MANAGING FLYING RISK

GUIDANCE FOR PILOTS AND CLUBS

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Introduction

The British Gliding Association, which comprises of member clubs each of which supports its own individual members, is committed to facilitating an environment within which our sport can be successful and enjoyed by anyone who joins a BGA club.

Gliding is an ever-evolving air sport. Glider performance and pilot soaring knowledge and skill are improving all the time, and technology is helping us make the most of the weather. The important basics do not change that much. But they can be easily overlooked or forgotten.

Although there is an increasing amount of external regulation being applied to gliding, the sport still benefits from a long and successful history of self-regulation. BGA self-regulation comprises of 'Operational Regulations' and associated 'Requirements and Guidance' which are all developed with members input and periodically reviewed. We also use a Safety Management System and a process of continuous improvement with the objective of facilitating a sport gliding environment where the levels of risk to participants are as low as reasonably practicable and where third parties are not affected by the activity.

'Managing Flying Risk' aims to provide pilots and clubs with guidance on how to better understand, minimise and manage the hazards associated with gliding operations, including with powered gliders and tug aircraft. It does not replace any existing law, which should always take precedent.

Terminology

Within this document, the term "must" or "shall" is used where referring to something that has to be done because it's absolutely necessary, including to obey a rule or law. Examples include "the pilot in command must reasonably ensure that the intended flight can be completed safely" and quotes from Standardised European Rules of the Air. The term "should" is used where referring to the appropriate way of doing something including guidance based on known good practice. For example, "a first aid kit should be kept in a prominent and easily accessible place".

Updates

This document will be frequently reviewed and updated as required. Clubs will be consulted prior to any significant amendments.

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1. Culture

The most effective and strategic way to maintain a reasonable level of risk is to ensure that the Association has a positive safety culture. Safety culture is the “way of operating” within the organisation that influences safe behaviours and consists of shared beliefs, practices and attitudes.

The ultimate ambition is for everyone in the organisation to feel responsible for helping to avoid unsafe practices, and to consider the impact on safety of their own activities. Instructors, introductory flight pilots, inspectors, and others in key positions need to ensure their decisions are made with an awareness of the safety implications. By changing a way of operating, it may be possible to avoid a hazard becoming an accident.

A positive safety culture is generated from the “top down” and relies on a high degree of trust, respect and communication between all elements of the organisation. Everyone involved must believe without doubt that they will be supported in any reasonable decisions made in the interests of safety.

2. BGA Safety Management System (SMS)

By adopting a holistic Safety Management System that meets the needs of the sport, clubs, pilots and aircraft operators, the BGA aims to move beyond the traditional reactive systems to try to anticipate areas of exposure and change ways of working to reduce the frequency of particular kinds of accident. The ‘BGA Safety Management System Manual’ is available at https://members.gliding.co.uk/library/safety/bga-safety-management-system-manual/

Pilot Training
Pilot training is carried out by BGA-trained and monitored instructors to a common syllabus that has been and continues to be developed by the BGA Training Standards Manager and Instructors’ Committee. Instructors are supported by club Chief Flying Instructors and Regional Examiners and Coaches. Recognition of risk and how to manage it are key elements of ‘Threat and Error Management' that is taught during gliding training.
https://members.gliding.co.uk/training-organisation/

Airworthiness
Airworthiness is achieved through compliance with the BGA airworthiness system which includes BGA inspectors who are guided and supported by the BGA Chief Technical Officer and Technical Committee. Inspectors perform and certify maintenance and repairs beyond that which the pilot/owner is permitted to carry out.
https://members.gliding.co.uk/airworthiness-2/

Pilot Responsibility
Pilots under training are supervised and supported by instructors. Qualified pilots, ie pilots who hold a valid licence or BGA Bronze Endorsement with Cross Country Endorsement, are responsible for managing their own exposure to risk, subject to club requirements. If the pilot is carrying a passenger, the pilot’s responsibility extends to the passenger.

Pilots are encouraged to seek advice from their CFI or another senior instructor. Periodic refresher training is an excellent method of confirming that appropriate skills remain in place, for example "spinning", or "field landing" refresher training in a motor glider. Pilots should note that two instructional flights in 24 months form part of the SPL/LAPL(S) recency requirement. https://members.gliding.co.uk/library/laws-rules/guidance-spl-lapls-holders/

There are very few new hazards in gliding. It is possible to suggest a prescription for a safe glider pilot:

- prepares carefully before flight
- 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

3. In-Flight Equipment

Parachutes

Parachutes should be maintained and stored in accordance with manufacturer's instructions. Prior to flight, the pilot and second seat occupant should ensure that they know how to fit the parachute harness correctly and how to operate the parachute.

Cushions

Cushions should be energy absorbent - conventional soft foam actually stores energy and can be dangerous in an accident. The cushions should have attachments compatible with the glider for which they are provided and be secured so that they cannot move or foul any controls, even under extreme attitudes or accelerations.

Traffic and collision warning systems

The BGA encourages the widespread use of traffic and collision-warning systems in gliders, motor gliders and tugs. FLARM is an increasingly popular system. Pilots should make their own decision on equipage based on compatibility with other systems and as to whether such a system is appropriate for their particular operation. Pilots are reminded that whilst electronic collision warning equipment can enhance pilots awareness by providing most useful warnings, such equipment cannot and must not replace a good systematic visual lookout scan, and that it is necessary to avoid any in-cockpit equipment from distracting from the visual lookout scan.

GPS Moving Maps

Infringements of controlled airspace are potentially dangerous and disruptive, and ultimately result in curtailment of the freedoms to fly that all pilots need and enjoy. Use of GPS moving maps is encouraged, particularly where flying cross country in areas of complex airspace. Pilots should ensure they use up to date map software and learn how to use the device on the ground. Navigation

training and testing is detailed at https://members.gliding.co.uk/pilot-resources-flying-training/bronze-and-cross-country-endorsements/

Audio Variometers
To assist pilots in maintaining effective lookout, gliders operating from BGA sites should be equipped with audio variometers and the pilots trained in their use.

Undercarriage Warnings
Fitting of undercarriage warning systems is not recommended because they may lead the pilot to lower the undercarriage during the final stage of landing resulting in an accident. For the same reason, if a glider is seen wheel-up on the approach, no attempt should be made to warn that pilot.

Oxygen
Atmospheric pressure reduces with altitude; halving every 18,000 ft. Healthy humans can compensate for some lack of oxygen but only down to 150 hPa partial pressure of oxygen which is reached at 10,000 ft. Symptoms of hypoxia are similar to those of alcohol and may include a dangerous overconfidence. Performance is degraded; consciousness may be lost above 15,000 ft; and without warning above 25,000 ft. Because of how oxygen is transferred in the body, attempts to over-breathe both precipitate the problem and give optimistic readings with oximeters. At altitude the necessary water vapour and exhaled carbon dioxide take an increasing share of the pressure available. The partial pressure of oxygen can be maintained by adding supplementary oxygen, but increasing amounts are required with altitude and even with pure oxygen the ground level equivalent is reached by 30,000 ft and the limit of compensation at 40,000 ft. The elderly and those with lung damage will suffer adverse effects at much lower levels. Any ill effects at altitude should be assumed to be hypoxia and require an emergency descent to below 10,000 ft.

