EBCS Pro Cartridge Style for 2008-14 WRX

2018-06-05 ASM-TAC-730

Thank you for purchasing this PERRIN product for your car! Installation of this product should only be performed by persons experienced with installation of aftermarket performance parts and proper operation of high performance vehicles. If vehicle needs to be raised off the ground for installation, the installer must use proper jacks, jack-stands and/or a professional vehicle hoist for safety of the installer and to protect property. If the vehicle is lifted improperly, serious injury or death may occur! Please read through all instructions before performing any portion of installation. Always use appropriate personal proection equipment such as gloves, eye and hearing protection for installation of this product. If you have any questions, please contact our tech department prior to starting installation. We can be reached in any of the following methods:

Email Tech@PERRINperformance.com
Instant Chat off the main page of www.PERRINperformance.com
Or simply call our tech team at 503-693-1702

WARNING: This product can expose you to chemicals including Lead which is known to the State of California to cause cancer and Lead which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

GENERAL MODIFICATION NOTE

Modifications to any vehicle can change the handling and performance. As with any vehicle extreme care must be used to prevent loss of control or roll-over during sharp turns or abrupt maneuvers. Always wear seat belts, and drive safely, recognizing that reduced speeds and specialized driving techniques may be required. Failure to drive a vehicle safely may result in serious injury or death. Do not drive a vehicle unless you are familiar with its unique handling characteristics and are confident of your ability to maintain control under all driving conditions. Some modifications (and combinations of modifications) are not recommended and may not be permitted in your state or country. Consult the owner's manual, service manual, instructions accompanying these products, and local laws before purchasing and installing these modifications. You are responsible for the legality and safety of the vehicle you modify using these components.

IMPORTANT NOTICES!

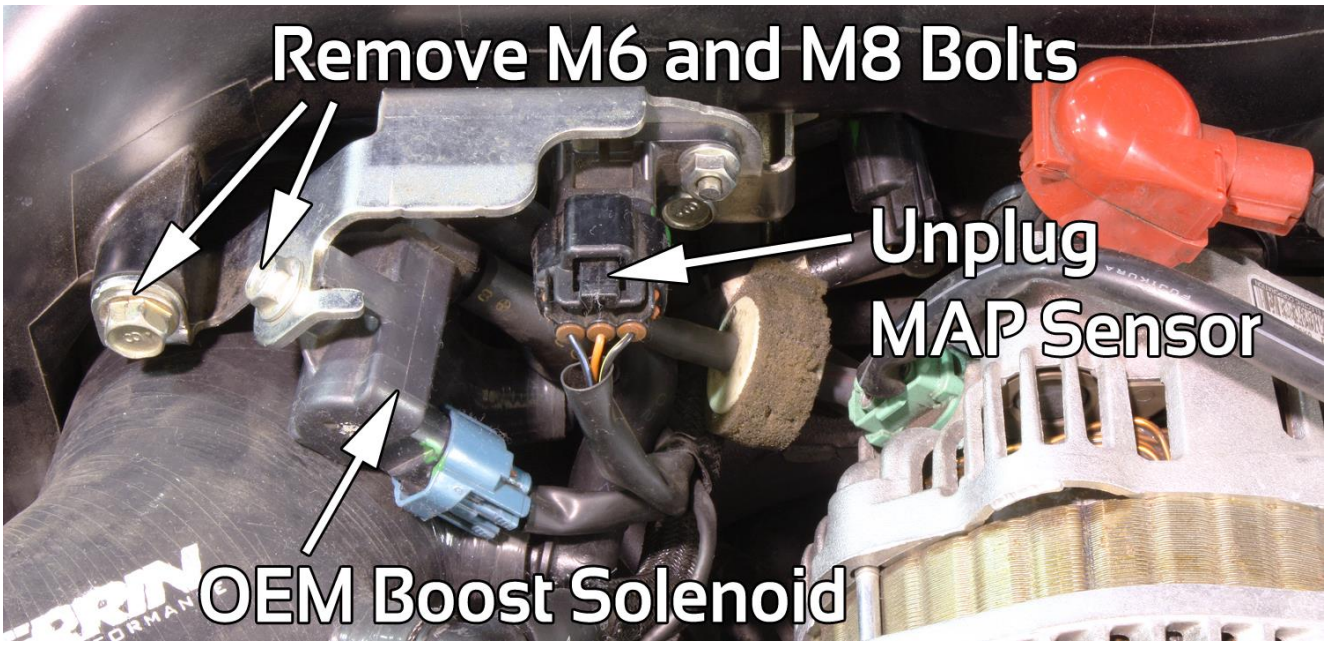
- WARNING: An ECU recalibration is required for proper installation and adjustment of this product. Improper installation and or use of this product WILL damage turbocharger, engine and other components. PERRIN PERFORMANCE is not responsible for any and all damages as a result from installation of this product. CONTACT TECH SUPPORT FOR MORE INFORMATION!
- Tuner notes must be read (bottom of page) for details on how the EBCS works. Failure to understand how the solenoid may work on your car, WILL result in engine damage.
- Do not use solenoid as a lever during tightening of fittings or hardware. Using an adjustable wrench, or a vise with a towel in the jaws are acceptable ways to hold, while tightening fittings and or hardware.
- The included bracket mounts EBCS Pro into an approved location for your car. Alternate methods can be used to mount solenoid, but keep these things in mind while mounting.
    - **NEVER use any bolt or screw longer than 10mm or damage to the solenoid will occur. Always use a washer behind head of bolt or screw.**
    - Solenoid can be mounted to any surface that holes can be drilled into, like existing brackets. Drill a 3/8" hole in desired location and simply run M8x10 bolt and washer through backside and tighten down.
    - Solenoid is rated to work from -30F to 250F. Mounting over turbo or other extremely hot parts is not a good idea. Mounting directly to intake manifold like found in OEM applications is perfectly acceptable.
    - Orientation of EBCS Pro is not important. It can be mounted in any direction without effecting how it performs.
    - Like any electrical part, keep this away from direct and frequent water splashing.

