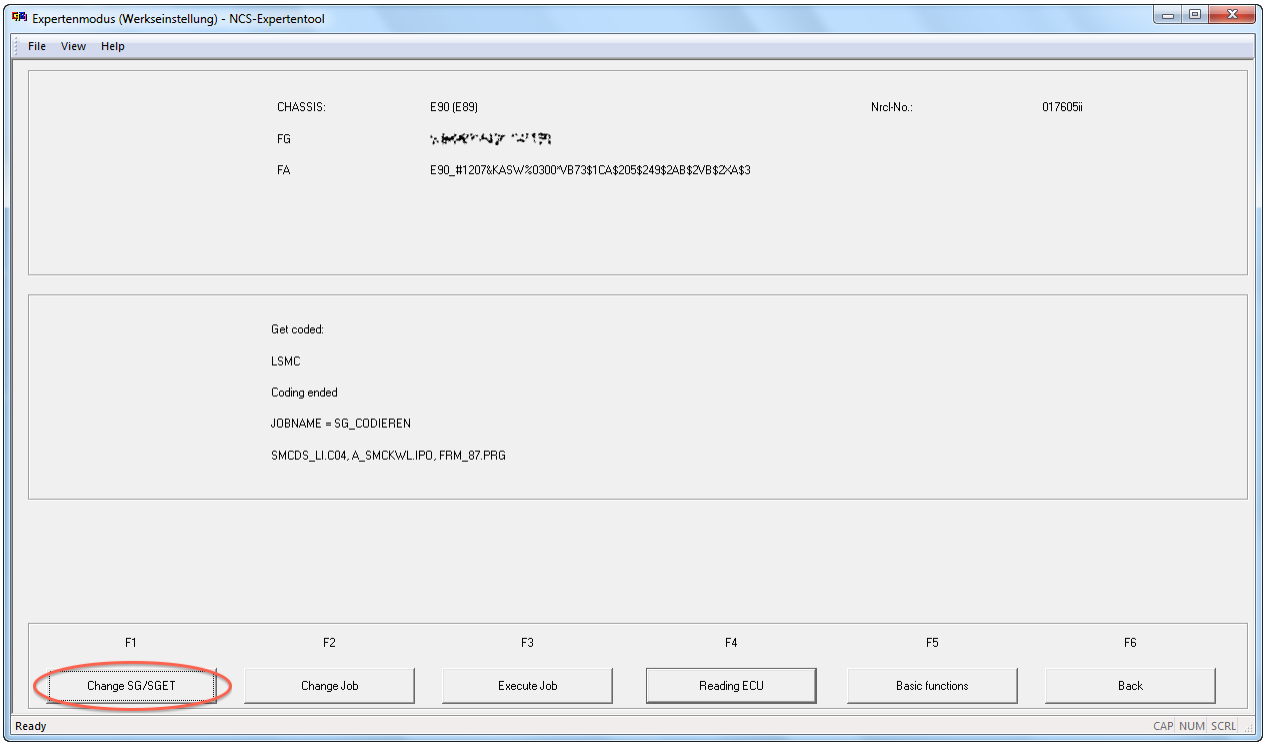


…and wait for the status to go from “Coding active” to “Coding ended”.



The module is now reset to factory settings.

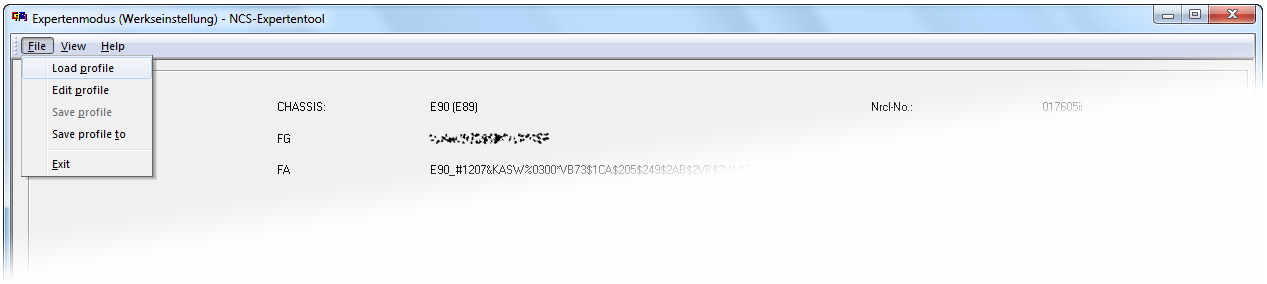
7. If the other module needs to be reset, click on **Change SG/SGET**…



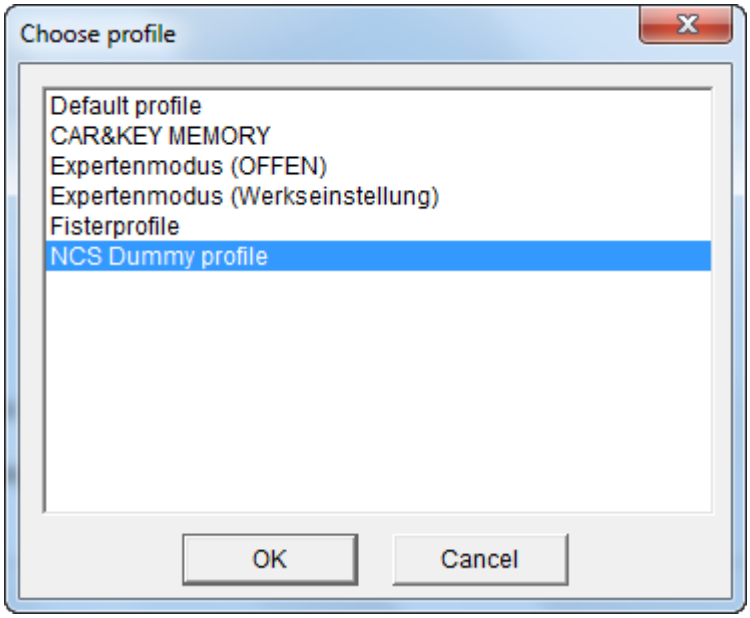
…then repeat steps 5 and 6.

