

features

Which Glider Should I Buy?

*By Derek Piggott
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Advice On Buying A Used Glider

Derek has been part of the gliding world for so long it seems almost invidious to mention some of his many achievements. He was CFI of Lasham Gliding Centre in the UK for more than 30 years and an instructor long before that, having started to glide during the Second World War. He has written numerous books, has over 175 sailplane types in his logbook, not to mention powered aircraft, and we can't think of a better person to have written this article.



This is a question that I am often asked and is always a problem to answer. So much depends on what you want to do in soaring and on how much you have to spend on a glider. Do you enjoy working on your possessions to improve them, or do you just want to get up there and fly?

Why buy a glider instead of renting one?

If you find it frustrating not to have a glider to fly on a really good soaring day, the only real solution is to have your own, or at least to have a share in one. If your only opportunity to fly is at weekends when your club gliders are often booked up, you will never get much satisfaction from soaring. This is particularly true in a small club or group where the rule is to limit flights to an hour or so in order for every member to get a fair share of the flying. In situations like this you will make little or no real progress while flying club machines.

Requirements

A good glider for inexperienced pilots should have:-

Good handling, safe stalling characteristics, good airbrakes.

A low minimum circling speed for easy and more efficient climbing in thermals. (Better climbing performance means more soaring, higher achieved rates of climb and good average cross-country speeds, particularly for inexperienced pilots.)

Provided that a glider is properly maintained and repaired, a used glider is just as airworthy as a new one, even after many years of use. You will probably sell it for much the same price as you paid for it.

Easier soaring

It is much easier to stay up in a relatively low speed machine than a heavier, faster type, because the slower machine can use smaller diameter thermals efficiently. Obviously with a smaller radius of turn you have a better chance of keeping within a limited area of lift.

Very few pilots become good at thermal soaring until they have flown for several seasons. During this time there is very little advantage in having one of the best gliders and experience on several types is a great advantage.

A glide ratio of about 30:1 is considered the minimum for sufficient gliding range to have a high probability of reaching the next thermal. Searching for thermals can be frustrating with a lower performance although once in a thermal, they all have much the same ability to climb.

The Polish Junior, K-6E, AC-4, PW-5, Astir, ASW-15, Std Cirrus, Std Jantar, Pegasus, ASW-19, Pilatus B4, L-33 are some of the machines which are all worth considering for early solo flying and for first cross-country flights. They have ample performance to make 300 and 500km flights in moderate wind conditions, (10-20 knots at height).

The Polish Junior is a particularly good for inexperienced pilots because of its slower stalling speed and excellent circling performance. It would be my choice for a first single-seater for a club as it is so easy to thermal and excellent for early cross-country flights.

The K6E is also superb but has a small cockpit and so is not suitable for large pilots. (Dick Johnson owned a K-6E for many years and flew and soared it throughout the winter months to keep in practice!)

The AC-4 and PW-5 warrant a special mention because of their very light weight. They have a glide ratio of about 33 : 1 at relatively low speeds. The wings are far lighter for rigging than any other modern gliders. They are therefore particularly suited to women pilots and people with back trouble who do not want to risk hurting themselves with rigging. They are great fun to fly.

Two-seaters

If you have any aspirations for soaring cross-country or eventually for contest flying, do not even consider buying a two-seater for your first glider.

The idea of being able to take your friends for a ride may seem very attractive, but soaring is not ideal as a way of encouraging your family to fly. Your idea of fun, going round and round in tight circles in turbulent thermals, will put most family and friends off flying for life! Take them for a ride in a club two-seater, or better still get them started with soaring lessons, but don't take them thermalling on their first few flights.

The fun in soaring is the actual handling of the aircraft plus the decision making needed to do well. It is not a sport to share with a passenger unless they are an experienced flier!

Most need a team of helpers to rig and de-rig and the thought of heavy lifting puts most people off. I have seen a number of inexperienced pilots buy two-seaters, but few, if any, who have progressed to flying them cross-country.

The latest two-seaters are designed to be lighter and easier to rig and have the same performance as the best of the single-seaters. However, they are costly to buy and insure, need two or three helpers for rigging and de-rigging and are not suitable for a beginner to fly.



A Std Cirrus.

Sharing a glider

There are many advantages to sharing a glider rather than buying your own. Not only is it far less expensive, but you get the advantage of help and advice if you choose a partner who is more experienced than you. In the UK it is normal to join or form a syndicate as this means that the fixed costs such as insurance, hangar rates, maintenance and inspections are shared. This makes it less expensive than flying club gliders and far more satisfying.

It is even quite common to have partners who only pay towards the running costs instead of owning a share in the glider. Inviting an instructor or more experienced pilot into your group can be a great advantage if you have only recently soloed.

Of course a proper written agreement is essential to avoid arguments and to establish when each of you have the glider for the day. Choosing someone who only flies on different days of the week to you, means you still have the glider to yourself when you want it, but at half the cost.

