

Chip Bearden's article on externally vented relief systems

as re-sent to rec.aviation.soaring by Eric Greenwell

Subject: Re: Relief Bags

From: JNBearden

[anonymous question]

> I'm having my own plane configured to have the relief tube exit through the gear door.

> This is what an old friend of mine did, he said you have to be very

> careful because it will cause corrosion in the undercarriage.

There should be no problem so long as you put the exit end of the tubing on the lower aft corner of a gear door. This is the technique Karl Striedieck wrote about in his excellent article, entitled "[To Pee or Not To Pee](#)" in Soaring magazine. Ed - Not the correct title of the article

The idea of getting the dump tube away from the fuselage actually goes back at least 15 years (probably much more than that). The first time I saw it was (as I recall) on Kai Gertsen's 301 Libelle in the early 80s at Elmira. I radioed to tell him his wheel was down while on course at the Nationals and wondered why he ignored me! Kai attached the tubing directly to the landing gear which, on the Libelle, got the exit port well below the fuselage.

Six years ago, after I heard all the horror stories about urine accumulating in the bilges, etc., and while contemplating the difficulty of getting a tube installed in the fuselage skin aft of the wheel well in the diminutive fuselage of my new ASW-24, I installed the same thing as Kai, but put the dump tube on the gear door, thinking I wouldn't have to extend the gear all the way. In fact, I found that in the '24, I only had to lower the gear slightly to flip the doors open 90 degrees, so the corner of the door is perpendicular to and farthest away from the fuselage.

Karl--who with a few other ridge pilots had made the external catheter socially acceptable in today's cockpits--then took things a step further and performed some experiments with colored water on his ASW-20--the '20s having been notorious for sucking urine into the low pressure area at the base of the vertical fin and corroding the lower rudder bearing--and demonstrated conclusively that this method avoided the problems of the typical exit on the bottom of the fuselage. The rest is history.

Another method I've heard of (on a '20) is an extendable tube which the pilot pushes out into the airstream perpendicular to the fuselage through a small hole drilled in the belly near the seat back rest. This gets the exit even farther away from the fuselage and might be the best method of all. I much prefer the external catheter/dump tube method because it's easier than using bags (no hands required for peeing), especially for ridge and gaggle flying

(from experience, though, pilots below you don't always react well to seeing your wheel come down in a gaggle). Plus I hate the idea of littering the countryside with non-biodegradable plastic bags. To say that a few more bags won't make much difference in the general clutter seems like saying that it's OK to steal a little money from a fairly well to do pilot because he won't be able to tell the difference.

When a method works better AND avoids the litter problem, I can't see why anyone wouldn't go to the little bit of trouble to install the system on his own sailplane. No problems with skin irritation so far as I know. The slight bit of negative pressure at the exit port seems to collapse the catheter and empty it pretty well. Known problems: If it's below freezing, use a "T" and another length of tubing to blow out the dump line (don't confuse it with your water bottle tube!). You haven't experienced everything flying has to offer until you've looked down to see a rapidly expanding catheter "water balloon" about to blow off your male appendage at 15,000 feet in the wave.

Fortunately in my case the blockage melted quickly, releasing the "tension", as I was fast running out of ideas (and bladder control) on how to defuse the situation. The other problem also relates to urine which remains in the low point of the tubing under the seat, which can back flow either when the nose goes down on final approach (from experience, bad if you've already unhooked) or in the trailer after the flight. Solutions include not unhooking until after you've landed (from experience, don't roll to a stop right next to the spectators), installing a small valve in the line close to the catheter fitting, removing the catheter but leaving it attached to the tube and tying a knot in it (from experience, this can be fun on fast final glides!), and using air or water to blow/flush out the tube after landing (from experience, make sure your crew is not washing the dirt off the belly as you do this!)

Other issues for the sensitive male: Can't recall whether Karl's article mentioned it or not but sorry, guys, size DOES matter. Unlike condoms, external catheters come in different sizes. If you were too embarrassed to buy condoms when you were younger, this won't be any easier. Not to worry, the literature for the product says that if it's too big (the catheter, that is), just squeeze the excess together so the adhesive sticks to itself and forms a fold. Still, too big is too big; buy a few and find out what size you need. Surgical supply houses sell them, sometimes at wildly different prices though even then the cost is minimal (\$1.25 to \$2.50 each).

Sometimes you can get a quantity discount so maybe several pilots can pool their purchases (and the bravest one can go buy them). Don't know for sure what the shelf life is but I've used some which were several years old without problems (it's not like you carry one around in your wallet in case you get lucky with a friend's ASW-27). Also, I find it easier to put the thing on before launch. From experience, just make sure no spectators or crew

persons of the opposite sex wander up to your cockpit as you're finishing up the "assembly" process or you're likely to get some strange looks.

Chip Bearden ASW-24 "JB"

Back to me: (Eric Greenwell) At the 2004 SSA convention, Dick Johnson said flying with a slight slip while using a relief system will ensure the liquid is blown away from the tail boom in all but the poorest installations.