

SP DIESEL PERFORMANCE

Advanced Performance Solutions for TurboDiesel Engines

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Real Performance Real Savings

SSEB (Solid State Exhaust Brake)- Solid State Exhaust Brake with Optional Programmable Speed Sense Torque Converter Lockup. Also for Standalone SSTCC Controller.

Installation Directions & User Manual

Please read **entire** document before beginning installation and use

SP Diesel Performance Solid State Exhaust Brake (continued)

Thanks for your purchase!

The staff at SP Diesel Performance thanks you for your recent purchase of the SP Diesel Performance Solid State Exhaust Brake with Optional Programmable Torque Converter Lockup Module. This brake represents a year of research and development to improve an existing best selling product. We consider it to be the most advanced electronic exhaust brake on the market for the 7.3L PowerStroke Diesel engine. 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 or nearly 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 tools and items in and around your engine bay. 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. We recommend email as the quickest way to get help. On a scale of technical difficulty, installation of the SP Performance SSEB Kit is a 3 on a scale of 10 (10 being the highest). Also as with any modification to your truck, **remove the key from the ignition**. Pictures may be 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.

Read Directions Completely

Please read all directions applicable to your installation prior to beginning installation. You may have a better sense of the install by reading this document prior to embarking on your installation.

Parts List

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

- 1 SP Diesel SSEB/SSEBTC/SSTCC
 - SP Diesel SS Series Harnesses
 - Parts kit
-

Tools List

See the below chart of tools recommended for installation.

Tool	Purpose
Long-Nose Pliers	Used for making tap splices
Screwdriver	Used for securing terminal strip positions.
Zip Ties	Used for neatening up your install
Wire Cutter Crimper	Used for tap splices, cutting wire, and stripping wire.

Continued on next page

SP Diesel Performance Solid State Exhaust Brake (continued)

Pop the dash panel cover, take a gander

Pop the dash panel of your truck and take a look at the driver's side of the truck, and familiarize yourself with the area just under the steering column. This is where your install will take place.

Wire Color and Positions

Use the below chart to reference the wire colors and positions on the SSEB as they relate to the wires you need to tap or make connections to. Please note there is an 8 way and a 6 way connector on the left side of the box. **DO NOT** under any circumstances attempt to plug into the port on the **right** side. You will likely damage the products circuitry. Also be sure to pay close attention to the wire colors in each harness. There are some duplicate colors and therefore, you need to ensure where you are connecting. Some connections may not be used, as shown in the chart below, we recommend coiling the wires up and zip-tie them away for later use. The SSEB is a multi-functional design and those wires may be used at a later date, should the unit be reprogrammed or re-purposed.

Connector Harness Position Markings

The harnesses used in the SSEB have markings on the connector housings. These markings indicate the first position (1) and the last position (8/6). Please remember this when referring to the chart on the next page.

Pay attention to your configuration

The SS Series Controllers are sold as a brake only, brake with TC, and TC only flavors. Make sure you only attempt to make the connections necessary. The unit may be damaged or malfunction if you attempt to connect to an invalid location for your installation.

SP Diesel Performance Solid State Exhaust Brake (continued)

