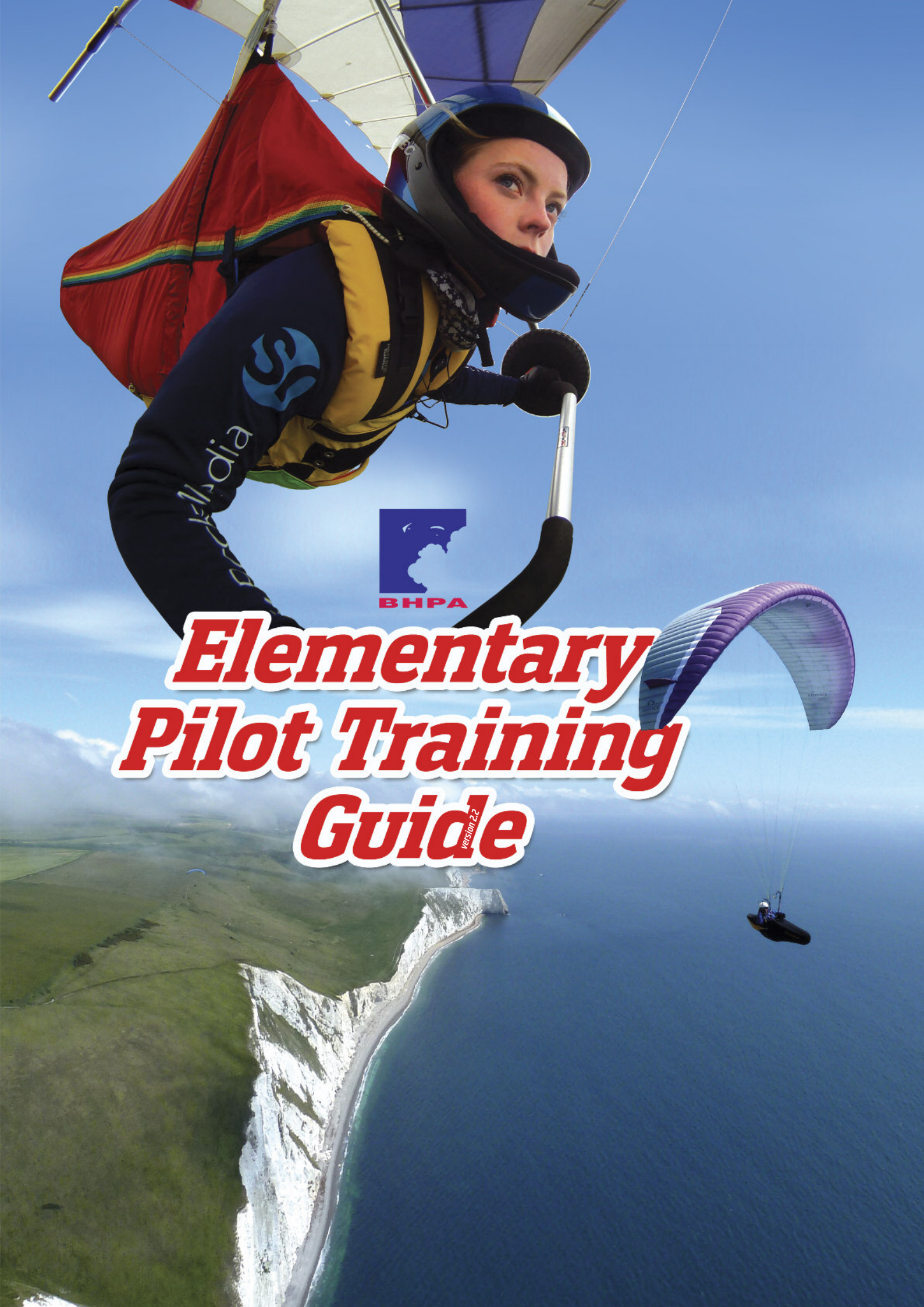

BHPA

Elementary Pilot Training Guide

version 2.2

welcome! Joe Schofield, Editor

Photo: Dan Hamblin

Welcome to free flying and to the BHPA's Elementary Pilot Training Guide, designed to help new pilots under training to progress to their first milestone - the Elementary Pilot award. The Training Guide is issued free to all pilots under training. It is also available as a free download from the BHPA and Skywings websites at www.bhpa.co.uk or www.skywingsmag.com

New pilots: in this publication you'll find articles dealing with the aspects of our sport that you will need to know about as you begin your flying career. The basic information that you need to enjoy our sport safely is here, along with features that will give you a taste of what's possible as you progress. We also include some background information on what the BHPA is about, how it is structured and how we can help you.

As a BHPA member you'll soon be receiving monthly issues of Skywings magazine. Meanwhile, we hope that you will find information in this guide to keep you absorbed and interested as your experience increases and your horizons widen, and continually challenged by this most rewarding of all sports.

A bit of background: The British Hang Gliding and Paragliding Association is the UK's governing body for the sports of hang gliding and paragliding. It is not a Government agency but an association set up by hang glider and paraglider pilots to represent and protect their mutual interests. It is managed entirely by volunteers who give their time and expertise freely to further the aims of the Association. Since the early 1970s, the BHPA and its predecessors (the British Hang Gliding Association and the British Association of Paragliding Clubs) have worked hard to build a reputation as a well-run and respected sports governing body, and it has for many years been recognised and respected by the Civil Aviation Authority, the Royal Aero Club and the Fédération Aeronautique Internationale.

The BHPA runs, with the help of a small number of paid staff, a pilot rating scheme, airworthiness schemes for the aircraft we fly, a school registration scheme, an instructor assessment and rating scheme and training courses for instructors and coaches. Within your membership fee is also provided third party insurance and, for full annual or three-month trial members, a subscription to the highly-regarded monthly Skywings magazine.

The Elementary Pilot Training Guide exists to answer all those basic questions you have such as: 'Is it difficult to learn to fly?' and 'Will it take me long to learn?' In answer to those two questions, I should say that it is no more difficult to learn to fly than to learn to drive a car; probably somewhat easier. We were all beginners once and are well aware that the main requirement, if you want much more than a 'taster', is commitment. Keep at it and you will succeed. In answer to the second question I can only say that in spite of our best efforts we still cannot control the weather, and that, no matter how long you continue to fly for, you will never stop learning.

You are about to enter a world where you will regularly enjoy sights and experiences which only a privileged few ever witness. If, like me, you become addicted, it may take over your whole life, but even if you only experience a taste of our activities I hope it makes a lasting impression on you.

One thing you will quickly notice about this sport is how ready the top pilots are to talk to, and help, the less-experienced pilots they meet. Take advantage of this legendary openness - don't be afraid to ask the pilots you meet along the way how they do it. They'll be only too glad to offer you a helping hand.

But right now, train hard, stay committed, listen to your instructor and take his or her advice, and have fun. Welcome to the best sport in the world. Once you have tasted free flight, you will never look back. This sport should perhaps carry a health warning - hang gliding and paragliding can seriously alter your life!

Note that the material in this guide is aimed at ab-initio pilots only. Those wishing to progress beyond that level are strongly advised to purchase the modestly-priced BHPA Pilot Handbook from the BHPA Office.

Photos: Grant Oseland (this page); Grant Oseland and Charlie King@Sky Rocket Media (cover).

BHPA

'While the high flights were more spectacular, the low ones were fully as valuable for training purposes. Skill comes by the constant repetition of familiar feats rather than by a few overbold attempts at feats for which the perfomer is yet poorly prepared.'

Wilbur Wright 1902

'...we have not felt that our few hours of practice is sufficient to justify ambitious attempts too hastily. Before trying to rise to any dangerous height a man ought to know that in an emergency his mind and muscles will work by instinct rather than by conscious effort. There is no time to think.'

Wilbur Wright 1902

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Photo: Paul Haxby

starting out

general information for the new pilot under training

starting to fly

Although the standard which you will be expected to reach will be the same in every school, the actual training programme and methods may vary. This is because they are determined by the craft (hang glider or paraglider), the type of launch method (hill or tow), the site, and the weather on the day.

Photo: Cloud 9

Ground handling instruction

Once you have mastered controlling the glider on the ground ('ground handling') - which is not as easy as it looks! - you will be taught to take off and land correctly. Your first flights will be in a straight line only a few feet above the ground. (If you are learning on a hang glider these flights will often be 'tethered', with the Instructor able to control the glider through his tether rope.)

Photo: Cloud 9

Hang glider tow training

When you show that you can safely and confidently get yourself into the air and down again, the Instructor will start to progress you to take-off points higher up the hill. With this extra height you will be able to learn how to turn.

A few days of practice should see you well on the way to completing the tasks for your Elementary Pilot award. You'll also be introduced to a limited amount of flying theory, usually fitted in around your practical flying instruction, and you'll complete a very simple exam paper on the topics covered. Achieving the Elementary Pilot award is the first step on the ladder of the BHPA Pilot Rating Scheme outlined below.

the Pilot Rating Scheme (PRS)

The BHPA Pilot Rating Scheme has been devised to encourage pilots to progress their personal flying skills and to provide a quick and simple means of indicating their proficiency level to others. There is one 'progress award' for you to complete, and then three 'ratings' proper.

- **Elementary Pilot award (EP)** Awarded by your school during your training to mark the successful completion of the introductory stage, and to indicate your suitability to undertake the further school training required to gain your first rating.
- **Club Pilot (Novice)** Marks the end of your formal instruction and qualifies you to leave the school and fly within BHPA member clubs. Still a relative novice, as you continue to perfect your skills you should seek advice and guidance from Coaches while you work towards your Pilot rating.
- **Pilot (P)** Now you can consider yourself a fully- qualified pilot in the true sense of the word. You will possess well-rounded skills and abilities, along with enough experience to know how and when to exercise them! You should hold this rating before embarking on cross-country flights.
- **Advanced Pilot (AP)** A rating for the above average pilot who is a total master of his or her craft and enjoying to the full the challenges the sport can offer.

Your instructor will sign off your EP and CP tasks as your training progresses and will explain how Club Coaches will carry on this function once you have gained Club Pilot (Novice) and left the school.

Changing disciplines and craft. Because of the wide diversity of aircraft types and launch methods used within the BHPA - from tow-launched round canopies to hill-launched, rigid-wing hang gliders - your ratings, shown on your BHPA membership card, will be specific to the craft category. The launch method you are trained and qualified to use will be noted (E.g Paragliding 'Pilot' rated, Hill environment).

Changing environment. If you wish to add an alternative form of launch (a new 'environment') to your rating, this is done by completing a short course. A hill-environment course for tow-trained pilots will typically involve a weekend or so with an instructor in a school environment; a tow-environment course for hill-trained pilots can be undertaken at a tow school or within a tow club. Conversions to and from the power environment are more complex and require more substantial retraining.

Changing glider type. If you wish to qualify with a different craft type (e.g. swap from paragliders to hang gliders) then you will need to start from the beginning again, although your Instructor will obviously take your experience into account during your training.

the BHPA coaching scheme

If you decide to take up hang gliding or paragliding seriously, you'll find the BHPA Coaching Scheme essential to your ongoing progress within a Club. Every club has a number of voluntary Club Coaches who have attended a two-day BHPA training course. They take over where the school leaves off, providing encouragement, education and guidance for all pilots, especially new ones.

Photo: Alan Russell/Zedphoto.com

Friendly, free advice from those who know

The Coaching Scheme is a voluntary initiative. It's an effective part of the Club environment and also helps a new pilot make friends and acquaintances within the club. In time you may even become a successful Coach yourself and be able to help other new pilots, but you'll be able to learn more about that later.

joining a club

It is important that all newcomers to the sport join a club as soon as possible, even before gaining the Club Pilot (Novice) award. You can get to know your fellow pilots and get advice on the right gear to buy and good places to fly.

Every year around 7,000 UK hang glider and paraglider pilots fly scores of hours each without incident or injury. They achieve this because of the club-based structure of our sport. Instructors, Coaches and friendly pilots help novices through those first few hours of soaring when ignorance and a lack of experience could expose them to danger.

Pilots fresh from school attach a red streamer to their gliders for their first ten hours or so to signal their novice status. More experienced club pilots will give them more room in the air, keep an eye on their progress and offer advice and help when appropriate.

Clubs in the UK mostly operate to protect the use of hill and airfield sites for their members. Your local club plays an important role in looking after the interests of both fliers and site owners. Clubs negotiate the use of sites and liaise with local authorities, councils and other air users. Most produce a regular newsletter and hold social and informative meetings, and many organise flying trips to overseas sites. A club can also advise you on how best to continue your training beyond the level detailed in this document - you may be unsure which type of flying you'd like to pursue, or need more information on what it's all about. (We recommend that you seek such advice before making a commitment to further training).

When you have learned how to fly your hang glider or paraglider, please don't go off and try to fly it wherever you choose. If you do, you'll find that the local club which controls the site (almost every single hill and airfield site in the country is controlled by a club) will not be impressed. Every now and then a pilot who perhaps feels that clubs are not their style will try to go it alone - after all, our sport appeals to free-thinking individuals. Unfortunately for us all, the pilots who try to go it alone most often end up hurt, because they lack the backup and the common-sense approach which a club brings.

A club offers a welcome to the wider world of hang gliding and paragliding. It will normally offer a social side, from a drink after a day's flying to structured meetings with guest speakers. It will also offer a Coaching Scheme to support you when you have left your training school, and will introduce you to a range of pilots who can help you pursue your flying goals, be they fun trips abroad or starting to fly in competitions.

Your school should be able to inform you about local clubs in your area. A list of BHPA clubs can be viewed on the BHPA website at www.bhpa.co.uk; contact numbers of most clubs are also carried each month in Skywings magazine.

BHPA membership

The Association offers various membership categories: Trial Membership, Annual Membership, discounted 24-Month Membership, Family Membership and Concessions for Under-21s and Over-60s. Non-Flying Membership and a simple subscription to Skywings Magazine are also available.

The Association aims, through careful management of resources, to keep membership fees as low as possible while providing the best possible service. As well as Skywings and all the services and support the BHPA provides, your membership includes Third-Party liability up to a value of £5 million.

The BHPA itself is the result of the successful amalgamation, in 1992, of the British Hang Gliding Association and the British Association of Paragliding Clubs. It is the recognised governing body for UK hang gliding and paragliding and represents the sport when dealing with national and international bodies. It aims to encourage the development of the sport and to promote high standards of safety through pilot and instructor training.

your trial membership

Trial Membership is valid for three months from the date of issue, extended to the end of the month of expiry.

