

“HIGH PERFORMANCE FUEL DELIVERY SYSTEM”



FOR: ENGINES EQUIPPED WITH
ECM TYPE
OR
DISTRIBUTOR PUMP FUEL INJECTION SYSTEMS

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 636-433-5913. 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.

FILTER CROSS REFERENCE SHEET

Cross Reference List for the FASS 150 Series Fuel Filter

Recommended Fuel Stratapore™ or Microglass
Filter Media:

<u>BRAND</u>	<u>Part #</u>	<u>Micron Rating</u>	<u>Material</u>
FASS	FF-1010	10	Stratapore™
FASS	FF-1003	3	Stratapore™
CIM-TEK	70032	10	Microglass
CIM-TEK	70213	3	Microglass
Fleetguard	HF6601	8	Cellulose/Synthetic
Fleetguard	HF6610	16	Cellulose
Fleetguard	HF6613	12	Microglass
Fleetguard	HF6607	6	Microglass
Fleetguard	HF6604	3	Microglass
Caterpillar	3T8642		

Cross Reference List for the FASS 150 Series Water Separator

Recommended Water Stainless Steel/Water Separator
Filter Media:

<u>BRAND</u>	<u>Part #</u>	<u>Micron Rating</u>	<u>Material</u>
FASS	WS-1001	144	Stainless Steel/Water Separator
Fleetguard	FS1023	144	Stainless Steel/Water Separator

NOTE: The use of a hydraulic fuel filter is because the canister is much thicker and provides more durability than a fuel filter canister.

WARNING!!

Installing the improper FASS Fuel System or installation kit can cause severe engine damage.

This installation manual applies to the FASS 150/200 (200gph) 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.

The FASS 150/200 applies to these applications:

CATERPILLAR Models A, B, C, E, & C Series Electronic Engines, CUMMINS M11, N14 (Fully Electronic) & ISX, DETROIT DIESEL SERIES 50 & 60, and MACK Engines

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.

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

Welcome to the **FASS Fuel/Air Separation System**.

The installation of the **FASS FUEL SYSTEM** can be relatively simple when the following steps are followed.

1. Inventory the package components completely. Notify place of purchase immediately of any parts missing or damaged.
2. We have invested many hours into the development of the installation and owner's manual's to simplify the installation and operation of the **FASS Fuel System**. Please read the owner's manual and 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 one of these manuals. If you have a question please review the installation or owner's 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 Fuel System.

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

For the 2 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 2 year warranty will not be valid.

OVERVIEW

Section 1	Parts List
Section 2	Safety Guidelines and Warnings
Section 3	Pump/Filtration Unit
Section 4	Fuel Lines

Section 4A

NOTE: SINGLE DRAW/SINGLE RETURN LINE SYSTEMS:

Read pages 10, 11 and 12 for completion of the single draw/single return line fuel systems.

Section 4B

NOTE: SINGLE DRAW/SINGLE RETURN LINE SYSTEMS WITH PICKUP OUT OF THE CROSS OVER FUEL LINE: Mostly on 359 Peterbilts!

Read to page 13 for directions.

Section 4C

NOTE: DOUBLE DRAW/DOUBLE RETURN LINE SYSTEMS:

Read to pages 14, 15 and 16 for completion of the double draw/double return line fuel systems.











Section 5	Electrical Harness
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Section 5A	Grounding FASS Fuel System
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Section 6	Fuel Heater
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Section 7	Final Check List
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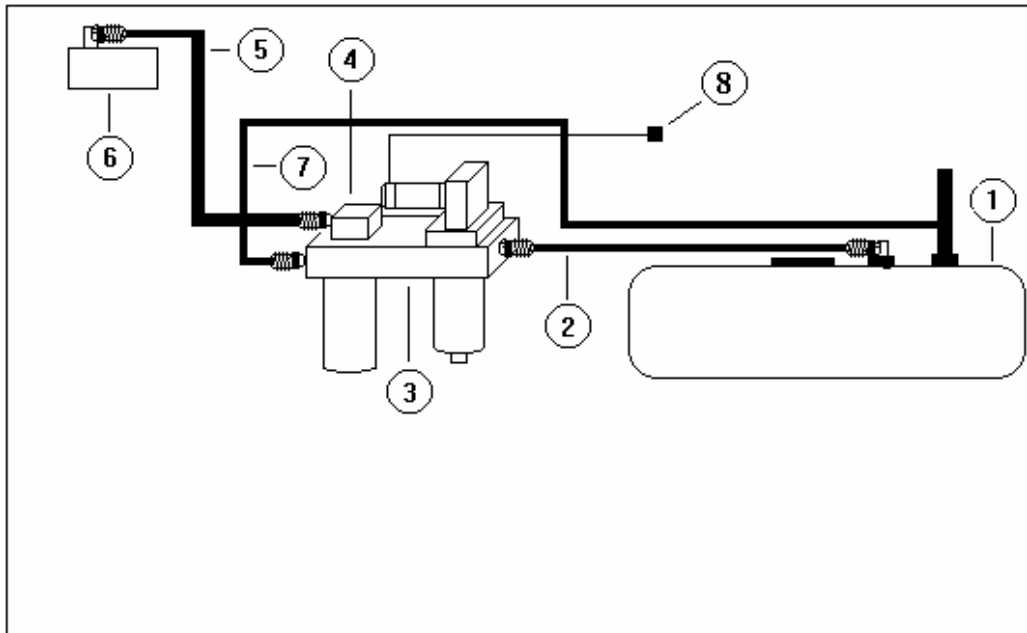
Contents Include:

	Description			Quantity		Part #		
1.	Pump/Filtration Unit	--	--	--	1	--	FASS-150	
2.	Fuel Pump Bracket	--	--	--	1	--	BR-2001	
3.	Owners Manual	--	--	--	1	--	OM-1002	
4.	Electrical Harness w/relay	--	--	--	1	--	WH-1002	
5.	1/4" mounting bolts	--	--	(2 - 1" & 3 - 1 1/2")	--	--	--	
6.	3/8" mounting bolt and flanged nut	--	--	4 ea.	--	--	--	
7.	1/2" mpt x 5/8" flare	--	--	--	2	--	--	
8.	Spade Connector	--	--	--	2	--	T1043	
9.	Grommet	--	--	--	1	--	--	
10.	Washer (Thickness 3/16") Washer (Thickness 11/16")	--	--	--	2 3	--	WA-1001A & WA-1001B	

Contents Include: continued

	Description				Quantity		Part #
11.	Ring Terminal	--	--	--	2	--	NRB516-K
12.	Wire Extension	--	--	--	1	--	WE-1001





1. FUEL TANK
2. FUEL SUPPLY LINE TO PUMP UNIT
3. PUMP/FILTRATION UNIT
4. FUEL TO ENGINE MANIFOLD
5. FUEL SUPPLY LINE TO ENGINE FUEL PUMP
6. ENGINE FUEL PUMP
7. RETURN LINE
8. IGNITION
9. FIREWALL
10. DASHBOARD
11. STAND PIPE/DRAW TUBE

INLET/OUTLET PORTS USED FOR PLUMBING ARE MARKED AS FOLLOWED:

- “T” – the fuel line from the fuel tank enters this port.
“R” – this is the return port back to the fuel tank.
“E” – this is the port leading to the engine’s lift pump.
“H” – these are the heater ports for coolant, unidirectional. These port do not have to be hooked up.
“G” – this port is for a pressure (0 – 30psi) gauge reading.

Please Note: The 2 – 1/2” allen head plugs located in the main base of the unit have no function except to close off passages that were needed for machining purposes.

SAFETY GUIDELINES AND WARNINGS!

WARNING! ***DO NOT REMOVE ANY FACTORY INSTALLED SECONDARY FUEL FILTER. REMOVAL OF A FACTORY INSTALLED SECONDARY FUEL FILTER MAY VOID THE ENGINE MANUFACTURER'S WARRANTY. THIS IS THE FUEL FILTER BETWEEN THE ENGINE FUEL PUMP AND THE INJECTORS.***

NOTE: Proper location of the Pump/Filtration Unit on the vehicle is essential. Consider hazards presented to the equipment by road debris and the elements, as well as the best location in relation to the fuel tanks and fuel pump.

WARNING! Top and bottom frame rail flanges should not be drilled into or welded upon. Consult vehicle manufacturer's guidelines and warnings.

WARNING! Use care not to drill into any electrical wires, air lines or other damageable components when drilling through the frame rails, dashboard or firewall of the vehicle.

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.

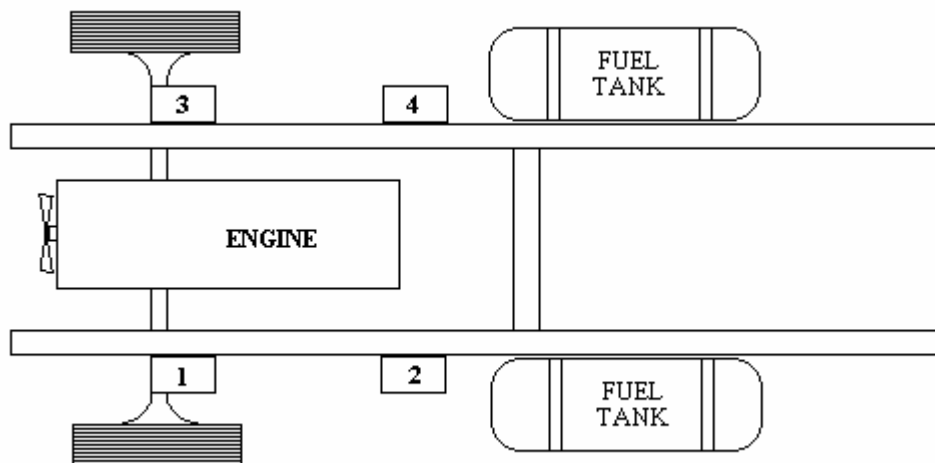
CAUTION: Use common sense when routing fuel lines and electrical harnesses. Keep them away from hot exhaust components and/or moving parts. Properly secure lines to prevent chaffing.

Location of the **FASS FUEL SYSTEM** **PUMP/FILTRATION UNIT**

The proper location of the **FASS Fuel System** on the vehicle is most important. When making the decision as to where to locate the **FASS Fuel System**, the following points should be considered:

- Best performance
- Protection from the elements and road debris
- Ease of service

Suggested locations: 1, 2, 3 and 4.



INSTALLING PUMP/FILTRATION UNIT ON FRAME

- 3-1** Clean frame area where Pump/filtration Unit is to be mounted.
- 3-2** Assemble filters & mounting bracket to FASS System using the Washers, WA-1001A, WA-1001B & the ¼” x 1” & ½”. The thinner washers and ¼” x 1” bolts will be assembled in the main base of the FASS with the thicker washers and ¼” x 1 ½” bolts being used in the pump portion of the FASS.
- 3-3** Hold Pump/Filtration Unit with attached bracket to frame at selected mounting location. Check for clearance.
- 3-4** Clamp assembly to frame using `C` clamps or Vise Grip® type welding clamps.
- 3-5** Carefully lower hood/cab, if applicable. Check for clearance. If mounted between the frame and steer tire, check for tire clearance. Turn steering wheel fully to the left and right, check for clearance.
- 3-6** Using a center punch, properly mark the center of each bolt location.
- 3-7** Drill 4 - 7/16” holes.
- 3-8** Loose assemble Pump/Filtration Unit to frame using bolt and flanged nuts. Torque to proper specifications.

FUEL LINES

The **FASS Fuel System** has been engineered to eliminate fuel related problems, not create them. It is important that the fuel lines be assembled and installed so as not to cause fuel flow restriction. It is recommended that fuel lines that are replaced or added meet or exceed SAE 100R5 requirements.

UNEVEN FUEL LEVEL CONDITIONS CAN OCCUR BETWEEN THE TANKS IF THE PICKUP/RETURN LINES ARE IMPROPERLY INSTALLED. WHEN ROUTING THE RETURN LINE FROM THE FASS FUEL SYSTEM, FIRST IDENTIFY YOUR CURRENT FUEL SYSTEM. NOW MATCH YOUR CURRENT FUEL SYSTEM WITH THE FUEL LINE SELECTION BELOW AND FOLLOW THE INSTALLATION PROCEDURE. Please read the entire section that applies to your application!

VERY IMPORTANT: THE RETURN FUEL FITTING LOCATED IN THE BASE OF THE FASS FUEL SYSTEM SHOULD NOT BE REMOVED. THERE IS A SPECIAL CUT IN THIS FITTING THAT ASSISTS IN REGULATING PRESSURE. ALSO, DO NOT REMOVE ANY STEEL ALLEN HEAD FITTINGS. THESE PORTS WERE USED IN THE MACHINING PROCESS.

SINGLE DRAW/SINGLE RETURN LINE SYSTEM:

Read section 4A pages 10, 11 and 12 for completion of the single draw/single return line fuel systems.

SINGLE DRAW/SINGLE RETURN LINE SYSTEM WITH PICKUP OUT OF THE CROSS OVER FUEL LINE: Mostly on 359 Peterbilts!

Read section 4B, page 13.

DOUBLE DRAW/DOUBLE RETURN LINE SYSTEM:

Read section 4C, pages 14, 15 and 16 for completion of the fuel line connections.

FUEL LINES, CONT'D

SINGLE DRAW/SINGLE RETURN LINE SYSTEM **ONLY**

IF THE FUEL SUPPLY LINE IS CONNECTED TO THE CROSS-OVER LINE AT ANY POINT, REFER TO PAGE 13.

- 4A-1** If equipped, remove the original primary fuel filter head and bracket from the vehicle. This is the fuel filter between the fuel tank and engine fuel pump

It is most important that any restriction causing devices, i.e., fuel filters, water separators etc., are removed from the fuel supply system between the fuel tank and the FASS Fuel System.

NOTE: CUMMINS ENGINES: The FASS Fuel System will replace the fuel filter between the fuel tank and the engine pump.

- 4A-2** Visually inspect the original fuel supply line to the primary fuel filter head. The fuel line must be at least a size #10 for the FASS Fuel System to perform properly. If the interior lining has deteriorated or is cracked, or if it is too short or too small, it should be replaced
- 4A-3** Re-route the fuel supply line (Ref. 4-2) to the inlet of the FASS Fuel System. If it is necessary to replace it, measure and cut length of fuel line required, when properly routed, to make connection. Assemble fuel line per standard procedures. Properly route and secure fuel line. Connect and properly tighten the fuel fittings per vehicle manufacturer's specifications.
- 4A-4** The fuel line from the FASS Fuel System to the engine transfer pump should also be a #10 size line. It is also necessary to inspect this line for deterioration.

FUEL LINES, CONT'D

SINGLE DRAW/SINGLE RETURN LINE SYSTEM **ONLY**

- 4A-5** If it is necessary to replace this fuel line (Ref.4-4), measure and cut length of fuel line required when properly routed, connect FASS Fuel System, “fuel to engine” port to fuel inlet fitting on engine fuel pump. Again, be sure to use a #10 fuel line.
- 4A-6** Assemble the fuel line per standard procedures. Properly route and secure the fuel line. Connect and properly tighten the fuel fittings per vehicle manufacturer’s specifications.

FUEL RETURN LINES

THE FASS FUEL SYSTEM MUST RETURN FUEL TO THE SAME TANK IT DRAWS FROM OR IT WILL OVERFLOW.

THE FASS SYSTEM MUST BE EQUIPPED WITH AN ADDITIONAL FUEL RETURN LINE. THE FUEL RETURN LINE MUST BE A #8 SIZE.

NOTE: *The FASS Fuel System “Return to Tank” fuel line should be returned to the fuel tank into its own port. If the tanks do not have any extra ports, it is best to have one made, review the HELPFUL HINT on the following page if there are no extra ports. If you must ‘T’ the engine return and the FASS Fuel System return together, do so directly on top of the tank. To do this mount, the ‘T’ fitting on the tank so it is standing on end with a port on top and a port coming in the side. Connect the FASS Fuel System return line in the top of the fitting and connect the engine return in the side. DO NOT ‘T’ IN WITH THE ENGINE RETURN AT ANY OTHER LOCATION. DO NOT “T” WITH FUEL TANK VENT.*

NOTE: *The reason for not connecting the engine return line with the FASS Fuel System return line (incorrectly) is this can cause back pressure to the engine return. This may cause severe engine damage and a loss of performance. IF THE RETURN LINES MUST BE CONNECTED, ONLY DO SO IN THE MANNER MENTIONED IN THE PREVIOUS PARAGRAPH!!*

FUEL LINES, CONT'D

SINGLE DRAW/SINGLE RETURN LINE SYSTEM **ONLY**

HELPFUL HINT

If there are no extra ports, here is an option. The thicker band of aluminum that is located around the filler cap on most trucks is an excellent place to drill and tap an extra port. We have installed fuel vents with 3/8" pipe threads into the thicker aluminum and ran a small breather line up and over the tank. Now, connect the FASS Fuel System return lines to the old vent location.

