

# **PERRIN**

## PERFORMANCE

### **EBCS Pro Cartridge Style for 2015 + WRX**

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 protection equipment such as gloves, eye and hearing protection for installation of this product.



**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.

#### **GENERAL MODIFICATION NOTE**

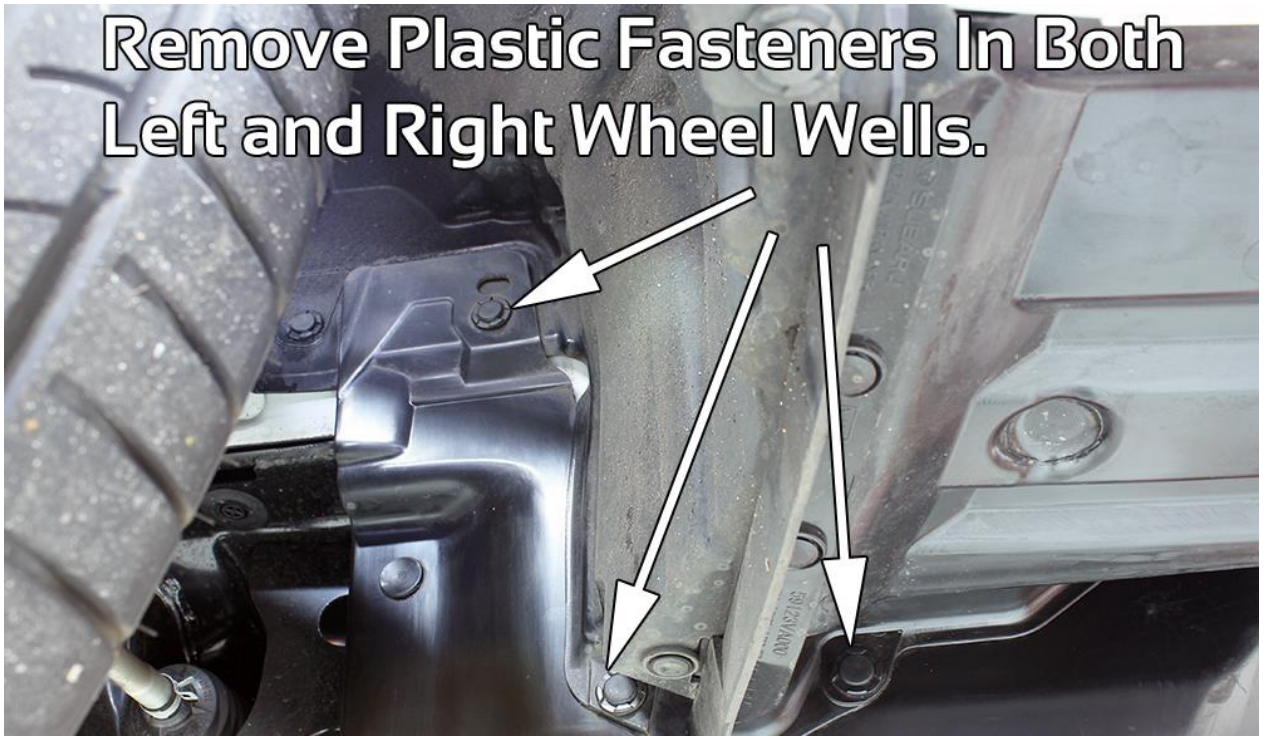
Modifications to any vehicle can change the handling and performance. As with any vehicle extreme care must be used to prevent loss of control or roll-over during sharp turns or abrupt maneuvers. Always wear seat belts, and drive safely, recognizing that reduced speeds and specialized driving techniques 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.