Get advice

Before buying, discuss everything with the most knowledgeable instructors and pilots in your club. Many older pilots will recommend very low performance, old fashion machines because that was the way they learned to fly. Others will only consider the top performance machines and recommend what they would buy and not what is the best for your stage of soaring experience.

Ask around at your local clubs or soaring sites to see if anyone is intending to sell. The recent history of the glider and how well it has been treated by the present owner is important.

There is a definite prejudice world-wide against wooden gliders (and powered aircraft) which is largely unjustified. Kept dry and well maintained, they offer good soaring experience at a very low cost. Glass and carbon fibre has replaced both wood and metal construction.

Just about the only advantage of a metal machine is that it can be tied down outside and does not need rigging and de-rigging each day. They seldom have the performance of the equivalent class of glass-fibre machine or are as simple to rig and de-rig.

Most privately owned gliders live in their trailer and are rigged and de-rigged each day. Because rigging is simple and with most modern types only requires one helper, it is easy to rig each day before flying and to put them away in the trailer for the night. This eliminates worrying about the risk of damage due to unexpected storms and possible vandalism.

When buying, it is important to see the glider does rig easily, and to ensure the trailer is sound and that the glider goes in and out of it without requiring an abnormal amount of care to avoid damage. A closed trailer will protect the glider and make loading and unloading easy. Try to find out why it is for sale. Did the owner fly regularly? Was it well cared for? When possible with an older aircraft, fly it or at least see the owner fly it.

Deterioration

Glass gliders deteriorate if left out in sunlight and need good covers unless they are kept in the trailer. Of course they can be tied down overnight if the weather is good, but must not be left for long periods in the open without proper covers to prevent damage from the ultra violet and wet. After long exposure, the surface of the glider becomes crazed and allows water to enter the material. Re-finishing a glass glider is a very expensive and time consuming business. Get an expert opinion on the state of the finish before you commit yourself to buy. Otherwise glass gliders require very little maintenance.



A Super Dimona

Wood and fabric covered machines need to be kept dry and out of direct sunlight as much as possible. Remember, "a fresh coat of paint can cover a multitude of sins". Again an expert opinion should always be sought. With supervision, much of the servicing and minor repairs of a wooden glider can be done by any handyman and this is interesting work and saves money. There are very active Vintage and Home Builder associations in the USA and most other countries, and they can advise and help you if you are considering an old machine.

Easy rigging

Try to choose a light, easy rig machine. A heavy, difficult to rig glider will lose you most of your friends and potential crew and the thought of a possible out-landing and retrieve with a big heavy machine, such as a two-seater, will discourage you from ever leaving the local area.

Essential gear

Good wing stands, towing out gear, a good wingtip wheel and tail dolly are essential to save lifting and tiresome ground handling. With a used machine, these are usually provided together with instruments and often a parachute. Apart from any changes you want to make to the instruments, you are ready to go flying the day after you collect it.

A first glider for an inexperienced pilot

If you have trained on earlier types, it is important to have a conversion and ideally, a few solos on a two-seater with the Schempp Hirth type of airbrakes such as a Grob, K-21, DG-500, Duo Discus, or even on a K-7 or K-13. There has been a vast improvement in the handling characteristics during the past 40 years and all the modern Standard Class types are easy to fly and are suitable for a well trained beginner who has 20 - 30 solo glider flights and experience in a modern glass two-seater. However, most of them feature very light elevator forces which makes it essential to be cautious, well trained and well briefed for your first flights.

Some more recent Standard Class designs, for example the LS-8 and Glasflugel 304-CZ have wingtip extensions to increase the span to 17 or 18 metres giving an increase in performance at low speeds - just what you need for your first year or two of solo flying. Winglets have much the same effect and also improve the handling.

As wing spans increase above 17-18 metres, the rate of roll is reduced and the adverse yaw is more pronounced. Unless your co-ordination and use of the rudder is well established, you will find them more difficult to handle. A longer wing span also increases the risk of damage from a wingtip touching the ground and causing a groundloop or cartwheel during take-off or landing.

Flaps

Flaps make moving on to a modern machine more complicated and experience shows there is an additional risk on early flights of mishandling them with disastrous results. You need to be a competent soaring pilot to make intelligent use of the flaps. On balance, choose a flapped machine for your second or third sailplane when you have more experience.

Glider to avoid

For a first glider, I would never recommend the LS-29 (no stall warning and a sharp wing drop at the stall); the Libelles (relatively poor airbrakes); the Schweizer 1-35 and PK 20B (B model only) as these have only flaps and no airbrakes like the training gliders you will have been flying.

Building your own

Do not even consider building your own glider if you want to make rapid progress as a soaring pilot. Usually it takes three or four years and then all you get is a relatively poor handling, low performance machine with a low resale value.

Buying a completed home built

A completed home built is worth considering if you are really short of money. They often go for \$3-4000 and if in good condition, give you a year or two of very low cost soaring. Generally the owner or designer will give a glowing report on their aircraft. Get other opinions before you consider buying. With a home built glider, much depends on the skill and integrity of the builder and designer. Don't assume they are airworthy just because they are being flown.

