



DUEL HIGH-PRESSURE FUEL KIT

2011 - 2019 6.7L POWER STROKE | 121001

INSTALLATION GUIDE

HS-MOTORSPORTS.COM

Rev: 02.25.20

DUEL HIGH-PRESSURE FUEL KIT

6.7L FORD POWER STROKE



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**.

INCLUDED PARTS

- 1 - New Bosch CP3 Pump
- 1 - HSM Pulley
- 1 - Serpentine Belt
- 1 - Pump Bracket/ Hardware
- 1 - CP3 Pump Harness
- 1 - High Pressure Fuel Line/ Fittings
- 1 - HSM Fuel Filter Conversion Kit/ Fittings

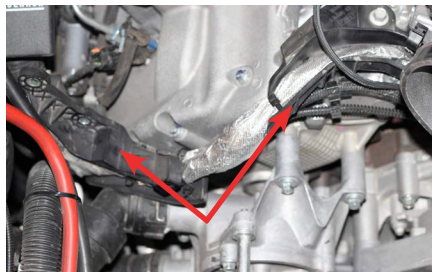
NOTE: Custom engine tuning **MUST** be used with this product otherwise it will not function properly and may even cause engine damage. Contact your tuning provider prior to installation to ensure that proper tuning is available for your application. This kit may not work with some factory parts installed.

STEP 1

Disconnect the negative battery terminals from both batteries. Remove the intake air box and tube assembly from the vehicle.

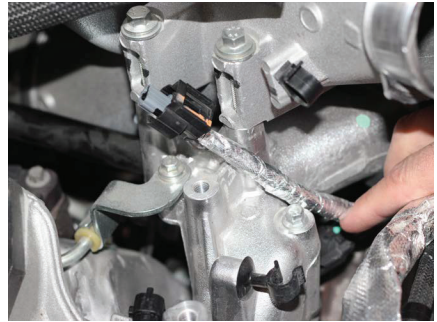
STEP 2

Cut zip ties and remove the two plastic wiring harness brackets as shown.



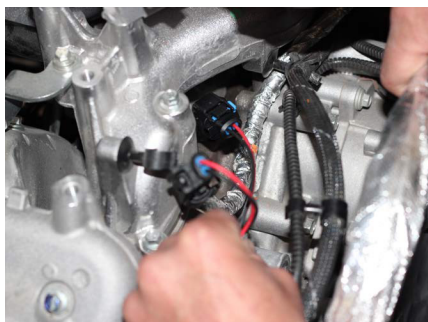
STEP 3

Locate and unplug the factory CP4 wire harness connector. Re-route the harness toward the front of the engine, exposing the connector for easy access. Remove the gray locking sleeve from the connector. The outer tabs of this sleeve must be shaved/removed as shown in order to connect it to the new supplied harness. After modifying, re-install the gray locking sleeve to factory connector.



STEP 4

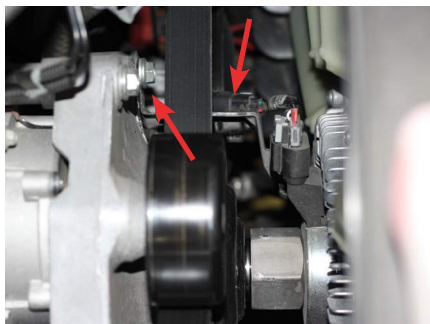
Plug the male factory CP4 harness into the female connection on the supplied harness.
Plug the opposite male harness into the factory CP4 pump as shown.



STEP 5

Unplug cooling fan speed sensor harness. Loosen and remove bolt holding cooling fan wire harness assembly. Loosen cooling fan hub nut.

NOTE: May require fan clutch hub tool as shown.



NOTE: *You do not need to completely remove fan the assembly from the vehicle*

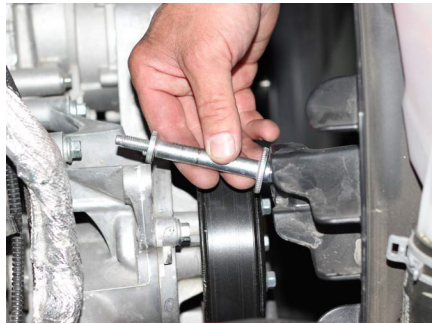
STEP 6

Remove the cooling fan and wire harness assembly. Carefully place the fan in the factory fan shroud.