#### **Parts Included with the PERRIN EBCS Pro:**

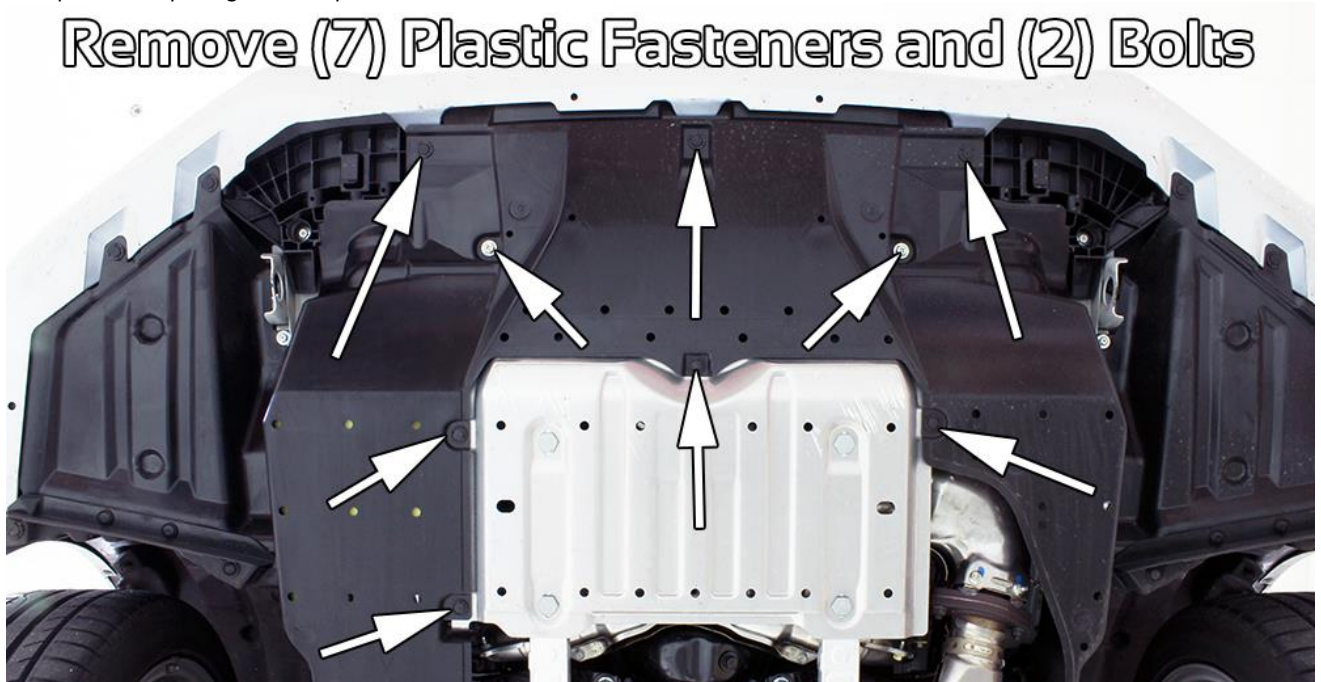
- (1) PERRIN EBCS Pro
- (1) Universal Flat Bracket
- (1) M8x10 SS Button Head Screw
- (2) M8 SS flat washer
- (2') 5/32" vacuum hose
- (1) 3/16" Straight Connector
- (4) 8" Zip ties