Correcting Directional Aiming of SMC Modules

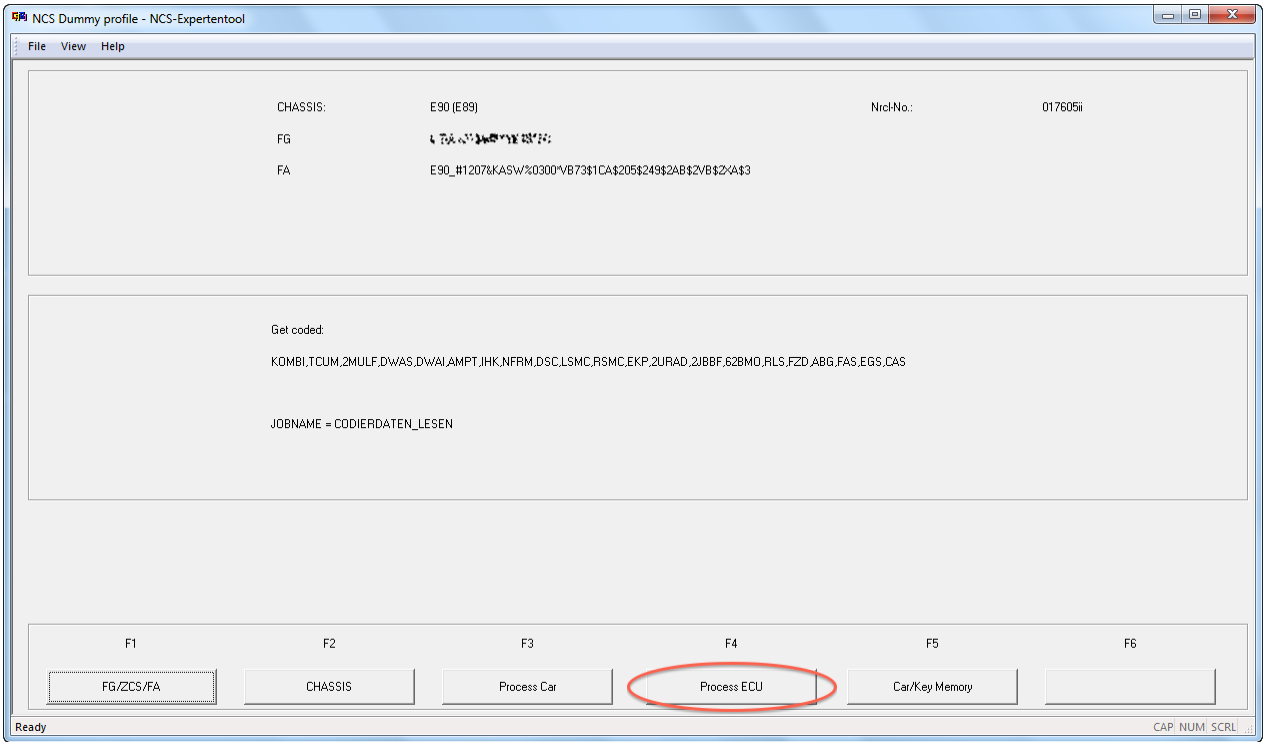
1. From the menu bar choose *File* -> *Load Profile* menu…



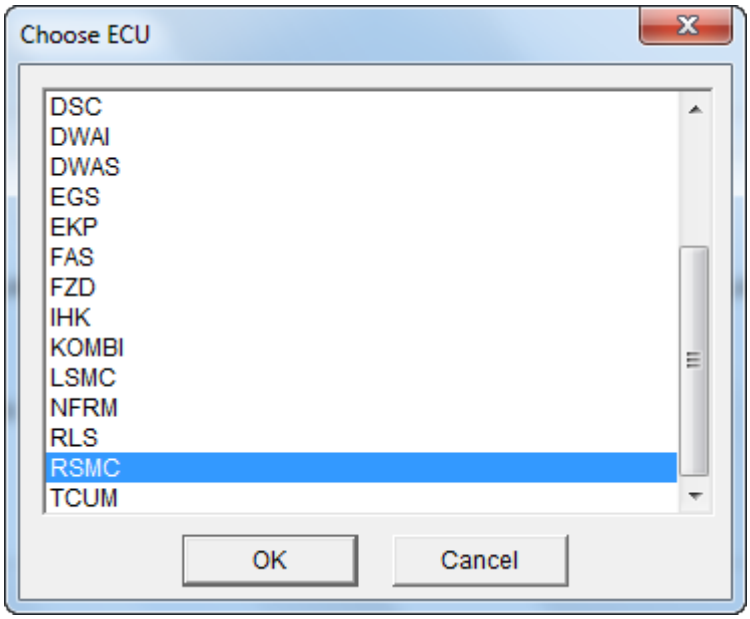
…select the “Expertmode” profile or “NCS Dummy profile” (depending on what “expert” profiles you have available or installed), then click on **OK.**



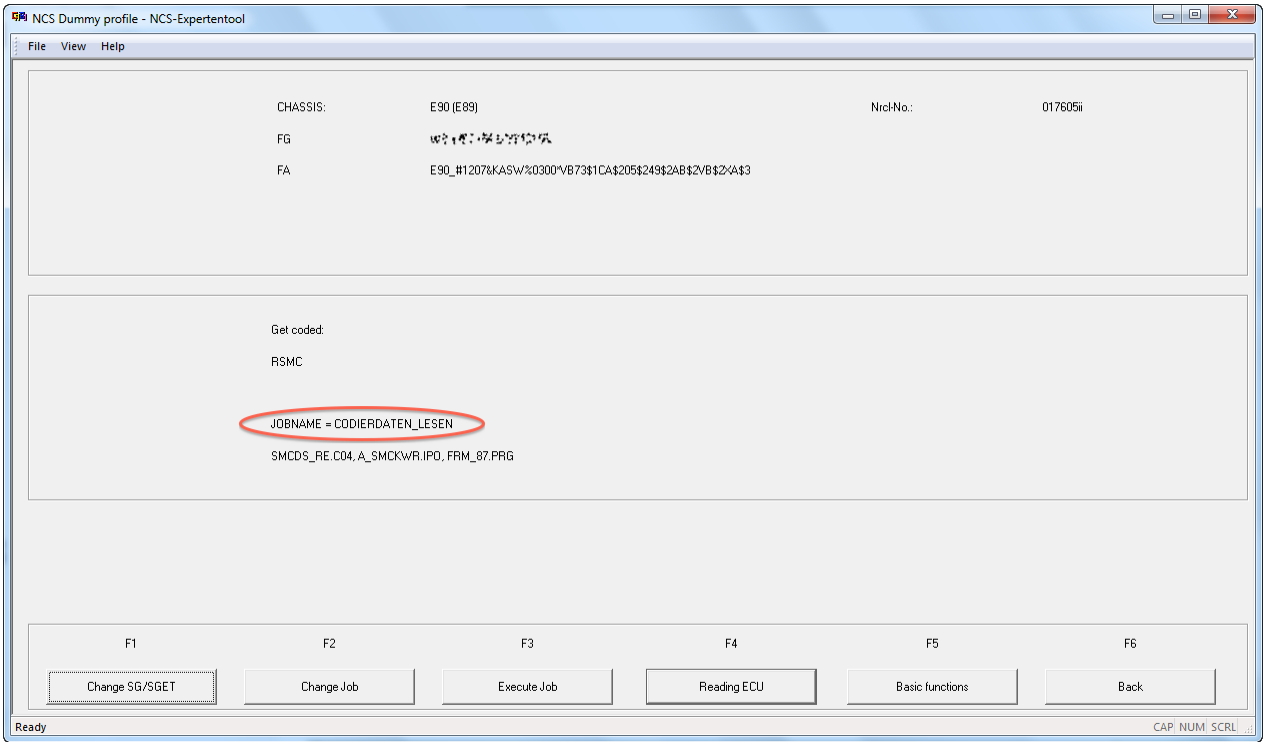
2. Click on Process ECU ([F3]).



