SCOTTISH
GLIDING CENTRE

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Scottish Gliding Centre

New Member's Handbook

Contents

1. Welcome to the SGC

Welcome to membership of the Scottish Gliding Centre! You have joined the largest gliding club in Scotland. We fly right through the year and our site, at Portmoak Airfield, is well-placed to let you experience all the different kinds of soaring conditions that make gliding so exciting – see Section 6.2 for more on soaring weather. For those who are just taking up the sport we provide training right through from novice to solo pilot and beyond. Our membership also includes several UK record holding pilots. All levels of experience are welcome!

1.1. When do we operate?

The club is operated by volunteers. We fly whenever the weather is suitable and there are members available to organise flying – that's seven days a week for much of the year. We use a booking system called *Click n' Glide* (you will be given an account when you join) to indicate what's going on at the club. If you want to come flying you can sign up on *Click n' Glide* with one click. It also shows up-coming events, evening talks, social gatherings, and so forth.

1.2. Facilities

The club operates a fleet of two-seater and single seater aircraft, with both winch and aerotow launch facilities. You can buy snacks or meals in the club room. There is a bar, for after flying, and comfortable bunk room accommodation. The summer and winter office hours are posted on the office door and on the website.

1.3. Contacting the club

Address:	Portmoak Airfield Scotlandwell KY13 9JJ
Tel:	01592 840543 (answer phone out of hours)
Email:	office@scottishglidingcentre.co.uk
Website:	https://www.scottishglidingcentre.co.uk/ with link to members' area: https://pilots.scottishglidingcentre.co.uk

2. Safety

As you might expect, we take safety very seriously. There are risks in gliding, but they are minimised if everybody follows some common-sense rules. If you are new to gliding you will be given briefings on safety matters during your training, but here are some of the key points.

2.1. For first time visitors

- Get a safety briefing from an instructor **before** going onto the airfield.
- Don't walk across any area of grass without a very good and continuing **lookout –** landing gliders are very quiet.
- Don't drive across, or park a car on, the airfield. (Disabled pilots – please consult first.)
- Winch cables can be dangerous – don't handle them unless cleared to do so.
- Propellers can kill – never get close to a propeller, even if it is stationary.
- Loose articles can jam controls – don't take cameras, mobile phones etc. into an aircraft without your instructor's permission.
- Airfields can be cold – bring suitable warm clothing and footwear. (Sunglasses are useful too.)
- If in doubt – ASK!

2.2. At the launch point

All the work around the club is done by volunteers, and running the launch point is no exception. If you've been to the club more than once or twice, no doubt you have already started to do your bit, as learning all the different jobs is an important part of becoming a glider pilot. But please make sure you ask someone to show you exactly how to do a job before doing it the first time, no matter how easy it appears. It's not always immediately obvious what the potential dangers are, and both people and gliders can be quite easily damaged.

Here are some of the routine tasks that you'll want to know about. This is not a comprehensive description of them, just a few tips about the key points. See Section 8 for where to find further information, or (as ever) ask other members.

- *Moving gliders around*: The best places to push are on the front of the wings, close to the fuselage, or on the nose. Therefore, we usually push gliders backwards if going more than a few yards. For long distances, we tow with a vehicle; then there should be one person on the wing tip and one by the nose (to stop the glider if it starts over-running towards the tow vehicle). When a glider is moving, the person on the wing tip is steering – so just one wing tip should be held at any time. There's a lot more to safe ground-handling that there isn't room for here; see the *Ground Rules* briefing

document (linked from the *Airfield Operations* section of the airfield manual on the pilots' wiki) or **ask**.

- *Winch cables*: There are usually two cables. **Never** touch the second cable while the first one is "live", i.e. at any time from when it is being attached to a glider until it has been fully wound in to the winch after the launch. There is a light on top of the winch that flashes while it is operating – don't go near a cable until this light is out. Actually attaching a cable to a glider is straightforward – get someone to show you how to do it, and what the different coloured strops are for. Before the glider's first flight each day the cable release is always checked; this is another job to learn. Avoid walking in front of the launch point at any time and of course, keep well behind a glider that has a cable attached.