#### **Installation Instructions**

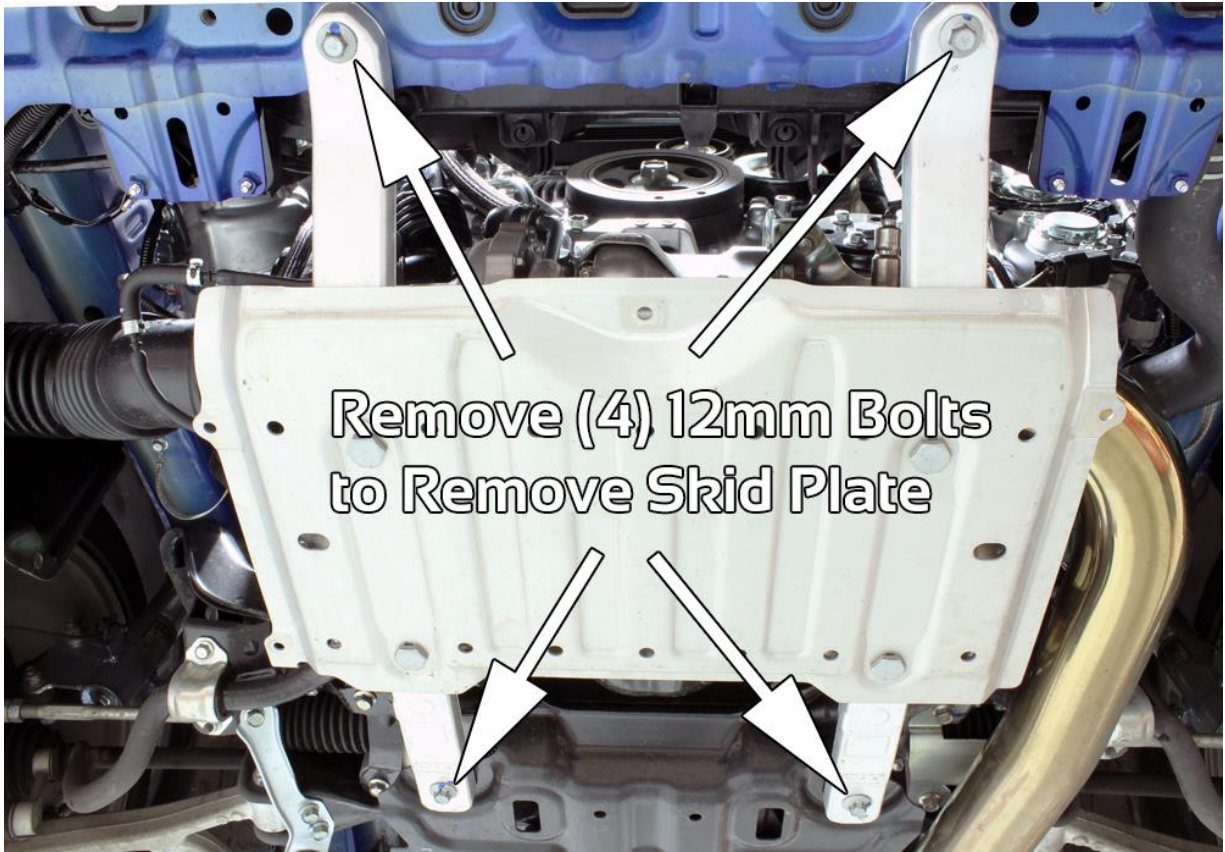
1. Using proper panel removal tool or flat head screw driver, locate and remove (3) plastic fasteners in each left and right wheel well. See picture below.