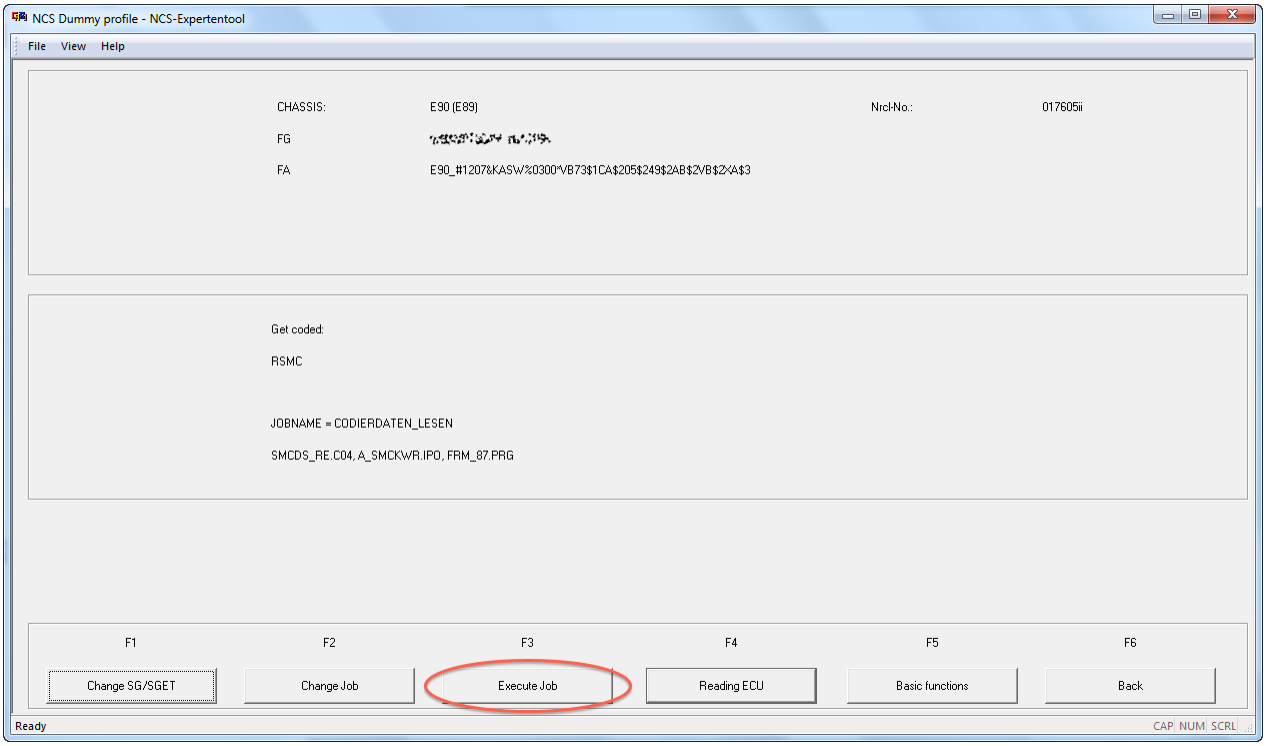
3. Select the Stepper Motor Control ECU that needs to be corrected (“LSMC” or “RSMC”), then **OK**.



