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	ProCal 3
Ford / FORD PERFORMANCE	**Instructions**

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Registration and Software Download

**Download ProCal 3 Software: (Internet connection required)**

STEP 1: Go to www.performanceparts.ford.com to register and get latest ProCal 3 software for your PC or MAC computer.

STEP 2: You will need to register your email address and assign a password before downloading. Click on the "Register" link at the top of your screen.

STEP 3: Fill in the requested information to register your account profile and click "Continue".

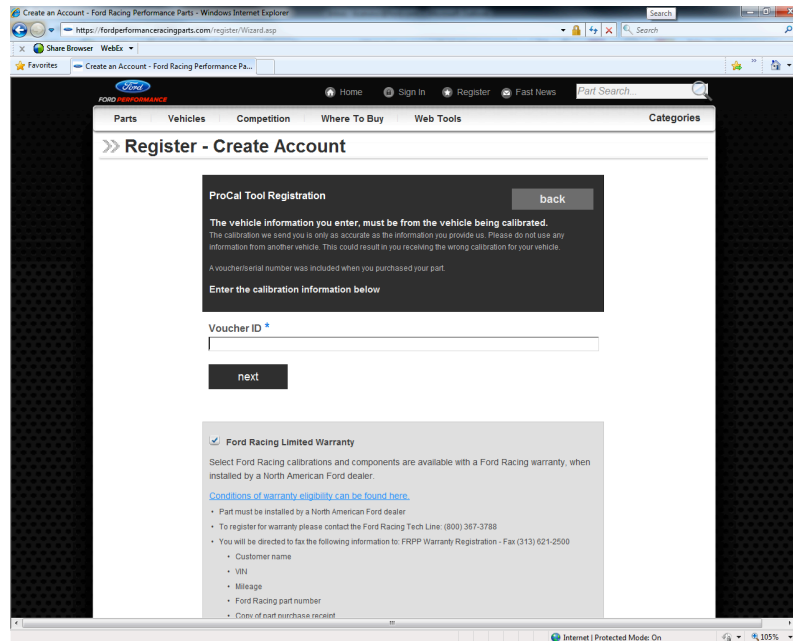**STEP 4:** Click on "ProCal Registration" in the center of this page.
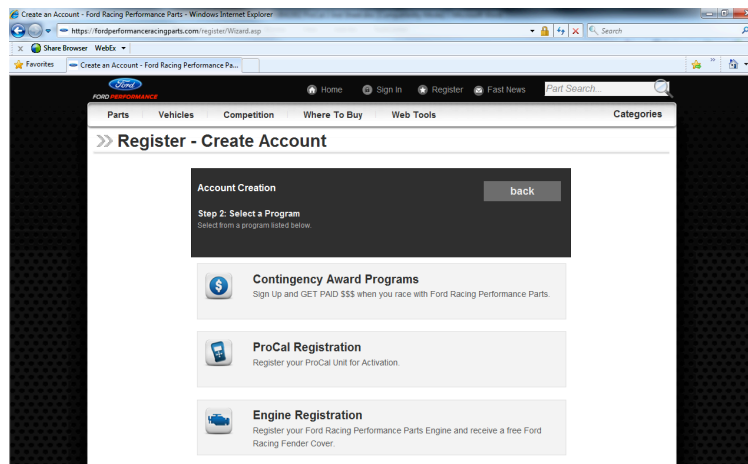
STEP 5: Click on the "ProCal Registration" button, then click "Finish".

STEP 6: Enter your Voucher ID and then click "Next"

STEP 7: Follow the remaining on-screen instructions to download the latest version of ProCal 3 software.

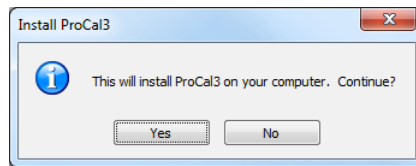**STEP 8:** Follow the instructions to install for Windows or Mac

Windows Installation Instructions
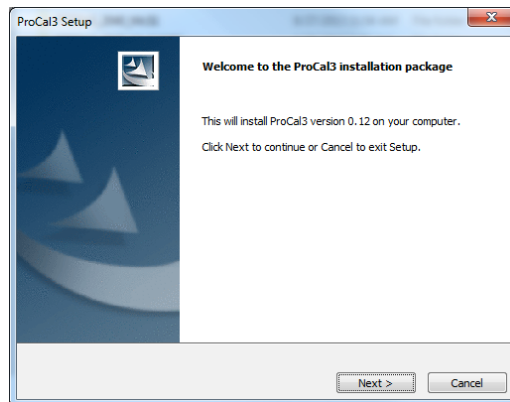
Windows 7 or higher suggested

STEP 1: Double-click on the "ProCal3_Win_Setup.exe" program installer

STEP 2: When prompted by your computer to allow this program to modify settings on your machine, click "Yes"
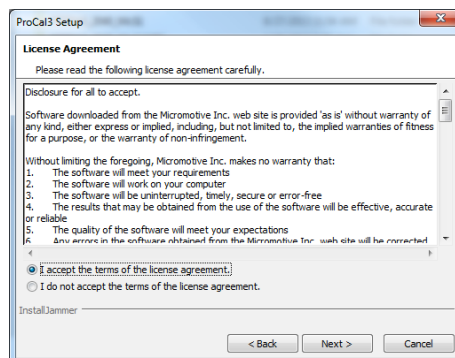
STEP 3: When the following screen appears, click "Yes" to continue.

STEP 4: When the following screen appears, click "Next" to continue.