NPT Notes:

- There are NPT (National Pipe Thread) fittings included with your EBCS Pro. Throughout the instructions, these notes below will be referred to often. It's important to understand these types of fittings and how they work.
- NPT fittings are a tapered thread that seals when tightened, not bottomed out. Thread fittings in by hand and tighten roughly 1/2 to 1 full turn more until fitting is tight. **NOTE: Using a small amount of Teflon tape on threads is a good idea to ensure a proper seal. Teflon tape is rated to work up to 500F and is impervious to all chemicals that your EBCS will see. This is highly recommended to use over any other sealant.**

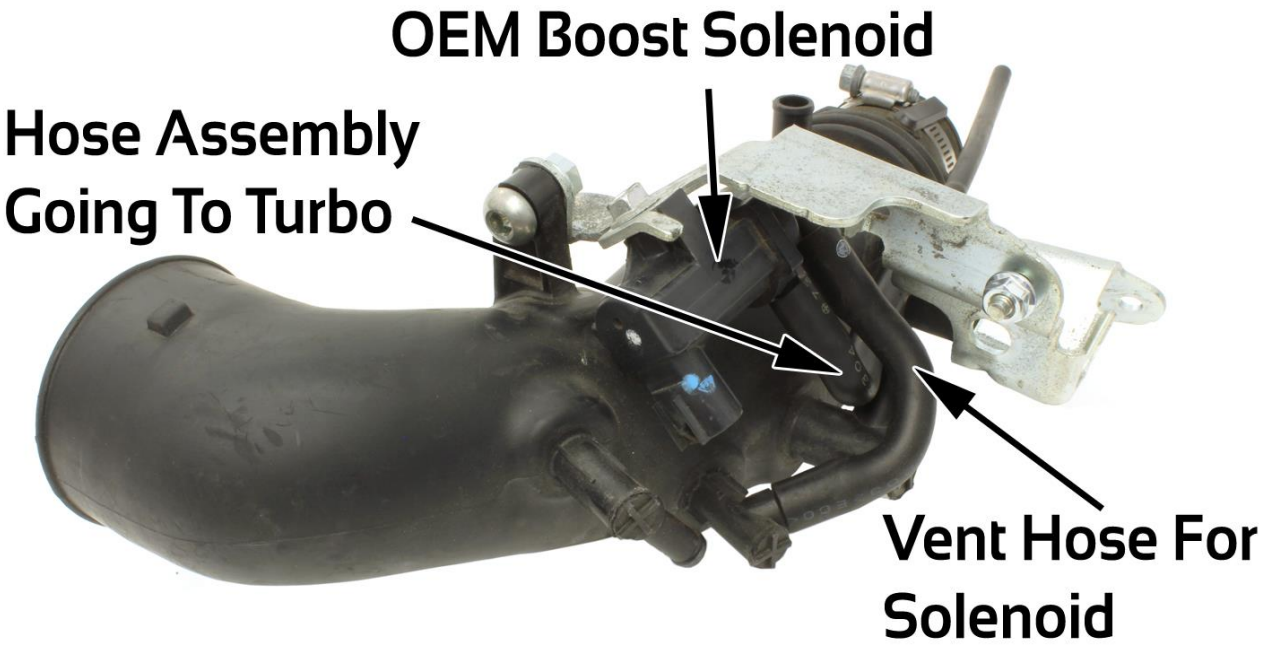
Parts Included with the PERRIN EBCS Pro:

- **(1) PERRIN EBCS Pro**
- **(1) 2 Hole Bracket**
- **(2) 5/32" Straight Nickel plated brass fitting**
- **(1) 5/16" Straight Nickel plated brass fitting**
- **(1) 1/4" Connector**
- **(1) M8x10 SS Button Head Screw**
- **(2) M8 SS flat washer**
- **(6') 5/32" vacuum hose**
- **(6") 1/4" Fuel hose**
- **(10) 8" Zip ties**