8. Verify that the “JOBNAME” is “CODIERDATEN_LESEN” (“Read Coding”)…



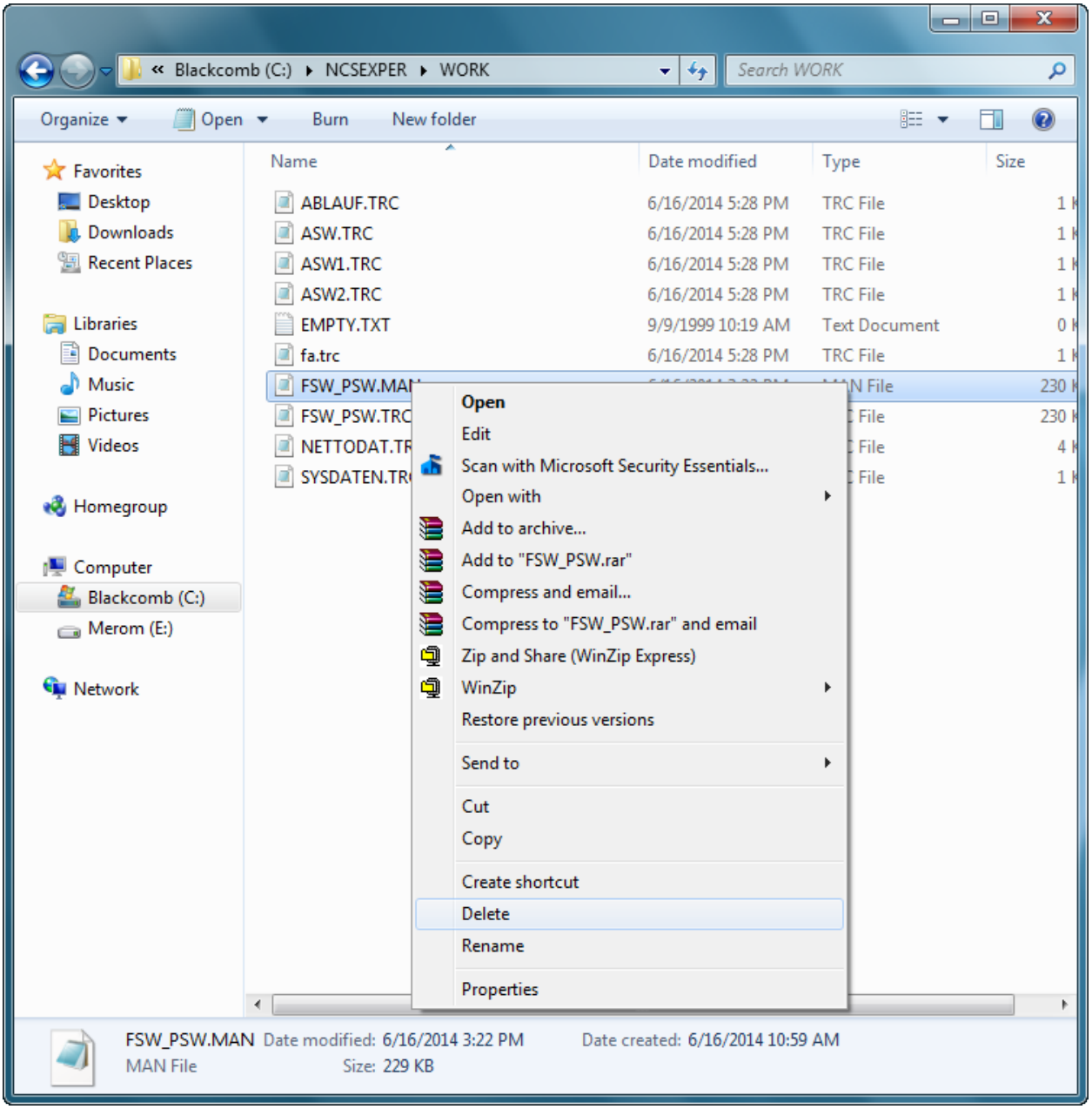
…click on **Execute Job** ([F3])…



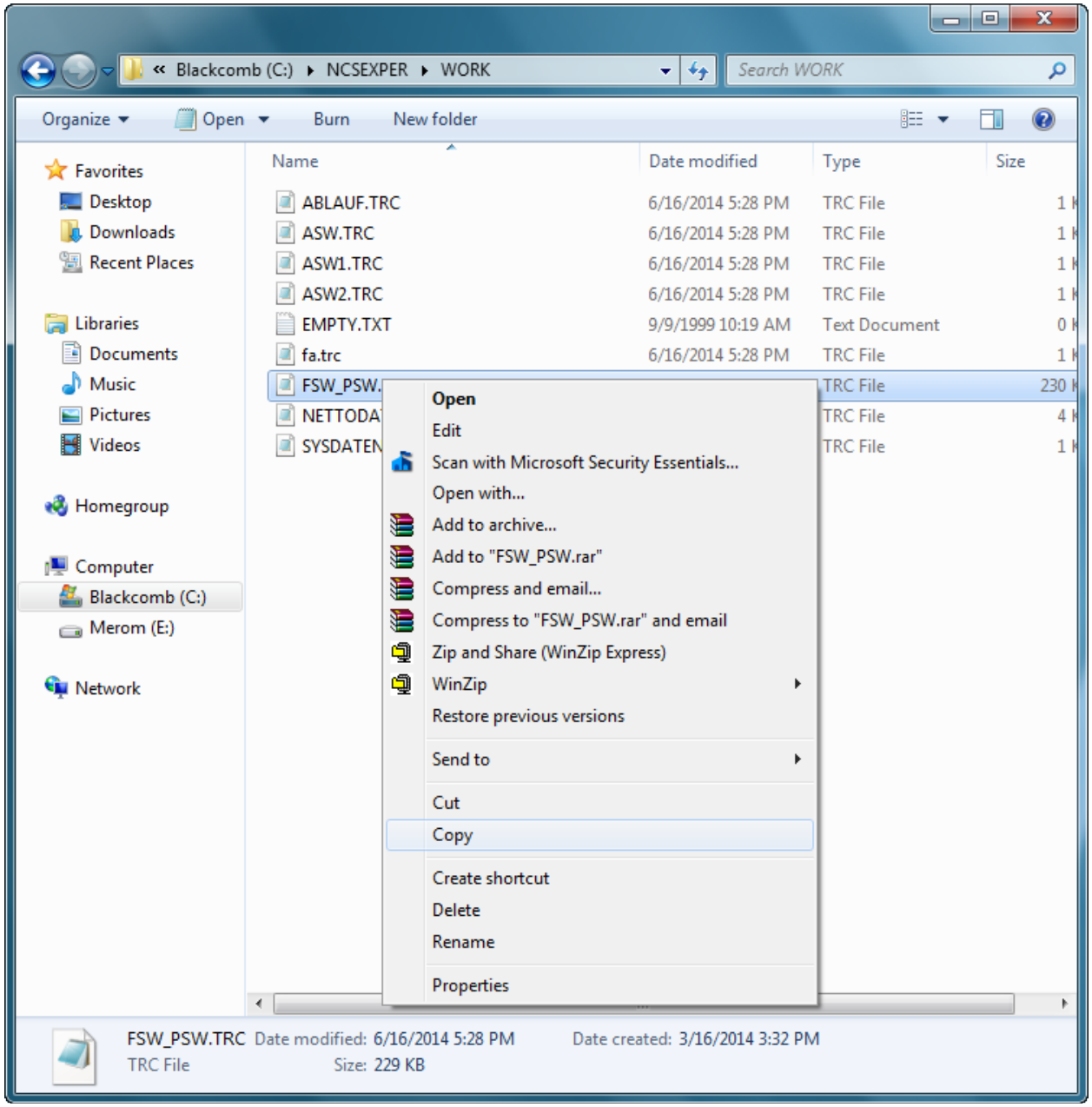
…and wait for the status to go from “Coding active” to “Coding ended”.

