Dynojet RESEARCH

User Guide

For the Power Vision and WinPV Software

2011.08.23.06

User Guide for the Power Vision and WinPV Software.

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CHAPTER

1

WELCOME TO DYNOJET WINPV SOFTWARE

The Software Engineers at Dynojet understand your need to attain the maximum performance from the Harley Davidson motorcycles you evaluate and tune. For this reason, they have developed a user-friendly interface which will allow you to easily develop new fuel and ignition maps, record and download log files, and increase performance with the click of a button. Whether you are new to the benefits of dyno testing and tuning or an experienced performance leader, the Power Vision in conjunction with the WinPV software will give you the professional results you are looking for.

WinPV Help provides information and step-by-step guidance for common tasks, as well as descriptions of each field on each window.

Notice

The Power Vision is approved for racing vehicle use only.

WinPV Help 2011.08.23.06

Contacting Dynojet

Please contact us with your questions and comments. If you need assistance with an issue, please contact Dynojet Technical Support.

Telephone

800.992.4993

Email

pvtech@dynojet.com

Website

www.dynojet.com

www.dynojetpowervision.com

Write to us

2191 Mendenhall Drive

North Las Vegas, NV 89081

Conventions

WinPV Software documentation uses consistent conventions to help you identify items. The following table summarizes these conventions.

example of convention	description
Bold	Highlights items you can select on in the software interface, including buttons and menus.
>	The arrow indicates a menu choice. For example, “select **File >Open**” means “select the **File** menu, then select the **Open** choice on the **File** menu.”
Blue	Words highlighted in blue indicate a link.

CHAPTER 2

GETTING STARTED

This section will guide you through installing the Power Vision drivers, checking the WinPV Update Client, installing the Power Vision on your motorcycle, and saving a stock calibration.

This section is divided into the following categories:

- Power Vision Driver Installation, page 2-2
- Checking the WinPV Update Client, page 2-5
- Installing the Power Vision on the Motorcycle, page 2-9
- Power Vision Tune File Management, page 2-11

Power Vision Driver Installation

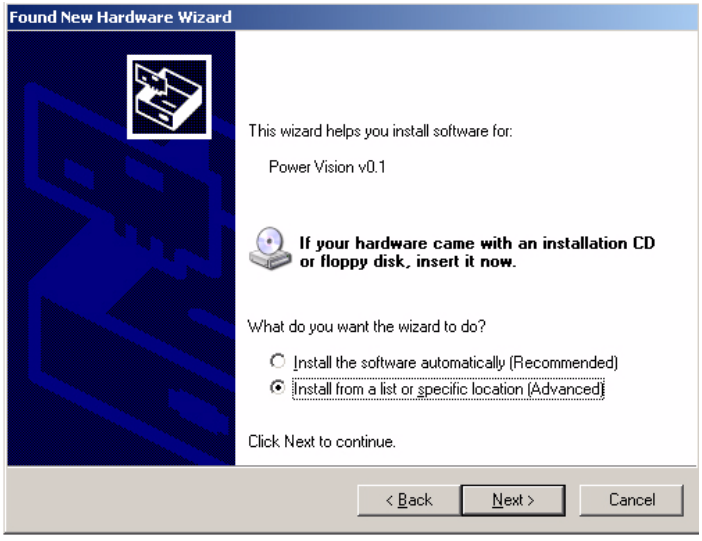
[Windows XP Driver Installation](#)
[Windows Vista and Windows 7 Driver Installation](#)

Windows XP Driver Installation

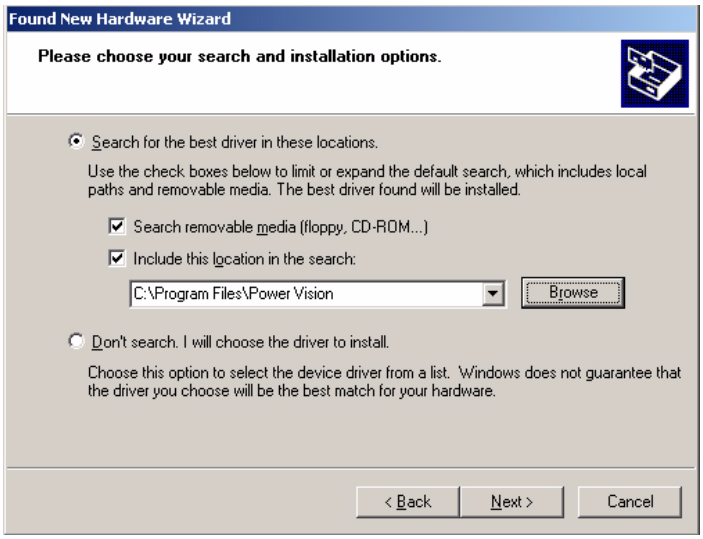
1 Using the USB cable, connect the Dynojet Power Vision to your computer. The Found New Hardware window will open.

2 Select **Yes, this time only** and click **Next**.

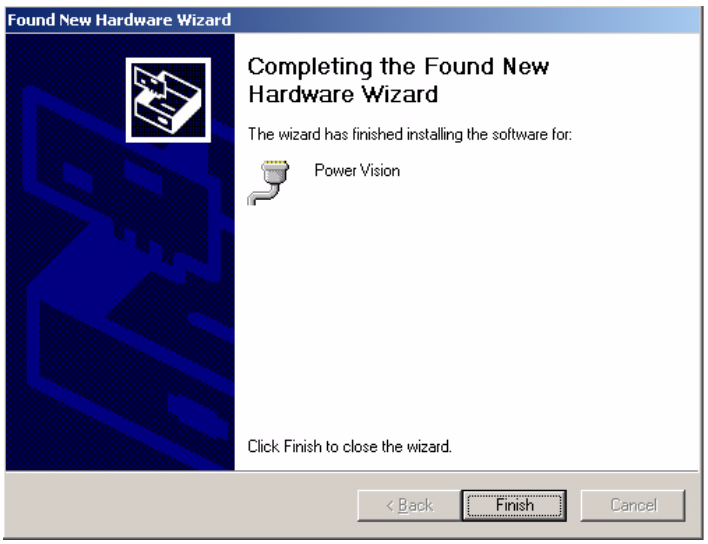
3 Select **Install from a list or specific location** and click **Next**.



4 Select **Search for the best driver in these locations**.
5 Verify the location points to your Power Vision folder in Program Files.
6 Click **Next**.



7 Click **Finish** to close the wizard.



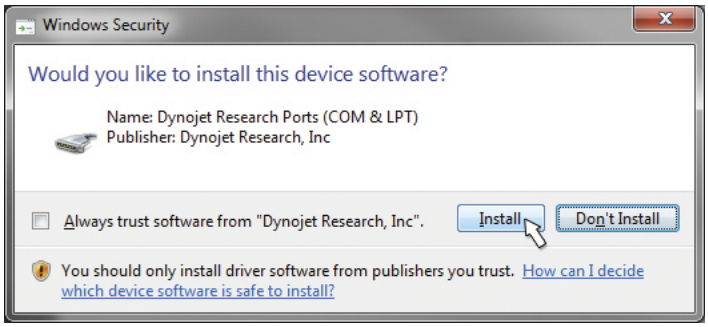
8 Continue with Checking the WinPV Update Client.

Windows Vista and Windows 7 Driver Installation

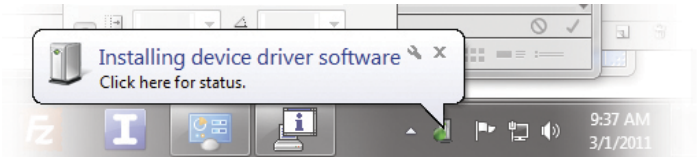
Power Vision Device Drivers will be installed during software installation.

A Windows Security warning will pop up during this process.

Click **Install** to continue.



Note: During the installation, a notice on the bottom of your screen will appear letting you know the status of the device driver installation progress.

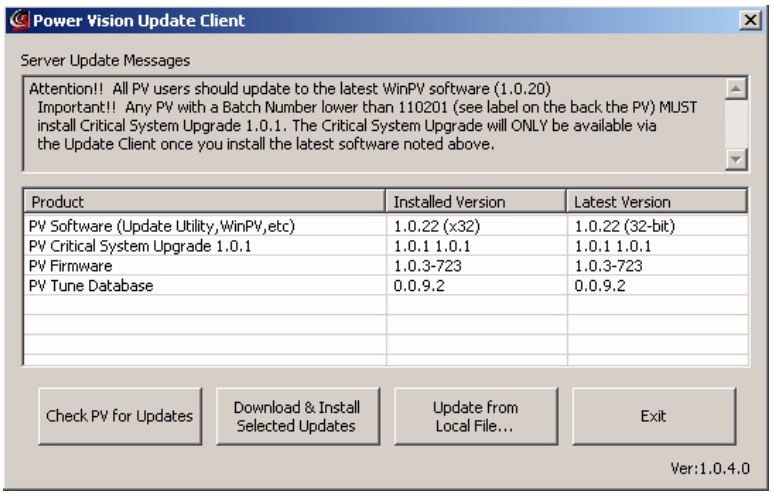


Checking the WinPV Update Client

The PV Update Client automatically checks for any applicable updates. The latest versions of the Firmware, Software, Tune Database, and any Critical Updates will be displayed in the Latest Version column. Your currently installed versions will be displayed in the Installed Version column.

Note: Please read the Update Messages on the top of the Update Client window for any critical updates and follow any directions given there first.

1. Using the USB cable, connect the Dynojet Power Vision to your computer.
2. Click **Start** on the Windows® task bar, and click **All Programs**.
3. Select **PowerVision >PV Update Client**.
4. Click **Check For Updates**.
5. Select the desired update to install.
6. Click **Download & Install Selected Updates**.



7. As the firmware and tune database downloads are completed, click **OK** to complete.

8. As the software and update client downloads are completed, click **OK** to begin the software download.

   Note: The Update Client needs to be restarted for any further updates.

   The Welcome to the Power Vision Software Setup Wizard window will appear.

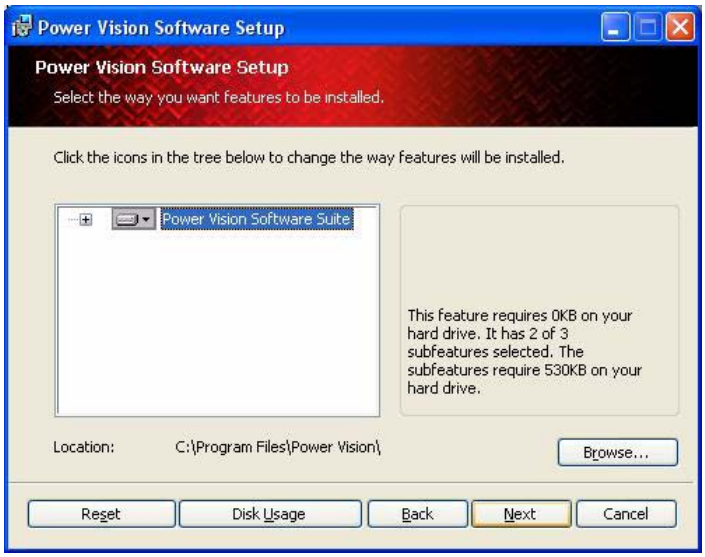
9 Click **Next** to continue.

10 Carefully read the Power Vision software license agreement, check the accept box, and click **Next** to continue.

To install the Power Vision software, you must accept this agreement. If you do not, Setup will close.

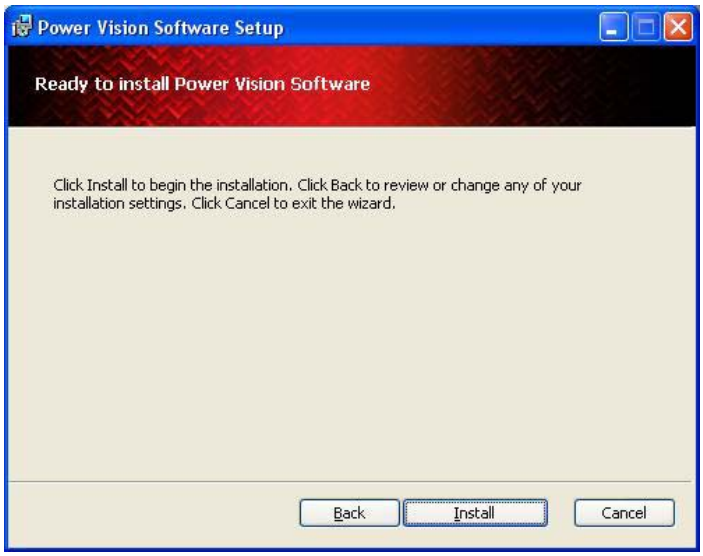
The Power Vision Software Feature window will appear.

11 Click **Next** to continue. Dynojet recommends you do not make any changes in this window.

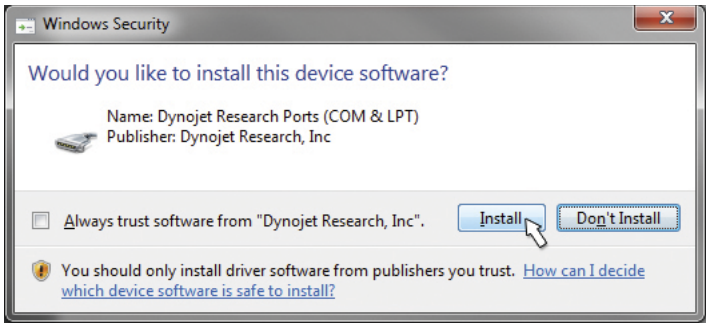


Setup is ready to install the Power Vision Software.

12 Click **Install** to begin installation.



Note: Windows Vista and Windows 7 users—A Windows Security warning will pop up during the installation process; this is normal. Click **Install** to continue.



13 The Power Vision Software update is now complete. Click **Finish** to exit the Setup Wizard.

Installing the Power Vision on the Motorcycle

The following installation was performed on a 2008 Harley-Davidson Night Rod. Your bike and set-up may vary.

Note: The Power Vision may be damaged if installed improperly. To ensure safety and accuracy in the procedures, perform the procedures as they are described.

1 Connect the PowerVision to the ECM's diagnostic port.

The location of the diagnostic port varies depending on the model. Please refer to the service manual or contact Dynojet for the exact location.

Note: Many models use the same style connector for accessories. The Power Vision must be connected to the diagnostic port.

2 Route the PowerVision cable away from any moving or hot parts.

Dynojet recommends using zip ties to secure the cable to existing non-moving components.

3 The PowerVision module may be mounted to the bike's handlebars using Techmount hardware.

Note: The Power Vision does not need to remain on the bike.

In this example, the Power Vision module is mounted to a 2008 Night Rod using the Techmount bracket.

For more information on available mounting accessories visit: www.techmounts.com.

Power Vision Tune File Management

There are three types of tunes that can be flashed to your ECM with the Power Vision:

- Dynojet Pre-Configured Tunes—refer to Flashing a Dynojet Pre-Configured Tune File
- Custom Tunes—refer to Flashing a Custom Tune File
- Load Copy—refer to Loading a Copy of the Original Tune File or a Copy of the Current Tune File

Flashing your ECM with any one of these types of tunes will automatically save a backup of your Original Tune and will permanently lock the Power Vision to your bike's ECM.

You can flash your ECM with tunes as many times as you like, but the Power Vision will only be permitted to flash tunes to the ECM it's locked to. The Power Vision's other features, like data logging/monitoring, diagnostics, clearing adaptive values, etc. will still be available to be used on any bike it was designed for, as well as the bike it's locked to.

Any combination of the three types of tune files can be placed in the Tune Manager. There are six slots in the Tune Manager and you can occupy a single slot or all six if you choose.

For example, you could have a Dynojet Pre-Configured Tune in Slot 1, a Custom Tune in Slot 2, and a Copy of Original Tune in Slot 3. You can think of the Tune Manager as an area that holds the tunes, or stages them, prior to the Power Vision flashing them to your ECM. You can overwrite the tunes that occupy the various slots at any time, or manage your tune files in the Tune Manager by using the WinPV software.

Flashing a Dynojet Pre-Configured Tune File

The Power Vision is loaded with Pre-Configured Tunes developed by Dynojet when it leaves our facility. Dynojet makes every effort to have a tune file available for your specific combination when you receive your Power Vision (pre-loaded in the device), but in some cases you'll need to use the Update Client to ensure you have the latest tunes available from Dynojet. Refer to Checking the WinPV Update Client.

You can also visit http://www.flashyourharley.com to search our tune database and download a tune for your combination.

Use the following steps to flash a Dynojet Pre-Configured Tune to the ECM.

1 Touch **Program Vehicle >Load Tune >Dynojet Pre-Configured Tunes**.

The Power Vision will automatically search for compatible tunes.

2 Select a Dynojet Pre-Configured Tune File to flash.

3 Touch **Select**.

4 Verify the tune information. If the tune information is correct, touch **Continue**.

5 Select a slot to save the selected tune file.
Note: If there is any data in the selected slot, it will be overwritten.

6 Touch **Select**.

The tune is now ready.

7 Touch **Flash** to flash this tune to the ECM.

Note: During the flash process, do not turn off the bike. Once complete, you will be prompted to turn the bike off for 10 seconds.

Or

Touch **Edit** to edit this tune.

Or

Touch **Exit** to exit the screen without any changes.

Note: You can edit any tune that's loaded in the Tune Manager prior to flashing your ECM. The Power Vision allows you to make basic adjustments to your tunes directly on the device without using a computer. In order to gain full access to your tune files, you'll need to download them from the Power Vision to WinPV, our custom tuning software.

Flashing a Custom Tune File

Custom Tunes may or may not be pre-loaded from a reseller that specializes in custom tuning. Dynojet does NOT load custom tunes in the Power Vision when it leaves our facility (we load Dynojet Pre-Configured Tunes). You may also receive Custom Tunes via email that can be uploaded to the Power Vision using WinPV, our custom tuning software.

Use the following steps to flash a Custom Tune file to the ECM.

1 Touch **Program Vehicle >Load Tune >Custom Tunes**.

2 Select a Custom Tune File to flash.

3 Touch **Select**.

4 Verify the tune information. If the tune information is correct, touch **Continue**.

The Tune is now ready.

5 Touch **Flash** to flash this tune to the ECM.

Note: During the flash process, do not turn off the bike. Once complete, you will be prompted to turn the bike off for 10 seconds.

Or

Touch **Edit** to edit this tune.

Or

Touch **Exit** to exit the screen without any changes.

Note: You can edit any tune that's loaded in the Tune Manager prior to flashing your ECM. The Power Vision allows you to make basic adjustments to your tunes directly on the device without using a computer. In order to gain full access to your tune files, you'll need to download them from the Power Vision to WinPV, our custom tuning software.

Loading a Copy of the Original Tune File or a Copy of the Current Tune File

The Power Vision will allow you to load either a Copy of Current tune or a Copy of Original tune files.

The Copy of Original tune file is a copy of the tune that was present in your ECM when the Power Vision first locked to your ECM. In other words, it is a copy of the backup file that was created and stored in the Power Vision. This is a great way for those who are happy with the way their bike runs, but want access to their existing tune in order to make a few adjustments.

The Copy of Current tune file is a copy of the current tune that has been flashed to your ECM.

Use the following steps to load and flash either a Copy of Original tune or a Copy of Current tune file to the ECM.

1 Touch **Program Vehicle >Load Tune >Load Copy**.

2 Touch **Load Copy of Current** or **Load Copy of Original**.

3 Select a slot to save the tune file.

Note: If there is any data in the selected slot, it will be overwritten.

4 Touch **Select** to continue.

The Tune is now ready.

5 Select **Flash** to flash this tune to the ECM.

Note: During the flash process, do not turn off the bike. Once complete, you will be prompted to turn the bike off for 10 seconds.

Or

Touch **Edit** to edit this tune.

Or

Touch **Exit** to exit the screen without any changes.

Note: You can edit any tune that's loaded in the Tune Manager prior to flashing your ECM. The Power Vision allows you to make basic adjustments to your tunes directly on the device without using a computer. In order to gain full access to your tune files, you'll need to download them from the Power Vision to WinPV, our custom tuning software.

CHAPTER

3

WORKING WITH WINPV

WinPV Software is a user-friendly interface which will allow you to easily develop new fuel and ignition maps, record and download log files, and increase performance with the click of a button.

This section is divided into the following categories:

- WinPV User Interface, page 3-2
- WinPV Menus, page 3-3
- WinPV Toolbar, page 3-32
- Tune Items, page 3-37
- Table, page 3-46
- Status Bar, page 3-47

WinPV User Interface

WinPV is designed to be user-friendly and intuitive. Once you understand the basic layout, it will be easy to obtain information and navigate the software efficiently.

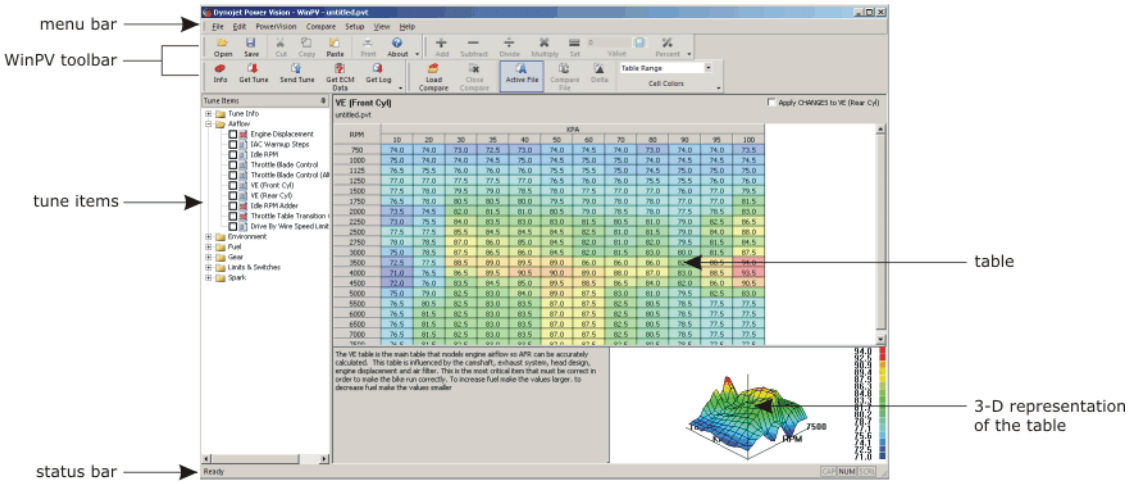
The main elements of the WinPV User Interface are:

[WinPV Menus](#)

[WinPV Toolbar](#)

[Tune Items](#)

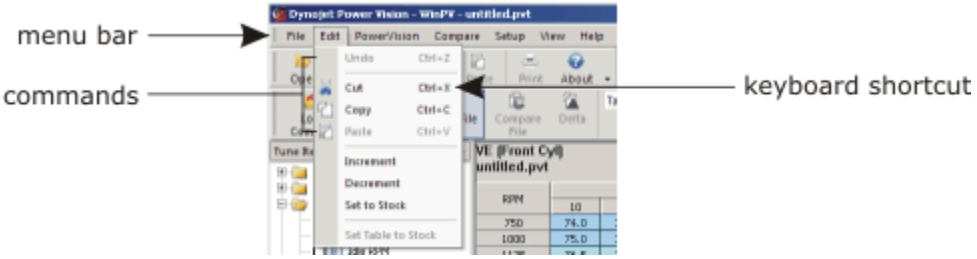
[Table](#)



WinPV Menus

The menu bar displays the seven menus available in WinPV: File, Edit, PowerVision, Compare, Setup, View, and Help. Each menu contains groups of related commands. Many commands are followed by keyboard shortcuts.

As you use WinPV, you will develop your own working style. Maybe you will prefer to use the mouse and menu commands or you may find that you prefer the quick access to features provided by keyboard commands.



Use the following menus and commands with WinPV.

