Safety Briefing

Accident Review 2020

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.

BRITISH GLIDING ASSOCIATION

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INTRODUCTION

The year 2020 was unique on account of the Covid 19 virus epidemic. Gliding ceased in late March. Solo gliding started after about 6 weeks but instructing only in July.

When gliding did re-commence, it was with severe operational restrictions. Pilot currency suffered. Introductory flights ceased. There were no competitions.

All the accidents and incidents reported to the BGA are tagged in the BGA database as an undershoot, a rigging omission, a tug upset, or other apparent immediate cause. This review is structured in that way.

But WHY did the accident or incident happen? The circumstances very frequently suggest human factors were the cause and different behaviour is the way to avoid a future accident by another pilot in similar circumstances.

We are all susceptible to human factors. Common ones are listed below, with examples:

Distraction
- An instrument is incorrectly set. While attending to this you cause a tug upset.
- A pilot asks you to move your partially rigged glider; you 'complete' the rigging but omit a crucial item

External pressure
- Hurry up, the tug is landing!
- only 2 more first flights, let's not disappoint them

Wishful thinking
- I can fly a complete circuit from here
- I can *always* get away from low level
- This damaged tail dolly will not break

Confirmation bias
- There is sink everywhere today (airbrakes open)

There are no easy solutions but awareness of our susceptibility and continued vigilance will help.

CONTINUING SAFETY GUIDANCE

MANAGING FLYING RISK is updated frequently. Please review its guidance regularly, together with the Safety Briefings and other Safety material on the BGA website. It might help you avoid an accident!

ACCIDENTS IN 2020

The 124 reports included one fatality, seven serious injuries, 10 minor injuries, and 31 substantially damaged aircraft.

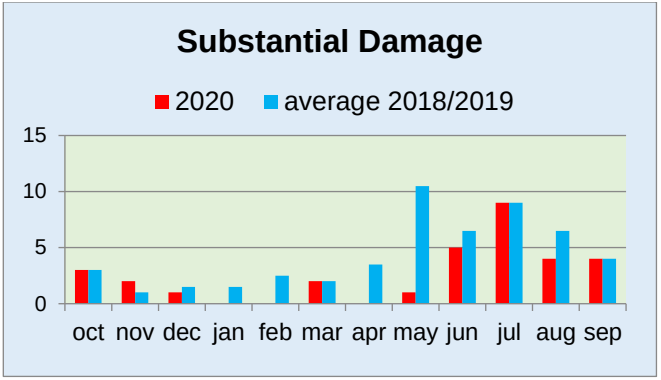
The fatality and a serious injury were in an ASH25E. Another serious injury was in a TMG. The AAIB are investigating both accidents.

Four of the serious injury accidents took place from June to September. All four were unusual. The two pilots who spun into the ground were lucky to survive.

month	injury	circumstances
jan	S	wing tip runner fell
mar	S	TMG crashed; AAIB investigation
jun	S	2-turn spin in circuit into the ground
jun	S	retrieve vehicle started in reverse, hit member
jul	S	spin in circuit into the ground
jul	S	heavy landing from 90kt approach
aug	FS	crashed in field, AAIB investigation

The year 2020 had 8 substantial damage accidents prior to the shutdown at the end of March, compared with a 2018/2019 average of 11.5.

There were 23 substantial damage accidents from 27 May to 30 September 2020. The 2018/2019 average was 27.



A very high BGA priority is to conduct first flights safely. There were two incidents before gliding stopped in March. In one incident, P2 inadvertently unlocked the airbrakes but P1 rapidly closed them. In the other the undercarriage collapsed on landing. The re-start of gliding did not include first flights.

ACCIDENTS IN 2020 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 6 years be due to widespread adoption of FLARM? Quite possibly.

There have been several reports of Flarm equipped aircraft failing to provide warning signals. Please ensure your installation is operating correctly. This requires up to date software and an effective aerial.

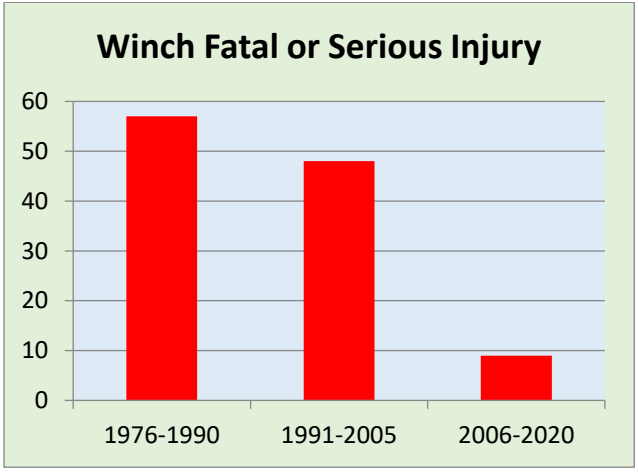
Collision continues to be a threat to life. Please review the BGA documents collision avoidance, soaring protocol and what to do after a collision and BE PREPARED!! The G. Dale account of his bail out is very instructive.