STEP 7

Remove the fan shroud support stud as shown (attached to the secondary water pump).



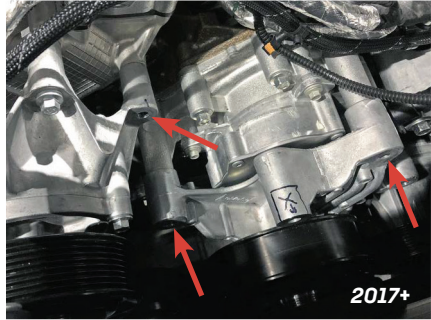
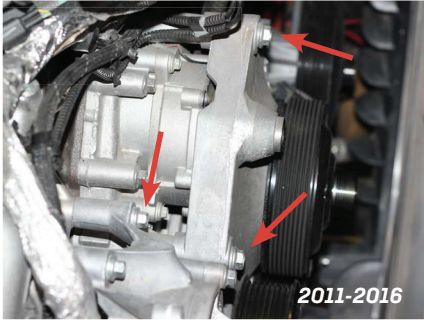
STEP 8

Remove the factory serpentine belt and both upper idler pulleys.



STEP 9

Remove the 2 upper fan hub bolts and remove 1 secondary water pump bolt as shown.

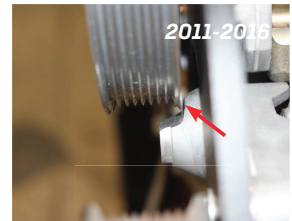
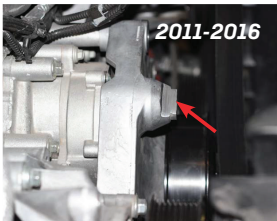


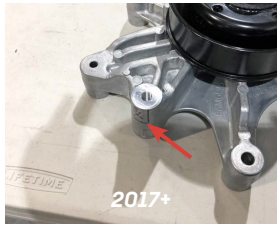
STEP 10

All Model Years: Carefully grind / cut the idler post down as shown (see pictures for model year differences) to provide clearance for the CP3 pulley. If desired, the fan hub can be completely removed from the vehicle to make this modification a little easier. It may be necessary to remove the fan hub assembly multiple times to achieve proper clearance.

2011 - 2016 Trucks: If the fan hub is removed from the vehicle, ensure that the rear alignment dowels are undamaged and remain installed properly.

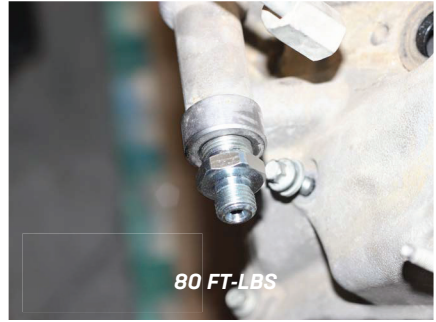
2017+ Trucks: The 2017+ fan hub does not have alignment dowels like the previous years, therefore if the fan hub is removed from the vehicle, it must be re-aligned during final installation in order to prevent alignment issues during CP3 bracket installation. Loosely install all (5) fan hub mounting bolts to properly align the fan hub to the engine. After all bolts are installed, torque the (2) lower mounting bolts to **22 ft-lbs**. After the lower bolts have been properly torqued, the (3) remaining bolts can be removed again in preparation for the CP3 bracket installation.





STEP 11

Remove the passenger front fuel rail plug using a 10mm 12 point torx socket. Apply a small amount of clean engine oil to the flat sealing surface of the supplied rail feed fitting and install the fitting into the fuel rail as shown. Torque the fitting to **80 ft-lbs**.



