

**Installation Manual
FASS HPFP**

MODEL NO. FASS-HPFP-95-1003
& FASS-HPFP-150-1003

“HIGH PERFORMANCE FUEL PUMP”



FROM: Diesel Performance Products, Inc.

SUBJECT: Welcome/Thank You

TO: Valued Customer

We at Diesel Performance Products, Inc. (DPP) would like to thank you for your confidence in purchasing one of the FASS Products. Building a quality product and providing excellent customer service is # 1 at DPP. Behind each fuel system/fuel pump are many years of design experience. We have implemented very rigorous testing procedures before bringing any item to the market along with very strict manufacturing procedures to provide a superb product. Our confidence is evident in the products we make as each product is backed by an industry leading warranty.

We, Diesel Performance Products, promote “ALL” retail business through our dealer network to provide better customer service! We are confident that everyone involved is best serviced in this manner. We have given our dealer network proper knowledge and support to promote and service our line of products.

Dealers receive appropriate troubleshooting guides to refer to. These have proven to be excellent references for those who choose to use them. We provide excellent assistance to our dealers so they in turn can assist their customers. DPP has decided to place this information on our website to accommodate all of our customers needs.

Our R & D Department in conjunction with our Dealer Support Department is continually searching for ways to improve quality, expand our product line, and provide superb support to our network of dealers so they can support their customers.

Please make sure to fill out your product registration form and return the original form to Diesel Performance Products, Inc. within 30 days of purchase accompanied with a copy of the purchase receipt. Doing so will qualify you for the warranty!

Steps to customer satisfaction can be found on the next page.

STEPS TO CUSTOMER SATISFACTION

We want you to be happy with your FASS Fuel System. Customer satisfaction, your satisfaction, is the all-important ingredient for success in our business, as it is in any other.

Normally, warranty problems can be resolved by your Dealer's sales or service departments. That's why you should always talk to your Dealer's Service department first. If you're not satisfied with the dealership's response at this level, Diesel Performance Products, Inc. (DPP) recommends that you follow these steps, in order:

STEP 1: Discuss the problem with the owner or General Manager of the dealership.

STEP 2: If your dealership is unable to resolve the problem, contact Diesel Performance Products, Inc. Customer Care Center in writing; the address is located on page 14 of this manual or fax it to 636-433-5413. Be prepared to provide the Customer Center with the following information:

- Your Name, address and daytime phone number
- Model and Serial Number (Not Model Number)
- Dealer, contact name and phone number
- Date of purchase
- Nature of Problem

Once you have followed the two steps described, a DPP representative will review your situation. DPP will then follow up by contacting the dealer for more information. Depending on the situation a representative from the selling dealer or a representative of DPP may elect to contact you.

Thank you for your business, from the men and women of Diesel Performance Products, Inc.

Dear Valued Customer,

A small percentage of our customers have experienced hard start issues when placing our pumps on trucks with the VP44 injection pumps, these pumps are found on 1998.5 – 2002 Dodge Cummins pickups. The hard start issues we incur are only found on this application. The hard start issue would occur with any fuel pump putting good flow and pressure to the VP44 after the injection pump has experienced 5psi or less in fuel pressure. A VP44 receiving less than 5psi in fuel pressure will more than likely be damaged, creating the hard start issue with good fuel flow and pressure. Please read the following if you experience the hard start issue.

Hard Starts

Usually the FASS only encounters hard starts on the 1998.5 – 2002 Dodge Cummins with the VP44 injection pump. If this occurs it is usually on a VP44 with high mileage, and/or a VP44 that has been subjected to around 5psi of fuel pressure or less. It is more likely to occur when the weather is warmer/hot.

Explanation of Diaphragm: The diaphragm in the VP44 is designed to move about .5mm with proper fuel pressure (about 7psi min.). When the VP44 is subject to about 5psi or less the diaphragm can move up to 2mm, an increase in movement of 4 times more than what it was designed to move. With this type of movement the diaphragm will eventually develop stress cracks thru out the body of the diaphragm. One job of this diaphragm is to separate low fuel pressure and high fuel pressure in the housing of the VP44, when the cracks are present this separation does not occur. This will lead to hard starts even with a stock OEM lift pump!!

