AirDog® Champ II™

"SPIN-ON" For Cat Filters
High Pressure Fuel Air Separator

INSTALLATION MANUAL

For CATERPILLAR® Engines
C7, C9, 3126
Using CAT 1R-0751 Filter





PLEASE READ
THESE INSTRUCTIONS
THOROUGHLY
BEFORE BEGINNING
INSTALLATION



Part No. A7SOCA702

Revised 11/17/26

AirDog®
HEAVY DUTY DIESEL FUEL SYSTEMS
PureFlow TECHNOLOGIES, INC.



PROUDLY MADE IN THE USA

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

HEAVY DUTY & INDUSTRIAL

Fuel Systems

by PureFlow® TECHNOLOGIES, INC.

Amazingly Simple Installation

Spins on between filter head and the fuel filter. Air/Vapor return line connects to engine fuel return line.

Amazingly Simple Operation

Operates in conjunction with the fuel flow and pressure created by the engines transfer pump. Separates and removes entrained air plus vapor from fuel pump cavitation before the fuel enters the engine.



The Airdog® Champ II is proudly made in the USA and features a 4 year limited warranty.

With PureFlow Technologies AirDog® Champ II system installed, your diesel engine can perform as designed even under the most extreme conditions.

- Improves Fuel Mileage
- Lengthens Injector Life
- Smoother Idle
- Improves Throttle Response
- Maximizes Torque
- Reduces Emissions

Proudly made in the USA

877-GO-DIESEL (877-463-4373)
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INSTALLATION GUIDELINES

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

1. Inventory the package components. Notify PureFlow® Technologies, immediately of any parts missing or damaged.
2. Read the installation manual completely. Understand how the system operates and the installation recommendations before beginning.

SAFETY GUIDELINES

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

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

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 chaffing.

If you are uncertain of any installation procedure, contact:
PureFlow® Technologies, Inc. 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.

Installation Parts List

QTY	Description	Part Number	Image
1	**Installation Manual**	207-7-0702	
1 1	**AirDog® Champ II High Pressure Air Separator** **CAT Filter 1R0751**	CHPII-702-WIP FF-1R0751	
1	**#6 Hose w/end fittings 7' L Hose Assembly**	4C-1-06-06-84	

970-07-0702 Installation Fitting Kit

1	**#6M JIC x 3/8 M ORB 90º Elbow**	4A-2-01-06-06-S	
1	**#6M JIC x 3/8 M NPTF Straight Connector**	4A-1-02-06-06-S	
1	**3/8-18 M NPTF x 3/8-18 F NPTF x 3/8-18 F NPTF Tee**	4A-4-01-06-S	

Section 3: Overview

The Caterpillar Secondary Fuel System

PureFlow Technologies, Inc. addresses diesel engine efficiency and peak performance on the fuel side from the fuel tank to the tip of the injector. Removing entrained air and fuel vapor from the fuel flow to the engine is not enough if the internal conditions of the fuel system components are such to allow vapor to form in the injector, itself.

Specifically, if the fuel pressure/flow to the injector, even with entrained air and vapor removed, is insufficient to totally fill the injector barrel on the up stroke of the plunger, a void or low pressure will form that allows vapor to re-form within the injector. The results of "injector lag", which is just another name for "delayed injection timing"are increased fuel consumption, lost power, and increased exhaust emissions.

Contact PureFlow® Technologies at 573-635-0555 for additional information and ordering.

Section 4: Installing the AirDog® Champ II



4-1. Remove the CAT secondary fuel filter from the filter head. (Figure 2)



Figure 2

4-2. Check the O-ring seal to be sure that it is properly installed in the "Groove" in the top of the Champ II. (Figure 3)



Figure 3

4-3. Screw the Champ II onto the Cat secondary fuel filter head. (Figure 4)

NOTE: The Champ II is a "spin-on" unit. We cannot determine the accessibility of the Air/Vapor return port once it has been tightened. Therefore, we have machined two Air/Vapor return ports into the Champ II approximately 120° apart. One or the other air/vapor return port will be accessible after tightening the Champ II.



Figure 4

4-4. On the 3126-B engine, the air compressor coolant line may need to be rotated down to clear the filter. (Figure 5)



Figure 5

4-5. After tightening the Champ II, remove the 3/8" ORB plug from the most accessible air/vapor return port. (Figure 6)

4-6. Install the 3/8" ORB x #6 JIC 90° elbow fitting into the air/vapor return port. (Figure 6)

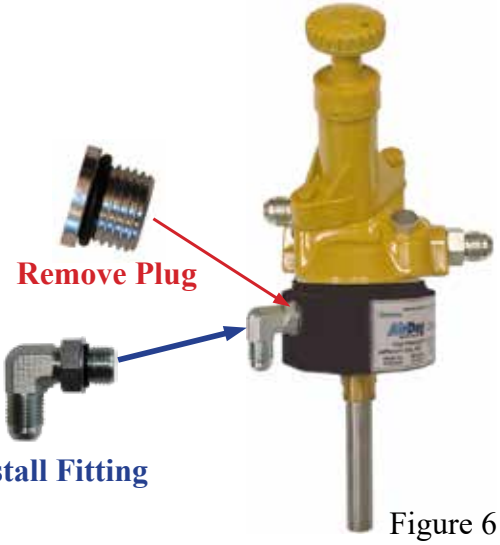

Figure 6

Section 5: Installing the Champ II Air/Vapor Return Line

5-1. Remove the original fuel return line.

5-2. Assemble and install the AirDog® Return "Tee". Reconnect the original fuel return line. (Figures 7 & 8)

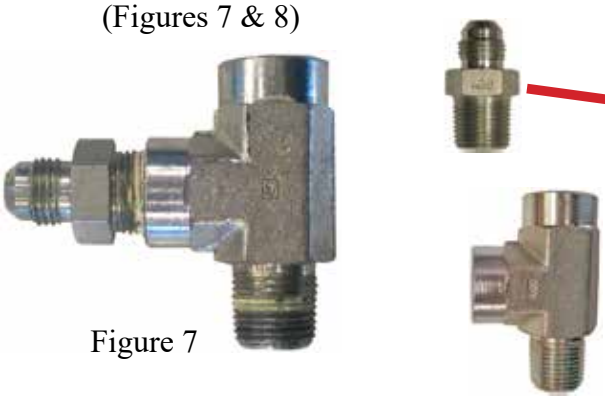

Figure 7



Figure 8



Figure 9

5-3. Install the Champ II Air/Vapor return line between the Air/Vapor return fitting and the "Tee" installed in Step 5-2. (Figures 8 & 9)

5-4. Pre-fill the fuel filter with clean fuel and install the filter on the Champ II.

Replace the fuel filter as recommended by CATERPILLAR.

When replacing the fuel filter, be sure to clean the under side of the AirDog® Champ II base. Follow the instructions on the filter for proper tightening procedures.

The Champ II uses the CAT High Efficiency 2 Micron Fuel Filter



Built in Check Valve Prevents fuel from draining from the engine head during filter changes

NOTE: Due to the fact that fuel filters are often OVER TIGHTENED and difficult to remove, it is suggested to carry a second filter wrench to use as a backup wrench to hold the Champ secure when changing the fuel filter.

Dispose of waste fuel and used filters properly to protect our environment.



World Headquarters

AirDog

FUEL PREPORATOR

www.airdogdiesel.com

1-877-463-4373 or

1-573-635-0555

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