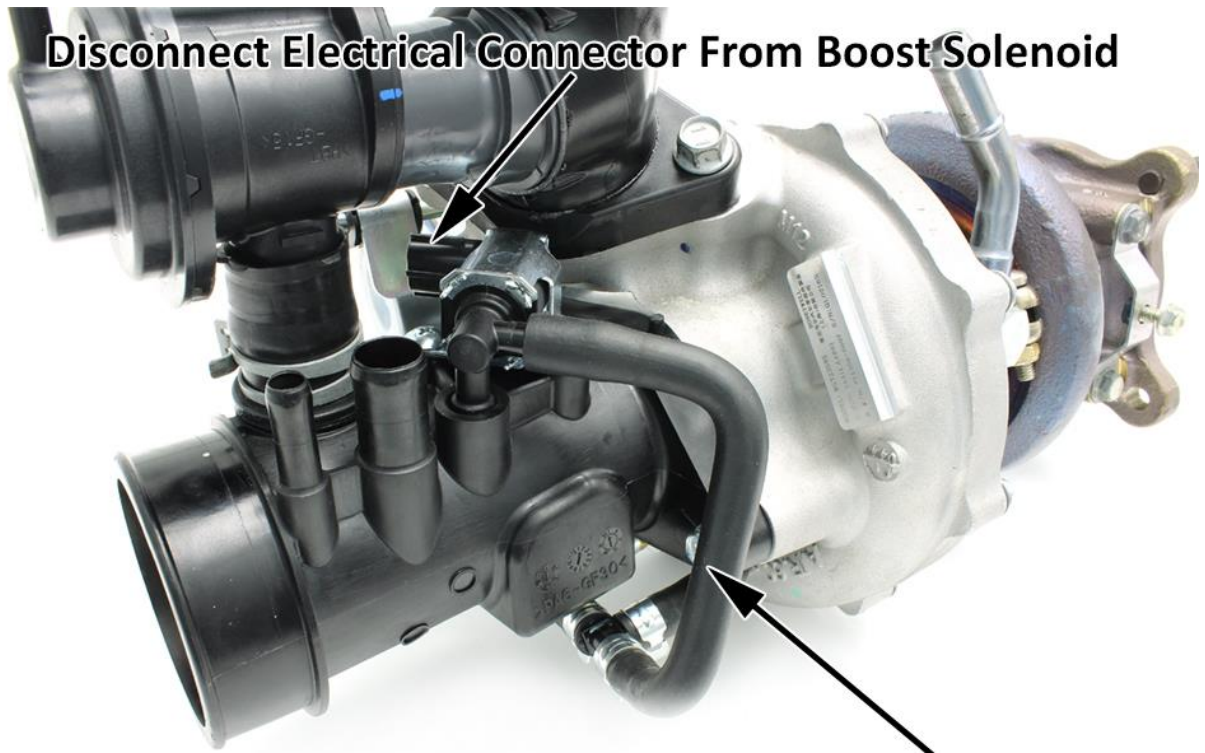
- Using proper panel removal tool or flat head screw driver, locate and remove (7) plastic fasteners and (2) 12mm headed bolts from lower portion of splash guard. See picture below.



- Remove splash guard from car and move off to the side.
- Remove (4) 12mm bolts holding skid plate to chassis and set skid plate aside.