Here is a simple test:

Note: Not all failed pumps with broken diaphragms will start with low to no supply fuel. Sometimes the diaphragm is so broken that charging pressure is not able to build to a level that allows the pump to deliver fuel.

Try starting the vehicle without waiting for the fuel pump to cycle. Meaning when you turn the key to the on position immediately engage starter.

Or:

Unplug the FASS pump or remove the fuse so the FASS pump does not operate. Note: If the engine operates without fuel pressure for a period of time the **VP44 will be destroyed**. Understanding this condition, start the truck. ***If the truck starts shut it off immediately!!!!*** This test just indicated that the better/increased fuel pressure from the FASS pump is overriding the defective/thinner diaphragm and/or cracked o-rings surrounding the diaphragm in the VP44. Here are some solutions:

- 1.** Receive the most current flash from your Dodge Dealer.
- 2.** On our WH-1002 harness, cut the red wire between the FASS relay and engine harness. Splice a length of the same gauge wire to the red wire coming out of the relay. Relocate this wire to a fuse that is hot only in the “Run” position. An example is the Power Window or Windshield Wiper fuse. This will cut power to the FASS when cranking.
- 3.** Repair the VP44. VP44’s were manufactured with a thinner diaphragm which can and will cause hard starts with hot weather and or higher fuel pressures. Thicker diaphragm’s for the VP44 were released around 2003 for correcting this situation. Remember it doesn’t matter if the VP44 has the thinner or thicker diaphragm, if the VP44 has been subjected to a failing transfer pump (lower fuel pressure) or a failed transfer pump it will lead to this problem. The damage was done by the failing or failed lift pump before the FASS was installed.

WARNING!!

Installing the improper FASS Fuel Pump can cause severe engine damage.

This installation manual applies to the *FASS-HPFP-95-1003* & *FASS-HPFP-150-1003* contained in the same package. The serial number on the installation/owners manual package should match the serial number on the outside of the box. If it doesn't, call your dealer.

This FASS-HPFP-95-1003 (95gph) or FASS-HPFP-150-1003 (150gph) applies to this application:

Recommendation: FASS-HPFP-95-1003 - Dodge Cummins Truck 1998.5 - 2004, with stock to moderate horsepower modifications.

Recommendation: FASS-HPFP-150-1003 – Dodge Cummins Truck 1998.5 - 2004, with extreme horsepower modifications.

Because of the higher fuel flow these systems have to offer, you may encounter stock fuel module problems. STK-1001 will solve these problems.

SAFETY GUIDELINES AND WARNINGS!

TIP! Flush and clean all brass fittings and fuel line free from debris.

WARNING! **SECURE VEHICLE FROM ROLLING!**

WARNING! Use care not to drill into any electrical wires, air lines or other damageable components when drilling.

WARNING! Consult vehicle manufacturer's instructions concerning the electrical system before attempting any electrical connections.

CAUTION: Wear safety glasses when operating power tools such as drills and grinders or when using a punch or chisel.

CAUTION: Properly secure lines to prevent chaffing.

INSTALLATION MANUAL

The installation of the FASS HIGH PERFORMANCE FUEL PUMP can be relatively simple when the following steps are followed.

1. Inventory the package components completely. Notify the place of purchase immediately of any parts missing or damaged.
2. We have invested many hours into the development of the installation manual to simplify the installation of the **FASS Fuel Pumps**. Please read the installation manual completely before attempting installation. Understand how the system operates and installation recommendations before beginning installation. Most of the questions that you will have will be answered in the manual. If you have a question please review the installation manual.
3. The installation recommendations contained herein are suggested installation guidelines only. Each installation can and may vary considerably because of the many options and accessories available to the truck market.
















Installation personnel should use good judgment and common sense when installing the FASS High Performance Fuel Pump.

If any installation procedure is uncertain, contact the place of purchase

Due to training, communication and our relationship we have with our authorized dealers we recommend an authorized Diesel Performance Products, Inc. dealer for the installation. They are prepared to install the FASS fuel pumps with the most efficiency. If a situation/problem arises during the installation they are most prepared for that situation/problem. It may take more time for an unauthorized shop to address the situation/problem. We will not be responsible.