Winch
There was no personal injury from a winch launch in 2020 but there were several hazardous flights. These included a launch failure at 200ft with the pilot turning downwind instead of landing ahead, a landing very close to the launch point instead of landing ahead after a simulated launch failure, and two wing drops.

The BGA safe winch launch initiative led to guidance that was first published in 2006, 15 years ago. There have been 9 fatal or serious injuries in those 15 years compared with 48 in the 15 years from 1991-2005, and 57 in the 15 years from 1976-1990. Well done pilots, instructors, winch drivers, and everyone involved in the winch launch of a glider.

Winch accidents from a stall or spin have declined dramatically but wing drops continue. An updated safe winch launch booklet is 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.*

Accident Review 2020



Aerotow
There were 6 tug upsets. These followed 7 in 2019. Fortunately, 4 of the upsets were above 1500ft, but one was at 200-250ft. The tug pilot released. The glider pilot had been distracted by an insect and went too high in less than 2 seconds.

It is many years since a tug pilot died from an upset but tug pilots will die if glider pilots allow the current upset rate to continue.

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

A tug engine stopped on the take-off run because the pilot had turned the fuel off, thinking he was changing tanks.

Please review the published guidance on safe aerotowing.

Stall/Spin
The two serious injuries from a spin close to the airfield have been mentioned.

The other 4 accidents were from a sideslipping approach, a stall onto high ground with an FES engine running, a high round-out in a TMG with wet wings, and a stalled attempted go-around in a tug.

Glider integrity
It has been repeatedly stressed that rigging should be conducted without interruption or distraction.

It is equally important for one person to direct the rigging process. A tailplane was found to be insecure after rigging by committee led to unwarranted assumptions.

Another tailplane was found to be unlocked after 30 hours of flight. A glider awaiting launch had an unconnected aileron.

4 canopies opened in flight. A glider was flown for 90 minutes with the 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.
- The pilot should carry out proper pre-flight checks, again without interruption or distraction.

Please follow this advice

Landing
A serious injury arose from an approach at 90kt and deployment of the airbrakes combined with inadvertent deployment of negative flap.

A landing Jabiru on a type conversion flight hit a glider in the launch queue.

11 other reports included bounced landings, and heavy landings.

Field landing
There were 9 reports. The fatal accident is subject to AAIB investigation.

There were two failed attempts to start a turbo at 100-200ft, a glider hit a wall after field selection at 400ft, two landings in crop, a groundloop in a field, and a glider hit trees on the approach. One pilot descended 1500ft in cloud to find no good fields available.

Pick a field early!

Misuse of controls
One control is used to achieve the effect of another.

One pilot tried to land with his hand on the undercarriage lever. Another pilot grasped the undercarriage lever but realised his mistake in the air. A TMG pilot in the right hand seat deployed airbrake instead of stick.

Under/overshoot
10 pilots undershot or overshot the airfield.

The serious injury TMG accident is subject to AAIB investigation. The other reports included:

An instructor was operating downwind to avoid low cloud. The returning glider hit a tree on a 6km glide.

A glider over-ran the runway. P1 had not flown the type from the rear seat, and had not flown at the site.

A very experienced pilot undershot into the tree canopy.

Technical
An aircraft component broke or did not work as intended. The 12 incidents included:

Ventus 3T descent at 120kt and full airbrake followed by difficulty in closing the airbrakes.

Ventus BT trailing edge airbrakes opened during winch launch; 37 year old strut failed.

Libelle 201 rudder cable failed in flight.
DG1000S flight test, airbrakes jammed open in flight when rear airbrake handle was rotated more than 60°

Eurofox elevator flutter due to fractured trim cable.

TMG/tug
Reports are only placed in this category if they do not fit any other category.

The 9 reports included 4 engine failures: a PA25 was landed safely in a field as was a Eurofox with a new engine. A G109 landed safely with a smell of burning, and a SF25C engine failed during the take-off run.