- *Towing the cables*: The best way to learn this job is to do a couple of trips with the tow truck driver. (Obviously you need to be a competent driver and, for insurance reasons, you must have a driving licence to drive the trucks. The Kawasaki Mules can be driven by anyone, subject to training.) The key points are to drive straight (to minimise the risk of the cables overlapping each other) and to avoid slowing down suddenly (as otherwise you may cause a loop of cable at the winch end). You must keep a good lookout all the time, especially for landing gliders. When you reach the launch point, do not drive away until you are **certain** that the cables have been removed; moving even at walking pace the cables are dangerous.

- *Signalling*: The pilot asks for the cable to be attached once he or she is ready to accept a launch (having checked it is clear ahead). The person controlling the launch then has a good **lookout**, all around, and especially for other gliders about to land, and calls "**All clear above and behind**" if it's safe for the launch to go ahead. The three signals are:

  Take up slack – All out – STOP!

- The signals are given by arm movements, by shouting and by light and radio signals. Watch how they are used and ask someone to explain them. The first two signals are given by the person controlling the launch, but **anyone** can give the STOP signal. If you see something you think might be dangerous, shout "STOP" and raise your hand. It doesn't matter if you're wrong; it's always better safe than sorry. Don't assume someone else has already noticed that there is a person walking across the airfield, or that the glider's airbrakes are open, or the tail dolly is still on, or... whatever it is.

- *Aerotow launching*: The signals are the same as for winch launching. A rope from the tail of the tug is attached to the **nose hook** of the glider (not to the belly hook, unless that's all that's fitted). Avoid going anywhere near the front of the tug: propellers are lethal. The signals should be relayed to the tug by radio from the launch controller. The fire truck (a trailer with extinguishers and emergency equipment) must be at the aerotow launch point.

- *Handling canopies*: The glider's canopy is both fragile and expensive. Never walk away from a glider leaving the canopy open – even a light wind may blow it shut and that will probably break it. When opening or closing canopies, never lift them by the perspex; always use the handles on the frame. Ask your instructor to show you if unsure. Always open the canopy to operate the cable release when towing gliders. Don't reach through to pull the knob – if the glider moves or you need more force than you thought, you will crack the perspex. If pulling a glider on the cockpit edge, support the open canopy with your other hand (so it doesn't slam), but don't pull on the canopy.
- *Windy weather*: When the wind is strong we need to be especially careful about ground handling of gliders, as they can quite easily blow over. This applies particularly to any older wooden gliders at the launch point. In windy conditions, don't leave a glider unattended unless it is properly parked. Ask someone to show you how, but generally this means a tyre jammed under the nose, another on the down-wind side of the tail, and one or more on the wing tip. The glider should be turned at right angles to the wind. Take special care when towing gliders in strong winds; don't do it without someone experienced supervising.

There are other routine operational tasks that you should know about, though they don't have significant safety implications. These include:

- keeping the log
- setting up operations in the morning
- closing down in the evening
- getting gliders in and out of the hangar
- basic radio procedure at the launch point
- daily inspection (DI) of gliders

As ever, the best way to learn these jobs is by doing them, with someone to show you how. They are also described in the *Airfield Manual* on the website. As you become more expert, you'll need to be ready to show other newcomers how we do things.

3. Tips for New Members

If you've read the previous section, you'll realise that the best advice for learning the ropes is to talk to other members. They'll be happy to show you how to do things and very few of them bite. Here are a few tips that may be helpful too.

- On arriving at the airfield, put your name on the flying list before doing anything else.
- The earlier you arrive, the sooner you'll fly.

- Keep checking the list, and make sure you don't miss your turn to fly. Please help out at the launch point while waiting your turn.
- If you're not sure how to help, speak to the Duty Instructor or Duty Pilot. If you don't know who they are, ask!
- Volunteer to keep the log. This is an important job and the best way to learn members' names and get yourself known to others. Please try to keep the log as clear and accurate as possible. You will be charged according to what it says, so check your own flights are logged correctly before you leave.
- You must log all your flights in your own private logbook.
- When you have flown, put your name back on the list – you may get to fly again.
- If you can fly regularly you will learn much faster.
- Read the *Airfield Manual* (available on the website).
- The pilots website (https://pilots.scottishglidingcentre.co.uk/) is probably the most comprehensive source of information. You may also want to join the *Members' Forum* – see link on the website, in the "keeping up to date" section.

