

Glider Accidents in 2013



When we are flying a glider the potential for an accident is ever-present.

Although we can never completely eradicate this potential, we can all take simple steps to minimise the likelihood and mitigate the seriousness of gliding accidents.

This review of accidents occurring during the BGA 2012/13 year is designed to:

- highlight some of the main areas with serious accident potential
- offer advice about the steps we can all take to avoid repetition

Most serious and fatal accidents result from a small number of causes. These accidents occur over and over again. By understanding these and ensuring that they do not re-occur, we can make gliding significantly safer.



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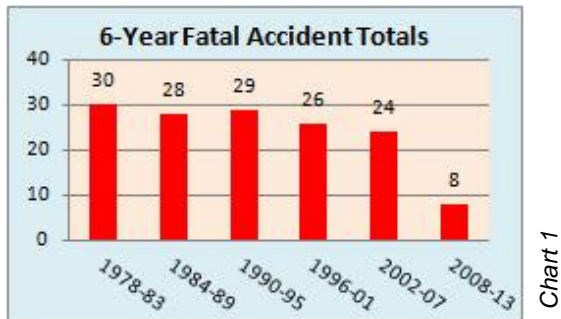


REVIEW OF ACCIDENTS IN 2013

Fatal Accidents

There were no fatal accidents in 2013 but there were 8 accidents which might have been fatal. These included two spins during the final turn, a winch launch with an unconnected elevator, a winch wing drop in which the cartwheeling glider fell the right way up rather than upside down, and a tug upset in which the tug pilot guillotined the rope and flew away from the ground 40ft below. The pilots involved were very fortunate.

Three of the last six years (2008, 2011, 2013) have been free from fatal accidents. Chart 1 indicates a total of 8 fatal accidents since 2008, compared with totals of 24 to 30 in previous 6 year periods.



About 25% of this reduction over the last 6 years can be attributed to fewer fatal winch accidents. Fewer collisions accounts for about another 25%.

What might the future hold? The BGA safety initiative has led to fewer winch stall/spin accidents. Fewer collisions might be attributable to FLARM but this may be a chance fluctuation.

No progress is being made in combatting winch cartwheels, or in reducing rigging errors. Inadvertent spins near the ground and tug upsets have continued. Fatal accidents will return if these short-comings continue.

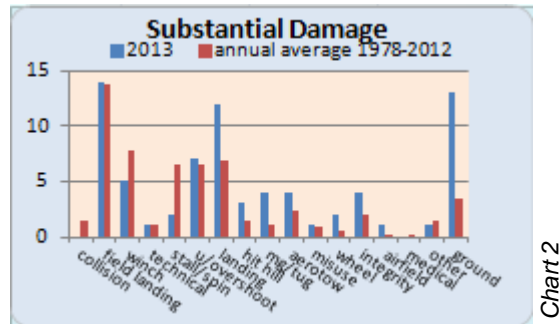
Serious Injury Accidents

There were 3 serious injury accidents in 2013:

- airbrakes opened on winch launch, pilot unaware, flew through hedge
- undershooting field landing, glider hit fence and drystone wall
- field landing, spin from final turn

Substantial Damage Accidents

Chart 2 shows the number of substantially damaged aircraft by accident category for the average year from 1978-2012, and for 2013. The most significant features for 2013 are fewer stall/spin accidents, nearly double the usual number of landing accidents, and 13 gliders damaged on the ground, for example by wind or when being towed.



Please read this review carefully and consider what you can do to anticipate hazards and prevent them resulting in an accident. We all have a role to play, whether club official, instructor, private owner or club member

ACCIDENT ISSUES IN 2013

1. Correct Preparation of Gliders for Flight (‘Glider Integrity’)

This issue has been highlighted in earlier annual reviews, on the BGA website, in messages to clubs and to private owners, and elsewhere. No progress is being made. The serious rigging shortcomings in 2013 were as follows:

- winch launch with unconnected elevator, glider destroyed
- pilot took glider to the launch point with the main spar pin on the seat
- flutter in flight due to disconnected aileron
- flight with one flap disconnected
- flight without a wing outer panel

Shortcomings in glider integrity usually arise from the universal human failings of distraction, forgetfulness, and making unwarranted assumptions. The launch without a connected elevator followed a derig to repair a flat tyre, a rig by a group, and incorrect assumptions the next day about the glider having had a DI.

