

INSTALLATION MANUAL

TITANIUM SERIES

**ALL 1/2" FUEL PORTS
AND FUEL LINE!**

APPLICATION:

T F16 220G (220GPH @ 8-10psi)

Powerstroke 6.4L
Standard Pickup Truck
2008-2010

****Note: Cab and Chassis
may require modifications****



PICKUP

FASS[®]
Diesel Fuel Systems

ENGINEERED EXCELLENCE

Revision Date: 10/12/2015

Dear Valued Customer,

“Made in the USA” is not just a slogan at FASS; it’s what we live by! FASS is not only assembled in the USA but 98%+ of the FASS product is manufactured in the USA, helping to employ Americans and strengthen America. At FASS, we scrutinize our suppliers and demand the highest quality American-made components. However, this does come at a price, which is one of the main reasons FASS products are more expensive than the competition. Remember price does not dictate quality but quality does dictate price! Here at FASS, we believe it’s worth the commitment and will continue this practice to support America! Our competition is doing exactly the opposite by using foreign-made components.

Building extremely “High-Quality” fuel products is our business. We concentrate all of our efforts in this arena. No one else is as specialized as FASS in what we do! This is one of the ingredients to insure you are running with the “Highest-Quality” fuel system in the world! We have implemented very rigorous testing procedures to provide the “Highest Quality” we have become known for. Not only is our product superior, but customer satisfaction is #1 at FASS. It is our goal to provide the best service possible. Our confidence is evident in the products we make as each product is backed by an industry leading warranty!

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 our customers’ needs and expectations will be exceeded.

To help insure you receive the proper system and customer support at the local level, FASS has a VIP and Authorized Dealer network representing FASS products. This is one reason you must purchase through a dealer to comply with our warranty policies. **If you do not, there is no warranty!** We recommend you go to www.FASSride.com, click “Find A Dealer”, put in their ZIP code, select the type of dealer, and see if the company you purchased from is listed. If they are not, put their phone number in the field below the ZIP code field to see if they are listed. Below these two fields is a list of “Terminated/Unauthorized” dealers. You may want to review this list. If the company is not listed or is on the “Terminated/Unauthorized” list, we suggest you return the product immediately to that dealer and call FASS. We’ll recommend you to the nearest dealer.

VERY IMPORTANT: Make sure to fill out your product registration form and return the original form to FASS Fuel Systems within 30 days of purchase accompanied with a copy of the purchase receipt. Complying with these guidelines will qualify you for the Extended Warranty!

See the Owner’s Manual online at www.FASSride.com for full Limitation of Warranty. 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 receipt, to the place of purchase within thirty (30) days from date of purchase for a full refund less shipping.

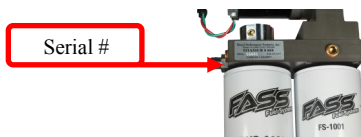
The installation of this product indicates that the buyer has read and understands the Limitation of Warranty agreement and accepts its terms and conditions.

!WARNINGS!

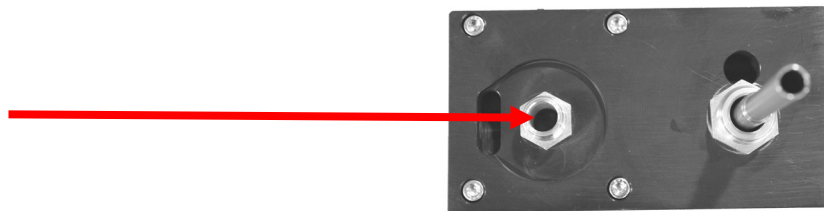
- Read all instructions before starting installation of this product!
- Installing the improper FASS Pump can cause *severe* engine damage.

FASS	Recommended Application
T F16 220G	Powerstroke(6.4L) 2008-2010 with extreme horsepower modifications

- Secure vehicle from ROLLING!
- Cab and Chassis may require modifications
- Consult vehicle's manufacturers' instructions concerning the electrical system before attempting any electrical connections.
- Be sure that the serial # on this installation manual matches that of the outside of the box.



- Flush and clean all brass fittings and fuel line from debris
- Keep debris from entering the internals of the system during installation. Getting debris in the water separator nipple can lock up the motor. If the motor does lock up from debris call FASS for technical assistance.



- Wear safety glasses when operating power tools such as drills and grinders or when using a punch or chisel.
- Properly secure lines to prevent chaffing.

**BEFORE STARTING THE INSTALLATION PROCESS LUBRICATE THE
BED BOLT WITH WD-40 TO HELP WITH INSTALLATION**

INSTALLATION MANUAL

Follow these steps to ensure a simple installation of your new FASS TITANIUM FUEL SYSTEM

1. *Read the installation manual completely before attempting installation. The installation of this product indicates that the buyer has read and understands the limitations of the FASS manufacturers warranty agreement and accepts the responsibility of its terms and conditions.*
2. Inventory the package components. Notify the place of purchase immediately of any parts missing or damaged.
3. The installation recommendations contained herein are guidelines. Its important to understand your vehicles accessories and limitations. Use good judgment and take in to consideration your vehicles' accessories.
4. For best results in accuracy and efficiency (due to training, communication, and our relationship with our dealer network), we recommend a ViP FASS 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 the most prepared for that situation/problem. We are not responsible for any installation mistakes.
5. Normally, technical issues can be resolved by your dealer's service department, as they can usually inspect the situation physically. If you have any questions or concerns email or call FASS.
6. If any installation procedure is uncertain, contact FASS technical support.