Other engine related reports were a Eurofox lost power during a tow and a Dimona magneto failed during the ground run.

Other categories
There were two separate airprox between a glider and parachutists on the same day.

There was an airprox report involving two gliders and a near miss between two gliders flying mirror circuits.

A tug overflew a glider on approach and landed in front of the glider.

A winch cable parachute fell outside the airfield.

8 gliders landed wheel up.

There were no accidents involving medical issues and no glider hit a hill.

Accidents/incidents unconnected with flight
14 reports

The serious injuries to a wing runner and from starting a vehicle in reverse have been mentioned.

Four gliders were damaged while being towed by a vehicle.

Wind gusts tipped two tugs.

These accidents are expensive and avoidable!

APPENDIX – ALL ACCIDENTS AND INCIDENTS IN 2020

All the reports in 2020 are summarised in this appendix. It would seem many of the accidents and hazardous incidents could have been avoided. Please read these summaries and see if you agree.

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 7 accidents /incidents

- simulated launch failure, turned instead of landing ahead, landed close to launch point
- heavy landing, neither pilot current M
- shock cord became partially wrapped around parachute. Launch aborted
- accelerated rotation, launch failure at 200', pilot turned downwind instead of landing ahead
- overrun, launched to 6-8ft, parachute opened, released S
- wing drop, stop signal. glider climbed to 6ft
- wing drop, released at 50ft, turned, hit fence S

Aerotow
There were 12 reports of which 6 were tug upsets. These followed 7 tug upsets in 2019. All low tug upsets have the potential to kill the tug pilot

- tug pilot found himself in a steep nose down attitude at 2700', weak link broke
- glider on belly hook climbed high at 1600ft, tug pilot released
- boxing at 1600ft, tug stick on forward stop with full rudder, airspeed decreasing, tug released, rope went over glider wing
- P1 pointing out site features, got high at 1500ft, tug pilot released
- near tug upset at 800ft
- tug pilot released at 200-250ft; glider pilot distracted by insect and went too high in less than 2 seconds

In the other 6 reports:

- P2 out of position, P1 prompted, rope broke

- rope wrapped around glider wheel, launch stopped, but glider wheel collapsed M
- tug pilot lining up for tow inadvertently turned fuel off instead of changing tank, tug engine stopped at about 50kt
- Vega T65A 17L wing dropped, pilot did not release immediately, glider ran off runway M
- P2 dislodged airbrake during take-off, Airbrakes promptly re-locked by P1
- wave-off at 700ft following loss of coolant

Stall/spin (not associated with winch launches)
The 6 accidents were:

- stalled heavy landing from sideslipping approach M
- high workload in circuit, 2-turn spin SS
- attempted cruise in FES glider, stalled onto rising ground MS
- high round out in TMG with wet wings S
- low and slow approach, spin SS
- stalled attempted go-around in tug M

Glider Integrity
12 reports related to ensuring the glider was fit for flight.

4 of these reports concerned rigging:

- Swallow rigged with reversed trim cables after 4 years storage
- Cirrus 75 tailplane found to be unlocked after 30 hours of flight; DI by pilot unfamiliar with rigging process
- ASW20 tailplane found to be insecure during DI after rigging by committee and unwarranted assumptions
- glider awaiting launch with an unconnected aileron

4 canopies opened in flight, 3M

In the 4 other reports:

- winch launch, pilot eventually closed the airbrakes during an abbreviated circuit
- 90 minute flight with tail dolly attached
- canopy misted on aerotow due to faulty ventilator and tape over vent
- u/c collapsed on take-off roll M

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

Landing

13 reports

- 70kt approach in light wind, PIO, heavy landing, pilot's head broke canopy MM
- landing Jabiru struck glider in launch queue. M to three crew and S to both aircraft
- pilot allowed glider to roll to reduce retrieve, hit vehicle S
- bounced landing, burst nosewheel M
- bounced landing, u/c collapse S
- 90kt approach, airbrakes deployed and inadvertently moved flap to -2, glider dropped violently, bounced SS
- wing caught in long grass, groundloop, S
- groundloop on landing
- broke skid after low release from tow M
- bounce and groundloop
- heavy landing MM
- balloon, PIO, touched down on nose M
- heavy landing after distraction M

Field landing

There were 9 accidents/incidents:

- ridge soaring, field selection at 400ft, hit wall S
- descended 1500ft in cloud, no good fields S
- attempted turbo start abandoned at 200ft/90kt, overshooting field, groundloop S
- groundloop M
- landed in crop MS
- left ridge at 100ft, engine would not start, landed ahead in crop S
- attempted return to a/f, headwind, landed in crop S
- Crashed in field, AAIB investigation FS
- hit trees on approach MS