STEP 5: When the following menu appears, read the terms carefully and then click "I accept the terms of the license agreement," then click "Next"

STEP 6: Specify the destination folder by clicking on the "Browse…" button and then navigating to the appropriate location OR just click "Next" to accept the default destination folder location
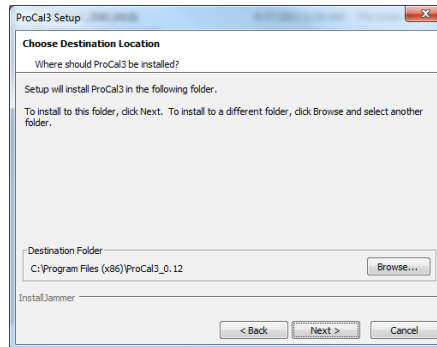
STEP 7: Click "Next" to continue
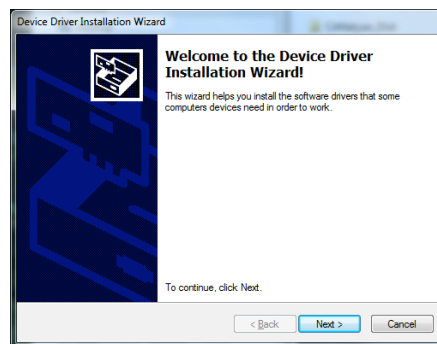
STEP 8: Read the License Agreement terms carefully and then click "I accept this agreement," then click "Next"

STEP 9: Click "Finish"

STEP 10: Click "Finish"

STEP 11: ProCal 3 will launch automatically after if you left the top checkbox checked; if you unchecked this box or ProCal 3 did not start automatically, ProCal3 is started the same as other Windows applications.

Mac Installation Instructions

OSX v10.8 or higher recommended

STEP 1: Double-click on the "ProCal3_mac_setup.dmg" disk image file. When the disk image opens, double click the ProCal3_x.xx.mpkg installer file.

STEP 2: When the following screen appears, click "Continue" to proceed with installation.
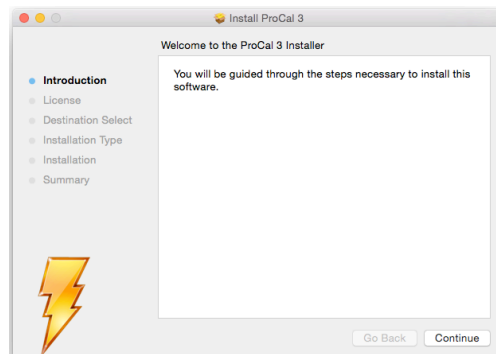
STEP 3: When the following screen appears, read the terms carefully and then click "Continue" to proceed with installation.
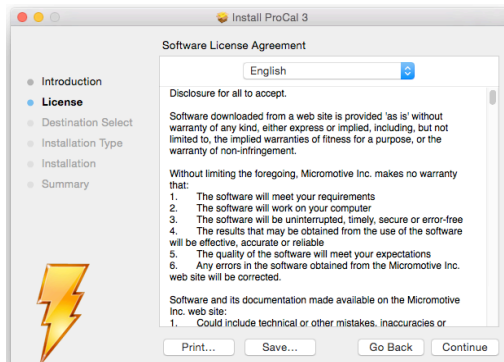
STEP 4:   When the following menu appears, click "Agree" to accept the User Agreement.
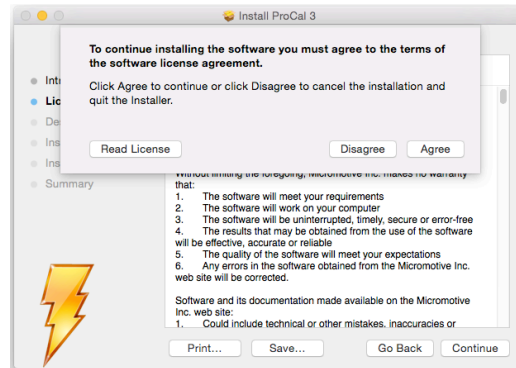
STEP 5:   Specify the destination folder by clicking on the "Install for all users of this computer" button and
then clicking "Continue" to proceed to installation.
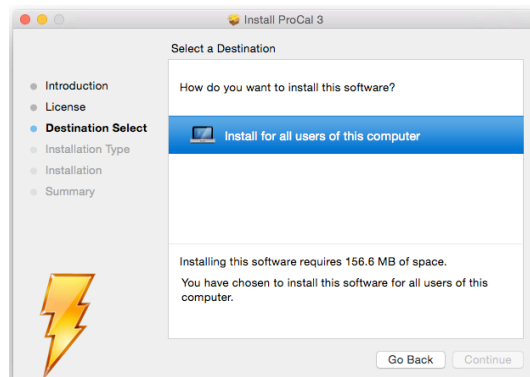
STEP 6:   Click "Install" to begin installation.
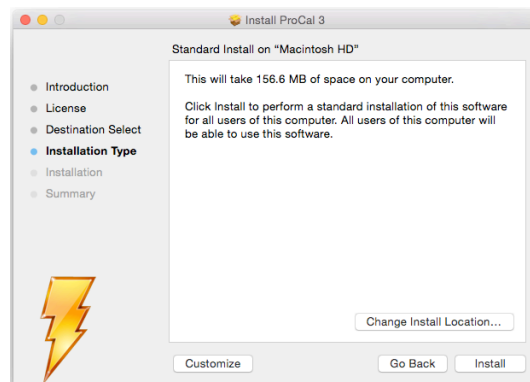
STEP 7:   Please enter your username and password and click "Install Software" to authorize installation.
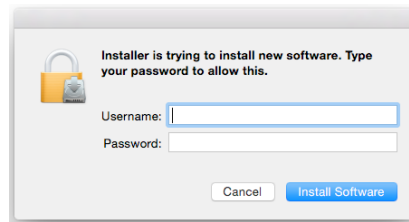
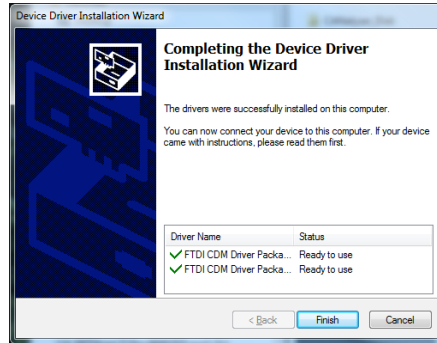**STEP 8:**   Click "Continue Installation" to continue.
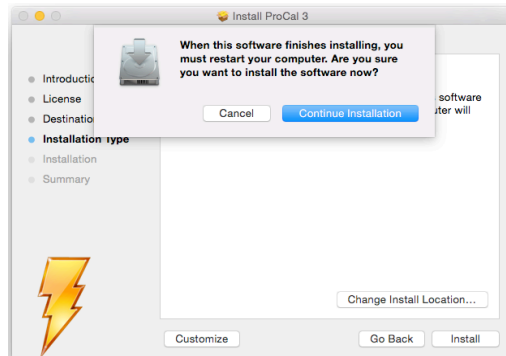
STEP 9:   Click "Restart" after installation is complete.
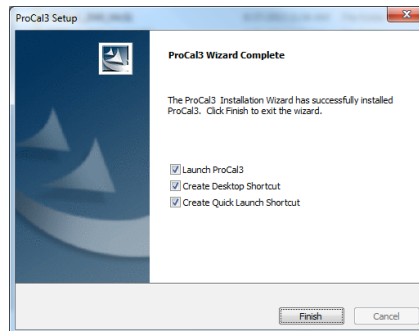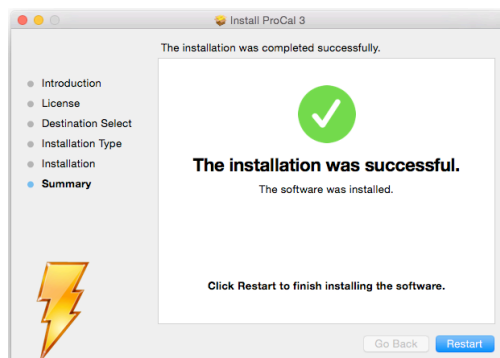
NO PART OF THIS DOCUMENT MAY BE REPRODUCED WITHOUT PRIOR AGREEMENT AND WRITTEN PERMISSION OF FORD PERFORMANCE PARTS.
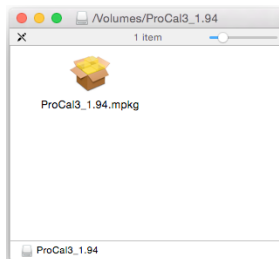
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Getting Started

