



Dynamic Spectrum Tuner Quick Start Guide

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Introduction

The JET DST OBDII Tuner package includes a set of two programs that allow you to quickly and easily make calibration changes to your OBDII GM vehicle and the interface to connect your PC to the vehicle. The JET Flash program is used to read and program your vehicle's PCM (Powertrain Control Module) and the DST program is used to view and edit the various calibration parameters.

Minimum PC Requirements

While the DST program will run on virtually any PC running Windows 95 or later, we recommend the following minimum PC specifications:

- Pentium 266
- Windows 98
- 64 MB RAM
- 800 x 600 display resolution
- 20 MB free hard drive space

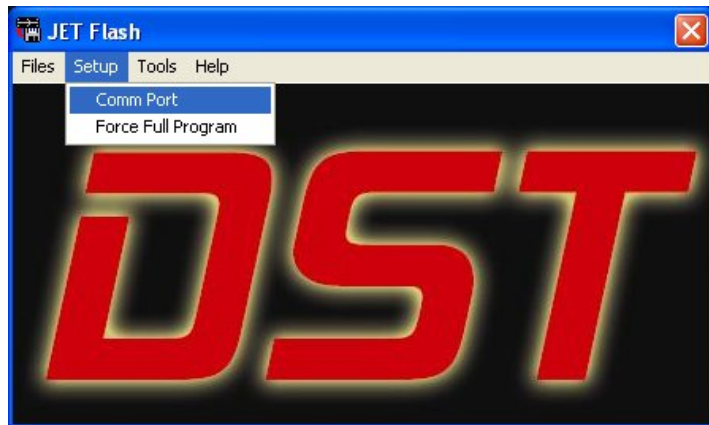
Program Installation

To install the DST program, insert your JET DST OBDII CD into your CD ROM drive and the setup program will run automatically. If the CD does not auto-start, navigate to your CD-ROM drive and double click on the application file named 'AUTORUN' (autorun.exe) to begin the installation process. Follow the on-screen directions to complete the installation.

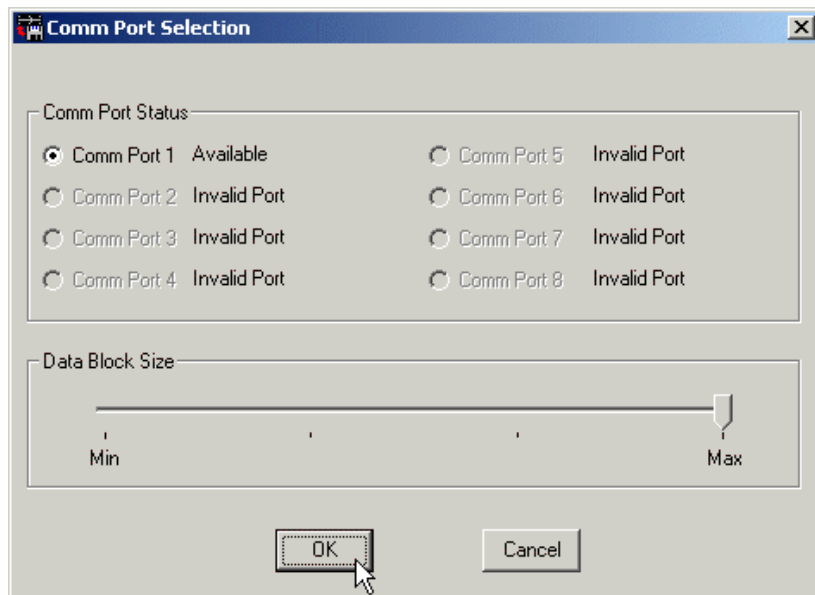
Reading The PCM

The first step to tuning your OBDII vehicle is to obtain a copy of the stock calibration information. This information is stored in the vehicle's PCM so you need to read this information from the PCM. You'll use the JET Flash program to read the PCM.

Before proceeding be sure you have specified the correct Comm port that you will be using to communicate with the PCM. To set the correct Comm port, select '*Comm Port*' from the '*Setup*' menu.



