WinTEC3 Engine Management Software

ELECTROMOTIVE
ENGINE CONTROLS

WinTEC3 v3.0.1

Software User's Guide

Contents

Working With The WinTEC3 3.0.0 Engine Tuning Software

System Requirements

The Electromotive WinTEC3 3.X.X Engine Tuning Software for the TEC3 requires a Pentium Class, 233 MHz or faster PC running Microsoft Windows 98se or Windows NT 4.0 (with service pack 3 or better), Windows 2000 (with service pack 2 or better), Windows ME or Windows XP Operating system. The computer should be a Laptop with a Mouse or other pointing device recommended, but NOT required. A Minimum of a 3.5" Floppy disk drive, CD drive and Hard Disk drive for data storage is required with at least 40 megabytes storage space and 64 megabytes of RAM memory, 128 megabytes recommended. The system also requires one IBM compatible serial port configured as Com 1, Com 2, Com 3 or Com 4 at 38400 baud. This COM Interface can be a built-in COM Port or a PCMCIA Serial I/O Card or a USB interface (USB PORTS require a Standard Serial Port Adapter set to a Com 1 to 4.). The System also requires a Video display resolution of at least 800 x 600 x 256 colors with 1024 x 768 x 24 bit Color recommended. For Maximum display usage we recommend 1280 x 1024 x 24 bit color. We also recommend that you use “Windows Standard” Appearance Scheme from Display Properties. This will give the user the best contrast and appearance for viewing WinTEC3 Monitor Screens.

TEC 3 Firmware WT300T3

With the release of the New TEC3 hardware, the TEC3 on longer uses Proms as the means of storing the primary executable Firmware program. The TEC3 now has Flash Ram for program storage, which means that if a problem occurs with the program it can be upgraded in the field in a matter of seconds. No need to wait days for a new prom or have to install those little legs in those little holes. Upgrades can be downloaded from the Internet in seconds and loaded to the TEC3 with the whole process taking less than 5 minutes. (See TEC3 Firmware Upgrade).

Installing WinTEC3 Software

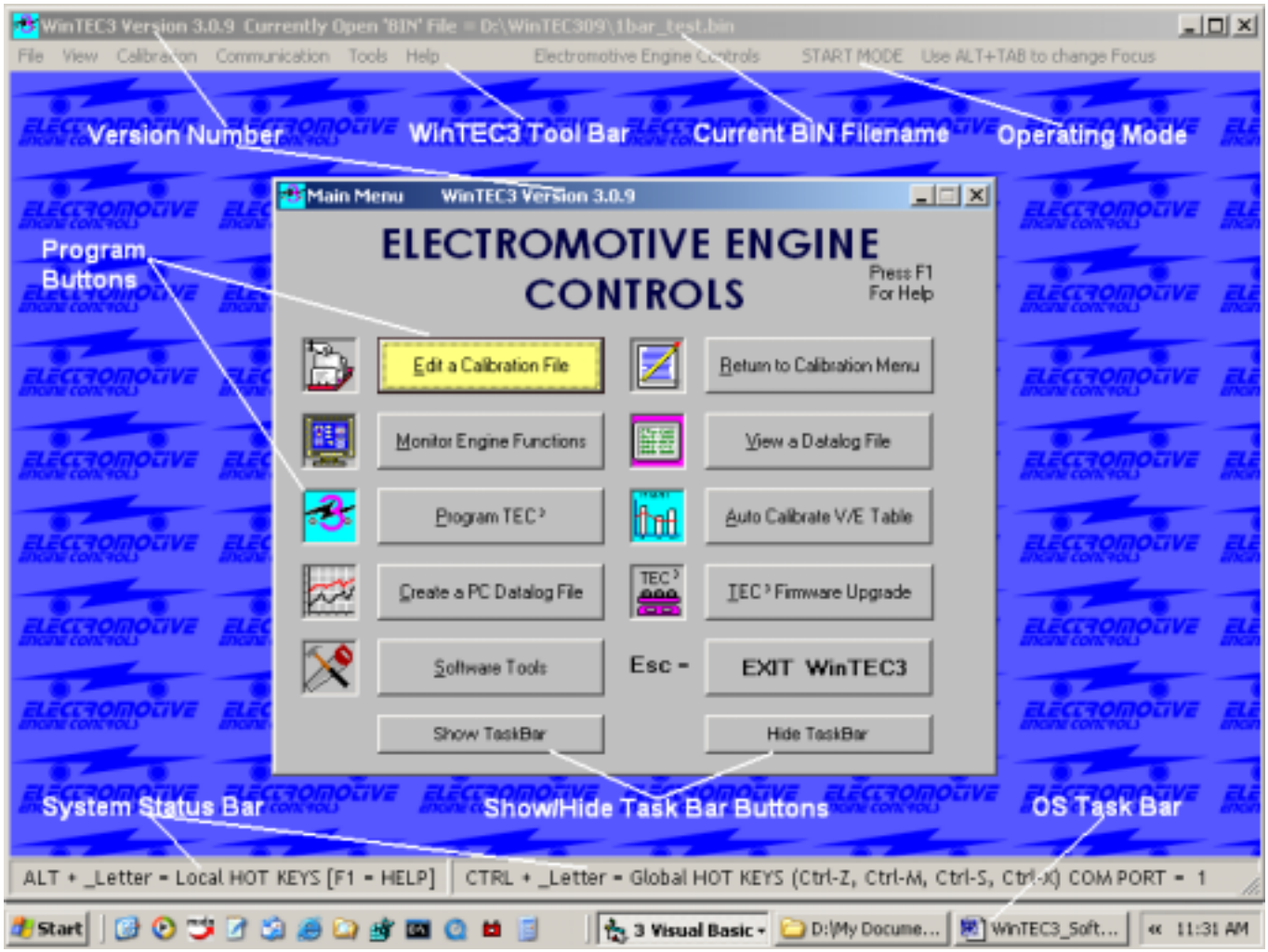
BEFORE YOU INSTALL YOUR WinTEC3 PROGRAM, REMOVE ANY OTHER WinTEC3 INSTALLED PRODUCTS USING THE WINDOWS “ADD/REMOVE PROGRAMS” FEATURE UNDER THE CONTROL PANEL TO REMOVE ANY INSTALLED WinTEC3 SOFTWARE.

The new software in your kit will be in the form of 4 floppy disks (optional) or 1 CDrom. This software should be installed using the Standard Windows Installation Procedures as described below. After removing any Old WinTEC3 products, Click the “Install” Button or the “Add New Program” Button to start the New Installation. Insert the Cdrom and Click “Next”. The system will find the “Setup.exe” program on the CD and highlight it in the “OPEN:” data input panel. Now, Click “Finish” to complete the Setup phase and Start the WinTEC3 installation phase. If this is your first WinTEC3 product, Go to “START”, select “RUN”, and type “A:SETUP.EXE” for floppy installation or type CDrom drive letter “x\ SETUP.EXE”. We recommend that you use the default destination directory if possible. The WinTEC3 Installation program will help you to complete the installation.

WinTEC3 Software user's Guide

WinTEC3 Software User's Guide is now included on the CDROM with the WinTEC3 software. The User's Guide is in Adobe Acrobat 5.0 PDF format and can be viewed by selecting the “View Software User's Guide” button on the WinTEC3 Software Tools Menu. The shorten name of the User’s Guide is ‘WinTEC3SUG.pdf’. The User must copy all of the “PDF” files from the CD to the same directory as the WinTEC3 software resides.

DeskTop and Main Menu.



As you can see from the screen above the Desktop and Main Menu have several sections that you must be aware of before you start the Tuning process. The Current version number is on the desktop and Main menu in the upper left hand corner of each screen. The currently Open 'BIN' filename is also at the top of the Desktop. Just below that you see the WinTEC3 Tool Bar. This Tool Bar gives you instant access to the major sections of the program and also provides access to sections like Interrogate BIN File, Dataports, Problem Reporting and Tip of the Day information. At the bottom of the Desktop screen you will find the System or WinTEC3 Status bars, which lets the Tuner know what Hot Keys are available and the current Dataport being used. At the very bottom of the screen is the OS Task Bar which gives the user the access to other programs and helps to track the screens used by WinTEC3. The "Show TaskBar" and "Hide TaskBar" buttons are Now visible on all Laptops and are used to turn the OS Task Bar On or Off according to your needs. When 800x600 screen resolution is used, the OS Task Bar will cover the Digital Monitoring Screen and this can be used to turn the Task Bar Off.

On the Main Menu you will find a selection of Program Buttons that can be activated by clicking the Icon or Program Bar with the Mouse pointer or by moving too each button by pressing the TAB key. When a program button is highlighted you can press the Enter key on the keyboard and that part of the program will be activated. Using the Keyboard and pressing the ALT key and the underlined Character key at the same time will also activate these program buttons.

Running the WinTEC3 Engine Tuning Software.

Introduction

When you RUN the WinTEC3 Engine Tuning Software for the first time, you will see a brief product information screen and then a Software License Agreement will appear. You must Read and Accept this Agreement before you can use the Calibration software. To continue, Read the Agreement and then Press the **ACCEPT** button. If you enter ACCEPT, the screen will not be displayed again. If selected, the Next screen to appear will be the "Tip of the Day" screen, and then the "Main Menu" screen. The "Tip of the Day" screen maybe disabled in the Tools Menu by clicking on the "Tip of the Day" Selection button or by deselecting the "Show Tips at Startup" box, on the Tip of the Day screen. A check mark means that it will appear at every startup of the WinTEC3 program. The "Tip of the Day" screen gives valuable information about WinTEC3 and engine tuning in general. Take a little time and read each one. If you have a Tip you would like to share with others, send it to us and we will include it in the next update of WinTEC3 based on its valuable to other tuners.

Now is a good time to become familiar with your Windows Operating System. To Minimize the WinTEC3 program, click on the underline '_' button in the upper right hand corner of the display. This will create an Icon in the taskbar on your PC and WinTEC3 will minimize it self, usually at the bottom of the screen. It is very important that you become familiar with your Windows environment. There have been may changes to the WinTEC3 program structure so it is suggested that you go through each of the windows and familiarize yourself with the location of the old data and what is now available as new input data.

WinTEC2 and WinTEC3 Differences

WinTEC2 worked on the principle that the User must engage ONFLY when needed. Now ONFLY is available whenever the TEC3 and Wintec3 Software are connected. If the TEC3 is turned off then the system is in "NO CONNECTION MODE" and when TEC3 is turned On then the system is in "ONFLY MODE" (see Operating Modes above). WinTEC2 had 4 - 8x8 programmable data tables. The New WinTEC3 software has 6 – 16x16 programmable data tables that can be setup in any format from 8x8 up to 16x16 (i.e. 8x16, 13x9 etc.). These tables also highlight the current RPM and KPA active cell while the Engine is running and can make the cells a persistent color so that the tuner can view in real time which cells are bring hit as a result of the test run. We have added more GPO's , you can control functions using Analog and Digital inputs, you can trim Ignition and fuel values for each cylinder and do Onboard Data logging up to 50 samples per second. There are many new features that we could talk about here but just sit down and Read the Hardware and Software manuals and work your way through the new and expanded features of WinTEC3 and get familiar with its operation. This time will be well spent preparing for the first tuning session, so that you won't waste time with tech calls. If you do have problems, just call Electromotive Inc. at (703) 331-0100 and our knowledgeable Tech staff will work hard to get you up and running.

Communications Port Selection

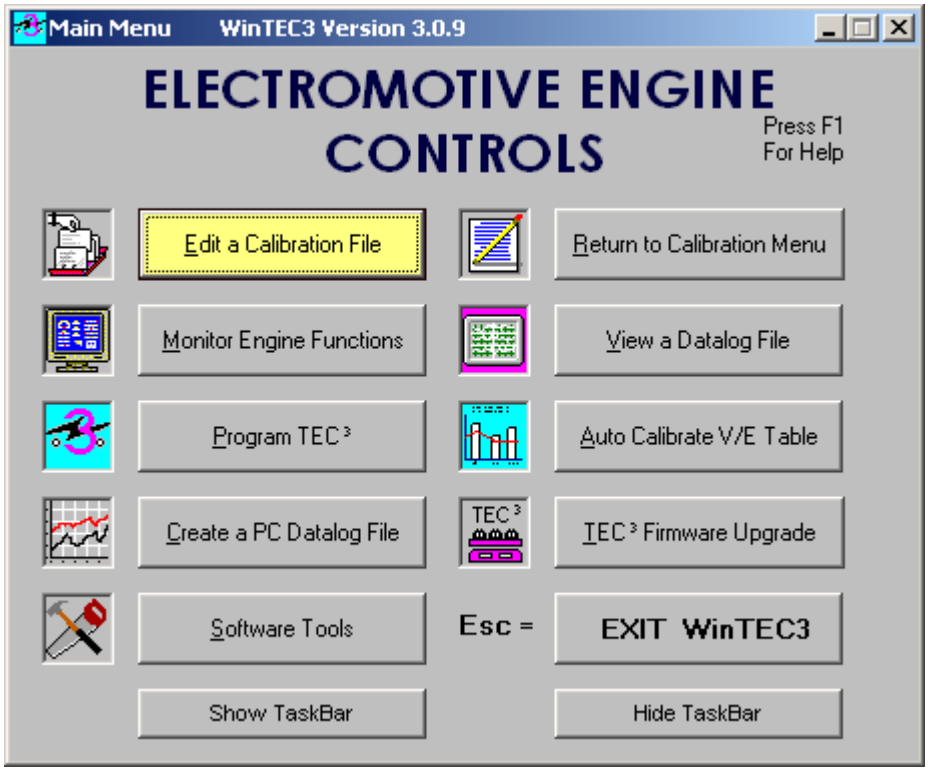
The WinTEC3 software allows you to toggle between 'Com 1', 'Com 2', 'Com 3' or 'Com 4' by simultaneously holding down 'Ctrl' and 'P' just like the old DOS calibration software or by clicking on the "Communication" Menu option on the Main screen Tool Bar and highlighting the "Data ports" option then choosing the DataCom port you need. The current Baud rate is 38400 bps on the COM ports. If your system does not have COM ports you can use a USB Serial Adapter or PCMCIA Serial I/O Card and set it up as COM Port 1 to 4. Check your current port selection in the Status Bar at the bottom of the WinTEC3 Window, if any communication problems arise. At this point, TEC3 should be completely installed, including the communications cable.

Start the WinTEC3 software with one of the supplied calibration BIN files or use a BIN file from a previous tuning session, (WinTEC3 Converts older "BIN" files to the New WinTEC3 style "BIN" files). At this point we should **STOP** and let you know that the **old** "**S19**" files and the **old** "**DAT**" files **WILL NOT WORK WITH WinTEC3(old i.e. DOS/WinTEC/WinTEC2).** You can use the **old "BIN"** files but you must update the data with New information and save the "BIN" file to a new name, which will create a new "S19" file of the same file name.

New WinTEC3 Information

The Old WinTEC2 software, as we have already talked about, used only 8x8 tables and now may use up to 16x16 tables, we have added Engine Configurations for 41 different types of engines, Advanced Engine settings like different Tach types, Cam or Crank Sensors and Trigger Wheel Offsets. We now have Over Boost protection for the Turbo and supercharged engines built into the software configuration, and even things like Valet mode and Speed sensor inputs. When you convert an old BIN file to the new WinTEC3 format, all of these things must be address before saving the New BIN file.

Main Menu



For the most part, the WinTEC3 program user interface is similar to the WinTEC2 user interface with a few changes. The Main Menu has most of the same selections as WinTEC2 and a few extras. We will explain each of the selections as we continue with this guide. Other familiar inputs are, when you enter a new piece of data, you must “PRESS ENTER” to save a new or changed value. When you want to change data fields within a Local Window, Look for the Underlined Character or Number and press ‘ALT + Char/Num’ Hot Keys to move to that field. You can also use the TAB key, as explained above, to move the cursor to the next field. The system will not allow you to move from a field that has been changed without pressing the ‘ENTER’ key. You can use the ALT+TAB keys to change focus from one window to another and one program to another.

You can also make changes within the Global Window by pressing the ‘CTRL + Character’ Hot Keys to activate global functions. Currently the global hot keys include:

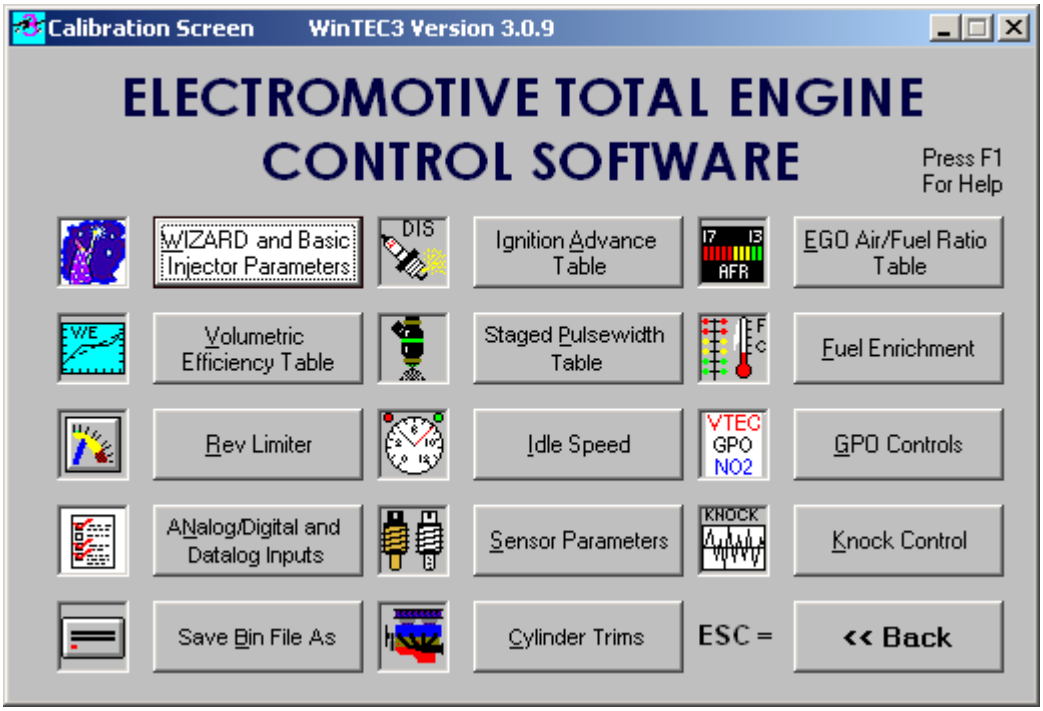
CTRL + P = Toggle Com Ports (Com1 to Com2 to Com3 or Com4)
CTRL + Z = Turn off the Engine, Send BIN file Program to the TEC, Save the current ‘BIN/S19’ file to Disk and send a command to the TEC to Move RAM to FLASH RAM.
CTRL + M = Display the Analog Monitor Screen.
CTRL + S = Save the current ‘BIN’ file to Disk and send a command to the TEC to Move RAM to FLASH RAM if the System is in ONFLY Mode.
CTRL + X = Exit Program.

Of course you can still use the mouse pointer and mouse button click to activate any part of the WinTEC3 program. There are some sections that will require some keyboard interaction and conversely the WinTEC3 program does not require any mouse interaction at all to get the job done.

Calibration Screen

When you press the “Edit a Calibration File” button from the Main Menu, if no calibration ‘BIN’ file has been selected, WinTEC3 will ask you to enter a valid ‘BIN’ file name. You may enter a filename or if a file is already loaded then you may use that file by pressing the “Cancel” button. If a ‘BIN’ file has already been loaded into the system and you select a new ‘BIN’ file, the user will be asked to ‘SAVE’ the old ‘BIN’ file and then load the new one.

When a valid “BIN” file is loaded, the “Edit a Calibration File” window is displayed with the following Options:



‘ONFLY’ Verses ‘NO CONNECTION’ Modes

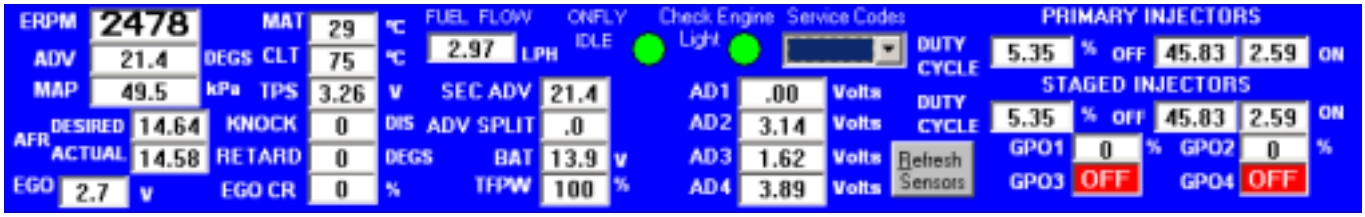
ONFLY Mode is Always ON and is now the Standard Operating environment that the tuner uses to build an Engine Control BIN file. As the New values are entered, they are updated in both the PC and the TEC3 Simultaneously. You must still save the BIN file to disk by using the ‘Save BIN File As’ program button or by typing Control-Z while editing a data screen. Saving the BIN file also sends a command to the TEC Unit to move All of the current Data from RAM to FLASH RAM where the data cannot be changed until the Next Save command is sent.

If the TEC3 is turned off or the Serial cable is disconnected from the Computer then the WinTEC3 software is in NO CONNECTION Mode. There are many changes that can only be made while you are in the NO CONNECTION such as EGO Calibration values, Row and Column Table size changes and Engine Configuration changes among others. After these changes are made in NO CONNECTION Mode, you must Save the BIN file and then download it to make the changes to the TEC Unit.

DIGITAL MONITOR IN NO CONNECTION MODE

Using ONFLY

When ONFLY Real Time Editing mode is active, each field that has a light yellow background is available to ONFLY. Pick a field to edit and change that field to a new value while the engine is running. You will notice that a Red light on the Digital Monitor Screen goes on when you press Enter. This is telling you that ONFLY is sending the new value to the TEC Unit and to please wait until the light turns green before entering another value. If the TEC has a problem with saving the new value it will let WinTEC3 know and you will see a message that prompts you to resend the value again. After you make a change, both the TEC and the PC are updated to the new values. At this point the BIN file should be saved to the hard disk so that you have a current record of the file and the TEC Data. This is not absolutely necessary but it is a real good idea to save it so you don't lose your data.



