FASS Diesel Fuel Systems

TITANIUM SIGNATURE SERIES

INSTALLATION MANUAL

ALL 1/2" FUEL PORTS



TITAN

APPLICATION:

TS-N16-140F-110G
(110GPH @ 78PSI)

Nissan Titan XD
5.0L Cummins

2016-2019

DESIGNED, MACHINED & ASSEMBLED IN THE USA

LIFETIME WARRANTY AVAILABLE

Thank you for choosing FASS, from Diesel Performance Products, Inc.

FASS specializes in building extremely high-quality fuel products. We have earned an unsurpassed reputation for excellence in our industry by using only the highest-quality American-made components. In order to support our American workers and our American economy, more than 98+ percent of our products are manufactured completely in the United States.

Of course, that dedication to excellence comes at a price, but it is important to remember that price does not dictate quality-quality dictates price! We will never compromise by using cheaper, foreign-made components, like so many of our competitors do.

Customer satisfaction is our top priority and we strive always to provide outstanding customer service. Our Research and Development department, in conjunction with our Dealer Support Department, continually searches for ways to improve quality, expand our product line, and provide superb support. Our exclusive ViP Network ensures that customers receive the proper products and support at the local level. The extended lifetime warranty is only available on products purchased from the network. There is no warranty on products not purchased outside the network.

IMPORTANT:

In order to qualify for the lifetime extended warranty, your product registration form and proof of purchase from an authorized dealer must be submitted to FASS Fuel Systems within 30 days of purchase. Failure to comply will void the warranty. We have the right to deny any warranty believed to be false, altered or purchased through an unauthorized or terminated dealer. A current list of authorized dealers can be found on our website, FASSRide.com.

The complete conditions of the Limitation of Warranty can be found in the back of this manual, and FASSRide.com.

**For more information,
contact Technical Support:
Diesel Performance Products, Inc.
16234 State Hwy O.
Marthasville, MO 63357
636-433-5410**

www.fassride.com
(866) 769.3747



WARNING!

This product has NO WARRANTY unless:

1. It has been purchased from an Authorized or ViP FASS Dealer. If in doubt, check www.FASSRide.com.

2. It is registered within thirty (30) days of purchase.

Other conditions may apply. Please see full warranty information.

NOTE: **Warranty is void if product was purchased below FASS website advertised pricing.**

ATTENTION!

Before you begin installation

Register for your Warranty ONLINE at

https://www.fassride.com/register-a-warranty/

No online access, call our TECH Support at

1-866-769-3747

www.fassride.com
(866) 769.3747

FOLLOW THESE STEPS TO ENSURE A SIMPLE, CORRECT INSTALLATION OF YOUR NEW TITANIUM FUEL SYSTEM

ATTENTION:
Be sure to identify the proper FASS System and fuel line configuration. For help, our product finder can be found at www.FASSride.com. Follow the instructions to see fuel line detail.

1. *Pay close attention to ALL WARNINGS*

2. *Read all instructions before starting installation of this product.*

3. *Inventory the package components. Notify the place of purchase immediately of any parts missing or damaged.*

4. *The installation recommendations contained within are guidelines. Use good judgment and take into consideration your vehicle's accessories.*

5. *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 or problem arises during the installation, the dealer is prepared to handle it. Diesel Performance Products, Inc. is not responsible for any installation mistakes.*

6. *If you have any questions or concerns that cannot be addressed with your dealer, email or call FASS.*

If any installation procedure is uncertain, contact FASS technical support.
Call customer service at 636-433-5410,
or send us an e-mail: techsupport@FASSride.com
with the following information:

Your name, address and daytime phone number
Model (TS-N16-140F-110G)
Last 6 digits of vehicles' VIN

Date of purchase
Nature of Your Concern
Serial number .....



www.fassride.com
(866) 769.3747

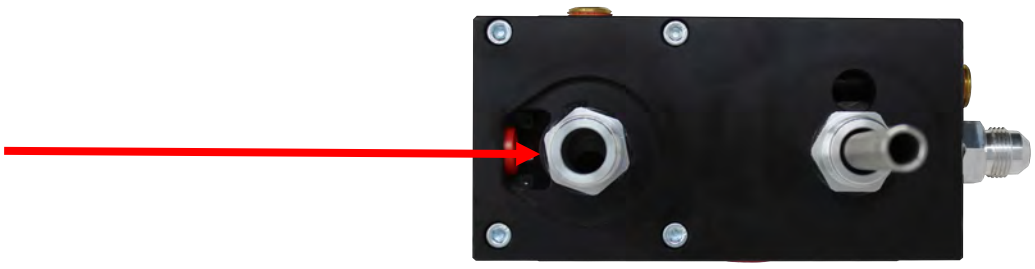
INSTALLATION MANUAL
TS-N16-140F-110G

(Installation Videos are available at www.fassride.com)

RECOMMENDED APPLICATION

TS-N16-140F-110G: Titan XD 5.0L Cummins 2016-2019 with stock - 700 horsepower

1. **Read all instructions before starting installation of this product!**
2. **Installing the improper FASS Pump can cause severe engine damage.**
3. **Secure vehicle from ROLLING!**
4. **Cab and Chassis may require modifications**
5. **Consult vehicle's manufacturers' instructions concerning the electrical system before attempting any electrical connections.**
6. **Flush and clean all brass fittings and fuel line from debris.**
7. **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.**



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

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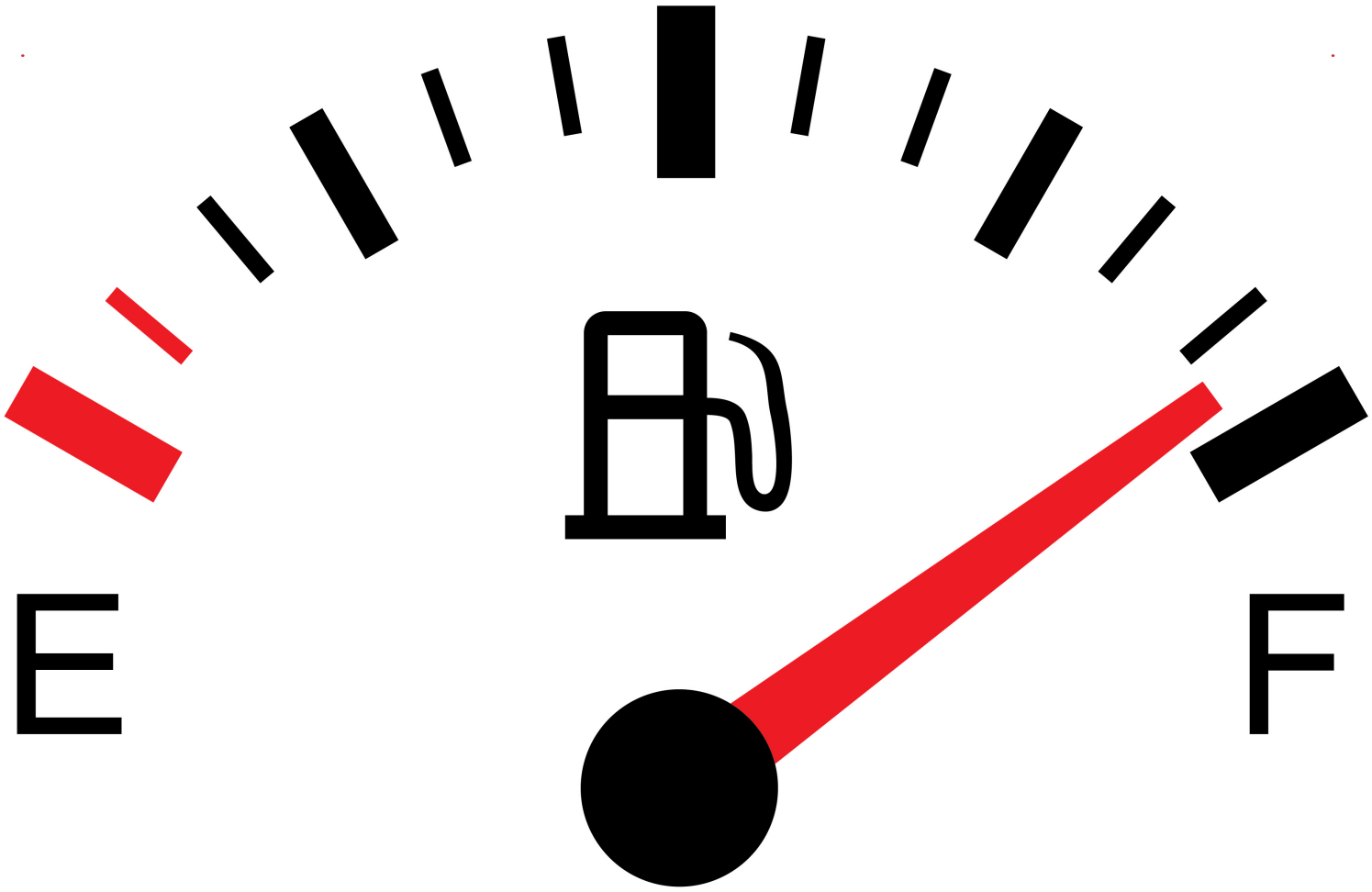
(866) 769.3747