If a group is rigging a glider, one person must be in charge, and be responsible for the task being completed correctly.

Carry out rigging, DIs, and pre-flight checks diligently, competently and WITHOUT INTERRUPTION OR DISTRACTION. If you are interrupted, go back to the beginning. As a bystander, do not interrupt people who are rigging, carrying out a DI, or conducting their pre-flight checks. If you are engaged on these activities and someone speaks to you, send them away. As an instructor or as a club official, try to develop a culture which makes everyone aware of the crucial importance of conscientious rigging, DIs, and pre-flight checks.

SHORTCOMINGS IN PREPARING A GLIDER FOR FLIGHT CAN BE LETHAL AND ARE COMPLETELY AVOIDABLE. Please ensure:

- *Rigging is directed by a person experienced on the type, in accordance with the flight manual, without interruption or distraction*
- *The DI is conducted by a person experienced on the type, without interruption or distraction*
- *You carry out proper pre-flight checks, again without interruption or distraction*

2. Inadvertent Spinning

Two experienced pilots (300 hours, 500 hours) spun from the final turn. Another pilot spun at 900ft on a trial lesson. In all three cases the workload was high.

The antidote is very simple: The first priority must ALWAYS be to FLY THE GLIDER , whatever the workload and distractions.

If the problems are intractable, but you maintain controlled flight to a landing, the glider may disintegrate around you, but you would expect to avoid injury.

Do Not Inadvertently Spin

3. Collisions

There were no collisions in 2013.

Although the last fatal glider-glider collision was in 2007, a collision in 2011 could easily have been a quadruple fatality, and a less athletic, less prepared, and less determined pilot might have died after the collision in a competition gaggle in 2012. Collision remains a serious hazard. FLARM may have contributed to the halving of collisions since 2008.

- *Are your club gliders fitted with FLARM?*
 - *Is your glider fitted with FLARM?*
- *Are you confident that your own lookout is adequately systematic and thorough?*

4. Safe Winch Launch Initiative

Winch Accidents in 2013

Although there were no fatal or serious injury winch accidents, there were 10 lesser accidents, one of which involved a wing drop and cartwheel. If the glider had fallen upside down when the wing was vertical the pilot may have been killed. In addition to this cartwheel, there were two other wing drop accidents.

Wing Drop/Cartwheel

The number of wing drop accidents in the last 8 years is almost identical with the previous 8-year average in spite of repeated exhortation to the pilot to release 'if you cannot keep the wings level'. This means BEFORE the wing touches the ground.

Some pilots may not discern that the wing is dropping. If this were always the case one would expect wing drop accidents at all levels of pilot experience. However, wing drop accidents are concentrated among experienced pilots.

In wing drop accidents the wing invariably drops immediately the wing-tip runner lets go. Wing-tip holding and running is a safety critical job which should only be undertaken after training. If the wing-tip holder feels an up or down force on the stationary glider he or she should stop the launch. The wing-tip holder should run with the wing once the glider has started to move.

Advice on how the wingtip holder and all other persons involved in a winch launch can contribute to a wings-level ground run is provided in the Stop the Drop presentation on the safe winch launch DVD, distributed earlier in 2013 to all instructors and clubs, and available on the BGA website at www.glidering.co.uk/safewinchlaunching.

Launch Failures

Four of the accidents in 2013 arose from a slow launch or a real cable break. These accidents would not have taken place if the winch engine/cable assembly had been reliable.

Winch Accidents 2006-2013

In the 8 years of the initiative there have been 5 fatal or serious injury winch accidents compared with a previous 8-year average of 24 (table 1, chart 3). This reduction stems from stall/spin accidents reducing from 19 to 2.

Fatal/ serious injury winch accidents	All	Stall/ Spin	Wing Drop	Other
Avg 8 years 1974-2005	24	19	1	4
2006-2013	5	2	3	-

Table 1

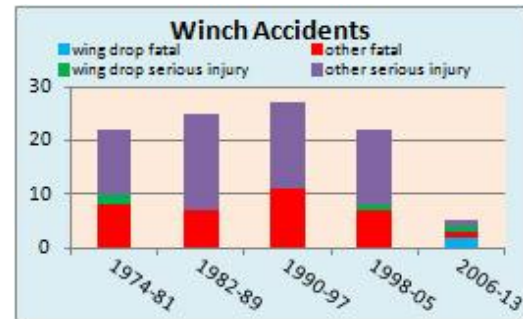


Chart 3

Safe winch launching requires :

- *avoiding stalls/spins during rotation or after a launch failure*
 - *a set-up that minimises the possibility of a wing drop*
 - *the pilot to release before a dropping wing touches the ground*
- *reliable winches and cable assemblies*

Further guidance is available in the leaflets distributed to clubs (also available at www.glidering.co.uk/safewinchlaunching). The website also contains video simulations of winch accidents.

