

<b>BGA LAWS AND RULES</b>
<b>MANAGING FLYING RISK GUIDANCE</b>

<b>Version 1.7</b>	<b>Effective date 14 Nov 16</b>
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## **Introduction**

The British Gliding Association, which includes all member clubs, is committed to safe practices 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.

This is achieved through self-regulation and compliance with applicable regulations as detailed under 'Laws and Rules', an effective safety management system and a process of continuous improvement.

'Managing Flying Risk' is one of the series of BGA requirements and guidance documents within Laws and Rules. The document aims to provide clubs and pilots with guidance that will help them to understand, minimise and manage risks associated with gliding operations including with powered gliders and tug aircraft.

## **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 periodically 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 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 reactionary 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 on the [BGA website](#).

### 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. Details are on the [BGA website](#).

### 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. Details are available on the [BGA website](#).

### 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 pilots' 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 appropriate skills remain in place, for

example spinning, or 'field landing' refresher training in a motor glider. Pilots need to remember that two instructional flights in 24 months form part of the SPL/LAPL(S) [recency requirement](#).

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

- Maintains effective lookout at all times
- Can cope with launch failures at any height
- Does not stall or spin inadvertently
- Can land very accurately in the chosen place
- Understands the operating environment
- Selects a field in good time
- Takes care on the ground

### **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 equipment 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 in the [BGA publication 'Navigation and Airspace Awareness Training'](#).

### Audio Variometers

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

### Undercarriage Warnings

Owners should note that in some circumstances undercarriage warning systems can cause significant distraction during a critical stage of flight. If a glider is seen wheel-up on the landing approach, no attempt should be made to warn that pilot.

### Oxygen

Atmospheric pressure reduces with altitude; halving every 18,000 ft. Composition is constant, so starting with 1000 mb, the partial pressure of oxygen is 210 mb, and that level will fall proportionately. Healthy humans can compensate for some lack of oxygen but only down to 150 mb 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.

## **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 aircraft for flight
- carrying out a daily inspection
- checking any pilot safety equipment
- checking for correct weight and balance
- considerations ahead of launching
- carrying out pre-flight cockpit 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.

### Considerations ahead of Launching

The pilot in command must reasonably ensure that the intended flight can be completed safely.

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.

Pilots are taught 'eventualities' as the final element of the pre-flight check. This helps the pilot form a plan in the event of a launch failure.

There are a number of wider considerations ahead of launching which all pilots should be aware of. These include:

#### *Recency / Currency*

SPL/LAPL(S) holders exercising licence privileges are legally subject to recency requirements described in Laws and Rules. Beyond any legally established minima, CFI's 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.

#### *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.

### 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.

### Winch Launch

It is important that all pilots who winch launch are aware of the detail contained on the 'Safe Winching' page on the [BGA website](#). The following points are fundamentally important and should be considered by all pilots before flying a winch launch;

- 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.
- 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

### Aerotow

It is important that all pilots who aerotow launch are aware of the detail contained on the 'Safe Aerotowing' page on the [BGA website](#). The following factors may cumulatively contribute to a hazardous situation. Where more than one item is present, advice should be sought before launching.

- a) Low experience of glider and/or tug pilot
- b) Gliders fitted with C of G hook only
- c) Glider's C of G towards the aft limit
- d) Turbulent air in the take-off area
- e) Rough ground in the take-off area
- f) Significant cross-wind component
- g) Short rope
- h) Light-weight glider, low wing loading

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.

### Pre-Flight Cockpit 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
- C CANOPY closed, locked and doesn't open with applied pressure
- B BRAKES check operation, closed and locked
- E EVENTUALITIES consider launch failure and other options

## 5. 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.

## 6. 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, and by understanding the protocols and rules of the air. The list of safety briefings in this document includes 'Collision Avoidance' and a 'Soaring Protocol' that should be read by all glider pilots. The following are 'Collision Avoidance' rule extracts from Standardised 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.

### 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.

### Emergency landing

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

## **7. 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.

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 should 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 are you 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 ideal 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 you acclimatise 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'
- 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 DI
- Pilot and passenger weights – C of G position and max all up weight

- 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 reduce that 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.

## 8. 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:

- 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.
- 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.

## 9. Gliding Operations

### Supervision

Supervision is all about making sure something is done correctly. In a gliding context, this often means making sure the level of risk is maintained at a reasonable level. The experience level of supervisors and their ability to influence others are important. The CFI can delegate responsibility to the clubs instructors. Differing levels of supervision can be delegated to differing levels of instructor experience. In all instances, subject to applicable law the CFI remains accountable for the supervision and maintenance of flying standards at his or her club.

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. 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.

### Public

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.

