ASG Soaring Safety Subjects

Air Sailing, inc.
RENO, NEVADA

Takeoff Tips

The following are a compilation of suggestions that came from multiple sources. Consider them as food-for-thought. Is there anything here that might improve your flying?

Checklists

A review of glider accidents reminds us that proper use of checklists is critical to safety.
Spoilers and canopies coming open are the leading causes of takeoff accidents and both are preventable with the proper use of a Pre-Takeoff checklist.
Don't allow yourself to be rushed thru this checklist. Consider physically touching or "challenging" each item (touch the altimeter, push on the canopy, point at the windsock, etc.). It is better to do the checklist once slowly and correctly than to "run" thru it mentally 2 or 3 times quickly.

Spoilers Open on Takeoff

There is no reason that spoilers coming open on takeoff should result in an accident. Be aware and psychologically prepared for the fact that this can and does happen; and the solution is simple, just close them.
Fatal accidents have occurred because tow pilots gave the rudder waggle signal shortly after takeoff and the glider pilots mistakenly released at altitudes too low to allow for a safe landing.

Canopy Opens on Takeoff

There is also no reason that a canopy coming open should lead to an accident. This does happen and you should be prepared for this eventuality on every takeoff. Remember that canopies are on-axis with the airframe. An open canopy does not result in any adverse yaw, pitch, or roll moment. It will add some drag which will reduce the L/D. It will be like flying with the spoilers partially open, something we do routinely. The accident risk is not the performance or the reaction of the glider, but rather, that of the pilot. Getting a face full of wind and noise can be disconcerting (ask me how I know this), but don't make the mistake of immediately and thoughtlessly pulling the release. If there is room to land straight ahead then fine, but if this occurs at 100-150 feet, you might want to hang on a few more seconds until a safe return altitude is achieved.
And then there is landing. Pilots landing while holding a canopy closed will soon realize that they must choose between holding the canopy or operating the spoilers. "Aviate" still comes first. Operate the spoilers to make a safe and proper landing. There have been accidents where a such a pilot "couldn't" operate the spoilers because they refused to release the canopy. They then landed long, hit something, and damaged their glider.

PT3 Events

During tow, you are a powered aircraft in a climb. It does not matter whether the rope broke or you pulled the release, you just lost your engine. You are nose up and losing airspeed. You are now a glider and need to act like one; you need to lower the nose immediately. The decision about whether to turn, or which way to turn, can wait. Lowering the nose after a PT3 event should be an immediate "pre programmed" response.

At this point there should be a special discussion about PT3 events occurring during a high wind takeoff. Remember that old flying adage "The airplane does not know that it is flying in a wind". You might want to think twice about this one. There is special danger with making fast downwind turns.

Imagine you are departing R21 into a strong wind of 15 Kts.

Glider stall speed = 38 Kts
AS = 70 Kts
Wind = 15 Kts
GS = 70 – 15 = 55 Kts (this is your kinetic energy speed)

PT3 event occurs and you attempt to return to the field with a 45º banked turn just like you were taught.

GS = 55 Kts (your kinetic energy speed is maintained during a perfect turn)
AS = 55 – 15 = 40 Kts
Stall speed = (38)*1.2 = 46 Kts

Do you see a problem here?

There is a reason for the emergency strip off of R21.
If a downwind turn must be made in a strong wind, then it must be performed with shallow bank angles so that the wind has time to accelerate your glider in the new direction. Doing so may allow you to complete the turn successfully, but now you will be heading downwind at low altitude with a high ground speed looking at a potential overshoot of the runway. Is your runway long enough to get away with this? Or should you just land straight ahead into the sage brush? These considerations should all be part of your "E" in your Pre-Takeoff checklist.

END