WARNING!

Always be sure to fill the fuel tank to full after a new FASS installation. Failure to do so can result in excessive sound output, or priming issues!



TITANIUM SIGNATURE SERIES 110 GPH

www.fassride.com
(866) 769.3747

78 psi (Approximately)

Rear View



Front View



PUMP GUIDE:

1. "E" To Engine
2. "R" Return to Tank
3. Serial Number
4. "T" Fuel Inlet
5. Electric Heater Ports
6. "G" Gauge Port

INSTALLATION GUIDE:

Step 1. Install Electrical Harness
Step 2. Prep the FASS
Step 3. Mount the FASS
Step 4. Fuel Line Supply
Step 5. Review Installation

FASS Diesel Fuel Systems

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TITANIUM SIGNATURE SERIES 110 GPH

78 PSI (Approximately)

Note: Going over 100 PSI WILL void warranty.

NOTE: WARRANTY MAY BE VOID IF SILICONE BAND IS REMOVED FROM MOTOR!!



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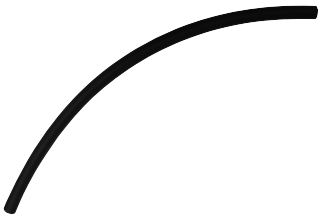
NOTE: ***Owner's Manual available for download on our website,***
www.FASSride.com





MP-9079



FL-1058x5'



FL-1002x9'



WH-1006-3



PBR-2002



NTFB-1001

FASS Diesel Fuel Systems

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MOUNTING PACKAGE CONTENTS



BHF-1005



OR-212



BHN-1005



TWO (2)
PL-2003



A614C56-55-05



PLB-1212



10-307



10-302





46251

ADD-A-CIRCUIT
46044



TWO (2)
PL-1058



RVC-38



10-300



TWO (2)
HC-1001



DB-1010



TWO (2) RING
TERMINAL



FOUR(4) HEX BOLT
3/8" -16x11/4"



THREE(3)
HEX
BOLT
1/4"-20x
13/4"



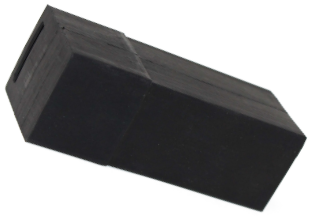
TWO (2)
TUBE CLAMP



THREE(3) WA-1001D



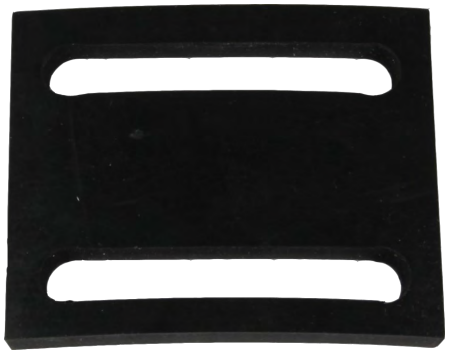
FOUR(4) 3/8" WASHERS



RELAY COVER

www.fassride.com
(866) 769.3747

MOUNTING PACKAGE CONTENTS



RS-2002



ST-1005P



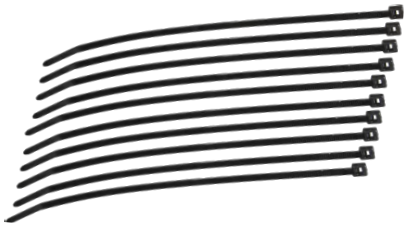
FL-1006
5/16" Vlton Tube



FL-1009
3/8" Vlton Tube



1,200° F
Heat Shielding



CABLE TIES



DIELECTRIC GREASE



TWO (2)
OR-017



OR-030

NOTE: THESE SPARE BASE O-RINGS ARE INCLUDED WITH THE KIT IN THE EVENT OF A PINCHED O-RING DURING ASSEMBLY



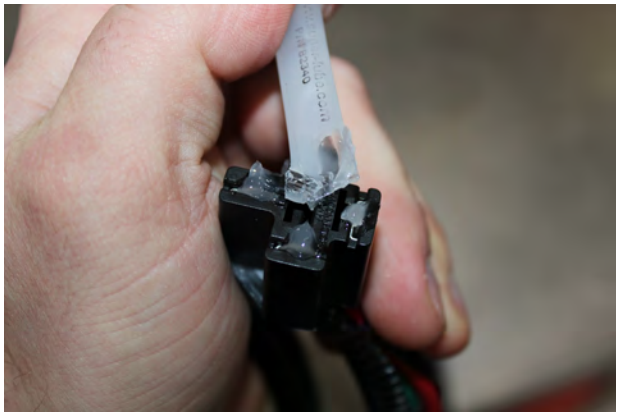
30 AMP FUSE

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.

NOTE: USE SUPPLIED DIELECTRIC GREASE SPARINGLY ON ALL ELECTRICAL CONNECTIONS! BE SURE TO GREASE RELAY PIGTAIL!



