British Gliding Association

INSTRUCTORS' MANUAL

Fourth Edition

BRITISH GLIDING ASSOCIATION

NOTE

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office@gliding.co.uk

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The British Gliding Association
8 Merus Court
Meridian Business Park
Leicester
LE19 1RJ
office@gliding.co.uk

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All illustrations by Steven Longland.

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INTRODUCTION

This fourth edition of the BGA Instructors' manual makes the chapter updates noted below. There are, in addition, many small changes to wording and diagrams too numerous to mention here. These changes are marked with lines in the margins of each page.

As always, this manual is a working document, and as such there have been many comments from club instructors, CFI's and BGA examiners alike. Thanks go to all who have spotted errors or suggested changes and taken the trouble to pick up the phone or written an e-mail. If YOU find an error or omission, please do get in touch. We cannot promise to agree to make changes, but we often do!

Thanks are due, once again to Steve Longland for his editing prowess and of course his diagram wrangling skills, without which we would all find ourselves, I am sure, in a world of spidery scrawl.

Finally, this is the first time that this manual will appear as a freely downloadable resource. This will give us the opportunity to continue to update and modernise the manual without resorting, necessarily to a whole new printing run. We hope that you will be able to use the manual in a more accessible way on tablets and e-readers in the future.

Colin Sword, BGA Instructor Sub - Committee Chairman

Mike Fox, BGA Training Standards Manager

NOTES

Numbering of pages and illustrations

The page numbering convention 'chapter, page number within chapter' has been maintained. As before, the illustrations are numbered within each chapter and not across the publication, so every chapter containing at least one illustration will have a 'figure 1'.

Note on the illustrations

A number of the illustrations show shadows beneath the aircraft. They are there solely to enhance the perspective effects, not to suggest that the manoeuvres depicted either are, or should be occurring at very low level.

He or she, or neither

As instructors we play an important part in supporting the BGA goal of gliding as a sport which is challenging, rewarding and accessible to all. To establish this in the minds of our readers and trainees and also ensure that we work to encourage a wide variety of individuals to realise their ambitions and potential within our sport, we are endeavouring to adopt language which is as appropriate as possible for this edition of the manual.

Use of the singular they/their form construction is becoming increasingly acceptable and is genderless. While it refers to groups rather than luckless individual trainees, the editors have decided to adopt this form, and this will be gradually incorporated.

Speech and patter

Anything that either the instructor or the trainee might say, or write in a logbook, is printed in *italics*, not enclosed in the more usual " ".