The Stepper Motor Control settings should now be loaded into the trace file named “FSW_PSW.TRC”, located within the “C:\NCSEXPER\WORK” directory.

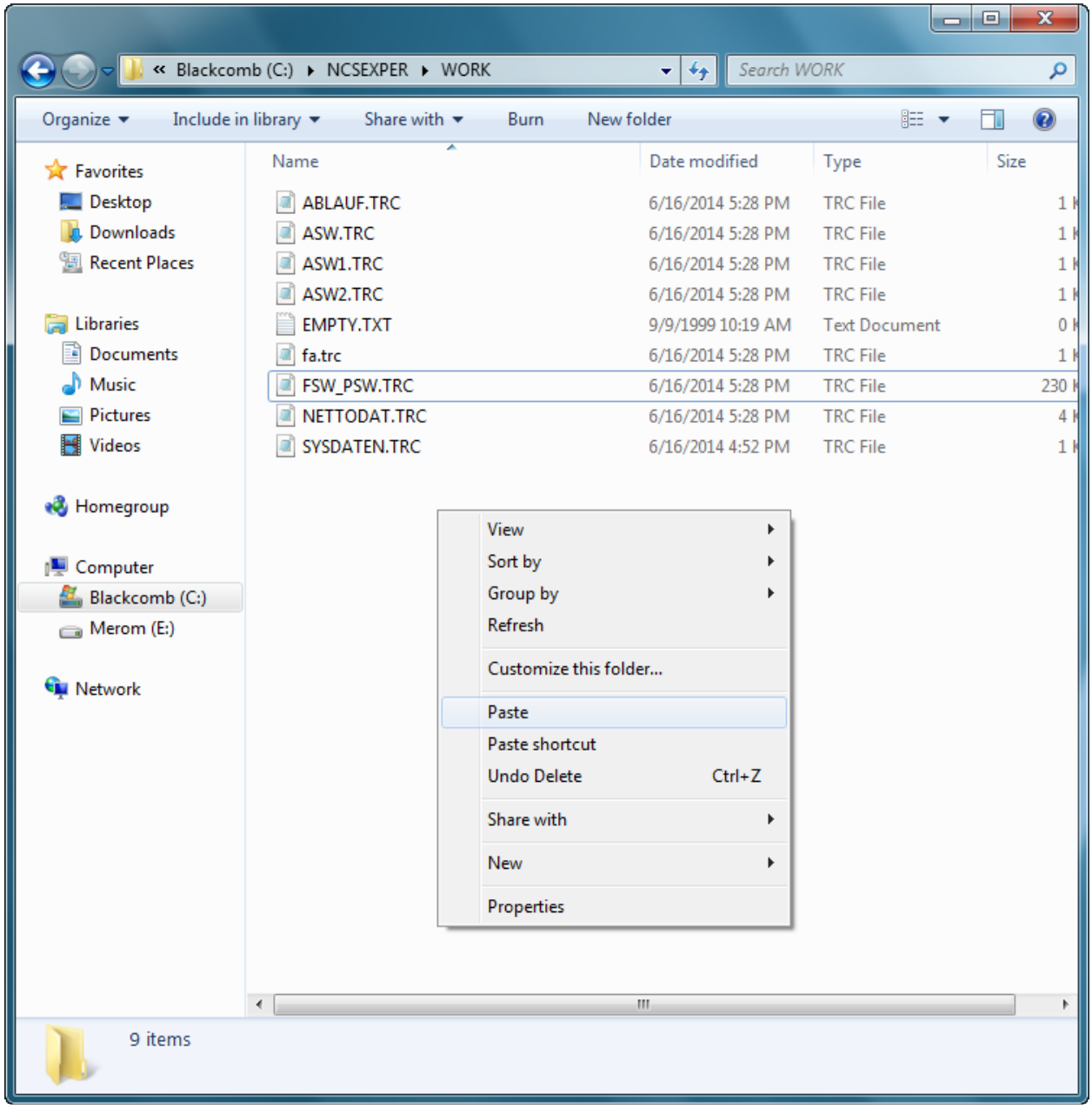
9. In Windows Explorer, navigate to the “C:\NCSEXPER\WORK” directory, deleting the file “FSW_PSW.MAN” if it already exists…