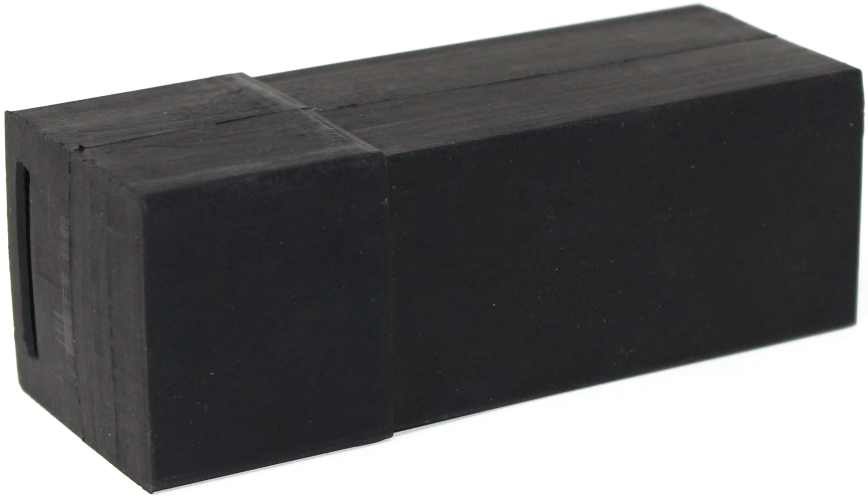


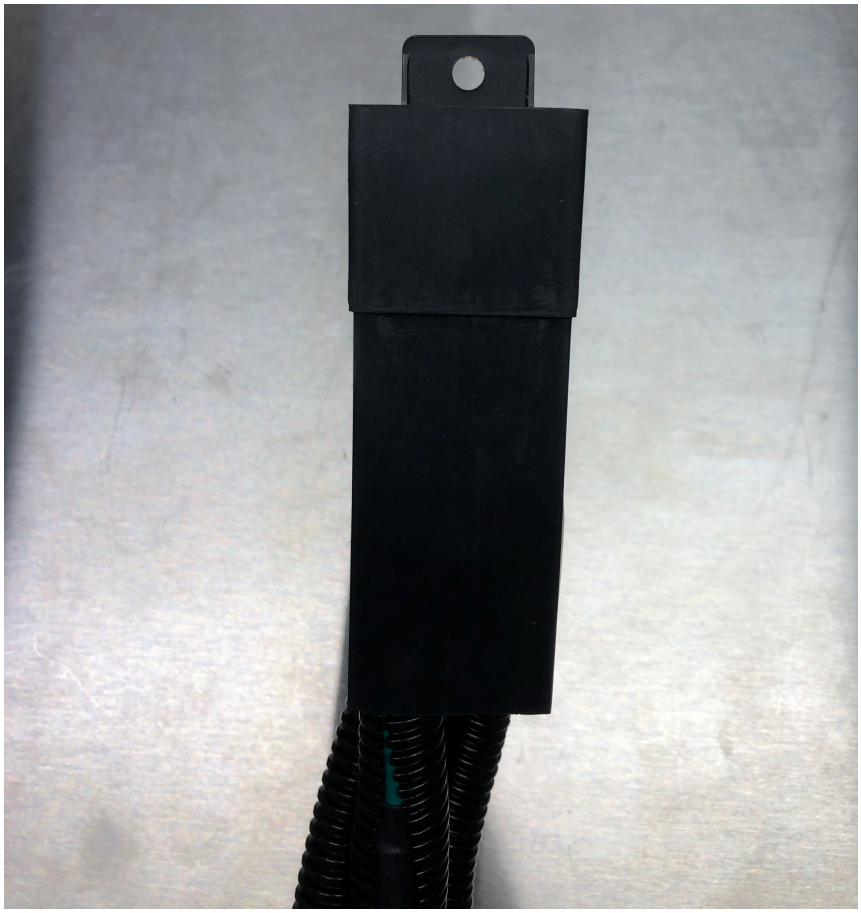


STEP 1:
INSTALL ELECTRICAL HARNESS

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

Install the Relay Cover onto the relay on the FASS harness.



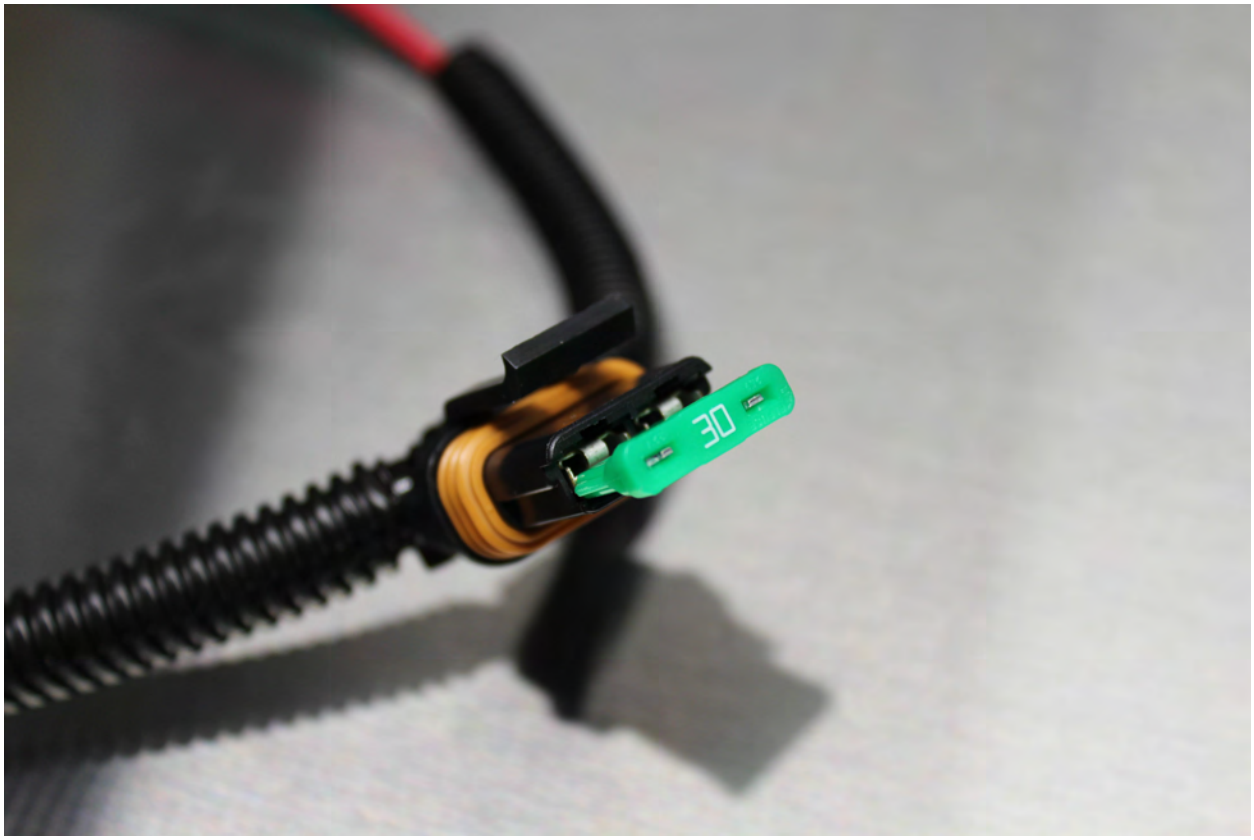


STEP 1:
INSTALL ELECTRICAL HARNESS

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

NOTE: BE SURE TO INSTALL THE SUPPLIED 30 AMP FUSE INTO THE FASS WIRING HARNESS!!





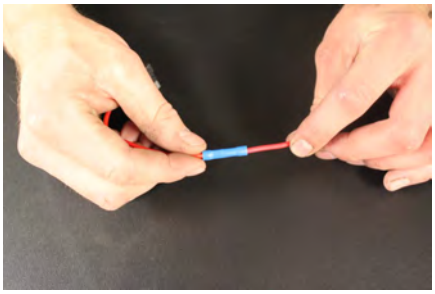
STEP 1:
INSTALL ELECTRICAL HARNESS

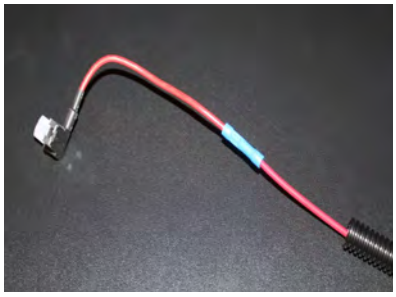
The installation of the electrical harness is done first, allowing power to be applied to the pump for lubrication purposes later in the installation.

A. Crimp the ring terminals to the red and green wires of the WH-1006-3 Wire Harness. Attach red wire to the positive terminal of the battery and the green wire to the negative terminal. Use supplied dielectric grease on all electrical connections.




