



2011-2014 F150 EcoBoost Fuel Pump Upgrade

Background: Increasing fuel pump flow is an important upgrade when looking for more power on any turbocharged engine. This article covers the proper way to upgrade your 2011-2014 F150 EcoBoost low pressure “lift pump” fuel feed system. Big thanks to Adam and Mike @Revolution Auto in MD for working with us on the photos, testing and tuning!

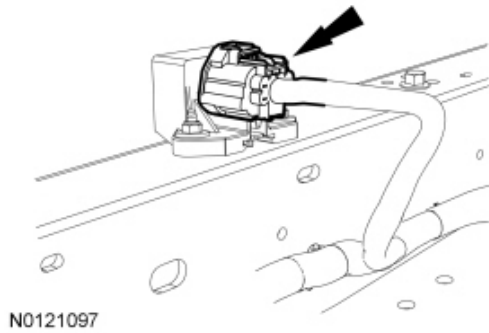
There are two different ways we suggest to plumb your truck’s fuel system – returnless with OEM intank regulator (covered in this article) –OR- by adding an external regulator and return line. Whichever path you choose, we’ve found it’s critical to replace the highly restrictive OEM fuel filter assembly (3.7mm ID) with a true 3/8” hose and 3/8” filter (6mm ID). After proper modification is complete, the lift pump fuel system will support up to 500hp. Some people run no post-filter (Strainer only) and others run no FPR - but this is not recommended. For big power builds with external FPR and return line, you will still need to replace the filter but you won’t need the OEM intank FPR or tee fitting.

Parts Required for Returnless Installation with Intank FPR:

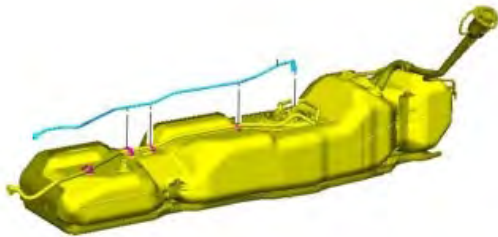
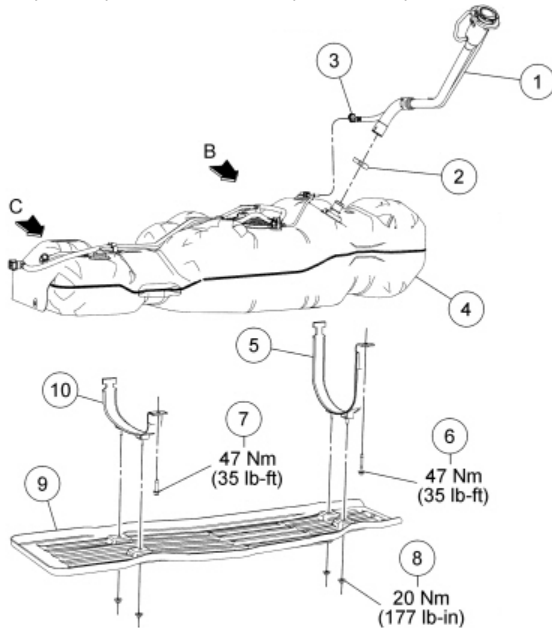
- Full-Race F150 Fuel pump, pickup strainer, pigtail
- 3/8” High Press. Fuel Filter: [Golan 40-375B](#) -or- [Holley 162-550](#) -or- [Holley 162-554](#) –or- [Jegs 15040](#)
- (2) 3/8” Stainless Steel U-bend Gas Line Fittings #S4009 ([Installationpartssupply.com](#) or [Amazon.com](#))
- (1) 3/8” Stainless Steel Y-tee Gas Line Fitting ([Installationpartssupply.com](#))
- (6) [high pressure fuel injection clamps](#) OR [oetiker 1-time use Ear clamps](#) (OEM style)
- (3) 1 foot pieces [submersible fuel hose](#) Viton Gates #27097

Installation: Be sure to carefully read all of the attached instructions prior to starting the installation process. Prior to installation, be sure that the vehicle is parked on a level surface and the engine is cool. Fuel systems are difficult to modify - if you are unsure, you should leave the installation to a qualified professional. Engine fluids and components can be extremely hot following normal vehicle operation. Avoid direct contact of engine fluids or components with your skin and eyes - **Wear Safety glasses and skin protection – DO NOT SMOKE - when working with Fuel!** Any modifications to your car are AT YOUR OWN RISK. You should consult the owner’s manual and service manual. You should also contact your car’s manufacturer to determine what effects modifications may have on your safety, warranty, performance, etc. It is your responsibility to comply with federal, state, and local laws prior to driving your vehicle on public roads.