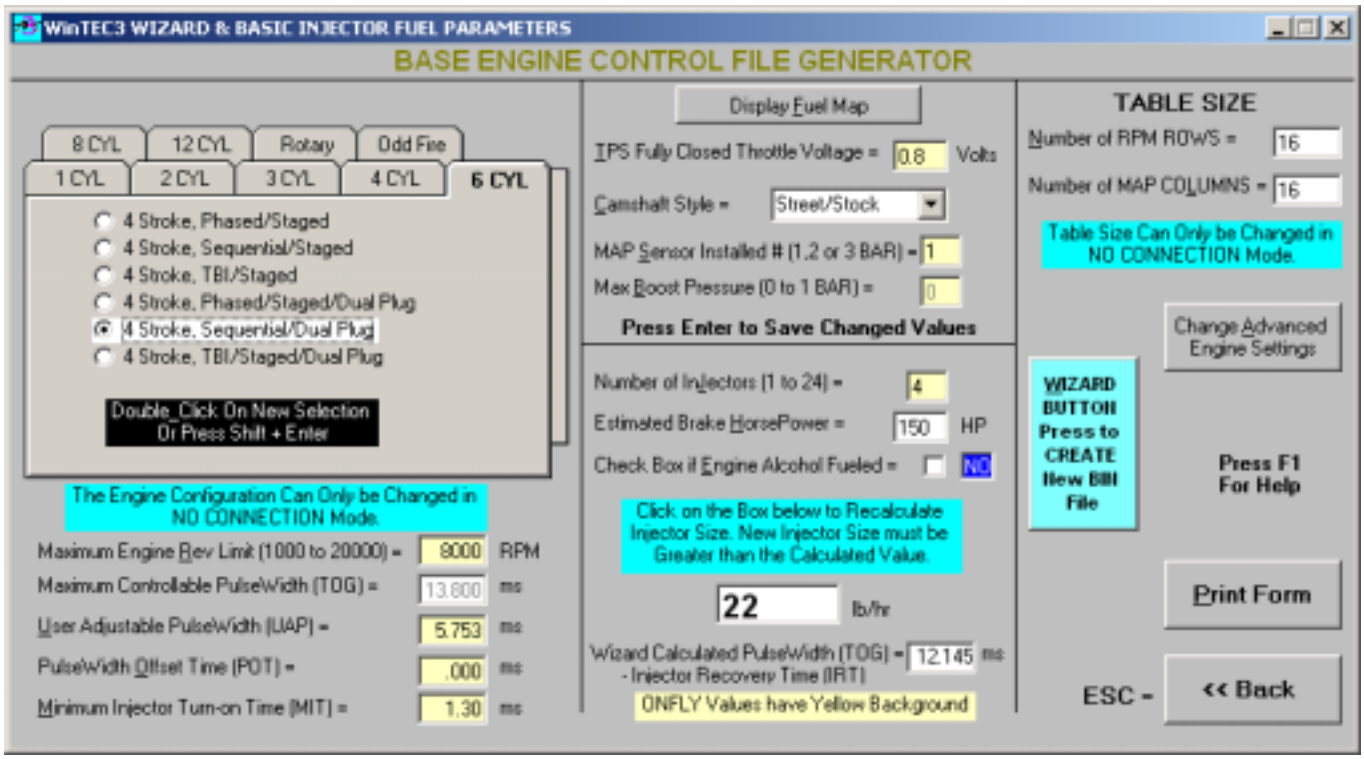
DIGITAL MONITOR IN ONFLY MODE

Using the WinTEC3 WIZARD & BASIC INJECTOR FUEL PARAMETERS

Before we start working with the WinTEC3 Wizard and Injector Parameters, lets bring up the Analog Engine Monitor Screen by typing CTRL-M and correct any condition causing a sensor to show 'Failed' and begin to record such information as closed throttle voltage as you did with other versions of the WinTEC and DOS software. We will go into greater detail about the Engine Monitor Screens a little later. Also, if you are converting an older "BIN" file, you may have to update certain tables and parameters that the old software did not have.

WinTEC3 Wizard and Basic Injector Fuel Parameters is an integration of the WinTEC2 Tuning Wizard and the Basic Injector Parameters forms. This New form makes the process of creating a New BIN file a little easier for the beginner and the veteran tuner as well. Many of these values were previously calculated by hand and you still must gather some data like Engine type, number of injectors, Max RPM etc. When you have completed the data entry, Press the WIZARD BUTTON and a basic Engine control BIN file will be created for you. This BIN file will get the engine running so that all of the other functions can be setup with new values.

WinTEC3 WIZARD & BASIC INJECTOR FUEL PARAMETERS



Each of these Parameters can be calculated for a new vehicle using 'Base.Bin' or recalculate parameters using an existing vehicle bin file. As you move from one field to another, use the F1 Help key to make it easier for you to understand what needs to be entered into each of the fields. To calculate a new set of parameters you will need to know:

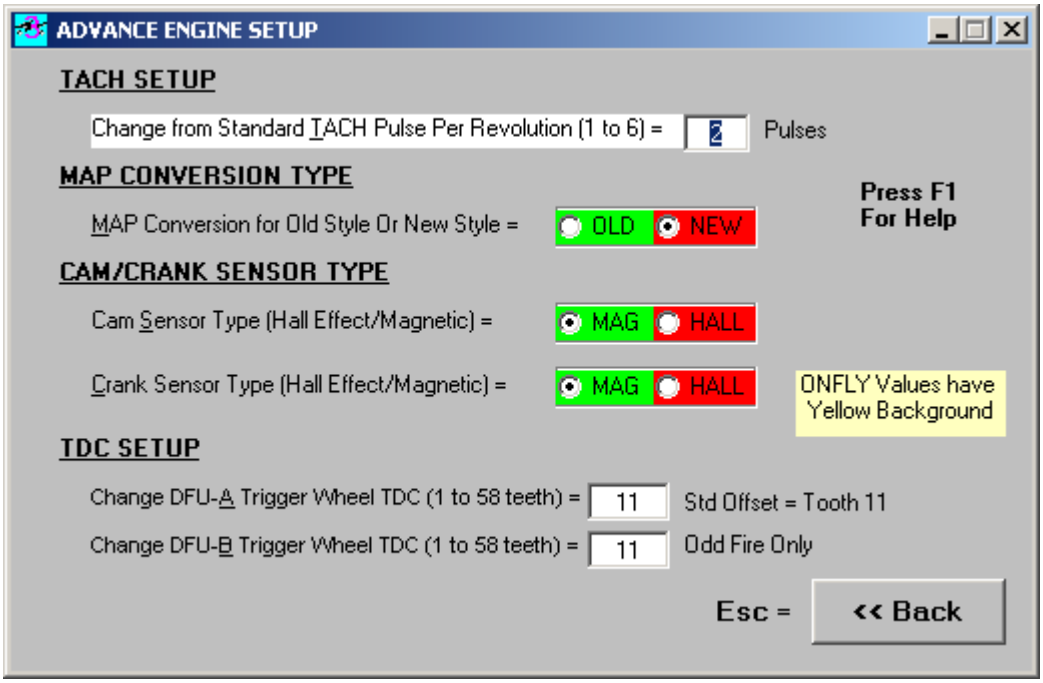
Engine Type (2/4 Stroke, etc)
Number of cylinders
Number of Injectors
TPS Voltage at Wide Open Throttle
Map Bar Value (1 to 3 BAR)
Max Boost Pressure
Type of Induction used
Max Engine RPM
Estimated Brake Horsepower
The type of Cam being used

The best way to prevent engine damage is to use exhaust gas temperature (EGT) probes. The maximum allowable EGT is determined by the type of fuel used and valve material (assuming no spark knock). If spark knock is heard, BACK OFF IMMEDIATELY! Reduce ignition advance or richen the fuel mixture to lessen the possibility of knock.

'A LEAN FUEL MIXTURE CAN KILL AN ENGINE'

After all of the data has been entered into the Wizard & Basic Injector Fuel Parameters Window, the Wizard will calculate a Fuel Injector Flow Rate for 1 injector. This value will become the minimum injector size that can be entered in this field. At this point you must enter the injector size that you are currently using on your engine or the injector size that you will be using. When the injector size is entered, you will be asked to press the Wizard button to create a new 'BIN' file. You must save the new 'BIN' file under a NEW NAME if you started with the 'Base.Bin' file or save it to the current 'BIN' filename. A 'BIN' file CANNOT be saved as 'Base.Bin'. Also remember that with Windows 98 and up, the user can give a 'BIN' file a name that is very descriptive of the kind of vehicle that the TEC unit is installed in (i.e. Ford Mustang GT 1996.bin). When you finish saving the new 'BIN' file, you will be returned to the Main Menu.

Advanced Engine Setup



Tach Setup

The tachometer output on the TEC^3 is a +12 Volt square wave. Each time a coil fires, a “tach pulse” is generated. In the Standard Configuration a 4-cylinder will output 2 tach pulses per revolution, a 6-cylinder will output 3 tach pulses per revolution, an 8-cylinder will output 4 tach pulses per revolution, and a 12-cylinder will output 6 tach pulses per revolution. For applications that have a tachometer configured for a different number of cylinders than the engine (i.e. a 6-cylinder car that was converted to an 8-cylinder), you can use this option to change the tach output type under software control. For more Information see the “**Installation and Calibration Manual**”.

MAP Conversion Type

In the Old DOS and WinTEC and WinTEC2 Software, the 'OLD' Map for 2 BAR and 3 BAR Sensors was a Multiple of the 1 BAR Sensor value. In the 'NEW' Map, the Calculation for the 2 BAR and 3 BAR MAP Sensor's are Set to the Manufacture's Specifications. Using this NEW Map value will change the OLD VE Table Settings and may require changes to the Old AFR table and some Fuel Enrichment values. For New Engine Configurations use the New MAP Calibration.

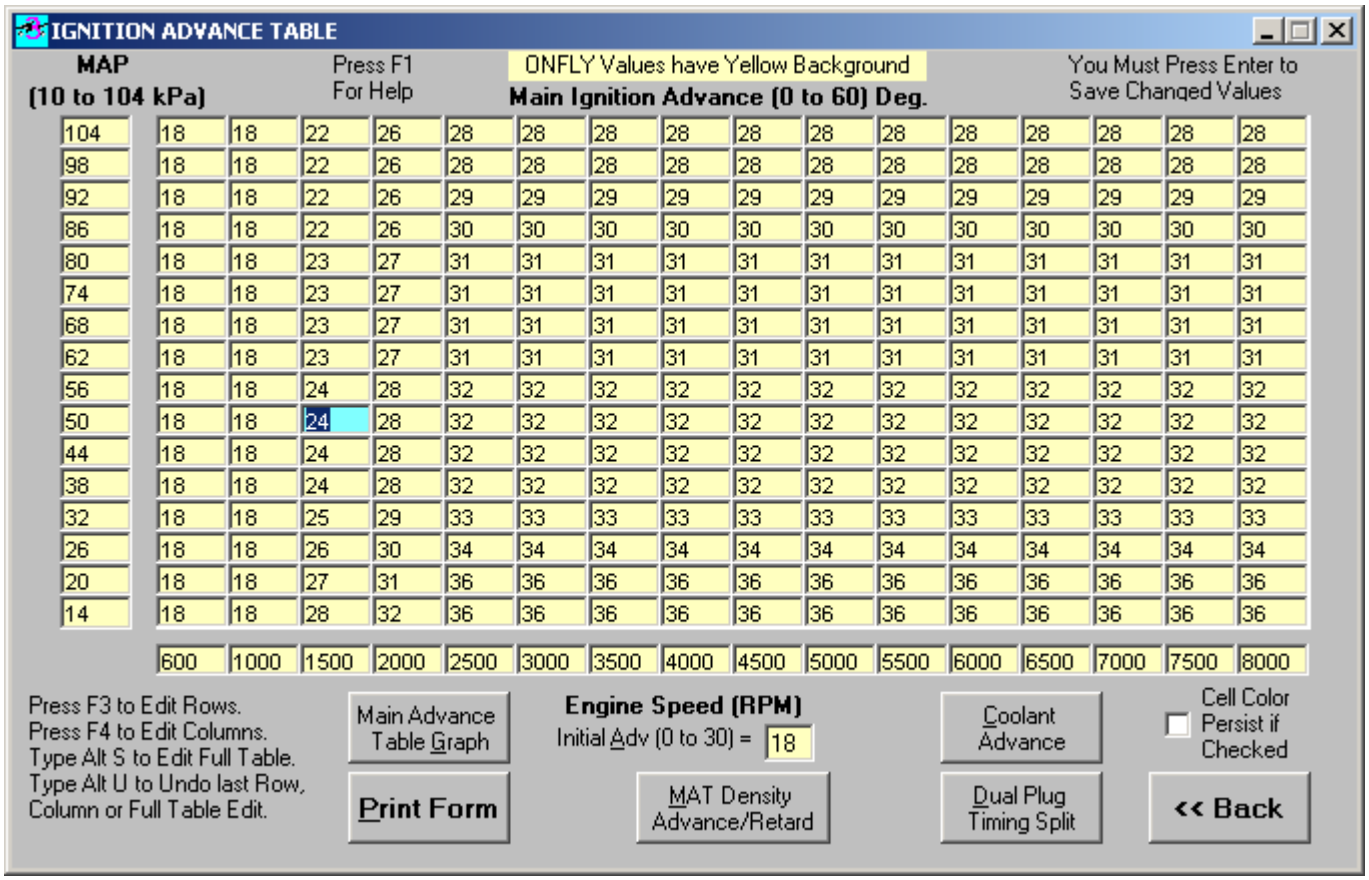
Cam and Crank Sensor Type

The Cam and Crank Pulse Sensors can be either the standard Magnetic Pickup(Analog) Sensor or the Hall Effect (Digital) Type Sensor.(See the “**Installation and Calibration Manual”** for Details)

TDC Setup

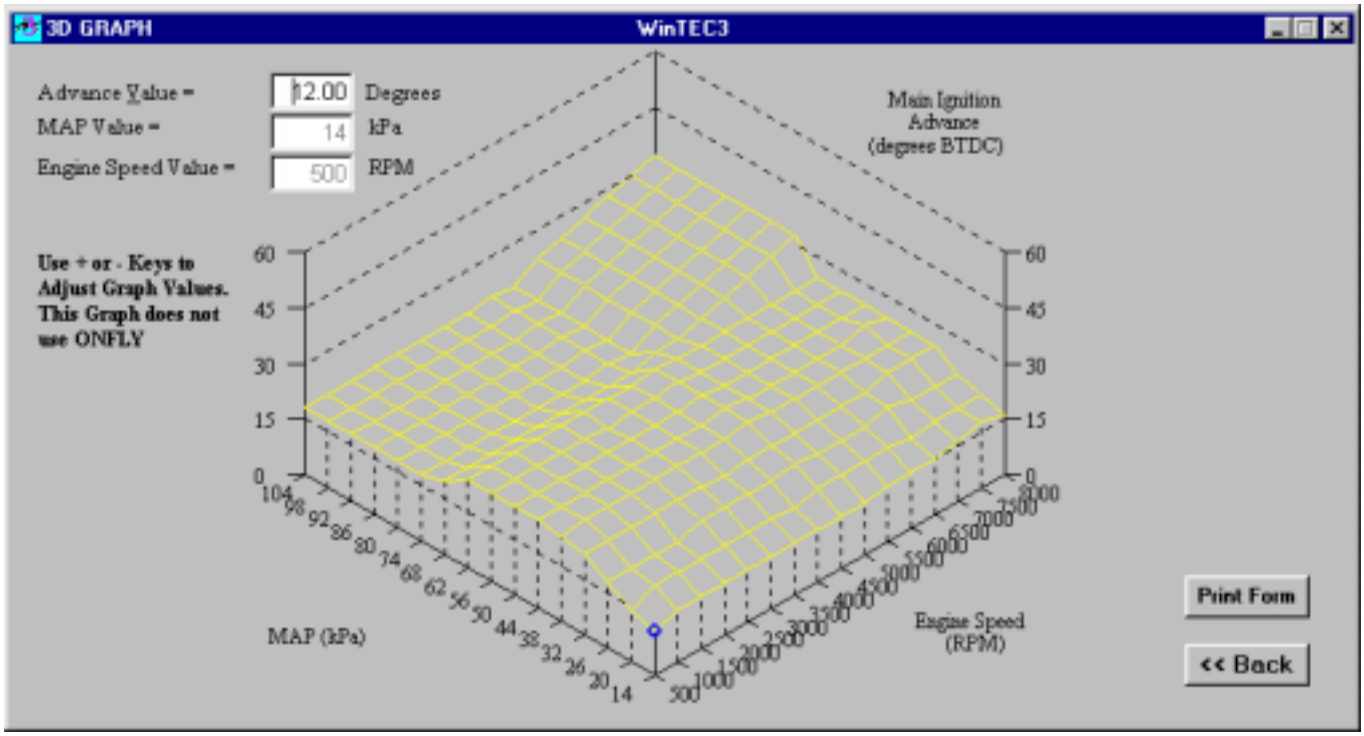
ALL TEC3 systems should have the trigger wheel installed with the trailing edge of the 11th tooth set when the #1 cylinder is at TDC. For situations where the crank sensor is NOT aligned with the 11th tooth at TDC, the 'TDC Setup Parameter' can be used to correct the timing. For applications that require more or less 'mechanical' timing, manipulate this parameter instead of moving the trigger wheel. (See the “**Installation and Calibration Manual”** for Details).

Ignition Advance Table



The TEC3 uses an adjustable 16 x 16 Advance table where the Tuning Wizard or the tuner, defines the RPM and the MAP breakpoints. Set the RPM points that are to be used for your engines normal operating range (the Tuning Wizard will extrapolate a set of RPM points based on the MAX RPM). Note that the RPM values MUST be increasing in value from left to right. The User must select a MAP BAR # in the operating range of the MAP Sensor that is being used for this application (the Tuning Wizard will extrapolate a set of MAP points based on the MAP Sensor used). If other than a 1-bar MAP sensor is used, enter a new MAP BAR # and the MAP values range will change to reflect the use of the selected MAP sensor. These MAP values can be changed to suit your engines operating range. The Advance values are linearized between the RPM and MAP breakpoints. To the left or below the first RPM breakpoint, only the initial Advance is used. The Initial Advance should be equal to or less than the first RPM and MAP breakpoint Advance value. The exact same RPM & MAP breakpoints are used for the GPO, EGO and VE tables. The Advance values recorded in this table may not represent the actual Advance values since mechanical offset, Knock control, Coolant Advance and Idle control may change the actual timing. The Advance table can use F3 to edit a complete Row of data or F4 to edit a complete Column of data or you can type “S” and enter a Constant for the entire table. ONFLY can now update the Advance data and Initial Advance fields plus the RPM and MAP points while the engine is running. The Advance Table also displays the current RPM and Load point of the engine via light blue Hot Cell on the Table. These Hot Cells can also be persistent by checking the “Cell Color Persist” box. This will help to visualize the engine operating range as the power is produced.

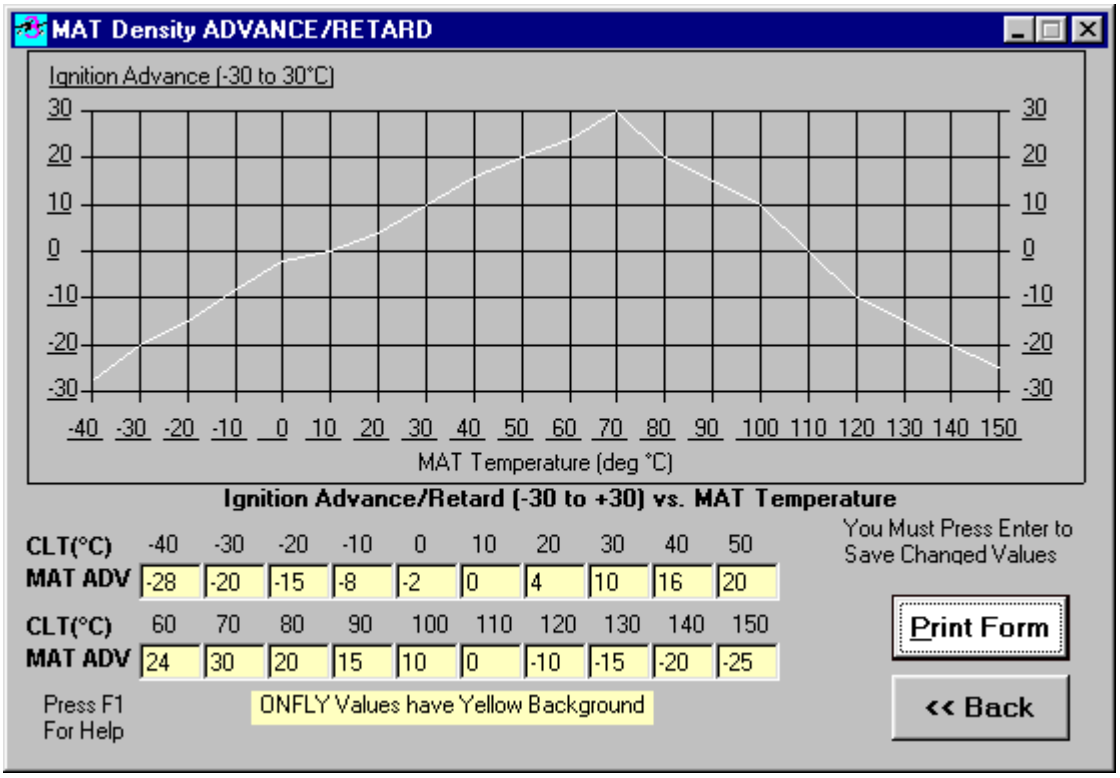
Ignition Advance Interactive 3D Graph



All of the 3D graphs in WinTEC3 are interactive. You can move the blue oval cursor around the graph by using the arrow keys (see * 3D Graph Arrow Keys below) on the keyboard. Once you get to the point that you want to change, just press the + key or the - key to move the values up and down at that point. When you have reached the desired value, you can return to the Ignition Advance Table and you will see that the value at that point has been changed and is now the same as the 3D Graph. This will help the tuner to visualize the Ignition Table values and how they relate.