Email techsupport@FASSride.com with the following information:

- Your Name, address and daytime phone number
- Model **(T F16 220G)**
- Serial Number
- Last 6 of vehicles' VIN
- Date of purchase
- Nature of Your Concern

Serial # Found Here....

Call customer service; [636-433-5410](tel:636-433-5410) with the following information:

- Model **(T F16 220G)**
- Serial Number
- Last 6 of vehicles' VIN
- Date of purchase



TITANIUM SERIES

220 GPH

A fuel pressure gauge is highly recommended to identify fuel filter life and to prevent engine damage!



INSTALLATION

- Step 1: Install Electrical Harness
- Step 2: Prepare Suction and Return Lines
- Step 3: Mount Fuel System
- Step 4: Install Fuel Line
- Step 5: Check Installation

CONTENTS

Owners Manual Available
for Download at
www.FASSride.com



30 amp Fuse

MP-9054



WH-1002



FL-1058 x3'



PFB-2001C



PBR-2001



PFB-2002



FL-1002 x 9'

MOUNTING PACKAGE CONTENTS



BHF-1002



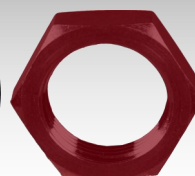
10-300



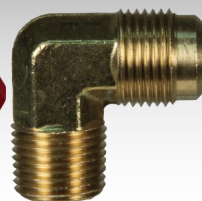
OR-223



LW-1001



BHN-1001



10-302



ST-1005Px16"



PLB-1212

PLB-1238



PL-1005



Ring Terminal



WE-1006



PL-1004



1 1/2" Washers



4 Hex Bolt 3/8" -16x 1 1/2"



3 Hex Bolt 1/4" -20x1 3/4"



4 Locking Nut 3/8"



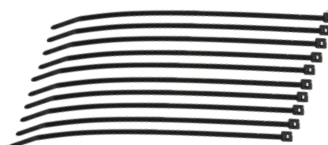
3 WA-1001D



4 3/8" Washers



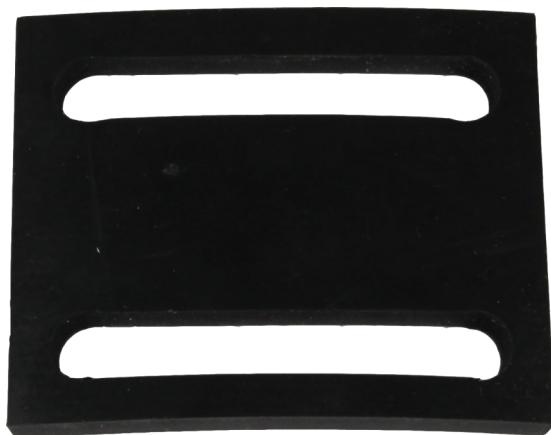
PL-1058



Cable Ties



PL-1010



RS-2002

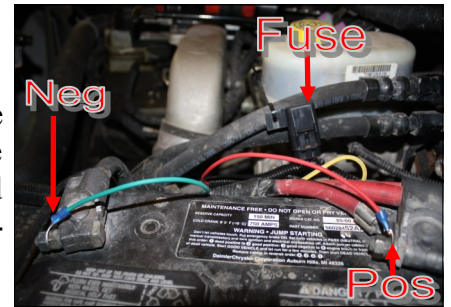


RS-2001

STEP 1: INSTALL ELECTRICAL HARNESS

The installation of the electrical harness is done first, allowing power to be applied to the pump for lubrication purposes later in the installation.

- A. Using ring terminals, attach red wire of the WH-1002 to the positive battery terminal. Attach green wire to a clean ground, preferably the negative battery terminal. Secure fuse block in a location protected from outside elements. **The use of a corrosion preventative on electrical connections is recommended.**