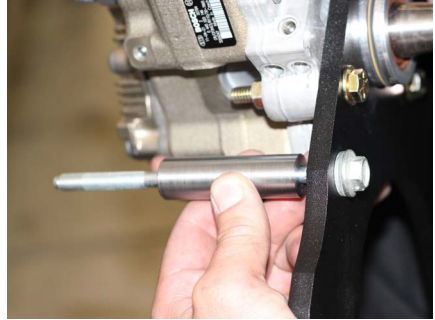
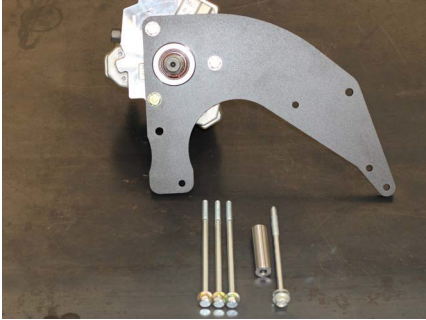
STEP 12

Install the supplied CP3 pump bracket onto the Bosch CP3 pump with the supplied 5/16" bolts, washers and nyloc nuts. Torque hardware to **20 ft-lbs**.



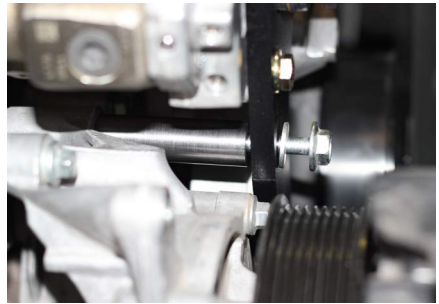
STEP 13

Gather the supplied hardware for the pump/bracket installation - (3) M8x1.25x150mm bolts, (3) flat washers, and (1) lateral support spacer. One of the factory fan hub bolts will be re-used with the lateral support spacer.



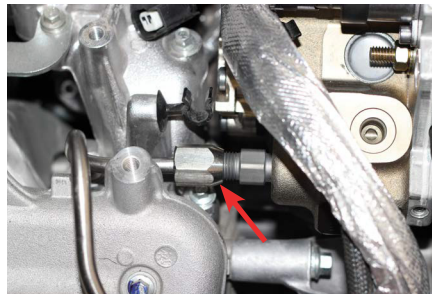
STEP 14

Lower the pump/bracket assembly into place with the lateral support spacer and factory bolt as shown. Start the bolt, but do not tighten at this time.



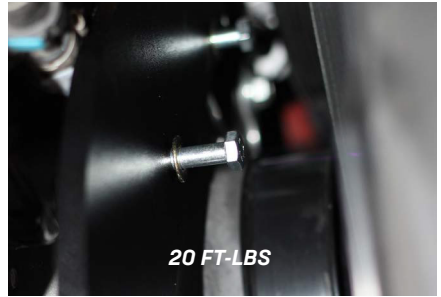
STEP 15

Locate the supplied high pressure fuel line and blow compressed air through the line to ensure it is free of any debris. Place a dab of clean oil on tip of each end of the line (to help seat fitting later when torqued) and loosely install the supplied high pressure fuel line to the CP3 pump high pressure outlet as shown.



STEP 16

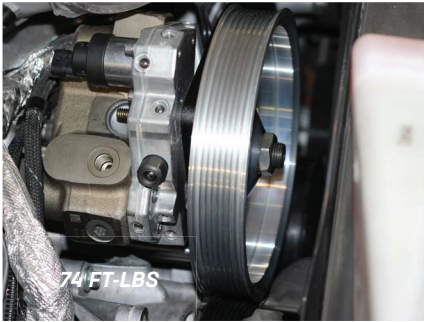
Install the (3) supplied M8x1.25x150mm bolts into the pump bracket and tighten evenly while supporting weight of pump to ensure no binding occurs. Torque bolts to **20 ft-lbs**.



STEP 17

Using the supplied lock washer and nut, install the supplied CP3 pulley. Torque to **74 ft-lbs**.

NOTE: Verify that there is adequate clearance between the modified factory idler post and secondary water pump pulley before tightening CP3 pulley.