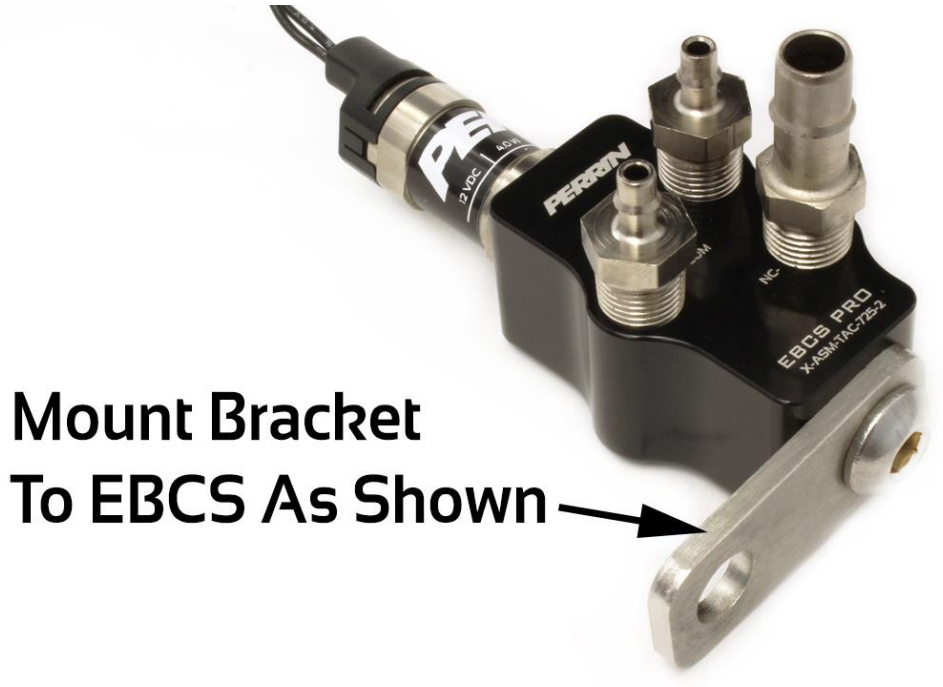


Mounting Your EBCS Pro

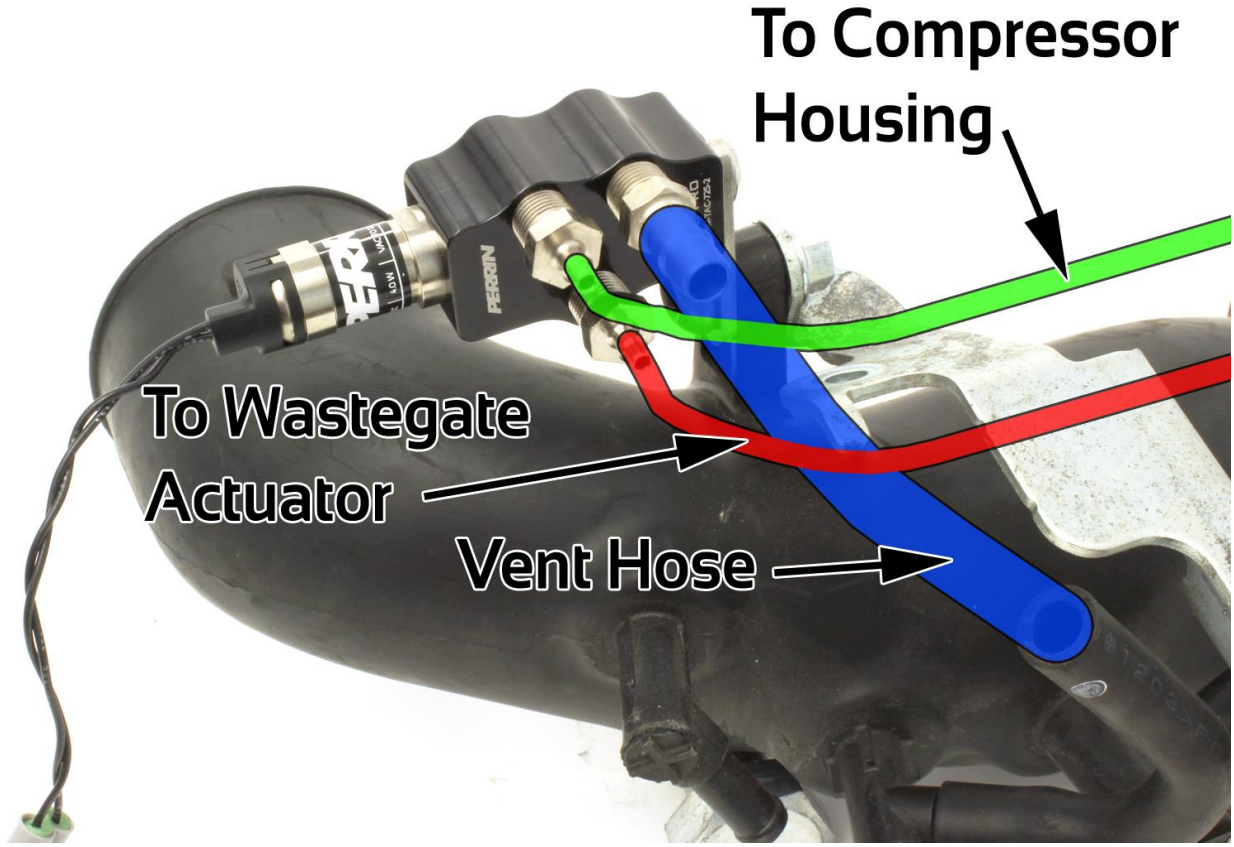
1. Locate OEM boost solenoid and bracket used to mount it. Remove (1) M6 securing solenoid to bracket and (1) M8 bolt securing bracket to intake manifold.
2. Unplug MAP sensor (to add clearance during the next few steps) and boost solenoid from their harnesses.
3. With solenoid loose, pull (2) hoses from fittings and remove solenoid from the engine. Take note of small "J" hose going to the intake system (Vent for the boost solenoid) and one goes back under the intake manifold to the turbocharger.