4. Learning to Glide

Your instructors will guide you through all the practicalities of learning to fly a glider. This section gives you a very basic overview of what's involved, along with some pointers that you may want to follow up as your training progresses.

4.1. Training Cards

Your joining pack should include two training cards, one yellow and one green. Bring these and your logbook with you whenever you come to fly.

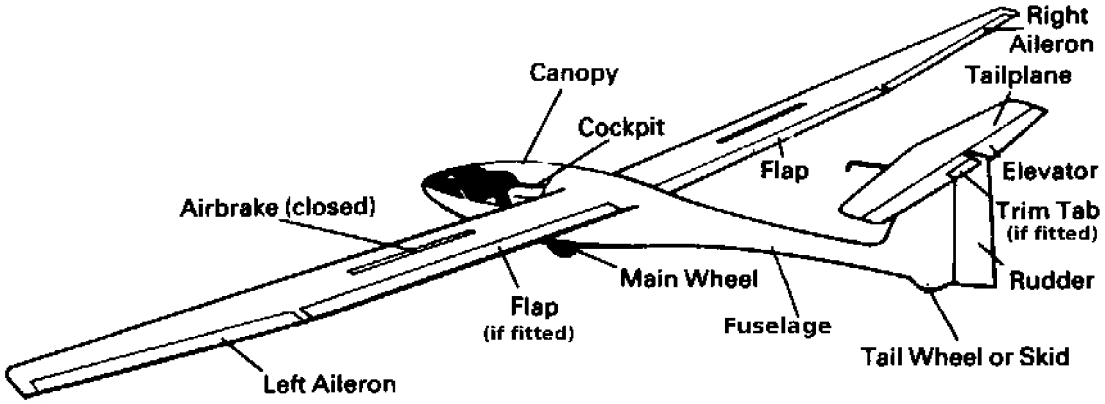
The **yellow card** is for flying training: from beginner, through solo, to becoming a qualified pilot. Each time you fly, make sure the instructor updates your training card and logbook.

The **green card** is for ground-handling training, including all the tasks described in section 2.2 above. Any qualified pilot can sign off items on this card, after showing you how to do a task and checking you are competent. (Exceptions requiring an instructor signature are marked on the card.) Completing this is a pre-requisite for flying solo and it's up to you to drive this training – don't be shy about asking experienced members to show you tasks and sign them off.

For new solo pilots there is an optional **blue card** (available on the forms table in the clubhouse) that is designed to help you make progress with your flying, towards cross-country, aerobatics, instructing or wherever you want to go in gliding.

4.2. How do you fly a glider?

In essence, flying a glider is very simple. You have three controls, one for each axis – nose up and down (elevator), banking side to side (ailerons), nose left and right (rudder). The diagram below shows where these control surfaces are, and also covers some of the other jargon terms describing parts of the glider.



You control the **elevator** by moving the stick forwards (nose down) and backwards (nose up). Moving the stick to the right or the left controls the **ailerons –** stick to the right to bank right, stick to the left to bank left. The **rudder** is controlled by your feet on the rudder pedals: pushing the right rudder pedal swings the nose to the right, and the left rudder pedal swings the nose to the left. By using a combination of these three controls you can turn the glider and make it fly in any direction you want. Of course, it takes a bit of practice!

The other controls in the cockpit are the blue airbrake handle (which increases your rate of descent, and is used in landing), the green trim lever (a sort of cruise control – it sets the speed at which the glider will fly if left to itself), and the yellow cable release knob. Some gliders also have an undercarriage lever and/or a flaps control, but the K21 that we mainly use for training does not.

You will be shown how to fly the glider by attitude – basically by looking out at the horizon to judge how you are flying (and all around of course, to look out for other aircraft). The glider has instruments fitted, but they are only for secondary reference. The main ones are the Airspeed Indicator (**ASI**) (indicating your speed through the air), the variometer or **vario** (which tells you if you are in rising or sinking air, and usually has a beeper so you can tell without looking at it), and the **altimeter** (tells you your height above your take-off point).

