



Installation Manual

MK7 Stage 4 Fuel Pump
(SKU: 601-0008, 601-0105, 601-0106)



This installation is not recommended for a novice or the “new guy” in the shop. Use caution when installing, as 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 performance shop for installation.

NOTE: Precision Raceworks, LLC 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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Kit Contents

QTY	Description	QTY	Description
1	Fuel Pump DIY Kit or assembly	1	Fuel Line Kit—3 feed lines and 1 return
1	Boost Reference Activation Harness	1	Fuel Filter
1	Boost Tap Kit	1	Fuel Pressure Regulator
1	36" Vacuum Line	1	FPR Mount
1	Tapered Drill Bit (if KIT)	3	AN6 ORB to AN6 Flare adapters
1	Venturi Fitting Line (if KIT)	4	Manifold Screws (if KIT)
1	Supply Line with Clamp (if KIT)	2	Nylon Grommet (if KIT)
3	6" Zip Ties (if KIT)	1	1/8" NPT Plug (if KIT)
3	Nylon Rivets (if KIT)	1	Fuel Manifold (if KIT)
2	Butt Splice Crimp (if KIT)	7	M6 Stainless Steel Nuts (if KIT)
2	Ring Terminal Crimp (if KIT)	5	M6 Stainless Steel Bolts (if KIT)
2	Walbro 450 with filter socks (if KIT)	2	Quick Connect Male Fitting (if KIT)

Tools Necessary

QTY	Description	QTY	Description
1	Socket Wrench	1	Small Pick Set
1	10mm Socket (or nut driver)	1	3mm Hex Key (if DIY KIT)
1	13mm Socket (or nut driver)	1	11/16" Wrench for AN Fitting (AN6)
1	Adjustable chuck drill (if DIY KIT)	1	Razor Blade (if DIY KIT)
1	Flat Blade Screwdriver		

This section of the manual is intended to show the assembly of the **Precision Raceworks (description and part number here)** and final assembly. For instructions of the removal or installation of factory components, please refer to your service manual.

******If you purchased a Fully Assembled Pump Kit******

Please skip steps 11 through 32 of the fuel pump assembly guide.

If your fully assembled pump did not include a fuel float sensor, please swap yours over to the new pump assembly.

1. Unpackage your kit and verify contents inside the box matches the list found on previous page
2. Remove the bottom rear seat cushion from the car
3. Locate and remove the rubber grommet used to pass the wires under the car.



4. Remove the plastic cover by pushing the cover towards the rear of the car firmly and pulling up on the front. Be careful not to break the plastic tabs from the cover.



5. Using a flat blade screwdriver, pull up the red locking tab (it does not require much pressure). Then disconnect the electrical harness from the fuel pump



6. With the harness now disconnected from the fuel pump, start the car. This is to de-pressure the fuel line. It can take a few minutes for the car to stall out. Ignore any dash lights resulting from the plug to the pump being disconnected. While the car is idling, use this time to push the rubber grommet through the dust cover and take a rag to clean the top of the fuel pump assembly.



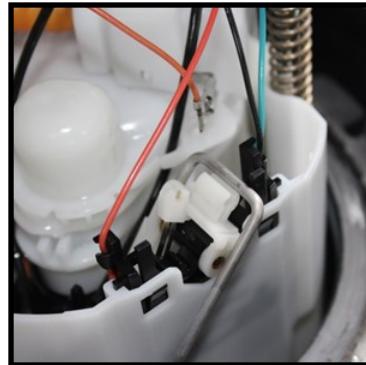
7. Once the car stalls out it is time to disconnect the fuel line. The line will still have a decent amount of pressure use a fresh rag to cover the assembly and soak up any fuel. Quick connects always work best by pushing down first on the connector then pushing in on the release and pulling up. Pull up slowly as full will spray out and have it covered with a rag to not make a mess. Allow the remaining fuel to soak into the rag so that it can be discarded.



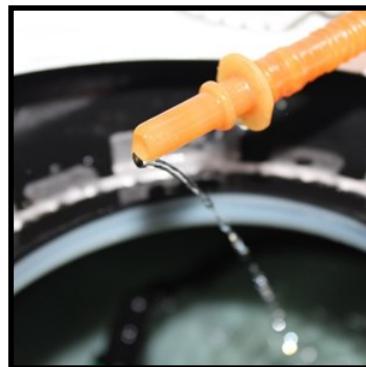
8. Using a large flat blade screw driver and hammer if needed tap the lock ring in a counter clockwise rotation until the ring is released. Remove the ring and the pump should be released (it will pull up easily as shown).