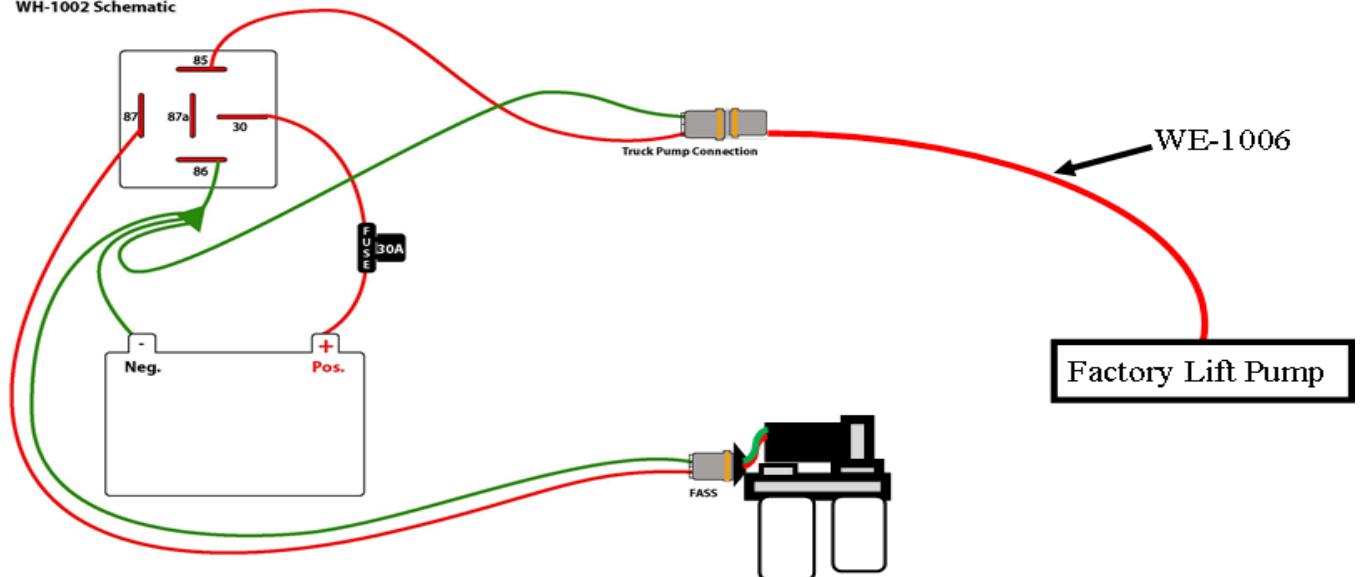
- B. Secure Relay in an upright position, as shown, to prevent moisture from entering. Di-electric grease may be applied to prevent corrosion.



- C. Connect WE-1006 to the female lead of the WH-1002 coming off the relay. Route the WH-1002 and WE-1006 along frame rail to the factory lift pump. **Completion of this step will be addressed in the mounting step.**



FASS
Wiring Harness
WH-1002 Schematic



STEP 2: PREPARE SUCTION & RETURN LINES

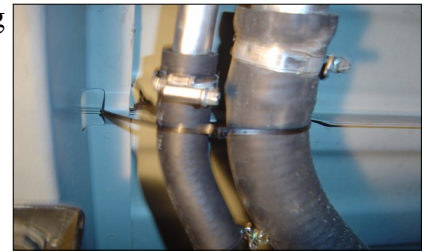
Some of the photo's are of a different application, procedures are the same.

NOTE: Before installing fittings make sure to inspect for burs or flare imperfections. When cutting fuel line make sure to blow out line to keep debris from moving forward.

- A. Before tank is removed or moved, identify ALL areas of clearance between the tank and the truck's bed for the best location to install the BHF assembly. With proper clearance, you want to install it as close to the Fuel sending unit as possible.

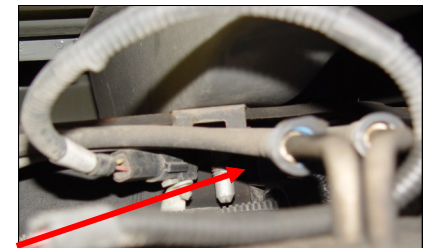


- B. Remove the filler neck and overflow tubes from the truck by loosening the clamps at both ends.



Helpful Hint: If more space is required to access the top of the fuel tank, loosen the strap nuts to the end of the stud. This will gain you about 3" more working room.

- C. Disconnect factory suction and return lines by pinching in side tabs.



- D. Disconnect factory wire harness.

- E. With the fuel tank empty of fuel, remove it from the vehicle.

- F. Clean the fuel module area then remove the lock ring on the top of the fuel tank.



- G. Once the lock ring is removed, carefully remove pick up module from fuel tank without bending fuel level arm.



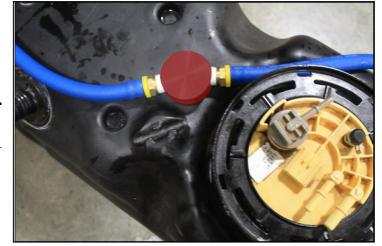
NOTE: Hose clamps are not recommended for push lock fittings. They will hold up to 300psi! Use oil on fittings and inside fuel line when installing Push-Lok fittings

- H. Assemble the BHF-1002 with the PL-1010 in port "S" & the PL-1004 in the "R" port using thread tape. Torque to 40 ft./lbs. Push the ST-1005P onto the barb portion of the BHF-1002. Insert O-ring into groove.

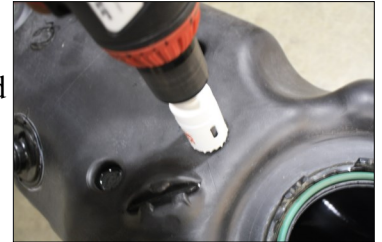


STEP 2: PREPARE SUCTION & RETURN LINES

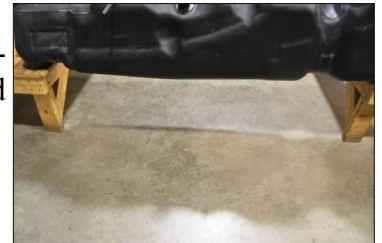
- I. Before drilling marked location, clean area of debris. Using the photo double and check area selected for any interference including the fuel level arm.