STEP 18

Install the lower portion of the high pressure fuel line onto the previously installed fuel rail feed fitting. Torque the upper and lower high pressure fuel line nuts to **38-48 ft-lbs**.

NOTE: Place a dab of clean oil on tips of line to help seat fitting.



STEP 19

Install the supplied high pressure fuel line support on factory valve cover stud as shown.



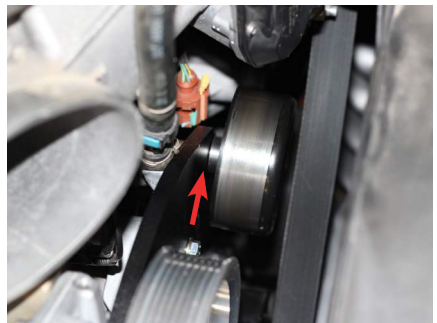
STEP 20

Remove the factory shoulder bolt and spacer from factory Idler pulley. Install supplied 3/8" washer/bolt, nyloc nut, and idler spacer onto factory idler pulley as shown.



STEP 21

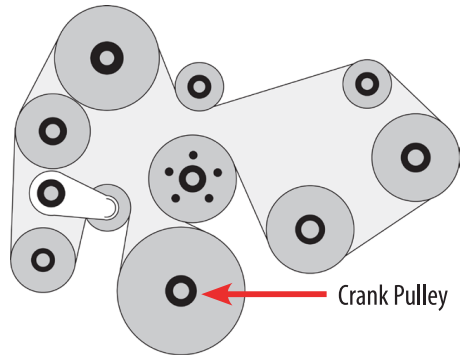
Install the factory Idler into upper bracket hole as shown.



NOTE: If you have a factory dual-sided serpentine belt, it must be re-used. If the serpentine belt is single-sided, it must be replaced with the new supplied belt.

STEP 22

Install the serpentine belt as shown.



STEP 23

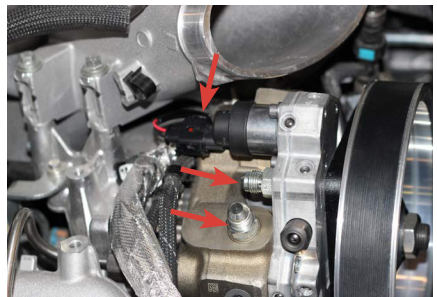
Re-install the factory cooling fan. Bolt the factory fan speed sensor to the lower hole on the pump bracket with the supplied 1/4" bolt, washers, and nyloc nut. Reconnect the factory speed sensor wiring harness.

NOTE: Some wiring harness brackets may require slight bending in order to achieve proper fitment.



STEP 24

Connect the HSM CP3 harness to the CP3 pump as shown. Install the supplied -6AN fuel feed and return fittings with o-ringed washers into the CP3 pump as shown.



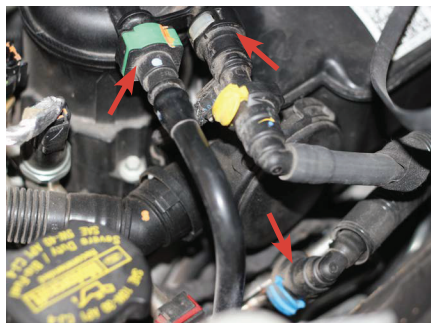
NOTE: Some residual fuel may still be present in the fuel lines. Have some shop towels/rags handy to clean up any fuel spillage that may occur.

STEP 25

All Model Years: Locate the factory upper fuel filter located at the top of the engine near the driver side. Disconnect the three large factory fuel lines as shown (two located on factory fuel filter and one located nearby on the factory fuel return line).

2017+ Trucks: Disconnect the smaller fuel line from the factory fuel filter (injector return).

All fuel lines should now be disconnected from the factory fuel filter.



STEP 26

After all fuel lines are disconnected from the factory fuel filter, carefully twist the filter counterclockwise to release it from the factory filter mount as shown. Carefully pull up and remove the factory fuel filter from the vehicle. The factory fuel filter can be discarded at this time.