4. Remove hose assembly from turbocharger wastegate actuator and compressor housing. Discard hose assembly (consists of 4 different hoses, a plastic union, clamps and a tee) as this will not be reused.
5. Install supplied 1/4" connector into small "J" hose going to the intake system. Then install supplied 1/4" fuel hose onto connector. This will be connected to the EBCS Pro NC (Normally Closed) port in future step.
6. Install supplied 1/8NPT 5/16" Barb fitting into the port marked NC (Normally Closed). Follow the NPT notes above regarding installation of NPT fittings.
7. Install remaining (2) 5/32" barb fittings into the (2) remaining ports. Follow the NPT notes above regarding installation of NPT fittings.
8. Using supplied M8x10mm bolt and (1) M8 washer, mount EBCS Pro to bracket as shown. **NOTE: If custom installation is required make sure to ONLY use supplied M8 bolt and washer. The rotation of EBCS Pro and bracket are not critical to how the part functions. The pictures show the best way to mount it to ensure hose routing is as clean as possible.**



9. Mount EBCS Pro (with bracket) under M8 bolt removed in the first step (see picture below). **NOTE: Orientation of EBCS Pro is not critical, but the pictures show the best way to mount it to ensure hose routing is as clean as possible.**
10. Locate OEM electrical connector removed earlier and plug firmly into EBCS Pro connector.
11. Plug MAP sensor plug back in.

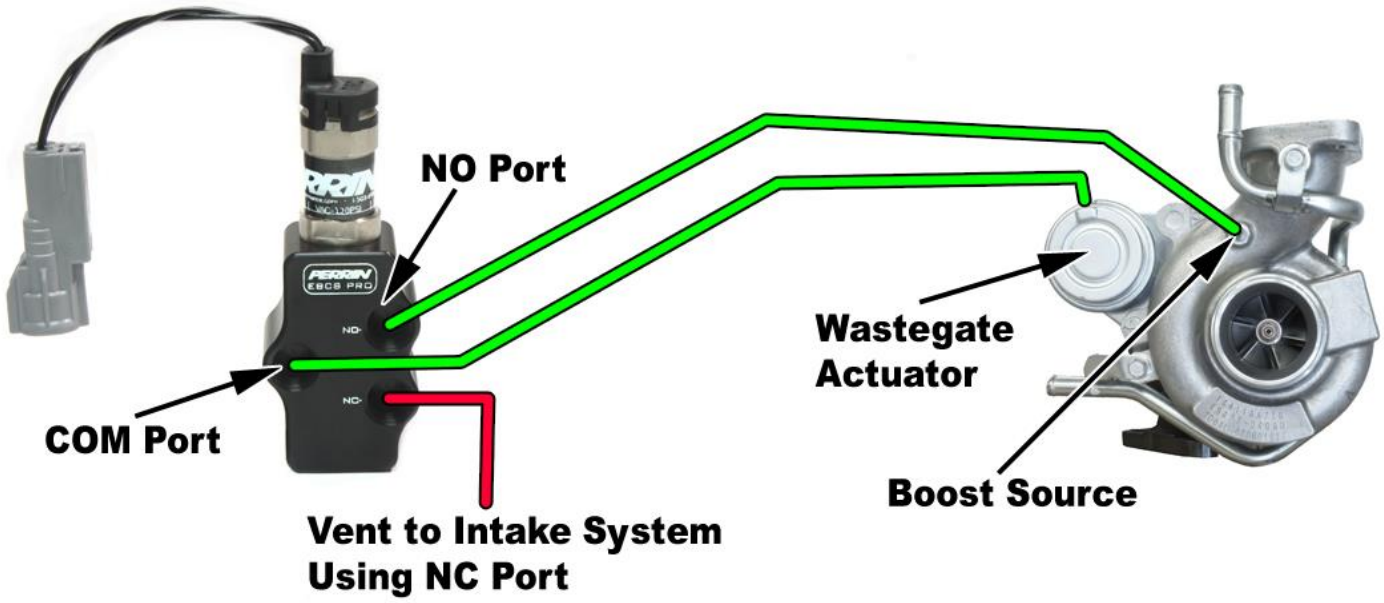


Hose Routing for Stock Location Turbo with Internal Wastegate

For stock location type turbos that use an OEM internal type wastegate (or wastegate with a single port on it), we highly recommend using the "Interruption Type Setup" (described below) as this will provide the widest range and best response for boost control.