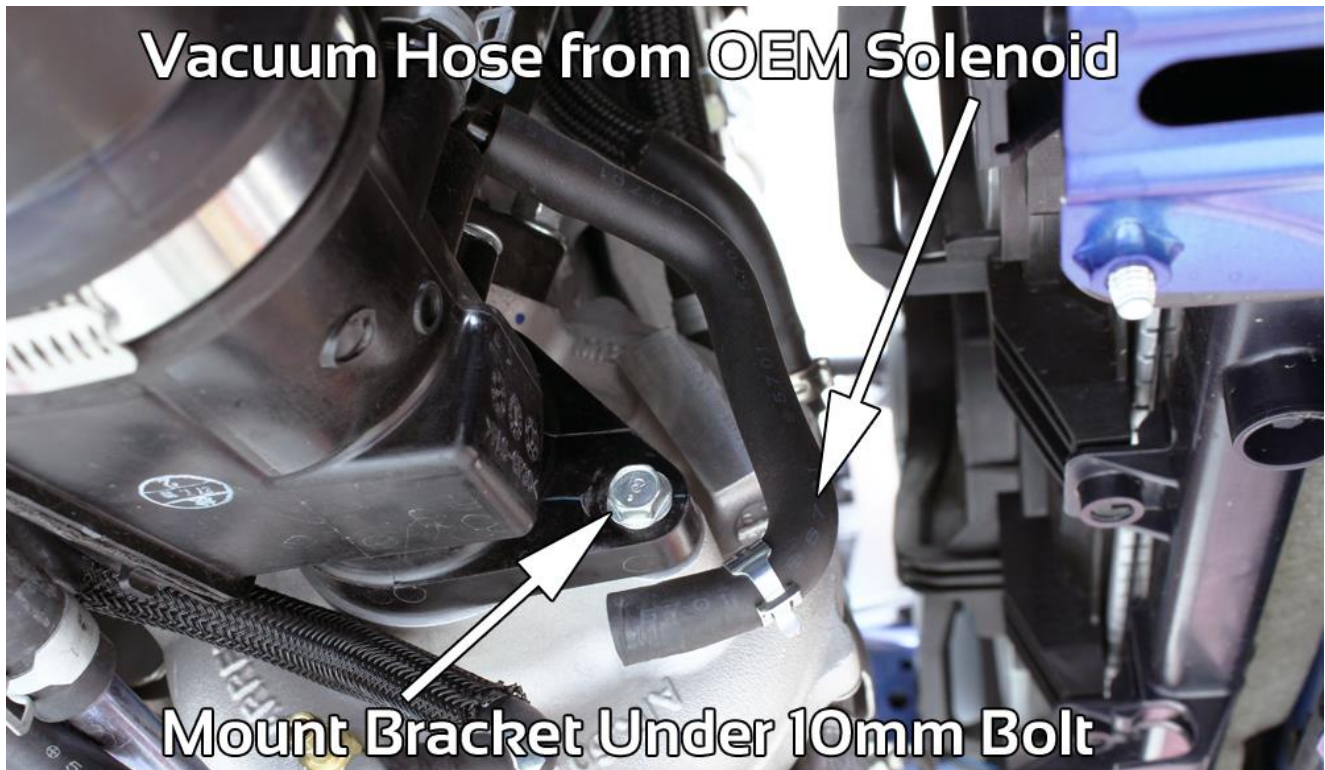


- Using picture below, locate OEM boost control solenoid on top of plastic turbo manifold. Unplug electrical connector from solenoid. Take note of the female plug on the engine harness as this will be plugged into EBCS Pro harness in future step.

