

“Pittsburgh Power” Detroit DDEC-V Installation

Instructions

By: Pittsburgh Power



Congratulations on the purchase of your “**Pittsburgh Power**” performance computer system. The only product of it’s kind! These installation instructions will guide you through the process required to make your engine perform like a winner. **Be sure to read these instructions in their entirety prior to installing your performance computer.** Aside from basic hand tools you will need the following:

1 3/8" hole saw

1/2" drill

1/8" & 15/32" drill bit.



Note: It is not necessary to disconnect the battery during the installation process. However, do not turn the key on. This may result in trouble codes being logged to the ECM. Keep all wires and connections free from dirt and grease. Any contamination on the connectors or terminals could affect the operation of the unit. Also, we have found many instances of charge air coolers and or intake plumbing leaking manifold pressure to atmosphere. This causes low boost, high pyrometer heat, lack of power and engine damage. It is recommended to pressure test your intake system and charge air cooler prior to installing the **Pittsburgh Power**. We also suggest that you make sure your computer system is not generating any trouble codes.

- 1). Mounting the **Pittsburgh Power** computer/ECU. Find a suitable location **inside the cab** around the dash area for the ECU (engine control unit). It can be mounted in any orientation making sure you will have access to the connections on the one end, and the on-off switch on the other. If possible try to mount it so the operator can view the green LED's. The ECU can be securely mounted to any flat surface utilizing the mounting plate and screws supplied with your unit or it can be held in place with Velcro or wire ties as the situation permits.
- 2). Preparing to install the new harness. Inspect the firewall for accessibility and, using a hole saw, drill a 1-3/8" hole (see figure 1) in a location that will allow you to pass the wiring harness through. This harness will be connected to the ECM (engine control module) that is located on the drivers side of the engine and the **Pittsburgh Power** ECU that is located inside the vehicle. After drilling the hole remove any burrs from the area with sandpaper or a small file.
- 3). Installing the new harness . Being careful not to damage the connectors, feed the main wiring harness (double round black connector end. See figure 6) through the hole in the firewall from the engine side, towards the inside of the vehicle. Pull enough through the firewall so there is enough of the harness left under the hood to reach all the connection points. (see figure 2). Carefully insert the supplied grommet into the pass-through hole in the firewall and around the harness (see figure 3).



Figure 1



Figure 2



Figure 3

4.) Attach the new harness to the ECU that you mounted in step #1. Push each black connector (small & large) on to the receptacles of the **Pittsburgh Power** ECU. Turn the lock nut till you feel it "click". Do not over tighten.

5) Connect the new harness to the engines injector harness. Locate the engines injector harness connectors at the left rear lower corner of the engine. (see figure 4 below) There are two major harness connections in that area. The one you want to tie into is the one that has all the white colored wires in it. Take a small straight blade screw driver and slide the red connector lock back, push the release mechanism and separate the two connectors. Locate the two black rectangular male/female connectors at the end of the Pittsburgh Power harness. Plug those connectors into the appropriate connectors previously separated. If you happen to have chosen the wrong set of the two choices at the rear corner of the engine and connect into the wrong ones it won't hurt anything but the **box will not function.** So remember, if the box does not work, switch these connections.

6.) Connect the power and ground leads. (12V only) There is a wire with a 3/8" eyelet connector that breaks out of the new harness in the same area as the boost sensor and injector wire connectors. Remove the existing ground bolt that is located on the drivers side, center of the engine, directly under the intake manifold and connect this 3/8" eyelet at that bolt. Also, be certain to reattach the pre-existing ground wire to the same bolt. (see figure 7 below) Make certain that there is no paint or rust in the threaded bolt hole as a good ground connection is very important. Run a tap in there to clean it out if necessary. The positive terminal connection is the red wire with a 1/4" eyelet that breaks out of the new harness at the two black ECU connectors. (see figure 6) Run this wire to the **switched** side of the ignition switch or fuse box. It must supply power only when the key is turned on.



