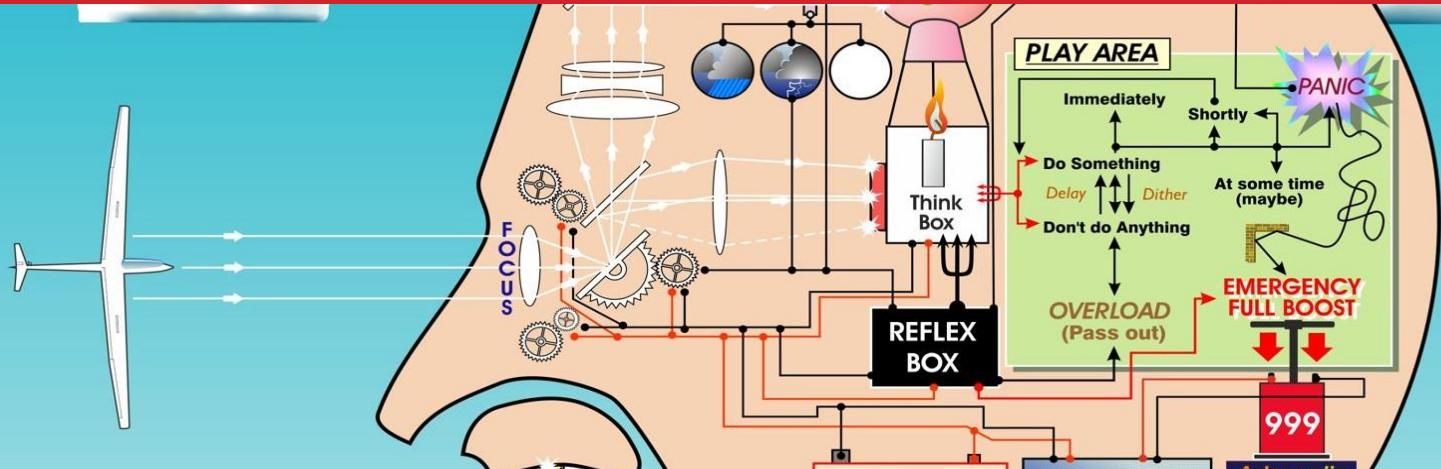


Safety Briefing



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This booklet offers guidance on how everyone can help to avoid accidents. The detail is relevant to all glider pilots, regardless of experience. Please read it carefully.



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CONTINUING SAFETY GUIDANCE

Safety Information

[MANAGING FLYING RISK](#) contains new guidance including:

- supervision of unqualified pilots
- keeping safe and legal when hill, ridge, and mountain flying
- safe soaring by visitors to challenging sites
- avoiding tug upsets

Please study and adopt the recommendations in Managing Flying Risk and the other safety publications on the BGA website.

BGA website safety Information links

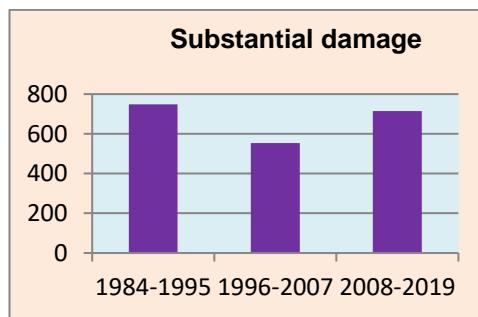
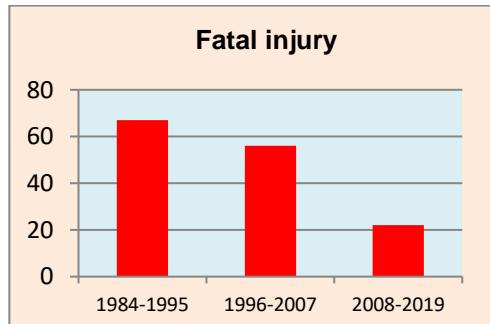
Click on the following BGA website links for safety information that is supplied for all pilots and instructors to use to learn about or refresh on important safety topics;