Misuse of controls

- TMG, P2 landing from right hand seat, deployed airbrake instead of stick, P1 flew go-around after bounce, prop strike S
- Pegase pilot confused airbrake and u/c levers on approach but resolved the confusion in flight

- ASW19B landed in field after two overshot approaches to different runways, hand on u/c lever M

Undershoot/Overshoot
10 reports

- landing over-run, P1 had not flown at the site or flown the type from rear seat
- instructing exercises downwind to avoid low cloudbase, 6km glide to airfield, hit tree S
- touched down on peri-track, burst tail inner tube on runway edge M
- crash in TMG flying circuits, AAIB investigation SS
- landed in undershoot field M
- high workload, fatigue, overshooting, groundloop
- misjudged spot landing, clipped crop
- wing hit fence in final turn S
- overshot attempting a hangar landing
- undershot into tree canopy S

Technical
An aircraft component broke or did not work as intended. There were 12 incidents:

- opening TMG canopy, strap disconnected M
- normal landing, u/c frame tubes fractured, previously damaged S
- LS4 landing gear collapsed in spite of checking the lever position M
- Ventus 3T descent at 120kt and full airbrake followed by difficulty in closing the airbrakes
- Ventus 2CXT u/c lever came out of detent during landing, u/c collapsed
- Ventus BT trailing edge airbrakes opened during winch launch; 37 year old strut failed
- Libelle 201 rudder cable failed in flight
- K13 drag pin fell out on landing
- DG1000S flight test, airbrakes jammed open in flight when rear airbrake handle was rotated more than 60 degrees
- Eurofox elevator flutter on aerotow due to fractured trim cable
- SHK1 winch launch, hook moved forward, failure of earlier repair, back released at 1000ft S
- PW5 cable release toggle came off during ground run M

Hit Hill
None

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 9 reports:

- PA25 engine failure and smoke on base leg, textbook field landing
- SF25C engine failure on take-off, stopped on runway M
- G109 engine failure with smell of burning on base leg, landed on runway M
- Eurofox engine failure on renewal test flight after fitting new engine, safe field landing
- trailing rope fouled electricity cables
- Eurofox towing, power reduction from 600ft, launch continued to 1400ft, returned to airfield
- low fuel pressure noted at 1500ft, faulty gauge
- DR 400 engine started with towing arm still attached M
- Dimona magneto failed during ground run, take-off abandoned

Wheel up landing
There were 8 reports, 1 S and 2 M

- In 5 occurrences (1S) the pilot forgot to lower the wheel.
- In 3 occurrences (2M) the undercarriage collapsed on landing

Airfield
One report, a glider hit a bump on aerotow take-off

Medical
No reports

Other flying accidents/incidents
9 reports:

- airprox between two gliders
- near miss between two gliders on mirror circuits
- airprox between soaring gliders and parachutists (two separate incidents on the same day)
- tug overflew glider on approach and landed in front of the glider
- winch cable parachute landed on a car outside the airfield

- winch cable fell over the wing of a parked tug
- exceeded positive g limitations during aerobatics M
- car crossed landing area

Ground

14 reports:

- while running the wing a member stumbled and sustained a shoulder fracture S injury
- retrieve vehicle started in reverse and ran over member S injury
- 4 reports (1S, 2M) of damage from a glider being towed by a vehicle
- canopy damaged in hangar S
- elevator damaged in hangar M
- wind gust tipped tug (two separate incidents) S and M
- control restriction discovered after flight in refurbished LS7, aileron deflections were different M
- vehicle driven over wingtip of a parked glider S
- Tractor hit glider in launch queue M
- damage noticed as glider entered launch queue M

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


Your safety is our top priority
To help you get maximum enjoyment from your First Flight we always make sure:
Fit to fly
You and your pilot are fit and well
Ideal weather
Not too windy, good visibility, cloud not a factor
Right mindset
Your pilot keeps risks as low as possible
Student prepared
You receive a pre-flight briefing and are seated comfortably in the glider
Trained
Your experienced pilot is trained for today's flight and can deal with all eventualities
First flights
We want you to enjoy your flight and we'll work hard to ensure you do. Because safety is our top priority, the requirements for a First Flight are more stringent than for other flying.
If we can't fly you today, we look forward to welcoming you again when conditions are more suitable.
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