Pure & Simple

Velcon Filters Give You More of Both

Pure Fuel: How to make sure that's all you ever deliver

EVERY TIME YOU RECEIVE FUEL:

- Before you accept it, take a sample from the lowest point in each compartment into a clean white bucket. If it's clear, bright and free of water, it's okay. If you're not sure about "clear and bright," see the section at the top right.

EVERY DAY:

- Drain the sump of each filter vessel and storage tank into a white bucket. Take filter samples with the pump on. Inspect samples for contamination particles and discolored water. Be sure all accumulated water is drained off.
- Check and record the pressure differential across each filter housing under normal flow conditions.

ONCE A MONTH:

- Do a membrane filter test downstream from each jet fuel filter vessel.
- Check nozzle screens for particles. If you find any, check out the refueling equipment to find out why.

ONCE A YEAR:

- Inspect your storage tanks and clean them if they need it.
- Check the water defense system in the filter/separator. Be sure the float control is buoyant and is still able to shut down the slug valve.
- Change your coalescer elements and any pleated paper separator elements. Your Velcon representative can help you get the right element sets and conversion information to meet API/IP 1581.
- Clean, inspect, and test any Teflon® coated screen separators. (See Velcon data sheet 1242)
- Use water-absorbent filter cartridges in your Avgas system. We recommend Velcon's ***Aquacon®*** cartridges, but we're prejudiced.

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Five Simple things that tell you what you're looking at:

1. "Clear and bright" doesn't mean the color of jet fuel, which can range from colorless to straw color. It means no free water, no sediment and nothing clouding the fuel or floating in it.
2. If you're not sure whether you're looking at water or colorless jet fuel, pour in some coffee. It separates from the fuel, but it mixes with any water in the jar.
3. For water contamination control, don't ever put your faith in an automatic water drain valve or a sightglass. Automatic drain valves won't get out all the water and bacteria grows where the fuel and water surfaces meet. And sightglasses are useless unless they show you both fuel and water and the line between them. Otherwise, you don't know whether you're looking at pure fuel or pure water.
4. Differential pressure is the difference between the pressure upstream and downstream of a filter/ separator. Differential pressure increases when contaminant is filtered by the first-stage cartridges and causes a flow restriction.
5. A sudden decrease in pressure differential across a filter housing may mean trouble. The vessel should be opened immediately and inspected for ruptured elements, seals or mounting hardware. It's also possible to get a decrease in pressure differential without any of these failures. It can happen if cartridges that have been separating water from the fuel now are exposed to dry fuel. The water is slowly pushed out of the coalescer, resulting in decreased differential pressure.

Follow these simple steps and you won't start a fire when you fill a filter vessel:

Fires start from sparks caused by electrostatic buildup. Here's how you can prevent them.

1. Close the outlet valve and the drain valves.
2. Crack open the inlet valve *slightly* so that the vessel will fill *slowly* to prevent charge buildup.
3. Start the pump.
4. If you have a manual air eliminator, open it completely.
5. Allow about 10 minutes to fill the vessel. If it fills faster than that, you're taking a chance.
6. Remember to close the air eliminator when the vessel is full.
7. If the vessel has an automatic air eliminator with a check valve, you had to remove the check valve before you could drain. Remember to put it back.

Some simple ways to stay out of trouble when you change cartridges..

- **Drain the filter housing completely.** Otherwise, the dirt can fall out of the cartridge and contaminate the fuel. If you open the air eliminator, the vessel drains faster. Remove the used cartridges.
- **Don't touch the new coalescer and separator cartridges.** Leave the polybags on the cartridges as you install them. And before you close the vessel, take the bags off *slowly* to avoid building up an electrostatic charge. If you have to handle the cartridges, wear clean cotton or rubber gloves. Don't touch the separator's Teflon® screen. Handle it by the endcaps.
- **Always use a torque wrench for installing cartridges.** Read the manufacturer's specified torque value in the installation instructions.
- **When you clean the inside of a filter vessel, use the product being filtered or diluted bleach.** Do not use soap or another type of fuel.
- **Close all the drain valves before you refill.** Obvious, but easy to forget!

Some Sound Information, Useful and Readily Available:

The Manual of Aviation Fuel Quality Control Procedures, ASTM Manual Series MNL5, Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Phone: (610) 832-9585.

Standards for Jet Fuel Quality Control at Airports, ATA Specification No. 103, ATA Distribution Center, PO Box 511, Annapolis Junction, MD 20701 U.S.A., Phone: (800) 497-3326 / (301) 490-7951.