Operation of Vessels Containing Water Absorbing Cartridges (ACO/ACI/CDF®) for Aviation Fuel

NOTE	**If pump discharge pressure can exceed 25 psi, do not use this cartridge unless pressure gauges are installed to measure the differential pressure. For ALL systems, differential pressure gauges are strongly recommended, along with daily monitoring of dP. If the gauges cannot be observed easily during flow, an electronic monitoring method, with flow shutdown capability, is recommended.**

NOTE	**Always ensure that the vessel and drain plug are properly grounded. If the *Aquacon*® cartridge (ACO-xxxxx) is used in a VF-31E, VF-61, VF-61E, or VF-609 or similar sized housings, please refer to the instructions for the housings in which cartridges are installed for more information.**

Contact Parker AFD for more information.

Recommended procedures* to follow with water absorbing cartridges in a vessel:

1. **Quality Control Checks**.
   Reinforce quality control checks and diligently conduct water removal procedures at all locations in the fuel distribution system. This includes daily draining of all sumps, low points, and dead legs in the piping system.

2. **Monitor dP Daily**.
   If operating at reduced flow, record differential pressure and flow rate and calculate normalized differential pressure. (See page 2). **Change ACO, ACI, & CDF® cartridges when normalized differential pressure reaches 25 psid**. Replace all cartridges if the normalized differential pressure has dropped 5 psid below the previous reading.**

3. **Check for Free Water Content**.
   Sample fuel and check for free water content using the Parker Velcon Hydrokit® or other chemical method in accordance with your company's fuel handling procedures. Replace cartridges if the water content exceeds your company guidelines.

4. **EI Monitor Spec. 1583**.
   In converted filter/separator vessels where the deckplate or manifold strength does not meet the 15 bar (220 psi) strength required by the EI Monitor Spec. 1583, a differential pressure limiting device, set from 25-30 psid, should be installed across the vessel.

5. **Spare Water Absorbing Cartridge**.
   Have a spare set of water absorbing cartridges on hand, or available at a nearby Parker AFD Distributor, for the unexpected plug-up.

6. **Confirm dP if Operating below 50%.**
   If fueling unit is operating consistently below 50% of rated flow then periodically check fueling unit at test stand and check DP at flow rate of 50% or higher and confirm corrected DP.

7. **Check for Fibers and Hose End Strainers**.
   After changing cartridges circulate flow through vessel for at least 3 minutes, use millipores to check for fibers and also check hose end strainers.

8. **Cartridge Restricting Flow**.
   As the cartridges begin to restrict the flow due to a water slug, ALL upstream and downstream piping should be checked and purged before resuming operations with a new set of cartridges. Any aircraft involved in fueling when the flow through a cartridge is restricted, should also be checked for the possibility of water reaching the aircraft. Check the tank to determine where the excess water came from, and purge the tank of any water before resuming operation.

9. **Cartridges should not be dried and re-used**.
   When water saturated media is dried, it may shrink and crack, leading to possible internal bypass.

***Please also check with your company's fuel handling guidelines and operating procedures.**
****ATA 103 compliance now requires 15 psid normalized differential pressure changeout.**

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SERVICE LIFE

Service life for all water absorbing cartridges, including two (2), five (5) and six (6) inch diameter cartridges, should be one (1) year, unless stated otherwise by your company's fuel handling procedures.

*******CAUTION*******

DO NOT USE WATER ABSORBING CARTRIDGES WITH PRE-MIXED JET FUEL CONTAINING ANTI-ICING ADDITIVES

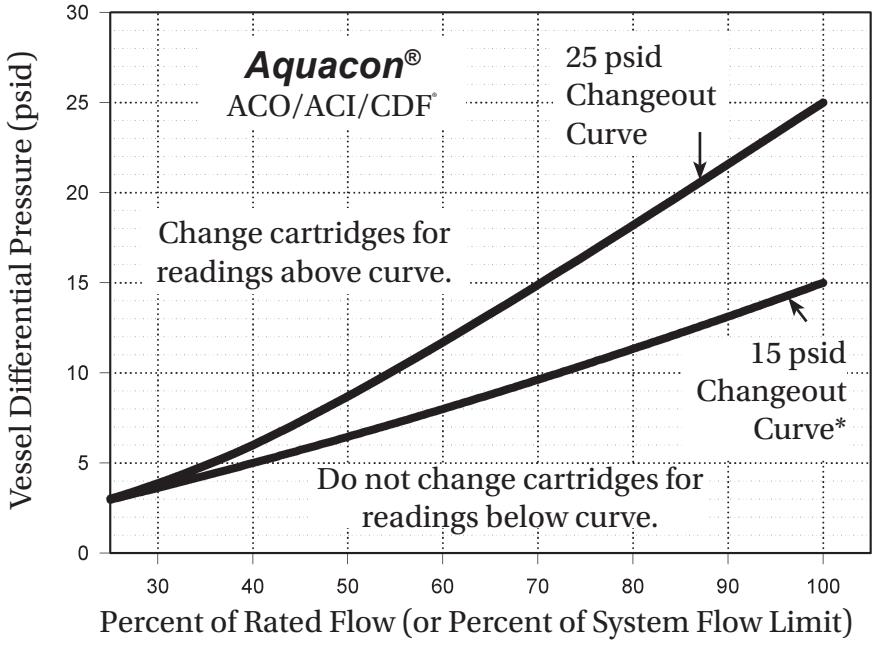
WARNING

Absorbent-type monitor cartridges will NOT remove water from fuel containing alcohol-blending agents (commonly called gasohol).

For removal of solids, please use Parker Velcon particle removal filters specifically made for gasohol. Consult your Parker AFD representative.

For technical support, contact Parker AFD or your authorized Parker AFD distributor.

CARTRIDGE CHANGEOUT CURVES
SPENT CARTRIDGES AT REDUCED FLOWRATES



EXAMPLE: **(25 psid changeout)** A 600 GPM monitor vessel is operating at 300 GPM (50% of system flow limit). If the pressure differential is less than **8 psid**, the cartridges do not require changing; however, if the pressure differential is 8 psid or more, or if the cartridges have been in service for one year, the cartridges are due for changeout.

(15 psi changeout) For the same vessel, at 50% of system flow limit, if the pressure differential is less than **6.5 psid**, do not change the cartridges; however, if the pressure differential is 6.5 psid or more, or after one year of service, the cartridges are due for changeout.

Decal #VEL1846 - Cartridge Changeout Curve for cartridges with 25 psid changeout requirements
**Decal #VEL1979 - Cartridge Changeout Curve for cartridges with 15 psid changeout requirement (per ATA 103)*

Due to continuing product improvement, Velcon Filtration Division drawings, specifications, and pictures are subject to change without notice.

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