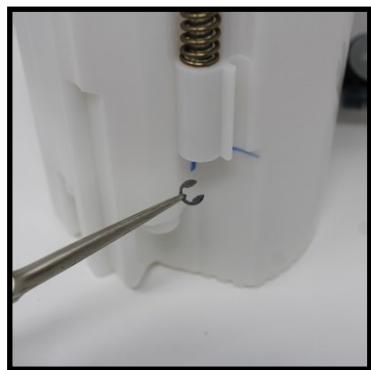
9. **DO NOT LIFT THE ASSEMBLY OUT OF THE TANK AT THIS TIME** as damage can be caused by the fuel float being caught on the inside of the tank! Disconnect the fuel float from the sending unit by using a small screwdriver or pick tool and popping it up from the lock, then remove the float from the tank first.



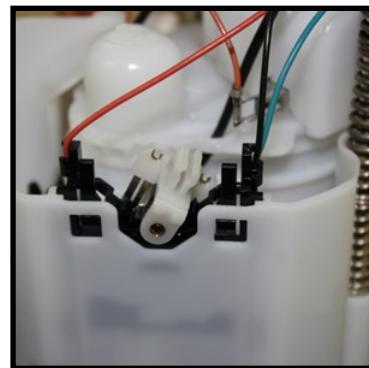
10. Once the float is removed, pull the fuel pump assembly out of the tank careful not to spill gas. Rotate the assembly counter clockwise until you have access to the disconnect. Remove the disconnect by pushing in first, then pressing the release and pulling apart. A small screwdriver can be helpful to separate the quick connect from the tube. The line is full of gas, in this



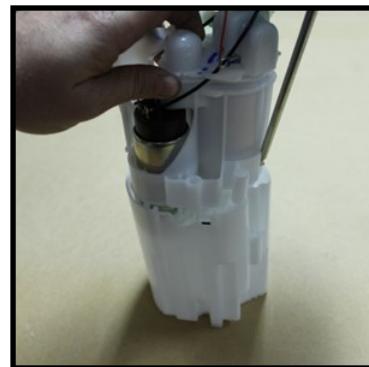
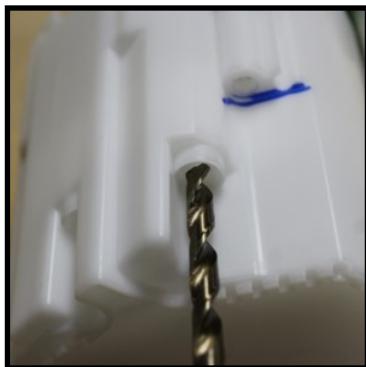
11. With the pump assembly removed from the car push down on the top hat and remove the lock ring from the shaft with spring as illustrated below.



12. Now remove the sending unit from the bucket by pushing the two release tabs near the top of sending unit and pulling up.
(the two release tabs release the catches shown in the second photo)



13. Using the provided tapered drill bit, drill through each of the three locations shown below until the drill bit removes the plastic weld joint. Keep in mind the bucket is plastic and can be broken! Control of drill speed should be maintained at all times and should be done slowly to prevent the drill bit grabbing and causing damage. Care to keep the drill bit straight with the hole should be maintained as well. With all 3 joints drilled, the pump assembly should lift freely off the bottom of the bucket.



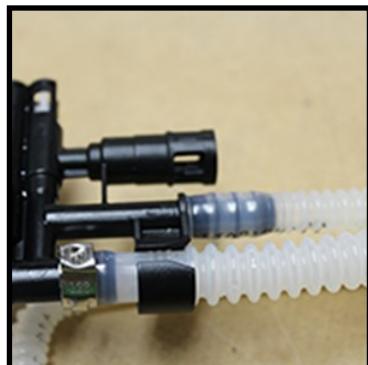
14. Un-clip the fuel hoses from teh outside of the bucket, then pull up on the venturi assembly as shown below. With the venturi assembly removed, use a razor to clean any flashing left from the drilling of the plastic weld joints.