5. Tug Upsets

Three tug upsets were reported in 2013. In the most serious incident the tug nose was tipped down at 100-200ft. The tug pilot guillotined the rope and was able to pull out of the dive at 40ft agl. Another upset was caused by the glider pilot pulling the trim lever to release and turning without having confirmed the rope had separated. The third upset was lateral.

Guidance on safe aerotowing, with particular emphasis on avoiding tug upsets is available in the leaflet that was distributed to clubs in 2013 and which can be downloaded from the BGA website. The website also contains video simulations of tug upsets.

As a glider pilot on aerotow, employ the correct vertical positioning technique, give your full attention to flying the glider and, at release height, make sure the rope has detached before turning.

6. Trial Lessons

In order to minimise risk to members of the public it is BGA policy that trial lessons should be adequately supervised, flown defensively (eg no gaggles), and only take place in benign weather conditions.

These requirements were not always met in 2013 which saw 11 reports of accidents and incidents on trial lessons with 3 gliders substantially damaged.

One trial lesson in 2013 took place on a winch launch in a 90 degree crosswind which was followed by an inadvertent spin at 900ft. Another trial lesson was flown above 5/8 cloud at 1700ft. The pilot was subsequently unable to locate the home airfield.

*Glider pilots - do you need to refresh your aerotow technique?
Tug pilots - if you are losing control of the tug do not hesitate to
dump the glider.
Please read the Safe Aerotowing leaflet and other information at
www.glidering.co.uk/safeaerotowing*

*Club CFIs and chairmen: please ensure all trial lessons are
adequately supervised, postponed if conditions are adverse,
and flown in a manner that minimises risk.*

SAFE GLIDING

Over 80% of the accidents that result in severe personal injury or damage stem from the causes shown below:

ACCIDENT AREA	PRINCIPAL CAUSE	ACTIONS FOR FEWER ACCIDENTS	ACCIDENT AREA	PRINCIPAL CAUSE	ACTIONS FOR FEWER ACCIDENTS
Winch Launch	1. Stall/ spin	1.Follow guidance in leaflets for safe launch profile and actions following a launch failure; reliable equipment	Collision	Inadequate lookout	Better lookout FLARM
	2. Cartwheel	2. Correct set-up; release BEFORE a wing touches the ground	Integrity	Rigging incomplete	Rig without interruption or distraction
Stall/spin, excluding winch launch	Overload, distraction	FLY THE GLIDER, whatever the workload and distractions	Tug upsets	Poor technique	Better training
			Landing (home airfield)	Poor technique	Better training
			Field landing	Field picked too late	Pick a field in good time.

Are you aware of these potential accidents? Do you need to re-train or change your behavior to remain safe?
Please consider, and act accordingly.

