



Installation Manual

P/N 601-0010 (PORT INJECTION KIT) or P/N 601-0009 (PORT INJECTION KIT)

VW/AUDI EA888.3 VEHICLES

Warning:



This installation is not recommended for a novice or the new guy in the shop. Use caution when installing not to damage any factory components or components included in this kit. If you are not experienced in working on cars we recommend taking this kit to your local BMW Performance shop for installation.

Note: Precision Raceworks holds no responsibility for any damage that occurs or laws that are broken in the installation or use of this kit. This kit is intended for off road purposes only.

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EA888.3 MPI KIT CONTENTS

Qty	Description	Qty	Description
1	MPI INTERGRATION HARNESS	1	SUPER LUBE
1	BOSCH FUEL PRESSURE SENSOR	1	DRILL BIT ALIGNMENT TOOL
2	AN6 ORB TO 5/16 BARB FITTING	1	7mm DRILL BIT
4	BOSCH FUEL INJECTORS	1	MPI FUEL RAIL
2	M8 x 40mm STAINLESS BOLTS	2	M6 THREADED INSERTS
2	M6 Threaded Bolts	1	20 AMP FUSE

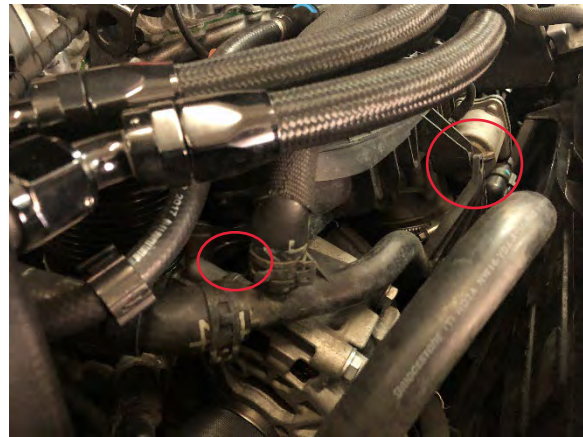
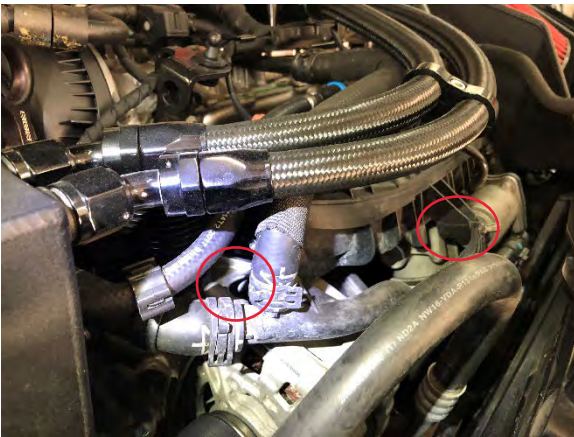
This section of the manual is intended to show the removal, assembly, installation of the **Precision Raceworks Multi Port Injection Kit P/N 601-0010 or 601-0009**. For removal and install of the intake manifold steps might be missing for your specific car. Please refer to manufactures instructions for removal or installation of the intake manifold from the car as needed.

NOTES: _____

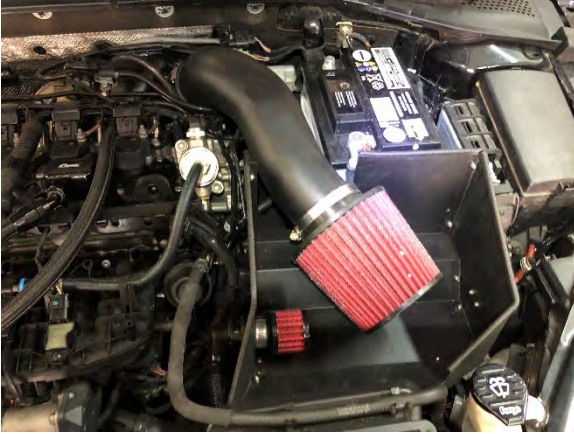
1. Unpackage your Precision Raceworks MPI kit and verify the contents inside the box matches the list found on page 2.
2. Disconnect the negative battery terminal using a 10mm wrench or socket.