The Sailplane Air Operations rule (SAO.OP.150) requires that the pilot in command shall ensure all persons on board use supplemental oxygen whenever he or she determines at the altitude of the intended flight, lack of oxygen may result in impairment. The related AMC notes that if the pilot in command cannot determine how the lack of oxygen will affect those on board, he or she should ensure all occupants use supplemental oxygen above 10,000 ft.

Radio
The radio can be a very helpful situational awareness tool if used correctly. Planning ahead in terms of frequency selection and the message, using the correct call signs, and using clear, normal language all help to reduce the potential stress and distraction that can be associated with airborne use of radio.

Emergency Frequency:
The UK Distress and Diversion cell monitors channel 121.500. A position fixing service is available to any pilot who is lost or unsure of their position. Pilots are strongly advised to make themselves aware of how to get help from D&D. An FRTOL is not required to use this frequency.

SafetyCom:
The SafetyCom channel, 135.480, is available to assist pilots to avoid potential collisions between arriving and departing aircraft where no airfield frequency is in use. Pilots may use this frequency to broadcast their intentions for safety purposes only.

Callsigns:
Gliders should use “Glider” plus registration letters (where a glider is registered with the UK CAA); or “Glider” plus competition alpha-numeric or tri-graph
Vehicles should use either the suffix “mobile”, or “retrieve”
Portables should use the suffix “mobile”, “winch”, “launch” or “launch point”
Fixed should either use the suffix “base” or “glider base”

Gliding Channels:
The following table outlines the Primary and Secondary uses of the various channel assignments as determined by the BGA and agreed with the CAA and Ofcom. The alternative “Secondary Use” frequencies should only be used when the “Primary Use” channels are very busy. An FRTOL is not required provided that these channels are used for their intended purpose.

Channel	**Primary Use**	**Secondary Use**	**Notes**
129.905	Ground Retrieval	Parachute/Hang-glider	Shared channel
129.980	Common Glider Field Frequency within 10NM radius and up to a height of 3000ft above certain approved airfields		No secondary use
118.685	Common Glider Field Frequency within 10NM radius and up to a height of 3000ft above certain approved airfields		No secondary use
130.105	In-flight Situational Awareness		No secondary use
130.130	In-flight Situational Awareness		No secondary use
130.535	Cloud Flying	In-flight Situational Awareness	
129.890	Competition	Coaching	
130.405	Competition	Coaching	

4. Preparation for Flight

Shortcomings in a pilot preparing their glider for flight can be lethal and are completely avoidable. Preparation for flight includes;

- assembling the aircraft for flight and carrying out a daily inspection
- checking for correct weight and balance
- threat and error management
- pre-flight checks

Is the glider legally airworthy?
Before flying an aircraft it is important to ensure it is airworthy. “Airworthy” means that the aircraft conforms to the appropriate legal and technical requirements for safe flight. That includes a current

ARC certificate (or equivalent for non-EASA aircraft), that the annual maintenance is current, and that the aircraft is insured.

Rigging and Daily Inspection

Many privately-owned gliders are assembled before flight. The assembly of a glider including the associated control connections is known as “rigging”. A glider should be rigged and a daily inspection carried out in accordance with the instructions provided in the Flight Manual or similar document. Rigging can take time and can involve a number of people. Distraction is a common cause of error when rigging gliders. Please ensure:

a) Rigging is directed by a person experienced on the type, in accordance with the flight manual, without interruption or distraction
b) The DI is conducted by a person experienced on the type, without interruption or distraction
c) The pilot carries out proper pre-flight checks, again without interruption or distraction

Weight and Balance

Glider loading limitations should be clear from a cockpit placard. Lighter pilots must use ballast to comply with the aircraft placard and to ensure safe flight. It is further recommended that when an additional margin of safety is required, eg during type conversion and for inexperienced pilots, an effective cockpit load of at least 15kgs (33lbs) in excess of the placard minimum should be established, again using ballast if necessary. In all cases, additional ballast should be mounted in an appropriate installation, secured in the aircraft so that it cannot move, even under extreme attitudes or accelerations.

Pilots flying gliders capable of carrying water-ballast should ensure that the aircraft weight and balance is within limits as described in the Aircraft Flight Manual and aircraft placard.

Threat and Error Management

The pilot in command must reasonably ensure that the intended flight can be completed safely. Pilots are taught about Threat and Error Management (TEM). This is all about thinking ahead about what might go wrong and anticipating it before it does. TEM considerations ahead of launching can include;

<u>Walkaround</u>

Carrying out a walk around a glider before flight is an opportunity to check that there are no obvious defects and that there is nothing that will obviously affect the performance or C of G, including water on the flying surfaces, or a tail dolly fitted.

<u>Potential Mid-Air Conflict</u>

Thinking about the amount of airborne activity likely to be experienced during the flight as well as any in-flight visibility or distraction issues can help the pilot think about mitigations, including use of FLARM to assist lookout, avoiding areas of poor visibility, or avoiding known busy areas of sky.

<u>Recency / Currency</u>

Beyond any legally established minima, CFIs may decide what additional level of recency (or currency) is appropriate to any given situation at their site. All pilots should think about their recency/currency in light of the conditions on the day. The ‘Pilot Currency Barometer’ on the BGA website is helpful. The ’90-day rule’ for pilots who are flying passengers is an important

consideration, ie. in order to carry passengers, you must have completed within the previous 90 days, three take-offs and landings as sole manipulator of the controls in the same type or class used for the flight, eg a glider, or a TMG, or a single engine aeroplane.
https://members.gliding.co.uk/library/safety-briefings/currency-barometer-pdf/

Weather

Pilots are advised to think carefully about the weather conditions before and during flight. If in doubt, seek advice. Perceived operational pressure has led to flying taking place in unsuitable weather conditions. Access to a suitable weather forecast, advised minimum last landing times, and a wind sock mounted on a pole can help pilots make the right decisions.

Water, Frost and Snow

Even small amounts of roughness on the wing can have a disastrous effect on efficiency and the stalling speed. Water, frost and snow should be removed before flying from the wing and tail-plane surfaces.

Airfield Activity

Taking a few moments before flight to consider activity on and around the airfield is important. From a wider perspective, NOTAMs provide pilots with awareness of hazards both locally and during a cross-country flight.

Equipment

Is the on-board equipment serviceable, is there enough battery power, and is the pilot familiar with its operation? What would the pilot do if it failed?