This will display the following screen:

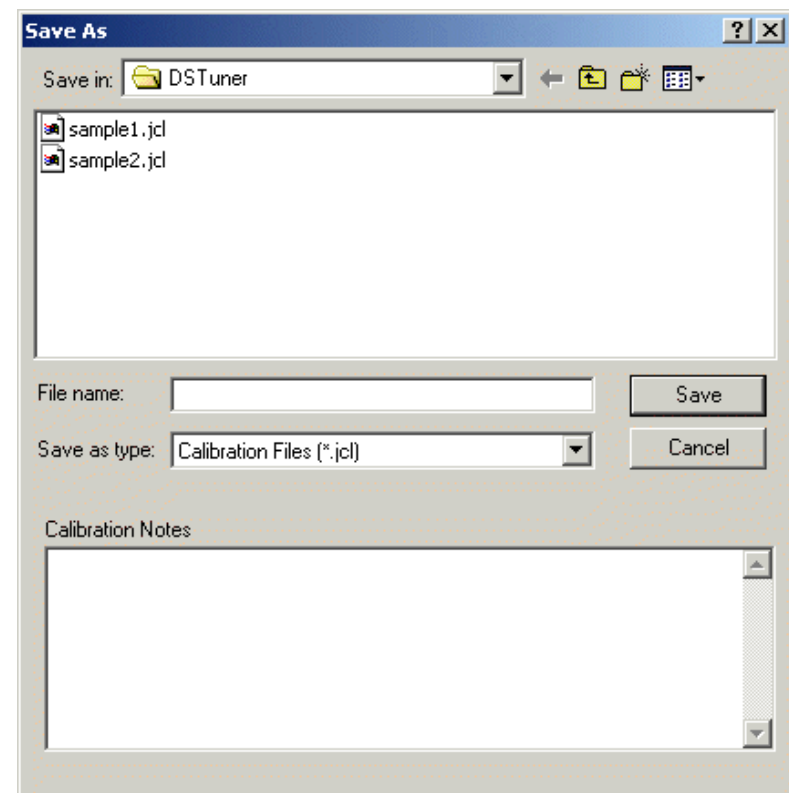


Select the Comm port you wish to use and click 'OK'. The program will save this selection so you don't have to set the Comm port again unless you want to change to a different port.

To read the calibration currently stored in the PCM, select 'Read PCM' from the 'Tools' menu.

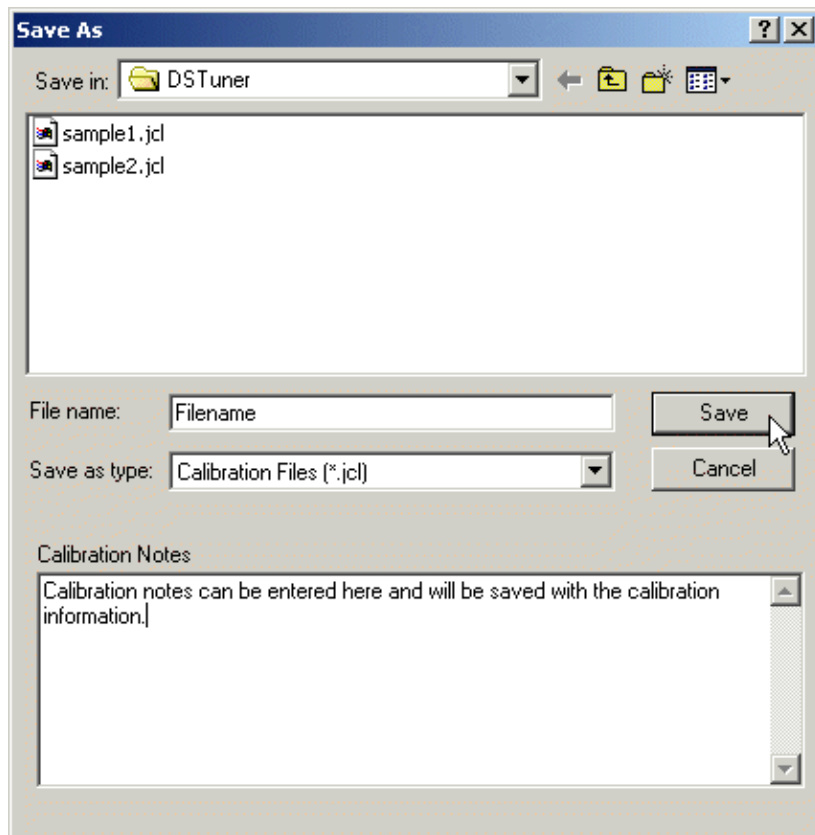


The program will then ask for a file name to give to the calibration file that will be created when the PCM is read.