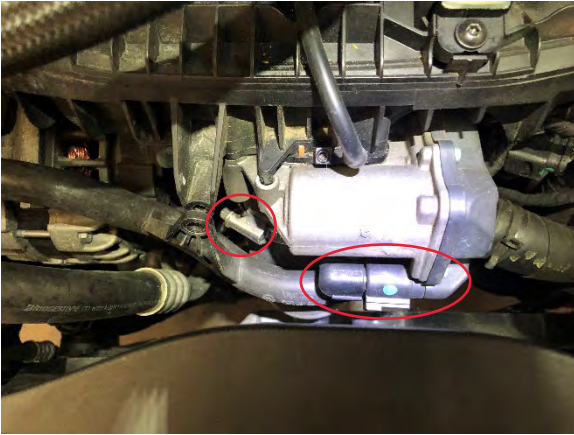
3. Remove the two T30 screws securing plastic coolant pipe to the front of the intake manifold.



4. Remove the intake using instructions from the manufacturer of your intake kit if needed.



5. Disconnect both the cold side charge pipe & electrical connector from the throttle body.



6. Lift the car in the air and properly support chassis. Remove the belly pan by removing the eight T25 screws securing the belly pan to the car taking note of alignment for reinstall later.



7. Locate the lower radiator hose and disconnect the plastic clamp securing it to the front of the engine.



8. Locate and remove the two T30 screws used to secure the throttle body inlet pipe and turbo outlet pipe to the block. Unclip the harness connected to the turbo outlet pipe at this time.



9. Unclip the harness connected to the turbo outlet pipe, and then disconnect the connector for the MAP sensor located on the throttle body inlet pipe.



10. Remove the remaining T30 screw securing the throttle body inlet pipe. Disconnect the throttle body inlet pipe from the throttle body and let it hang down.



11. Disconnect the three electrical connectors located on the driver's side of the intake manifold.



12. Disconnect the Intake manifold runner flap control valve and camshaft position sensor connectors located on the driver's side of the intake manifold & cylinder head.



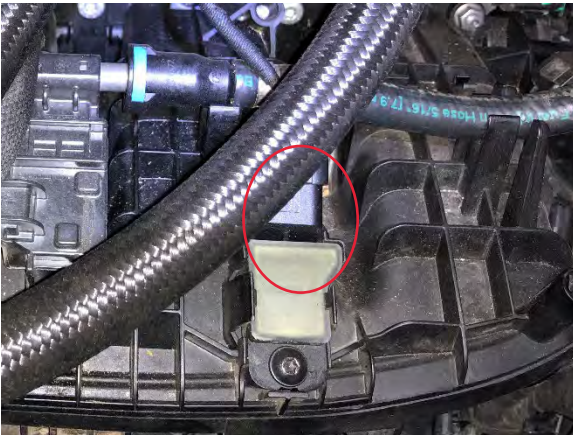
13. Remove the remaining T30 screw securing the turbo outlet pipe to the engine, then disconnect the turbo outlet pipe from the turbo and intercooler by losing the hose clamps as needed. Then Remove the turbo outlet pipe from the car.



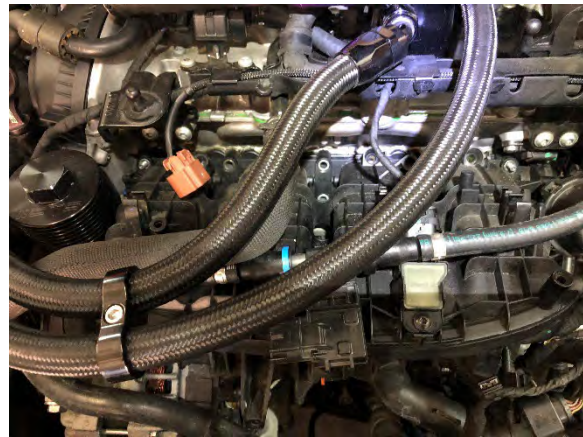
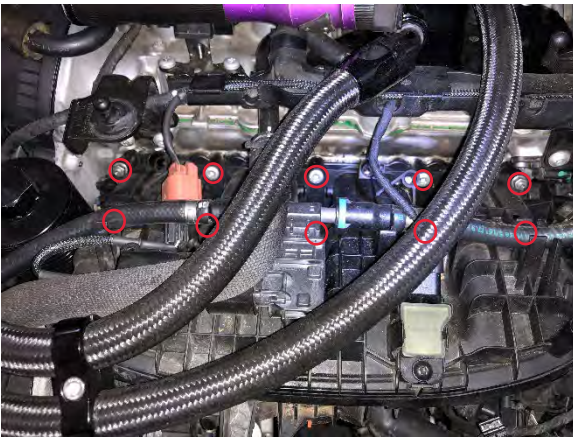
14. Remove the T30 screw securing the black high pressure fuel line to the cylinder head.
15. For this step use a shop rag or towel over your wrenches and under the connection to prevent fuel spray. While using a 21mm wrench to hold the brass fitting located at the bottom of the HPFP take a 17mm wrench and loosen the fuel line from the brass fitting.
16. Follow the fuel line down to where it connects to the fuel rail and disconnect the line using the 17mm wrench used in the previous step. Now that the fuel line is disconnected at both ends remove it from the car and wrap in a rag to prevent debris from getting in the line.
17. Locate and loosen the 13mm bolt between the Throttle body and Alternator then remove the 10mm triple square bolt from the bottom of the intake manifold support bracket.
18. Disconnect the manifold runner flap position sensor located next to the oil filter housing on the passenger side of the intake manifold.