Figure 4

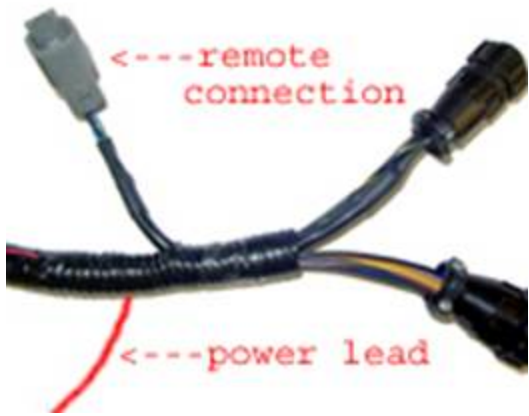


Figure 6

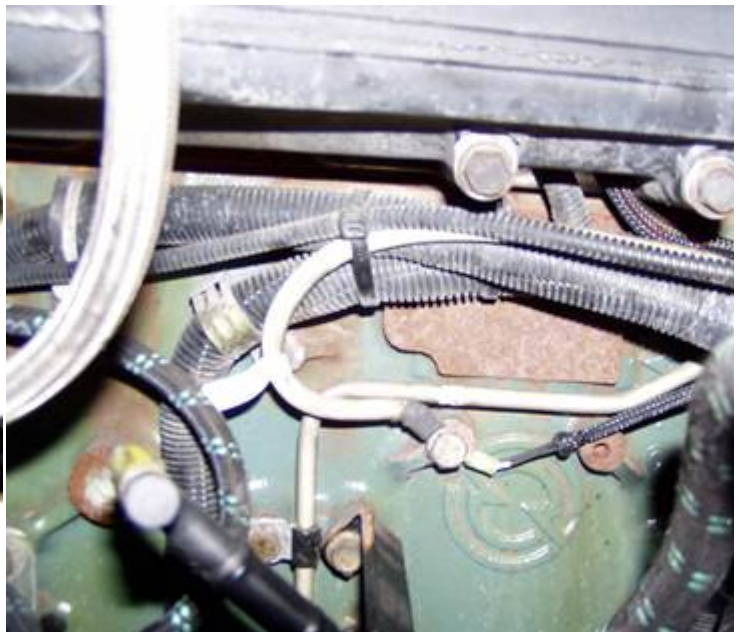


Figure 7

8.) Replace the boost sensor and connect the new harness. This sensor is located on the intake manifold on the driver side of the engine. (see figure 8) With a straight blade screwdriver, slide the red lock to the side, push the release mechanism and pull the connector from the sensor. Remove the sensor from the engine and place it in a safe place inside the cab of your truck as **you may need it if ever decide to disconnect the Pittsburgh Power.** Next, referring to figure 9, screw the supplied steel boost sensor adapter into the intake manifold using thread sealer. Apply some lubricant to the o-ring on the new boost sensor that was supplied in the kit and install the sensor into the steel adapter just installed in the intake manifold. Take the boost sensor adapter wire that came with the kit and plug it into the boost sensor. Then, plug the two bigger gray connectors of the Pittsburgh Power harness into the sensor adapter and old harness that was previously removed from the old sensor.



Figure 8



Figure 9

9.) Install the EGT sensor (thermocouple). Note: The thermocouple **must** be located in the **EXHAUST PIPE BEHIND THE TURBO** in order for proper temperature monitoring. Remove your old, existing exhaust gas temperature sensor from the exhaust pipe and install the supplied sensor into the same hole. Your existing sensor should be located approx. 3-6" back from where the exhaust pipe bolts onto the exhaust outlet of the turbocharger. Connect the yellow and red wires from the new harness to the new sensor. If you would also like to have your original EGT gauge function, hook the wires that were originally connected to the old sensor to our new sensor also. The color codes should be the same. Yellow to yellow and red to red. If your truck is not equipped with an EGT gauge, look for a 1/4" pipe plug in the exhaust pipe just behind the turbo. Remove the plug, install our sensor and hook up the red and yellow wires from the new harness to the new sensor. If there is no plug to remove, you will need to drill and tap the pipe for the sensor. Measure approx. 3" back the pipe from where it connects to the turbo and drill a 1/8" inch pilot hole. Then drill it to 7/16" and tap it out for a 1/4" pipe thread. Install the sensor as outlined above. Slide the protective cover over the connectors and tape or heat shrink it closed on the end. (NOTE: If your truck is a 2004 or newer

Peterbilt or Kenworth, the OEM sensor is not compatible with our system. You must either remove the OEM sensor, install the supplied sensor and connect the Pittsburgh Power harness to it, leaving your gauge disconnected. Or drill a separate hole and install our sensor, as described above, along side the original and leave the OEM set-up as is).

10.) Final Wiring Steps. Using the supplied wire ties, fasten the EGT lead wire, boost sensor wiring, **and** the **Pittsburgh Power** harness at several locations under the hood and under the dash to prevent vibration. Be sure to route all wiring away from any heat source.

11.) Install the remote control unit . Using the supplied Velcro, attach the remote to a convenient location. Route the wire from the remote unit to the **Pittsburgh Power** ECU and plug it into the connector that breaks out of the harness at the ECU (see figure 6). Use wire ties were necessary to hold the lead in place. When routing the lead from the remote, do not run it near any other electrical wires and keep it separated from the big wires of the new harness that plugs into the back of the **Pittsburgh Power**. In other words, do not tie wrap the excess lead wire to the ECU harness. If the cable is near any other electrical wires or devices, electrical interference may cause the remote to display erroneous characters. If this does occur, reroute the lead and cycle the key on and off and the remote will reset.

Pittsburgh Power operating instructions

All driver interaction will be done through the remote unit. You will have ten different power level settings starting at level zero. Each level above zero will add approximately 25 horsepower to your stock setting for a total of 225* additional ponies. The level setting can be changed at any time under any type of driving condition.

If the unit does not operate properly recheck your injector harness connections. You may need to plug into the other connection located at the left rear of the engine.

