

V10 Huracan/R8 Dual Brushless Fuel System

Note – Fuel system tuning will be required following installation of the Alpha Fuel System.

Specialty tools

Fuel sending unit locking ring removal/installation tool – recommended but not required. See step 17.

Disassembly

R8 follow steps 1-6, Huracan skip to step 7.

1. Move the seats all the way forward and pull the tether to fold the seat-back forward to gain access behind the seats.
2. Disconnect the battery.
3. Remove two 9mm hex bolts, four T30 bolts and radio bezel.



4. With a plastic trim tool, remove both speaker grills and upper trim panel, they are held in very tight with plastic clips.



5. Remove the plastic screw under the speaker grille on each side.



6. Remove the four nuts along the top of the rear trim panel.

Tech Note: I recommend using hand tools on the fasteners in these steps and future steps as the studs are attached using epoxy and can easily pop off. Then continue to step 11.



Steps 7-10 for Huracan Only

7. Remove the large cover. It is only held on by rubber grommets, pull up slightly to release the six grommets and then out around the audio unit.



8. Remove the panel between the headliner and window trim.



9. Remove the plastic cover to reveal the bolt holding the child seat hook. Then remove the window trim plastic.



10. Remove the four nuts holding the lower panel and remove the panel.

Tech Note: I recommend using hand tools on the fasteners in these steps and future steps as the studs are attached using epoxy and can easily pop off Continue with step 11.

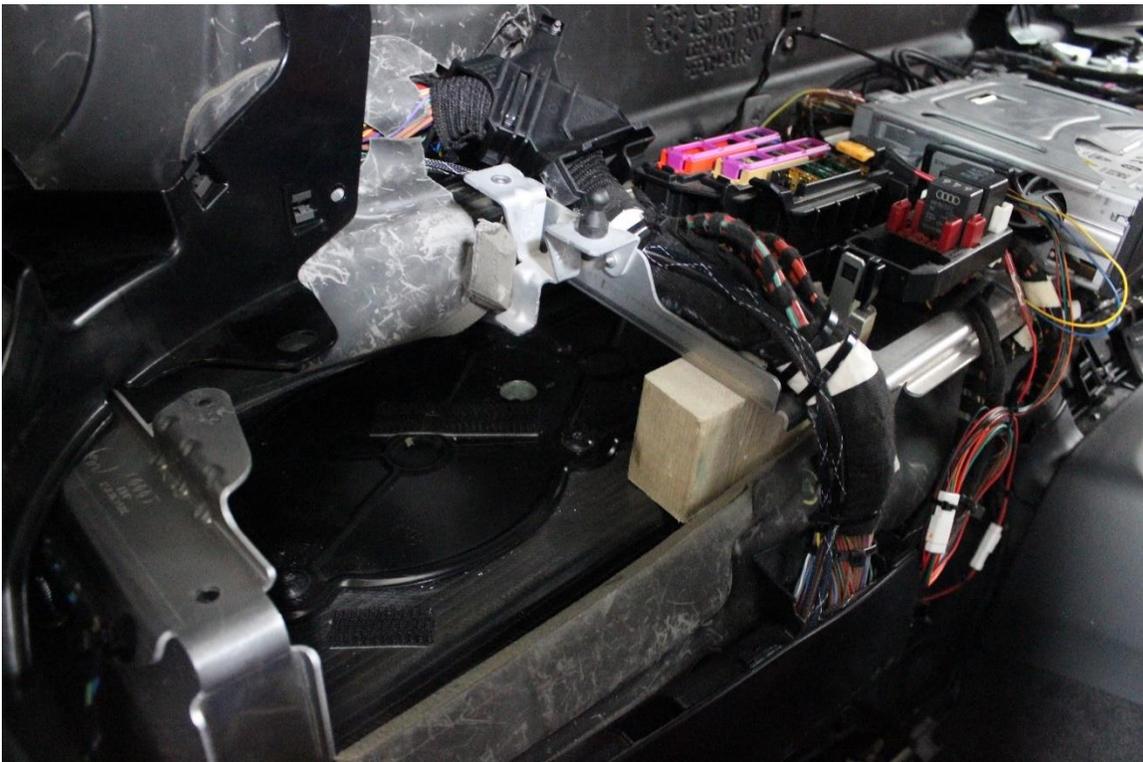


11. Remove the seven nuts from the control unit bracket assembly to gain access to the fuel tank access panel bolts.

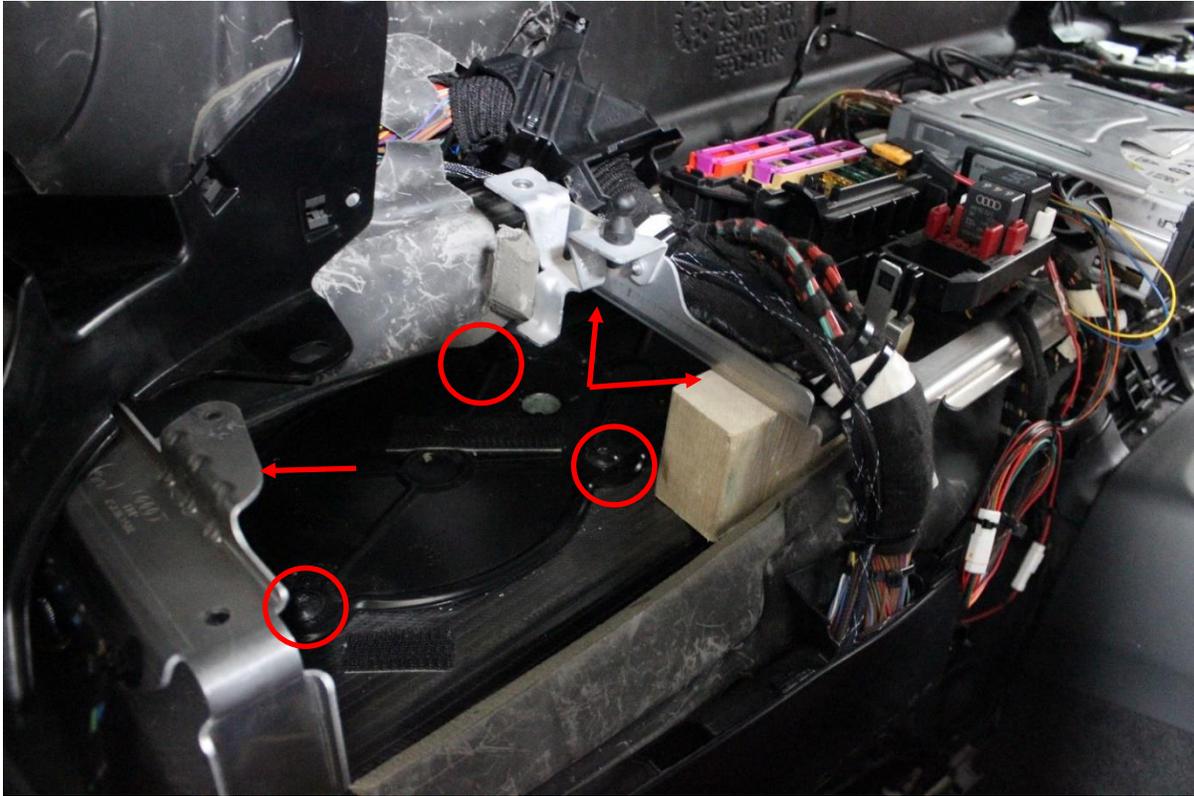
Note: We removed a few additional components for photo purposes. This is optional.



12. Pull the bracket assembly towards the front of the car to release it off the studs. I found propping it up with a block of wood to be helpful to remove the access panel.