### Instructor in Charge

Pilot training, passenger flying paid by the passenger (eg introductory flights) and flying by an unqualified pilot must be overseen by an instructor holding a current BGA Full or Assistant rating. An instructor should not be used in any supervisory role until they have been specifically prepared for the additional responsibilities. The Instructor in charge probably cannot personally deal with all the required supervision tasks during the flying day and it is his or her responsibility to ensure that other instructors or suitably experienced pilots assisting with supervision have themselves been briefed and agree on the key issues of the day, eg airfield usage, weather, airspace, etc.

### Early 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

### 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 web-site so that the potential visitors can brief themselves ahead of any visit. Irrespective of the scope and content of the various publications, visiting pilots should have access before flying to suitable briefing information describing the site's key risks and operating challenges.

### Winch Launching

A suitably experienced Launch Point Controller 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.

The 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.

### Aerotowing

The recommended minimum for an aerotow rope is 150 ft. A shorter rope may be used. The [Aerotowing Notes](#) provide guidance.

### 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.

### 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.

### 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.

## **10. 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. Helpful details are described in the Laws and Rules BGA 'Accident Reporting Requirements' on the [BGA website](#).

### 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
- 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.



## 11. Publications

### Laws and Rules

The BGA is the national governing body of sport gliding. Gliding takes place under a mix of national, European and self-regulation. The European Aviation Safety Agency (EASA) is the EU aviation regulator. The Civil Aviation Authority (CAA) is the UK aviation safety regulator. In the interests of managing risk, the BGA operates in partnership with CAA or in some cases as a CAA qualified entity.

'Laws and Rules' is 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 regulation. The detail is regularly reviewed and updates are promulgated through BGA news. All members of BGA clubs are subject to BGA requirements and guidance.

The BGA requirements and guidance documents, which can be downloaded from the [BGA website](#) individually or as a single document if required, are;

- Operational Regulations
- Managing flying risk
- Accident reporting
- Airworthiness
- ANO and Rules of the Air guidance
- 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

The relevant EASA and CAA regulations linked from the [BGA website](#) are;

- Air Navigation Order
- Airworthiness and maintenance
- Medical
- Operations
- Pilot licencing
- Pilot licence conversion
- Rules of the Air

Guidance on glider trailer road traffic regulations can be downloaded from the [BGA website](#).

## Safety Publications

### *Safety Website*

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
- Cable hang ups
- Collision avoidance
- Control confusion
- Currency barometer
- FES ground safety
- Field landing
- GPS used safely
- GQ parachutes
- Is your glider fit for flight?
- Launch cable safety
- Mountain flying
- Mounting cameras for use in the air
- Safe aerotowing
- Safe winch launching
- Safety foam
- Thermal soaring protocol

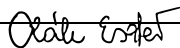

End.

<b>Centre: Sport Centre</b>	<b>Date: 25/03/2019</b>	<b>Review Date: 01/09/2019</b>

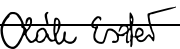
**Risk assessment for the activities undertaken as part of a membership with the Cambridge University Gliding Club that are NOT related to flying. All flying risks are outlined in a separate document, written by the British Gliding Association (BGA).**

Significant hazards	What could go wrong	Risk level (High, Medium or Low)	Existing control measures	Further actions
Lift to the airfield	Car accidents	low	Only licensed and insured drivers are able to provide transport for members of the club, or licensed taxi drivers.	Check each new member with a car has a driving license and insurance.
	Students left at airfield	low	All facilities are checked before the club is locked up in the evening.	
Cycling to the airfield	Bike accidents	medium	We advise all our members to sign up to the transport mailing list instead of cycling / have proper safety equipment on their bikes if they do decide to cycle. Members who cycle out often get a lift home in someone's car, with their bike in the back. Members who are signed up to fly and don't turn up are checked up on.	
	Getting lost	low	Detailed cycling instructions are available on the club website	
Travel to Expeditions	Car accidents due to fatigue/inexperience	medium	Only drivers with a valid insurance and license who in addition have experience driving long distances are allowed to drive other members to distant expedition sites.	Drivers are reminded to take regular breaks to avoid fatigue.

**ASSESSOR**

<b>Name of assessor:</b>	<b>Signature:</b>	<b>Date</b>	<b>Name of Supervisor:</b>	<b>Signature:</b>	<b>Date</b>
Eszter Olah		25/03/2019	Chris Barrott		24/09/2019

**REVIEW DATES**

<b>Reviewed by (name)</b>	<b>Signature</b>	<b>Date</b>	<b>Indicate changes here</b>
Eszter Olah		01/09/2019	Additional risks associated with CUGC only

<b>Activity: Freshers' Fair</b>	<b>Date and Time: annually in October</b>	<b>Location: Parker's Piece, Cambridge</b>
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Each year, Cambridge University Gliding Club takes part in Freshers' Fair. The club owned glider is also usually displayed at the park. A committee member (normally the Equipment Officer who has a substantial knowledge on the specific maintenance and the rigging details of the glider tows the glider in a trailer to the park and leads the rigging/derigging of the glider on site. It takes about 3 people at most, who are usually committee members or ordinary members with significant experience in order to avoid any unnecessary risks due to inexperience in rigging. During the day, our representatives at the stall show the glider around for students who are interested, they also assist anyone who wishes to climb in the glider as well. They make sure that unnecessary risks around handling the glider on the ground are avoided.