Pre-flight Checks

Pre-flight cockpit checks should be carried out carefully using an established checklist. Distraction is a common cause of error when carrying out pre-flight checks. Rushing due to time pressure is also a common cause of error. Both of those causal factors can be addressed to reduce the risk. If the pre-flight checks are interrupted for any reason, the checks should be restarted and completed with care. The BGA recommended cockpit pre-flight checklist is:

C	CONTROLS working fully and freely and in the correct sense
B	BALLAST securely fastened; correct cockpit load
S	STRAPS for all occupants correctly locked and tight
I	INSTRUMENTS appear serviceable and set as required
F	FLAPS check operation and set for take-off
T	TRIM check operation and set for take-off
B	BRAKES check operation, closed and locked
E	EVENTUALITIES consider launch failure and other options
C	CANOPY closed, locked and doesn't open with applied pressure

5. Winch Launching

It is important that all pilots who winch launch are aware of the detail contained on the 'Safe Winch Launching' web page at https://members.gliding.co.uk/bga-safety-management/safe-winching/

Cartwheeling Accidents
Cartwheeling accidents – predominantly to experienced pilots – happen as a result of not releasing the cable if the wing drops during the ground run. If the wings cannot be kept level before take-off, release before the wing touches the ground.

Launch Point Controller
A suitably experienced Launch Point Controller (LPC) should be appointed to co-ordinate safe launching. The LPC should be positioned so that launch signals, the launching wires or ropes, and all aircraft approaching to land are in sight.

Strop/Shock Rope
The strop/shock rope positioned between the launching cable parachute and the launching rings should be long enough to minimise the risk of the cable parachute fouling the glider and should be sheathed in a semi-rigid covering – such as plastic hose – to minimise the risk of the rope fouling the glider wheel or structure. The Winch Operators Manual provides guidance. https://members.gliding.co.uk/library/flying-operations/winch-operators-manual/

Weak Link
A weak link designed to protect the glider from excessive loads is required for all winch launches. The weak link maximum breaking strain is detailed by the glider manufacturer or type certificate holder.

Guidance for all pilots

If you are the PILOT;

- **Start the launch with your hand on the release**
- **If you cannot keep the wings level, release IMMEDIATELY**

"Release IMMEDIATELY" means BEFORE the wing touches the ground

Why hand on the release? Because you need to pull the release within half a second of taking the decision to release.

Why immediately? Because the cartwheel that may follow a wing drop onto the ground can be so rapid that no recovery by releasing or other means is possible

- 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 a 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.

Instructors additional guidance

If you are the INSTRUCTOR;

- Start the launch with your left hand on the release and your other hand very close to the control column
- If you or your student cannot keep the wings level, release IMMEDIATELY

Why hand on the release? Because you need to pull the release within half a second of taking the decision to release.
Why immediately? Because the cartwheel that may follow a wing drop onto the ground can be so rapid that no recovery by releasing or other means is possible.

If your student does not react correctly and promptly during the launch, take control.

Wing Runner and Signaller Guidance

If you are the WING RUNNER

- Ensure that you have been trained before taking on the task
- Stop the launch if you are resisting an up or down force at the tip
- Run with the tip while holding the wings level

Why stop the launch? Because most wing drops occur immediately after the wing tip runner lets go.

Note to CFIs: the responsibilities of the wing tip runner make this a safety-critical task.

If you are the SIGNALLER;

- Ensure that you have been trained before taking on the task
- If the wing drops to the ground at or near the beginning of the ground run IMMEDIATELY stop the launch by sending a STOP signal to the winch by every available means
- Do not wait for one or two seconds to see if the pilot picks the wing up.

The purpose of sending a STOP signal is to avoid a potentially fatal cartwheel.
Launch signals can be visible or audible.

It is highly desirable for the signalling system to allow the signaller to trigger an unmistakeable audible and visual STOP command to the winch driver.

Note to CFIs: the responsibilities of the signaller make this a safety-critical task.

6. Aerotow Launching

It is important that all pilots who aerotow launch are aware of the detail contained on the 'Safe Aerotowing' page at https://members.gliding.co.uk/bga-safety-management/safe-aerotowing/

Aerotow Hazards

The dominant hazard, potentially fatal for the tug pilot, is a vertical tug upset initiated by the glider pilot moving up too quickly from a (safe) low position and inadvertently accelerating upwards and tipping the tug nose steeply down, or

Or by the glider pilot turning at release height without having confirmed visually that the rope has separated.

Five tug pilots were killed in 24 reported tug upsets between 1978 and 1985. Following a long period with a low tug upset rate, the rate has increased dramatically in recent years. There were 7 tug upsets in the 12 months to Sept 2019.

ALL tugs are vulnerable to an upset, but light tugs are more vulnerable.

The following factors may cumulatively contribute to a hazardous situation. Where more than one item is present, advice should be sought before launching:

- Low experience of glider and/or tug pilot
- Gliders fitted with C of G hook only
- Glider's C of G towards the aft limit
- Turbulent air in the take-off area
- Rough ground in the take-off area
- Significant crosswind component
- Short rope
- Light-weight glider, low wing loading

If you are the GLIDER PILOT;

- 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

If you are the INSTRUCTOR;

Avoid a potential upset by retaining adequate safety margins when teaching boxing the tow or recovery from being out of position, especially with lightweight tugs.
Be prepared to take control before the situation becomes dangerous.

If you are the TUG PILOT;

- Anticipate a possible upset from the glider changing position. Release the glider IMMEDIATELY if your nose is forced down.
- Before launching, look for cumulative hazardous factors as listed above. If in doubt, do not launch.

Aerotow Rope and Weak Link
A long aerotow rope is safer for the tug pilot. 180 feet is a reasonable compromise. A shorter rope may be used if required. A weak link must be fitted to protect the aircraft from excessive loads. The maximum load allowed for a tug end weak link is specified in the tug operating manual or towing supplement. The BGA Aerotowing notes provide more guidance for clubs and pilots. https://members.gliding.co.uk/library/power-flying/aerotowing-guidance-notes/

Climb Performance
An aerotow requires teamwork between the glider pilot and the tug pilot. Although the tug pilot is in command of the combination, it is incumbent on both the tug pilot and glider pilot to ensure their aircraft will have adequate performance for the proposed flight. More details are available in the Aerotow Performance safety leaflet. https://members.gliding.co.uk/library/safety-briefings/aerotow-performance/

Cartwheeling Accidents
Cartwheeling accidents – predominantly to experienced pilots – happen as a result of not releasing the cable if the wing drops during the ground run. Cartwheel accidents have occurred during aerotow launches. If the wings cannot be kept level before take-off, release before the wing touches the ground.

Glider handling on tow
The handling of many gliders on aerotow is inferior to the handling of the same glider in free flight. Gliders with a large span may be particularly susceptible. Inferior handling on tow arises because the downwash behind the tug wing strikes a similar span of glider wing and reduces its angle of attack. The glider pilot has to increase the angle of attack of the whole wing in order to generate adequate lift. This action increases the angle of attack of the outboard part of the glider wing, with the result that the stability advantages of washout are diminished or lost, and the glider wing tip can stall before the root.