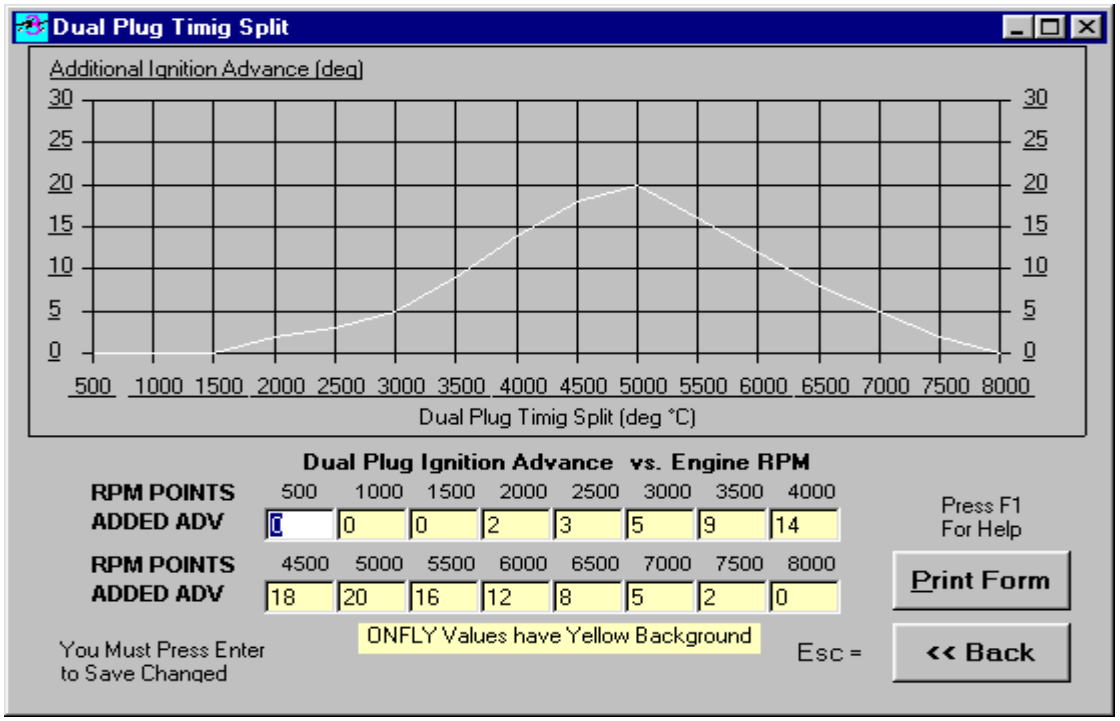
* **3D Graph Arrow Keys**
  Esc = Exit Graph
  Up-Arrow = Move Up One Step
  Down-Arrow = Move Down One Step
  Right Arrow = Move Right One Step
  Left Arrow = Move Left One Step
  Use the '+' Key to Add Value to Graph Point
  Use the '-' Key to Subtract Value from the Graph Point
  The Value for Each Step in the Graph is displayed in the Value Box

MAT Density Advance/Retard



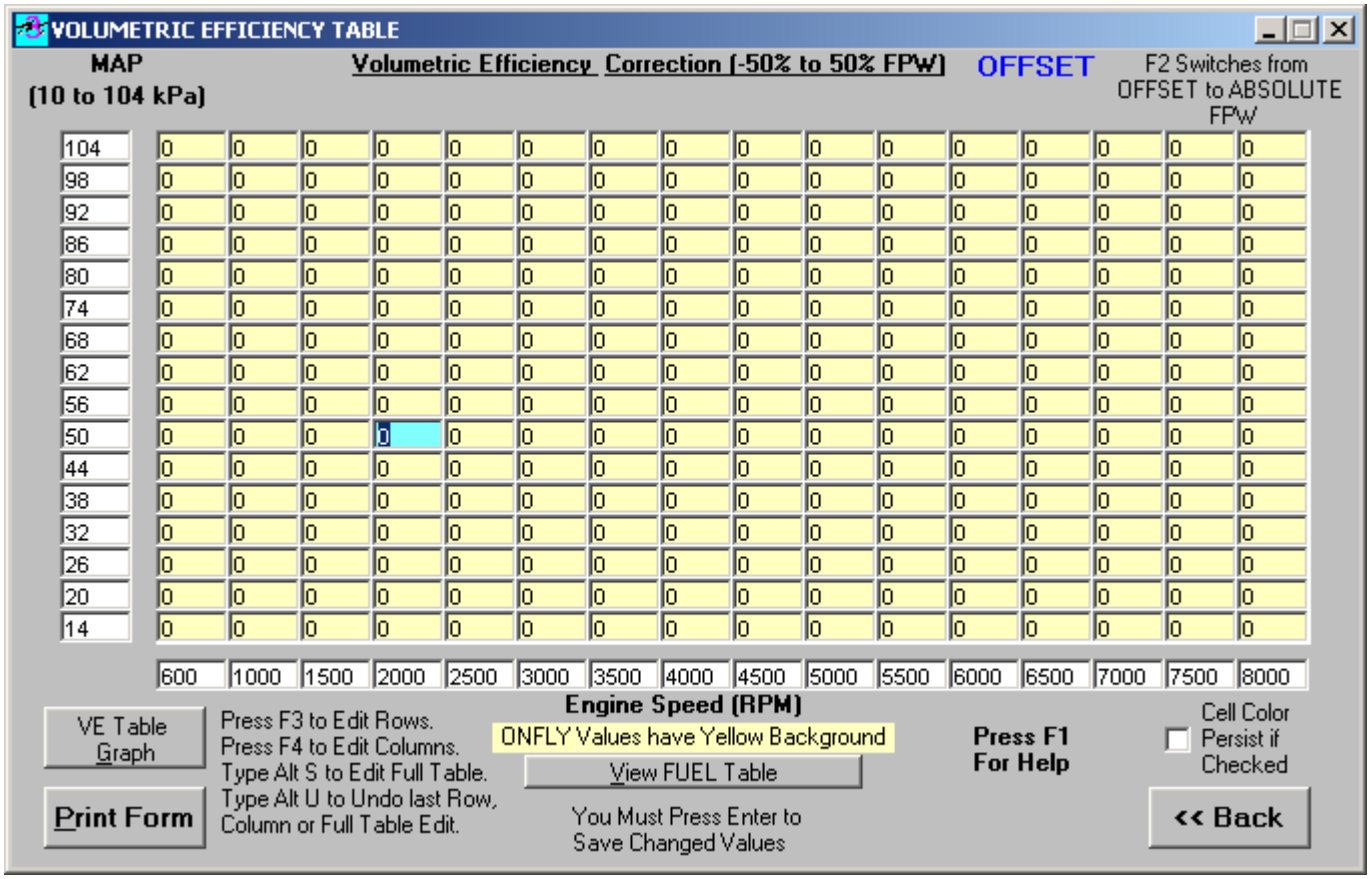
In WinTEC2 the MAT Fuel Enrichment and Adv/Retard values were two single entries in the MAT/VOLTAGE COMPENSATION routine. Now the user has a complete scale from -40 to 150 degrees Celsius and can Advance or Retard from –30 to +30 degree of advance verses temperature.

Dual Plug Timing Split



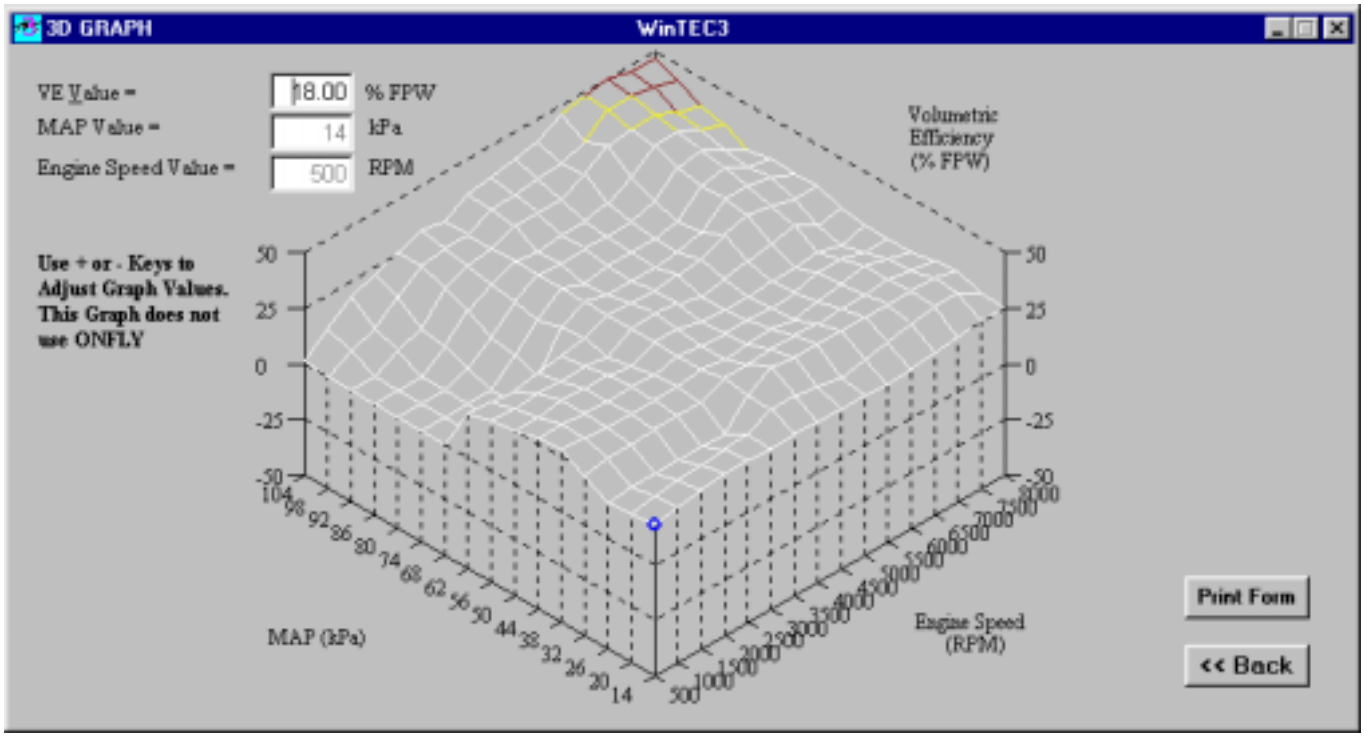
In some applications like Rotory Engines where the trailing plug of a Dual plug setup requires that the trailing plug have a different Advance value, this table lets the user set a different Advance value at the same RPM spread values as the Main Advance table.

Volumetric Efficiency Table



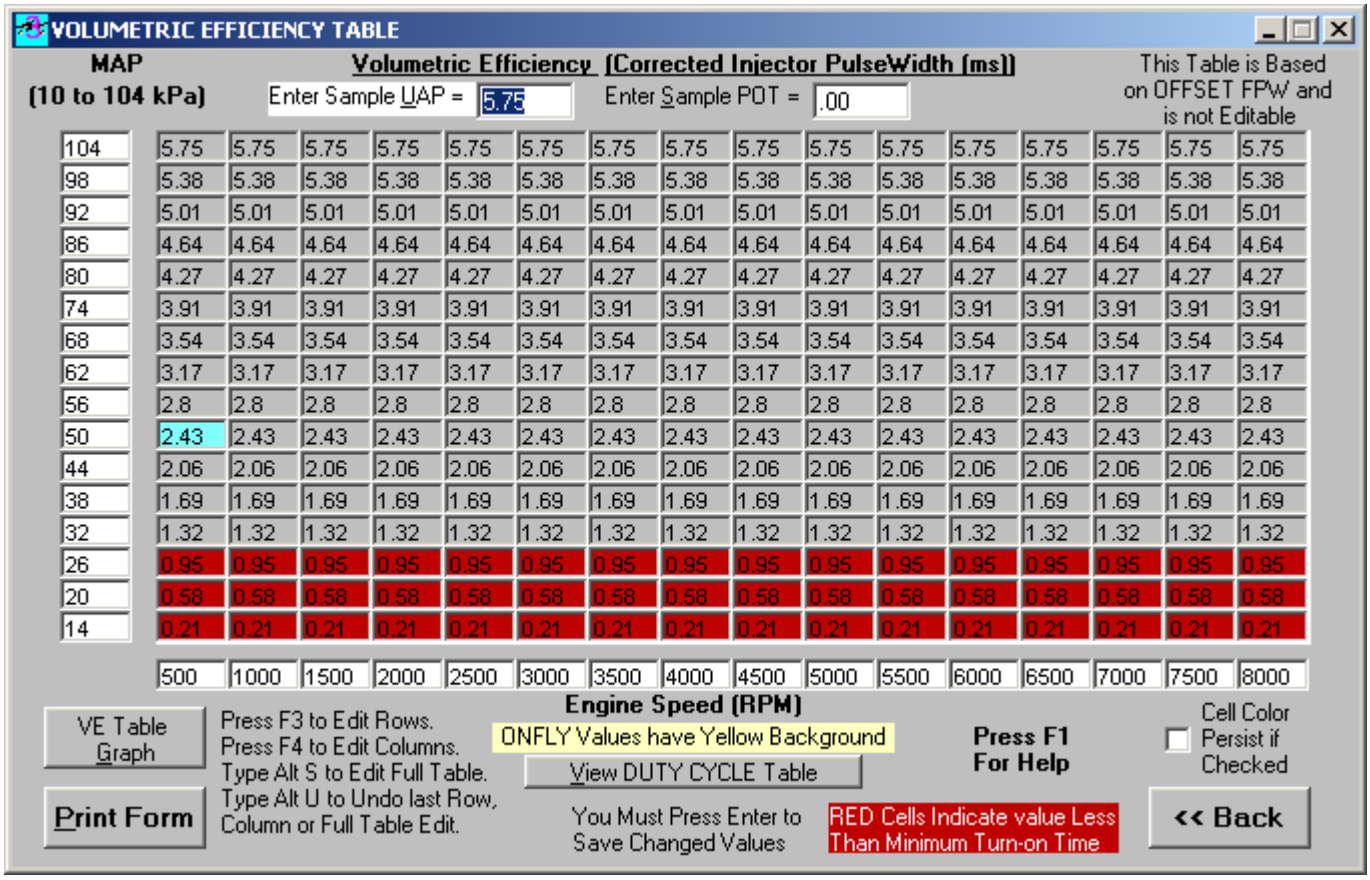
The TEC uses an adjustable 16 x 16 Volumetric Efficiency table where the RPM or MAP/kPa breakpoints are defined in the Advance table. The VE-table numbers represent plus or minus offsets from current GAMA value. While in the engine monitor mode, run the engine at a defined RPM or MAP and then manually use GAMA OFFSET to alter the fuel delivery. It is also possible to let the EGO Correction factor find the Desired Air/Fuel Ratio and then observe how far GAMA is from a perfect 1.00. Insert this offset into the VE table at the exact RPM or MAP point and continue this until all points are complete. The VE table is then linearized between these points and extrapolated beyond the defined RPM and MAP table ranges. All percentage values must be entered as whole numbers (i.e. 100 not 1.00). The VE table can use F3 to edit a complete Row of data or F4 to edit a complete Column of data or you can type “S” and enter a Constant value for the entire table. ONFLY can only update the Volumetric Efficiency data fields. RPM and MAP must be updated in the Advance Table in Edit mode and Downloaded using Program TEC from the Main Menu.

Volumetric Efficiency Table Interactive 3D Graph



With this interactive 3D Volumetric Efficiency graph, the user can move the blue oval cursor around the graph using the arrow keys (see * 3D Graph Arrow Keys above) on the keyboard. Once you get to the point you want to change, as defined in the fields in the upper left hand corner, just press the + key or the - key to move the values up and down at that point. When you have reached the desired value, you can return to the Volumetric Efficiency Table and you will see that the value at that point has been changed and is now the same as the 3D Graph. This will help the user to visualize the Volumetric Efficiency Table values and how they relate. Values in the VE Enhanced Fundamental PW Duty Cycle (%) Table and the VE Enhanced Fundamental Pulsewidth (ms) Table are not editable and this 3D Graph is not available while ONFLY is active.

Volumetric Efficiency Table Corrected Injector PulseWidth

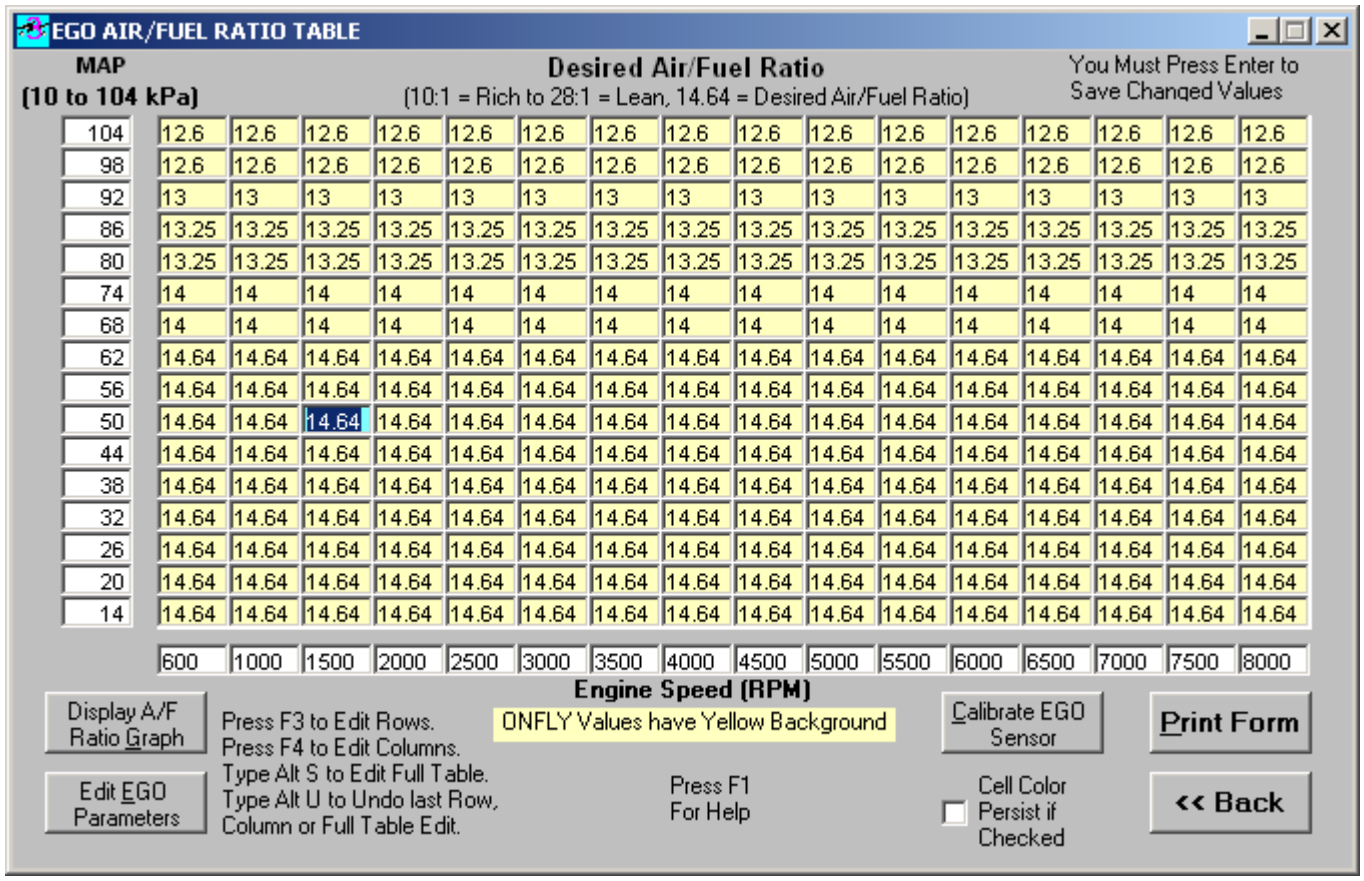


The “Enter Sample UAP” parameter defines the length of the Injector pulse width or User Adjustable Pulsewidth(UAP/TOG), when the Total FPW(GAMA) reads 100% and the manifold pressure is at 104 KPA (wide-open throttle, full power). This value (UAP) is used to scale the equation (MAP/kPa * FPW * UAP) + INJECTOR OFFSET = INJECTION TIME Use UAP to adjust the fuel delivery at the engine's peak power and wide-open throttle point. If the injector flow is set properly the interval should be about the time between injector pulses at the peak power RPM.

The “Enter Sample POT” parameter is used to move the raw fuel curve up or down the graph and takes into account the mechanical opening time of the injector as well as the poor efficiency of the engine at idle speed. It is used to offset the equation (MAP or kPa * TFPW * UAP) + INJECTOR OFFSET = INJECTION TIME.

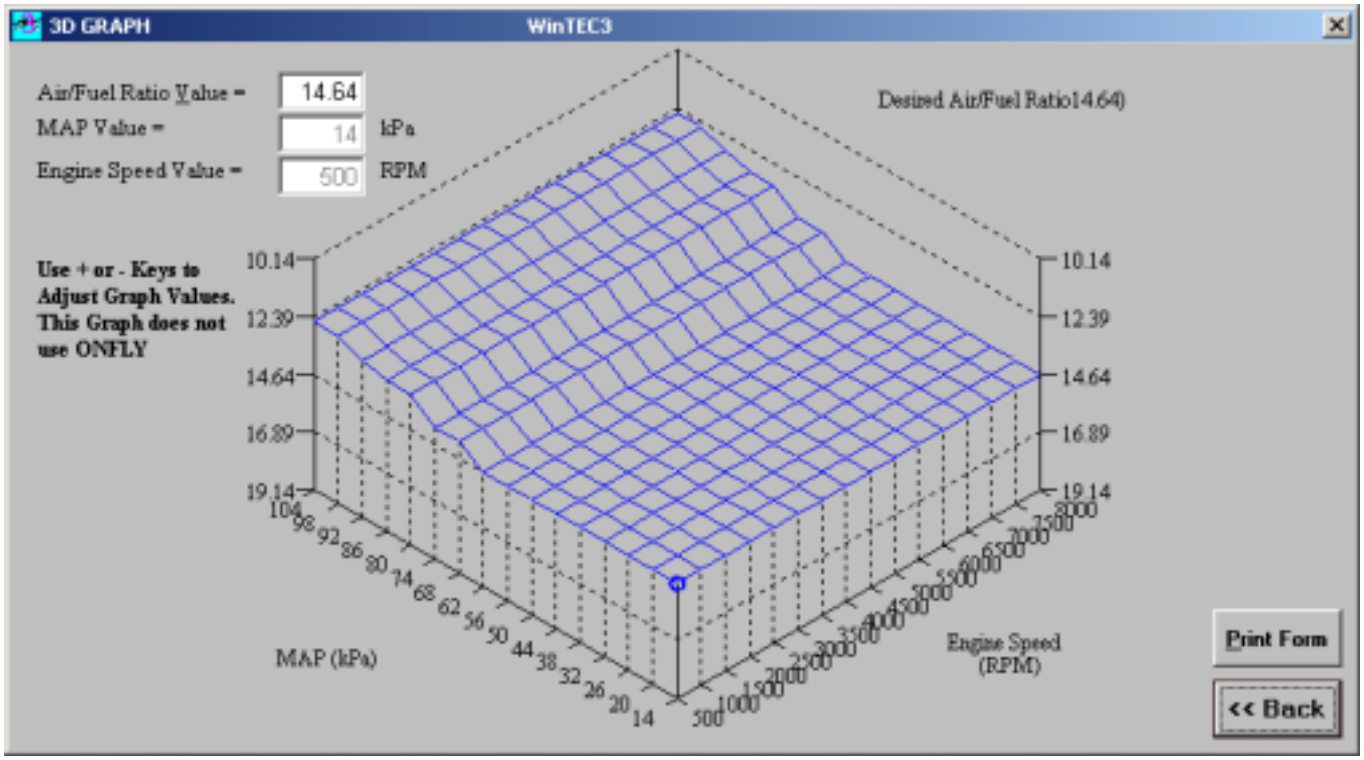
The Cells that are colored in RED Indicate that the value of these cells are less than the MIT(Minimum Turn-on Time. This means that the Injectors will never use these values because of the MIT Value.

EGO Air/Fuel Ratio Table



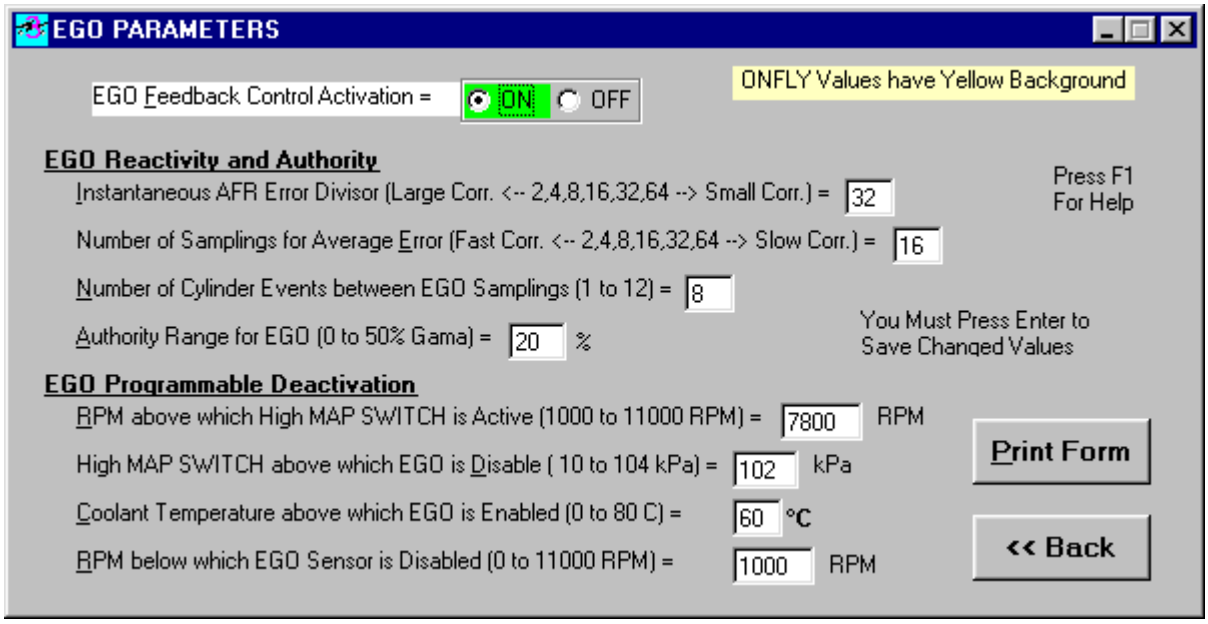
The Air Fuel Ratio feedback system uses a 16x16 table where the RPM and MAP breakpoints are defined in the Advance table. The desired air to fuel ratio can be typed in any one of the 256 cells. The TEC will straight line linearize between the points and extrapolate beyond the defined RPM or MAP values. The computed desired air to fuel ratio appears on the engine monitor screen “DESIRED AFR” next to the actual air fuel ratio “ACTUAL AFR”. The TEC modifies fuel flow to get the actual to equal the desired. The EGO table can use F3 to edit a complete Row of data or F4 to edit a complete Column of data or you can type “S” and enter a Constant for the entire table. ONFLY can only update the Air/Fuel Ratio data fields. The RPM and MAP fields must be updated through the Advance Table.