15. Install the three provided button head hex bolts with the blue stand-off's as shown below. These are needed to provide a seal so the bucket holds fuel during acceleration or hard cornering conditions.



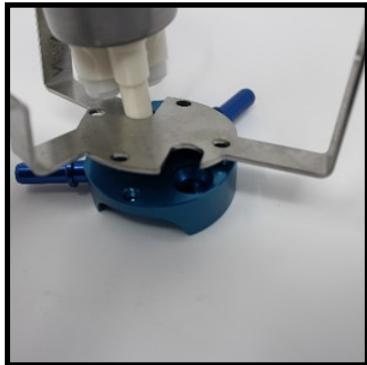
16. Install the corrugated tube with anodized venturi fitting as shown in the photo below and secure as seen with provided zip tie. Then reinstall venturi and lines as shown pushing firmly on the venturi until it snaps into place.



17. Install the two male quick connect fittings and 1/8" NPT plug as seen in the photo below. Use Teflon tape to seal the NPT plug. The quick connect fittings should not need any tools to tighten, however if needed, protect the fitting with a leather work glove and grip with pliers to tighten (do not use a towel or damage may occur!)



18. Install one pump into the manifold pushing until the lip of the pump is flush with the surface of the manifold. With the pump fully inserted line up the flat of the mounting bracket with the flat edge of the manifold and slip around the neck of the pump. While tilting the bracket insert the next pump and insert the second pump fully.



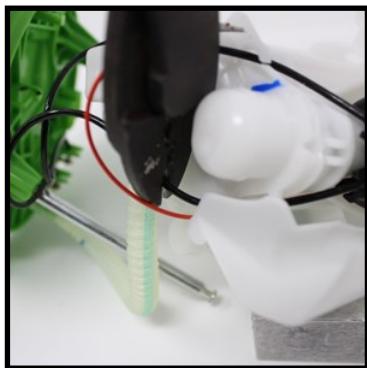
19. Install and tighten the 2 screws on the side of the manifold with the flat. Then start the first threads of a screw in either of the two other holes. Slip the pump support between the two pumps hooking it under the partial installed screw. With the pump support in place, line up the mount with the last screw hole and insert the screw and tighten the two screws securing the support. (**Note: The pumps can twist as needed to provide better access to the screws**)



20. Secure the pumps with the provided nylon zip ties to prevent any possible lateral movement in the pump reducing strain on the pump neck. Then install the fuel socks on both pumps.



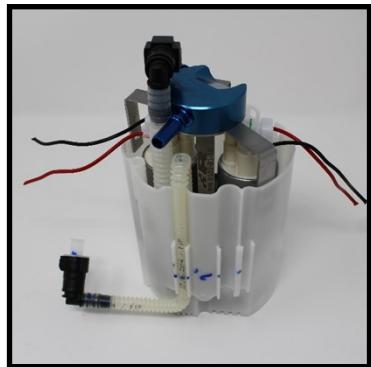
21. Cut the factory fuel pump wires cutting roughly 2" from the actual pump. Then using a razor cut a slit in the fuel tube as shown and remove the tube from the top hat.



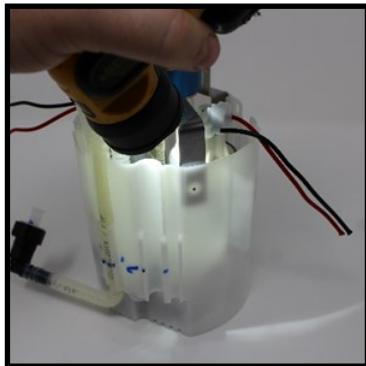
22. Install the supplied corrugated fuel line over the barbed port of the top hat where the factory line was removed. Secure the line with the provided crimp style hose clamp (note the direction the quick connect fitting faces in the below photo).



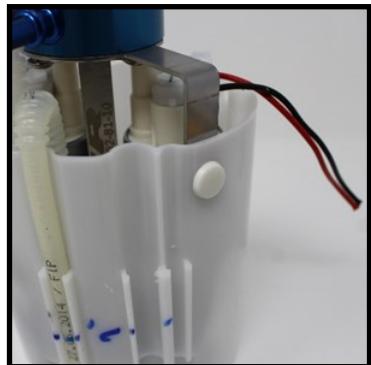
23. Insert the completed pump assembly into the bucket. Ensure the orientation fo the pump assembly matches the photo below. (If installed backwards, you will not be able to fit the assembly in the tank later.)