19. Unplug the connector for the second map sensor located on the top of the intake manifold then pull the fuel line up from the tabs located on top of the manifold.



20. Remove the two 10mm nuts from the passenger side of the intake manifold. Then remove the eight T30 bolts securing the intake manifold to the cylinder head.



21. The 13mm bolt we loosened in step 16 is now the only thing securing the intake manifold to the car. Remove this nut and carefully pull the intake manifold back from the cylinder head rotating the passenger side up and slide the electrical connectors off their support bracket then remove the two T30 screws which secure the bracket to the manifold.
22. Disconnect the vacuum lines from both ends of the manifold runner flap actuator and remove the manifold from the car.

STOP

For the next step some cars have a larger hole already and do not require drilling. Attempt to insert 11/32nd drill bit by hand first. If the drill bit goes into the hole with out drilling, do not drill the hole it is already large enough.

If you have this larger hole already, please call us at: 877-447-6297 for further instructions.

23. Prepare the intake manifold for the threaded brass inserts by predrilling the holes with an 11/32nd or 4.5mm drill bit. Start the drill spinning fast and lower drill to the manifold ensuring the drill shank runs straight into the hole and is not tilted in any direction and continue drilling with very little force and the drill spinning fast. Continue until you feel the drill stop moving down being careful not to drill through the other side of the hole.

TIP: Drilling through plastics with high rotating speed and very little pressure prevents the drill bit from grabbing and breaking or cracking plastic parts and allows for better control than drilling slowly



24. To install the brass inserts, thread the 2 nuts supplied on one of the bolts with the flanges of the nuts facing each other. Then screw one of the threaded inserts until the bolt is halfway or more inside the insert (do not allow bolt to extend past other end of insert).



25. Place the threaded brass insert over the top of the hole and by hand without any tools start screwing the insert into the manifold making sure the insert is straight in all directions. Then once the insert is straight in all directions heat the outside of the manifold in the area the insert is being installed with a heat gun. Be careful not to overheat the plastic you want it hot enough that you can hold your finger to it for a couple seconds before you need to pull your finger away.



26. With the plastic warmed, using an allen wrench (t-handle work best for this) start tightening the insert into the hole ensuring it goes straight and is not tilted in any direction as the inserts can not be removed once installed. Continue tightening until the insert is fully installed into the hole (the nut will bottom out on the top). Loosen the allen removing the bolt from the manifold. Then install the other insert on the same bolt and repeat the steps above for the second hole. Discard the two supplied nuts when complete they are no longer needed.



27. Secure the supplied injector port prep tool into a drill firmly so that it cannot spin inside the drill chuck. With the drill in clockwise rotation drill down into the injector port until the tool stops going down. Stop drilling and without removing the tool from the manifold disconnect the drill from the injector prep tool.



28. Tighten the supplied 7mm drill bit where just the end of the bit is in the chuck of the drill (the bit is just long enough to go through the port). Then drill through the center of the injector port prep tool using high speed on the drill bit and minimal force until the bit passes through the inside of the intake manifold. Repeat steps 24 & 25 for the remaining 3 holes.



29. Using a rotary tool grind back any uneven plastic and burrs on the inside of the intake manifold from the drilling process. The O-ring seal is far back inside of the injector port so you can remove quite a bit of material here to make a nice smooth flow for the air, also remove any potential plastic from altering injector spray pattern.

30. Reinstall the intake manifold using the eight T30 screws and two 10mm nuts previously removed tightening the manifold down in a X pattern working from the center of manifold to the outside.

