EVOLUTION

2003-2007 Ford F-Series Power Stroke 6.0L

Edge Evolution Programmer

Installation Instructions & Manual

OLD P/N's: EEF1200 / EEF1220

NEW P/N's: 15002 / 15003

EDGE
PRODUCTS

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Manual Version 3

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THIS IS A HIGH PERFORMANCE PRODUCT. USE AT YOUR OWN RISK.

Do not use this product until you have carefully read the following agreement.

This sets forth the terms and conditions for the use of this product. The installation of this product indicates that the BUYER has read and understands this agreement and accepts its terms and conditions.

DISCLAIMER OF LIABILITY

Edge Products, LLC and its successors, distributors, jobbers, and dealers (hereafter **SELLER**) shall in no way be responsible for the product's proper use and service. THE **BUYER** HEREBY WAIVES ALL LIABILITY CLAIMS.

The **BUYER** acknowledges that he/she is not relying on the **SELLER's** skill or judgment to select or furnish goods suitable for any particular purpose and that there are no liabilities which extend beyond the description on the face hereof and the **BUYER** hereby waives all remedies or liabilities, expressed or implied, arising by law or otherwise, (including without any obligations of the **SELLER** with respect to fitness, merchantability and consequential damages) or whether or not occasioned by the **SELLER's** negligence.

The **SELLER** disclaims any warranty and expressly disclaims any liability for personal injury or damages. The **BUYER** acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this agreement and the **BUYER** agrees to indemnify the **SELLER** and to hold the **SELLER** harmless from any claim related to the item of the equipment purchased. Under no circumstances will the **SELLER** be liable for any damages or expenses by reason of use or sale of any such equipment.

The **SELLER** assumes no liability regarding the improper installation or misapplication of its products. It is the installer's responsibility to check for proper installation and if in doubt, contact the manufacturer.

LIMITATION OF WARRANTY

Edge Products, LLC (hereafter "**SELLER**") gives Limited Warranty as to description, quality, merchantability, fitness for any product's purpose, productiveness, or any other matter of **SELLER's** product sold herewith. The **SELLER** shall be in no way responsible for the product's open use and service and the **BUYER** hereby waives all rights other than those expressly written herein. This Warranty shall not be extended or varied except by a written instrument signed by **SELLER** and **BUYER**.

The Warranty is Limited to one (1) years from the date of sale and limited solely to the parts contained within the product's kit. All products that are in question of Warranty must be returned shipping prepaid to the **SELLER** and must be accompanied by a dated proof of purchase receipt. All Warranty claims are subject to approval by Edge Products, LLC.

If the **BUYER** sends back a failed unit that is out of warranty and chooses to buy a refurbished unit, the refurbished unit will only carry a 60 day warranty. If the **BUYER** purchases a new unit at a predetermined discounted rate, it will have the standard 1 year warranty.

Under no circumstances shall the **SELLER** be liable for any labor charged or travel time incurred in diagnosis for defects, removal, or reinstallation of this product, or any other contingent expenses.

Under no circumstances will the **SELLER** be liable for any damage or expenses insured by reason of the use or sale of any such equipment.

IN THE EVENT THAT THE BUYER DOES NOT AGREE WITH THIS AGREEMENT: THE BUYER MAY PROMPTLY RETURN THIS PRODUCT, IN A NEW AND UNUSED CONDITION, WITH A DATED PROOF OF PURCHASE, TO THE PLACE OF PURCHASE WITHIN SIXTY (60) DAYS FROM DATE OF PURCHASE FOR A FULL REFUND.

THE INSTALLATION OF THIS PRODUCT INDICATES THAT THE BUYER HAS READ AND UNDERSTANDS THIS AGREEMENT AND ACCEPTS ITS TERMS AND CONDITIONS.

Legal in California only for racing vehicles which may *never* be used upon a highway.

Programming your vehicle may expose existing defects in your vehicle's PCM that could disable your vehicle. It is advised that you do not program your vehicle in remote locations in case of vehicle failure.

If you have used another tuner/programmer on your truck, you will need to program your truck back to stock before using the Evolution.

Failure to return to stock may result in PCM failure or engine damage.

AFTERMARKET PRODUCTS AND YOUR VEHICLE'S WARRANTY

Many of our customers ask, "Will your product void my vehicle's manufacturer's warranty?" While the answer is straightforward from a legal standpoint, we also want to educate our customers (and after-market consumers) on some industry realities and offer some common sense precautions to minimize your risk.

Consumers of aftermarket products are protected by The Federal Magnusson-Moss Warranty Act. The Act states that if something breaks on your car and you take it in for warranty repair, the dealer must honor your warranty unless they can prove that whatever modifications you have added to your car actually caused the problem.

While as a consumer you have strong legal protection regarding your vehicle's warranty, there is also a practical reality that different automotive manufacturers and dealers have greatly varying views on aftermarket products, in particular those that produce horsepower, such as performance enhancement chips, modified intake manifolds, or aftermarket exhaust systems. There are dealers and manufacturers out there that will use the presence of a horsepower upgrade to void your vehicle's warranty. They will do this regardless of whose product you are using. Any aftermarket company that does not acknowledge this is misleading you.

The bottom line is that while the law protects the consumer and provides for enforcement of the warranty, it is very difficult for most people to hire an attorney and fight a voided warranty. Edge recommends that you **always disconnect and/or remove any performance device or programmer before you take your vehicle to a dealer for any service,** in order not to interfere with Diagnostic equipment.

Edge Products equipment is not guaranteed to work on vehicles whose electronics have been changed or altered by the Original Equipment Manufacturer or third party programmers.

About the Evolution

Congratulations on purchasing the *Evolution* by Edge Products, LLC, the leader in truck performance and power gain technology. The following manual contains information and instructions on the proper use of the Evolution. Please read carefully before proceeding to program your vehicle.

*Note***: Read the product disclaimer and the *Getting Connected* section before programming your vehicle.**

*Note***: At the back of this manual, we have included commonly used acronyms. This should help while using the *Evolution*.**

Stock Program

The *Evolution* automatically makes a backup of your stock program from your PCM before writing a new program onto your PCM. This assures that you will have the stock program if/when you desire to reprogram your vehicle to its original stock program.

It is *strongly* recommended prior to returning your vehicle to a service center or emissions check that you return your vehicle's computer to the stock program. In the event that the service center re-flashes your vehicle's computer (a common practice) and you have NOT returned it to stock, your *Evolution* programmer will be rendered useless. If this happens, call our technical support at (888) 360-EDGE and they can help you recover your *Evolution* for a small fee. Follow the steps included in this manual for returning your program to stock.

Economy

This setting is the lowest level setting. It has been specifically tuned for optimum fuel economy, we recommend using this level for daily driving.

Depending on the Calibration that you are running, your level one may be:

Transmission Only Program

This setting is the lowest level setting. It will provide firmer transmission shifts which helps to increase the transmission life. It does not provide any engine performance increase.

Tow Performance Program

This setting not only provides improved transmission shifting, but will also modify the fuel timing and fuel injection strategies to improve the performance of your vehicle. You should see an improvement in fuel economy as well as added horsepower and torque. When towing a heavy load such as a boat or camper, we recommend you using this setting.

High Performance Program

This is the highest performance setting for the *Evolution*. The fuel injection and fuel timing strategies are aggressively tuned to extract the maximum performance from your vehicle without sacrificing drivability or durability. The transmission strategy is modified to take advantage of the increased engine performance by providing quicker, firmer shifts.

POWER LEVEL	TOTAL HP GAIN	TOTAL TQ GAIN
Economy	15	55
Tow	60	110
Extreme	100	200

PIDs

The *Evolution* allows the user to view up to 4 PIDs at one time. There are 11 different PIDs to choose from. Below is a list and description of each:

- RPM (revolutions per minute) – Engine speed.

- MPH (miles per hour) – *Note: Dash display may be +/-3 MPH off from the digital display due to mechanical differences in the spring, etc. used to control the gauge.*

- ECT (engine coolant temperature) – Degrees F.

- BST (Boost Pressure) - PSI

- EGT (Exhaust Gas Temp) – Degrees F.

- EOT (Engine oil temperature) – Degrees F.

- TFT (Transmission fluid temperature) – Degrees F.

- IAT (Intake air temperature) – Degrees F.

- BARO (Barometric pressure) – PSI

- BAT (Battery voltage)

- DTC (Diagnostic trouble code count)

Diagnostics

The Evolution is also a powerful diagnostics tool. You can view any diagnostic trouble codes (DTCs) your vehicle may have, which in turn allows you to fix them. It will also allow you to turn off that annoying "Check Engine" light when the problem has been addressed (no more expensive trips to the dealer for a diagnostics scan).

0-60 and Quarter Mile time

Another feature of the Evolution is the ability to determine your quarter mile times as well as your 0-60 times. This is very easy to use and not all tuners have this feature.

Alerts

A feature that might come in handy is the alerts. If you would like to know when a certain parameter, such as transmission temperature, reaches a certain value you could set an alert to that value. As the preset value is reached, the *Evolution*'s screen will flash red and display which alert was triggered and the current value for that particular alert parameter.

