

# Winches

by Bernald S. Smith, SSF Trustee

There's been some recent discussion among some folks within SSA about the cost advantages of winch launching vs aerotow, spurred no doubt by the perceived rising prices of aviation fuel. (I note that at \$3/gal, auto fuel is relatively cheaper than when I first started to drive in the early 1940s.) It should be recognized that along with advantages, there may be disadvantages to winch launching, compared to aerotow. At least one important one is that of their relative safety, as reported by countries with extensive winch launch experience.

At the 2006 OSTIV Training & Safety Panel (TSP) meeting in Sweden, held during the World Soaring Championships, a paper was given by Hugh Browning describing experience with winch launching in the UK. It supported a several years earlier TSP meeting paper of a study by Austria of German glider towing, making a similar assertion: There are more fatalities during winch launch than during aero tow! There are more accidents on winch tow than on aero tow.

Below are the results from a private memo given to me by Hugh Browning: a UK report from a country very experienced in both aero towing and winch launching. It is very similar to the stats of the earlier report on the German experience. Here are some numbers:

## Analysis of UK Gliding Accidents - Hugh Browning

Number of accidents 1987 - 2004					
2.5 times as many winch launches as aerotows					
Method	Fatal	Serious Injury	Minor Injury	Write-off / Substantial Damage	Total Accidents
Winch	18	36	47	157	380
Aerotow	1	2	9	41	103
2.5x Aerotow	2.5	5	22.5	102.5	258
	Ratios fatal or serious injury	substantially damaged or destroyed glider	total accidents		
winch accidents	54	157	380		
(2.5x aerotow) accidents	7.5	103	258		
ratio winch to (2.5x aerotow)	7.2	1.5	1.5		

Normalized Aerotow : Winch Ratios

Fatal + serious injury  $7.5/54 = 1:7$

write-off/substantial crashes  $103/157 = 1:1.7$

The total accident rates, and the substantial/destroyed crash rates, are 50% higher on winch launches than on aerotows. More significantly, the fatal and serious injury winch launch accident rate is 7 times higher than the corresponding aerotow rate.

Thanks for the data, Hugh and BGA.

Does that mean winch launching is a too dangerous means of launching? When countries with such extensive winch launch experience have such a record, does that mean that there's no way to reduce accidents during the winch launching experience? Stay tuned.