From: Jim Birch <jbirch@mbari.org>
Subject: MBARI's way forward….
Date: December 20, 2013 4:17:48 PM PST
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1 Attachment, 49 KB

Bryant/David,

We've had two days of meetings to discuss what direction to guide you guys in the cartridge development space. Three things:

1. We have some modifications to the archival cartridge that stores waste on-board that may be simple to implement, but Chris P would still like to do some testing with our current models. One thing she needs though, is weaker ball check-valves in the 'reverse' orientation for reservoirs 3 & 4 (let fluid into the reservoir, but not out).

Simply 'flipping' the check valves you provided in reservoirs 1 & 2 makes it too difficult to push fluid into 3 & 4 (i.e., they're too strong). David, do you know of weaker springs--I believe I've heard that the current ones crack at 15psi. We'd want as low cracking pressure as possible; these balls would simple hold the fluid and any pressure within that fluid in the reservoirs, keeping both away from the triscuit.

With that simple modification, we can do quite a bit more testing with the archival cartridges we have.

2. Direction for lyse-n-go development
We think we may have a simpler solution that does away with a three-position valve near the off-cartridge port (see attached figure).

- syringe 4 is your new design that allows pressure bleed-off.
- syringe 1 still has the air-refill groove and needs a check valve oriented the same way as the check valve at syringe 4 (but no plunger boss).
- Reservoirs 2 & 3 have the option for two-way check valves (so that stored material will be closed to the environment.)
- Big modifications are in the plumbing
- chamfer all reservoir ends so we don't damage o-rings when inserting plungers. Same on cartridge plunge valve.
- The prototype version of this should allow us to mount a stop-cock valve at/in the exit port [1/4-28 female threads in body of cartridge].

This arrangement allows us to test all three types of puck clearing: liquid displacement, air evacuation and diaphragm evacuation. Please think about this schematic, and then we'd like to have another meeting with you before cutting any prototype 'metal'; could we do this ASAP once the holidays are over?

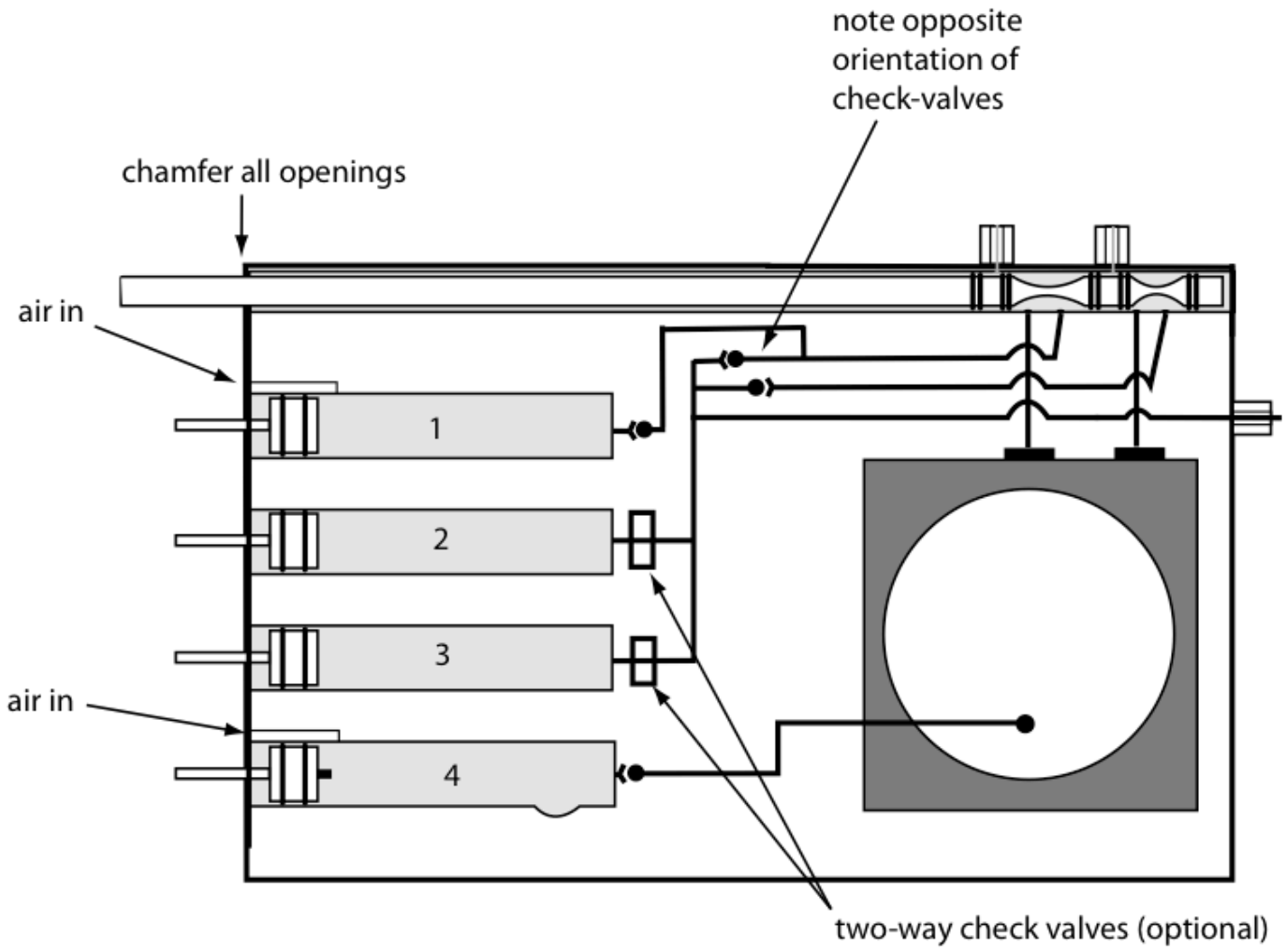
Another odd-n-end:

3. Could we get some more of the white silicon diaphragm material, or provide the part number so we can order and cut?

Let me know you got this, and when we can talk.

Happy holidays!!!

-jim



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