Records

While the *Evolution* is displaying parameters of your truck it will record the highest value the parameters have reached. These records could be viewed and reset at any time.

Custom Options

While programming your vehicle, you have the option to customize our tuning. You can change your tire size value which can correct your odometer readings that result from changing tire sizes.

WOT (wide open throttle) shifting, standard shifting, shift firmness, rev. limiter, and speed limiter are also parameters that you can change while programming your vehicle.

NOTE: The Evolution uses a LCD display which has inherent limitations in operating temperature. If your screen is black, blank, or distorted and the temperature is above 158 degrees F (70 degrees C), please allow the device to cool and then it should work correctly. At extreme low temperatures (32 degrees F, or 0 degrees C) the display will update very slowly. Again wait for the device to warm to normal operating temperatures for the screen to function properly.

Display and Keypad

The following picture is a sample *Evolution* screen. Great effort has gone into making the *Evolution* programmer very simple to use. The [UP] and [DOWN] arrow keys are used to scroll through options on the screen. The [ENTER] key is used to select desired options from a menu or move to the next screen. The [MENU] key is used to enter the Main Menu from the parameter display or return to the previous screen. This version of the *Evolution* also has the option to change the backlighting color of the display to a wide range of colors.
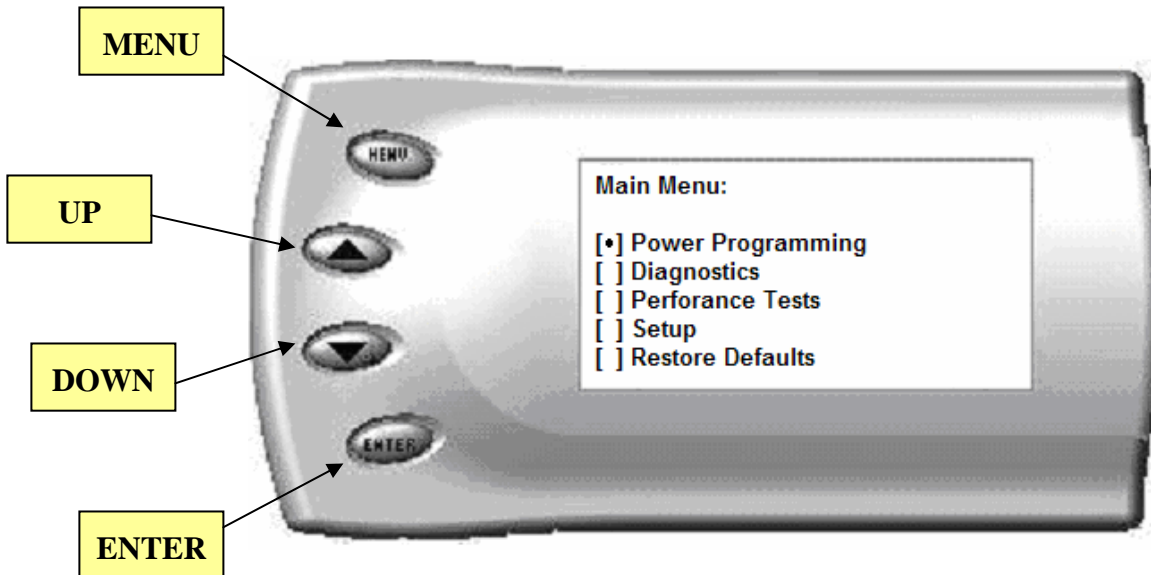
Getting Connected

Installing the EGT Thermocouple
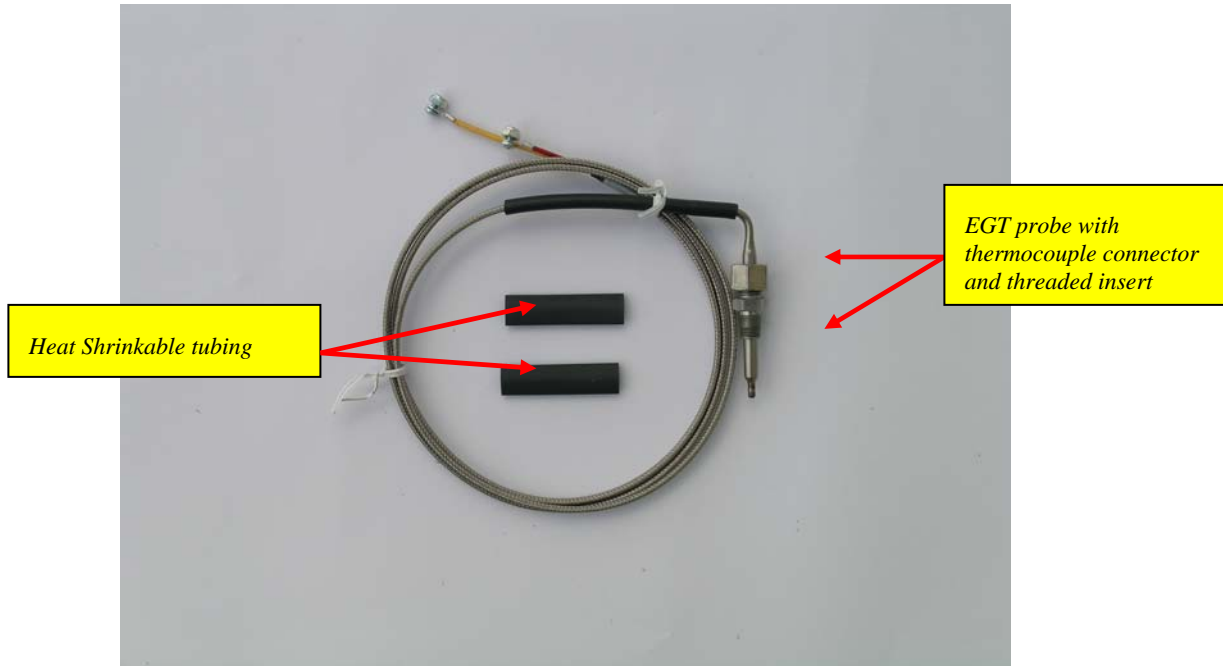
1. To install the EGT probe, first determine where you will drill the
    hole. The section of the exhaust manifold that requires tapping is
    located on the driver's side just above the driveline. (See picture on
    following page for suggested location. This photo shows the
   underside of the truck looking *up*.)

TIP: *One effective way to avoid metal fragment contamination in your engine is to place grease in the threads of your drill bit/tap tool when drilling/tapping the hole in your manifold.*
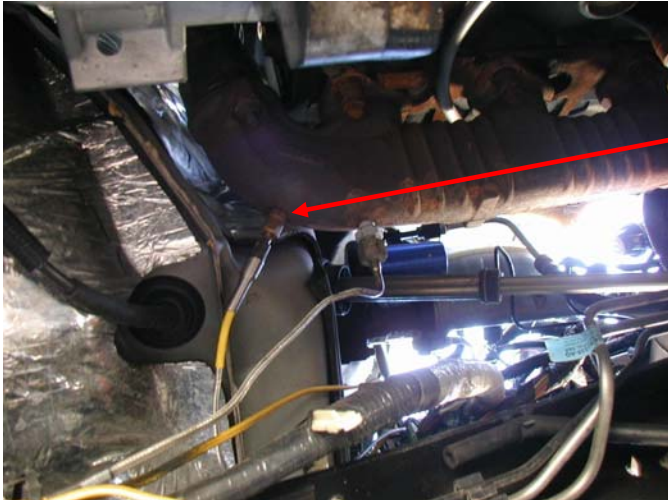
The EGT thermocouple installed into the drilled and tapped exhaust manifold.

*(Looking **up** at the exhaust manifold from under the vehicle.)*

2. Drill a 5/16" hole, then use the pipe tap to cut the threads. Use a 1/8" National Pipe Tap (NPT tap, available at your hardware store), follow the instructions with the tap. The pipe tap is tapered, so you only want to turn the tap until the bottom threads of the tap are slightly deeper than flush with the inside of the exhaust manifold wall. Use caution not to tap too far since the fitting will have to be screwed in very deeply.

3. Now that you have drilled and tapped the manifold, install the fitting by tightening the tapered thread end into the manifold. Ideally the tip of the fitting would be flush with the inside of the exhaust flow path, and not much deeper. Tighten the fitting so that it is securely mounted. To install the probe in the fitting, slide the probe into the fitting so that the tip is approximately centered in the exhaust gas stream. Tighten the top nut of the fitting just tight enough to keep the probe firmly mounted.