**Please visit www. performanceparts.ford.com for the most current instruction information.**

! ! ! PLEASE READ ALL OF THE FOLLOWING INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION. AT ANY TIME YOU DO NOT UNDERSTAND THE INSTRUCTIONS, PLEASE CALL THE FORD PERFORMANCE TECHLINE AT 1-800-367-3788 ! ! !

ProCal Flash Tool Instructions

Read the instructions below in their entirety prior to beginning the flash procedure. If you have questions or concerns after reading these instructions, call the Ford Performance Techline at 1-800-367-3788.

> **CAUTION!** NEVER OPERATE THE ENGINE UNTIL PROGRAMMING OF YOUR PERFORMANCE CALIBRATION HAS COMPLETED SUCCESSFULLY. OPERATION WHILE USING THE WRONG CALIBRATION MAY RESULT IN PERMANENT ENGINE DAMAGE AND WILL VOID ANY WARRANTY (IF APPLICABLE).
>
> FORD PERFORMANCE CALIBRATIONS ARE DESIGNED FOR 91 OR HIGHER OCTANE FUEL. IF YOU HAVE LOWER THAN 91 OCTANE FUEL IN THE TANK, WAIT UNTIL YOU ARE ABLE TO PUT 91 OR HIGHER OCTANE FUEL IN THE TANK PRIOR TO PROGRAMMING. FORD PERFORMANCE RECOMMENDS THE USE OF 93 OCTANE FUEL IF AVAILABLE IN YOUR AREA

This ProCal tool has been designed to deliver a performance calibration to your vehicle and will preserve a copy of your vehicle's stock calibration, should you decide to remove the performance calibration for any reason. The tool and performance calibration are locked to your vehicle and therefore cannot be used on a different vehicle.

> **CAUTION!** If a dealer or installation facility has installed and programmed your vehicle, be sure to obtain the Procal unit, USB cable and PC3 file from the installation facility. It is be required to restore the previous calibration or make modifications to the vehicle configuration after the vehicle has been programmed.