NOTE: BE SURE THAT ALL FUEL RETURN LINES AND FITTINGS USED TO CONNECT THEM HAVE INTERIOR DIAMETERS OF NOT LESS THAN 3/8 inch.

You have now completed the fuel line section please go to Section 5.

FUEL LINES, CONT'D

SINGLE DRAW/SINGLE RETURN LINE SYSTEM WITH PICKUP OUT OF THE CROSS-OVER FUEL LINE ONLY

IF THE FUEL SUPPLY LINE IS CONNECTED TO THE CROSS-OVER LINE AT ANY POINT, THE FUEL TANK THAT HAS THE RETURN LINE FROM THE FASS SYSTEM CONNECTED TO IT WILL OVER-FILL. IF THIS IS THE CASE, CONSIDER OPTION 1 OR OPTION 2 BELOW.

OPTION 1:

DRAW THE FUEL DIRECTLY OUT OF ONE FUEL TANK POINT, THUS MAKING A SINGLE DRAW/SINGLE RETURN LINE SYSTEM. NOW REFER TO PAGES 10, 11 AND 12 TO COMPLETE THE FUEL LINE SECTION. IF THIS OPTION IS NOT POSSIBLE CONSIDER OPTION 2.

OPTION 2:

CONSIDER MAKING A DOUBLE DRAW/DOUBLE RETURN LINE FUEL SYSTEM WITHOUT A CROSS OVER LINE. (THIS IS IN PLACE ON ALMOST ALL THE NEW TRUCKS). YOUR TRUCK DEALER CAN HELP YOU CONVERT. READ PAGES 14, 15 AND 16 FOR FUEL LINE CONNECTIONS.

FUEL LINES, CONT'D

DOUBLE DRAW/DOUBLE RETURN LINE SYSTEM ONLY:

INSPECT THE ORIGINAL PICKUP LINES FROM THE FUEL TANKS TO THE CONNECTING "T". THEY MUST BE THE SAME LENGTH AND SIZE. IF THEY ARE NOT, REPLACE THEM. BE SURE THE FUEL LINES ARE ROUTED AND SECURED IN A MANNER THAT ELIMINATES KINKS AND TIGHT BENDS.

- 4C-1** If equipped, remove the original primary fuel filter head and bracket from the vehicle. This is the fuel filter between the fuel tank and engine fuel pump

It is most important that any restriction causing devices, i.e., fuel filters, water separators etc., are removed from the fuel supply system between the fuel tank and the FASS Fuel System.

NOTE: CUMMINS ENGINES: The FASS Fuel System will replace the fuel filter between the fuel tank and the engine pump.

- 4C-2** Visually inspect the original fuel supply line to the primary fuel filter head. The fuel line must be at least a size #10 for the FASS Fuel System to perform properly. If the interior lining has deteriorated or is cracked, or if it is too short or too small, it should be replaced
- 4C-3** Re-route the fuel supply line (Ref. 4-2) to the inlet of the FASS Fuel System. If it is necessary to replace it, measure and cut length of fuel line required, when properly routed, to make connection. Assemble fuel line per standard procedures. Properly route and secure fuel line. Connect and properly tighten the fuel fittings per vehicle manufacturer's specifications.

FUEL LINES, CONT'D

DOUBLE DRAW/DOUBLE RETURN LINE SYSTEM ONLY:

- 4C-4** The fuel line from the FASS Fuel System to the engine transfer pump should also be a # 10 size line. It is also necessary to inspect this line for deterioration.
- 4C-5** If it is necessary to replace this fuel line (Ref.4-4), measure and cut length of fuel line required when properly routed, connect FASS Fuel System, “fuel to engine” port, to fuel inlet fitting on engine fuel pump. Again, be sure to use a #10 fuel line.
- 4C-6** Assemble the fuel line per standard procedures. Properly route and secure the fuel line. Connect and properly tighten the fuel fittings per vehicle manufacturer’s specifications.

FUEL RETURN LINES

THE FASS FUEL SYSTEM ^{MUST} BE EQUIPPED WITH A FUEL RETURN LINE. THE FUEL RETURN LINE MUST BE A #8 SIZE.