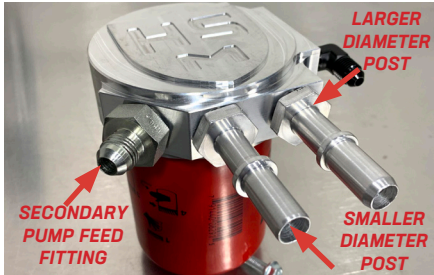
NOTE: The factory fuel filter will likely still contain fuel at the time of removal. Take care not to tip the filter excessively to prevent unnecessary spillage. Have some shop towels/rags handy to clean up any fuel spillage that may occur to clean up any fuel spillage that may occur.



NOTE: In some custom applications, different fitting configurations may be required.
Never use thread sealant (tape or paste) with ORB style fittings.

STEP 27

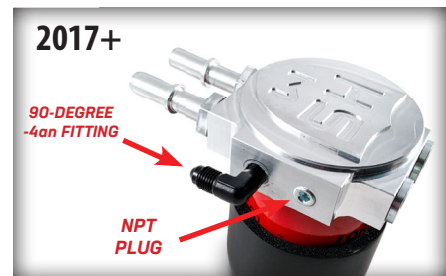
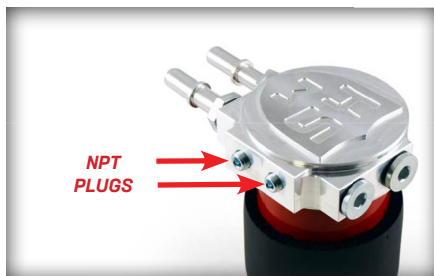
Locate the supplied HSM fuel filter adapter housing, (2) ORB post fittings, (2) ORB plugs and (1) secondary pump feed fitting. Install the ORB post fittings in the front ports of the fuel filter adapter housing with the **LARGER** diameter post fitting in the **RIGHT** port as shown. Install the secondary pump feed fitting as shown. Then install the ORB plugs in the (2) remaining ORB ports as shown.



STEP 28

2011 - 2016 Trucks: Using thread sealant, install the two supplied 1/8" NPT plugs in the 1/8" NPT ports on the filter housing as shown.

2017+ Trucks: Using thread sealant, install the supplied 90-degree -4an fitting in the front 1/8" NPT port and one 1/8" NPT plug in the rear port as shown. **Ensure that when tight, the 90 degree fitting faces forward as pictured.**



STEP 29

If desired, the supplied fuel filter may be primed with clean diesel fuel or ATF (not required). Apply a light coat of clean engine oil to the supplied fuel filter o-ring gasket and install the filter onto the HSM fuel filter housing assembly (hand tight). Install the supplied fuel filter boot/insulator onto the fuel filter and carefully slide the new HSM fuel filter assembly into the factory location.



STEP 30

Orient the HSM fuel filter assembly so that the two large post fittings line up with the previously disconnected factory fuel lines. Carefully reconnect the two large factory fuel lines to the post fittings on the HSM fuel filter assembly. After ensuring that the fuel lines are fully seated, re-engage the factory fuel line locking tabs as shown.

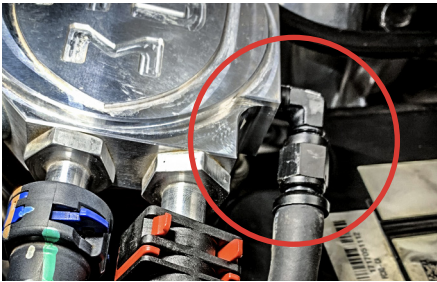


NOTE: *One of the post fittings is a larger diameter than the other. Be sure that you are connecting the fuel lines to the appropriate fittings (same as stock configuration). Excessive force should not be required for reconnecting the fuel lines.*

NOTE: When dealing with fuel system components, always take extra precautions to avoid contamination.