File Menu

To Open a Power Vision Tune File (.PVT)

To Save a Power Vision Tune File (.PVT)

To Import a Power Commander Map File (.pvm;.djm)

To Save All Values

To Save Selected Values

To Save Selected Values—Append

To Load All Values

To Load Selected Values

To Exit the WinPV Software

Edit Menu

To Undo

To Cut/Copy/Paste Selected Values

To Smooth Selected Values

To Interpolate Selected Values

To Interpolate Selected Horizontal Values

To Interpolate Selected Vertical Values

PowerVision Menu

To View the PowerVision Information

To Get a Tune from the Power Vision

To Send a Tune to the Power Vision

To Get ECM Data from the Power Vision

To Send the Original Tune to the Power Vision

To Send a Stock File to the Power Vision

To Get a Log from the Power Vision

To Exit PC Link Mode

Compare Menu

To Load a Compare File

To Close the Compare File

To View the Active File

To View the Compare File

To View Delta

To Choose Cell Colors

Setup Menu

To Setup the Options

To Apply the License

View Menu

To View the Standard Toolbar

To View the Cell Math Toolbar

To View the PowerVision Toolbar

To View the Compare Toolbar

To Reset the User Interface

Help Menu

To View the About Window

To View the Power Vision Help Files

File Menu

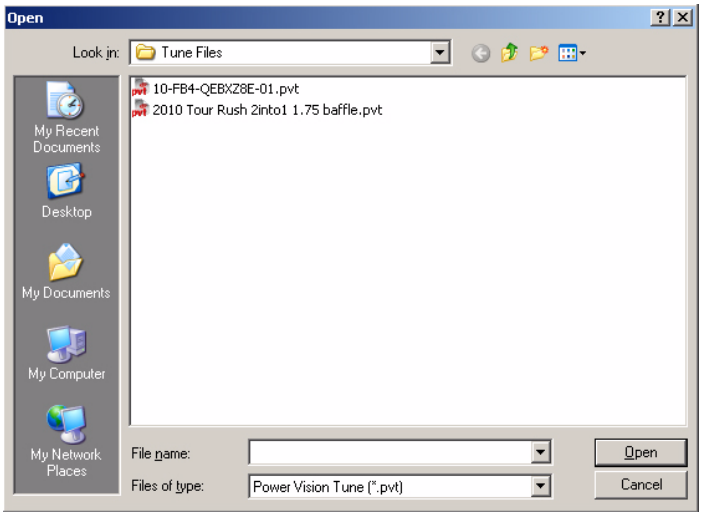
To Open a Power Vision Tune File (.PVT)

If the Tune File directory does not exist, or if you haven't already created the Tune File directory, you will need to create a Tune File directory in C:\Program Files\Power Vision. Once the Tune File directory is created, you must map this folder in Setup Options. Refer to To Setup the Options.

To open a Power Vision tune file from the Power Vision, refer to To Get a Tune from the Power Vision.

Use the following steps to open a Power Vision tune file from your computer.

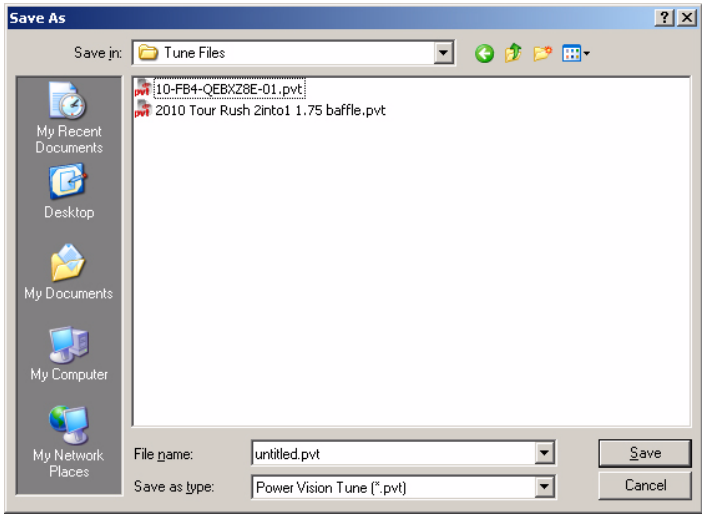
1. Select **File >Open**.
2. Select a .pvt file to open.
3. Click **Open**.



To Save a Power Vision Tune File (.PVT)

If the Tune File directory does not exist, or if you haven't already created the Tune File directory, you will need to create a Tune File directory in C:\Program Files\Power Vision. Once the Tune File directory is created, you must map this folder in Setup Options. Refer to To Setup the Options.

1. Select **File >Save As**.
2. Enter a name for your tune file.
3. Click **Save**.



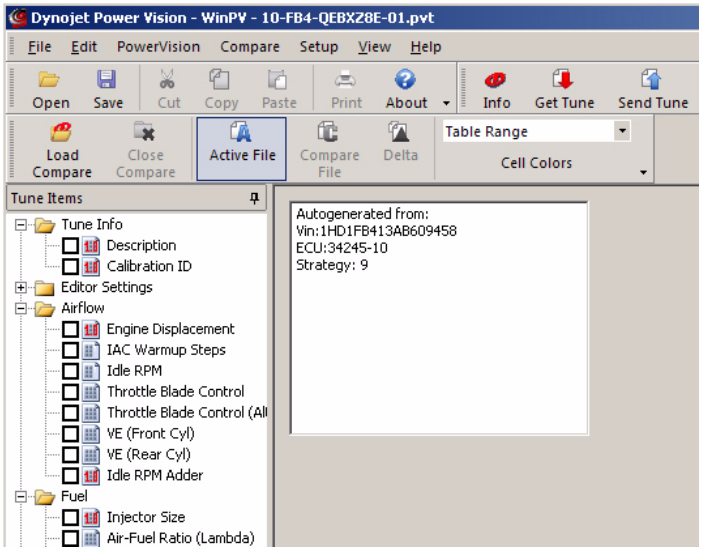
To Import a Power Commander Map File (.pvm;.djm)

1 Make sure you have a tune loaded.

You must have a copy of the original tune loaded before importing a Power Commander map file.

2 Select **Tune Info** from the Tune Items manager and click **Description**.

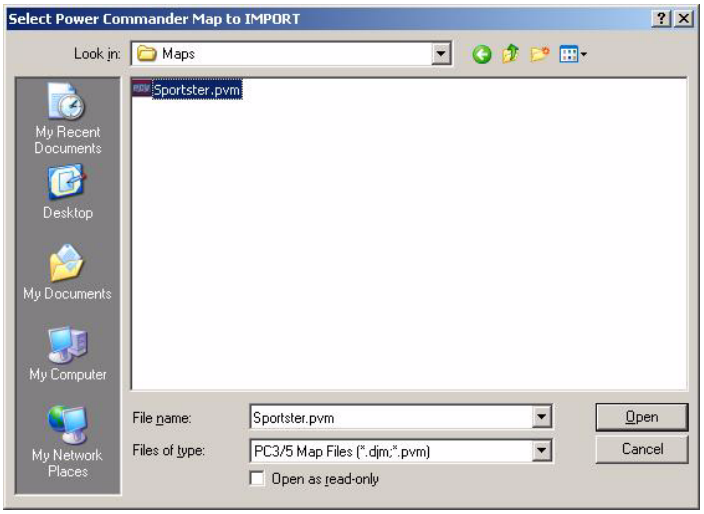
If the Strategy is 9, 44, or 218, the Power Commander map file will not import. When the existing VE tables are RPM versus MAP (KPA), you will not be able to import Power Commander map files. The example below shows a strategy of 9 and will not work when importing a Power Commander map file.



3 Select **File > Import Power Commander Map**.

4 Select a file to open.

5 Click **Open**.



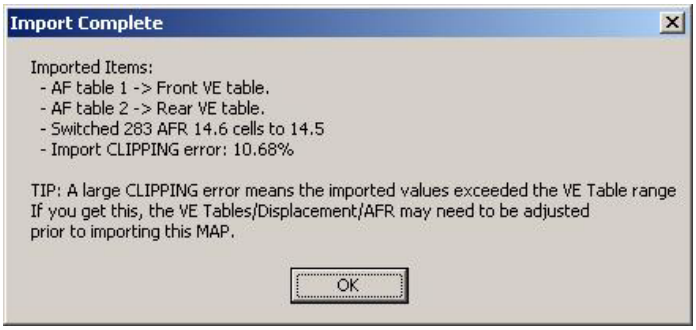
6 Click **Yes** to swap the Front/Rear import order.

Or

Click **No** to import as shown in the window.

The Import Complete window will appear. This window will explain which tables were imported where, how many cells were switched to 14.5, and how many imported values exceeded the VE Table range.The maximum value in a cell is 127.5. If you see 127.5 in a cell, you know the imported Power Commander map tried to exceed that value.

7 Click **OK**.



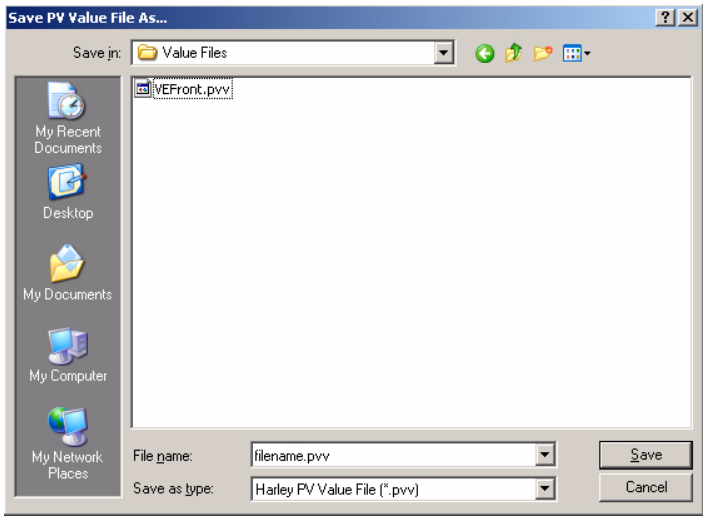
To Save All Values

Value Files are one or more tables that are selected in WinPV. Save All Values will save all of the value files in the open tune file into a Value File for later use.

If the Value File directory does not exist, or if you haven't already created the Value File directory, you will need to create a Value File directory in C:\Program Files\Power Vision. Once the Value File directory is created, you must map this folder in Setup Options. Refer to To Setup the Options.

1. Make sure you have a tune loaded.

   You must have a tune loaded before saving values.
2. Select **File >Save All Values**.
3. Enter a name for your value file.
4. Click **Save**.

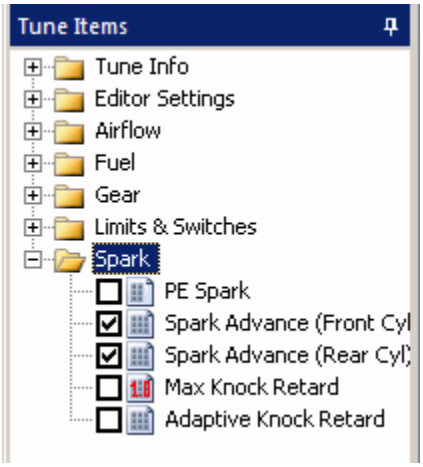


To Save Selected Values

Value Files are one or more tables that are selected in WinPV. Save Selected Values will save only the parameters selected into a Value File for later use.

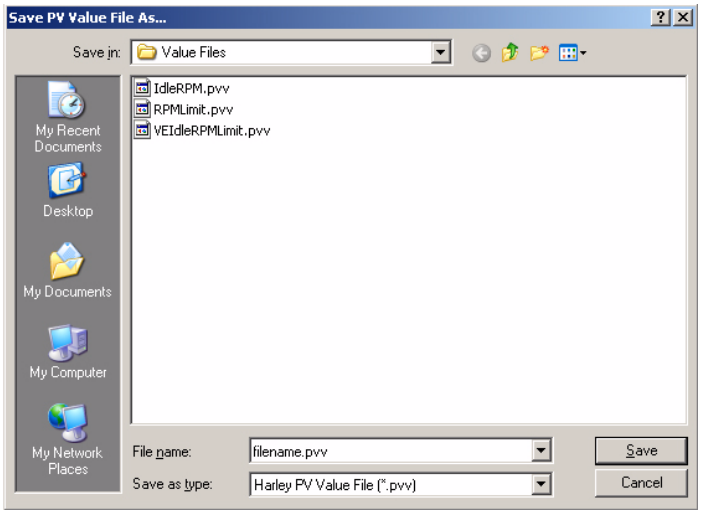
If the Value File directory does not exist, or if you haven't already created the Value File directory, you will need to create a Value File directory in C:\Program Files\Power Vision. Once the Value File directory is created, you must map this folder in Setup Options. Refer to To Setup the Options.

1 Click the box next to the table or tables you would like to save.



2 Select **File >Save Selected Values**.

3 Enter a file name and click **Save**.



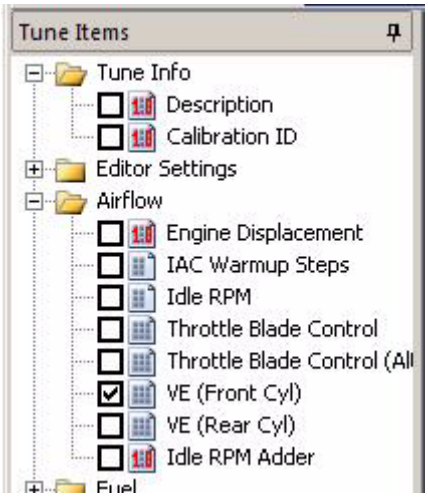
To Save Selected Values—Append

Value Files are one or more tables that are selected in WinPV. Save Selected Values Append creates a new value file using an existing value file as a base. The value file you select changes the cell values in the base file to any cell values that are different in the selected file.

If the Value File directory does not exist, or if you haven't already created the Value File directory, you will need to create a Value File directory in C:\Program Files\Power Vision. Once the Value File directory is created, you must map this folder in Setup Options. Refer to To Setup the Options.

Save Selected Values—Append creates a new value file using an existing value file as a base. The value file you select changes the cell values in the base file to any cell values that are different in the selected file.

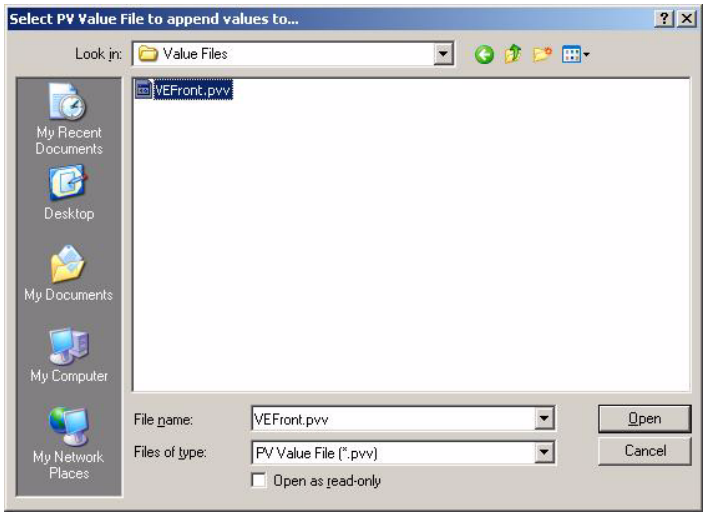
1 Click the box next to the table you would like to save.



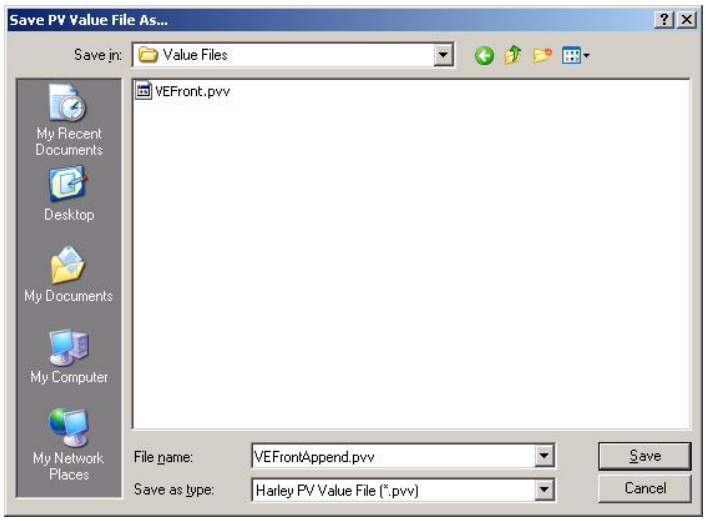
2 Select **File >Save Selected Values—Append**.

3 Browse to your Value File folder and select the value file you wish to append values to.

4 Click **Open**.



5 Enter a name for the new value file and click **Save**.



6 To load the file you created, refer to To Load Selected Values.

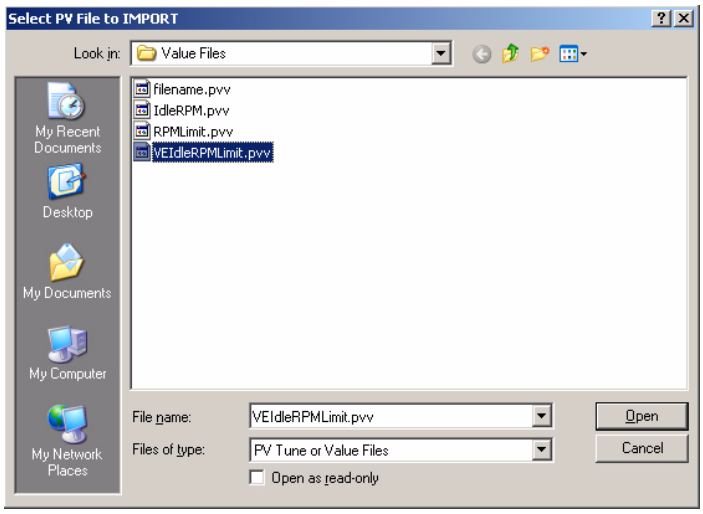
To Load All Values

Load All Values is used for loading in all of the changes in a Value File.

If the Value File directory does not exist, or if you haven't already created the Value File directory, you will need to create a Value File directory in C:\Program Files\Power Vision. Once the Value File directory is created, you must map this folder in Setup Options. Refer to To Setup the Options.

1 Select **File >Load All Values**.

2 Select the .pvv file you would like to use and click **Open**.



3 Click the box next to the tune items you would like to import.

Or

Click **Mark All** to select all the tune items in the list.

Or

Click **Mark Selected** to place a check mark next to the tune items you have selected.

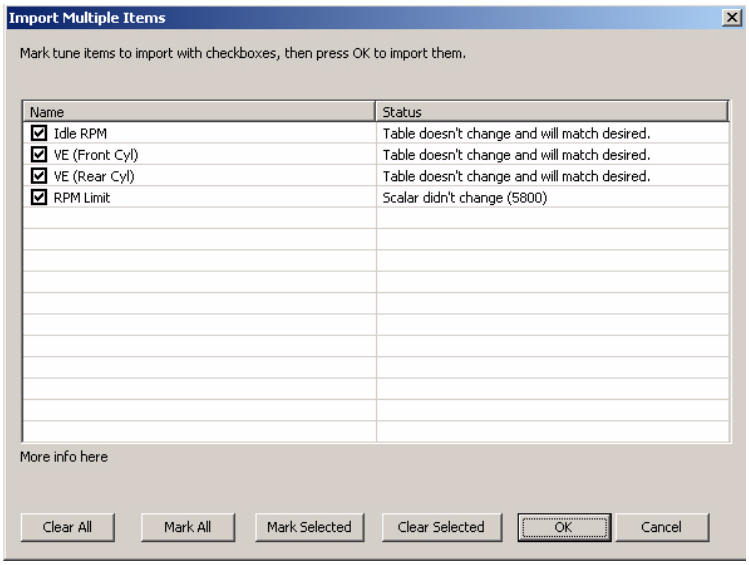
Or

Click **Clear Selected** to clear all of the check boxes.

4 Click **OK** to accept the changes.

Or

Click **Cancel** to close the window.



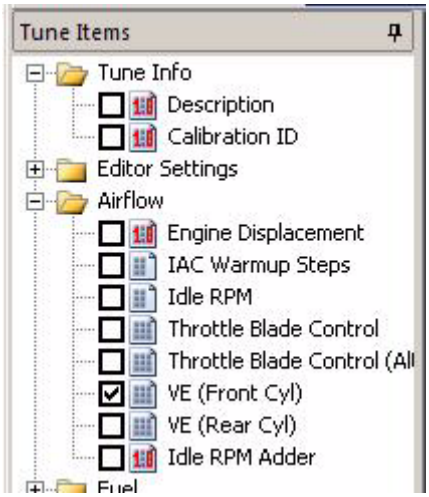
5 Click **OK** to complete the import.

To Load Selected Values

Load Selected Values loads only the values from a value file that are selected in the open tune.

If the Value File directory does not exist, or if you haven't already created the Value File directory, you will need to create a Value File directory in C:\Program Files\Power Vision. Once the Value File directory is created, you must map this folder in Setup Options. Refer to To Setup the Options.

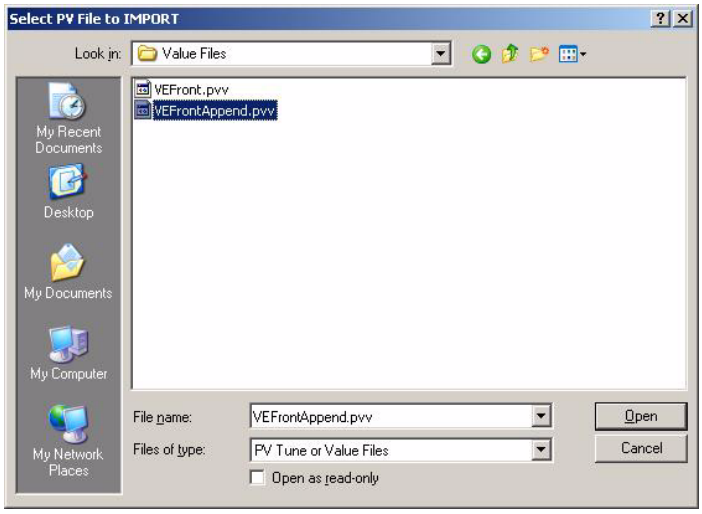
1 Click the box next to the table you would like to load a new value file into.



2 Select **File >Load Selected Values**.

3 Browse to your Value File folder and select the value file you wish to load.

4 Click **Open**.



5 Click the box next to the tune items you would like to import.

Or

Click **Mark All** to select all the tune items in the list.

Or

Click **Mark Selected** to place a check mark next to the tune items you have selected.

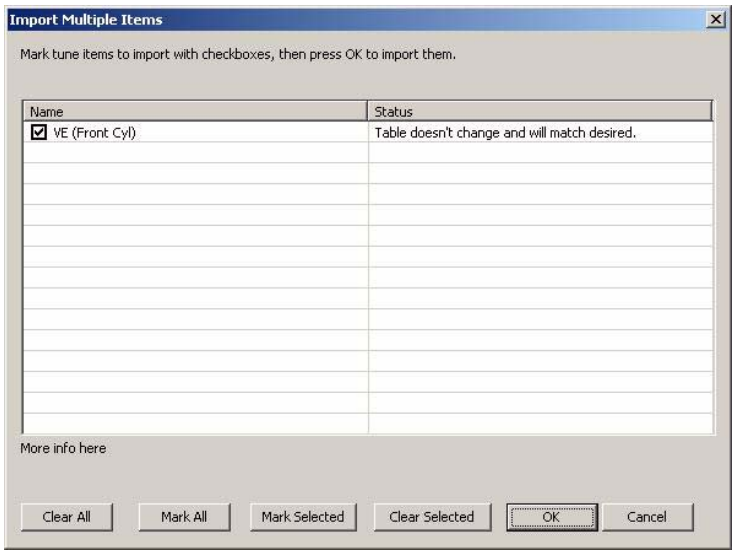
Or

Click **Clear Selected** to clear all of the check boxes.

6 Click **OK** to accept the changes.

Or

Click **Cancel** to close the window.



7 Click **OK** to complete the import.

To Exit the WinPV Software

Select **File >Exit** to exit the WinPV software.

Edit Menu

To Undo

Select **Edit >Undo** to take a step back and undo the last changes made to the tune.

To Redo

Select **Edit >Redo** to reverse an action you undid.

To Cut/Copy/Paste Selected Values

1. Select the desired values.
2. Select **Edit >Cut** to cut the selected values.
3. Select **Edit >Copy** to copy the selected values.
4. Select **Edit >Paste** to paste the copied values.

To Smooth Selected Values

Smoothing is a process that removes the sharp peaks and troughs from a data series or surface map. Smoothing is designed to smooth data after modifications have been made.

1. Select the desired values. You must select at least two cells.
2. Select **Edit >Smooth** to smooth the selected values.

To Interpolate Selected Values

Interpolate is a function that applies a linear interpolation to the values within the range of selected cells. This function will also construct new values within the range of selected cells when surrounded by valid values (positive or negative integers).

1. Select the desired values. You must select at least three cells.
2. Select **Edit >Interpolate** to interpolate the selected values.

To Interpolate Selected Horizontal Values

1. Select the desired values. You must select at least three cells that are horizontal.
2. Select **Edit >Interpolate Horizontal** to interpolate the selected values.

To Interpolate Selected Vertical Values

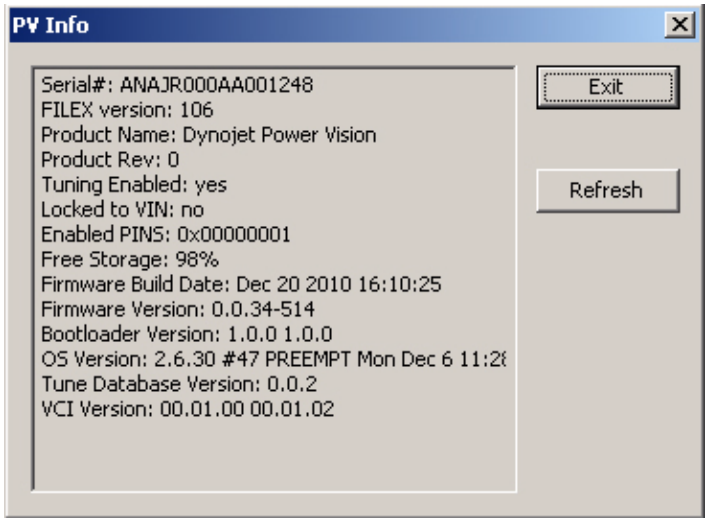
1. Select the desired values. You must select at least three cells that are vertical.
2. Select **Edit >Interpolate Vertical** to interpolate the selected values.

PowerVision Menu

To View the PowerVision Information

1. Select **PowerVision >PV Info** or click the Info button 

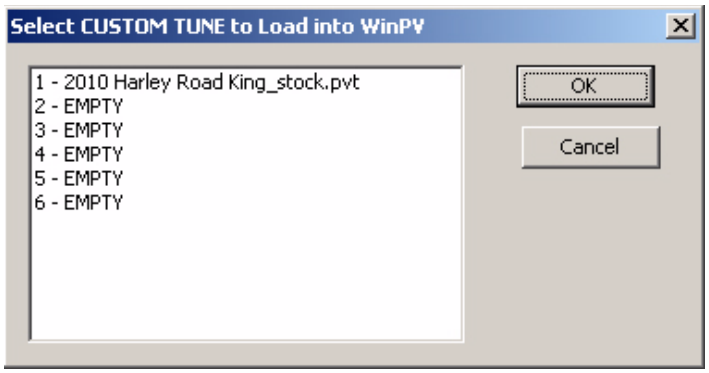
.
2. Click **Refresh** to refresh the information displayed.
3. Click **Exit** to exit the PV Info window.



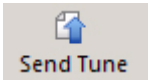
To Get a Tune from the Power Vision

1. Select **PowerVision >Get Tune from PV** or click the Get Tune button 

.
2. Select a tune to load.
3. Click **OK**.



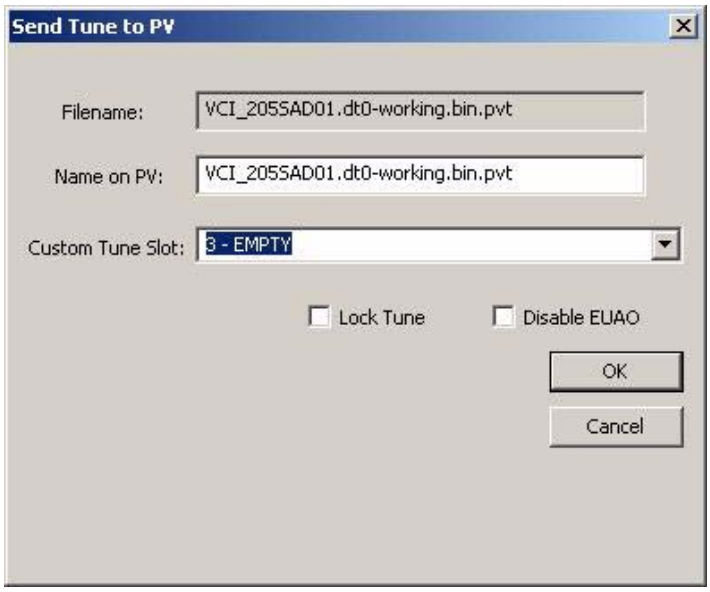
To Send a Tune to the Power Vision

1. Select **PowerVision >Send Tune to PV** or click the Send Tune button 

.
2. Using the drop-down arrow, select a Custom Tune Slot on the Power Vision to send the tune to.
3. Click **Lock Tune** to prevent a tune from being retrieved using Get Tune.
4. Click **Disable EUAO** to disable the End User Adjustable Options. This will prevent a tune from being edited on the Power Vision.
5. Click **OK** to send the tune to the Power Vision.

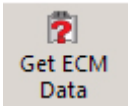
   Or

   Click **Cancel** to close the window without changes.



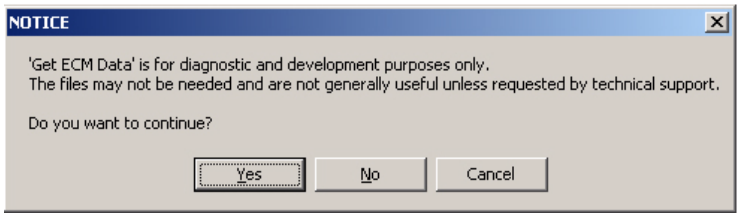
To Get ECM Data from the Power Vision

Get ECM Data is for diagnostic and development purposes only. The files may not be needed and are not generally useful unless requested by technical support.

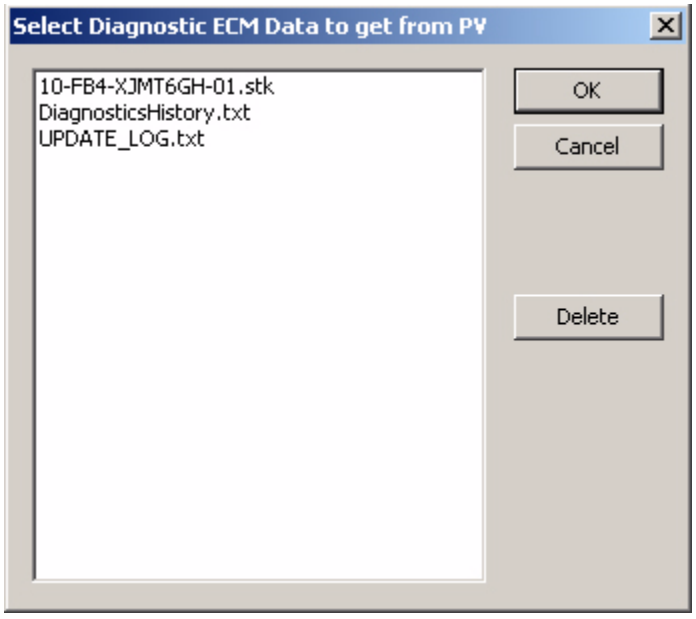
1 Select **PowerVision >Diagnostic/Test Functions >Get ECM Data (Diagnostic) from PV** or click the Get ECM Data button 

.

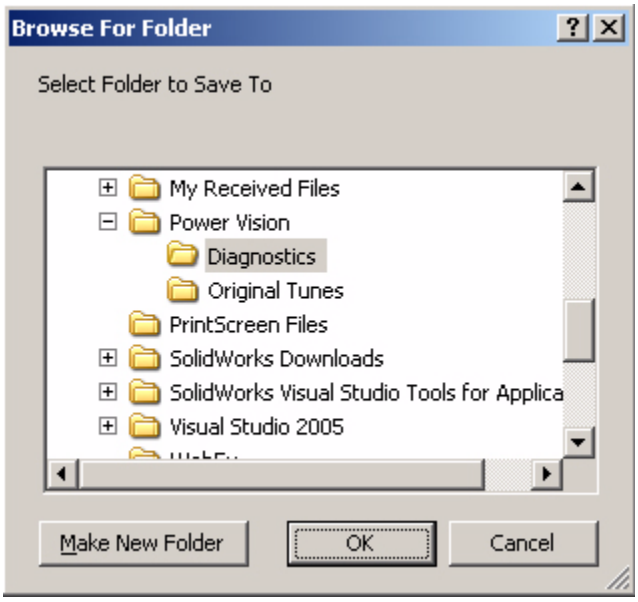
2 Click **Yes** to continue.



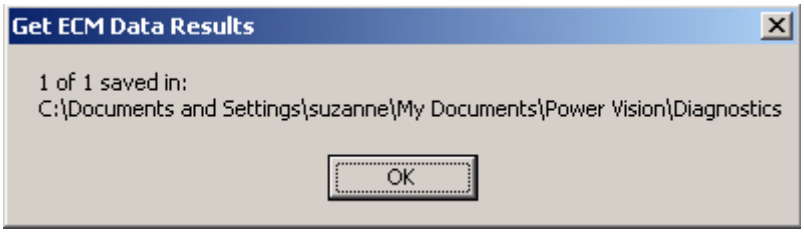
3 Select the diagnostic ECM data to get from the Power Vision and click **OK**.



4 Browse to the folder you want to save the diagnostic file to and click **OK**.

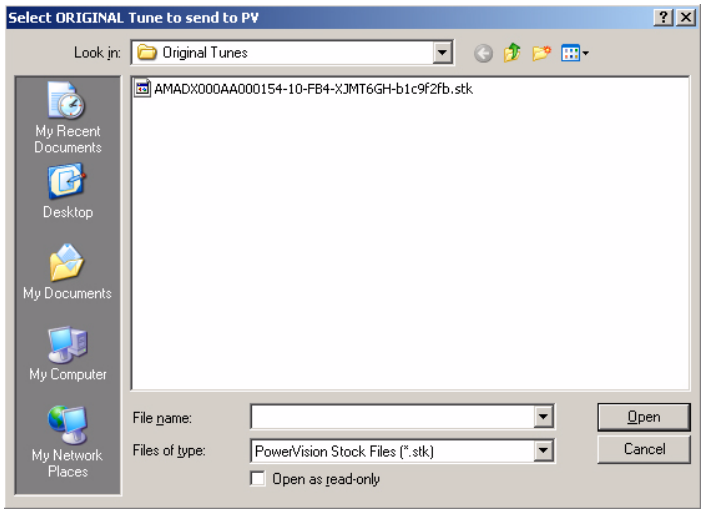


5 The Get ECM Data Results have been saved. Click **OK**.



To Send the Original Tune to the Power Vision

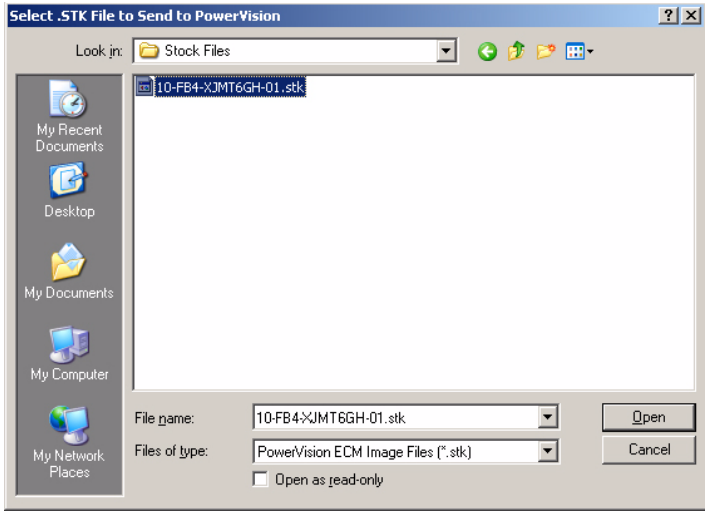
1. Select **PowerVision >Diagnostic/Test Functions >Send Original Tune to PV**.
2. Browse to the location of the original tune you would like to send to the Power Vision.
3. Select the tune file and click **Open**.



4. Click **OK**.

To Send a Stock File to the Power Vision

1. Select **PowerVision >Diagnostic/Test Functions >Send .STK File to PV**.
2. Browse to the location of the stock file you would like to send to the Power Vision.
3. Select the stock file and click **Open**.



4. Click **OK**.

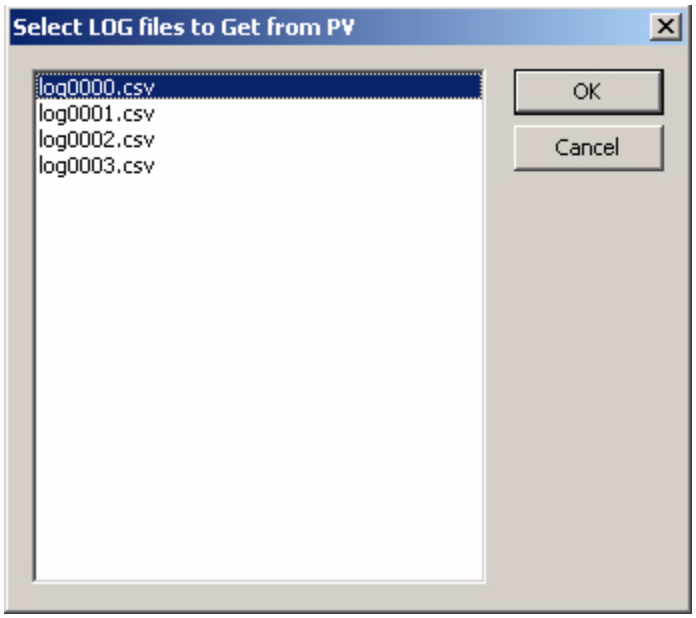
To Get a Log from the Power Vision

1 Select **PowerVision >Get Log from PV** or click the Get Log button 

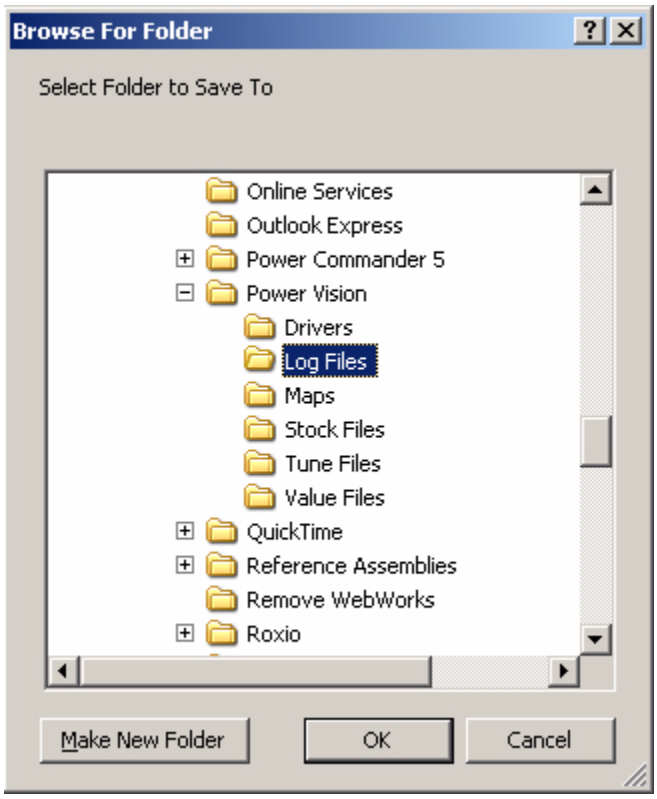
.

2 Select the log file you wish to get from the Power Vision.

3 Click **OK**.

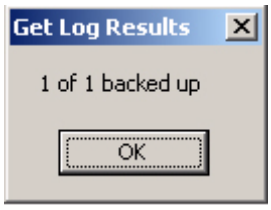


4 Browse to the location you wish to save your log file and click **OK**.



5 Click **OK**.

The log file is now ready to be opened with Excel.



To Exit PC Link Mode

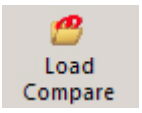
Exit PC Link Mode allows you to edit gauge features while plugged into the PC using the supplied USB cable.

Select **PowerVision >Diagnostic/Test Functions >Exit PC Link Mode**.

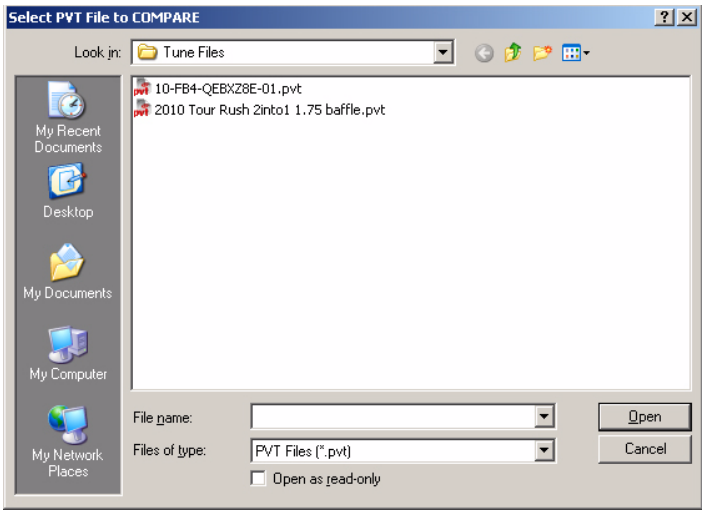
Compare Menu

To Load a Compare File

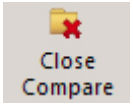
Compare file allows the individual tune items of two different tune files to be compared. The Active file can be edited, cell values can be copied from the Compare file, and the Delta feature can be used to change the Active file. For more information about the Delta file, refer to To View Delta.

1. Select **Compare >Load Compare** or click the Load Compare button 

.
2. Select a tune file to Compare.
3. Click **Open**.



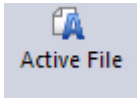
To Close the Compare File

Select **Compare >Close Compare** or click the Close Compare button 

. This will close the Compare File and return to a single active tune file.

To View the Active File

Active File allows you to view the active file when comparing two tune files.

Select **Compare >Active File** or click the Active File button 

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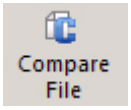
To View the Compare File

Compare File allows you to view the loaded compare file when comparing two tune files. The Compare File cannot be edited.

Select **Compare >Compare File** or click the Compare File button 

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To View Delta

Delta shows the difference between the active file and the compare file for the tune item you have selected.

By editing the delta file, you can change the active file. For example, if one of the cells in the delta file is 10 and you change it to 15, the corresponding cell in the active file will change by 5.

In Delta, a positive number indicates the value in the compare file is larger than the value in the active file.

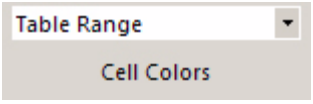
Hover the mouse pointer over a cell to view the comparison of the numbers. Active number is first then the compare number.

3.0	-6.1	-12.4	-10.3	-13.6
9.2	-7.8	-8.2	-9.2	-13.1
6.9	89.5 vs comparison of 94.3			-3.9
6.3	6.0	1.3	2.7	1.4
1.0	-1.0	1.1	0.2	-2.2
2.4	-5.4	-5.8	-2.3	-3.6

Select **Compare >Delta** or click the Delta button 

.

To Choose Cell Colors

1 Click the Cell Colors button 

.

2 Using the drop-down arrow, select the cell color option from the list.

None—uses no colors.

Table Range—uses colors from blue to red based on lowest to highest numbers in the table.

Modified—must have a compare file loaded to use.

Compare High/Low—uses colors to represent the differences between the compare files. White is no difference while blue is the largest difference. Compare High/Low is only available when a compare file is loaded.

Setup Menu

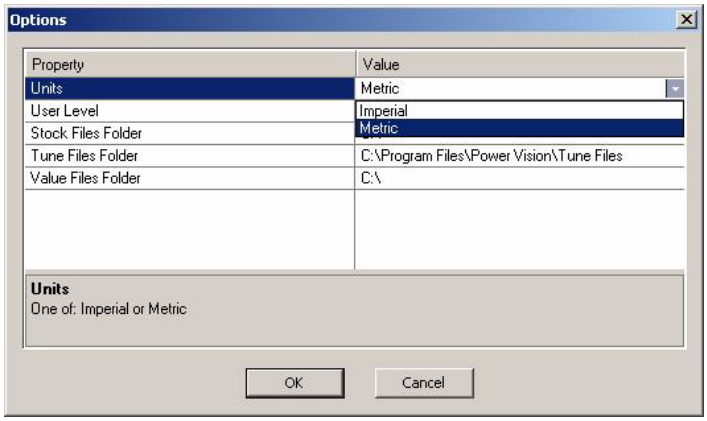
To Setup the Options

1 Select **Setup >Options**.

2 To change the Units:

2a Using the drop-down arrow, select either Metric or Imperial.

2b Click **OK** to accept the changes.

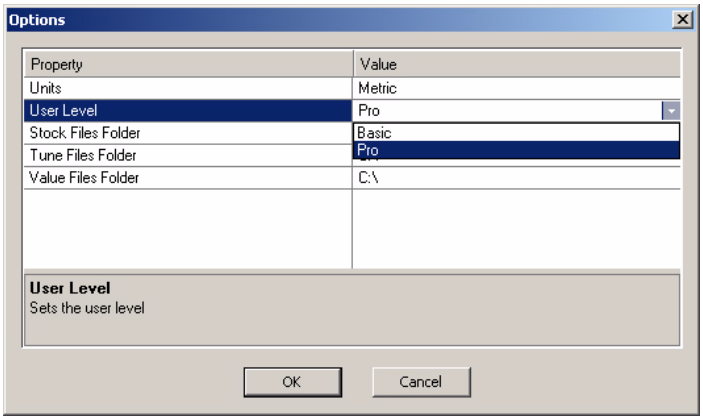


3 To change the User Level:

3a Using the drop-down arrow, select either Basic or Pro.

3b Click **OK** to accept the changes.

Pro User Level will expose additional tune items and parameters which can affect the operating condition of the vehicle.

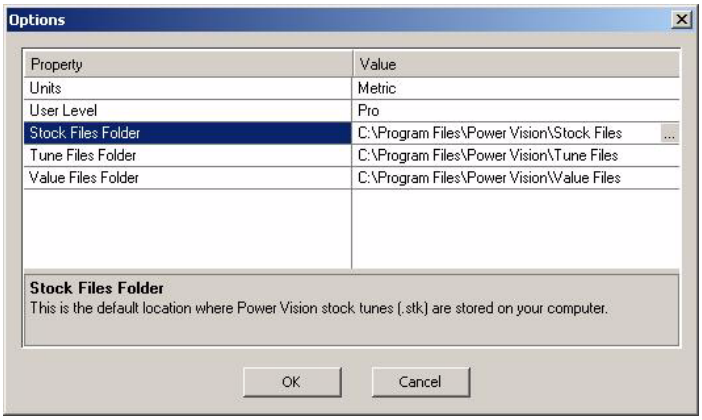


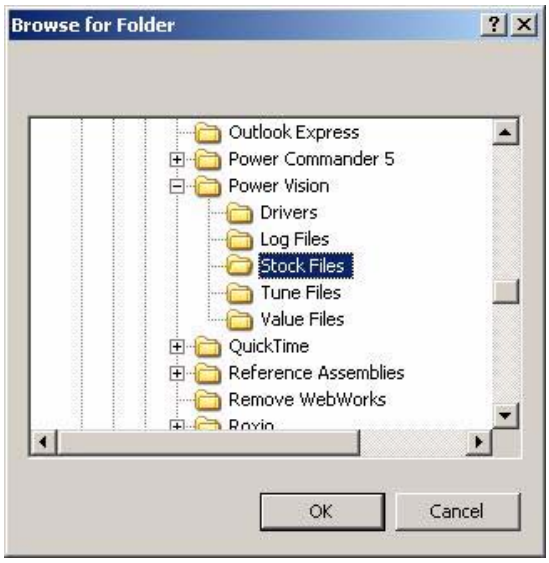
4 To create the default location where the Power Vision stock files (.stk) are stored on your computer:

4a Create a Stock Files directory in C:\Program Files\Power Vision.

4b Click **. . .** to browse to the Stock Files folder you created.

4c Click **OK** to save the location.



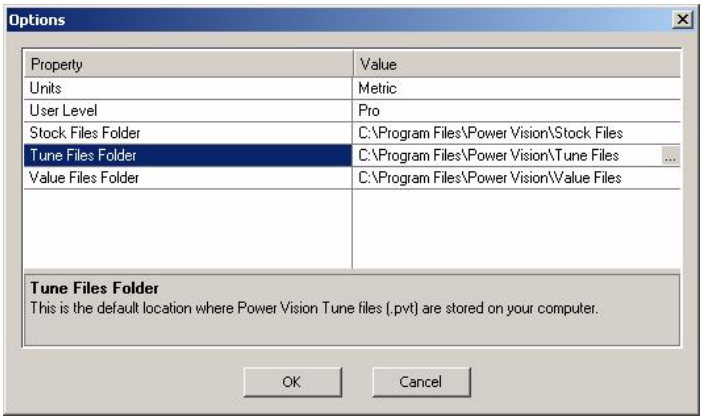


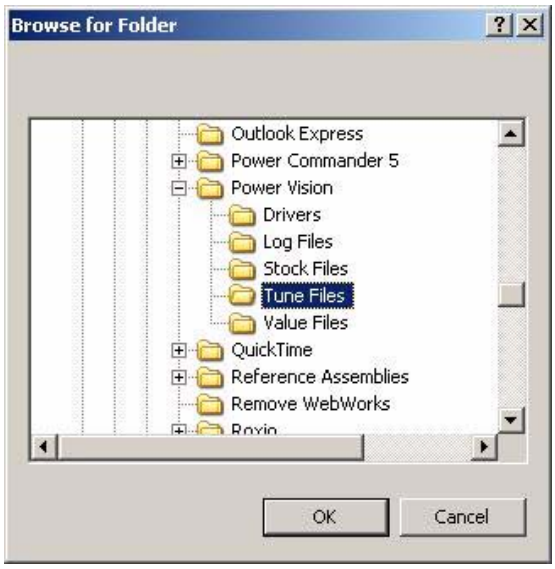
5 To create the default location where the Power Vision tune files (.pvt) are stored on your computer:

5a Create a Tune Files directory in C:\Program Files\Power Vision.

5b Click **. . .** to browse to the Tune Files folder you created.

5c Click **OK** to save the location.



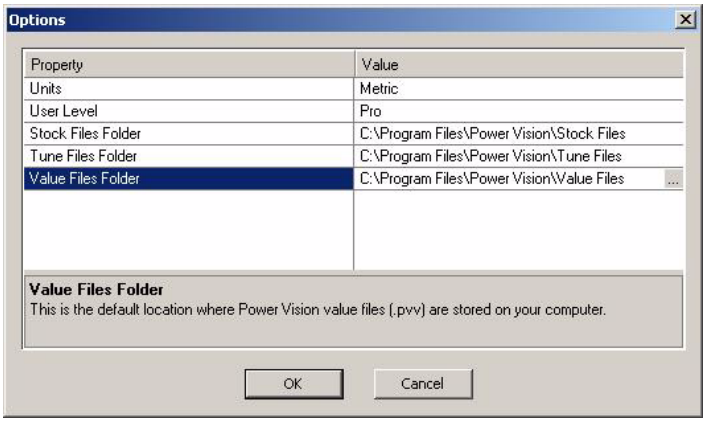


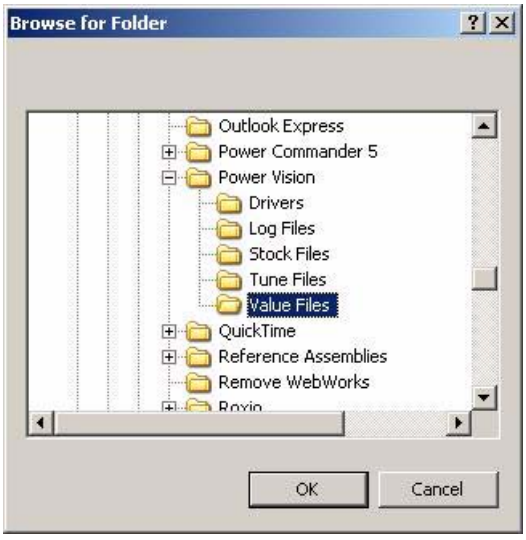
6 To create the default location where the Power Vision value files (.pvv) are stored on your computer:

6a Create a Value Files directory in C:\Program Files\Power Vision.

6b Click **. . .** to browse to the Value Files folder you created.

6c Click **OK** to save the location.





To Apply the License

Apply License is used to enable features in the Power Vision and WinPV software that have been provided to you by Dynojet.

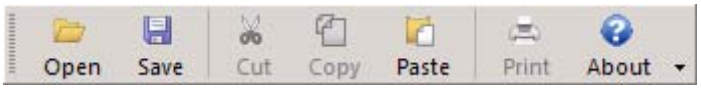
Select **Setup >Apply License**.

View Menu

To View the Standard Toolbar

Select **View >Standard Toolbar** or right-click to turn the toolbar on and off.

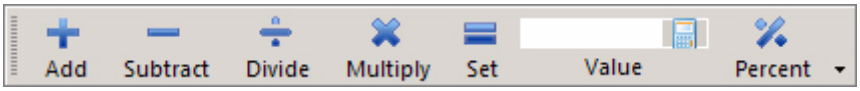
For more information about the Standard Toolbar, refer to Standard Toolbar.



To View the Cell Math Toolbar

Select **View >Cell Math Toolbar** or right-click to turn the toolbar on and off.

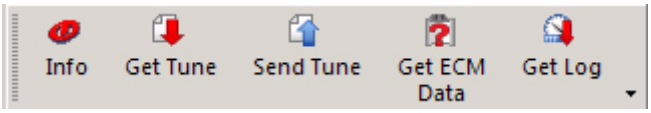
For more information about the Cell Math Toolbar, refer to Cell Math Toolbar.



To View the PowerVision Toolbar

Select **View >PV Toolbar** or right-click to turn the toolbar on and off.

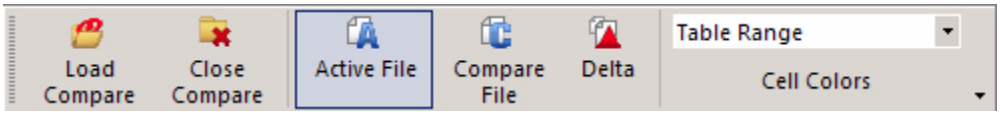
For more information about the PV Toolbar, refer to PowerVision Toolbar.



To View the Compare Toolbar

Select **View >Compare Toolbar** or right-click to turn the toolbar on and off.

For more information about the Compare Toolbar, refer to Compare Toolbar.



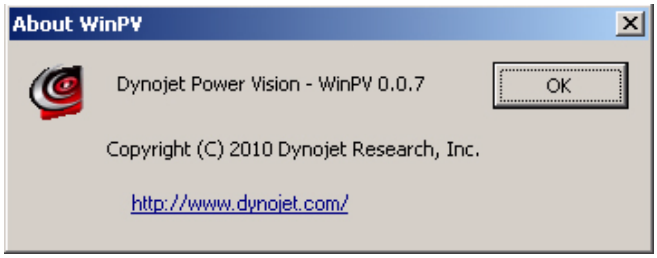
To Reset the User Interface

Select **View >Reset UI**.

Help Menu

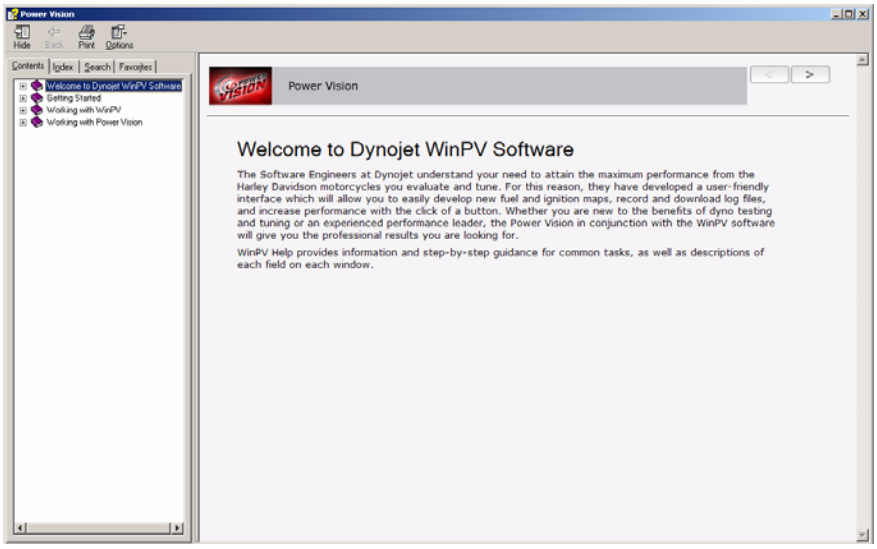
To View the About Window

Select **Help >About**.



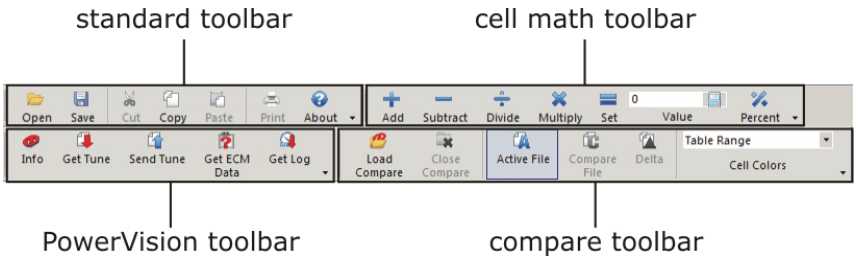
To View the Power Vision Help Files

Select **Help >Contents**.



WinPV Toolbar

The following toolbar is always shown contains the WinPV tools. The WinPV toolbar is grouped into four sections and each toolbar can be customized.



[Standard Toolbar](#)

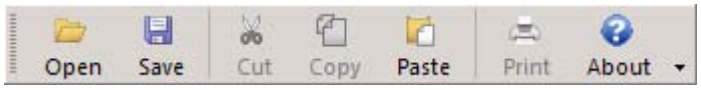
[PowerVision Toolbar](#)

[Cell Math Toolbar](#)

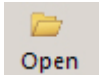
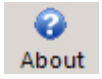
[Compare Toolbar](#)

[Customizing the Toolbars](#)

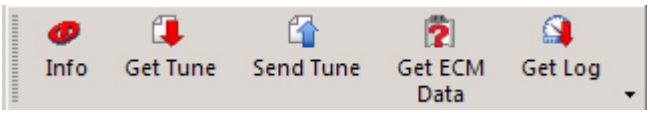
Standard Toolbar



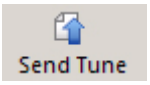
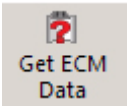
A description of the standard toolbar buttons and functions follows.

press this button	to
	Open previously saved or stored tunes. Refer to [To Open a Power Vision Tune File (.PVT)](#).
	Save the current tune to your computer. Refer to [To Save a Power Vision Tune File (.PVT)](#).
	Cut the highlighted cell values.
	Copy the highlighted cell values.
	Paste the copied values.
	About allows you to view information about WinPV.

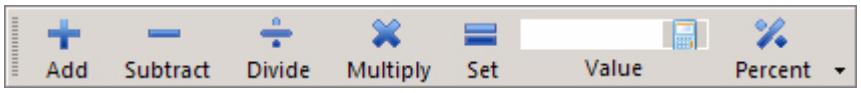
PowerVision Toolbar



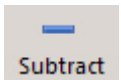
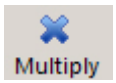
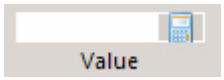
A description of the Power Vision toolbar buttons and functions follows.

press this button	to
	Display the Power Vision information. Refer to To View the PowerVision Information.
	Retrieve a tune from the Power Vision. The tune information will be shown in the Tune Items. Refer to To Get a Tune from the Power Vision.
	Sends the current tune to the Power Vision. Refer to To Send a Tune to the Power Vision.
	Get ECM Data is for diagnostic and development purposes only. The files may not be needed and are not generally useful unless requested by technical support. Refer to To Get ECM Data from the Power Vision.
	Retrieve the log files on the Power Vision. Refer to To Get a Log from the Power Vision.

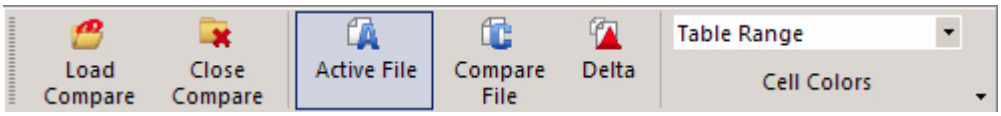
Cell Math Toolbar



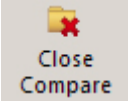
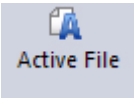
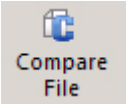
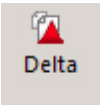
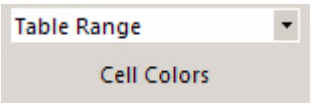
A description of the cell math toolbar buttons and functions follows.

press this button	to
	Add the numbered entered into the Value field to the selected cells.
	Subtract the numbered entered into the Value field from the selected cells.
	Divide the selected cells by the numbered entered into the Value field.
	Multiply the selected cells by the numbered entered into the Value field.
	Set changes the selected cells to the numbered entered into the Value field.
	Use the Value field to enter the number you wish to change the selected cells by.
	Percent changes the selected cells by the numbered entered into the Value field.

Compare Toolbar



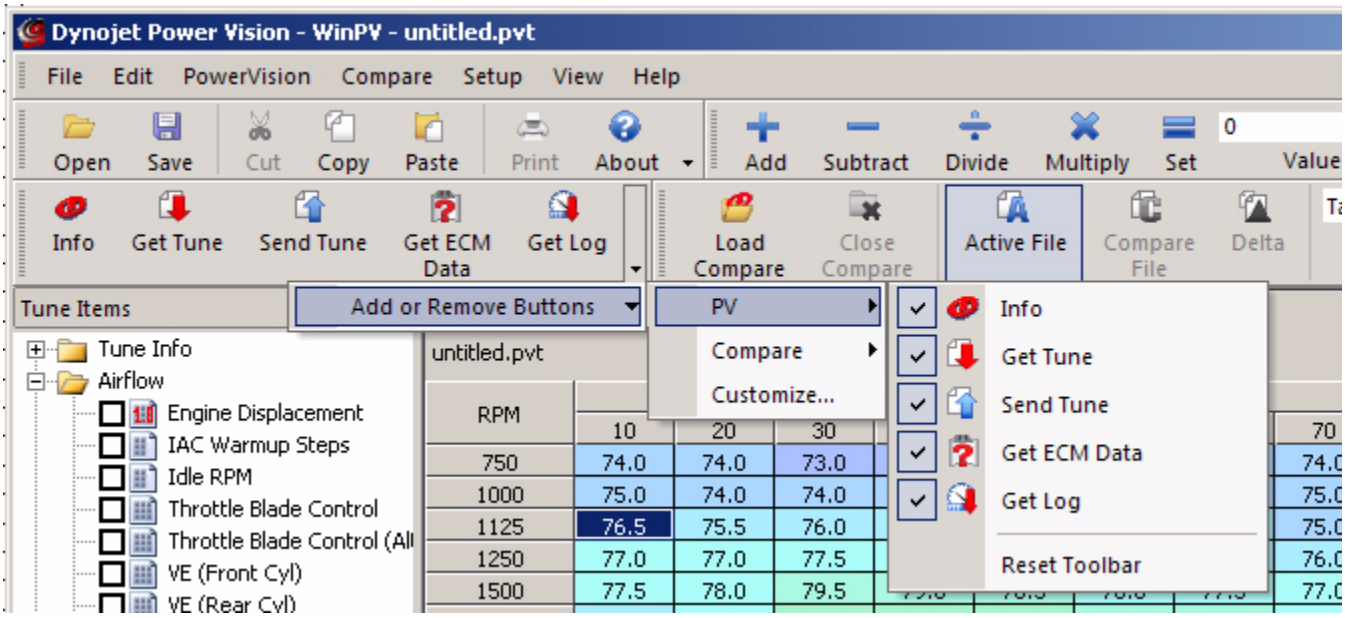
A description of the compare toolbar buttons and functions follows.

press this button	to
	Load a tune file previously saved on your computer as the compare file. Refer to To Load a Compare File.
	Close the compare file and return to a single active tune file.
	Active File allows you to view the active file when comparing two tune files. Refer to To View the Active File.
	Compare File allows you to view the loaded compare file when comparing two tune files. The Compare File cannot be edited. Refer to To View the Compare File.
	Show the difference between the active file and the compare file for the tune item you have selected. Refer to To View Delta.
	Change the colors of the cells in the table. Refer to To Choose Cell Colors.

Customizing the Toolbars

The buttons on each toolbar can be customized to suit your individual needs.

1. Click the arrow found at the end of a toolbar.
2. Select which toolbar you wish to customize.
3. Select which buttons you wish to appear or not appear on the toolbar.

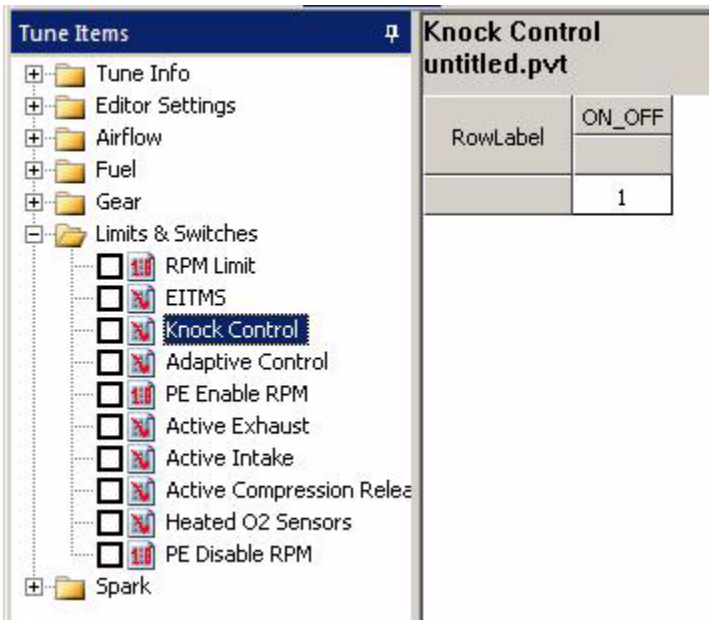


Tune Items

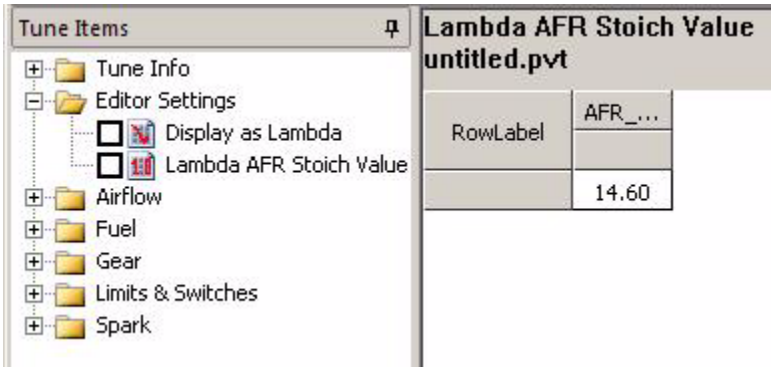
Tune Items shows the available values, parameters, and tables. All of these values affect the way the vehicle performs.

Tune Items fall into one of the three categories:

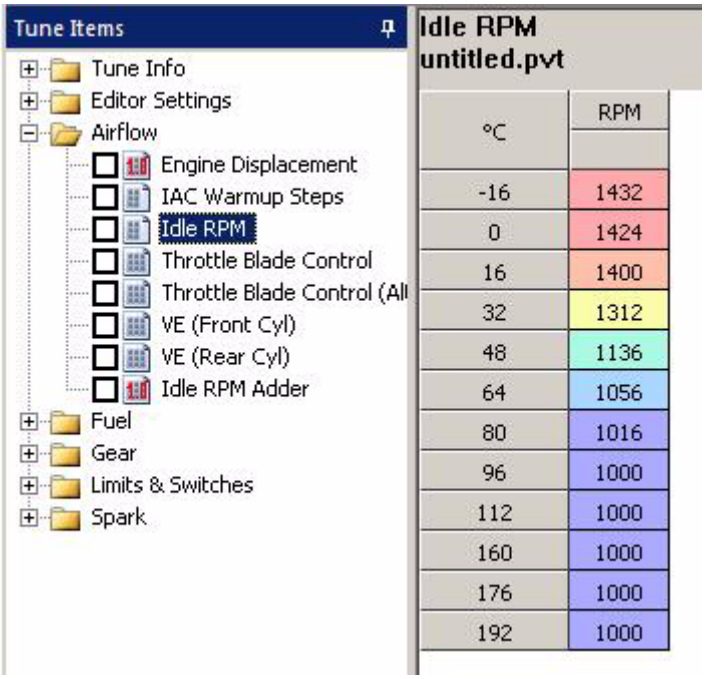
- Switch—values that are either on/off, yes/no, true/false, 0/1, etc.



- Scalar—values that are a single number.

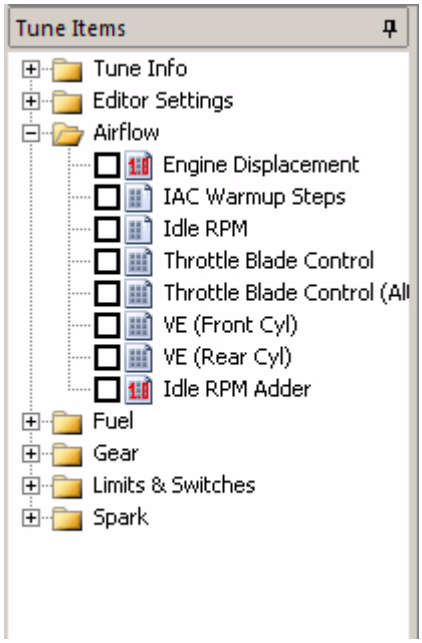


- Tables—values that are displayed in multiple columns and/or rows.



Click the plus sign (+) to expand the items; click the minus sign (-) to compress the items.

Click on the desired tune item to view that item. Many tune items are described in this section.

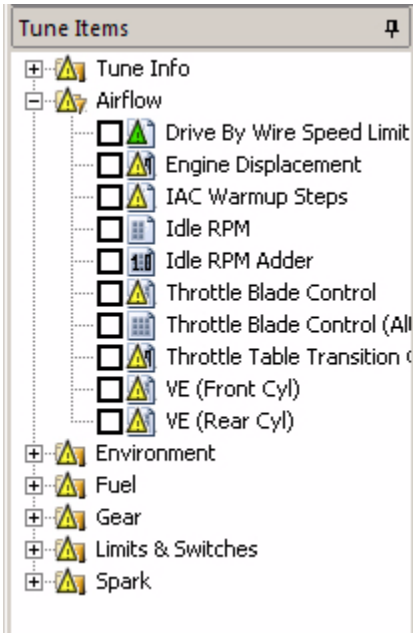


When using the compare feature, a colored flag may be visible next to certain tune items. These visual identifiers helps you distinguish parameters that don't match when using the compare feature. Visual identifiers offer a quick and easy way to identify where the tune has changed.

You must have a compare file open to use the visual identifiers. For more information about the compare feature, refer to To Load a Compare File.

There are three visual identifiers:

- Yellow Flag—different.
- Green Flag—does not exist in the compare file, but does exist in the active file.
- Red Flag—exists in the compare file, but does not exist in the active file.



Tune Info

tune item	description
Description	This is the vehicle and ECM description. Displays Year, Make, Model, Vin and ECM part number.
Calibration ID	This is the stock ECM calibration ID number.

Airflow

tune item	description
Engine Displacement	This value is the displacement of both cylinders. When changing engine size it's easier to ratio this value up and down by the difference in displacement. Input the actual engine displacement into this field. Available in pro user level only.
IAC Warm-up Steps	The Intake Air Control Warm-up Steps table is used to maintain a stable idle during warm-up. This table determines the initial position of the IAC motor to maintain RPM at a given temperature. The closer this table is to the actual IAC opening the better the idle will be. Available in pro user level only.
Idle RPM	The Idle speed is controlled by the idle RPM table as a function of engine temp. To increase idle make these values larger. To decrease idle make these values smaller. Available in pro user level only. Setting Idle RPM below 900 RPM can cause oil pressure to drop.
Throttle Blade Control (Stage II)	This is used in drive by wire systems. This table represents the desired throttle percent as a function of RPM. Throttle Blade Control (Stage II) is used once the throttle transition gear has been reached. Drive by wire Harleys use two throttle blade control tables. To use Throttle Blade Control (Stage II) exclusively, set Throttle Transition Gear to 0.
Throttle Blade Control (Stage I)	This is used in drive by wire systems. This table represents the desired throttle percent as a function of RPM. Throttle Blade Control (Stage I) is used until the throttle transition gear has been reached. Drive by wire Harleys use two throttle blade control tables. To use Throttle Blade Control (Stage I) exclusively set Throttle Transition Gear to 6.
VE (Front)	The Volumetric Efficiency (Front) table is for the front cylinder and is the table that models engine airflow so AFR can be accurately calculated. The values in this table are influenced by the camshaft, exhaust system, head design, engine displacement and air filter. This is the most critical item that must be correct in order to make the bike run correctly. To increase fuel make the values larger. To decrease fuel make the values smaller.

tune item	description
VE (Rear)	The Volumetric Efficiency (Rear) table is for the rear cylinder and is the table that models engine airflow so AFR can be accurately calculated. The values in this table are influenced by the camshaft, exhaust system, head design, engine displacement and air filter. This is the most critical item that must be correct in order to make the bike run correctly. To increase fuel make the values larger. To decrease fuel make the values smaller.
Idle RPM Adder	This is an idle speed RPM adder. Positive values will add RPM to the entire IDLE RPM Function, while negative values will reduce RPM.
Throttle Table Transition Gear	This is the gear that Throttle Blade Control Table (Stage I) will transition to Throttle Blade Control. To use the throttle blade control table only, change this value to 0.
Drive By Wire Speed Limit vs Gear	This is the speed limit for vehicle protection based on gear. Set this to what you want the vehicle speed limit to be in gears one through six.

Environment

tune item	description
EITMS On Temperature	The Engine Idle Temperature Management System (EITMS) On Temp is activated at temperatures greater than this setting. The EITMS shuts off the fuel to the rear cylinder allowing the head to cool. Available in pro user level only.
EITMS Off Temperature	The Engine Idle Temperature Management System (EITMS) Off Temperature is activated at temperatures below this setting. The EITMS shuts off the fuel to the rear cylinder allowing the head to cool. Available in pro user level only.
Knock Control Enable Temperature	Knock Control will be activated at temperatures greater than this setting. Available in pro user level only.
Knock Control Disable Temperature	Knock Control will be de-activated at temperatures lower than this setting. Available in pro user level only.
Adaptive Control Enable Temperature	Adaptive Control will be enabled at temperatures greater than this setting. Available in pro user level only.

Fuel

tune item	description
Injector Size	Fuel injector flow base value in grams per second. This value will need to be changed for larger injectors. 1 gram per second equals 7.94 pounds per hour. 1 pound per hour equals 0.126 grams per second. Available in pro user level only. Example 1: injectors that are 4.35 grams per second are 34.5 pounds per hour. Multiply 4.35 x 7.94 = 34.5. Example 2: injectors that are 42 pounds per hour are 5.29 grams per second. Multiply 42 x 0.126 = 5.29.
Air-Fuel Ratio (Lambda)	The Air-Fuel Ratio Lambda table directly controls closed-loop AFR from idle to red line. This is a value of Lambda. A value of 1 represents 1 times 14.64 for an AFR ratio of 14.64. A value of 0.90 means 0.90 times 14.64 for a commanded AFR ratio of 13.1.
Acceleration Enrichment	Acceleration Enrichment mode can be triggered by a sudden change in throttle position or an increase in MAP pressure. To increase the fuel delivered, increase the values.
Air-Fuel Ratio (Stoich)	The Air-Fuel Ratio Stoich table directly controls closed-loop AFR from idle to red line. This is a value of AFR Ratio.
Cranking Fuel	Cranking Fuel is a multiplier based on engine temperature. A larger number will supply more fuel during the cranking cycle. A smaller number will reduce the amount of cranking fuel during the cranking cycle. Cranking Fuel only applies to starting the engine (when the starter is active).
Deceleration Enleanment	Deceleration Enleanment mode can be triggered by a sudden decrease in throttle position or MAP pressure. To increase the fuel delivered on deceleration, decrease the value. To reduce the amount of fuel delivered increase the value.
PE Air Fuel Ratio (Lambda/Stoich)	Power Enrichment mode is active at higher RPMs and when the throttle position is greater than 95 percent. The purpose of PE mode is to operate the engine at maximum torque AFR and spark values for a short time, then adjust to more conservative values to reduce engine temperature. Available in pro user level only.
Warmup Enrichment (Lambda)	The warm up enrichment table adds additional fuel after start up. The fuel from this table decays out over time. The table is activated only once per key-on. If the engine stalls and is restarted without cycle in the ignition, enrichment continues from its value when the stall occurred.
Warmup Enrichment (Stoich)	The warm up enrichment table adds additional fuel after start up. The fuel from this table decays out over time, and it is only active for 20 to 30 seconds. The table is activated only once per key-on. If the engine stalls and is restarted without cycle in the ignition, enrichment continues from its value when the stall occurred.

tune item	description
Acceleration Enrichment Multiplier	This will determine the total amount of fuel to add during rapid changes in acceleration. To "globally" increase the amount of fuel added during acceleration enrichment increase this vale. To reduce the amount of fuel delivered decrease this value. Available in pro user level only.
Deceleration Enrichment Multiplier	This will determine the total amount of fuel to add or reduce during rapid changes in acceleration. To "globally" increase the amount of fuel added during deceleration enrichment decrease this vale. To reduce the amount of fuel delivered increase this value. Available in pro user level only.
MPG Adjustment	This adjusts the MPG readout for the bike. Higher values show a higher MPG, lower values show lower MPG.
Injector Gas Constant	This is a constant used internally for fuel injector calculations. Usually set to 1.000.

Closed Loop

tune item	description
Closed Loop Bias Front	The closed loop bias table is used to adjust the closed loop AFR. Setting the value in this table to 450 mV will result in a closed loop AFR of 14.68; increasing the value will give a richer mixture and decreasing the value will give a leaner mixture. Available in pro user level only.
Closed Loop Bias Rear	The closed loop bias table is used to adjust the closed loop AFR. Setting the value in this table to 450 mV will result in a closed loop AFR of 14.68; increasing the value will give a richer mixture and decreasing the value will give a leaner mixture. Available in pro user level only.

Gear

tune item	description
Speedometer Calibration	This is the ratio the bike has in it from the factory. This must be changed to the new ratio when changing tire size. Available in pro user level only.
Gear Ratios	Description not available at this time.

Limits and Switches

tune item	description
RPM Limit	Set these values to the RPM at which the rev limiter will engage. 6200 RPM is common for most 96ci to 103ci combinations; 10250 RPM for VROD.
EITMS	This tells the ECM if the vehicle has a Engine Idle Temperature Management System. A value of zero means this vehicle does not have this feature, or shuts off the input to the ECM. Available in pro user level only.
Knock Control	This tells the ECM if the vehicle has Knock Control. A value of zero means this vehicle does not have this feature, or shuts off the knock control to the ECM. A value of one means this vehicle does have this feature and the ECM will attempt to control knock.
Adaptive Control	When in closed loop the ECM will adapt to engine and environmental changes to maintain a consistent AFR. This works by the ECM first using the VE table to calculate how much fuel to deliver to hit the targeted AFR value. It then uses the O2 sensors to determine what the AFR actually is. If there is a difference, the ECM makes an adjustment and stores the difference in the adaptive fuel table. The Adaptive Fuel table will develop a correction profile that is applied to the fuel calculation for each load region. These values are saved in the ECM's memory and will be reloaded each time the bike is started. Available in pro user level only.
PE Enable RPM	Power Enrichment Mode will be activated at RPMs greater than this setting. To disable PE, set this value to your RPM limit or greater than your RPM limit.
Active Exhaust	This tells the ECM if the vehicle has active exhaust control. A value of zero means this vehicle does not have this feature, or shuts off the input to the ECM. Available in pro user level only.
Active Intake	This tells the ECM if the vehicle has active intake. A value of zero means this vehicle does not have this feature, or shuts off the input to the ECM. Available in pro user level only.
Active Compression Release	This tells the ECM if the vehicle has active compression release. A value of zero means this vehicle does not have this feature, or shuts off the input to the ECM. Available in pro user level only.
Heated O2 Sensors	This tells the ECM if the vehicle has heated O2 sensors. A value of zero means this vehicle does not have this feature, or shuts off the input to the ECM. Available in pro user level only.
PE Enable TPS	Power Enrichment Mode will be activated if TPS is greater than this setting. Available in pro user level only.
PE Disable TPS	Power Enrichment Mode will be disabled if TPS is less than this setting. Available in pro user level only.

tune item	description
PE Disable RPM	Power Enrichment Mode will be disabled at RPMs less than this setting. Available in pro user level only.
Closed Loop	For closed-Loop capable calibration, set this to off to disable closed-loop control.

Spark

tune item	description
PE Spark	Power Enrichment mode is active at higher RPMs and when the throttle position is greater than 95 percent. This table is desired spark over time. The purpose of PE mode is to operate the engine at maximum torque AFR and spark values for a short time, then adjust to more conservative values to reduce engine temperature. Available in pro user level only.
Spark Advance (Front)	There are two spark tables, one for each cylinder. This is because the rear cylinder runs hotter than the front and therefore has different timing requirements. The X-axis is KPA the Y-Axis is RPM. Set these values to the spark advance you would like the bike to operate at. Available in pro user level only.
Spark Advance (Rear)	There are two spark tables, one for each cylinder. This is because the rear cylinder runs hotter than the front and therefore has different timing requirements. The X-axis is KPA the Y-Axis is RPM. Set these values to the spark advance you would like the bike to operate at. Available in pro user level only.
Max Knock Retard	This is the maximum amount of knock retard the ECM will allow. Available in pro user level only.
Adaptive Knock Retard	The Delphi ECM utilizes Adaptive Spark Control based on information received from the knock detection system. This system learns retard values to apply when knock is detected. At each key-on the remembered values will be reduced towards zero. This gradually clears out the learned knock value to adapt changes in conditions. Available in pro user level only.
Closed Throttle Spark (Front)	This is the spark to run when the throttle is closed. This table can be modified to allow the engine to run at different spark values when the throttle is closed. This table will replace the spark advance table and any temperature corrections when the throttle is closed.
Closed Throttle Spark (Rear)	This is the spark to run when the throttle is closed. This table can be modified to allow the engine to run at different spark values when the throttle is closed. This table will replace the spark advance table and any temperature corrections when the throttle is closed.

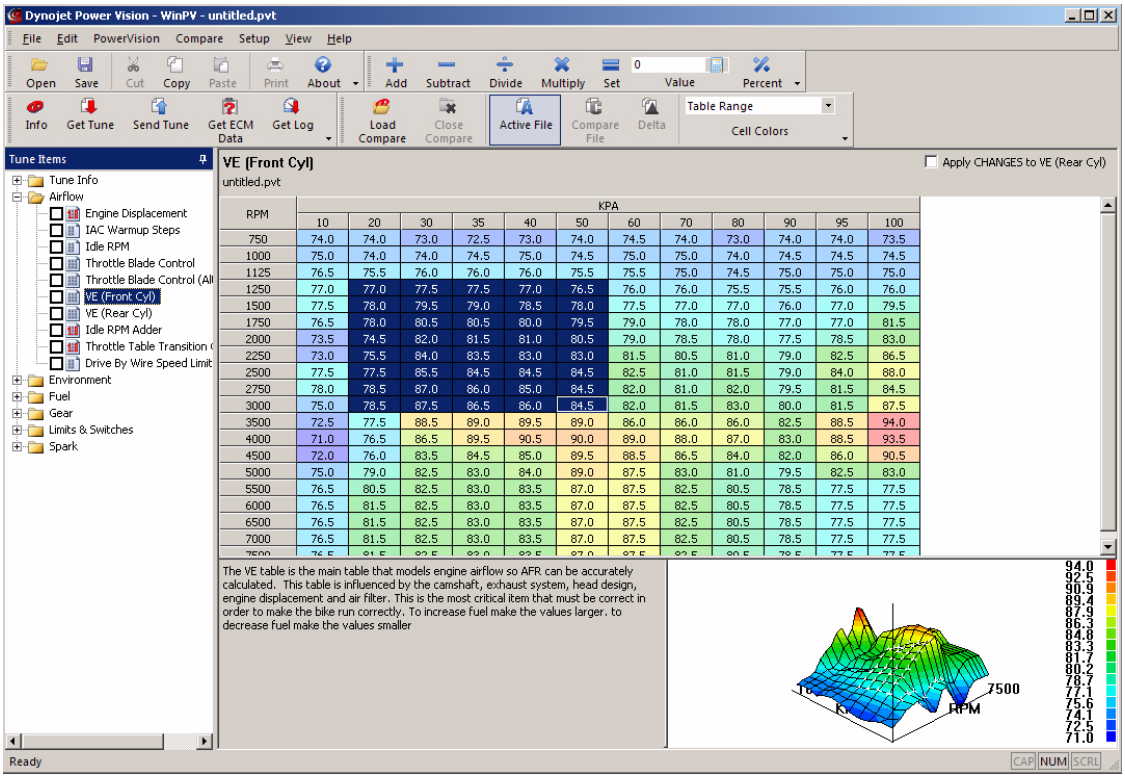
Table

The Table displays the item chosen in Tune Items.

The table is also displayed as a 3-D representation below the table.

1. Click one cell to select it.
2. Click and hold the mouse button while dragging to select multiple cells.

   Selected cells will appear with cross-hairs in the graphical display in the 3-D representation below the table.
3. Select a cell or group of cells, copy those values, and paste those values in different cell(s). For more information about changing cell values, refer to To View the Cell Math Toolbar.
4. You may also select a cell or group of cells and type values into those cells. For more information about changing cell values, refer to To View the Cell Math Toolbar.



Status Bar

The Status Bar shows the status of the connected device.

CHAPTER 4

WORKING WITH POWER VISION

The Power Vision incorporates a very sophisticated, yet simple touch screen display that does not require the use of a computer to flash your bike. Simply select the tune and follow the on-screen prompts to download the tune, and if you'd like, edit your tune without ever touching a computer! Anyone of the three types of tunes outlined below is able to be edited on the device, or in the WinPV Tuning Application. Power Vision downloads and stores the stock calibration, allows you to select up to five different tunes that are stored on the device, and can be flashed to your bike. The types of tunes include:

Dynojet Pre-configured Tunes—Tunes for YOUR bike pre-loaded on the device…….ready to go, right out of the box! Power Vision identifies your bike's information and automatically sorts hundreds of applicable dyno proven tunes for you to choose from.

Custom Tunes - loaded by a custom tuning shop, or received via email and loaded on the device.

Copy of Stock - a version of the stock calibration that is editable.

Power Vision provides insightful, valuable information on how your bike is running.

- Display all J1850 H-D vehicle data, H-D CAN vehicle data, as well as wideband AFR and various calculated channels (such as MPG instant and trip MPG).
- Customizable virtual gauges allow data to be monitored live, and/or logged while riding.
- User defined visual alarms for any data channel (example, if knock exceeds two degrees, or if Cylinder Head Temp exceeds 280°F, enable visual alarm).
- AutoTune Basic and Pro—calculates and stores fuel trims to optimize fuel curve.
- Check and clear diagnostic codes.
- Reset adaptive fuel trims and idle offset.

Power Vision Menus

Program Vehicle Menu

To Load a Dynojet Pre-Configured Tune File

To Load a Custom Tune File

To Load a Copy of Original Tune File

To Load a Copy of Current Tune File

To Edit a Tune File

To Check the ECM Status

Datalog Menu

To View Gauges

To Create Gauge Limits and Visual Warnings

To Playback a Log

To View Signals

To Reset Trip/Economy A

To Reset Trip/Economy B

To Create a Log with Power Vision

To Return to the Power Vision Main Menu

Vehicle Tools Menu

To View Vehicle Info

To View Stored DTC's

To Reset Trims

To Read ECM

To Restore Original Tune

To Return to the Power Vision Main Menu

Settings Menu

To Select the Units

To Change the Brightness

To Enter a Code

To Calibrate the Touch Screen

To Flip the Power Vision Screen

To Return to the Power Vision Main Menu

Device Info Menu

To View Information About the Power Vision

Dealer Info Menu

To View Information About the Dealer

Program Vehicle Menu

The Power Vision accepts custom tune files created in WinPV and pre-loaded Dynojet tunes installed in the Power Vision memory from Dynojet Research. To flash or edit tune files, the Power Vision must be married to the ECM. Marrying the Power Vision to the ECM locks the Power Vision module to that ECM and prevents a single device from being used on multiple ECMs. You cannot unlock a Power Vision from a married ECM. Once the marriage process is complete, you can open the stored calibration in the WinPV software to edit all parameters or change Dynojet specific functions on the device.

To Load a Dynojet Pre-Configured Tune File

Use the following steps to load a Dynojet pre-configured tune file to the ECM.

1. Turn the ignition key to the On position.
2. Verify the Run/Off switch is in the Run position.
3. Touch **Program Vehicle >Load Tune >Dynojet Pre-Configured Tunes**.

4 Touch a Dynojet tune file to load.

5 Touch **Select** to continue with the selected Dynojet tune file.

Or

Touch **Cancel** to abort the process and return to the load tune screen.

6 Verify the Tune information. If the Tune information is correct, touch **Continue**.

7 Touch a slot to save the selected tune file.
Note: If there is any data in the selected slot, it will be overwritten.

8 Touch **Select** to continue with the selected slot.
Or
Touch **Cancel** to abort the process and return to the tune manager.

9 Touch **OK** to continue.
A copy of the Dynojet tune will be saved.
Or
Touch **Cancel** to abort the process and return to the tune manager.

The tune is now ready.

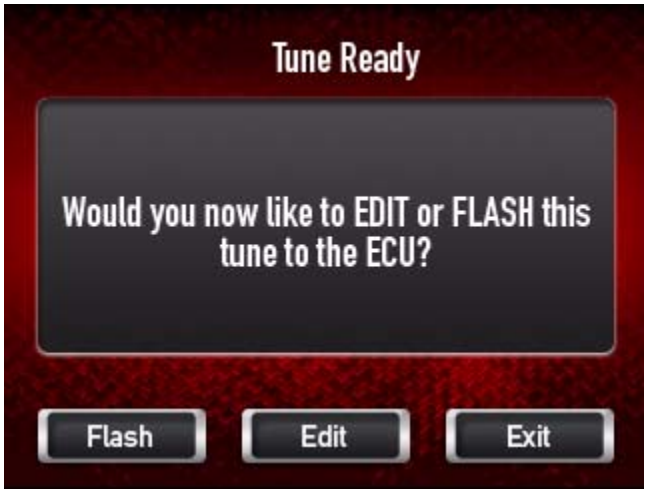
10 Touch **Flash** to send the file to the ECM.

Or

Touch **Edit** to edit the tune file on the Power Vision.

Or

Touch **Exit** to exit the screen without any changes.



11 Touch **OK**.

12 Turn the ignition key off and wait ten seconds.

To Load a Custom Tune File

The Power Vision accepts custom tune files created in the WinPV software or by Dynojet dealers.

Use the following steps to load a custom tune file to the ECM.

1. Turn the ignition key to the On position.
2. Verify the Run/Off switch is in the Run position.
3. Touch **Program Vehicle >Load Tune >Custom Tunes**.
4. Touch a Custom tune file to load.
5. Touch **Select** to continue with the selected Custom tune file.

   Or

   Touch **Cancel** to abort the process and return to the tune file screen.
6. Touch a slot to save the selected tune file.

   Note: If there is any data in the selected slot, it will be overwritten.
7. Touch **Select** to continue with the selected slot.

   Or

   Touch **Cancel** to abort the process and return to the tune manager.
8. Touch **OK** to continue.

   Or

   Touch **Cancel** to abort the process and return to the tune manager.

   The tune is now ready.
9. Touch **Flash** to send the file to the ECM.

   Or

   Touch **Edit** to edit the tune file on the Power Vision.

   Or

   Touch **Exit** to exit the screen without any changes.
10. Touch **OK**.
11. Turn the ignition key off and wait ten seconds.
12. Turn the ignition key back on.

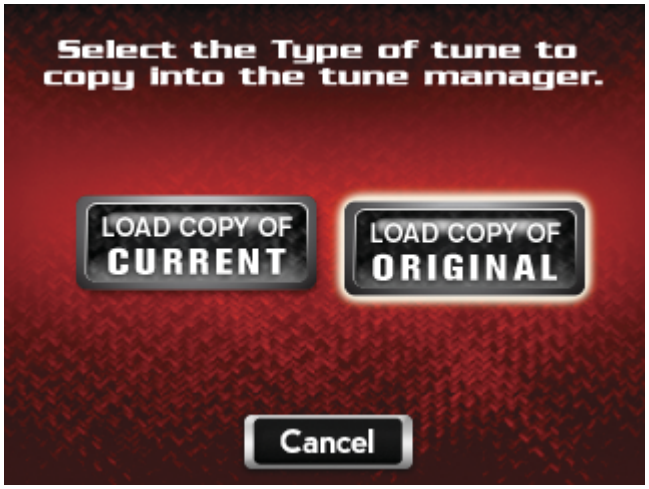
To Load a Copy of Original Tune File

Use the following steps to load a copy of the original tune file to the Power Vision. The original tune file is the tune that was saved when the Power Vision married to the ECM.

1. Turn the ignition key to the On position.
2. Verify the Run/Off switch is in the Run position.
3. Touch **Program Vehicle >Load Tune >Load Copy**.

4. Touch **Load Copy of Original**.

   This will load a copy of the original tune into the Tune Manager. Once loaded into a slot, it will be converted into a custom tune which can be edited and/or flashed to the ECM.



5 Touch **OK**.

The Power Vision and the bike are now married.

6 Touch **OK**.

7 Touch a slot to save the selected tune file.

Note: If there is any data in the selected slot, it will be overwritten.

8 Touch **Select** to continue with the selected slot.

Or

Touch **Cancel** to abort the process and return to the tune manager.

9 Touch **OK**.

A copy of the stock tune will be saved.

10 Touch **OK** to continue.

Or

Touch **Cancel** to abort the process and return to the tune manager.

The tune is now ready.

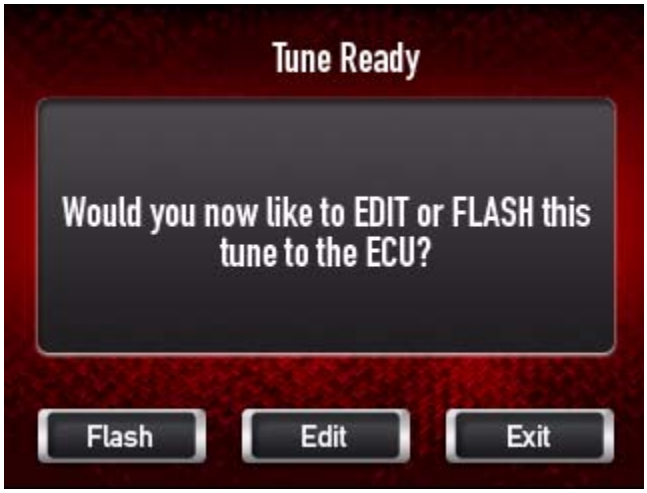
11 Touch **Flash** to send the file to the ECM.

Or

Touch **Edit** to edit the tune file on the Power Vision.

Or

Touch **Exit** to exit the screen without any changes.



To Load a Copy of Current Tune File

Use the following steps to load a copy of the current tune file to the Power Vision. The current tune file is the tune that is currently in the ECM.

1. Turn the ignition key to the On position.
2. Verify the Run/Off switch is in the Run position.
3. Touch **Program Vehicle >Load Tune >Load Copy**.

4. Touch **Load Copy of Current**.

   This will load a copy of the current tune into the Tune Manager. Once loaded into a slot, it will be converted into a custom tune which can be edited and/or flashed to the ECM.

5 Touch **OK**.

The Power Vision and the bike are now married.

6 Touch **OK**.

7 Touch a slot to save the selected tune file.

Note: If there is any data in the selected slot, it will be overwritten.

8 Touch **Select** to continue with the selected slot.

Or

Touch **Cancel** to abort the process and return to the tune manager.

9 Touch **OK**.

A copy of the current tune will be saved.

10 Touch **OK** to continue.

Or

Touch **Cancel** to abort the process and return to the tune manager.

The tune is now ready.

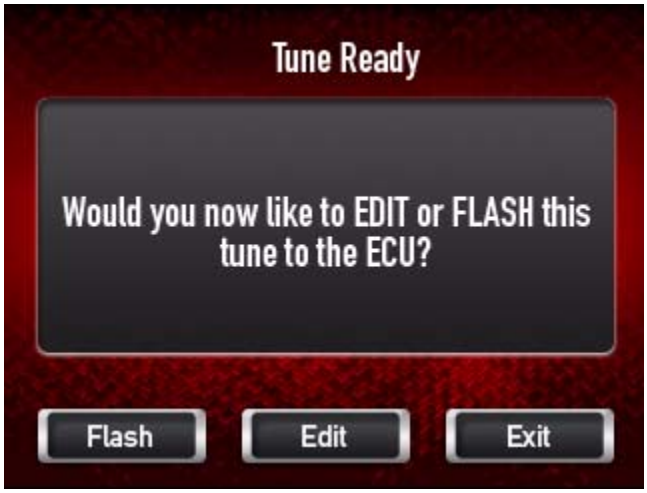
11 Touch **Flash** to send the file to the ECM.

Or

Touch **Edit** to edit the tune file on the Power Vision.

Or

Touch **Exit** to exit the screen without any changes.



To Edit a Tune File

Edit Tune allows you to edit Dynojet Tune, Custom Tune, or Copy of Stock Tune files directly on the Power Vision.

Use the following steps to edit a tune on the Power Vision.

1. Turn the ignition key to the On position.
2. Verify the Run/Off switch is in the Run position.
3. Touch **Program Vehicle >Edit Tune**.
4. Touch a tune slot to edit.
5. Touch **Select** to use the selected slot.

   Or

   Touch **Cancel** to abort the process and return to the tune manager.
6. Touch parameters to edit.
7. Touch **Select** to edit a parameter.

   Or

   Touch **Cancel** to abort the process and return to the tune manager.
8. Enter a new value in field.
9. Touch **Save** to save the new value.

   Or

   Touch **Cancel** to abort the process and return to the tune manager.
10. Touch **Yes** to confirm the change.

    Or

    Touch **No** to cancel the change.
11. Touch **Yes** to save the changes.

    Or

    Touch **No** to cancel the change.
12. Touch **OK** to complete the procedure.

    Note: For changes to be applied you must flash the edited tune file to the ECM.

To Check the ECM Status

Status allows you to verify the connection status between the Power Vision and the ECM.

Use the following steps to check the status.

1. Touch **Program Vehicle >Status**.
2. Touch **Back** to return to the Power Vision main menu.

Datalog Menu

To View Gauges

1. Touch **Datalog >Gauges**.
2. Using the left or right arrows at the bottom of the screen, select your desired gauge template.
3. Touch **None**, or the current gauge label, to edit the gauge properties.

4. Select **None**, or the current gauge label, (in the space located to the right of Signal).

5 From the device list, choose Harley or DJ Wideband2.
6 Touch **Select** to confirm your choice.

Or

Touch **Cancel** to return to the Set Gauge Properties screen.

7 From the Signal list, assign a signal.
8 Touch **OK** to confirm your selection.

Or

Touch **Cancel** to return to the Set Gauge Properties screen.

To edit additional gauge properties, refer to To Create Gauge Limits and Visual Warnings.

9 Touch **OK** to confirm the gauge properties.
10 Touch **Exit** to exit the Datalog menu.
11 Touch **Back** to return to the Power Vision main menu.

To Create Gauge Limits and Visual Warnings

1. Touch **Datalog >Gauges**.
2. Using the left or right arrows at the bottom of the screen, select your desired gauge template.
3. Touch **None**, or the current gauge label, to edit the gauge properties.

4. Touch **None**, or the current gauge label, (in the space located to the right of Signal).

5 From the device list, choose Harley or DJ Wideband2.

6 Touch **Select** to confirm your choice.

Or

Touch **Cancel** to return to the Set Gauge Properties screen.

7 From the Signal list, assign a signal.

8 Touch **OK** to confirm your selection.

Or

Touch **Cancel** to return to the Set Gauge Properties screen.

9 To set the minimum value for the signal:

9a Touch **L. Limit**.

9b Using the number pad, enter the minimum value for the signal.

9c Touch **Save** to confirm the value or **Cancel** to return to the Set Gauge Properties screen.

10 To set the maximum value for the signal:

10a Touch **H. Limit**.

10b Using the number pad, enter the maximum value for the signal.

10c Touch **Save** to confirm the value or **Cancel** to return to the Set Gauge Properties screen.

11 To set the low warning value for the signal:

11a Touch **L. Warning**.

11b Using the number pad, enter the low warning value for the signal.

11c Touch **Save** to confirm the value or **Cancel** to return to the Set Gauge Properties screen.

12 To set the high warning value for the signal:

12a Touch **H. Warning**.

12b Using the number pad, enter the high warning value for the signal.

12c Touch **Save** to confirm the value or **Cancel** to return to the Set Gauge Properties screen.

13 Touch **OK** to confirm your changes.

Or

Touch **Cancel** to return to the gauge screen.

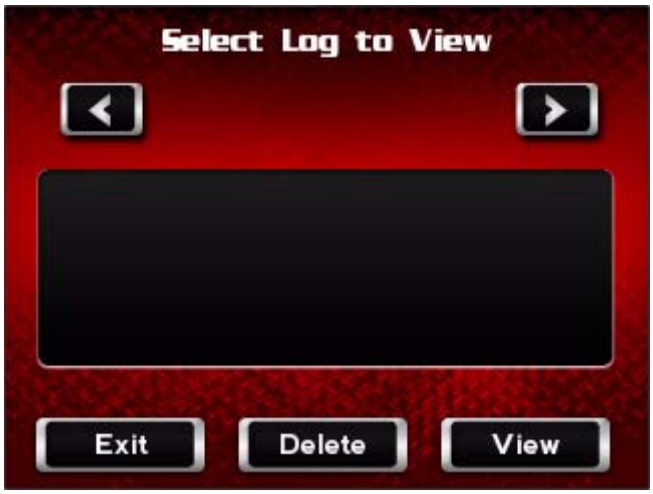
14 Touch **Exit** to exit the Datalog menu.

15 Touch **Back** to return to the Power Vision main menu.

To Playback a Log

Playback allows you to play back recorded log files saved on the Power Vision.

1. Touch **Datalog >Playback**.
2. Touch a log to view.
3. Touch **View** to view the log.
4. Touch **Delete** to delete the log.
5. Touch **Exit** to return to the Datalog menu.



To View Signals

Signals are channels that can be logged on the Power Vision. You can add, edit, or delete channels that are data logged.

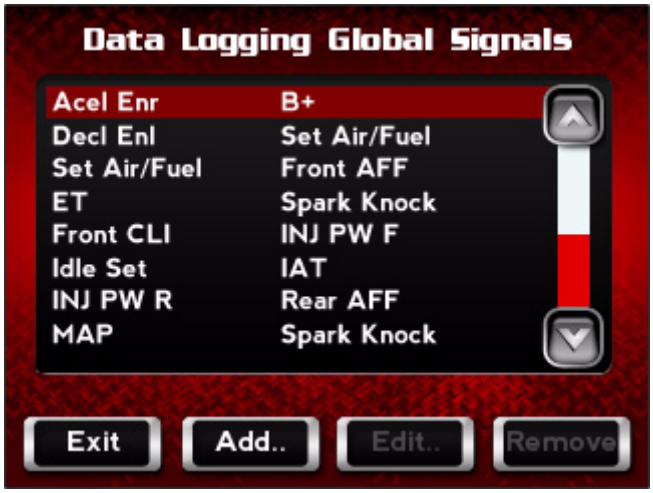
1 Touch **Datalog >Signals**.

2 To edit one of the channels from the list:

2a Select a channel from the list.

2b Touch **Edit** to change the gauge properties for the selected channel.

For more information about editing gauge properties, refer to To View Gauges and To Create Gauge Limits and Visual Warnings.



3 To remove a channel from the list:

3a Select a channel from the list.

3b Touch **Remove** to delete the channel from the data logging global signal list.

4 To add a channel to the current list:

4a Touch **Add** to add a channel not in the current list.

4b Use the Set Global Signal Properties screen to select and set up a channel.

For more information about creating a gauge channel, refer to To View Gauges.

4c Touch **OK** to return to the Data Logging Global Signals screen.

5 Touch **Exit** to return to the Datalog menu.

To Reset Trip/Economy A

Reset Trip/Economy A resets the tripometer and fuel economy meter in the Power Vision.

Touch **Datalog >Reset Trip/Eco A**.

To Reset Trip/Economy B

Reset Trip/Economy A resets the tripometer and fuel economy meter in the Power Vision.

Touch **Datalog >Reset Trip/Eco B**.

To Create a Log with Power Vision

The Dynojet Power Vision has internal logging capabilities when monitoring gauges.

1. Touch **Datalog >Gauges**.
2. Using the left or right arrows at the bottom of the screen, select gauge you would like to use.
3. Touch **Start Log** to begin logging.
4. Touch **End Log** to stop logging.
5. Touch **Exit** to return to the Datalog menu.

To Return to the Power Vision Main Menu

Touch **Back**.

Vehicle Tools Menu

To View Vehicle Info

Vehicle Info stores VIN data, ECM family information, model number, ECM part number, and other vehicle specific information.

1. Touch **Vehicle Tools >Vehicle Info**.
2. Touch **Exit** to return to the Vehicle Tools menu.

To View Stored DTC's

Stored DTC's displays and allows you to clear Dealer Trouble Codes. Stored DTC's can be used on multiple Delphi equipped Harley-Davidson Motorcycles, even after the Power Vision is married to one specific ECM.

1. Touch **Vehicle Tools >Stored DTC's**.
2. Touch **Read** to view stored DTC's.
3. Touch **Clear** to erase stored DTC's.
4. Touch **Exit** to return to the Vehicle Tools menu.

To Reset Trims

Reset Trims resets adaptive fuel or idle trims that have been learned by the ECM. Resetting these trims before a tune session is recommended.

1. Touch **Vehicle Tools >Reset Trims**.
2. Touch **Reset Fuel Trim** to reset the fuel trims.

   Or

   Touch **Reset Idle Trim** to reset the idle trims.

3. Touch **Read** to view the current information.
4. Touch **Exit** to return to the Reset Trims screen.

5. Touch **Back** to return to the Vehicle Tools menu.

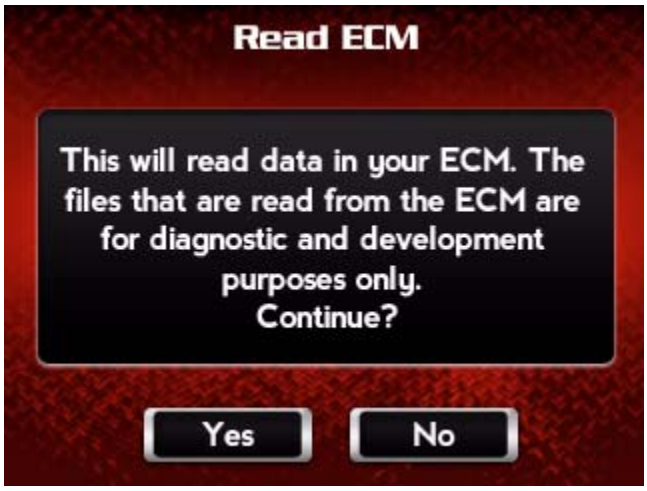
To Read ECM

Read ECM is for development purposes only and should only be selected when instructed by a Dynojet Technician.

1. Touch **Vehicle Tools >Read ECM**.
2. Touch **Yes** to continue.

   Or

   Touch **No** to return to the Vehicle Tools menu.



To Restore Original Tune

Restore Original Tune allows you to restore the factory ECM calibration.

1. Touch **Vehicle Tools >Restore Original Tune**.
2. Touch **Yes** to restore the original tune to your ECM.

   Or

   Touch **No** to return to the Vehicle Tools menu.

To Return to the Power Vision Main Menu

Touch **Back**.

Settings Menu

To Select the Units

Units sets all Power Vision units to either Metric or English.

1. Touch **Settings >Units**.
2. Touch **English** or **Metric**.
3. Touch **Back** to return to the Setting menu.

To Change the Brightness

1. Touch **Settings >Brightness**.
2. Use the arrows to increase or decrease the brightness of the Power Vision screen.
3. Touch **Save** to confirm the changes.

   Or

   Touch **Cancel** to return to the Settings menu.

To Enter a Code

1 Touch **Settings >Enter Code**.
2 Using the number pad, enter a code.
3 Touch **Save** to save the code.
Or
Touch **Cancel** to return to the Settings menu.

To Calibrate the Touch Screen

Use the following steps to calibrate the Power Vision touch screen.

1 Touch **Settings >Touch Calibrate**.
2 Touch the plus (+) signs as they appear.
The calibration process will complete once all points have been touched.

To Flip the Power Vision Screen

Flip Screen rotates the Power Vision screen orientation 180 degrees.

Touch **Settings >Flip Screen**.

To Return to the Power Vision Main Menu

Touch **Back**.

Device Info Menu

To View Information About the Power Vision

Device Info displays information about the Power Vision.

Touch **Device Info**.

Dealer Info Menu

To View Information About the Dealer

Dealer Info displays dealer information.

Touch **Dealer Info**.

CHAPTER 5

WORKING WITH POWER VISION LOG TUNER

Power Vision Log Tuner (Log Tuner) is an easy to use program developed by Dynojet to use data logs from the Power Vision to generate a tune specifically for your bike. You don't need to have a vast understanding of the Harley EFI system to use Log Tuner. We've made tuning your bike easier than ever. Log Tuner can tune your EFI equipped Harley Davidson using two methods: basic method using the motorcycles OEM O2 sensors and pro method using the Dynojet AutoTune module.

This section is divided into the following categories:

- Theory of Operation, page 5-2
- Log Tuner Software Installation, page 5-3
- Tuning Method, page 5-6
- Configure the WinPV Value File, page 5-16
- Configure the Power Vision, page 5-18
- Log Tuner, page 5-21
- Apply the Corrected Value File to the Tune, page 5-26

Theory of Operation

This section describes the theory of operation for Log Tuner.

Basic Tuning with Log Tuner

Basic Tuning with Log Tuner utilizes the factory narrow band O2 sensors to make the necessary corrections needed to properly calibrate your ECM using the Dynojet Power Vision.

Basic tuning method requires you to extend the closed loop operating range, reduce ignition timing advance, and allow the factory narrowband oxygen sensors make the corrections for you. Factory narrowband O2 sensors are extremely accurate at or very near to stoichiometric (14.6 AFR or lambda 1) air fuel ratio. Stoichiometric air fuel ratio is great for fuel economy and light load, but when it comes time to tune for best power and torque (wide open throttle) the pro tuning method should be used.

Prior to logging, you should set up your calibration (tune) to allow Log Tuner and its process to work more efficiently. Refer to Retrieving the Tune File from the Power Vision.

Pro Tuning with Log Tuner

Pro tuning method utilizes the Dynojet Auto Tune module which uses wideband oxygen sensor technology. This is the most accurate way to calibrate your ECM. By utilizing wideband O2 sensors, you can tune for best economy and best power/torque. The wideband sensors used in our Auto Tune module are extremely accurate at all of the operating ranges of your motorcycle. The Auto Tune module will plug into a Power Vision and allow you to monitor and log front cylinder and rear cylinder lambda (based on wideband sensors).
The H-D data bus broadcasts Desired AFR (or Set AFR) along with the other required data channels such as MAP, RPM, TP, and Lambda 1, Lambda 2, front and rear VE; these values can be logged by the Power Vision. Log Tuner will use this logged data to make correcting your (lambda/AFR) easier.

Log Tuner will analyze two files: a log file created from a Power Vision that is equipped with the Auto Tune device and .pvv file (Power Vision Value File from the WinPV tuning software). Log Tuner will create a corrected Power Vision Value File to adjust the difference between desired AFR and actual AFR.

You will need one of the following Dynojet Auto Tune kits to utilize pro tuning:

- AT-110—Auto Tune, HD-J1850, Power Vision
- AT-110B—Auto Tune, HD-J1850,Power Vision with exhaust bungs
- AT-120—Auto Tune, HD-CAN, Power Vision
- AT-120B—Auto Tune, HD-CAN, Power Vision with exhaust bungs

Prior to logging, you should set up your calibration (tune) to allow Log Tuner and its process to work more efficiently. Refer to Retrieving the Tune File from the Power Vision.

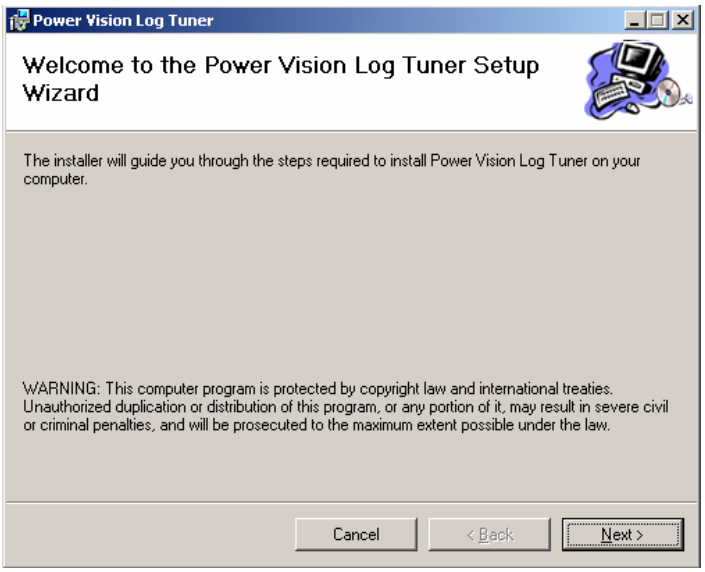
Log Tuner can also use the factory narrow band O2 sensors to create the corrections needed to properly calibrate your ECM at idle and light load ranges, then utilize the Dynojet Auto Tune module's wideband oxygen sensors to tune for best power and torque. Log Tuner's use of data natively on board the H-D ECM and Dynojet wideband technology provides you with the best of both features.

Log Tuner Software Installation

1 Insert the Log Tuner CD into your CD-ROM drive. The launch program will run automatically showing the Setup Wizard.

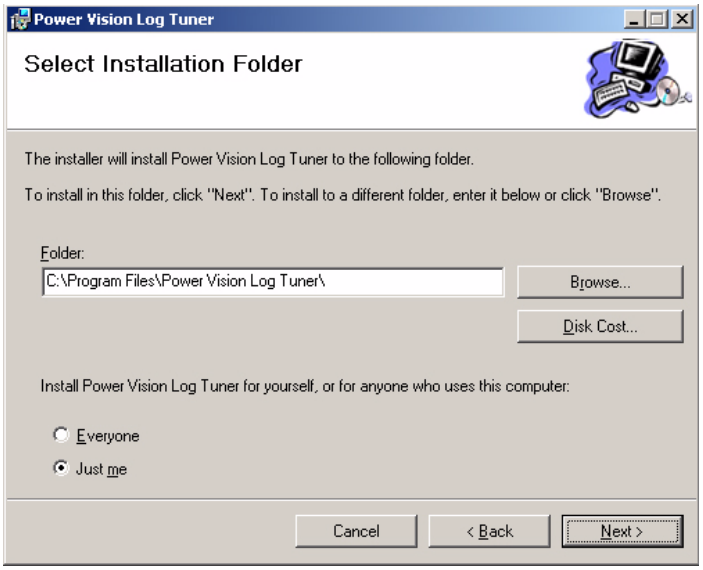
If auto-run is disabled on your computer, click **Start** on the Windows® task bar, and click **Run**. Type D:\setup.exe, where D is the letter that corresponds to your CD-ROM drive, or the appropriate directory in order to access the setup.exe on the CD-ROM.

2 Read the Welcome window and click **Next** to continue.

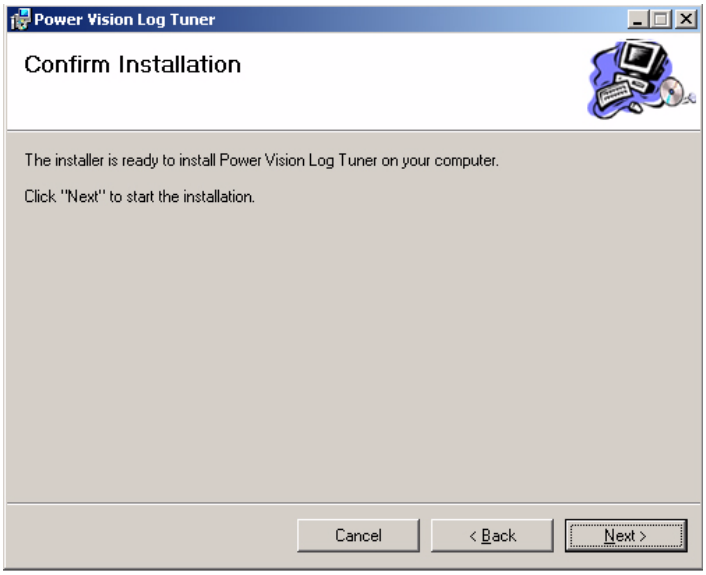


3 Select a destination location where the Log Tuner software will be installed and click **Next** to continue.

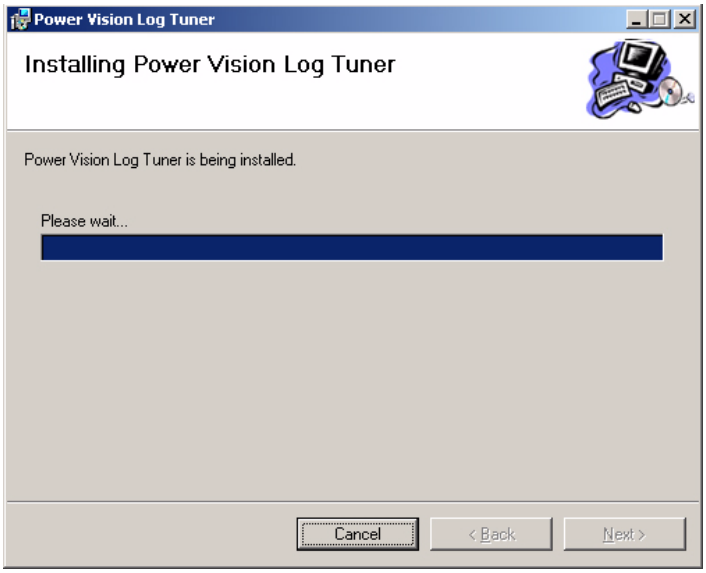
Note: Dynojet recommends that you do not change the default destination folder.



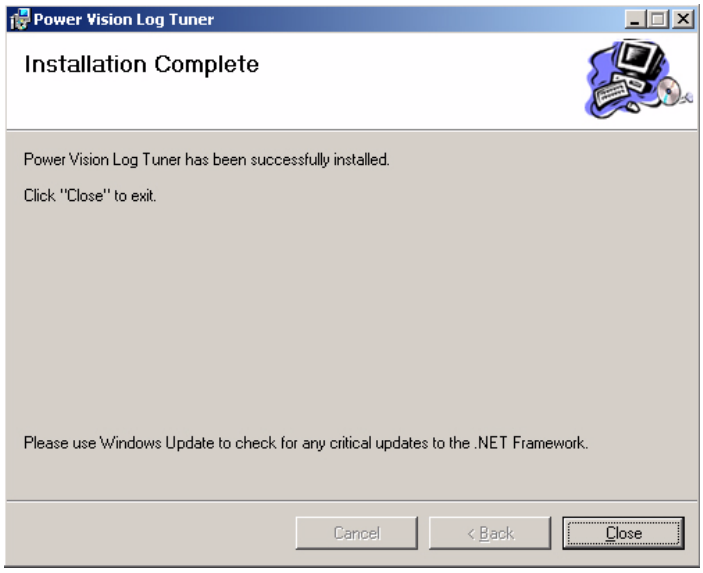
4 Click **Next** to begin the installation. Click **Back** to change the folder location.



5 Click **Next** when the installation is complete.



6 Click **Close** to complete the installation.



Tuning Method

This section provides instructions for retrieving the tune file from the Power Vision and making changes needed for using Log Tuner.

Retrieving the Tune File from the Power Vision

Basic Tuning Method with Log Tuner

Pro Tuning Method with Log Tuner

Retrieving the Tune File from the Power Vision

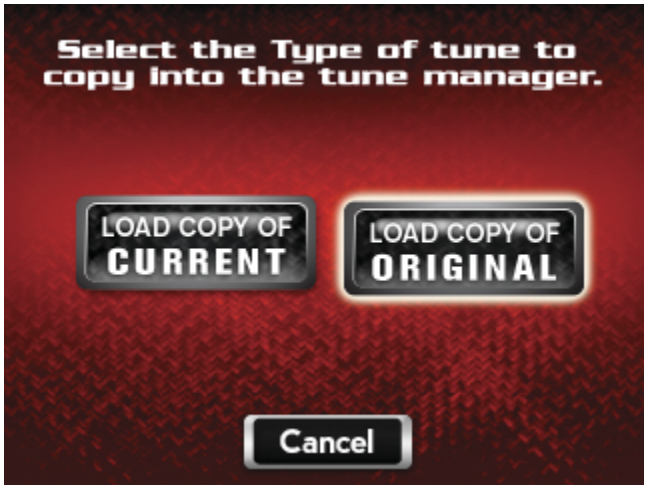
Before using Log Tuner you will need to set up the ECM's tune file. The instructions below will guide you through retrieving the tune file from the Power Vision.

1. Turn the ignition to the on position.
2. Verify the Run/Off switch is in the Run position (key on, kill switch to on, engine off).
3. Using the Power Vision, touch **Program Vehicle >Load Tune >Load Copy**.

4 Touch **Load Copy of Current** or **Load Copy of Original**.

Load Copy of Current—loads a copy of the current tune file in the ECM.

Load Copy of Original—loads a copy of the original file that was saved when the Power Vision married itself to the ECM.



5 Touch a slot to save the tune file.

6 Touch **Select** to continue with the selected slot.

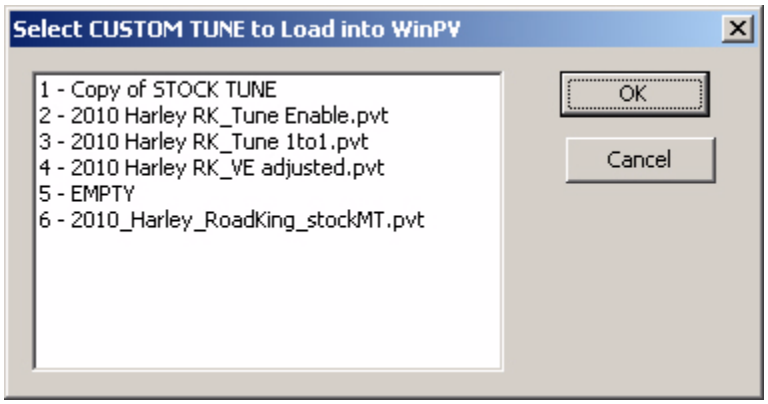
7 Touch **OK** to continue.

8 Turn the key off.
9 Remove the Power Vision.
10 Using the USB cable, connect the Power Vision to your computer.
11 Verify the Power Vision boots up and says PC Link Mode Active.
12 Launch the WinPV software application.
13 Verify the Power Vision software user level is set to Pro. Refer to To Setup the Options.

14 Select **PowerVision >Get Tune from PV** or click the Get Tune button 

.
15 Select the Copy of Original or Copy of Current tune file.
16 Click **OK**.

This is the file that your tune will be built from. Use Save As to save this tune file to your computer for safe keeping. In our example, we named the file OriginalTuneFile.pvt.

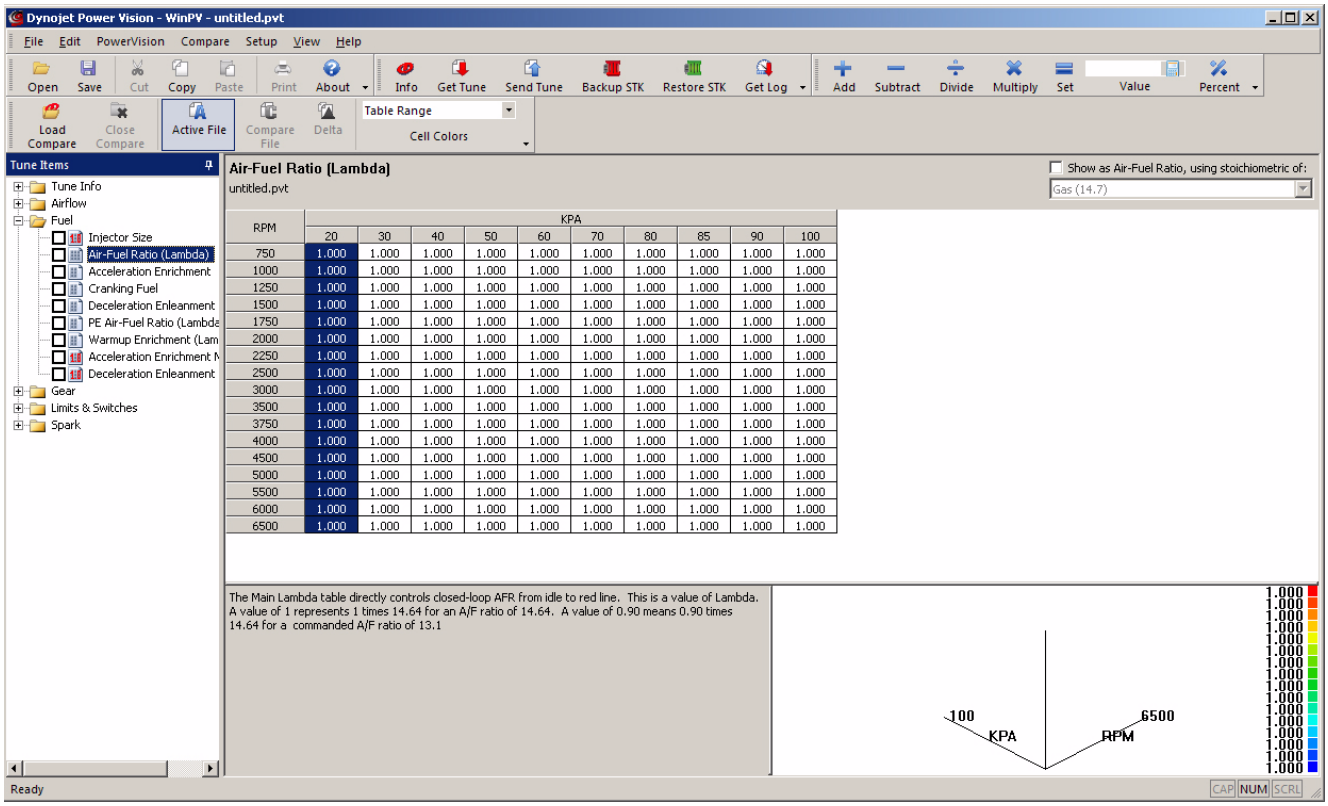


Basic Tuning Method with Log Tuner

1. Open the WinPV software.
2. Under Tune Items, click **Fuel >Air Fuel Ratio (Lambda or AFR)**.
3. Extend the closed loop operating range by changing the values in the table to 14.6 for AFR or 1 for lambda.

   This disables the ECM's ability to transition to open loop.

   Note: Basic tuning method is not recommended for high horse power applications or throttle positions/KPA above 70%/80KPA.



4 If present, change the closed loop bias.

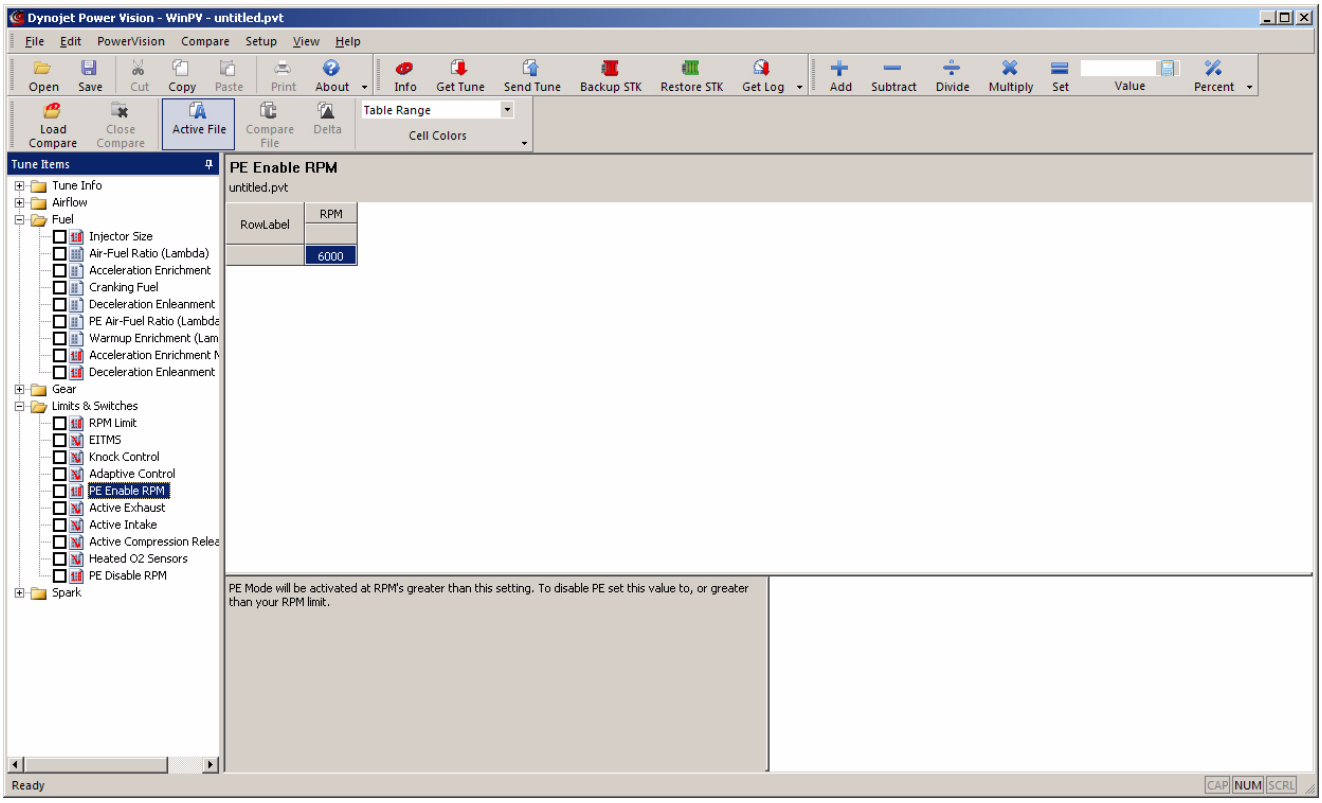
4a Under Tune Items, click **Closed Loop >Closed Loop Bias**.

4b Change the closed loop bias to 750 mV.

5 Under Tune Items, click **Limits & Switches >PE Enable RPM**.

6 Raise the PE Enable RPM limit above the current rev limiter.

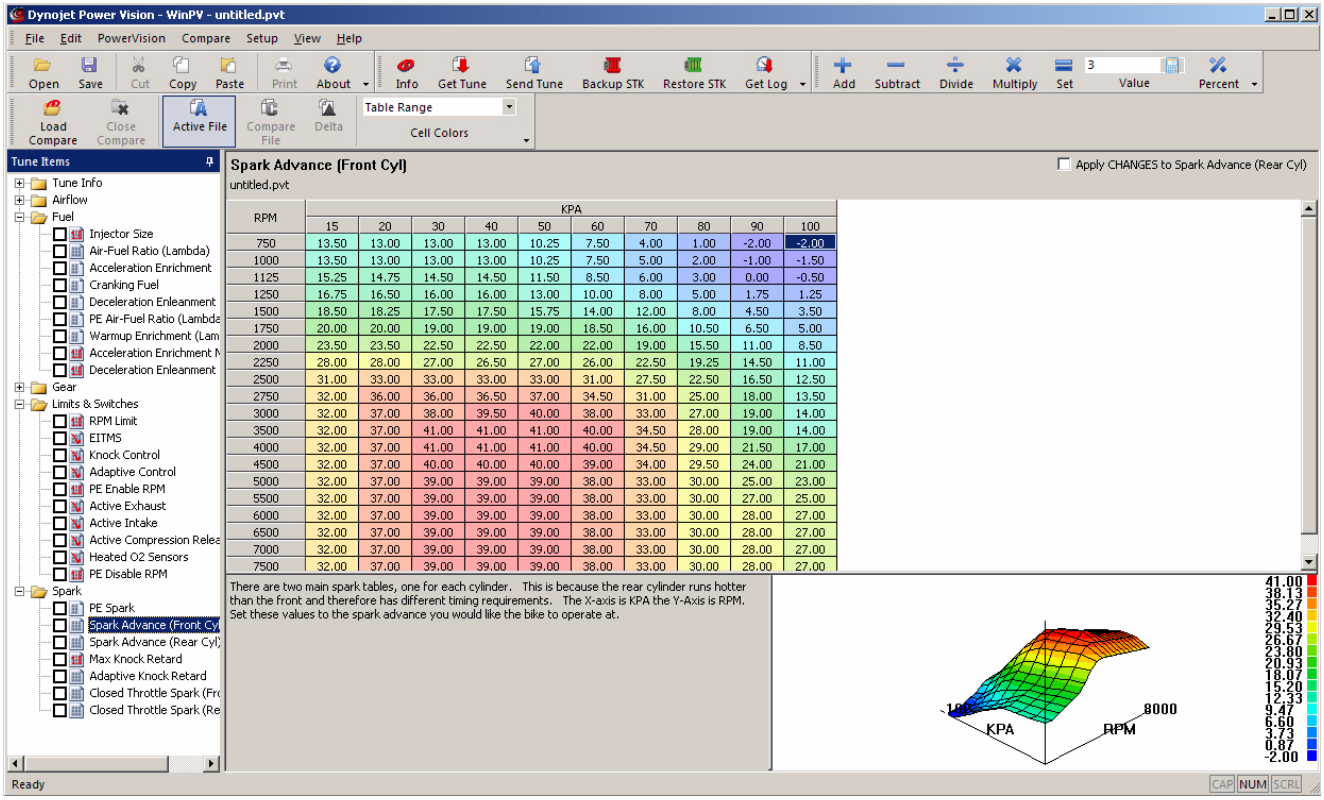
This will effectively disable Power Enrichment.



7 Under Tune Items, click **Spark >Spark Advance Front and Rear**.

8 Remove at least four to six degrees of spark advance from the front and rear cylinder tables. Refer to the Cell Math Toolbar.

This is necessary because we are commanding a leaner AFR/lambda for Log Tuner Basic, which can increase the possibility of detonation/engine knock. Pulling timing allows you to operate at leaner AFR/lambda with less possibility of detonation.



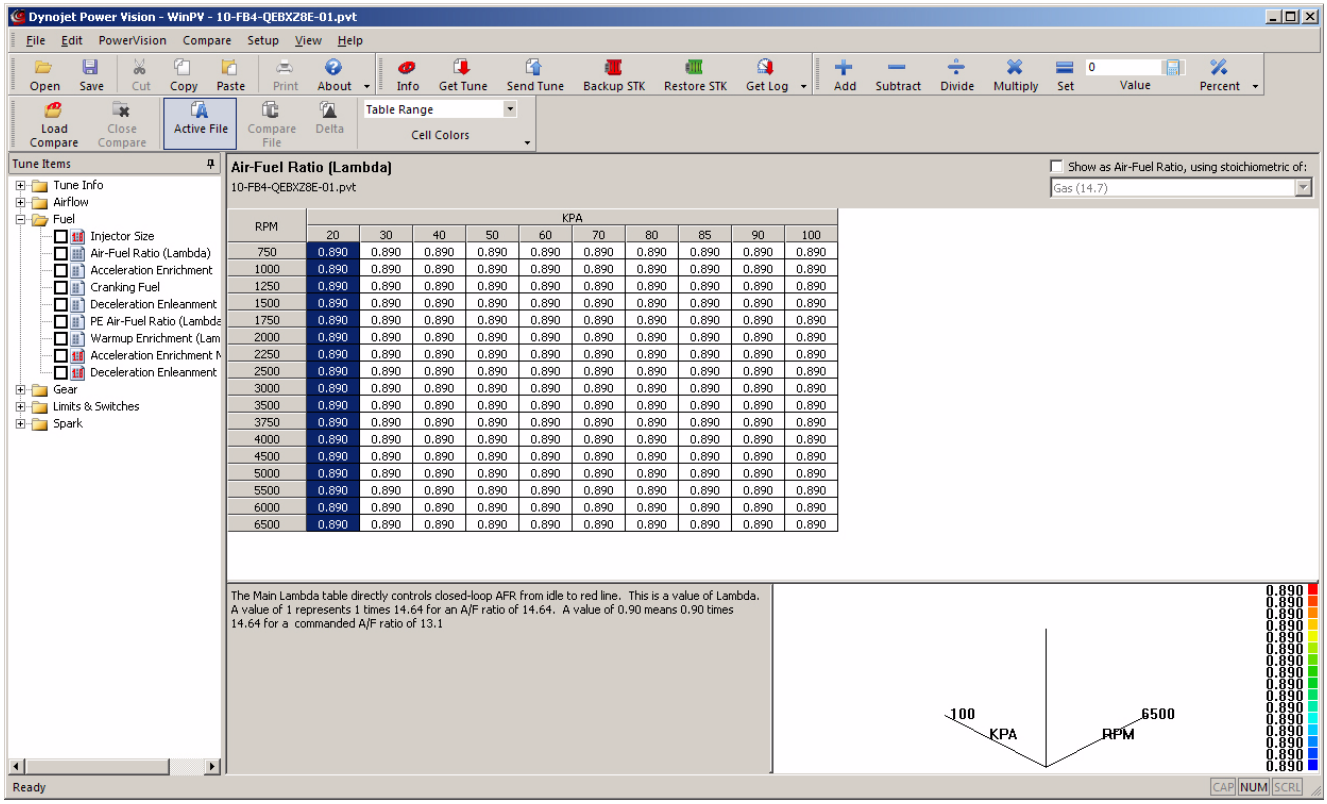
9 Continue with Configure the WinPV Value File.

Pro Tuning Method with Log Tuner

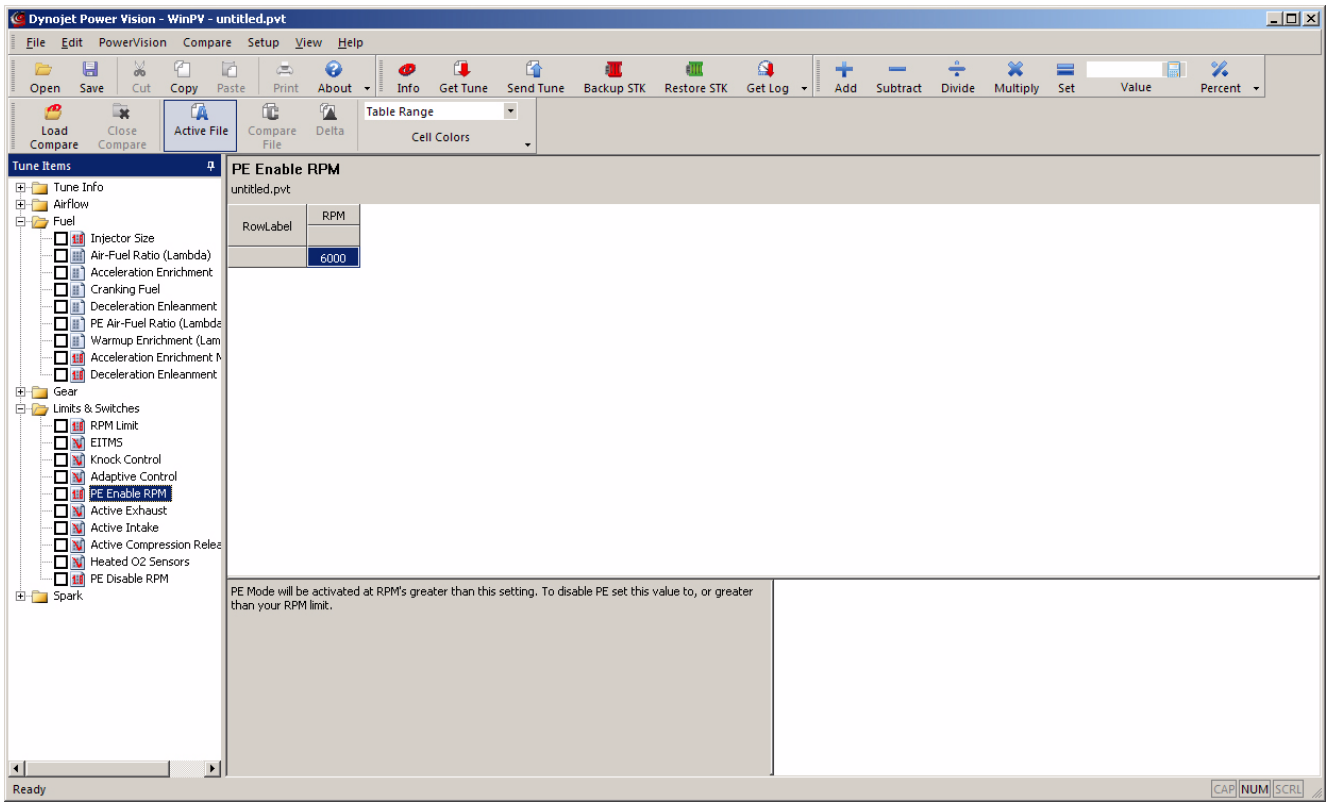
1. Open the WinPV software.
2. Under Tune Items, click **Fuel >Air Fuel Ratio (lambda or AFR)**.
3. Log Tuner can use the factory narrow band O2 sensors to create the corrections needed to properly calibrate your ECM at idle and light load ranges, then utilize the Dynojet Auto Tune module's wideband oxygen sensors to tune for best power and torque. To use this method, leave the set AFR table as is.

   Or

   Alternatively, you can utilize the AutoTune module for all operating ranges. To use this method, set the entire table to one value; for example, AFR 13 or 0.89 lambda.



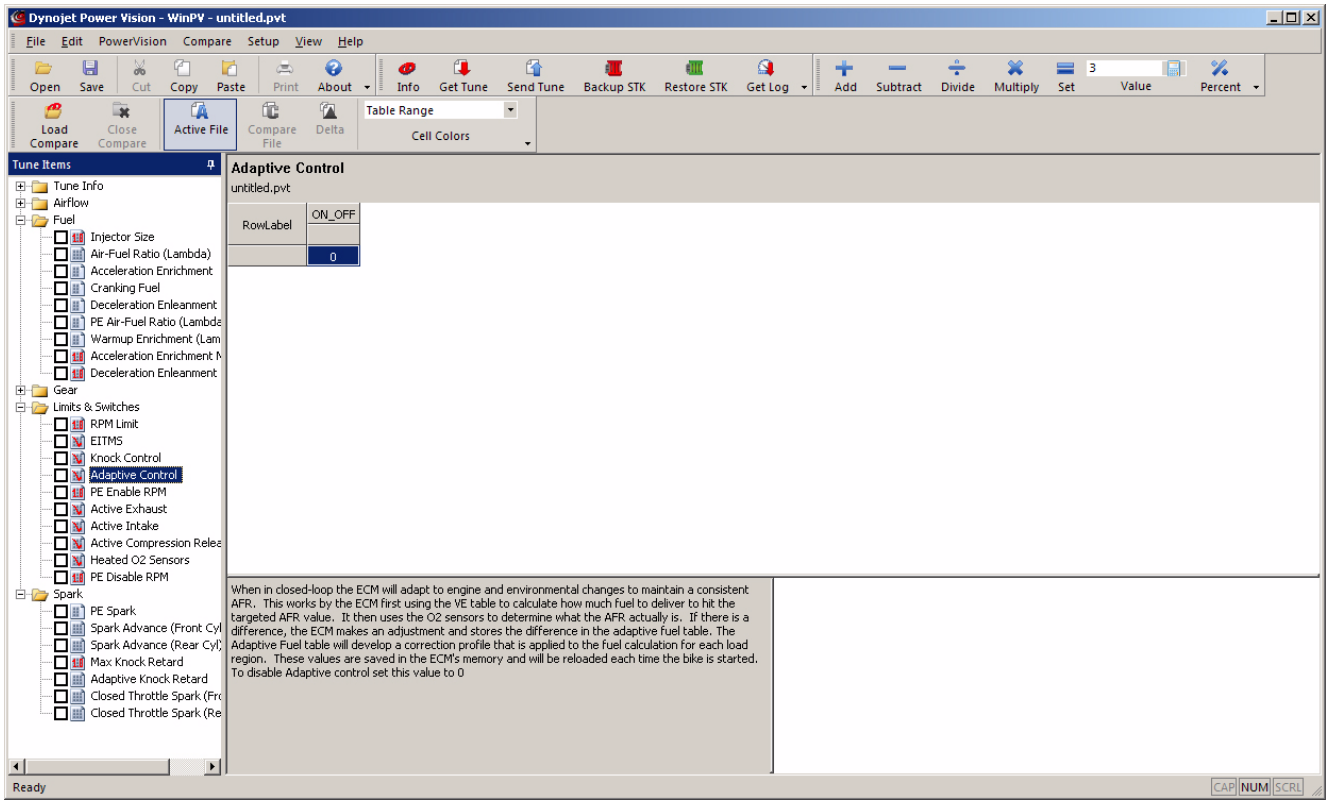
4 Raise the PE Enable RPM limit above the current rev limiter.
This will effectively disable Power Enrichment.



5 Under Tune Items, click **Limits & Switches >Adaptive Control**.

6 Disable Adaptive Control by changing 1 to 0.

Adaptive fuel control takes the O2 trims that are learned over time and applies them to the final fuel calculation.

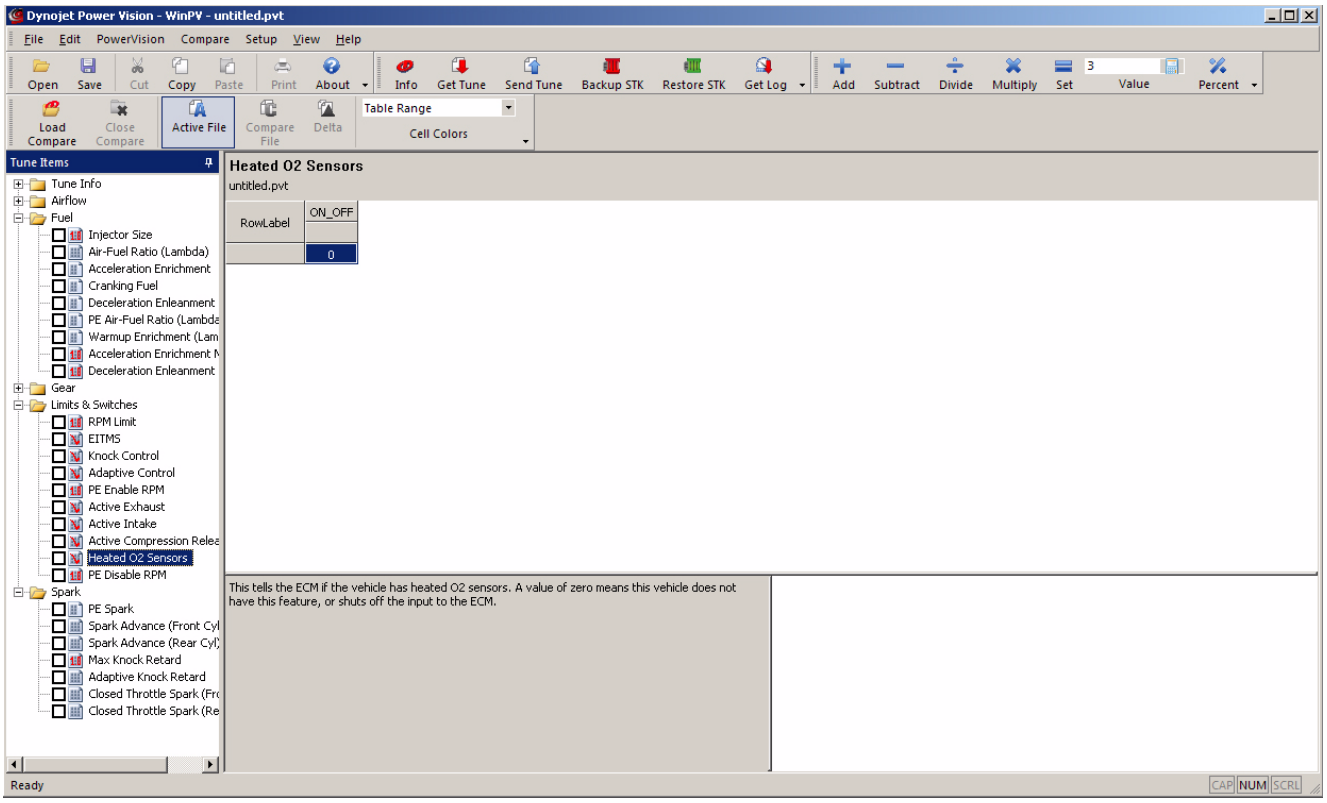


7 Under Tune Items, click **Limits & Switches >Heated O2 Sensors**.

8 Disable the Heated O2 Sensors by changing 1 to 0.

This will allow you to change multiple pipes without having to reinstall the factory O2 sensors every time.

Note: Skip this step if you are using the factory O2 sensors for idle and light load operating ranges.



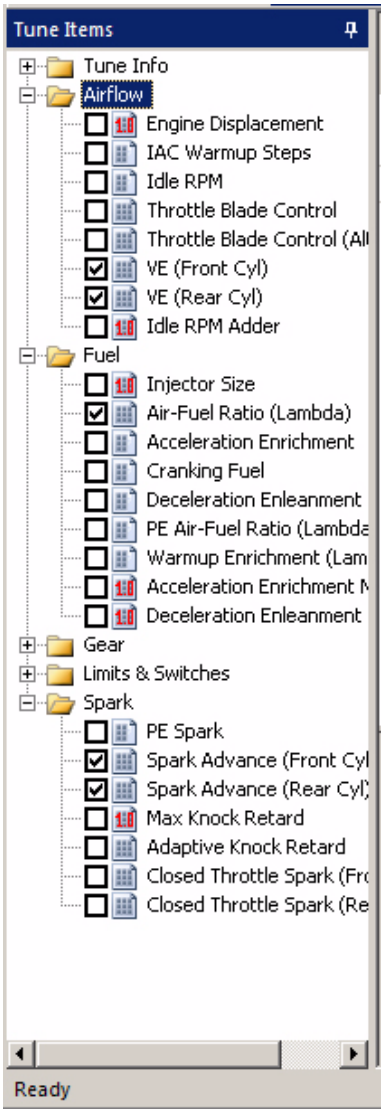
9 Continue with Configure the WinPV Value File.

Configure the WinPV Value File

Once the tune file is complete, you will need a Power Vision Value File (.pvv). The .pvv file needs to contain tables that directly affect fuel and spark. Follow the instructions below to configure the value file.

1 Click the box next to the following tables:

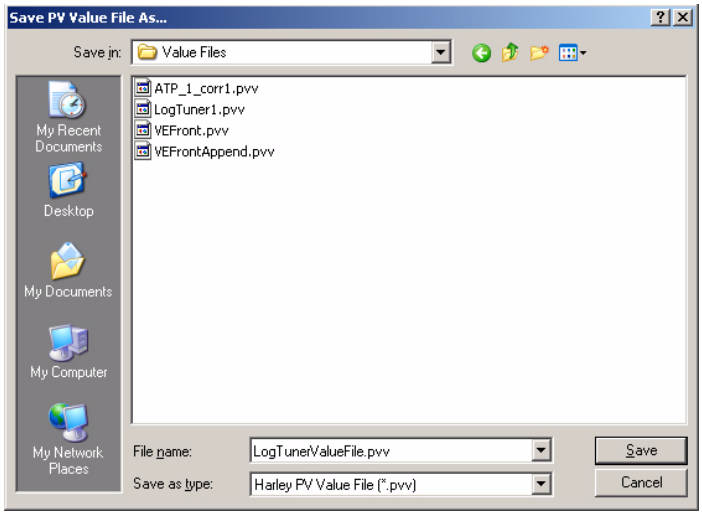
- VE Front
- VE Rear
- Spark Advance Front
- Spark Advance Rear
- Set AFR table (Lambda/Stoich)



2 Select **File >Save Selected Values**.

3 Enter a file name and click **Save**. Refer to To Save Selected Values.

In our example, we named the file LogTunerValueFile.pvv.



Saving the Modified Tune File

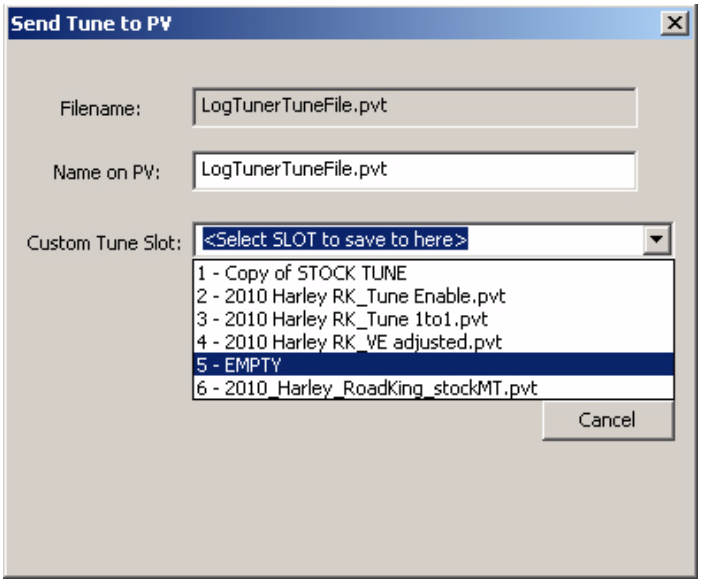
Save the modified tune file with a new file name. Refer to To Save a Power Vision Tune File (.PVT).

In our example, we named the file LogTunerTuneFile.pvt.

Sending the Tune to the Power Vision

1 Verify the Power Vision is connected to your computer using the USB cable.

2 Send the tune (in our example, LogTunerTuneFile.pvt) to an empty custom tune slot on the Power Vision. Refer to To Send a Tune to the Power Vision.



Configure the Power Vision

Log Tuner software requires logs to be generated with the Power Vision in order to create the corrections needed for the tune.

This section provides instructions to set up the Power Vision to creating log files for Log Tuner.

Loading the Custom Tune

Setting up the Power Vision to Log Channels

Creating a Datalog File

Retrieving a Log File from the Power Vision

Loading the Custom Tune

Load the tune file sent to the Power Vision (refer to Sending the Tune to the Power Vision) to your motorcycle ECM. Refer to To Load a Custom Tune File.

In our example, choose the tune file named LogTunerTuneFile.pvt.

Setting up the Power Vision to Log Channels

For detailed information on adding channels to the data logging list, refer to To View Signals.

1. Connect the Power Vision to your motorcycle. Refer to Installing the Power Vision on the Motorcycle.
2. Add the following channels to the Data Logging Global Signals list:
   - MAP*
   - Engine Temp*
   - Warm-up AFR or Lambda*
   - TP*
   - RPM*
   - VE New Front*
   - VE New Rear*
   - Lambda 1**
   - Lambda 2 **
   - Accel Enrich*
   - Spark Knock F*
   - Spark Knock R*
   - Desired Air/Fuel (Ratio)*
   - Desired Air/Fuel (Lambda)*

* From H-D data bus

** From Auto Tune (when equipped)

Creating a Datalog File

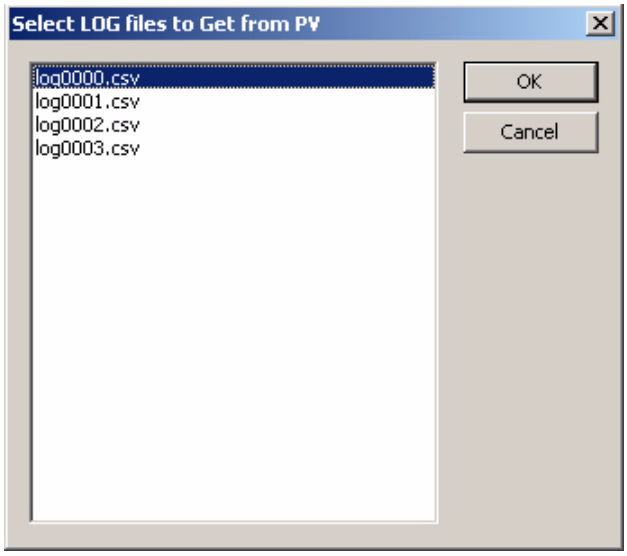
1. To view any of the signals that will be logged, refer to To View Gauges.
2. On the Gauges screen, touch **Start Log** to begin logging.
3. On the Gauges screen, touch **Stop Log** to save the log to the Power Vision.

   Note: In order to log enough data to use Log Tuner, the vehicle must be run in all operating ranges for a period of time. You can use multiple log files in Log Tuner.

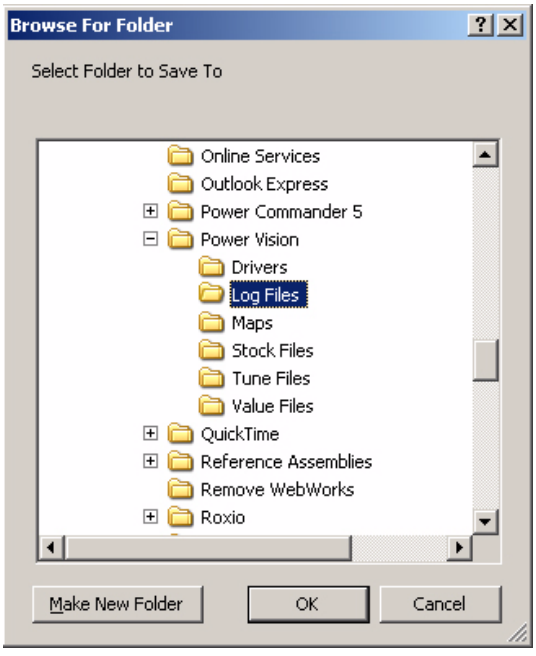
Retrieving a Log File from the Power Vision

1. Remove the Power Vision.
2. Using the USB cable, connect the Power Vision to your computer.
3. Select **PowerVision >Get Log from PV** or click the Get Log button 

.
4. Select the log file or files you wish to get from the Power Vision.
5. Click **OK**.



6. Browse to the location you wish to save your log file and click **OK**.



Log Tuner

This section provides instructions for setting up and using Log Tuner.

Setting Up Log Tuner

Using Log Tuner

Setting Up Log Tuner

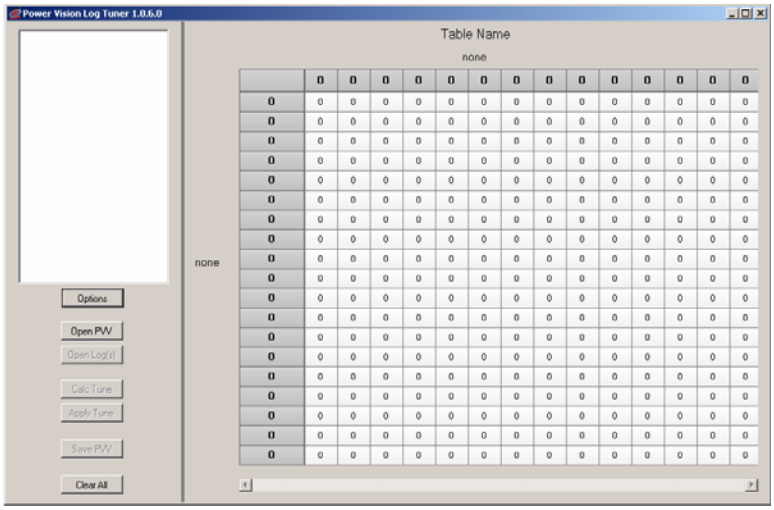
1. Click **Start** on the Windows® task bar, and click **All Programs**.
2. Select **Power Vision Log Tuner >PV Log Tuner**.

   Or

   Double-click the PV Log Tuner desktop icon.

   Note: Before using Log Tuner, identify the bike's communication protocol by checking the DLC connector. Harley's use two different types of communication protocol: CAN which has a 6-pin DLC connector or J1850 which has a 4-pin DLC connector.

   PV-1 uses the J1850 communication protocol while PV-2 uses the CAN communication protocol. For CAN based ECMs, hold down **CTRL** and press **E** to put Log Tuner into CAN mode.
3. Click **Options**.



4 Select from one of the following correction options:

- Select Use H-D OEM O2 sensors for corrections for Basic Tuning with Log Tuner.
- Select Use Auto Tune for corrections for Pro Tuning with Log Tuner.
- Select both for Pro Tuning with Log Tuner if when you set up your value file you left the desired AFR table as is. Refer to Pro Tuning Method with Log Tuner.
- Select Use Cell Coloring to enable cell colors.

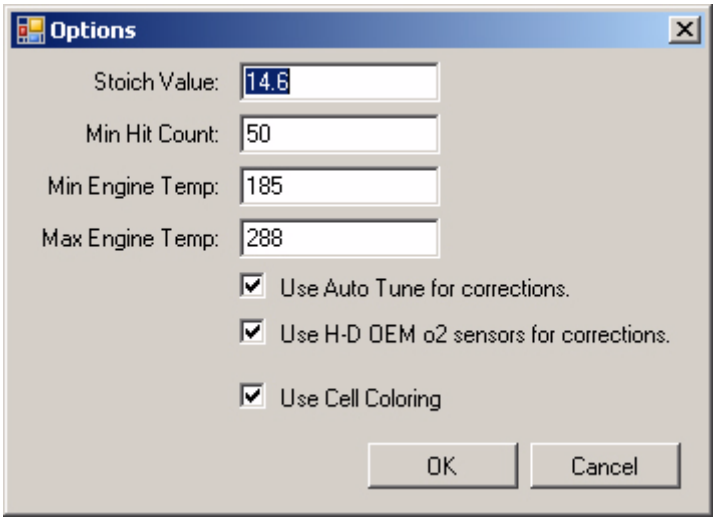
5 Verify the following values:

- Stoich Value—the stoichiometric air fuel value for the fuel the vehicle is using during logging.
- Min Hit Count—any cell with less than the minimum hit count will not be tuned. 50 is the recommended value.
- Min Engine Temp—below the minimum engine temperature, there will be no tuning.

Note: When using DegC you will need to lower this value.

- Max Engine Temp—above the maximum engine temperature, there will be no tuning.

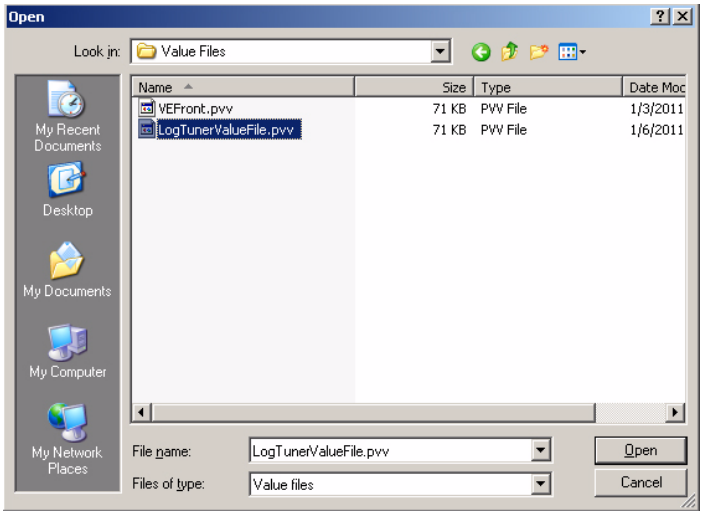
Note: When using DegC you will need to lower this value.



Using Log Tuner

1. Click **Open PVV**.
2. Browse to the location you saved the value file. In our example, select LogTunerValueFile.pvv.

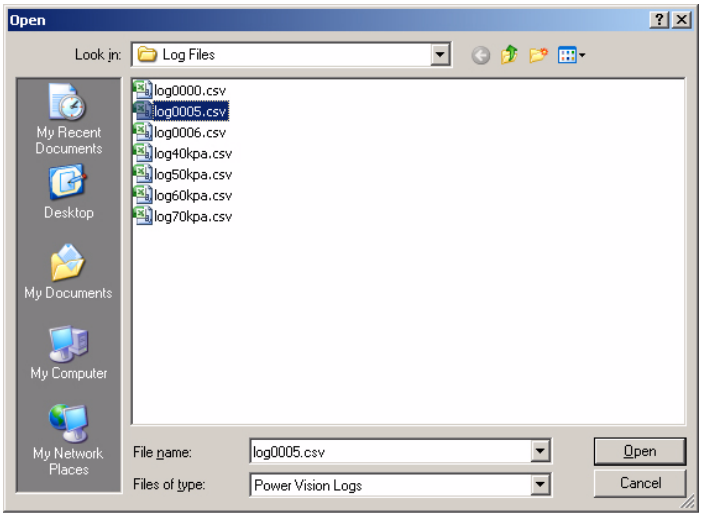
   This value file was created in Configure the WinPV Value File.
3. Click **Open**.



4. Click **Open Log(s)**.
5. Browse to your Log File folder and select the log file or files you created with the Power Vision.

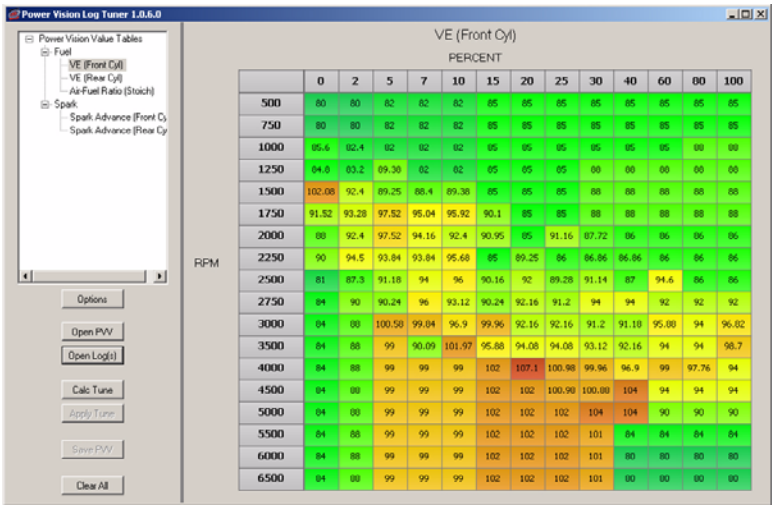
   To save the logs from the Power Vision to your computer, refer to To Get a Log from the Power Vision.

   Note: Loading the same log file multiple times can cause Log Tuner to process inaccurate data. Do not load the same log file twice.



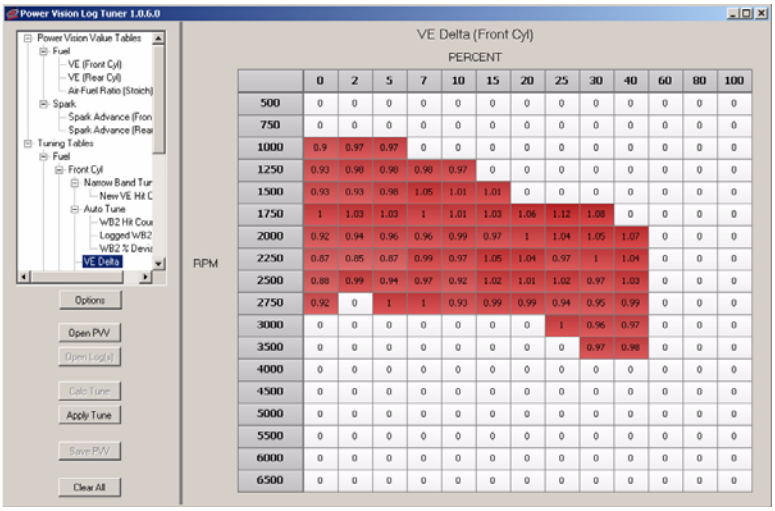
6 Click **Calc Tune**.

This will calculate the new VE and Spark values for the running conditions and AFR that were data logged. Click on the tree view to see each calculated table.



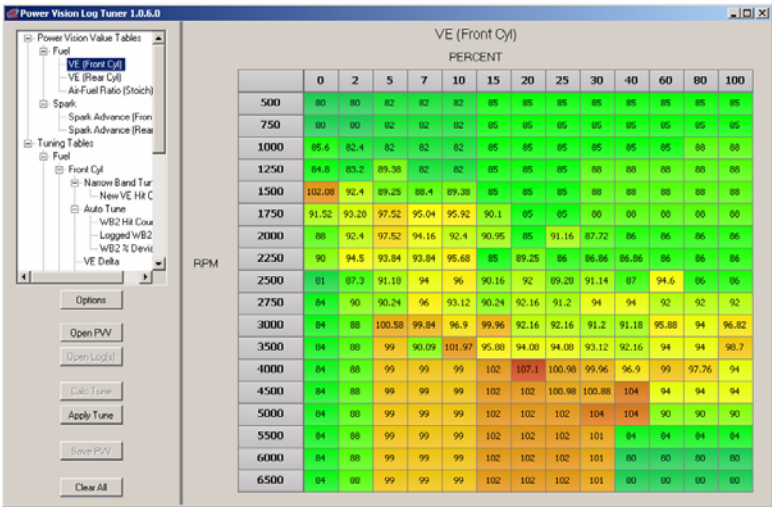
7 In the Log Tuner tree, click **VE Delta** for both the front and the rear cylinder.

The numbers shown in these tables represent the percent difference between the original VE table and the new VE table.



8 Click **Apply Tune**.

This will copy the new calculated VE and Spark values to the VE and Spark tables from the original Power Vision value file. In our example, the LogTunerValueFile.pvv.



9 Click **Save PVV**.

10 Browse to the location where the LogTunerValueFile.pvv is stored

11 Select LogTunerValueFile.pvv, and click **OK**.

This will save the new calculated value file with the new VE values.

Log Tuner has corrected the front and rear cylinder VE tables based on actual AFR data collected while riding the motorcycle. Log Tuner also will apply corrections to the spark tables if knock was detected. The next step is to load the corrected .pvv file into your tune file using WinPV. Refer to Apply the Corrected Value File to the Tune.

Apply the Corrected Value File to the Tune

Applying the Corrected Value File

Applying the Corrected Value File to the Original Tune

Sending the Tune to the Motorcycle ECM

Applying the Corrected Value File

1. Open the WinPV software.
2. Open the LogTunerTuneFile.pvt file.

   This file was created in Configure the WinPV Value File.
3. Select **File >Load All Values**. Refer to To Load All Values.
4. Browse to the folder with the LogTunerValueFile.pvv file.

   This file was created in Using Log Tuner.
5. Select LogTunerValueFile.pvv and click **OK**.

   This will apply the corrected tables to your tune file.
6. Save the tune file to your computer as LogTunerTuneFile.pvt. Refer to To Save a Power Vision Tune File (.PVT).

   For best tune results, the VE Delta percentage should be less than five percent. If your VE Delta is greater than five percent, repeat the tuning process. Once the VE Delta percentage is satisfactory, continue with Applying the Corrected Value File to the Original Tune.

Applying the Corrected Value File to the Original Tune

1. Open the original stock tune file, OriginalTuneFile.pvt, created in Retrieving the Tune File from the Power Vision.
2. Under Tune Items, select **Air Flow >VE Front** and **VE Rear**.

   Note: If you want spark advance changes to apply, check Spark Advance Front and Spark Advance Rear.
3. Select **File >Load Selected Values**.
4. Browse to the folder with the LogTunerValueFile.pvv file.

   This file was created in Using Log Tuner.
5. Select LogTunerValueFile.pvv and click **OK**.

   The Import Multiple Items window will appear.
6. Confirm your selections and click **OK**.
7. Select **File >Save As**.
8. Save the tune file with a file name appropriate for your motorcycle and this tune.

Sending the Tune to the Motorcycle ECM

1. Send the tune to an empty custom tune slot on your Power Vision. Refer to To Send a Tune to the Power Vision
2. Remove the Power Vision from your computer.
3. Connect the Power Vision to your motorcycle.
4. Load the tune file sent to the Power Vision (refer to Sending the Tune to the Power Vision) to your motorcycle ECM. Refer to To Load a Custom Tune File.

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