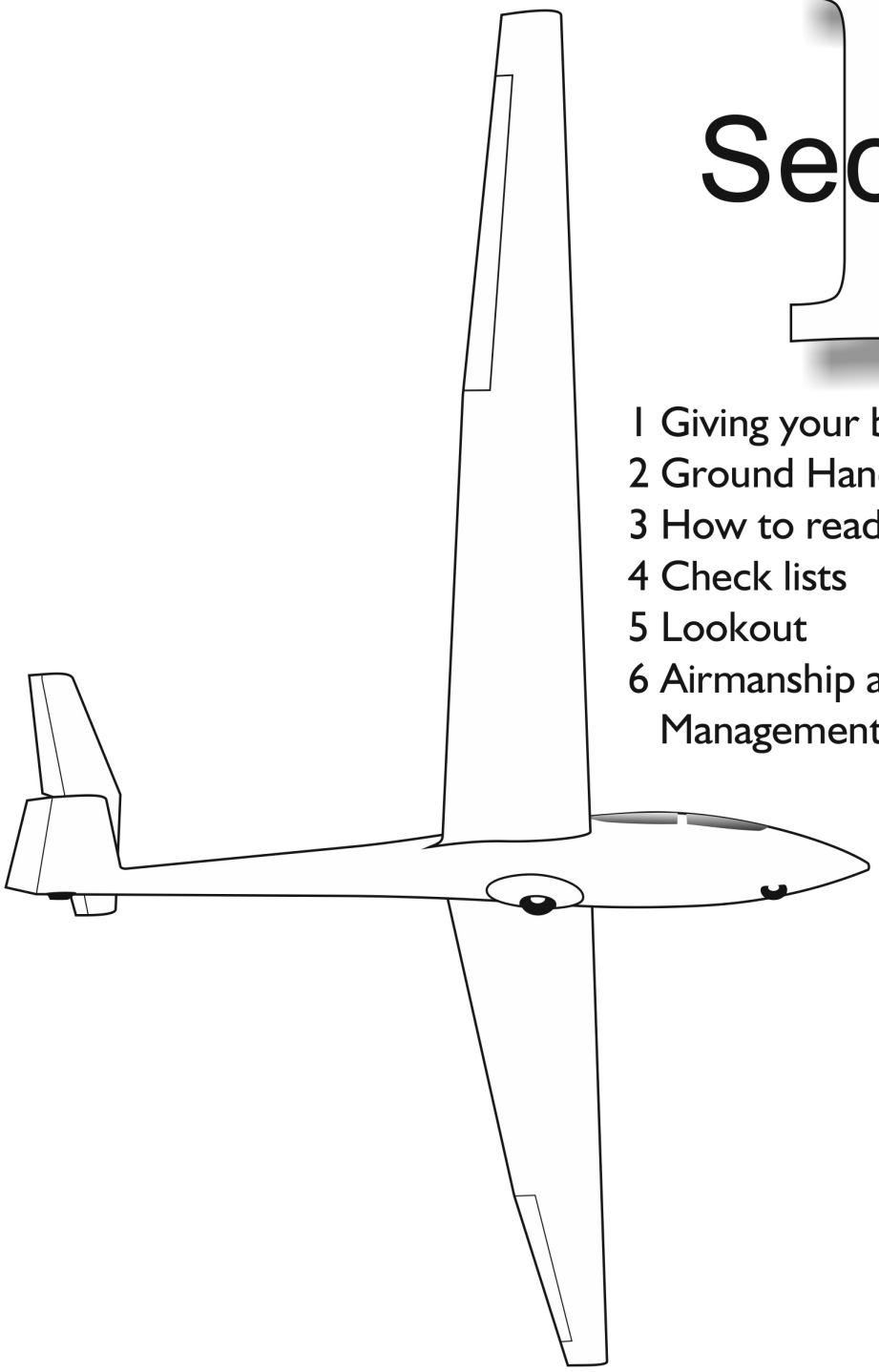
Fourth edition, changes and updates

All the marks indicating changes made in previous versions have been removed. As before, current changes to the text are marked by vertical or horizontal lines in the page margins. In general, only changes which represent modifications to the way instruction is given, or to recommendations, are marked. Where an entire paragraph has been removed the place of its passing is marked by a horizontal bar. Some of the drawings have been updated or made sharper. The addenda list at the back of this edition gives more detail.

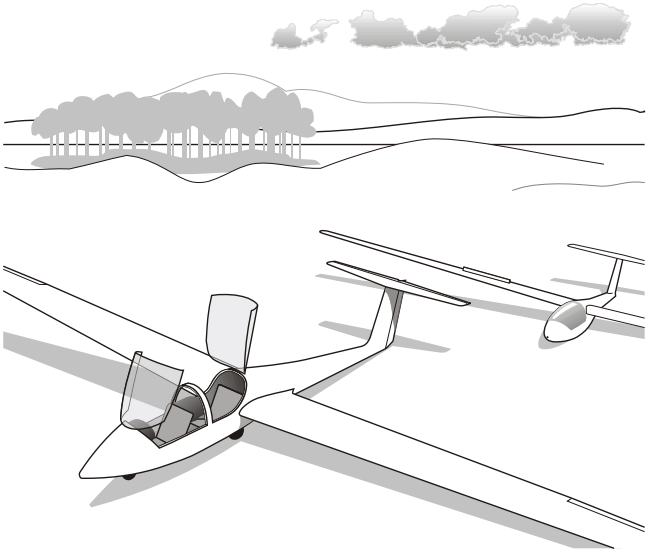
New sections

Chapter one has been replaced. There is a new section (9) about the BGA Training Organisation.