Verify Package Contents

ProCal Unit

Mini-USB Cable

TAKE EXTREME CARE THAT YOUR PROCAL VEHICLE INTERFACE UNIT AND THE STOCK CALIBRATION FILE DOWNLOADED FROM YOUR VEHICLE IN THE FOLLOWING STEPS IS NOT LOST OR DAMAGED; REPLACEMENTS WILL NOT BE GIVEN

Getting to Know the ProCal 3 Software
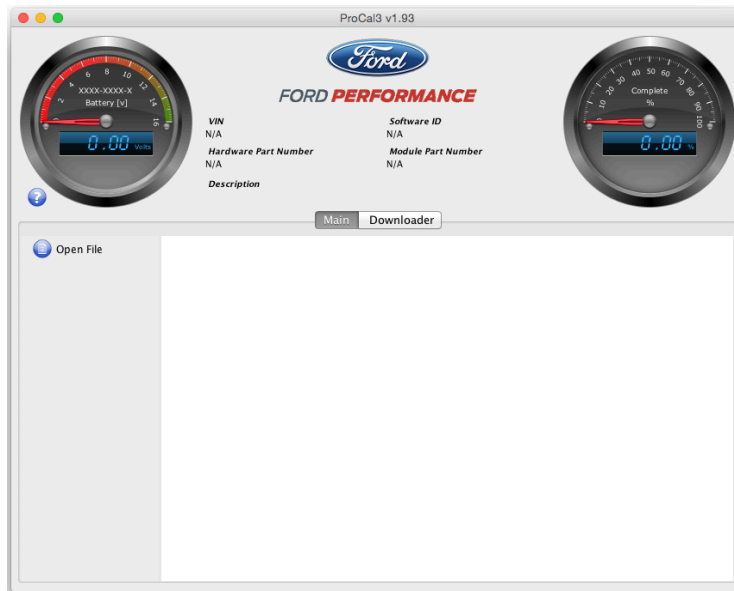
On the **MAIN** screen, note the following:

    a. **Battery gauge** in the top left-hand corner of the screen displays the current battery voltage.
        i. Located directly below the "Battery [v]" text on the **Battery gauge** is a sequence of numbers:
            1. The first four digits are the **ProCal 3 Customer Number**
            2. The next four digits are the **ProCal 3 Vehicle Interface Serial Number**

    b. **Vehicle specific data** – VIN, Software ID, Hardware Part Number and Module Part Number located in the top-center of the screen is automatically populated when ProCal 3 is plugged-in and communicating with the vehicle. Note: the ignition does have to be turned "ON" to communicate with the vehicle.

    c. **Description** – Description of the PC3 file that is currently open. The filename of the currently open PC3 file will be displayed in the title bar of the ProCal application.

    d. **Progress gauge** in the top right-hand corner of the screen displays the % complete of the current task. NOTE: The % complete gauge will make multiple sweeps from 0%-100% during the programming process.

c. **Main Tab**
- **Open File Button** – Click this button to navigate to and open a Procal 3 file, ProCal3 files have a "PC3" file extension. The PC3 files can be located anywhere on your hard disk, but are located in the "Documents\ProCal3\calibrations" folder.

- **Close File Button** – Click this button to close the calibration file that is currently open. This button will only appear when a PC3 file is open.

- **Program Button** – Click this button to flash the currently open calibration file to your vehicle's PCM. This button will only appear when a PC3 file is open.

- **Restore –** Only visible when a PC3 file is open and after initial programming has taken place; clicking this button will restore the calibration that was on your vehicle before it was flashed with a performance calibration.

d. **Downloader Tab**
The downloader tab is used to obtain the correct calibration for the vehicle from Ford Performance. When downloading the PC3 file will be personalized to your vehicle using the VIN and Procal Unit serial number. When downloading a PC3 file, it will be stored in the "Documents/ProCal3/calibrations" folder on a Windows computer or "home/ProCal3/calibrations" on Mac OSX based computers. The file will be named based on the calibration, VIN and Procal unit serial number, eg. <calibration>_<VIN>_<SN>.pc3. This makes it easy to identify which file belongs to a specific vehicle.
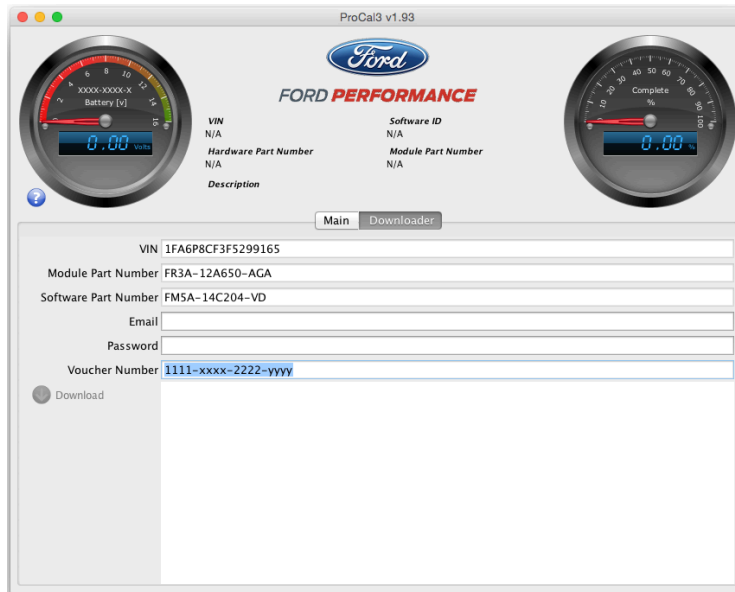
- **VIN** – This field automatically populates with your Vehicle Identification Number when the ProCal 3 unit is plugged-in and the vehicle is powered.

- **Module Part Number** – This field automatically populates with your Powertrain Control Module's part number when the ProCal 3 unit is plugged-in and the vehicle is powered.

- **Software Part Number** – This field automatically populates with your Powertrain Control software part number when the ProCal 3 unit is plugged-in and the vehicle is powered.

- **EMAIL** – This field must be populated with the same email address that was used during the registration process. ProCal3 will automatically populate with the last entered EMAIL.

