No. 99-02

Subject:
Velcon Fuel Filters

Distribution:
All DOI Aviation Activities

Discussion: Velcon Filters, Inc. has determined that their ACO Aquacon fuel filter cartridges, when operated under low fuel flow conditions, are not performing to their expectations. Some media and water transmission has occurred when fuel flow is less than 50% of the filter's maximum rated flow. Most helicopter and fixed wing fueling operations are conducted under low fuel flow conditions.

Recommendations:

1. Avoid low fuel flow operations with ACO filters when fueling can be safely accomplished at higher flow rates. For example, a filter rated for 50 gallons per minute (GPM) operated between 25 and 50 GPM will meet performance specifications.

2. Follow Velcon's recommended Operating Procedure 1839-RI (see reverse side), dated December 1998, which has been designed to prevent contamination. This procedure is especially critical for low flow fueling.

3. Replace ACO filters with a suitable replacement cartridge. Velcon is currently developing a replacement cartridge, anticipated to be available in February 1999.

If you have any questions regarding this subject please contact the Fuel Quality Assurance Specialist, OAS Alaska Regional Office, 907-271-3700.

Robert Galloway
Aviation Safety Manager

Velcon Operating Procedures

Operation of Vessels Containing ACO Series Water Absorbing Cartridges for Aviation Fuel

There are an increasing number of new vessels being sold with the water absorbing cartridges, and increasing numbers of existing filter and filter/separator vessels in the field being converted to the water absorbing cartridges.

Recommended procedures to follow with ACO Series water absorbing cartridges in a vessel are:

1. Do not operate at less than 50% of the maximum rated flow of the installed cartridges for more than a few minutes at a time (such as at the start and end of into-plane refueling).

2. Daily drain upstream storage tanks, fixed filter/separator vessels, and refueler tanks (and possible low points in the piping) to remove accumulated dirt and water. Daily drain refueler vessel sumps. This draining will prolong element life and is a normal recommended fuel quality control practice. Recirculation of the system upstream of the refueler filter vessel and through fixed filter/separators early in the morning is recommended if water can condense out of the fuel due to lowering fuel temperatures (a consideration in hydrant systems with underground pipes, or even in aboveground systems with lots of exposed piping).

3. TAKE DIFFERENTIAL PRESSURE READINGS ACROSS THE VESSEL DAILY & RECORD.

4. Replace the cartridges if the differential pressure exceeds 15 psid (25 psid is acceptable in fuel without anti-icing additive and the cartridges are qualified to the IP Monitor Spec.), after two years in service, or if there is a reduction in flow rate or differential pressure, whichever occurs first. Individual fuel suppliers, customers, or applicable local authorities may have more stringent requirements.

5. In converted filter/separator vessels where the deckplate or manifold strength does not meet the 15 bar (220 psi) strength required by the IP Monitor Spec., a differential pressure limiting device, set from 25-30 psid, should be installed across the vessel.

6. Have a spare set of water absorbing cartridges on hand, or available at a nearby Velcon Distributor, for the unexpected plug-up.

1839-R1 12/98