- J. Drill a 1 3/8" hole, catching all debris. De-bur hole and remove any missed debris in the fuel tank.



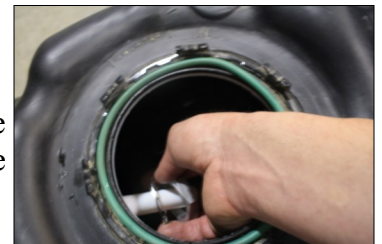
- K. **VERY IMPORTANT:** Support fuel tank on both ends allowing the natural formation of the tank to take place. Failure to perform this step can and will create an issue with less usable fuel!



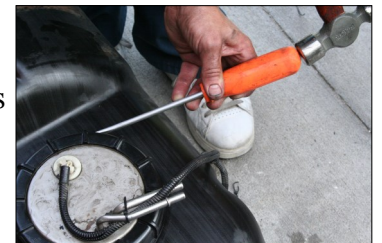
- L. Place the bulk head assembly into the drilled hole, take measurements so the bottom of the suction tube is only 1/8" (no more than 2 quarters stacked) from the bottom of the fuel tank. Using a razor knife, make multiple cuts to insure proper length, it is easy to shave the suction tube with the razor. **It is more efficient to cut the tube too long and then correct to proper length than it would be to cut too short.**



- M. With proper length being obtained, place the assembly into the drilled hole securing the assembly using the lock washer & nut. Tighten Nut. Loctite may be applied to the threads of the BHF-1002 for added insurance.



- N. Carefully reinstall install pick up module making sure the leveling arm is not obstructed by the suction tube. Reinstall factory lock ring.

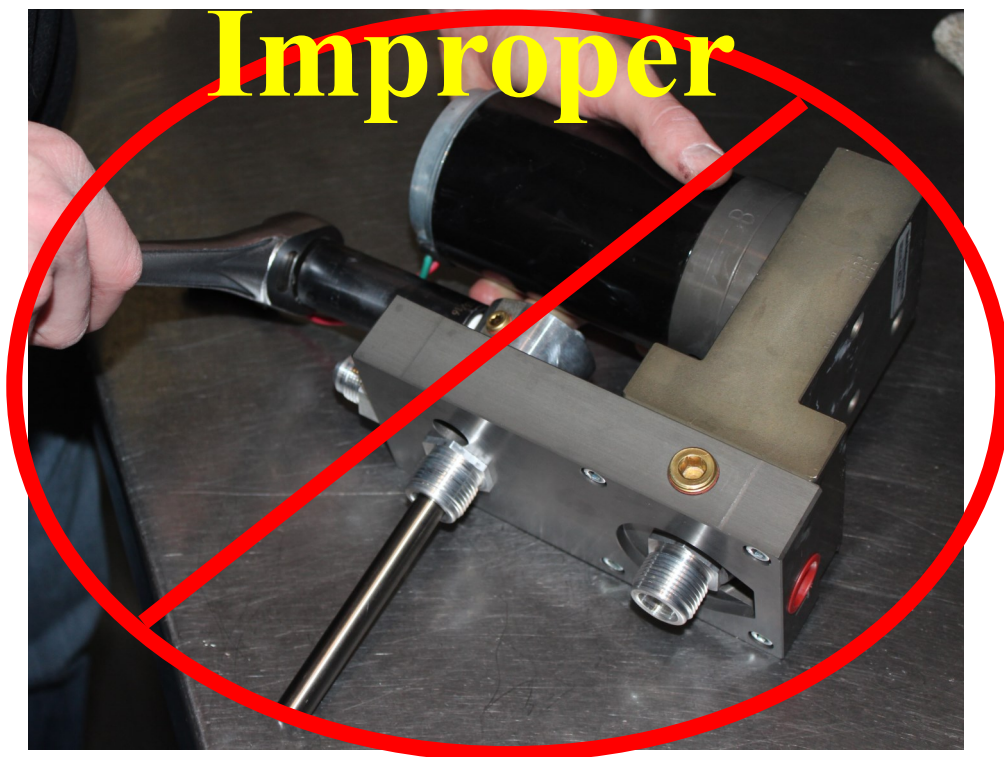
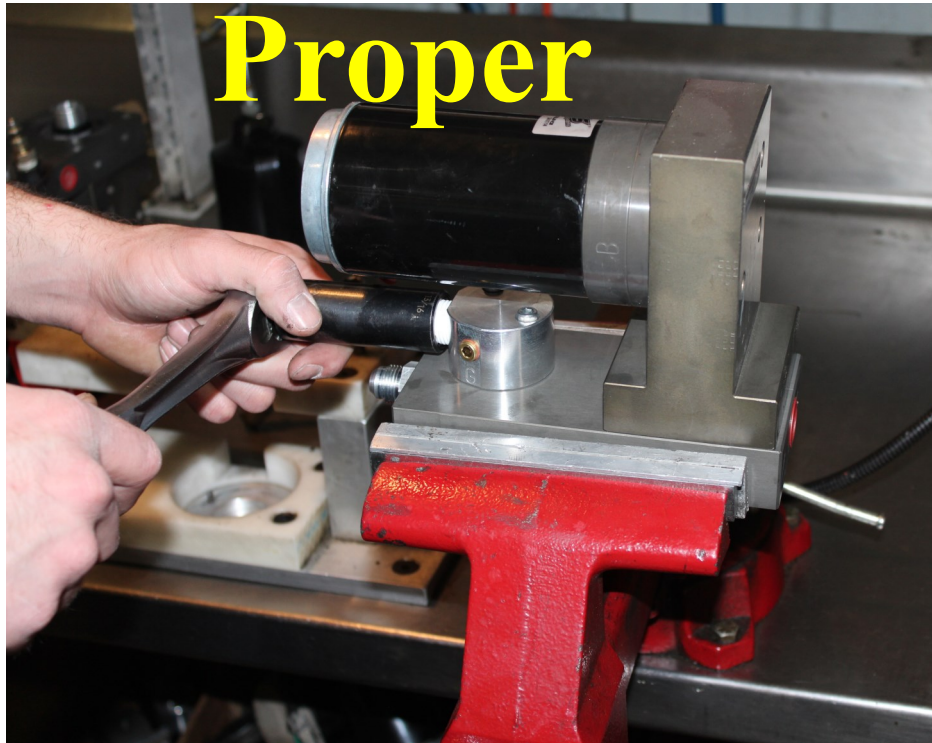


