

# Safety Briefing



## Accident Review 2014

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.

Most fatal and serious injury 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.

**This review of accidents occurring during the BGA 2013/14 year is designed to:**

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



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# Accident Review 2014

## Fatal Accidents

### Fatal accidents in 2014

The one fatality in 2014 was from an overshooting approach followed by a low level turn and inadvertent spin in an ASW 20. The accident is being investigated by the AAIB.

### Fatal accidents 1974-2014

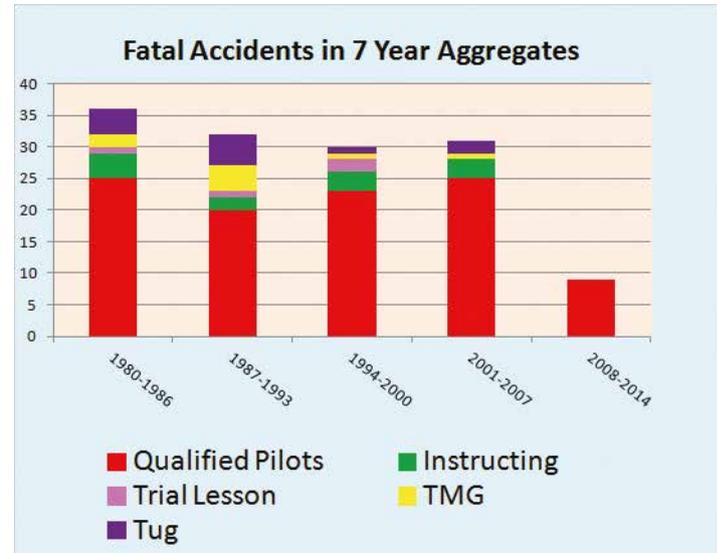
One fatal accident is one too many but represents a continuation of the decline that began in 2008. Chart 1 shows there were 9 fatal accidents in the 7 years since 2008 compared to between 30 and 36 fatal accidents in previous 7-year periods. 60% of this reduction stems from fewer fatal accidents to qualified pilots, half of which is accounted for by fewer fatal winch accidents and fewer fatal collisions. 40% stems from no fatal accidents instructing, in a tug or in a TMG.

### Potential Fatal Accidents in 2014

In slightly different circumstances there could easily have been further fatalities in 2014, including from collisions, from incompletely rigged gliders, from a tug upset, and from a cartwheel on landing.

A single fatal accident is a tragedy for the family. It is inevitable that serious injury and fatal accidents attract external controls, regulation, and jeopardise our freedoms.

Chart 1



## Serious Injury Accidents

### There were 4 serious injuries in 2014:

- high approach, full flap & airbrake, glider stalled at 10-12ft
- tug engine failure, tug landed safely, glider wing hit tree
- mid-air collision between two gliders, serious injury to parachutist
- glider touched down, then climbed at angle of 30°-40°, stall from 10-12ft

### The priorities for avoiding future fatal and serious injury accidents are:

- no collisions
- no inadvertent spins
- rig correctly
- safe winch launches
- continuation of no fatal accidents instructing, in tugs, and in TMGs.

## Safety Issues

Collision, inadvertent spins (many while field landing), improper rigging, winch launches, and tug upsets account for over 70% of all fatalities since 1974. Winch accidents are under control. The others are not. Please take heed of the following advice on avoiding these accidents, and do everything you can to persuade other gliding club members to heed that advice.

## Collision

There were 4 glider-glider mid-air collisions in 2014. Two of the gliders were 2-seaters so 10 pilots were vulnerable. 5 pilots bailed out. Although 21 pilots had died in the 44 earlier glider-glider collisions since 1974, no-one died from these 4 collisions.



Photograph courtesy of Martin Boss

Avoid collision by **SITUATIONAL AWARENESS** and **INTENSIVE LOOKOUT**. **FLARM** can be very effective as an aid to lookout, but it cannot replace **SITUATIONAL AWARENESS** and **INTENSIVE LOOKOUT**. Please review the BGA advice on getting out after a collision ([www.gliding.co.uk/safety/documents/parachuting\\_collision.pdf](http://www.gliding.co.uk/safety/documents/parachuting_collision.pdf)).

Your life may depend on taking the correct actions immediately.

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## Glider Integrity

Shortcomings in preparing a glider for flight can be lethal. In many recent publications the BGA has advised that rigging, DIs, and pre-flight checks must be carried out meticulously and without interruption or distraction.