13. Remove the six bolts from the access panel.

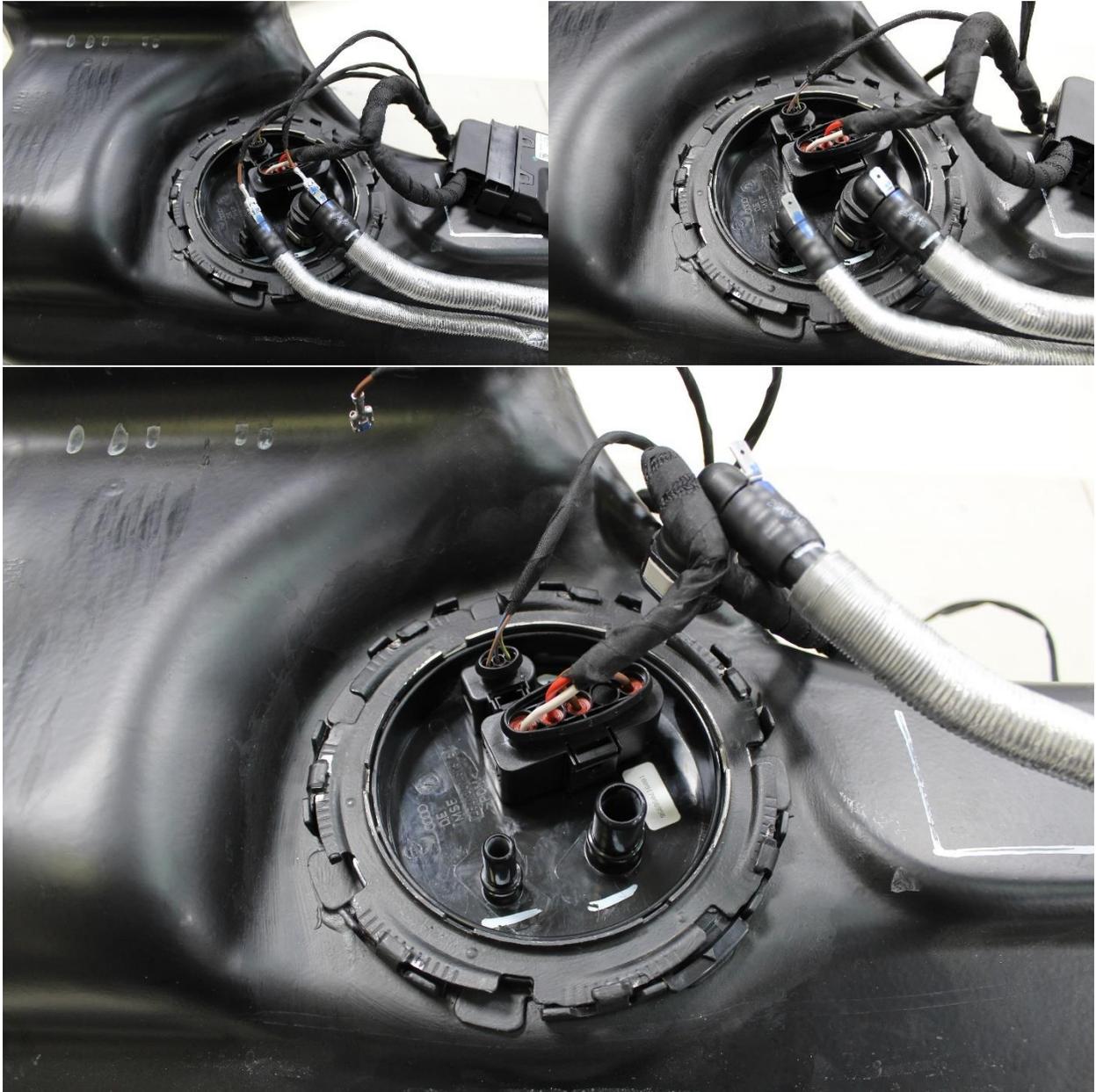


14. Carefully lift the access panel, disconnect the fuel pump controller then fully remove the access panel.

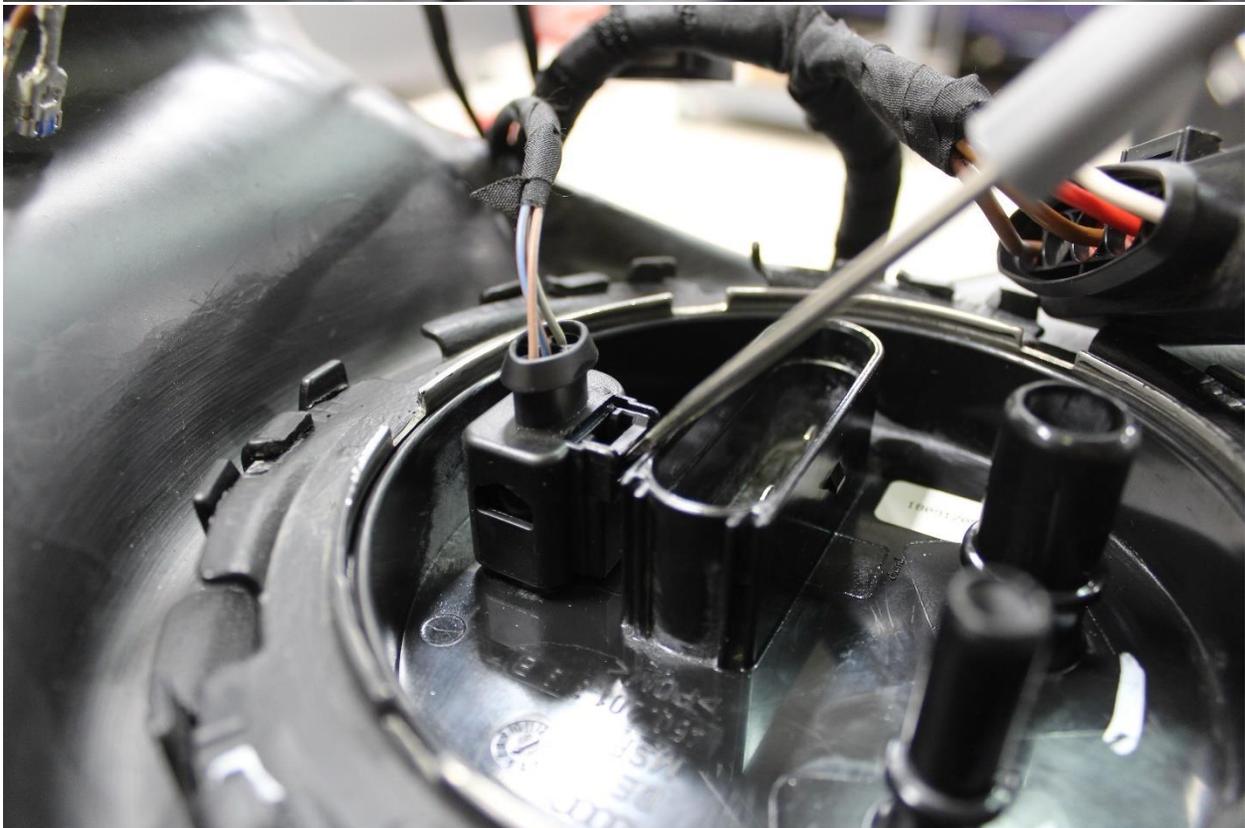
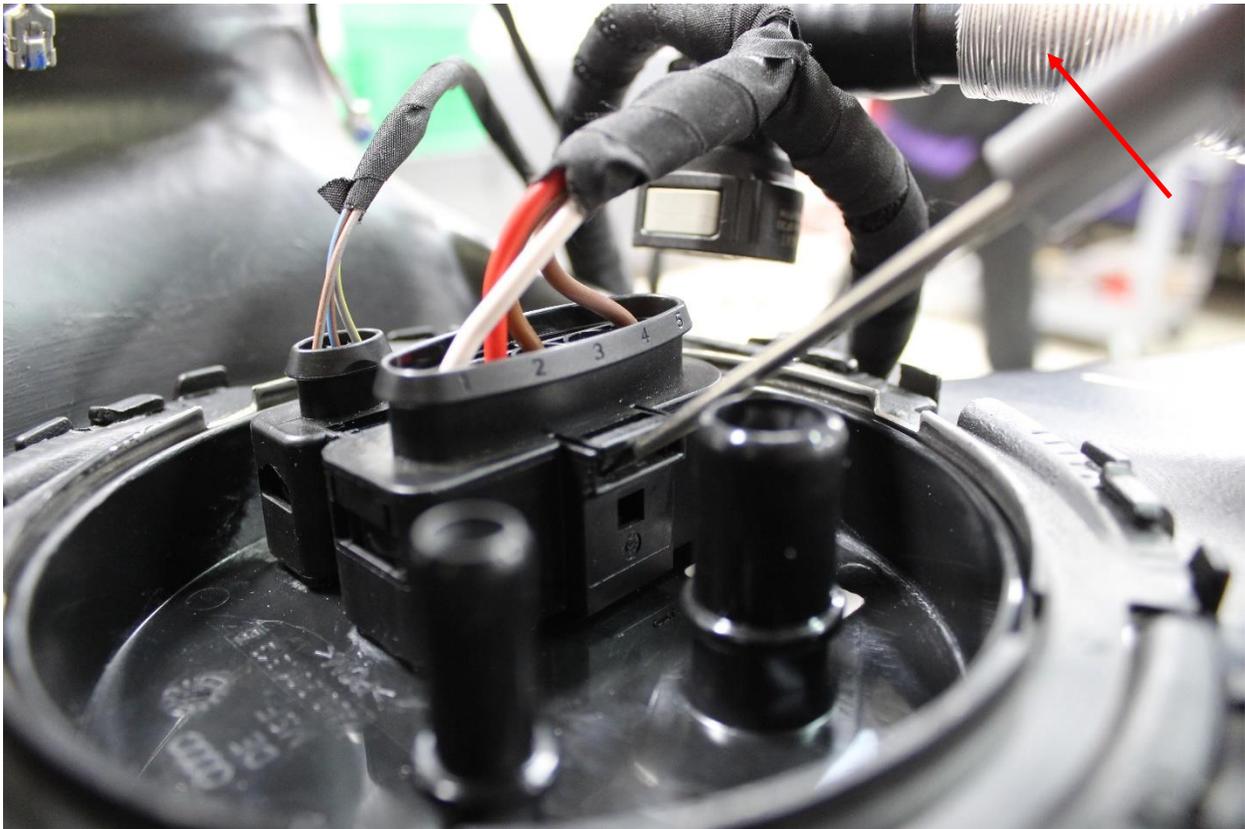


Note: For instructional purposes, the next few steps are shown with the fuel tank out of the car. This is for illustration purposes only. You do not need to remove the fuel tank.