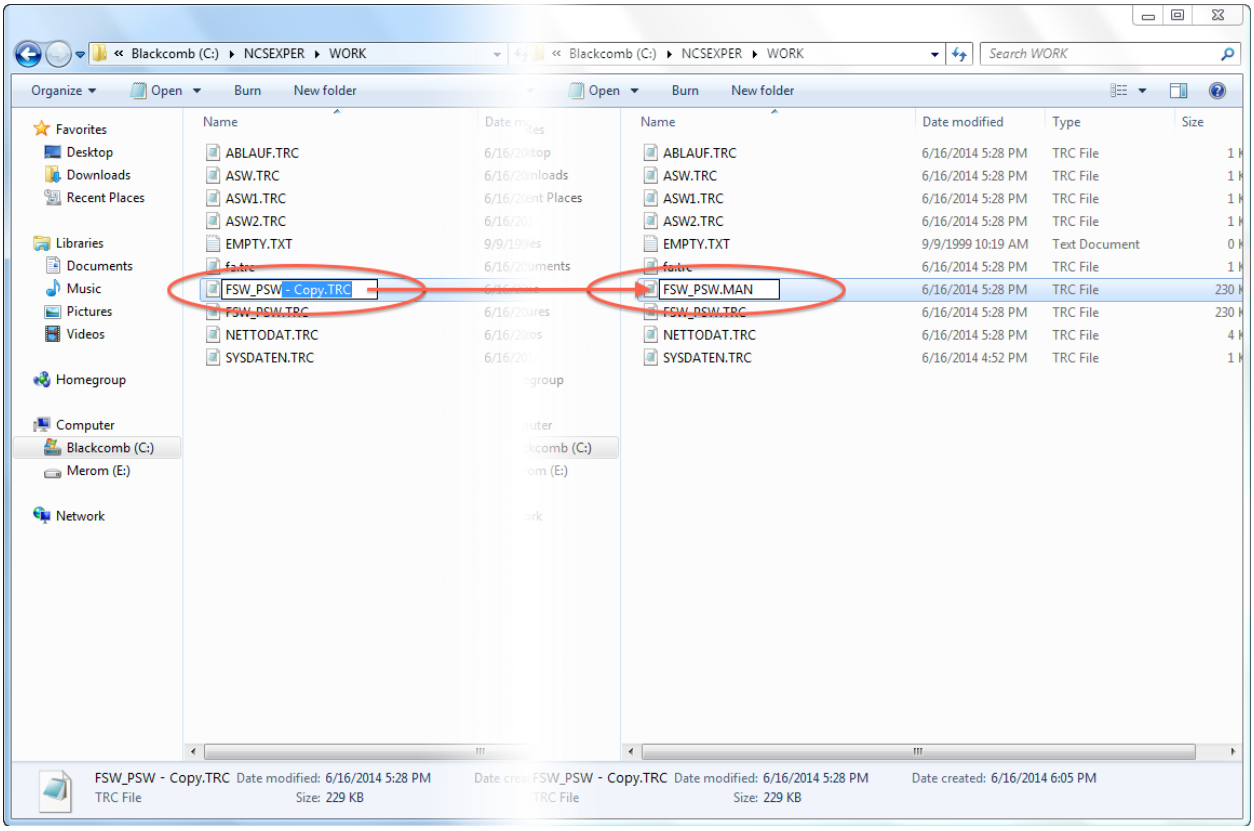
…copy the “FSW_PSW.TRC” file…



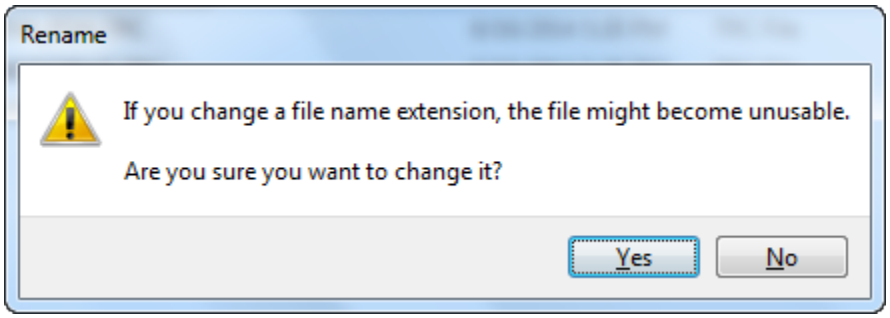
...and paste it within the same directory...



…rename the copied file from “FSW_PSW – Copy.TRC” to “FSW_PSW.MAN”…



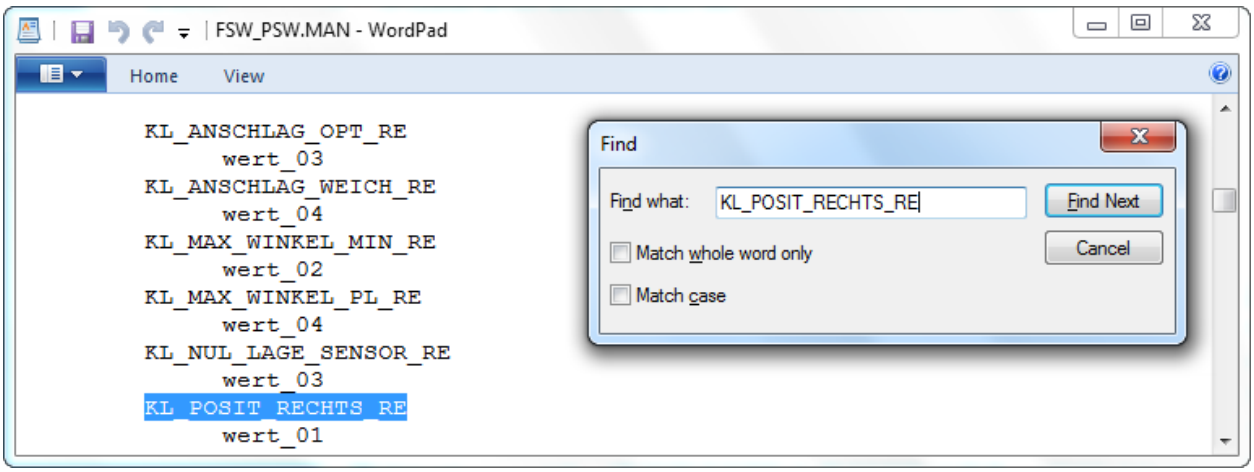
…then click on **Yes** to allow the file name extension to be changed.



The way NCS Expert Tool is designed and how the profile used is setup, all ECU codings are loaded into the file “FSW_PSW.TRC” whereas all coding modifications that are to be written to an ECU are read from the file “FSW_PSW.MAN”, regardless of which ECU is being processed.

4. Open the “FSW_PSW.MAN” file with a text editor (e.g. WordPad).

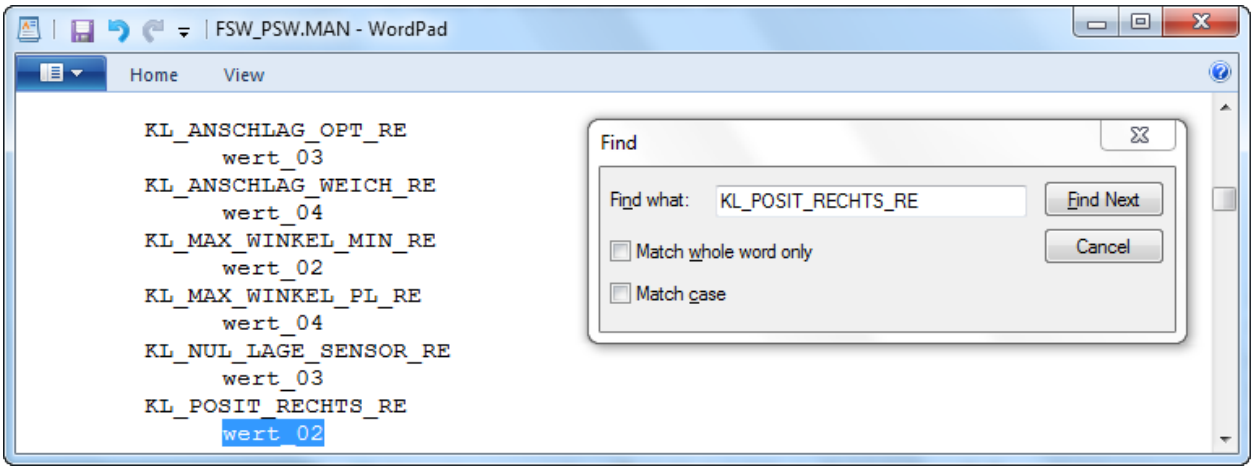
5. Bring up the “Find” window and search for either the text “KL_POSIT_RECHTS_LI” if coding the LSMC, or “KL_POSIT_RECHTS_RE” if coding the RSMC.