Flight with unconnected elevator

No progress is being made. 6 gliders were flown in 2014 when incompletely or incorrectly rigged, a similar total to that in recent years:

| Year | Rigging Errors/Omissions | Canopy Opened in Flight | Loose Articles, Airbrakes Open, etc |
|------|--------------------------|-------------------------|-------------------------------------|
| 2014 | 6                        | 7                       | 4                                   |
| 2013 | 6                        | 3                       | 4                                   |
| 2012 | 4                        | 11                      | 4                                   |
| 2011 | 6                        | 7                       | 6                                   |
| 2010 | 6                        | 5                       | 5                                   |

### The 6 rigging errors in 2014 were:

- 3 elevators not connected
- 1 missing main wing pin
- 1 airbrake unconnected
- 1 mis-rigged trim

## Inadvertent Spin

One design configuration accounts for 60% of the flights since 1974 with an unconnected elevator:

| Total 1974-2014             |    |
|-----------------------------|----|
| ASW19/20, Pegase, PIK 20B/D | 21 |
| 150 other types             | 13 |

In some recent instances of incomplete rigging the pilot interrupted the normal rigging sequence, for example because it was raining, or to move the glider. A resulting unconnected control should be detected during the subsequent DI. Do you always DI your glider before flight? Some pilots do not.

The incidence of rigging and other errors in preparing a glider for flight would decrease if it were to become socially unacceptable to interrupt a person who is obviously engaged in rigging, DI, or pre-flight checks. CAN YOU HELP to create this culture in your club?

Inadvertent spins usually occur to experienced pilots in circumstances of high workload and distraction when the pilot momentarily ceases to give absolute priority to controlling the glider.

Whatever the workload and distractions, FLY THE GLIDER. 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.

### Always DI a newly rigged glider.

If you are interrupted while rigging or conducting a DI, send the person away. If you are interrupted during pre-flight checks, send the person away, and go back to the beginning.

As a bystander, never interrupt people who are rigging, carrying out a DI, or conducting their pre-flight checks.

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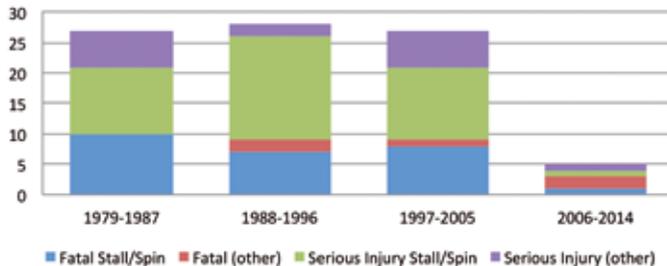
## Winch Accidents 2006-2014

In the 9 years of the safe winch launch initiative there have been 5 fatal or serious injury winch accidents compared with a previous 9-year average of 27 (chart 2). This reduction stems from stall/spin accidents reducing from a 9-year average of 22 to 2:

|                           | All | Stall/Spin | Wing Drop | Other |
|---------------------------|-----|------------|-----------|-------|
| Average 9-years 1974-2005 | 27  | 22         | 1         | 4     |
| 2006-2014                 | 5   | 2          | 3         | 0     |

Chart 2

Fatal & Serious Injury Winch Accidents



No-one was injured on a winch launch in 2014. There were 4 wing drop reports but in each case the pilot released before a cartwheel developed.

Well done everyone! But efforts to maintain safe winch launching are essential if we are to avoid future serious winch accidents.

Do you have a personal copy of the leaflet and the booklet which provide guidance on safe winch launching? If not, please obtain copies from your club. The BGA can supply clubs with hard copies on request. The documents can alternatively be downloaded from the BGA website at: [www.glidering.co.uk/safewinchlaunching](http://www.glidering.co.uk/safewinchlaunching)

### The essentials for safe winch launching are:

If you have difficulty in keeping the wings level before take-off, release before the wing touches the ground

After take-off, maintain a shallow climb until adequate speed is seen with continued acceleration. Then allow the glider to rotate at a controlled pace. If power is lost near the ground, immediately lower the nose to the appropriate recovery attitude

After power loss in mid launch, adopt the recovery attitude, wait until the glider regains a safe approach speed, and land ahead if it is safe to do so.

If you are an instructor, please keep reinforcing the guidance on safe winch launching, not just to trainees but also to experienced qualified pilots.

## Tug Upsets

There were two tug upsets in 2014. One was at 50ft and caused the tug to hit the ground in a 45° dive.

In a vertical tug upset the glider gets high behind the tug and the tug nose is forced down. The slingshot vertical upset is particularly dangerous. If the glider pilot is low in relation to the tug and the pilot moves back into position too quickly the glider in effect does a winch launch behind the tug which tips the tug into a vertical dive.

**The BGA published a leaflet on safe aerotowing in 2013.**



Do you have a copy of this leaflet? If not, please obtain a hard copy from your club or download a copy from the BGA website at:

<http://www.gliding.co.uk/safeaerotowing>

**The boxed guidance indicates how to keep safe on an aerotow:**

If you are inexperienced, do not aerotow on a belly hook and do not aerotow in turbulent conditions.

Maintain the correct vertical position of the tug in the canopy. Do not allow the glider to get too high.

If you are too low behind the tug shortly after the tug take off, or at any other time, move back into position SLOWLY. Being lower than the tug is not dangerous. An upset can follow if you pull up quickly.

Release immediately if the glider is going high and the tendency cannot be controlled or you lose sight of the tug.