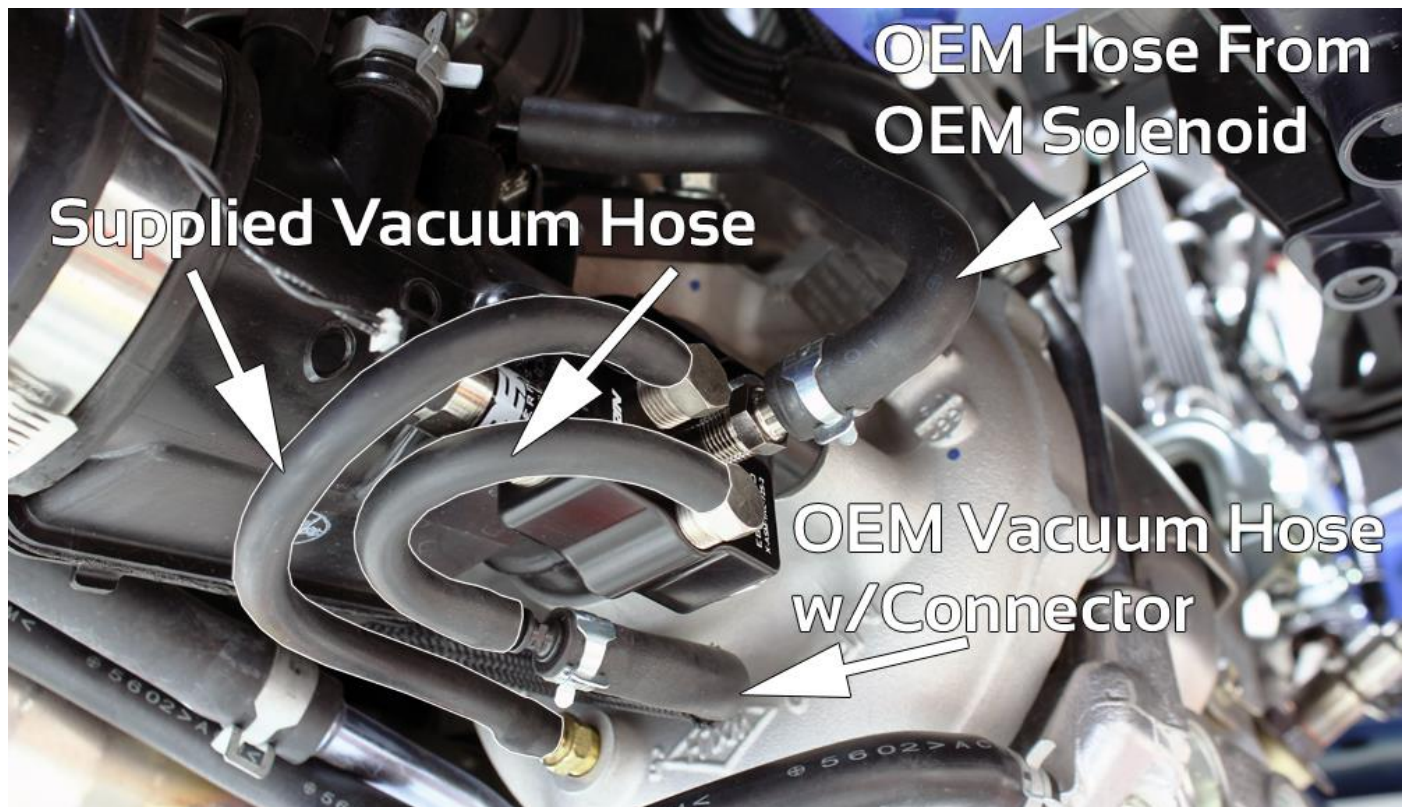


- Locate vacuum hose coming off solenoid (see arrow in picture above), and remove from "tee" junction on lower side of turbo.

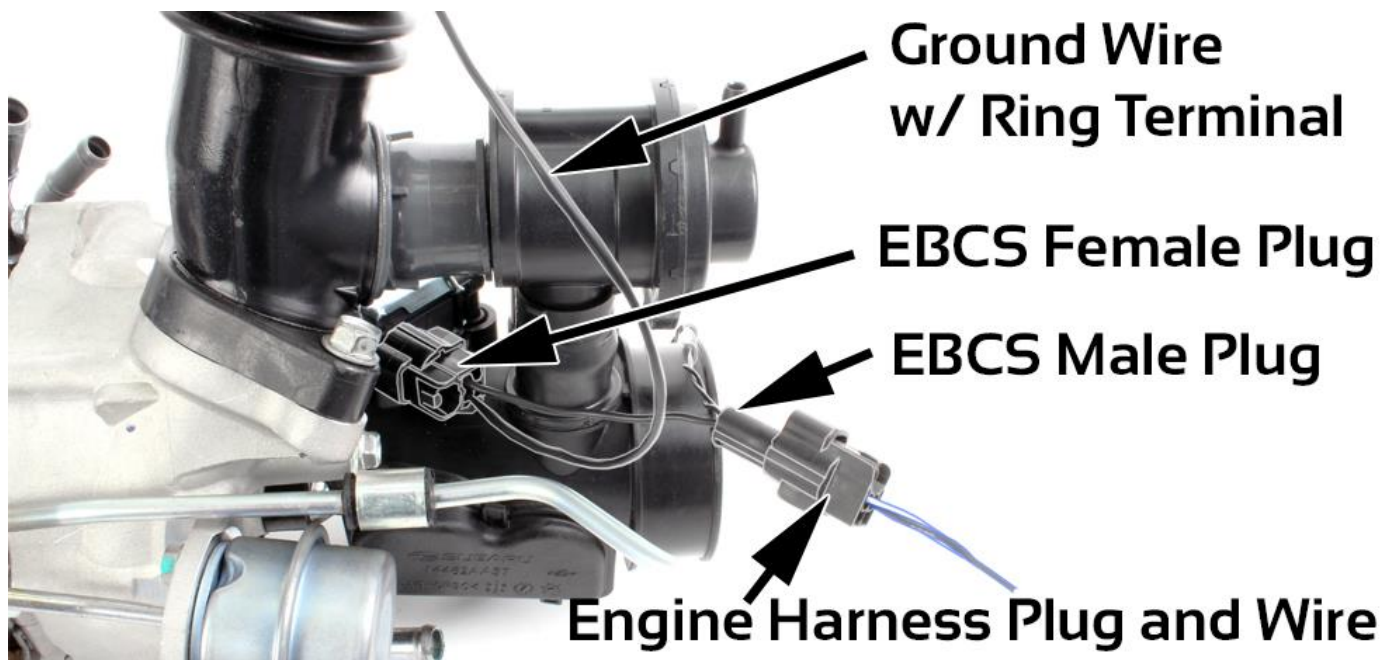
7. Remove 10mm bolt on front side of plastic turbo manifold and install supplied bracket under head of bolt and retighten bolt to secure bracket and plastic turbo manifold to turbo. **NOTE: Orientation of bracket may need to be adjusted in future steps.**