T30 Torque Spec 80 in-lbs (9Nm)

31. Remove the two T30 screws securing the coolant pipe on top of the valve cover. Lift pipe up and secure lifted or place an object such as a scrap piece of wood under the pipe to provide more clearance for easier install. Of the port injection fuel rail.

32. Lubricate the injector O-ring on the input end of the injector one at a time inserting each fully into the fuel rail and install the injector retaining clip. Connect the harness to the injectors in order and rotate the connector as shown.



33. Lubricate the remaining O-ring on each of the 4 injectors and align the injectors with the holes in manifold as seen in the first photo. Then firmly push the fuel rail until the fuel rail is fully seated against the intake manifold. Install the two supplied bolts, for cars that came equipped with MPI install rail using original hardware from the factory plastic fuel rail.

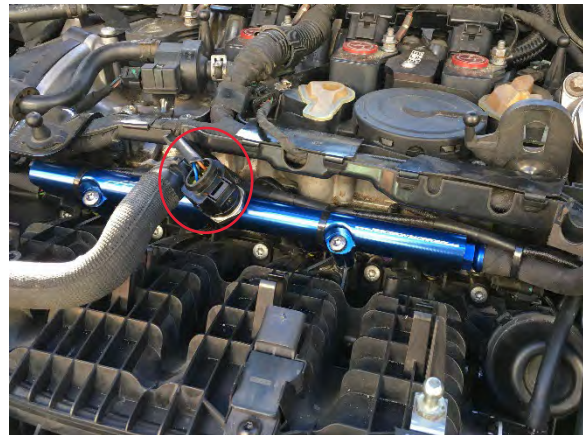
Torque Spec 80 in-lbs (9Nm)



34. Remove the supplied harness from packaging and start at the opposite end of the Red wire. The two connectors (male female) connect to the factory intake runner flap position sensor. Connect the factory runner flap connector to the supplied harness and then plug the matching connector on the new harness into the runner flap position sensor.



35. Connect each of the injector connectors working from passenger side of car to drivers side of car until all are connected.
36. Install the provided barbed fittings on the passenger side and drivers side of the fuel rail.
(Note upgraded fuel line users will discard barbed fitting and install supplied hose to fuel rail)
37. Install the supplied low-pressure fuel sensor in the fuel rail using a 27mm wrench or deep wall socket.
Sensor Torque Spec 132 in-lbs (15Nm)



38. Reinstall the 10mm triple square bolt and 13mm nut to the support brace under the manifold. Tighten both hand tight first. Then once both are installed torque the 13mm nut followed by the 10mm triple square bolt.
13mm nut Torque Spec 88 in-lbs (10Nm)
10mm Triple Square Torque Spec 177 in-lbs (20Nm)
39. Loosely reinstall the metal high pressure fuel line between the fuel rail and high-pressure fuel pump. Using a 17mm wrench tighten the lower fitting on the fuel line to the fuel rail.
40. Using a 21mm wrench hold the brass fitting on the high pressure fuel pump and tighten the metal fuel rail with a 17mm wrench. Also reinstall the T30 screw that secures the fuel line in place.
T30 Torque Spec 80 in-lbs (9Nm)

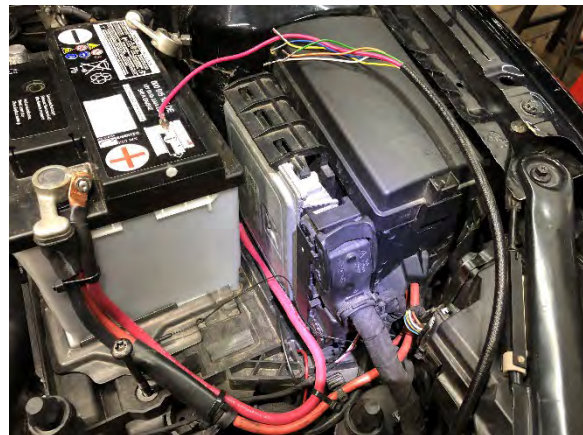
41. Reconnect the four electrical connectors on the driver's side of the intake manifold as shown below.



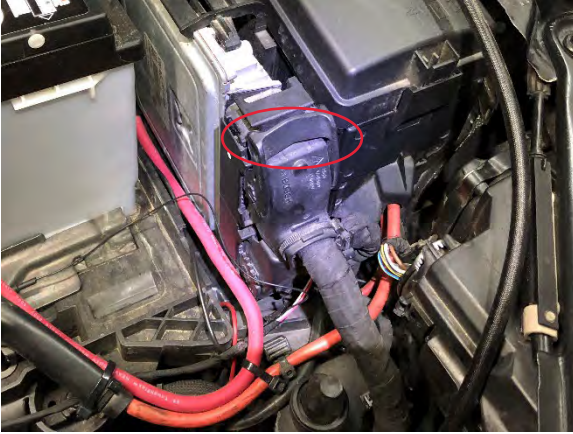
42. Reconnect the Cam position sensor on the driver side of the intake manifold as shown below.



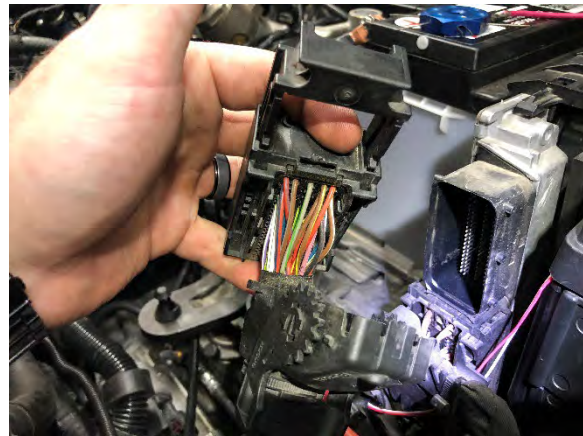
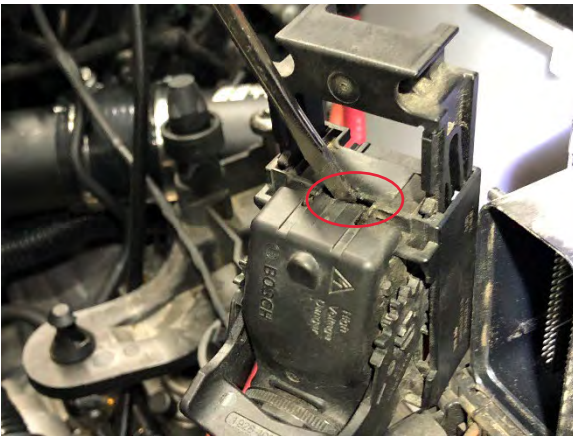
43. Route the provided wire harness along the same path of the factory harness down the driver side of the engine. Continue routing the wiring along this path until it reaches the ECU. Secure the wire as you go with tie wraps.



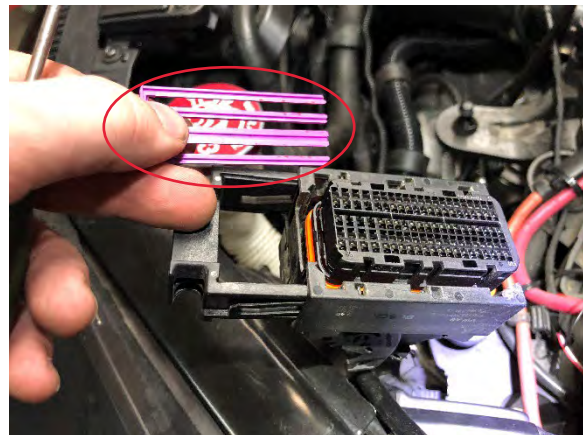
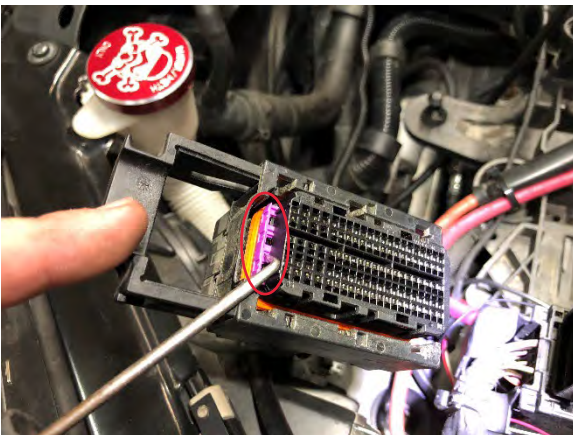
44. Disconnect the 105 pin connector from the ECU located next to the battery and fuse panel by flipping the lever on the back side of the connector down while lifting up on the tab on top of the connector.



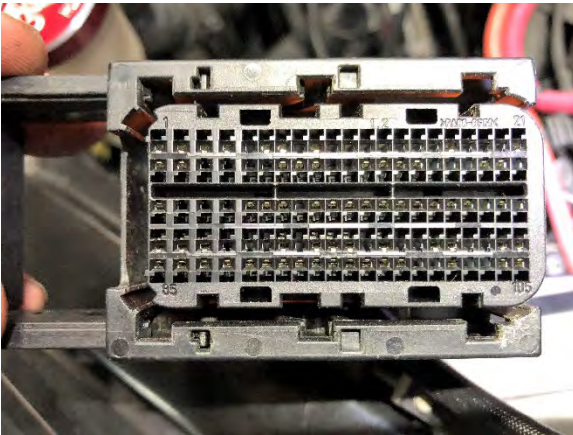
45. Ensure the lever on the connector is fully open. Then use a small screw driver to pry the cover and lever off the 105 pin connector as shown in the photos below.



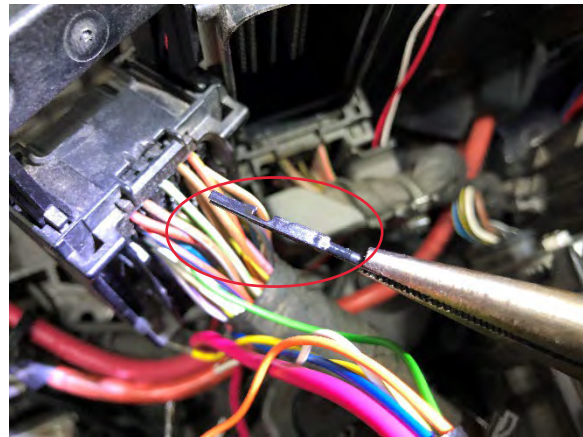
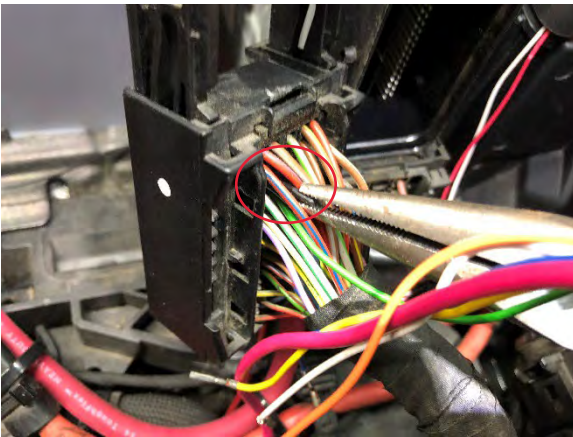
46. Using a pick tool or small screwdriver remove the purple locking tab by sliding it from inside the connector.



47. The connector has plastic blanks to fill in the holes where there are no terminals inserted. Note how the connector is numbered in the first photo. Using an electrical depin tool or paperclip remove the plastic blanks from the locations shown in the second photo. (reference step 49 for pins to remove)

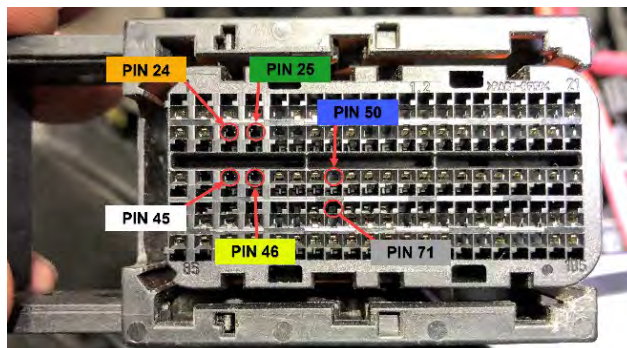


48. While removing the terminal blanks from the 105 pin connector you noticed they each face a certain direction this locks them in place in the connector when the purple locking slide in installed.

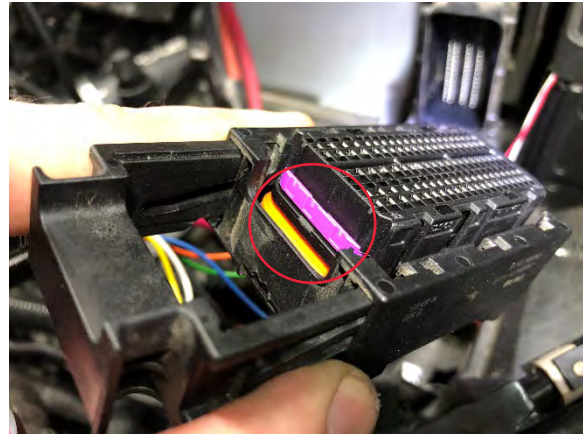
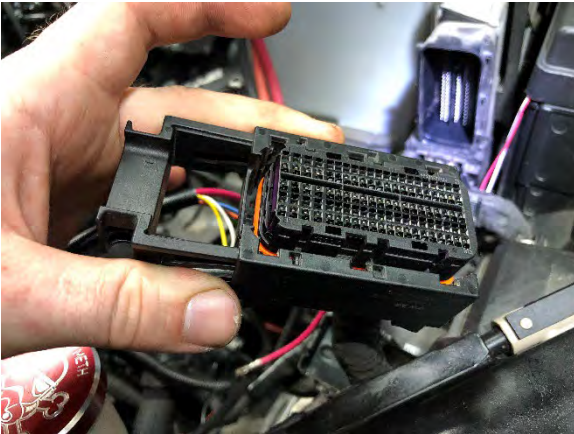


49. Using the photo below, insert the wires from the supplied harness following the chart below.

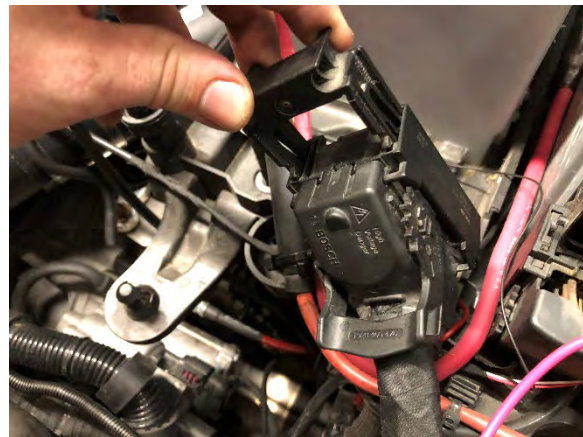
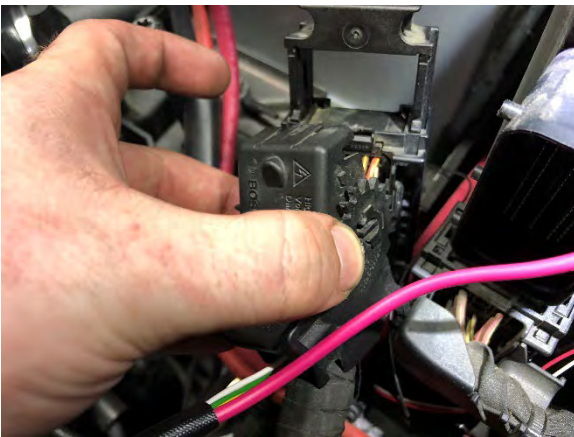
Yellow Wire	Location 46
White Wire	Location 45
Blue Wire	Location 50
Green Wire	Location 25
Orange Wire	Location 24
Gray Wire	Location 71



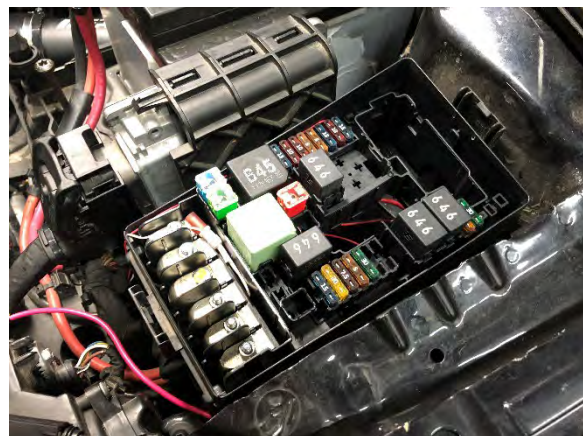
50. Inspect that all terminals are fully engaged by looking at the top of the connector and seeing that all terminals are same height and up against the face. Once all terminals are fully engaged reinstall the purple locking tab until it locks in place. This secures all terminals so they cannot come back out.



51. Ensure the lever on the locking mechanism for the connector is fully open. Reinstall the locking mechanism and cover back on the connector. Once reinstalled connect the 105 pin connector back to the ECU and flip the lever up to lock the connector onto the ECU.



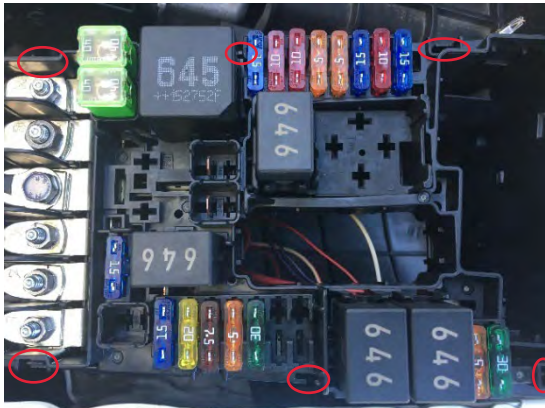
52. Remove the top cover from the fuse box. Then pull the tab at the front of the fuse box and lift the slide door as shown in the photos below.



53. Remove the front cover of the fuse box by grasping the cover and pulling up to slide the cover off while releasing the locking tab.



54. Using your hands through the back portion of the fuse box pull up while releasing each of the clips securing the fuse panel to the inside of the fuse box. This step requires a decent amount of force take your time and ensure each securing clip is released as you pull.



55. Once the fuse panel is removed from the box route the red wire through the box along with the factory wires. Then insert the metal terminal with red wire into the fuse panel in the location shown below.
- If you are planning on using a *True Flex Fuel tune, the purple wire will be installed into the fuse panel as well. This will use a 5amp fuse.
 - If you do not have any empty fuse locations available, you may connect either wire to any switched 12v source using an inline fuse or an "Add-a-Fuse"



56. Reinstall the fuse panel into the fuse box pushing aligning each of the T shape alignment tabs on the box with the fuse panel. The panel should lock back in place just as it was previously. Install a 20amp fuse in this new fuse location.



57. Reinstall the front cover by sliding it down into place until it locks. Then install the factory box cover.



58. Reinstall the turbo outlet pipe per aftermarket instructions or factory instructions.

ADDENDUM

- The purple wire and ethanol sensor connector are only used if integrated with the ECU in a true Flex Fuel tune.
- A **True Flex Fuel tune** means a tune that integrates the ethanol sensor into the ecu and will automatically adjust the tune based on the ethanol content.
- If you do not have a True Flex Fuel tune, you may still connect the purple wire, and simply not connect the fuse. In addition, you may simply tuck the ethanol harness away for future use.

12 Month Limited Warranty

Precision Raceworks, LLC warrants to the consumer that all Precision Raceworks products will be free from defects in material and workmanship for a period of twelve (12) months from date of the original purchase. Products that fail within this 12 month warranty period will be repaired or replaced at Precision Raceworks discretion, when determined by Precision Raceworks that the product failed due to defects in material or workmanship.

This warranty is limited to only the repair or replacement of the Precision Raceworks part. In no event shall this warranty exceed the original purchase price of the Precision Raceworks part nor shall Precision Raceworks be responsible for special, incidental or consequential damages or cost incurred due to the failure of this product.

Warranty claims to Precision Raceworks must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser of product and is non-transferable. All implied warranties shall be limited in duration to the said 12 month warranty period. Improper use or installation, accident, abuse, unauthorized repairs or alterations voids this warranty.

A Precision Raceworks Warranty Claim Form Must Accompany All Warranty Claims. Products returned to Precision Raceworks with no Return Goods Authorization and or No Warranty Claim Form may be rejected and returned to sender. Precision Raceworks disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by Precision Raceworks. Warranty returns will only be accepted by Precision Raceworks when accompanied by a valid Return Goods Authorization (RGA) number. Credit for defective products will be issued pending inspection. Product must be received by Precision Raceworks within 30 days of the date RGA was issued.

Please note that before we can issue an RGA for any product, it is first necessary for the installer or end user to contact us at Warranty@PrecisionRaceworks.com to discuss the problem. Most issues can be solved through email or over the phone. Under no circumstances should a product be returned or RGA requested before the above process transpires.

A PRECISION RACEWORKS WARRANTY CLAIM FORM MUST ACCOMPANY ALL ELECTRONICS WARRANTY CLAIMS. Precision Raceworks Products returned to Precision Raceworks with no RGA and or No Warranty Claim Form may be rejected and returned to sender.

A copy of the Precision Raceworks Warranty Claim Form can be obtained by sending a request for the form to Warranty@PrecisionRaceworks.com .