1. Make sure the fuel tank is on Empty, as close to dry as possible. Unplug the Fuel Pump harness on the frame rail, start the engine, and let the engine idle until fuel lines run out of fuel:



2. Open the hood, disconnect the battery
3. Safely jack up vehicle using jackstands (or use a lift if you have access to one).
4. You may need to remove the rear portion of your exhaust. Spray the Hangars with WD40 or PB blaster to make removal easier
5. Support the underside of the Fuel Tank Assembly. Use a floor jack with a piece of wood, ATV jack or transmission jack. Get ready to drop the tank down. Exploded Component view:



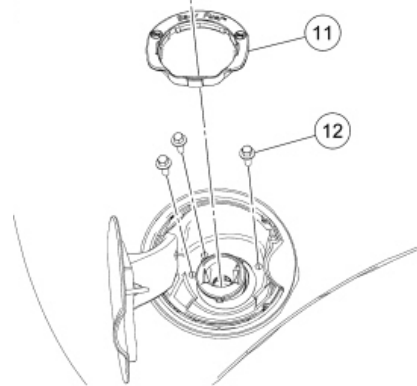
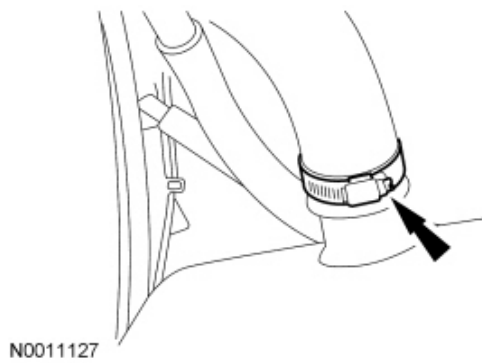
6. Now that the fuel tank is secured, start by removing the 2 lines on the front side of fuel tank. As long as you ran the engine out of fuel, there should not be any fuel spraying out. (If you skipped that step, I hope youre wearing safety glasses!)



7. Remove 2 bracket bolts – they are long! So use an electric impact or air tools. Then completely remove the brackets from tank.



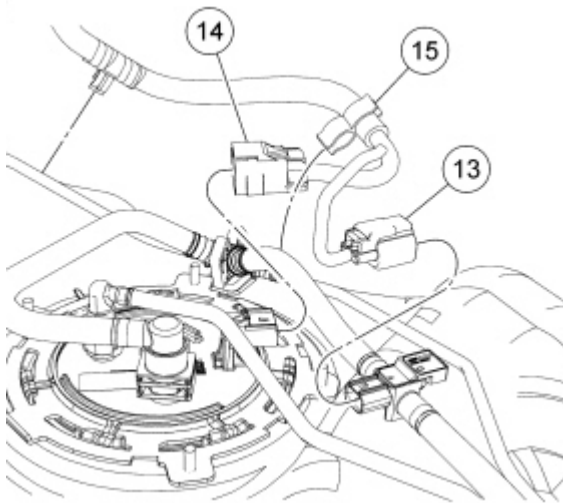
8. Lower fuel tank 3-4". Look on top of fuel tank, Unscrew Hose clamp at fuel fill neck



