

OPEN-ENDED FILTER CARTRIDGES

1. Turn off pump. Close inlet and outlet valves and open drain valve. Open the air eliminator or manual bleed valve and drain the vessel.
2. Open vessel after making sure the vessel is completely drained.
3. Jack-up head and swing aside. Remove the spider (if installed). Remove nuts and washers, endcaps, old cartridges, and center plates, if any.
4. Wipe vessel clean whenever possible or flush.
5. Place cartridge over the center rod making sure the cartridge is centered over the guide bar or mounting adapter attached to the deck plate. The cartridge must be seated flat against the adapter or deck plate.
6. For vessels with stacked cartridges, place the first tier of filter cartridges in position at all bulkhead ports (per step 6). Insert center plate onto center rod and insert into each cartridge. Next, install the second tier of cartridges over the center plates. There must always be a center plate between every two stacked cartridges. Be sure the circular guide on both sides of the center plate projects into each cartridge.
7. When all cartridges are loaded, insert sealing cap over center rod.
8. Install rubber washer, flat washer, lock washer, and nut in that order, onto each center rod. Tighten to 4 to 5 foot pounds of torque. (DO NOT touch the outer filter media.)
9. Replace the spider as follows (if spider is not included proceed to step #10):
 - Install the flat washer over each cartridge end and install the spider over the ends of the cartridges.
 - Affix the spider to the threaded clips on the vessel walls using the nut and lockwasher.
 - Adjust the spider clip nuts, so the spider lies flat on the ends of the cartridges
 - Install the washer and nut over the ends of the cartridges, to affix the spider to the cartridge ends. Snug the nuts. DO NOT TIGHTEN YET.
- Adjust the ends of each cartridge to create even separation between the cartridges and between the cartridge and vessel wall. Cartridges should NOT be touching each other, nor touching the vessel wall. The ends of the cartridges can be shifted within the spider plate holes as follows:

Cartridge Length	Shift Within the Spider Hole	
Greater than 33"	Full movement within the spider hole	
30"	Less than 5/8"	(16 mm)
28"	Less than 9/16"	(14 mm)
24"	Less than 1/2"	(12 mm)
22"	Less than 1/2"	(12 mm)
20"	Less than 3/8"	(10 mm)
18"	Less than 3/8"	(10 mm)
16"	Less than 1/4"	(8 mm)
14"	Less than 1/4"	(6 mm)
11"	Less than 1/4"	(5 mm)
9"	Less than 3/16"	(5 mm)

- When the cartridges are spaced properly, tighten the spider nuts to 5 ft-lbs.
10. Inspect the cover gasket and replace it if necessary. Tighten the cover securely in a cross-pattern process.
 11. Close the drain valve and start the system pump.
 12. With the outlet valve closed, slightly open the inlet valve and allow the vessel to fill **SLOWLY** with fuel until the air eliminator closes or fluid begins to flow from the manual air vent. Close the vent valve. Fully open the inlet valve.
 13. Open the outlet valve **SLOWLY**.
 14. When the unit is operating, check the differential pressure across the cartridges. There should be indication of positive pressure, normally 1-5 psid. This insures that all seals have been properly made during the installation.

OPERATING PROCEDURES Velcon Recommended Cartridge Changeout

Also refer to your company guidelines.

Filter Cartridges

1 year or 15 psid for AVIATION APPLICATIONS and 3 years or 25 psid for NON-AVIATION APPLICATIONS; or whichever occurs first.

Be certain to INSPECT VESSEL ANNUALLY.

Due to Parker Velcon continuing product improvement drawings, specifications, and pictures are subject to change without notice. For information on recycling used filters contact FILCare, 719 499 1379.