1999-2003 Ford F-Series 7.3L Power Stroke

Edge Evolution Programmer

Installation Instructions & Manual

OLD P/N: EEF1120

NEW P/N: 15001

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<u>THIS IS A HIGH PERFORMANCE PRODUCT. USE AT YOUR OWN RISK</u>.

<u>Do not use this product until you have carefully read the following agreement.</u>

<u>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.</u>

DISCLAIMER OF LIABILITY

Edge Products, LLC, MSD Ignition, and their successors, distributors, jobbers, and dealers (hereafter **SELLER**) shall in no way be responsible for damage resulting from incorrect use of this product. The BUYER/USER assumes all responsibility for any damage resulting from the use or misuse of this product. <u>THE **BUYER** HEREBY WAIVES ALL LIABILITY CLAIMS.</u>

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, MSD Ignition, (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) year 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 Inc.

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.

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 will the **SELLER** be liable for any damage or expenses insured by reason of the use or sale of any such equipment.

<u>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.</u>

IMPORTANT INFORMATION ABOUT YOUR VEHICLE'S WARRANTY — PLEASE READ!

Many of our customers ask, "Will your product void my vehicle's manufacturer's warranty?" While the answer is straightforward from a legal standpoint, it's important to educate our customers (and all aftermarket consumers) on some industry realities and offer some common sense precautions to minimize your risk. Edge is committed to providing quality products that are safe to use. Our products do not cause damage to a vehicle when used as intended. *Please keep in mind that towing in anything higher than the towing level and hard driving in race or extreme performance levels is not recommended.*

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

However, the reality is that many dealerships have been known to void warranties on vehicles that use aftermarket products as a matter of policy. This applies in particular to those aftermarket products that produce horsepower, such as performance enhancement "chips," modified intake manifolds, or aftermarket exhaust systems, regardless of product brand.

You have strong legal protection as a consumer in regard to your vehicle's warranty. However, Edge strongly recommends you always disconnect and remove your module/programmer and monitor when you take your vehicle to a dealer for warranty work. In addition, leaving the product connected may affect dealer diagnostic analysis and CAN tool functions. Edge makes every effort to produce product that can be easily removed. **Note:** *Even if you remove your unit, your dealer can detect the use of any programmer—even if the unit has been removed.*

Thank you for purchasing the *Evolution* by Edge Products, LLC for the Ford 7.3 Powerstroke Diesel®. The *Evolution* programmer has been developed and produced from the highest quality materials available to ensure the best performance for years to come. If you have any concerns or questions, please contact us.

Note: *This warranty is void for any new products purchased through auction websites. Warranty is valid only for new products purchased through Authorized Dealers (proof of purchase required for all warranty claims).*

Before installing this EDGE product, the Evolution unit must be updated. The Fusion software required for updating your product on your computer is included in this package as a CD. Follow the instructions located in the Fusion Section at the back of this Manual.

All Edge modules and programmers are built to operate with OEM calibrations. When you take your vehicle to a service center they may, by your request or otherwise, update your vehicles calibrations. Therefore it is important that you return your vehicle to stock before taking it in for service. Edge updates its active products (i.e. those currently being manufactured) to work effectively with updated OEM calibrations. However, this process can take some time as Edge is not always made aware of calibration changes made by the OEM. In the case of <u>discontinued products</u>, Edge cannot ensure that your unit will work effectively if you take your vehicle to a dealership and you are given, by your request or otherwise, a new calibration.

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.

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.*

Tow Only Program

This setting is the lowest power setting. It is designed to provide a significant increase in horsepower and torque while still being safe enough to use for towing. While it isn't necessary, a modified exhaust system will help improve overall performance and help reduce your EGT (exhaust gas temperature) levels.

Race Performance Program

If you plan to tow with this program, it is strongly recommended that you make appropriate modifications to your exhaust system and install an EGT (exhaust gas temperature) gauge to aid in the prevention of potential damage to your engine.

Extreme 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 Gains

The following power gains are representative of an actual test vehicle. These gains were measured on a Super Flow Dyno at an altitude of 4400 Ft. above sea level, and represent power delivered to the rear wheels of the test truck. The only modification made to the test truck was the addition of the Evolution. Power gains may vary somewhat on a different vehicle or in different geographic settings.

POWER LEVEL	TOTAL HP GAIN	TOTAL TQ GAIN
Tow Only	60	100
Race	80	140
Extreme	100	200

NOTE: *If stacking with the Juice/Attitude, we highly recommend only using the TOW ONLY level. Stacking power levels could result in vehicle damage, or adverse running conditions, IE: high idle, DTC codes, etc.*

Features

PIDs

The *Evolution* allows the user to view up to 4 PIDs at one time. PIDs identify an address in memory which contains vehicle operating information a driver may wish to monitor. (See the *Set Up* section)

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 often only found on the Edge Product monitors, is the ability to determine your quarter mile times as well as your 0-60 times, and has a unique Christmas tree starting sequence.

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. Please note that Alerts may flash only if that parameter is being actively displayed on the *Evolution* monitor.

Records

While driving, the *Evolution* will automatically record the highest values of some parameters. These records can be viewed and reset at any time. Please note that some parameters may record only if that parameter is actively displayed on the *Evolution* monitor.

NOTE: *For both* **Alerts** *and* **Records***, some truck types and years may flash alert and record peak parameter values even when not displayed on the Evolution monitor.*

Custom Options

While programming your vehicle, you have the option to customize your tuning. You can change certain features to better suit your driving style, or your vehicle setup.

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.
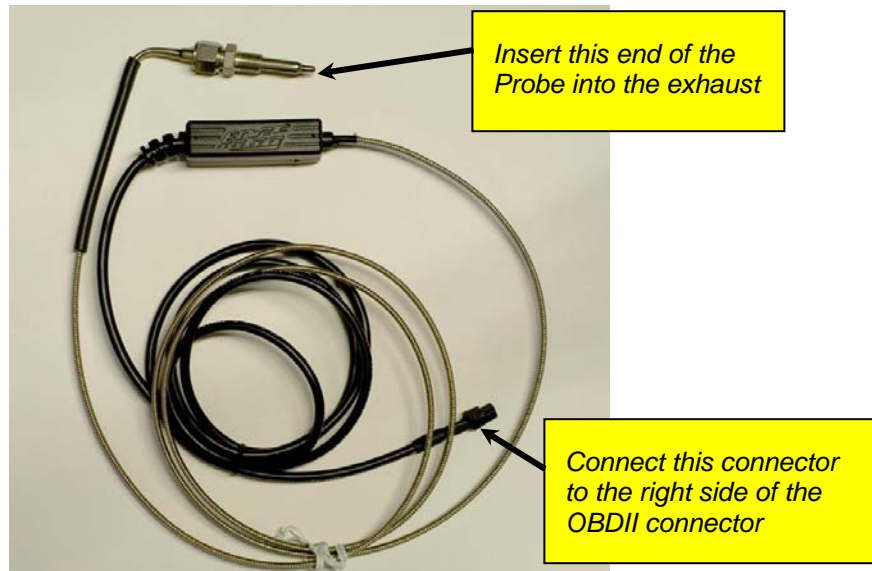
Display and Keypad