The severity of the effect varies between different glider-tug combinations and that needs to be considered during the eventualities brief; the achievable speed could initially be limited by the available take-off run, headwind and grass or runway conditions. And there are sometimes very few options if the glider becomes uncontrollable in the early part of the climb-out. The solution is to fly faster – at least the minimum recommended towing speed for the type of glider and weight – and on a suitably long rope.

7. Launch Signalling

Launch signalling from the ground does not remove the responsibility for the safe conduct of the launch from the pilot in command.

Recognised methods of launch signalling

The recognised methods of launch signalling include radio and other wireless transmission, lights, and hand/bat signals. Release of the tow rope or cable by the glider or tug pilot on the ground signals the pilots intent not to launch.

Terminology

To minimise the risk of a misunderstanding during launch signalling, which is a safety critical activity, ‘take-up slack’, ‘all out’ and ‘stop’ are the standard terms where verbal commands are used during launches.

Use of signalling lights and signalling by hand - limitations

Light or hand signalling can result in a delayed response, can be difficult to see (even when using bats for hand signalling) or interpret in poor visibility or against bright sunlight, and may not be seen once the launch progresses, for example when a tug pilot is focussed on starting the take-off.

Where signalling lights are utilised, they should not be red or green in colour.

Use of signalling lights and signalling by hand/bat - protocol

Lights:

a. Take up slack: light dashes of one second duration and three seconds interval.
b. All out: light dots at one second interval.
c. Stop: steady light.

Signalling by hand:

a. Take up slack: arm swung underarm.
b. All out: arm swung from side to side above the head.
c. Stop: arm held stationary vertically above the head.

Signalling – aerotow.

Radio communication should be established between the launching operation and the towing aircraft. Where radio communication is not possible, another of the recognised methods of signalling to stop the launch should be available.

Signalling – wire launches

The method of communication used between the launch point and winch (or tow car) should result in reliable signalling for the duration of each launch and may be visual or audible. It is highly desirable for the signalling system to reliably allow an immediate audible and visual STOP command to be sent to the winch driver. Wireless signalling can provide near-instant communication to audible and visual indicators in the winch cab. Please note that a short period at the start of a personal management radios (PMR) radio transmission can be lost during channel identification. This shortcoming can be addressed by repeating the launch command, eg. “All out. All out” or “Stop. Stop”.

8. NOTAM and Airspace Restrictions

Failure to fly with due regard to “Notices to Airmen” including temporary and permanent airspace restrictions can result in extremely hazardous situations, jeopardise the reputation and freedoms of BGA clubs and their members, and result in legal action. Clubs should ensure that pilots have access to current navigational information including temporary and permanent changes which pilots must consider before flight. A number of online applications provide the necessary information in an easily digestible format. If in doubt, please seek advice.

9. Collision Avoidance

Avoiding collisions is a fundamentally important aspect of managing flying risk. Effective lookout is the primary method of avoiding collision. Pilots can reduce risk by planning to avoid the situations that can lead to mid-air conflict, by attempting to be predictive (ie following established good practice and protocols), and by understanding the protocols and rules of the air. The following are ‘Collision Avoidance’ rule extracts from Standardised European Rules of the Air (SERA);

Proximity
An aircraft shall not be operated in such proximity to other aircraft as to create a collision hazard.

Right-of-way
The aircraft that has the right-of-way shall maintain its heading and speed. An aircraft that is obliged by the following rules to keep out of the way of another shall avoid passing over, under or in front of the other, unless it passes well clear and takes into account the effect of aircraft wake turbulence.

Approaching head-on
When two aircraft are approaching head-on or approximately so and there is danger of collision, each shall alter its heading to the right.

Converging
When two aircraft are converging at approximately the same level, the aircraft that has the other on its right shall give way, except as follows:

- power-driven heavier-than-air aircraft shall give way to airships, sailplanes and balloons;
- airships shall give way to sailplanes and balloons;
- sailplanes shall give way to balloons;
- power-driven aircraft shall give way to aircraft which are seen to be towing other aircraft or objects.

Overtaking
An aircraft that is being overtaken has the right-of-way and the overtaking aircraft, whether climbing, descending or in horizontal flight, shall keep out of the way of the other aircraft by altering its heading to the right, and no subsequent change in the relative positions of the two aircraft shall absolve the overtaking aircraft from this obligation until it is entirely past and clear.

Sailplanes overtaking
A sailplane overtaking another sailplane may alter its course to the right or to the left *(please note that this is a SERA rule and may not apply outside Europe).*

Landing
An aircraft in flight, or operating on the ground or water, shall give way to aircraft landing or in the final stages of an approach to land. When two or more heavier-than-air aircraft are approaching an aerodrome or an operating site for the purpose of landing, aircraft at the higher level shall give way to aircraft at the lower level, but the latter shall not take advantage of this rule to cut in front of another which is in the final stages of an approach to land, or to overtake that aircraft. Nevertheless, power-driven heavier-than-air aircraft shall give way to sailplanes.

Emergency landing
An aircraft that is aware that another is compelled to land shall give way to that aircraft.

Soaring protocol
When soaring, pilots must take into consideration other soaring aircraft and the topography. The BGA Soaring Protocol provides guidance.
https://members.gliding.co.uk/library/safety/thermal-soaring-protocol/

10. Supervision

What is supervision?
Supervision is about making sure something is done correctly. In a sport gliding context, that means providing support and oversight to ensure safe, productive and enjoyable flying. That's largely achieved by ensuring the club's and any other rules are followed and that taught good practice and standards are maintained. The BGA Instructor Manual notes:
'Gliding's culture of supervision is unique in aviation, and it is important that instructors carry it out in a very positive way, with the aim, in all cases, of safe, fun flying.'

Supervision is about being organised; knowing who needs what kind of help, and when, and being the eyes and ears for all pilots operating from the airfield. Early solo, and even quite experienced pilots, will often be focussing on the mechanics of flying and fail to notice other issues that may be gradually creeping up on them. These issues may include things like personal fatigue, worsening weather, dehydration, trying to take off with the tail dolly still on, or even getting closer and closer to the fence on each approach. It is the supervising instructor's job to take these pilots out of their 'bubble' and point out the unseen problems…

Supervision should be approached positively and in a way that benefits the supervised. Quietly eliciting the relevant information from the pilot who is being supervised rather than telling them can be most instructive. Shouting is a last resort to get the attention needed to avoid an imminent risk of injury or damage. A significant positive impact can result from making sure there are no opportunities for distraction during vital actions eg during rigging, DI and pre-flight checks.

Although qualified pilots are responsible for managing their own risk, the BGA is aware that different gliding sites, meteorological conditions and other factors will influence the minimum level of experience appropriate to flying on any given day. Clubs should ensure that adequate guidance is in place to meet those circumstances.