B. Place wire from ADD-A-CIRCUIT 46044 and WH-1006-3 into butt connector. Using crimping tool connect ADD-A-CIRCUIT 46044 and WH-1006-3 with butt connector. Install 46251 to ADD-A-CIRCUIT 46044 bottom slot (near wire that feeds additional circuit.





C. Secure relay and fuse in an upright position, as shown, to prevent moisture from entering. Be sure to use supplied dielectric grease on relay pigtail.

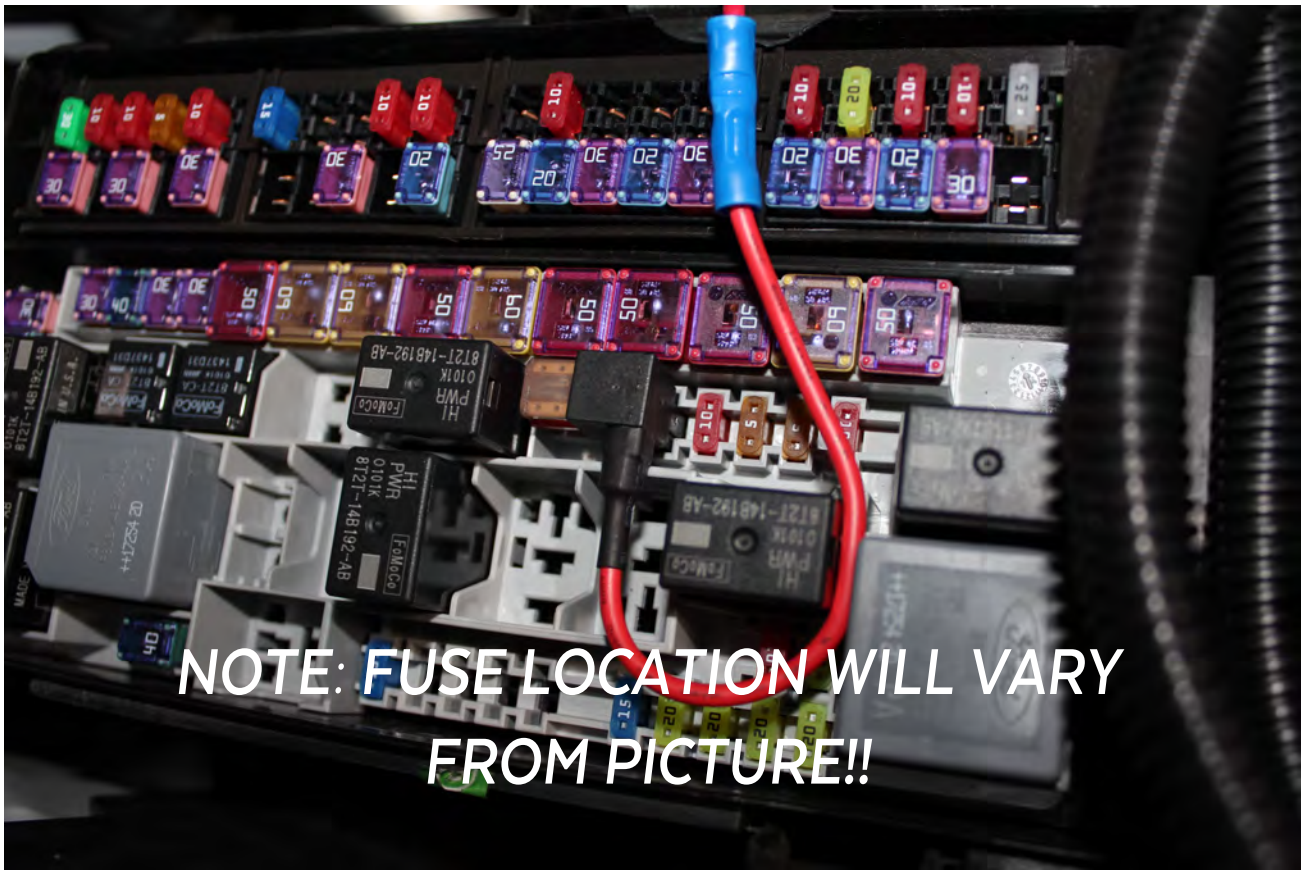



STEP 1:
INSTALL ELECTRICAL HARNESS

D. Install the supplied 1,200° F heat shielding onto the red wire section of WH-1006-3. Be sure the heat shielding is installed over the existing plastic wire loom!

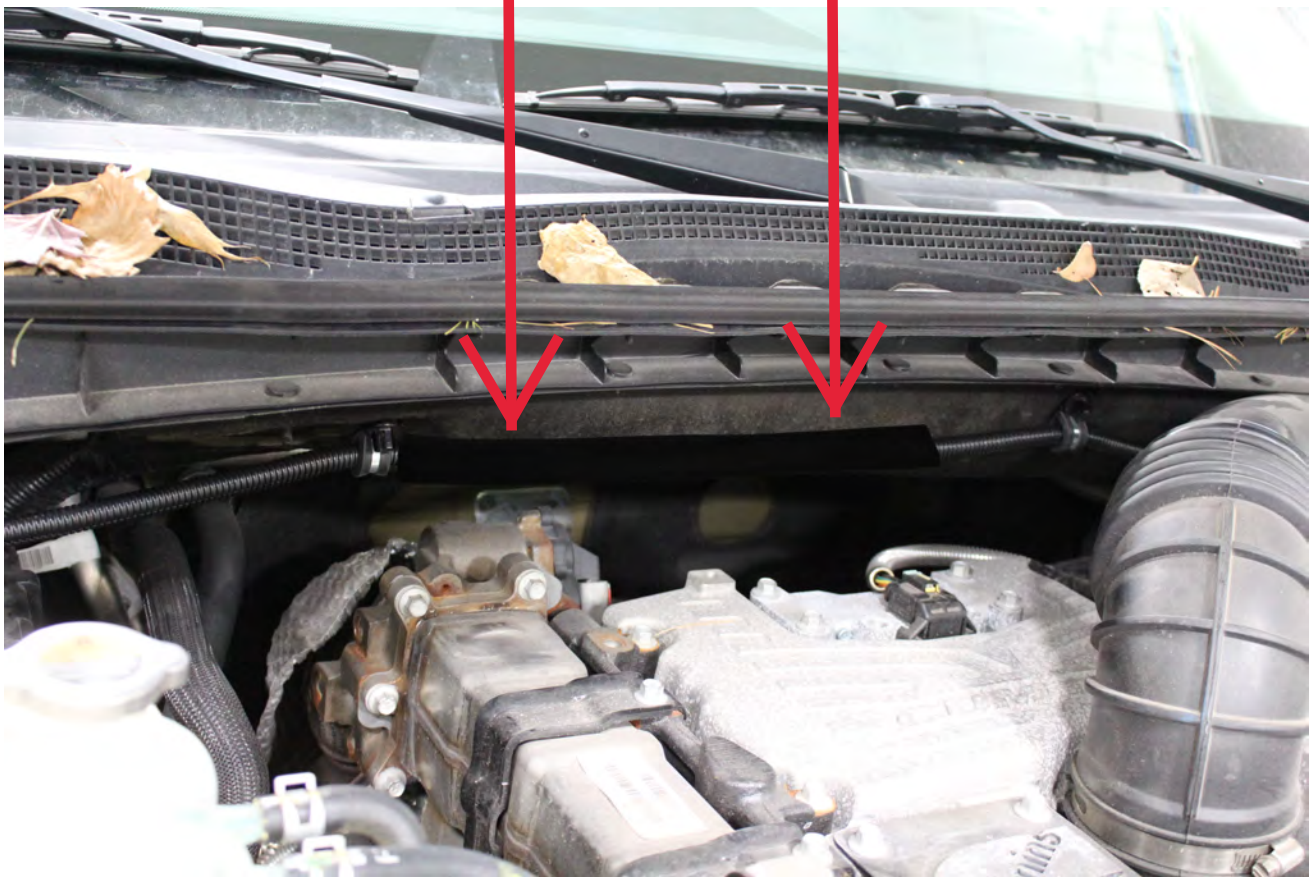


E. Route the single red wire of WH-1006-3 to the engine bay fuse panel on the passenger's side. Remove a fuse (maximum of 10A) that is "hot" when the key is on. Use a test probe to locate the "hot side" of the circuit in the fuse block. Install the Add-A-Circuit into the open location. Install the pulled fuse into the open space on the fuse tap.