Section 1



1 Giving your best as an instructor
2 Ground Handling
3 How to read a logbook
4 Check lists
5 Lookout
6 Airmanship and Threat Management



1 - GIVING YOUR BEST AS AN INSTRUCTOR

(a) Teaching & Learning

Introduction

It is not intended that this section of the companion be an exhaustive resource for the theory of teaching and learning, but to give an overview of some of the elements of this important subject.

Benefits of focussing on teaching and learning techniques

Engaging with students effectively and being able to use good teaching practices to get the message across enhances overall flight safety. In addition, organised and effective teaching methods makes the experience more enjoyable for both instructor and pupil, and research shows that it is effective interaction with instructors and organised training that retains pupils to Bronze stage and beyond. Indeed, many contend that good instructing techniques are the key to increasing sport gliding membership numbers.

Learning - your student

Why is the student there?

Gliding draws it's trainees from a massive cross section of society. Within any club flying day, you may find members who are company directors, receptionists, lawyers, professional pilots, teachers, supermarket workers and a whole lot more. It is a challenge to get to the bottom of a pupil's motivation, but see below for suggestions for some student motivations:

1 - Just the next hobby to conquer

2 - Someone who enjoys being part of a club, and likes flying

3 - A pupil who wishes to use gliding as a stepping stone to other flying

4 - A pupil who is passionate about soaring flight.

As can be seen, the requirements of the list above will vary. Categories 1 and 2 may not appreciate too much motivational push from their instructor, whereas the others may well. It is up to the instructor to find out what motivates their pupil in order to use the appropriate teaching style.

The next consideration is - what does your pupil know already? It is important for an instructor to teach at an appropriate pace. You need to move the student from the known environment to the unknown, giving them the knowledge to do so along the way. Some pupils - perhaps the ones with some aeronautical knowledge - will be able to be brought on very quickly, because they already have some prior knowledge of the subject. With others, no prior knowledge can be assumed, and they will need more detailed hand-holding.

Student needs

Imagine you were embarking on a new adventure - for example, beginning learning how to sail. What would you expect when you turned up at the sailing club for your first lesson? How would you expect to be treated? Perhaps some of the following list may be on your mind:

1 - To be greeted by an enthusiastic instructor who was interested in me

2 - To feel confident in the instructor's ability and knowledge

3 - To feel like my training was a priority

4 - To feel comfortable in the physical and mental environment

5 - To be given a coherent syllabus with some idea of how to attain the goals it contains.

Let's look back towards gliding and address each of the above points:

Point 1: It's easy to get stuck in a rut when the weather isn't to your liking, or there is a problem with the winch today, and you are keen to get home at a decent time, but the student is your (and your club and the whole gliding movement's) customer. It's essential to remain positive about things, and start to probe the student in order to tailor your instructional style as mentioned above.

Point 2: How would you feel at the sailing club if the scruffiest, most unkempt urchin arrived and announced that he was your instructor? Not important to some people. Very important to most. It's good to present a (reasonably) professional first impression to the student. A confident and organised manner instils confidence. This does not mean bluffing if you are not sure of a point of fact. Most people can pick up this sort of thing, which is definitely not confidence inspiring. Say you don't know, and engage your student in finding out. This will bolster your instructor/pupil relationship instead of breaking it down.

Point 3: Make time for your student. Get to know what stage of training your students is at, and their strengths and weaknesses, before getting anywhere near a glider. Take time to explain exactly what is about to be demonstrated. Consider persuading the treasurer to charge by training session, rather than time in the air!

Point 4: In order to learn, one of the basics (and there's a lot of research to back this up) is that the student needs to feel comfortable in his or her environment. Of course, in the classroom this means not being intimidated by the instructor, the room being at a reasonable temperature, the seats reasonably comfortable, and being well hydrated, nourished and rested. The same can be said for airborne instruction, in addition to feeling comfortable about being moved on at the correct pace. It's no good forcing a student to spin a glider after the first few sessions if they will be frightened by the experience. This also means that 'calibrated frights' and similar extreme teaching methods do not generally work well.