Who needs supervision?

Unqualified pilots

An unqualified glider pilot is a pilot who does not hold the BGA Bronze and Cross-Country Endorsements or a LAPL(S) or SPL. Any glider pilot who has yet to demonstrate the knowledge, skill and judgement required of a qualified glider pilot will need a level of decision-making support by a more experienced pilot. An unqualified pilot cannot be reasonably expected to fly without an appropriate level of supervision. Flying by unqualified pilots must be supervised by a suitably experienced instructor.

Young solo pilots

Pilots under the age of 18 may have exemplary handling skills but a different attitude to risk and little experience of taking important decisions. Below the age of 16, children are told what to do both at home and at school. It would be rare for any such person to have experience of taking decisions with severe adverse personal consequences if the decision were wrong. But taking such decisions is an intrinsic part of flying a glider. Individual supervision including briefing is crucial for the safety of young pilots.

Individual supervision for young pilots can be achieved in several ways including;

- Use of an instructor mentor who monitors and advises on all flying by a young pilot
- Requiring young pilots seek authorisation from an instructor before flying solo
- The authorising instructor signing the log sheet entry confirming the young pilot may fly solo

Visiting pilots

The culture of gliding is changing. There are fewer club expeditions to other club sites but the number of such visits by individual pilots or informal groups of pilots is increasing.

If the host CFI has no advance information about the capabilities of a visiting pilot who is not part of a club expedition, it is unreasonable and impracticable to provide proper supervision. Under those circumstances, the host club CFI should require each visitor to provide the following information in advance, unless the visitor has much relevant experience or is known personally by the host CFI.

Item	**Notes**
Qualifications	Bronze and Cross-country endorsements, Silver
Gliding experience	Total hours as P1and experience in similar conditions to those at the host site
Currency	Recent launches/hours, and currency on the visiting site launch method(s)
Ambitions	First steps in hill or wave soaring, cross country in mountains, etc.

Glider equipment	GPS moving-map? Oxygen? FLARM? Transponder? PLB/ELT?
Local safety guidance	Confirm familiarity with published host site safety guidance
Home club CFI input	1) confirm parental permission if under 18 2) indicate appropriate pilot privileges and degree of supervision at the host site

In the absence of such information, the host CFI should impose restrictions on the privileges of a visiting pilot, which could include not providing a launch. Guidance relating to the supervision of unqualified and young pilots also applies.

First Cross-Country Flights.

A pilot intent on setting off on an early cross-country flight should be individually briefed by a suitably experienced instructor. The pilot should "brief" the instructor on at least the likely route with airspace and navigation being of primary interest. The weather for setting off and the state of the fields should be thoroughly reviewed.

Although navigation training should ensure that pilots become skilled in basic map and compass navigation techniques, it is recommended that when inexperienced pilots are flying cross-country they are equipped with a suitable GPS moving map. If the pilot intends to make use of GPS as a navigation aid (which must be in conjunction with a current chart), his or her understanding of the system should be established

Qualified pilots

Pilots may need an element of supervision depending on a variety of factors, eg pilot recency, experience/familiarity in the environment or on type, or perhaps human factors issues where an external intervention can often help. The level of supervision needed for qualified pilots varies from complete oversight, eg a pilot's first solo cross-country, to none with experienced and current pilots who are expected to keep an eye on each other.

Introductory flights and trial lessons

Please ensure the guidelines published in Section 10 of this document are always followed when introductory flights or trial lessons are taking place.

Who can supervise?

Anyone who is empowered by the club CFI to do so. All instructors are qualified and trained to assist other pilots with flying standards and threat and error (airmanship) issues. Most clubs also have very experienced people who may no longer hold instructor ratings. If a club CFI wants to utilise that individual to help with the supervision of the club activity under the delegation of an instructor who is present on the day, why not, given appropriate boundaries? Any non-instructor supervisor would need to refer to an instructor in the event of a flying standards issue or flying authorisation.

What does good supervision look like?
In a club with a healthy approach to supervision, those that need to seek advice before flying know who they are, and those who are expected to actively supervise know that's the case as well as who to keep an eye on. Everyone quietly gets on with it, accepting that supervision is a positive element of gliding. Any flying standards issues are addressed equitably and promptly.

Bigger clubs, where not everyone knows each other, might publish a list of authorised supervisors so that everyone can identify who the CFI expects to actively supervise when they are at the airfield.

The CFI might establish a process that ensures individual pilots are aware of what supervision they need to seek before flying; that might be a card system or one-to-one advice.

Effective supervision undoubtedly makes a positive contribution to a club's safety performance and to the capability and competence of its pilots.

11. Introductory Flights and Trial Lessons

An "introductory flight" is a paid-for gliding experience flight. A "trial lesson" is a paid-for first or early instructional flight. The following guidance reflects the need to minimise risk during introductory flights and trial lessons, as well as during other passenger flying. The list of Laws and Rules BGA documents includes "Introductory and passenger flying" requirements which should read by all pilots and instructors involved. https://members.gliding.co.uk/library/bga-requirements-guidance/passenger-carrying-guidance/

The pilot in command must satisfy him or herself that the aircraft, the weather, the launching conditions and the pilot's personal preparation and experience are suitable for the flight. A safe flight follows meticulous and risk-averse preparation.

Are the circumstances suitable for a safe flight?
The safety of the passenger or student is paramount and if there is any factor that needs consideration with regard to the safety of the flight, there is no decision necessary - the flight must not take place.

Pilots/instructors carrying out introductory flights/trial lessons must;

- be current
- be familiar with the aircraft
- be current on the launch method to be used
- ensure the weather is suitable (see meteorological limits within these notes)
- be able to easily cope with the weather conditions
- check any pilot requirements and experience are valid

Some other challenges for consideration;

- Low Sun?

- Misting canopy?
- Are there adequate options available should a launch failure occur and is the pilot current in handling launch failures in these conditions? No wind and a short runway can be very challenging
- Is there time available for the flight?

Conditions are not always suitable for introductory flights/trial lessons even if general club activity is continuing. Whilst there are always those who will enjoy being thrown about whilst flying, the majority will not appreciate it. Situations best avoided are strong convection or turbulence, poor visibility, and any condition near the limits for flying. As the pilot acclimatises to the flying conditions, it is all too easy to overlook a gradually deteriorating situation. If the first flights are to be a pleasant experience, they must be conducted in appropriate weather conditions. An introductory flight/trial lesson should be carried out maintaining the lowest risk possible. So;

DO NOT LAUNCH IF:

- Launching into cloud
- Launching in rain, or if the flight is likely to be in flown in rain.
- Launching with rain/snow/ice on the glider.
- Launching with misted canopy.