Perhaps the most useful instrument is the **yaw string**: the bit of wool taped to the outside of the canopy, that tells you whether you are flying straight.

4.2. Who can fly?

You need the same level of fitness to fly a glider solo as to drive a car. If you have a driving licence that is sufficient for solo flying, up until 30th September 2025 when the regulations change. If you don't have a driving licence then, before you first fly solo, you must make a CAA Pilot Medical Declaration (PMD) or a BGA medical self declaration. For under 18s without a driving licence the BGA form (Annex A) must be countersigned by a parent or guardian. In that case we recommend doing this when you join the club. For more details on medical fitness, see https://members.gliding.co.uk/laws-rules/bga-medical-requirements/. That BGA web page explains where to find the various forms and what the rules will be after September 2025. (In brief, you will need at least a PMD.)

Disabled pilots are welcome. There is an independent club based at Portmoak, called "Walking on Air", which operates a K21 training glider adapted for hand controls. The standard medical fitness requirements apply for solo or instructional flying, but you may be able to fly as P2 even if you don't meet these. If this is of interest to you please contact WoA (https://walkingonair.org.uk/) to discuss requirements.

The legal minimum age for flying solo in the UK is 14 years and this is also the minimum age for joining the SGC, except for children of adult members. We have a cadet scheme for 14-18 year-olds – details on the website. Members are very welcome to bring family and friends to fly as their guests as passengers on a "day membership" basis.

4.3. What training is available?

There are any number of training opportunities available through the club: scheduled weekend flying, adhoc flying on weekdays, evening and weekday courses, lectures, etc. Everybody has busy lives and we try to make training available when it's convenient for **you**. Check Click n' Glide to see what's happening. Also keep an eye on the Portmoak Members mailing list, which you should be signed up to when you join. Announcements to that list are repeated on the Member's Forum. The main goal is to be in the air whenever possible, so the summer schedule includes plenty of evening flying. During the winter we have more briefings and lectures to fill up the long nights.

For the more experienced there are ad hoc courses from time to time, e.g. in aerobatics, or to gain a radio licence (FRTOL – Flight Radio Telephony Operator's Licence). There are club cross country weeks, perhaps involving trips elsewhere, and an annual "Inter-club League" competition with the other Scottish clubs (which is more about having fun than pushing the frontiers). Club visits to other UK sites happen from time to time, and groups of members sometimes organise trips abroad. Details of all these options are on the mailing list, website

and Members' Forum. When you are really experienced you may want to think about training as an instructor, which the club also organises.

From time to time there may be opportunities for less experienced pilots to fly cross country with one or other of the club pundits. This will probably be in the Perkoz (the club's high-performance two-seater) or possibly in privately owned machines. If this is of interest you should follow the Cross Country Forum (part of the Members' Forum) or simply ask advice from other members.

During your training you will probably find that knowing some theory helps you progress faster. There are suggestions for background reading in Section 8.2

5. Your Flying Account

When you join the SGC a flying account is set up for you, and all your flying will be charged against it. Your account is identified by your membership number. The club requires you to set up a direct debit scheme and all charges will be taken monthly by direct debit. You will be set up to access the Aerolog online system, where you can see your flight details and your account statements. You will also get access to the club's Click n' Glide online system, described earlier, and to the mailing list that's used for club announcements. If you incur any other charges, e.g. for trailer parking, they will also come out of your flying account. If you buy a book or map or whatever from the office this can also be charged to your flying account.

Make a habit of **always** checking all your flights are logged correctly. If your landing time is not logged and it is not certain that you did actually return to the airfield (or land safely elsewhere), the club will instigate emergency search procedures in case you have crashed somewhere. If you were flying a club glider which is known to have returned, but the length of your flight is not logged, then you will be charged an additional fee.

If you notice an error in your account please send a request to the office using Aerolog with all the relevant information.