EGT probe

EGT probe inserted into exhaust manifold.
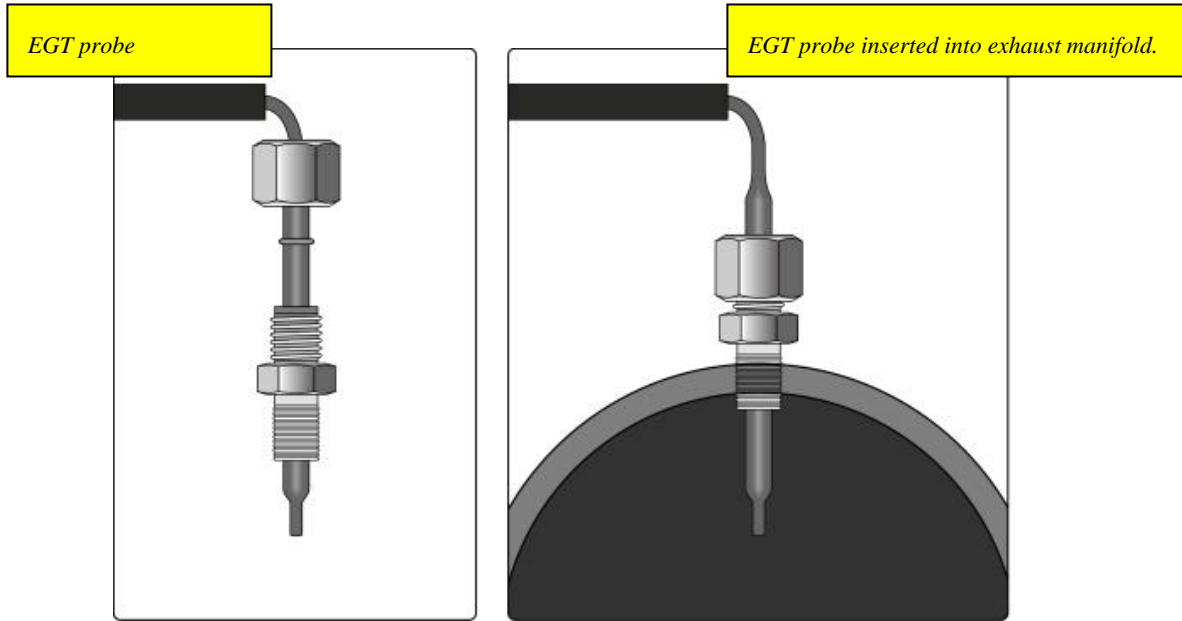
Installing the Evolution

The *Evolution* programmer connects to the diagnostic port of your vehicle. Follow these steps to install the *Evolution*:

4. Begin by removing the access panel that is located just below the steering wheel(figure #1).

Figure #1

5. Next, turn your ignition key to the OFF position. Locate the black diagnostic (OBDII) connector (Figure #2) under the dash on the bottom right corner of the access panel area. As you sit in your vehicle, it could be located right below your right knee. Sometimes the cover to this connector will be labeled "Data link."

Figure #2

6. Connect the Edge Products connector to the OBDII port, and rout the cable up over the bar behind the OBDII cable(Figure #3), then run the cable toward the drivers side of the dash, be sure to keep it above the e-brake release lever.

Figure #3

7. With the driver's side door open, remove the seal trim on the left side of the dashboard (Figure #4) feed the end of the ODBII cable up behind the dash and out between the seal trim and the side panel on the dash(shown in Figure #5). Snake it up to the A-pillar of the vehicle and replace the access panel. The cable should be protruding from the dashboard up along the A-pillar and be able to move freely when Pulled

Figure #4   Figure #5

8. Feed roughly 4 to 6 inches of cable through the dashboard. Mount the Pod onto the dashboard (shown in Figure #6) with the end of the cable protruding through the front of the Pod.

9. To secure the Pod: Locate the brackets and the pod in your evolution box. Note that the brackets are numbered and should be placed in the appropriate numbered locations inside the pod. Use the permanent double sided tape to secure the brackets to the inside of the pod, be sure that the numbers match.

10. Clean the pod location on the dash with hot soapy water and rinse, or use 70% Isopropyl alcohol. Thoroughly dry. Attach the supplied Velcro to the bottom of the mounting brackets in the pod. Leave the protective backing on the bottom piece of Velcro, and test fit the pod so you have an idea of where you want it. Once you have determined the appropriate positioning, remove the backing paper from the Velcro, place the pod in it's desired location, and firmly press down on the brackets (through the front of the pod) to secure the Velcro in place.

11. With the Pod secure, disconnect the cable at the OBDII port, and attach the *Evolution* to the end cable which is protruding from the Pod.


Figure #6

12. Insert the *Evolution* into the Pod. Any excess cable may be stuffed behind the *Evolution* or may be pulled back through the dash to eliminate slack. The result of the installation is shown in Figure #7. Be sure to use the supplied cable ties to secure any excess cable underneath the dash to prevent the cable interfering with proper pedal operation.

Figure #7

13. With the Pod and *Evolution* securely in place, re-connect the OBDII plug, and turn the ignition key ON. Then plug the cable into the OBDII connector. The *Evolution* logo will display followed by a disclaimer. After you agree to the disclaimer by pressing [ENTER], the following screen will be displayed:
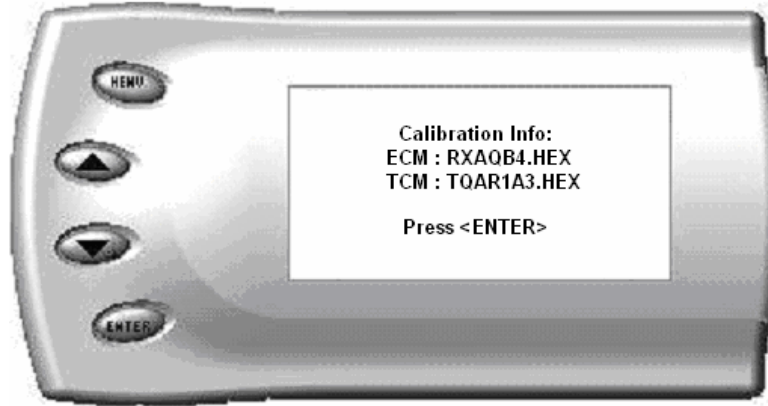
This screen shows the calibration info of the truck that the *Evolution* is currently connected to.

Note: If no calibration information is shown, disconnect from the OBDII plug and reconnect after 5 seconds. When you come to the screen again, the code should be available.

14. After pressing [ENTER], the main display will come up.

Note: Parameters and values might vary.

15. There are five boxes that will be displaying information about your vehicle. The black box in the top right corner displays which level is currently programmed onto your vehicle.

0 – Vehicle is currently at stock.
1 – Vehicle has been programmed to *Transmission Only/Economy* (Level 1).
2 – Vehicle has been programmed to *Towing* (Level 2).
**3** – Vehicle has been programmed to *Performance* (Level 3).

> The other four boxes can show up to 4 PIDs (Parameter IDs) of your vehicle. By default, they are your vehicle's RPM, MPH,EGT and Boost (actual turbo boost). Optional parameters and display formats may be selected in the *Changing Display* section of this manual.

16. From this display, press [MENU] to select and use other features of the *Evolution*. The display backlight dimming can also be controlled from this display by using the [UP] and [DOWN] arrow keys.

Power Programming

"Caution: Vehicle manufacturers do not recommend vehicle programming in extreme temperature. Please see the service manual of your vehicle to ensure that programming is being done in accordance to the original equipment manufacturers specifications."

From the main screen, press [MENU] to enter the main menu. Then select *Power Programming*. The following screen appears:

Choose a Program

[•] Lvl 1-Trans. only
[ ] Lvl 2-Towing
[ ] Lvl 3-Performance
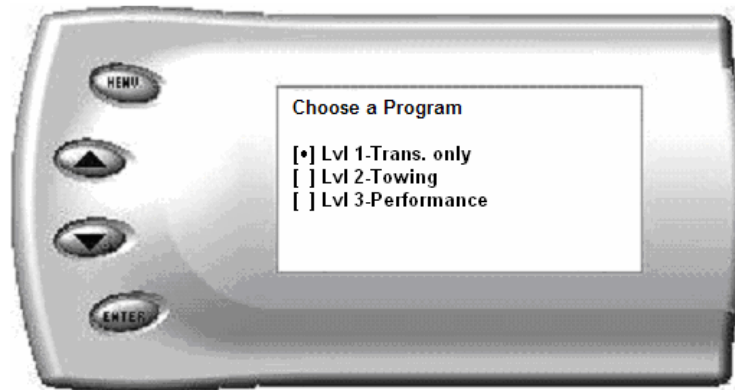
1. Select the level that best meets your needs. For more information about each level, read the *About the Evolution* section in this manual (pg. 4). Confirm your selection by pressing [ENTER] on the following screen. After confirming, the screen below will appear:

Create a custom program?

[•] No
[ ] Yes
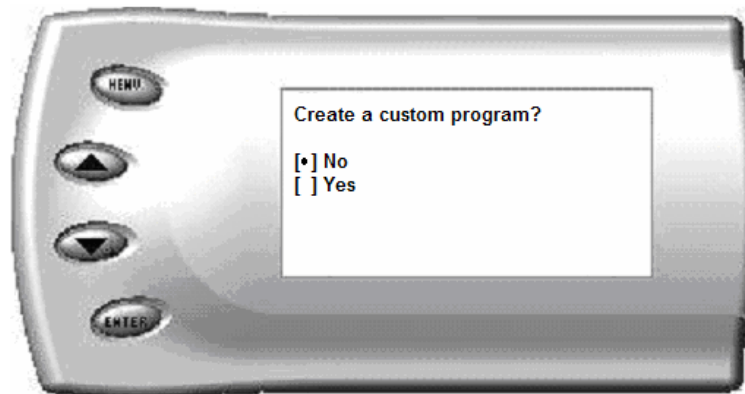
2. After your initial tune you have the option to change certain parameters of the level you chose. If you would like to learn more about what parameters are available and how to use them, then read the *Custom Options* sections in this manual. To use the standard

program without customizing options, simply press [ENTER] (choose NO).