9. Remove Vent hose Quick-Release. Squeeze each side of the lock for removal

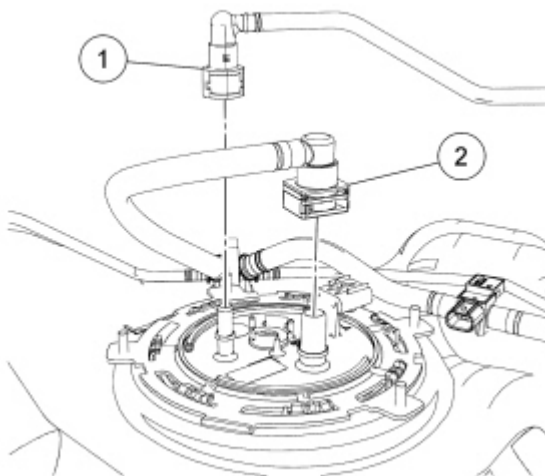


10. Unplug the 2 connectors on top of Fuel Hat Assembly.

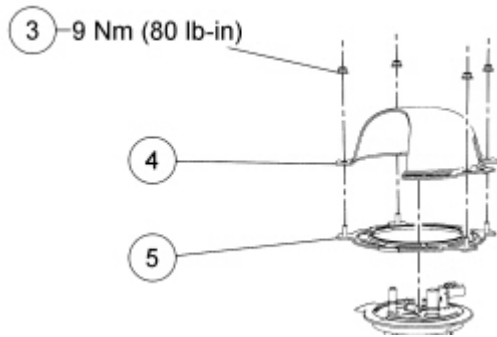


11. Now everything should be disconnected and you can lower the tank down

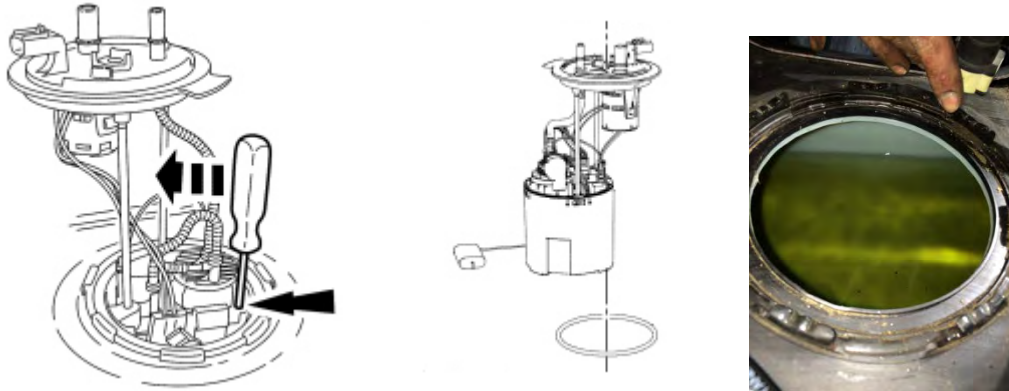
12. With the fuel tank removed from the vehicle, we have access to the top cap pump assembly. Start by using a paint marker to stripe the top cap and indicate the position for reinstallation (this saves time later). Then disconnect the fuel hoses:



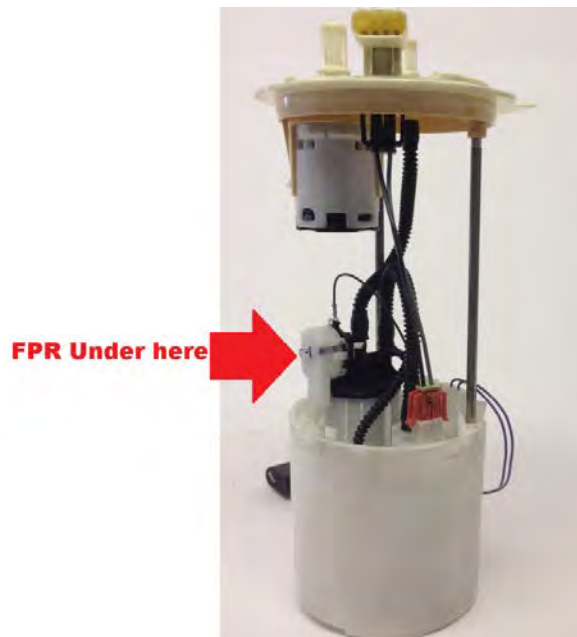
13. Next, remove the shield and top cap retaining ring. Most people use a hammer and large flathead screwdriver to remove the retaining ring. Ford actually makes a tool for this, but you don't need it.



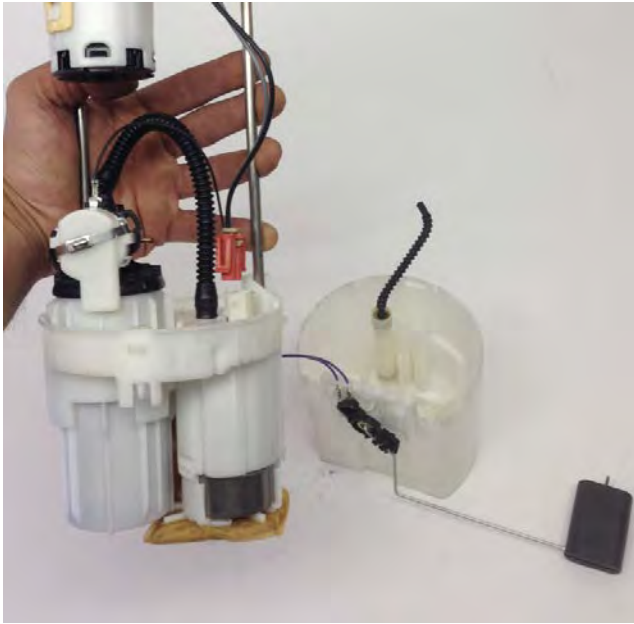
14. CAREFULLY lift the fuel pump assembly out of the tank. I stress be careful because this is a tight fit, and you do not want to damage your fuel level sending arm during removal. Also, be sure the o-ring doesn't get lost or damaged!



