Installation and Operation Instructions

Blue Chip Diesel Redline Performance Box

DO NOT INSTALL THIS BOX WITHOUT READING, SIGNING AND RETURNING THE DISCLAIMER OF LIABILITY FORM INCLUDED WITH THESE INSTRUCTIONS.

Items of note:
1. Installation of this product indicates that the end user has read, understood, and agrees with the disclaimer of liability agreement
2. You may return this product before you install it for a full refund if you do not agree with the terms and conditions explained in the waiver.

DO NOT USE THIS PRODUCT FOR MORE THAN 2 MINUTES AT FULL FUELING

TOOLS NEEDED:

- Ratchet with 4-6 inch extension
- 10mm socket
- 13 mm wrench or socket
- 11mm or 7/16 deep socket or wrench
- 5/16" wrench or socket
- Electric drill with either a 29/64" or 7/16" bit
- 1/4" pipe tap, a number 2 phillips screwdriver
- Small, 1/8" or so, flat bladed screwdriver
- 5/8" open end wrench
- Pair of water pump pliers
- Test light
- Pair of straight pliers
- Single edged razor blade
- You will need either a "25 TORX" bit or a "25 TORX PLUS TAMPERPROOF" bit to remove the injection pump cover and install the replacement cover. *The date that they went to "TORX PLUS TAMPERPROOF" was approximately the change to 2001 model year, but replacement pumps often have the tamperproof screws, so it is best to look at your pump first to determine what you'll need. The "25 TORX" is a six point solid bit and the "25 TORX PLUS TAMPERPROOF" bit is hollow and has ONLY five points. If you need this torx bit for installing the replacement cover, we will sell it to you for a very reasonable price.*

Installation Instructions:

1. Drill a hole in the turbo outlet elbow anywhere convenient and tap hole with a 1/4" pipe thread tap and install the thermocouple assembly. The hole should be drilled with a 29/64" drill bit, but a 7/16" will do.
2. Run the tap almost all the way into the hole to get the best position for the thermocouple. Connect the two leads of the thermocouple to the red/yellow extension cord. The other end of the extension cord should be inserted into the little green plastic plug on the back of the box and retained by tightening the screws on the bottom of the green plug. The green plastic plug can be removed from the box by pulling on it straight away from the box. Cut the spade terminals off the red/yellow wires and strip off a little insulation to attach the wires to the

green plug connector. The yellow wire from the thermocouple should be attached to the terminal in the green plug closest to the outside of the box and the red to the inner terminal of the green plug. Never solder other wires to a thermocouple or it won't read/work correctly.

3. If you already have a pyrometer and want to use the thermocouple from that installation, or add the Redline Box to that gauge so both gauges work, you may do so by just extending the thermocouple wires by twisting or crimping normal stranded wires to the red and yellow or white and black wires at the back of the existing gauge. Be sure to use the same type of wire and lengths for both leads. If the wires are backwards in the green plug the Redline Box will not display exhaust temperatures, and no damage will result, so you can safely swap wire locations to get the display to read temp. Keep in mind the display says only "PYRO" until the EGTs are above 150 degrees.

- We are suggesting a new approach to the electrical installation of the Redline Performance Box to make installation easier and less time consuming. We are suggesting you run the wires that go to the engine compartment out the driver's door from the left side of the dash. Our Beta testing has found this approach very durable and well received by the installer; of course you may run the wires through the firewall if you wish. The telephone type cable, the thermocouple wires, the blue and green throttle position sensor wires and the red/black Siamese wire should be fed over the weather strip on the driver's door, inside the hood hinge, under the plastic cowl cover to the appropriate connection points. You will find tucking them under the plastic cowl cover protects the wires from interfering with the hinge.
- The phone style harness is connected to the Boost/MAP sensor, which can be found behind the fuel filter toward the back of the engine. Unplug the factory harness by lifting the retaining tab on the plug and pulling connector straight away from engine. Plug our harness into the sensor and the other end of our harness into the truck harness. Be sure to do this with the ignition key in the off position. Run the phone style wire and connector into dash area. The 2001 and 2002 MAP harness plug is three wires in a straight row and the 98-2000 uses a triangular pattern in the plug. Just match the plug and socket to the harness and you'll be sure to be on the right sensor.
- Remove the throttle linkage housing by removing the three bolts that are 13mm. Remove the intake tube, using a 10 mm socket on the bolts going into the intake manifold. Remove the dipstick tube from the intake tube with a 10 mm. Using either a deep 11mm or deep 7/16" socket or wrench loosen the clamp on the top of the intercooler hose, and remove the intake tube carefully so as to not destroy the gasket under it. Move throttle housing out of the way by pushing it down toward the fender, by the intercooler pipe, for easier access to the pump wires. Try not to pull too hard on the wires, or disconnect the throttle position sensor wires by removing the plug under the throttle housing. If the truck only idles when started you know you have disconnected the sensor! Install a red Skotchlok tap type connector on the blue wire with a black tracer coming from the throttle position sensor and connect the blue wire from the box here.
- Be sure the spade terminal goes straight into the slot of the Skotchlok, not beside it! Attach the green wire from the box to the green wire with the blue tracer on the throttle position sensor in the same manner.
- Using either a 25 torx or a 25 torx plus tamperproof bit remove the five screws holding the metal cover on the injection pump, and remove and save the metal cover. Be sure the rectangular o- ring is still on injection pump before installing new replacement cover. Check the replacement plastic cover to be sure the

pointed allen screw is retracted and isn't sticking out of the hole on the pump side of the cover, and install plastic cover on the injection pump. Be sure the cover is in its "happy place" and start all five screws. Tighten all five screws evenly. Keeping the lock nut loose, turn in the allen screw until a resistance is felt and then turn in 3 1/2 more turns. Attach ring terminal from red wire of short red/black harness to allen screw and gently tighten locknut. To be sure of the connection, turn the ignition key to the "on" position and verify battery voltage on the allen screw and therefore the red wire. Plug the mating connectors from the long red/black wires coming from the box into this short harness, color for color.

- Remove the main wiring harness from the injection pump by pulling the indented part of the plug towards the fender with your left hand, while wiggling the main part of the plug and pulling it toward the firewall at the same time, with your right hand. Use a razor blade to remove the black tape holding the outer plastic covering from the wires and locate the black wire with a brown tracer and attach the black wire from our short red/black harness with one of the supplied blue Skotchloks. Reinstall the intake tube, the dipstick tube and throttle housing.

DO NOT CONNECT BLACK WIRE ANYWHERE ELSE

The box should be mounted on the top left side of the dash with the included Velcro strips. This location, we feel, is the safest and most desirable, as the driver doesn't lose sight of the road when reading all the information. We feel under dash mounting is unsafe.

The short red wire connects to fuse number 9 in the fuse box on the left side of the dash. Remove the fuse and slide the brass fuse tap connector over one leg of the fuse and reinstall with tap on top leg of fuse; attach the flag terminal from the red wire to the tap on the fuse, so wire to the box is fuse protected.

DO NOT CONNECT THIS RED WIRE ANYWHERE ELSE For technical support for installations feel free to call 603-966-6459.

Operation of the Redline Performance Box:

DO NOT USE THIS PRODUCT FOR MORE THAN 2 MINUTES AT FUELING

Engine (MIL) codes will be set with the operation of this product. When the Redline is shut off, the light on the dash will go out after a few key starts.

DO NOT ATTEMPT TO ADJUST PARAMETERS WHILE UNDER LOAD. It is recommended that the menu choices be set before making a run.

- **The RED button turns fuel enhancement on and off by holding briefly. You will see the display indicate "Fuel On" or "Fuel Off". The RED button when pushed for less time will allow you to see what parameter or menu choice you have chosen.**
- Pressing either black button moves you forward or backward through the menu.
- If you want to change or display any of the many menu choices, press either black button to scroll up or down to your menu choice. To change its parameter, press the red button momentarily to display your choice. Then press either black button again and again until you see your best choice. Press the red button after making your choice and the displayed choice will become effective. The red

button is basically the "Return" or "OK" button.

Menu Options:

"Select Fueling" This is how long the Redline holds the fuel solenoid closed, and can be adjusted up to 100%. The higher the number the more fuel is delivered, up to the point where the rotor is actually emptied of fuel. Holding the solenoid closed longer than that adds no benefit or horsepower and is only wasting time to refill it. As the Redline ignores all signals from the ECM, you have to adjust this number to make your Redline perform its magic best when the red light is on. This adjustment is how you help the solenoid valve work way outside of its design limit to make crazy RPM. It is expected that this setting will have to be played with, up and down, to find the sweet spot where YOUR pump performs best. No two injection pumps or engine set-ups seem to be the same, so that is why we have included this very important adjustment for the operator to dial in the best performance. The bigger the injector, the less time it takes to empty the rotor, so the optimum number for them is usually lower than the best number for smaller injectors. Typically with big or huge injectors, a number around 60 is a good place to start at, and go up or down from there. You may need to dial in closer to 100% with smaller or stock injectors. The optimum set up is where the number is the lowest and the power at the critical RPM is the most and drivability is the best. Doing this adjustment while on a dyno is a great way to optimize the amazing effect of this box!

"Select RPM Limiter" This menu choice sets the maximum RPM attainable from 3400 to 4000. At whatever maximum RPM is selected the Redline will begin to defuel quickly but smoothly to limit RPM. If you have chosen the "Unlimited RPM" software, this option is deleted from the menu.

"Select Top Line Display" This menu choice offers you either a bar graph of Exhaust Temperature or a numerical number for RPM in the top right corner of the display.

"Select Maximum Values" You have the choice of displaying maximum values of RPM, Boost and Pyrometer readings since last reset, or resetting them to present values.

"Select EGT Resolution" The choices are to read EGTs in 1 or 5 degree increments. "Select Boost Resolution" The choices are to read boost in 1 or 1/10 pound increments.

Self-Diagnostics:

The Redline performs many self tests on start up. You may see some or all of the parameters it is checking on the display. If it detects a problem it will stop and display that problem in plain English.

"Power on Test" indicates the box is doing its self test. "Checksum Failed" indicates part or all of the software has been compromised. If this is displayed, the box should be sent back for reprogramming.

"MAP volts too low" or "MAP volts too high" indicates a problem with the Boost reading getting to the box. Call Technical Support for help.

"APPS volts too low" or "APPS volts too high" may indicate an installation error, namely the blue wire from the Redline is on the wrong wire on the APPS. If the blue wire is on the correct wire at the APPS and the Redline is seeing a lower than OEM spec voltage reading at the APPS, this can be overcome by a slight depression of the throttle until the voltage is high enough for the Redline to continue its self test, until you can find the real cause! Low idle voltage does NOT affect engine operation!

"Pump Volts OK?" This indicates 12 volts is NOT being detected on the big red wire from the Redline. If this is displayed after initial installation, it probably means you are on the wrong wire or haven't made a good connection at the fuel solenoid wire or cover.

"Pump Trigger OK?" This indicates no trigger signal is seen by the Redline. If this is displayed with the engine running, check connection of the big red wire and or black wire on the pump. This is different from "Pump Volts OK" as it is checking for actual trigger signals coming from the pump.

"TIMEOUT" may be displayed when engine is first started or the box is shut off. This is normal and can be cleared by momentarily pushing any button. If this is displayed when the engine is running it indicates the box missed a trigger signal. However, it does NOT stop trying to enhance fuel delivery while this is displayed. This tells you to check your connection of the big red wire to the solenoid wire or the black wire at the pump connector. Under light to moderate throttle conditions, it is normal to feel some roughness as throttle position is increased and the Redline Box takes over the fueling commands from the ECM**.**

Blue Chip Diesel
Technical Line: 603-966-6459
info@bluechipdiesel.com