- [Safety home page](#)
- [Managing Flying Risk](#)
- [Safety Briefings](#)
- [Collision Avoidance](#)
- [Safe Winch Launching](#)
- [Safe Aerotowing](#)

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THE 12 YEAR PERSPECTIVE

The year 2008 was the first year since at least 1974 without a gliding fatality and in the 12 years since 2008 there were fewer BGA fatalities than in the previous 12 years. This reduction stems largely from fewer collisions which may be associated with the widespread adoption of FLARM, and fewer winch launch accidents. Serious injuries have also declined but the substantial damage total since 2008 is more than in the previous 12-year period. The charts provide 12-year totals.



Avoiding fatal and serious injury is of course much more important than avoiding broken gliders but the latter affects all of us through insurance premiums. It would seem many of the accidents in 2019 could have been avoided. Please read the summaries in the appendix on page 8 and see if you agree.

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ACCIDENTS IN 2019

The 169 reports included two fatalities, four serious injuries, 13 minor injuries, 56 substantially damaged aircraft, and 46 instances of minor damage to aircraft.

The accident rates in 2019 were similar to the new lower rate since 2008.

	Fatal	Serious injury	Substantial damage
2019	2	4	56
2008-2018 annual average	1.8	4.5	60

FATAL ACCIDENTS

A standard Cirrus tailplane detached on the aerotow ground run and the glider dived into the ground. The other fatality followed incapacitation from a heart attack in flight.

SERIOUS INJURY ACCIDENTS

A pilot suffered multiple injuries when mountain flying. A pilot emerged from cloud and hit a hill. A pilot was late to lower the undercarriage and bounced. A trial lesson visitor tripped and fell while disembarking from a glider.

TRIAL LESSONS/INTRODUCTORY FLIGHTS

A visitor tripped and fell (above). A very serious incident took place when the pilots conducting a trial lesson and an instructing flight twice took sudden evasive action to avoid each other at about 900ft. A pilot conducting a trial lesson landed out after getting lost.

In the other trial lesson reports:

- glider turned at 3000ft without releasing and put a Pawnee into a vertical dive
- canopy opened in flight
- landed out
- aerotow taking off, tug pilot suddenly confronted by taxiing visitor, released the glider and flew over the obstacle

It is crucial for many reasons that trial lessons are conducted safely. If you are an instructor, please re-read section 10 of [Managing Flying Risk](#). This contains guidance on many aspects of keeping safe on flights with passengers.

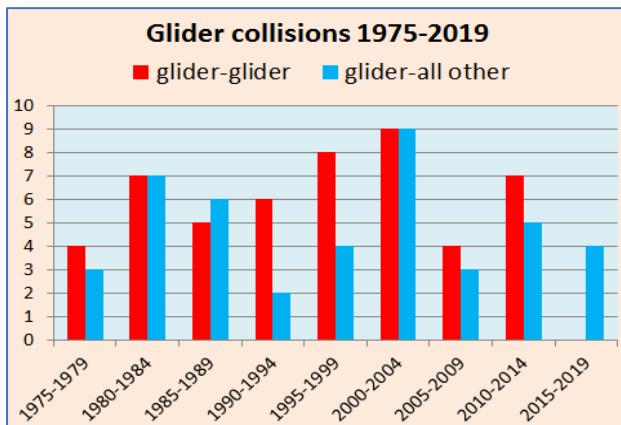
The requirement that the safety of the passenger or student is paramount means the conditions may not be suitable for these flights even though club flying continues.

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ACCIDENTS IN 2019 BY CATEGORY

Collision

There were no collisions in 2019. The last glider-glider collision was in 2014. Since then gliders have collided with a light aircraft, a tug, a tug rope, and a vulture, but not with each other:



Could the lack of glider-glider collisions in the last 5 years be due to widespread adoption of FLARM?
Quite possibly.