- **Password** – Enter the same password that was used during the registration process. The password must be entered each time you download, so do not forget your password.

- **Voucher Number** – Enter the voucher number received in your kit in this field.

- **Download Button** – Click this button to download the appropriate calibration file associated with your specific EMAIL, VIN, Module Part Number, and Voucher Number.

e. Diagnostics Tab
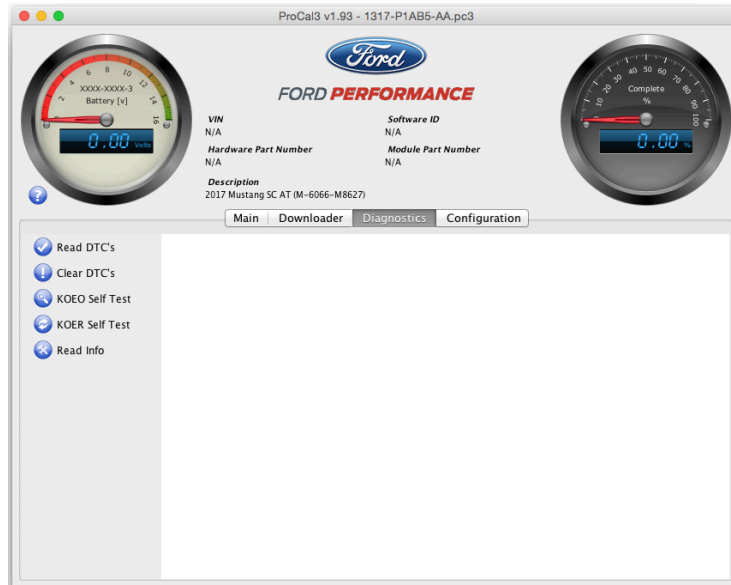
- **Read DTCs Button** – Click this button to read all Diagnostic Trouble Codes currently being sent by your vehicle's PCM.

- **Clear DTCs Button** – Click this button to clear all Diagnostic Trouble Codes currently set in your vehicle's PCM.

- **KOEO Self-Test Button** – Click this button to perform a Key-On, Engine-Off diagnostic self-test.
- **KOER Self-Test Button** – Click this button to perform a Key-On, Engine-Running diagnostic self-test.
- **Read Info Button** – Click this button to read PCM information.

f. Configuration Tab
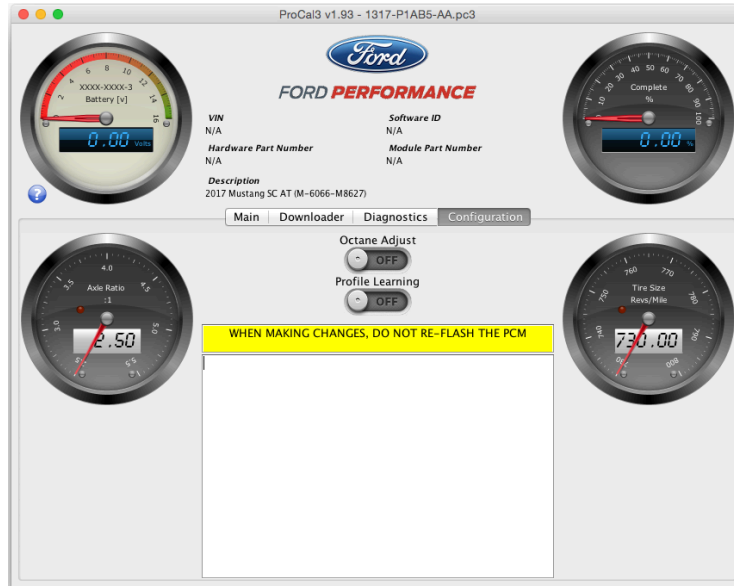
- **Octane Adjust –** Switch to "ON" if spark retardation is desired

- **Profile Learning** – Switching to "ON" initiates a misfire monitoring relearning sequence

- **Axle Ratio –** ratio of driveshaft revolutions per minute to rear axle revolutions per minute

- **Tire Size –** The number of tire rotations per mile. This information should be available from the tire manufacturer.

!!! SUBSEQUENT STEPS REQUIRE AN INTERNET CONNECTION IN ORDER TO COMPLETE THE INSTALLATION OF YOUR PERFORMANCE CALIBRATION ONTO YOUR VEHICLE'S PCM; IF YOUR VEHICLE IS LOCATED SOMEWHERE WITHOUT AN INTERNET CONNECTION, PLEASE COMPLETE THE CALIBRATION DOWNLAD BEFORE LEAVING THE INTERNET CONNECTED AREA !!!

Prepare Vehicle for Flashing

STEP 1:   Make sure your vehicle's battery is fully charged (at least 12.0 volts) and all accessories (radio, interior fan, headlights, etc.) are off. Headlights on 'auto' will turn on during programming, so make sure the lights are fully off. If you are unsure if your vehicle's battery is fully charged, connect a battery charger prior to beginning the programming process.

CAUTION: If your ProCal aborts programming due to low voltage or if the programming process is interrupted for any reason, you can simply repeat the flash process, however, it may require 2 consecutive flash cycles to complete.

STEP 2:   Locate the onboard Diagnostic Link Connector (DLC) beneath the driver side dashboard.

STEP 3:   Plug your ProCal 3 unit into the DLC, be sure the ProCal 3 unit is fully seated.

STEP 4:   If your vehicle has a physical key, turn the ignition key of your vehicle to the ON (not start) position. If your vehicle has a key fob (instead of a physical key), with your foot OFF of the brake pedal, press the ignition button once.