Fly the glider! Leave any potentially distracting problems with instrumentation or ventilation until after release. Leave the undercarriage down.

At release height, is it clear? Pull the release, visually ensure the rope has separated from the glider, and raise the nose slightly before making a turn.

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## Appendix – Fatal, Serious Injury & Substantial Damage Accidents in 2014

| Category       | Accidents | Circumstances   |
|----------------|-----------|---|
| Collision      | 5         | Mid-air collision in local thermal at 2600ft. Discus pilot bailed out. Arcus landed with severe damage to the tail.               |
|                |           | Mid-air collision on local ridge at 1600-2000ft. ASW 19 pilot bailed out with SERIOUS INJURY from ground impact. Mosquito landed. |
|                |           | Mid-air collision in thermal during competition at 4500ft. Discus pilot bailed out. Lak 17 landed.                                |
|                |           | Mid-air collision at 4000ft awaiting competition start. Both pilots of the Twin Acro bailed out. Cirrus landed.                   |
|                |           | Fin, rudder, and elevator of a Discus in a thermal were damaged by rope attached to a descending tug. Both aircraft landed.       |
| Field Landing  | 14        | Hit fence post at low speed during landing  |
|                |           | Landed into wind across narrow field, overshot into gully.  |
|                |           | Undershot (2)   |
|                |           | Local soaring, drifted downwind, groundloop in crop field   |
|                |           | Downwind from airfield, strong sink, landed in crop field   |
|                |           | Glider damaged crossing a ditch in the chosen field   |
|                |           | Turbo engine failed to start, landed downwind, overshooting, groundloop   |
|                |           | Went through far boundary   |
|                |           | Landing in rape stubble   |
| Groundloop (4) |           |   |

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| Category   | Accidents | Circumstances   |
|------------|-----------|---|
| Winch      | 2         | Simulated launch failure, smooth landing, P2 turned the glider away from winch cables but rolled into a ditch.  |
|            |           | Experienced pilot not current at winch launching landed at a winch-only club, took a launch, wing dropped, glider started to roll as it took off, pilot released, heavy landing and groundloop. |
| Stall/spin | 6         | Undershooting in sink, stalled into the boundary wall   |
|            |           | P2 rounded out high, stall at 6ft.  |
|            |           | Over threshold at 1000ft, full brake and flap, stalled at 10-12ft, SERIOUS INJURY   |
|            |           | Landing, trees ahead, turned, spun, FATAL INJURY  |
|            |           | Landing, touched down, climbed steeply, stall from 10-12ft, SERIOUS INJURY  |
|            |           | Smooth landing, lifted off, pitched down from 6ft.  |
| Undershoot | 3         | Low circuit, hit tree on approach, crashed into car park 200m short of the landing area   |
|            |           | Too low for a normal circuit, landed in crop short of an alternative runway   |
|            |           | Undershooting approach, wing hit bank   |
| Landing    | 7         | Heavy landing in TMG  |
|            |           | P2 rounded out high, heavy landing  |
|            |           | Heavy landing (3)   |
|            |           | Too high, 360° turn, too low, approached to land across airfield, turned away, groundloop in field  |
|            |           | Landing glider collided with vehicle  |

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| Category         | Accidents | Circumstances   |
|------------------|-----------|---|
| Aerotow          | 6         | Loss of control during take-off, release, the glider impacted nose down.  |
|                  |           | Wheel up landing after aborted aerotow.   |
|                  |           | Trial lesson, tug engine failure, glider wing hit tree, SERIOUS INJURY to the instructor.                                   |
|                  |           | Just after take-off the glider wing dropped to the ground, glider landed sideways.  |
|                  |           | 1st launch on type, tug upset, tug impacted the ground 45° nose down from 50ft.   |
|                  |           | Heavy landing following aborted launch  |
| Wheel            | 4         | Wheel up landings (4)   |
| Glider Integrity | 3         | Wings fell off during landing ground run. The pilot was distracted during rigging & failed to insert the main spar pin      |
|                  |           | Crashed inverted from winch launch with unconnected elevator  |
|                  |           | Aerotow, brakes open, tug pilot brought glider back to airfield, waved off high, glider clipped hedge, very heavy landing   |
| Other Flying     | 2         | TMG, uncommanded roll after take-off, flight abandoned at 10ft  |
|                  |           | Glider crashed inverted from cartwheel after failing to roll out of a low level turn from downwind leg onto final approach. |
| Ground           | 8         | Towing out, hit fence/car/another glider/pedestrian (4)   |
|                  |           | Taxiing TMG damaged wing of parked glider   |
|                  |           | Changing ends, winch cable wound in, caught aileron of stationary glider  |
|                  |           | TMG, prop strike during taxi  |
|                  |           | Damage to glider during transit in trailer  |



Photograph courtesy of Pete Benbow



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[www.agcs.allianz.com](http://www.agcs.allianz.com)



Phone: 01765 690777 Fax: 01765 690544  
[www.hillaviation.com](http://www.hillaviation.com)