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.
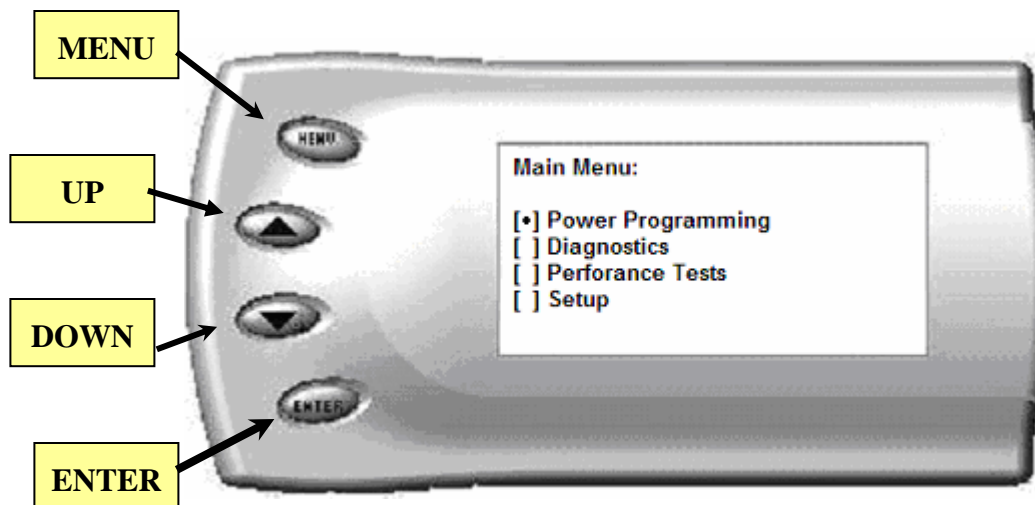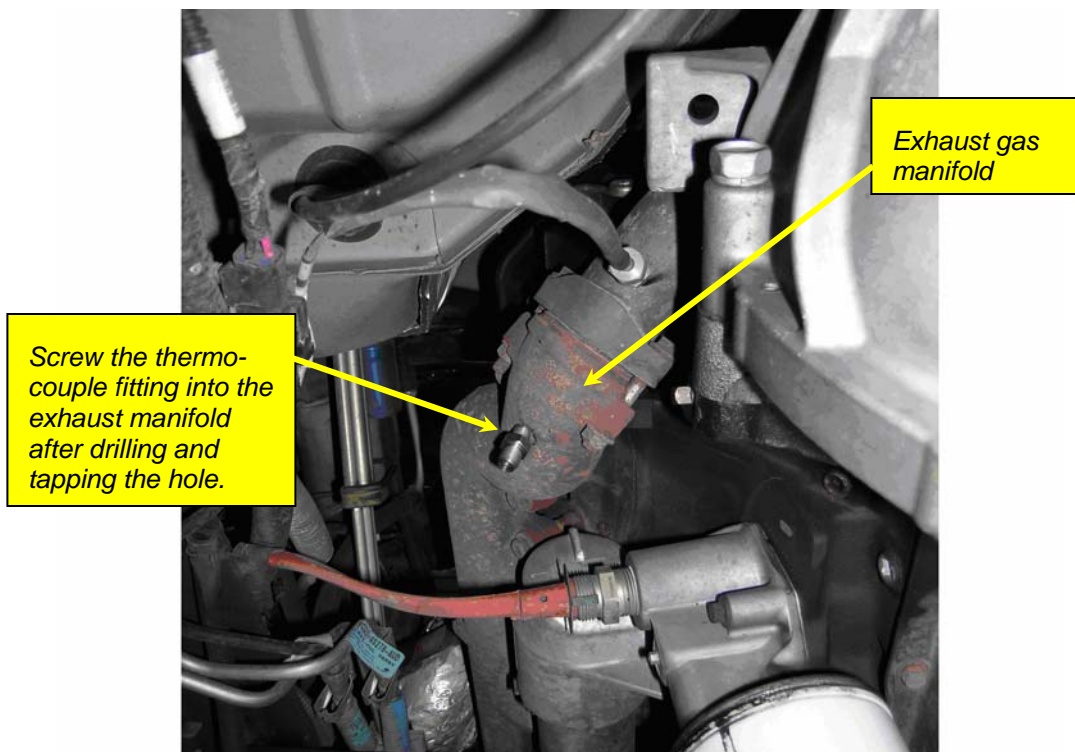

NOTE: *The Evolution uses a LCD display which has inherent limitations in operating temperature. If your screen is black, blank, or distorted and the temperature is above 158 degrees F (70 degrees C), please allow the device to cool and then it should work correctly. At extreme low temperatures (32 degrees 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.*

Getting Connected

Installing the EGT Thermocouple

Insert this end of the Probe into the exhaust

Connect this connector to the right side of the OBDII connector

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. (This photo shows the underside of the truck looking *up*.)


Exhaust gas manifold

Screw the thermo-couple fitting into the exhaust manifold after drilling and tapping the hole.

*(Looking **up** at the exhaust manifold from under the vehicle – The rear of the vehicle is to the top of the picture and the front is to the bottom.)*

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> **TIP**: *One effective way to avoid metal fragment contamination in your engine manifold is to apply grease in the tip of the drill bit and threads of your tap tool when drilling/tapping the hole in your manifold. Reduce pressure on the drill when the drill breaks through the manifold wall to reduce risk of pushing metal chips into the manifold.*

> **CAUTION:** *Wear eye protection and protective clothing when performing this operation, to protect from getting metal chips in your eyes. Also, since exhaust manifolds can be very hot, allow the engine to cool before drilling. Make sure the park brake is set when working under the vehicle.*

2. Obtain a 1/8" National Pipe Tap (NPT) available from your hardware store. Drill a 21/64" (5/16" optional) hole through the manifold wall, and then use the pipe tap to cut the threads. Follow the instructions provided with the tap. The pipe tap is tapered, so you will 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 deep since this would cause the thermocouple fitting and probe to seat too deep.

3. Now that the manifold has been drilled and tapped, remove the fitting from the Thermocouple and install by tightening the tapered thread end into the manifold. (Ideally the tip of the fitting would be less than or flush with the inside of the exhaust flow path.) Tighten the fitting so that it is securely seated. Then install the probe into the fitting, and tighten the top nut of the fitting just tight enough to keep the probe firmly mounted. Make sure that the probe cable is positioned to allow best path and minimal bending, for cable routing to the top of the engine compartment.

EGT probe

EGT probe inserted into exhaust manifold.
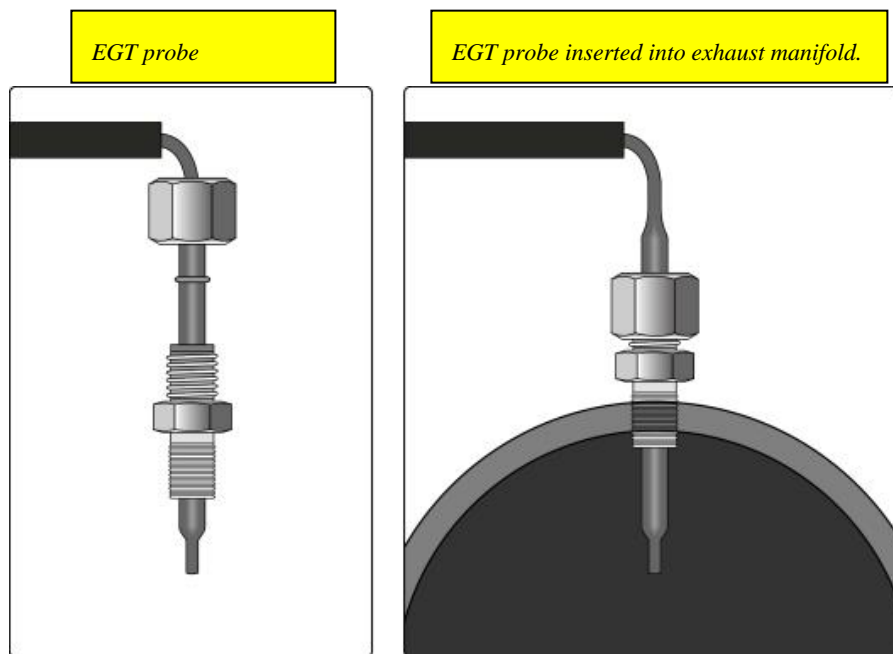
4. With the Thermocouple installed, and the 4-pin connector cable routed to the top of the engine compartment, locate an opening to pass the cable through the firewall. Any location where cables pass through the firewall may be used. There are predrilled holes located near the brake master cylinder as shown in the following picture. Fold the insulation back and expose the holes, and then pass the connector and cable through and into the cab compartment. Be sure to use the supplied cable ties to secure any excess cable to the firewall to prevent the cable interfering with hot engine components or any moving parts.

The EGT thermocouple cable routed through the firewall
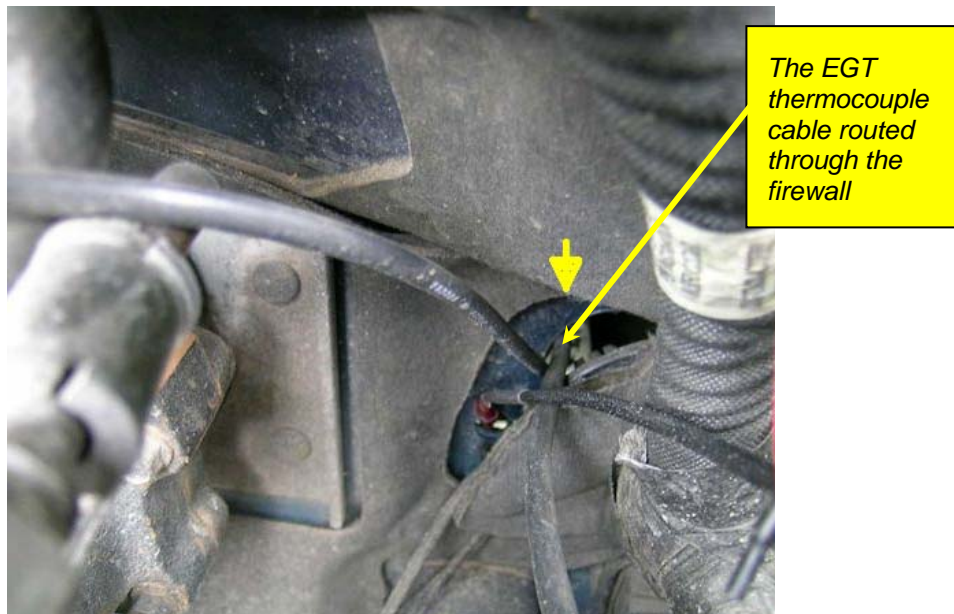
5. Run the cable up under the dash and secure it with the supplied Zip ties. After the supplied OBDII connector cable is installed, you will connect the end of the thermocouple cable to the port on the right side of the OBDII connector during the *Evolution* module installation.

Installing the Evolution

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

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

Figure #1

2. 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

3. 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 emergency brake release lever.

Figure #3

4. With the driver's side door open, remove the seal trim on the left side of the dashboard (*Figure #4*) and 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*). Route 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**

5. 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.

6. <u>To secure the pod</u>: locate the metal 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

    TIP: *Be sure to check the position of the brackets while the Pod is resting in its desired location on the dash prior to attaching them to the Pod with the double sided tape. This will help you avoid repositioning the brackets after the tape has adhered.*

7. Clean the pod location on the dash with hot soapy water and rinse, or use 70% Isopropyl alcohol. Thoroughly dry the location. 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.

8. After the pod is secure, insert and seat the rubber gasket into the Pod opening. Disconnect the cable at the OBDII port, and attach the *Evolution* to the cable end which is protruding from the Pod.

Figure #6

9. 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

NOTE*: If you are not satisfied with the pod color match to your interior, an automotive paint supply store should be able to provide color matching information and a plastic compatible paint to match any color interior.*

10. Locate the Thermocouple cable connector which was previously passed through the firewall, and plug into the 4-pin terminal protruding from the end of the Edge Products OBDII cable. (*See figure #8*)

Note: *This view shows the Edge Products OBDII cable installed on the truck OBDII port. Do not plug into port until instructed in the next step.*

Figure #8

11. With the Pod and *Evolution* securely in place, turn the ignition key ON, and then plug the Edge Products OBDII 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:

> **Note***: If you are connecting the Evolution for the first time, or you have recently updated, you may see a screen that says UPDATING BRIDGE. This screen will show while the evolution updates the OBDII bridge, when it's finished it will prompt you through the rest of the screens as outlined here.*
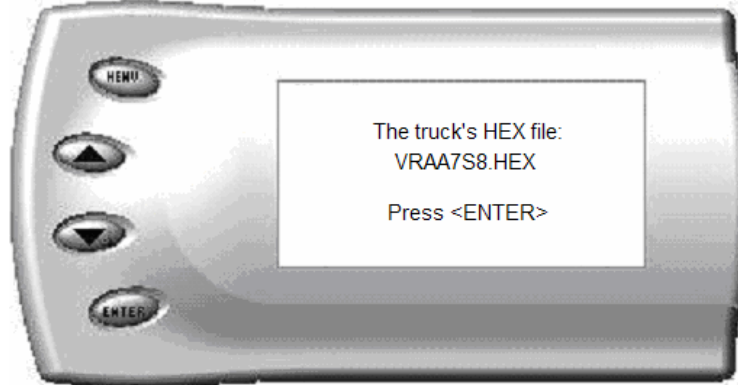
> This screen shows the calibration info of the truck that the *Evolution* is currently connected to.

> **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.*

> **Note:** *When first programming the vehicle, take a minute to write down your HEX file in the provided table below. This may be useful if you ever need to contact Edge Products Technical support.*

Truck Hex Code

12. After pressing [ENTER], the main display will come up.
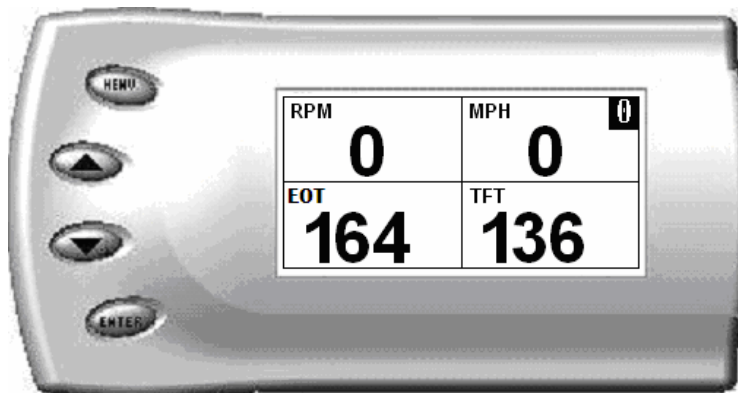
> **Note:** *Parameters and values might vary from what is shown.*

13. 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 *Tow* (Level 1).
   2 – Vehicle has been programmed to *Race* (Level 2).
   **3** – Vehicle has been programmed to *Extreme* (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 BST (actual turbo boost). Optional parameters and display formats may be selected in the *Changing Display* section of this manual.

14. 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-Tow
[ ] Lvl 2-Race
[ ] Lvl 3-Extreme
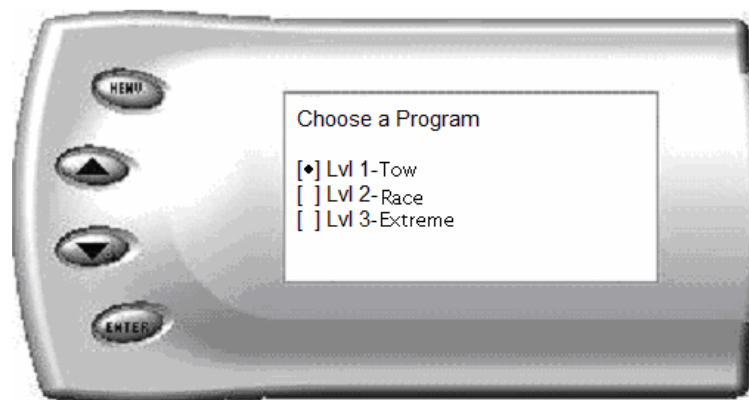
1. Select the level that best meets your needs. For more information about each level, read the *About the Evolution* section in this manual. Confirm your selection by pressing [ENTER] on the screen that will follow. After confirming, the screen below will appear:
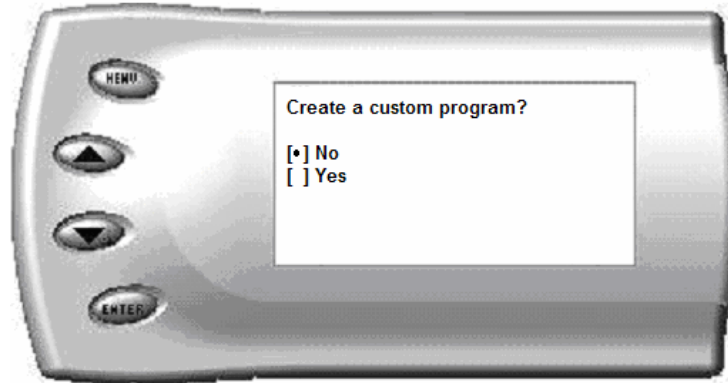

2. After your initial tune you have the option to change certain parameters of the level you chose. If you would like to learn more about what parameters are available and how to use them, then read the *Custom Options* sections in this manual. To use the standard program without customizing options, 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 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. 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, continue to follow the directions on the screen. The following screen will appear and you can press [ENTER] or [MENU] to 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. (Selecting NO will return you to the *Choose a Program* Menu).
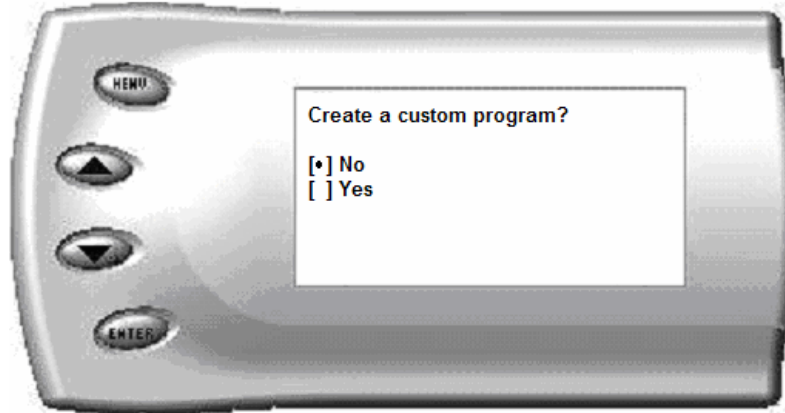
Custom Options are provided to allow for flexibility based on driver preferences. Any option customization done by the user is not warranted by Edge Products. Please use at your own discretion.

The following options are available and when adjusting the values, it is highly advised to make gradual changes as opposed to aggressive changes. This will help avoid possible engine or transmission damage.

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

CAUTION! *Your Evolution programmer has the ability to remove/adjust your vehicle's factory speed limiter. Removal/adjustment of the factory speed limiter is intended for use at a closed circuit, legally sanctioned racing environment. Even if racing in a legally sanctioned racing environment, it is your responsibility to ensure your tires and other vehicle components are rated to travel at increased speeds with the speed limiter removed/adjusted. If you remove/adjust the speed limiter during highway driving, it is your responsibility to obey all driving laws, including adhering to posted speed limits. Removing/adjusting the speed limiter for purposes inconsistent with the product's intended function, as stated herein, is a violation of the product's intended use and invalidates the product's warranty. Edge Products is not responsible for, or liable for the consequences of improper product use.*

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

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.

(**Hint:** *Make sure to set the Rev. Limiter at least 150 RPM higher than the highest WOT Shift Point or you may experience erratic shifting.*)

Timing Adjustment

This adjustment changes the injection timing in increments of .25 degree. This option should not be used, unless you have experience in tuning trucks for performance. If used in conjunction with fuel modifiers, the customer must carefully consider the risks and understand the potential impact on the engine and its components.

(**Hint:** *Edge recommends this option be left unchanged and set at "0". Timing change may be useful to help lower EGT's.)*

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.*)

WOT Fueling

If you have added an exhaust and/or intake to your vehicle, often times you will need more fuel at Wide Open Throttle. You can use this custom option to add/subtract WOT fueling to maximize performance.

Idle Speed RPM

This adjustment modifies the base Idle Speed of the engine in increments of 25 RPM. Select the RPM you would like to *add* to the base idle speed. For example, if the normal base idle is 600 RPM and you want 625 RPM, set the value to 25 RPM. (600 + 25 = 625) This option will only raise base idle, not lower it. **CAUTION:** *Idle speeds above 800 RPM may cause vehicles with automatic transmissions to "creep" when stopped while in gear, requiring additional pressure on the brake pedal in order to keep the vehicle stationary.*

(**Hint:** *This value may be useful where vehicles may experience extended idle times. Raising the idle helps keep the cylinder temperatures up and prevents a condition called "wet-stacking" which is the buildup of unburnt fuel deposits on the back of the exhaust valves. Over time, this condition can cause loss of performance.*)

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. 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:
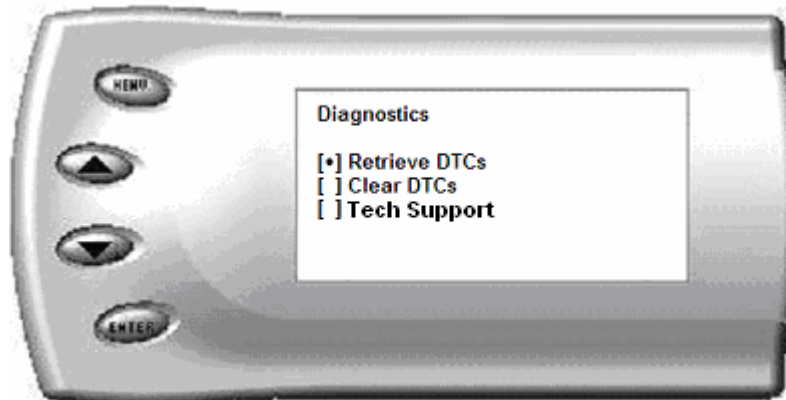
Retrieving Codes

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 DTCs* option, any stored DTCs will appear on the screen like the following example:
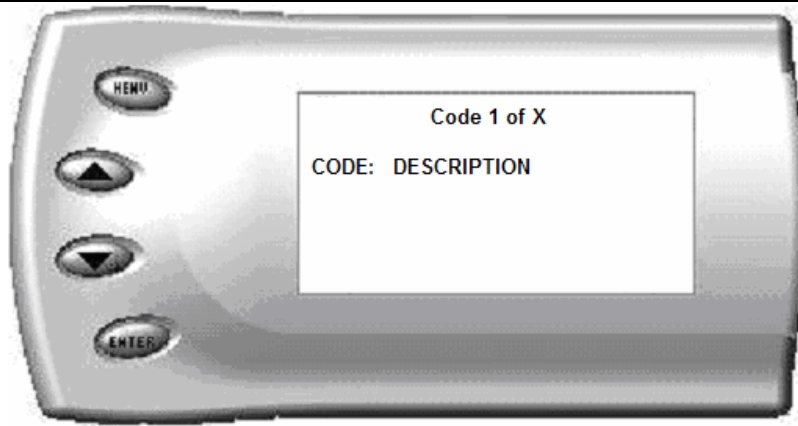
If you have no trouble codes, the following screen will appear:

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

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.