STEP 5:   If the ProCal 3 box is properly connected, the **HOME** screen should now be similar to this:
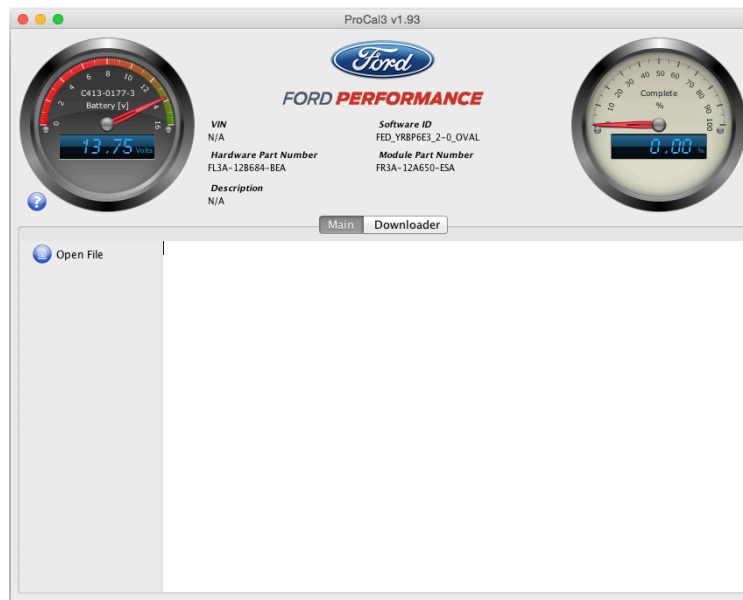
STEP 6:   Navigate to the "Diagnostics" tab and click on the "Read DTCs" Button
Diagnostic trouble codes that exist for your vehicle are displayed.
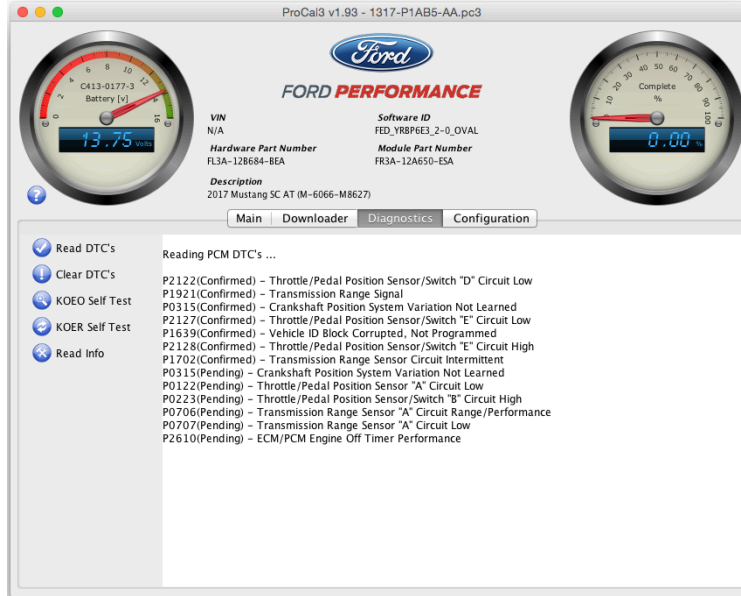
Causes of all existing trouble codes must be resolved prior to proceeding with installation of your performance calibration. Write down or copy and paste displayed codes and contact the Ford Performance Techline at 1-800-367-3788 for assistance with resolution of existing trouble codes **before** continuing.

STEP 7: Resolve causes of all existing trouble codes then clear DTCs by clicking the "Clear DTCs" button on the "Diagnostics" tab.

STEP 8: Click "Read DTCs" again to verify all issues have been resolved.

	ProCal 3
	Instructions

Download Calibration File

!!! Your computer must be connected to the internet in order to download the performance calibration. If your vehicle is not located in an area where internet access is available, you can unplug your computer from the vehicle, but do not shutdown the ProCal 3 application. Do NOT disconnect the ProCal 3 Vehicle Interface unit from your computer—this is required to be connected for downloading !!!

STEP 1: Navigate to the "Downloader" tab and verify that the proper VIN is displayed and Module Part Number field is populated. NOTE: If working from a previously obtained calibration file, skip to Programming Your Vehicle STEP 1.

STEP 2: Enter your EMAIL, Password, and Voucher Number; all fields on the "Downloader" tab should now be populated.

STEP 3: Click the "Download" button to begin downloading your performance calibration.

STEP 4: Upon successfully downloading the performance calibration, ProCal 3 will automatically open the downloaded file and switch to the Main Tab. The downloaded file will be saved for future reference in your "Documents/ProCal3/calibrations" folder on a Windows computer or "home/ProCal3/calibrations" on Mac OSX based computers. The Downloader tab should appear similar to this:
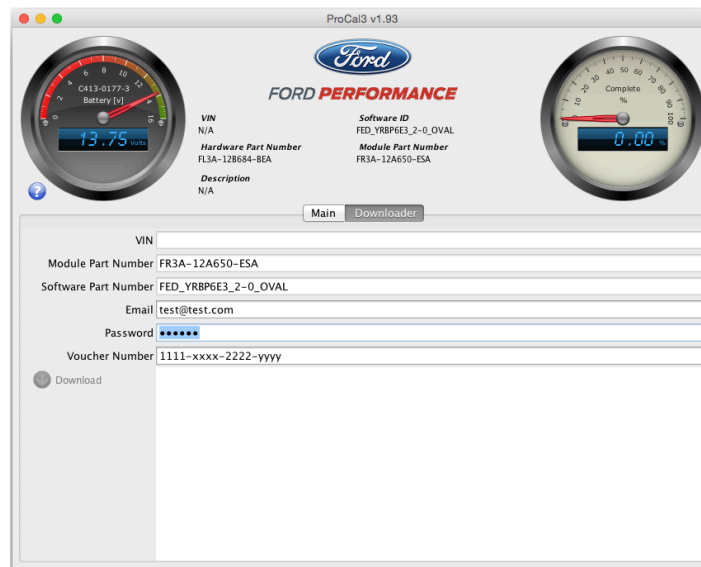

NOTE: If flashing vehicle now, skip to Programming Your Vehicle Step 3. If flashing will be completed later, start at Programming Your Vehicle STEP 1.