3. The *Evolution* will ask you to turn the key OFF and then ON. Do <u>NOT</u> crank the engine or possible programming failure may result.

4. During the first use, the *Evolution* will read the original calibration from your PCM and then build all the necessary programs. This will take approximately 60 seconds. This step is skipped during all further programming operations, except when returning the vehicle to stock.

5. The *Evolution* will erase your PCM and then write the selected calibration (level) onto the PCM. This process takes approximately 30 seconds (for 05-07 trucks) or 2minutes (for 03-04 trucks) to complete. If at any time you receive an error message, refer to the *Troubleshooting* section at the back of this manual for further instructions.

6. When the *Evolution* is done programming, the following screen will appear for about 1.5 seconds and then return to the Main Menu:

Custom Options

When preparing to program your vehicle, you will have the option to change certain parameters. Choosing YES when prompted to "Create a custom program?" will load the *Custom Options* menu.
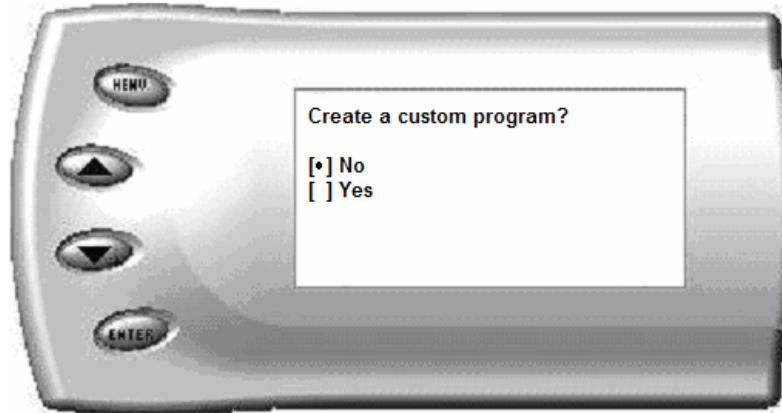
Custom Options are provided to allow for flexibility based on driver preferences. Any option customization done by the user is not warranted by Edge Products. Please use at your own discretion.

The following customizable options are available:

When adjusting the following values, it is highly advised to make gradual changes as opposed to aggressive changes. This will help avoid possible engine or transmission damage.

WOT (Wide Open Throttle) Shifting

On automatic transmissions, these are the RPM points at which the vehicle will shift when you are at Wide Open (full) Throttle. Raising these values helps to keep the engine in the peak power curve after a shift.

(Hint: Raising these values may help improve 0-60 and quarter mile times.)

Standard (Std.) Shifting

On automatic transmissions, these are the MPH points at which the vehicle will want to shift during normal acceleration. Positive values will cause later shifts while negative values will cause shifts to occur sooner.

(Hint: Negative values may help improve fuel economy while positive values will improve performance.)

Shift Firmness

On automatic transmissions, these values represent a percentage change in shift firmness, or in other words how "hard" your transmission will shift. A positive number will cause the shift to be firmer. A negative number will cause it to be softer.

(Hint: Firming up the shifts may help improve 0-60 and quarter mile times.)

Rev. Limiter

The Rev. Limiter prevents the engine from over-revving and causing engine damage. If you set this value to 2500, you would not be able to rev the engine beyond that even with the accelerator to the floor. Setting this value higher can help take advantage of the power generated at higher RPMs. Setting this value too high can cause damage to your engine. Also make sure to set the Rev. Limiter at least 150 RPM higher than the highest WOT Shift Point or you may experience erratic shifting.

Speed Limiter

The Speed Limiter restricts the top speed of the vehicle. Factory speed limit values are generally based on the tolerances of the driveline components. Excessive vehicle speeds can cause component failures (ex. tire or universal joint failure) possibly resulting in loss of control, property damage, injury, and even death. **Raising this value is recommended for off-road or racing applications only.**

(Hint: This value may be lowered in fleet situations or situations where young drivers are present.)

Note: After creating an initial custom program, you will be able to reload the options into any future programs by selecting the "Load Previous Settings" option. From there, you can modify the values more if desired.

Diagnostics

The diagnostics scanner included with your *Evolution* is a powerful tool that allows you to view and clear diagnostic trouble codes (DTCs) on your vehicle, as well as record a data stream (5 parameters of your choice) for 1 minute. DTCs are the messages your vehicle's computer stores when it detects a problem with your vehicle. The "Check Engine" light on your dash is activated by the presence of most DTCs.
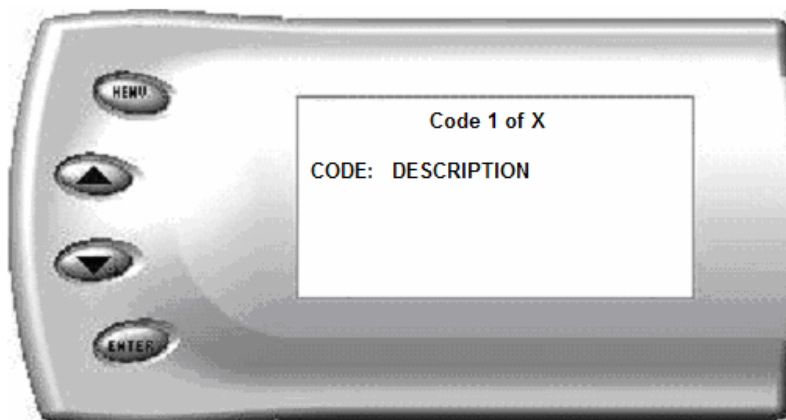
If you selected *Diagnostics* from the main menu of the *Evolution*, the screen displays the following message:
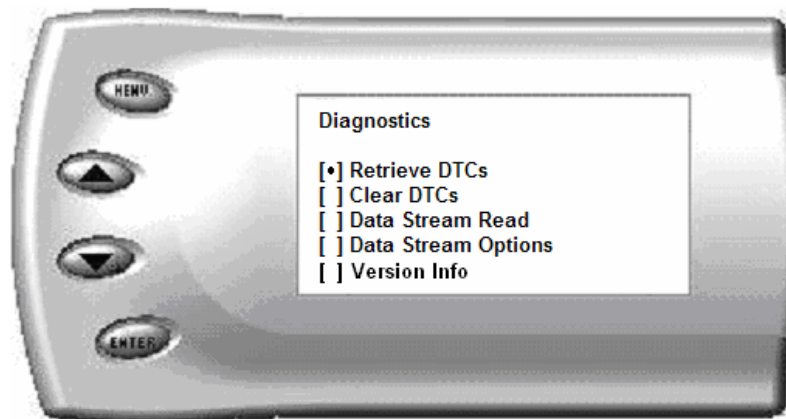
Retrieving Codes

If you want to retrieve and view the DTCs on your vehicle, select the *Retrieve* option. Make sure your ignition is in the ON position.

After selecting the *Retrieve* option, any stored DTCs will appear on the screen like the following example:

Press [MENU] to exit the DTC list and return to the previous menu.

If you have no trouble codes, the following screen will appear:

Clearing Codes

If you want to clear the DTCs on your vehicle, select the *Clear DTCs* option.

After selecting the *Clear DTCs* option, any current stored DTCs will be cleared from your vehicle and the "Check Engine" light will go out. However, if you do not address the issue that originally caused the DTC, the DTC will set again and the "Check Engine" light will come back on. Once the DTCs have been cleared, press [ENTER] to return to the previous menu.

Data Stream Read

The *Evolution* has the ability to record 5 vehicle parameters for 1 minute. It will record each parameter every ½ second. The stored data can be retrieved by plugging the *Evolution* into a USB port on a computer via the supplied USB cable and accessing the data via the Lightning® utility software. The Lightning® software allows you to display stored data values as well as graph the data. See "Lightning® PC Software Overview" section for more information.

Version Info

This displays the current Bootloader, Firmware, and Calibration versions installed on your *Evolution.* Your vehicle's HEX code is also shown. Using the Lightning® software, you will be able to access online updates to ensure your *Evolution* is always up to date.

