



2009 CRF450R HRC Fi Setting Tool Helpful Tips for Getting Started

How Does It Work?

The HRC Setting Tool software installs a “secondary” setting in the ECU, which modifies certain outputs of the ECU’s base map. It does this using the percentage for the fuel injection and the number of degrees for the ignition timing. In other words, it works like a stereo equalizer – you recognize the song being played, but it can end up sounding very different depending on how you adjust the values in the equalizer.

So in this case, the factory map is your ECU’s “song” and the HRC setting tool is your ECU’s “equalizer.”

So I cannot actually re-write the ECU? Isn’t that a bad thing?

No, the setting tool does not give you infinite ECU adjustability, but that is a good thing because infinite adjustability could increase the risk of engine damage due to improper settings.

There is more than enough adjustability in this program to give even the pickiest riders the ability to tune their CRF450R to work exactly how they want. And if the settings get so far off that the motorcycle begins to run poorly and you do not know where to go with your settings, all you have to do is set everything back to “0” (zero) and your bike is stock again. It is that simple.

Loading the Software

The screen shots illustrated in the installation instructions represent common operating systems; the actual screens may vary depending on what computer and Operating System is being used.

This kit works on Windows platforms 2000, SE, XP, and Vista. We cannot guarantee compatibility with other systems, so please refer to the **Setting Tool Instruction Manual** for proper program and USB Serial Interface Box installation.

If there are issues with installing the software or you have problems locating the Windows Device Manager, refer to the *Troubleshooting* section of the Instruction Manual beginning on page 29.

Software Interface and User Tips

Before you start changing any settings or writing any information to the ECU, make sure you read the following steps and are familiar with the setting program and its functions. This will help you to avoid potential problems when you begin using the program.

As stated in the Instruction Manual, the setting file titled 09CRF450.e2p should remain unmodified and simply serve as a default base setting.

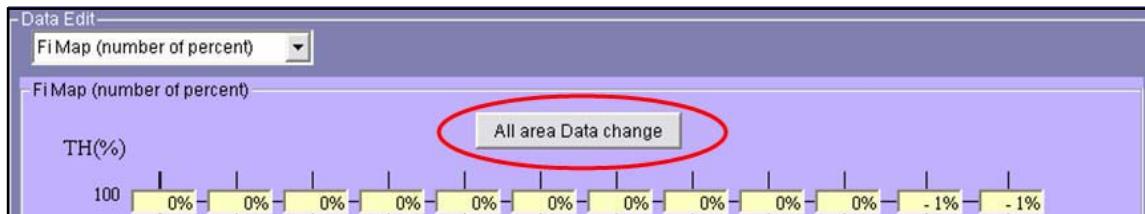
If 09CRF450.e2p has been modified, it is highly recommended that you create a default “0” (zero) setting and save it (for example, 09450DEF.e2p). This will allow you to default back to factory settings if a drivability issue arises due to an Fi (Fuel Injection) or IG (Ignition Timing) setting problem.

HRC setting (*.e2p) file names can be no more than 8 characters in length.

File names are uploaded to the ECU along with Fi-IG settings. So, for example, you can have a setting loaded by a dealer or performance shop, but you will still be able to access the file name with another tuner should you wish to save it to your computer and later select a different setting for different conditions.

