

PILOT EMERGENCY PARACHUTES

A history of the acid mesh problem

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CSPA Rigger #T0011B

IN 1988 THE FAA issued an airworthiness directive grounding all Security Aeroconical (SAC) emergency parachutes due to possible fabric deterioration. Acid contamination of the fabric, transferred from a coating used on the mesh modifications was found to be the culprit. Over a period of time, a system was developed to test the parachutes for (1) acid contamination, and (2) fabric tensile strength. As a result the FAA announced an alternate means of compliance with the original grounding AD (88-05-08).

In short, this means that owners of Security 350 and 850 pilot emergency parachute systems (that have previously been grounded) may now have their SAC parachutes tested, and if successful in testing may be certified for return to service.

The reason the contaminated mesh was used in the first place was that the MIL SPEC requirements for ordering the mesh did not

differ from the mesh used in the manufacture of tent mosquito netting (which is covered with an acidic flame retardant chemical). As a result, there are many other emergency parachutes in use that have been manufactured with this same acidic mesh. The acid, over a period of time, will eventually deteriorate the strength of the fabric to the point that it can be EASILY ripped with the hands. Once a proper ph test indicator solution was developed, it became very apparent that acid contamination was a problem in a wide range of different parachutes and related components.

Pioneer Parachutes recalled many of their K series emergency parachutes without giving any reason, and indicated that they would be recalling more at a later date. They never did recall any more, as they went out of business manufacturing sport parachute equipment.

National Parachute Industries has required all of their emergency parachutes manufactured before 1 June 1989 (commonly found on National 360, 425 and 490 seat and back packs) be tested for acid contamination and tensile strength before 31 December 1989 and every 12 months thereafter.

In the beginning of 1989, the British Parachute Association grounded all parachutes and related components which contained mesh until such time as it could be checked for high levels of acidity.

In June of 1989 the Canadian Sport Parachute Association issued a Technical Bulletin to all riggers requiring them to check the mesh and tensile strength of all emergency parachutes and related components that contain mesh, adopting National's procedure as a standard. The US Parachute Industry Association has also adopted these procedures as a standard.

Running a full-time parachute rigging business, I have come into contact with many acid contaminated parachutes. Of the 100 or so emergency parachutes I have tested in the last year (that contained mesh) I have found at least 50% to be contaminated with acid. Upon doing the neutralization process, retesting for the ph level and fabric strength, I have found only two parachutes that failed the tensile test. Those were sent back to the manufacturer for repair or replacement. Although the contaminated parachutes I have dealt with seem to be contained to the 1980s, I would suggest making sure that all parachutes and related components be tested as soon as possible. Any acid on the mesh will slowly but surely eat away at the parachute fabric until the acid has been neutralized.

To find the name of a reputable rigger qualified to test and, if necessary, neutralize any acid contamination. Contact the Canadian Sport Parachuting Association, 4185 Dunning Road, Navan, Ontario K4B 1J1 •

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FLIGHT TRAINING & SAFETY NOTES

SPRING MISCELLANY

Paul Moggach

FT&S Committee

FIRST OFF THE MARK THIS TIME are some thoughts about recent changes to the privileges for licensed glider pilots. In the past licensed glider pilots were required to have at least 10 hours Pilot-in-Command time before they were allowed to carry passengers. Recent changes in personnel licensing appear to have eliminated this requirement and instituted regulations concerning the licensed pilot's currency. While I am an enthusiastic supporter of the currency regulations, I feel that the 10 hours PIC rule was a good thing. The 20-40 flights represented by this restriction allowed the new pilot to sharpen his flying skills and build up his confidence to the point where the extra pressure of carrying a passenger could be handled safely. Everybody concerned, the new pilot and his

club, were let "off the hook" by this grace period. At my own club, the directors have voted to retain the 10 hour PIC minimum time before passenger carrying is allowed, as an internal club rule.

A quick word of advice to students who soloed at the end of the last season. Plan to take a few instructional flights at the beginning of the new soaring season. While the experienced glider pilot's skill deteriorates during the layoff, expect yours to drop off even more. Be sure that you review your instructional material thoroughly and make a point of setting up some time with the instructors at your club. A quick flying review may take four to six flights but will be well worth it.

Finally there was an interesting article on the use of ground effect with gliders in the February 1990 issue of SOARING, conducted by the United States Air Force. This USAF research confirms what I have suspected that using ground effect to stretch a marginal glide back to the airfield is not worth it. Both flight

tests and computer simulation suggest that only marginal increases in the gliding distance may be obtained and require quite precise flying at about 4 feet above the ground. I agree with the authors that the majority of glider pilots, under the normal stresses of "stretching" a glide would not perform this maneuver with the same precision as the test pilots under controlled conditions. Their advice is to fly at best L/D speed or best penetration speed if you have a headwind and hold this speed until you are ready to flare.

In the same light, I have been disturbed to hear in the past that some instructors have taught their students to perform a similar maneuver to "zoom" over obstructions during marginal approaches, then you should consider an alternate field. If this is not possible, then your best L/D or penetration speed will likely produce better results in your glide. Of course if you intend to hit the tree at 20 feet as opposed to 10 feet from the top, then by all means employ the "zoom" technique. Furthermore, if the wind is strong, your obstruction may present turbulent effects similar to those found downwind from ridges and really give you a chance to examine the lower branches! •