Connector & Position	Color	Purpose	Connection
8-Way/1	Green	Output Shaft Speed Sensor *** TC Enabled Models Only (99 and up model years have optional plug in for this connection)	Output Shaft Speed Sensor Wire (blue/yellow wire on driver's side fenderwell pack #3 top row) 94-97 models utilize red/pink on cab-side of firewall connector 205 on left side of floorwell
8-Way/2	Yellow	TCC Wire*** TC Enabled Models Only (99 and up model years have optional plug in for this connection)	TCC Wire (violet/yellow wire on driver's side fenderwell pack # 2 second row)
8-Way/3	Brown	EBV Plug Ins (EB Enabled Models Only)	Pre-Harnessed all model years
8-Way/4	Blue	EBV Plug Ins (EB Enabled Models Only)	Pre-Harnessed all model years
8-Way/5	Grey	No Connection	This position is not used in this installation
8-Way/6	Purple	EBV Plug Ins (EB Enabled Models Only)	Pre-Harnessed all model years
8-Way/7	Orange	No Connection	This position is not used in this installation
8-Way/8	Red	EBV Plug Ins (EB Enabled Models Only)	Pre-Harnessed all model years
6-Way/1	Green	No Connection.	This position is not used in this installation
6-Way/2	Brown	No Connection (this wire carries voltage so, ensure it is protected)	This position is not used in this installation
6-Way/3	Orange	Cruise Sense Wire (All Models)	Medium Blue with Black Trace 6 way connector directly under Steering column to right of column.
6-Way/4	White	***Idle Validation Switch (Optional Fuel Pedal Connector makes this a plug in connection on 01-03 models) (all models)	Red/Green IVS wire on fuel pedal. (this wire is 0v at rest, 12v depressed) If you don't have pedal plug in. Earlier model years may have different coloring convention.
6-Way/5	Black	***Ground (Optional Fuel Pedal Connector makes this a plug in connection on 01-03 models) (all models)	Any suitable ground. If you don't have pedal plug in.
6-Way/6	Red	***KeyOn 12VDC power source (Optional Fuel Pedal Connector makes this a plug in connection on 01-03 models) (all models)	Any good key on 12v Supply. If you don't have pedal plug in.

SP Diesel Performance Solid State Exhaust Brake (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.

EBV Connection

This is likely going to be the toughest part of the install. So before you begin, make sure you are fresh. It also helps to do this on a cold engine. It is possible to burn yourself on a hot engine. Take 5 minutes or whatever you need to do and then come back to this step. The plug in connectors make this quite a bit easier than other types of brakes, but this can be challenging.

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. Make your connections using the supplied harness.
4.	Loom that wire grouping, and pass the factory EBV connector back under the turbo.
5.	Reconnect and close the metal flip lock.

Key On Test Procedure

At Key-on The power indicating LED (#1 left) will come on along with the EBV LED. If you hit the cruise ON button, the EBV (#3) LED will go dark.

Recheck your connections after a few drive cycles

Recheck your connections after a few drive cycles just to be sure all terminals are securely fastened. This will help insure long life and operability of your SSEB

SP Diesel Performance Solid State Exhaust Brake (continued)

Fuse Replacement

If at any time should your SSEB fail, check the fuse(if used) and all connections. Make sure you check this with the unit depowered or removed from the vehicle. If fuse is blown, replace with exact amperage match. A 3 ampere ATO type fusible link or ATC mini fusible link may be supplied with your unit. If your vehicle is equipped with the 10-way fuel pedal connector and you have purchased the upgrade, the fuse is located on this custom harness assembly.

Operation Instructions

Use the below chart to learn the functionality of your new SS Series Controller.

Cruise Button	Function	Description
On	Disable SSEB/ SSTC programming Function/ Enable Cruise	On will enable the cruise control, thereby disengaging the Solid State Exhaust Brake
Short Off	Disable Cruise	A short off will disable cruise but NOT activate the brake.
2 Second Off	Disable Cruise/Enable SSEB/SSTC Programming	Holding the Off Button for 2 seconds will enable the brake. When the truck is keyed-on, the brake will default to ON.
Coast**	Toggle CWP**/TC Enable****	LED #2 on board will Light when CWP/TCC is disabled. This selection is retained in memory and does not need to be reset at each key on.
Set***	Sets Lock Speed of Converter.	With the Exhaust brake enabled, Achieve the desired speed and push the set button. An LED#4 will light up on the SSEB unit.
Resume***	Sets Unlock Speed of Converter or Resets L/U to clear values from EEPROM	With the Exhaust Brake enabled, achieve the desired unlock speed and hit the resume button. An LED#4 will go dark on the SSEB unit.

*** Only for TC Enabled Models./ **** for TC Only models

** Only for SSEB/SSEBTC Model

Example for Operation

Listed below is a table as an example.

SP Diesel Performance Solid State Exhaust Brake (continued)

Before Service...

SP Diesel recommends you remove the SP Diesel module and/or any other SP Diesel product prior to visiting the dealer. This avoids confusion from the dealer who may not be familiar with these products.