For the 6 year warranty please fill out the “PRODUCT REGISTRATION FORM” and attach a copy of the sales receipt. We must receive the original product registration form and sales receipt within 30 days of the purchase or the 6 year warranty will not be valid.

Contents Include:

	Description	Quantity				Part #		
1.	Pump/Filtration Unit	--	--	--	1	--	FASS-HPFP	
2.	Fuel Pump Bracket	--	--	--	1	--	THB-1001 BHB-1001	
3.	Electrical Harness w/relay	--	--	--	1	--	WH-1002	
4.	3/8" Fuel Line	--	--	--	14'	--	FL-1001	
5.	1/4 "x 1 3/4" bolt	--	--	--	4	--	--	
6.	1/4" – 20 x 3 1/4" bolt	--	--	--	2	--	--	
7.	1/4" - nut and lock washer	--	--	--	2 ea.	--	--	
8.	3/8" x 1/2" (Push Lock x MPT)	--	--	--	2	--	PL-1001	
9.	3/8" Quick Disconnect	--	--	--	1	--	QD-1001	
10.	3/8" x 3/8" (Push Lock x 90° Female Flare)	--	--	--	1	--	PL-1003	
11.	3/8" Line Hose Clamp	--	--	--	3	--	HC-1001	
12.	Injection Pump Fuel Line Fitting (O'ring)	--	--	--	1	--	DIPF-1001	
13.	Ring Terminal	--	--	--	2	--	--	
14.	Filter Plate	--	--	--	1	--	FP-1001	
16.	Fuel Filter	--	--	--	1	--	FF5079	

BEGIN INSTALLATION

STEP 1: **Preparing Suction Line:** Use the following photo's to complete this step.



Photo 1A

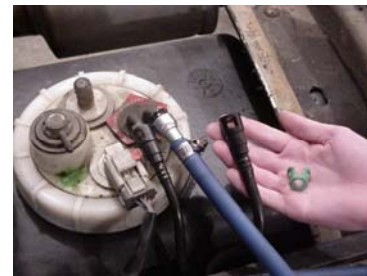


Photo 1B

NOTE: **IT IS NOT NECESSARY TO REMOVE THE BED OF THE TRUCK. REMOVED TRUCK BED FOR PHOTO.**

1. Disconnect the factory suction line and clip as seen in photo 1B. The factory line is removed by pressing in on the two tabs located in the connecting harness. These tabs are opposite of each other.
2. Attach fuel line to quick disconnect fitting and separator using the 3/8" hose clamps as seen in photo 1A. Torque to proper specifications.
3. Connect the quick disconnect fitting to the suction port on the fuel tank. As seen in photo 1B. Pull back on the black plastic in the quick disconnect as you slide it onto the fuel supply line. It will lock into place. Completion of the fuel line will be addressed in step 3.

STEP 2: Mounting FASS Fuel Pump: Use the following photo's to complete this step:



Photo 2A



Photo 2B

1. Drill 2 - 1/4" holes, as seen in photo 2A. Note: the mounting bracket may be mounting on either side of the bed rail.
2. Now install the 2 - 1/4"x 3 1/4" bolts, nuts and lock washers and torque proper torque specifications.

*Note: Before mounting the fuel pump assemble 3/8" x 1/2" (push lock x mpt) fittings into ports label with the letters "T" and "E" **using tread tape**. Torque to proper specifications.*

3. As seen in photo 2B using the bottom portion of the mounting bracket and the 4 - 1/4" - 20 x 1 3/4" bolts mount the fuel pump so the port labeled "T" is facing the rear of the truck. **VERY IMPORTANT: REMEMBERING THE POSITION OF THE "T" PORT THERE IS A SMALL HOLE IN THE BASE DIRECTLY NEXT TO THE ELECTRIC MOTOR, THIS HOLE MUST AIM DIRECTLY TO THE GROUND!! IMPROPER INSTALLATION OF THE PUMP CAN CAUSE PREMATURE WEAR AND VOID MANUFACTURES WARRANTY.** Torque the 4 - 1/4 - 20x 1 3/4" bolts to 110 inch pounds.