SEEK ADVICE FROM THE INSTRUCTOR IN-CHARGE BEFORE LAUNCHING IF:

- The wind is turbulent (varying by more than 10 kts)
- The wind is strong (>20 kts)
- Cloud base is less than 1200 ft agl
- Flight visibility is less than 5km
- Launching above more than 4/8th cloud

All flights must normally be completed by time of official night.

Is the pilot or instructor prepared?

It is most important that the pilot or instructor prepares him/herself and the glider for the flight. The dangers of poor pre-flight preparation are well known.

- Aircraft serviceability including a properly completed Daily Inspection
- Pilot and passenger weights – C of G position and max all up mass
- Seating position – control clearance
- Loose articles – cameras, mobile phones etc.
- Pre-flight checks
- Eventualities
- Cable position
- Conflicting air traffic
- Weather
- A plan for the flight

Is the passenger or student prepared?
The pilot in command must ensure that the person requesting the flight is briefed. The briefing should include;

- A description of the flight and the main risks
- Actions to be taken in the event of an emergency, including emergency egress and use of emergency equipment eg the parachute
- Precautions to be taken in the cockpit environment, including potential loose articles
- The plan for the flight including any limiting factors, eg unlikely soaring potential.

Is there a plan that minimises risk?
Good flight planning is essentially evaluating the situation, identifying significant risk, and taking action to eliminate that significant risk. If the risk still exists, then an introductory flight/trial lesson is ill-advised and should not be attempted.

Remember the old pilot's adage; “a superior pilot uses his superior judgment to avoid those situations requiring his superior skill”.

There are some established good practices, all of which are relevant to planning, that help to minimise risk during introductory flights/trial lessons;

- If interrupted whilst doing pre-flight checks, stop and start again. Don’t rush.
- Care should be taken so that the glider remains within gliding range of the airfield and can comfortably terminate the flight with a circuit.
- Being too adventurous increases workload and in consequence increases risk. Pilots and instructors must stay aware of their responsibilities to their passenger or student and fly well within the normal limits used when flying solo. If a pilot’s normal solo flying is “adventurous”, it absolutely must not be during an introductory flight/trial lesson.
- During the flight be prepared to modify the plan if conditions dictate.

Aviate, Navigate, Communicate
Simultaneous flying and talking involves a higher than normal work load. There are additional pressures simply due to the presence of another person. Passengers/students are a distraction. This pressure could result in a pilot failing to cope with a situation that would otherwise be managed easily when flying solo.

If the flying gets difficult, KEEP QUIET AND CONCENTRATE! Remember to aviate, navigate and communicate, in that order.

12. Flying with other Pilots

Pilots flying together in private or club two-seat gliders is increasingly popular. Some prefer that to single seat flying. Two-seater flying is great fun, but once the dynamic of two people in the cockpit is introduced, there are a few traps that can catch the unaware. These traps can be managed if they are thought about before getting airborne; they usually revolve around how the crew resource (ie both pilots) manage themselves.

During airborne instruction, it's very clear who is in charge and who will take over in the event that the flight takes a less than smooth course. Even in this situation though, it's good to have an atmosphere which promotes active involvement by the student. A comment from the student pilot about a nearby aircraft could save the day.

When two similarly qualified pilots are flying cross-country in a two-seater the situation is often less clear cut. The potential for confusion increases the risk. Who is in charge? Are both willing to speak up they are concerned? It may be that a very experienced instructor (but unfamiliar with the type) is flying with a low-hours owner in his own, very familiar two seat glider. In that case, who is P1? Who will fly when the going gets tough? Are both pilots familiar with the tried and tested "You have control", "I have control" protocol?

Before flying with another pilot (also known as mutual flying), always consider the following:

- The pilot in command must be at least 16 years of age, current, and qualified, i.e. hold a BGA Cross-Country endorsement or LAPL(S)/SPL.
- Who is best placed to be pilot in command of the flight - then agree that between both pilots.
- Are both pilots briefed to speak up if they don't like something? The pilot in command should ensure that they are. A simple briefing will help to clarify the situation, eg; *"Obviously I will be P1 on this flight but despite my experience I am perfectly capable of making mistakes. If there is anything that you are unhappy about, or if you think that you may have seen something that I may have missed please tell me immediately."*
- Who will do what during the flight - bearing in mind the pilot in command has been decided before flight
- Are both pilots briefed to hand over / take over control using the tried and tested protocol? The pilot in command should ensure that they are.
- If during a flight there is any doubt about who should be in control, the pilot in command should fly the aircraft.

13. Gliding Operations

Public Safety

Clubs have a duty of care towards members of the public as well as their own members. The public must be allowed to exercise rights of way. It may be necessary to temporarily modify the gliding operation or cease launching to ensure public safe passage.

Visiting Pilots

Visiting pilots are likely to have a wide range of backgrounds. Specific guidance on the intricacies of flying from a site, particularly those sites of a more demanding nature, might be covered in a visiting pilots briefing note. Ideally this information should be available via the host club's website so that the potential visitors can brief themselves ahead of any visit. Irrespective of the scope and content of the various publications, before flying visiting pilots should be directed to suitable briefing information describing the site's key risks and operating challenges. Visiting pilots are advised that the excitement and novelty of the site could distract

them from considering how the different site and conditions might involve different preparation and eventualities.

Moving gliders on the ground

Every year there are many hours of flying lost and tens of thousands of pounds of insurance claims made due to avoidable accidents whilst moving gliders on the ground. There are some simple precautions that contribute to moving gliders safely;

Towing a glider;

- Confirm the undercarriage is locked down
- Close and lock the canopy
- Check any towing equipment is fitted correctly
- Ensure that all involved including the driver can hear instructions or warnings
- If using a rope to tow, ensure it is long enough. Consider an overrun or other eventuality.
- Drive at a slow walking pace

Moving a glider near an obstacle;

- If possible, steer by holding the wingtip nearest the obstacle
- If in doubt, ensure someone is checking clearance

Parking aircraft;

- Consider the weather. Gusts or strong winds can easily move and even lift aircraft. Gliders are particularly vulnerable.
- Proactive use of wind breaks and parking gliders with tyres on a wing and elsewhere can prevent weather-cocking and unexpected movement.
- Packing in a hangar can easily result in “hangar rash”. Care should be taken to adequately brief those moving the aircraft and checking clearance.

Opposing Circuits

Opposing circuits (also known as mirror circuits) to the same landing area involve gliders and/or tugs potentially approaching each other on the base leg at a relatively high combined speed when the attention of both pilots is inevitably concentrated on positioning their aircraft in relation to the landing area. Opposing circuit traffic will be difficult to detect. As such, opposing circuits to the same landing area represent a potentially significant hazard that pilots need to be aware of.

Aerobatics

Aerobatics can be an excellent tool for learning, practicing and demonstrating pilot skill. Displays are subject to ANO requirements. Aerobatics should always be carried out at a safe height taking into consideration the ever-present potential for misjudgement or loss of control and the minimum height established by the club CFI. Where Flight Manual limitations on “g” or airspeed are exceeded, the incident should be reported. As structural damage may have occurred that can subsequently fail in flight, the aircraft must not be flown until it has been inspected and released for service by an approved inspector.

