INSTALLATION INSTRUCTIONS

SUBJECT: SUREFLO® SENDING UNIT FOR 2017-2024 FORD POWERSTROKE

FITMENT: 2017-2024 6.7L Ford Powerstroke Equipped F-250/350 Pickups
KIT P/N: FPE-SF-FMC-1724-SB (Short bed), FPE-SF-FMC-1724-LB (Long bed)

EST INSTALL TIME: 2 hours
TOOLS REQUIRED: 8MM socket or wrench, 13MM socket or wrench, drain pan.

KIT CONTENTS:

Item	Description	Qty
1	SureFlo® Sending Unit	1
2	Float Arm	1
3	Tank Seal O-ring	1
4	Fuel System Extension harness	1
5	-10 90deg to Hose Barb Fitting	1
6	-8 90deg to Hose Barb Fitting	2
7	-8 to 3/4'-16 Straight Male Fitting	1
8	-10 ORB Male to -8 AN Male Fitting	1

PART CROSS REFERENCE:

	FPE P/N	REPLACES FORD OE PN IN CONJUNCTION WITH EXTERNAL LIFT PUMP
Short Bed	FPE-SF-FMC-1724-SB	HC3Z-9H307AQ
Long Bed	FPE-SF-FMC-1724-LB	HC3Z-9H307AR

IMPORTANT: SureFlo Sending Units for the 2017-2024 Ford Power Stroke DO NOT contain a fuel pump and are intended only for use in conjunction with an external, frame-mounted lift pump. For a direct replacement in-tank lift pump use our PowerFlo lift pump, part numbers FPE-PF-FMC-1724-SB and FPE-PF-FMC-1724-LB.

WARNINGS:

- Use of this product may void or nullify the vehicle's factory warranty.
- User assumes sole responsibility for the safe & proper use of the vehicle at all times.
- The purchaser and end user releases, indemnifies, discharges, and holds harmless Fleece Performance Engineering, Inc. from any and all claims, damages, causes of action, injuries, or expenses resulting from or relating to the use or installation of this product that is in violation of the terms and conditions on this page, the product disclaimer, and/or the product installation instructions. Fleece Performance Engineering, Inc. will not be liable for any direct, indirect, consequential, exemplary, punitive, statutory, or incidental damages or fines cause by the use or installation of this product.

PROCEDURE:

STEP 1: Park the vehicle on a flat and level surface. Using a 10MM socket, disconnect the negative terminal from each battery and isolate each terminal (*Figure 1*).

Figure 1: Negative battery terminal disconnected, isolated with a shop rag.

STEP 2: If equipped, remove the skid plate attached to underside of the fuel tank.

Using a 13MM socket, loosen each of the eight retaining bolts located in each corner (*Figure 2*). Set each bolt and the skid plate aside.

Figure 2: Skid plate attached to underside of the fuel tank.

STEP 3: Using an 8MM socket or wrench, loosen the clamps on the fuel filler tube and the fuel tank vent hose (*Figure 3*), then disconnect each of the hoses.

Figure 3: Hose clamps retaining the fuel filler tube (left) and fuel tank vent (right).

STEP 4: Disconnect the WIF sensor connector and each fuel line at the front of the fuel tank.

For the line directly attached at the fuel filter housing, remove the line by pressing the push tab down on the quick connect fitting and pull the fitting away from the base (*Figure 4*). To remove the other line, slide the yellow locking tab away from the quick connect fitting. Once the locking tab is released, press the push tabs on the quick connect fitting down and separate the two ends of the line (*Figure 5*).

Figure 4: Removal of fuel return line.

Figure 5: Removal of fuel feed line.

Once both fuel lines have been disconnected, disconnect the WIF sensor connector at the bottom of the fuel filter. Disconnect the WIF sensor connector by pressing the push tab on the connector while pulling away from the filter (*Figure 6*).

Figure 6: WIF sensor connector disconnected.

For additional help with removal of the ford quick connect fittings, please refer to page *four* of our Underbed Fuel Filter Assembly Instruction. These will provide step by step removal instructions for each fitting type.

STEP 5: Place a jack under the fuel tank for support, then remove the fuel tank.

This can be either a floor jack or a transmission jack. Using a 13MM socket remove the bolts on the fuel tank straps. Each strap will have one 13MM bolt on each side (*Figure 7*).