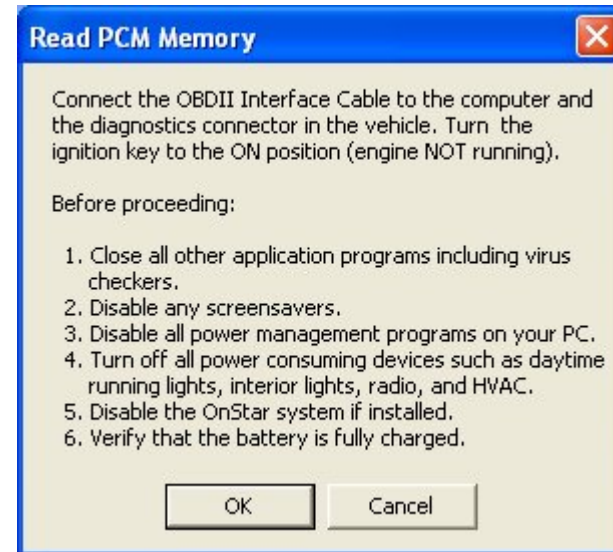


Type in a valid name for your calibration file into the 'File name:' box and click on the 'Save' button to continue.

You can add calibration notes to your calibration file by typing the notes into the 'Calibration Notes' box in the lower half of the screen before clicking on the 'Save' button. These notes will be saved with the calibration information and can be viewed in both the JET Flash OBDII and DST programs.



After clicking on the 'Save' button the read PCM start screen will appear.



Before proceeding, connect the RS-232 to OBDII converter interface to the Comm port on your PC. If your PC has more than one Comm port, make sure you connect the converter to the com port that you specified on the Comm Port Setup screen.

Connect the other end of the converter to the ALDL diagnostics connector on the vehicle. (The ALDL connector is located under the dash on the driver's side.)

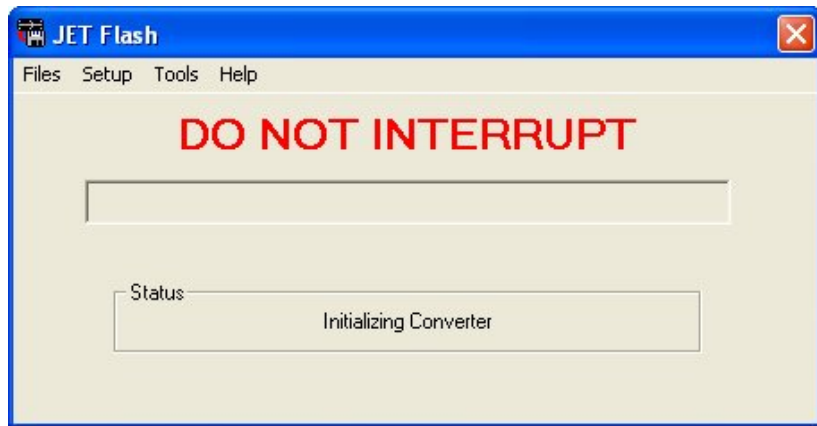
Once the cable is connected, turn the ignition key on but DO NOT start the engine. After turning on the ignition, wait about 10 to 15 seconds to clear the GM security delay before proceeding with reading.

Before proceeding:

1. Turn off all power consuming devices such as day time running light, interior lights, entertainment systems, etc.
2. Make sure your battery is fully charged. Do not attempt to read the PCM with a battery charger connected.)
3. Disable the OnStar system if installed

Now click on 'OK' to begin the PCM read process. If all the connections have been properly made, the program will begin communicating with the PCM, sending the necessary instructions to start the memory read process.

The following status window will be displayed during the read process:



The progress meter shows the progress on the reading of the PCM as it proceeds and the Status window describes what part of the process is currently underway. Depending on the type of vehicle and the PC you are using, the read will usually take about four minutes.

When the FLASH read process is complete, the message shown below will be displayed:



Click 'OK' to complete the PCM read and close the Read Complete message box.


The calibration information from your PCM will now be stored on your PC.

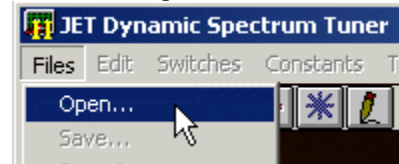
NOTE: It's a good idea to keep a copy of the original stock calibration. This way, you'll have a baseline to return to if necessary.