8. Using supplied M8 washer and M8 button head bolt, secure EBCS to bracket as shown in pictures, making sure to face side with (3) ports toward front of car. **NOTE: Orientation of EBCS and bracket may need to be adjusted in future steps.**
9. Connect vacuum hose from OEM solenoid (removed from tee in step 6), to large straight fitting on EBCS Pro (port will be marked NC).
10. Adjust orientation of EBCS Pro (similar to picture below) and bracket to allow vacuum hose to route smoothly to fitting on EBCS Pro.
11. Remove OEM vacuum hose from brass fitting on turbo compressor outlet and install supplied 5/32" vacuum hose. **NOTE: See picture below showing hose on left, connected to gold colored fitting.**
12. Route hose to the port marked NO on the EBCS Pro, and trim to length.



13. Remove "Tee" from vacuum hose going to wastegate actuator and discard remaining hose. **NOTE: This hose is shown in picture above indicated with "OEM vacuum hose w/connector".**
14. Install supplied 3/16" straight connector into hose going to wastegate actuator and secure with pinch clamp as shown above.
15. Connect remaining piece of supplied vacuum hose to connector and route to the port marked COM on EBCS Pro. Trim to length and secure supplied zip-ties.
16. Connect female plug on EBCS Pro harness to OEM solenoid.
17. Connect male plug on EBCS Pro harness to female plug on engine harness (removed in step 5).



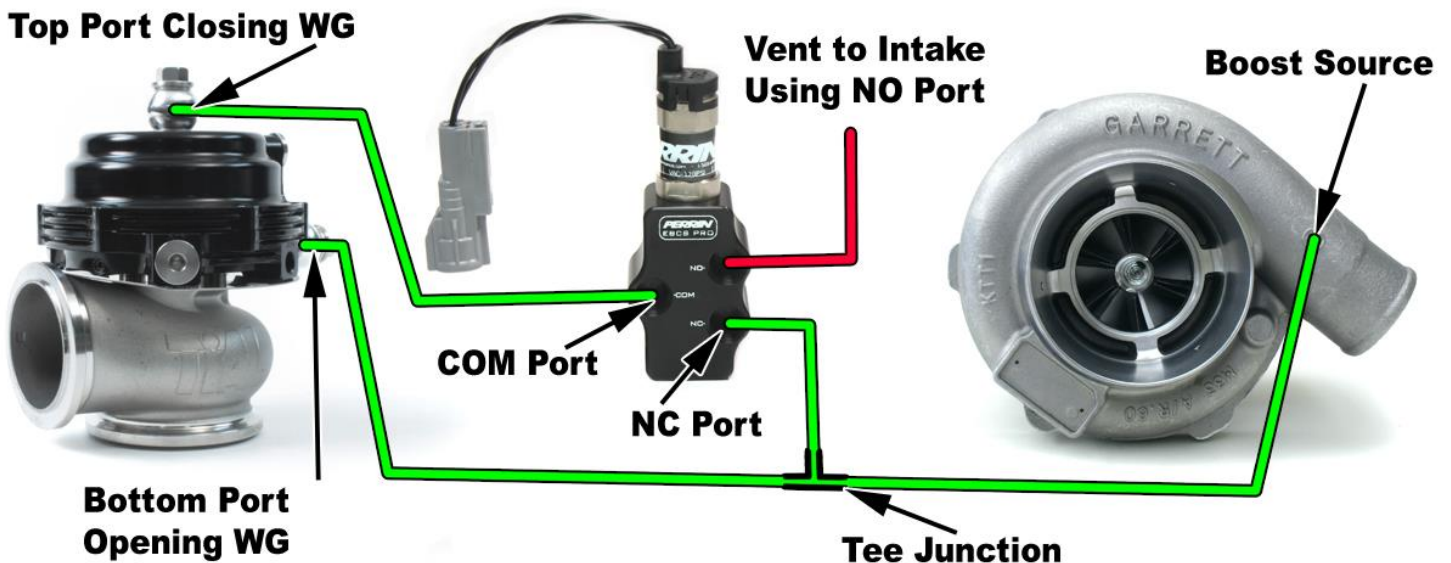
18. Locate engine ground on right side engine head. Remove 10mm bolt (with OEM engine ground still on bolt) and place ring terminal from EBCS Pro harness on bolt, then reinstall back to head. **NOTE: Both the OEM and EBCS Pro harnesses will be grounded using same bolt.**