APPENDIX—SUMMARY OF SUBSTANTIAL DAMAGE ACCIDENTS IN 2013 BY CATEGORY

CATEGORY	TOTAL	CIRCUMSTANCES
Winch	5	<p>Wing drop, cartwheel, glider fell right way up</p> <p>Wing drop, P1 released, P2 lowered nose too much</p> <p>Wing drop, late release, groundloop</p> <p>Slow launch, back released, heavy landing</p> <p>Launch failure 100-200ft, glider flew into the ground at 70kt</p>
Field Landing	14	<p>Ridge soaring, very low, approach over trees, wing hit ground while turning</p> <p>Overshooting, turned $\frac{3}{4}$ way down the field, groundloop</p> <p>Downwind landing, went through far hedge, straddled country lane</p> <p>Undershooting glider went through barb-wire topped wire mesh fence, into a drystone wall, and then became entangled in a second barb-wire topped fence. SERIOUS INJURY</p> <p>Pilot lost, concerned about proximity of controlled airspace, field landing in crop</p> <p>Field landing on ridge and furrow</p> <p>Late attempt to start turbo, too low to plan and execute a field landing, impacted the ground wing down</p> <p>Descent through cloud; very low as ground came into view, landed on hill top</p> <p>Approach through leese side rotor, groundloop</p> <p>Out of range of airfield, wing hit ground in attempted field landing</p> <p>Released from tow, sink, disorientated, wing hit ground attempting field landing</p> <p>Overshot into hedge</p> <p>Heavy landing</p> <p>Groundloop</p>
Technical	1	Undercarriage collapsed during normal landing; overcentre mechanism incorrectly set up
Stall/ Spin	2	<p>Glider spun during the turn from base to final</p> <p>In circuit to field, went elsewhere seeking lift, returned to original field very low, spun from final turn. SERIOUS INJURY</p>
Under/ Overshoot	7	<p>In Italy, final glide, thunderstorm, crashed into trees 100m from airfield</p> <p>Instructing flight, approach, hit sapling in boundary hedge</p> <p>Instructing flight, low circuit, landed in a field, downwind, downhill</p> <p>Final glide, sink, landed 2km from the airfield</p> <p>Undershooting, slow, wingtip caught in crop, groundloop</p> <p>Overshot runway, wing hit tree</p> <p>TMG, heavy landing, prop strike</p>

CATEGORY	TOTAL	CIRCUMSTANCES
Landing	12	<p>Low circuit, turning at low level, wingtip hit ground</p> <p>Slow approach, heavy landing, bounce, wingtip hit ground, pilot trapped in fence</p> <p>Fast approach, glider flown into the ground, bounced, slewed round</p> <p>Glider taxied into parked vehicle</p> <p>Soaring, sink, low circuit, overshoot, hit post</p> <p>Hard landing following PIO on roundout</p> <p>Tug, heavy landing, prop strike, undercarriage collapse</p> <p>Approach towards launch point, no correction, bounced landing, hit launch vehicle</p> <p>Heavy landing (2)</p> <p>TMG, heavy landing, prop strike (2)</p>
Hit Hill	3	<p>Ridge soaring, turned towards hill, turned back into wind, insufficient height to clear the edge, landed on top of hill, rolled down slope into a fence</p> <p>Silver distance attempt ridge soaring, low, sink, wingtip clipped a tree, glider hit hill</p> <p>Ridge soaring, glider forced onto fell by downdraft</p>
Motor Glider/ Tug	4	<p>TMG go around, engine failure, no options ahead, turned back, runway occupied, landed on soggy ground, tipped onto nose</p> <p>TMG touch and go, P2 advised P1 they had picked up a winch cable, heavy landing</p> <p>TMG take off, left runway in crosswind</p> <p>Self launching glider, touch and go, groundloop into crop</p>
Aerotow	4	<p>Tug engine failure at 150', tug came to rest inverted after hitting a hedge</p> <p>Tug engine failure after take-off, tug pilot manoeuvred to land between lines of trees</p> <p>Glider wing hit control vehicle during ground run</p> <p>Glider wing drop on ground run, groundloop into car</p>
Misuse of Controls	1	Using undercarriage lever as airbrake, flew 2 lengths of the field, wing hit ground in 3rd turn
Wheel-Up Landing	2	During field landings (2)
Glider Integrity	4	<p>Glider took off with the elevator disconnected; the glider was rigged by a group of visitors without any single person taking responsibility; no positive control checks and no DI.</p> <p>Airbrakes opened during winch launch, unnoticed by the pilot; abbreviated circuit onto a cross runway but flew through a hedge before landing sideways. SERIOUS INJURY.</p> <p>Trial lesson, P1 not aware brakes had opened on winch launch, landed in a small field, groundloop to avoid running into a hedge.</p> <p>Canopy opened & shattered during flight.</p>

CATEGORY	TOTAL	CIRCUMSTANCES
Airfield	1	Landing glider ran into partially buried stone
Other Flying	1	Glider ditched in sea after failing to soar coastal cliffs
Ground	13	Glider blown over by wind (5) Glider damaged while being towed by car (4) TMG, taxi, tailwind gust, prop strike. Tug taxied into parked glider Elevator struck door, hangar packing Glider fell off trolley

Note: 'Motor Glider/ Tug' accidents are confined to those which do not fit into another category (eg stall/spin, landing)





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