As a Trial Member you will receive, by post, the next three issues of Skywings magazine. Your magazines should normally begin to arrive within 28 days of taking out membership. Contact the BHPA Office on 0116 289 4316, e-mail: sales@bhpa.co.uk in case of non-delivery.

If you decide to continue with further training beyond the Elementary Pilot stage, you'll be invited to upgrade your membership to full Annual Member status when your Training Membership has run its course. You need to hold Full Annual membership to be issued with a Club Pilot (Novice) rating.

the BHPA insurance scheme

We hope that new members of our sport will become regular, proficient fliers and have years of accident-free flying. However, on occasions things can go wrong, and you may find yourself sitting on the roof of a house or dangling from a tree. It is for these rare occasions that we provide within your membership third-party public liability insurance. The list below sets out some key points. If you have any questions, please see the Policy Summary which you will receive upon joining, or contact the Association's Insurance Officer, via our office in Leicester.

1. Cover is provided only when you comply with the BHPA's rules and procedures (see page 23).
2. Cover is only effective whilst your membership is valid. No membership = no cover.
3. In the event of an accident, whilst you can reassure any third party that you are a member of the BHPA and that cover exists, you must never admit liability or make or offer any payment. Should you do so, you may become personally liable.
4. Any incident or accident considered likely to give rise to a claim, or any actual claim made against you must be reported to the BHPA within 48 hours.
5. The policy does not cover any losses caused by deliberate or reckless acts on your part.

The purpose of this insurance is to meet the costs and any damages associated with claims made against you by an injured person or the owner of damaged property. However, please note that you will have to pay an excess of the first £250 in the event of any property claim against you. The cover is effected through a block policy held by the BHPA, and membership adds your name to it.

It should be stressed that the BHPA's membership insurance does not cover you for your own personal injury or medical evacuation - and we encourage any pilots wishing to fly abroad to take out their own Personal Accident cover independently. For example Airsports Insurance Bureau can offer competitive rates on insurance for flying abroad, and also policies for other flying needs such as equipment cover and holiday insurance.

The above information about BHPA insurance is intended as a guide only and is not a statement of the policy terms. For further details please see the Policy Summary or contact the BHPA's Insurance Officer.

Skywings - your magazine

If you have begun training with a BHPA school you will shortly receive your first regular copy of Skywings, the BHPA's monthly magazine. Skywings is the Association's main route of communication to its pilots. More importantly, it is the forum for pilots talking to other pilots.

The magazine is put together entirely from voluntary contributions from BHPA members. Amongst the ranks of Britain's free fliers are some very talented contributors of technical articles, photography, flying reports and much, much more.

As a result the magazine's quality of content and presentation are much better than a relatively small sports association has any right to expect. Skywings is also available online.

Skywings is always on the lookout for your contributions. If you feel you would like to send in an article, the following points should be borne in mind:

- Few articles are published without photographs. Digital camera images are usually good enough for publication - check with us first.
- We can always use good quality photographs even if unaccompanied by an article. High quality shots of hang gliding are particularly sought.
- The length of an article is normally between 1,000 - 2,500 words. Articles are often edited to length, but not by just hacking large bits off.
- When you become more knowledgeable, or if you have expertise that you are bringing to the sport, technical articles are always welcome. If you think you may be able to help here, ring up and discuss what you have in mind.
- Much of our input arrives by e-mail or on disk - we can accept most formats. If you don't have access to a computer, just write clearly and legibly on old-fashioned paper.
- Not everything that is received is included in the magazine. Often good articles are held over, if they aren't urgent, to make room for up-to-date reports - particularly in the summer months. Incoming material (except letters) is always acknowledged, so you'll know what we are doing with your masterpiece.

Skywings - your magazine (continued)

- The production process runs a long way ahead of publication. When you are reading the latest magazine we will probably be working on the ones two and three months ahead. Just remember that the deadline is usually around five weeks before publication.
- Letters for publication for the Airmail page are held to the last possible moment, usually about the 15th of the preceding month, to enable responses to the previous month's magazine to arrive. It's best to keep letters as short and succinct as possible.

Articles, competition reports, stories, travel writing, new ideas, problems, cross-country reports, etc, are all welcome, as is just about anything else. Also we are happy to run details in the news pages of anything which is going on which you may like brought to a wider audience. So think about contributing, and remember… it's your magazine.

And if you want to continue to receive Skywings but don't want to continue with more advanced training just yet, a 12-month subscription costs £39 (contact the BHPA Office). The magazine is not available on the news-stands or in shops.

Joe Schofield, Editor, Skywings Magazine

Hang gliding and paragliding are available to many people with disabilities through the BHPA's 'Flyability' initiative

Photo: Gordie Oliver

Flyability

Many people think that flying hang gliders and paragliders is impossible for people with disabilities. Nothing could be further from the truth.

Flyability is the BHPA's disability initiative. It promotes hang gliding and paragliding opportunities - including dual flights and training scholarships - for people with disabilities, and strives to bring disability awareness and education to the whole of the BHPA membership. It also has the contacts, expertise and enthusiasm to solve any problems that may be presented when training disabled pilots alongside able-bodied ones.

Flyability's original co-ordinator learned to fly hang gliders despite difficulties caused by his own disability (athetosis cerebral palsy). Within the BHPA there are a number of pilots with more or less severe disabilities. Through their own determination - and the support and enthusiasm of school proprietors, instructors, fellow students and friends - they have addressed their individual, specific problems in adapting to flying and have become respected and valued members of the free flying community. Since the advent of Flyability, many, many people have become aware of the problems those with disabilities face when participating in flying.

Sometimes the problems faced are immense, at other times less so. In each case the difficulties involved in helping people with disabilities to discover the freedom of the air have been overcome - by ingenuity, trial and error, patience and effort. Determination to succeed, and the goal of sharing the dream of flight, will always win out. To a BHPA instructor, the best indications of a student's potential as a pilot are motivation, attitude and dedication. They probably won't even mention physical ability or agility at all. The message from the free-flying community to anyone with disabilities is: 'You *can* fly!

Alongside the work of actually training people with disabilities to fly, Flyability runs Disability Awareness weekends and provides disability awareness input to BHPA courses. It has also assisted clubs and schools in getting funding from local businesses and charities to buy suitable equipment such as tandem gliders. Flyability also promotes and funds tandem flying for people with disabilities who may be unable to fly alone. Tandem Air Experience flights and solo Student Pilot Scholarships (over 55 have been awarded in the last few years - see below) are the main use of its charitable funds. If you (or someone you know) could benefit from Flyability's work, talk to your school's Flyability contact, write to co-Flyability by e-mail contact@Flyability.org.uk), or visit Flyability's website at www.flyability.org.uk. Impossible is not a word that Flyability folk understand. If you really want to… you can fly!

Flyability pilot scholarship scheme

Flyability recognises that people with disabilities often have lower incomes and higher living costs compared to the rest of society. With this in mind, Flyability can contribute a substantial sum towards a would-be pilot's ab-initio training costs, and later towards Club Pilot training. Where possible, a student with disabilities will train at a BHPA registered school alongside able-bodied student pilots. To apply for a Pilot Scholarship, contact the BHPA school of your choice and complete the first part of the application form (available at www.flyability.org.uk). With this completed, contact Flyability and tell them why you simply must fly! Entries (in addition to the form) can be on paper, audio, videotape, etc. These Scholarships are open to UK residents only.

passing your exams! progress through the Pilot Rating Scheme

Exams are a necessary part of the Pilot Rating Scheme. They encourage you to take that little bit of extra time to learn something more about the sport. More importantly, they are also there to ensure your safety and the safety of others about you when you are flying.

Like any other task of the Pilot Rating Scheme, exams require some preparation work. This article explains which areas to swot up on and the level of understanding required. It also points out sources of information.

Exams for hang gliding and paragliding are different but much of the material is identical except for the aspects of flight theory that are specific to your chosen discipline.

Below are the exam requirements for the BHPA Elementary Pilot and Club Pilot (Novice) ratings; you will learn about the requirements for more advanced ratings as you progress.

the Elementary Pilot exam

The first rung on the ladder. You will take this exam and fly the relevant tasks whilst at the school. The information required will be readily available from your instructors and from this handbook. The exam is in multiple-choice format and includes questions on the Rules of the Air which you must answer correctly to succeed.

the Rules of the Air & Collision Avoidance

You should know what actions are taken by which pilot and what priorities prevail to prevent the danger of collision between two aircraft - when approaching each other, when on converging courses or when wishing to overtake or land (see page 12).

Flight Theory

You should be able to define the terms lift, drag and angle of attack, understand the relationship between pressure and airflow above and beneath the canopy or wing, understand what causes it to stall and what happens to the above forces when control inputs are applied (See pages 10, 11, 16 and 17).

Meteorology

You need to understand wind gradient and its effects, how ground obstacles can affect local airflow and what to look for when assessing takeoff, flying and landing areas. You'll also need an understanding of the basic principles of wind and airflow over hills, how turbulence is produced and its hazards to a pilot (See page 14).

Airmanship

You must understand the relationship between airspeed, windspeed and the resultant groundspeed and be able to work given examples. You should also know your responsibilities to other air users.

Pilots are also required to know the law regarding CAA permission for tow launched operations and its limitations.

the Club Pilot (Novice) exam

This exam must be passed along with a specific 'Environment' exam appropriate to the environment you are training in (see 'the Environment exams' below). The Club Pilot exam is more demanding than the EP exam, although the areas covered are much the same. The pass mark is 70% and again there are questions on the Rules of the Air which must be correctly answered to pass. Your instructors, school lectures, the BHPA Pilot Handbook and this publication will provide the information that you need.

Airlaw

You should be able to:

- Recite the collision avoidance rules (failure on these questions results in automatic failure of the whole exam!).
- Know the low flying rules.
- Understand the way airspace in the UK is categorised.
- Understand your duty regarding incident reporting.
- Understand your duty regarding CANP (See page 12).

Meteorology

You should be able to:

- Link basic cloud types and their associated weather.
- Have a basic understanding of a synoptic weather chart.
- Understand the basics of hill, wave and thermal lift.
- Know how to obtain a forecast and how to measure the wind on site.
- Identify deteriorating conditions.

Principles of Flight

You should:

- Understand standard terms - stall, lift, centre of pressure, angle of attack, drag, aspect ratio, L/D ratio, glide angle, wing loading, max. glide and min. sink.
- Have a basic understanding of how lift is created.
- Be able to work examples of airspeed/windspeed/groundspeed.
- Understand factors affecting canopy stability (paraglider pilots only).
- Understand the way various features of hang glider design play a role in ensuring adequate stability (hang glider pilots only).

Airmanship

You should be able to:

- Understand the need to keep a logbook.
- Understand the purpose of the red streamer.
- Be familiar with the demands of flying in company with your fellow pilots, both on the ridge and when thermalling.
- Recite the pre-flight check.
- Understand how a hang glider or paraglider is able to gain height.
- Name the symptoms of an impending stall.
- In addition, paraglider pilots should know the correct procedure for dealing with asymmetric canopy tucks.

the Environment exams

Along with the Club Pilot exam you also must pass the specific 'Environment' exam appropriate to the environment you are training in (hill, tow, power, aerotow). Later on in your flying career you may wish to add other 'environments': each time you do this, as well as learning the new practical skills you will also need to gain a theoretical understanding of the new 'environment – and will need to pass an 'environment' exam to prove this learning. The environment exams are again multiple choice format with a 70% pass mark.

You should have a basic understanding of:

Hill: wind gradient, ridge etiquette, rotor, overcrowding, top landing, wave.

Tow: CAA permits, lock-outs, weak links, signals, emergency actions, site safety, release attachment.

Power: forces, how a climb is achieved, carb icing, site selection, effects of altitude and temperature, engine basics, legalities of SPHGs, flight planning.

Aerotow: turn direction after release, positioning, lock-outs, weak links, signals, emergency actions, site safety.

Useful books

Much of the available literature takes the reader to a far higher level of understanding than is required at EP level and is focused on specific subjects such as meteorology. Below is a list of titles that are aimed at the beginner pilot, although all include more advanced material too. Books aimed directly at the more advanced pilot or at specific subjects such as meteorology are not included here but can be obtained from the BHPA shop and from most hang gliding and paragliding dealers.

BHPA Pilot Handbook. Mark Dale (BHPA, 2015. £14.99). The best available book on all aspects of flying. Very useful for novices; essential for CP trainees.

Touching Cloudbase. Ian Currer & Rob Cruickshank (Air Supplies Publishing, 2015. £25.00). Complete primer for paraglider pilots by UK paragliding school.

Hang Gliding Training Manual. Dennis Pagen (Sport Aviation, 1996. £24.95). All-embracing training handbook from the USA.

Paramotoring from the Ground Up. Noel Whittall (Airlife, 2000. £19.99). A comprehensive introduction to paramotoring.

The Powered Paragliding Bible. Jeff Goin (Airhead, 2006. £25.00). Concise reference guide to all aspects of paramotoring.

All titles, and many other useful books and manuals, are stocked by the BHPA Shop (www.shop.bhpa.co.uk) and most free flying dealers.

pre-flight paraglider checks and inspection

You will have been introduced to the various component parts of the paraglider by your instructor. The most important parts of the glider and harness are shown in the illustration. In common with all aircraft, it is of the utmost importance that thorough and systematic inspections are carried out before a paraglider is flown, to ensure that it is in good condition, properly connected and safe to fly.