EGO Air/Fuel Ratio Table Interactive 3D Graph



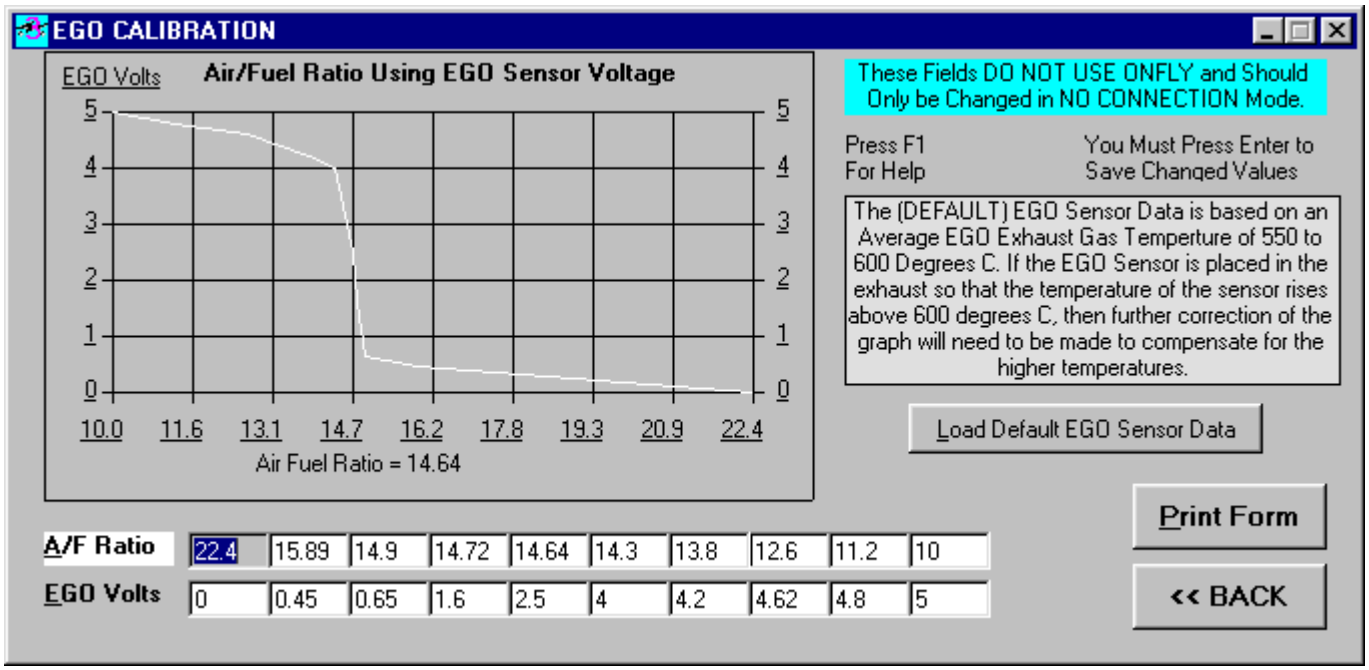
With the EGO interactive 3D graph, the user can move the blue oval cursor to any position on the graph by using the arrow keys (see * 3D Graph Arrow Keys above) on the keyboard. Once you get to the point you want to change, as defined in the fields in the upper left hand corner, just press the + key or the - key to move the values up and down at that point. When you have reached the desired value, you can return to the EGO Air/Fuel Ratio Table and you will see that the value at that point has been changed and is now the same as the 3D Graph. This will help the user to visualize the EGO Air/Fuel Ratio Table values and how they relate. This 3D Graph is not available while ONFLY is active.

EGO Parameters



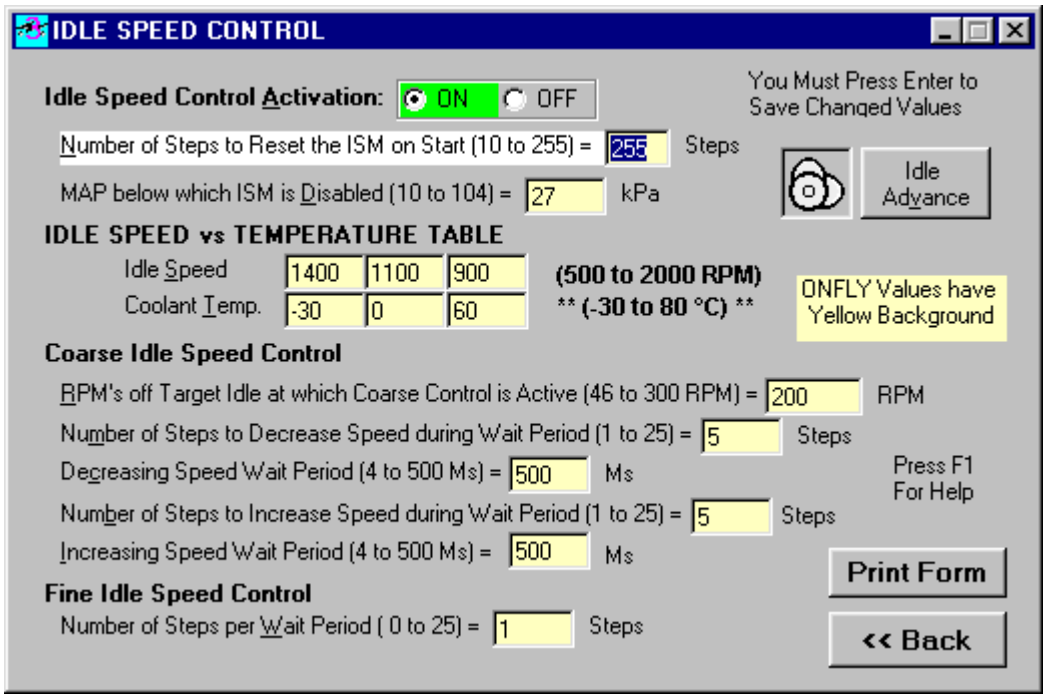
When the EGO Sensor reaches the programmed Coolant temperature the TEC EGO Feedback System starts monitoring the voltage of the EGO sensor, amplifies it 5 times, and determines if the engine is running lean or rich. Each of these parameters determines how the EGO system is going to respond to the EGO data. Instantaneous AFR Error Divisor responds to rapid changes in air to fuel ratio error rate. The system takes a programmed number of Samplings to determine how fast the Feedback system will respond. If it is rich (lean), the TEC waits a programmed number of cylinder events and then leans (enrichens) the fuel by a programmed amount. If the system detects a Rich or Lean condition then the system will respond with EGO CR to the limits of the Authority Range. If it is neither lean nor rich, the EGO stops altering GAMA and the EGO CR is Zeroed on the monitor screen. This function is momentarily disabled if the acceleration or the deceleration mode is on or the engine has been running for less than 20 seconds.

EGO Sensor Calibration



Changes made to the EGO Calibration Screen are made at the USER'S OWN RISK. If these values are not correct, they will cause engine related problems and could cause **Engine Failure**. These A/F Ratios must be in the range of 10 to 29.28. EGO Volts must be 0 to 5 volts increasing to the right by more than 20mv. If you change EGO sensor brand you should setup a new EGO Calibration based on OEM specs.

Idle Speed Control

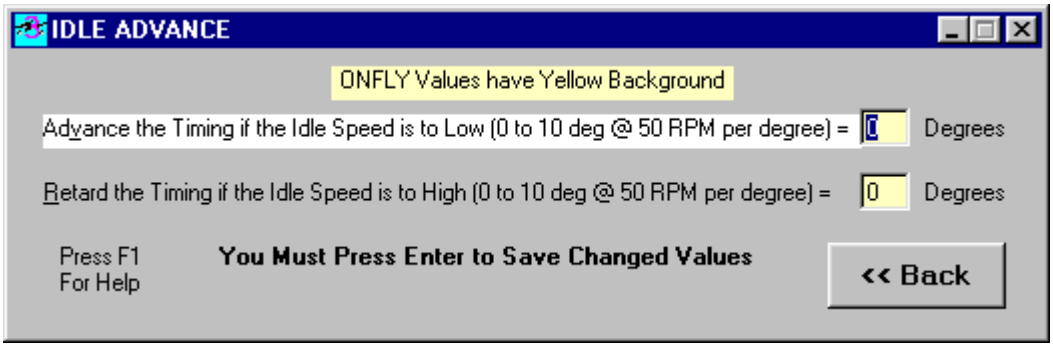


When the engine is first Started or the engine stalls, the idle speed motor opens all the way and then closes by a Programmed number of steps. This number of steps can be obtained by observing idle speed just after cranking. If the RPM is too low, lower this number; if the RPM is too high, raise this number. One of the most overlooked areas in tuning a stable idle is the base throttle plate settings, or minimum air rate. The function of the idle air control (IAC) motor is to compensate for cold start and other loads such as the A/C kicking in and out, or the transmission being put into and out of gear. The idle air control motor is not, however, supposed to be maintaining the base idle speed when hot. When the engine is fully warmed up and not under any load the idle should be about 25 to 50 RPM above the desired hot idle speed, assuring that the IAC is inactive.

In order to adjust these idle speed settings follow this outline:

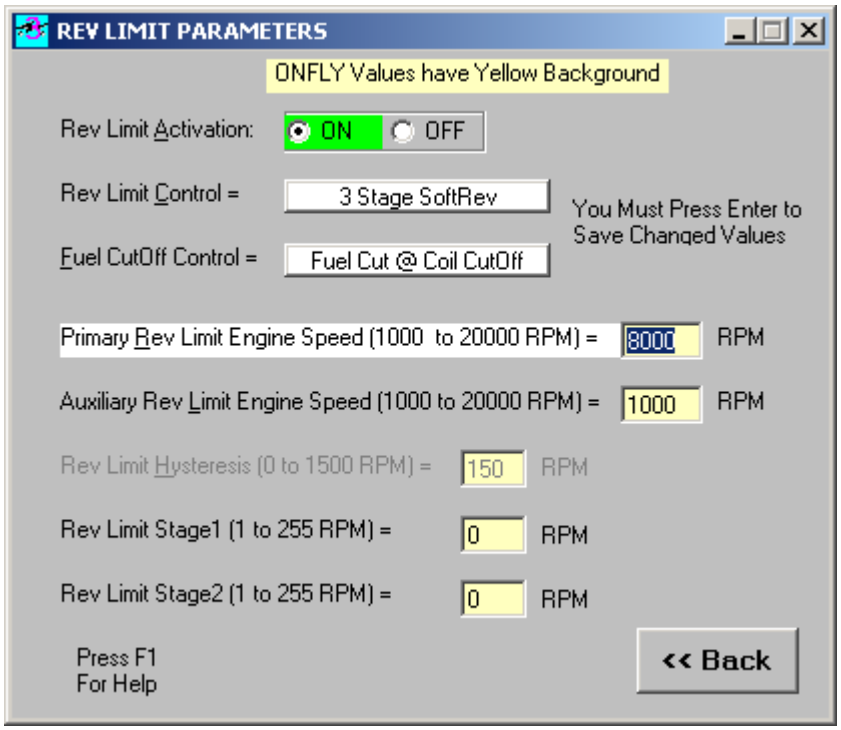
1. Fully warm up the engine.
2. Disable the Idle Air Control motor and block the bypass-air passages.
3. Set the idle to approximately 25 RPM above the desired idle speed as outlined in the calibration.
4. Re-enable the IAC and verify that the engine RPM is still where you set it.

Idle Advance



With the Idle Advance, if the Idle RPM is to high or to low then the TEC can retard the Advance to lower the RPM's or the TEC can add Advance to raise the RPM.

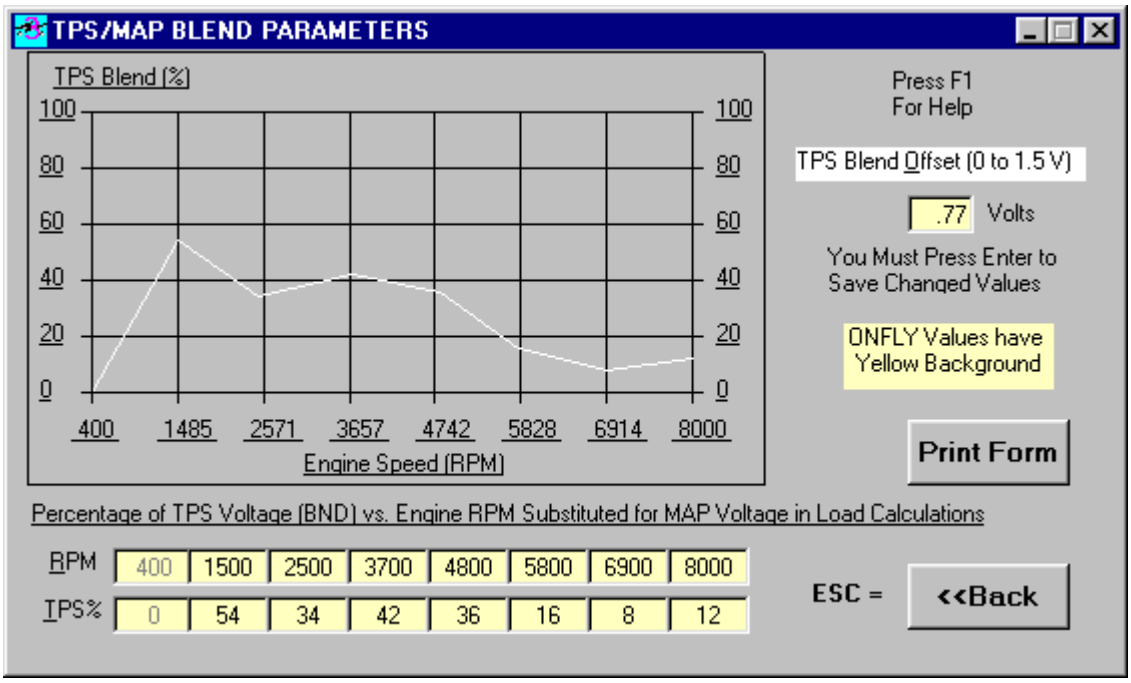
Rev Limiter



The Rev Limiter turns either the ignition coils fully off or retards the timing to zero degrees. The Primary Rev limit defines the max RPM the engine will rev to and the Rev Limit Hysteresis define the RPM value the engine must slow by prior to the engine turning back on. In either mode of operation, the TEC cuts the fuel to a minimum. An Auxiliary Rev Limiter is available which is enabled by shorting the MAT pin to ground. When the Auxiliary Rev Limiter is operational, its RPM limit value supplants the regular Rev Limiter value; both Limiters use the same hysteresis value.

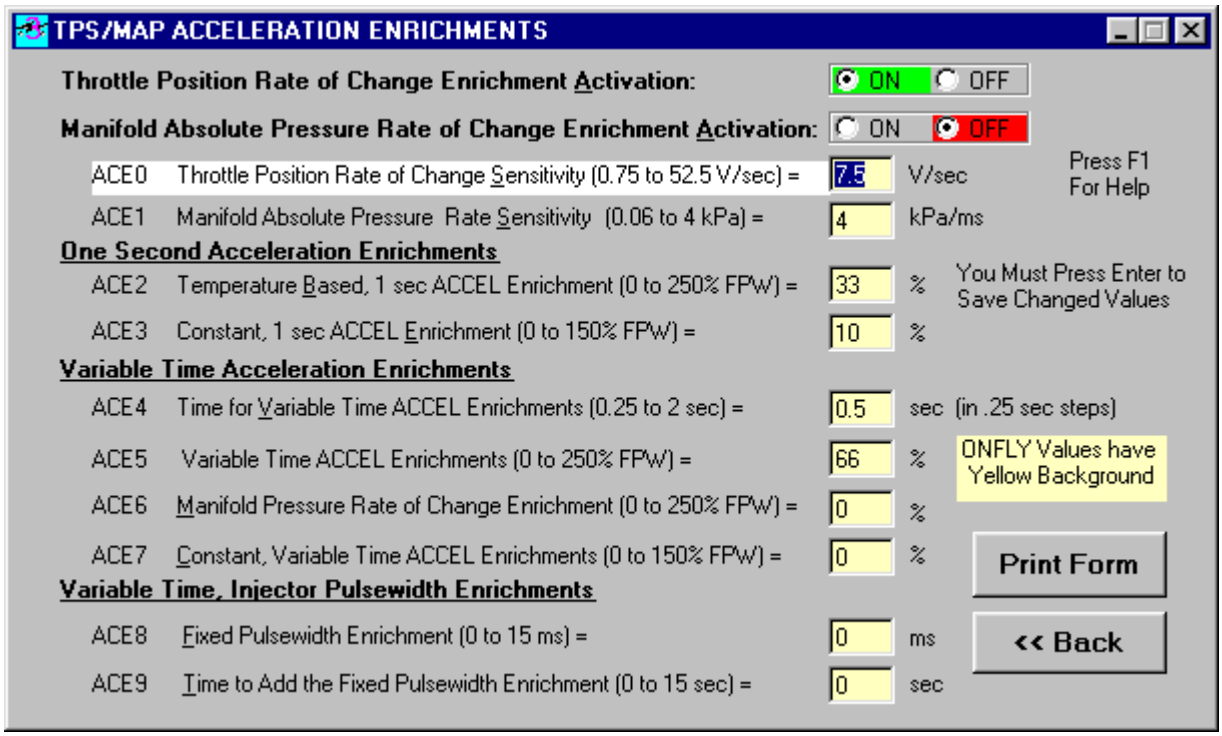
Fuel Enrichment Screen

TPS/MAP Blend



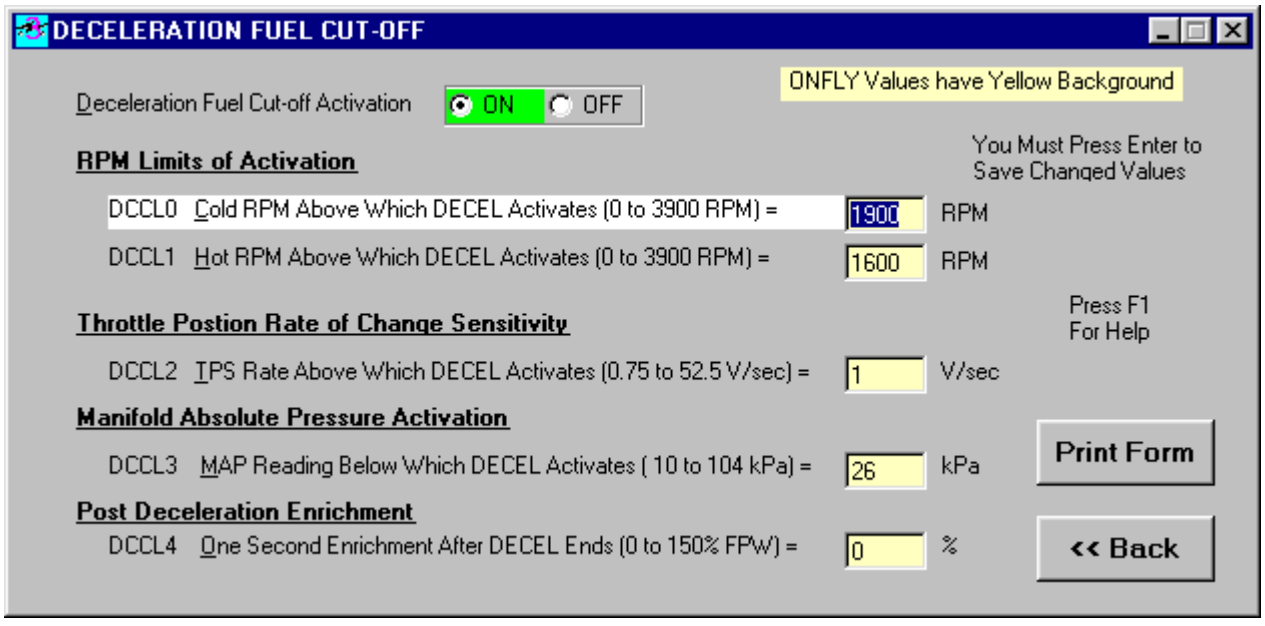
If this table is used, it must be created before any other MAP dependent calibrations such as the VE, GPO and the Advance tables!! This table blends MAP with the entered percentage of TPS, if TPS% = 75% at 1000 RPM, then MAP = 25% MAP input + 75% TPS input at 1000 RPM. The table is linearized between points and blends above and below the RPM scale are fixed at the lowest and highest TPS% respectively. A TPS% value of 0 turns off blending. This blending is useful when calibrating eccentric cammed engines where the MAP sensor reading is not reflective of load at certain RPM's. Since MAP is normally at its highest value during cranking, it is wise to set the initial one or two RPM values to say 400 and 600 with their TPS% values = 0. All percentage values must be entered as whole numbers (i.e. 25 not .25).

TPS/MAP Acceleration



The Throttle Position Rate of Change sets the sensitivity at which the TEC will go into the acceleration mode. If the throttle is moving faster than this rate, as in a rapid depression of the pedal, the acceleration enrichments will start. Several acceleration enrichments are provided which can be adjusted in length of time and amount. These values set the time over which the acceleration enrichments will be activated. All percentage values must be entered as whole numbers (i.e. 100 not 1.00).