Intellectual Property

Since the SP Diesel Performance SSEB is an embedded design where the knowledge of the circuit board schematic alone won't allow you to copy the end product, it is important for any SP Diesel SSEB series Brake owner to understand that both the circuit board as well as the code in the computer chip are copyrighted intellectual property, subject to all the same protections as any other computer software. If you attempt to circumvent **any** security, encryption, or other protections in place to reverse engineer our work, we will prosecute you to the fullest extent of the law. We don't want to sound mean to our customers, but some things must be stated. Your installation of this product indicates **acceptance** of the terms in this document. Users shall not attempt to reverse engineer, decompile/recompile any physical or program components of this product. Think of it in simple terms. You own the physical equipment but not the design, nor the code. It is granted under a license to you for the period of time you own the product. The license transfers to a new owner only if they read and accept these terms. If you cannot agree to these terms, or any other disclaimers, please return your product for a prompt refund of the purchase price.

Additionally, the circuit board design and the software contained on the boards components are protected by the DMCA (Digital Millenium Copyright Act). If you are unclear in any way about this, email us for assistance.

Contact Information

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

spdiesel@spdiesel.com
SP Diesel Hotline: 443-541-3331
<http://www.spdiesel.com>

Install pictures

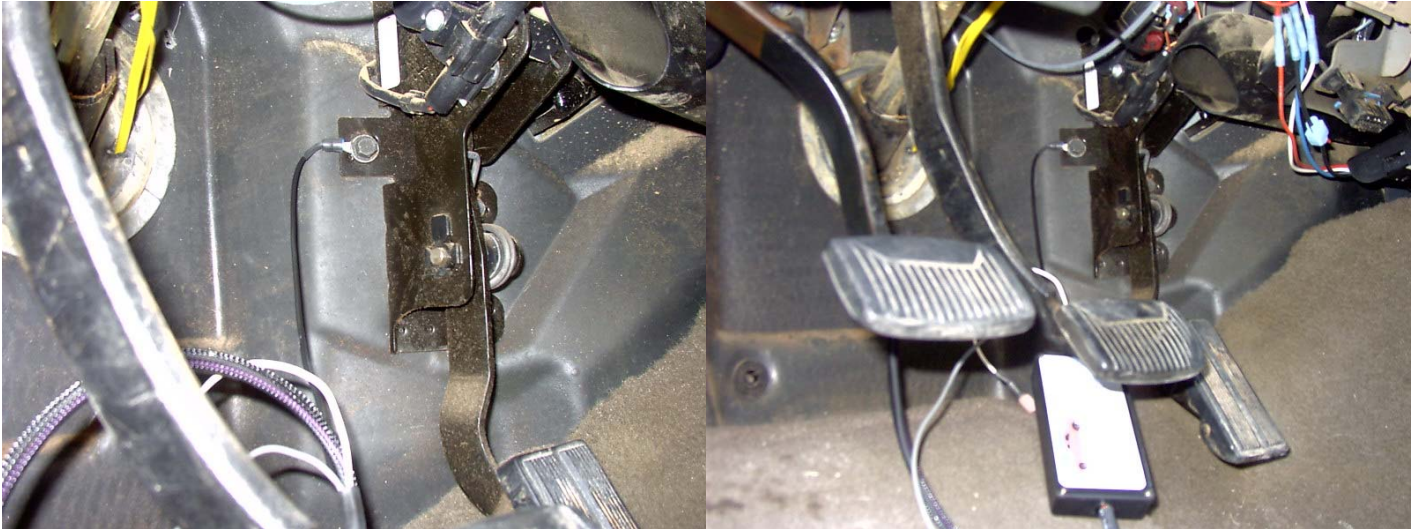
Install pictures will be added to this document as soon as is humanly possible. Not all makes and model years are possible to photo.

SP Diesel Performance Products Electronic Exhaust Brake

Installation Pictures

Ground Location

This shows the pre-01 Fuel Pedal Connector. Please note some late 00 model year trucks may use the connector shown in the next photo series.