Programming Your Vehicle

STEP 1:   Navigate to the "Main Tab", and click on the "Open" button.

STEP 2:   Navigate to the performance calibration file that you downloaded. By default, ProCal 3 will look in the "Documents/ProCal3/calibrations" folder on Windows PC's or the "<user_home>/ProCal3/calibrations" folder on a MAC that was created the first time you ran the ProCal 3 application. Double-click on the performance calibration file (should have a .pc3 extension) or single-click and then press the "Select pc3 File" button.
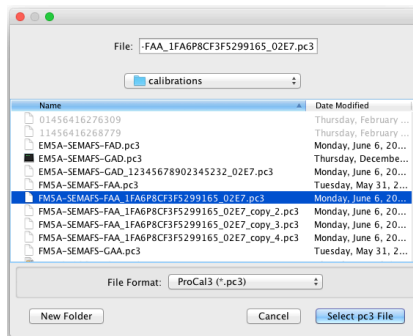
STEP 3:   The "Description" field on the "Programming" tab should now display a short description of your performance calibration, similar to what is shown below.

STEP 4:   After all DTCs have been repaired and cleared and the PC3 file is open, the vehicle is ready to be programmed; On the "Main Tab", click "Program" to begin installation of your performance calibration.
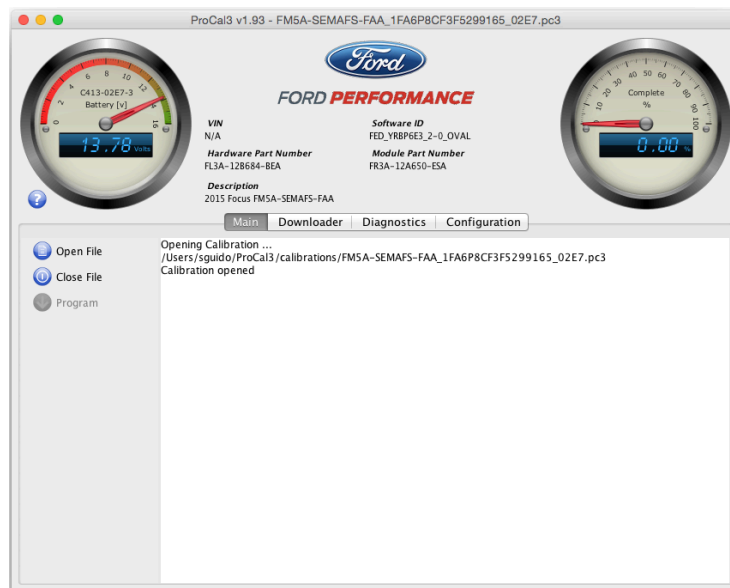
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ProCal may upload the stock calibration first prior to programming in order to save the calibration that is currently in your vehicle. This saved file will be contained within the same PC3 file that is being used to program your vehicle.

CAUTION! **If a dealer or installation facility has installed and programmed your vehicle, be sure to obtain the Procal unit, USB cable and PC3 file from the installation facility. It is be required to restore the previous calibration or make modifications to the vehicle configuration after the vehicle has been programmed.**

STEP 5: When programming is complete, your screen should appear similar to the one shown below:
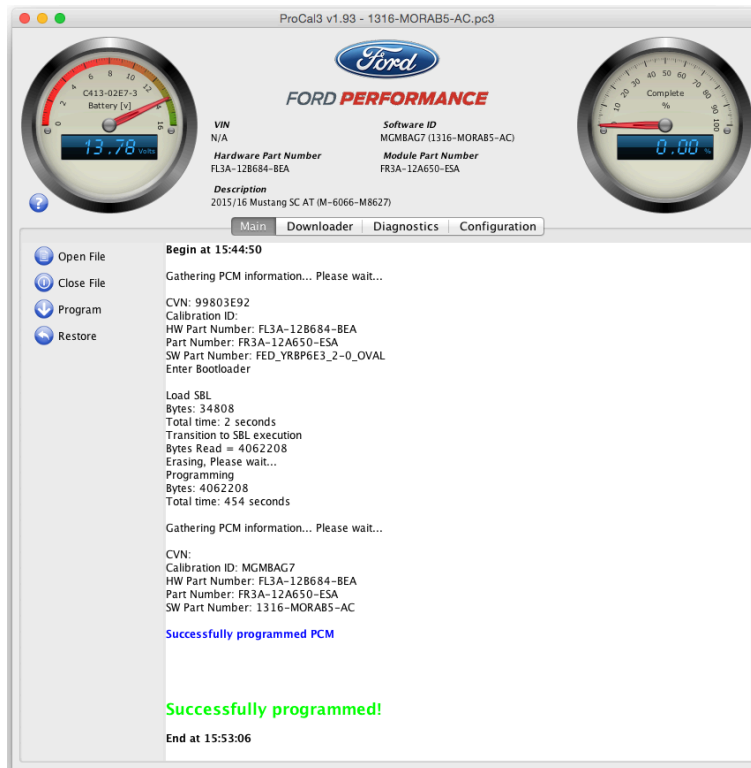
STEP 6: Once the display shows "Successfully programmed!" turn ignition key to OFF position. Wait at least 15 seconds, turn ignition key to the ON (not start) position.