There are three levels of inspection:

the daily inspection

This should be made before flying each day and also after any heavy landing. It is suggested that the pilot starts at the canopy and systematically works down, or vice-versa.

canopy

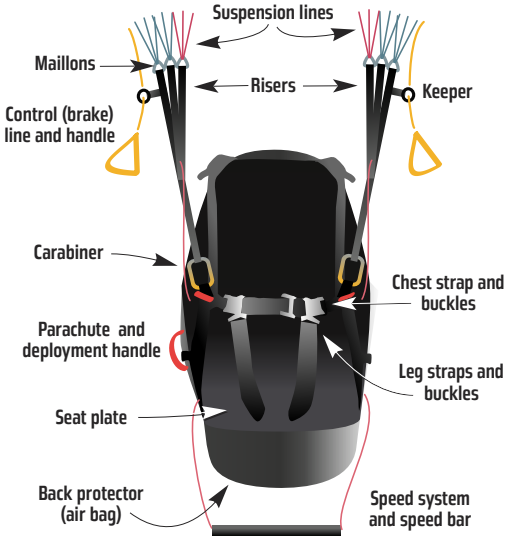
- Visually examine the top and bottom surfaces looking for damage, rips, loose stitching or contamination
- Inspect the interior of each cell for structural integrity

suspension

- Visually check the suspension and control lines looking for any loose stitching, fraying or damage to the protecting sheath; run any suspect line through your hand for any feeling of bulging, waisting or hollowness
- Pay particular attention to cascade points and where the lines are joined to the canopy or to maillons
- Scrutinise each maillon/carabiner and ensure they are properly secured with the gates exposed to view
- Scan each riser for loose stitching and abrasions, especially where there is contact with metal
- Check that the control lines are free running and that any guide rings, ferrules and poppers/attachment points are secure

harness

- Inspect for loose stitching, cuts or abrasions to the webbing especially where it contacts metal
- Ensure that buckles are rust free and that any elastic slip preventers are properly located and in good condition
- Check that the emergency parachute is securely stowed, the release pins are in place and the handle is accessible.



ancillaries

- Check tow yokes and instruments for serviceability if used

the pre-flight check

(Will Geordie Have His Cat Aboard [Today]?) This must be done before every flight. It is complementary to, but separate from, the Daily Inspection. If the sequence is ever interrupted the pilot should start again at the beginning.

W - Wind and weather

- Check the wind direction - is it shifting?
- Wind strength - is it varying much? Is it OK for your level of experience?
- Visibility - is it satisfactory?
- Weather. Is any rain approaching? Are there any signs indicating likely turbulence?

G - Glider

Give your glider a quick 'once-over' to confirm that nothing has altered since your DI. Check:

- Laid out properly?
- Cells clear?
- Lines untangled?

H - Helmet

- Check that you are wearing one
- That it fits snugly and will not drop over your eyes
- That it is fastened and won't fall off

H - Harness

Check the five main points:

- Left leg-strap fastened
- Right leg-strap fastened
- Chest strap fastened and adjusted correctly
- Left maillon/carabiner locked
- Right maillon carabiner locked
- Speed system connected on both sides

Check that any cross-bracing straps are secure and adjusted to give the correct distance between the carabiners, and that your emergency parachute (if fitted) is stowed correctly, the release pins are in place and that the handle is within reach.

C - Controls

- Check control handles in the correct hands
- Correct risers held appropriately
- Control lines free-running?

A - All clear

Check:

- Check that your take-off path is clear - nothing to trip you or wrench your ankles
- That you are well clear (in every direction) from bushes, posts or other fixed obstructions and from roving people or livestock (a mishandled launch can use up a lot of space in any direction)
- That the airspace above, in front and below you is clear from other air users and will remain so during your take-off sequence
- That no-one is about to overshoot their top landing and need the airspace you are about to occupy

(T - Turn direction)

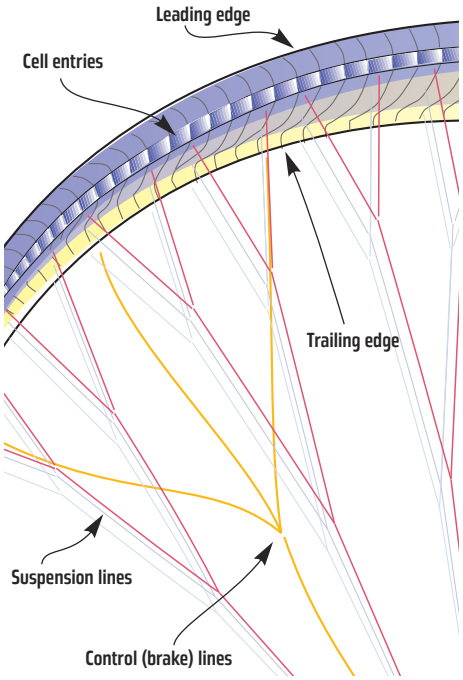
If you are using the traditional reverse launch, check which riser is on top: that shoulder must go back when you turn to face into wind

You are now ready to launch.

All the above checking may seem very complicated and long-winded. Be assured that it isn't. At school you will be thoroughly taught so that this becomes automatic for you. It's your personal safety that is at stake. Memorise the phrase: Will Geordie Have His Cat Aboard (Today)?

the periodic inspection

This is a major, comprehensive inspection as recommended by the manufacturer, possibly annual or after a specified number of hours flying. It is offered by certain manufacturers as a recommended service to their customers. The inspection will cover degradation of all fabric (canopy, lines and webbing) together with the integrity of metallic components. Lines may be replaced and minor repairs carried out. When you buy your first canopy you should seek assistance and preferably have the periodic inspection done by the manufacturer or his approved service centre. This inspection is far more important than the annual service on your car!



pre-flight hang glider checks and inspection

Each day when you go flying with a school you will assist in rigging the glider you will be flying. The most important parts of the glider are shown in the illustration. In common with all aircraft, it is of the utmost importance that thorough and systematic inspections are carried out before a hang glider is flown, to ensure that it is in good condition and safe to fly, and that the pilot and harness are properly connected to it.

Before the end of the course you should be able to rig and de-rig the glider yourself. One rule that must always be remembered when you leave a glider unattended is to lower it flat onto the ground by releasing the nose catch. This will prevent the wind lifting the glider and blowing it away. After rigging and before the first flight a check of the equipment must be carried out, and before you take-off a further check must be made. It is imperative that you learn the following check lists:

the daily inspection (s.w.a.n.k)

This should be made before each flying day, each time the glider is rigged and also after any heavy landing. It is best to start this at the nose of the glider and systematically work round it until reaching the nose again. You will need the assistance of an instructor or fellow student holding the glider at the nose to accomplish this.

- Sail Check for damage and that the attachment points and stitching are secure
- Wires Check for twisted tangs, kinks, frays and corrosion
- **Airframe** Check keel, leading edges, cross-tubes, kingpost and control frame for damage, cracks and corrosion
- **Nuts and bolts** Check that all bolts are locked, nuts secure and locking pins in position where necessary
- **Kingpost** Upright and without bends; rigging correctly attached.

the pre-flight check

The pre-flight check (Will Geordie Have His Cat Aboard?) must be done before every flight. It is complementary to, but separate from, the Daily Inspection. If the sequence is ever interrupted the pilot should start again at the beginning. If some time has elapsed or the glider has been laid flat since the last flight, adjusted in any way or de-tensioned, a brief examination to check the above points should again be made.

W - Wind and weather

Check:

- wind direction - is it shifting around?
- wind strength - is it varying much? Is it OK for your level of experience?
- visibility - is it satisfactory?
- weather. Is any rain approaching? Are there any signs indicating likely turbulence?

G - Glider

Give your glider a quick 'once-over' to confirm that nothing has altered since your DI. Check:

- quick-release points (nose, base-bar corners, pull-back bridle)
- batten elastics engaged
- tip sticks correctly fitted
- undersurface zips and inspection points closed
- luff-lines caught under battens
- nose cone fitted (if glider has one)

H - Helmet

Check:

- that you are wearing one
- that it fits snugly and will not drop over your eyes
- that it is fastened and won't fall off

H - Harness

Carry out the hang-check with assistance from a nose-person. Lie down and check:

- that you are clipped in properly (to both the main and backup hang-loops) and that the carabiners are locked
- that your clearance above the base-bar is sufficient (about 5 - 8cm) - swing back and forth to check this
- that your harness is worn properly and is comfortable
- that your harness straps are untwisted
- that your legs are through the leg-loops
- that your emergency parachute (if fitted) is stowed correctly, the release pins are in place and that the handle is within reach

C - Controls

Check:

- trimmer (not usually fitted to training gliders) tension set for take-off

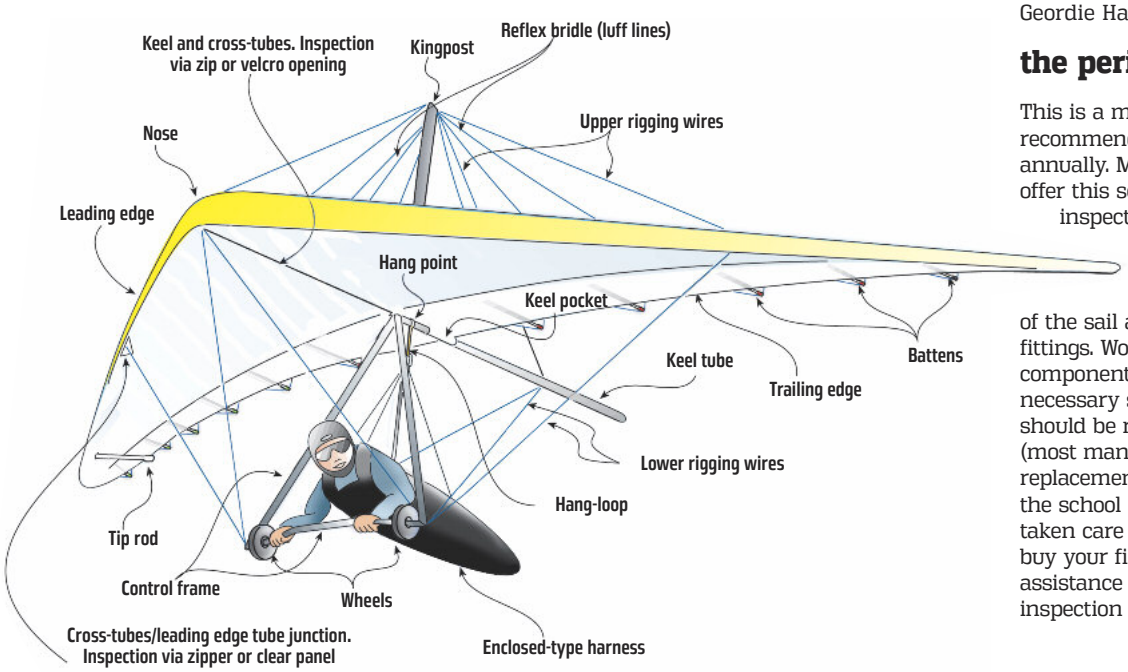
A - All clear

Check:

- that your take-off path is clear - nothing to trip you or wrench your ankles
- that no bushes, posts or other fixed obstructions, or roving people or livestock, are within leading-edge range
- that the airspace above, in front and below you is clear from other air users and will remain so during your take-off sequence
- that no-one is about to overshoot their top landing and need the airspace you are about to occupy

Still clear? Then off you go.

Al the above checking may seem very complicated and long-winded. be assured that it isn't. At school you will be thoroughly taught so that this becomes automatic for you. It's your personal safety that is at stake. Memorise the phrase: Will Geordie Have His Cat Aboard?

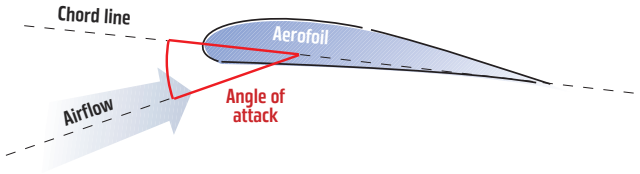


the periodic inspection

This is a major, comprehensive inspection as recommended by the manufacturer, usually annually. Most manufacturers and dealers offer this service during the winter. The inspection, sometimes called a stripdown, should involve complete disassembly of the glider and careful examination of the sail and all tubes, bolts, wires and fittings. Worn or damaged wires or components must be replaced and any necessary sail repairs carried out.Wires should be replaced at 100 hours or annually (most manufacturers recommend wire replacement at 100-hour intervals). Within the school environment this inspection is taken care of by the instructors. When you buy your first glider you should seek assistance and preferably have the periodic inspection done by experts.

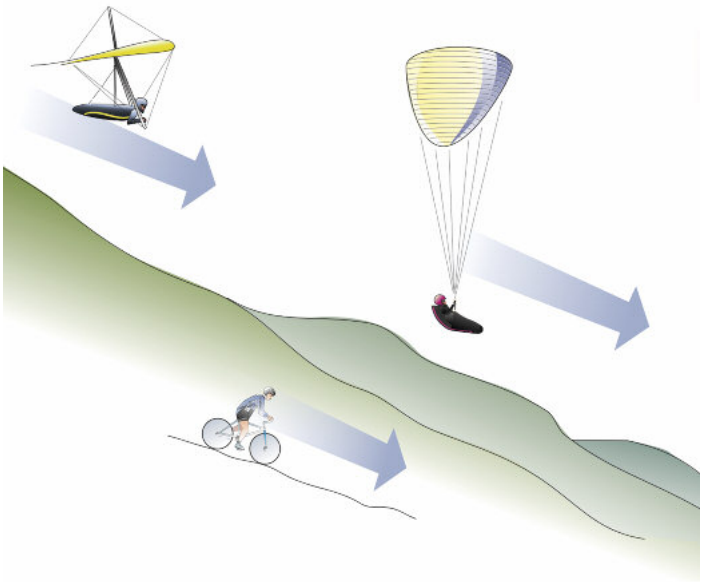
theory of flight how a glider flies

For any aircraft to fly it must produce enough upward force to support the weight of the machine and its pilot. A wing, such as a paraglider or a hang glider's, generates this upward force when it is moved through the air at a slight angle. The speed of movement through the air is termed airspeed, whilst the slight angle to the airflow is called the angle of attack.



airspeed

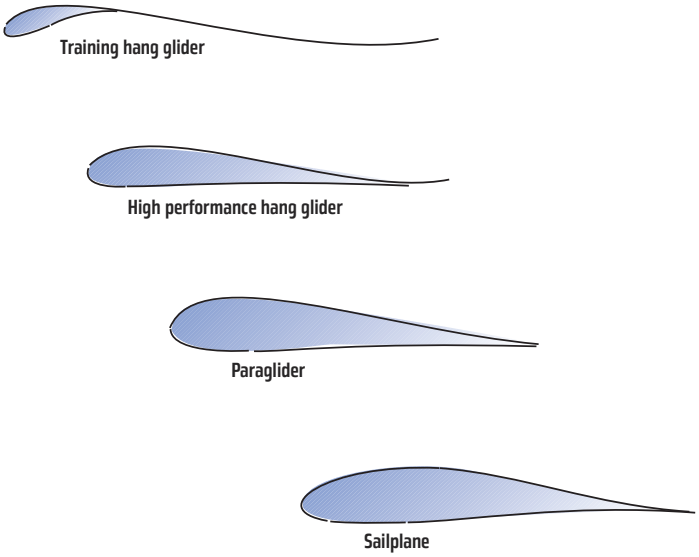
After take off, a glider maintains its airspeed by flying on a descending path through the air, using gravity to propel it, just like a cyclist or skier descending a hill.



the wing section

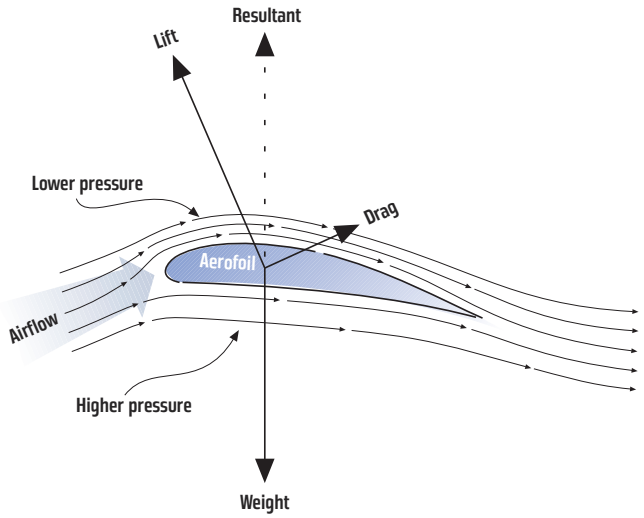
Any flattish surface, held at a slight positive angle to an airflow (an angle of attack) will produce an upward reaction. This is because the air pressure is slightly increased below the surface and slightly decreased above it. This upward (or total) reaction can be broken down into those elements acting at 90 degrees (upwards) to the direction of flight, which we call lift, and those elements acting at 180 degrees (opposite) to the direction of flight, which we call drag.