19. Start car and ensure there are not check engine lights present.
20. If car has no check engine lights, reinstall skid plate and splash guard back to chassis.

### Tuner Tech Tips for EBCS setup

- We found that the least amount of boost spiking occurs (and is most stable) when all OEM hoses are replaced with supplied vacuum hoses. While this does function the best, at lower RPM a wavering noise (as the solenoid operates) can be heard. This sound can be annoying especially with aftermarket intakes installed. This is due to the highly responsive nature of the OEM boost control system. Leaving the OEM hose (with restrictor) on the wastegate hose eliminates this with very minor amounts of boost spiking.
- If your car has a custom dyno tuned ECU, we recommend you get another custom dyno tune after installation to take full advantage of the EBCS Pro.
- For all custom dyno tunes, boost spiking can be reduced by changing the turbo dynamics tables. Reducing the amount of WGDC changes at higher boost errors will help reduce this.
- If your custom tuner is looking to reduce the wastegate duty cycle %, installing a restrictor on the compressor side only, will reduce the % required to hit target boost by 20-30%.
- For custom installations it may be necessary to understand what the ports mean.
  - a. COM indicates the common port between all three ports. In the solenoid's resting state, air will flow from COM to NO.
  - b. NO indicates Normally Open. In the solenoid's resting state, air will flow from NO to COM. When the solenoid is turned on, this port becomes closed off.
  - c. NC indicates Normally Closed. In the solenoid's resting state, this port is closed off. When the solenoid turns on, this port becomes open and air will flow to the COM port.
  - d. The NO and NC ports swap functions as the solenoid turns on and off.



## External Wastegate Mode (Using Top and Bottom Ports)

1. Use instructions above to mount EBCS Pro to turbo/engine.
2. Swap 5/16" straight fitting (threaded into NC port) with 5/32" 90 fitting (threaded into NO port).
3. Use pictures above to help with installation.
4. 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 both ends of hose.
  - 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.**
5. NC (Normally Closed) Port Hook-up.
  - a. Install desired barb fitting into NC (Normally Closed) port on EBCS Pro body. Use a small amount of grease or Teflon tape on threads, then tighten using 11mm or 7/16" wrench.
  - 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.
6. COM (Common) Port Hook-Up.
  - a. Install desired barb fitting into COM (Common) port on EBCS Pro body. Use a small amount of grease or Teflon tape on threads, then tighten using 11mm or 7/16" wrench.
  - 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.
7. NO (Normally Open) port Hook-Up.
  - a. Connect this port to the OEM solenoid hose as shown in above instructions and pictures.