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# VF-31E INSTRUCTIONS

## DESCRIPTION

The Velcon VF-31E filter housing is designed to operate with various **Aquacon**<sup>®</sup> cartridges in a wide variety of applications. The filter housing is shipped with *no cartridge* installed. **Cartridges for the application must be ordered and shipped separately. See page 3 for cartridge selection table.**

Connections Size: 1" Female NPT  
Housing Pressure Rating: 150 psi

### IMPORTANT SAFETY PRECAUTIONS

- To protect the fuel system, including the VF-31e and other components, **BE SURE TO INSTALL PRESSURE RELIEF VALVE(S).**
- **MAKE CERTAIN FILTER HOUSING IS COMPLETELY VENTED BEFORE OPENING HOUSING.**
- To prevent electrical buildup and discharge - use a grounding wire to place a bonding loop from the drain valve to a point on the metal framework of the vehicle or skid. This provides a continuous bond. Before draining the vessel, electrically bond a metal container to the drain valve using a grounding wire. Then drain the fuel into the bonded metal container.

## INSTALLATION PROCEDURES

### GENERAL

Write the proper cartridge model number on the enclosed replacement element label and fasten it to the VF-31E shell. Cover the label with the enclosed clear plastic sticker.

Install either the plug or the petcock drain into the bottom of the vessel. Usually the plug is used for oil applications, and the petcock drain for compressed air and fuel applications where daily draining is recommended.

Install cartridges. See Cartridge Change-out Instructions on page 3.

Mounting brackets with two screws are enclosed and can be attached to the vessel head if desired for installation.

Note the "IN" and "OUT" markings on the vessel head and make sure the head is connected in the proper flow direction. **DO NOT INSTALL THE HOUSING BACKWARDS!**

Valves ahead of and/or behind the vessel may be required to isolate it during cartridge change-out. This is especially true if large volumes of liquid are in the piping above the level of the filter vessel.

**NOTE:** Fuel “weeping” from the inlet or outlet 1” NPT connections sometimes occurs when regular pipe dope is used when plumbing the vessel. To prevent “weeping”, we recommend a product like Loctite No. 59231 “Pipe Sealant with Teflon®”.

Velcon strongly recommends installation of pressure gauges so that the differential pressure across the VF-31E can be monitored. This allows accurate determination of when filter cartridges should be changed.

**FOR ALL DIESEL FUEL SYSTEMS AND FOR AVIATION FUEL SYSTEMS WHERE PRESSURE CAN EXCEED 25 PSI ALWAYS INSTALL PRESSURE GAUGES OR OTHER MEANS OF DETERMINING THE DIFFERENTIAL PRESSURE.**

### **FUEL AND OIL APPLICATIONS**

We recommend that the VF-31E be located on the discharge (pressure) side as this will give longer cartridge life.

Large amounts of water will cause the **Aquacon**® cartridges to plug up very rapidly. If the pump can exceed 40 psi it is recommended you install a pressure bypass or other means of protecting the cartridge from collapse.

### **COMPRESSED AIR APPLICATIONS**

The VF-31E with the ACA-210 cartridge is intended for critical point-of-use applications where any dirt or free water must be prevented. Install it downstream of existing filtration and drying equipment to minimize cartridge changeouts.

The ACA-210 cartridge will completely block the flow when loaded with dirt or water. In some applications it may be desirable to use an automatic duplex or bypass arrangement.

Routine draining is not required to insure positive water protection. However, in some locations large amounts of gross water will fall into the filter housing sump. When the sump water level reaches the cartridge, it will “shut off” and must be replaced. If this situation occurs, routine draining will greatly extend the life of the cartridge.

Operating experience will quickly tell you if routine draining is desirable.

## **CARTRIDGE CHANGE-OUT INFORMATION**

### **FOR AVIATION FUEL**

Please refer to cartridge Operating Procedures that are supplied with each cartridge shipment.

### **FOR ALL OTHER APPLICATIONS**

Replace the cartridge if the differential pressure exceeds 25 psi, after 1 year of service, or if flow is significantly reduced.

# CARTRIDGE CHANGE-OUT INSTRUCTIONS

**REMINDER: Be sure equipment is properly bonded before and after cartridge change-out is performed.**

1. Close inlet and outlet shutoff valves (if any).
2. Open drain valve or remove the drain plug to drain liquid from vessel.
3. Unscrew lid bolt.
4. Drop shell and remove spent cartridge.
5. Place new cartridge in shell.
6. Look at lid gasket (located in groove in the head) to make sure it's not split or otherwise damaged. Under normal conditions, the lid gasket seldom needs replacing.
7. Reattach shell to head. Do not over-tighten past 20 ft-lbs.
8. Close the drain valve or reinstall the drain plug.
9. Open shutoff valves.
10. Restart system. Check for leaks.

## REPLACEMENT PARTS

Specify part number G-0995.

Contact your local Velcon distributor for replacement cartridges.

## CARTRIDGE SELECTION TABLE

TYPE	MODEL NUMBER	DEGREE OF FILTRATION	COLLAPSE STRENGTH	APPLICATION
Paper (Dirt Removal)	FOG-21005	5 micron	60 psi	Gasohol
Synthetic (Dirt Removal)	FOS-210PLP5	0.5 microns	60 psi	Air & Gas
<b>Aquacon®</b> Media* (Dirt & Free Water Removal)	AC-21005	5 microns	60 psi	Oils, Motor Gasoline
	AD-21025	25 microns	60 psi	Oils, Diesel Fuel
	ACO-21001L	0.5 micron	60 psi	Jet Fuel & Avgas
	ACA-210	1 micron	150 psi	Air & Gas

***\*CAUTION: DO NOT USE Aquacon® CARTRIDGES WITH PRE-MIXED JET FUEL CONTAINING ANTI-ICING ADDITIVES***

**WARNING: Absorbent-type monitor cartridges will NOT remove water from fuel containing alcohol-blending agents (commonly called gasohol). For removal of solids, please use Velcon particle removal filters specifically made for gasohol. Consult your Velcon representative.**