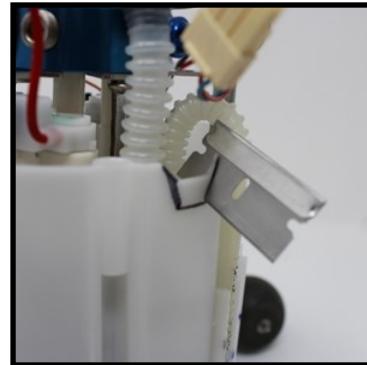
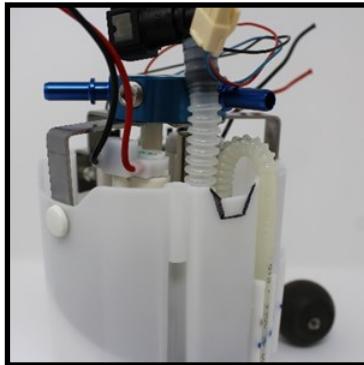
24. Push the entire assembly down into the bucket as far as it will go and hold in place with one hand. While holding in place use a flashlight to locate 2 of the 3 holes and using a very small drill bit mark the center of the bracket hole.



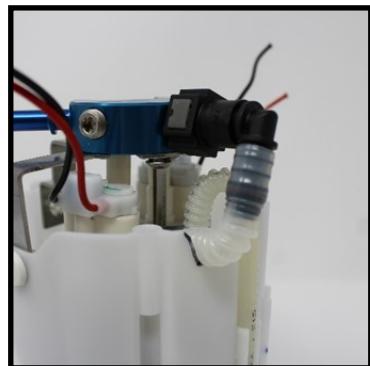
25. Re-install the pump assembly into the bucket, again ensuring proper rotation of the assembly inside the bucket. Line the drilled holes from the previous step with the holes in the bracket and insert the provided nylon rivets.



26. Mark the area shown in the photo with a sharpie like below. Extend the angled cut area down further so it is even or slightly lower than the cut out section made by the factory seen in the left of the photo. Then cut this section our using a razor.



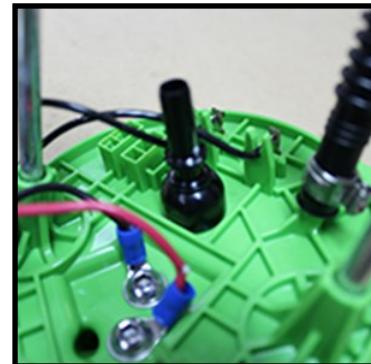
27. Once this notch is cut connect the quick connect fitting to the nipple as shown below. This is a tight fit but will slide on just be careful to push on as straight as possible not to damage O-rings.



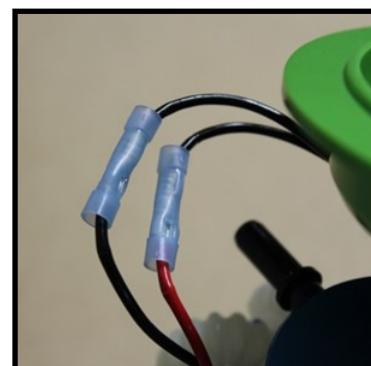
28. Install the supplied template shown in the photo below on the left. Once installed, the hole in the center is the proper location and size for the fuel return. This location is critical, which is why the template is provided. Use a drill bit that closely matches the template so that the bit does not wander. Once drilled through, insert the provided fuel return bulkhead fittings and tighten as shown in step 29.