Figure 7: Transmission jack positioned underneath fuel tank. Removal of tank strap retaining bolts at right.

Once all fasteners have been removed, allow the fuel tank to rest on top of the jack, then lower the jack about six inches to provide access to the top of the tank. Use caution as the tank is lowered, fuel will move front to back in the fuel tank and can cause the tank to become unstable.

STEP 6: After the fuel tank has been lowered, allowing access to the electrical connection, disconnect the electrical harness on the top of the stock lift pump. Disconnect the harness by pressing the push tab on the connector down and pulling the connector away from the lift pump (*Figure 8*).

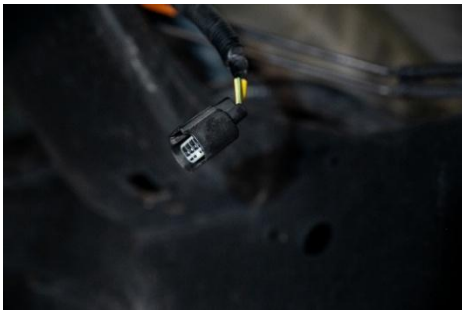

Figure 8: Stock lift pump electrical harness disconnected.

STEP 7: After the electrical connector has been disconnected, **fully lower the fuel tank**. Be mindful of the filler neck and breather tube during this process, they may need to be adjusted to clear the frame.

Figure 9: Fuel tank removed, top of stock lift pump.

STEP 8: Once the tank has been fully lowered, remove the four fuel lines from the top of the stock lift pump. Pull each locking tab away from the quick connect fitting. Press the push tabs on each fitting, then pull the fitting up and off the stock lift pump. **Repeat this process for all four lines.**

Please refer to page *four* of our Underbed Fuel Filter Assembly Instruction for further assistance if necessary.

Figure 10: Removal of stock lift pump.

STEP 9: Once the fuel tank has been lowered**, thoroughly clean off the top side of the fuel tank around the sending unit** to avoid contamination when removing the stock lift pump.

STEP 10: Remove the stock lift pump.

NOTE: Before proceeding note the orientation of the stock lift pump.

Remove the locking ring that holds the stock lift pump in place. Rotate the locking ring counterclockwise. For ease of service, locking ring tools, such as MATCO tool #FTR730, can be used at this step.

With the ring removed, clean any remaining debris away from the top of the fuel tank with a vacuum and a rag. Once the top of the lift pump is clean, remove it from the tank.

Figure 11: Removal of stock lift pump, removal of old sealing O-ring on top of the fuel tank.

STEP 11: Remove the existing O-ring at the top of the tank. Thoroughly clean the O-ring groove.

STEP 12: Inspect and clean the fuel tank. Remove any debris present.

Figure 12: Cleaned and inspected fuel tank, new sealing O-ring installed.

STEP 13: Install the supplied O-ring at the top of the tank.

STEP 14: Assemble the SureFlo sending unit.

From the included installation kit, install the fuel level float arm. Gently clip the arm into the fuel level sensor (*Circled in Figure 13*).

With the sending unit standing up right on a flat surface, press down on the cap to simulate the installed position. Move the float arm up and down to ensure the arm does not contact the wires or fuel tubes on the PowerFlo. If the arm contacts either of these components, carefully adjust how each of these items are sitting until contact has been eliminated (*Figure 13*).

If the float arm contacts these components while the PowerFlo is in the tank, it can lead to inaccurate display of fuel level.