6. The Weather

6.1. How does a glider stay up?

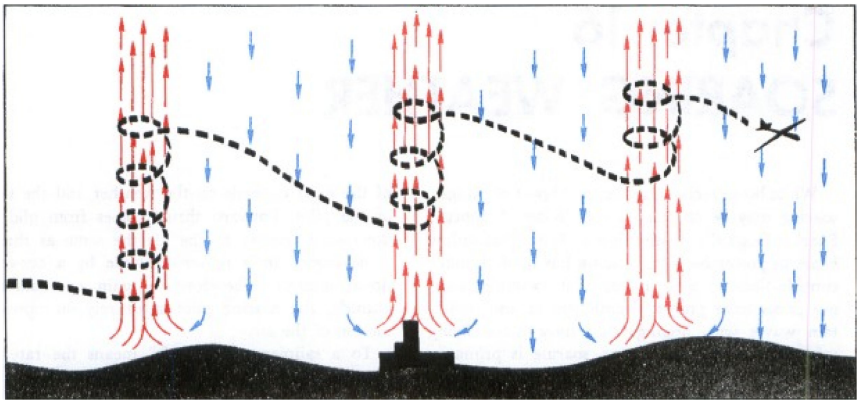
Having no engine, a glider has to fly downhill all the time – much like a sledge coming down a mountain or a bicycle free-wheeling down a hill. If that was all there was to it, flights would only last a matter of minutes: the time it would take you to glide down from your launch height back to earth. In fact glider flights can last many hours – sometimes the only limit is the length of the daylight. What we need for this is **lift**!

If you fly your glider into an area of rising air then, as long as the air is going up faster than you are gliding down, you will gain height. Naturally, if you fly into an area of sinking air, you will come down more quickly than normal – so we try to avoid **sink**, and speed up to fly quickly through it when we meet it.

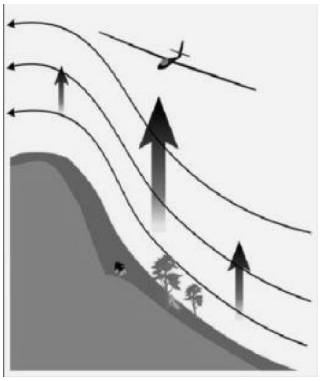
There are three main types of lift that we use when the weather conditions are right: thermals, hill lift, and wave.

Thermals

When the sun heats the ground, warm bubbles of air can accumulate, and then break away and rise upwards. That sucks in more air from nearby which in turn warms up and then rises. Thus a column of rising air forms, often fed in pulses, as each new bubble reaches the critical size and breaks away. These columns, or thermals, are typically marked by a fluffy cumulus cloud at the top. Gliders can use this lift by circling to stay in the column of rising air. Long cross country flights can be made by hopping from thermal to thermal.



Hill Lift

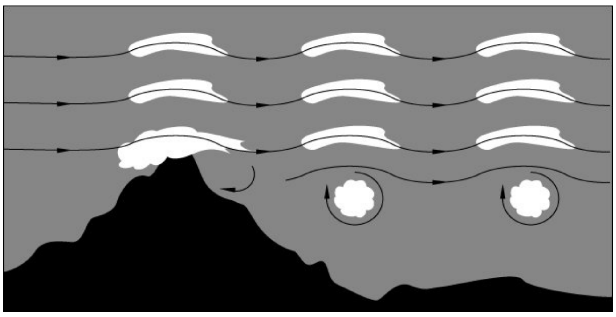


When the wind blows at the face of a long hill or ridge, it is deflected upwards. If we fly a glider in front of the hill, it will be pushed upwards too. Depending on the wind strength the lift may extend to two or three times the height of the hill. Unless well above the hilltop, we always stay in front of the hill, making all turns away from it, because the air descends behind the crest of the ridge. This is known as curl-over or a "clutching hand".

Wave

When the wind blows steadily over a range of hills or mountains it may start a ripple or standing wave, downwind of the hills. Under the right conditions the upward and downward movements can become amplified and reach many times the height of the original hills, and the waves may continue for hundreds of miles. They are often marked by characteristic long, smooth lenticular (lens shaped) clouds. You sometimes see these on satellite pictures, stretching across the whole of Scotland. The waves will line up parallel to the hills that

produced them and roughly at right angles to the wind. Heights of 20,000' or more are possible, and huge distances can be covered by flying along the wave bars. Pilots in the SGC hold several records for speed and distance flights, made in wave.

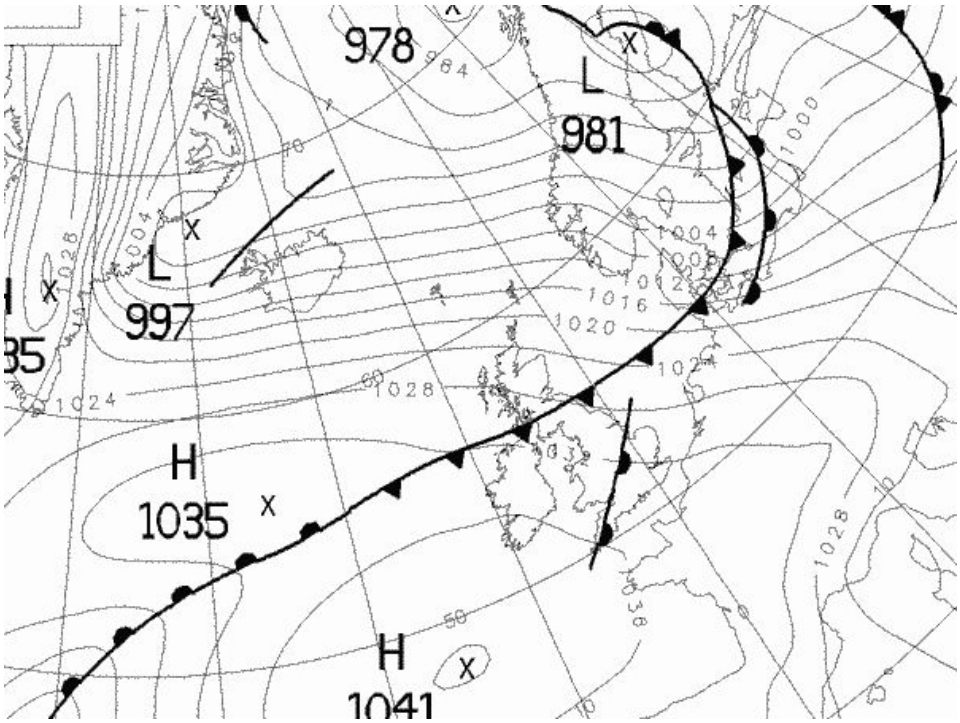


6.2. What is good flying weather?

As you may already have noticed, all glider pilots are obsessed with the weather. To progress in gliding yourself you will need to learn at least the basics of meteorology. This is partly for safety and airmanship reasons – if the atmospheric pressure is low there are very specific implications for pilots, for instance – but also because you will want to be able to predict for yourself when it's most likely to be soarable, and you will want to be able to read the sky, to find the best lift.

We are very lucky in having a site that is right beside two hills: Bishop Hill, which faces roughly west, and Benarty, which faces north. On any day with a moderate to fresh wind from north through west round to southwest, it is likely to be soarable (given dry conditions and cloud-base above the hills). Sometimes we can use hill lift in other wind directions – southerly or even south-easterly – but it is less reliable.

We get wave lift right through the year, and often the best conditions are in the winter months. For good wave days at Portmoak look for synoptic charts showing a steady, fresh to strong north westerly wind. The example chart below is for a wave day, though we can get wave in other wind directions too.



For thermal lift you want to see those nice fluffy, cotton wool cumulus clouds that we tend only to get in summer. Thermals do sometimes occur in winter, but the heating effect of the sun is much stronger in summer, and that's when they are best. Having a big loch beside our site doesn't help, as the air above a large expanse of water doesn't heat up in bubbles in the way we need. So thermalling conditions right by the airfield are often a bit scrappy. The good news is that if you can stay up in our local thermals, you'll probably find it easier elsewhere.

Bear in mind that while you are learning to fly, you don't necessarily need very long flights. Once you've learnt how to control the aircraft in the air, quite a lot of your training will involve practising circuit planning and landing, and for that you only need a five minute flight. Sometimes a good training day is one when the club isn't overrun with solo pilots raving about the wonderful conditions and all wanting a launch when you do.