If your ProCal aborts programming due to low voltage or if the programming process is interrupted for any reason, you can simply repeat the flash process, however, it may require 2 consecutive flash cycles to complete.

STEP 7: If the vehicle has stock sized tires on the drive wheels, a stock axle ratio, and no need to modify the octane adjust parameter, the programming process is complete, the tool may be disconnected, and the vehicle is ready to drive.

Restore Previous Calibration

STEP 1: Navigate to the "Main Tab", and click on the "Open" button and open the PC3 file that was used to program the performance calibration.

STEP 2: The Restore button will appear. Click the Restore button to flash the vehicle back to the previous calibration.

Note that you may need to enter the stock tire size and axle ratio values (if they have been changed) or a P1635 code may be set indicating tire size or axle ratio is out of limits.
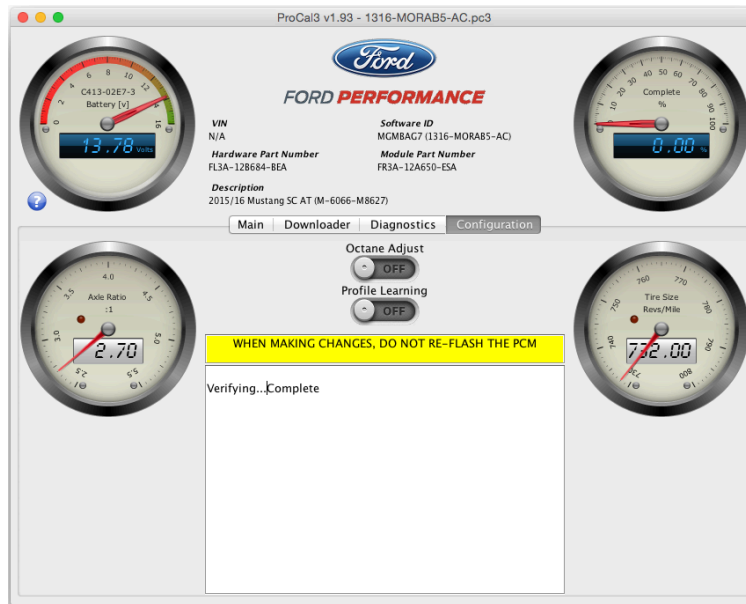
Additional Vehicle Configuration Instructions

STEP 1: Navigate to the "Configuration" tab; this tab will only show up if a calibration file is open.

STEP 2: Write down the values displayed for tire and axle for future reference.

STEP 3: Once you've recorded the initial values for both, click anywhere on the Axle Ratio gauge on the left-hand side of the screen and enter the new value of the new Axle Ratio and press "return/enter"

Note: Values less than the minimum value shown on the gauge or exceeding the maximum value on the gauge will not be accepted.

STEP 4: If your vehicle tire size is different from the value shown on the Tire Size gauge on the right-hand side of the screen, click anywhere on the Tire Size gauge and enter the new value of the new Tire Size and press "return/enter".

Note: Calculate revolutions per mile by dividing 63360 inches/mile (5280 feet/mile x 12 inches/foot) by the measured circumference of your tire (in inches).

For example, if the measured circumference of a tire on one of the vehicle's driven wheels is 84 inches, revolutions per mile for your tire size would be 754. Note that circumference should be measured as rolling circumference to account for asymmetry when the tire is loaded with the vehicle's weight. To do this, mark the bottom edge of the tire and the ground where the marked tire edge sits. Then roll/drive the car forward or backward until the tire mark is against the ground after one revolution. Measure the distance passed on the ground to determine the rolling circumference.

Another way to calculate revolutions per mile is by utilizing the sizing information written on the side of the tire. For a tire of the size P285/35-19, calculate tire revolutions per mile as follows:

Revs per mile = 20850 / { [(2 * **285** * **35**) / 2540] + **19** } = 776.4 which rounds down to 776.

After programming, if the speedometer indicates a different vehicle speed than a GPS unit, the programmed tire revolutions per mile can be adjusted to increase speedometer accuracy. For example, If the calculated tire size is 776 revolutions per mile and a GPS unit says the vehicle is traveling 70 mph while the speedometer says 75 mph, simply multiply the calculated tire size by 75 / 70 to give 776 * (75 / 70) = 831 revolutions per mile.

STEP 5:   Configuration of your vehicle is now complete.

When to use Octane Adjust and Profile Learning

The Octane Adjust switch should only be switched to "ON" when spark retardation is desired. Some engines have increased octane sensitivity and require spark table adjustment. By switching the Ocatne Adjust switch to "ON" you are telling the PCM to reference a different spark table. Normally, this is only necessary if your engine is knocking.

The Profile Learning switch should only be switched to "ON" when the engine is reporting a misfire DTC such as P0300-P0316. By enabling this switch, the engine will prompt the driver to rev the engine to a specific rpm until the PCM relearns the fire pattern characteristics of the trigger wheel.

Changing Tire Size, Axle Ratio or Octane Adjust After Initial Programming

Turn ignition key ON, plug in the ProCal and open your calibration.

TPMS Notes

Vehicles equipped with Tire Pressure Monitoring may illuminate the TPMS warning lamp after reprogramming. Unless the lamp was illuminated prior to the programming process, it will turn off after about 10 miles of driving.