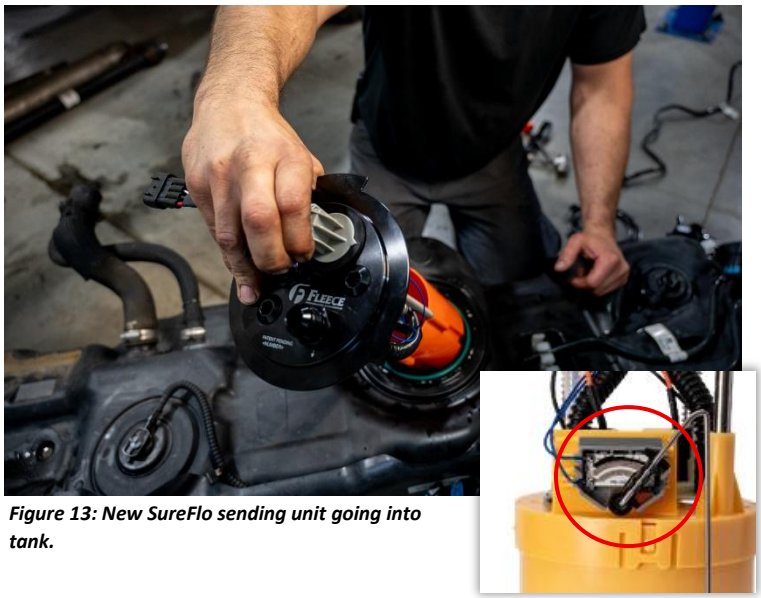

Figure 13: New SureFlo sending unit going into tank.

STEP 15: Install the new SureFlo Sending unit into the tank.

Align the SureFlo in its proper orientation before inserting into the tank (*Figure 14*). Once the new unit is inserted into the tank, do not rotate the sending unit. Damage to the resistor card will occur if the float arm makes contact with the side of the tank.

Compress the unit then place the retaining ring over top. Turn the ring clockwise by hand to hold unit in place, then tighten the rest of the way.

For ease of service, locking ring tools, such as MATCO tool #FTR730, can be used at this step.

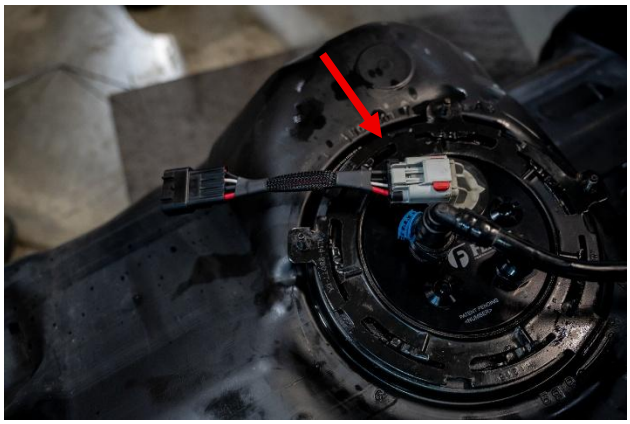

Figure 14: Installation of SureFlo sending unit, locking ring installed and highlighted with red arrow.

STEP 16: Remove each fuel line from the fuel tank aside from the return line and install the included extension harness.

Remove each of the fuel lines from the top of the fuel tank, install the **return** line onto the top of the SureFlo sending unit. Lubricate the fitting at the top of the SureFlo with clean fuel. Push the quick connect fitting of the return line onto this fitting, then slide the blue locking tab back into place (*Figure 15)*.

Plug the included extension harness into the electrical connection at the top of the SureFlo (*Figure 15*).

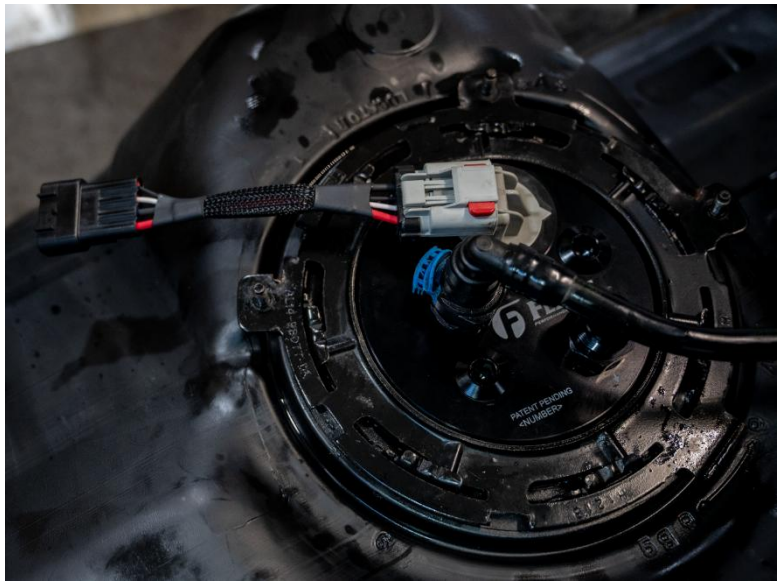

Figure 15: Once the SureFlo sending unit is at this point, start the installation of the external fuel system.

