(10)

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LAUNCH FAILURE ACCIDENTS

These accidents are on the increase and Bill, BGA director of operations, tries to establish their underlying pattern to give you and your club's management the know-how to avoid becoming a statistic

In the six year period from 1981 to 1986 launch failure was the second highest cause of accidents, accounting for almost 15% (127 out of 858) if all types of launch are considered. In the same period there have been three fatalities (out of 18) and nine serious injuries (out of 37) - 17% and 24% respectively. Worse, the trend is upwards - by 33%.

Where's the risk? A detailed analysis of the accidents is time taking; even though the data is on a computer interpreting it to the extent one would like is not possible. Out of 101 wire launch accidents 35 are to two-seaters which might indicate that teaching this exercise is a problem. What might be called early solo types (K-8, K-6, Pirat, Swallow and Sport Vega) account for a further 27 - an indication that inexperience may be a factor. In fact the average PI hours was 40 (excluding two pilots with 450 and 310 hours) and the average age 39 years. Obviously with relatively small numbers further statistical analysis is probably not valid but a number of critical phases are apparent.

The Initial Ground Run. The critical factor in this phase is failure to release when things start to go wrong. Just dropping the wing can lead to catastrophic results as the following summary shows:

Glider: Sport Vega	***Launch: winch***
Pilot: age - 40	***PI hours: 41***

During the ground run the wingtip touched the ground just as flying speed was reached. Pilot released but glider cart-wheeled and landed heavily on the nose coming to rest some 75 yards from the launch point.

Too late was the cry! The time to release is when the wing is going down and you can't stop it. The critical limit for a Vega (and similar) is reached much sooner than in a K-8 or K-6.

Another possibility is down to poor airfield organisation:

Glider: Sport Vega	***Launch: auto***
Pilot: age - 33	***PI hours: 37***

At the start of the launch the glider veered. Pilot released but failed to steer straight on the ground run. Glider collided with two parked gliders - its wheel brake was not working.

Who's fault was this one - the pilot or the launch point organiser or both? Is pilot experience relevant in this case?

The First 50ft. This phase of the launch is critical, in part because of the wind gradient and also the minimum safe climbing speed. Speed is gained from the power source (winch/towcar) and the wind gradient; what you gain on the way up will be lost on the way down and so a safe climbing speed should include a margin for this loss. Failure to do so gives the following scenario:

Glider: K-8	***Launch: winch***
Pilot: age - 41	***PI hours: 17***

After a normal initial launch the winch seemed to lose power. The glider was at 20-30ft when the pilot released but did not pick up enough speed to round out. The wing dropped and the glider cart-wheeled . . .

The pilot shouldn't have been there in the first place if there wasn't enough speed. Climbing hopefully simply isn't good enough!

Parachute too large

The Cable Parachute. Down the years there have been accidents due to foul-ups with the parachute. The factor common to all the accidents is a parachute which is too large. If, for any reason, the launch cable goes slack then the parachute will deploy. With power still applied the parachute will continue to climb (kite) and the glider either gets the 'chute over its nose or over the wing:

Glider: K-6CR	***Launch: auto***
Pilot: age - 33	***PI hours: 24***

Ground run and take-off were normal but speed decayed at about 20ft. Launch aborted by pilot and cable parachute deployed over glider's canopy. With vision obscured the pilot landed heavily.

Later in the launch the consequences can be much more serious:

Glider: K-6CR	***Launch: winch***
Pilot: age - 50	***PI hours: n/k***

After what appeared to be a normal early stage of the launch the cable released at approximately 300ft and went over the port wing. The glider was seen to turn to port before spinning steeply to the ground.

In fact the cable caught at the inboard end of the aileron as it slid down the wing with fatal results. Would the accident have been survivable, or even avoidable, if the pilot had gone straight ahead? The article "Flying Cable Parachutes" (S&G October 1984, p211) was simulated by this one.

Above the Critical Height. Is there a critical height above which the risks are minimal? Not so according to the accident data. The problems may arise due to haste or judgment or, rather a lack of it:

Glider: Swallow	***Launch: winch***
Pilot: age - 26	***PI hours: 21***

Winch launch failed at about 700ft. Pilot lowered the nose but used the airbrakes before getting sufficient speed. Glider landed heavily. Pilot known to have been flying in a fatigued condition.

If the airbrakes are opened too soon (the going-in-to-land-lever syndrome) one may never get flying speed. How heavy the landing will be is anyone's guess.

Flying a suitable pattern for a given height/position of break or failure can be quite difficult, especially if the site is a restricted one:

Glider: K-6E	***Launch: auto***
Pilot: age - 41	***PI hours: 31***

The pilot had a failed launch during his first flight on type. There was insufficient space to land ahead on the short runway in use so he turned to land crosswind on the long runway. Fast landing with drift hitting runway edge. . .

First flight on type is often critical; perhaps one way of easing the workload is to make the conversion in the easiest possible conditions.

If the crosswind landing is a problem what about downwind?:

Glider: K-6E	***Launch: winch***
Pilot: age - 64	***PI hours: 55***

Cable back released at about 350ft. Pilot attempted downwind landing, overshot and landed in rough heather and gorse.

Judgment of a downwind landing is difficult. If at your site it is a distinct possibility, then obviously it has to be included in the training.

The Launching Equipment. One final thought. Many clubs are still using 1000lb weak links and accepting a higher incidence of cable breaks than is reasonable. The stronger and appropriate strength of link considerably reduces the risk. It would be interesting to have some figures on the proportion of cable breaks to launches which is regarded as acceptable. What figures would you put on it - 1%, 2%, 5%?.