Finally, there is a webcam you can use to see what the weather looks like at the club before you leave home. You can reach it from the club website.

7. Your Club Needs You!

The SGC is almost entirely run by volunteer effort. Our flying would cost us a great deal more if that were not the case. The need for everyone to help at the launch point has already been stressed – we all have to co-operate to launch and retrieve each other.

Other practical skills are always in demand. If you see things around the airfield that you think you could help improve or fix, please don't be shy! Repairing aircraft and buildings, keeping the tracks in driveable condition, setting up the webcam, writing newsletters – all of these and many more things are done by volunteers. Have a chat with anyone on the Board (see the website for current Board members) if you are willing to take on any of the jobs that are always waiting to be done. You don't have to do it all yourself; if you can talk some other members into giving you a hand, so much the better.

The club is always looking for new joiners to fill the places of members who move away or give up gliding. Consider yourself an ambassador for the sport and encourage friends and colleagues to try it. If you happen to have a social disposition and some organisational flair, do feel free to talk to us about organising more club events.

The strength of the club is its members. Fresh ideas and practical suggestions are always welcome.

8. Where to Find More Information

The **website** is the best place to start https://pilots.scottishglidingcentre.co.uk/ (linked from the public site at https://scottishglidingcentre.co.uk/). There is also information in the clubroom, on the **forms table** that's on your left as you enter**.** There is a PCs in the clubroom for members' use, with internet access and cross-country task software.

8.1. Checklist

Information you want	***Where to find it***
The Gliders Newsletter Members' Forum Webcam Your flying account Flying charges, fees etc.	Website, under *Internal News and Social Media - Keep up to date with your club* Website, *Weather and Webcams* *Aerolog,* see section 5 of this handbook Website, *Tariff*
General information on UK gliding	BGA site: https://members.gliding.co.uk/
Flying for the disabled	WoA website: https://walkingonair.org.uk/
Launch point operations Starting up/closing down airfield Use of radio at the launch point	*Airfield Manual* on the website
DI-ing aircraft Duty Pilot briefing notes Airfield plan and non-landable areas	*Airfield Manual* on the website
Training progress cards Checks to learn (CBSIFTBEC etc)	From instructors (and on forms table). Forms table in the clubroom
Aircraft flight manuals Notams Weather forecast Task setting and logging software Local airspace Air maps	Website and bookshelf in Briefing Room NATS website; bookmarked on club PC Various sites bookmarked on clubhouse PC *SeeYou* is on clubhouse PC *Airfield Manual* on the website On sale through the office

8.2. References

Here are a few books and online resources that may be useful; there are plenty of others.

- *Gliding, The BGA Student Pilot Manual*: this is the recommended text for beginners learning to glide. You can buy it through the office or via the BGA website.
- *Laws and Rules* on the BGA website at https://members.gliding.co.uk/laws-rules/. This is required reading, certainly for all solo pilots.
- *Managing Flying Risk,* https://members.gliding.co.uk/safety/managing-flying-risk-index/. Well worth a read.
- *Bronze and Beyond* by John McCullagh. Aimed at those preparing for the Bronze theory paper, but of interest to pilots at any stage. On sale through the club office, or over the Internet. (ISBN-13: 978-0954874209)
- *BGA Instructors' Manual*. This is the training manual used by BGA instructors, but it's available to anyone to read, and you may find it helpful while you are learning. It is available in PDF format on the BGA website.
- Various books by Derek Piggott. There are too many to list here, and for many years DP's books have been the classic works. They span quite a range of years and some of the early ones are now a bit dated. They are very readable and full of his huge experience and flying wisdom.
- *The Glider Pilot's Manual* by Ken Stewart. Written by a former BGA National Coach; very clear, with good diagrams. (ISBN-13: 978-1843360780)
- *The Soaring Pilot's Manual* by Ken Stewart. Companion volume to the above. (ISBN-13: 978-1840371536)
- *Meteorology Simplified* from AOPA (Aircraft Owners and Pilots Association). A short booklet, written many years ago but still available (e.g. over the Internet), that explains the most important aspects of meteorology for pilots.

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