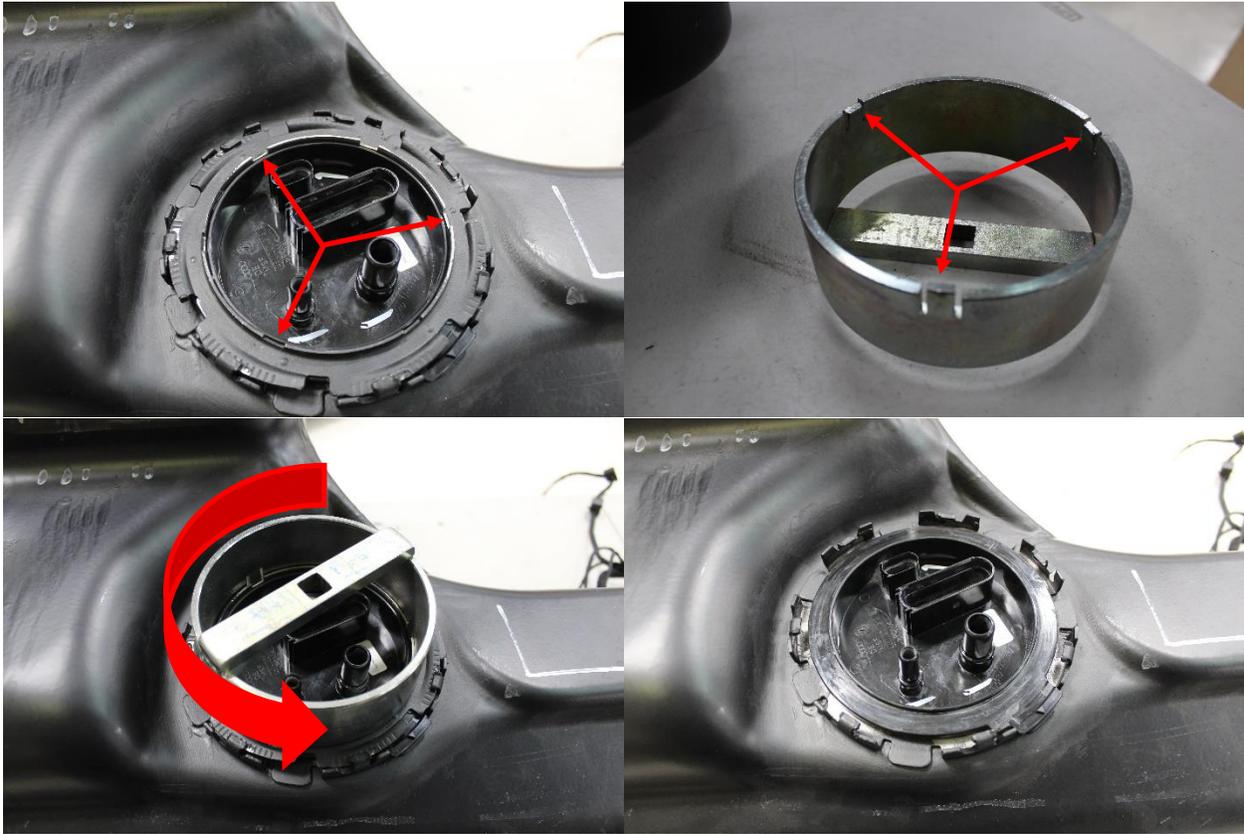
15. Disconnect the two brown static ground wires. Then disconnect fuel line quick connect fittings.



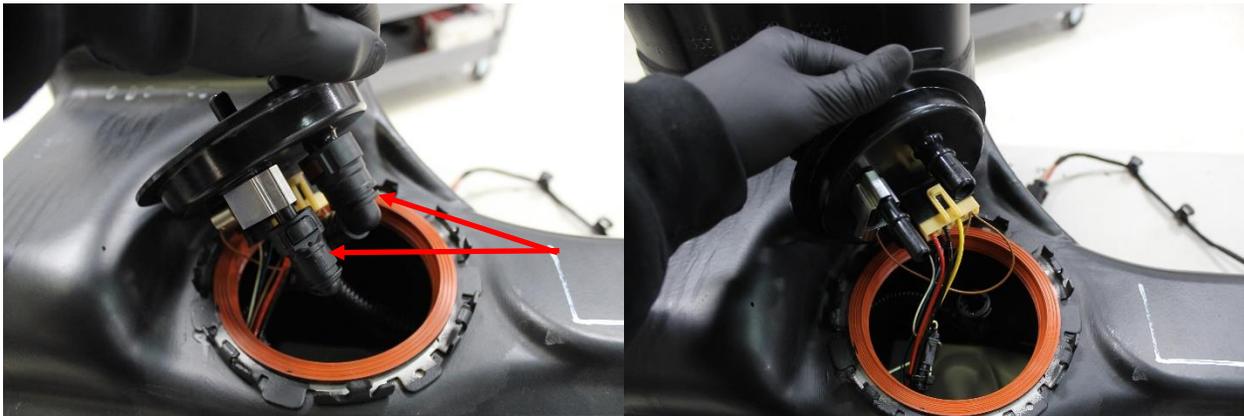
16. Disconnect the two electrical connectors using a small screwdriver to release the lock as shown. Insert the screwdriver into the connector and pry slightly upward.



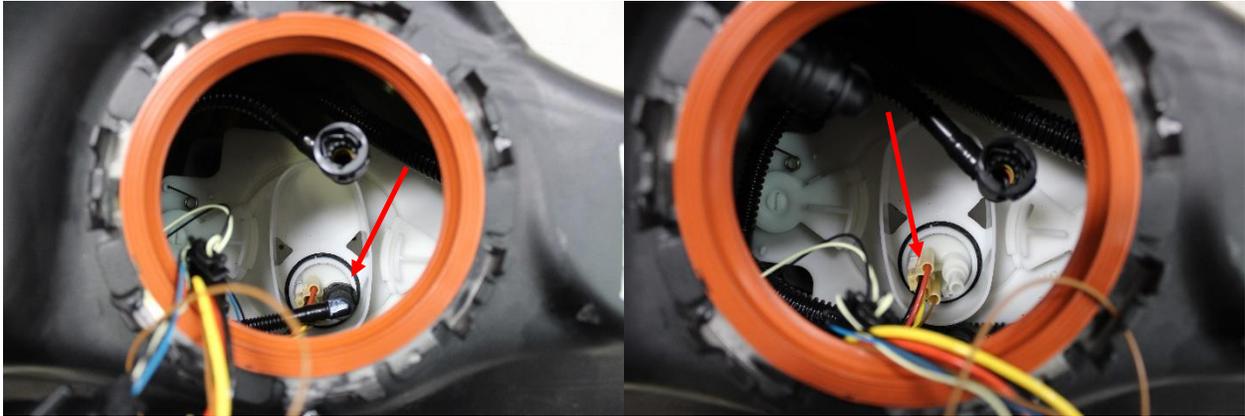
17. Using the locking ring removal tool and a ½" ratchet wrench, align the notches in the lock ring with the notches on the tool. Remove the lock ring and pull the top.



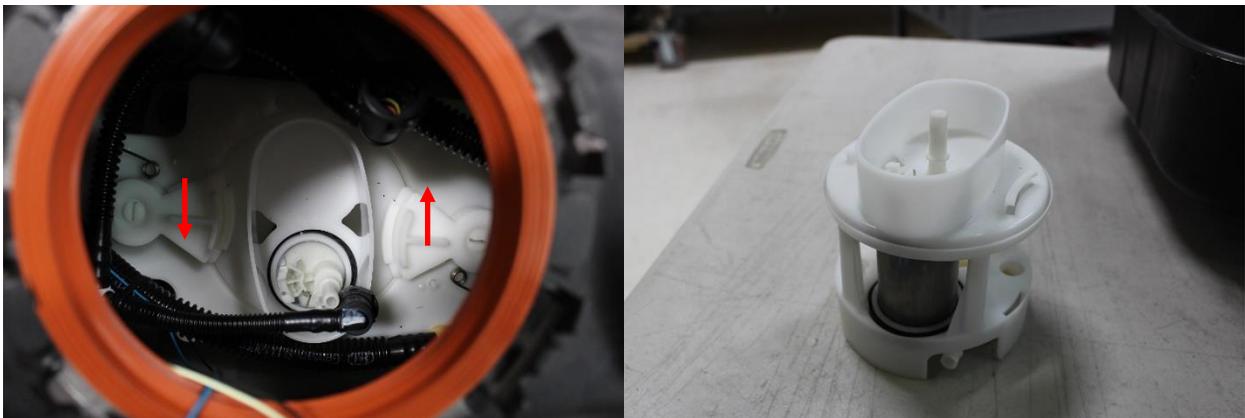
18. Pull the top hat up and disconnect the connectors and quick connect fittings on the backside.