- O. Push one end of the 1/2" fuel line onto 'R' port of suction tube assy. & one end of the 5/8" onto the 'S' port. Loop fuel line over frame. Do not cut at this time. Reinstall fuel tank making sure to reconnect factory suction line, factory return line, and electrical connections. Torque hanger bolts to factory specifications.



NOTE

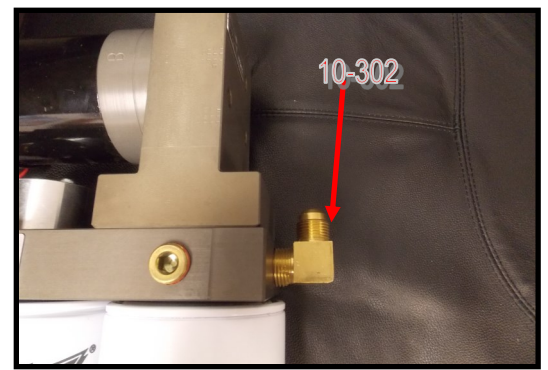
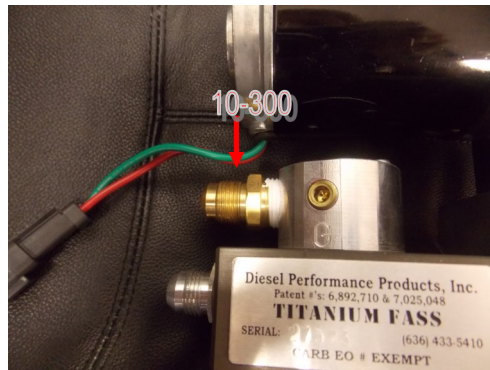
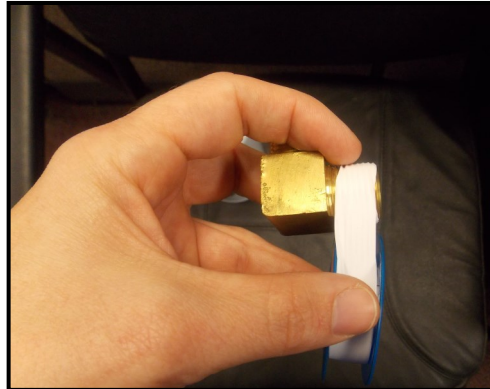
ATTENTION: While installing fittings into Titanium pump
DO NOT Apply side pressure to draw
tube of pump



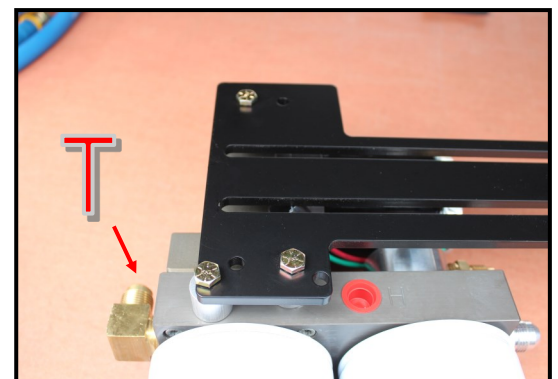
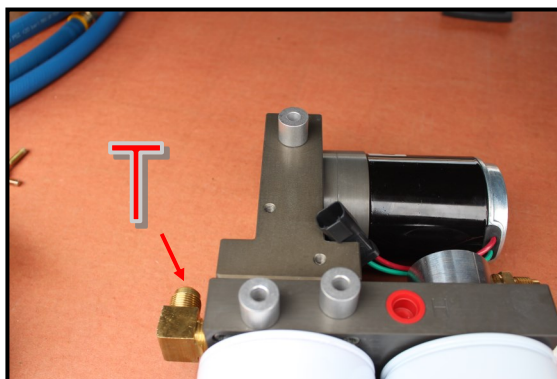
STEP 3: MOUNT FUEL SYSTEM

NOTE: Before installing fittings make sure to inspect for burs or flare imperfections.