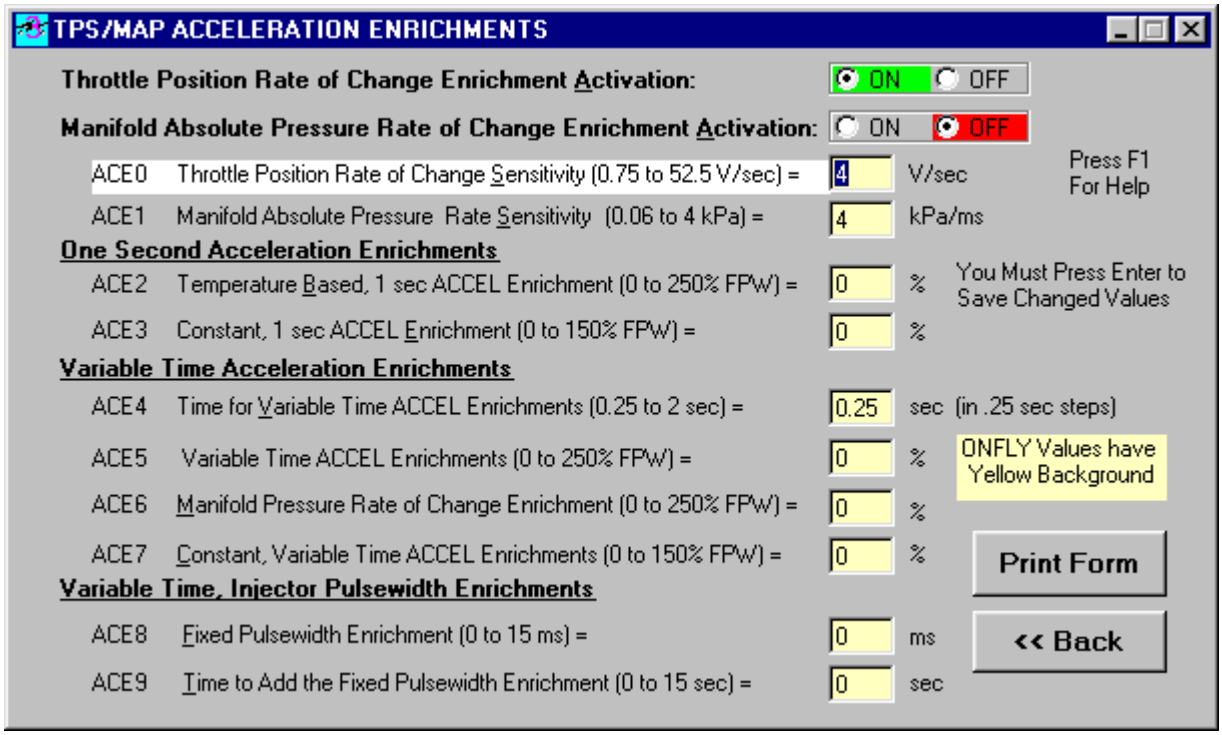
Deceleration Fuel Cut-off



This is the flow percentage below which the engine is in the over-run (excess vacuum) condition. The Deceleration Fuel Cut-off value should be set by observing the flow percentage at idle-neutral and subtracting 8 kPa from it. Recheck this number by causing the engine to go into an over-run condition, such as in a coast down,

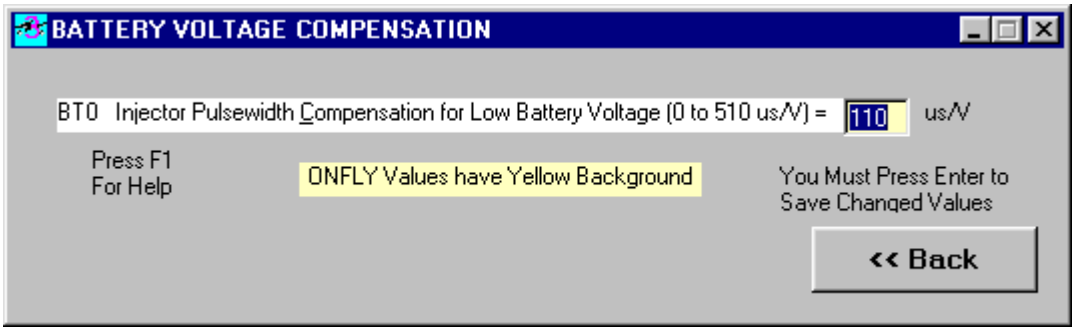
and observing whether or not the flow% drops below the flow percentage value. It should drop about 3 to 4 kPa below the DCCL3 Value. All percentage values must be entered as whole numbers (i.e. 100 not 1.00).

TPS/MAP Acceleration



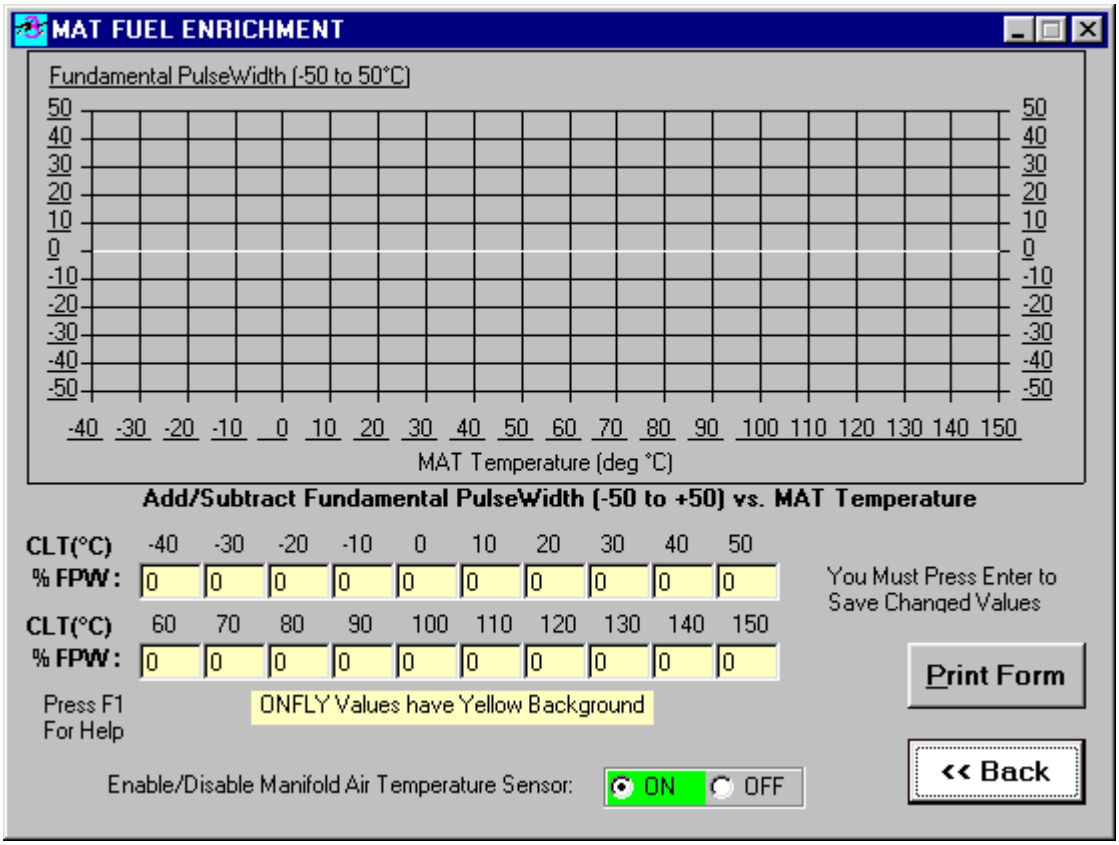
The MAP Rate of Change sets the sensitivity at which a rapid increase in the MAP will trigger the acceleration enrichments. A rapid opening of the throttle plate causes the MAP to rise quickly. Several acceleration enrichments are provided which can be adjusted in length of time and amount. These values set the time over which the acceleration enrichments will be activated. All percentage values must be entered as whole numbers (i.e. 100 not 1.00).

Battery Voltage Compensation



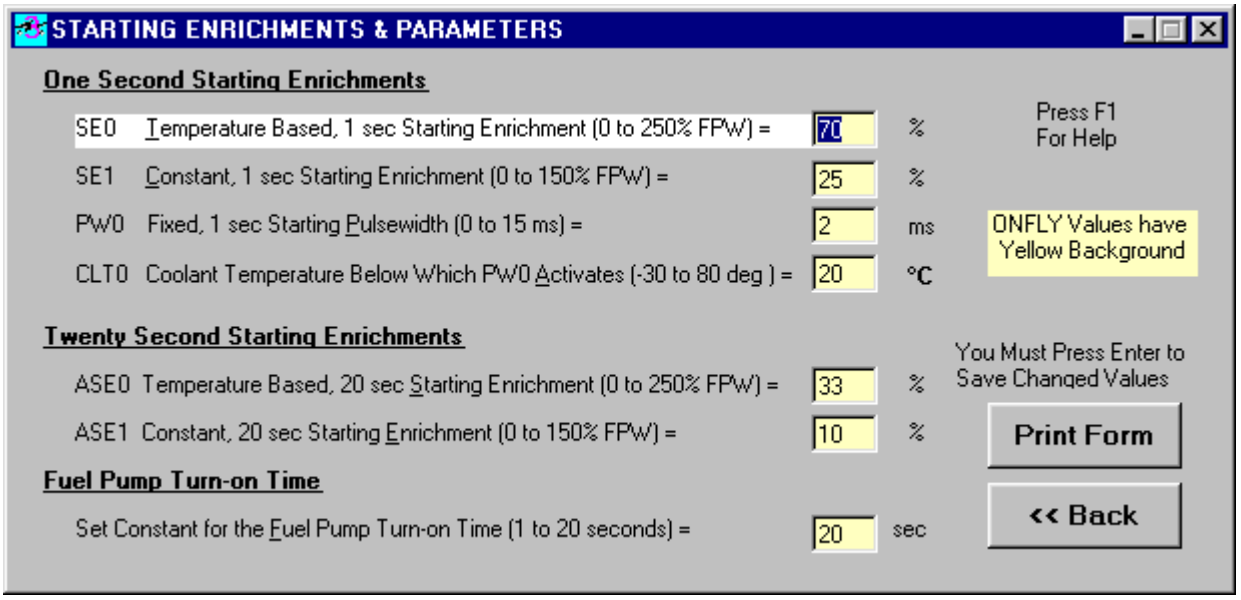
For BT0 the TEC increases the injector time if the battery is lower than 12 volts. It does so as a function of how many volts the battery is below 12 volts. Likewise, if the battery is higher than 12 volts, the TEC will begin reducing the pulse width. All percentage values must be entered as whole numbers (i.e. 100 not 1.00).

MAT Fuel Enrichment



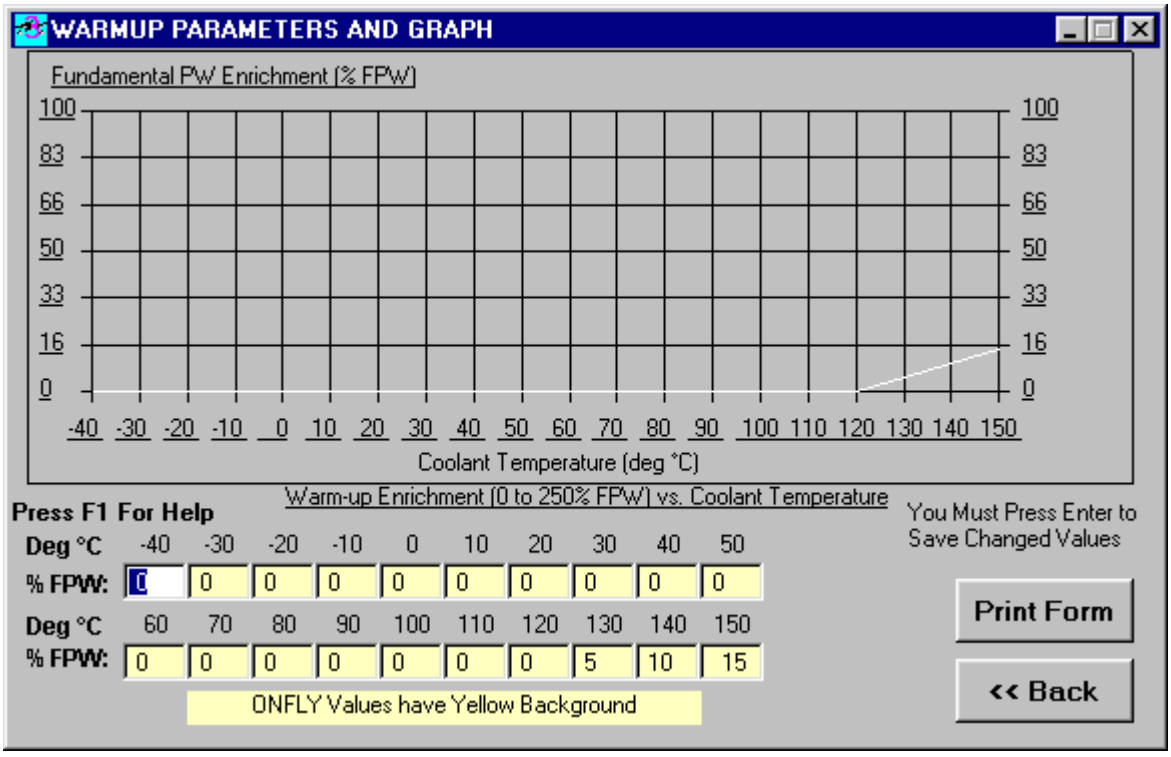
Just as the coolant temperature sensor provides engine temperature-based enrichments, the manifold air temperature sensor allows for air temperature-based enrichments. Since air becomes denser as it gets colder, it requires more fuel to maintain a specific air/fuel ratio. In fact, at –40°F (-40°C), air is 25% denser than at 70°F (21°C)! All things being equal, this means that the engine would require 25% more fuel at –40°F than at 70°F.

Starting Enrichments



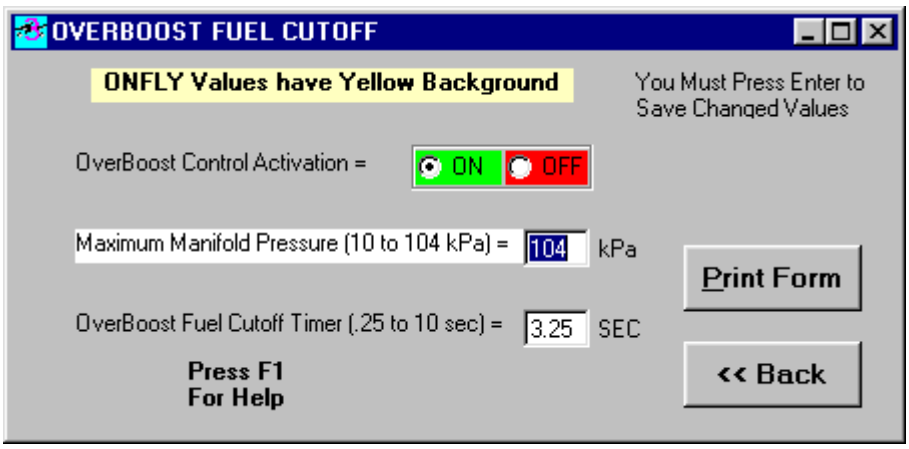
This extra GAMA is added to the current GAMA for one full second after the start of engine cranking. Its full value is added in if the coolant temperature is -30ø C and then drops linearly to zero at 80øC. Then the enrichment is ramped down over 20 seconds from the start of cranking. The amount of fuel added depends on engine temperature. At -30ø C, the full, programmed GAMA is added. There is a linear drop off of GAMA to a value of zero at 80ø C. The Fuel Pump is turned on when the key is turned on. The fuel is pumped for a programmed number of seconds before turning off then is pumped only to maintain the correct fuel pressure.

Warm-up Enrichments



This table adds the programmed amount of GAMA to the current GAMA at the desired engine temperature. Straight-line linearization is used between the 10-degree steps and the value at 80ø C is always zero. All percentage values must be entered as whole numbers (i.e. 100 not 1.00).

OverBoost Fuel Cutoff

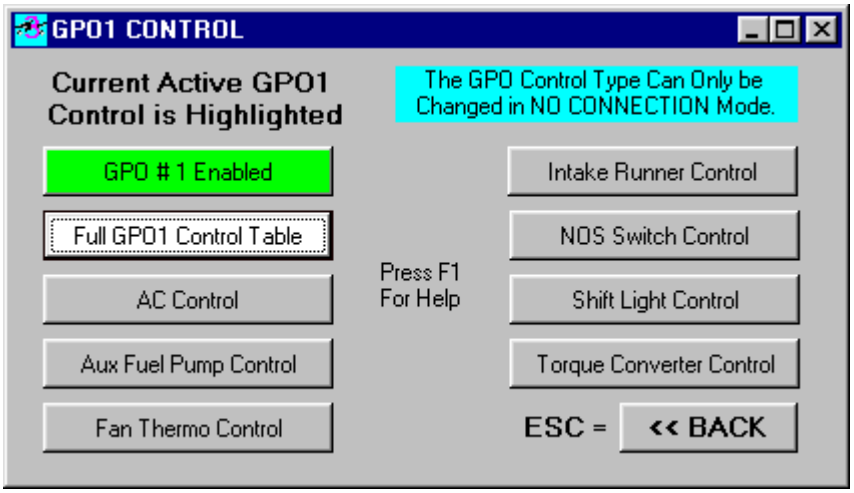


Select the Maximum MAP/kPa in the range of the MAP Sensor used on your TurboCharged or SuperCharged Engine. Then enter the amount of time after the Max kPa is reached that the Fuel is cutoff. This will help to protect your TurboCharged or SuperCharged Engine from damage.

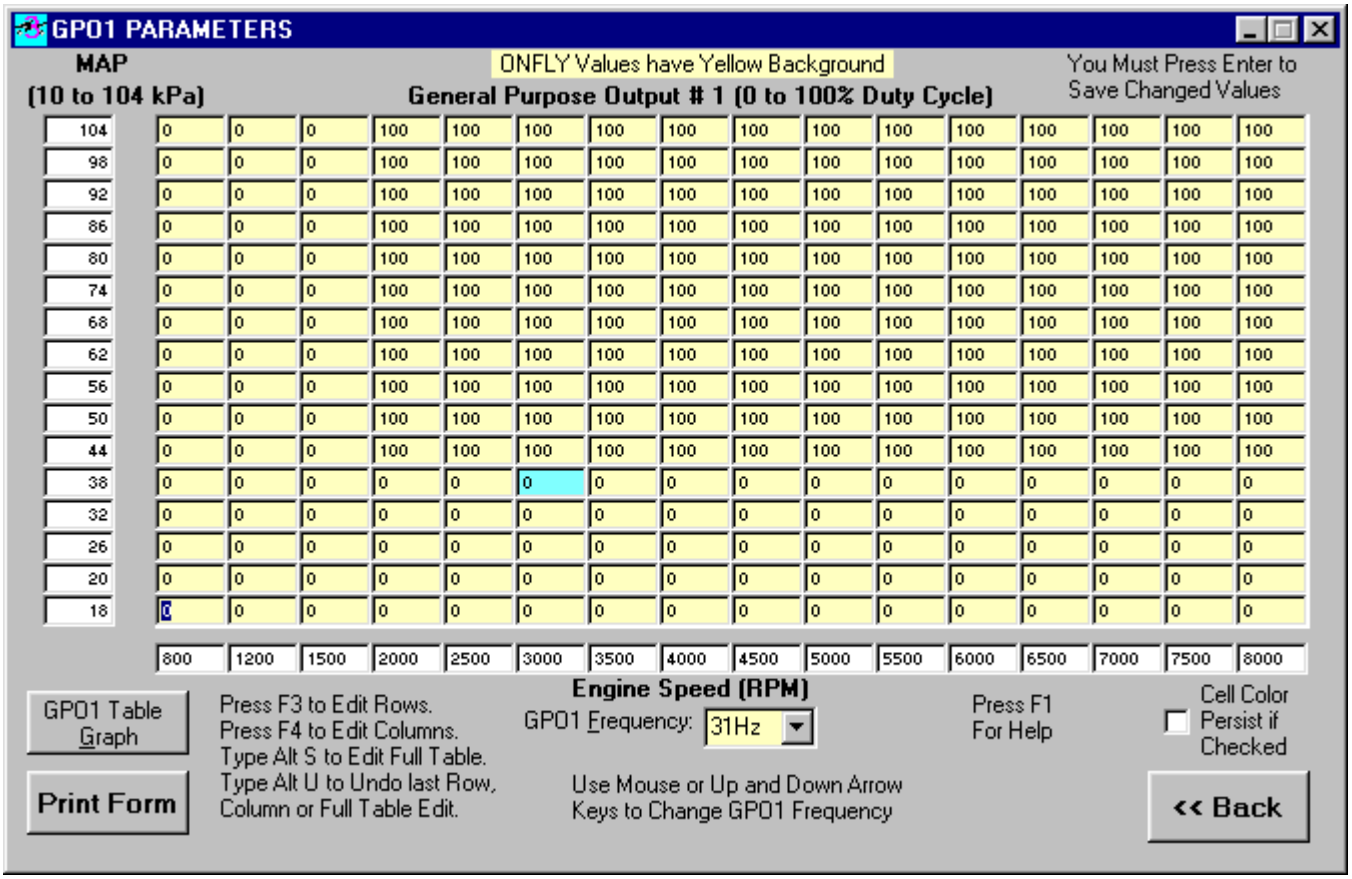
GPO Control

4 GPO's

This section describes the templates that are used to create each unique GPO environment. We only have one single GPO but that GPO can be structured to operate in several different modes.