Tech Support

Information found in this section is normally only accessed when instructed by an Edge support person. For example, *Version Info* displays the current Bootloader, Firmware, and Calibration versions installed on your *Evolution.* Using the Fusion® software (see Fusion section at back of manual), you will be able to access online updates to ensure your *Evolution* is always up to date.

Self Test Mode

The evolution has the ability to run through a series of self tests to make sure that it is functioning correctly. Self test is accessed from the *Diagnostics* screen by selecting *Tech Support* from the next menu. Press [ENTER] to continue as instructed on the screen, and then select *Tech Support Tools.*
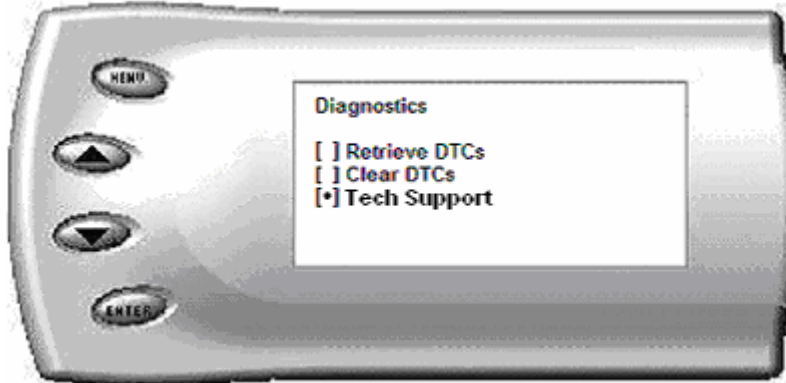
At the *Tech Support Tools* menu, select *Self Test* and press [ENTER]. The following screen appears. This screen contains various tests you may run to insure that the hardware and software of the Evolution are functioning correctly. You may also be asked by a tech support representative to initiate one of these tests to help isolate a problem you could possibly have.
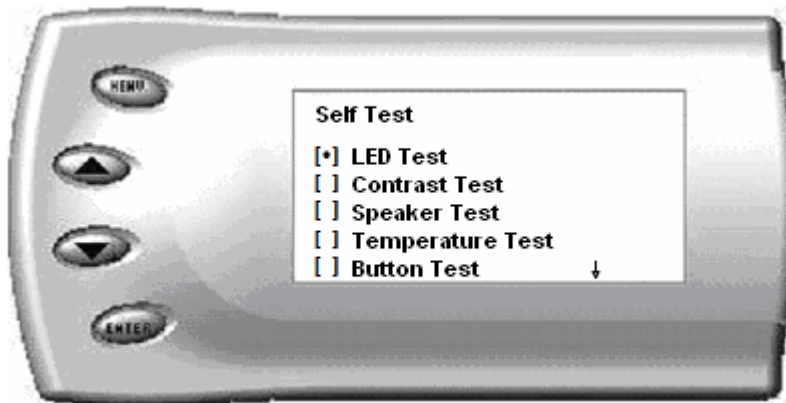
After the test is complete, press [MENU] repeatedly to return to the *Diagnostics* and *Main* Menu Screens.

Performance Testing

0-60 and Quarter Mile Tests

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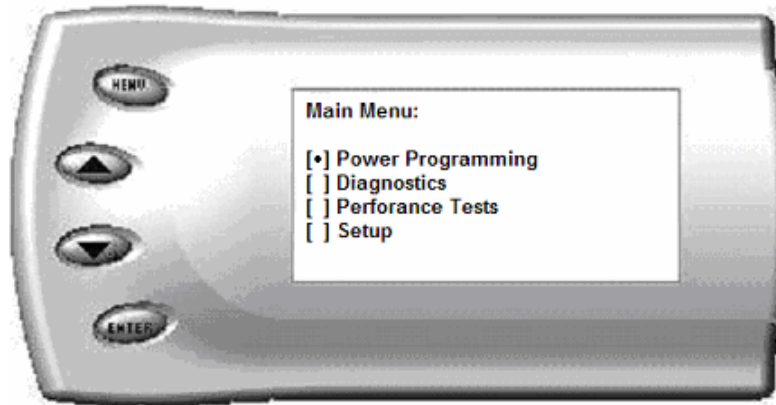
2. Select the *Performance Tests* option. The following screen appears:
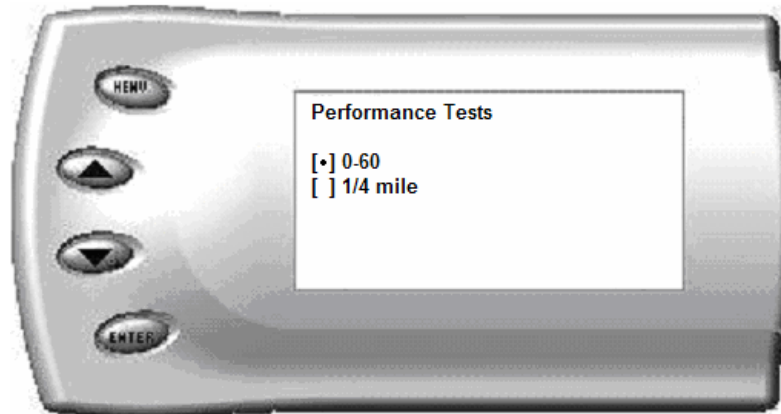
3. Select the desired performance test (0-60 screen is shown below). If your vehicle is moving at this time, the *Evolution* will ask you to come to a stop.

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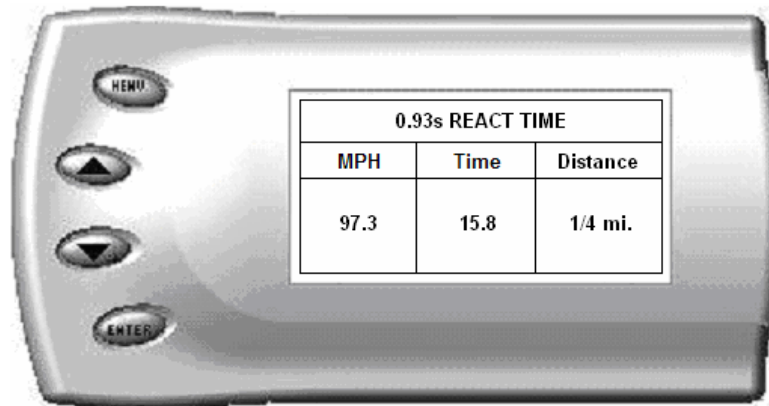
This will show how long it took you to cover 60 feet, 1/8 mile, and ¼ mile. In addition, your MPH at ¼ mile will also be shown (see the example above). The best run is stored for later viewing. You may also use the back of this manual to write down your times.