Editing Calibration Files (Tuning)

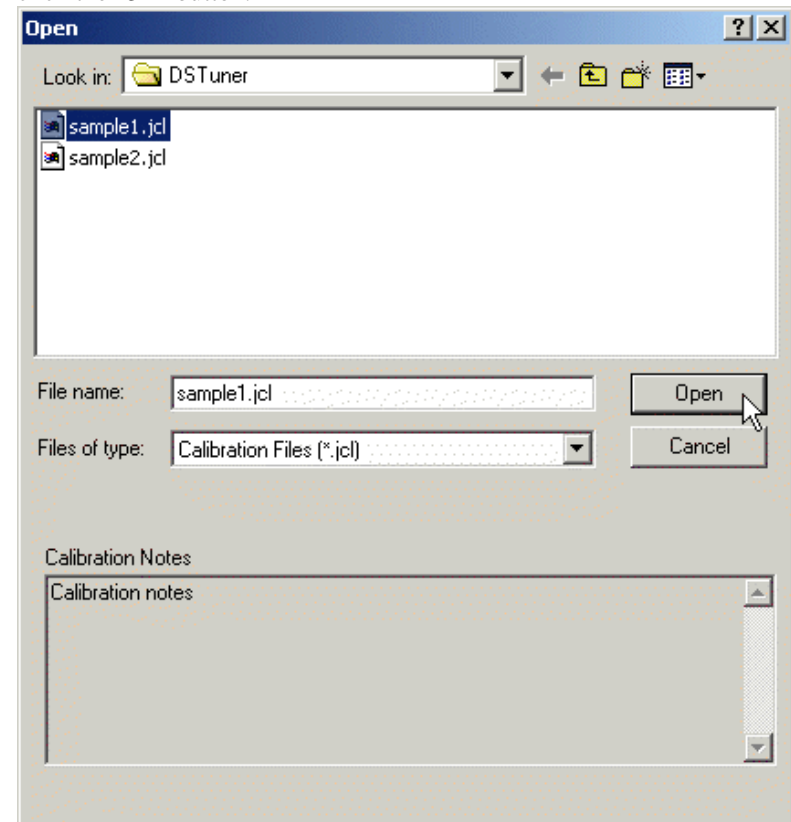
Now that you have a copy of the stock calibration that you can view and edit as needed. You will use the DST program to view and edit your calibration files. To begin tuning, run the DST program.

Opening A Calibration File

To open a PCM Calibration file select 'Open File' from the *File* menu or click on the Open File  button on the tool bar at the top of the screen.



This will display the 'Open File' dialog box. Select the desired file and click the 'OK' button.



Select a calibration file and click on the 'Open' button to load the calibration file into the DST program. When you click on a calibration file name in the Open File screen, any notes that have been saved with the calibration file will be displayed in the Calibration Notes box at the bottom of the screen.

Editing A Calibration File

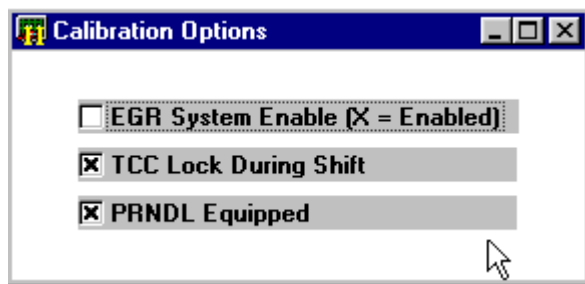
Once you have loaded a calibration file into DST program you are ready to begin tuning by editing the various calibration parameters.

Calibration Parameters

The JET DST program uses four different formats of calibration parameters to display the various calibration values.

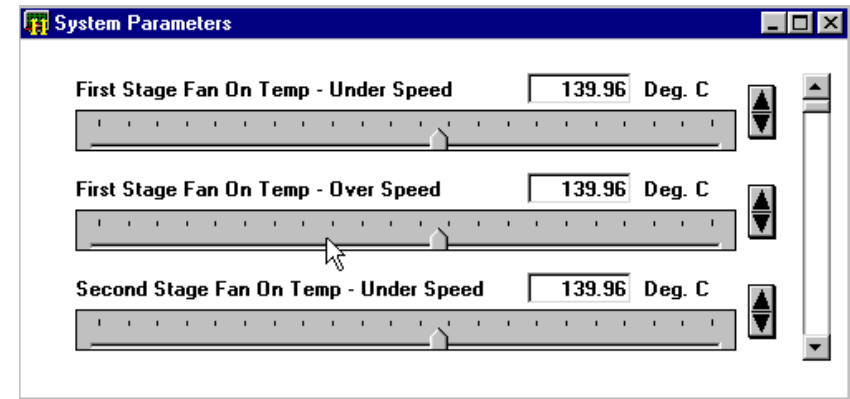
Switch Type Calibration Parameters

The switch type calibration parameters are values that have only two states such as on or off, or Enabled or Disabled. This type of parameter will include calibration items such as 'EGR System Enable'.