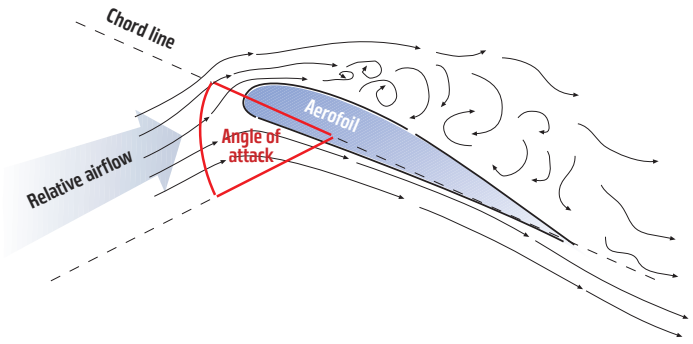
A crude flat surface is not very efficient as an aerofoil section. The amount of lift it produces compared to the amount of drag (i.e. its Lift/Drag ratio) drops off rapidly if the angle of attack is varied a few degrees above or below the optimum. An aerofoil with a curved top surface is more efficient: air passing over the top surface produces a greater reduction in pressure. This shape is also much less critical in respect of angle of attack. You will see that the wing sections used on paragliders and hang gliders are all variations on this same basic shape. Indeed all winged aircraft, from sailplanes to jumbo-jets, use variations of this shape, optimised for their particular application.



the stall

In a hang glider we reduce airspeed by raising the glider's nose ('pushing out'). With a paraglider airspeed is reduced by lowering the trailing edge of the wing. Both control actions are actually doing the same thing: they are increasing the wing's angle of attack. Unfortunately, if we try to reduce airspeed too much (i.e. if we try to fly too slowly) we find that it is possible to raise the angle of attack past a critical angle. At this angle the airflow, which up to now has been smoothly following the contours of the wing, breaks away into turbulence and eddies, so destroying the lift-producing pressure differences. This is the stall.





effect of the stall

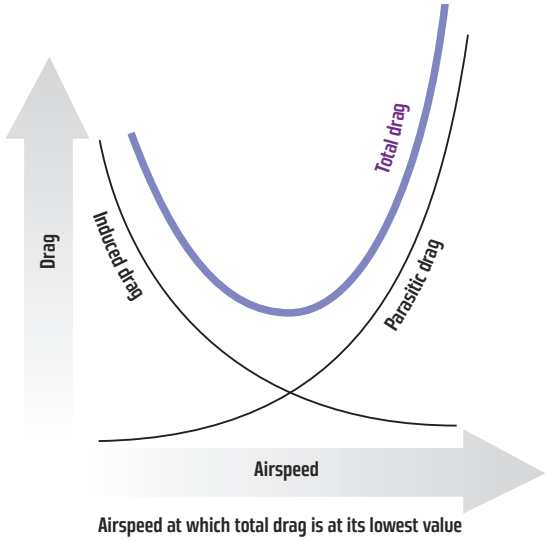
Hang gliders are designed to recover automatically from stalls, but to do this they require sufficient height. In a full stall the nose will drop and the glider will dive, so lowering the angle of the attack and regaining airspeed, but losing perhaps 50 feet or so of height before normal flight is regained. In a very gentle stall the glider may 'mush' in a nose-high attitude, with an increased sink rate and reduced control. Recovery is simply a matter of allowing the glider's nose to drop a little (i.e. by 'pulling in' a little), so reducing the angle of attack and allowing airspeed to increase. A stall is not itself dangerous - but stalling inadvertently when close to the ground is! By switching on your brain before take-off and flying at a safe airspeed you should not run into this problem. (Later on in your training you will practice slow flight, stalls and recoveries, but at a safe height above the ground.)

With a paraglider the situation is rather different. Most modern paragliding canopies are unpredictable once stalled, so this manoeuvre is avoided. (Stall avoidance is simply a matter of ensuring that you avoid flying with the controls lowered excessively.)

drag

Anything moving through the air causes a disturbance, which is felt as a resistance to forward motion. This resistance is called drag.

The total drag on any aircraft is made up of Parasitic drag and Induced drag. Parasitic drag is made up of mainly of Form drag - generated when the blunt shape of the wing, pilot, lines (or wires) etc., is moved through the air - and Skin Friction, which is the name given to the drag force caused by the air's tendency to 'stick' to the exposed surfaces. Parasitic drag increases rapidly as speed is increased.



Airspeed at which total drag is at its lowest value

Induced drag is an inevitable by-product of a wing acting on the air to create lift. Trailing vortices formed at the wingtips play a large part in this, representing energy wasted in stirring up the air.

Induced drag lessens at higher speeds, but is quite large at low speeds (when the angle of attack is high). As a result there is a particular speed for any glider at which the total drag (parasitic drag + induced drag) is at a minimum. Flying at this airspeed produces the best (flattest) angle of glide, so it is known as the maximum (max.) glide speed.

glide ratio

The glide ratio is a measure of a glider's performance. It expresses the relationship between the distance that a glider can travel horizontally (in still air) and the height loss involved. For instance, a glider that has a glide ratio of 10:1 will travel 100 metres horizontally for every ten metres of height lost (in still air). As explained above, for each glider there is a certain flying speed at which this best glide ratio is obtained. (The glide ratio is directly linked to the L/D ratio mentioned earlier.)

sink rate

The sink rate is the rate at which the glider loses height in still air, and is normally expressed in hundreds of feet per minute. The lowest rate of descent is usually obtained by flying a little slower than max. glide speed (but don't stall!). This speed is known as the minimum (min.) sink speed.

(Note: All non-powered aircraft lose height in still air conditions - the secret of staying up (or 'soaring') is to find a mass of air which is rising faster than you are sinking. This is explained further under the heading 'Soaring' on page 14.)

the balance of forces

In steady gliding flight the three forces on the glider - Lift, Drag and Weight - will balance (i.e. each force is balanced out by the other two - see illustration at foot of first column of previous page.).

stability

Whilst we need control so that we can manoeuvre our gliders about in the sky, we also want our gliders to have a certain degree of stability; i.e. the glider should tend to continue flying normally if left to its own devices. Training gliders are carefully designed with plenty of built-in stability - though you may not think so on some of your early flights!

Your instructor will explain the design features of hang gliders (or paragliders as appropriate) which ensure their stability.

aerial collision avoidance

The Aerial Collision Avoidance Regulations (part of the Rules of the Air) are few and simple. They are a common sense way of avoiding collisions with other aircraft.

general

The prime rule is that it is every pilot's ultimate responsibility to avoid a collision with any other aircraft.

- An aircraft shall not be flown so close to another aircraft as to create a danger of collision.
- No formation flying unless all the pilots have agreed.
- When required by these Rules to give way, an aircraft shall avoid passing over, under or ahead of another unless well clear.
- An aircraft that has 'right of way' under these Rules shall maintain its course and speed.

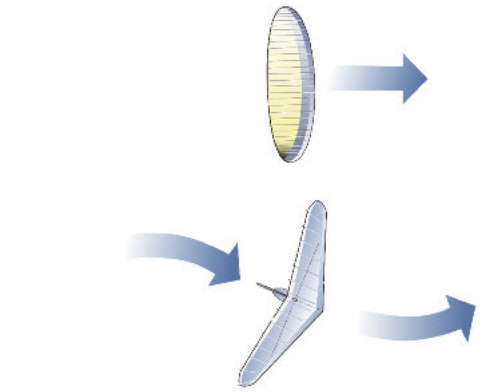
when approaching head-on

When approaching approximately head-on with a risk of collision both aircraft shall alter course to the right.

When two gliders are approaching each other in opposite directions on a ridge, the glider with the hill on his or her left should give way. The pilot with the hill on their right will be unable to make a right turn to avoid a conflict (this is not in fact a legal Rule but common sense!)

overtaking

When overtaking another aircraft you must give it a wide berth and take care not to impede it. In the UK a glider may overtake another glider to either the left or right (hang gliders and paragliders are both considered to be gliders). When hill soaring the safest course of action is often to turn back rather than to overtake. If you do need to overtake, make sure that you pass well clear of the other glider.

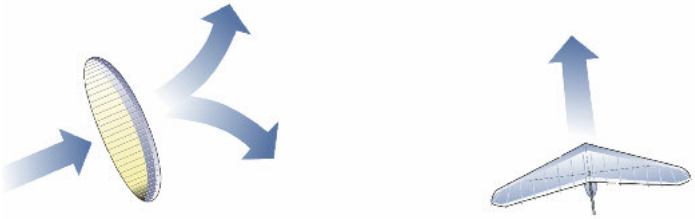


converging

(The overtaking and head-on rules take precedence over this one.) When converging:

- A powered aircraft shall give way to airships, gliders and balloons.
- An airship shall give way to gliders and balloons.
- A glider shall give way to balloons.

When two aircraft of the same classification converge at approximately the same altitude, the one with the other on its right shall give way.



flight near aerodromes

Part of the official definition of an aerodrome is: 'Any area of land or water designed, equipped, set apart or commonly used for affording facilities for the landing and departure of aircraft…' Therefore all our sites are aerodromes in the same way that Heathrow is!

When flying in the vicinity of any aircraft's take-off or landing sites you must keep clear or conform to any established pattern, making all turns to the left unless ground signals indicate otherwise. Although this is how the Rule is written you probably will not see any ground signals at your local sites - but there will be an established pattern even if all turns are not to the left due to site and weather constraints. If in doubt, ask.

landings

An aircraft landing or on final approach has right of way over all other aircraft in the air or on the ground. The lowest aircraft of any on an approach to land has right of way, provided it does not cut in front of or overtake any aircraft on final approach.

When landing you should leave clear on the left any glider that is landing, has landed or is about to take off - this Rule may have to be modified to suit the site.

After landing you must clear the landing area as soon as possible. If somebody lands on your parked glider, don't expect an insurance claim to work to your advantage if you have simply left it in the way!

overcrowding

Overcrowding often manifests itself when several pilots are attempting to use a small area of lift. Keep a safe distance from other pilots and keep a good lookout. If the air is too crowded for you - it's time to come down.

Only the rules to do with avoiding other aircraft are illustrated here. As you progress through the Pilot Rating Scheme you will become aware of others. Together they are enshrined in law in the Rules of the Air (Rule 17) section of the Air Navigation Order.

CANP

This is a system that allows us to notify the military that we will be using a particular hang gliding or paragliding site. It aims to keep military pilots aware of our operations and to give us a wide berth. The system is based on phone or e-mail notification to the military's Low Flying Booking Cell. You do not need to know about this for training purposes, but in the club environment, for midweek flying, its use is recommended. Details are on the BHPA website.

airworthiness what's safe for you, what's not, and why

Hang gliders used to be prone to tucking (rapidly dropping the nose until the glider was upside down - at which stage they would often break up!). Paragliders used to be prone to deflating at the slightest hint of turbulence, and many would then be impossible to recover. Independent airworthiness testing to proven standards weeded out gliders with these undesirable tendencies and now identifies properly designed and constructed machines, enabling pilots to buy and fly with confidence.