- A. Using thread tape, install the 10-300 into “E” and the 10-302 into the “T” port (on opposite end). Torque to 40 lb./ft.² **Note: Do Not Put Thread Tape on Flare of Fitting ***The use of thread sealant is not recommended*****



- B. For fitting purposes. Secure PBR-2001 to pump assembly lightly with (3) 1/4"-20x1 3/4 bolts and (3) WA-1001D. Assembly will be used in future steps for correct fitting of brackets. **(Note: Bracket may-be flipped to accommodate your application.)**



STEP 3: MOUNT FUEL SYSTEM

- C. Insert PFB-2002C in to bed channel align the nut with the opening on the channel.



- D. Secure PFB-2002 and RS-2001 with (1) hex bolt 1/2" -20 x 1 1/2" and (1) 1/2" washer to PFB-2002C

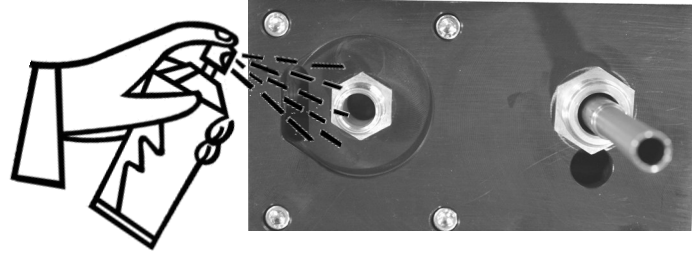


- E. Disconnect the factory power plug to the HFCM lift pump. Clean plug and install the WE-1006 connector. Plug female plug of the WH-1002 harness into FASS pump. **Be sure to finish routing wire harness along frame before mounting into position.**



STEP 3: MOUNT FUEL SYSTEM

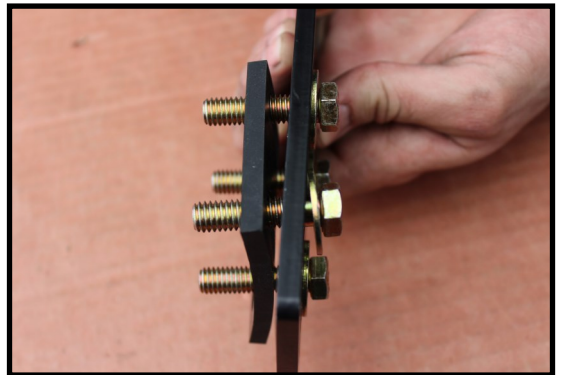
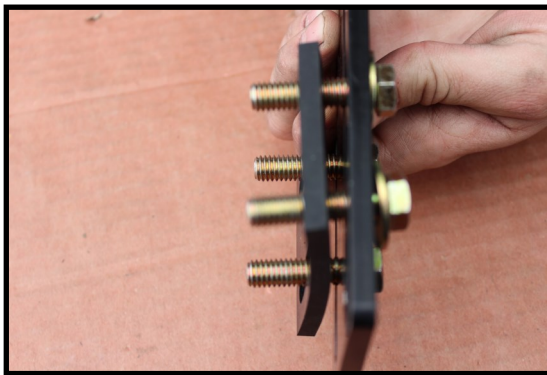
- F. Turn key to “on”. With pump operating (you may have to bump the starter), turn pump over, liberally spray WD-40 (or equivalent) into water separator nipple lubricating Gerotor.



- G. Position the PBR-2001 to the PFB-2002 pump assembly at the mounting location and check for fit. Once location is established mark location for mounting in next step.



- H. Assemble the FASS pump bracket PBR-2001 using the RS-2002 spacer between PFB-2002 and PBR-2001 bracket with 4-3/8 bolts, nuts, and washers. **Note: Torque bolts not flange nut.**



STEP 3: MOUNT FUEL SYSTEM

- I. Once secure use 3-1 3/4 bolts and 3-WA-1001D spacers to mount the pump to the bracket.



- J. Apply motor oil to gasket located on filters. Attach to system and hand tighten.

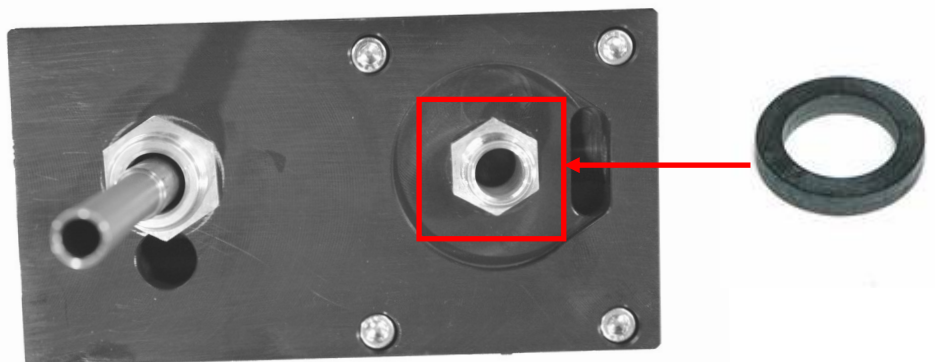


STEP 3: MOUNT FUEL SYSTEM

Fuel Filter –Install FF-3003 on side of pump with draw tube in the middle of the filter nipple.