STEP 17: External Lift Pump Installation.

Install the external lift pump in accordance with the manufacturer instruction. Please see diagram at right for proper plumbing to the SureFlo sending unit:

Feed to Pump	-10
Return from Pump	-8
Return from Engine	12MM Quick Connect
Auxiliary Port	¾”-16 Hex

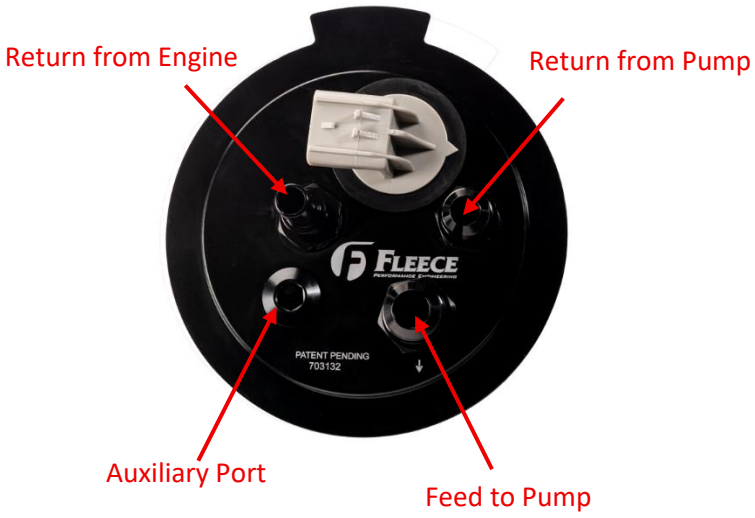

Figure 16: Diagram of proper plumbing for external lift pump.

Additional fittings are included with the SureFlo sending unit to ensure compatibility with external fuel systems. Fittings used will be determined by the fuel system used:

-10 90deg to Hose Barb Fitting	1
-8 90deg to Hose Barb Fitting	2
-8 to 3/4'-16 Straight Male Fitting	1
-10 ORB Male to -8 AN Male Fitting	1

STEP 18: Place the tank back on the transmission jack or floor jack and raise the tank back up.

When the tank is 5-6 inches from its original installed position, plug the truck side connector into the extension harness at the top of the SureFlo.

STEP 19: Raise the tank up the rest of the way, be cautious of the breather tube and fuel filler tube during this step. Adjust the tubes as needed to clear the frame rail (*Figure 17)*.

Figure 17: Fuel tank sitting on top of transmission jack, truck side electrical connector pictured at right.

STEP 20: Begin reinstallation of the fuel tank straps.

Using a 13MM socket, reinstall each retaining bolt for each strap, then torque the bolts to 30 FTLBS.

Figure 18: Reinstallation of fuel tank straps.

STEP 21: Reinstall the fuel return line.

Reinstall the quick connect fitting on the return fitting of the fuel filter housing (*Figure 18)*.

Figure 19: Reinstallation of fuel return line.

STEP 22: Reinstall the WIF sensor connector.

Plug the WIF sensor connector back in on the bottom of the fuel filter.

Figure 20: WIF Sensor connector.

STEP 23: Reinstall the Fuel filler tube and breather tube.

Push each tube back into place, then using an 8MM socket tighten each retaining clamp.

Figure 21: Fuel filler tube and fuel breather tube reinstalled.

STEP 24: Verify function of the new SureFlo Sending unit and check for fuel leaks.

Using a 10MM socket, reconnect the negative battery terminals. Ensure that the tank is at least ¼ filled and check for normal operation of the SureFlo sending unit.

Prime the fuel system as specified by the external lift pump manufacturer. Verify the fuel level is being displayed correctly and inspect the underside of the vehicle for any leaks.

Figure 22: Ignition in "run" position. Lights on dashboard illuminated, engine off. Verify the fuel level is being displayed correctly.

STEP 25: Reinstall the fuel tank skid plate if equipped.

Using a 13MM socket, reinstall all eight 13MM retaining bolts.

Figure 23: SureFlo installed, Skid plate reinstalled.