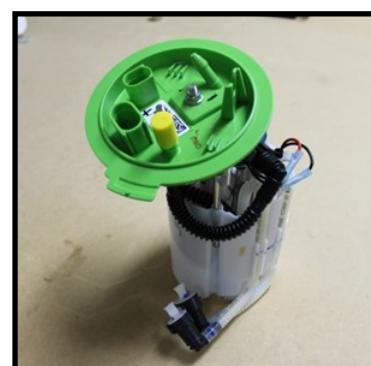
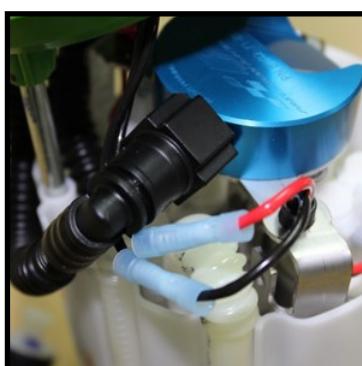
29. Drill 2 holes in the flat portion of the top hat for the provided stainless hardware used to provide power to the secondary pump. Ensure the drill bit selected is close in size to the actual bolts provided and that there will be no interference with connectors once assembled. Crimp the provided ring terminals onto the secondary pump and assemble as shown using a sharpie to mark on the outside of the top hat which side is positive and negative.



30. Insert the factory top hat back in the holes of the bucket and secure with the c-clip removed in step 13 of this document. With the top hat installed locate the positive and negative pump wires using the markings on the outside of the top hat which indicate which of the two black wires is positive and which is negative. Using the provided nylon crimp connects crimp the corresponding positive wire to the red wire coming from the pump and the negative wire to the black wire coming from the pump.



31. Re-install the factory sending unit for the fuel float, leaving the float arm disconnected still. Sweep the arm side to side, ensuring there is no interference with components of the assembled bucket. If needed, the primary pump can be rotated slightly to provide adequate clearance for the sending unit.
32. Fasten the quick connect from the top hat to the manifold, routing the wires under the quick connect to keep them out of the way later during installation. The drop in assembly is now complete and ready to be installed into the car.

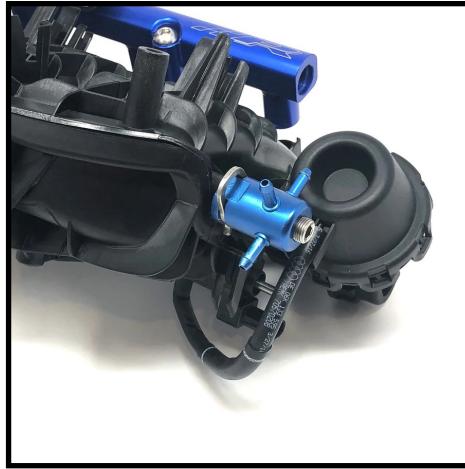


33. Install the pump back into the car using steps 1-10 above in reverse as a guide. Use caution not to damage the fuel float during install. The tab on the top hat of the pump should face the rear of the car when installed properly. If the location of the tab does not face the rear of the car, the fuel gauge will not read correctly and damage could occur.

Assembly & Install of stage 4 fuel pump complete.

**Additional pages for installation of Fuel Lines and
Boost Reference harness (if used)**

MK7 Secondary Fuel Pump Boost Reference Harness



1. Starting in the engine bay, the first step in setting up the boost reference is installing the boost tap. The boost tap is installed on the Driver's side of the manifold. Locate the large port (in the MK7 there is nothing installed here)
2. Using a straight pick tool, heat up the end and then use it to poke a hole through the manifold inside the port that is being used by the boost tap. (A drill and drill bit is NOT recommended as this will leave shavings inside the manifold and may cause harm to the engine)
3. Ensure that the boost tap is configured for your needs. Included in the pack is two nipples, two O-rings and two screws. If you need to utilize two boost taps, install both boost taps utilizing the O-rings at the threads. Any tap ports you are not using will be blocked off using the o-ring and screw instead.
4. Remove the 1/8" NPT plug out of the boost tap and install the included hobb switch. Make sure to use PTFE (Teflon) tape on the threads to seal.
5. Insert the boost tap onto the manifold fully and install the metal spring clip as the retainer.
6. Moving on to the wiring harness, we will start at the fuse box. Remove the top cover from the fuse box, and then pull the tab at the front of the fuse box and lift the slide door as shown in the photos.



