

Installation Instructions

Thanks for your purchase!

The staff at SP Diesel Performance thanks you for your recent purchase of the SP Diesel Performance Electronic Exhaust Brake. We are sure you will find all SP products to be an exceptional value for your dollar. We have designed all SP products to be easy to install, while offering you the same results of similar, higher dollar products.

Before you begin

Before you begin installation you should make sure you have at least a basic understanding of wiring. You don't need to be an expert with our instructions but if you aren't comfortable, try and find a knowledgeable friend there to lend support, or if all else fails we are available by email and phone. On a scale of technical difficulty, installation of the SP Electronic Exhaust Brake is a 5 on a scale of 10. Also as with any electronic modification to your truck, **remove the key from the ignition**. You may also consider disconnecting your batteries. Pictures are supplied at the end so you can print them out and keep them next to the text directions for easy reference. All picture references will be noted in the instructions.

Note: We ask that you thoroughly read these instructions once prior to beginning installation. Trust us, spend the 10 minutes, it's worth it.

Parts List

See the below chart for a complete list of parts. Optional parts are noted as such in the list.

- (1)SP Diesel Performance Electronic Exhaust Brake.
 - Bag of Connectors (pink male spades, heat shrink pieces, 3m scotchlok connectors)
 - Installation Instructions (provided via website instead of print to provide color install photos)
 - Zip-Tie Assortment
 - Split Looming
-

Tools

See the below chart of tools recommended for installation.

Tool	Purpose
Lighter or suitable small heat source	Used to heatshrink connectors.
Wire Crimper/Cutters	For working with wire and connectors.
Long-Nose Pliers	They just come in handy, especially for crimping tap-splices.
Metric hex bits (6-10mm)	Used to loosen hex screws once you have identified a suitable ground.
Screwdriver	Used to open dash cover, and to help pry the various connectors loose.
Electrical Tape	Used as protective covering on desired connections
Zip Ties	To clean up wiring runs and organize under the dash or under hood.
Drill /drill bits	For drilling hole in plastic access ports to engine bay from passenger cabin.
Straight bent coat hanger or fish tape	For fishing the wire through the firewall of the engine bay.

Continued on next page

Installation Instructions (continued)

Remove the Dash Cover

Remove the Panel Cover directly below the steering column by loosening the four catch screws at the corners. A penny, flat-head screwdriver, or good fingernail works well for this. Place it out of the way for now.

Procedure for wire connector crimping!

Use the below procedure for crimping-on all connectors unless otherwise specified.

1. Slip a piece of supplied heat shrink on the wire you are working with, slide it back out of the way.
 2. Use your wire strippers to strip off ¼ inch of insulation.
 3. Place your connector on the wire.
 4. Crimp the connector with good steady, firm force with your crimpers.
 5. Slide the heat shrink up to the connector (some larger connectors may require slight trimming to make the shrink slide over), then with a flame, gently work the flame an inch or so away from the heat shrink.
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Orient your SP Brake

Take a look at the brake as there are two empty wires on the unit, the black wire is ground and the white wire is IVS. There is also a terminal strip and a switch lead. The fuse for the key on source is now integrated into the enclosure.

Find a location to ground and mount your SP Exhaust Brake

Find a location to mount the box under the dash located near a suitable ground. A ground is shown in the picture for you to use if you like. Remember to keep the unit out of the way of your foot control pedals or other accidental contact from your feet. The ground wire is the **black** wire with the ring terminal on it.

Terminal Strip

There will be more information later on, but the newest design brake has a 6 position terminal strip where the #1 position is the one **farthest** from the fuse on the box. Your Color codes are as follows: 1. Yellow, 2. Yellow, 3. Blue, 4. Orange, 5. Red, 6 KO12v (use spare or leftover wire).

Tap your Accelerator Pedal

Use the provided tap splice to connect into the RD/GN wire (red wire with green stripe) coming from the accelerator pedal assembly. 99-early 01 will have two separate connectors on the pedal assembly and late 01-03 will have one connector. Both types have the RD/GN wire. (see picture) Connect the **white** wire from the box to the IVS tap splice. Be sure to route the wire going to the accelerator pedal in such a manner so as to not effect the movement of the brake or accelerator pedal.

Install your switched power lead (KO12v)

The Ford Powerstroke engine electronics include several switched (key on) power sources. One is shown in the photos that is convenient to use, it is blue and pink. It should also be labeled as a "customer access wire". Simply tap that wire and crimp your connector onto a piece of wire. Remove the fuse from the box for now.