Water Separator Filter –Install FS-1001 on water separator nipple without the draw tube. Make sure to insert O-Ring provided on nipple.

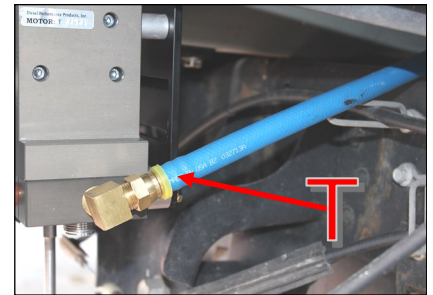


Note: O-Ring must be put back on suction side of pump. Failure to do so can result in priming issues, cavitation, or pressure losses.

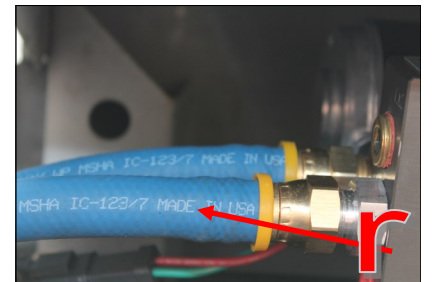
STEP 4: INSTALL FUEL LINE

Do Not use sealant on AN (male flare) fittings. Only use sealant on threads installed into pump assembly.

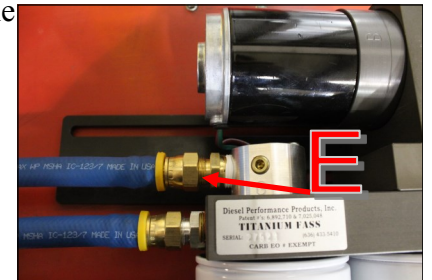
- A. Route suction line from the suction tube assy. to port 'T' on the FASS system. Cut FL-1058 to needed length. Insert PL-1058 using oil. Connect to 10-302 in port 'T'. Torque to 18 ft./lbs.



- B. Route fuel line from the 'R' port of the suction tube assy. to the 'R' port on the FASS system with a gentle bend. Cut and insert PL-1005 using oil. Attach fitting to the 'R' port. Do not use any sealant. Torque to 18 ft./lbs.

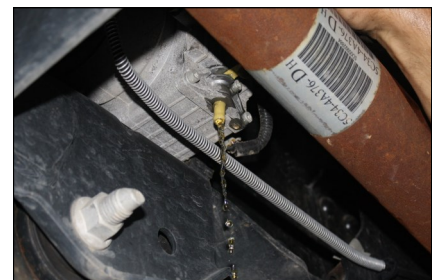


- C. Insert PL-1005 into remaining fuel line using oil. Attach fuel line to the 'E' port of the FASS system. Torque to 18 ft./lbs. Route this line to the engine side of the factory lift pump. Do not cut at this time.

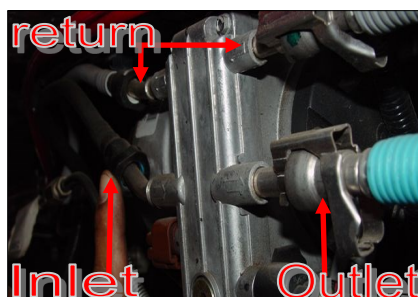


- D. Bypass factory fuel pump.

- E. Drain fuel from factory pump/filter using a 6mm hex drive, turning it counterclockwise.

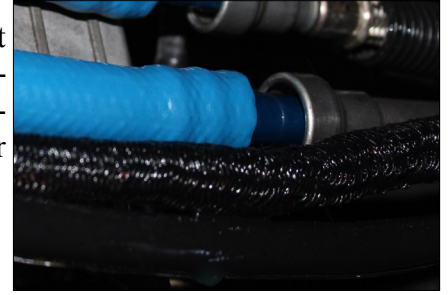


- F. Using quick disconnect tools, remove the fuel lines from the front of the factory fuel pump. Remove the fuel lines attached to the rear of the factory fuel pump by pressing in on the tabs.



STEP 4: INSTALL FUEL LINE

- G. Route the fuel line from the 'E' port of the FASS to the factory lift pump's outlet quick disconnect and cut to length. Insert the PLB-1212 into FASS fuel line using oil. Slide the PLB-1212 into the factory quick disconnect until you hear a click. Lock down factory retainer clip.



- H. Measure between the two factory return fittings. Insert two PLB-1238 fittings into the provided FL-1002 fuel line using oil. Insert fuel line into factory quick disconnects until you hear a click. Lock down retainer clip. Secure fuel line.