Collision continues to be a threat to life. Please review the BGA documents [collision avoidance](#), [soaring protocol](#) and what to do [after a collision](#) and BE PREPARED!! The [G. Dale account of his bail out is very instructive](#).

Winch

Although there were no fatal or serious injury accidents, a 78-year-old pilot allowed the glider to spin after a weak link failure. This was fortunately followed by a recovery and a safe landing. There were 2 substantial damage accidents in 2019.

4 of the 9 fatal or serious injury accidents in the 14 years of the BGA safe winch launch initiative were from a wing drop and cartwheel. Damage accidents from wing drop have continued at the previous rate. The overall reduction in winch accidents comes overwhelmingly from fewer stalls and spins.

An updated safe winch launch booklet will soon be available on the BGA website. It contains a new section on how a team effort by everyone involved in the launch can help to avoid a wing drop. *Please secure a personal copy of this booklet and follow the guidance.*

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Aerotow

There were 7 tug upsets in 2019 of which 6 involved a slingshot and 5 followed distraction of the glider pilot. Three upsets followed a turn by the glider pilot without having confirmed the rope had separated.

There have been 20 low level upsets in the last 20 years, 13 of them after a non-threatening distraction, for example an instrument not switched on, or a noisy clear vision panel. 10 of these gliders were on a belly hook, and 12 of these gliders did a slingshot behind the tug.

BGA clubs were very fortunate that none of these incidents killed a tug pilot.

The glider pilot has the life of the tug pilot in his/her hands. To keep the tug pilot safe:

Glider pilot

- Give absolute priority to maintaining position on tow
- Ignore distractions
- At release height visually confirm separation

Tug pilots

- Dump the glider immediately if you are losing control of the tug

Instructors

- Teach the imperative of maintaining position
- Restrict the glider to known safe lateral displacement

Please review the published guidance on [safe aerotowing](#).

Stall/Spin

The 6 stalling accidents resulted in substantial damage, but they were all at very low level and did not result in fatal or serious injury.

Potentially fatal inadvertent stall/spin accidents occur predominantly to experienced pilots in circumstances of high workload and stress. Take early action to reduce workload and stress and avoid a state of denial ('I never land out').

Glider integrity

The Cirrus fatality may have involved mis-rigging. The AAIB are investigating.

It has been repeatedly stressed that rigging should be conducted without interruption or distraction. A pilot engaged in rigging was asked to move his partly rigged glider. He complied and fortunately

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noticed the insecure tailplane while towing to the launch point. Do not interrupt a pilot engaged in rigging!

Other shortcomings in rigging included a winglet becoming detached on the ground, a glider flown with an unconnected aileron, and a locking pin, a drag pin, and a wing fitting found to be insecure.

7 canopies opened in flight. 5 incidents involved loose articles of which 3 were batteries. One battery flew past the pilot and smashed through the canopy while landing in crop. 3 gliders were flown with airbrakes open, and one with a tail dolly attached.

The following guidelines have been repeatedly published in recent years:

- Rigging should be directed by a person experienced on the type, in accordance with the flight manual, without interruption or distraction.
- A newly rigged glider should always have a daily inspection (D.I.) which should be conducted by a person experienced on the type without interruption or distraction
- A newly rigged glider should always have

positive control checks. It is essential for positive control checks to be carried out every time for every rigging of a glider without automatic control connections

- The pilot should carry out proper pre-flight checks, again without interruption or distraction

Please follow this advice

Landing

Landing accidents rarely cause injury but account for many instances of substantial damage. There were 11 substantial damage landing accidents in 2019, compared with 5 in 2018.

Field landing

There were 7 substantial damage accidents, half the previous the long-term annual rate, and the first year when field landing substantial damage has not been about twice the total in the next highest category.

Field landings rarely cause personal injury unless the pilot stalls in the final turn or on the approach. But the broken gliders affect insurance premiums.

Pick a field early!