Continued on next page

Installation Instructions (continued)

Find a location to tap through the firewall

Now that you have made your under dash connections for your SP power module, rest it on the floor, and use a flashlight to locate a suitable location to pass your wires through the firewall. If you have an automatic transmission the clutch port is an ideal location, as the port cover can be easily removed, drilled and replaced and the wire can be easily passed through it. If you have a manual transmission, you might find a port nearby. You can also use an area in the upper right foot-well on the back of the dash. Some manual transmission users, have used the steering column as shown in the illustrations.

Run your Wire Bundle through the firewall

Now route the engine bay side wire harness. This is where your fish tape or clothes hanger might come in handy. You may have to be creative, but be patient and think it through. Most owners will have little difficulty getting a clean pass-through to the engine bay.

BPS Connections (Yellow)

Use the below steps to make the Brake Pressure Switch connections. This connection ensures cruise control is defeated when using your brake. If you are using the PNP connector upgrade kit, Just plug your harness in and connect the yellow wires to the yellow wires. (positions 1 and 2 on the term strip)

Step	Action
1.	Locate the BPS connector bundle in the engine bay. Gently pry it loose and drop it down to the driver's side fenderwell. The BPS connector is on the brake master cylinder below air intake hose.
2.	Near the end of that connector, tap the Black w/yellow trace wire twice in a location close together as shown in the illustration. Cut the wire between the two taps.
3.	Now drop your yellow wires from the Exhaust Brake bundle down to the fenderwell area and connect one yellow wire to each tap with the pink connectors. Heat shrink the connectors. Order of the connections is not important.
4.	Now clean that connection up by applying split loom tubing to your wires as shown in the photo example. You don't have to do it that way, as it is just an example. Be creative and think things through.
5.	Gently pull the wire grouping back up into the engine bay. Reconnect the connector harness, and ensure your wires aren't resting on the exhaust manifold.

TC Connection (Auto Trans Only)-orange

The orange wire goes to the TC wire (purple/yellow trace in 95 and up) in the factory harness near the airbox location on the drivers fenderwell. You must locate the correct wire, and tap splice in a convenient location as shown in the sample photos. Don't forget to heat shrink the pink connector, loom the wire and clean up that connection. If you are unsure about this connection, you don't have to connect it for the SP Brake to work, the TC lock functionality just will not work. Look for 4 big weatherpacks under the airbox, and the forwardmost one contains the TC wire on most 99+ trucks.

Note: The 95-97 wire is pin 28 on the PCM and 99 and up is pin 54.

Continued on next page

Installation Instructions (continued)

EBV Connections (blue/red)

This is likely going to be the toughest part of the install. So before you begin, make sure you are fresh. Take 5 minutes or whatever you need to do. If you are using the PNP harness upgrade connector kit, Just plug the harnesses in and connect the red wire to red wire and blue to blue. The Red is the EBV side Power and the Blue wire is the PCM signal end. Position 3 is blue and 5 is red on the terminal strip

Step	Action
1.	Get up on the front of the motor, using necessary support to get access to behind the turbo. The frame member directly in front of the radiator makes a great support. Kneel, or lay down, but be careful.
2.	With your left hand, get your arm under the turbo air manifold and locate the EBV connector on the turbo pedestal with your hand. Release the metal flip lock. You can see this connector while looking from the left front fender under the turbo manifold. It is tricky to get to so you may want a friend to help guide you.
3.	Pull the connector under the manifold and up so it's in the neighborhood of the fuel filter. This is the suggested location to begin your connections with this step.
4.	Double tap splice the Grey w/red trace wire just as you did with the BPS connector. Cut in between the wires.
5.	With the crimp connectors, connect the red wire closest to the EBV connector as shown. The blue wire goes to the tap connector farthest from the ebv connector. Don't forget your heat shrink.
6.	Loom that wire grouping, and pass the factory EBV connector back under the turbo.
7.	Reconnect and close the metal flip lock.

Plug your fuse in the fusible link

OK...That's it, you are moments away from the happiest day since you bought your truck. Put the fuse in the fusible link, reconnect your batteries if you have disconnected them. Take one last look over your install, now take a deep breath, you did it!

Crank it up and test our your new found braking power!