Note: Secure all fuel lines with cable ties. Cable ties are an economical way to prevent the possibility of problems occurring!

STEP 5: REVIEW INSTALLATION

- Blow out any open lines/cover any open ports
- Bolts and fasteners properly tightened?
- Electrical harness and fuel lines secured and properly tightened? Reconnect the battery.
- Has the system been primed?
 1. Turn key to the ignition position, turning on the FASS pump for 15 sec..
 2. Crank engine and allow to run for at least 1 minute.
- Check for leaks.
- Start the engine
- Recheck all fluid and filter connections for leaks
- This pump comes with a 1 Year Manufacturer's Warranty based on the date it has been manufactured. To receive your extended Lifetime Warranty, you have 30 days from date of purchase to send the completed warranty information along with a copy of the purchase receipt in to Diesel Performance Products, Inc. Att: Warranty 16240 Hwy O Suite B Marthasville, MO 63357

STEP 5: REVIEW INSTALLATION

The factory suction line can be capped off or removed from the truck. The openings on the filter and tank will need to be capped off to keep debris from getting into lines or canister.

To assist with priming your FASS pump crack the FF-3003. Put power to the FASS pump to activate the pump. When the tone of the pump changes you can tighten up the fuel filter. If you need a video of the priming process go to www.FASSride.com.



Note: The Red Plastic Plugs located in the “H” ports can stay in place fuel will not flow through these ports. Coolant can be plumbed into these ports to heat the fuel in the Winter months.

Filter Cross References

TITANIUM SERIES



(Currently in use)

- Fuel (FWS-3003)
- Water (FS-1001)



<u>Fuel Filter (Micron Rating)</u>	<u>Water Separator (Micron Rating)</u>
Thread Size (1-14)	Thread Size (1-14)
Baldwin BF7633 (2M)	Baldwin BF 1258 (10M)
Carquest 86528 (2M)	Baldwin BF1214
CAT 1P2299 (6M)	Baldwin BF7546 (10M)
CAT 1R0750 (2M)	Donaldson P558000 (20M)
Donaldson P551025(4M)	Donaldson P551000 (10M)
Donaldson P551311 (3M)	Donaldson P551001(10M)
Donaldson P551313 (3M)	Fleetguard FS1282 (14M)
Donaldson P553203(3M)	Fleetguard FS-1000 (10M)
Donaldson P557440 (6M)	Fleetguard FS-1001 (10M)
Fleetguard FF5320(2M)	Fleetguard FS-1009(14M)
Fram P8334 (2M)	Fleetguard FS-1212(14M)
Hastings FF1079 (2M)	LuberFiner LFF8011
Wix 33352 (6M)	LuberFiner LFF8000
Wix 33528 (2M)	Motorcraft FD818 (14M)
Wix 33674 (2M)	Wix 33405(14M)
	Wix 33522 (10M)

LIMITATION OF LIFETIME WARRANTY

Disclaimer: To help insure you receive the proper system and customer support at the local level, FASS has a VIP and Authorized Dealer network representing FASS products. This is one reason you must purchase through a dealer to comply with our warranty policies. If you do not, there is no warranty! We recommend you go to www.FASSride.com, click "Find a Dealer", put in their ZIP code, select the type of dealer, and see if the company you purchased from is listed. If they are not, put their phone number in the field below the ZIP code field to see if they are listed. Below these two fields is a list of "Terminated/Unauthorized" dealers. You may want to review this list. If the company is not listed or is on the "Terminated/Unauthorized" list, we suggest you return the product immediately to that dealer and call FASS. We'll recommend you to the nearest dealer.

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.

When MANUFACTURER receives the "ORIGINAL" PRODUCT REGISTRATION form with a copy of the "BILL OF SALE/SALES RECEIPT" within 30 days of the sale, then the following applies! The Warranty will then and only then be validated to that of which typically accompanies your unit for your specific application from the date of sale or for recommended service life and limited solely to the original purchaser and/or vehicle and parts contained within the product's kit. This warranty does not cover normal wear on consumable items such as but not limited to filters, fuel line, wire harness & etc. The warranty does not cover seized gears due to lack of filtration. Warranty is voided if used with other than diesel fuel. 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.

A Return Material Authorization (RMA) number must be obtained before any product is to be returned to Diesel Performance Products, Inc. for warranty consideration, repair or product return. Requests for product returns must be offset by an equal value order. Return parts must be completed and in resalable condition. No returns after 30 days.

The following information is required to obtain a RMA number before returning product:

Your Name, Address, and Phone Number's
Model and Serial Number (Not Motor Number) Example: Model HD Series, Serial: 00125966
VIN Number of Vehicle
Date of Purchase
Nature of Problem

RMA and Product Serial Number must be on all paperwork and correspondence. Failure to obtain the required information or paperwork will result in \$25.00/item penalty and delay or denial of any warranty claim.

Under no circumstances shall the SELLER and/or MANUFACTURER 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 and/or MANUFACTURER 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:

Diesel Performance Products, Inc.
16240 State Hwy O Suite B
Marthasville, MO 63357
636-433-5410

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