STEP 1:
INSTALL ELECTRICAL HARNESS

F. Secure WH-1006 to the fire wall using the (2) supplied tube clamps, use the 2 retainer clips to mount the tube clamps. BE SURE THE 1,200° F HEAT SHIELDING IS CENTERED OVER THE ENGINE!!!



G. Route WH-1006-3 wire harness along frame rail to mounting location of pump. Completion of this step will be addressed in the mounting step.

STEP 2:
PREPARE SUCTION & RETURN LINES

Some of the photos 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.

Helpful Hint: Directions for removing factory lines.

1. Pull up on the locking tab (either green or red).
2. Pull straight out on the connector.



A. Remove the (3) 12mm bolts from the OEM fuel filter debris shield.



B. Drain the OEM fuel filter housing and disconnect the (2) electrical connectors.





STEP 2:
PREPARE SUCTION & RETURN LINES

C. Disconnect the (4) fuel connectors from the OEM fuel filter housing.




D. Remove the (4) bolts that secure the OEM fuel filter housing and remove the housing from the truck.



E. Remove the fuel tank skid plate, disconnect the fuel fill and vent tubes.




STEP 2:
PREPARE SUCTION & RETURN LINES

F. With the fuel tank empty of fuel, remove it from the truck.



G. Remove and discard the fuel tank module shield, this will no longer be used. Clean the fuel module area then remove the lock ring on the top of the fuel tank. **This is spring loaded, so, holding it down while removing the ring will prevent the sending unit from popping up and possibly causing damage.**





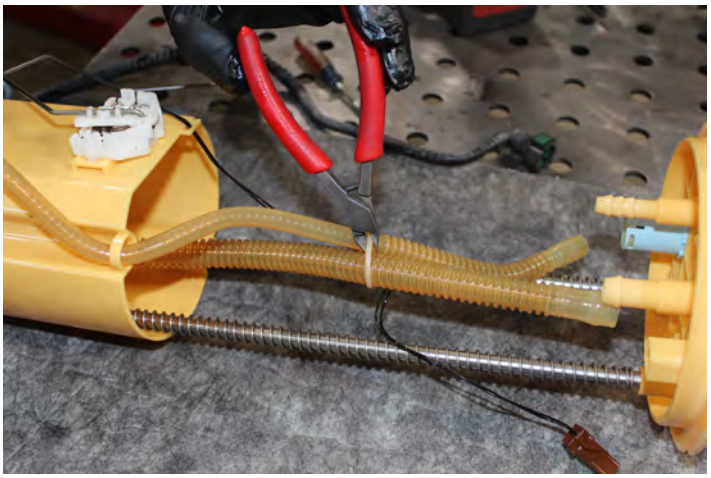
H. Disconnect the fuel level sending unit electrical connector to prevent damage to wiring, this will be reconnected prior to reinstalling the fuel tank module.



STEP 2:
PREPARE SUCTION & RETURN LINES

I. Carefully remove all sections of the OEM convoluted tubing from the fuel tank module using a utility knife. Be sure not to damage the hose barb beneath the convoluted tubing.







J. Using BHN-1005, mark the mounting location for BHF-1005. With a 7/8" hole saw, drill the marked location. Be sure to remove any remaining burrs to ensure a proper sealing surface.





STEP 2:
PREPARE SUCTION & RETURN LINES

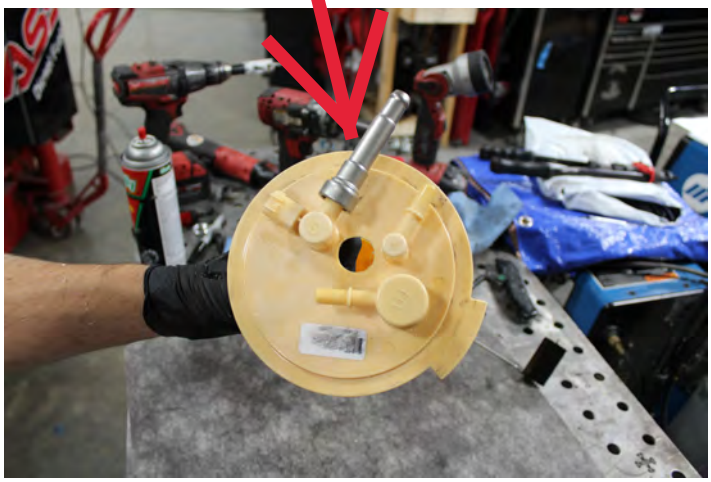
K. Install 10-307 into BHF-1005 and tighten accordingly. Install PL-1058 onto 10-307 and tighten accordingly.





L. Install A614C56-55-05 onto the OEM suction line on the fuel tank module. Press the locking tab of A614C56-55-05.





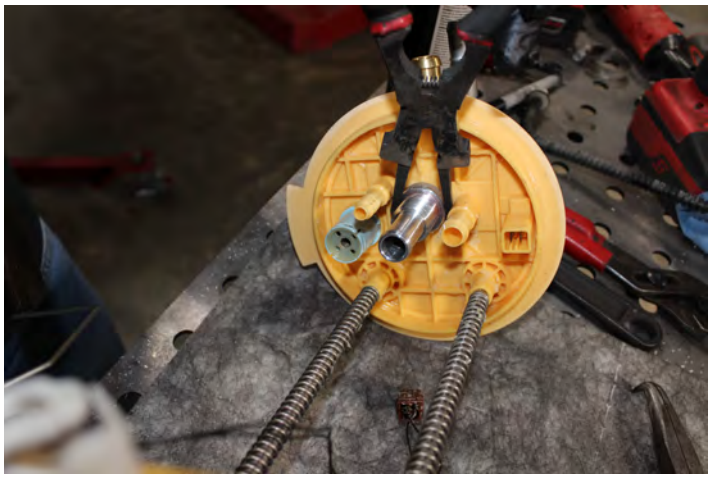
STEP 2:
PREPARE SUCTION & RETURN LINES

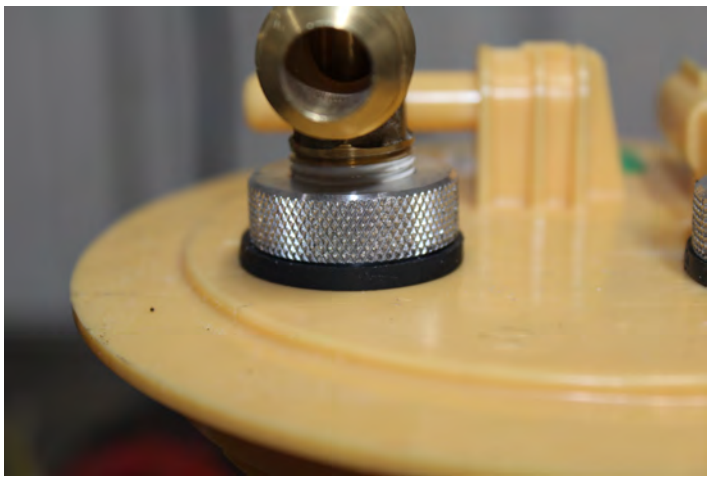
M. Install OR-212 onto BHF-1005, install BHF-1005 into the fuel tank module. Apply red LocTite to BHF-1005 threads and install BHN-1005. Tighten BHF/BHN with a pair of needle nose pliers. It may be necessary to remove the yellow ring from PL-1058 to gain clearance. *DO NOT OVER TIGHTEN, CHECK FOR PROPER COMPRESSION OF GASKET OR-212!!!*