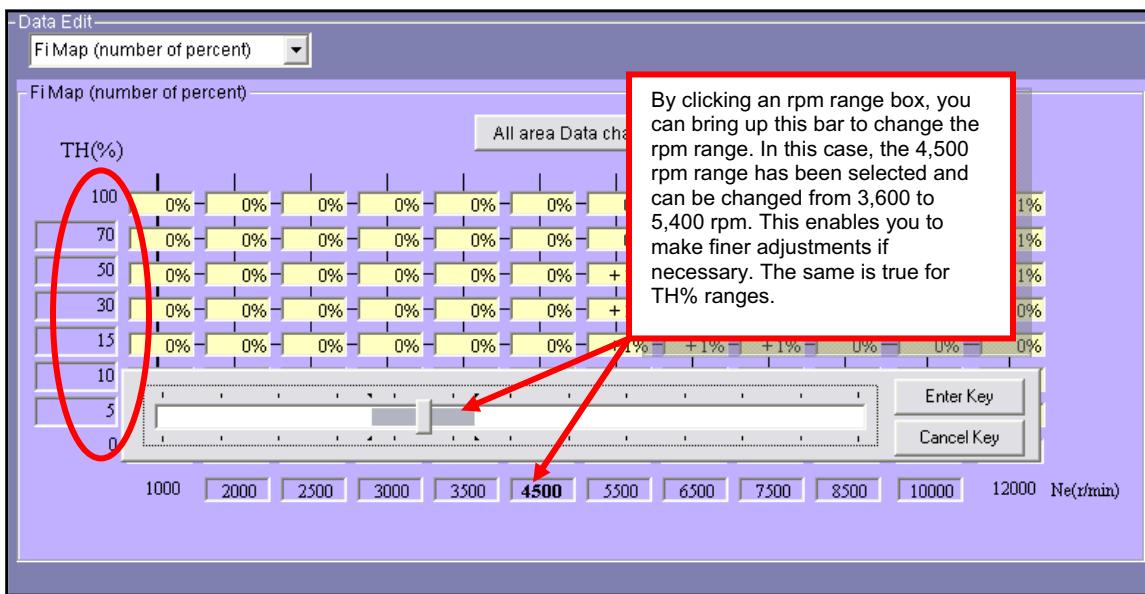
If any problems or questions arise concerning a specific setting, this helps to ease communication between the rider who is using the setting and the tuner who wrote it (such as a dealer or performance shop).

If drivability problems arise and a default "0" (zero) setting has not been saved, you should use the All Area Data Change button on the Percent Change screen, and then reset both the Fi and IG back to "0" (zero). This resets the ECU outputs to factory settings.



Both throttle position (TH %) and engine speed (Ne r/min or rpm) ranges are adjustable. Throttle position range can be adjusted in increments as small as 1%, starting at 1%.

Engine speed (rpm) range can be adjusted in increments as small as 100 rpm, starting at 1100 rpm. This makes adjustments as small as 6% throttle and 1000 r/min possible for fine tuning.



When a change is made to either throttle percentage or the engine rpm range, it is changed for both the Fi and IG adjustment areas.

Adjusting Settings

As you begin to create new Fi-IG settings, it is important to start slow and to work in small increments so you can avoid unwanted engine performance issues. Remember: $\pm 1\text{-}2\%$ fuel and $\pm 1\text{-}2^\circ$ ignition timing can drastically change throttle response and engine characteristics.

If the setting tool is being used on a stock CRF450R (exhaust, engine components, etc.), it is recommended that Fi settings be changed no more than $\pm 7\%$.

IG timing settings should be changed no more than $\pm 4^\circ$ at engine speeds up to 4900 r/min, and $\pm 2^\circ$ over 5000 r/min. If values are adjusted out of this range, it becomes difficult to maintain correct engine performance.

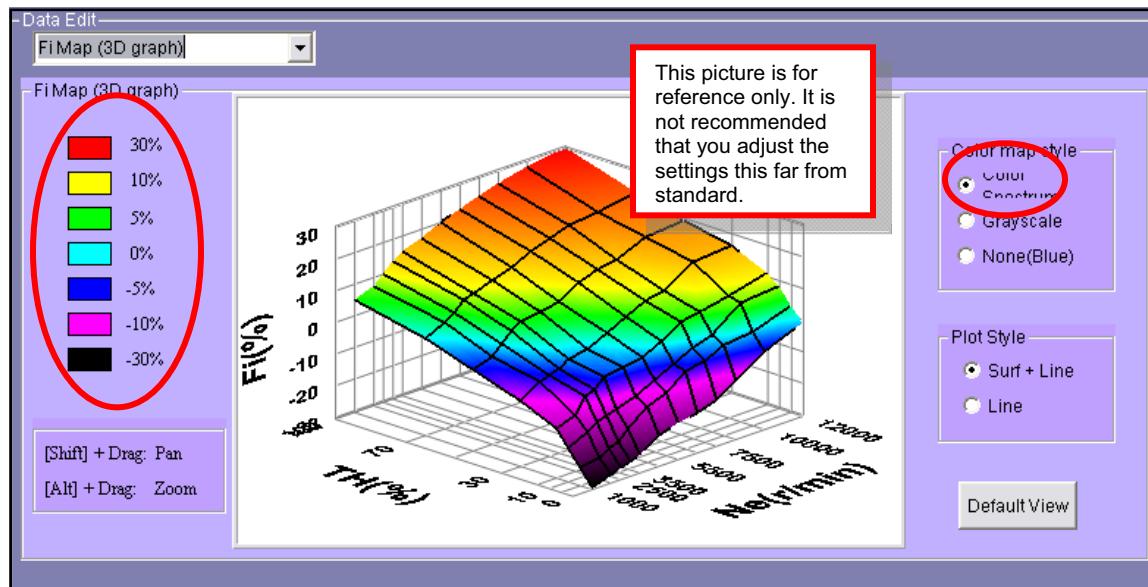
NOTE: Modified bikes may require adjustments to be made outside of these parameters.

Effects of modifying the standard settings:

- **Fuel volume up (+):** Small amount will help create quicker throttle response, and will correct lean running condition to compensate for modifications to engine, intake, or exhaust.
- **Fuel volume down (-):** Small amount will help create milder throttle response, and will correct rich running condition compensate for modifications to engine, intake, or exhaust.
- **Ignition timing advance (+):** More aggressive power delivery.
- **Ignition timing retard (-):** Less aggressive power delivery for good torque and power without an “edgy” feeling.

When viewing the Fi and IG settings in the 3D Graph screen, it's not possible to change any Fi-IG parameters.

These screens are used only to view settings, and to make changes more visible and easier to reference. This gives you an easy way to see the changes that have been made. And by using the Color Spectrum option in the 3D Graph screen, you can see how drastic the changes will be.



The Comment Area text box allows you to keep detailed notes about the settings (track condition, weather conditions, suspension settings, rider feedback, etc.).



Data Transfer

Here are some important tips when you are ready to connect the USB Serial I/F Box to the unit and to start transferring data to the ECU:

Make sure the wire harness and USB Serial I/F box connections are clean and connected properly. If they are not fully connected or they are contaminated, you can possibly have Data Transmission errors when attempting to read or write to the ECU.

When connecting the USB Serial I/F box to the external battery, only use a 12V battery.

Using a battery of different voltage could cause complications to the USB Serial I/F box, the unit, or your computer. Honda recommends using YUASA YT-X5 or YT-X7 batteries.

It is normal for the MIL light on the engine stop switch to turn on while the Serial-USB I/F power switch is turned on. This **DOES NOT** indicate that there is a problem – this just lets you know that the ECU is powered up and is ready to transfer data.

The Serial-USB I/F switch labeled “Warn/Reset” is not used in conjunction with the CRF450R Fi setting software.



IMPORTANT: It is highly recommended that data be **WRITTEN TO** a new ECU before it is ever read. The ECU does not log any data and there is no readable base setting from the factory, so there is nothing to read until a setting is sent.

The easiest way to do this is to push the Data Write button (illustrated below) and to establish communication with the ECU before any setting values in the software are changed.

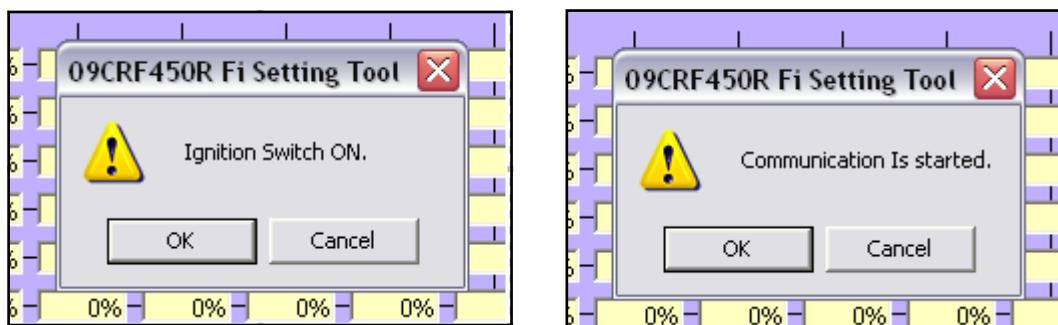
If you ignore this step and you attempt to read date from a new ECU before it is written, it can possibly cause complications with the ECU. This step only needs to be performed one time when the Fi setting tool is first connected to a new unit.



Follow the on-screen prompts closely so you can avoid having to reset the Serial-USB I/F. Failing to follow the prompts will cause a disruption in communication, and the Serial-USB I/F will need to be reset.

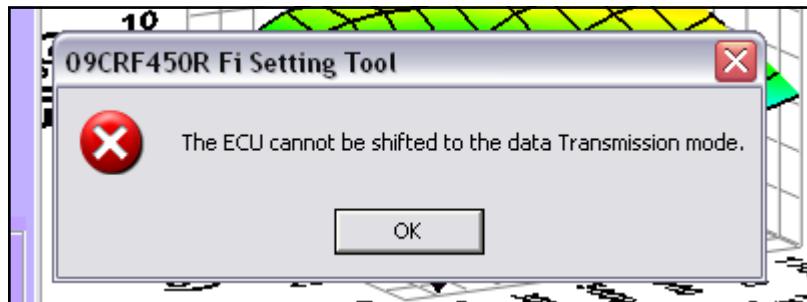
Some of the instructions may be a little difficult to follow. For example, the boxes showing "Ignition Switch ON" and "Ignition Switch OFF" are telling you to turn the Serial-USB I/F either on or off – click OK after completing each task.

Also, when the "Communication is Started" window appears, you need to click OK to actually start the communication with the ECU. Examples of the prompts are shown below:



If the box containing the text "The ECU cannot be shifted to the data Transmission mode" appears, it means that communication between the ECU and USB Serial Interface has been interrupted.

To correct this problem, click OK, then reset the Serial-USB I/F and try to write to the ECU again. See USB Serial I/F Reset Procedure located further below in this section.



Communication failure can also be caused by the incorrect COM Port being selected.

You may need to go into the Device Manager in Windows, find the com port that the setting tool is plugged into, and verify that the proper com port number is selected in the HRC Fi setting software.

Instructions for navigating the Device Manager can be found beginning on page 29 of the Instruction Manual that's included with the Fi setting tool.

If communication is successful, the “ECU Data setting ended. Ignition Switch Off” window will appear. At this point, it is important to turn the Serial-USB I/F power switch to **OFF**.



Serial-USB I/F Reset Procedure:

If the ECU is unable to shift to data transmission mode, the Serial-USB I/F may need to be reset.

NOTE: Some computers may experience this error due to different Operating System configurations.

To reset the module, perform the following steps:

1. Turn the Serial-USB I/F unit power switch **OFF**.
2. Disconnect the USB cable from your PC.
3. Turn the Serial-USB I/F unit power switch **ON**.
4. Reconnect the Serial-USB I/F unit to the correct com port of your PC.
5. When the “Ignition Switch ON” prompt appears, click **OK**. When the “Communication is started” window is displayed, click **OK**.
6. If the communication with the ECM is successful, the “ECU Data setting ended. Ignition Switch Off” window is displayed. Click **OK** to continue.
7. Turn the Serial-USB unit power switch **OFF**.
8. Disconnect the USB cable from your PC.