15. Now the pump assembly is finally out and ready for work.



16. Unplug the electrical connections from top cap.
17. Separate lower fuel bowl. Cut the OEM Accordion hose off, and discard



18. Remove OEM pump and OEM filter/Regulator assembly from bowl if staying returnless (OEM style). Not mandatory, but now is a good opportunity to use a dremel and shorten the plastic molded ribs in the pump basket hole. This can help the walbro pump to fit deeper in the basket. Snapping the two halves of the filter basket is much easier without as much force.



19. For the returnless system to properly regulate pressure, you must remove the OEM intank FPR from OEM Filter/Regulator assembly. Cut the metal tie strap and remove plastic cap to expose FPR:



Cut Metal tie

20. Under this cap is your intank FPR assembly. Remove it using 2 flathead screw drivers, and pop the FPR out, Remove O-ring



21. Install the Fuel Pump pickup sock on the new fuel pump. Install Pump back into fuel basket, snap basket back together.



22. Solder the new fuel pump pigtail connector on your OEM Wiring.



23. Installation of the filter will depend on which truck and which fuel tank you have and how the installer routes hoses. You must Splice 3/8" Fuel filter into submersible hose, immediately after pump. Pay attention to direction of flow, and select the fuel pump that best fits your application and budget. Use high quality clamps!

[Golan Rebuildable, E85 compatible # 40-375](#) –OR– [Holley EFI compact](#) – OR – [JEGS Compact Billet](#)



24. Install Tee fitting after fuel filter, before top cap. Mount OEM FPR on the tee-branch and extend hose into bucket. Use good quality clamps.



25. Here are some different ways to orient the filter and internal regulator Tee fittings:



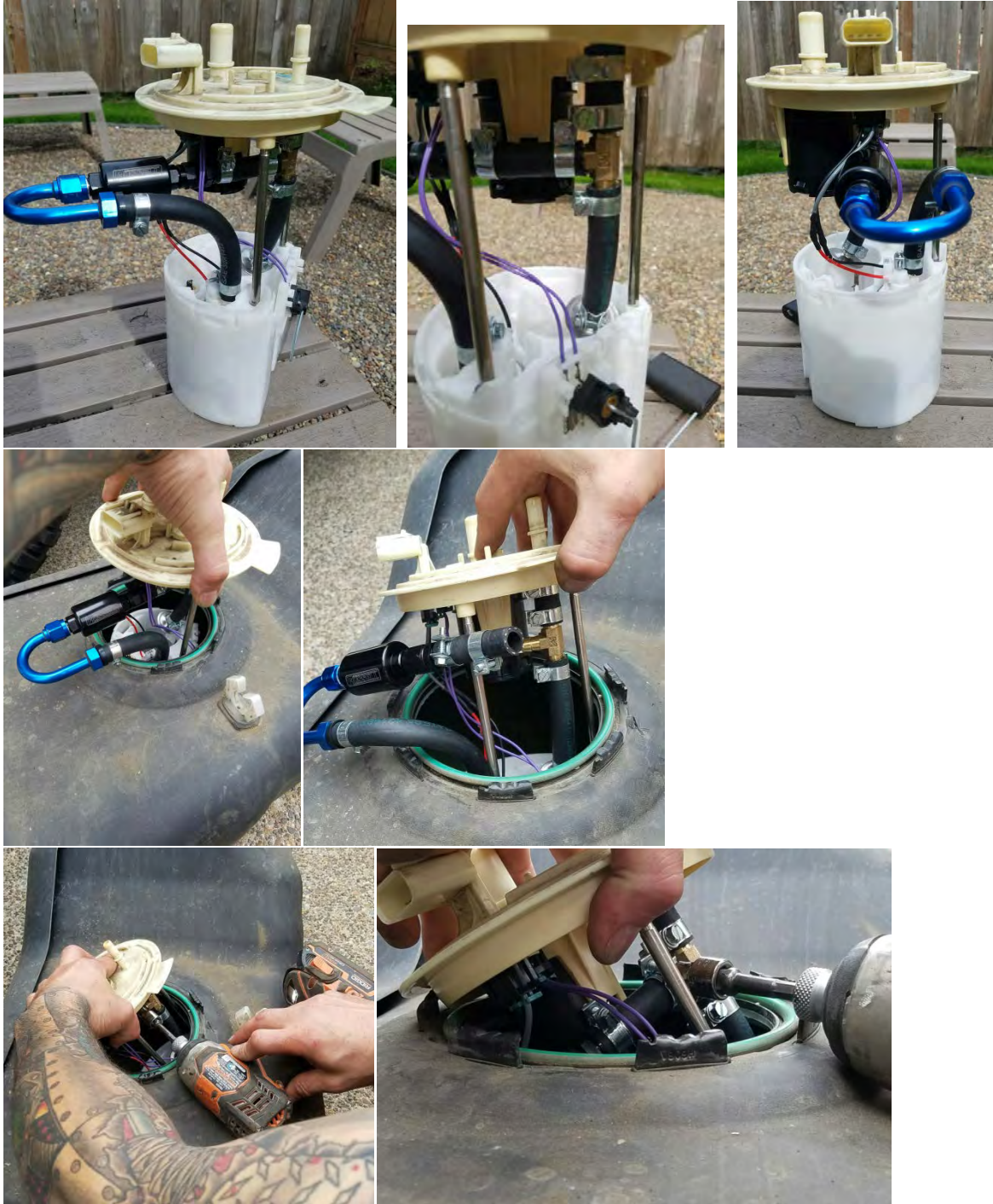
Excellent (Recommended) Installation of Galan filter with U-bends and Y-bends:



Photos of JEGS filter for an oversize fuel tank shown below:



Next are some photos of the fuel pump and filter install on a 25 gallon "small" / shallow tank using -AN Fittings AND Russel Filter:

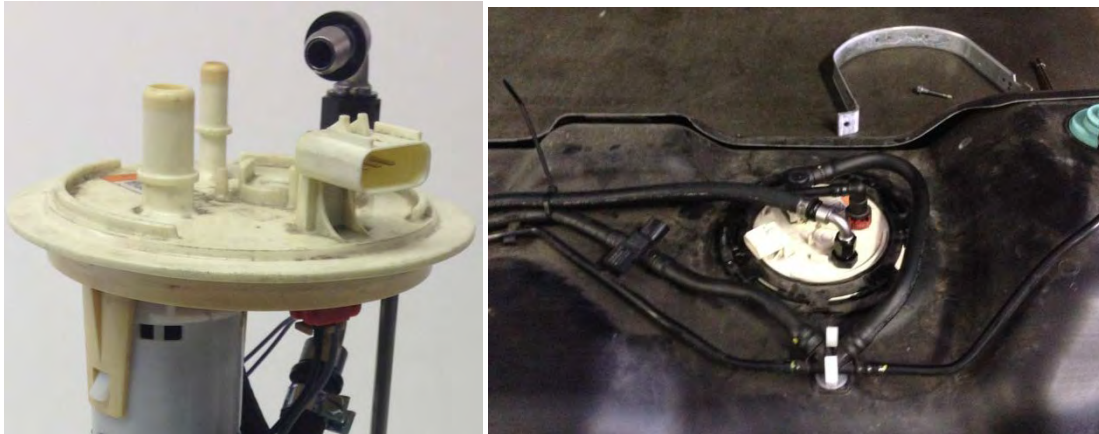




26. **Installation is the opposite of removal.** Check your work three times, so you don't drop the tank again. Plug all the electrical connectors back in. Carefully slip the fuel pump assembly into place, watch the fuel level sender!

ADDITIONAL NOTES:

- A) For very high power setups we suggest external FPR and external return line added (15 feet length). You must drill and fit a bulkhead fitting to the top cap. This is what the top cap should look like after the return is added. Zip tie hose to basket.



B) While some tuners have recommended to not utilize any internal FPR on returnless systems – we do not encourage this. The reason is this fuel pump can create fuel pressure in excess of 100 psi and may cause the fuel hose to burst. A ruptured fuel hose can cause the truck to shut off and/or engine damage. Pics of 3 different failed hoses due to 100-105psi FP shown below:

