British Gliding Association

29 March 2010

Safe Spinning – Information for Instructors

Instructors are the key to the Safe Spinning campaign. I hope you can help us out. When you do any stall / spin training with experienced or inexperienced pilots alike, please bear these points in mind:

Aim

To develop safe flying habits in all phases of flight to avoid stalling and inadvertent spinning.

General

Please note that this initiative is not asking instructors to do anything that they have not been trained to do. The following is all based upon standard BGA stalling and spinning exercises. We are simply asking that instructors think a little about how they teach those exercises and the emphasis that is placed on various elements of training. Remember the safety side – HASSLL checks and situation awareness are as important as always.

Realism is the key here. The aircraft should never enter an attitude in which the P2 could not imagine themselves in 'real life'. Even a difficult to spin K13 can be made to do so with the nose below the horizon if enough rudder is used in a turn. Raising the nose to stall from straight flight and kicking in rudder is definitely 'out' unless you intend to enter an aerobatic comp!

As with all gliding instruction, this training should be fun, easy to understand and informative. I would love to encourage instructors to fly with each other or CFI / deputies to practice this stuff to make stalling and spinning a really good lesson for pupils.

Initial Stalls

Set up a realistic scenario, but don't go for the actual spin too quickly. Build it up from several approaches, pointing out the symptoms of the approaching stall and making sure P2 recognises them too. Make sure the pupil is as hands-on as possible, and encourage them to approach the stall themselves in various attitudes and bank angles.

Fit your scenario to your site – if it's a flat site, talk about over-ruddering final turns and overshooting those turns in a crosswind. At a ridge site – use getting close to the ridge and tightening the turn while over-ruddering as a scenario (obviously not actually close to the hill or on approach!). There are loads of creative scenarios you can make up. Just remember the safety aspects of height and distance from the airfield.

Compare each symptom to normal flight – sound of slipstream, attitude, control position and loads, string position, buffet, possible wing drop etc. Point out at this stage that simply easing the stick forward cures all ills. Once you have demoed, get P2 to try. (we are not spinning yet)

Spins

Much of the lesson prior to this point has been carried out. The above is in my opinion by far the most important bit. The actual spin is almost 'fire-fighting': "If you have got to this point, Bloggs,this is what you need to do to save the situation". Obviously the key here is the recovery, but another point of discussion is the reason that many don't practice spinning.

Whilst the key is recovery, it is very useful for P2 to feel what it is like entering the spin, as well as recovering themselves. It is bad practice for the instructor to initiate the spin and then hand over to the student to recover; much better to coach the student to enter and recover themself. They then get the full picture.

Anxiety and Adverse Sensation

It is vital that everything possible be done to make this a positive learning experience.

Lots of pilots are not comfortable with practicing spinning, even though statistics show that it's actually very safe. If you as an instructor are not confident, neither will be your P2. In this case it is best not to carry out any training before you have got back your confidence by flying with peers or more experienced instructors. Please be realistic and honest about this.

If your P2 is properly frightened of spinning, then unfortunately they will not be thinking very much about the spin and recovering, but more about their panic. Remember that most gliders will recover from a spin by releasing the controls. It is possible that the student simply relaxes and that will make the glider recover. Whilst the Puchacz and K13 will (for instance) do this, many other gliders will take a long time to recover in this situation. This often occurs if the instructor spins the glider and then hands over control.

One thing that may reassure P2 is a discussion of minimum heights during the pre-flight briefing, including a discussion of the likely per-turn height loss for a particular glider, etc. Never demonstrate a spin below a height that everyone on board is comfortable with. Apart from being potentially hazardous, your pupil will be concentrating more on the ground whirling round than listening to you! There is absolutely no need to frighten the pupil by spinning excessively low.

It is your duty to make sure that P2 knows the procedure for recovering from a spin, and it is a requirement that this is demonstrated at some stage in training. However, if a pilot approaches an instructor for instruction on how to avoid a spin, including practical demonstrations in the context of this campaign, but does not want to carry out full spins, then this is to be encouraged. It is certainly better than nothing at all.

Returning to the Airfield

Once down to a height where you would not wish to stall or spin, I would encourage a display of good practice on large margin flying. Perhaps get P2 out of position and talk P2 calmly through an alternative circuit as required. Make sure that there is no drama with this – land on an alternative runway or turn in early if safe practice dictates that this is the best option. The key here is to demonstrate that, even though things went awry initially, at no time did the aircraft get even near being low and slow. Ensure that final (if not all) turns are well coordinated, especially not over-ruddered.

Over-Ruddering Turns (Skidding)
One common fault that is thought to lead to spinning off turns is the dubious 'art' of the over-ruddered turn. Pilots seem to do this when under pressure, along with poor speed control. A possible cause of this fault is the visual effect of the lower wing which describes a forward track over the ground as we get lower, instead of backwards. This effect starts to occur around 200' – 150' depending on all sorts of factors. Pilots may automatically apply more rudder to try to remedy the apparent problem. This leads to the nose being lower on the horizon (due to yaw) than normal for the speed, which may be why speed control also suffers. They end up in an over-ruddered low, slow turn EVEN WHEN THE ATTITUDE LOOKS NORMAL (the string, of course is deflected well into the turn). Please be vigilant for this problem, especially when the pressure is high e.g. launch failure training.

Conclusion

Unfortunately there is no unifying phase of flight or technique that predisposes a pilot to a spinning accident. The only common element appears to be distraction from flying the glider. The other salient point that comes from the stats is that practicing is safe (compared to the number of number of serious accidents resulting from inadvertent spins). All we as instructors can do is to encourage our pilots to practice the sensations and symptoms that precurse the stall and spin, and make sure they are flying with nice large margins.

Thanks for your attention, and for hopefully taking part in this initiative. If you have any questions, I'm always available at mike@gliding.co.uk

Yours sincerely

Mike Fox
National Coach