



Lower Fuel Filter Upgrade Kit

2011-2016 FORD 6.7L POWER STROKE | 121009

INSTALLATION GUIDE

HS-MOTORSPORTS.COM

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IMPORTANT!

Please inspect and thoroughly clean all parts prior to installation. Any small particle of dust or contamination can cause catastrophic failure to a fuel system. If you are unsure if you can install this product without contamination, please refer to a professional installation shop.

TROUBLESHOOTING

Please read and understand all installation instructions before proceeding with the installation. If you have questions during the installation of this product, please contact H&S Motorsports support at tech@hs-motorsports.com or (855) 623-4450.

NOTE!!! THERE ARE SOME CRUCIAL STEPS IN THE INSTALLATION OF THIS KIT. WHILE WE HAVE DONE OUR VERY BEST AND MADE THIS AS EASY AS POSSIBLE, PLEASE MAKE SURE TO FULLY READ AND UNDERSTAND EACH STEP PRIOR TO ATTEMPTING INSTALLATION. IF YOU DO NOT, PLEASE TAKE IT TO A CERTIFIED TECHNICIAN FOR INSTALLATION. IT IS THE INSTALLERS RESPONSIBILITY TO ENSURE ALL PARTS, HOSES AND FITTINGS IN THE SYSTEM ARE CLEAN AND INSTALLED CORRECTLY!

If you have an aftermarket fuel tank or any other modifications you may have to modify or find a suitable location to mount the CAT fuel filter bracket and housing.

Before beginning, it is recommended to have a small amount of clean diesel fuel to prime your new filter on step 9. If you need to use your vehicle to go get some clean fuel, do so before you start the installation!

STEP 1

Using compressed air and brake cleaner, clean off all dirt and debris on outside of factory pump/filter assembly. Make sure all hoses and fittings are clean on top as the entire assembly is going to be removed from vehicle.

STEP 2

Locate the factory fuel filter assembly underneath the vehicle near the front of the fuel tank on the driver side frame rail. Make sure it is clean, that you do not get dirt into the fuel system you are working on. Place clean drain pan or bucket below it. Unplug factory water in fuel sensor harness. Using an 1-1/8 socket, remove the factory plastic fuel bowl from the bottom of the factory fuel filter housing and drain fuel from the housing.

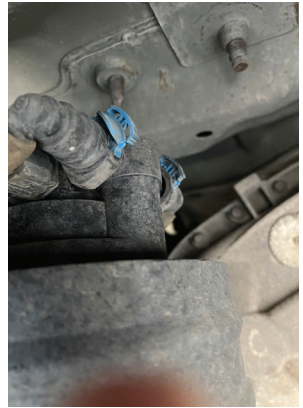
NOTE: Some residual fuel may still be present in the filter and filter housing. Have some shop rags handy to clean up any fuel spillage that may occur.



STEP 3

Locate and unplug factory fuel pump power and ground connector on top of factory fuel filter housing. Spray some penetrating oil on fuel line quick connect fittings, this will aide in releasing them. Carefully release and unlock fuel line quick connects by pulling up on outer locking tabs and the pushing down on main part of lock. Unplug all fuel lines from pump/filter housing assembly. Locate the four mounting nuts on the outside of the frame rail and remove them. Remove fuel pump/housing assembly from vehicle.

NOTE: make sure you leave drain pan under vehicle as the fuel feed line may continue to drain fuel out while you have the housing off.



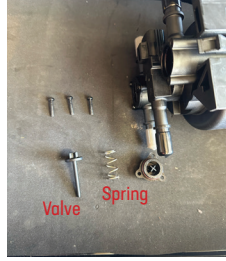
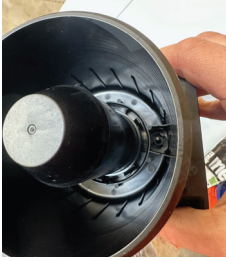
STEP 4

Make sure housing is completely drained of fuel and install metal mounting bracket in a vise so the filter housing is up side down as shown. Locate the HSM carbon plastic fuel inlet valve and the aluminum drift punch. This step is important! Be sure to follow the instructions completely or you may damage your factory fuel filter housing and will have to get a new one! The HSM fuel inlet valve will get installed with the flat side going toward the inside of the housing and hole going down to open the factory drain back valve as shown. Using a pair of needle nose pliers line the valve up in the hole in the factory housing starting it gently into the housing as shown. Once the valve is started in the hole use the drift punch and a small hammer, gently drive it down into the housing until it stops and the drift punch is exactly one inch from the top of the fuel filter housing as shown. You will be able to feel the valve stop as it is gently driven down into the factory filter housing against the stops. [For video instructions click here »](#)



STEP 4.2

Some trucks with aftermarket replacement fuel pump/filter module's (Delphi or Dorman pump assemblies) will need to remove the fuel inlet valve assembly instead of pressing the supplied HSM part in place. Remove the three torx bolts pictured and remove the fuel inlet valve and spring as pictured. Using grease or vaseline on the torx plate o-ring, reassemble onto fuel module assembly and tighten the three torx bolts.



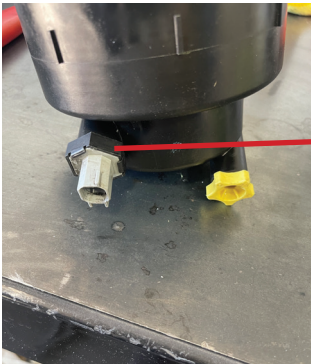
STEP 5

DO NOT INSTALL A FACTORY FUEL FILTER IN THE HOUSING AFTER YOU HAVE INSTALLED HSM FUEL VALVE. SEVERE DAMAGE CAN OCCUR TO PUMP ASSEMBLY.

Using an adjustable wrench remove the factory water in fuel sensor from the factory plastic housing. Make sure o-ring is still on the sensor and not stuck in the factory housing.

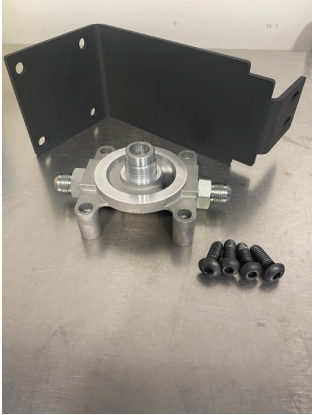
NOTE: In some 2015-2016 applications the Water In Fuel sensor may need to be installed into HSM billet after it is installed onto factory fuel pump/housing assembly to prevent contact with steel mounting bracket.

Make sure factory water in fuel sensor o-ring is installed on it and lubed with Vaseline or clean oil. Install factory water in fuel sensor into port on the side of the fuel bowl. Gently tighten until snug (only 44 inch lbs.) Install Vaseline or grease on orb plug O-ring and install supplied 1/8 orb plug into bottom of billet fuel bowl and tighten. Install the HSM billet housing onto the factory pump assembly and torque it to 20-25 ft lbs once it hits the stop. Re-install the fuel module assembly back into the vehicle using the factory nuts, and torque them to 25 ft lbs. Leave fuel lines disconnected at this time.



STEP 6

Locate the HSM screw on fuel filter base, filter housing mounting bracket, four 3/8 button head allen bolts and the two -8an ORB fittings. Lightly coat the o-rings on the orb fittings with vaseline or grease on the fittings and tighten them into fuel filter base. Lay the mounting bracket on the bench as shown and mount the filter base with the "inlet" port facing up as shown. (the inlet port on the filter base will face the rear of the vehicle when the bracket is mounted to the frame) tighten button head allen bolts. Locate the two factory bolts on the driver side of the frame holding the fuel tank skit plate in place as shown and remove them. Locate the two M8x1.25x40 mm flange bolts and the two steel spacers. You will install the steel spacers between the frame and bracket as shown. Holding the HSM filter base assembly in place, install flange bolts and spacers. Tighten bolts to 20-25 ft lbs.



STEP 7

Locate the provided HSM fuel line assemblies. The line with the straight male quick connect fitting will be routed to the marked "inlet" side of the new fuel filter base that was installed facing the rear of the vehicle. Snap the quick connect fitting into the factory line and route fuel hose as shown to the inlet port on the new fuel filter base. Locate the other HSM fuel line with female quick connect fitting and snap it onto the male port on the factory fuel module assembly. Route this hose back to the "out" port on the new fuel filter base. Be sure hoses are routed correctly and tighten fittings. Zip tie hoses so they will not get damaged or rub on anything.



STEP 8

Plug the remaining factory return fuel lines back onto fuel module assembly in the location they were removed from and lock them in place. Plug all factory electrical connectors back into the fuel module assembly. Locate the provided loop clamp and install it on the fuel line that runs down the outside of the frame near the mounting studs as shown so the line does not rub on anything.



STEP 9

Before you install the filter, it is highly recommended that you fill it with some clean diesel fuel to make the priming process easier!

Locate the provided CAT filter and filter post o-ring. Install the filter post o-ring onto the fuel base post as shown. It is recommended to prime the CAT filter with clean diesel fuel to aide in the priming process. Install the CAT filter onto the filter base and tighten filter. Turn the key to run position without starting the engine and let the factory pump run for 30 seconds to prime the system. This process may have to be repeated between 7-15 times we have found to prime the system depending on the situation. Once the system is primed start the engine and check for any fuel leaks.



Enjoy your HSM fuel filter Upgrade Kit!!!!!!



**1222 S. HILLCREST DR.
WASHINGTON, UT 84780**

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