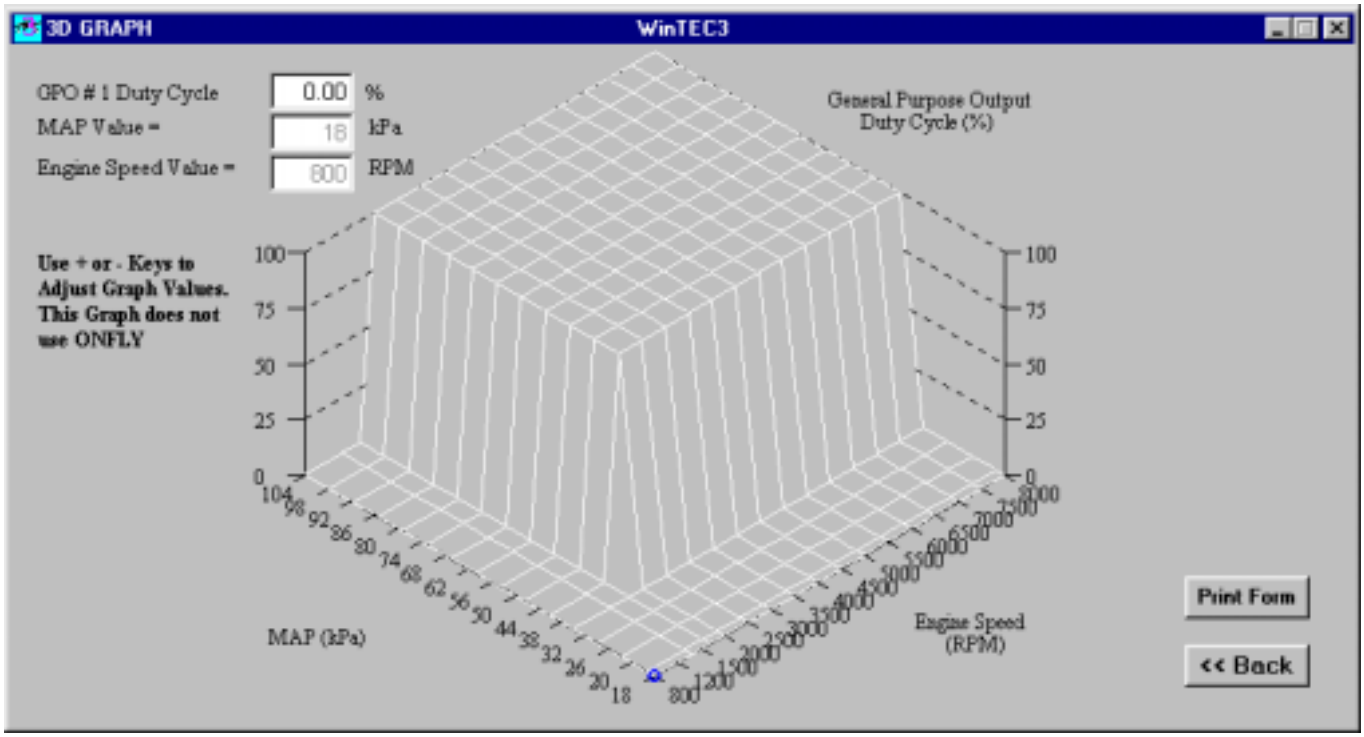


Full GPO Control Table



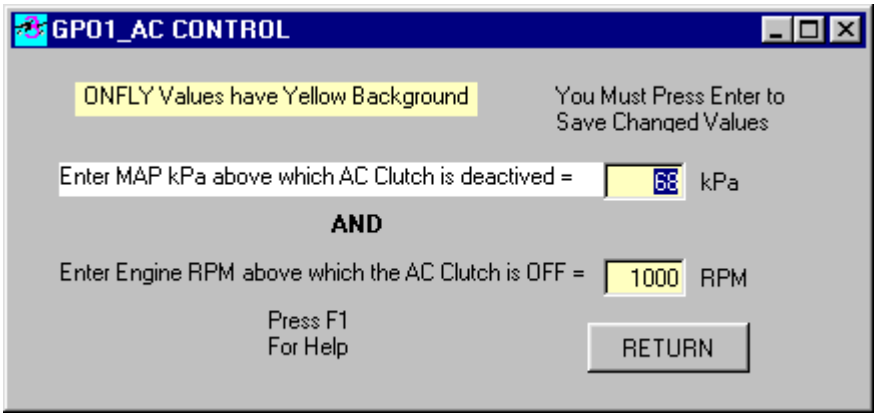
The TEC3 has four GPO's and two of the GPO's utilize a 16 x 16 table to specify the duty cycle percentage at RPM and MAP points as defined in the Advance table. When hooked up as a 'low side' driver, any solenoid can be pulsewidth modulated to vary its opening as a function of engine speed and load. The TEC linearizes between these points, extrapolates beyond the table and turns the GPO off at zero RPM. The GPO can be tweaked by modifying the duty cycle as the engine is running using the engine monitor screen. All percentage values must be entered as whole numbers (i.e. 100 not 1.00). The GPO table can use F3 to edit a complete Row of data or F4 to edit a complete Column of data or you can type "S" and enter a Constant for the entire table. ONFLY can only update the GPO and GPO Frequency data fields. RPM and MAP/kPa must be updated in the Advance Table

GPO Control Interactive 3D Graph



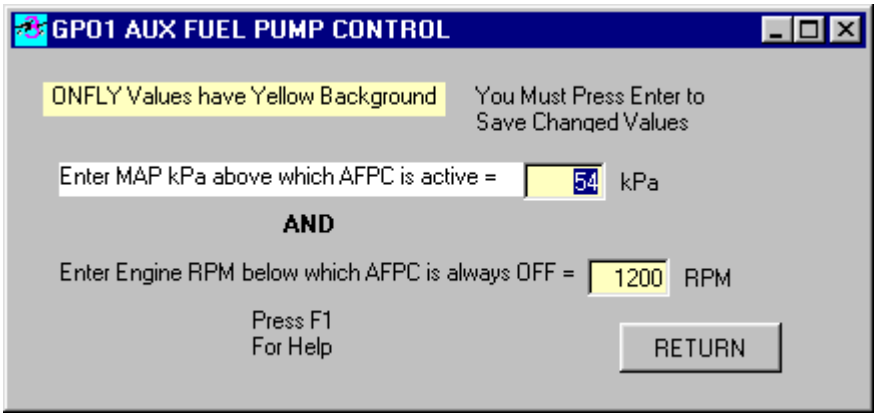
With the GPO interactive 3D graph, the user can move the blue oval cursor to any point on the graph by using the arrow keys (see * 3D Graph Arrow Keys above) on the keyboard. Once you get to the point, as defined in the fields in the upper left hand corner, that you want to change, just press the + key or the - key to move the values up and down at that point. When you have reached the desired value, you can return to the GPO Control Table and you will see that the value at that point has been changed and is now the same as the 3D Graph. This will help the user to visualize the GPO Control Table values and how they relate.

GPO AC Control



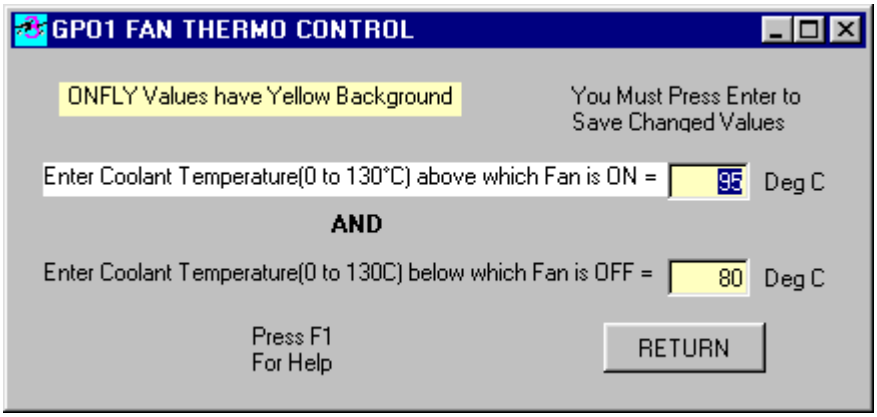
Any one of the GPO's can use the GPO_AC Control which gives the tuner the capability of turning a relay On/Off when you need to control the Air conditioning system. It can also be used for other RPM/kPa based On/Off relay controlled devices.

GPO Aux Fuel Pump Control



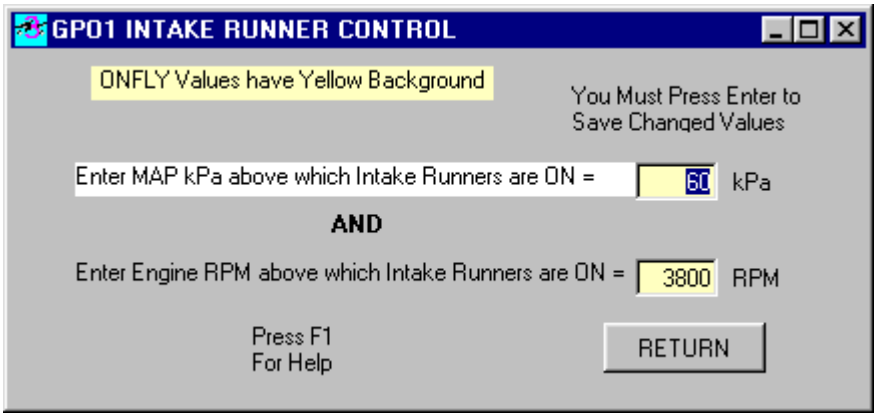
The GPO Aux Fuel Pump Control gives the tuner the capability of turning a relay On/Off when you need to control an Aux fuel Pump. It can also be used for other RPM/kPa based On/Off relay controlled devices.

GPO Fan Thermo Control



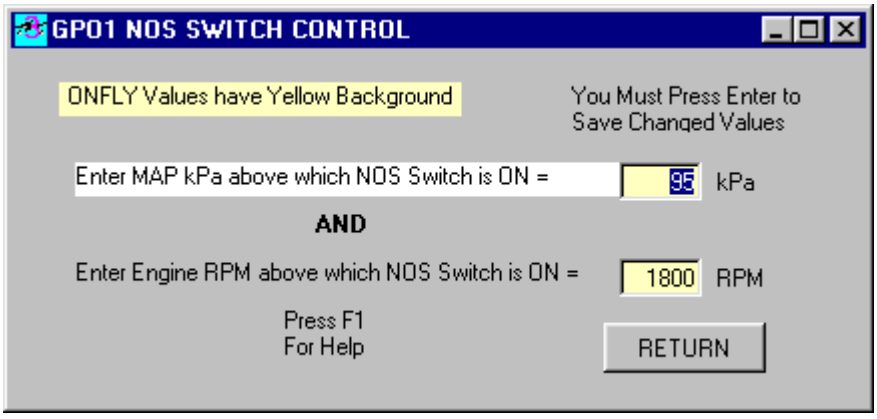
The GPO Fan Thermo Control gives the tuner the capability of turning a relay On/Off when you need to control the electrical fan system. This control only works while the TEC is in the Key ON state. It can also be used for other On/Off temperature controlled devices.

GPO Intake Runner Control



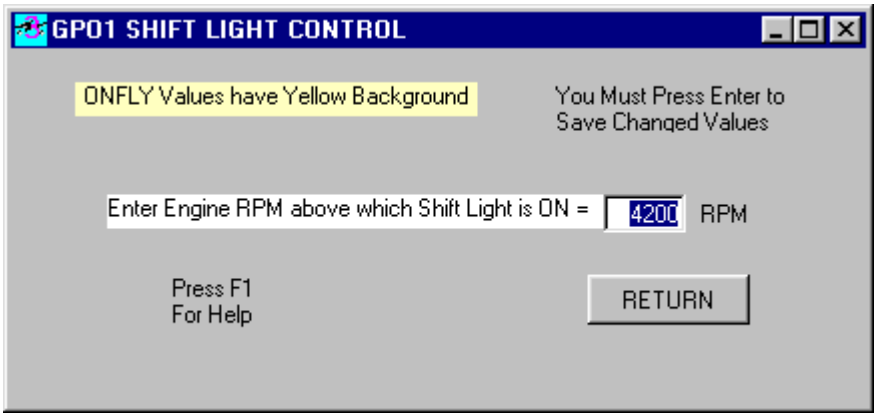
The GPO Intake Runner Control gives the tuner the capability of turning a relay On/Off when you need to control Engine Air Intake Runners. It can also be used for other RPM/kPa based On/Off relay controlled devices.

GPO NOS Control



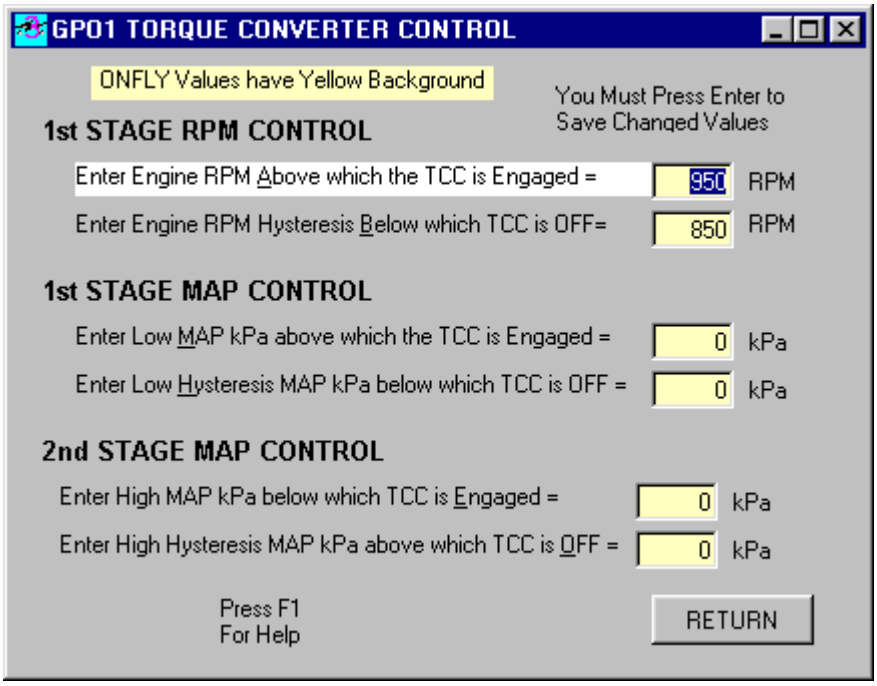
The GPO NOS Switch Control gives the tuner the capability of turning a relay On/Off when you need to control NOS. It can also be used for other RPM/kPa based On/Off relay controlled devices.

GPO Shift Light Control



The GPO Shift Light Control gives the tuner the capability of turning a Warning light or Shift point light On/Off controlled only by RPM. It can also be used for other RPM based On/Off relay controlled devices.

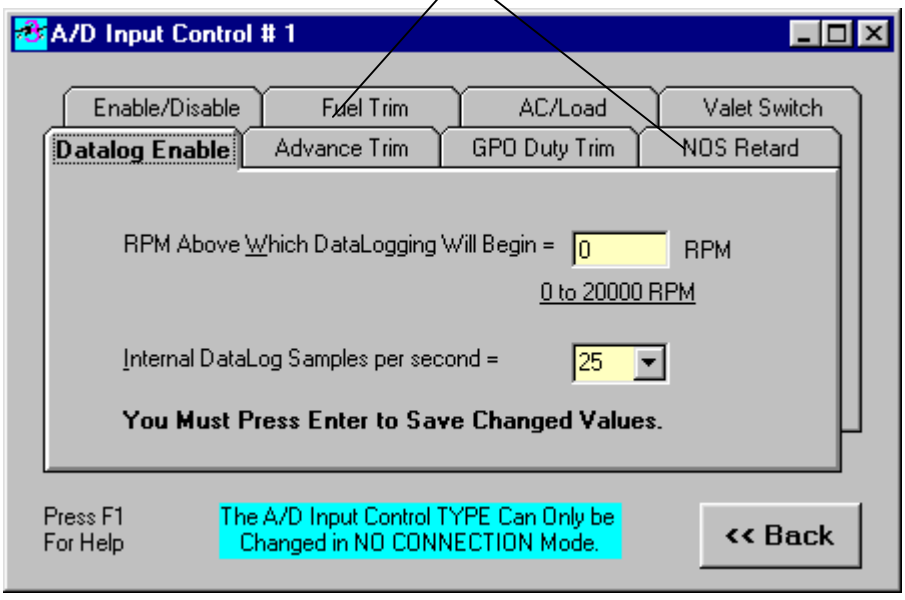
GPO Torque Converter Control



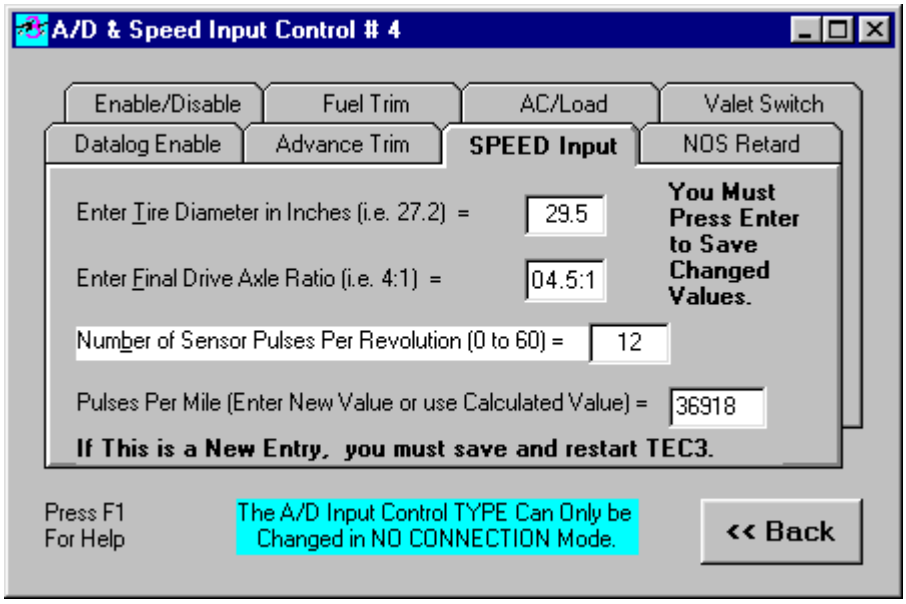
The GPO Torque Converter Control gives the tuner the capability of controlling the shift points of most Automatic Transmissions. It can also be used for other RPM/kPa based On/Off relay controlled devices.

Analog/Digital and Datalog Inputs

Templates

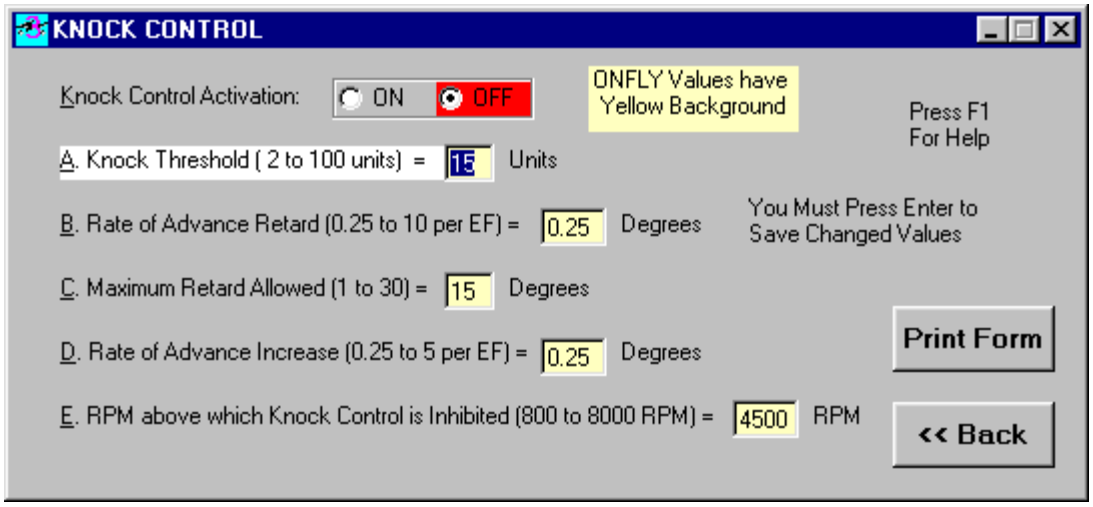


There are 4 Analog/Digital Inputs. Each Input can service a single template but no two inputs can service the same template type. Each of the templates have unique Help Files that can be accessed using the “F1” key. The TEC3 Installation and Calibration Manual will show you how to configure the inputs and the Help files will tell you how to setup the inputs. A/D Input Control # 1 & 2 both have GPO Duty Trim values that correspond to the two Full GPO Control Tables. Each A/D Input can control one GPO Table Trim.



A/D Inputs # 3 & 4 replace the GPO Duty Trims with SPEED Inputs. SPEED Input # 4 is the primary speed input that controls other speed related values. A/D inputs 3 & 4 can each control a speed input but input 3 just shows the current speed.

Knock Control

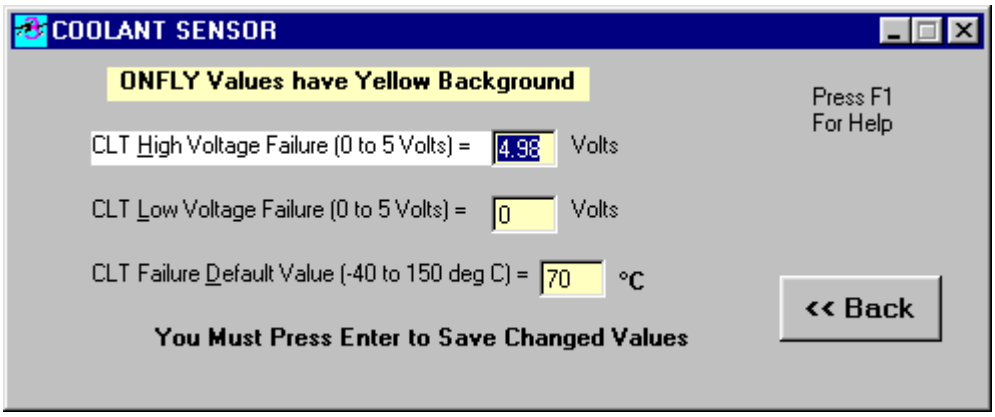


If knock is occurring greater than the knock threshold 'A' then TEC decreases (retards) the advance by 'B' degrees per engine function (EF) but not to exceed a maximum of 'C' degrees retard. If knock is less than the knock threshold 'A' then the TEC increases the advance by 'D' degrees per engine function (EF) not to exceed the calculated advance. Knock control is inhibited if the RPM exceeds ‘E’ RPM value; it is recommended to set this RPM not greater than 4500 RPM.

Sensor Parameters

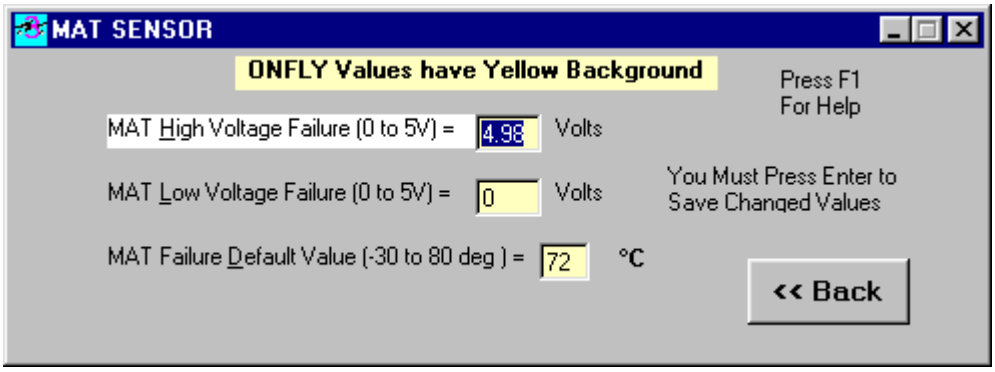
All of these sensor failure parameters define the highest and lowest normal voltage expected from the sensor. If these voltage limits are exceeded, a constant default value will be substituted and a check engine malfunction code will be activated. To disable any of the sensors and only use the default value, set its high voltage failure parameter to zero.

Coolant Sensor



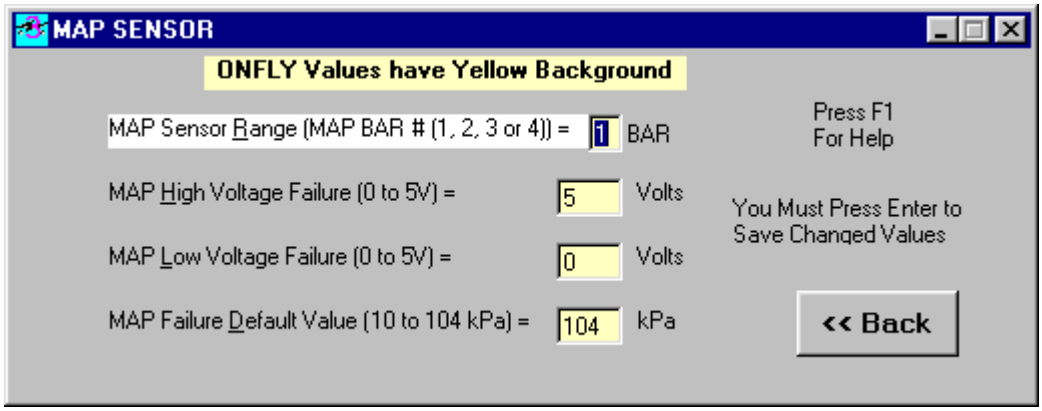
The CLT Sensor has limits of its capability. If the High or Low Voltage is higher or lower than the voltages entered, then it defaults to its Failure value and turns on the sensor failure display on the Monitor screen. A Coolant sensor failure also causes the Check Engine Light to blink a code 1 if a light is installed.

MAT Sensor



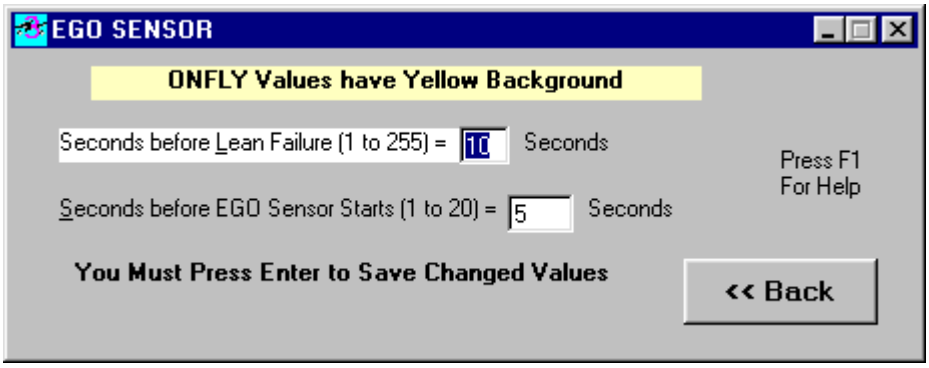
The MAT Sensor has limits of its capability. If the High or Low Voltage is higher or lower than the voltages entered, then it defaults to its Failure value and turns on the sensor failure display on the Monitor screen. A MAT sensor failure also causes the Check Engine Light to blink a code 2 if a light is installed.

Map Sensor



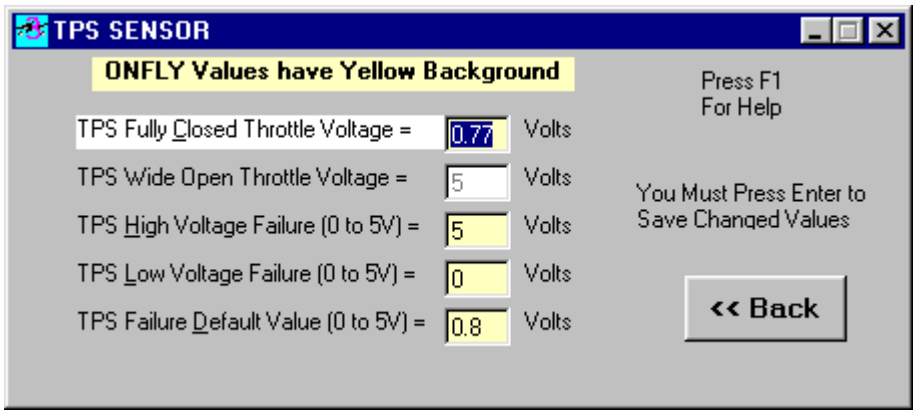
The MAP Sensor has limits of its capability. If the High or Low Voltage is higher or lower than the voltages entered, then it defaults to its Failure value and turns on the sensor failure display on the Monitor screen. A MAP sensor failure also causes the Check Engine Light to blink a code 3 if a light is installed.

EGO Sensor



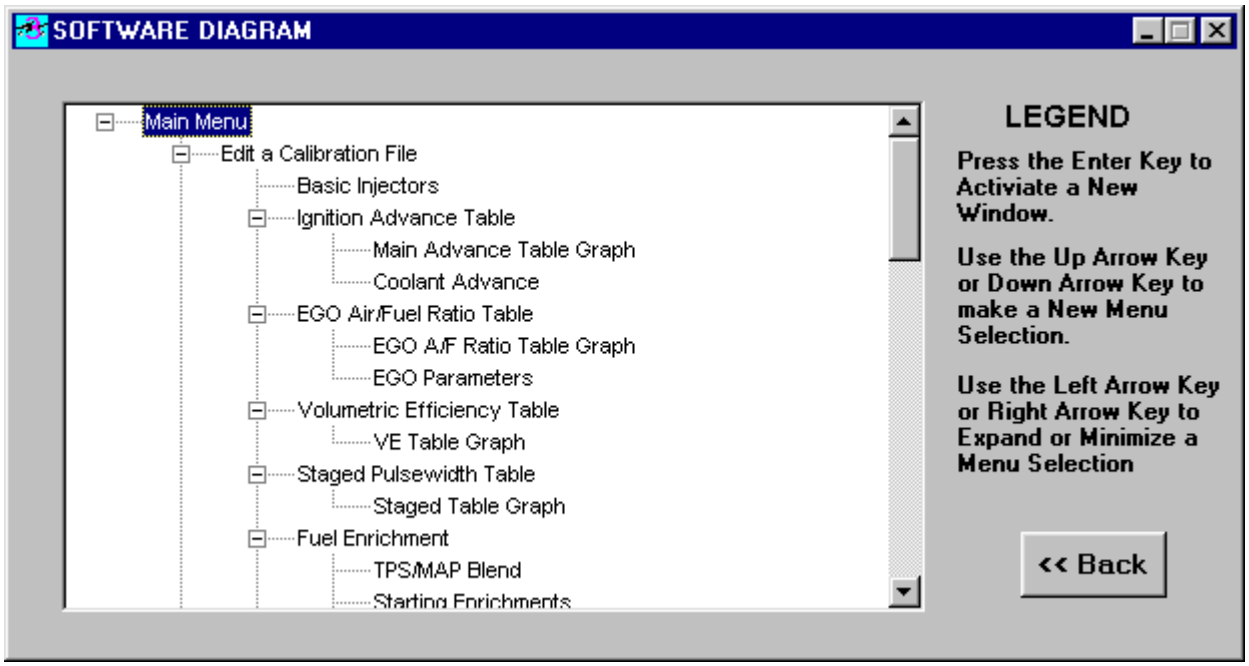
The EGO Sensor has limits of its capability. If the High or Low Voltage is higher or lower than the voltages entered, then it defaults to its Failure value and turns on the sensor failure display on the Monitor screen. An EGO sensor failure also causes the Check Engine Light to blink a code 4 if a light is installed. The Exhaust Gas sensor failure parameter is a function of how long the sensor senses a lean condition. The Exhaust Gas sensor may be disabled by turning the EGO function off in the EGO Parameters.

TPS Sensor



The TPS Sensor has limits of its capability. If the High or Low Voltage is higher or lower than the voltages entered, then it defaults to its Failure value and turns on the sensor failure display on the Monitor screen. A TPS sensor failure also causes the Check Engine Light to blink a code 5 if a light is installed.

Software Diagram

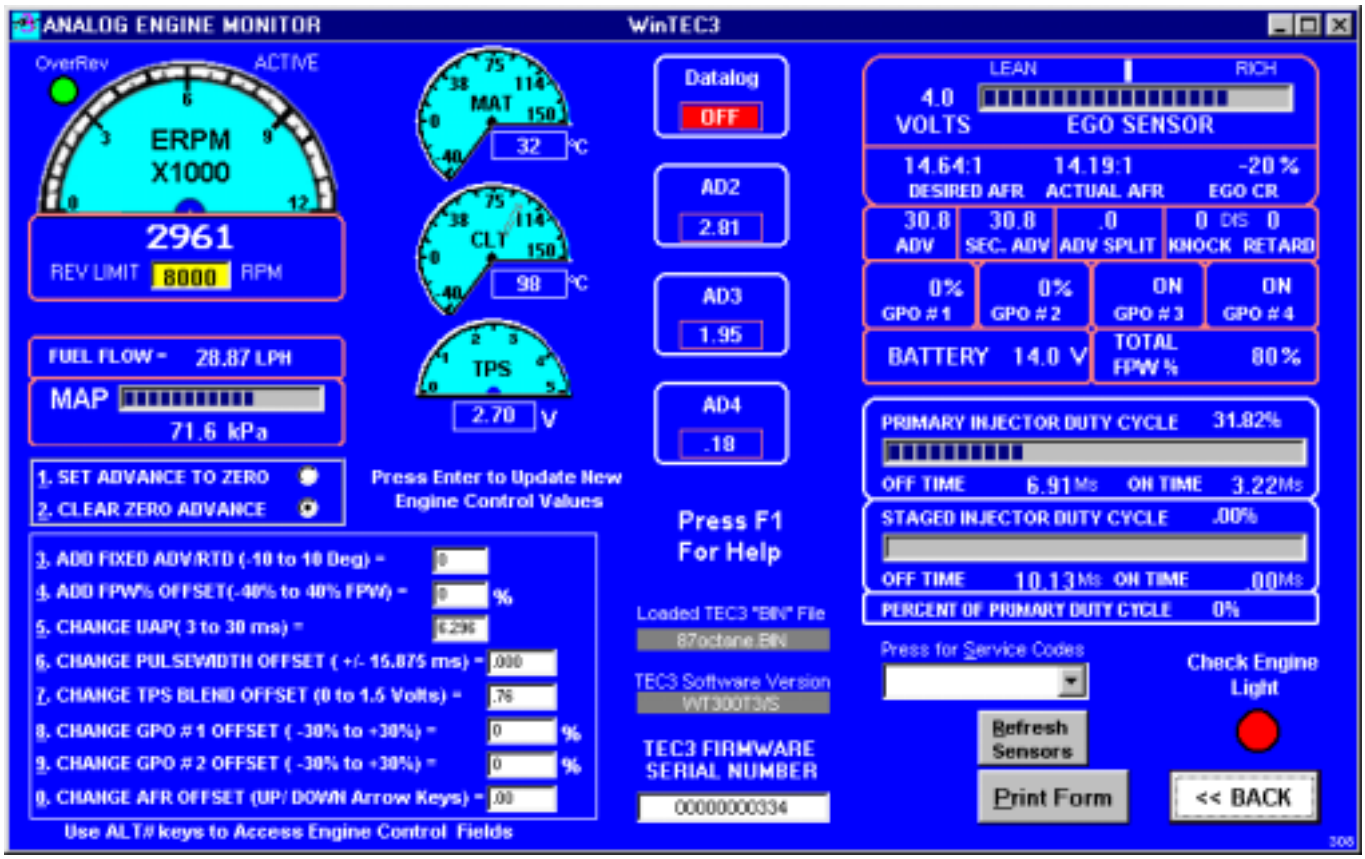


This Function allows the User to choose any of the software functions from within the WinTEC3 Program. By using the keyboard or a mouse you can choose a function by highlighting the function and pressing the "**Enter**" key. Using the Keyboard, use the Up Arrow Key or Down Arrow Key to make a New Menu Selection. Use the Left Arrow Key or Right Arrow Key to Expand or Minimize a Menu Selection. If you use a mouse you still have to press the "**Enter**" key to activate the selection.

Monitor Engine Functions

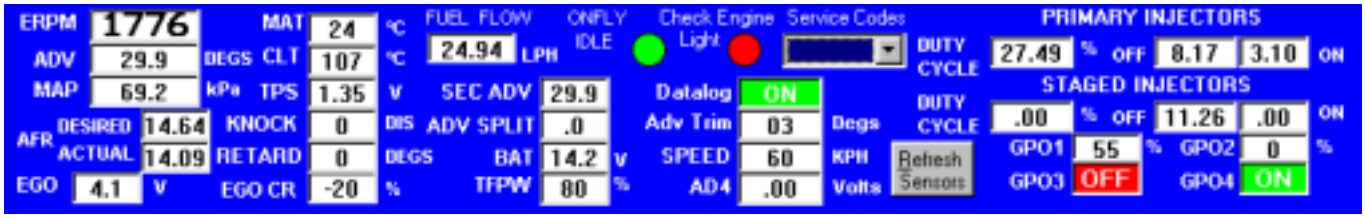
Now there are two Engine Monitor screens available. The first is the default Analog screen that operates only in EDIT Mode and the second is a Digital screen used for the ONFLY Real Time Data System. These different screens can be chosen from the “Options” screen that we will discuss later.

Analog Engine Monitor Screen (Default)



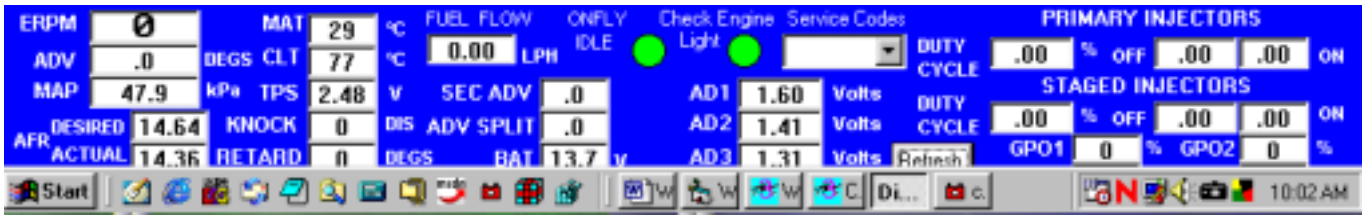
By selecting “Monitor Engine Function” in the Edit Mode, which engages the Analog Monitor Screen, you will be able to gather information necessary before starting your engine for the first time. During start up and running, this feature will allow you to watch, in real time, exactly what your engine is doing. Changes to fuel flow and ignition timing may also be made through the engine monitor screen, while the engine is running. NOTE: Some calibration values are needed for the engine monitor to display all info properly, i.e. duty cycle reference number and MAP bar number, first go to “Edit a Calibration File” and load a Valid “BIN” file, so that the monitor screen can retrieve this information. To access one of the data update fields on the Monitor Screen, press the ‘ALT + Number’ key to select that field. Selecting the ALT + 1 key will automatically “Set Advance to Zero” or Selecting the ALT + 2 key will automatically “Clear Zero Advance”. Selecting the ALT + 9 key will allow the user to raise or lower the “AFR OFFSET” by pressing the up arrow or the down arrow. Selecting ALT + 4 allows the user to change the % of GAMA (+ or - 40%). Typing ‘T’ will change the Celsius temperature scale to the Fahrenheit scale. It also converts the kPa to Hg Absolute for manifold pressure display. Typing ‘C’ will toggle the EGO Sensor on and off from the Monitor Screen. By typing ‘K’ will kill the Engine so that you can observe the static values of the monitor screen. Typing ‘E’ while in the Monitor Screen will close the Monitor screen and bring up the “Edit a Calibration File” screen and it will ask for a valid “BIN” file. Press ‘F1’ to display Monitor Help Screen and show a list of the functions we just talked about. All percentage values must be entered as whole numbers (i.e. 100 not 1.00).

Digital Engine Monitor Screen (ONFLY Mode)



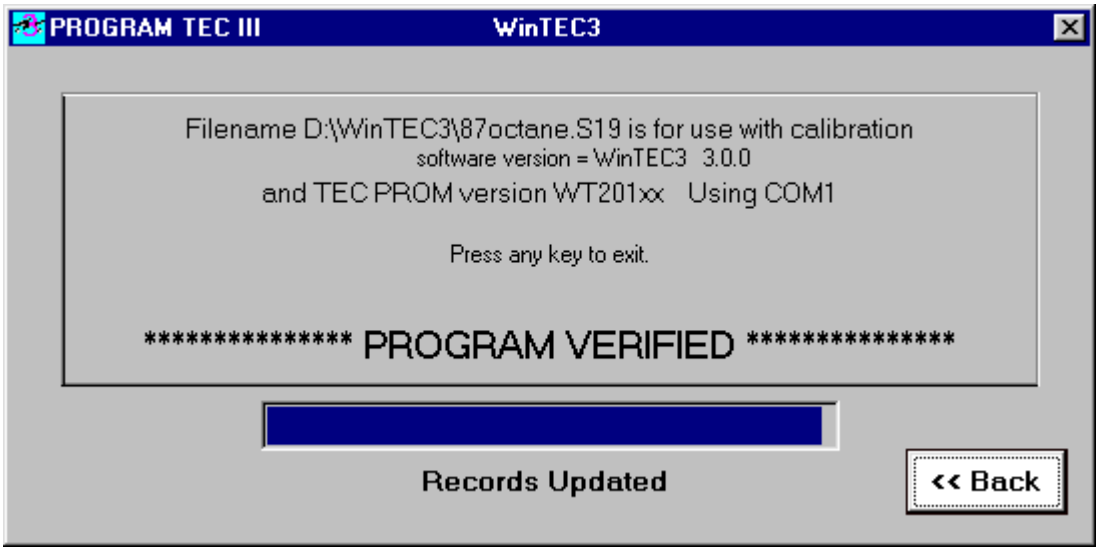
The Digital Engine Monitor Screen is active only when the ONFLY option has been selected and the Monitor Engine Function screen has been selected. It is displayed centered at the top of the screen and can be moved to any location on the screen. It is always on Top of all WinTEC3 screens. As you make changes to the TEC you will able to see how a change affects the Engine in real time.

Digital Engine Monitor Screen and the Task Bar.



When using a Laptop at 800x600 resolution, the amount of data that is being displayed on the Digital ONFLY Monitor will over lap the Task Bar and the System Status Bar. This problem can be solved by using the higher resolution of 1024x768. If your Laptop does not have 1024x768 resolution then use the “Show TaskBar” and “Hide TaskBar” buttons to enable and disable the Task Bar as needed. Also, if the Task Bar has overlapped the Digital monitor screen, just change the focus to the Digital Monitor and the Task Bar will be overlapped by the Monitor screen. You can bring the Task Bar backup by changing focus back to the other Active screen. Use ALT+TAB to change the Focus of the currently Active Windows.

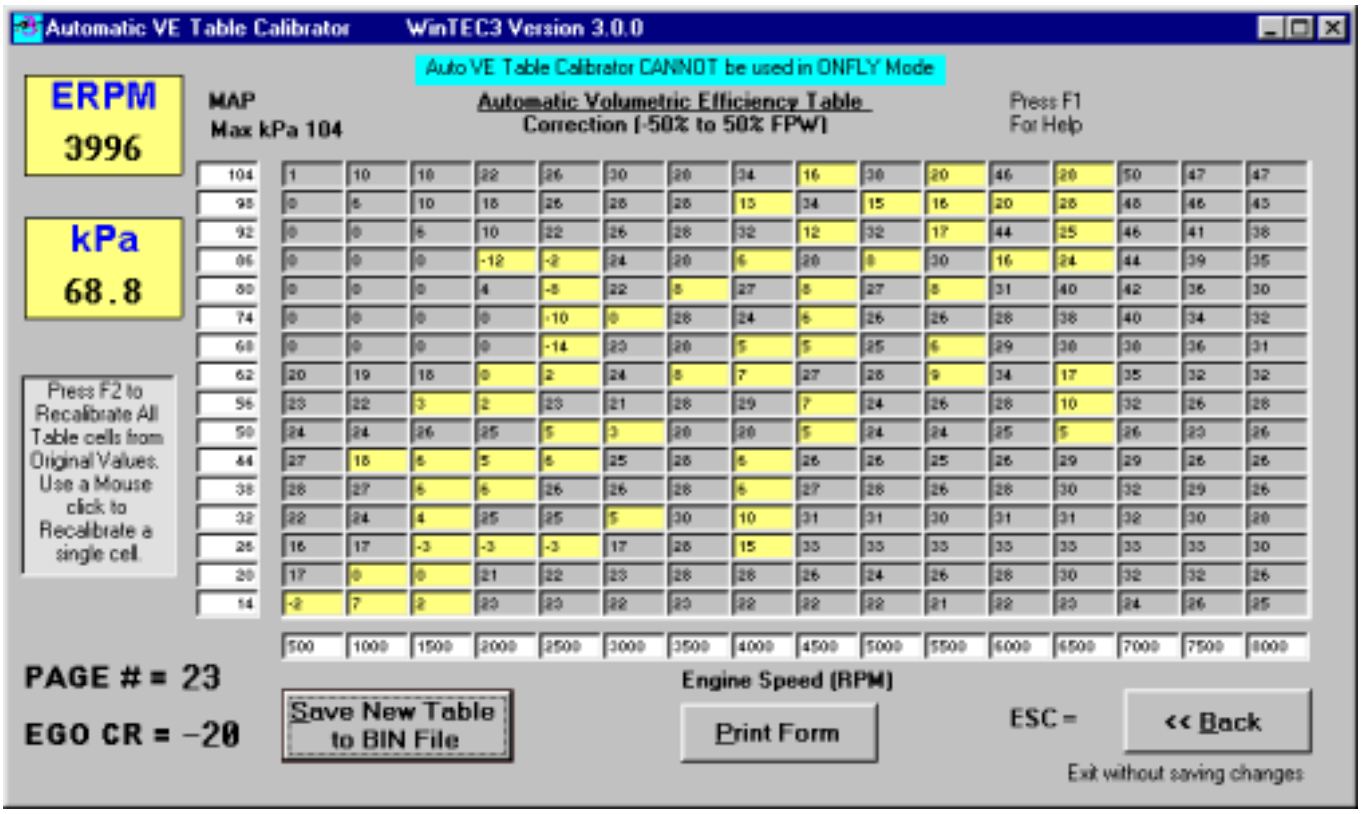
Program TEC



To get the TEC to respond to the changes that you have made only to the ‘BIN” file you must first Save the ‘BIN’ file and then move the ‘S19’ file from your computer to the TEC by pressing the ‘Program TEC’ button. Make sure the cable is connected and use this command to send your new ‘S19’ calibration file to the TEC's memory. When the ‘S19’ calibration file is loaded correctly the program will respond with “PROGRAM VERIFIED”. The

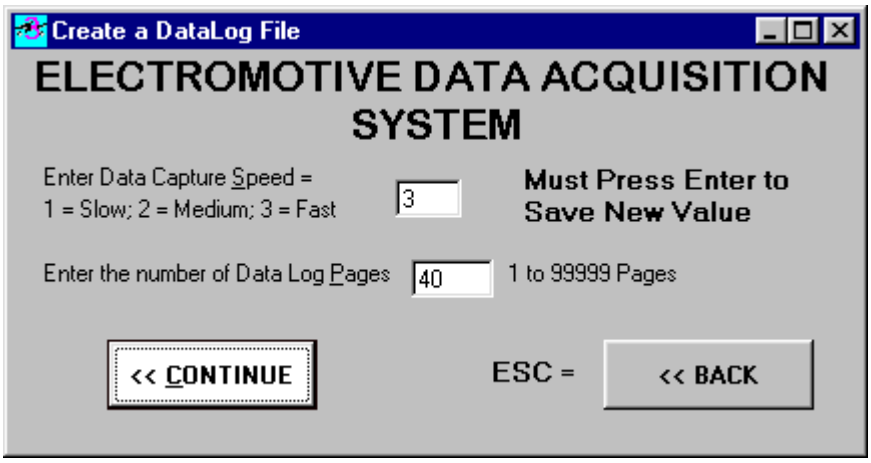
Program TEC Option “ONLY” loads the S19 file and does not open a “BIN” file. You will always be asked to enter a New “S19” file name.

Auto Calibrate VE Table



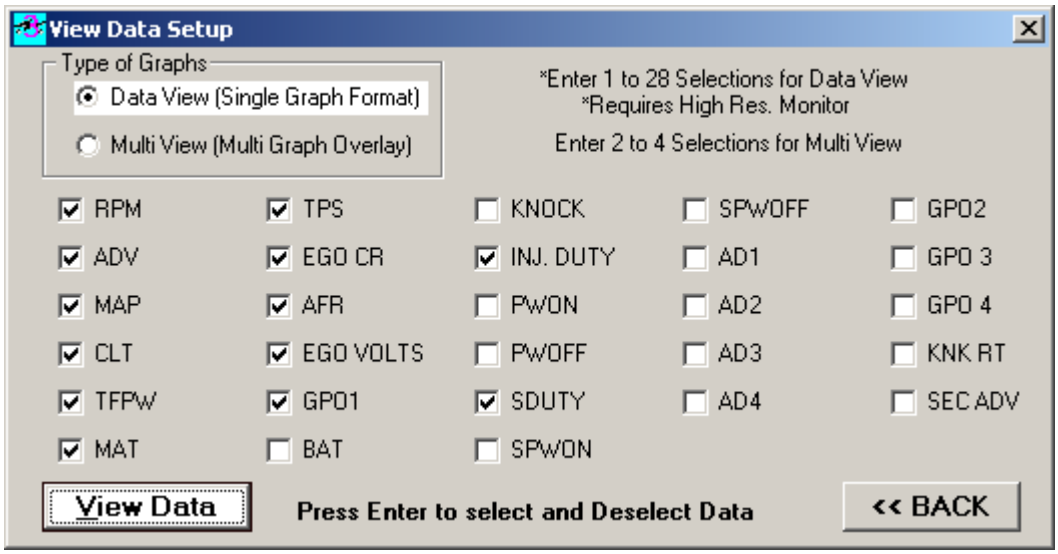
The New Automatic VE Table Calibration Process can use input from either the TEC Unit as the Data Source or from a current DATALOG "DAT" File. Choose a "DAT" file from the list shown and Click on it to use that file as the data source or Click on the CONTINUE Button to use the TEC Unit Data Stream as the Data source. MAP, RPM and other settings are based on the current "BIN" File and should not be changed before the calibration is done. When the tuner enters the Auto Calibrate routine he is asked to enter a number of data points that the tuner wants to collect for each cell. The Minimum number is 5 data points. If you are using the TEC data stream you may also find that the EGO Correction (ICR) may not have started to report new correction values. This should start within 20 seconds. When the EGO Correction starts reporting new values, the Cell that is in range of the RPM and kPa as displayed to the left of the Table, will start to collect data each time that cell is hit. Keep collecting data until the cells in your query are filled and have turned Yellow. Each kPa and RPM Cell must be hit for a Programmable number of data points to calculate a new VE cell value. When you have completed the Calibration or when the End of File is reached in the "DAT" file, you can Press the SAVE button and this table will be saved as a new BIN file and can be downloaded to the TEC at a later time. If you press ESC or the << Back Button, the VE Table values are reset to their Original Values and not saved. Press F2 to recalculated the Entire table from the Original values. Use the Mouse to Click on single cell to be recalibrated from the Original value. The Auto Calibrate VE Table is not active in the ONFLY Mode.