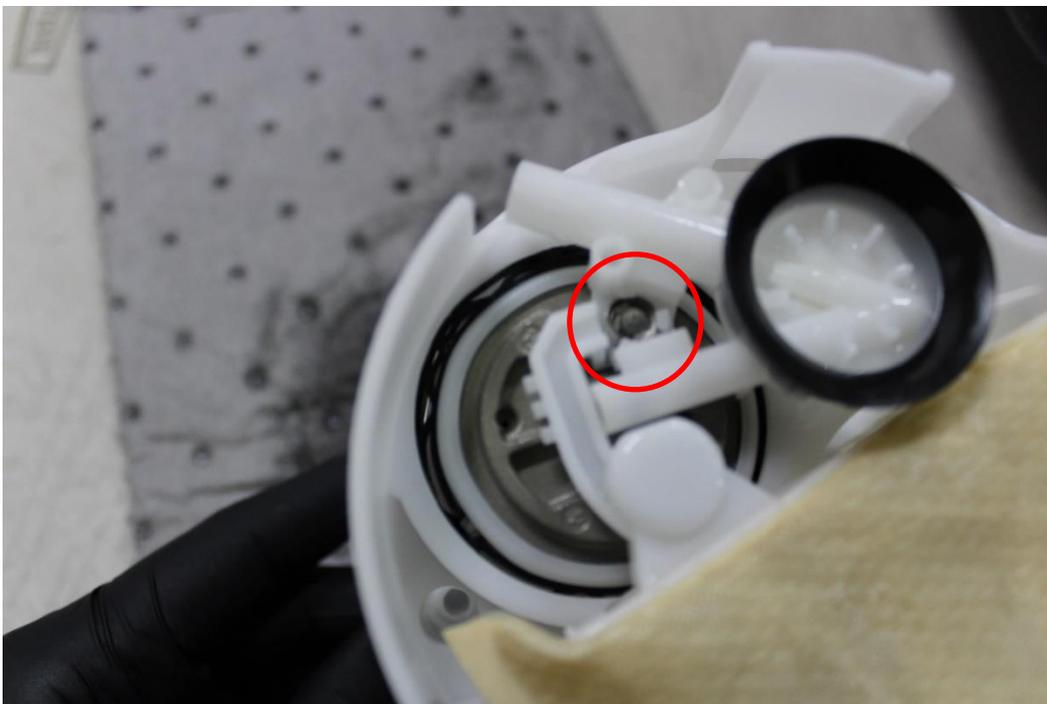
19. In the tank, disconnect the fuel line off the pump and the electrical connector.



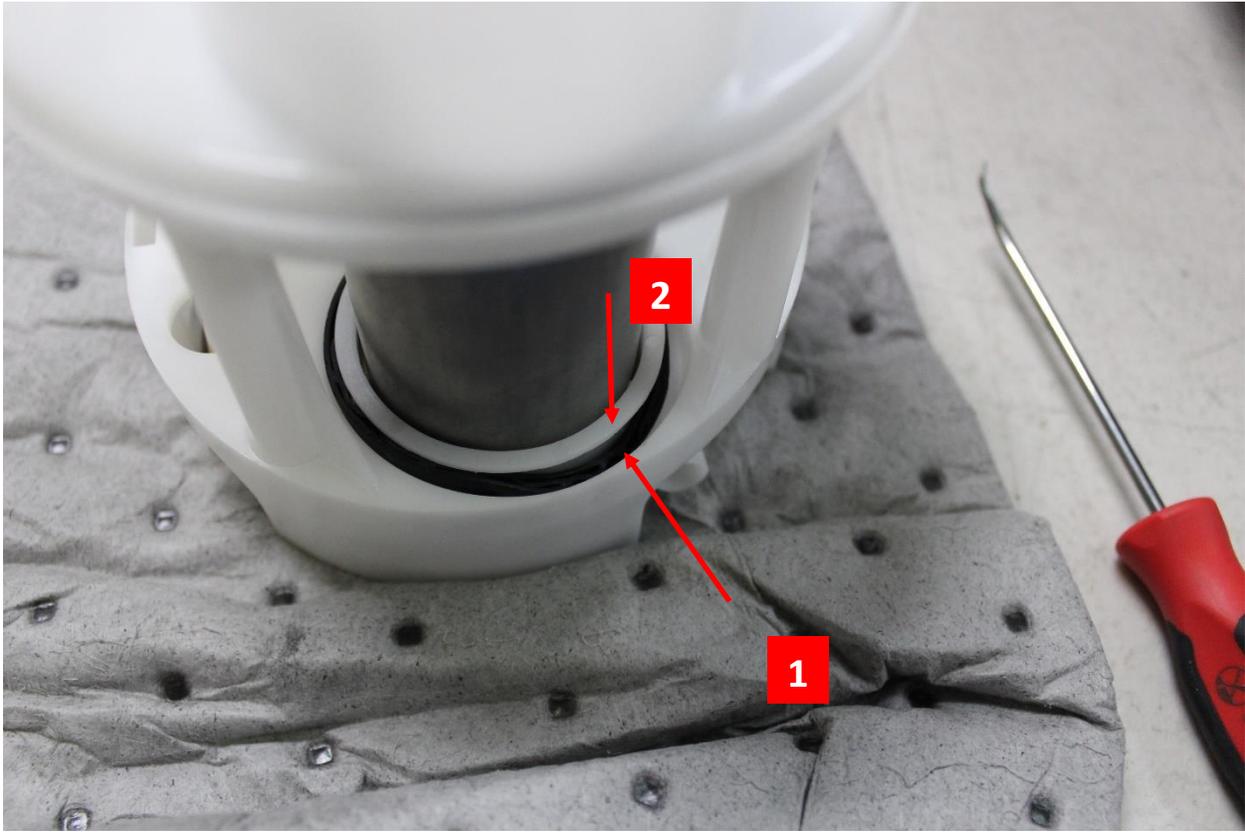
20. Flip the two levers shown and remove the fuel sending unit and place it on your workbench.



21. Flip the sending unit over and remove the fuel pump filter assembly by removing the round retaining clip.



22. Using a small flat blade screwdriver or similar, push the rubber to the side and then through the bottom as shown.



23. Remove the entire rubber spacer and the pump should drop out. Remove the rest of the parts so you are left with a bare basket.



24. Using the empty basket, locate the 3D printed drill jig and set it in the top of the basket in such a way it covers the open hole. This will locate the holes to be drilled. Using a 2" hole saw and a 14mm (or similar) drill bit, drill the two holes as shown below. Remove any burrs or debris.





25. Gather the following parts – fuel pumps, filter pickups, O-rings and top & bottom caps. Starting with the top & bottom caps, notice two have a section machined out to create a light cinch feature (top cap) while two do not (bottom cap). Grab one of each and place an O-ring inside the groove as shown. This will be for the first pump.



26. Place the top and bottom cap into the basket as shown below. Position the machined flats along the two "supports." Repeat step for second pump.



27. Lubricate the O-rings with a silicone spray or similar. Place the pumps into the basket until they sit all the way down while keeping the upper cap in position. Check that the machined flats are also in correct position. See photos for correct clocking of the pump outlet barb.



28. Install the pre-filters.



29. Locate the following items in the photo below.



30. Place the collars onto the pump barsbs.



31. Prepare the hardware and position as shown below.



32. Lubricate the grommets in the fuel pump manifold and install onto the pump bars. Notice the orientation of the manifold in reference to the basket. Then tighten the allen bolts.



33. Locate the black fuel return fitting and retaining clip. Install the fitting into the hole drilled in step 24. Install the retaining clip on the backside.

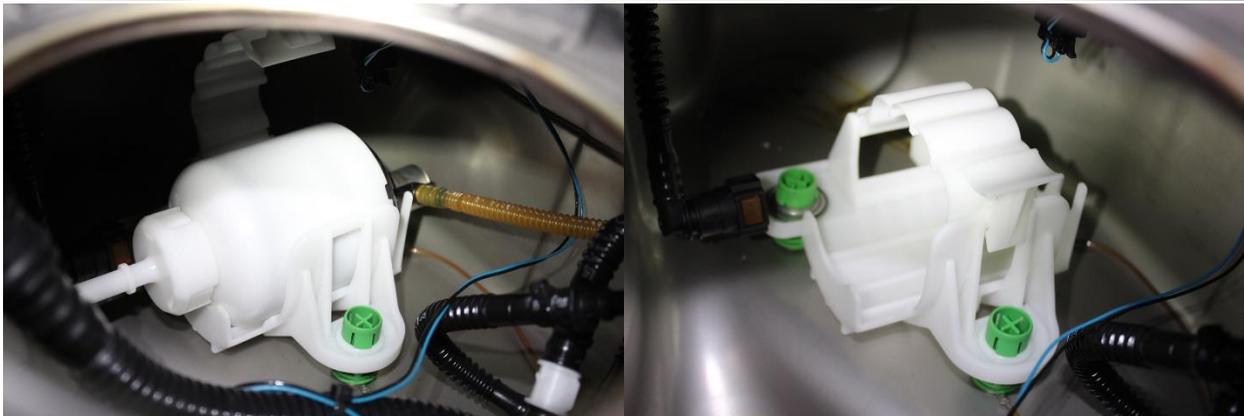
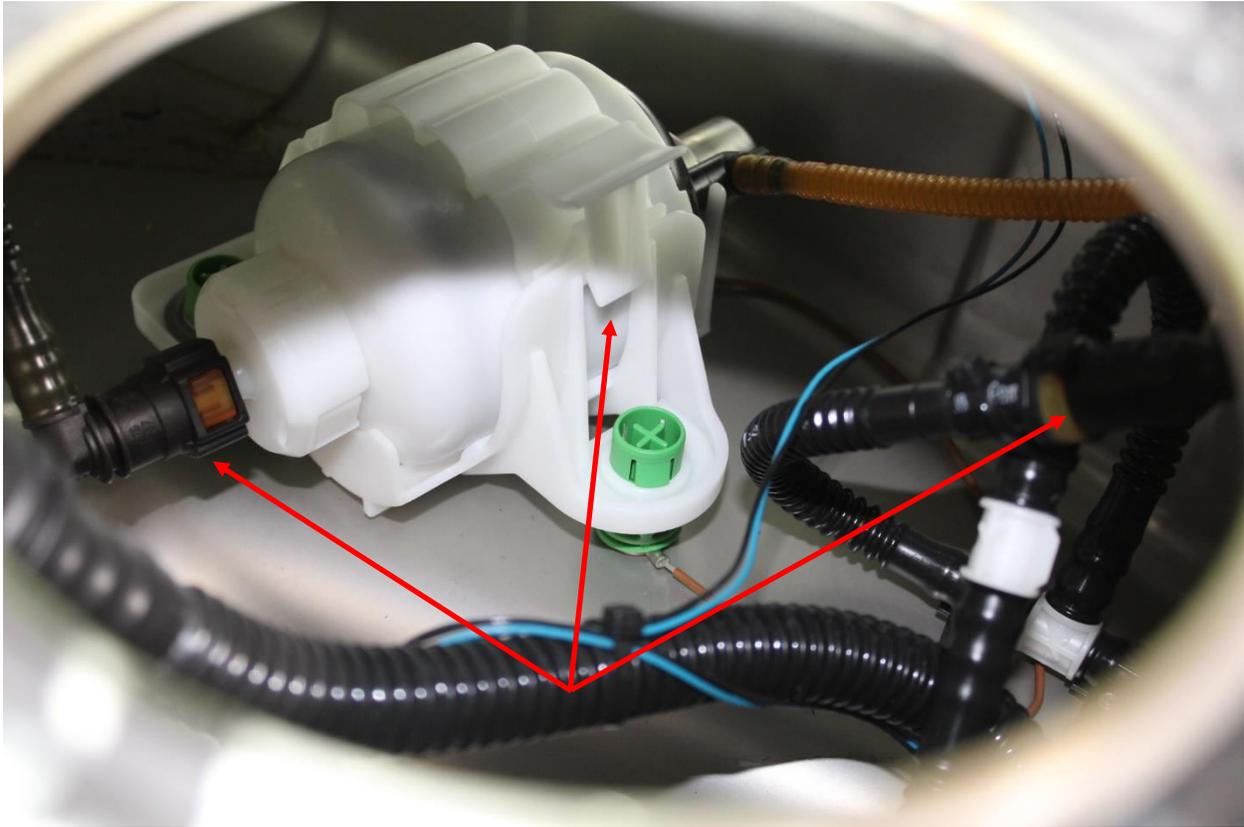


34. Using the provided M4 bolts, Snuggly fasten them into the top cap to hold the pumps in place. Do not overtighten them as you may damage the pumps. Then set it aside for now.

Note: Be sure top cap is pushed up into the basket properly.



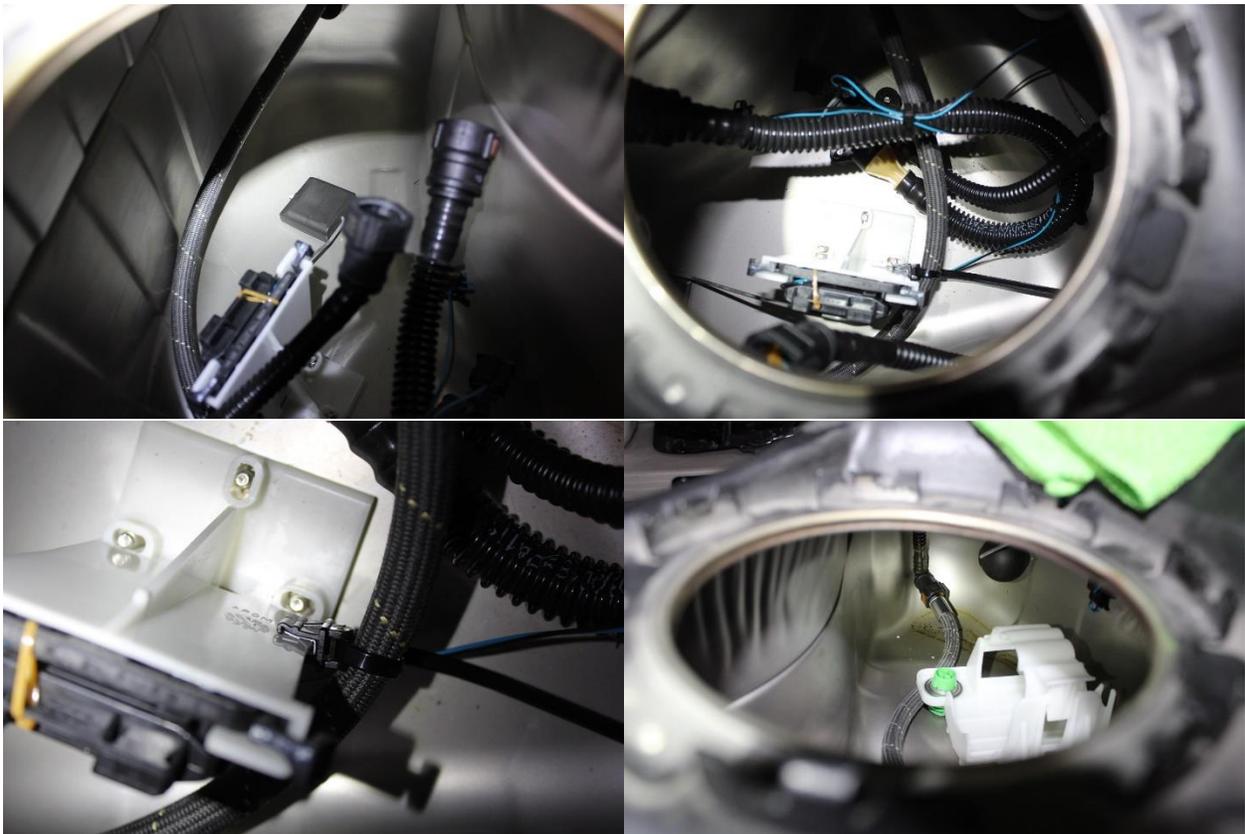
35. Next, we need to make a few changes to the driver's side tank for the Alpha Dual Brushless Fuel System. Start by removing the access panel and fuel tank retaining nut as you did before. Locate the fuel filter/fuel pressure regulator assembly near the back of the tank. Release the quick connect fitting and the strap holding the assembly. Then remove the assembly.



36. Locate the fuel line, fuel line cap and zip tie w/mounting clip. The fuel line needs to run from tank to tank. I found it was easier to feed the male fitting from the passenger tank through the crossover tube to the driver side tank. See photos below.



37. On the driver side tank, route the line away from the level sensor by leaving a little slack in the line and wrapping around the backside of the sensor with the zip tie mount. Then make the connection as shown in the last photo below.