Refer to page 9 for 2003 – 2004 trucks and page 10 for 1998.5 – 2002 trucks.

STEP 3: **Installing Fuel Line:** Use the following photo's to complete this step:



Photo 3A



Photo 3B



Photo 3C

1. Route fuel line from the suction port of the fuel tank to the port of the FASS Fuel Pump labeled with the letter "T". Cut and attach to the push lock fitting. Remember to oil the fitting and fuel line before connecting.

Note: If the truck has had the retrofitted in-tank pump installed, usually installed by a Dodge Dealer after a fuel lift pump failure, a separate suction tube will need to be installed in the fuel tank. This retrofit will not allow fuel to be drawn through! The part number for the suction tube is a STK-1001 and is available through your Authorized FASS Dealer.

Some symptoms if this does occur:

Sporadic, Low Fuel Pressure	Hard to prime, if not impossible
Engine will keep dieing shortly after started	Excessive pump noise

2. Assemble the DIPF-1001 into the FP-1001 as seen in photo 3A, remove the washer around the DIPF-1001 when installing into the FP-1001. Torque to 18ft lbs.
3. Disconnect factory fuel pump from the side of the factory fuel filter as seen in photo 3B using a 5mm allen head socket.
4. Insert the assembled Filter Plate (FP-1001) in place of the factory fuel pump, removed in step 3, using 2 of the 4 allen head bolts. Torque to proper specifications.

NOTE: There is an o'ring in the filter housing where the factory fuel pump was removed. We suggest applying oil to this o'ring and to the o'rings surface of the Filter Plate. Be very careful not to pinch the o'ring, this will cause a leak.

STEP 3: **Installing Fuel Line:** Use the following photo's to complete this step:



Photo 3A



Photo 3B



Photo 3C

5. Connect the remaining fuel line to the push lock fitting located in the port on the FASS Fuel Pump labeled "E". Remember to use oil.
6. Route this fuel line to the inlet side of the fuel filter and insert the 3/8" x 3/8" (push lock x 90°female flare) fitting into the fuel line. Remember to use oil.
7. Attach 3/8" x 3/8" (push lock x 90°female flare) fitting to the injection pump fitting as seen in photo 3C. Torque to 18ft lbs.
8. Route fuel line from the suction port of the fuel tank to the port of the FASS Fuel Pump labeled with the letter "T". Cut and attach to the push lock fitting. Remember to oil the fitting and fuel line before connecting.
9. Connect the remaining fuel line to the push lock fitting located in the port on the FASS Fuel Pump labeled "E". Remember to use oil.
10. Route this fuel line to the inlet side of the fuel filter and insert the 3/8" x 3/8" (push lock x 90°female flare) fitting into the fuel line. Remember to use oil.

Note: *The inlet side to the fuel filter may be on top as seen in photo 3A or on the side as seen in photo 3B.*

11. Disconnect factory fuel line from inlet side of the factory fuel filter and install the injection pump o-ring fuel (part# DIPF-1001) fitting into this inlet port. This is the banjo fitting in photo 3A. Torque to 18ft lbs.
12. Attach 3/8" x 3/8" (push lock x 90°female flare) fitting to the injection pump fitting. Torque to 18ft lbs.

STEP 4: **Installing Electrical Harness:** Use the following photo to complete this step.