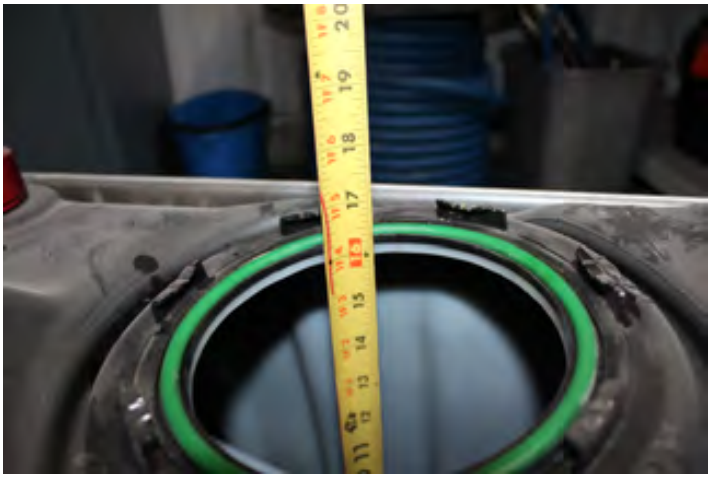
STEP 2:
PREPARE SUCTION & RETURN LINES

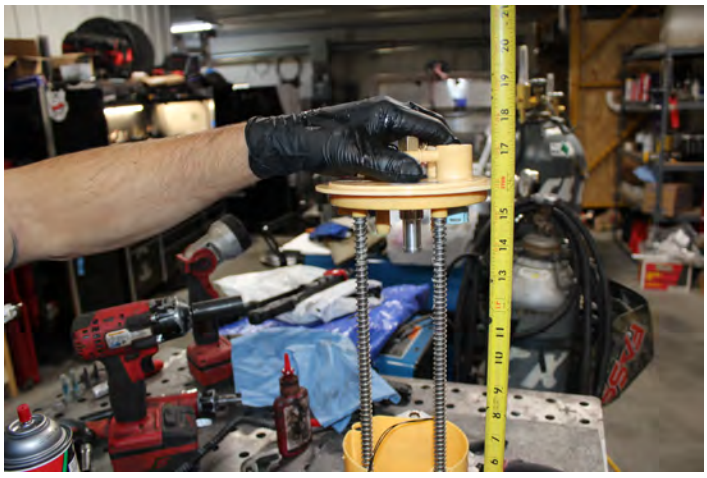
N. *VERY IMPORTANT:* Support fuel tank on both ends allowing the natural formation of the tank to take place. Failure to perform this step will hinder precision installation.



FUEL TANK SUPPORTS

O. Using a tape measure, measure from the bottom of the fuel tank to the top of the o-ring sealing surface where the fuel tank module makes contact and take note of the measurement. Compress fuel tank module to the exact height measurement taken in previous step, measure and mark ST-1005P with 1/4-1/2" clearance from bottom of fuel tank module. Cut ST-1005P to length and install onto BHF-1005 with hose clamp HC-1001. *NOTE: ACTUAL MEASUREMENTS WILL VARY FROM IMAGES!*