Constant Type Calibration Parameters

Constant parameters represent single values or calibration constants such as the fan on temperature.



2D and 3D Calibration Tables

Calibration Tables are used to display a series of values that depend on one (2D tables) or 2 other parameters (3D tables).

An example of a typical 2D table would be the Knock Attack Rate Vs. RPM.

Knock Fast Attack Rate vs. RPM	
RPM	Deg/msec
0	0.213
400	0.222
800	0.240
1200	0.240
1600	0.249
2000	0.293
2400	0.311
2800	0.329
3200	0.329
3600	0.320
4000	0.320
4400	0.320
4800	0.391
5200	0.391
5600	0.391
6000	0.391
6400	0.391
6800	0.391
7200	0.391
7600	0.391
8000	0.391

A good example of a common 3D table would be the Spark Advance versus Load versus RPM table.

Spark Advance Vs. Load Vs. RPM, Open Throt, Low Oct.						
gm/cyl	RPM					
	400	600	800	1000	1200	1400
0.08	18.00	18.00	28.66	39.32	44.24	48.33
0.12	18.00	18.00	27.27	36.55	40.81	43.69
0.16	18.00	18.00	26.02	33.67	36.84	39.45
0.20	18.00	18.00	24.70	30.59	33.45	35.78
0.24	18.00	18.00	22.64	27.63	30.26	32.48
0.28	16.26	18.00	20.04	24.73	27.32	29.49
0.32	11.91	15.63	18.92	21.91	24.53	26.59
0.36	8.48	12.33	15.74	18.59	21.14	23.32
0.40	4.86	8.90	12.51	15.12	17.80	20.09
0.44	1.12	5.41	9.23	11.63	14.48	16.92
0.48	-2.64	1.89	5.91	8.20	11.21	13.85
0.52	-6.31	-1.60	2.57	4.86	8.02	10.81
0.56	-9.80	-5.05	-0.79	2.22	5.54	8.44
0.60	-13.08	-8.42	-4.20	-0.40	3.03	6.07
0.64	-16.11	-11.60	-7.63	-3.96	-0.64	2.40
0.68	-18.81	-14.73	-11.08	-7.74	-4.62	-1.71
0.72	-21.14	-17.74	-14.64	-11.74	-8.99	-6.35
0.76	-24.02	-20.00	-18.00	-15.41	-12.01	-10.24

Diagnostic Type Calibration Parameters

The diagnostic type calibration parameters are parameters that control the operation of the OBDII diagnostics.

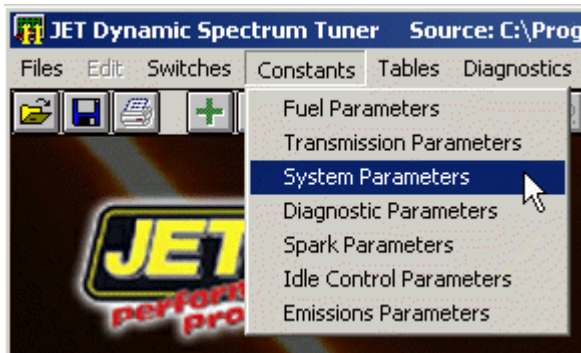
Fuel and Air Diagnostics	
<input checked="" type="checkbox"/> MAF System Performance (P0101)	MIL on 2nd error (Type B)
<input checked="" type="checkbox"/> MAF Sensor Circuit Low Freq (P0102)	MIL on 2nd Error (Type B)
<input checked="" type="checkbox"/> MAF Sensor Circuit High Freq (P0103)	MIL on 2nd Error (Type B)
<input checked="" type="checkbox"/> MAP Performance (P0106)	MIL on 2nd Error (Type B)
<input checked="" type="checkbox"/> MAP Sensor Circuit Low Voltage (P0107)	MIL on 2nd Error (Type B)
<input checked="" type="checkbox"/> MAP Sensor Circuit High Voltage (P0108)	MIL on 2nd Error (Type B)
<input type="checkbox"/> IAT Sensor Performance (P0111)	Diagnostic Off (Type X)
<input checked="" type="checkbox"/> IAT Sensor Circuit Low (P0112)	MIL on 2nd Error (Type B)
<input checked="" type="checkbox"/> IAT Sensor Circuit High (P0113)	MIL on 2nd Error (Type B)
<input checked="" type="checkbox"/> ECT Sensor Performance (P0116)	MIL on 2nd Error (Type B)

Accessing Calibration Parameters

The calibration parameters are grouped by the parameter type as described above. To view and edit the various calibration parameters, select the type of parameter you want to work with by clicking on one of the calibration parameter menus at the top of the DST program screen.