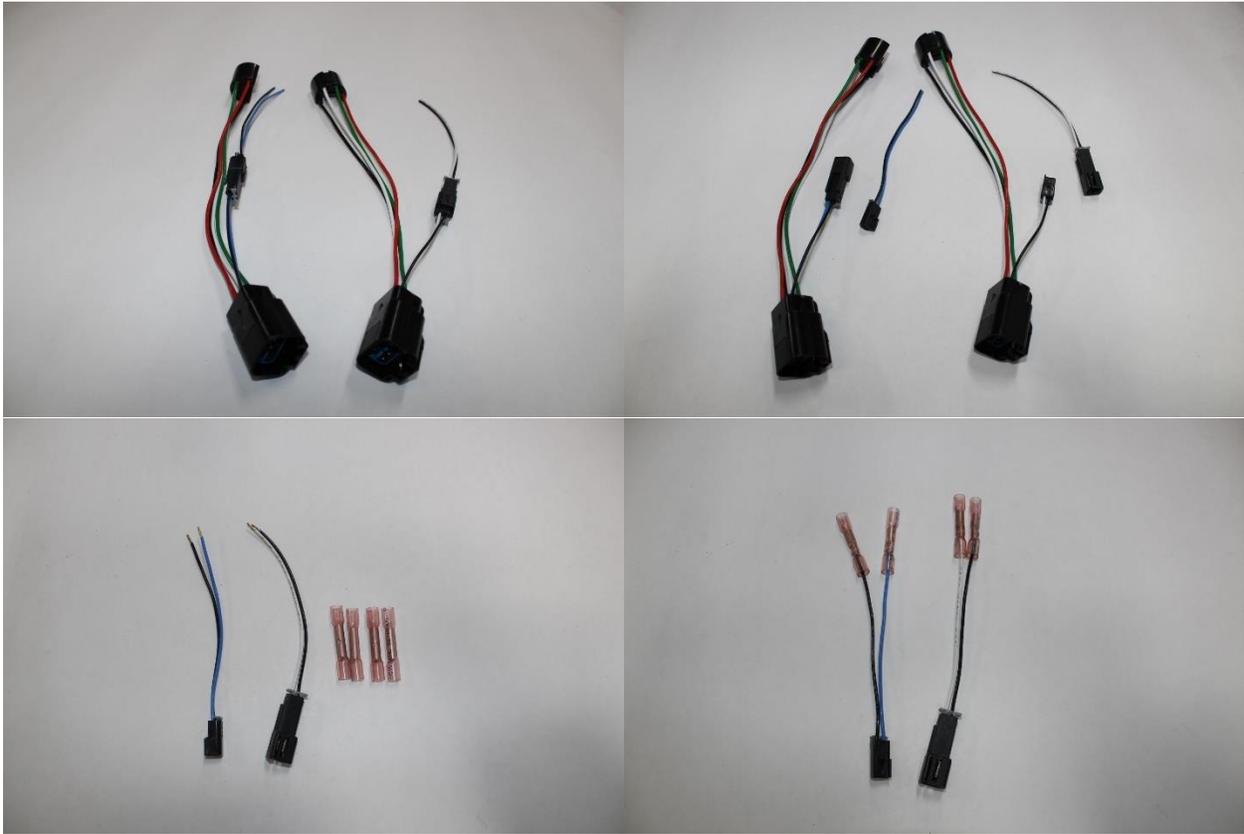
38. Install the cap to the remaining open fitting.



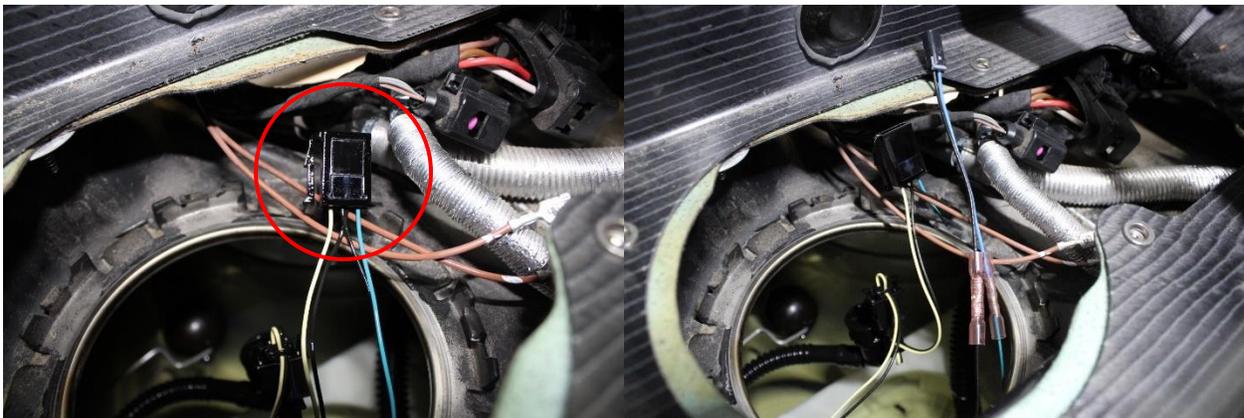
39. Gather the red top hat and fittings shown below. Lubricate the O-rings on the three fittings. Also, apply red loctite to the threads of the AN fitting and install them in the locations shown below.

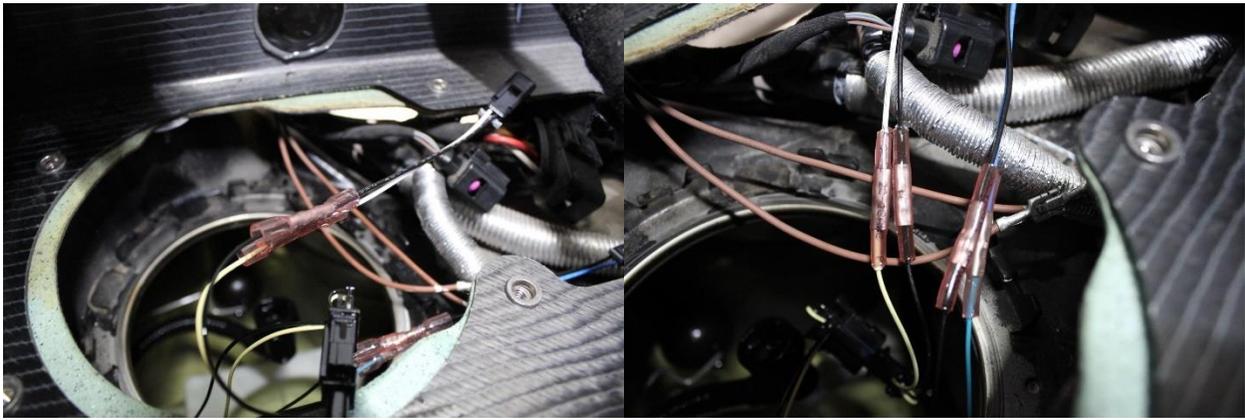


40. Gather the two harness' shown below. Disconnect the 2-pin connectors on both harness'. Then using four of the provided red/pink shrink butt connectors, crimp the unterminated ends.

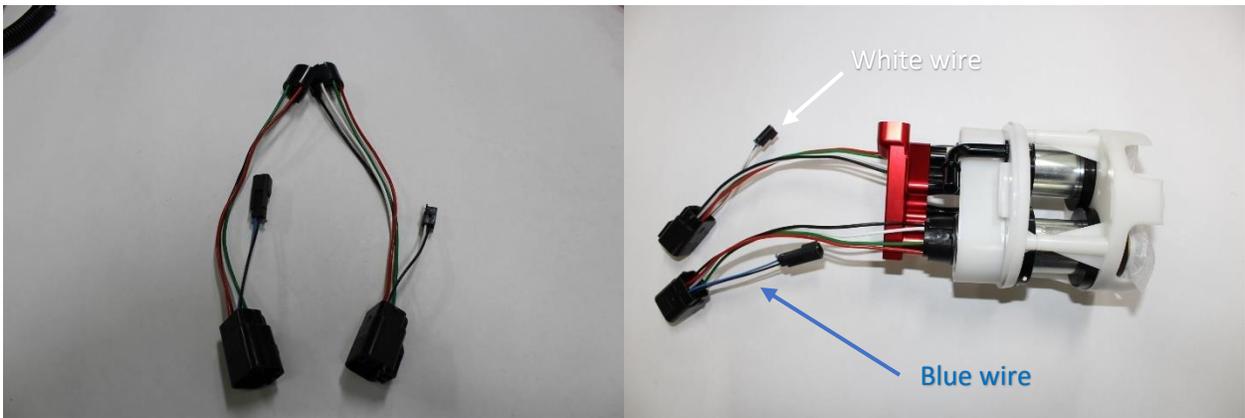


41. Locate the factory in tank level sensor bulkhead connector. There are two black wires, a blue wire and a white wire. Cut the blue wire and the associated black wire. Strip the wires back and match them with the prepared blue and black wire jumper harness. Make the connection. Repeat for the white and black wires.



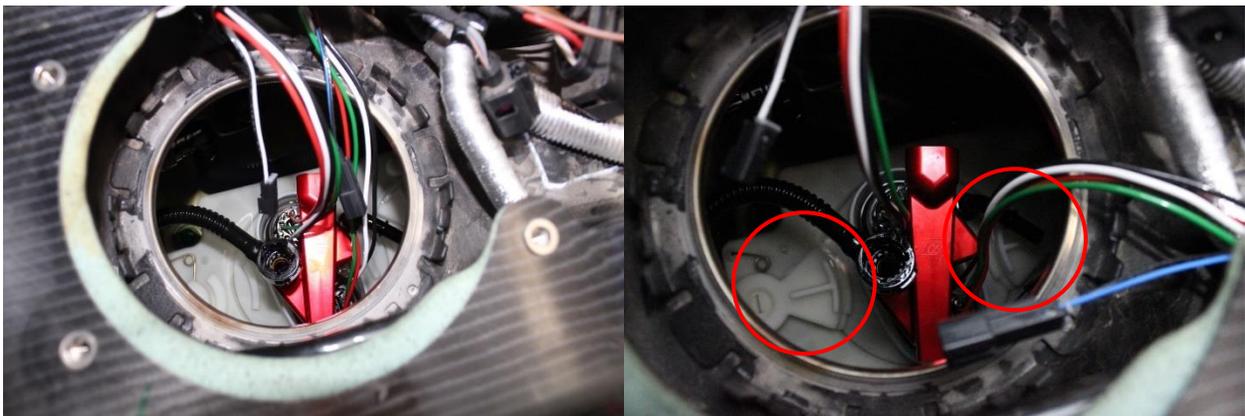


42. Grab the two harness' from step 40. Plug them into each of the pumps. Notice which harness is plugged into which pump. This orientation is ideal to avoid tangling once installed in the tank.