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Other significant accidents and incidents

7 gliders were substantially damaged from an undershoot or overshoot. Two pilots used the undercarriage lever as the airbrake while landing. A TMG pilot could not keep straight on landing because his right foot was partly on the adjacent left rudder pedal. Three TMGs suffered engine failure.

Accidents unconnected with flight

Four gliders were substantially damaged while towing out. This is a considerable improvement on the 10 in 2018. A tug tipped on its nose during an engine run. A taxing tug hit a glider. The 17 other accidents and incidents on the ground are listed in the appendix.

These accidents are expensive and avoidable!

Technical issues

There were 5 reports in 2019 of an aircraft component breaking or not working as intended, dramatically fewer than the 17 in 2018.

APPENDIX – ALL ACCIDENTS AND INCIDENTS IN 2018

Injury is indicated as F, S, M for fatal, serious, minor.

Damage is indicated as S or M for substantial or minor.

A single M or S refers to damage. S includes destroyed.

Collision

None

Winch

There were 6 accidents /incidents

- Simulated launch failure at 200ft, hit a mound MS
- Recovered from aborted slow launch, retracted wheel instead of opening the airbrakes.
- Simulated launch failure, parachute hit wing M
- Launch failure, landed ahead, groundlooped in adjacent crop S
- Weak link failure, inadvertent spin,

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- recovered from spin, landed
- Simulated launch failure, landing ahead, P2 turned, wing bounced off the ground

Stall/spin (not associated with winch launches)

The 6 accidents were:

- Crash into trees while ridge soaring S
- Slow, low final turn, stalled during round out S
- Stalled at 5ft while landing MS
- Field landing, stalled from 8ft S
- TMG stalled landing after ballooned landing in strong wind S
- PIO on landing followed by stall from 6ft S

Field landing

There were 13 accidents/incidents:

- Field landing on trial lesson after getting low returning from local ridge
- Downwind landing overshooting into a wire fence that trapped the pilot S
- Field landing after getting low, local ridge soaring
- Stones in field damaged wing M
- Hit hidden stock fence, pilot trapped MS
- Overshot field into fence MS

- Turbo did not start, wheel-up groundloop in crop MS
- Field landing, sank into the surface, rapid deceleration M
- Turbo failed to start, landed across slope, wingtip caught ground, cartwheel S
- Groundloop M
- Few fields, landed downwind, groundloop, hit hedge S
- Soft surface induced groundloop S
- P1 lost on trial lesson

Technical

An aircraft component broke or did not work as intended. There were 5 incidents:

- Uncommanded release just after take-off on aerotow, following earlier unauthorised modification to the release
- U/c push rod sheared and u/c collapsed on take-off, wheel up landing on grass M
- Rudder pedals jammed after pedal broke M
- Fatigue failure of tug tailwheel bolt M
- Bracket failed allowing exhaust gas to burn hole in cowling

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Undershoot/Overshoot

10 reports

- Glider landed long and ran off the end of the runway M
- Balloon landing, overshoot into fence MS.
- Overshooting, orbit with brakes open, pilot probably unaware, undershoot MS
- Pilot opened brakes to lose height, left them open, undershot into trees MS
- Landing across the field in strong wind, overshoot S
- Final glide, undershot into rape S
- Shallowing approach and undershoot
- TMG glide approach in strong wind, undershot
- Soaring low down, hit tree on approach S
- Landing long, overshot into hedge S

Landing

23 reports

- Distracted by approaching tug, low airspeed, heavy landing M
- TMG, instructor asked for more brake , P2 applied parking brake, prop strike M
- PIO and groundloop