Note: Make sure you return your vehicle to stock before attempting an update, or the PC software will not allow you to continue.
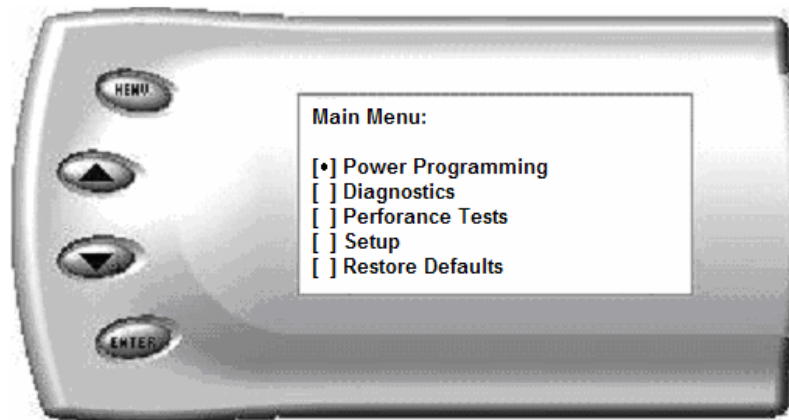
Self Test Mode

The evolution has the ability to run through a series of self tests to make sure that it is functioning correctly, to initiate this test
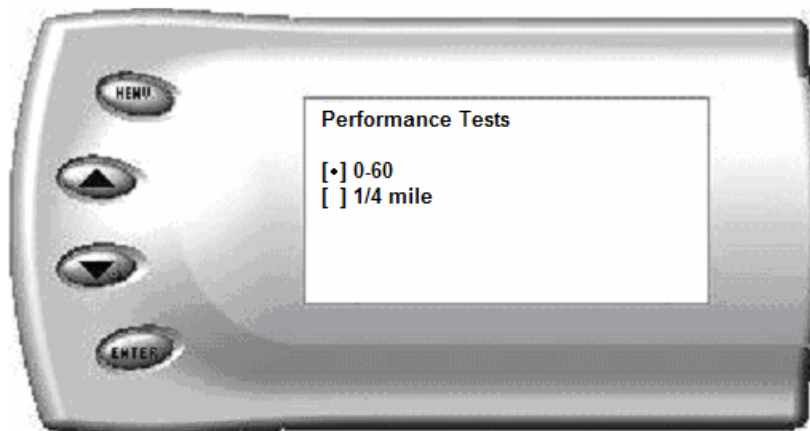
Performance Testing

The *Evolution* allows you to test the performance of your vehicle by timing the 0-60 and the quarter mile times. It is helpful to remember these might not be results you would receive from actual races. Incorrect speedometer reading and tire slippage can cause slight miscalculations in the displayed results. To run these tests, perform the following steps:

1. Press [MENU] and the *Main Menu* screen should appear:

Main Menu:

[•] Power Programming
[ ] Diagnostics
[ ] Perforance Tests
[ ] Setup
[ ] Restore Defaults

2. Select the *Performance Tests* option. The following screen appears:

Performance Tests

[•] 0-60
[ ] 1/4 mile

3. Select the desired performance test (0-60 screen is shown below). If your vehicle is moving at this time, the *Evolution* will ask you to come to a stop.

START WHEN READY	
MPH	Time
0.0	0.00

4. For the 0-60 MPH run, press the accelerator pedal and the test automatically begins. For the ¼ mile test, you will be asked to press a key when ready. It will then cycle through a starting light sequence (Christmas tree) and tell you when to go. As you drive, the screen should be displaying your current speed. When the test is complete (the desired distance or speed is reached), the test will automatically stop and your time will be displayed on the screen as follows (quarter mile result example):

0.93s REACT TIME		
MPH	Time	Distance
97.3	15.8	1/4 mi.
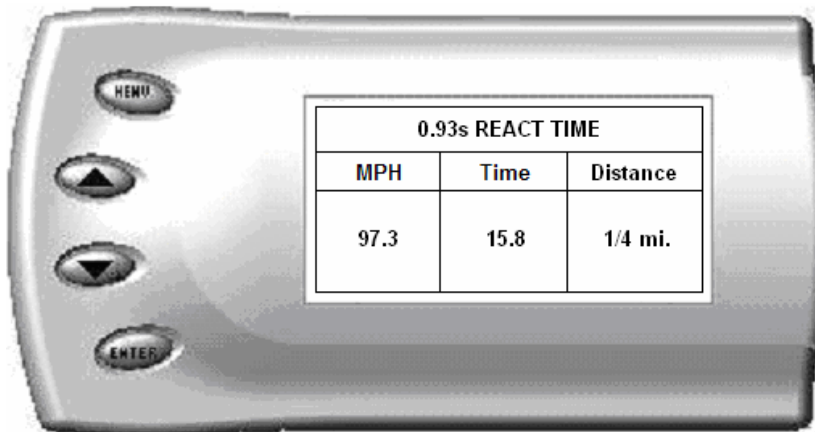
This will show how long it took you to cover 60 feet, 1/8 mile, and ¼ mile. In addition, your MPH at ¼ mile will also be shown (see the example above). The best run is stored for later viewing. You may also use the back of this manual to write down your times.

At the end of a ¼ mile run, you will see a reaction time at the top of the screen. This time begins when the final yellow light is displayed. The time between the final yellow and the green is a ½ second, so a perfect reaction time is a ½ second. The average person will see a response time of around 1 second. You'll get an "Illegal Start" message if you start before the green and you're screen will turn red. You can still finish the run, but the screen will let you know that you started before the green light.

Note: Along with the best speed and time being recorded for viewing in the Records section, your most recent run data will also be stored. This information can later be viewed using the Lightning® software to determine approximate horsepower, etc.

5. After the test is complete, press [MENU] to return to the Performance Menu.

Setup

The *Evolution* gives you even more additional features. You can choose from several different parameters to monitor, how these parameters are displayed, set parameter alerts, and view the highest value that certain parameters have reached.

Changing the Display View

The *Evolution* allows you to view multiple engine parameters on the same screen. To select a desired view, perform the following steps:

1. From the *Main Menu* select the *Setup* option. The *Setup* screen appears as follows:
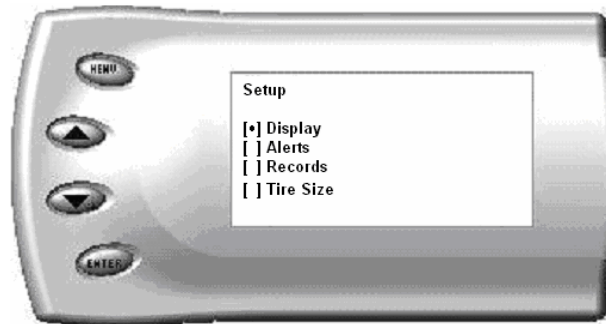
2. Select the *Display* option. The following screen appears:

3. Select the desired viewing option by using the [UP] and [DOWN] arrows and pressing the [ENTER] key on the desired display type. Below are examples of the display options:
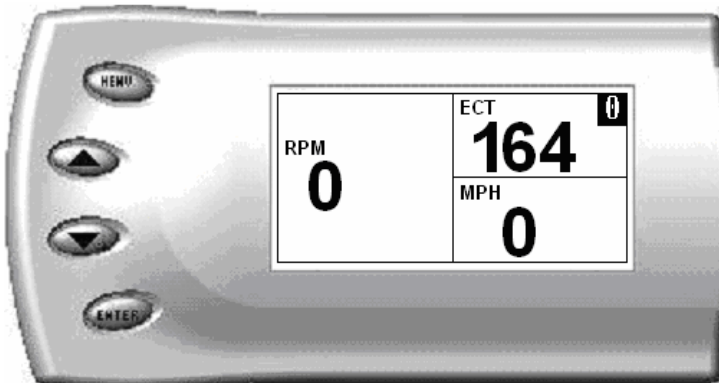
Two Function Bar Graph Display Sample
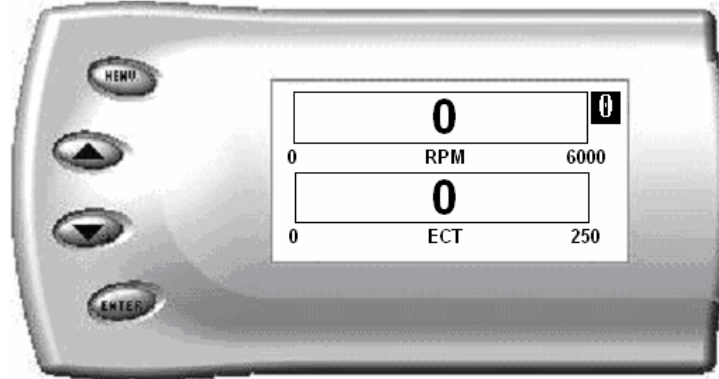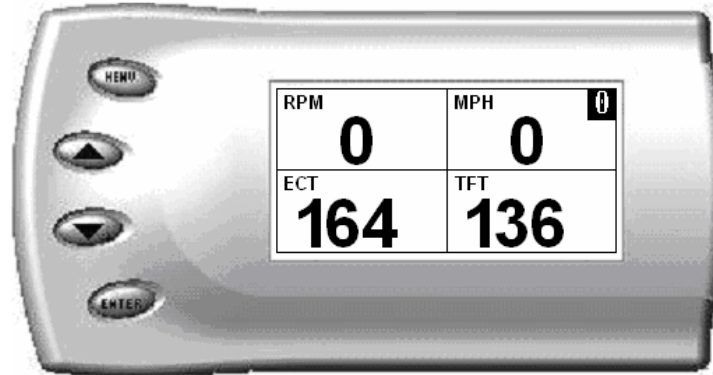

