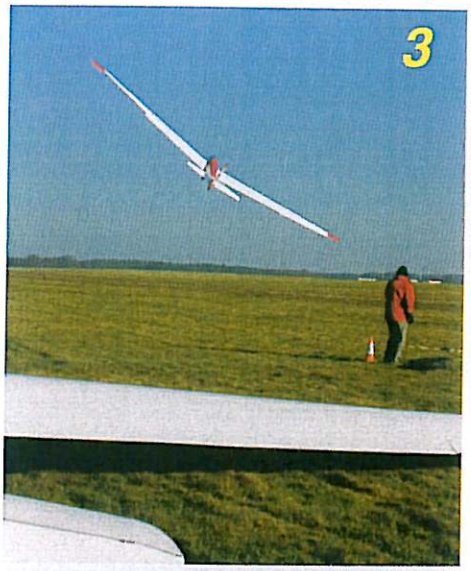
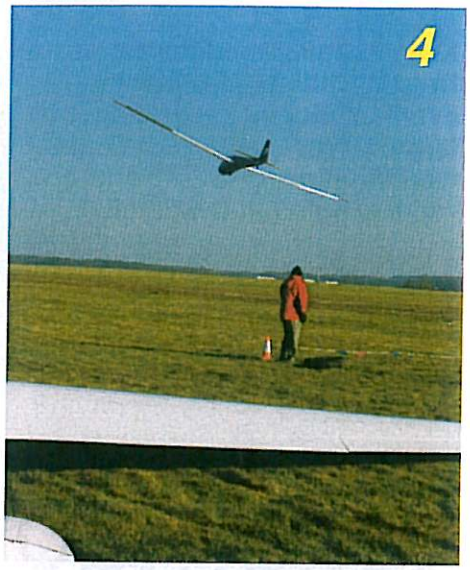
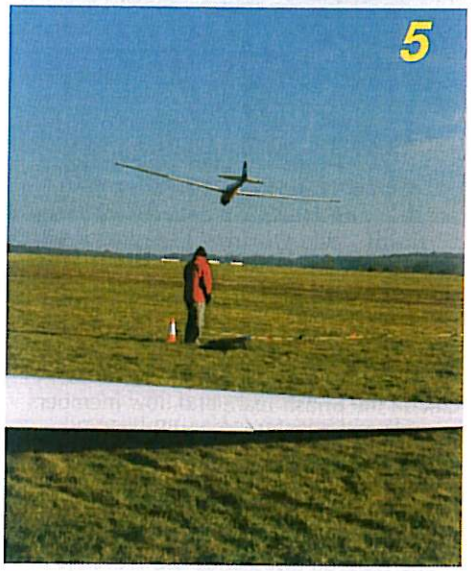
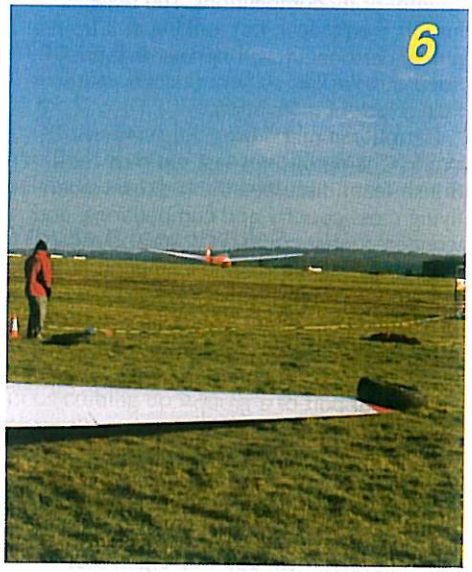
Six eventful seconds

A few weeks ago this incident made the pilot in command use all his available flying skills to prevent an accident – and Paul Haliday captured it in one-second time-lapse photos. Gordon MacDonald examines what was happening









1, 12:56:08: *The glider is not parked! The wing tip is on the ground and the main wheel of the glider is just about to leave the ground. Note that the ailerons and rudder are deflected to the left. Elevator neutral. The instructor has tried to release the cable but the knob slipped through his hand due to low-friction gloves and higher than anticipated release loads. If the cable was released before the wing touched the ground, the following would not have happened.*

2, 12:56:09: *One second later the pilot has now released the cable. The ailerons and rudder are fully deflected to the left, elevator down a bit. The glider has started to rotate around the lower wing tip. The upper wing is flying a lot faster than the lower wing, producing so much more lift that the ailerons are not effective enough to overcome the rolling motion.*

3, 12:56:10: *Ailerons, rudder and elevator appear fully deflected. The glider has turned 40° to the right of where it started. There is nothing more the pilots can do. They have to wait and see if the ailerons will be effective enough to level the wings, and hope they have enough airspeed to not stall into the ground.*

4, 12:56:11: *The ailerons start to work, but the glider is too slow to descend back through the wind gradient. Wind speed was 12-15kts, gusting more, from the left.*

5, 12:56:12: *Wings becoming level and attitude looking better. But is there enough airspeed to round out through the wind gradient? The glider has now turned 70° to the right since launch.*

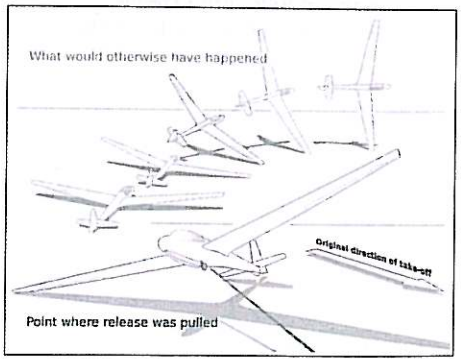
6, 12:56:14: *Wings level, rounding out successfully. Luck saved this situation. The glider has turned more than 90° to the right and the wind is 110° to the left of the glider. The wind gradient was less as a result.*

Some factors that are worth considering here:

– Crosswind component of at least 15° at the moment of launch. Makes a wing drop on take-off more likely.
– Student was unaware of the need to have his hand on the release. In a two-crew plane if a wing drops it is both pilots' job to release as soon as possible.
– The higher-than-anticipated release loads. With the cable being pulled forward the claw in the Tost release hook has to move further than if you release while the glider is in the full climb.
– The gloves used meant a tighter-than-normal grip was required on the release knob to overcome the lack of friction caused by the glove.
– Higher wind speed makes this more likely.
– High ground friction (soft earth) means when a wing tip touches the ground there is more friction, causing yaw and roll, which both make the situation worse.
– The wind chill factor for the day was –6°C. Very cold temperatures are known to slow down human reaction and response times. Bulky warm clothes do not help.

These accidents are rare and have been fatal as the front cockpit rotates around the wing into the ground, hitting it with very high energy. ***Your hand should be on the release. If you cannot keep the wings level, release immediately. This holds for aerotows, too.***

A big thank you to photographer Paul Haliday, and to the pilots for being so honest, enabling us to all learn from what happened that day.



For the BGA Safety Initiative's tips on what every pilot should know about safe winching, outlining other important hazards, look at the December 2005-January 2006 *S&G* (p26) or ask an instructor or your Chief Flying Instructor.

To learn more of the theory on wingdrops, get hold of Don Puttock's article, *Time for lateral thinking,* in the February-March 2006 *S&G* (p20), from which the above diagram by Steve Longland is taken.

Your hand should be on the release knob at the start of a launch. If you cannot keep the wings level, release immediately