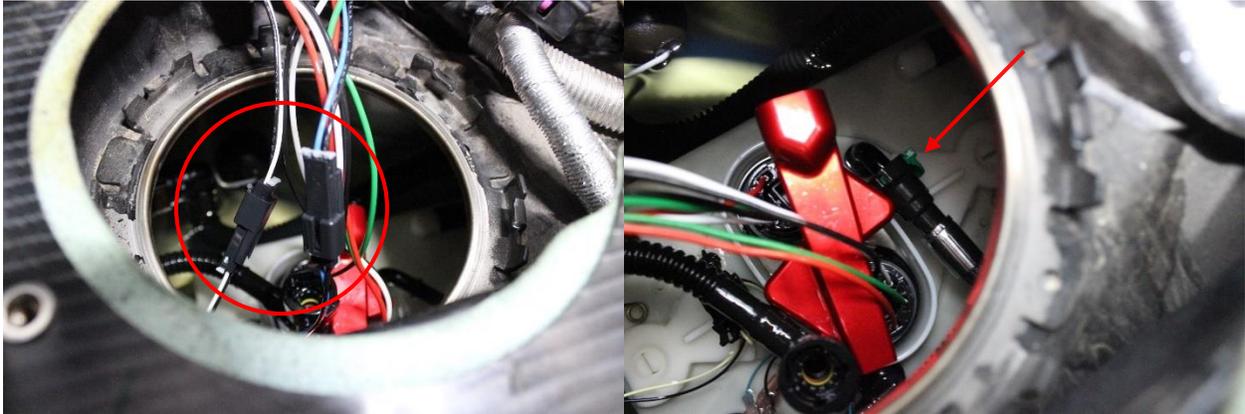


43. Carefully reinstall the basket into the tank and rotate the two tabs to lock it in position.

Note: The fittings go in after the basket is installed because the assembly will not fit through the opening. Also, the basket only goes in one way. The larger manifold outlet should face the rear of the car.

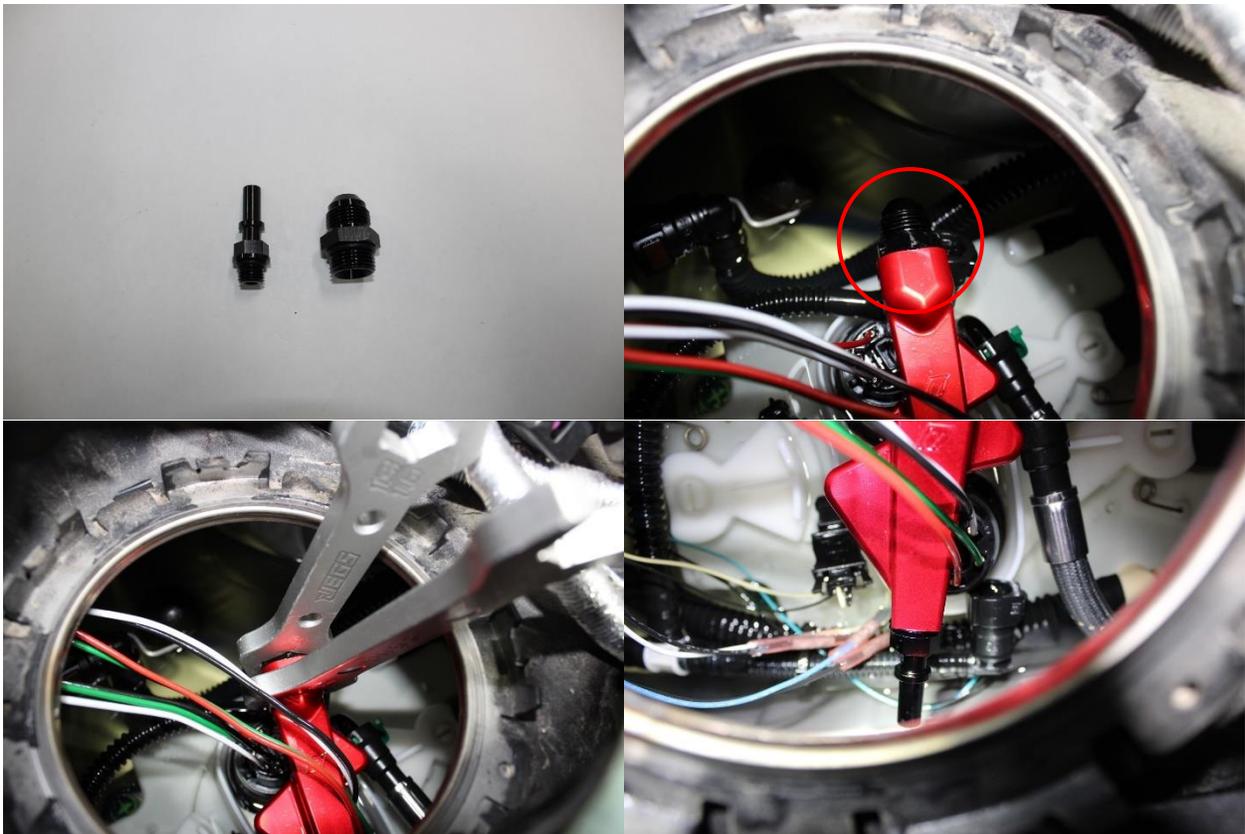


44. Connect the new level sensor connectors to the appropriate fuel pump connectors. Then connect the fuel line that was ran in step 37 to the fitting that was added to the basket as shown below.

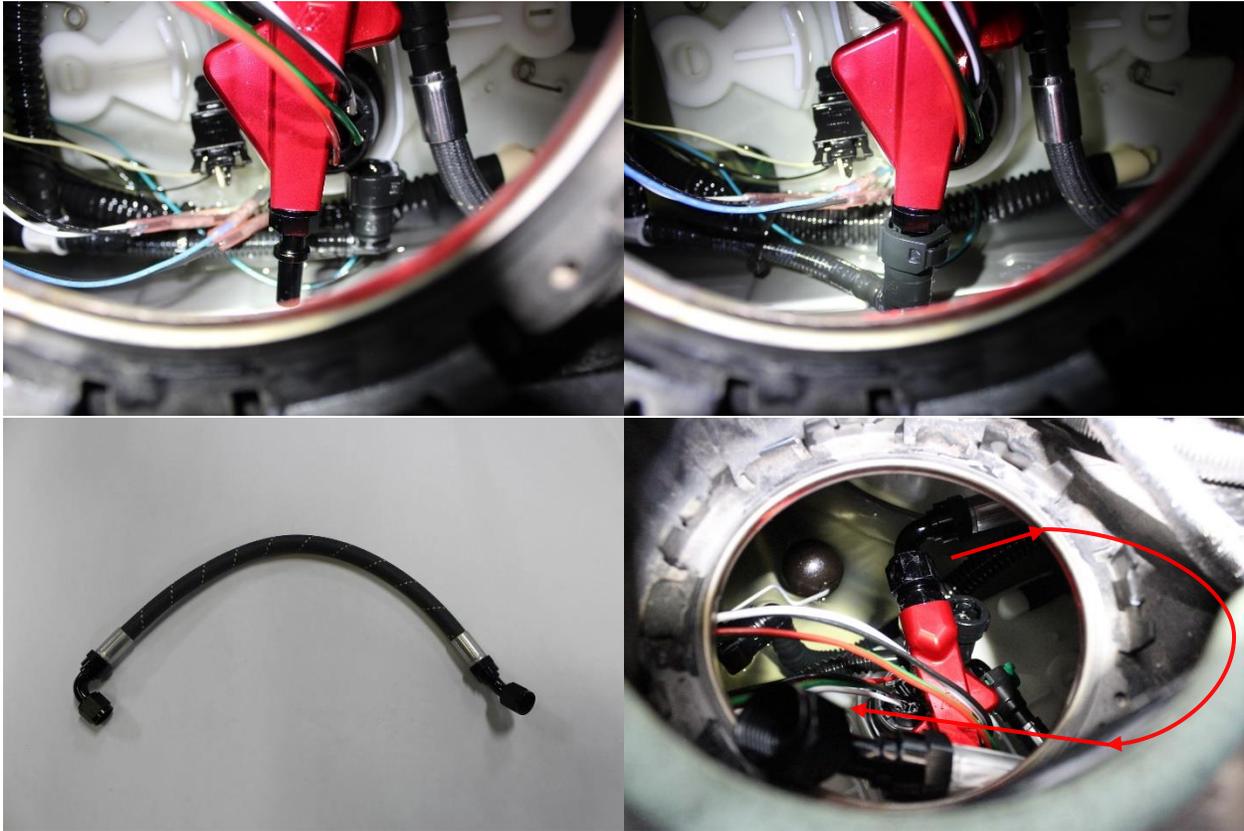


45. Locate the provided -8 and quick connect fitting and connect them to the red fuel pump manifold. Lubricate the O-rings and tighten them down.