Two Function Digital Display Sample
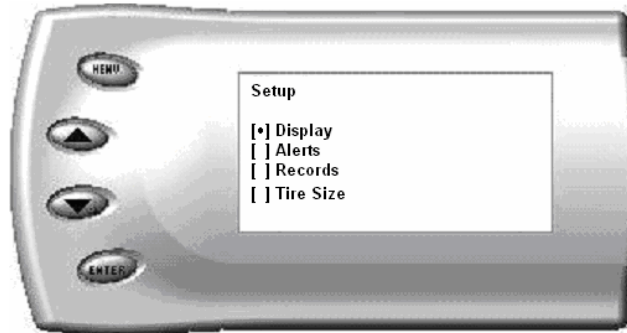

Three Function Digital Display Sample

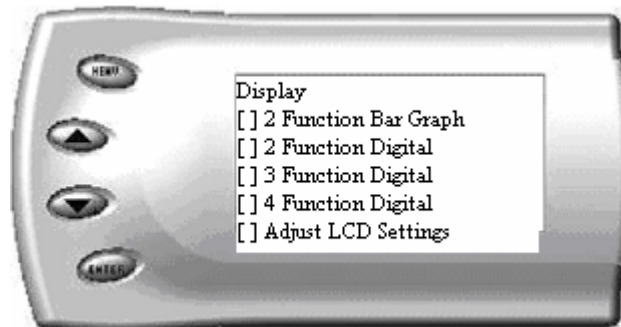## Four Function Digital Display Sample

Changing the Variables on the Screen

To change the variables on the screen, perform the following steps:

1. From the *Main Menu* select the *Setup* option. The *Setup* screen appears as follows:
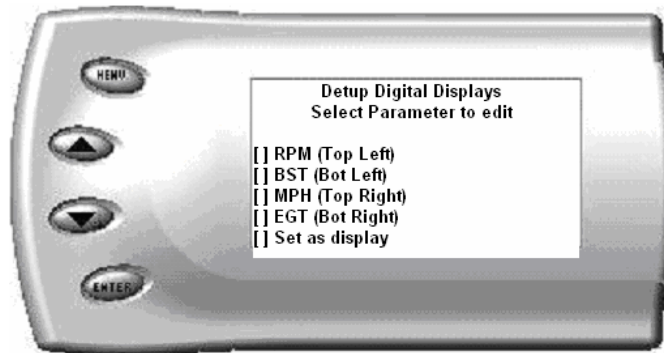

2. Select the *Display* option. The following screen appears:

3. Select the style which you would like the parameters to be displayed on your screen and press [ENTER].

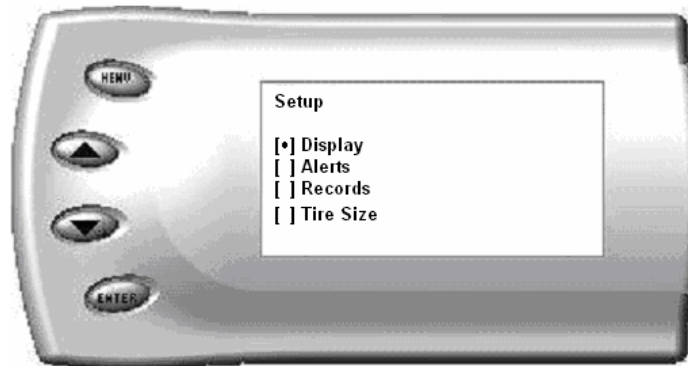4. Depending on which display you select, a screen similar to the following appears:

5. This screen lists the current parameters being displayed and their respective positions on the screen (i.e., TOP LEFT, etc.). Select the position you would like to change and press [ENTER]. A list of available parameters will be displayed. Select the parameter you would like to view and press [ENTER]. (A list of commonly used acronyms is located in the back of this manual and a in depth list of the PIDs supported is shown in the "About Evolution" section). Once you have selected your desired parameters, select the *Set as Display* option and press [ENTER]. You will return to the *Setup* menu with your new settings saved.
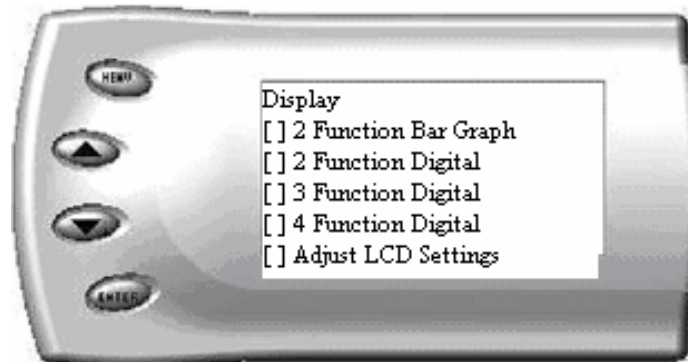
Changing the Backlighting

Adjusting the Backlight Color/Contrast

To change the backlighting color, perform the following steps:
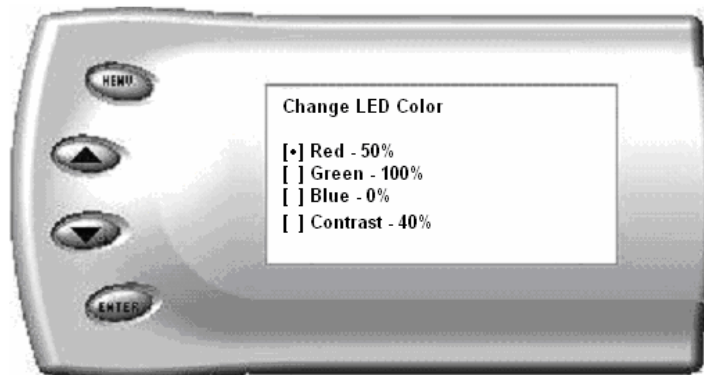
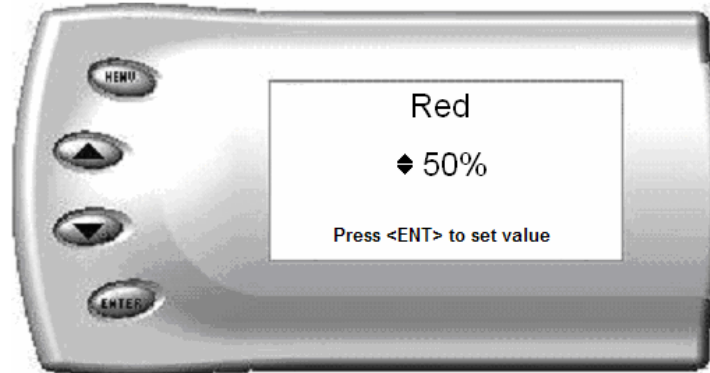1. From the *Main Menu* select the *Setup* option. The *Setup* screen appears as follows:

2. Select the *Display* option. The following screen appears:

3. Select the *Adjust LCD Settings* option. The following screen appears:

4. Select the color you would like to change.

5. Depending on the color you select, a screen similar to the following appears (example of Red):

6. As you adjust the percentage shown on the screen, you should notice a change in the color of the screen. Once the desired color value has been reached, press [ENTER]. If you would like to return to the previous screen and abort the current color change, press [MENU].

7. Follow the same steps to adjust the contrast.


Adjusting the Backlight Brightness

When viewing engine parameters (like the sample below) press the [UP] and [DOWN] arrow keys to adjust the brightness of the display. Each time the button is pressed the backlight will either brighten or dim by 10% of the total brightness. The default setting is 100% brightness.
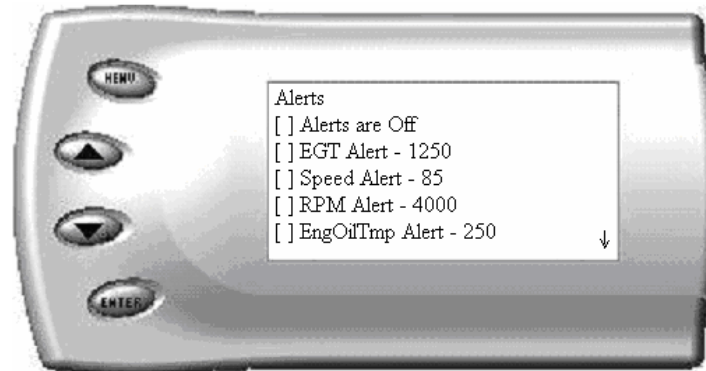
Alerts

If you would like to know when a certain parameter reaches a certain value, you can set an alert for that parameter by following these steps:

1. From the *Main Menu* select the *Setup* option. The *Setup* screen appears as follows:
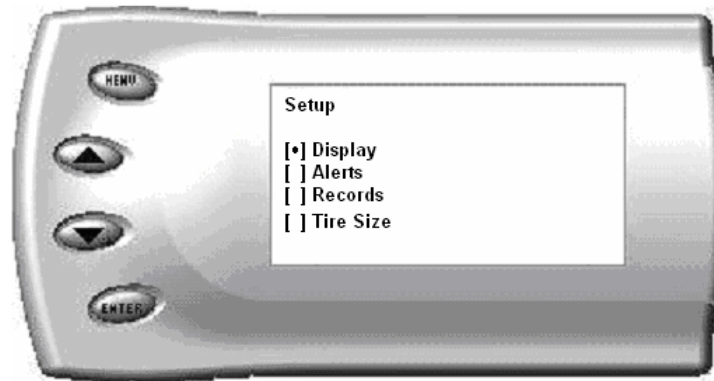
2. Select the *Alerts* option. The following screen appears:

3. By default, the alerts are off. To turn them on, select the *Alerts are Off* option and press [ENTER]. The text line will now read *Alerts are On*. To change the value of a certain alert, select the parameter you want to change and press [ENTER]. The screen similar to the following will appear:


4. Press the [UP] and [DOWN] arrow keys until you have reached the desired value. Pressing [ENTER] will save the current alert value. If you would like to return to the previous screen and abort the current value change, press [MENU].
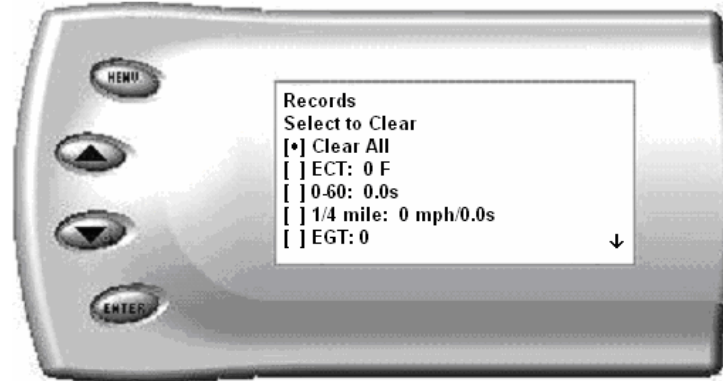
Records

The *Evolution* automatically records the highest value of some of the parameters. To view these records and to reset them, do the following:

1. From the *Main Menu* select the *Setup* option. The *Setup* screen appears as follows:
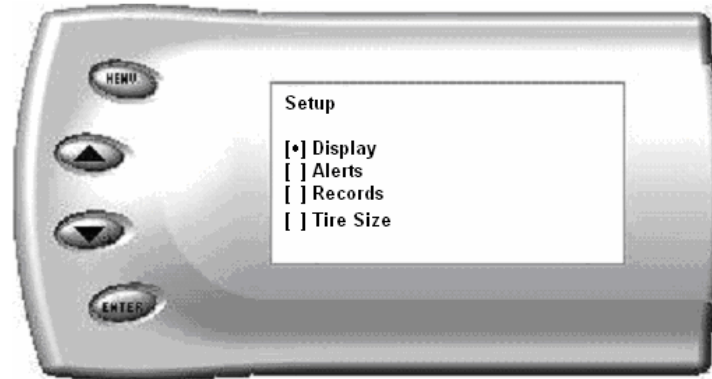
2. Select the *Records* option. The following screen appears:

3. This is where you can view all of the current recorded high values. The arrow located at the bottom right corner of the screen indicates there are more parameters than the display can show. Use the [UP] and [DOWN] arrow keys to scroll through the list of records. If you would like to reset a single parameter, select the desired parameter and press [ENTER]. If you would like to reset all of the records, select the *Clear All* option and press [ENTER]. To exit out of this list press [MENU].

Tire Size

(Note: Tire size will only function correctly on 05-07 model years)

The *Evolution* has the ability to correct for changes in tire size. If you have changed your tires to a different size the PCM will miscalculate vehicle speed which can affect shifting as well as the speedometer. Correcting the tire size will allow the PCM to accurately calculate vehicle speed and odometer readings. You will not need to change the value displayed if you are running factory size tires. After choosing to set your tire size, the follow screen appears:

The numbers on this screen represent the circumference (in mm) of your tire size. The default value the *Evolution* displays is the current value stored in the PCM. Adjust the tire size by pressing the [UP] and [DOWN] arrow keys.

The following table will help you determine your tire circumference by matching your tire size with the common sizes listed. For example, if your tire size is 285/ 65-18, the value (circumference) you enter into the *Evolution* is 2600. You may also use the formula provided to determine your approximate tire circumference. Finally, you may also measure your tire's circumference by marking your tire and rolling it one complete revolution and measuring the distance in inches or millimeters. If you measure in inches, multiply the distance by 25.4 to convert to mm. (ex. 91.3 inches x 25.4 = 2319 mm). The Evolution supports tire sizes ranging from 2000mm to 3500mm in increments of 1mm.

Width	Ratio	Rim	Circumference
265	70	16	2441mm
275	70	16	2485mm
305	70	16	2617mm
215	75	16	2289mm
245	75	16	2430mm
265	75	16	2524mm
285	75	16	2618mm
295	75	16	2666mm
305	75	16	2713mm
315	75	16	2760mm
325	75	16	2807mm
265	70	17	2521mm
285	75	17	2698mm
315	75	17	2840mm
275	65	18	2559mm
285	65	18	2600mm
285	60	18	2510mm
325	60	18	2660mm

Tire Size	
33	2632mm
35	2792mm
37	2951mm
38	3031mm

Circumference Equation:
[(width * ratio * 0.02) + (rim * 25.4)] * 3.1415
Steps:
1. Multiply **Width**, **Ratio** and **0.02**
2. Multiply **Rim** and **25.4**
3. Add Step #1 with Step #2
4. Multiply Step #3 with **3.1416**
5. The result will be the circumference of your tire in mm.
*Note: if your tire size is not listed use the above formula*

Speed Limiter

The evolution will allow you to raise your speed-limiter in increments of 5 mph starting at 40 mph, and ending at 200 mph.

Restore Defaults

If you would like to restore the Evolution back to its original factory settings, follow these steps:

1. Enter into the *Main Menu*. The *Main Menu* screen appears as follows:
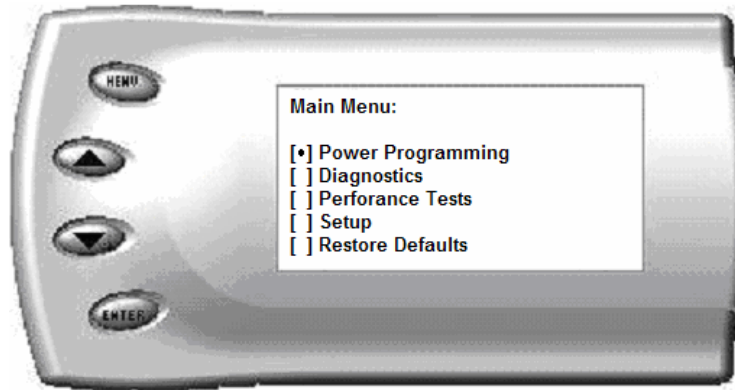
2. Select *Restore Defaults*. The following screen will be shown:

Press [MENU] to return to the *Main Menu*.

Note: This will NOT program the vehicle back to stock power; this only sets the Evolution back to the factory presets it comes with when new. To program the vehicles power level back to stock, you will need to go into "Power Programming", and select "Return to Stock", or power level 0.

Lightning® PC Software Overview

Lightning® software allows the user to update their *Evolution* to the latest version of firmware and calibration files. It also allows you to review data from your vehicle that you've recorded. The software can be downloaded for free from Edge Products website at www.edgeproducts.com , or the CD can be requested by calling (801) 476-3343.

Note: Make sure you install both the <u>SOFTWARE and the DRIVERS before hooking up the Evolution to your PC.</u> During the installation you will be given the chance to install the drivers. Just hit the "Install" button when it asks. If you do not do this step and want to install the drivers at a later time the Driver installation can be found in the folder where lightning was installed. This location is C:\EdgeProducts\Lightning3\USB_Drivers\PreInstaller.exe. Failing to do so will cause the software to not work properly with the device.

Connecting the *Evolution* to a PC is as easy as finding an open USB port, installing the provided USB cable, attaching the *Evolution* to the cable, and running the Lightning® software. (NOTE: *The Evolution needs to be returned to stock on the truck before removing and performing any updates. If this is not done, the software will not allow you to continue.)*

NOTE: If Lighting Software has already been installed. Do not insert the CD and reinstall. Instead, go to START on your computer tool bar, open all programs, open EDGE PRODUCTS and select LIGHTNING 3. At this point you will be prompted to connect your device (Evolution monitor) to the computer. You will need to have the special USB cable attached to an active USB port on your computer and plug into the side of the Evolution monitor

Checking for Updates

The Lightning software will check for updates automatically each time it is started. Install the updates when prompted to keep your Lightning current.

In order to update your Evolution it must first be connected to your PC via a USB port. You will notice when you first connect it that it will try to connect to the Internet to make sure your stock files are all up to date on your evolution. If your computer is not connected to the Internet then you will not have this valuable function.

If your Evolution is not able to program your vehicle because it needs an update or a stock file does not pass the checksum test, then you must connect your computer to the Internet and then connect your Evolution to your computer. This will allow our server to update your unit and allow you to program your vehicle.