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*

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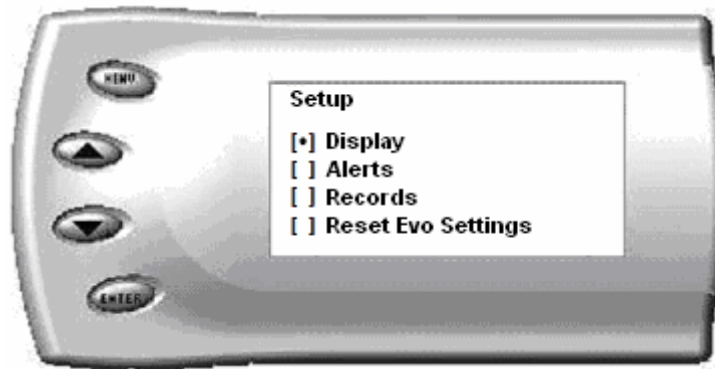
2. Select the *Display* option. The following screen appears:

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:
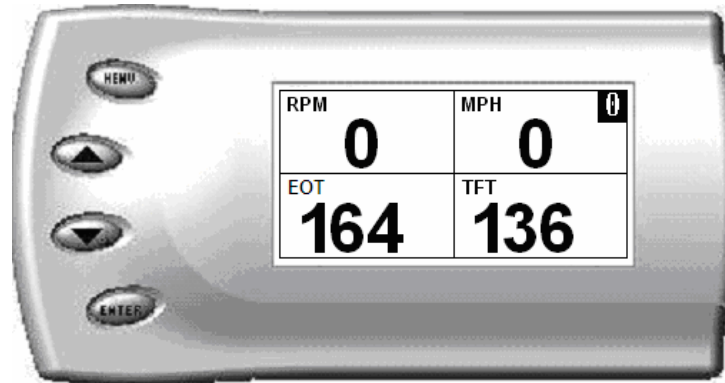
Two Function Bar Graph Display Sample
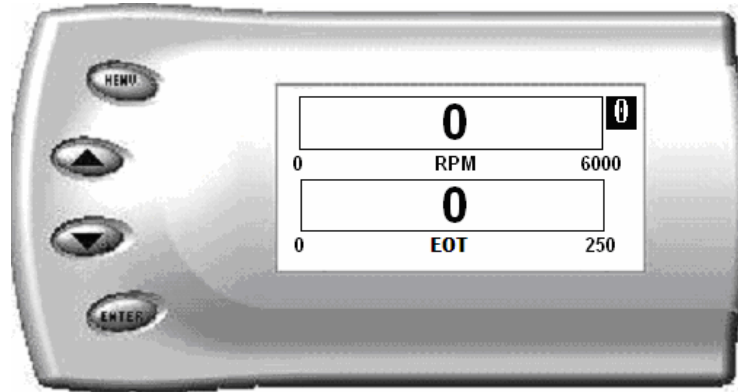
Two Function Digital Display Sample
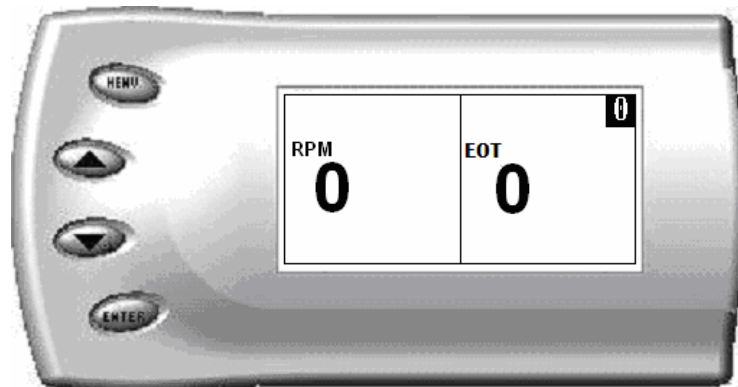
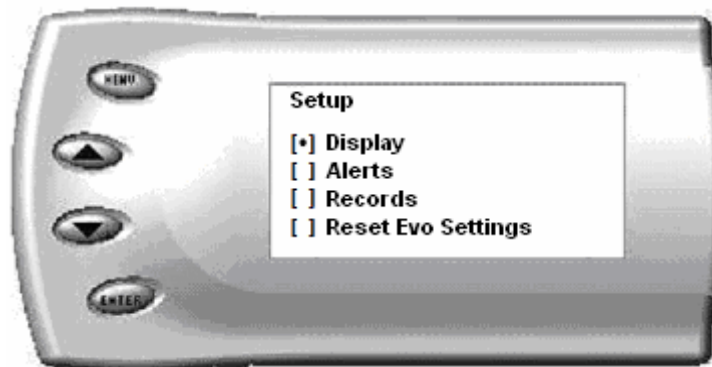## Three Function Digital Display Sample
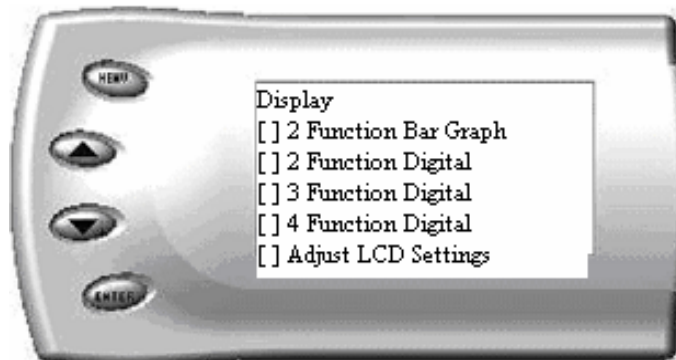
Four Function Digital Display Sample

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]. Depending on which display you select, a screen similar to the following appears:
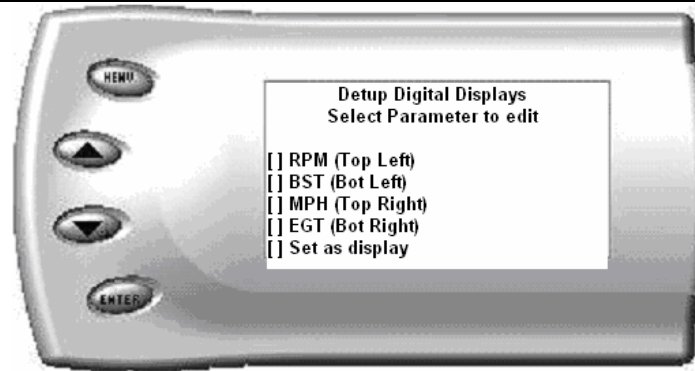
4. This screen lists the current parameters being displayed and their respective positions on the screen (i.e., TOP LEFT, etc.). Select the position you would like to change and press [ENTER]. A list of available parameters will be displayed. Select the parameter you would like to view and press [ENTER]. (A list of commonly used acronyms is located in the back of this manual and an in depth list of PIDs supported follows). 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.

Below is a list of the 10 PIDs you can display 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.*

- BST (Boost Pressure) - PSI

- EGT (Exhaust Gas Temp) – Degrees F.

- EOT (Engine oil temperature) – Degrees F.

- TFT (Transmission fluid temperature) – Degrees F. (Automatic Trans ONLY. If you have a manual trans, the value displayed will be incorrect)

Note: *Trans fluid Temp will not read on 1999 year models and some early model 2000.*
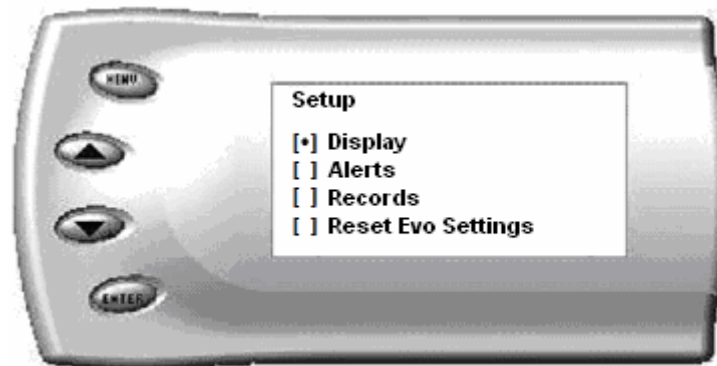
- IAT (Intake air temperature) – Degrees F.

- BARO (Barometric pressure) – PSI

- BAT (Battery voltage)

- DTC (Diagnostic trouble code count)
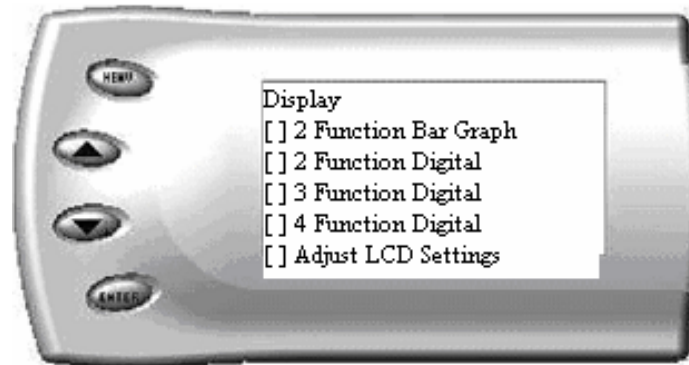
Changing the Backlighting

Adjusting the Backlight Color/Contrast

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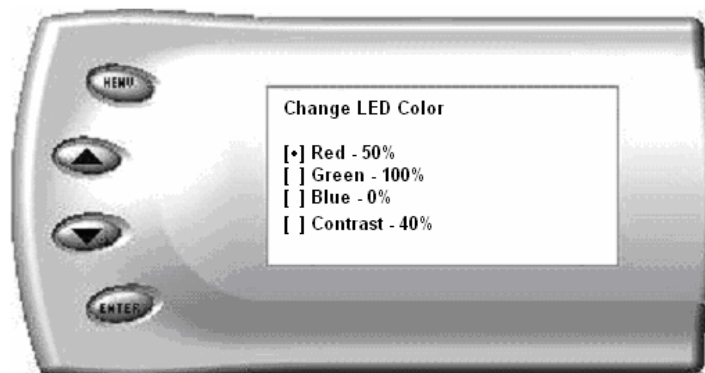
1. From the *Main Menu* select the *Setup* option. The *Setup* screen appears as follows:
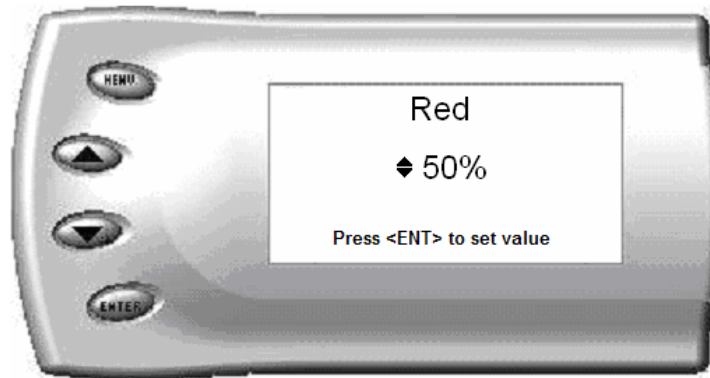

2. Select the *Display* option. The following screen appears:

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].
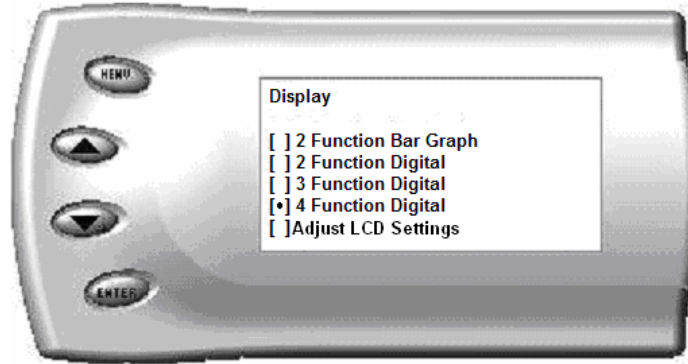
Adjusting the Contrast

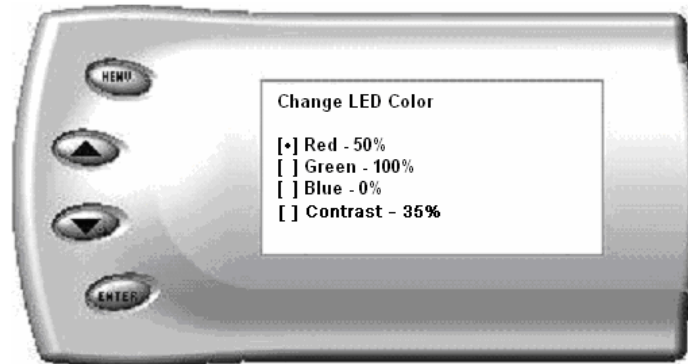To change the contrast, perform the following steps:

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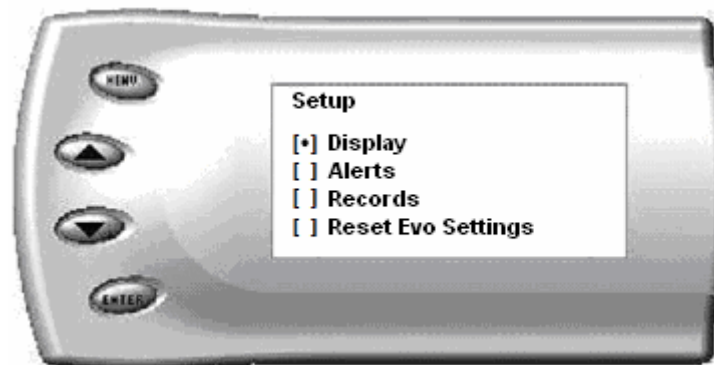
2. Select the *Display* option. The following screen appears:

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

4. Select *Contrast*, and use the up and down arrows to adjust the contrast to where you'd like.

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. Dimming may be helpful when driving at night.

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:

Following is a list of Alerts you may set and adjust:

<table>
<tr><td>a.</td><td>EGT Alert</td><td>d.</td><td>EngOilTmp Alert</td></tr>
<tr><td>b.</td><td>Speed Alert</td><td>e.</td><td>TransTmp Alert</td></tr>
<tr><td>c.</td><td>RPM Alert</td><td>f.</td><td>Boost Alert</td></tr>
</table>

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

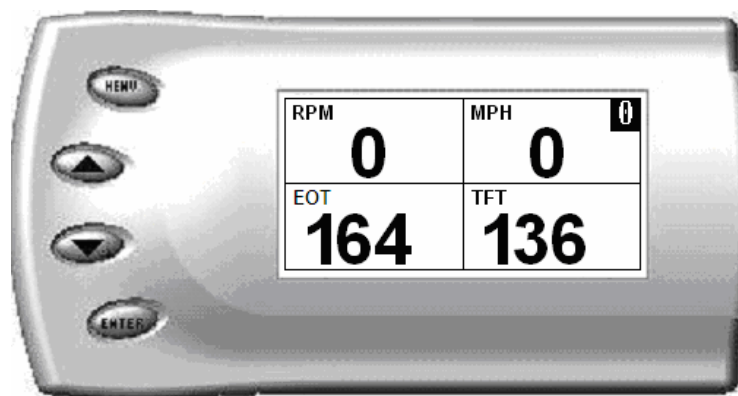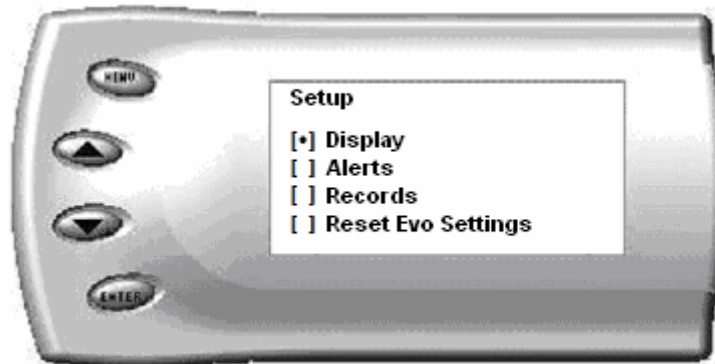2. Select the *Alerts* option. The following screen appears:

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]. A 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 and return you to the Alerts screen. If you would like to change another parameter, select that parameter and repeat the steps.

5. If you would like to return to the previous screen and abort the current value change, press [MENU].

6. When alerts are On, and multiple alerts are detected, the *Evolution* will only display one. For example: if you exceed the set point for both MPH and RPM, the first alert the *Evolution* detects will be the one displayed. Pressing any button will temporarily disable the alert until the vehicle falls below the set point and then will automatically re-enable.
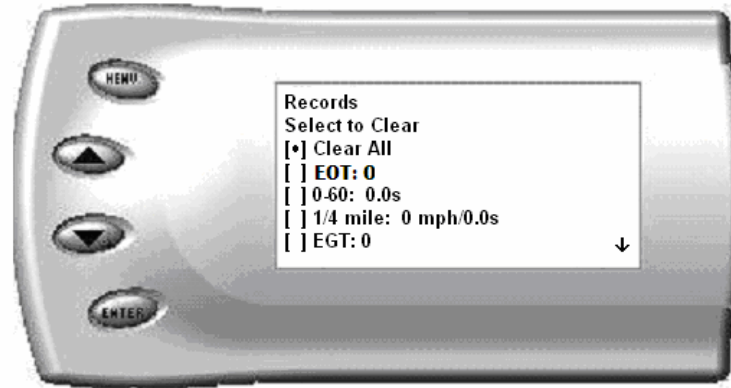
Records

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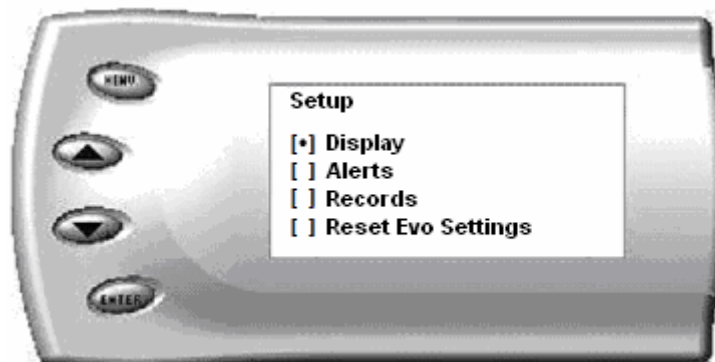
2. Select the *Records* option. The following screen appears:

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].

Reset Evo Settings

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

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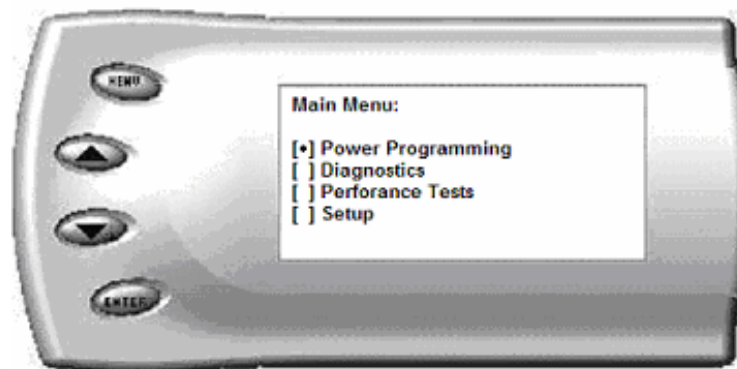
2. Select Setup and press Enter. The following screen will be shown.

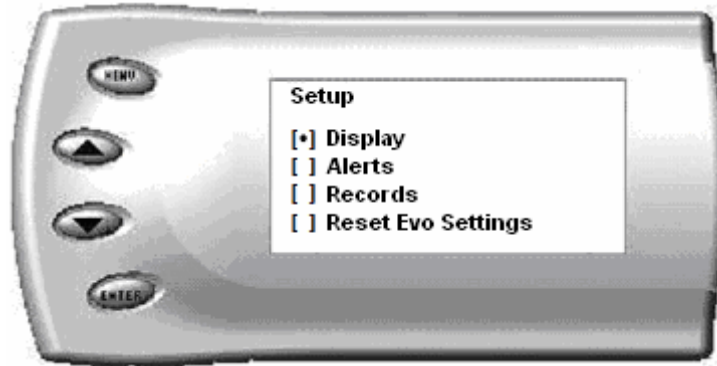3. Select *Reset Evo Settings* and press *Enter*. The following screen will be shown.
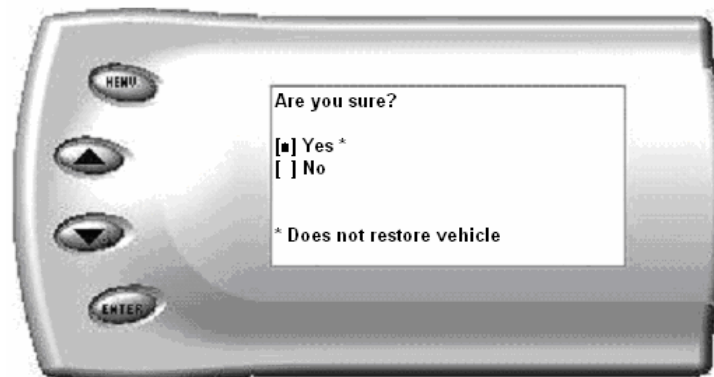
4. Select *Yes* and press *Enter*. The following screen will be shown.

5. The *Evolution* settings have now been reset to match the settings as originally purchased and supplied from Edge Products. Press [MENU] to return to the *Main Menu.*

Note: *Resetting the settings will not return your vehicle to stock; it will only restore the evolution settings (i.e. display, alerts etc.) back to the defaults where they were when you received the evolution new. If you wish to return your vehicle to stock, please see the power programming section in the manual.*

Fusion® PC Software Overview

Note: *Make sure you install both the* <u>*SOFTWARE and the DRIVERS before hooking up*</u> <u>*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 Fusion was installed. This location is* **C:\EdgeProducts\FusionClient\Evolution_Driver/CP210xVCPInstaller.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 Fusion® 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 Lightning Software had previously been installed on your computer, do not use. If you have previously installed* Fusion®*, you do not need to reinstall. Instead, go to START on your computer tool bar, open all programs, open EDGE PRODUCTS and select Fusion. At this point you will be prompted to connect your device (Evolution monitor) to the computer. You will need to attach the supplied USB cable to an active USB port on your computer and plug into the side of the Evolution monitor*

Checking for Updates

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

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 Fusion Software; disconnect the *Evolution* and cable from your computer.

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.

- **THEFT LIGHT --** If the theft light flashes rapidly after programming and the vehicle won't start, the Evolution Programmer has experienced a conflict with the Passive Anti-Theft System (PATS). To recover from this, perform the following steps:

    1. Turn the key on, but do not attempt to start the vehicle.
    2. Wait for the theft light to quit flashing rapidly. (This should take about 1 minute, after which the theft light will flash multiple times about every 3 seconds.)
    3. Turn the key off and remove the key from the ignition for 30 seconds.
    4. Insert the key and turn the ignition to the ON position and wait for the normal engine checking procedure to take place; then start the vehicle. The theft light should quit flashing.

  If your vehicle still won't start and the theft light is blinking rapidly, remove the ground (-) battery cable (from both batteries if your vehicle is equipped with two) for a period of ONE HOUR to allow the theft codes to clear. Then re-attach the cable and start the vehicle.

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
BST = Boost
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