The relatively low performance may not be much disadvantage for your first year or so, which will mainly be flying on local soaring flights and gaining your Bronze and Silver badges. However, the handling may include some undesirable features and it is better to go for something with a more certain pedigree if you can afford it.

Older types

Older factory built gliders such as the K-6CR, K-8, Skylarks and Olympias offer super climbing ability at remarkably low cost. They often change hands for \$5-6000. They are light and easy to rig and the only problem is that they may not be suitable for very tall or heavy pilots. The fact that these types are largely wood and fabric construction is no real disadvantage. There are many 50 year-old wood and fabric machines still flying and in excellent condition.

Projects

On no account order a glider that is not yet in production and has not already flown. Most projects take far longer to complete than the designers and builders estimate and a fair proportion turn out to be poor, or never get completed. Avoid unconventional designs as they seldom have good handling or the performance of conventional designs.



A Vivat.

Buying a used glider

Used gliders tend to hold their value provided that they are well cared for. If they have been flown regularly or used for contest flying and still have the owners' instruments fitted, it is reasonable to assume that you will have satisfactory instruments and that the trailer will be adequately equipped.

Always get someone experienced with construction and repairs to inspect your choice before you buy it. Check the logbook and see who has done the repairs and then look carefully to see that the workmanship is good. Repairs on wood and glass fibre should be invisible.

It is important to check the cockpit size before buying as even a few modern gliders have rather small cockpits. You must be able to sit in comfortably wearing a parachute.

In particular check the weight and balance record and make quite sure that it has been weighed properly during the last five years and after any major repair or re-finishing. Gliders usually get heavier as they age and a coat of paint or re-finishing always brings the centre of gravity (C of G) further back. A common situation is to discover that the permissible cockpit load has dropped by 20-30lbs and that the minimum cockpit load has gone up to compensate for the tail heaviness and to keep the C of G within the limits. The effect of this can be disastrous.

One old glider I flew had a minimum load of about 185lbs and a maximum of only 200lbs. Putting ballast in the nose to allow me to fly safely brought the total weight up to the maximum allowed, with the C of G right on the aft limit. A re-weigh showed the previous weighing was correct and that few pilots would be able to fly it safely. It proved a very difficult glider to sell and not the kind of glider you want to buy!

Typical asking prices in 1999/2000 in Soaring for a used, equipped glider and trailer were:-

Vintage & home built \$4000 to \$8000.

Early Standard Class \$16 000 to \$25 000.

Recent Standard Class \$30 000 to \$52 000

PWS / AC4 \$24 000

For an experienced power pilot just qualified on sailplanes.

If you have the money, legally you can buy and fly anything you like. You might fancy a Stemme S10 or a Nimbus 4M, but you would be a fool to buy any self-launching sailplane or a modern Open Class machine as a first glider. Experience shows that regardless of your power hours, you need considerable gliding hours to use these types safely.

Don't opt for a two-seater as a first glider, however attractive that may seem.

There are many really good 15-18 metre "pure" gliders available. The bigger the span, the better the performance, but the more it will cost. All modern production gliders have good handling and adequate airbrakes. Usually your choice is mainly a matter of availability. Until you have risen to the top of the contest lists, the difference in performance between types is very small and the best pilot would probably be capable of winning in any one of them.

Moving from one type to another is great fun and valuable experience and recommended if you are ambitious. It is very frustrating to buy the best and to be disappointed and embarrassed because the other pilots out climb you. This is bound to happen at first, but with a lower performance machine at least you have an excuse if you get beaten in the thermals!

Self-launching sailplanes

Self-launching sailplanes look highly attractive but require an experienced soaring pilot to operate safely. They are definitely not for pilots who have very little soaring experience, regardless of how much power flying they have done. Most have two stroke engines and when they fail to start (which is not uncommon) you are left with the huge extra drag of the engine and propeller and a very poor glide performance. You are definitely safer in a pure glider.

Touring motorgliders such as a Grob 109, Dimona, Taifun, Ximango, Vivat and Scheibe Falke are a simple transition from light aircraft. Most of these are tail draggers and this, plus learning to use airbrakes, causes some pilots difficulties with the landings. Unfortunately, they are not good enough performers to satisfy an experienced soaring pilot, or for any power pilot who is ambitious about soaring.

Experience shows that few power pilots, even with some soaring experience, seldom if ever stop the engine to soar. They never make the break into flying pure gliders once they have owned a motorglider of this kind and they continue to rely on the engine.



A Ximango.

The limited gliding performance makes them too difficult for most inexperienced soaring pilots to soar for long. If you are experienced enough to stay up, progress cross-country is frustratingly slow.

In reality they are very attractive light aircraft with the ability to soar. They are excellent for teaching glider handling and procedures and good for exploring wave conditions, but not so good for thermal soaring or as a stepping stone to modern high performance sailplanes.

Why wait till next year? Buy a used glider now and have a good season soaring !

Happy landings in 2001.

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