For example, to view constant type parameters, click on the 'Constants' menu. The constant parameters are then arranged in sub-groups according to function. When you click on one of the calibration parameter menus the sub groups are then displayed.



To select the sub group you are interested in click on the sub group name to display all the parameters in that sub group.

To make the calibration parameters easy to understand and more convenient to edit, the JET DST program displays all table values in correct engineering units rather than the binary values actually stored in the calibration file.

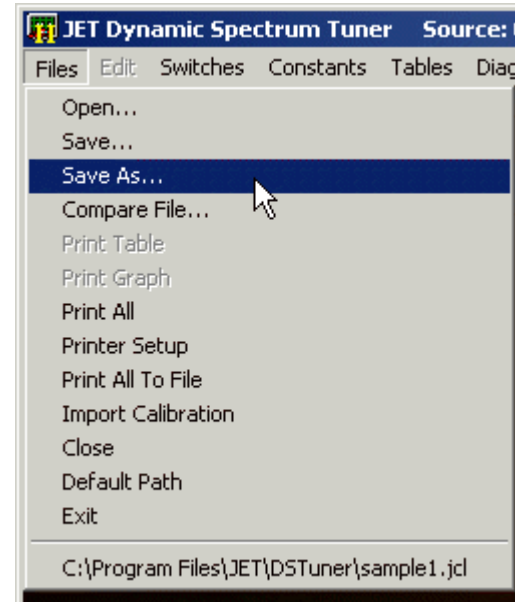
You may view as many tables at once as you want. To view another table, simply select it from the menus. To close a table, click on the window close box (X) in the upper right hand corner of the table.

Note: You will **NOT** lose any changes that have been made to a table by closing it.

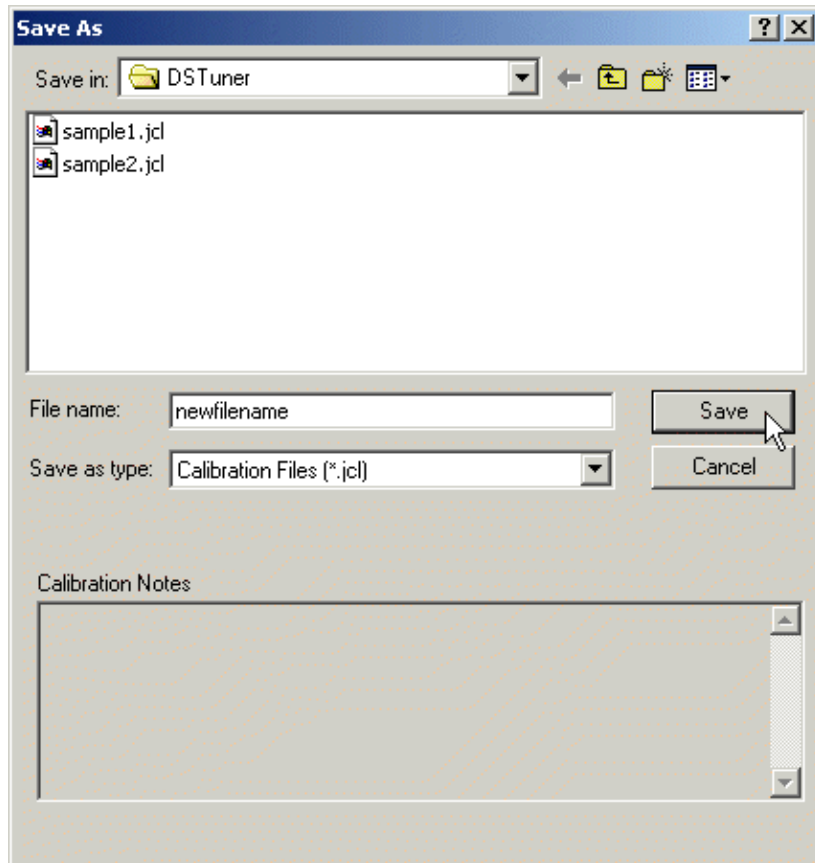
The displayed table can be sized in height or width by clicking on an edge and dragging it to the desired size. Use the 'Windows' menu to arrange the tables you have open.