Create a Datalog File



To Save a Datalog Session on Disk, hookup the TEC to the PC, the same as for engine monitoring. Get the PC ready to start the recording session by selecting “Create a Datalog File” button from the main menu. The computer will ask you for a filename in which to store the data. Enter the filename and press/click the ‘OPEN’ button. Now you must specify the rate at which to save the data. Select 1, 2 or 3. Speed depends on your computers clock rate and available storage but most people use 3 to get the highest resolution. Now determine how many screen repetitions you want to save. The screen repetitions should be entered in multiples of 2 (i.e. 2,10,34,82). Once initiated, data will start streaming across the screen graphically. When the line gets to the right edge of the window, it will clear and start over again. This will continue until all the repetitions you set are completed. You can use the Esc Key to end the session before you reach the Max number of repetitions.

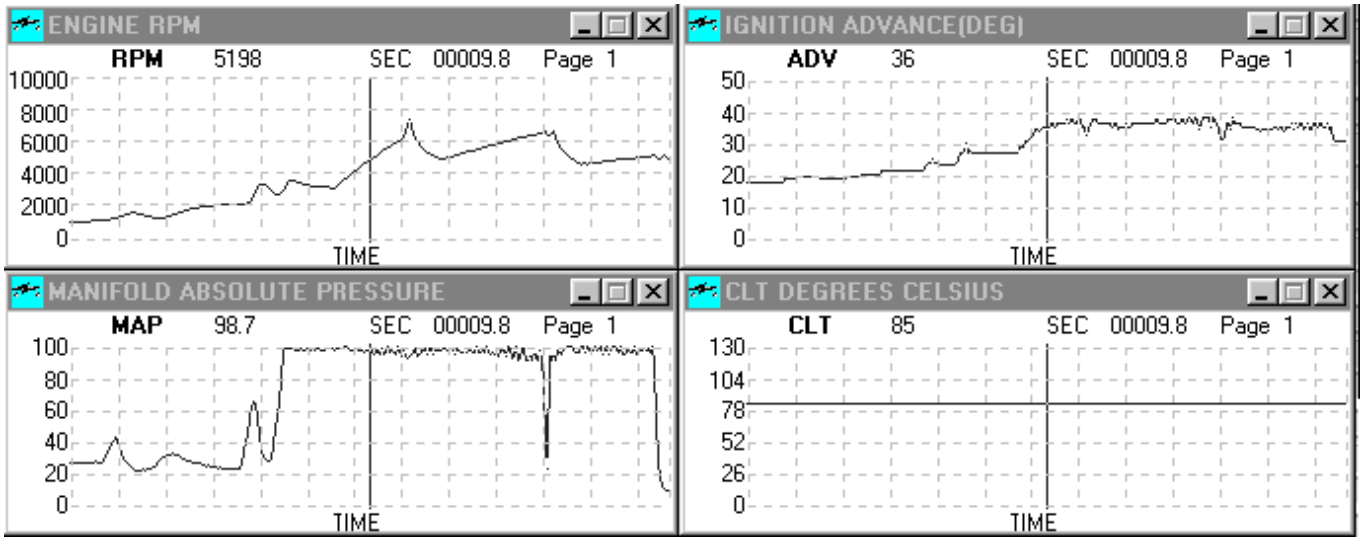
View a Datalog File



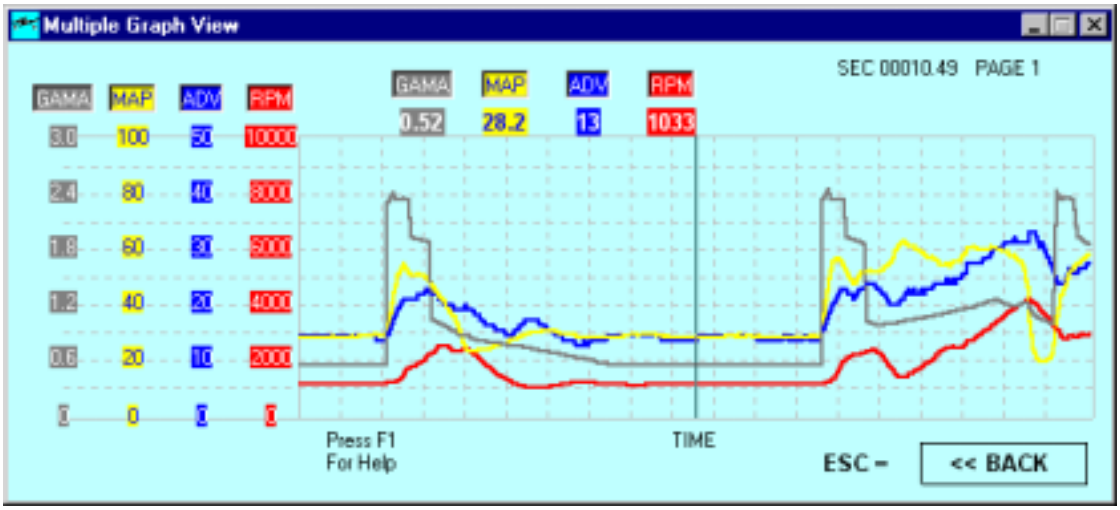
You can choose from 1 to 28 of the available traces in Single Graph Format and extract exact information on each of the traces and the time that each event occurred. On the View Data Setup screen, check each of the traces that you wish to view. Low Resolution screens like 800 x 600, you may only get 8 traces to view at any one time. After the traces are displayed, you can use the arrow keys to move a time cursor around the graphs. In each box you will see the actual reading at that exact moment in time. Each of the Window graphs can be moved to different places on the screen so that you can customize your display. When you leave this routine and come back at a later time all of the graphs will be in the same position as they were in the last session. Press the ‘F1’ key to display the Help Screen with all of the Keyboard Commands. The EGO Correction window in View Data has been changed to

Percentage Value and created a new scale based on Authority Range. Because the format has changed you will not be able to view old 'DAT' files. Authority Range was added to DAT file header for EGO Correction scaling.

Trace Graphs



Multi Graph Overlay

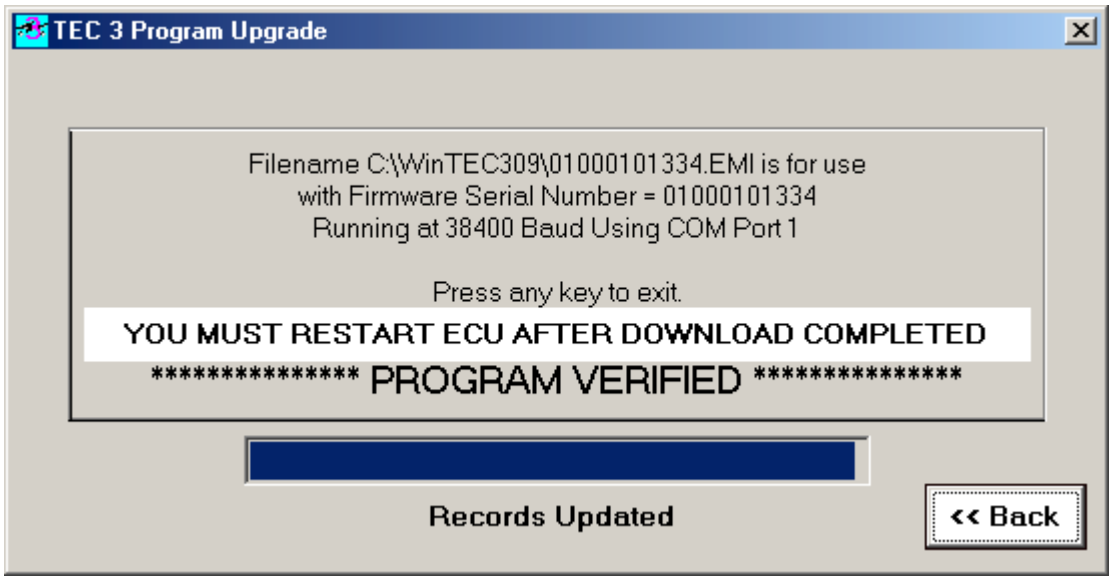


You can choose 2 to 4 traces in Multi Graph Overlay. This graph gives the tuner the ability to look at several graphs at one time and compare all of the traces in time synchronization. Each trace has its own scale and data display and the single line cursor can be moved just like the single graphs. Press the 'F1' key to display the Help Screen with all of the Keyboard Commands.

Keyboard Commands

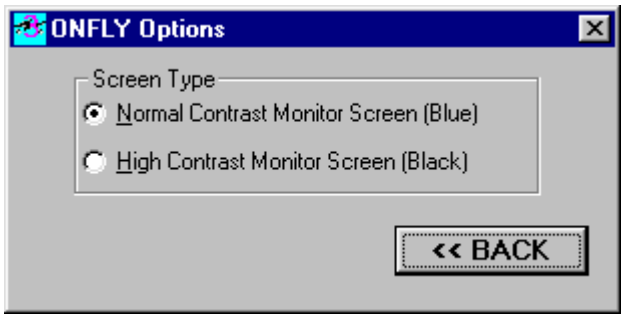
Left arrow	1 move left
Right arrow	1 move right
Up arrow	10 moves right
Down arrow	11 moves left
Page up	moves forward one Page
Page down	moves back one Page
C	Center
Home	Start of file
End	End of file

TEC 3 Firmware Upgrade



From time to time Electromotive will make available new firmware for the TEC3 to respond to changes or fixes to the TEC3 System. To Upgrade your TEC3 System firmware you must first Download the New Firmware from the Electromotive Website or have it sent to you on a disk when the new firmware is made available. You start the upgrade process by pressing the 'TEC3 Firmware Upgrade' button on the MAIN MENU. The System will ask you to load the '.EMI' file from the directory where it is stored. Make sure the serial cable is connected and the TEC3 is in the Key-on Mode. When the 'EMI' Firmware Upgrade file is loaded correctly the program will respond with "PROGRAM VERIFIED" and Notify the user that 'YOU MUST RESTART THE ECU AFTER DOWNLOAD COMPLETED'. Upgrading the ECU will clear any previously loaded BIN file and the user will have to reload the BIN file after restarting the TEC3.

Options



The Options Menu lets the user select Engine Monitor Type and Screen type. The Engine Monitor selections are ONFLY Real Time Editing with Digital Monitor or Standard Editing mode with Analog Monitor. Screen Type lets you select the Monitor Contrast for both Monitors of either Normal or High contrast based on the screen appearance in high sunlight conditions.

DEFAULT SCREEN SETTINGS:

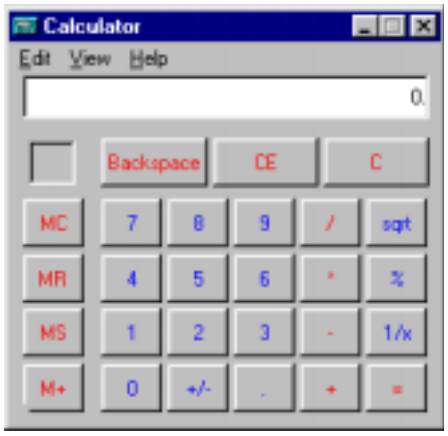
The number of graph windows displayed at startup of View Datalog routine is determined by the size of your Monitor as shown in the table below:

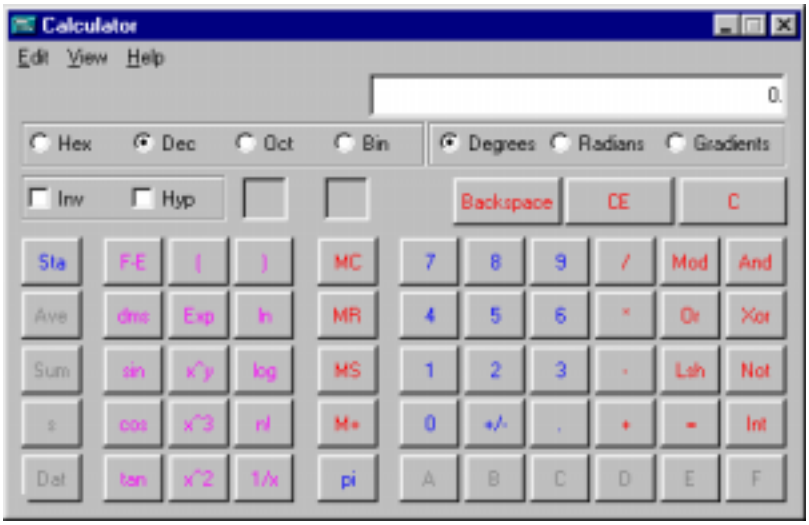
800x600 = 1 to 8 graphs
1024x768 = 1 to 15 graphs
1280x1024 or greater = 1 to 16 graphs

Software Tools

Selecting the “Software Tools” button will bring up the WinTEC3 Software Tools menu. The Current Selections available on this menu are:

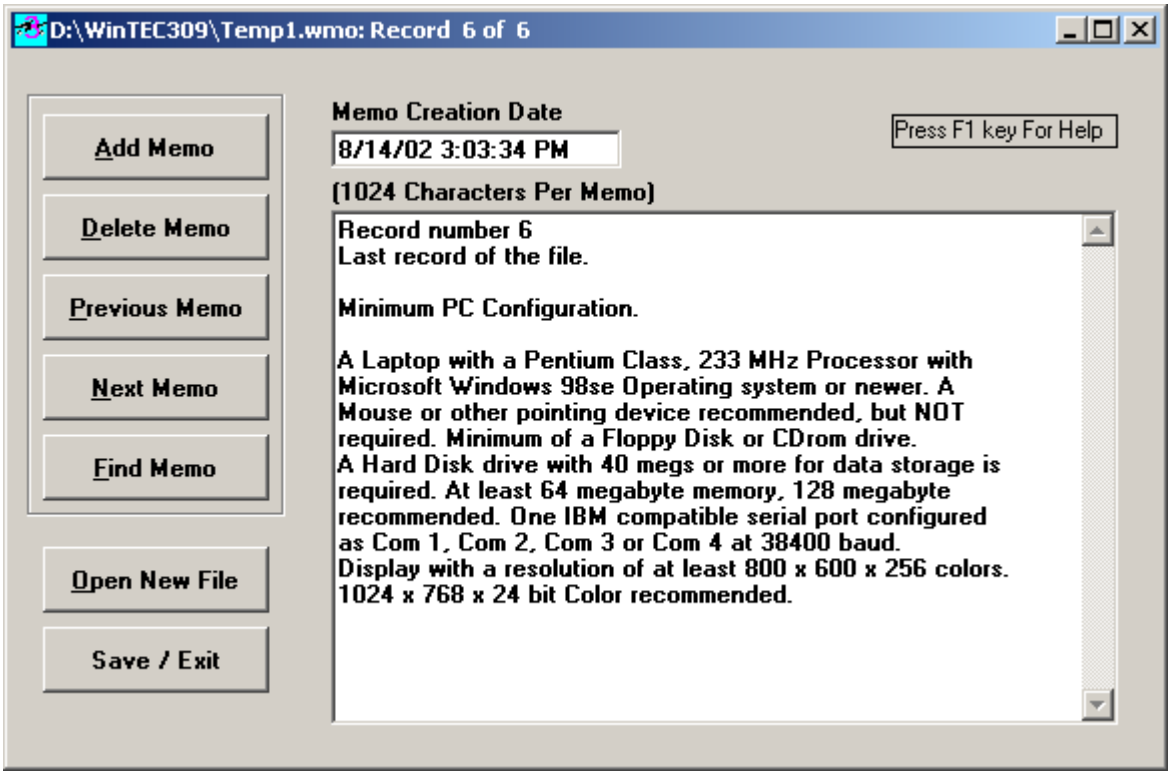
Calculators





The WinTEC3 Calculator now uses the MicroSoft Calculator in both Standard and Scientific type. This is needed when determining the correct advance values for the advance tables (etc). The Calculator also gives you Square Root Calculations at a touch of a button.

Memo Pad



When you enter Memo Pad for the first time, you will be asked to enter a filename with the '.WMO' extension. (No need to enter the extension). After the file is opened the user will be set at the last data record to be entered.

When the user finishes entering new data, pressing the “Add Memo” button will save the current record and then set the user to the next blank record. Any record can be deleted by selecting the record you wish to delete and pressing the 'Delete Memo' button. To move backward in the file press the 'Previous Memo' button and to move forward in the file press the 'Next Memo' button. To locate a record, press the 'Find Memo' button and enter the Date the record was created in the 01/22/99 format. The program will search from the beginning of the file to the first match found. To close the current memo file and open another Memo file, use the 'Open Memo' button. When you are ready to save the memo file and exit, press the “Save/Exit” button. Use the ‘F1’ key to display the Memo Help file on screen.

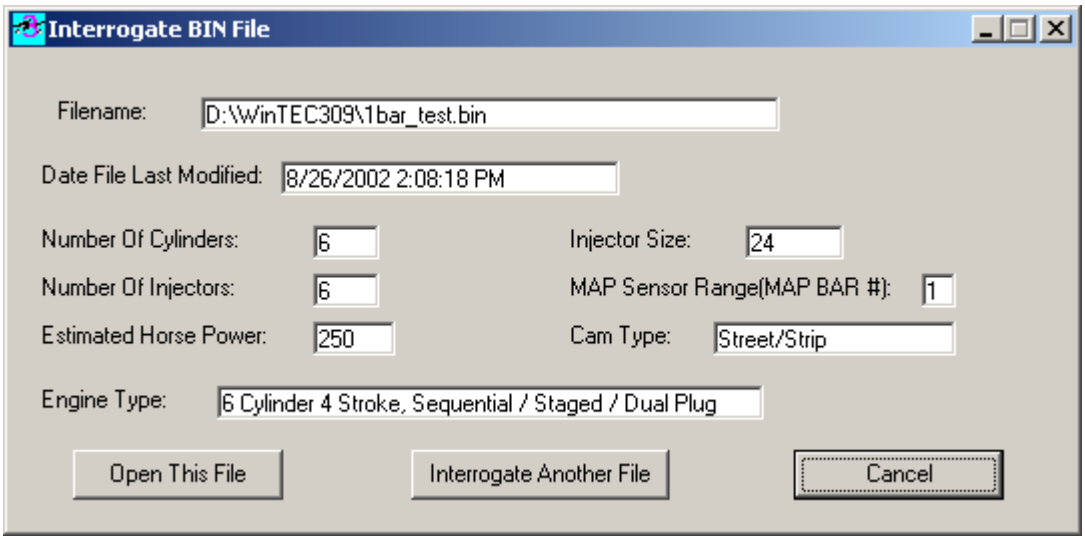
View Software User's Guide

This Selection lets the Tuner View the Text version of the "WinTEC3 Software User's Guide". It can be printed on the system local printer or viewed from within the WinTEC3 program. This should be the first file that you read when you start WinTEC3.

Print Calibration File

Selection of this function will allow you to print out the currently valid calibration data file. The calibration will be four pages long and if the Wizard is completed before the printout, the vehicle name field will also be printed at the top of each page. A print out of the base calibration as supplied with your software should be kept in your files for quick reference.

Interrogate BIN File



The File Menu Option “Interrogate BIN File” allows the user to view key file data so that the user can decide if the file is the one that is needed to tune the vehicle that is currently connected to the user’s PC. One helpful way of keeping track of old files is to use Long File Names. With Windows the user can give a bin file a name that is very descriptive of the kind of vehicle that the TEC unit is installed in (i.e. Ford Mustang GT 1996.bin).

To Print Out a Graphics Screen

Each of the Forms can now be printed from the WinTEC3 program by pressing the “PRINT FORM” button on each window. This feature requires a graphics capable printer connected to the PC/Laptop computer.

Downloading Data Into Other Spreadsheets

TEC stores the data in ASCII format that can be imported into spreadsheets. You may need to run an import or conversion utility in your spreadsheet to bring it in. The data is set up in columns with the first column being seconds. The columns are arranges as follows:

The first two lines of the file are header data.

Column	Data
Bytes 0-1	= RPM Data
Byte 2	= Advance Data
Byte 3	= Map
Byte 4	= Coolant
Bytes 5-6	= Total FPW Data
Byte 7	= Knock Data
Byte 8	= MAT Data
Byte 9	= TPS Data
Byte 10	= Battery Volts
Byte 11	= Sensor Flags
Byte 12	= GPO1 Data
Bytes 13-14	= Scaling Data
Byte 15	= ACTUAL AFR Data
Byte 16	= EGO Correction
Byte 17	= Desired AFR
Byte 18	= ARF Monitor Updates
Byte 19	= EGO Volts
Byte 20	= TBS Offset Data
Byte 21-22	= Staged PulseWidth
Byte 23-24	= PulseWidth
Byte 25	= AD Input # 1 Data
Byte 26	= AD Input # 2 Data
Byte 27	= AD Input # 3 Data/Speed
Byte 28	= AD Input # 4 Data/Speed
Byte 29	= GPO2 Data
Byte 30	= GPO3/4 Status& Control Data
Byte 31	= Trailing Advance Value
Byte 32	= Knock Retard Value

These files are large and it may be wise to just import interesting sections to investigate.

Installing a WinTEC3 Icon On the DeskTop

When you first install WinTEC3 on your system, you will be asked to install a DeskTop Icon at Installation. If you do not install an Icon at that time, then you can create a WinTEC3 icon on the DeskTop later by pressing the Start button on your DeskTop and go to the “WinTEC3 3.0.0 Engine Control Software” label which will expand to “WinTEC3”. At this point Right Click on “WinTEC3” and press the “Create Shortcut” menu item. This will display two Shortcuts’ of “WinTEC3” label on the Program List. Click on the second Shortcut while holding the Left mouse button down and drag the Shortcut Icon to the DeskTop. This DeskTop Icon will make the WinTEC3 loading process a lot faster.

Display Files and DOS Access

DOS Access is No longer needed because the Windows 95/98/NT user can view files at anytime by minimizing the application and displaying the directory by clicking on the “My Computer” Icon on your Desktop or use the Menu file selections available with WinTEC3.

Exiting WinTEC3

At the bottom of each WinTEC3 screen is the “<< BACK” command button that if pressed will close the currently open screen and open the previously opened screen. You can also use the “ESC” key to exit the current window all the way to the Main Menu of the program just by pressing the “ESC” key. Entering the final “ESC” will bring up a request to Save any changes made to the Tables during the last editing session.

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