1. NO (Normally Open) Port Hook-up.
    a. Using supplied hose, connect hose from NO port to boost source on turbo. Use supplied zip ties to secure hose on both ends. **NOTE: Boost source is located on compressor housing of turbo (the silver side).**

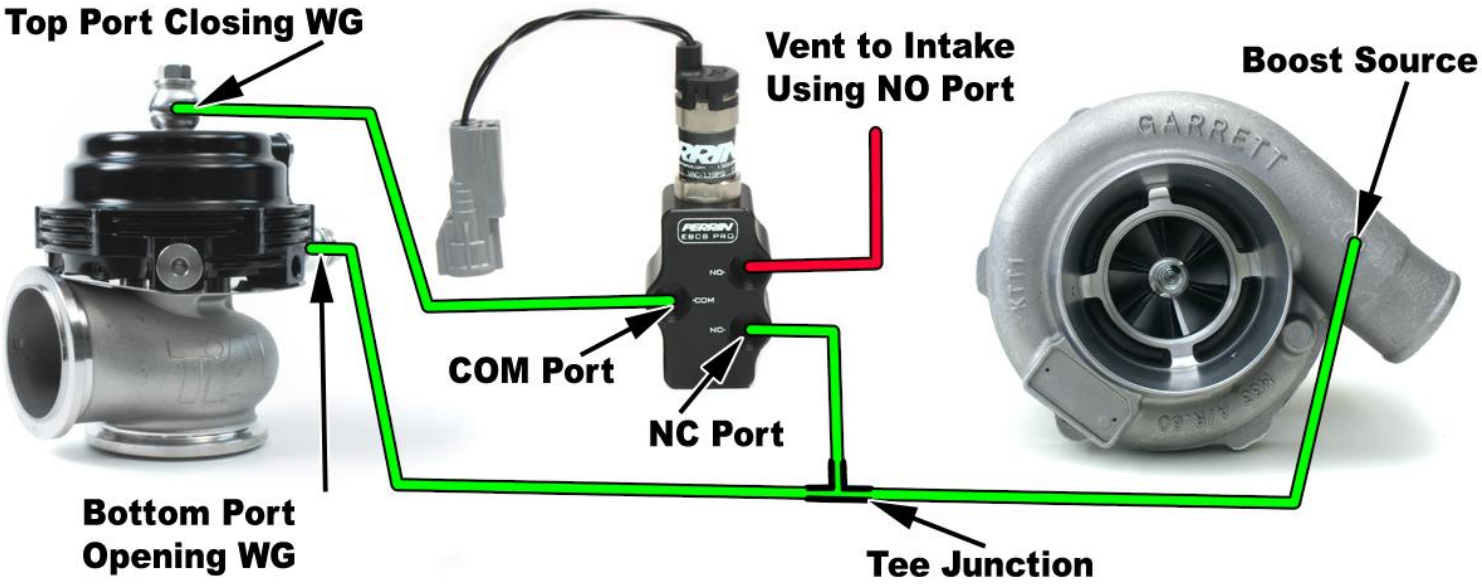
2. COM (Common) Port Hook-Up.
    a. Using supplied hose, connect hose from barb fitting to nipple on wastegate actuator. Use supplied zip ties to secure hose on both ends.
3. NC (Normally Closed) Port Hook-Up.
    a. Locate OEM vent hose (with 1/4" connector and hose installed from previous step) from intake system, and re-route hose toward the EBCS Pro, then connect it to the NC port. **NOTE: This is the vent for EBCS Pro and it's very important to not restrict or block this off or undesired boost control will occur. Make sure hose is not pinched or blocked off before finishing installation.**
4. Secure all vacuum hoses with supplied zip-ties. Use remaining zip-ties to secure hose to the engine in at least 2 locations.
5. Reinstall boost solenoid cover making sure to use (1) M8 bolt on right side under crank case vent hoses, and (1) M6 bolt at the front of the intake manifold to secure it.
6. Secure all vacuum hoses with supplied zip-ties. Use remaining zip-ties to secure hose to the engine in at least 2 locations.