6. The indented line immediately below the setting is the current value of that setting, with the following two values:

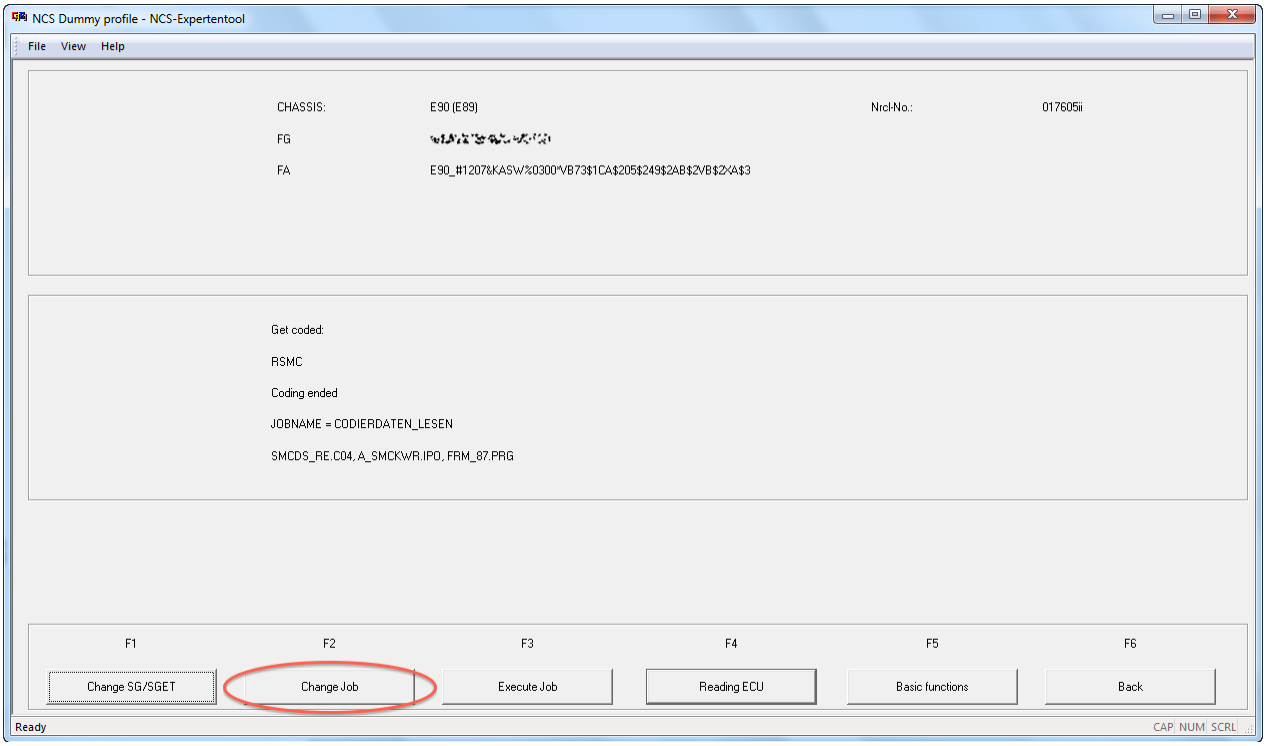
   wert_01 = Positive signal moves headlight left
   wert_02 = Positive signal moves headlight right

   Change the value displayed to the other value; for example, if the current value is **wert_01**, then change the value to **wert_02**. It is recommended that the formatting conventions be strictly adhered to, although it has not be tested if functionally would be adversely affected if any formatting styles were altered (e.g. using lower case letters for the setting names or removing the indent).