The airworthiness standards for both hang gliders and paragliders attest to the structural and aerodynamic integrity of the gliders and to their acceptable handling qualities. Glider types that are approved as airworthy by the various authorities concerned will have a verification placard attached to them in an easily visible location. These authorities also ensure that approved gliders are all built to an identical specification and to acceptable quality control standards, and that the manufacturer supplies a clear and comprehensive manual with each new glider. Although glider types exist that do not have airworthiness certification, you should never even consider buying or flying one.

hang glider airworthiness

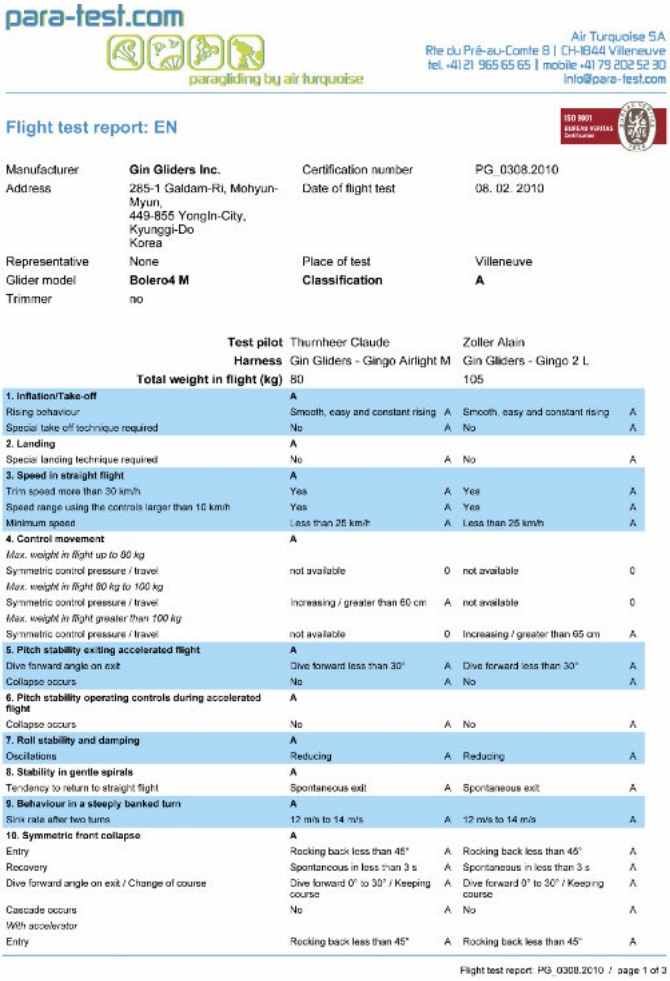
In Britain hang glider airworthiness is administered by the BHPA. It issues Certificates of Type Compliance to manufacturers and importers when an individual glider type has successfully passed rigorous standards of construction, production, structural integrity, stability in the air and vice-free handling. The BHPA also accepts airworthiness certification carried out by the DHV (in Germany) and the HGMA (in America). Examples of certified glider types will carry a BHPA, DHV or HGMA placard (below), usually on the keel, which shows the pilot weight limits that apply to the certification. The sail of the glider will also usually carry a small fabric label.

When you are approaching the stage when you are preparing to leave the training school environment and thinking about buying your first glider, look for one carrying a BHPA, DHV or HGMA placard. If you can't find such a placard, walk away from the glider.

paraglider airworthiness

All paragliders flown by BHPA members must carry proof of acceptable certification. 'Acceptable certification' means that the paraglider must carry a wing tip Verification Placard confirming LTF and/or EN certification (above left). For parascending canopies, BHPA 'Ascending Parachute' certification is also acceptable.

In the absence of proof of acceptable certification in the form of a Verification Placard, BHPA rules require that the paraglider be individually registered. Acceptance is not automatic, being dependent upon certain criteria being met and fees paid. (The BHPA Office has further details.)



para-test.com
paragliding by air turquoise

Air Turquoise SA
Rte du Pré-au-Comte 8 | CH-1844 Villeneuve
tel. +41 21 965 65 65 | mobile +41 79 202 52 30
info@para-test.com

Flight test report: EN

Manufacturer	Gin Gliders Inc.	Certification number	PG_0308.2010
Address	285-1 Galdam-Ri, Mohyun-Myun, 449-855 Yongin-City, Kyunggi-Do Korea	Date of flight test	08. 02. 2010
Representative	None	Place of test	Villeneuve
Glider model	Bolero4 M	Classification	A
Trimmer	no		

	Test pilot	Thurnheer Claude		Zoller Alain	
	Harness	Gin Gliders - Gingo Airlight M		Gin Gliders - Gingo 2 L	
	Total weight in flight (kg)	80		105	
1. Inflation/Take-off		A			
Rising behaviour		Smooth, easy and constant rising	A	Smooth, easy and constant rising	A
Special take off technique required		No	A	No	A
2. Landing		A			
Special landing technique required		No	A	No	A
3. Speed in straight flight		A			
Trim speed more than 30 km/h		Yes	A	Yes	A
Speed range using the controls larger than 10 km/h		Yes	A	Yes	A
Minimum speed		Less than 25 km/h	A	Less than 25 km/h	A
4. Control movement		A			
Max. weight in flight up to 80 kg					
Symmetric control pressure / travel		not available	0	not available	0
Max. weight in flight 80 kg to 100 kg					
Symmetric control pressure / travel		Increasing / greater than 60 cm	A	not available	0
Max. weight in flight greater than 100 kg					
Symmetric control pressure / travel		not available	0	Increasing / greater than 65 cm	A
5. Pitch stability exiting accelerated flight		A			
Dive forward angle on exit		Dive forward less than 30°	A	Dive forward less than 30°	A
Collapse occurs		No	A	No	A
6. Pitch stability operating controls during accelerated flight		A			
Collapse occurs		No	A	No	A
7. Roll stability and damping		A			
Oscillations		Reducing	A	Reducing	A
8. Stability in gentle spirals		A			
Tendency to return to straight flight		Spontaneous exit	A	Spontaneous exit	A
9. Behaviour in a steeply banked turn		A			
Sink rate after two turns		12 m/s to 14 m/s	A	12 m/s to 14 m/s	A
10. Symmetric front collapse		A			
Entry		Rocking back less than 45°	A	Rocking back less than 45°	A
Recovery		Spontaneous in less than 3 s	A	Spontaneous in less than 3 s	A
Dive forward angle on exit / Change of course		Dive forward 0° to 30° / Keeping course	A	Dive forward 0° to 30° / Keeping course	A
Cascade occurs		No	A	No	A
With accelerator					
Entry		Rocking back less than 45°	A	Rocking back less than 45°	A

Flight test report: PG_0308.2010 / page 1 of 3

understanding the systems

The BHPA played a central role in the drafting of a 'European Committee for Standardisation (EN) Standard' for the testing of paragliders (sometimes mistakenly referred to as CEN). This is used as the test standard by most European countries (see test repoort above). Germany uses an almost identical system administered by the German Air Ministry. The classes in both standards are A, B, C and D (see table below).

rough guide to paraglider classifications

EN926 and LTF classification and BHPA recommendations

A: For all pilots, especially those in their first year of flying and for experienced pilots with limited currency, for example those who fly less than 25 hours a year.

B: There are a wide range of gliders produced in this category. Some are closer to A class gliders. Others are for pilots who have gained more than 30 hours mixed flying (at least ten in thermic conditions) and hold a Pilot rating. B class gliders are also suitable for experienced pilots who fly less than 50 hours a year.

C: For pilots who are Advanced Pilot rated, have several hundred hours logged (many of these in thermic conditions), have completed SIV courses, are flying ten or more hours a month, and enjoy dealing with large asymmetric collapses etc.

D: For pilots who have been flying for many years, fly more than 200 hours a year, often in strong thermic conditions, and are masters of the various SIV skills.

flying in moving air

The dynamics of the air we fly in and how it affects us as pilots of hang gliders and paragliders

The speed of your glider through the air is its airspeed, which you as the pilot control. If you are flying with an airspeed of 20 mph on a day when there is not a breath of wind then your speed over the ground (your groundspeed) will also be 20mph (fig. 1). More often there will be some wind, and this can significantly effect your speed over the ground. Imagine you are again gliding at 20 mph, but you are flying directly into wind, and the windspeed is 10mph. So basically you are flying at 20 mph within an enormous mass of air moving in the opposite direction at 10 mph. In this case your groundspeed will be only 10 mph (fig. 2).

fig. 1

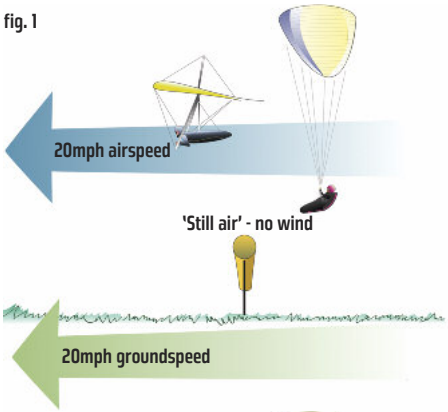
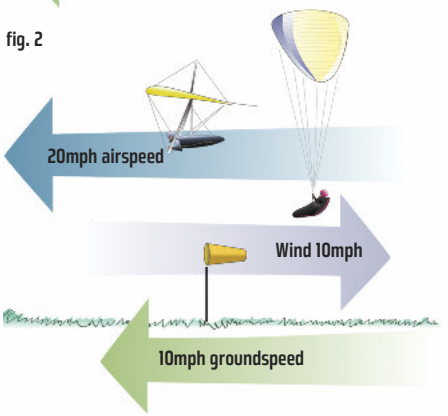
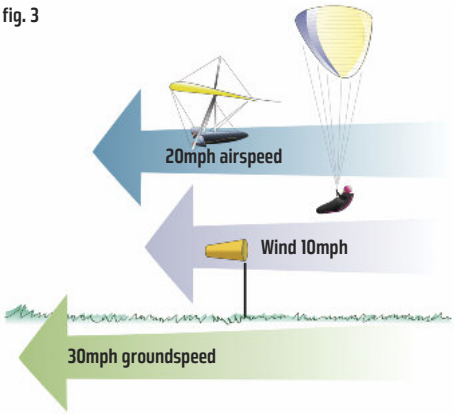


fig. 2



If you now turn to fly downwind, maintaining your safe airspeed of 20 mph, your speed over the ground will be a rapid 30 mph - you are flying at 20 mph within an enormous block of air, at the same time as the block of air is being moved across the ground in the same direction at 10 mph (fig. 3). In this situation there is a danger (especially if you are not very high) that the sight of the ground flashing past underneath may mislead you into thinking that your airspeed is too high. Many pilots have made this mistake and slowed their gliders down, and so stalled. You must learn to assess airspeed by the feel of the air on your face, the sound, and most importantly, the feel of the glider - and you must learn not to be misled by groundspeed.

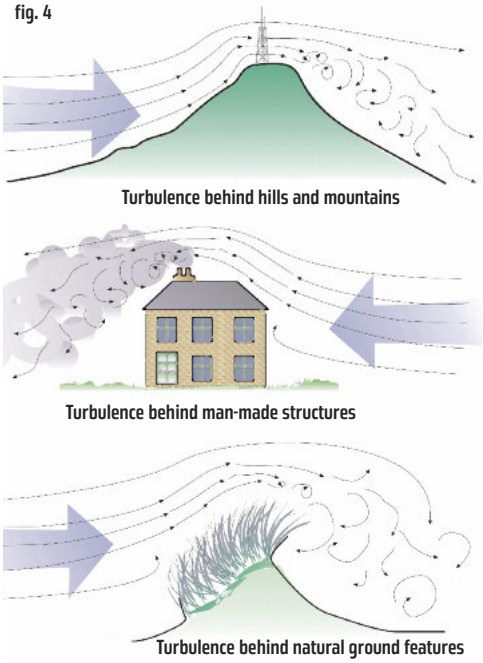
fig. 3



turbulence

Try always to fly your glider in areas clear of turbulence. Disturbances in the smooth flow of air are caused in various ways, some of which are shown below (fig. 4). Turbulence also occurs in and around thermals. You will be learning a lot more about turbulence and wind gradient at your school and for the rest of your career as a pilot.

fig. 4



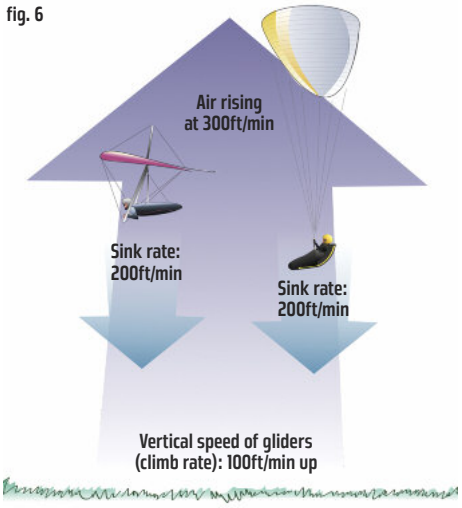
the wind gradient

The air flowing over the surface of the earth is retarded by friction and blows slower the closer it is to the surface. This is known as a wind gradient. You will learn to respect it and to guard against its effects by increasing your airspeed when descending through it to land (fig. 5 - at foot of page).

soaring

A glider soars (gains height) when it is flying in air which is rising faster than the glider itself is descending through it (fig. 6). For example, when the wind blows onto a ridge a glider flown in the band of rising air deflected upward by the ridge face can soar for as long as the wind continues to blow. In summer the warmth of the sun creates thermals which can carry a glider up to a height of several thousand feet if the skilful pilot circles round and round in their confines.

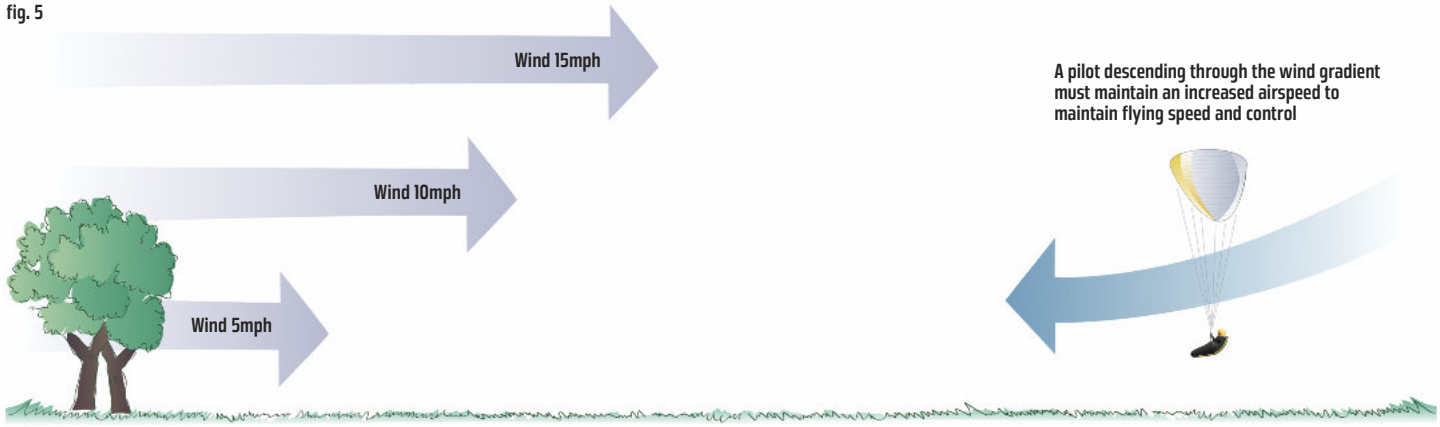
fig. 6



There is another form of soaring which involves exploiting the upgoing portion of invisible ripples in the air which sometimes occur downwind of ridges and mountains in fresh winds. These are termed 'waves', and it is possible to gain considerable height by using this wave lift.