The remote also displays important monitoring information. It will show, in real time, exhaust gas temperature and manifold pressure. If the exhaust gas temperature (EGT) rises above 1100 degrees the **Pittsburgh Power** will start to cut the power back in order to maintain a safe operating condition.

On the front of the ECU there are 6 LED's and an on-off switch. The LED's indicate when cylinders 1 through 6 are firing with **enhanced power** and will blink with every power stroke of the engine ONLY WHILE UNDER LOAD. They will also get brighter as more power is applied. If you have a miss that is ECM or **Pittsburgh Power** related you may be able to tell what cylinder it is. The corresponding light for the problem cylinder will not light while under load. If the miss is downstream from the ECM or **Pittsburgh Power** the light will still blink. This could indicate a possible problem with an injector or an internal engine malfunction.

The yellow MAP light is an indicator that the **Pittsburgh Power** is seeing a signal from the boost sensor and will get brighter with higher manifold pressure readings. The red power light indicates whether or not the switch is turned on.

Use the on-off switch to enable or disable the unit. With the switch turned off, no power will be added regardless of where the remote is set. The display on the remote will continue to function normally in both modes.

NOTE: All of the lights on the ECU are important when diagnosing any type of issue. If you are going to call tech support, please have the information about what the lights are doing handy.

TROUBLESHOOTING

99% of all problems with the **Pittsburgh Power** are caused by **bad connections**. Prior to calling for technical support, please unplug all weatherpack connectors from our harness, spray them out with brake clean, blow dry with compressed air and reassemble. If this does not correct the problem, disconnect the positive and negative feed wires for the **Pittsburgh Power** computer and run them directly to the battery. If this corrects the problem, find a better ground source and a different switched power source. If you do need to call for support, **please monitor all the lights** on the **Pittsburgh Power** computer prior to calling so you can tell the support team what they are doing. This also includes knowing what the green lights are doing along with the yellow and red..

High Performance Driving Tips

A word from our CEO Bruce Mallinson

The **Pittsburgh Power** begins to add fuel to the engine at two pounds of turbo boost. With power levels of three or above the engine will be very responsive. Please observe the turbo boost gauge and accelerate slowly with your right foot. Keep in mind that it takes eight pounds of turbo boost to burn fuel. Mashing the throttle when the turbo boost is below eight pounds will result in black smoke out of the exhaust stacks. Using excessive power to accelerate the rig to your cruising speed will result in excessive drive train wear. Drive as though you have an egg between your foot and the throttle. Don't see how fast the turbo boost gauge can be pegged. Between shifts roll your foot into the throttle. Don't jab your right foot to the floor. Be smooth. Never use full power to pull the grade of a mountain. Your engine was designed at ten percent more power than it was released to you. Always be in a gear where you can accelerate. Most **Pittsburgh Power** owners are running their engines on power level two or three and are seeing anywhere from .2 to 1 full mile to the gallon **improvement** in fuel economy.

Metal fatigue is a truck drivers worst enemy. Anything can break at any given time. Treat your equipment with respect. Especially with awesome power. It's up to you, the driver, to keep your engine alive.

Pittsburgh Power Inc.

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724-360-4080**

WARRANTY AND DISCLAIMER

Diesel Injection of Pittsburgh Inc. warrants that its Pittsburgh Power computer will be free of functional defects for a period of one year unlimited mileage and will perform as advertised provided they are used on engines that are in good mechanical condition. It is mandatory that the pyrometer sending unit be properly connected to the “Pittsburgh Power” or severe engine damage may result.

Diesel Injection of Pittsburgh does not warrant the engine, drivetrain or balance of the vehicle in any way. The operator is solely responsible for the proper use of this product. Use of power levels 4 and above on a regular daily basis may shorten engine life.

Diesel Injection of Pittsburgh shall not be held responsible for any misuse or unsafe acts performed by the customer, whether directly or indirectly resulting from the increase in engine power.

The original manufacturer may void its warranty on the engine and/or drivetrain when stock power is altered.

Any repair/alteration of the Pittsburgh Power, unless conducted by Diesel Injection of Pittsburgh or one of its factory trained and authorized dealers, will void any and all warranties of the product. A copy of the original sales receipt from Diesel Injection of Pittsburgh or one of its authorized dealers must accompany all products submitted for warranty consideration.

For all technical support related issues call 724-360-4080

*Horsepower ratings vary depending on the individual's current engine rating.

Fuel Mileage With The Pittsburgh Power:

Please keep in mind when thinking about fuel mileage: This unit is a **performance enhancement**. Generally, when you improve performance, fuel mileage is also improved. Fuel mileage can be increased when using this unit if you are an average owner operator pulling 60-80K lbs. across country. Under these conditions an average improvement of 3 tenths MPG is very common. Some of our customers have seen over one MPG improvement in mileage. There are also situations where there may be no improvement in mileage. These are:

- Running around empty
- Pulling very light loads
- Running on flat level terrain
- Pulling oversize or over weight loads
- Running high power levels
- Using the unit to gain enough power to run at excessive speeds.