- TMG, rounded out too high and too much, tail contacted ground, propstrike S
- Misjudged round out landing into the sun M
- P2 pushed stick forward at 10ft M
- Bounced to 6ft, pilot moved stick forward, impact on nose S
- TMG landed, P2 released the spoiler handle, a/c took off, propstrike S
- Low on ridge, approach in turbulence and curlover, heavy landing M
- Low skidding turn followed by near collision with person and glider, ran into ditch M
- Aerotow wing drop, release, tug just airborne, landed, tug wingtip struck ground S
- Tailwheel struck tarmac runway edge M
- Landing glider hit already landed tug S
- PIO and heavy landing M
- Landing, braked, pitched on nose M
- Bounced landing, hit tractor S
- Late take over, tail damage S
- Landing tug hit hangar, defective brake S
- Heavy bounces following late unprompted lowering of u/c SS
- TMG landed with rudder on, veered into

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- crop S
- Heavy landing M
- TMG heavy landing S
- Bounced and heavy landing M

Hit Hill

One accident

Glider crashed on hillside after emerging from cloud. Navigation device had shut down but the glider was flown towards nearby hills. Sink, and glider entered cloud. When clear of cloud the hill was directly ahead. Glider mushed onto the slope. SS.

Glider Integrity

25 reports related to ensuring the glider was fit for flight.

9 of these reports concerned rigging:

- The K21 aileron l'hotellier locking pin had been inserted into the slot in the bottom of the push-to-unlock slide instead of the appropriate hole on the top. The glider had been DI'd several times since last being rigged over 2 months earlier.
- Incorrectly fitted Perkoz wing drag pin found when the glider was de-rigged for servicing.

The pin had not been fully inserted into the socket and the safety tabs had not released to lock the pin in place.

- Full forward trim needed during aerotow and also to maintain approach speed in the circuit. The fabric tape covering the tailplane elevator gap had come unstuck at its forward edge and curled up in the airflow across a substantial width of the tailplane.
- DG800B winglet became disconnected on the ground
- ASW20 flown with unconnected aileron
- Standard Cirrus tailplane detached on the ground, bunt and vertical dive from 50ft. FS
- Pilot rigging was distracted by request to move his glider to facilitate other rigging. Pilot forgot he had not secured the tailplane but noticed an unusual tailplane angle during tow to the launch point. **DO NOT INTERRUPT A PILOT ENGAGED ON A SAFETY CRITICAL TASK.**
- Pegase aborted launch due to banging noise, hatch insecure
- Astir annual inspection found rear wing fittings unlocked/semi-locked

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There were 3 instances of airbrakes opening during the launch, one winch and two aerotow

6 canopies opened in flight, 1S and 2M. One launch was stopped because the ground crew noticed the canopy was not secure.

5 reports concerned loose articles

- Battery became loose during aerobatics
- Loose ID plate found in fuselage, noise during pre-flight checks
- After the DI had been completed, the battery was found to be incorrectly secured.
- Vigorous recovery from simulated launch failure, mobile phone jammed airbrake
- Landed in crop, battery flew past pilot and smashed through canopy MS

The other incident was:

- Aerotow with tail dolly attached, pilot warned, released, landed ahead

SHORTCOMINGS IN PREPARING A GLIDER FOR FLIGHT CAN BE LETHAL AND ARE COMPLETELY AVOIDABLE

Aerotow

There were 14 reports.

7 were tug upsets

- Rope on C of G hook, turbulence at 1200ft, tug pitched 60° nose down, tug pilot released
- Glider pilot pulled u/c lever instead of release, and turned, tug pitched 70° down, tug pilot guillotined rope and recovered
- Glider pilot stung by insect at 400ft, pulled tug tail up, tug pilot cut the rope
- Glider pilot turned without releasing, tug nose tipped 50° down, rope broke
- Tug and glider diverged at 3000' on tow
- Glider pilot turned at 3000' and put the tug into a vertical dive
- Glider pilot distracted at 500ft by responding to request for camera

In the other 7 reports:

- Rope broke in wave rotor, rope went over glider wing
- High oil pressure indication, tug pilot reduced power, glider pilot released and

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landed in a known emergency field, aircraft oil pressure gauge red line was marked at a lower pressure than specified in the aircraft flight manual.

- Tug ran out of fuel at 2700'
- Tug ran out of fuel, tug undershot S
- Burning smell, rectifier failure on tug engine
- 1st aerotow, PIO just off ground, glider pilot released, landed out
- Tow rope incorrectly attached, uncommanded release, landed ahead

Misuse of controls

- TMG rudder inoperative because P1's foot was on two rudder pedals M
- Used undercarriage lever as airbrake, overshot by 1km, hit stone wall S
- Used undercarriage lever as airbrake, heavy landing, groundloop S

TMG/tug

TMG and tug accidents are only placed in this group if they do not fit into the other categories of stall/spin, landing, etc

There were 6 reports:

- Tow rope snagged telephone wires on approach, breaking the weak link.
- TMG engine failure after take-off MS
- TMG field landing after engine failure
- Tug engine misfiring during descent , suspected carburettor icing
- TMG fuel gauge mis-reading
- TMG prop damaged in precautionary field landing after partial engine failure M

Wheel up landing

There were 19 reports, 4 S and 11 M

- In 10 occurrences (8M) the pilot forgot to lower the wheel.
- In one occurrence (S) the pilot raised the undercarriage to land.
- In 8 occurrences (3S, 3M) the undercarriage collapsed. In 2 of these 8 the undercarriage was not locked. In one, on a DG1000T, the collapse was a known fault.

Airfield

One report, after normal landing, undercarriage leg damaged by uneven ground S

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Medical

Glider crashed in remote field after pilot had been incapacitated by a heart attack FS

Other flying accidents/incidents

Personal injury

- Crashed on ridge top at Cross Fell, possibly from structure overload SS
- Trial lesson P2 tripped and fell getting out of the glider S injury
- Winch moved, winch crew fell trying to apply brake M injury
- Tug elevator hit member in the face M injury
- Tug engine ground run, tug tipped on nose MS

Ditching

- Glider ditched in the sea after failing to soar cliffs at Beachy Head NS

Airborne encounters

- Large drone spotted on two occasions overflying the upwind end of the airfield at various heights down to 20' agl.
- A fast-moving single seat glider passing 30'

directly above while circling in a thermal.

- Airprox with drone at 3,800'.
- Vigorous evasive manoeuvres in circuit to avoid collision between trial lesson glider and another glider
- Near miss between landing glider and combination taking off, multiple radio and Flarm defects
- Pilots aware of close proximity, Flarm inoperative
- Visiting TMG taxiing towards departing aerotow, tug pilot released glider and flew over the TMG

Cables

- Winch strop fell into a neighbour's premises
- Cable break in cross wind, cable fell across trees over road
- Bungy launch failure due to premature release by ground crew
- Winch cable pulled from member's hand

Canopies

- Used emergency canopy release, damaged Bowden cable M

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- P2 damaged TMG canopy while disembarking M
- Unlatched canopy blown open by propwash M
- TMG canopy closed onto headset M
- Ground handled Pawnee hit glider canopy M
- Canopy frame attachment damaged during jacking in the hangar M
- Canopy in sun all day developed cracks M

Taxiing tug hit glider S

THE SAFE PILOT

There are very few new hazards in gliding. The safe glider pilot:

- never endangers others
- keeps an effective lookout
- can cope with winch emergencies
- does not cause tug upsets
- does not inadvertently stall/spin
- can land in the chosen place
- picks a field early
- takes care on the ground
- and, if an instructor, takes control promptly when the student makes a potentially dangerous error.

Ground handling

- 5 reports (4S, 1M) of damage from a glider being towed by a vehicle
- Wing fell off trestle M
- Retrieve buggy damaged rudder M
- TMG ground handling collision in hangar S
- Glider rolled over in dolly M
- Reversing vehicle hit rudder M

Other

- The pilot flew a beat-up of the airfield at 20ft. As it approached the launchpoint the glider banked slightly and the wingtip scraped along the ground



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