Saving a Calibration File

Once you are finished editing the calibration file you need to save it. To save the edited calibration file to a different file so you don't over-write the original calibration file, select 'Save As' from the 'File' menu.



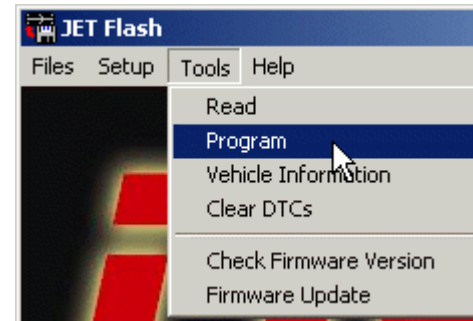
This will display the 'Save As' dialog box. Select another file or type in a new file name and click the 'Save' button.



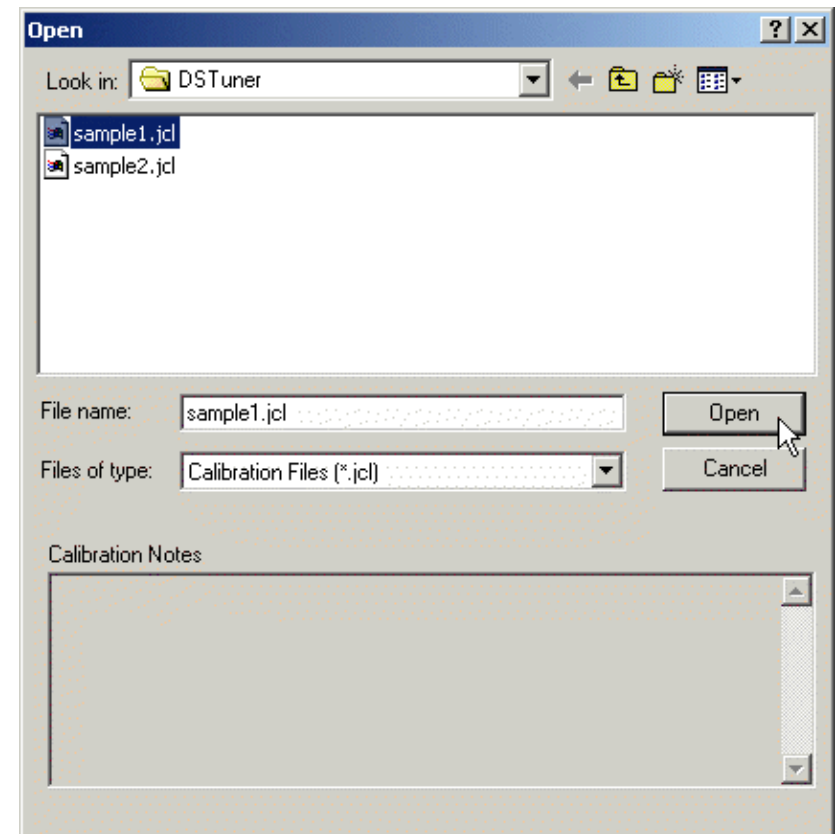
Programming the PCM

To test your modified calibration you need to program the new calibration into your vehicle's PCM. This is done using the JET Flash program. Run the JET Flash program.

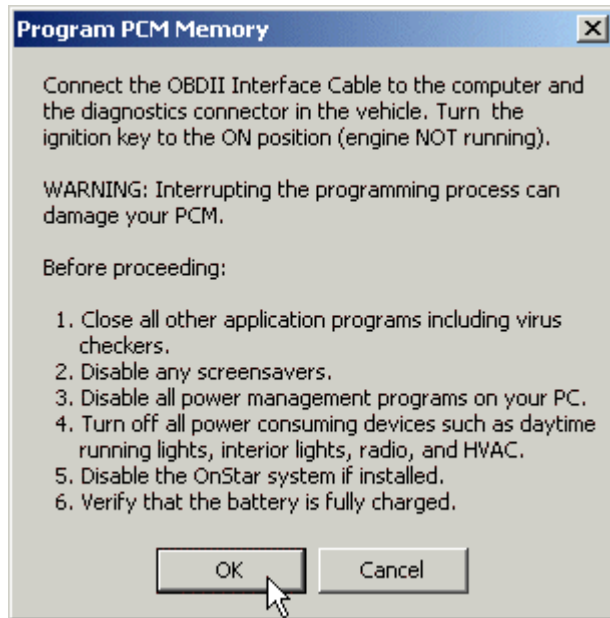
Click on the 'Tools' menu and select 'Program PCM' from the drop-down list.