Now you are ready to test the unit. Fire up the engine, and let the idle settle for 30 seconds or so. If you are installing this on a cold day (below 50 degrees Fahrenheit), your Cold Weather Package should kick in within 2 minutes. This is the perfect opportunity to check for stock CWP operation. Make sure the switch is in the off position. After you have ruled out CWP activation, let the engine idle and turn the switch to the EB only position. Within two seconds you should hear the familiar cold weather hiss from your exhaust. If you don't go back and check your connections. Turn the switch off.

This is not a replacement for your brakes

We know, it should go without saying, but we have to cover our tailgates if you know what we mean! The SP Diesel Performance Electronic Exhaust Brake is not a replacement for your service brakes. This will augment your braking system on demand.

Inclement weather

SP Diesel does not recommend use of this brake in inclement weather, as the braking power may cause your rear wheels to lock in slippery conditions.

Installation Instructions (continued)

A note for automatic owners

Please read this carefully. The SP Performance exhaust brake has three positions, one is off (middle), one position is the EB only, the other is EB plus Torque converter locked. The Torque Converter is like the clutch in a manual equipped truck and if left engaged at low speeds (below 30MPH), it can make the truck buck or stumble or even stall, and generally make the vehicle hard to control. Use of the TC lock at low speeds can also lead to Torque Converter or tranny damage or failure. If you are not comfortable with the TC lock function, do not connect it. If you do choose to connect it, be aware that the TC will stay locked until you switch it off. We recommend **not** using the TC lock in heavy traffic, at low speeds, or in any condition where you may not be in a position to switch it off. If the TC is accidentally locked at low speeds while in any gear besides park or neutral, you run the risk of stalling the engine, or bucking or stumbling into a car or other object in front of you. We don't want to scare you, we want you to be aware to be especially vigilant when using the EB+TC lock feature. When the switch is in the EB only position, the computer will control the lock/unlock cycle. We highly recommend testing this functionality in a safe place for the first time (say an empty parking lot for example). SP Diesel will not be held liable for mishaps resulting from misuse of this functionality.

Disclaimers

Like any other products, SP Diesel cannot be held liable for use and/or incorrect installation of this product. Installation of performing enhancing products is solely at your own risk. Check your local diesel emissions laws prior to installation. Except in cases of gross negligence the buyer holds SP Diesel Performance harmless.

Clean up your installation and mount your switch

Check to make sure all your connections are of good quality, that all wires are neatly tucked out of the way of the brake/accelerator and that the SP Module is where you want it under the dash...you can use Velcro tape strips to secure it by a side of the box to a location under the dash. Using a 1/4 inch (approximate) drill bit, drill a hole in the dash panel if you wish and mount your switch in that location. It is secured to the dash with the hex nut already on the dial.

Place cover back on dash

Again, we are perfectionists, but take a look around your install area, make sure there are no loose electronics or tools and then button the dash panel back up.

Jumper Wires

We have enclosed jumper wires for your two wire cuts in the event you need to uninstall your SP Diesel Performance Electronic Exhaust Brake. These jumpers should be placed where you cut the wires. The wire colors vary as we use scrap wire to save you and us money. Just keep them handy in your truck (the glovebox or console).

When you test your unit for the first time

Find a clear spot to test your unit and identify which position is which. Get up to about 35 mph, and activate the switch by flipping it to one side. If the TC locks or doesn't unlock that is the TC/EB function, the other is just EB.

Installation Instructions (continued)

**Flashing O/D
Light**

Automatic transmission owners may experience a flashing O/D light on the shifter stalk if the Torque Converter is left locked at speeds below 30 mph. This is perfectly normal and will go away once a normal lock/unlock cycle is completed. It does leave a silent code in the PCM, but this code is cleared by disconnecting the batteries or the PCM fuse.

**Use this area
for notes**

Use the below area for notes that you may want to take during installation. Keep these directions in your truck or in a secure location, in case you need to reference them at a later time.

Installation Instructions (continued)

Remove before servicing

SP Diesel recommends you remove the SP Diesel Performance Electronic Exhaust Brake and/or any other SP Diesel product prior to visiting the dealer. Your exhaust brake may leave a code in the PCM showing activation outside of the normal cycle. If you have a scanner tool for your truck, you may wish to clear that code so the dealer does not try to needlessly replace the component, unless it is in fact faulty. If scanning software is not available, you may pull the PCM fuse for 30 minutes, or disconnect your batteries for 30 minutes to achieve the same result.