Soaring is the great challenge of all forms of gliding: once acquired your skills at detecting and using invisible rising air currents can keep you aloft for hours at a time, or allow you to venture off cross country, floating silently across the countryside for mile after mile.

fig. 5



A pilot descending through the wind gradient must maintain an increased airspeed to maintain flying speed and control

weather to fly

From the moment you start hang gliding or paragliding you must begin to take notice of the weather; it dictates whether you can fly or not. Strong or gusty winds and deteriorating visibility are among the conditions you'll learn to avoid. Meteorology is a complex subject, but there are a few simple rules you can start with.

Firstly, find a reliable source of weather forecast. TV forecasts are a good way of keeping your eye on the general situation, but the internet is best for detailed local information. The Met Office website needs to be in your list of favourites, ideally on the page giving your local area. You will almost certainly find www.xcweather.co.uk useful. There are also weather apps for your smart phone. In addition you might want to sign up for a subscription service such as WendyWindblows at www.wendywindblows.com.

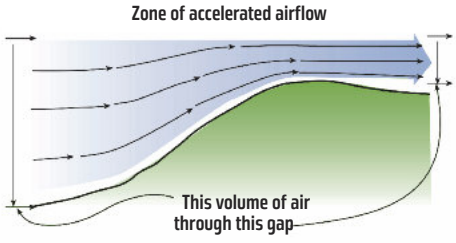
You should be able to scan a TV or newspaper chart (they are usually accurate) and get a general idea of the expected weather for your region over the next twelve hours or so. Do you know, for example, what kind of weather a 'low pressure' area will bring, or what closely packed 'isobars' mean in terms of wind speed? As you progress through your training course you will learn about the wind gradient and about localised turbulence (see also Flying in Moving Air on page 14).

When visiting a site you will need to ask about local conditions and be able to assess take-off and landing areas. Specifically, you must know what the wind speed is. The best way to do that is to carry your own wind meter (anemometer), a small, light and inexpensive device that gives give a fairly accurate indication of wind strength. Your Instructor will teach you how to recognise dangerous conditions and how the behaviour of your wing while on the ground can be used to double check whether it is within your capabilities to launch.

Later on you will need to know how 'thermals' are produced, and how you can use them to fly cross-country. All this information on the site and its associated weather patterns forms the environment in which you want to fly - study it, ask about it, think about it - and learn.

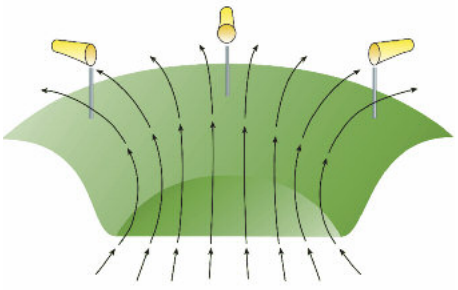
measuring wind strength and direction on a hill

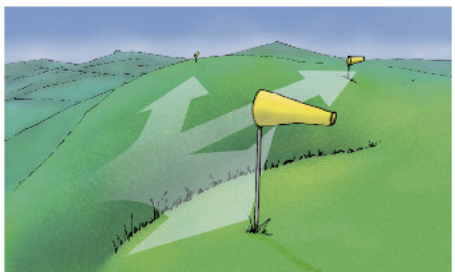
Hand-held wind strength meters are reasonably accurate, but they can only measure the wind close to the hill and consequently they can be susceptible to localised effects. Wind gradient can result in the pilot measuring a totally misleading wind speed, and not holding the instrument parallel to the airflow may make it under-read badly. Furthermore, a phenomenon known as the venturi effect - created by all hills to a greater or lesser effect - causes the airflow to be accelerated as it passes over the hill (just as it does to generate lift over a wing). This can result in a much altered measurement of windspeed at ground level compared with at a realistic flying height.



A strategically placed windsock which inflates at a known velocity is a useful tool, but it is worth remembering that the windsock will only demonstrate what is happening in its immediate vicinity. The illustration below shows a typical situation where a pilot with only one windsock could become confused if he or she had not taken into account the shape of the site.

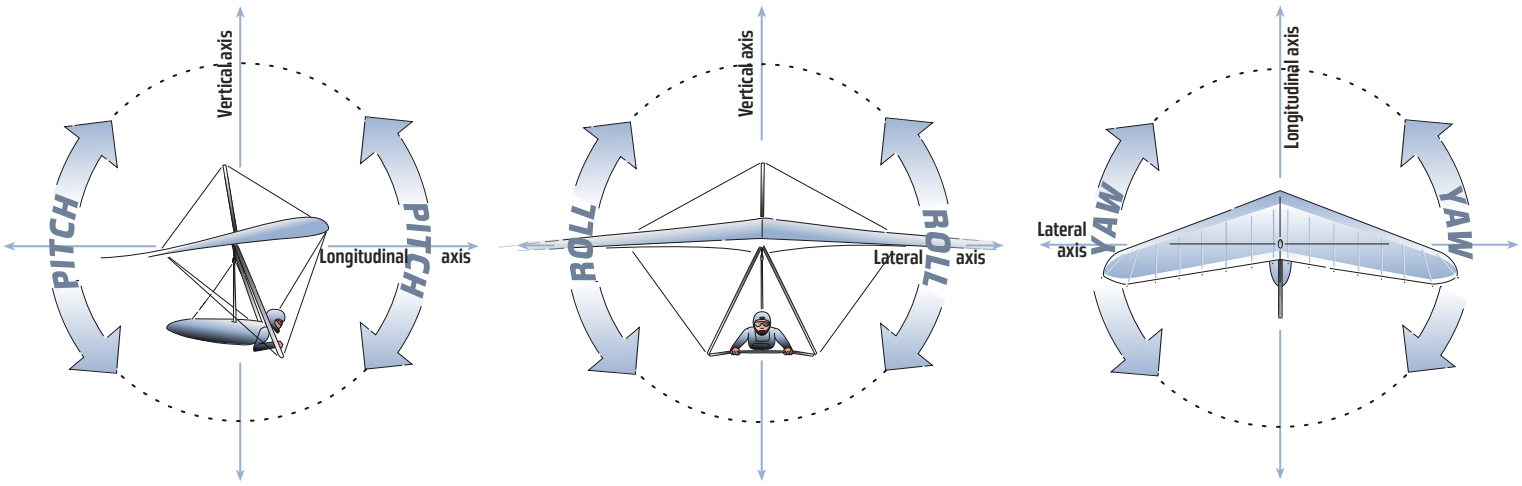
Flying meteorology is a rich and interesting area for study. As you progress through the Pilot Rating Scheme your need for a greater understanding of weather will increase. Initially your instructor will help you; later on your club will usually offer meteorology lectures, and you may choose to study one of the wide range of weather books available from schools, dealers and the BHPA shop.



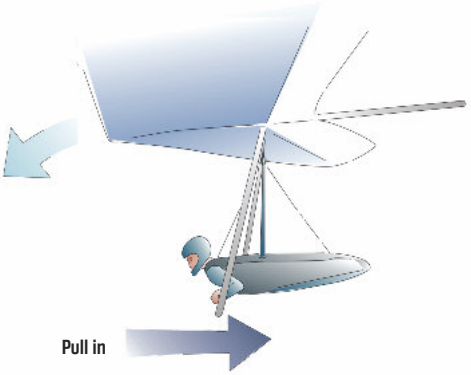


control basic hang glider control movements

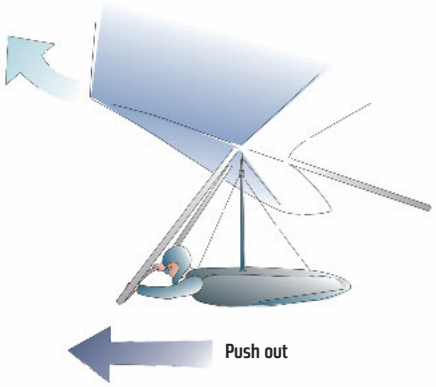
You control a hang glider by moving your body weight, so changing the balance of the glider. The glider responds by changing its attitude. There are three axes of movement: pitch, roll and yaw. (Pitch - nose up or down: Roll - left bank or right bank; Yaw - nose left or right.) You have control of all three axes whilst on the ground, but only pitch and roll when in the air. Yaw (which is needed for turns) develops automatically when the glider is rolled.



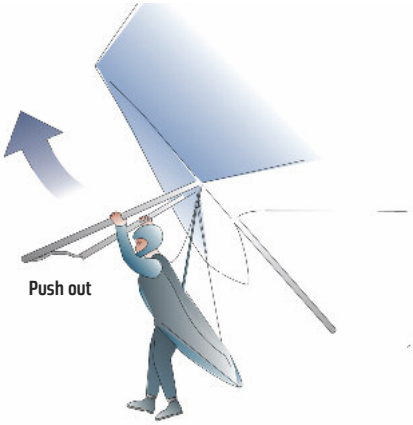
Pitching the nose up or down varies the airspeed. To increase airspeed you must lower the nose. You do this by pulling your weight towards the control frame.



Pulling in too much will cause the glider to dive steeply and descend at a fast rate. You will notice that as the airspeed increases so will the noise and feel of the airflow on your face.



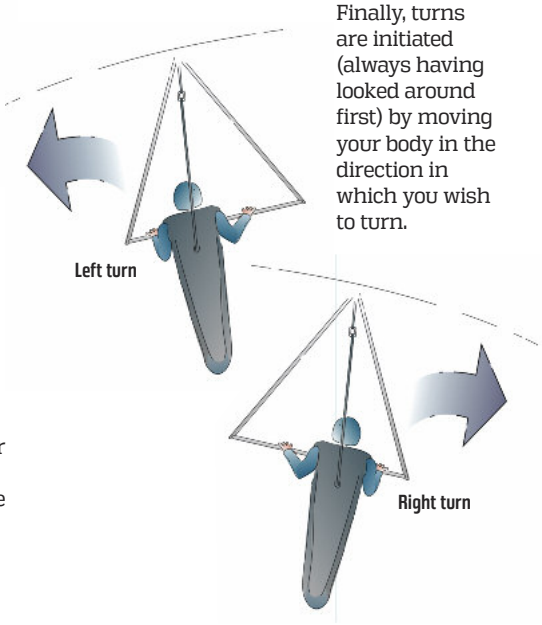
To reduce airspeed you must raise the nose by pushing your body away from the control frame. You will notice a decrease in noise and less airflow on your face.



Pushing out too much may raise the nose too high, and the glider may stall. This is to be avoided except for landing when a controlled stall is necessary for a gentle touch down. This is called flaring out.

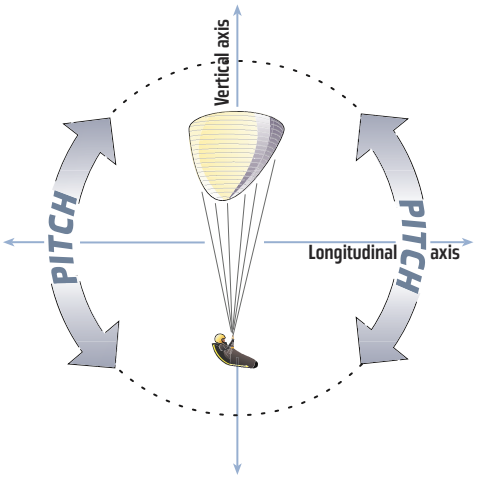
Accurate control of airspeed is very important. Because of this your Instructor will go to great lengths to ensure that you become familiar with the 'feel' of the glider when it is flown at the correct airspeed. Key factors are checking that you have the control bar in the correct position (not pulled in too much nor pushed out too much), listening to the sound of the airflow, and feeling the force of it over you and your face. One point that will be made clear is that you cannot judge your airspeed by looking at the ground - indeed looking at the ground can be very misleading. Because of this your Instructor will make sure that you look well ahead (and around for other gliders!). (The reason why you cannot judge your airspeed by looking at the ground is explained in the section entitled 'Flying in Moving Air' on page 14)

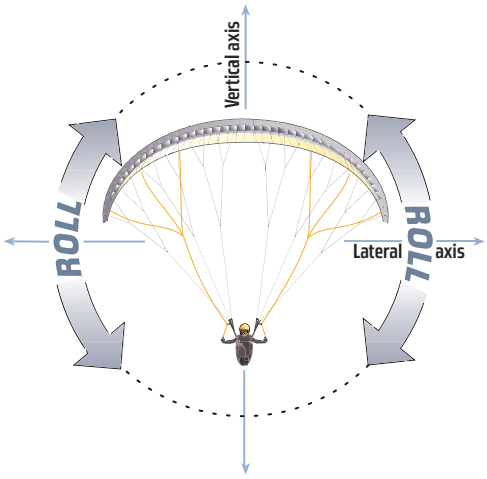
Finally, turns are initiated (always having looked around first) by moving your body in the direction in which you wish to turn.

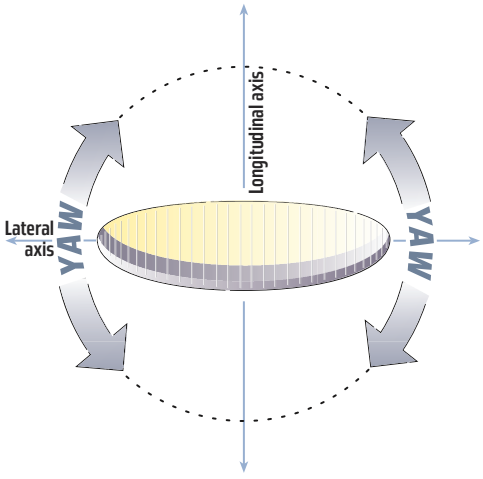


control basic paraglider control movements

A paraglider is controlled by moving the control lines with your hands, independently or together, to alter the profile of the wing above your head and thereby alter the amount of lift and drag created by different areas of the wing. The glider responds by changing its airspeed or by turning. Of the three axes of movement - pitch, roll and yaw - the pilot can normally only control pitch, by moving the controls together, and yaw (i.e. left or right change of heading), by moving the controls differentially. In a turn, roll (banking to the left or right) develops automatically when the glider is turned.







Lowering or raising the control handles (often called brakes) together varies the airspeed. To increase airspeed you must raise the handles. When the handles are close to the keepers the glider will fly at its maximum airspeed. You will notice that as the airspeed increases so will the noise and feel of the airflow on your face.