NOTE: The FASS Fuel System “Return to Tank” fuel line should be returned to the fuel tank into its own port. If the tanks do not have any extra ports, it is best to have one made, review the HELPFUL HINT on the following page if there are no extra ports. If you must ‘T’ the engine return and the FASS Fuel System return together, do so directly on top of the tank. To do this mount, the ‘T’ fitting on the tank so it is standing on end with a port on top and a port coming in the side. Connect the FASS Fuel System return line in the top of the fitting and connect the engine return in the side. DO NOT ‘T’ IN WITH THE ENGINE RETURN AT ANY OTHER LOCATION. DO NOT “T” WITH FUEL TANK VENT.

NOTE: *The reason for not connecting the engine return line with the FASS Fuel System return line (incorrectly) is this can cause back pressure to the engine return. This may cause severe engine damage and a loss of performance. IF THE RETURN LINES MUST BE CONNECTED, ONLY DO SO IN MANNER MENTIONED IN THE PREVIOUS PARAGRAPH!!*

FUEL LINES, CONT'D

DOUBLE DRAW/DOUBLE RETURN LINE SYSTEM ONLY:

HELPFUL HINT

If there are no extra ports, here is an option. The thicker band of aluminum that is located around the filler cap on most trucks is an excellent place to drill and tap an extra port. We have installed fuel vents with 3/8" pipe threads into the thicker aluminum and ran a small breather line up and over the tank. Now, connect the FASS Fuel System return lines to the old vent location.

NOTE: BE SURE THAT ALL FUEL RETURN LINES AND FITTINGS USED TO CONNECT THEM HAVE INTERIOR DIAMETERS OF NOT LESS THAN 3/8 inch.

NOTE: USE A "GT EQUALIZER VALVE" WHEN INSTALLING A DOUBLE RETURN FUEL LINE SYSTEM. THE EQUALIZER VALVE SHOULD BE LOCATED BETWEEN THE FUEL TANKS AND MOUNTED ON A CROSS MEMBER BETWEEN THE FRAME RAILS. USE GOOD JUDGMENT WHEN INSTALLING THE EQUALIZER VALVE. Note: We have had excellent results with using a 3/8" T instead of the "GT Equalizer Valve". When using the "T" be very exact when completing step 4C-8.

4C-7 Install a #8 fuel return fitting at the proper location on each fuel tank.

4C-8 Measure and cut two (2) identical lengths of fuel line required, when properly routed, to reach from the fuel return fitting on each tank to the equalizer valve or 3/8" T.

4C-19 Assemble the fuel lines per standard procedures. Properly route and secure the fuel line. Connect and properly tighten the fuel fittings per vehicle manufacturer's specifications.

The "GT EQUALIZER VALVE" is available from most truck dealers.

You have now completed the fuel line section please go to Section 5.

ELECTRICAL HARNESS

- 5-1** Select best location in firewall for passage of wiring harness from cab to engine compartment.
- 5-2** Drill one 7/16 in. hole in firewall for electrical harness. (Part No. WH-1002)
- NOTE:** POSITION HOLE FOR EASE OF INSTALLATION AND PROTECTION OF WIRING HARNESS.
- 5-3** Connect wire extension (part no. WE-1001) to the WH-1002.
- 5-4** Route red wire of the wire extension through the 7/16" hole in firewall to the ignition.
- 5-5** Connect this "Red" lead from the wiring extension (Part No. WE-1001) to the "on" terminal on the ignition switch or a terminal on the circuit breaker board that is "hot" when the key is on.
- 5-6** Install grommet around wiring harness and position in hole in firewall.
- 5-7** Plug the end of wire harness (Part No. WH-1002) into the two pin connector on the FASS fuel pump.
- 5-8** Using the ring terminals connect the green wire, of the WH-1002 wire harness, to the negative post and the red wire to the positive post of the battery.
- 5-9** Secure the relay in an upright position, preferably on the firewall out of the weather.
- 5-10** Properly secure all electrical leads and harnesses with plastic ties.