Motor Gliders

Guidance on operating a mixed gliding and motor gliding operation is included in the "Motor Glider Handbook" on the BGA website. A key issue here is maintaining adequate separation between cables/ropes and motor gliders. https://members.gliding.co.uk/library/power-flying/bga-motor-glider-handbook/

Fuel Management

It is the pilot in command responsibility to ensure that an aircraft does not run out of fuel in flight. Aircraft fuel gauges are in general only certified as accurate when showing empty. The following good practices can help busy pilots and instructors;

- Careful physical checking of fuel contents before flight – a calibrated dipstick may be useful
- Checklists or mnemonics used before, during and between flights or tows that require a check of "fuel contents"
- Assume a higher than flight manual figure for fuel consumption and plan (eg x/litres per tow) to finally land with enough fuel to deal with unforeseen circumstances. The Law ie EASA Part-NCO requires pilots to have 30 min reserve when beyond sight of the airfield and 10 mins reserve otherwise
- Regular checking of fuel gauges during maintenance

Carburettor Icing

Carburettor icing has existed as long as powered aircraft. Carburettor heat where fitted should be used as described in the aircraft flight manual. The lower the power setting, the greater the risk of carburettor icing.

A prolonged descent (for example during motor glider field landing training) will very likely result in a cool exhaust manifold and insufficient heat may be available to clear any ice if hot air is selected. This may be alleviated to an extent by use of hot air during the final part of the previous climb while at a high power setting. Whether a carburettor hot air system is fitted or not, assurance that the engine will respond to throttle movement should be carried out during the descent by occasionally and briefly demanding high power at heights that would enable the aircraft to make a successful forced landing in the chosen or adjacent fields should the engine fail to respond adequately.

Self-Launching and Self-Sustainer Sailplane Airborne Engine Start

Self-launching and self-sustainer sailplanes are equipped to assist their pilots in staying airborne. A well-maintained engine system, a practiced pilot and a sensible operating protocol usually results in a safe and timely engine start and climb. Accident report data indicates that most problems occur due to a late decision to start the engine.

There are several important considerations, including:

Practice & familiarization

- Older engine/prop systems can require complex starting procedures. Become familiar with all starting 'drills' while sat on the ground. Please refer to the flight manual.

- In some cases where multiple actions are needed to erect and start the engine, in flight pre-positioning of selectors and switches may be appropriate and helpful. Some operators use a numbering system to help to ensure multiple actions are addressed in the correct order.
- In many cases the engine/prop produce significant drag and therefore steepen the glide angle. This is less of an issue with jet and FES installations. Please read the flight manual.
- Wing loading (water-ballast) can be a limiting factor in safely achieving the (low) speed needed to retract or extend the engine/prop. Please read the flight manual.
- The deployed engine can affect the glider's handling and stability. Read the flight manual and explore at altitude the effects both with the engine running and with the prop stationary.
- Practicing engine/prop deployment and starting before needing to use the system during a cross-country flight is important. Some operators practice landing at their home airfield with the engine/prop deployed but not running to get used to the changed performance and in some cases changed handling. Circuit planning needs careful attention.
- Having a pre-considered and personally agreed minimum height for engine start – effectively a pilot's own 'red line' - is very important. The flight manual will provide guidance. Determine how much height you lose deploying and starting the engine and hence decide a sensible decision height. Recognize that descending beneath this height effectively discards the engine option.
- Dive starting will consume more height, and must therefore be begun earlier, than a well-practiced electric start.

Pre-flight/start

- Checking fuel and batteries should be part of the daily inspection.
- Carrying out an engine start each time before leaving safe gliding distance from the home airfield will prove the system and refresh the pilot's ability to use it.

In flight

- It is important to accept that a conventional field landing will happen if a pilot's minimum height for starting has been reached before deploying the engine.
- As should always be the case when flying cross-country, constantly monitor the available landing options. Have a landing option selected before deploying the engine/prop.

Engine deployed

- When a decision has been made to deploy and start the engine/prop, the priority is to fly the glider.
- While the engine/prop is deploying, keep flying the glider and stay aware of the chosen safe land out option.
- When the engine starts, again keep flying the glider (the flight manual should describe the best climb speed and profile – eg climb-cruise) and stay aware of positioning relative to the chosen land out option.
- If the engine does not start, keep flying the glider and prepare to land out on the chosen land out option. Only if there is time/height to do so, logically check for a reason for

non-starting, eg fuel and ignition, before another start attempt while continuing to fly the aircraft towards the safe land out option.

- Recognize that deploying and using the engine adds to pilot workload and potential distraction in an already busy stage of the flight. Being in practice and starting the engine in good time will reduce stress and reduce the opportunity for human errors to occur.

First Aid and Firefighting

Telephone numbers for the emergency services and guidance for first responders should be displayed prominently at the club premises. A first aid kit should be kept in a prominent and easily accessible place.

Serviceable fire extinguishers suitable for electrical and fuel fires, as well as a crowbar and axe, should be kept on a quickly mobile vehicle whenever aeroplanes or gliders are operating from the field.

14. Hill, Ridge and Mountain Soaring

Soaring on hills, ridges, and mountains is inherently more hazardous than other types of soaring because of the proximity of the ground. Too many glider pilots, even those with a lot of experience, have had accidents from not adopting the required flying techniques.

Knowledge and Training

Safe preparation and pilot behaviour including human factors requires relevant theoretical knowledge, and prior tuition in a two-seat glider to develop the necessary practical skills.

The following publications are recommended reading for all pilots who intend to soar hills, ridges, or mountains:

Glider Handbook Section 10 (FAA)

Safety in Mountain Flying (FFVP)

Pilots visiting an unfamiliar hill, ridge, or mountain site should carefully consider locally prepared guidance on safe operations. A template for such club guidance is included at appendix 1.

CAA Exemption from SERA 3105 Minimum Heights Rule

Soaring is using the air efficiently and safely in order to maintain height or climb. Hill-soaring (also called ridge soaring or mountain soaring) is flying in rising air alongside hills, ridges and mountains with the aim of soaring efficiently and safely.

The Civil Aviation Authority permits, under an exemption to ‘SERA.3105 Minimum Heights’ and SERA.5005(f) ‘VFR Flight Minimum Height’, a glider to fly below 150 metres (500 feet) above the ground or water or closer than 150 metres (500 feet) to any person, vessel, vehicle or structure if it is hill-soaring. In doing so, pilots must comply with ‘SERA.3101 Negligent or Reckless Operation of Aircraft’, which states that an aircraft shall not be operated in a negligent or reckless manner so as to endanger life or property of others.