STEP 31

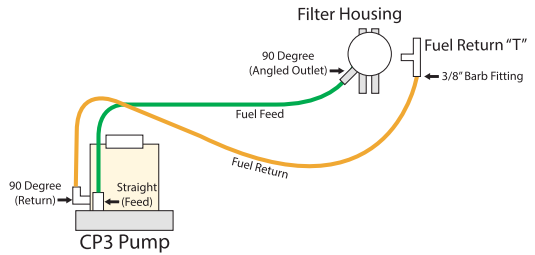
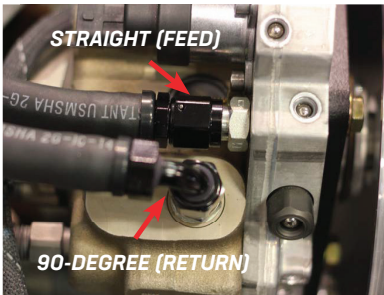
2017+ Trucks Only: Locate the third (smaller) factory fuel line (this is the injector return). With a clean, sharp hose cutter or similar tool, cut the factory rubber hose about 4" back from where the factory rubber injector return hose ends. Install supplied -4an hose pigtail and barb as shown using spring clamp on small side of injector line. Re-route injector return hose as desired and connect to the -4an 90 degree fitting. Tighten fitting.



NOTE: Push-lock fittings do not require hose clamps. Apply a dab of oil on hose barb end and carefully push hose on to the barb. Route the fuel lines away from heat or any places where the lines may rub. Fuel line routing may vary due to different fueling and turbo setups.

STEP 32

Install a supplied 3/8" (-6AN) straight and a 90 degree push-lock fitting onto fuel feed and return fittings on the CP3 pump as shown. Install another 90 degree push-lock fitting on the -6AN fitting at the fuel filter housing. Using the supplied 3/8" hose, route two separate lines from the CP3 pump toward the fuel filter location. These fuel lines will need to be cut to length. The straight fitting from the CP3 will be connecting to the 90 degree fitting on the fuel filter housing (this is the CP3 fuel feed). The 90 degree fitting from the CP3 will be connecting to the 3/8 barb on the Fuel "T" (this is the CP3 fuel return).



STEP 33

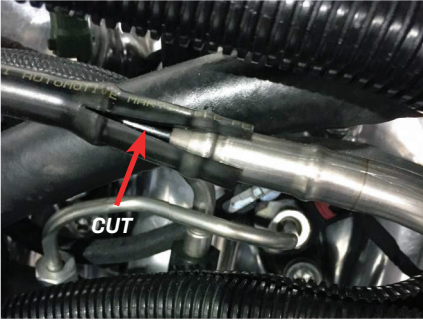
Locate HSM return line parts, they will be assembled on engine as pictured. Tighten 8an "T" fitting onto HSM aluminum fuel post quick connect fitting before installing in vehicle. Remove locking nut from HSM quick connect post fitting and install it down onto fuel return post line on vehicle. Nut goes below rib on the post fitting and tightens into other half of the HSM quick connect fitting as shown.



NOTE: Be extremely careful not to mistake the low pressure fuel supply line for the fuel return line during this step. The return line sits lower and more towards the driver side of the vehicle than the supply line.

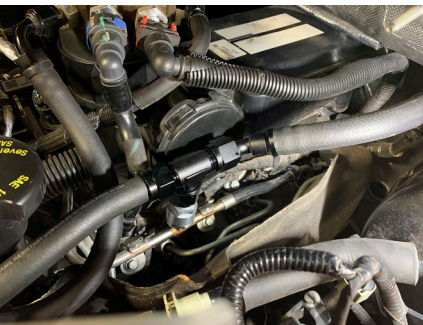
STEP 34

Carefully remove the sheathing from the factory fuel return line. Using a sharp knife or razor blade, cut the end of the plastic fuel return line as shown where it connects to the metal line and remove the plastic portion of the fuel return line from the vehicle.



STEP 35

Cut 1/2" hose to approximately 5" (may want to test fit length before cutting), using oil install 1/2 hose onto -8an 45 degree push lock fitting. Install return line fittings and hoses as shown from secondary pump and fuel return to tank. Tighten all fittings and clamps.



NOTE: The 45 degree push lock hose barb requires no clamp.



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