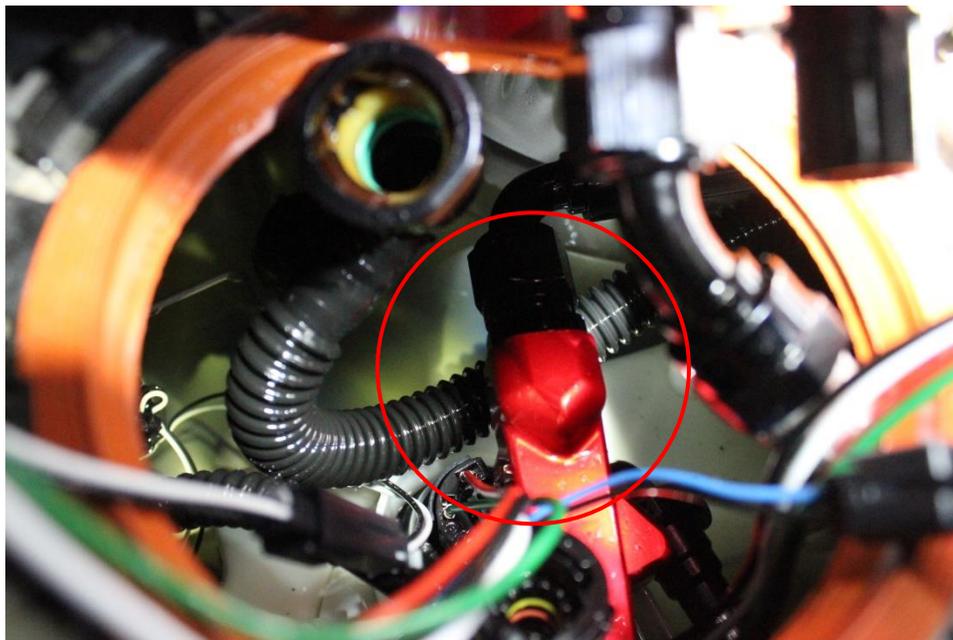
Note: The manifold was designed with two flats on the larger end for a -10AN (1") wrench.



46. Connect the quick connect fitting that was removed from the factory pump back in step 19 to the quick connect fitting on the fuel pump manifold. Then locate the provided -8AN fuel pump outlet line and connect it to the fuel manifold as shown below. Route the line to the right and loop it back towards the fuel tank opening.

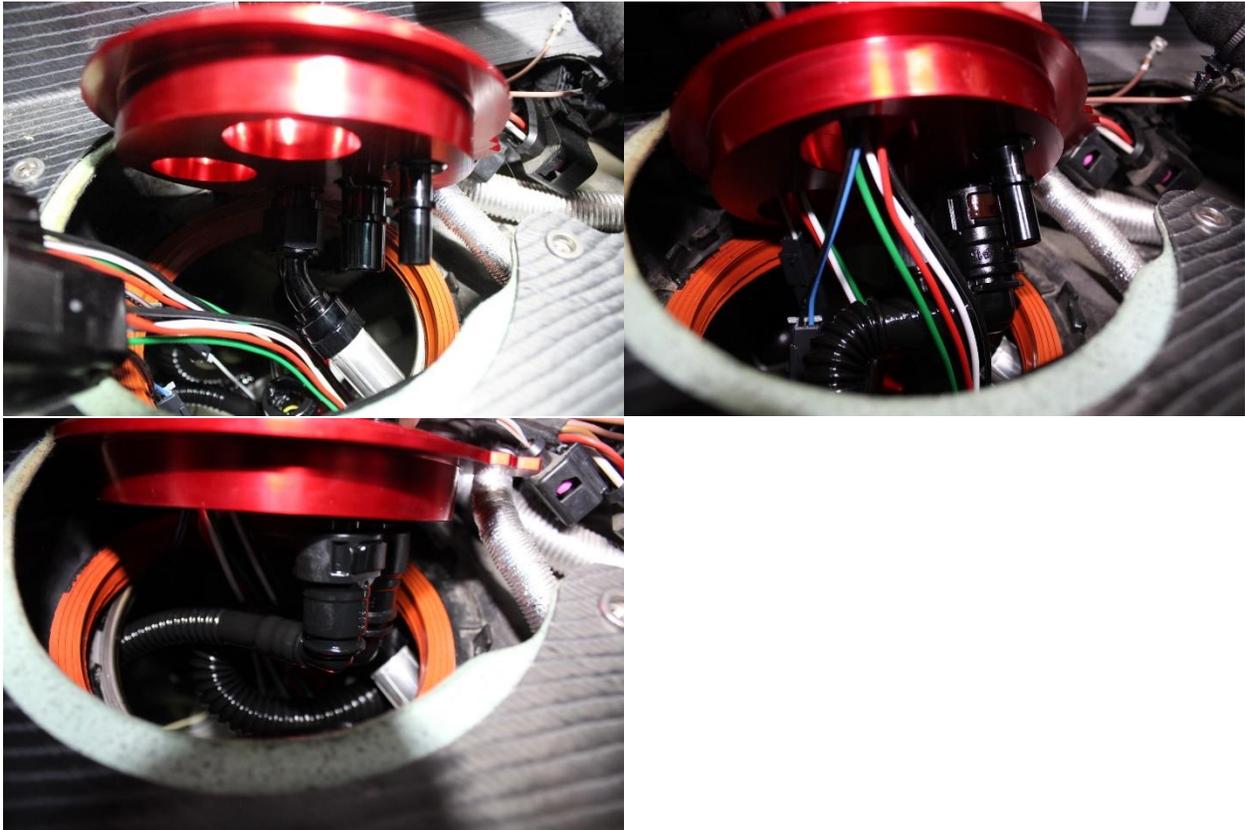


47. Before installing the top hat, we need to make sure the large quick connect line in the tank runs below the fuel pump manifold and up towards the top hat. This step is very important for proper fitment. See photo below.



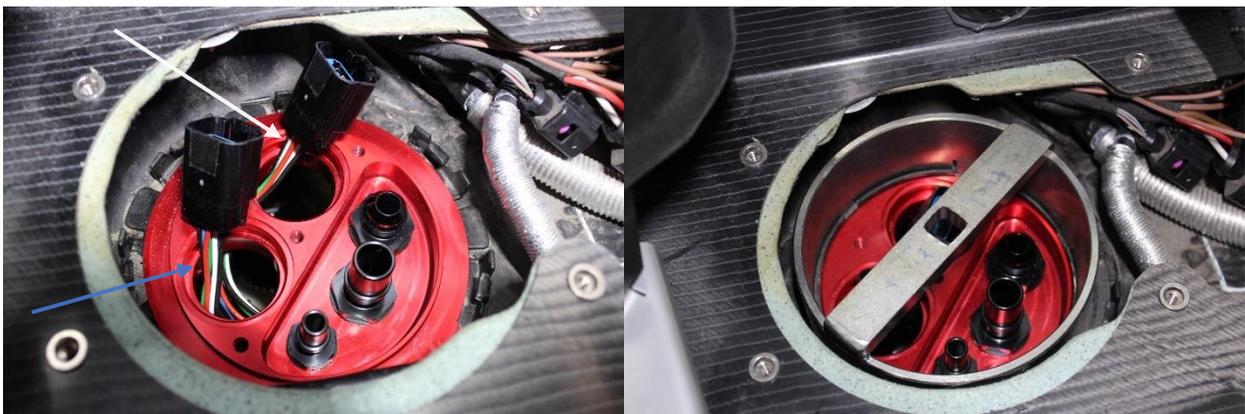
48. Install a new seal (provided) to the fuel tank. Using the top hat prepared in step 39, install the -8 AN fuel line to the top hat. You may need to hold other side while tightening to prevent it from backing out. Once that is tight proceed with the other two quick connect fittings.

Tech Note: Be sure the quick connect fittings are properly seated and cannot be removed with a simple tug.



49. Pass the fuel pump harnesses through the opening before placing the top hat in place. Once the top hat is in place, it is a good opportunity to verify all internal lines and wires are not kinked or obstructing level sensor operation. Once verified, reinstall the top hat nut.

Make note of the locations of the blue and white level sensor wires.



50. Gather the following parts – bulkhead connectors, O-rings, connector plate and button head hardware. Lubricate the O-rings and then install them onto each connector. Connect the bulkhead connectors to the pump harnesses. Place the connector plate onto the connectors and walk it into place. Press firmly on each connector to seat them in the top hat. Fasten the top plate with the button head bolts.