Additional Collision Avoidance Considerations (refer to Section 8 Collision Avoidance)
Consider and remain clear of all other ridge users including people on the ground.
The glider with the ridge on the right has priority.
Overtake with caution, bearing in mind the other glider could suddenly change direction.
When flying with a significant drift angle, FLARM direction indications can be misleading.

15. Reporting Incidents and Accidents

Although incidents and accidents should ideally not occur, it's a fact of life that they do. The BGA safety management system manual identifies how reporting of incidents and accidents by pilots and instructors provides vital data that supports efforts to minimise risk in our sport. A reported incident where fortunately nothing was damaged, but easily could have, might help to avoid a future accident just waiting to occur in similar circumstances. Details are described at https://members.gliding.co.uk/reporting-an-occurrence/

Club Internal Incident Reporting

This BGA safety management system manual describes how clubs can report and review those additional incidents that are not required to be reported under the established BGA incident & accident reporting system. Club internal incident reporting systems are great for identifying risks at clubs and establishing a process through which significant risks are recognised and addressed by the club. There are effectively three stages to the process:
a) Reporting, b) Follow Up and c) Recording.

a) Reporting

Establishing a reporting culture is the key to success here. Experience at a number of BGA clubs who already have a club incident reporting system demonstrates that the CFI will need to arrange for the club safety officer, instructors, and other members to actively supply him with incident information. The BGA can provide clubs with a simple club incident reporting template, but it's entirely up to a club to decide how these incidents will be reported at the club, eg by email or hard copy to the CFI or Safety Officer.

b) Follow Up

Reports describe what happened. The next step is to decide what, if anything needs to be done about it. Clubs need to periodically consider the reported club incidents and identify which, if any, are significant enough because of their potential impact and frequency of occurrence to require positive mitigating action within the club. That action needs to be recorded.

The club incident reporting template should include "mitigating action taken". That might be "nil" in many one-off, insignificant cases. In other significant cases, it could be an extensive action including publishing or modifying advice for club & visiting pilots.

What type of incidents should be reported as club incidents? Examples of incidents best handled by the club are illustrated below:

- Inadequate DI
- Potential collision taking off or landing
- Hazardous circuit or approach

- Poor handling
- Ground-loop without damage
- Poor parking / ground collision risk
- Hangar rash
- Pedestrians on the airfield
- Out of date or incomplete paperwork
- Airmanship issues

c) Recording

The reports, including any mitigating action, ideally need to be recorded by the club using as a minimum the detail within the club's incident report template.

16. Publications

Laws and Rules

"Laws and Rules" are published on the BGA website, providing the detail of BGA requirements and guidance as well as links to and guidance regarding EASA/CAA regulations. The BGA requirements and guidance have been developed in consultation with member clubs over many decades with the aim of meeting the practical needs of gliding clubs and their members. Objectives include clarity, effective risk management, and supporting compliance with applicable EASA and CAA regulations. The detail is frequently reviewed and updates are promulgated through BGA news. All members of BGA clubs are subject to the BGA requirements and guidance listed at https://members.gliding.co.uk/laws-rules/

- Operational Regulations
- Managing flying risk
- Accident reporting
- Airworthiness
- Competitions
- Cross country and airspace
- Examining and assessing pilots and instructors
- Gliding aerobatics badge
- Sporting badges and diplomas
- Gliding certificate and endorsements
- Guidance for SPL and LAPL(S) holders
- Instructors
- Introductory and passenger flying
- Medical requirements
- Radio
- Rules of the air

The relevant EASA and CAA regulations are linked from https://members.gliding.co.uk/laws-rules/

- Air Navigation Order
- Airworthiness and maintenance
- Medical

- Operations
- Pilot licencing
- Pilot licence conversion
- Rules of the Air

Guidance on glider trailer road traffic regulations are also available https://members.gliding.co.uk/laws-rules/

Safety Publications
The BGA safety webpages are at https://members.gliding.co.uk/bga-safety-management/

Website Information Library
The website library includes* safety documents under the following categories at https://members.gliding.co.uk/library/safety/

- Accident and incident summaries
- Field landing
- General safety publications
- Investigation reports
- Safe aerotowing
- Safe winch launching
- Safety briefings

Website Safety Briefings
The following *Safety Briefings* are available* at https://members.gliding.co.uk/library/safety-briefings/

- Aerotow performance
- Ballast weights
- CAA safety sense leaflets including use of GPS and collision avoidance
- Cable hang ups
- Control confusion
- Currency barometer
- EU GA Safety Team leaflets including use of GPS and collision avoidance
- FES ground safety
- Field landing
- GQ parachutes
- Is your glider fit for flight?
- Launch cable safety
- Mountain flying
- Mounting cameras for use in the air
- Parachuting after a mid-air collision
- Safe aero-towing
- Safe winch launching
- Safety foam
- Soaring protocol

*at the time of publication of this document.

Appendices

1 - Site Hazards and Mitigations Template

This document is intended primarily for expedition sites (for example where hill, ridge and mountain flying take place) as a briefing tool for visiting pilots. When a local pilot has trained at a challenging site, they will be aware of those challenges and will, within the course of their flying training have received the skills required to operate safely. The same is not true of a visiting pilot.

This template document aims to alert and support new and visiting pilots to the challenges of operating at these 'technical' sites. Clubs may wish to suggest mitigations for known hazards, including training for new and visiting pilots. The information could be published on the expedition club's website so that visiting pilots can prepare before and/or during the visit.

The following example is based on a fictitious site.

Club name: Northmyndsoaringdowns GC Site Name: Southdenboynebridge

Site Hazard	Mitigation / training or skill required
Narrow runway	Pilots must be able to run straight after landing, especially in crosswind conditions
Restricted landing area	Pilots require the skill to land accurately and stop at the far end of the runway
Challenging, non – linear ridge to soar	Pilots must attend our ridge soaring briefing and undertake training on our ridge in different wind directions due to the challenges of the shape of our local ridge
Turbulence on approach	When our ridge is working, the approach to the Westerly runway is challenging. Pilots must be trained to land with very strong wind gradients and turbulence
Winch Launch Failures	Turning downwind after a launch failure is the usual method if landing ahead is not possible. At our site, turning downwind after a launch failure may result in strong sink. Launch failure training must be undertaken for the three main wind directions that present challenges at this site
Aerotow launch failures	Pilots should receive a briefing to prepare for a low launch failure which requires a landing in the valley. We have some standard procedures which may be trained in the club simulator
Public footpaths	Pilots should be aware that there are two public footpaths that cross the airfield. Pilots should fly with sufficient margins such that members of the public can be avoided should they be using the footpaths
Wave soaring	Our site experiences common wave lift conditions to extreme altitudes. Pilots should receive training in navigation, cloud descent techniques, and the use of oxygen. Optionally, pilots may wish to receive training in cloud flying
Remote land outs	Our club is surrounded by very remote areas. Pilots should ensure that they are dressed appropriately and that they carry appropriate survival equipment and a method of electronic location.