Hose Routing for External Wastegate (Using Top and Bottom Ports)

If using an aftermarket external wastegate (or wastegate with 2 or more ports) it is best to use the External Wastegate Method. This will provide the best response and allow a very wide range of boost pressures to be had using very light wastegate springs. This method will require the purchasing of additional hose and parts. This method assumes that all OEM hoses are removed, and additional parts have been purchased to make this work. This may include more hose, different size fittings, and hose junctions like a "T" or "Y" fittings.

1. Open hood and locate wastegate on turbocharger. **NOTE: This is typically a round canister with a rod coming out of middle and a vacuum port on top.**
2. Boost Source to Wastegate Hook-up.
    a. Using supplied hose, connect hose from boost source on turbo to bottom port (port that opens wastegate) on wastegate. Use supplied zip ties to secure hose to both ends of hose. **NOTE: Boost source is generally located on compressor housing of turbo (the silver side). If no boost source is found on turbo, you can use a fitting on the intake manifold.**
    b. Somewhere along this hose, cut and install supplied tee fitting and secure with zip ties. **NOTE: This tee fitting will connect to EBCS Pro, so find a location that allows for easy installation, and is clear of moving parts.**
3. NC (Normally Closed) Port Hook-up.
    a. Install desired barb fitting into NC (Normally Closed) port on EBCS Pro body. Follow the NPT notes above regarding installation of NPT fittings.
    b. Using supplied hose, connect hose from NC port to tee fitting installed in step above. Use supplied zip ties to secure hose on both ends.
4. COM (Common) Port Hook-Up.
    a. Install desired barb fitting into COM (Common) port on EBCS Pro body. Follow the NPT notes above regarding installation of NPT fittings.
    b. Using supplied hose, connect hose from barb fitting to top port (port that closes wastegate) on wastegate. Use supplied zip ties to secure hose on both ends.
5. NO (Normally Open) port Hook-Up. **(Optional vent hook-up)**
    a. Install desired barb fitting into NO (Normally Open) port on EBCS Pro body. Follow the NPT notes above regarding installation of NPT fittings.
    b. Locate OEM vent hose from intake system and re-route hose to the NC port on EBCS Pro. **NOTE: This is the vent for EBCS Pro and it's very important to not restrict or block this off or undesired boost control will occur. Make sure hose is not pinched or blocked off before finishing installation. It is also acceptable to leave this port open to the atmosphere. If this is done, make sure and block off port at turbo intake, or a vacuum leak will occur.**
6. Secure all vacuum hoses with supplied zip-ties. Use remaining zip-ties to secure hose to the engine in at least 2 locations.
7. Reinstall boost solenoid cover making sure to secure it using (1) M8 bolt on right side under crank case vent hoses, and (1) M6 bolt at the front of the intake manifold.



Tuner Tech Tips for EBCS setup

- An ECU recalibration is required after installation is complete. IF ECU is not recalibrated properly, expect dangerous boost spiking to occur and engine damage to follow.
- If the ECU you are using is tunable/reflashable, expect to lower all the wastegate duty cycle map(s) numbers and PID (Turbo dynamics tables) numbers to achieve desired boost. As a rough estimate cut all these numbers in half.
- For ECU's that have the option of running different frequencies, we recommend running 20-30hz. Slightly higher will work also but can start to cut into the range of usable Duty Cycle depending on the ECU model.

Questions, Comments and Suggestions Contact: Tech@PERRINperformance.com
Visit Our Website for Instant Chat Options at www.PERRINperformance.com
Call Our Tech Team at 503-693-1702