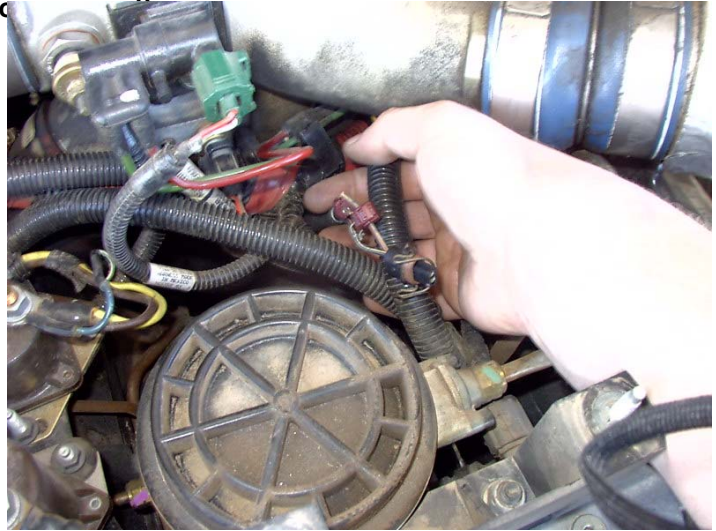
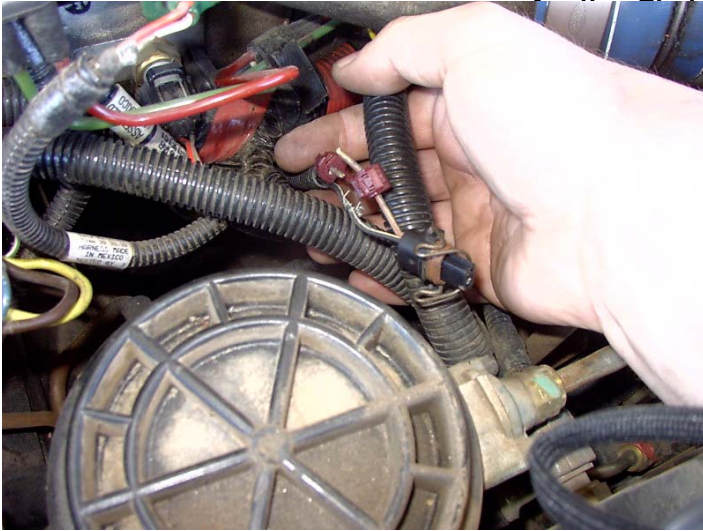
IVS Connection This is the 10way connector on 01-03 models.



SP Diesel Performance Products Electronic Exhaust Brake

EBV Connection

Remember on 94-03 Model years there is NO wire cutting or tapping on the EBV Connection. Plug in and go!

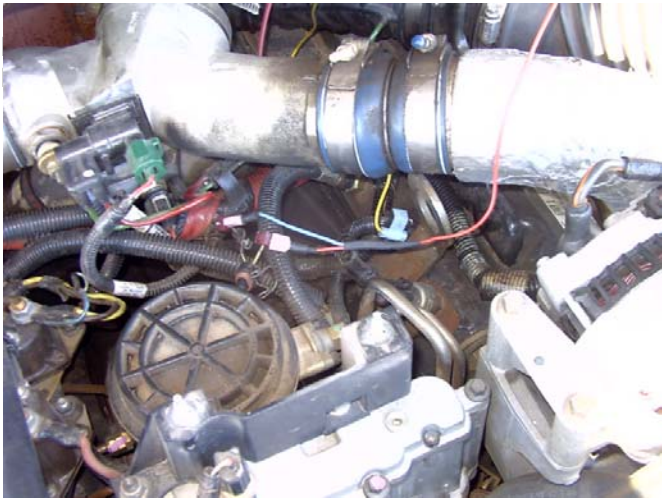


EBV connectors from SP Brake

Red Wire close to the connector

SP Diesel Performance Products Electronic Exhaust Brake

Installation Pictures



Manual

Below photo shows sample location for wire pass-through.