If we have not been able to verify the stock files on your vehicle, you will be asked if you want to upload those files to our server. This will allow us to make sure the Evolution has properly read the files and can program your vehicle with confidence that it will be done correctly.

If the files read by the Evolution do not match the ones that we expect we can also download the correct stock files to your Evolution in order to recover your vehicle if something went wrong.

Select the *Updates* menu and click on *Evolution Update Manager.* You will see 2 lists. The one on the left is the Firmware or functionality of the unit and the list on the right is the Calibration or program levels for your vehicle. You can choose from the lists which firmware and calibration you want to update your unit to. You can compare them with the versions listed at the bottom of the window. Those are the current versions in your unit.

Once you have selected the versions you want to update to select the *Update* menu and click on *Apply Selected Updates*.

Note: If you did not return the truck to the "STOCK" programming level, the software will not allow you to update the Evolution.

At the end of successful updates, you may exit the Lightning Software; disconnect the Evolution and cable from your computer.

Change Splash Screen

Select the *Utilities* menu and click on *Change Splash Screen*. This will allow you to change the introduction screen that is displayed on the *Evolution* every time the key is turned on. The below screen shot will come up initially:
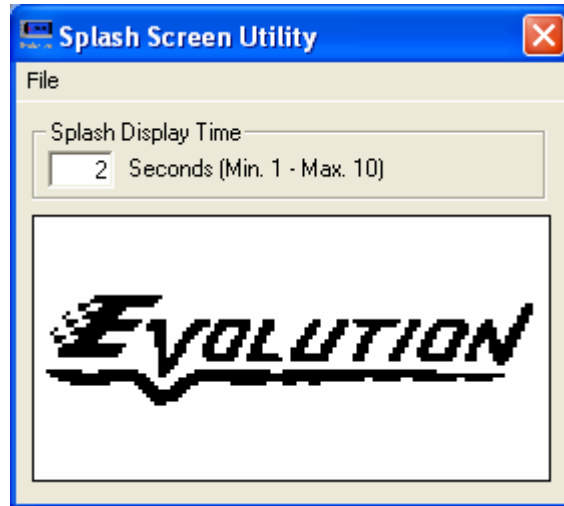
Select the *File* menu and click on *Load Image*. Select the number of seconds you would like to view the picture for during start-up, and then select the *File* menu again and click on *Save Image*. This will save the image to the *Evolution*. You can repeat this as often as you'd like.

Included with the Lightning® software are a few different images for you to choose from.

Note: Only black and white .BMP images (1 bit per pixel) that are 128 by 64 pixels can be used. The Splash Screen Utility will not allow you to use a picture that doesn't meet these requirements.

Read Stock Calibration

If you get an error from your *Evolution* stating that you need to check for updates (Error Code: 0xf1) right after reading your stock program from the truck and updating the *Evolution* doesn't solve the problem, you will need to send in your stock calibration so that a new calibration file can be created for your vehicle type.

This will be done automatically for you if your computer is connected to the Internet when you connect your Evolution to your computer. You will be asked if you want to upload your files to our server. If you choose yes, then those files will be uploaded. You can then call Tech support and inquire about how long it will take for new calibration files to be created that will match your vehicle.

Horsepower Calculator

Select the *Calculators* menu and click on *HP Calculator*. The following appears:

If you have performed a ¼ mi. run using the utility built into the *Evolution* and connected it to the PC, you can load your saved run by selecting *Utilities* and then *Read ¼ Mile Data*. All you will have to do is enter truck weight and approximate elevation to get an accurate horsepower rating (at the fly wheel).

To save this run for future viewing, select *File* and then *Save As*. To load a previously saved run, select *File* and then *Open*. You may also change any values on the form to view "what-if" scenarios or previous runs that you didn't record with the *Evolution*.

Note: Horsepower values are ESTIMATES only and are based on ideal run conditions.

Troubleshooting/Tips

Tip: Programming your vehicle may expose existing defects in your vehicle's PCM that could disable your vehicle. It is advised that you do not program your vehicle in remote locations in case of failure.

Tip: Keep in mind that the *Evolution* is a high performance product and that not all vehicles deliver the exact same power output when programmed with the *Evolution*. It is recommended that you select a program that will best fit your needs. Whether towing, or traveling long distances at high speeds, choose your power level wisely and keep in mind the condition and tolerances of your vehicle when selecting a suitable power level.

- **NO DISPLAY WITH KEY ON** – If you should get no display when turning the key on, check all of your fuses and make sure your battery is fully charged. Disconnect and reconnect the OBD-II cable to ensure the Evolution restarts properly. If the unit restarts but fails to stay on, or fails to turn on when the key is on, there is most likely a communications issue. Contact Edge Products Technical Support for further assistance.

- **NO START** – If you experience a "No-Start" condition after programming your PCM, return to the *Power Programming* menu and select *Return to Stock*. This will allow the *Evolution* to reprogram the PCM with the factory calibration and recover the PCM. If, after reprogramming, you still have a "No-Start" condition, contact Edge Products Technical Support. A member of our support team can further instruct you on possible recovery procedures.

- **ERROR CODE 0xF1 (AFTER PCM READ)** – If you are receiving this error code right after the *Evolution* reads your PCM, check for updates using the Lightning® software. If the problem continues, go to the *Utilities* menu and select *Read Stock Calibration*. Then call tech support to take steps to create a new calibration for your vehicle.

- **ERROR CODE 0xF1 (IN CUSTOM MENU)** – If you are receiving this error code while trying to configure your custom options, disconnect from the OBDII connector, turn the key to the ON position, and plug the *Evolution* back in. After getting to the main screen (past Intro and Disclaimer), wait 15 seconds. This will give your unit time to load parameters it needs to perform the custom changes. You should now be able to perform your custom changes.

Edge Products Technical Support

(888) 360-EDGE

Please have the Part Number (i.e. EEF1200/1220), the Version Number and Manufacture Date prior to calling Tech Support. This will help ensure quick and accurate support.

Commonly Used Acronyms

ACT = Air Charge Temp
ACV = Thermactor Air Control Sensor
AOD = Automatic Overdrive Transmission
APP = Accelerator Petal Position
AXOD = Automatic Overdrive Transmission
BAT = Battery Voltage
BCM = Body Control Module
BOO = Brake On/Off Switch
BP = Barometric Pressure Sensor
CCD = Computer Controlled Dwell
CCO = Converter Clutch Override
CDR = Crankcase Depression Regulator
CEL = Check Engine Light
CFI = Central Fuel Injection
CHT = Cylinder Head Temperature
CID = Cylinder Identification Sensor
CKP = Crank Position Sensor
CMP = Cam Position Sensor
CPS = Crankshaft Position Sensor
DTC = Diagnostic Trouble Codes
ECA = Electronic Control Assembly
ECM = Electronic Control Module
ECT = Engine Coolant Temp
EDF = Electric Drive Fan Relay
EDIS = Electronic Distributor
EGO = Exhaust Gas Oxygen Sensor
EGR = Exhaust Gas Recirculation
EGRC = EGR Control Solenoid
EOT = Engine Oil Temperature
EVP = EGR Position Sensor
EVR = EGR Valve Regulator
FDM = Fuel Delivery Module
FPM = Fuel Pump Monitor
FRP = Fuel Rail Pressure
HEGO = Heated Exhaust Gas Sensor
IAT = Intake Air Temperature
ICM = Integrated Controller Module
IDM = Ignition Driver Module
ISC = Idle Speed Control
ITS = Idle Tracking Switch
IVS = Idle Validation Switch (Diesel)
KAM = Keep Alive Memory

KOEO = Key On Engine Off
KOER = Key On Engine Running
KS = Knock Sensor
LOAD = Engine Load
LOS = Limited Operation Strategy
LPD = Line Pressure Desired
LUS = Lock-up Solenoid
MAF = Mass Airflow
MAFV = Mass Airflow Sensor Voltage
MAP = Manifold Absolute Pressure
MAT = Manifold Air Temp
MCU = Microprocessor Control Unit
MIL = Malfunction Indicator Light
MPH = Miles Per Hour
OHC = Over Head Camshaft
OSS = Output Shaft Speed
PCM = Powertrain Control Module
PFE = Pressure Feedback EGR Sensor
PIP = Profile Ignition Pickup
PSPS = Power Steering Pressure Switch
RPM = Revolutions Per Minute
SES = Service Engine Soon
SIL = Shift Indicator Light
SPARK = Spark Advance/Retard
SPOUT = Spark Output Signal (from ECA)
STAR = Self Test Automatic Readout
TAPS = Throttle Angle Position Sensor
TCM = Transmission Control Module
TFI = Thick Film Ignition System
TFT = Transmission Fluid Temperature
TGS = Top Gear Switch
THS = Transmission Temperature Switch
TPS = Throttle Position Sensor
TQC = Torque Control
TSS = Turbine Shaft Speed
TTS = Transmission Temperature Switch
VAF = Vane Air Flow Sensor
VAT = Vane Air Temperature
VCT = Variable Cam Timing
VSS = Vehicle Speed Sensor
WAC = WOT A/C Cut-off Switch
WOT = Wide Open Throttle