Point 5: At the start of training, give the student the syllabus and give them some idea of where they can read up on the elements of that syllabus. After a training session, give them a steer about what they may be learning next, and where to find out about those elements of training.

The instructor and instructional styles

Hopefully your aim as an instructor is to provide the best quality instruction you can. In the following couple of pages we look at how to provide the instruction for the pupil mentioned above.

Instructional approaches

Instructors are all individuals, and as such will all have individual styles of delivering a lesson, but there are some styles which are fairly essential to successful instruction.

Questioning

It's obvious that questions will have to be asked of the pupil at some stage, but consider what the likely response to the usual *any questions?* will be at the end of a long classroom briefing. Probably silence from a group, or *nop*e from an individual. Equally, the question *Do you understand?* very often elicits a *yup* from pupils. A far more effective method of questioning is the technique of eliciting the items of the briefing from your pupils. Using their prior knowledge of flying, it is usually possible for them to come up with the answers themselves during a brief. This technique has three advantages. The first is that, having come up with half the brief themselves, they will remember much more than the 30% which is the usual figure from an old fashioned brief. Secondly, you will stop the pupils falling asleep after the first few minutes and finally, it will give you some idea of their understanding without asking the useless question *Do you understand?*

Consider the simple example of how the elevator works. You could just tell the pupil that when you move the stick forward, the nose goes down. However, most people who are learning to fly will have an idea of the effect of the elevator, so you could ask them *what do you think happens when you move the stick forward*? You could then consolidate by asking what happens to the airspeed, and the noise and the attitude. Even someone off the street would benefit from this, and you haven't told them a single thing, just guided them to the correct conclusions. This works throughout flying training. Try it!

Modelling behaviour

One of the ways that the student learns is directly, by example from their instructor. This means that the example and style of flying set by the instructor is an indicator of how the student will fly when solo and beyond. An illustration of this is turning in early if low in the circuit. If the instructor flies a very conservative circuit, and always turns in early if the circuit is a bit low, then the student will do the same. If the instructor turns final at 200', and tells the student not to do the same thing themselves, the student will have that view of the circuit entrenched in their mind, and will do it themselves, thinking everything looks safe. To a certain extent, this premise applies when the instructor is flying solo as well.

Facilitating students learning

As discussed in the student section above, students come from many backgrounds. It's important to consider these things when considering how to motivate a pupil. Few people want absolutely no structure or syllabus, although, very occasionally, some of the more social members may perceive organised instruction as being pushy. A solution to this is listening carefully and responding to the needs of the student. Agreeing to goals throughout training, however modest will provide the structure needed to make progress.

Enthusiasm and fun

Need any more be said? The sport of gliding exists to promote fun and in some cases, competitive flying. Of course, safety is paramount, but this should not detract from the fun aspect. Remember that something that is not exciting to the instructor (like flying a circuit in the overcast at 1000') is probably still the significant highlight of a students week.

Responsibility

Being an instructor of whichever category requires that you take responsibility for the high quality training of your pupils. It also means that if something is spotted that needs rectifying, you personally ensure that this is carried out by yourself, or by another suitable instructor. This is especially the case when supervising the solo flying of inexperienced pilots. See section 6, chapter 23, SOLO SUPERVISION.

Structuring flying training

What's next?

Before considering how to teach an exercise to a trainee glider pilot, we must first think through which exercise we are going to teach. This starts by questioning the student and using log books and record cards to ascertain their present knowledge before working out what the student's aptitude, as well as weather and aircraft, will allow us to teach. If previous training has been to a high standard, students will already know what they are likely to be doing today, and may have read up on the subject.

Some exercises follow on naturally from others, but as a basis, it is useful for the instructor to ask himself what skills the student will need to attempt a new exercise. Take approach control as an example. The student needs to have good speed control, know what the effect of the airbrakes are (drag, attitude and speed), and be able to fly in a coordinated manner in a straight line towards a fixed point, accounting for drift. If the student can't do this stuff accurately, they will not have a hope of being able to fly a reasonable approach.