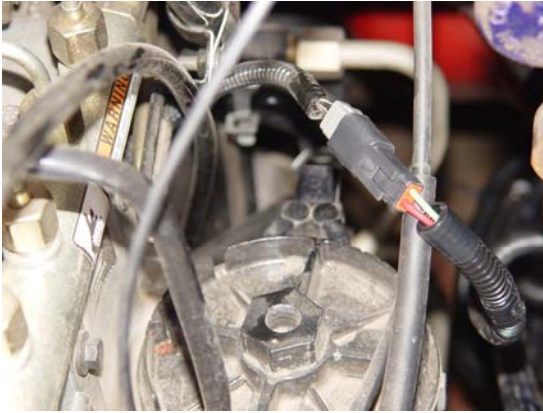


Photo 4A



Photo 4B



1998.5 – 2002 Truck

1. Connect the male end of the wire harness to the female electrical connector on the FASS Fuel Pump.
2. Route the wire harness along the frame rail to the location of the factory fuel pump.
3. Disconnect power source to the factory lift pump.
4. Connect the FASS wire harness (WH-1002) to the factory power source. This was disconnected in the previous step. Photo 4A
5. Properly secure the relay as seen in photo 4B.
6. Connect the red wire to the positive terminal of the battery and the green wire to the negative terminal of the battery using the ring terminals. **Note: Connection of these wires to the fuse box will cause damage!!**
7. Properly secure the wire harness and fuel lines with wire ties.

STEP 5: **FINAL CHECK:**

1. Bolts and fasteners properly tightened?
2. Electrical Harness and Fuel Lines secured or properly tightened?
3. Prime the fuel system!
 - a. Turn the key to the point that it barely turns the engine over (this will allow the pump to cycle longer).
 - b. While the pump is running loosen the 90 degree fitting on the filter housing until fuel is present and then retighten.
4. Check for leaks.
5. Start the engine!
6. Recheck all fluid connections and filters for leaks.

Our part number, IL-1001, is an in-cab indicator light. This kit monitors the fuel system pressures and will indicate when the fuel pressure of the FASS falls below 7psi.

NOTE: The electric fuel pump runs continuously while the engine is running. The fuel pump on the FASS System will feel warm or hot to the touch.

For the 6 year warranty please fill out the “PRODUCT REGISTRATION FORM” and attach a copy of the sales receipt. We must receive the original product registration form and sales receipt within 30 days of the purchase or the 6 year warranty will not be valid.

LIMITATION OF WARRANTY

Diesel Performance Products, Inc. (hereafter "SELLER") gives Limited Warranty as to description, quality, merchantability, fitness for any product's purpose, productiveness, or any other matter of SELLER's product sold herewith. The SELLER shall be in no way responsible for the product's open use and service and the BUYER hereby waives all rights other than those expressly written herein. This Warranty shall not be extended or varied except by a written instrument signed by SELLER and BUYER.

The Warranty is Limited to six (6) years from the date of sale or for recommended service life and limited solely to the parts contained within the product's kit. This warranty does not cover normal wear on consumable items such as filters. All products that are in question of Warranty must be routed through place of purchase. Returned items will arrive prepaid to the place of purchase. Diesel Performance Products, Inc. will repair, without cost, any product found to be defective during the warranty period; parts only, or at its option, will replace such products in exchange for the product. Repair or replacements are warranted for the remainder of the original warranty period. All Warranty claims are subject to approval by Diesel Performance Products, Inc.

Under no circumstances shall the SELLER be liable for any labor charged or travel time incurred in diagnosis for defects, removal, or reinstallation of this product, or any other contingent expenses.

Under no circumstances shall the SELLER be liable for any damage or expenses insured by reason of the use or sale of any such equipment.

This warranty does not apply to products which Diesel Performance Products, Inc. has determined to have been misused or abused, improperly maintained by the user, or where the malfunction or defect can be attributed to the use of non-genuine Diesel Performance Products, Inc. parts.

IN THE EVENT THAT THE BUYER DOES NOT AGREE WITH THIS AGREEMENT: THE BUYER MAY PROMPTLY RETURN THIS PRODUCT, IN A NEW AND UNUSED CONDITION, WITH A DATED PROOF OF PURCHASE, TO THE PLACE OF PURCHASE WITHIN THIRTY (30) DAYS FROM DATE OF PURCHASE FOR A FULL REFUND LESS SHIPPING.

THE INSTALLATION OF THIS PRODUCT INDICATES THAT THE BUYER HAS READ AND UNDERSTANDS THIS AGREEMENT AND ACCEPTS ITS TERMS AND CONDITIONS.

Technical Support: Contact the place of purchase; please provide the model number along with the serial number ready prior to calling.

Revised 8-4-07