Condition	Assessment of Risk Level			Additional Control Measures/Notes
	High - Unacceptable	High-Acceptable with additional control measures	Low - Acceptable	
Weather			✓	In case of inclement weather, the glider will not be rigged or derigged, thus weather poses a low risk.
Participant Numbers		✓		In case too many people crowd around the displayed glider thus increasing the risk of stumbling into the glider, our members who manage the stall will take measures to disperse the crowd.
Participant Capabilities (record session leader details in the notes section)			✓	Participants who partake in rigging and derigging the glider must have sufficient knowledge as to not put themselves or others at risk during these activities. Session leader would normally be the equipment and/or safety officer.
Equipment (see separate equipment checklist)		✓		If caution is exercised when handling the glider, and the lead of the equipment officer is followed, risks can stay at a low level.

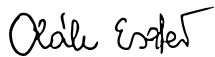
Item	Condition			Notes
	Acceptable	Acceptable with alterations	Not acceptable	
Sun burns		✓		We remind our members who help out during freshers' fair that the Sun can have temporary adverse effects on a person's health, so they are advised to wear suitable sun protection and drink water regularly.
Handling heavy equipment		✓		Our equipment officer who has extensive knowledge on the specific glider leads a small team of knowledgeable pilots during the rigging and derigging processes to minimize risks.

### EMERGENCY PROCEDURES

Action to be taken in case of reasonably foreseeable emergencies:

In a case of an emergency, a member of CUGC who are responsible for the stall will call an ambulance either by drawing attention of one of the ambulance teams at the fair or by calling the emergency services at 999.

### ASSESSOR

<b>Name of assessor:</b> Eszter Olah	<b>Signature:</b> 	<b>Date:</b> 02/09/2019
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<b>Activity: Expeditions</b>	<b>Date and Time: annually during holidays</b>	<b>Location: Variable</b>
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Each year, Cambridge University Gliding Club organizes several expeditions to distant gliding clubs, mostly within the UK so that our pilots of all abilities can experience different sites that involve different challenges. These expeditions pose very specific risks that can be easily managed through caution and care exercised by our members. We always make sure our members know exactly what they sign up for and that they can safely enjoy these opportunities from both a social and a training point of view.

Condition	Assessment of Risk Level			Additional Control Measures/Notes
	High - Unacceptable	High-Acceptable with additional control measures	Low - Acceptable	
Weather		✓		In case of inclement weather, the host Club will decide whether flying is safe or not and our members will adhere to their decision.
Participant Numbers			✓	These expeditions are designed so that we take the optimal amount of people on a first come first served basis to maximise everyone's chances of flying.
Participant Capabilities (record session leader details in the notes section)			✓	Each expedition is different but we make sure these are tailored to all pilots with all experiences, experienced instructors are available at every host Club, and we also make sure that our members feel safe flying with them. Session leader would normally be the CFI of the host Club
Equipment (see separate equipment checklist)			✓	Equipment is usually provided by the host Club at expeditions, in the UK they are all subject to BGA inspections thus maintaining the highest safety standards across the country.

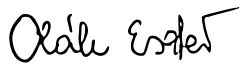
Item	Condition			Notes
	Acceptable	Acceptable with alterations	Not acceptable	
Sun burns		✓		We remind our members who participate in expeditions that the Sun can have temporary adverse effects on a person's health, so they are advised to wear suitable sun protection and drink water regularly.
Handling heavy equipment		✓		Normally an instructor from the host Club leads the hangar packing to make sure our members, who might be inexperienced at packing the hangar can safely take part in the preparations.
Members getting lost in an unfamiliar area		✓		We issue a list of everyone's contact details so in case a person gets lost they can reach another member partaking in the expedition.

### EMERGENCY PROCEDURES

Action to be taken in case of reasonably foreseeable emergencies:

In case of an emergency at the airfield, the crew of the host Club would normally deal with the emergency and provide immediate First Aid, however if the emergency is not at the airfield, a member of CUGC would call 999.

### ASSESSOR

<b>Name of assessor:</b> Eszter Olah	<b>Signature:</b> 	<b>Date:</b> 02/09/2019
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