Continuity

Flying with a single instructor throughout a pupil's entire training is probably less than ideal, as different instructors will have different methods of teaching a skill to a student. However, being taught by a whole raft of instructors - a different one perhaps every week for a couple of months - makes continuity of training all the more difficult. Recognising that this is the only way some clubs in the UK can run, it is essential that good communication, via the logbook, and in some cases by e-mail and word of mouth, is utilised. Even the simple act of writing in the logbook what the last instructor recommends as the next exercise is a huge help. Consider running structured courses - even over a weekend. This will go a long way to getting students over the odd awkward 'hump', and provide much needed continuity of training for at least a limited time.

Teaching ' in chunks'

Trainees rarely have the capacity to absorb more than a few points at a time; likewise, instructors rarely give convincing demonstrations when involving more than a handful of items. Lessons can be more effective when split into easily digestible chunks.

Each 'chunk' can contain a demonstration followed by trainee practice, then analysis and perhaps more practice. For example, you might choose to select simply 'staying in the turn' as a 'chunk' of the turning demonstration for one or two winch launches to ensure the student is happy before moving on to the rest of the turn.

A lesson built from a series of 'chunks' sounds slower, but this is generally false. A student taught in this way will more often progress more swiftly than one that tries to do everything at once.

Training delivery

Delivering training can be split into two main categories teaching on the ground and teaching in the air.

Teaching on the ground

The aim of 'ground briefings' is that when the student gets airborne with an instructor he or she understands completely what is going to happen during the flight, and why. There is no point in briefing the poor trainee to death, especially out on an active airfield; equally, there is no point getting airborne and explaining, in the air, something like turning. We have to be practical. There are four broad categories of ground briefings:

The Theory Brief

Theory briefs are reserved for teaching a brand new concept of theoretical knowledge. An example subject may be taken from the BGA Bronze theoretical syllabus. These briefings may take a long time, depending on the subject, and rely on good classroom teaching practices to keep the student alert and engaged!

Air Exercise Brief

This classification of briefing may take place out on the airfield, but hopefully sat down, ideally out of the wind and away from distractions. Instructors should always write down the brief and ideally use diagrams. These briefs should use a standard structure.

- **The aim**: what are you as the instructor expecting the trainee to be able to do by the end of this flight or set of flights (we could call it a flying session)? This needs to be realistic, and, of course, tailored to the trainee.
- **Airmanship**: what might be different about this flight - in relation to others - that may require you and your trainee's attention? Lookout is almost always under this heading. Other examples might be; range to the airfield, minimum heights for stalls/spins, when to take control etc.
- **Exercise**: This is where you set out your plan and what you want the trainee to watch/take part in/have a go at. It should not go into a great deal of theoretical detail.

A pre-flight brief should never be longer than 15 minutes. If you are tempted to brief for longer it is either turning into a brief on the theory, or you are trying to cram too much teaching/information into the session!

'By the glider' Brief

This sort of brief is simply to reinforce any salient points. Something like, *Right. Remember, I'm doing the launch, then you will have control we release. You're going to practice your speed control while I talk you round the circuit. I will then take control for the approach and landing*.

Airborne Exercises

Having briefed thoroughly, it is hoped that the student is clear about what's happening in the air. It may be useful, in either the long or pre-flight briefings, to use your hands to give a visual representation, so to speak, of the exercise. This can sometimes be more instructive than words alone! The teaching sequence to use in the air might be:

- Demonstrate
- Teach (remember to split the exercise into manageable chunks)
- Task (get them to have a go and remember - manageable chunks)
- Praise, and if required, re-teach/return to one of the above

Instructors sometimes merge the 'demonstration' element with the 'teach' element. The advantage of a demonstration is that it helps the student understand what the end product looks like. Each lesson needs to be approached differently. For example, you might demonstrate a spin, describing the symptoms, control inputs etc. Having done so, you can then begin to teach the exercise in whatever bite-sized chunks suit your student's needs, perhaps starting with teaching the recovery and leading up to the full exercise. Some students may learn from a spin demonstration combined with you teaching the whole entry and recovery in one go. The vast majority of students will need a very different bite-sized approach if you are to be an effective instructor.