Contact Information

You may contact SP Diesel in case of technical assistance, orders, or questions through the following:

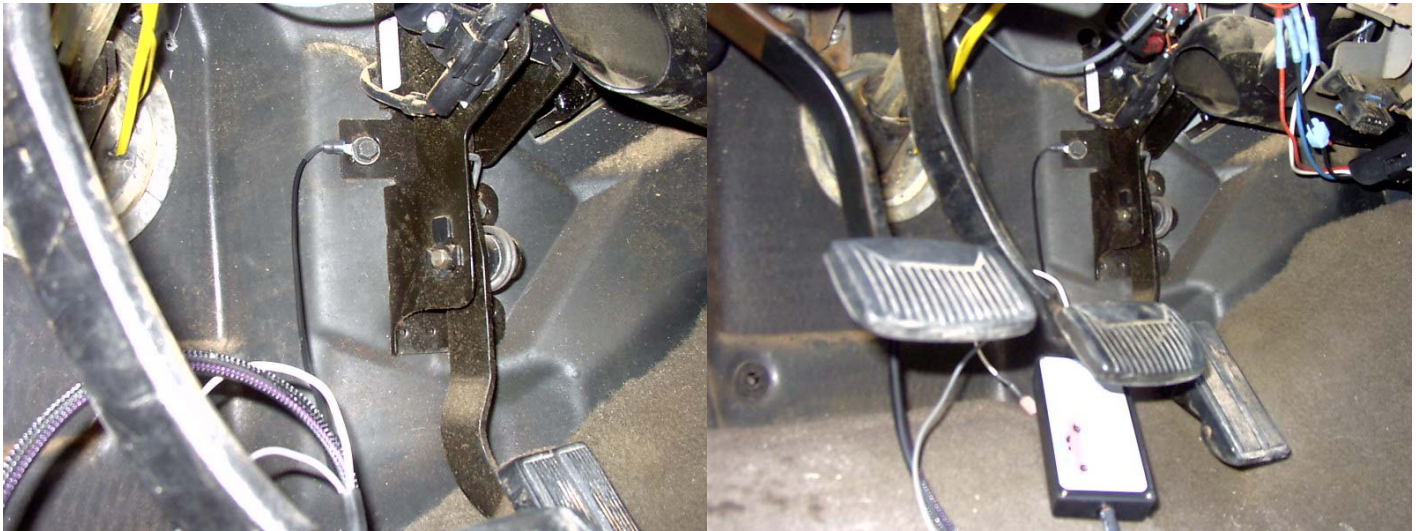
<http://www.sp-diesel.com>

spdiesel@comcast.net

SP Diesel Hotline: 410-375-9570

Installation Pictures

Ground
Location



IVS Connection

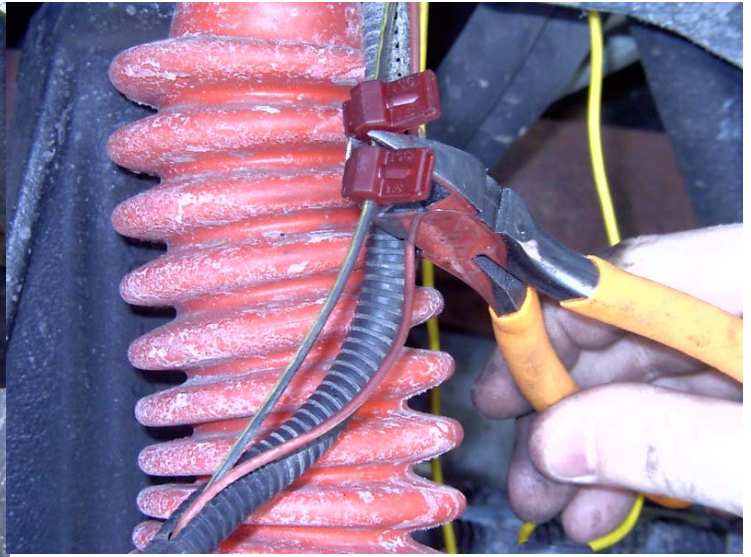
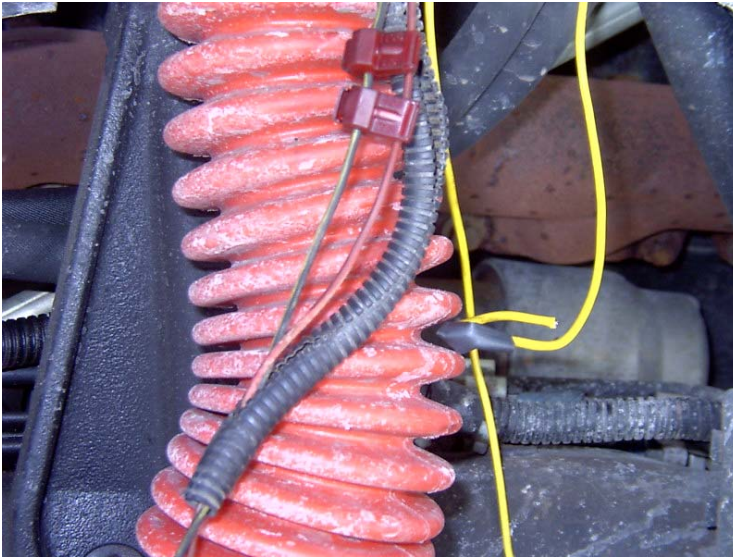