GROUNDING FUEL PUMP/ ELECTRICAL HARNESS, CONT'D

WARNING! AN OIL PRESSURE/GROUNDING KIT (PART #K2003) IS NEEDED WHEN INSTALLING ON THE FOLLOWING ENGINES:

- 1. ANY CUMMINS WITH THE PT PUMP
(SMALL CAM OR BIG CAM CUMMINS WITH PT PUMP)**
- 2. ANY MECHANICAL DETROIT
(NOT THE NEW ELECTRONIC DETROIT 50 OR 60 SERIES)**

**OWNERS WITH THESE ENGINES MUST HAVE THIS KIT!
WITHOUT THIS KIT SEVERE ENGINE DAMAGE CAN AND WILL
OCCUR!!**

- 5A-1** Connect the green wire, which is located in the same harness as the red lead wire connecting to the ignition, to the ground post of the battery or the engine ground bolt. **DO NOT ATTACH TO FRAME OR ANY OTHER LOCATION. GROUNDING TO THE FRAME WILL CAUSE PROBLEMS TO ARISE AT A LATER DATE!!**

FUEL HEATER

The fuel heater feature utilizes hot engine coolant as its source of heat.

The manner in which the FASS Fuel System is plumbed into the engine's system is dependent upon which type of heating/air conditioning system that the vehicle is equipped.

If the vehicle has a 'climate control' type heating/air conditioning system, the FASS Fuel System heating system should be independent and have its own control valve.

If the vehicle has a 'hot...cold' heater control lever, the fuel heater may be plumbed in-line with the cab heater's coolant circuit, the fuel heater will be controlled by the vehicle's heater temperature control lever.

To connect the fuel heater for independent control:

- 6-1** Remove plastic plugs from rear and side ports of the FASS Fuel System labeled with the letter "H". Also, the heater ports are 3/8" pipe threads and flow of the coolant can travel any direction.
- 6-2** Install the fittings of your choice to connect the FASS Fuel System to the coolant lines.
- 6-3** Install coolant water valves on coolant source. Only heat the fuel to prevent gelling.
- 6-4** Measure and cut length of heater hose required, when properly routed, to connect hose barb fittings on FASS Fuel System to hose barb fittings on engine.
- 6-5** Route the heater hoses from the FASS Fuel System to the correct fitting on the engine.
- 6-6** Connect heater hose to hose barb by sliding hose clamp onto heater hose and pushing heater hose onto hose barb completely. Position hose clamp approximately 3/8" to 1/2" from the hose end and properly tighten. Repeat on remaining hose barb fittings.

NOTE: SEE ENGINE MANUFACTURER FOR EXACT POINTS OF INSTALLATION AND PROPER PROCEDURE WHEN INSTALLING COOLANT VALVES.

FUEL HEATER CONT'D

- 6-7** Properly secure heater hose to vehicle to prevent chaffing or damage.

TO CONNECT THE FUEL HEATER IN SERIES WITH CAB HEATER:

- 6-8** Shut off coolant (water) valves at engine. There should be two valves, one at supply point and one at return point.

NOTE: IF THE ENGINE IS NOT EQUIPPED WITH `SHUT-OFF' VALVES, THIS WOULD BE A GOOD TIME TO INSTALL `SHUT-OFF' VALVES.

- 6-9** Remove the `supply' heater hose from the system by disconnecting it at the engine and firewall. Remove it from the vehicle.

- 6-10** Measure and cut length of heater hose required, when properly routed, connecting the hose barb on the engine block to the FASS Fuel System.

- 6-11** Route heater hose to proper point on engine and FASS Fuel System. Properly connect and secure.

- 6-12** Measure and cut length of heater hose required, when properly routed, connecting the cab heater fitting from the firewall to the FASS Fuel System.

- 6-13** Route heater hose to proper point on cab heater at firewall and FASS Fuel System. Properly connect and secure.

- 6-14** Properly secure heater hoses to vehicle to prevent chaffing or damage.

NOTE: OPEN COOLANT VALVES OR REPLACE COOLANT IF DRAINED TO RESTORE VEHICLE TO OPERATIONAL CONDITION.

FINAL CHECK

The installation of the **FASS Fuel System** should now be complete.
Let's go through the final check.

- Pump/Filtration Unit clearance OK? -- --
- All bolts and fasteners properly tightened? -- --
- Electrical harness secured and all connections complete? -- --
- Fuel lines secured and fittings properly tightened? -- --
- Install fuel filter and fill water separator!
 (See owner's manual) -- -- --
- Prime the system! (See owner's manual) -- -- --
- Bleed the system! (See owner's manual) -- -- --
- **Turn ignition key on.** -- -- --

START ENGINE

- Recheck all fluid connections and filters
 for leaks - correct as necessary! -- --

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. The FASS System has an automatic by-pass built in should the electric fuel pump stop. This would allow the engine to operate.

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.

For the 2 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 2 year warranty will not be valid.