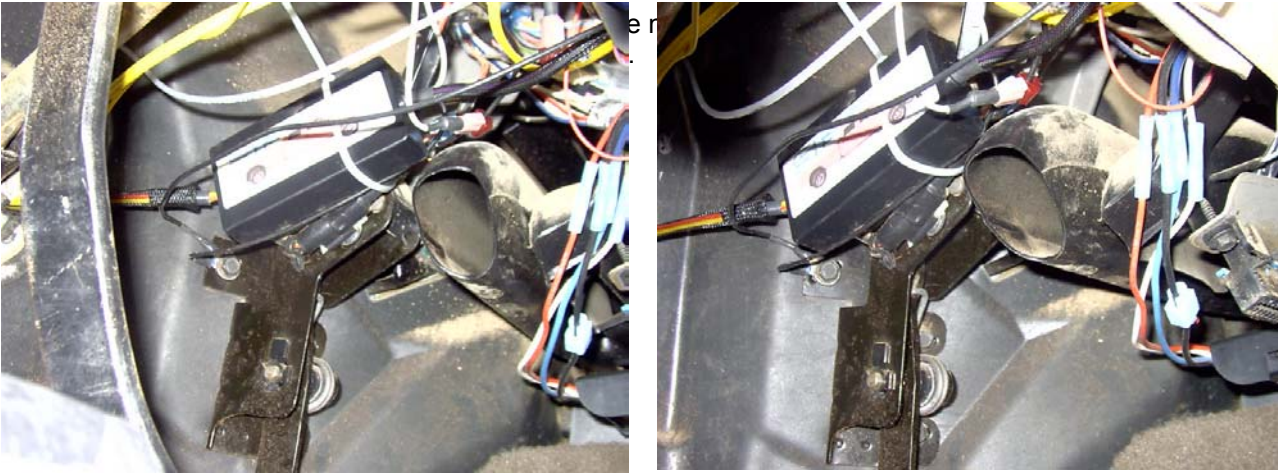
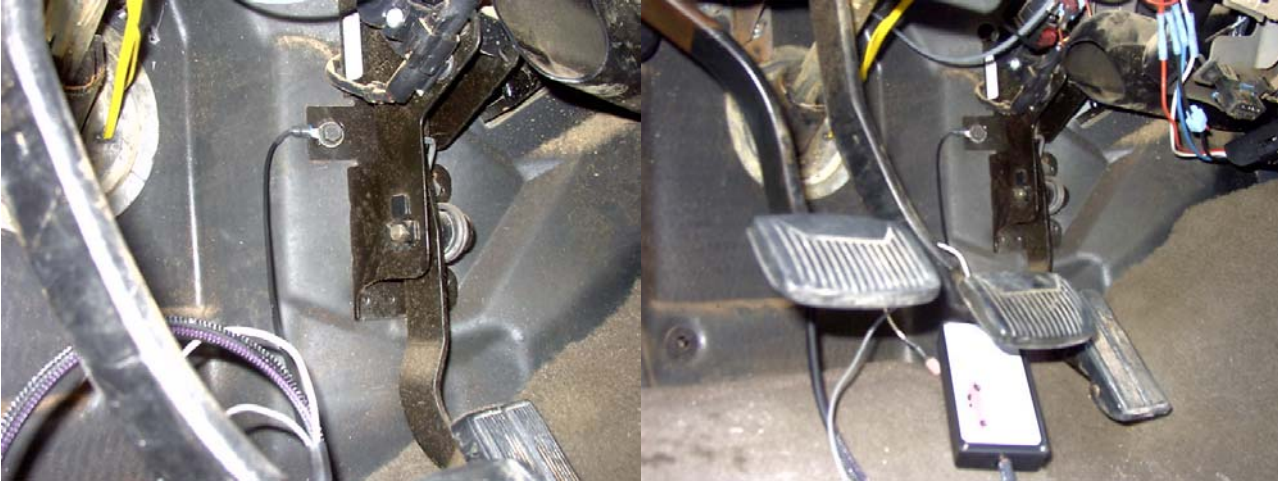


through this seal.

SP Diesel Performance Products Electronic Exhaust Brake

Installation Pictures

**Grounding your
SP Brake**



SP Diesel Performance Products Electronic Exhaust Brake

Installation Pictures