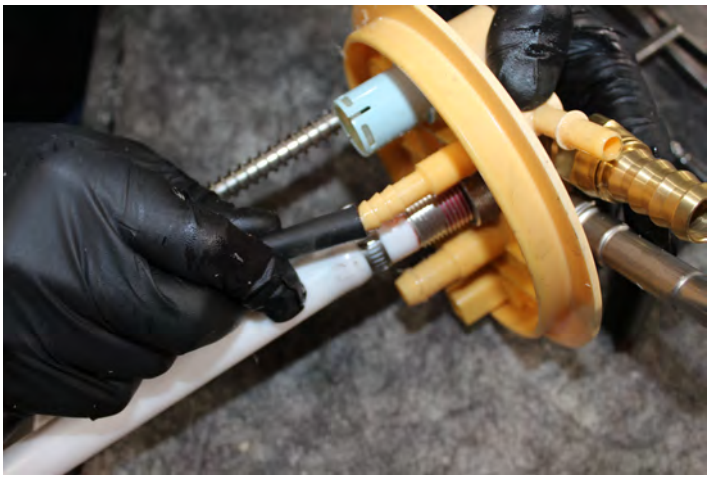




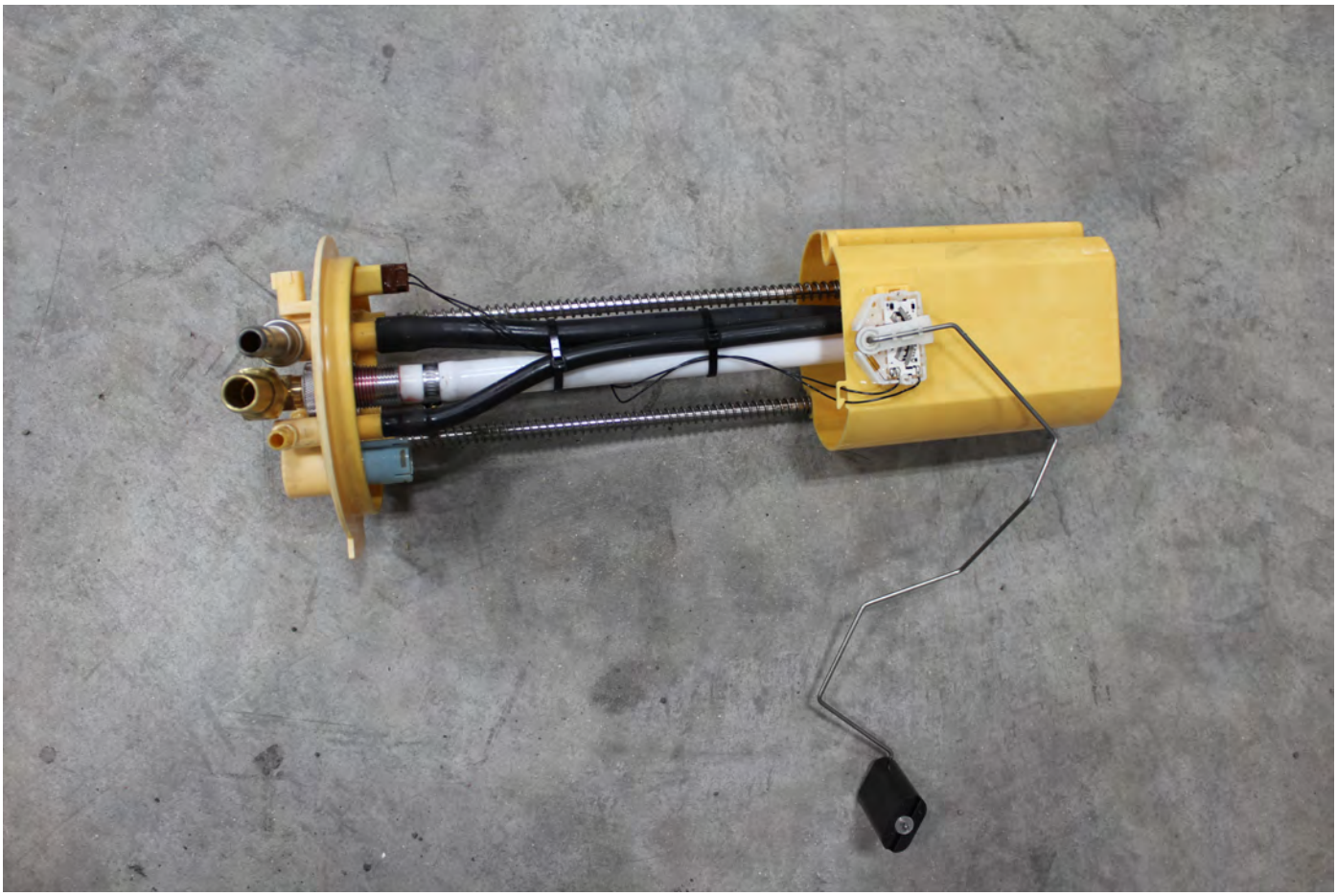


STEP 2:
PREPARE SUCTION & RETURN LINES

P. Install FL-1006 onto OEM engine return barb, this will be the smaller of the 2 plastic barbs.



Q. Install FL-1009 onto the OEM engine feed barb, this will be the larger of the 2 plastic barbs. Reconnect the fuel level sending unit electrical connector and secure the tubing/wiring together with the supplied cable ties.



STEP 2:
PREPARE SUCTION & RETURN LINES

R. Carefully reinstall fuel tank module into fuel tank, reinstall locking ring. Install FL-1058 onto PL-1058 using oil, be sure to support the rear of 10-307 when pushing on fuel line. Install FL-1002 onto A614C56-55-05 with HC-1001.



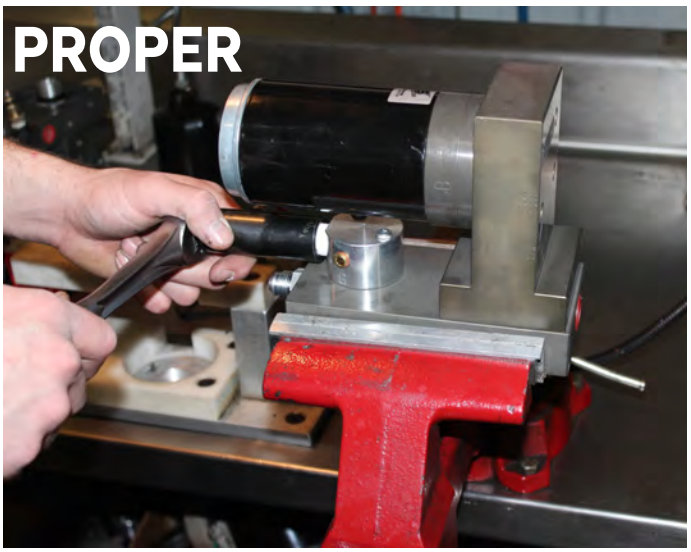
S. Remove and discard the OEM fuel feed line from the truck, this will no longer be used.

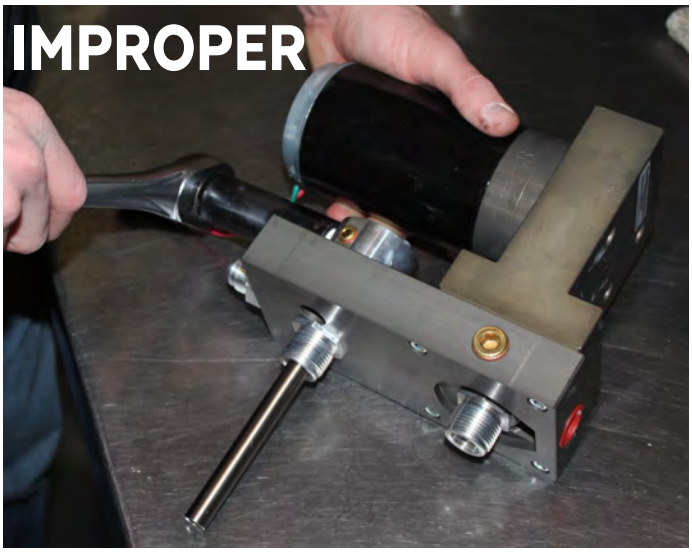


STEP 2:
PREPARE SUCTION & RETURN LINES

NOTE:

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





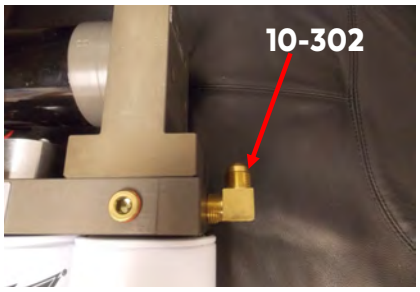
STEP 3:
MOUNT FUEL SYSTEM

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

NOTE: Always use our dimension O-Ring for water separator, not doing this could lead to priming issues.

A. Install 10-300 into the "E" port and 10-302 into the "T" port of the FASS, torque to 20 ft./lbs.
FITTINGS COME EQUIPPED WITH THREAD SEALANT, DO NOT USE THREAD TAPE







B. Install NTFB-1001 onto the LH OEM fuel pump mounting stud, reinstall existing 12mm nut and 12mm bolt. Tighten accordingly.



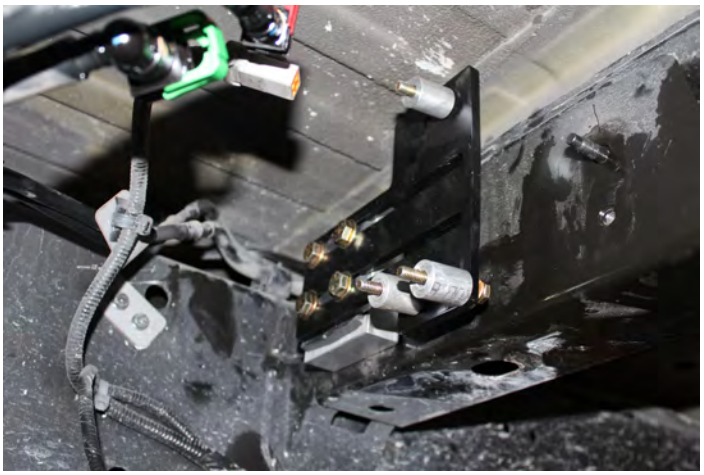
STEP 3:
MOUNT FUEL SYSTEM

C. Install RS-2002 onto PBR-2002. Install PBR-2002 onto NTFB-1001 with the (4) 3/8" bolts and (4) 3/8" flat washers. Leave the 4 bolts loose, these will be tightened at a later time.

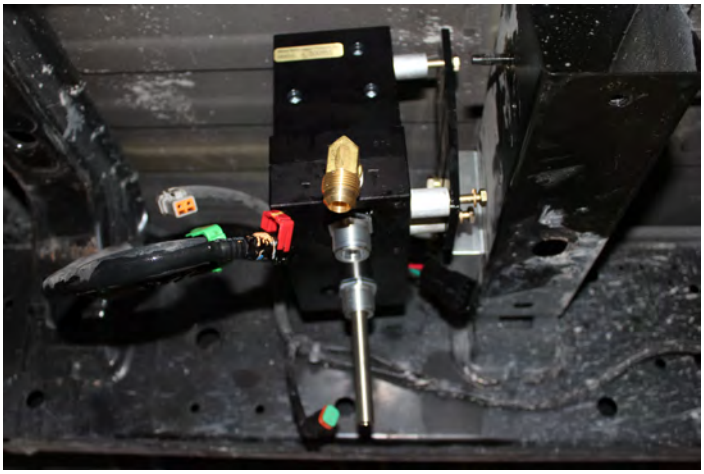




D. Install (3) 1/4" bolts with (3) WA-1001D spacers as pictured below. Tighten the (4) 3/8" bolts from step C, be sure PBR-2002 is level.