Flying the paraglider at normal airspeed

To reduce airspeed you lower the control handles. You will notice a decrease in noise and less airflow on your face.

Lowering the control handles to decrease airspeed

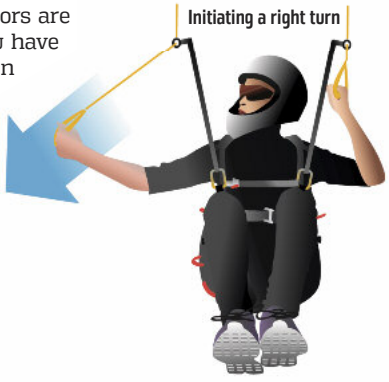
Pulling down too much will cause the glider to begin to stall. This is to be avoided except when landing in light winds when a controlled stall is necessary for a gentle touchdown. This is called flaring out. In stronger winds only gentle control application is needed to effect a good landing.

Pulling hard down on the control handles to flare the glider for landing

Accurate control of airspeed is very important. Because of this your Instructor will go to great lengths to ensure that you become familiar with the 'feel' of the glider when it is flown at the correct airspeed. Key factors are checking that you have the control lines in the correct position (not too low or too high), listening to the sound of the airflow, and feeling the force of it over you and your face. One point that will be made clear is that you cannot judge your airspeed by looking at the ground - indeed looking at the ground can be very misleading. Because of this your Instructor will make sure that you look well ahead (and around for other gliders!). (The reason why you cannot judge your airspeed by looking at the ground is explained in the section entitled 'Flying in Moving Air' on page 14)

Turns are initiated (always having looked around first) by gently pulling down the control lines on the side of the direction you wish to turn. As you do so there will be a delay, then the the glider will begin to turn. More sophisticated paragliders than the ones you will learn to fly are sometimes steered by a combination of control movements and weight shift, but this technique is beyond the scope of this publication.

If you pull the control line hard on one side the glider will turn more sharply, but there is a danger that it will enter a spin. This is to avoided as the glider will soon become out of control; small, smooth inputs are the key. Another important point to learn and remember is never to let go of the control handles in flight.


Initiating a right turn

Initiating a left turn

the parachute landing fall

Photographs from Touching Cloudbase, courtesy of Ian Currer and Rob Cruickshank

a useful technique for surviving hard paraglider landings unscathed

'The situation was deteriorating. I was too low. Ahead of me were trees and three barbed wire fences; to the left and right more obstacles. Behind me to the right, a large field; I would have to go for this, the safest option, but I would be landing downwind.

'The ground came up very fast. I assumed the Parachute Landing Fall position and executed a forward left landing, letting my body relax totally as it hit the ground. I also flared the canopy fully as my feet touched down.

'Jumping to my feet and pulling in on the brake lines, I gathered my canopy and tried to look a lot cooler than I felt as a fellow pilot came over to check that I was OK…'

The landing roll technique was developed by the Army's Parachute Training School during World War II and is the most effective way of avoiding injury in circumstances similar to the above. Why then are some paraglider pilots reluctant to carry it out? There are times when a stand-up landing is inadvisable, to say the least. It is essential to practice your PLF technique until it becomes an automatic drill in an emergency. Many pilots can bring to mind occasions when a good PLF has saved them from serious injury, and more than a few will admit a PLF has saved them from almost certain disablement or death.

what is the purpose of a PLF?

To spread the shock of impact smoothly over a large area of the body and over a long period of time, and to avoid hitting the ground with head, elbows or hands. It can be useful when landing fast (eg downwind) or when your vertical rate of descent is excessive.

the position

Legs together, toes and heels pressed against one another, feet flat and parallel to the ground, knees bent and pressed together. Back rounded, chin on chest, eyes watching the ground. Hands holding control handles, elbows in. The whole body must be relaxed on touching the ground but alert to keep the extremities pressed in, to maintain the position and assist the landing roll.

sideways landings

Relax the body on touchdown and be ready to twist the upper body away from the direction of travel.

Roll along the side of the leg, thigh and then buttock across the back to the opposite shoulder, keeping the head forward with the chin on the chest. When the thigh touches the ground keep legs together, lift off the ground and roll over.

forward landings

The same principles as above apply, but obviously twist the legs and feet at a 45-degree angle to the ground before touch-down and prepare to twist the shoulders in the opposite direction during the roll.

If the ground is approaching from the left, twist the shoulders to the right during the roll and vice versa.

backward landings

As above but looking behind you as the ground approaches under the elbow. Twist the lower body in the direction of travel and the shoulders away from the ground on touch-down and roll.

Always try to land into wind, although in an emergency this may not be possible, as in the above incident. It is preferable to land downwind if it is necessary to avoid obstacles such as power cables, etc.

The PLF will be available when you need it if you practice, practice, practice it. It's no good if you can't remember what to do when the ground is coming up fast.

finally

While perfectly-executed PLF can save you from serious injury, the reality in paragliding is that it may be quite some time before you ever need to attempt one, and expecting perfection is unrealistic. If you find yourself in a situation where a crash landing is inevitable, remember the following;

- ***Keep everything (arms, legs and chin) tucked in.***
- ***Keep everything slightly bent.***
- ***Relax!***

Current practice

Following recent consultation with the British Parachute Association and a review of the evolving demands of our sport, the BHPA has decided to update its guidance on landing training. The Parachute Landing Fall (PLF) has historically been learnt as part of a paragliding training course, but it is acknowledged that it is not practised by qualified pilots on the basis that they rarely, if ever, expect to use one. Added to this is the reality that, in the instances where the PLF might be useful, the pilot is rarely in a physical position to carry one out. Current practice is outlined in the BHPA Technical Manual. The PLF as described in the above article is still considered a valid technique.

The important elements of the PLF for adoption into your landing training are that the feet and knees are pressed together, the knees bent and the body relaxed. The chin should be on the chest, your hands and elbows tucked in. Discussion with your instructor about situations when this landing technique may be required is essential.

foot-launched powered aircraft

a brief introduction to paramotoring and powered hang gliding

paramotors

Paramotors (also termed Powered Paragliders) combine the easy flying characteristics of the paraglider with the autonomy and range of powered flight. They are relatively easy to learn to fly, yet being foot launched do not need an airfield to operate from - they can be flown from an open, flat field with no need to find a hill site facing into wind or even to wait for the wind to blow. They are quickly and easily rigged and de-rigged, and once dismantled can be put in the boot of a car. Paramotoring is undergoing something of a boom at the present time.

This simplest of all powered aircraft consists of small engine and propeller, worn like a backpack under a paraglider wing and providing thrust to take off, climb and maintain level flight. The paramotor can be used to motor along and watch the world go by beneath you or, if conditions permit, to make long cross-country flights. Many types have electric starters, enabling the pilot to adapt his or her flight to the prevailing conditions. With the paramotor unit disconnected before take-off, the wing becomes just another paraglider. Many paramotor pilots are paraglider pilots looking for more flexibility in their flying; many others are new to flying but become interested in paramotoring and pure paragliding flight.

Photo: Franck Simonnet

powered hang gliders

Foot-launched powered hang gliders also utilise a small engine, attached to the rear of a special harness. Again few modifications are required to the hang glider, which will invariably be of the intermediate type. So far the main interest in these machines has been from already experienced hang glider buffs. Compared to the simplicity of paramotoring these devices are heavier and take a little longer to master, but they are a little less weather sensitive and can fly a lot faster. As with the paramotor, the engine can be detached and the glider used to soar without power - or can be switched off in the air and only restarted when you run out of lift.

training

Paramotors and powered hang gliders may appear to be the most simple of flying machines, but to fly one safely an approved training course is essential. The training syllabus requires a would-be pilot to become proficient at handling a paraglider or a hang glider before learning to use and control it under power. The paramotor pilot must also respect and be conversant with Air Law and be fully aware of the airspace restrictions that apply to their use. Having learned to fly safely, the pilot will have at his or her command a unique and highly portable flying machine. Used with due respect for the weather conditions - these are fair weather machines and flying in strong and gusty winds is not advised - a pilot can take advantage of the full range (up to three hours or so) of the fuel tank and make extended journeys.

Running costs are minimal, making paramotoring and powered hang gliding perhaps the cheapest form of powered flying available. Only a few accessories are important to begin with - a flying suit, flying boots and a helmet - but as you start flying in earnest you may consider instrumentation, a radio, GPS and other useful items.

Several BHPA-registered schools offer paramotor and power hang glider training. Consult the BHPA website at www.bhpa.co.uk for details or ask your instructor where to go for more information. You may hear both these types of machine referred to as Self Propelled Hang Gliders. This rather odd title reflects official Civil Aviation Authority terminology.

general info for the aspiring pilot

Photo: Adee Tallents

your instructor

Tasked with treating you on a personal level and fitting the training to suit you, your Instructor is the key to your development as a pilot. You will not be allowed to go too fast for safety nor too slow so that you become bored. If you are not happy with your rate of progress you must tell the Instructor.

If you have previous aviation experience make sure you let your Instructor know, but accept that all aviation sports differ and you must follow his or her advice. Any contradiction must be discussed at once to avoid confusion.

Finally, remember that you are not in competition with your fellow students - no two people will progress at the same rate and you must not make the mistake of over-reaching yourself.

logging your flights

A log book is a handy sized notebook set out to enable you to record details of dates, flights, gliders, duration, conditions, etc. Its value to the pilot is that it enables him or her to measure their progress from faltering first flights through soaring and other milestones to cross-country achievements, and actually know how much flying they have done in a particular period. Purchase a logbook from your school or the BHPA shop before you begin training to Club Pilot (Novice) level. Later you'll need log book evidence to qualify for certain ratings and flying environments.

your health and fitness to fly

It is not true that hang gliders and paragliders can only be flown by strong young men. Nevertheless you need to be fit and active with your muscles in good trim, and have good co-ordination and an alert, reasoning mind. It's one of the few activity sports that doesn't disadvantage women - being more to with brain than brawn!

Initially, you have to be prepared to expend energy. Often your first few days out on the hill will bring to your attention numerous muscles that you never knew existed; and all of them will ache. Walking up a steep, rough hillside carrying a hang glider or even a much lighter paraglider is not the least like strolling along a city pavement.

It would not be fair on the school if you fainted or dropped dead during your first lesson - and it would not be much fun for you either. So although no medical examinations are required you should be in good health. This means that you can answer NO to the following questions:

- Have you suffered from epilepsy, fits, a severe head or back injury, recurrent fainting, giddiness, fits or blackouts, high blood pressure, a heart condition, diabetes or psychiatric disorders? Are you currently taking any medication?

If you are unable to answer no, you should go to your doctor for advice - and take it. You should also remember that any of the following may make you temporarily unfit or cause difficulty whilst flying:

- Severe asthma, chronic bronchitis, sinus or ear trouble, regular severe migraine, rheumatic fever, kidney stones, severe motion sickness, a donation of blood, drink or drugs.

Even if you are as fit as the proverbial flea, you may well get tired, and in typical British weather, thoroughly cold. If you fly when tired or cold your brain will work much more slowly and your muscles will respond in a lethargic way, however willing your spirit may be. On the hill, cold may not be too much of a problem with all the walking that you will be doing but, in due course, when you start soaring, it will be hazardous if all your decisions and actions keep turning up several seconds too late. If you are getting chilled or tired, land as soon as possible; better still - don't take off.

common sense and good practice

All paragliding and hang gliding takes place in the countryside, whether in the uplands of a National Park or the flat expanses of a friendly farmer's field. It is in the interests of all concerned, not least those in the free flying movement, to enjoy the sport with the least friction with others or damage to the environment. The following guidelines are designed to minimise our disturbance of the rural landscape; follow them and you can be sure of being respected by other pilots and the public.

animals

Avoid all livestock. If they tend to migrate to one area, try to avoid disturbing them there.

Do not fly from a site where livestock are about to bear their young (e.g. lambing, calving and foaling). This is usually the late February to May period and varies with the breed and locality. Check with the farmer if any livestock is likely to be startled.

Dogs should never be taken onto any site unless the landowner's permission has been obtained. They must be kept under control at all times.

conduct

Drive considerately - you are easily identified with a glider on the roof or flying stickers on the car.

Park your car with due consideration for others, especially when loading or unloading. Find a proper parking space (not the grass verge). The admission of vehicles to flying sites is discouraged.

Use only recognised gates and paths. Do not climb over walls, fences or through hedges. Always leave gates as you find them.

Don't leave litter, throw away lighted matches or cigarettes or pollute streams.

Finally, keep your eyes and ears open for any change - in the weather, in your flight or in yourself.

hang gliding, paragliding and the law

All flying is controlled by a document called the Air Navigation Order. The Aerial Collision Avoidance Regulations (page 12) are part of the Rules of the Air laid down by the Order, and although it is aimed mainly at powered craft we are required to comply so you must know some of the basic regulations. You must not fly over a town below a certain height; nor over a large crowd; nor at night without lights; nor in certain airspace areas; nor tow to a height exceeding 60 metres without permission - etc. etc. Your Instructor will brief you thoroughly on those which apply directly to hang glider and paraglider pilots. The rules under which pilots can fly with power are more strict; again your Instructor will brief you on the law's requirements.

Photo: avian

the red streamer system

A red streamer will be issued to you when you attain your Club Pilot (Novice) rating. Over the years the red streamer system has proved to be a very simple and effective way to help novice and low-airtime pilots.

The red streamer is easily seen and tells other pilots to keep their distance and give you due courtesy. On the ground the red streamer alerts Coaches and experienced pilots to keep a special eye on you and offer help and advice when appropriate. Often more experienced pilots will observe a subtle change in the weather or some aspect of your equipment that may require adjustment and be able to advise you before it gives rise to a problem.

final advice

Enjoy this exhilarating experience and get as much as you can from it, but please, please, please don't ever think it is a do-it-yourself sport. It looks easy in the hands of the expert - but then so does disarming a bomb. If you aren't sure about a technique ask an Instructor - he is the only one who can actually train you how to do it.

Don't be tempted to fly outside your level of competence - and remember that learning also means asking, asking and asking again. Most pilots are only too keen to help, but you have to approach them.

buying the right gear

buying the right glider

As you approach your Club Pilot (Novice) rating, you may be considering buying your first glider. Brand new or second-hand, it is vitally important to buy a wing which has airworthiness certification (described on page 13) and is suitable for your level of experience. Many of the types available have been designed for pilots with a great deal of experience or even for out-and-out competition performance, but there are also many types designed specifically to help the novice get started in his or her flying career.

