



# INDUSTRIAL Fuel Air Separation System

## INSTALLATION MANUAL

For Trucks Equipped with the

VOLVO® VED-12, D11, D12, D13, D16 &

MACK® MP7, MP8 ENGINES



A3SPBT406

A3SPBT412



*NOW WITH DEMAND FLOW*

Revised 5/03/2024



Proudly Made in the USA

[www.airdogdiesel.com](http://www.airdogdiesel.com)

1-573-635-0555 or

1-877-463-4373

*Providing "Test Cell Performance" in "Real World Conditions" Since 1993!*

PATENT

[www.AirDogDiesel.com/patents](http://www.AirDogDiesel.com/patents)

# AirDog<sup>®</sup> INDUSTRIAL Fuel Air Separation System

THE RIGHT CHOICE FOR YOUR DIESEL ENGINE

## 4G-HD Fuel Pump

Pump shaft, stabilized with bearings on each end, holds the gerotor in virtually perfect alignment for quiet running and extended longevity!



### Low Fuel Pressure Switch and LED Indicator

Lets you know when to service the fuel filter and water separator before suffering power loss. NO MORE GUESSING!

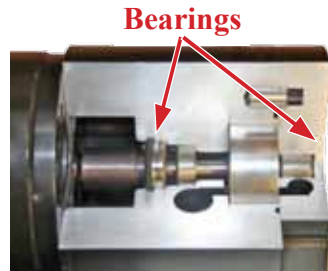


**Positive Air Separation** with primary air discharge port.



### Demand Flow System

Easy installation, only one small line connected to the engine return line to return air/vapor to the tank.



### Bearings



### LoveJoy Coupler System

The LoveJoy Coupler System is self-aligning and eliminates virtually all vibrations.



### Dual Port Pump

Balances the gerotor for quiet operation and higher flows.



### Protective Wire Screen

In water separator nipple.



### Adjustable Regulator

For just the right fuel pressure.

**6 Micron Particulate Filters**  
**Long-Lasting MicroGlass Media**

**Water Separator/Pre-Filter**  
**With a High-Quality and High-Absorbency**  
**Hydrosorb Media**

CARB Executive Orders D-595-5 & D-595U-6 permit the advertisement, sales and installation of PureFlow Technologies AirDog<sup>®</sup> Diesel Fuel Systems in California on 2020 and older model year on-road diesel vehicles and off-road diesel vehicles/equipment.

## SYSTEM OVERVIEW

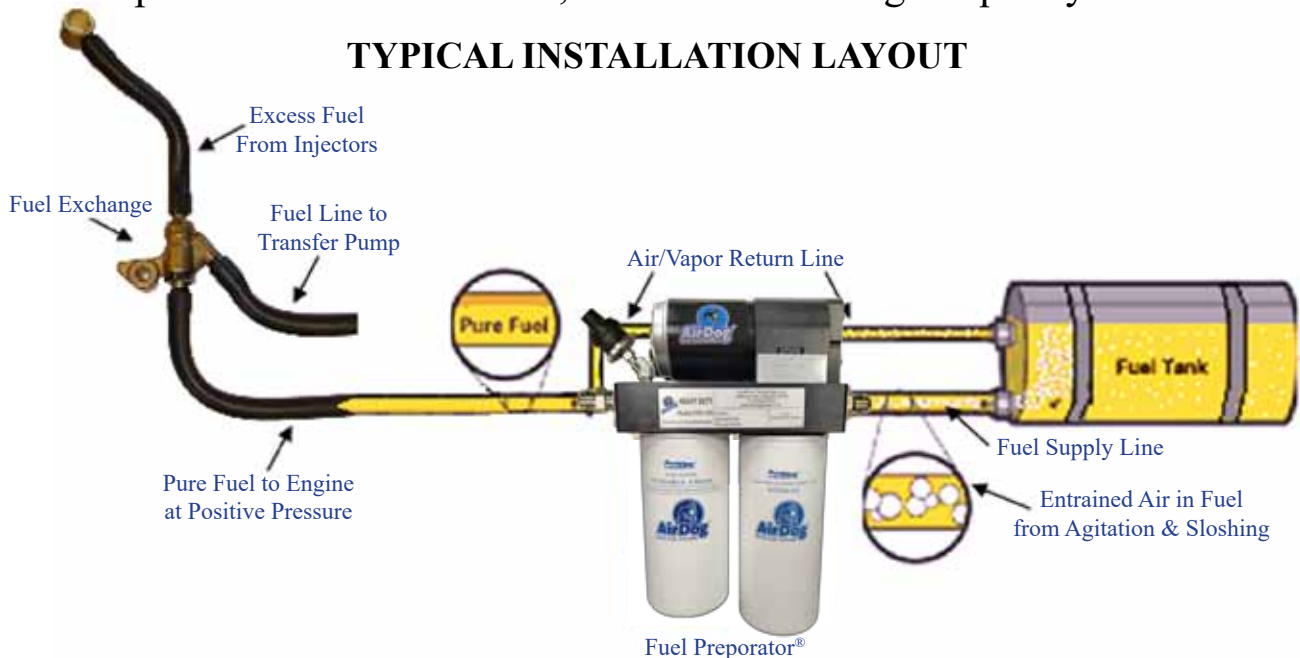
Welcome to the **AirDog® Heavy Duty Industrial Fuel Air Separation System for Class 8 Trucks**

The **AirDog®**, with **ADVANCED FUEL AIR SEPARATION, DEMAND FLOW, ADJUSTABLE REGULATOR, LOW PRESSURE SENSOR with LED INDICATOR** and the **4G-HD FUEL PUMP**, is a premium fuel filtration and delivery system for the **Volvo® VED-12, D11, D12, D13, D16 & Mack® MP7, MP8 Diesel Engine**.

**Air & Vapor are compressible!** When **Air/Vapor** is present in a fuel injection system the pressure buildup and injection of fuel is delayed while the **Air/Vapor** is being compressed. This delays the injection timing, causing a shorter power stroke and low power, increased fuel consumption and increased exhaust emissions. Preventing the formation of vapor from pump cavitation and removing entrained air from the fuel flow to the injectors restores **Correct Injection Timing**. Diesel engines equipped with the **AirDog®** can now perform as designed, delivering “test cell” performance while in “real world” use.

The **AirDog®** removes water, particulates and most importantly, the air that becomes entrained in diesel fuel, from the fuel flow to your engine. The entrained air and vapor that is separated from the fuel is returned to the fuel tank through a small return line. The fuel flow to the engine’s transfer pump is at a **NET POSITIVE PRESSURE**, preventing cavitation and the formation of vapor, thus overcoming the performance related problems from plugged fuel filters, high altitude operation, and torque loss at higher engine RPM’s.

All **AirDog®** products are manufactured with a personal touch, unsurpassed attention to detail, and the most stringent quality assurance.



The **AirDog®** requires only one small return line connected to the engine return line, for quick and easy installations.

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**Section 2**

**Installation & Safety Guidelines**

The installation of your AirDog® can be made relatively easy by following the steps outlined in this manual, and:

1. Inventory the package components. Immediately notify PureFlow® Technologies, Inc., of any missing or damaged parts.
2. Read the installation manual completely. Understand how the system operates and the installation recommendations before beginning.
3. Proper location of the AirDog® on the vehicle is essential. Consider hazards presented to the equipment by road debris and the elements.
4. The installation recommendations and guidelines contained herein are suggestions only. Individual installations may vary.
5. Use diesel compatible thread sealer when installing fittings with NPT threads. (Loctite® 545 Thread Sealer is diesel compatible.)

**DO NOT REMOVE FACTORY INSTALLED SECONDARY FUEL FILTERS. REMOVAL OF A FACTORY INSTALLED SECONDARY FUEL FILTER MAY VOID YOUR ENGINE WARRANTY.**

**SAFETY GUIDELINES**

**CAUTION:** Chock the vehicle's tires to prevent rolling.

**CAUTION:** Disconnect the battery cables before proceeding with the AirDog® installation.

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

**CAUTION:** Do Not drill into or weld the top of the frame rail or within 1-½" of the frame rail flange on the side of the frame rail.

**CAUTION:** Route the fuel lines and electrical harnesses keeping them away from hot exhaust components and/or moving parts. Properly secure the fuel lines and electrical harnesses to prevent chafing using zip ties included in installation kit.

**CAUTION:** Do not subject the AirDog® system directly to high-pressure wash systems. Doing so may damage seals and electrical components, and such damage is NOT covered under warranty.

**If you are uncertain of any installation procedure, please call:  
PureFlow® Technologies, Inc. at 573-635-0555 for technical assistance.**

**NOTE:** The pictures used in this manual are for example only and may not depict the exact components as found on your truck.

# PureFlow® Technologies, Inc.





**AirDog® FPII-150**

**Volvo VED-12, D11, D12, D13, D16 & Mack MP7, MP8**

**Section 3**



## Installation Parts List

**Parts List**




QTY	Description	Part Number	Image
1	<b>Installation Manual</b>	206-1-0406/412	
1	<b>AirDog® - with Serial Number Plate</b> Fuel Filter FF200-MG-6 Water Separator WS200-HS	FPII-150-LP	
1	<b>Wire Harness w/ Indicator Light &amp; Dash Plate</b> Includes: 1 ea Indicator Light (5G-1-1-47674) 1 ea Dash Plate (201-3-0004-S-M716)	5E-2-010 908-5G-1-1-47674	
1	<b>3/8" Low Pressure Hose (Air/Vapor Return Line) - 10 ft Section</b>	4C-1-02-05-010-10FT	

**SBK-1000 Sandwich Bracket Kit**



**OPTIONAL**

1	<b>Sandwich Mounting Bracket Kit for AirDog® &amp; Champ</b> Includes: 1 Front Bracket (002-3C-0010-SBF), 1 Back Bracket (002-3C-0011-SBB), & 1 Universal Bracket (002-3C-0006PCB)	908-00-8888	
1	<b>901-08-0100-SB Hardware Kit</b> Includes: 4 ea 3/8-16 x 1 FHSCS 3 ea 3/8-16 x 3-1/2 HHCS 3 each 3/8-16 x 4-1/2 HHCS 7 ea 3/8 Nut 7 ea 3/8 Lock Washer	1M-C16SZ 1J-1-C56SZ 1J-1-C72SZ 1S-1-CSZ 1R-6-CSZ	

**ADFK-406/ADFK-412 Volvo/Mack Installation Kit**

1	<b>Fuel Pressure Sensor</b>	908-5C-9-007-SC-06 or 908-5C-9-0010	
1	<b>Add-A-Circuit Fuse Tap Adapter</b>	908-5E-2-018	
15	<b>12" Zip Tie</b>	5H-2-1-12	

**908-00-0304 Frame Mount Bracket Kit**

1 1	<b>Left Mounting Bracket</b> <b>Right Mounting Bracket</b>	002-3C-0003 002-3C-0004	
1	<b>901-08-0100 Frame Mount Bracket Bolt Kit</b> Includes: 4 ea 3/8-16 x 1-1/4 HHCS 4 ea 1/4-20 x 2 SHCS <b>908-08-0100-N Nut Packet</b> 4 ea 3/8-16 Hex Nut & 4 ea 1/4-20 Hex Nut <b>908-08-0100-W Washer Packet</b> 4 ea 3/8 Split Lock Washer & 4 ea 1/4 Split Lock Washer	1J-1-C20SZ 1L-A32C  <i>1S-1-CSZ &amp; 1S-1-AC</i>  <i>1R-6-CSZ &amp; 1R-6-AC</i>	



# PureFlow® Technologies, Inc.








**AirDog® FPII-150**

**Volvo VED-12, D11, D12, D13, D16 & Mack MP7, MP8**






**Section 3**

**Parts List**




## 908-01-0406-FK & 908-01-0412-FK Volvo/Mack Fitting Kit

2	# 6 F JICX x 3/8 Push-Lock Hose Barb	4A-1-09-06-06-B	
2	# 6 F JICX x #6 M JIC 90° Elbow	4A-2-04-06-06-S	
1	Adapter for 1/2" plastic line	001-4A-1-0050	
1	<b>Quick Connect Return Adapter Sub-Assy</b> (1) Quick Connect Return Adapter 001-4A-1-0051 (1) 1/4 Hex w/ Vibraseal Pipe Plug 4A-3-01-A-S2 (1) 12.5 x 2.5 mm O-Ring 1U-2-1-12.5 (1) Quick Connect Retainer Clip 4C-2-00-00 (1) #6M JIC x 1/4 M NPTF 4A-1-01-A-C-SZ	908-VM-QCRA	
2	#8M JIC x 1/2 M NPTF Straight Connector	4A-1-01-08-08-S	
1	#6M JIC x 1/4 M NPTF Straight Connector	4A-1-01-A-C-SZ	
1	3/8 ID, 7/8 OD Rubber Grommet	5J-1-1-04-2758	

### 406 Volvo/Mack Fitting Kit ONLY

1	3/4 Industrial Hose Barb Splicer	4A-1-16-12-12	
2	M18 x 1.5 Zero Leak Plug w/ O-Ring	4A-3-04-18-ZL	
2	1/2 F NPT x 1/2 M NPT 90° Street Elbow	4A-2-09-08-08	
2	1/2 F NPT x #8 F JICX Straight Adapter	4A-1-26-08-08-S	
1	Adapter for 1/2" plastic line	001-4A-1-0050	

### 412 Volvo/Mack Fitting Kit ONLY

1	<b>Quick Connect Fitting Sub-Assy</b> (1) Quick Connect Fitting 006-00-PA-001-R2 (1) #8M JIC x 3/8 M NPTF 4A-1-02-08-06-SZ (1) 12.5 x 2.5 mm O-Ring 1U-2-1-12.5 (1) Quick Connect Retainer Clip 4C-2-00-00	908-VM-QCF	
2	#8F JICX x 1/2 Push-lock Hose Barb	4A-1-09-08-08-B	
1	1/2" General Purpose Hose (Fuel Line) - 8 ft Section	4C-1-02-08-004-008	

### Selecting the Best Location to Mount the AirDog®

Installing the AirDog® at the proper location on the vehicle is most important. When deciding where to locate the AirDog®, the following points should be considered:

- Best relationship to the transfer pump and the original primary fuel filter location.
- Protection from the elements and road debris.
- Accessibility for service.

**CAUTION: DO NOT mount the AirDog® directly on the engine. Mounting the AirDog® directly on the engine will immediately void your AirDog® Warranty!**

The Volvo/Mack primary fuel filter is usually found on earlier model trucks mounted on the passenger side frame rail, just to the rear of the bumper brackets. Additionally, Volvo/Mack uses “plastic type” fuel lines and plastic quick connect fittings.



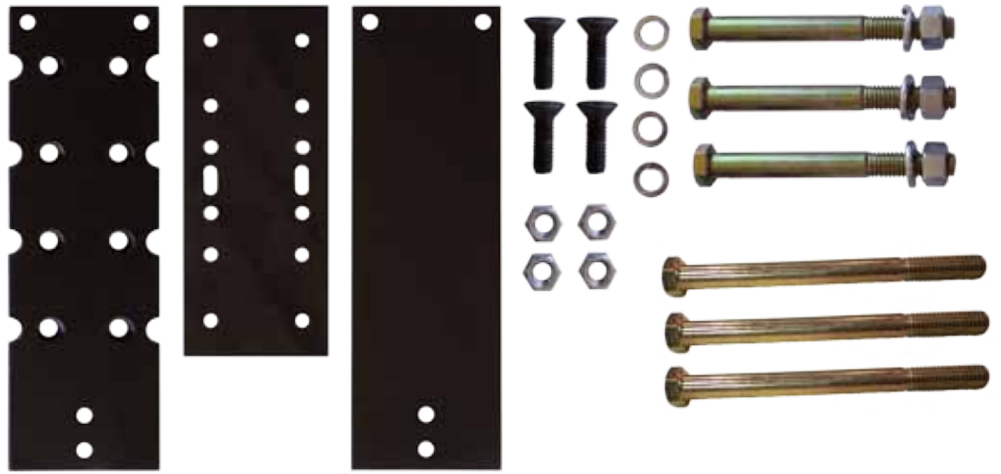
The AirDog® can be easily mounted in the same location as the OE primary fuel filter in this application, as shown in picture.



**OPTIONAL KIT AVAILABLE (PN: SBK-1000)**

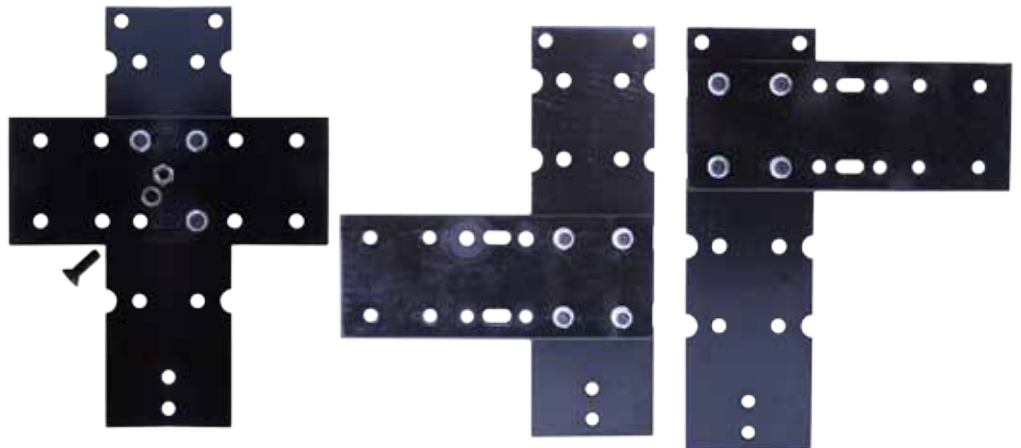
**NO DRILL Universal Sandwich Mounting Bracket**

Determine which holes in bracket 1 that you are going to need by holding it up to the frame of your vehicle.



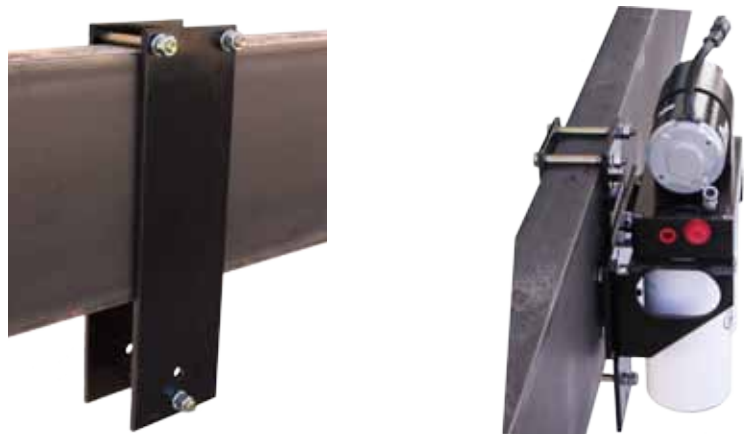
Use mounting hardware to mount bracket 1 to bracket 2. The position of bracket 2 can be adjusted vertically and horizontally to suit your particular needs.

Using product mounting hardware, mount product to brackets.



Install 2 of the frame bracket bolts in top of bracket 1 & bracket 3. Slide over frame and install bottom bolt.

**Note:** 3.5" and 4.5" bolts are included. Use the length best suited to your vehicle's frame width.



Tighten bolts as needed.  
Install filter or filter and water separator as applicable.

Section 5

Mounting the AirDog®

Mounting the AirDog® on the Truck's Frame (Drilling Method)

At the Original Primary Filter Location

Remove the Original Fuel Filter

5-1. Drain the fuel into a suitable container, from drain valve on bottom of filter housing.



5-2. Disconnect the fuel line from the fittings in the filter housing.

5-3. Should the fuel lines utilize the plastic quick connect fittings as shown, remove the "Quick Connect" fittings from the original fuel filter housing.



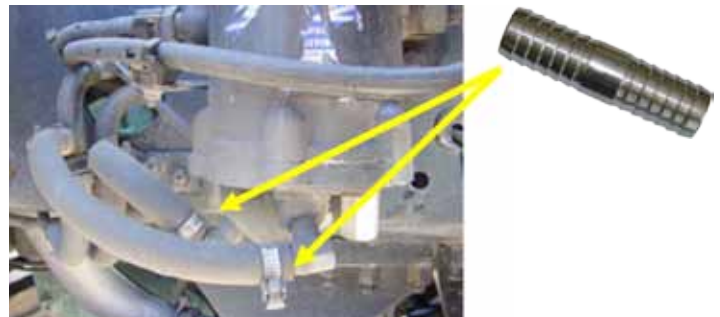
**Note: Save these fittings, they will be needed later to connect the plastic fuel lines to the AirDog®.**

5-4. Clamp off coolant supply lines to the water separator with suitable coolant hose clamp pliers, to minimize coolant loss. Disconnect the coolant lines where fittings come out of frame. Remove factory hose barb. Install provided ORB plugs into coolant ports. On the older models connect the coolant lines with provided hose barb coupler, and secure with original hose clamps.



5-5. Remove the original primary filter assembly from the frame.

5-6. Hold the AirDog®, with the brackets and filters attached, next to the frame at the selected mounting location. Check for clearance. The forward hole from the primary filter can be reused for the top right mounting bracket. Mount the AirDog® temporarily using that hole and mark the other three locations.



5-7. Mark and center punch each hole location.

5-8. Drill a 3/8” hole at each of the 3 previously marked locations.

**WARNING: DO NOT DRILL INTO OR DAMAGE ANY WIRE, AIR LINES OR OTHER COMPONENTS LOCATED BEHIND THE FRAME RAIL.**



5-9. Loosely assemble the mounting brackets to frame. Loosely assemble the AirDog® on brackets. Now, snug the fasteners to achieve a good relaxed fit and then properly torque all the fasteners.

**NOTE:** These steps are necessary to prevent stress cracks from forming in the mounting brackets due to vibration

**This example shows the  
AirDog® installed.**





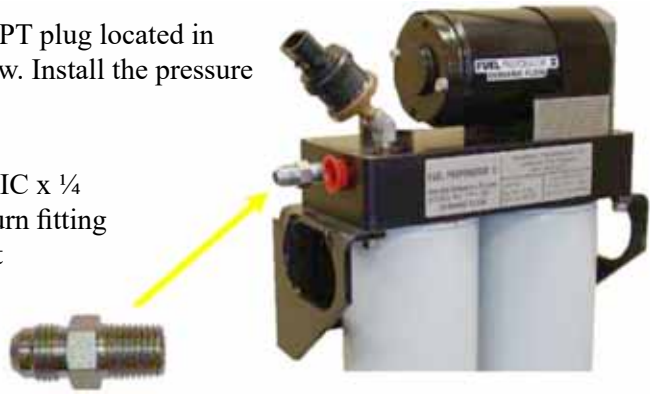
## Pressure Sensor and Fuel Fittings

**IMPORTANT: Use diesel compatible thread sealer when installing NPT fittings.**



6-1. Remove the 1/8 NPT plug located in the end of the 45° elbow. Install the pressure sensor into the elbow.

6-2. Install the #6 JIC x 1/4 NPT Air/Vapor return fitting in the AirDog® port marked “TANK”.



6-3. Install the Quick Connect x 1/2 NPT fitting removed from the original primary filter in the port marked “ENGINE”.



\* In cases where factory fitting isn't 1/2 NPT, use provided Quick Connect x 1/2 NPT.

**NOTE:** 1/2 NPT x #8 JIC fittings are included for attachment of the fuel lines to the AirDog®. Please use these in the event that your primary filter does not have Quick Connect fittings.

## FUEL LINE OVERVIEW

The AirDog® has been engineered to eliminate fuel-related problems. It is important that the fuel lines are assembled and installed properly so as not to cause fuel flow restriction.

When possible, use the fuel lines that are on the vehicle. This will reduce your installation costs and make the installation go much more quickly.

**NOTE:** On various class 8 trucks, the manufacturer may use “plastic” or other-than-traditional steel braided fuel lines. These lines require special fittings. The fittings used with the original primary fuel filter are specific to the fuel lines used on the truck. When possible, mount the AirDog® in the location that will allow the use of the original fuel lines and fittings.

**Fuel Supply Line:** The fuel supply lines from the tank to the AirDog® and to the engine should be size 10 or, at the absolute minimum, size 8 (1/2” ID).

**Air/Vapor Return Line:** The AirDog® Air/Vapor return line can be connected to the engine’s return line. A size 6 is adequate for the Air/Vapor return line.

**Primary Fuel Filters:** It is most important that there are no fuel filters between the fuel tank and the AirDog® or between the AirDog® and the engine’s transfer pump to plug and cause restriction. These filters should be removed from the system as part of the AirDog® installation.

**Secondary Fuel Filters:** DO NOT REMOVE SECONDARY FUEL FILTERS. This is the filter between the transfer pump and the engine.

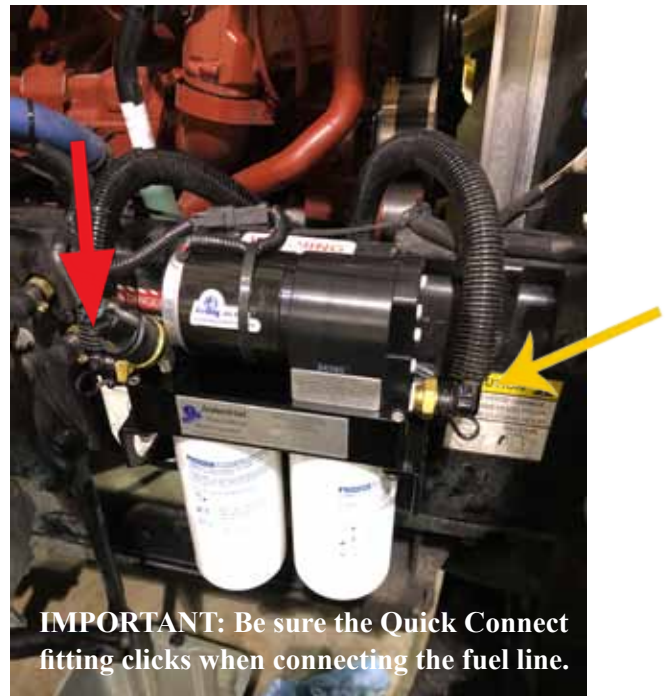
Section 7

Fuel Lines

**Section 7A: Fuel Line from AirDog® to Engine**  
**Note: AirDog® Mounted at Original Filter Position**

It is best to have the fuel level at 1/4 tank or below before performing installation on single tank application.

7A. Re-connect the factory fuel line to the engine to the AirDog® out to “ENGINE” port.



**Section 7B: Fuel Line from Fuel Tank to the AirDog®**

7B. Re-connect the factory fuel supply line to the AirDog® fuel in port.



**NOTE:** In cases where extra clearance is required it may be necessary to use provided 1/2 M NPT x 1/2 F NPT 90° Elbow & 1/2 F NPT x #8 F JICX fittings to extend the quick connect port.

**Proceed to page 16 - Section 7E**



### Section 7C: Connecting the Factory Supply/Suction Line to AirDog® with Dual Fuel Tanks and Without Frame Mounted Water Separator

7C-1. Locate the equalizer valves which are located behind the transmission, the one on top is the supply/suction. Mount the AirDog® as close to the equalizer valve as possible. This will allow you to utilize the factory fuel line going to the engine. Remove the line coming out of the center of the suction-side equalizer valve. Attach it to the AirDog® base marked “ENGINE”.

7C-2. Attach provided quick connect fitting, into the equalizer valve where the factory fuel line was previously removed. Secure with included retainer clip.

7C-3. Measure and cut the fuel line required to go between quick connect and AirDog® supply. Install 1/2 push-lock fittings into each end and attach to quick connect and AirDog® “FUEL IN”.

**Proceed to page 16 - Section F**



### Section 7D: Connecting the Factory Supply/Suction Line to AirDog® with Single Fuel Tank and Without Frame Mounted Water Separator

7D-1. It is best to mount the AirDog® as close to the fuel tank as possible, this will allow you to utilize the factory fuel line going to the engine.



7D-2. Measure and cut provided 1/2 fuel line to length. First, insert #8F JICX x 1/2 Push-Lock Hose Barbs on each end. Next, install one hose end into the AirDog® base marked “FUEL IN”. Then connect the other hose end to the quick connect fitting.

7D-3. Remove 1/2 fuel line coming from the top of the fuel tank. Be sure to lubricate o-ring before installing into the fuel tank suction line fitting. Install quick connect fitting in place of factory fuel line. Once connected, install provided retainer clip to secure line in place.

7D-4. Connect factory fuel line to the AirDog® base marked “ENGINE”. Once connected install the factory retainer clip to secure fuel line.



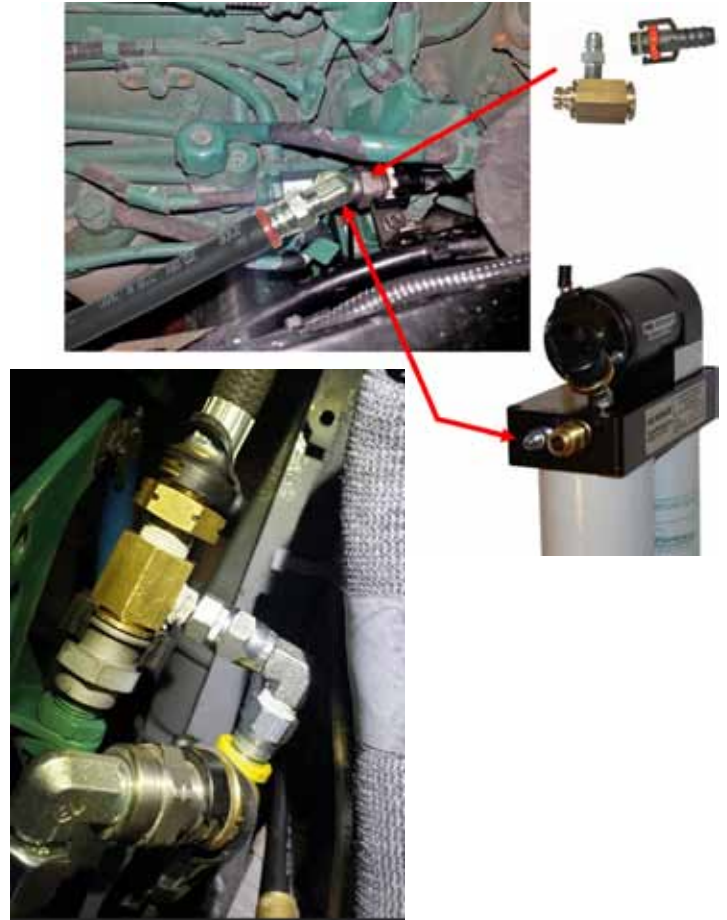
Proceed to page 17 - Section G

## Section 7E: Installing the AirDog® Air/Vapor Return Line for Dual and Single Fuel Tank Application With Frame Mounted Water Separator

7E-1. On the older Volvo/Mack trucks the return lines are located on top of the fuel filter housing, and will be the smaller of the two fuel lines (3/8). On the newer Volvo/Mack trucks the return fuel lines are located underneath the rear of the fuel filter housing, and will be the smaller of the two fuel lines (3/8).

7E-2. Remove the factory quick connect fuel line, and install the provided quick connect return adapter into the factory fitting. **Be sure to lubricate the o-ring on the adapter and ensure the fitting is fully seated.** Then secure the fitting with the provided retainer clip. Install factory fuel line into the female side of quick connect return fitting. Once line is fully seated, secure with factory retainer clip.

7E-3. Measure and cut provided return hose. Install #6 F JIC x 3/8 Push-Lock Hose Barbs on each end. Attach one end to quick connect return fitting. Route return hose to the AirDog® and connect to port that says "TANK" (use provided 90° elbows if needed). Ensure return hose is secured by using zip ties.



**Proceed to page 18 - Section 8**

## Section 7F: Installing the AirDog® Air/Vapor Return Line for Dual Fuel Tank Application Without Frame Mounted Water Separator

The AirDog® is a demand flow system, that only returns entrained air & vapor with a very small amount of fuel to the tank. With these features, the AirDog® air/vapor return line can be connected directly to the engine return line.

**CAUTION: Do not connect the AirDog® return line to one tank on a dual tank system.**

7F-1. Remove factory fuel return line from front of factory equalizer valve, this will be the bottom valve directly above the u-joint. Install provided quick connect return adapter. **Be sure to lubricate o-ring before installing** it into the equalizer valve. Insert adapter and secure it with provided plastic retainer clip. Connect the factory return line into the female side and secure with factory retainer clip.





7F-2. Measure and cut the length of #6 fuel line (included) required to connect the AirDog® Air/Vapor return port to the quick connect return adapter. Install 3/8 push-locks into each end and attach to AirDog® Air/Vapor return port. This will allow fuel to flow through the factory equalizer valve so it doesn't affect tank equalization.

Proceed to page 18 - Section 8

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### Section 7G: Installing the AirDog® Air/Vapor Return Line for Single Fuel Tank Application Without Frame Mounted Water Separator

For trucks with a single fuel tank, it may be easier to run the air/vapor return line directly to tank. It is best to have the fuel level at 1/4 tank or below before performing installation.

7G-1. Remove retainer clip securing the factory 3/8 fuel return line. Remove factory fuel line. Install provided quick connect return adapter. **Be sure to lubricate the o-ring before installation.** Once quick connect fitting is fully seated into original return fitting on fuel tank, secure it with provided retainer clip. Reinstall factory return line into female side of provided quick connect return fitting. Insure fuel line is fully seated, and secure it with factory retainer clip.



7G-2. Measure and cut the length of #6 fuel line required, when properly routed, to connect the AirDog® return line to the quick connect adapter installed in the fuel tank.



7G-3. To assemble the fuel line, cut hose line to length. Apply oil to the fitting, then push the fitting into the line until seated.



7G-4. Connect one end of the air/vapor return line to port on the AirDog® labeled "TANK" (use provided 90° elbows if needed.)



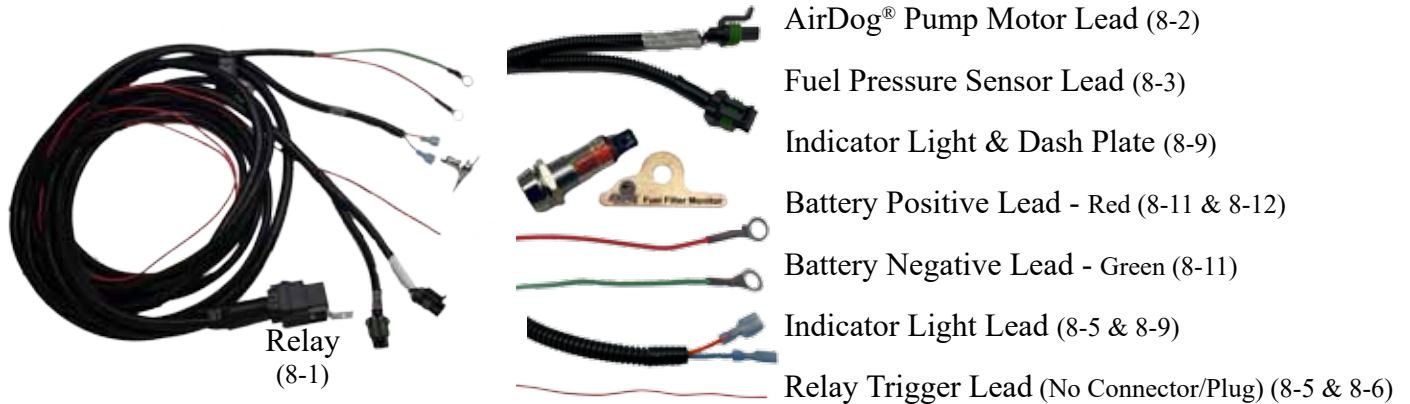
7G-5. Route and connect the other end of the air/vapor return line to the quick connect adapter on the fuel tank, and properly tighten both fittings.

WIRE HARNESS

**\*VERY IMPORTANT: The AirDog® wire harness requires a 15 amp fuse.**

The AirDog® wire harness has a low pressure sensor and an amber LED indicator light as standard equipment. The indicator light will illuminate at start-up, remain on for a few seconds, then go off and should remain off unless pressure flow to the engine drops below minimum requirements.

THE AIRDOG® WIRE HARNESS



Securing the AirDog® Wire Harness Relay to the Vehicle

8-1. Secure the AirDog® wire harness relay to the vehicle. This picture shows the relay mounted on the firewall.



8-2. Route the AirDog® wire harness pump motor lead and the fuel pressure sensor lead to the AirDog® unit. Connect the wire harness pump motor lead (labeled “Attach to Motor”) to the AirDog® unit pump motor lead.



8-3. Connect the AirDog® wire harness fuel pressure sensor lead to the AirDog® unit fuel pressure sensor.



### Relay Trigger Lead and Indicator Light Lead

The AirDog® Wire Harness Indicator Light lead must be routed through the firewall and to the dash board. The Relay Trigger Lead must be connected to a contact point that is electrically “HOT” when the key is in the “RUN” position. This could be either in a spare fuse holder in the fuse panel or on the ignition switch itself.

**Note:** DO NOT connect the AirDog® wire harness relay trigger lead to a point that is “HOT” when the key is in the ACCESSORY position.

#### Routing the Indicator Light and Relay Trigger Lead through the firewall:

8-4. Most Volvo/Mack trucks have an access plate located on the firewall. Remove the access plate and drill a 5/8” hole to allow entry of the indicator light lead into the cab. If not equipped with access plate or suitable entry location, a 5/8” hole will need to be drilled into the firewall. Use the grommet to seal around the loom cover.

8-5. Route the AirDog® indicator light lead through the access plate.



**NOTE:** Be sure to seal the opening or install a grommet around the wire loom to prevent water leakage and protection from chafing.



### Relay Trigger Lead and Indicator Light Lead, cont'd

8-6. Connect the red relay trigger lead to a fuse holder in the fuse panel (using provided Add-A-Circuit) that is “HOT” when the ignition key is in the “RUN” position

**OR**

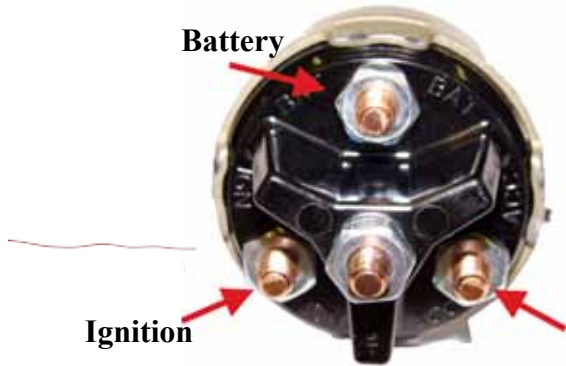
connect the red relay trigger lead to a terminal on the ignition switch that is “HOT” when the ignition key is in the “RUN” position.

**THIS**



**OR**

**THIS**



**Accessory  
DO NOT  
Connect Here**

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## INSTALLING THE AIRDOG® WIRE HARNESS INDICATOR LIGHT

### *Amber LED Indicator Light*



8-7. Select a location on the dash that is easily visible to the driver. Remove the dash components as necessary to access the area behind the selected location.

### Installing the Indicator Light, Cont'd

8-8. Drill a 7/16" hole in the dash at the selected location. Be very careful when drilling. Do not damage components located behind the dash. Remove the nut from the indicator light.

8-9. Install the dash plate and indicator light in the dash. \*Note-to adhere plate to dash, you may peel off the paper backing from the backside of the plate to expose adhesive. Reinstall nut and tighten until snug. Connect the positive (orange wire) lead on the wire harness to the positive (marked orange) quick connect terminal on the indicator light (see image below). Then connect the negative (blue wire) lead on the wire harness to the negative (unmarked) quick connect terminal on the indicator light.



8-10. Re-assemble the dash components back to their original position.



### CONNECTING THE POWER SUPPLY LEADS

The power supply leads can be easily connected to the appropriate contacts on the battery. Another alternative option would be to connect the power supply leads to the appropriate contacts on the alternator. Any high amperage terminal that is always "HOT" is OK for the Positive + (RED) lead. Be sure the NEGATIVE - (GREEN) lead is connected to a reliable chassis ground.

8-11. Route the red & green power leads to the battery. Connect the green (-) ground lead to the negative battery terminal post.

8-12. Connect the red (+) positive lead to the positive battery terminal post.



*NOTE: Secure wire harness with zip ties included in installation kit.*



## SECTION 9: INITIAL START UP PROCEDURE

The AirDog® is a self priming system. However, to prevent damage to a dry seal and reduce the life expectancy of the system, it is suggested to pre-fill the water separator/pre-filter with diesel fuel to the bottom of the “NUT PLATE”.

- 9-1. Rub CLEAN diesel fuel or oil on filter seals before installing to ensure a proper seal.
- 9-2. Pre-fill the water separator/pre-filter with diesel fuel up to the bottom of the nut plate.
- 9-3. Turn the starter key to the on/run position.
- 9-4. The AirDog® should now be running and pumping fuel, bleed the fuel line to the engine by loosening the fuel line connection at the engine fitting. As soon as the line is purged of air and pure fuel is observed, properly tighten the fuel fitting.

**NOTE:** Put a rag or shop towel over and around the fitting to prevent fuel splatter or spray. Catch all spilled fuel and dispose of properly. Wear safety glasses.

- 9-5. Start the engine.

**RECHECK ALL FUEL FITTINGS FOR LEAKAGE AND PROPER TORQUE. BE SURE ALL FUEL LINES ARE PROPERLY ROUTED TO PROTECT FROM EXCESSIVE HEAT AND SECURED TO PROTECT FROM CHAFING AND ABRASION. RECHECK ALL ELECTRICAL LINES AND SECURE AS NECESSARY.**

## Servicing the AirDog® Fuel Filter and Water Separator/Pre-Filter

**It is highly recommended that you keep a replacement AirDog® fuel filter and water separator on-hand, ready for replacement when the AirDog® Indicator Light illuminates.**

When the particulate fuel filter, water separator, mesh screen in the water separator nipple, or a combination of these, become plugged, the restriction will cause a loss in pressure and flow through the AirDog® system, which will cause the AirDog® Indicator Light to illuminate, and stay on. When the Indicator Light comes on, this indicates it is time for a filter change. It is strongly recommended that BOTH filters be changed at the same time. After changing filters, if the Indicator Light remains on, please check that the AirDog® fuel pump is running, with the key in the “RUN” position. If the pump is not running, check the fuse in the wire harness, located near the AirDog® wire harness terminals connected to the battery or alternator for power. It is possible for a restriction in flow to cause the pump to draw high amps for a short period of time, which could pop the 15A fuse in the harness. Replace the fuse, if blown. After replacing the fuse, if the Indicator Light remains on, please use the following procedure to check for debris in the water separator nipple:

- Remove the water separator from the AirDog® filter base.
- Using a 1-1/8” (29mm) deep-well socket, loosen and remove the threaded nipple that the water separator was installed on.
- Inspect the wire mesh screen inside the nipple, blow any debris out of the screen with compressed air.
- Reinstall the threaded nipple into the AirDog® filter base.
- Tighten the nipple securely with the socket and ratchet. Torque spec for the nipple installation is 35 FT-LBS.

**FUEL FILTER:** The AirDog® 6-micron fuel filters have a typical lifespan of 25,000+ miles, and up to 40,000 miles, as they are manufactured with a high-quality and high-capacity Micro-glass media, as opposed to a paper element. Fuel filter life is affected by many variables. In any case, we do not recommend exceeding 40,000 miles of service with a fuel filter. When replacing the fuel filter, be sure to clean the underside of the AirDog® filter base. Rub clean diesel fuel or oil on filter seals before installing, to ensure a proper seal. It is not necessary to pre-fill the fuel filter with fuel; the AirDog® integrated fuel pump will fill the filter and prime the system automatically. Follow the instructions on the filter for proper tightening procedures.



**WATER SEPARATOR:** The AirDog® water separator/pre-filters have a typical lifespan of up to 40,000 miles, as they are manufactured with a high-quality and high-absorbency Hydrosorb media. Replace the water separator when the AirDog® Indicator Light illuminates, if it becomes damaged or permanently plugged, and when changing the AirDog® fuel filter. Before installing a new water separator, be sure to clean the underside of the AirDog® filter base. Rub clean diesel fuel or oil on filter seals, to ensure a proper seal. It is suggested that you pre-fill the water separator (only) with clean diesel fuel when changing filters, to assist the system with priming. Follow the instructions printed on the water separator/pre-filter for proper tightening procedures.

**When tightening filters with a filter wrench, DO NOT overtighten, as doing so may damage the filters.**

**Caution:** Be careful to prevent any contaminants from entering the water separator when replacing. Although the water separator pre-filter has a protective wire screen, any debris passing through the system could cause the Gerotor fuel pump to lock up, which can cause the in-line fuse to blow. Such a pump lock-up is not covered under warranty.

**DISPOSE OF WASTE FUEL AND USED FILTERS PROPERLY TO PROTECT OUR ENVIRONMENT!**





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