Installation Pictures

BPS
Connection

Tap Connections

Cut Location



Looming Example

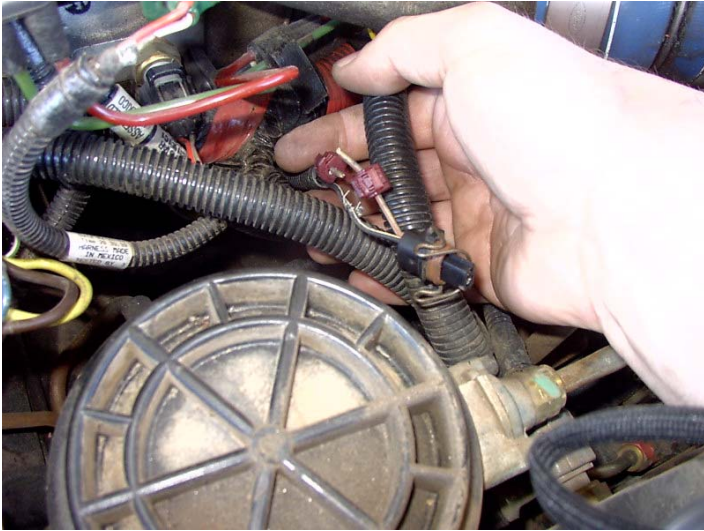
Example showing how to heat shrink



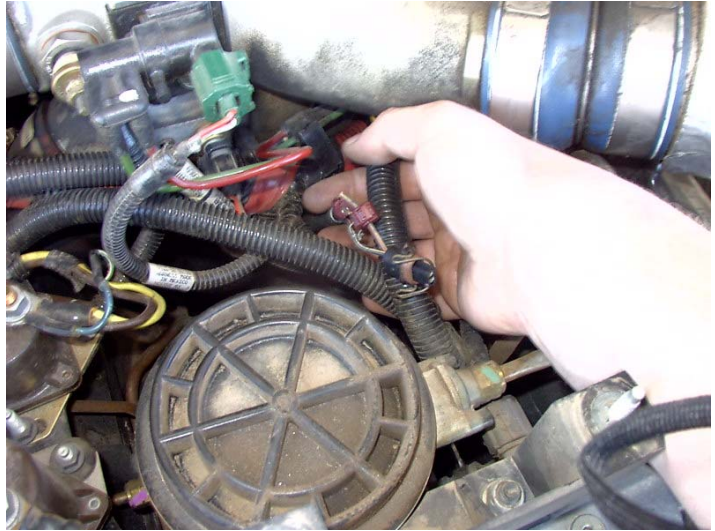
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**EBV
Connection**

Double Tap close to Connector



Another Photo for perspective



EBV connectors from SP Brake

Red Wire close to the connector



Continued on next page

Installation Pictures

More EBV
Pictures



Manual
Transmission
Firewall Access

Below photo shows sample location for wire pass-through.

You might use a sharp object (knife, or other) to get through this seal.



Installation Pictures

**Grounding your
SP Brake**

Sample location. You may also use any suitable nearby ground.



**Suggested
install location**

The below photo shows a sample mounting location. If you choose other location, make sure its is safe and secure.



SP Diesel Performance Products Electronic Exhaust Brake

Installation Pictures

Sample Switched Power Lead

Shown below is a sample location to connect your fusible link to a switched power lead.

Blue with red trace customer access wire from Ford