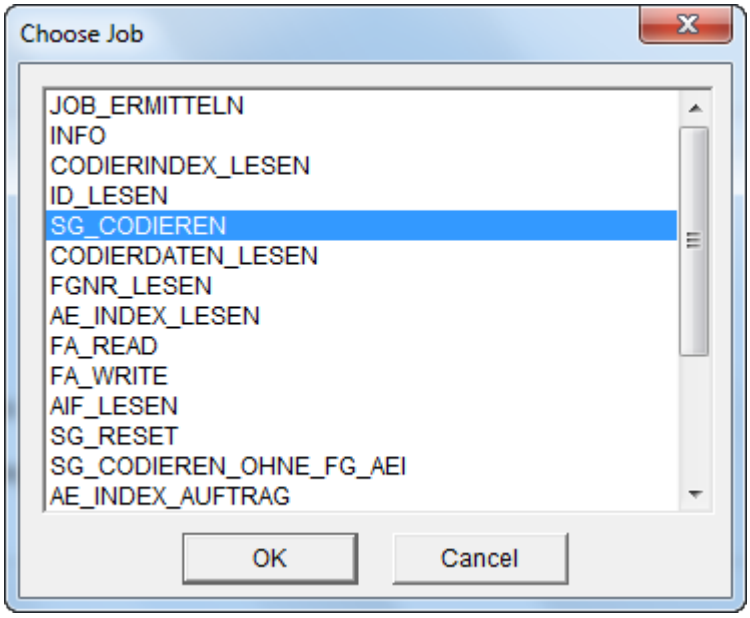


7. Save the file.

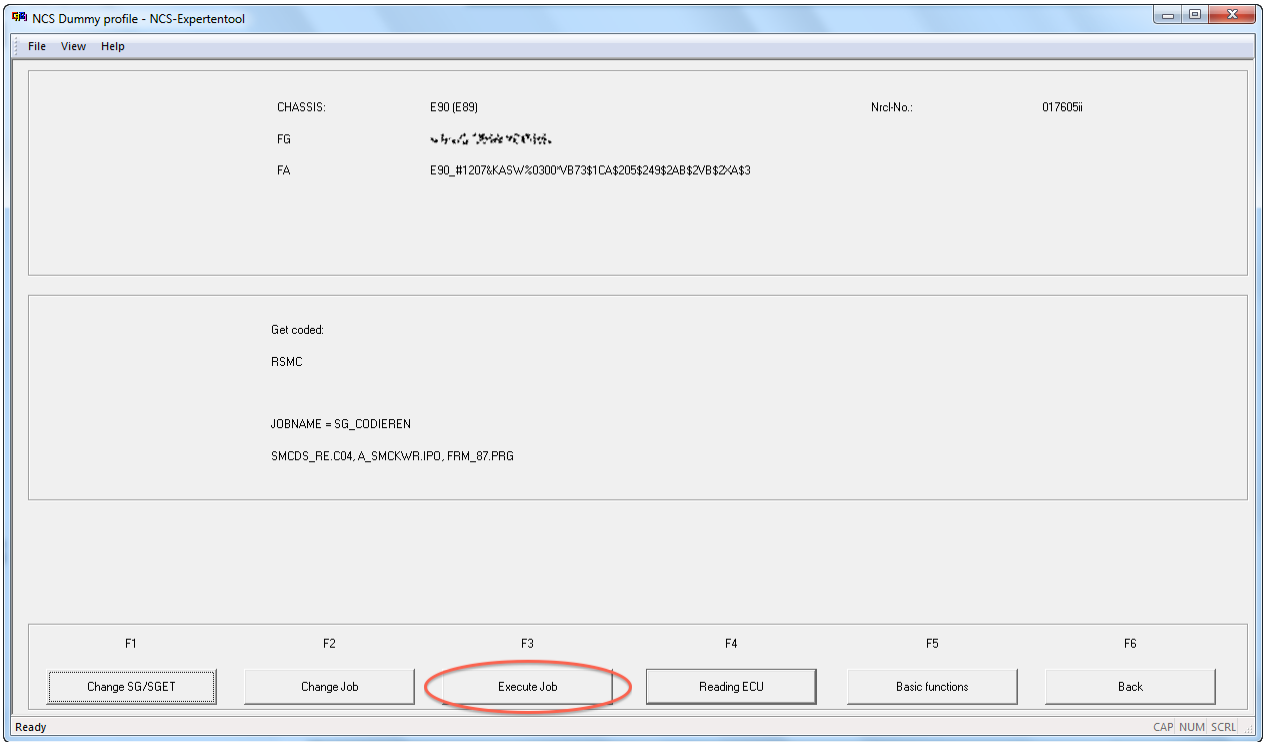
8. Switch back to NCS Expert Tool, click on **Change Job** ([F2])…



…select “SG_CODIEREN” (“Write Codings”), then **OK**…



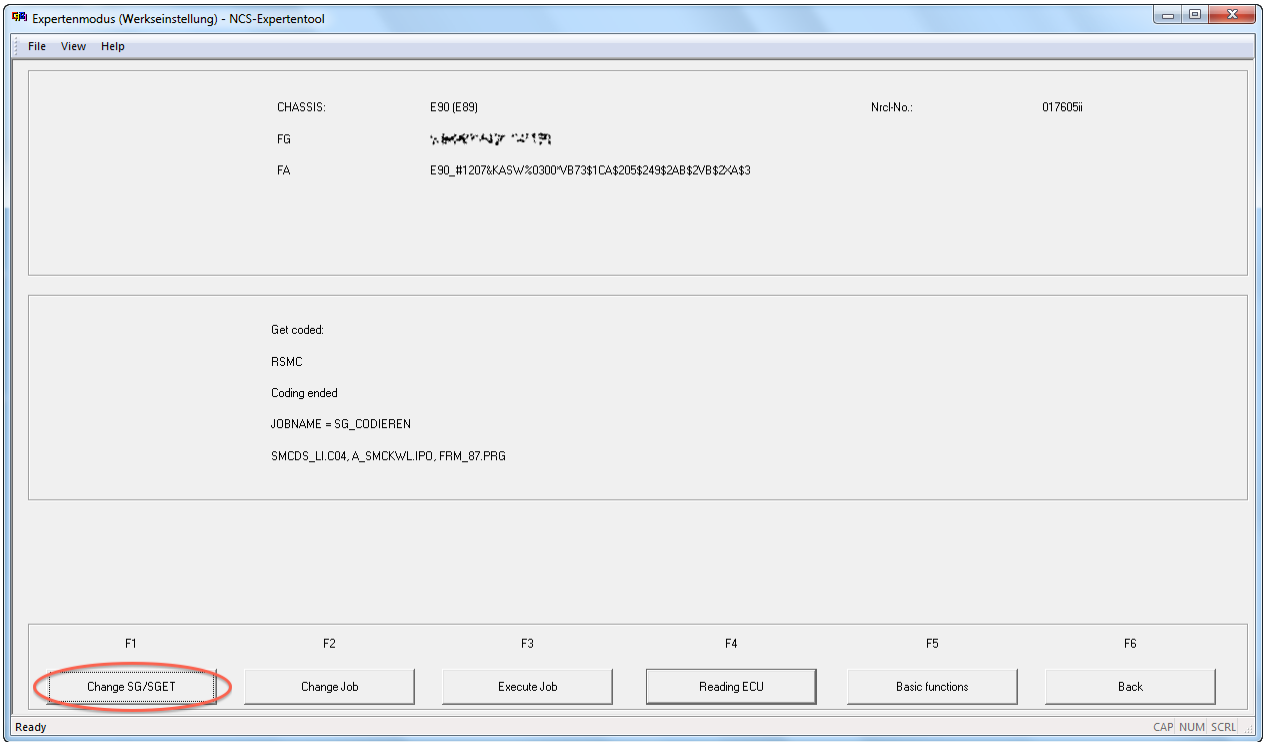
…click on **Execute Job** ([F3])…



…and wait for status to change from “Coding active” to “Coding ended”.

The Stepper Motor Control module should now be “coded” correctly.

9. If the other Stepper Motor Control module needs to be coded, select **Change SG/SGET**…



…then repeat steps 3 through 8.

10. Verify ALC correction. Position vehicle in a darkened location, start the engine, turn on the light switch to the AUTO position (left-most), place the transmission in DRIVE (while applying the brakes of course), then turn the steering wheel in both directions.