An Open File dialog screen will then be displayed.



Click on the file you want to use to program the PCM and then click on the 'Open' button. This will display the Program PCM connect message.



WARNING

If the programming process does not complete successfully it is possible to damage the PCM. Under no circumstances should you interrupt the programming process once it is started.

The following are recommendations for the successful programming of your PCM:

- Before programming the PCM, make sure you can successfully read the PCM. This is a very similar process and if that is successful, then the programming should also work fine. **YOU CAN NOT DAMAGE YOUR PCM BY READING IT.**
- Make sure the car battery is in good condition and fully charged. **DO NOT** try to program the PCM with a battery charger connected to the car battery. The correct range of the battery voltage for PCM programming is relatively narrow.

- If you're using a laptop, make sure the laptop battery is fully charged.
- Make sure you have good connections between the PC, ALDL connector and the interface cable and that they are not likely to be unintentionally disconnected during the programming process.
- Disable all power management functions on your PC.
- Disable all screen savers on the PC.
- Make sure there are no other applications (programs) running on your PC, including virus checkers.
- Turn off all power consuming devices such as day time running light, interior lights, entertainment systems, etc.
- Make sure your battery is fully charged. Do not attempt to program the PCM with a battery charger connected.
- Disable the OnStar system if installed.

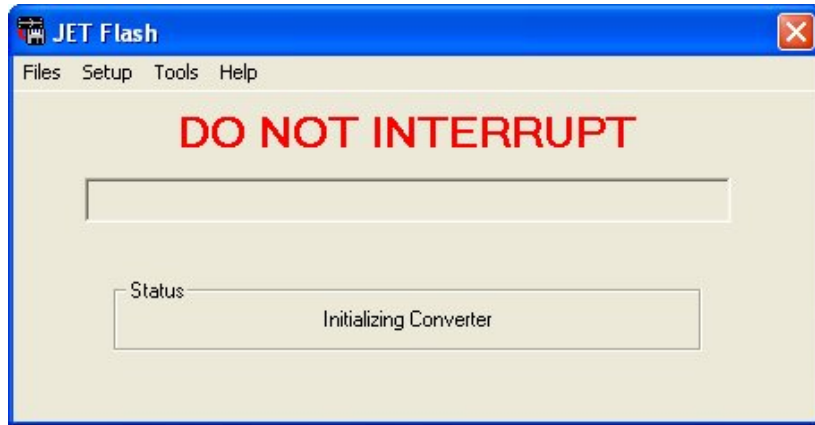
Before proceeding, connect the RS-232 to OBDII converter to the Comm port on your PC. If your PC has more than one Comm port, make sure you connect the converter to the Comm port that you specified on the Comm Port Setup screen.

Connect the other end of the converter to the ALDL diagnostics connector on the vehicle. (The ALDL connector is located under the dash on the driver's side.)

Once the cable is connected, turn the ignition key on but **DO NOT** start the engine. After turning on the ignition, wait about 10 to 15 seconds to clear the GM security delay before proceeding with programming.

Now click on 'OK' to begin the PCM programming process. If all the connections have been properly made, the program will begin communicating with the PCM, sending the necessary instructions to start the memory programming process.

The programming status screen will then be displayed.



The progress meter shows the progress on the programming as it proceeds and the Status window describes what part of the process is currently underway. Depending on the PC you are using, the programming will usually take a minute or two.

When the programming process is complete, the message shown below will be displayed:



Click 'OK' to complete the PCM programming and close the Programming Complete message box. Your PCM is now programmed with the new calibration and ready for testing.

Please Note:

The JET Dynamic Spectrum Tuner is a powerful tool that makes quick and easy tuning of late model GM cars or trucks available to all auto enthusiasts. While JET Performance Products has made every effort to make the software as user-friendly as possible you will need a basic understanding of the operation of modern electronic engine control systems to successfully tune your vehicles. The DST program does not do the tuning for you.

There is a wide range of good tuning information available on some of the automotive web sites, forum and mail lists on the internet. There are also some excellent books covering the operation of these systems.

The JET technical support department can answer your questions regarding the installation and basic use of the Dynamic Spectrum Tuner, but can not help you with the tuning of your particular vehicle, so please do not contact JET regarding specific tuning questions. Every vehicle, depending on equipment installed, modifications that have been made and your performance goals presents a unique tuning task that must be addressed individually.

This product not legal for sale or use in CA on pollution controlled vehicles.



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