Remember that the student does not have your understanding of the subject, so keep the detail content down to a reasonable amount during the flight. It is perfectly acceptable to have only taught 'staying in' the turn during one flight , as long as the pupil has got it for life!

When observing and feeding back pupils' faults during their flying, it's important to diagnose the cause of the fault before talking to the student, rather than the fault itself and being specific. For example, the student over-rotates during the winch launch. You could just tell the student to stop over-rotating, but this is very lazy instruction. Are they over-rotating because they are not using appropriate visual cues (looking from side to side and judging their angle), or using a technique on one glider that does not apply to another - like using pressure on the stick, or where the horizon intercepts the cockpit edge. Maybe they have been told they can slow the winch down by pulling back harder (possible on the older winches, not so the more powerful ones). Or there may be other reasons. For example, on a hot and windless summer's day your trainee does the take-off and immediately after leaving the ground tries to go straight into a steep climb. Pilot input is the physical problem here, but there's another. Because the take-off seemed unusually prolonged, at a ground speed high enough to suggest the glider ought to have taken-off already, plus all the jolting and noise because of the hard-baked ground,

the trainee 'put all this right' by pulling the stick hard back to get the glider to fly - in this case well before it was able to do so. The over-rotation problem had a sequence of other factors which were the root cause. Whatever happens, it is important to diagnose the problem correctly before suggesting a remedy!

In all demonstrations and practice it must be quite clear to both pilots who is flying the glider at any given time. In normal circumstances, when you take control, say clearly *I have control* and don't start flying the glider until you have heard the trainee say *You have control*. Similarly, when you give or hand back control .... *you have control* ....*I have control* ... take your hands and feet off the controls. Don't abbreviate the handover words to *I have*. The one possible exception might be a sudden emergency where there isn't time to say all, or any of the words. Say the words if you can. The trainee will be more likely to let go the stick if you do.

Prompting and taking over control

Prompting a trainee is part of the instructor's toolkit and can be very powerful, even if the prompt is quite indirect. Consider prompting in the circuit. With some trainees, even a cough could be interpreted as a prompt! You might ask the trainee what they think about their position in the circuit. This is a very common technique, but think about it. You might as well tell the trainee that their position is wrong; that is definitely how they will interpret it. They now have two options. 1) Move in or 2) move out. Your prompt may indeed jolt them into making the correct decision based on sound judgement. Or they may just toss a coin and then you will never know what they were thinking. The only recourse is to continue to leave them to it, or tell them - directly - what to do. Another prompt that might be more useful, perhaps as the speed bleeds off in a turn might be 'look over the nose at your attitude'.

Once you have given the trainee a direct prompt - for instance - 'turn left now' etc, you have effectively taken over control verbally. If you want the trainee to now attempt to plan the rest of the flight, you must verbally hand control back to them. Perhaps - *Ok. I'll leave you to plan the rest of the circuit*.

You may decide to take over control physically from the student. If you do, you should make it clear why. It might be that you want their attention while you explain something in the air. You should tell them that you are taking over for that reason, as they may think that you have taken over because they have done something wrong.

If you take control from the trainee to avoid an 'undesirable situation', please - especially if it is near the ground, do this earlier rather than later. If you take over a little early, you have time to illustrate the error, and coach the trainee through the solution. Late takeover is the cause of many accidents.

Debrief

Any debrief should be constructive, focussing on what the likely activities for the next session will be, and what to do to prepare/read for the next lesson. It is tempting to point out all the points that could be improved upon at this point. When a pilot is learning, there will be a lot of these! Concentrate on the pertinent points. Always end on a high.

Conclusion

If the instructor puts him/herself in the position of the trainee learning to fly, much of the above could be called common sense. The basic structures described above do work. Training is most interesting and satisfying for the instructor and effective for the student when a little time is given to preparing the correct exercises and tailoring them to the personal needs of the student. Although we normally charge by the minute in the air, good instruction starts as soon as the student drives in through the gate. Grasp the opportunity to give them the best 'training session' you can.