E. Install the FASS onto the (3) 1/4" mounting bolts and tighten accordingly.





STEP 3:
MOUNT FUEL SYSTEM

NOTE: If fuel pressure gauge is pulsating after FASS installation, use snubber valve (Cat Part # 7S-3795)

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



Extreme Water Separator - Install XWS-3002 on side of pump with draw tube in the middle of the filter nipple.



Particulate Filter -Install PF-3001 on filter 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

Caution: DO NOT use sealant on AN fittings

A. Reinstall the fuel tank by reversing steps taken for removal.



B. Install DB-1010 into the OEM fuel injection system return lines, be sure to relock safety tabs.





C. Install PL-1058 onto 10-302, route FL-1058 to PL-1058. Cut FL-1058 to length and install onto PL-1058 using oil.



STEP 4:
INSTALL FUEL LINE

Caution: DO NOT use sealant on AN fittings

D. Loosely install PL-2003 onto the FASS return fitting, Cut FL-1002 to length and install onto PL-2003 using oil. Remove PL-2003 from the FASS, this will be reinstalled at a later time.



E. Install the remaining section of FL-1002 onto PL-2003 using oil. Install PL-2003 onto the FASS engine feed fitting 10-300, in some cases it may be necessary to remove the FASS return fitting. If removed, be careful to not damage the FASS pressure spring!



F. Install PLB-1212 into the OEM engine feed line, install FL-1002 from the FASS engine feed line onto PLB-1212 using oil. It may be necessary to trim FL-1002 to length!



STEP 4:
INSTALL FUEL LINE

Caution: DO NOT use sealant on AN fittings

G. Install PL-2003 from step D. onto the FASS return fitting and tighten.



H. Remove the water-in-fuel sensor from the OEM fuel filter housing, install RVC-38 onto the WIF sensor. Reconnect WIF sensor plug to the wire harness on the truck, secure wiring with cable ties.





I. Using electrical tape, seal the OEM fuel pump connector to prevent road debris from entering. Reinstall the OEM fuel pump debris shield. Secure wiring from OEM connectors with cable ties.

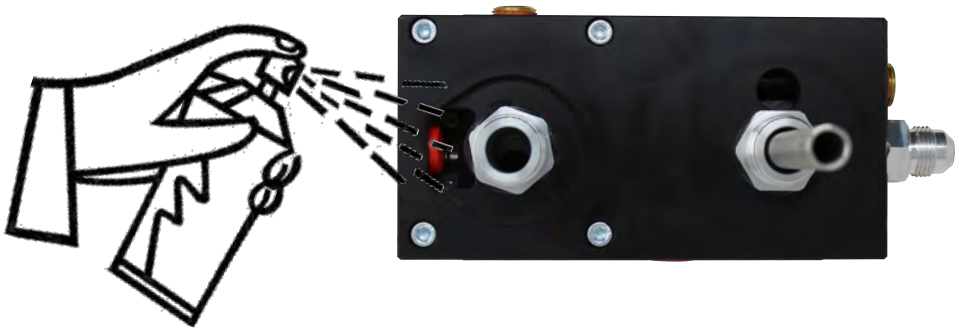




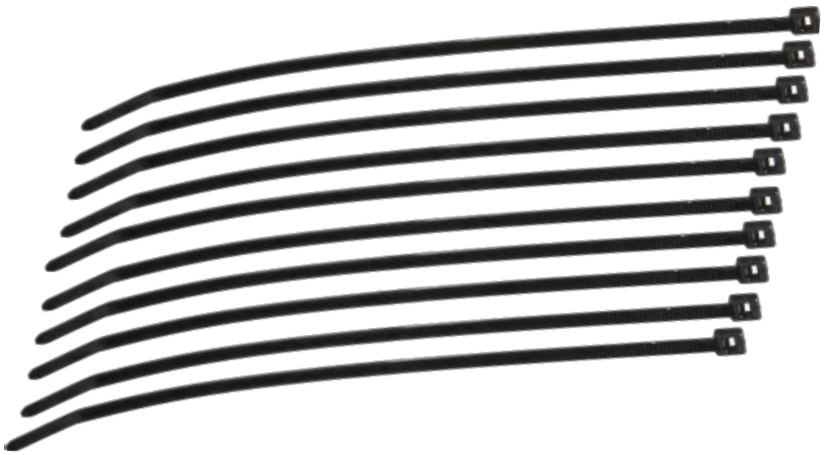
STEP 4:
INSTALL FUEL LINE

Caution: DO NOT use sealant on AN fittings

H. Connect electrical connector on the FASS to the WH-1006-3, turn the key to the "RUN" position and spray WD-40 into the suction side of the FASS. This will allow easier priming of the FASS System.



I. Secure all fuel lines and electrical components away from any moving parts using supplied cable ties.



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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 XWS-3002. 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.

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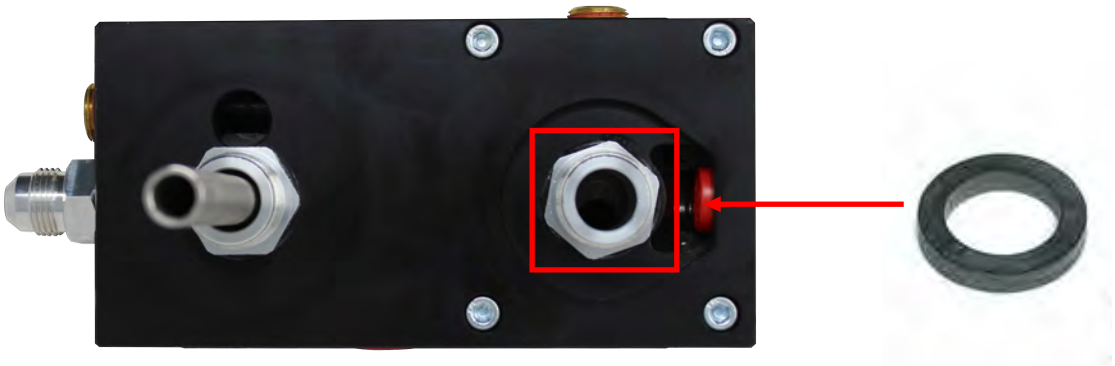
Fuel System Must Be Flushed!

To ensure no foreign debris has entered the fuel system, you must remove the engine feed line at the engine connection, power the FASS on and allow fuel to flush all fuel lines into a bucket.

FAILURE TO PERFORM THIS FLUSH CAN RESULT IN DAMAGED FUEL INJECTION SYSTEM COMPONENTS!

STEP 5:
REVIEW INSTALLATION



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

1. Blow out any open lines/cover any open ports
2. Bolts and fasteners properly tightened?
3. Electrical harness and fuel lines secured and properly tightened? Reconnect the battery.
4. Has the system been primed?
    a. Turn key to the ignition position, turning on the FASS pump for 15 sec..
    b. Crank engine and allow to run for at least 1 minute.
5. Check for leaks.
6. Start the engine
7. Recheck all fluid and filter connections for leaks
8. 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

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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 recom-mend you to the nearest dealer.

Diesel Performance Products, Inc. (hereafter "SELLER") gives Limited Warranty as to description, quality, merchantabil-ity, fitness for any product's purpose, productiveness, or any other matter of SELLER'S product sold herewith. The SELL-ER 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 peri-od. 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 in-curred 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 Prod-ucts, 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 PROMPLY 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.

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NOTES: