

CurveMaker v2.0

DYNA FS Programmable Ignition Software

1) Installation

Insert the CurveMaker CD into your CD ROM drive. Open the CD in Windows Explorer. Double click on the Setup icon to begin installation.

The Setup program first checks to see if the computer has the correct Java version already installed. If it does not, the correct version is installed. Allow the Java program to be installed into the default directory.

Once this is done, there is a choice between a complete and custom installation. The custom installation allows installation of only the files needed for the ignitions you plan on programming. The complete installation installs the files for all of the ignitions.

The program will be installed to the C:\Program Files\Dynatek folder by default. Do not change this setting.

The installation program will create a Program group named "Dynatek". To find it, click the Windows Start button, then click "Programs" on the menu that appears. When you click on "Programs" another menu will appear, and "Dynatek" will be one of the choices. Click "Dynatek", and another menu will appear. This menu will contain an icon for each ignition that you specified during install. Click on the icon and the CurveMaker program will start.

Some computers may not be able to complete the setup program. If the setup program fails before or during the installation of the Java Virtual Machine, there is a second method to try. On the CD in a folder labeled contents, is a file call jre1_2_2-001-win.exe. Install this program first, then restart your machine, and run the setup program again.

2) Overview

The DynaFS programmable ignition can be programmed with four curves, which can be selected through the Curve Switch that is attached to the module. With the CurveMaker software, each of these four timing curves can be reprogrammed.

Once the ignition curves are programmed, they can not be downloaded. This allows tuners to make their curves, and keep them proprietary.

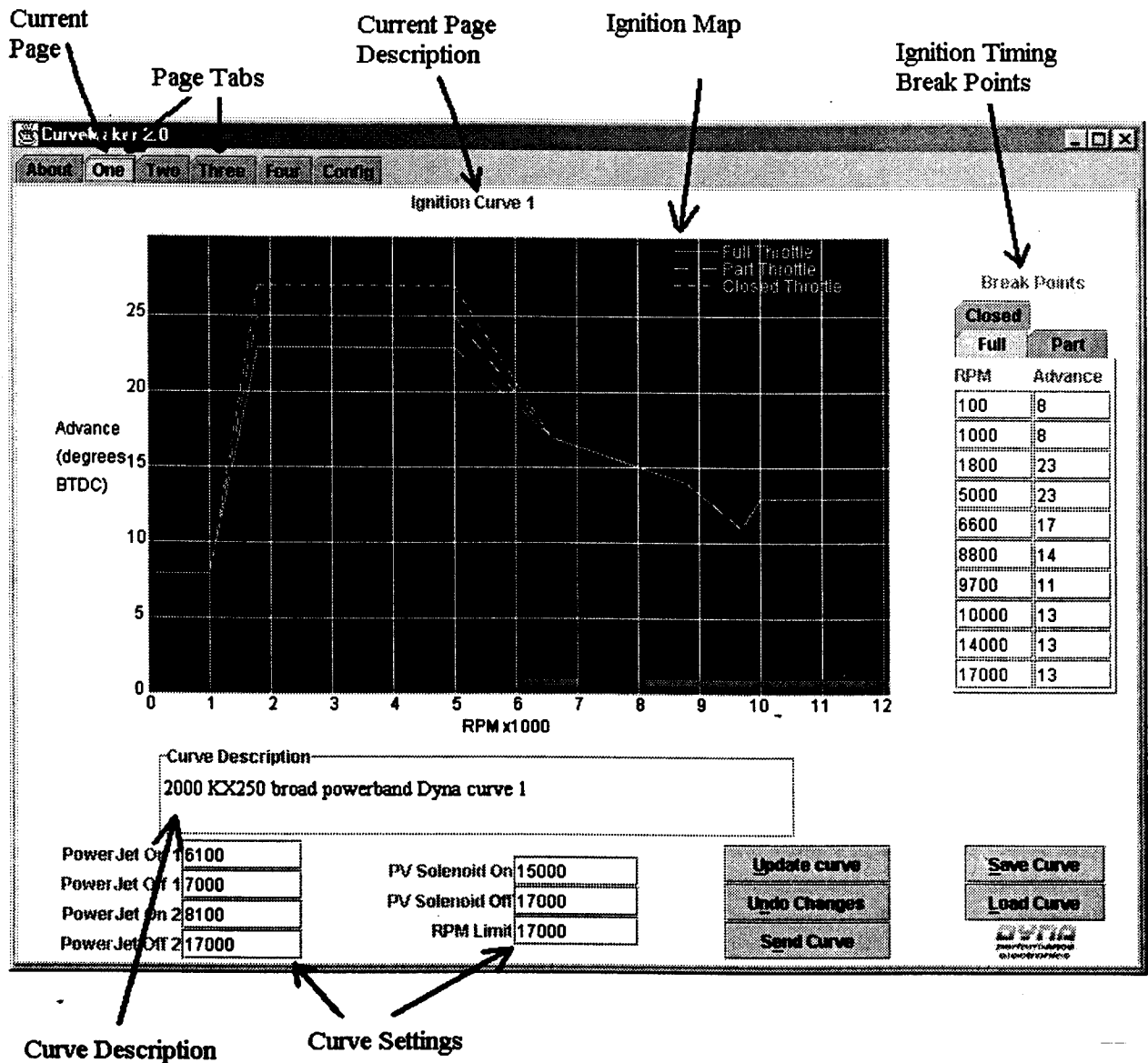
The information for the curves is displayed on separate pages. Each page has a tab that is used to access it. There are six tabs in all:

- About, which is the title screen for the software;
- One – Four for the four separate curves; and
- Config, which has some configuration options for the software.

The About page displays contact information for Dynatek. This is the screen that the software displays initially.

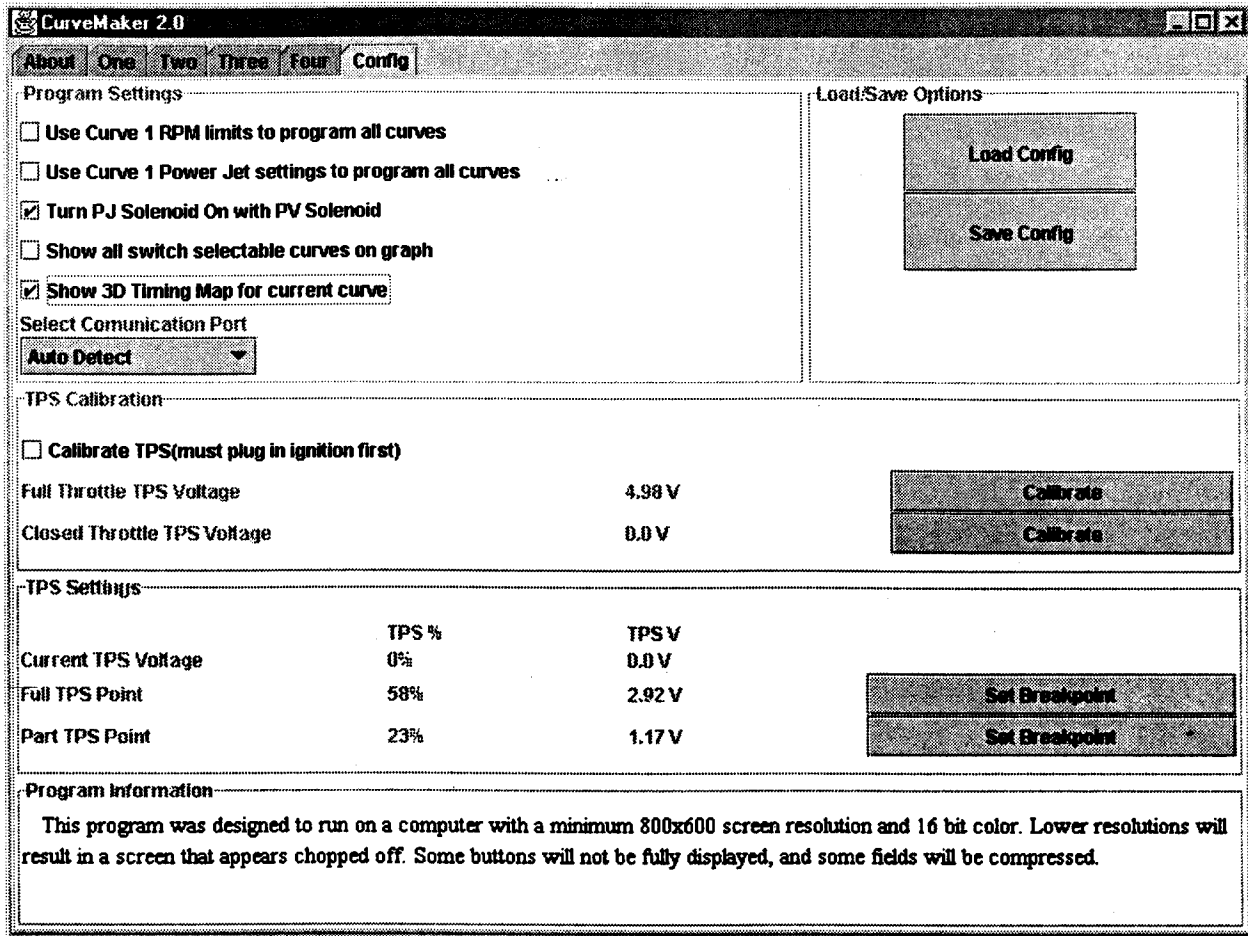
Each of the four curve pages displays the ignition Timing Map, which is the advance curve created from the Ignition Timing Break Points that can be adjusted by the user. Each curve page also has a user editable Curve Description field. There are also settings fields to control two separate on-off ranges for the Power Jet, a separate range for the Power Valve Solenoid, and Rev Limit. All of these fields can be modified by the user. Once all of the curves are set, the ignition is programmed by pressing the Send Curves button.

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The Config page displays user adjustable program settings. These settings affect how the program operates. You can select between displaying only one curve or all curves on the Timing Map, which allows comparison of the curve currently displayed to the other three curves. You can select whether or not to show the 3D Timing Map for the current curve. If selected, it will show the TPS based 3D Map for each curve. You can set the location of the serial port being used here. Or you can let the program auto detect the port for you.

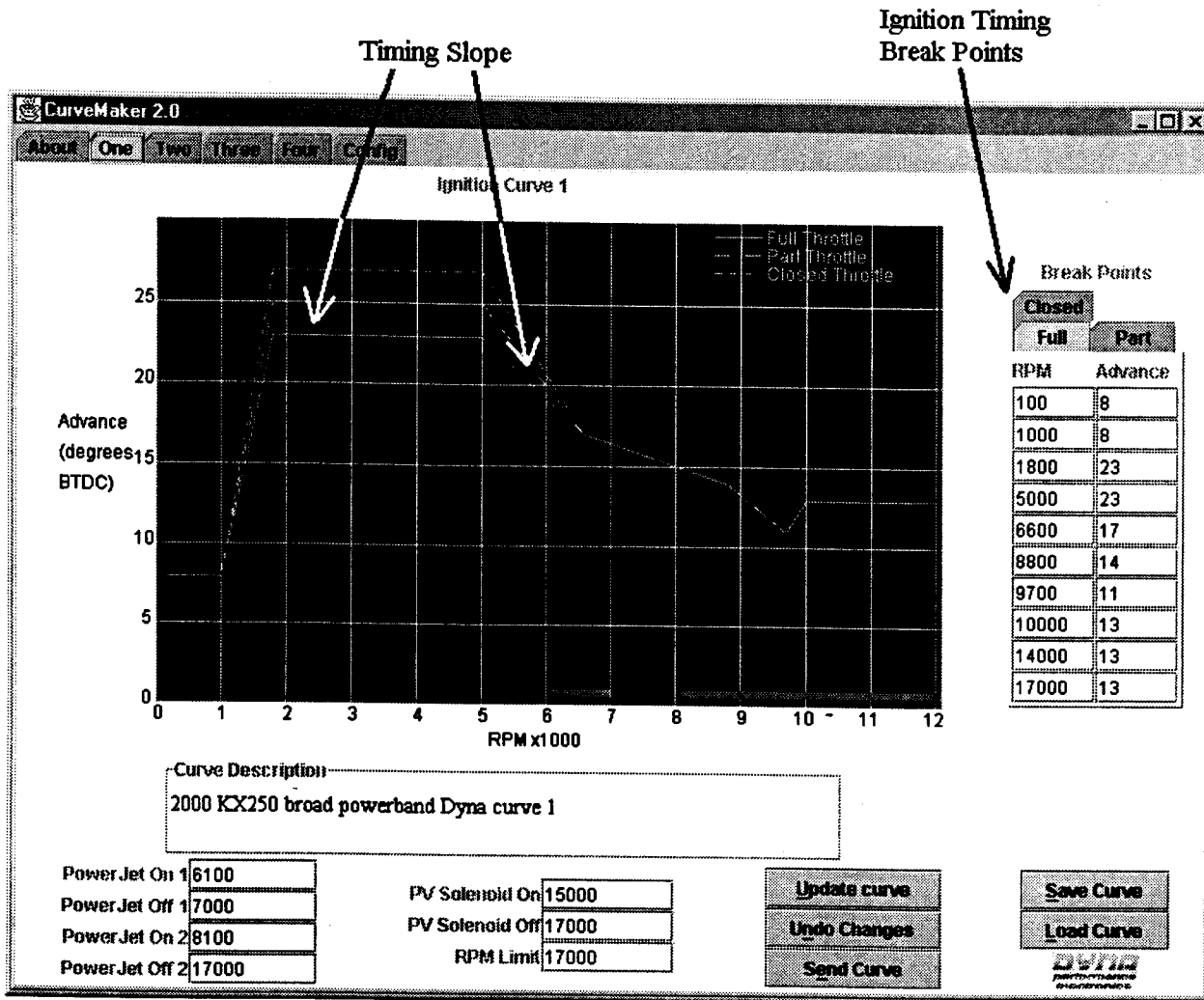
For bikes equipped with a TPS, here is where you calibrate the TPS sensor. To calibrate the sensor, plug the ignition in, and check the Calibrate TPS box. Once this is done, the program may slow down, as it is communicating with the ignition. Turn the throttle fully open, hold it while pressing the Calibrate button that is next to the Full Throttle TPS Voltage. Now close the throttle and press the Calibrate button that is next to the Closed Throttle TPS Voltage. This will give you the 0% and 100% throttle values. Now you can watch the current TPS % opening, and use it to set your breakpoints for the TPS. Open the throttle until you see the desired % next to the Current TPS value, then hold it while you press the Set Breakpoint button. Hold the throttle in the same position, until you see the value updated on the screen. In the example below, the Full TPS point was set to 58%. This means that above 58% throttle opening, and the ignition will use the Full throttle curve. Between 58% and 23%, the ignition will use the Part throttle curve. And below 23%, the ignition will use the closed throttle curve.



The Load and Save Config buttons allow you to save and reload all of the information that you have programmed. It will save all four curves, as well as the TPS calibration and settings information.

3) Programming a Curve

To program a timing curve, first determine which of the four curves you would like to replace. Hit the page tab for that curve to bring its information onto the screen. Each timing curve is broken up into Full, Part and Closed throttle timing curves. To select which of these 3 curves to adjust, click the tab on the right side of the screen corresponding to Full, Part, or Closed throttle. Each timing curve is defined by the Break Points table on the right side of the screen. Both the RPM and advance values can be adjusted. To adjust these values, use the mouse to click on the value you would like to change, then enter the new values. Advance can be done in 1 degree increments. Once the values have been changed, click the Update Curve button to show the changes on the Timing Map. To undo the changes, press the Undo Changes button. This will remove any changes since the last time the Update Curve button was pressed.



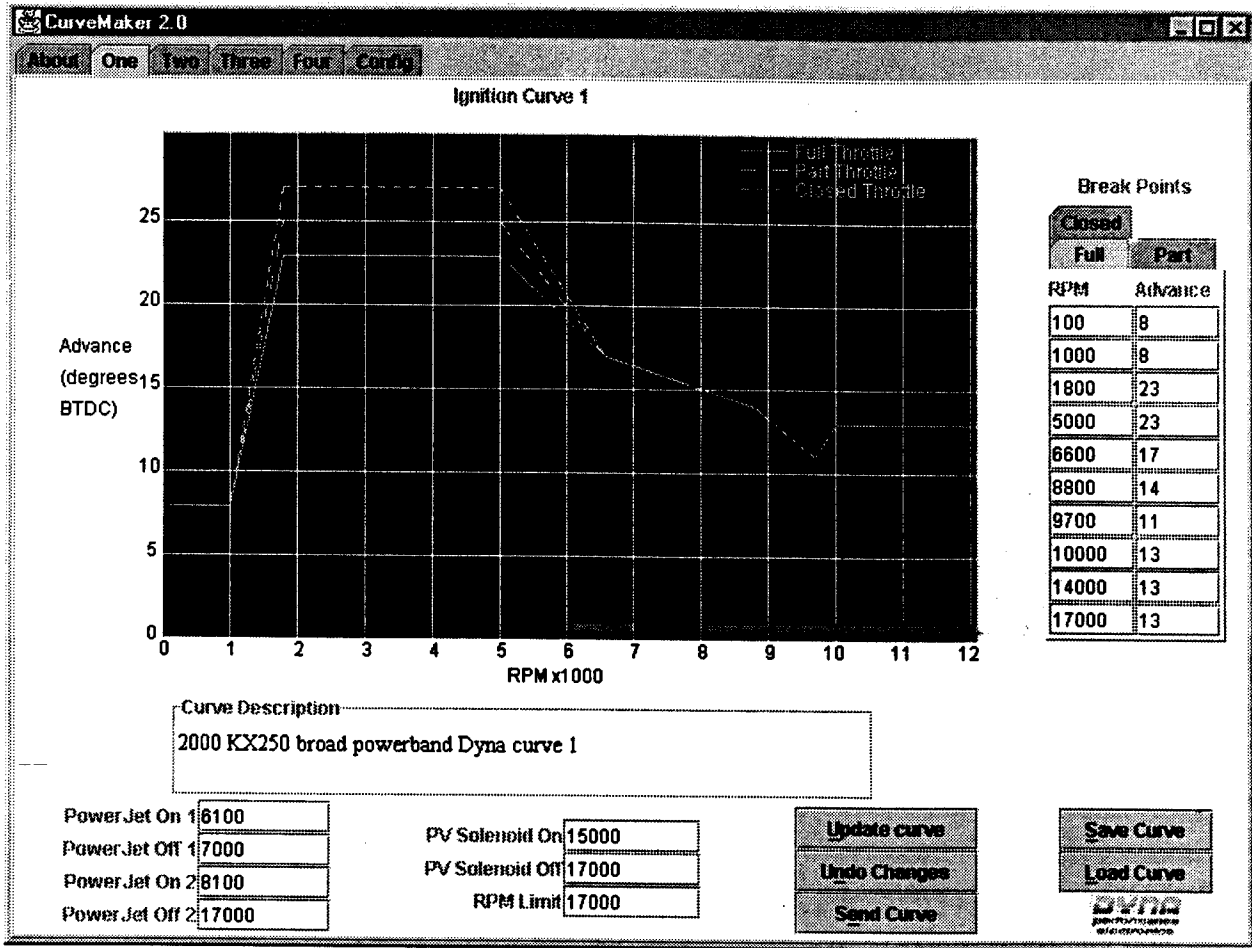
Each ignition curve is defined by timing slopes. A timing slope connects each Break Point with the next. The only time there is not a timing slope, is if it is ignition timing is a vertical line. In the above example, the only line on the Timing map that is not a timing slope is the vertical line at 2000 rpm that goes from 5 to 30 degrees of advance. The ignition can handle a maximum of 8 timing slopes per timing curve.

For models equipped with a Power Jet, the Power Jet Solenoid On range is shown as a blue bar at the bottom of the screen. Turning the Power Jet Solenoid On turns the Power Jet off, resulting in a leaner mixture. There are two ranges that can be programmed, Power Jet 1 and Power Jet 2. This allows the Power Jet Solenoid to be turned on in 2 ranges just like stock.

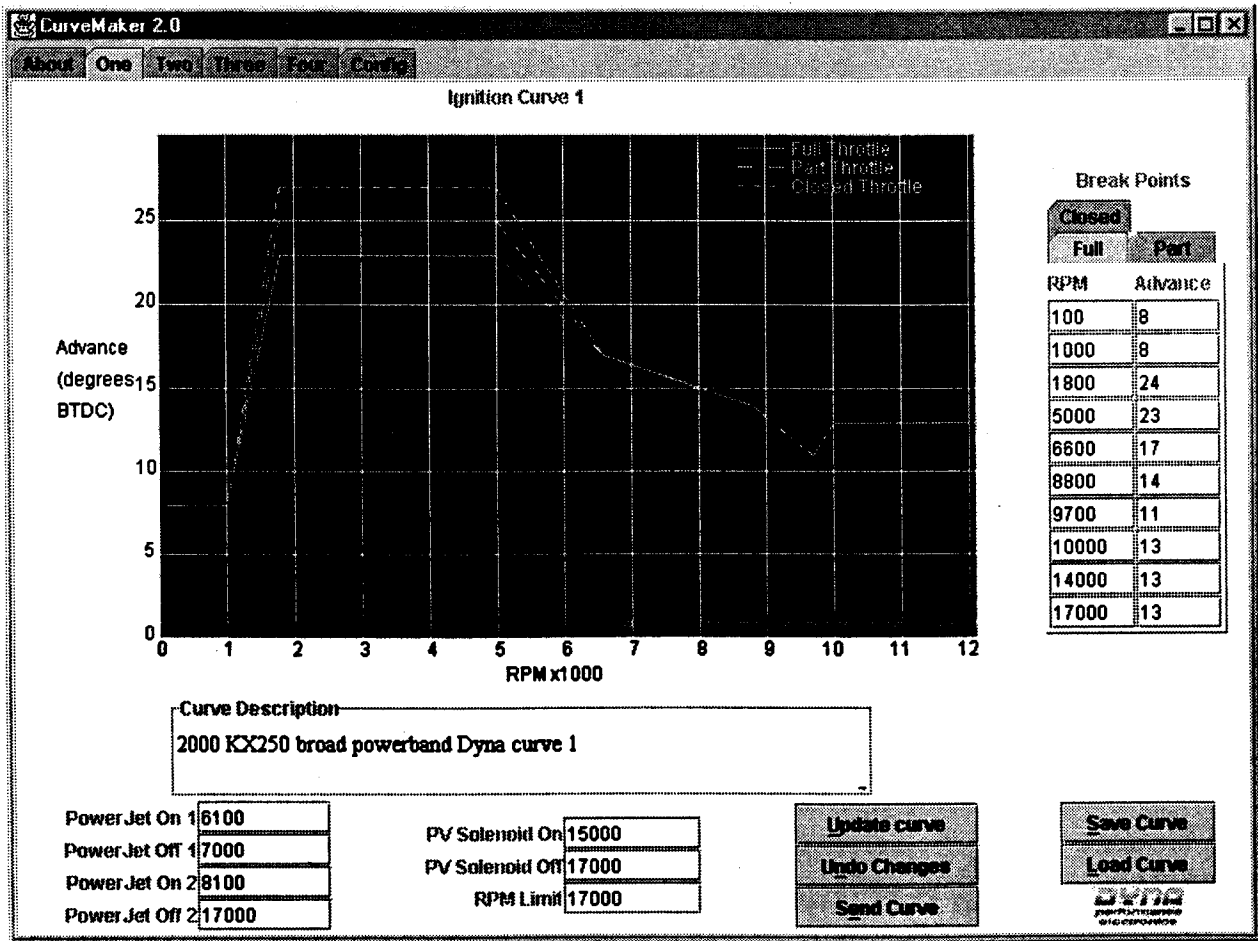
The 2000 Suzuki RM250 has an additional solenoid in the Power Valve breather. This is controlled by the PV Solenoid On/Off settings. It is displayed as a yellow bar near the bottom of the screen. When the solenoid is turned on, it also turns on the Power Jet Solenoid. For other models, this allows for a third On range for the Power Jet Solenoid. To adjust the Power Jet Solenoid On range independently of the Power Valve Solenoid, go to the Config page and deselect the option to turn the PJ Solenoid on with the PV Solenoid.

The Rev Limit point is shown as a red vertical line on the display. If it is set above the range of the display, it will not be shown. But its value can still be read from the Settings area below the Timing Map.

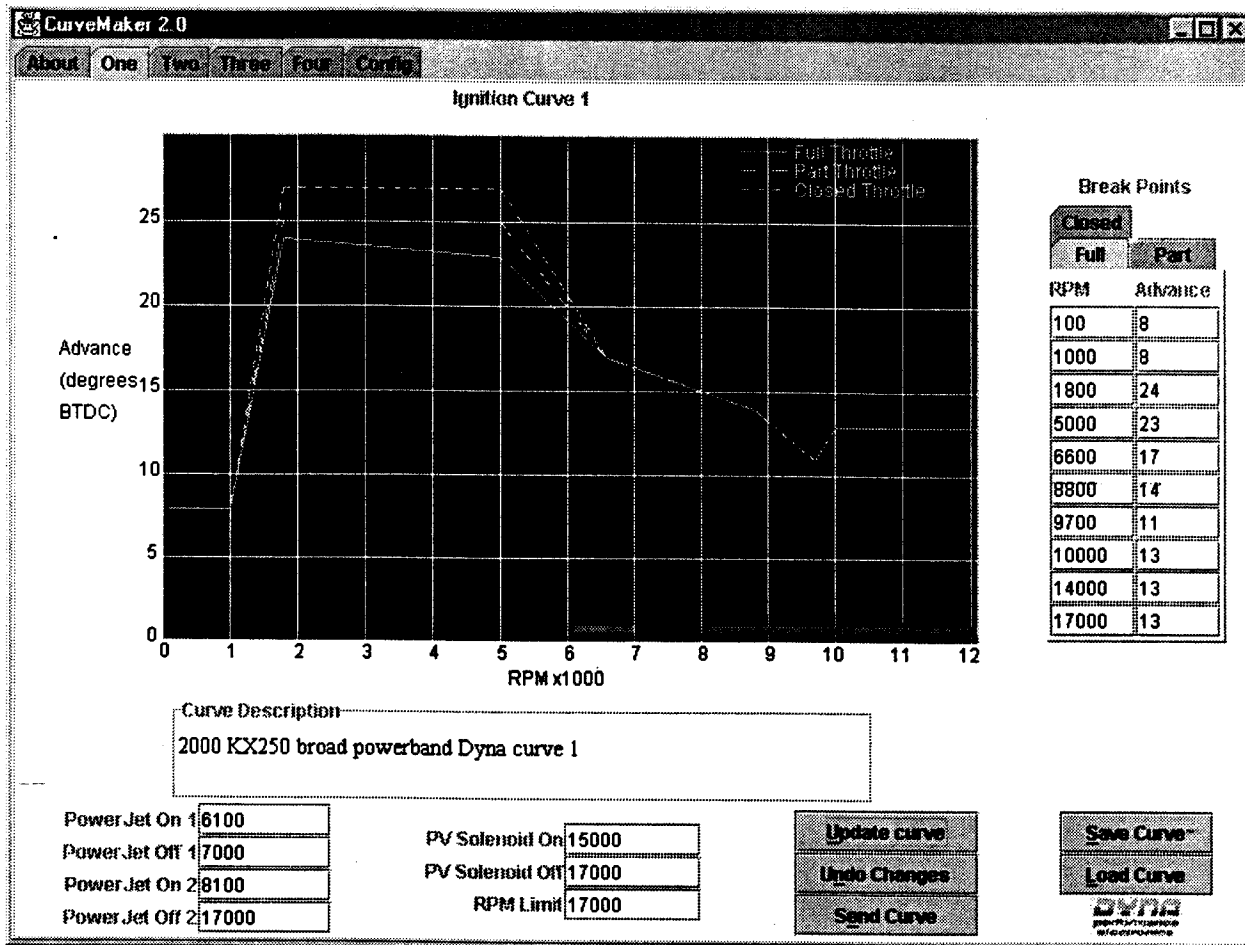
An example of programming is shown in the following screen shots. The Full throttle curve will be modified by increasing the timing 1 degree at 1800 rpm.



Select the "Full" Tab to adjust the Full throttle curve. Move the mouse over the Advance value next to 1800 RPM, and click the mouse button to edit the value. Enter the new value for the Advance.



Now the advance has been changed, but it does not show up on the Timing Map yet. If this change was an error, the Undo Changes button could be pressed at this point. It would return the Break Point table to its previous values. To see this new change on the Timing Map, press the Update Curve button.



Now the updated curve is displayed. Programming the Part and Closed Throttle settings as well as the Power Jet, Power Valve Solenoid, and Rev Limit functions are done in the same manner.

4) Loading/Saving Curves

Curves can be stored to disk for reference later. Each curve is stored individually. Curves are stored into subfolders under the Dynatek folder. Each model of bike has its own separate folder for storing curves. To save a curve, make sure that the curve to be saved is the one currently displayed. Press the Save Curves button. A window will pop up asking what to name it, and where to save it. By default, it will save curves into separate folders for each model of bike. All curve files are labeled with a DTK extension.

Loading a file is done in the same manner as saving a file. Make sure that the curve to be overwritten is the one currently displayed. Click on the Load Curve button, then choose the curve to be loaded.

Hint: By default, CurveMaker will start with the 4 standard curves, and the user then has to load whichever custom curves are desired. To have a set of custom curves that CurveMaker loads on startup, simply name the curves "Curve 1.dtk", "Curve 2.dtk", "Curve 3.dtk", and "Curve 4.dtk". There is a space between Curve and the number. CurveMaker will then load these files on startup. If the curves being edited get hosed too severely, you can always quit the program, then restart. It will then reload the default curves, or the curves placed in "Curve1.dtk"- "Curve 4.dtk".

5) Loading/Saving Configurations

Configurations can be stored to disk for reference later. When a configuration is saved, it stores all 4 curves, as well as the sensor setup information, and model information. Configurations are stored into subfolders under the Dynatek folder. To save a configuration, go to the Config page. Press the Save Config button. A window will pop up asking what to name it, and where to save it. By default, it will save configurations into separate folders for each model of bike. All configuration files are labeled with a DCF extension.

Loading a configuration file will replace all curves currently in the program, as well as the TPS setup information, with the information stored in the saved file. To load a configuration, go to the Config page. Press the Load Config button. A window will pop up asking which configuration to load. By default, it will look in the folder for each model of bike. All configuration files are labeled with a DCF extension.

6) Programming the Ignition

Make sure that all loaded curves and settings are satisfactory before beginning the programming process. The programming process programs all curves simultaneously. The bike must not be running, and if there is an ignition switch, it should be turned off. Make sure the programming cable has the 9V battery connected properly. Connect the DB-9 end of the cable to the serial port on the back of the PC or laptop. Plug the other end of the cable into the DynaFS programming connector. In the CurveMaker software, go to any one of the Ignition Curve pages. Press the Send Curve button. After several seconds, a window will pop up stating either that the programming was successful, or that it did not work. If the programming fails, it will give you an error message.

A "Curves Sent Successfully" message indicates that the curves were sent, verified, and programmed.

A "Programming Failure" message means that the ignition received the data properly, but was not able to store the data. Make sure that the 9V battery is still good (at least 7.5V), and the programming cable is in good shape.

A "Communication Failure" message means that the data received by the ignition was corrupted. Check the programming cable.

A "Ignition not found" message means that the ignition was not found on any available comm port on the system. Make sure the ignition is plugged securely into the programming cable, and that the programming cable is plugged securely into the PC's serial port. Check that a good 9V battery is connected to the battery clip on the programming cable. If all of this is good, there may be another program that has control of the comm port, so that the CurveMaker software can not use it. Dynatek can not troubleshoot problems like this that are specific to your machine. If you do not know how to resolve these types of problems, you should take the computer to a person who can. To assist in determining what comm port the ignition is on, it has been set up to send text messages to standard terminal programs, like Hyperterminal which comes with Windows. The terminal program should be set up for 9600 baud 8-N-1 communications. When the ignition receives an "f" or "F" character, it will respond with the text message "DynaFS found". This will allow you to find which port the ignition is on.

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