Buying a suitable glider will reward you with hours of safe, predictable and pleasant flying and allow your skills to develop as you set yourself new goals. An unsuitable glider is likely to hamper your development as a pilot and may give rise to a loss of confidence and an increased risk of accident and injury. The best advice is to watch other pilots and talk to them. Learn as much as you can about what is available before making your choice. Don't allow anyone to pressurise you into taking something against your will - you are the customer! Your instructor will be able to give you advice on the type of wing best suited to your abilities, but we offer the following guidelines.

hang gliders

A number of hang glider models have been specifically developed to meet the needs of the novice/intermediate pilot, and many of these are available either new or second-hand. These are ideal gliders for the Club Pilot (Novice).

Beginner gliders offer very easy flying qualities for novices, without the high weight, heavy cost and more difficult handling of higher-performance gliders. Types on the market include the Aeros Target, Airborne Fun, Avian Fly, Moyes Malibu and Wills Wing Falcon.

Photo: avian

Intermediate: Avian Rio 2

The Intermediate heading encompasses gliders ranging from those just slightly more demanding to fly than the beginner type, through to some that are a lot more exacting. Your instructor should be able to convert you on to a lower-performance intermediate during the last few days of your Club Pilot (Novice) course, but you will need to get an hour or two logged on something more forgiving before your instructor puts you onto one of the higher performance intermediates.

Less demanding intermediates include gliders such as the Moyes Sonic and Wills Wing Sport 2. Towards the more demanding end of the intermediate category come gliders such as the Avian Rio, Seedwings Spyder, Moyes XT and Wills Wing U2. You will require a little more instruction before you are ready for any of these gliders, but then again you'll probably find that their enhanced performance allows you to keep them for several seasons before wanting to explore the high performance world.

You will also find many purpose-built high-performance gliders available second-hand (some at very tempting prices). You should keep well clear of these until you have at least 25 hours experience; with some types you will need considerably more than that - some of these gliders have very demanding handling characteristics.

A few other points: It is important to buy a glider designed to carry a pilot of your weight, so check your 'clip-in' weight - yourself plus full flying clothing, boots, helmet and harness - and ensure that this matches the glider's weight range. Make sure the glider you have in mind is certificated at the size that you will need to fly; some types only have certification in one or two sizes. Always seek your instructor's advice when buying any hang glider, and never view a glider without an experienced pilot or instructor with you to check it over and conduct a test flight. Make sure that the glider you buy is supplied with a handbook and batten plan.

paragliders

The pages of Skywings will reveal that there are many, many types to choose from, so how should you start? The principal concern must be to get a glider that has suitable safe flying characteristics and is the right size for your weight.

The airworthiness certification (described on page 13) provides a very useful guide to a glider's safety characteristics. New Club Pilots should only consider gliders certified as EN/LTF A or B.

Photo: Jerome Maupoint

LTF 1-2 / EN B: Gin Atlas

Size is also very important. The stability and handling of a canopy are adversely affected by over- or under-loading. Most designs are produced in three or more sizes to suit different pilot weights; you should examine the handbook (make certain that you get one with the particular canopy you buy) and other literature to ensure that you fall within the published weight range. Weights are normally quoted as 'Total weight in flight' but check carefully. Total weight in flight means the weight of the pilot (fully dressed and booted for flying), the harness, helmet, instruments, emergency parachute equipment and the paraglider. You should also check that the harness type you intend to fly with is suitable: harnesses can have a dramatic effect on paraglider stability so it is vital that you fly with one with the same characteristics as the one your paraglider was certified with. Your instructor will advise you further on this.

When buying second-hand, you need to consider the spares and repair backup (e.g. replacement lines) and the possibility of material degradation. There are plenty of good gliders on the market, so anything you are unsure about is best avoided. Good stability and handling on an older paraglider usually means low performance, but can also mean a bargain price. However, nothing lasts forever and even a carefully treated paraglider may not last as long as 200 hours. Before buying a used canopy make sure it has been recently serviced by the manufacturer. Above all, avoid buying an advanced wing, new or second-hand, that you may think you will 'grow into'. To progress safely and surely you need a good handling, stable wing - now!

buying a helmet

Check that the helmet carries a CE mark. The label will give the number of the standard, EN 966. (There may be prefixes such as BSEN 966 or DINEN 966 but it will always contain the EN966 element.) It will also give a set of code letters identifying the helmet category: helmets for hang gliding and paragliding are coded HPG. Such a helmet is certain to provide a very high level of protection whilst still remaining compatible with our activities.

Full face or open face style? Both have their good and bad points; in airsports usage there is no clear evidence that one is always better than the other, so choose according to personal preferences. Now try several helmets on and select the one which gives you the most comfortable close fit. With it unfastened check that there is no side-to-side movement. Then, with the helmet fastened, securely attempt to pull or roll the helmet from your head. Be fairly brutal in this, especially when attempting to roll it forward off your head by lifting it at the back of your neck. Finally you should check that your vision is unimpeded and that you can swivel your head freely to look over both shoulders.

Once you have bought your helmet, do not paint it or cover it with stickers unless you are sure that these will not attack the shell. As part of EN966 a warning will be carried on the helmet if the shell is made from a material known to be adversely affected by contact with hydrocarbons, cleaning fluids, paints, transfers or other extraneous additions, so be guided by this. And look after your helmet and (especially) do not drop it as its abilities to protect you may be diminished.

Finally, at the risk of stating the obvious, remember that even the very best helmets can only provide a finite amount of protection - don't buy a new helmet and start thinking that you are Captain Invincible!

Skywings classified ads: Used flying equipment can be found each month in Skywings magazine's classified section and online at www.skywingsmag.com

ten thoughts for ten hours

wise words for new club fliers

Photo: Ozone

Leaving school and joining a club can be a nerve-wracking experience . You leave an environment where you are top-of-the-pile, other than instructors of course, and enter one where you swiftly realise that all your training only covered the tip of the flying-knowledge iceberg. You'll have the opportunity to put your new-found skills to the test in conditions stronger and less predictable than those the school let you fly in, and sometimes in conditions that will scare you witless.

Having reached the end of my first flying season, in which I miraculously achieved some worthwhile airtime despite the efforts of the weather, I would like to humbly offer some suggestions to help you through this tricky period. It's worth having some rules of thumb, and these are all things which helped me, even if some of them only became evident in my post-match analysis.

1. Talk to anyone and everyone

This leads to so many things: you'll make friends more quickly; you'll find out who is who in terms of experience and coaching; you'll get advice and - from having found out who is experienced - you'll be better able to judge its value; you'll feel less foolish asking those stupid questions that you will inevitably have; and it may save your life…

On a number of occasions I've seen red ribbon pilots turning up and just getting on with it, and in one case an accident occurred. Us other low airtimers were sitting out the suspect conditions, waiting to see what the more experienced guys made of it before flying. Had the pilot been chatting to us, he too may have decided to wait and hence avoided the resultant pain.

2. Make some rules and stick by them

This is hard to do at first as you will be exploring your own and your wing's limits, but have a go. You can always adjust them later. Set an upper windspeed limit and a wind-range limit. Make a judgement as to when busy becomes too busy for you, when rough becomes too much of a rollercoaster.

As your hours and variety of experience build you may be tempted to fly outside these limits: try not to succumb. This can be frustrating, but is not so bad if you set yourself regular review points: when I finally get to ten hours I'm going to consider flying in slightly stronger winds, at 15 hours I'll review again. Be realistic though - don't up the limit just because you've done the hours - ask yourself if you are really ready for it.

You may find club members offering you advice on whether or not they think conditions are OK for you. This is usually worth listening to, but still make your own decision - you are the only one who knows how you are likely to handle the conditions and how you are feeling on the day. If you take off and it's horrid, get down.

3. Listen to your inner coward

If you carry out tip (1) you will find that all pilots have one and it's nothing to be ashamed of. Be aware that some days your coward will be crying louder than others - he might have a good, subconscious reason. If he's making noise you will fly more nervously and hence not as well, so draw your pre-set limits in. Some days he will be on holiday so enjoy yourself, but don't use it as an excuse to exceed your limits - they're made to match your skill, not your confidence.

4. Don't just get in the air and fly - practice!

This is the big temptation, to just fly. With ten one-hour flights you could get rid of your ribbon, but would you really be ready to? How many landings would you have done? How many launches? If it's a consistent, smooth soaring day with easy lift, take the opportunity to practice top landings. If it's too light to fly but still keeps the wing inflated, ground-handle. Nil wind and you've got a big field to hand, forward launch. Believe me, you'll be thankful of it when you are on a heaving mountain launch with a queue behind you.

On each flight decide to work on something: becoming more aware of brake pressures; active flying without nervously looking up at the wing; more weight shift and less brake in turns; whatever. Sure, some days you will just want to relax and enjoy a long flight. No harm in that - just don't make it every flight.

5. Keep an eye on the experienced guys

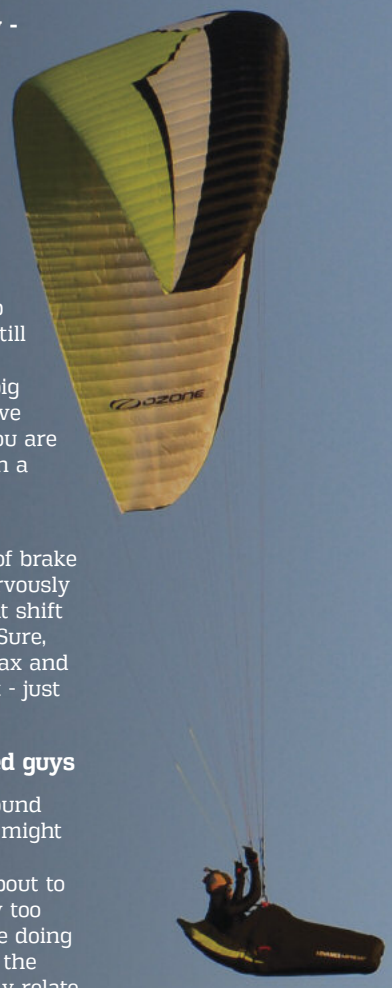
If they are milling about on the ground unenthusiastically, find out why. It might just be a tea break but it could be something nasty they've spotted about to happen with the weather. Don't pay too much heed to what the skygods are doing though, unless they are staying on the ground. Their rules don't necessarily relate to mere mortals like us. But do listen to them if you have the opportunity - you'll learn a lot.

6. Before flying, speak to someone who's been up

Ideally, this would be someone who has recently landed. Get their opinion on the conditions. Their experience level doesn't really matter so long as they don't have a penchant for over- or understatement. Often a fellow red-ribbon pilot will give you a report more relevant to your experience level.

7. Ask questions

If something happened on your flight that you didn't understand or that you have a theory about, ask someone experienced. They may even have seen it happen. Their input is likely to give you the missing piece of the puzzle and turn the experience into



knowledge. If the weather is doing strange things, ask someone if they know what's going on.

Personally, I like to formulate a theory and then ask. Sometimes it gets shot down in flames, sometimes I can be satisfied at having used my knowledge effectively. This is a valuable skill because in the air that knowledge is all you have - there ain't nobody to ask!

8. If you can't fly, observe flying

On a day busy enough to keep you on the ground you'll get a headache trying to work out how collision avoidance rules are being used, but it's good practice. Get an idea of what sort of height is safe to 360, where the lift is and how it's working with the prevailing wind direction or thermal cycles. There's always something to pick up.

9. Do some retrieve work

If conditions aren't good for you but people are going XC, your help will be gratefully received, and when you finally make it XC yourself your book of favours-owed should be bulging with possible retrieve drivers. On the way back to the hill you will have a captive knowledge-base who will be buzzing and more than happy to answer questions about what they did on their flight. In fact, you most likely won't have to ask as they'll be keen to share it with someone who has vague idea of what they're on about.

10. Just keep talking to people on the hill

OK, a repetition of the first tip, but this is the most useful thing you can do, both to learn and to enjoy the social atmosphere the club offers. In time the great British tradition of mutual mickey-taking will begin and then you'll know you've truly been accepted into the fold.

The early hours of your flying career are frustrating. Everyone seems so much better than you, you nervously fluff launches, get dragged, end up down the bottom and suffer many other ignominies. Just as with getting your CP, you need persistence and determination, but it will start coming together and you'll feel more and more in control, on the ground and in the air.

One day you'll find that that strong wind launch went smoothly, you've enjoyed working the rough stuff and you're thermalling away over the back for your first XC. Then you'll realise what all the effort's been about, and that it really was worth it after all.

Article courtesy of Roger Edwards/Wessex Airmail

BHPA rules for individual flying members

We are fortunate in the UK in that the vast majority of all hang glider and paraglider pilots are BHPA members and have been trained to a high standard by BHPA Instructors and Coaches. Whenever we are flying on the hill, or abroad, we have every right to be proud of our skills.

However the thoughtless actions of a few pilots can quickly create a negative impression which takes an awful long time to erase. The BHPA expects all its members to observe its few simple rules when flying. Keeping within this framework will keep your flying in harmony with other pilots, BHPA clubs, the Association itself and the general public. Staying within the rules also ensures that the BHPA's third-party public liability insurance will cover you in the event of a mishap.

1. *Pilots must comply with Air Law.*
2. *All accidents and incidents must be reported within 48 hours using the online Incident Report Form on the BHPA website. Fatal or potentially fatal accidents must be reported to the police and the Air Accident Investigation Branch immediately.*
3. *Pilots involved in any type of incident that could lead to an insurance claim must not admit fault or liability.*
4. *A well fitting helmet must be worn on all flights. The helmet should be CE marked EN 966 in the HPG category.*
5. *Members who wish to be involved in any activity that involves others (e.g. Coaching, Instructing, Dual Flying, Towing, Aerotowing) must be appropriately licensed and must adhere to the requirements set out in the Technical Manual.*
6. *BHPA members must fly acceptably certificated aircraft, or they must lodge with the BHPA Office a Pilot's Declaration: Uncertified Wings.*
7. *When flying from club sites pilots must familiarise themselves and comply with the club site rules.*
8. *Members must only fly when fit to do so.*
9. *Members must restrict their activities to those that they are qualified to undertake.*
10. *Members must not act in a manner that brings or may bring the BHPA or the sport in general into disrepute.*

Photo: Nader Couri