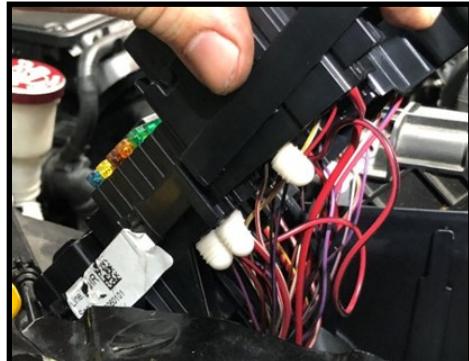
MK7 Secondary Fuel Pump Boost Reference Harness

- Using your hands, reach through the back portion of the fuse box and 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.

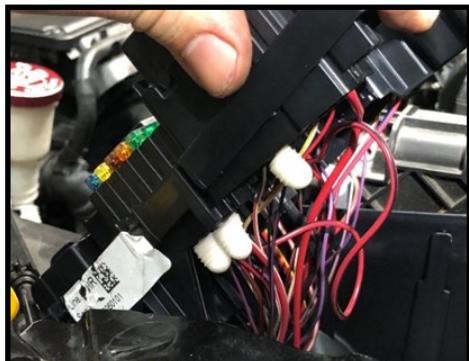


- Once the fuse panel is removed from the box route the red wire through the box along with the factory wires. Then insert the metal terminal with red wire into the fuse panel in the location shown below.

- If you 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"



- 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.



MK7 Secondary Fuel Pump Boost Reference Harness

10. Re-install the fuse panel into the fuse box by pushing and 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 the included 30 amp fuse in this new fuse location.



11. Re-install the front cover by sliding it down into place until it locks. Then install the factory box cover.



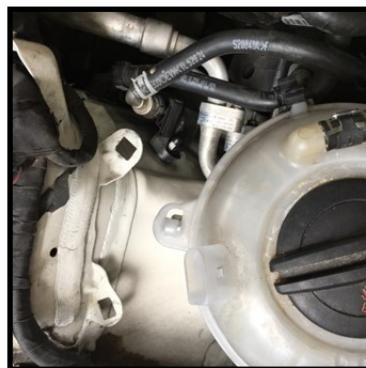
12. Install the black wire to a good chassis ground
13. Route the plug to the hobb switch that you installed earlier in these instructions and connect the hobb switch
14. Route the last wire with the ring terminal (red) along the firewall and to the fuel line location. This wire will route all the way back to the fuel pump, and may be routed independently, but is recommended to be routed along with the fuel lines in a future step.
15. Moving to the fuel pump under the back seat, install the short black wire from the ground post on the fuel pump to a chassis ground. If making a new chassis ground, make sure that you remove any paint to ensure a good ground.
16. Connect the red wire that was routed along with the fuel lines to the positive terminal on the fuel pump.

MK7 Stage 4 Fuel lines installation

1. Remove the large plastic tray under the belly of the car on the passenger side using a 10mm nut driver.
2. Remove the plastic fuel line protector from the frame rail and disconnect fuel lines from protector.



3. Locate and disconnect the quick connect fitting located slightly in front of the tank before the line enters the frame rail.
4. Open the hood of the car and locate the coolant expansion tank. Disconnect the electrical connector and release the two mounting clips to gain additional access. (The tank does not have to be removed, just pulled out of the way. It can be removed for easier access and more room)



MK7 Stage 4 Fuel lines installation

5. Remove the single 10mm nut located behind the coolant expansion tank and pull plastic fuel line shield away from the strut tower.



6. Release the fuel line and emissions line from the inside of the plastic fuel line shield.



7. Pull up on the plastic fuel line shield to release this clip and continue to pull firmly until plastic fuel line shield has been removed from the car.

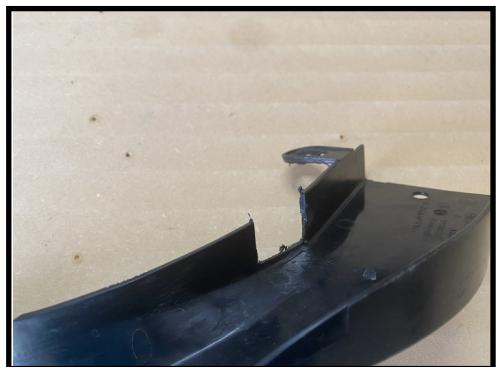


MK7 Stage 4 Fuel lines installation

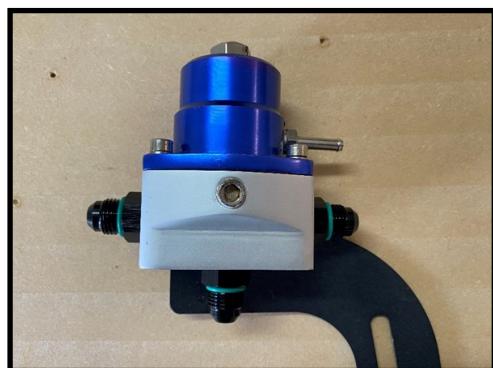
8. Remove the hose clamp and fuel hose from the metal elbow fitting. Also disconnect the emissions quick connect.



9. Grab firmly onto the metal fuel line, and pull. Some wiggling is required and a second set of hands to reach under the car and make sure the fitting starts down the frame rail can be useful. Pull until the fuel line is completely removed from the car and discard.
10. Trim the plastic fuel line shield as illustrated below. This will provide proper clearance for the new lines to fit.



11. Prep the fuel pressure regulator for install by threading the 3 provided fittings as shown below and tighten. Also ensure that the 1/8" NPT fitting on the front of the regulator is sealed using PTFE (Teflon) tape. Then attach the supplied bracket to the back of the regulator and discard the generic bracket.



MK7 Stage 4 Fuel lines installation

Fuel Lines provided:

- Feed Line 1—Short line with a 90 degree Female Quick connect on one end and a 90 degree AN6 Female Flare on the other
- Feed Line 2—Long Line with AN6 female flare on one end and a 90 degree AN6 Female Flare on the other
- Feed Line 3—Very Short line with AN6 Female flare on one end and AN6 Male ORB on the other
- Return line—Longest line with AN6 Female Flare on one end and Male Quick connect on the other

12. Tape the Return Line and Feed Line 2 as shown to prevent dirt/debris from getting into the lines.



9. Tape the wire harness to one fuel line. (Set it back a couple of inches to prevent it from snagging. Then feed both lines down the frame rail until they come out the other end. **Lines should be staggered so they are able to fit through frame rail. These will likely get stuck towards the end of the frame rail, and may require some pull back twist and try again motions. Also a second set of hands can be helpful for this.



MK7 Stage 4 Fuel lines installation

- Feed the Return Line with the male quick connection up to the top of the tank through the opening in the front passenger corner of tank area. Lowering the tank can help if needed but is not required. Also removal of the factory fuel pump control module can provide additional access, just do not route the hose through the control module mounting location.



- Use the 90 degree double quick connect to install the return line on the added return port. Run Feed Line 1 (short feed line) from the top of the tank down to the bottom of the tank. (Female Quick connect goes to fuel pump top hat). Connect 90 degree an fitting to input of fuel filter and output of filter to the female AN6 of Feed Line 2.

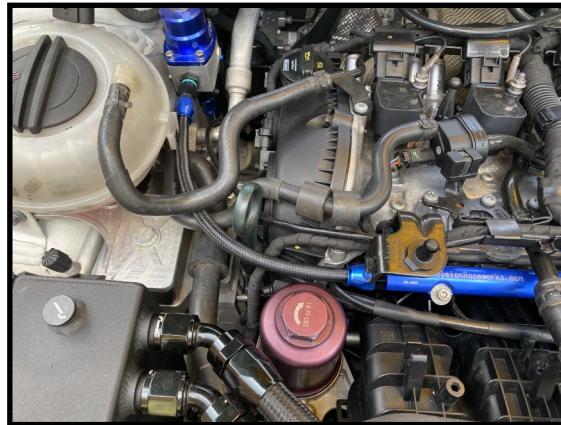


- Loosen the 13mm nut which secures the ABS bracket so that the nut is only held by a few threads. Install the mount for the fuel pressure regulator behind the ABS bracket. Hold down firmly on the regulator assembly and secure the 13mm nut tightly. Now install the fuel line shield and install the 10mm nut removed from the other side earlier in the install and tighten.



MK7 Stage 4 Fuel lines installation

12. Install Feed line 3 from the regulator to the fuel rail like pictured.





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 or improper installation.

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 Support@PrecisionRaceworks.com or 713-770-6977 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 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 visiting:
<https://precisionraceworks.com/pages/rma-request>