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June-July 1996

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Magazine of the
British Gliding Association

June-July 1996
Volume XLVII No. 3

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Deadline dates – August-September. The main deadline for copy is May 31 with club news and letters accepted up to June 18. The deadline for display advertisements is June 24 and classifieds July 5.

S&G Annual Subscription: Send £16.50 to the BGA.

PUBLISHER

British Gliding Association
(Barry Rolfe, BGA Administrator)
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Vaughan Way, Leicester, LE1 4SE
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SAILPLANE & GLIDING

YOUR LETTERS

N. J. Pocock, T. Macfadyen
(reply by B. Fairston),
P. Turner, J. Gordon (reply by
M. B. Jefferyes, V. Howells
(reply by C. C. Rollings),
J. H. Blackmore, C. J. Chapman,
(reply by C. C. Rollings),
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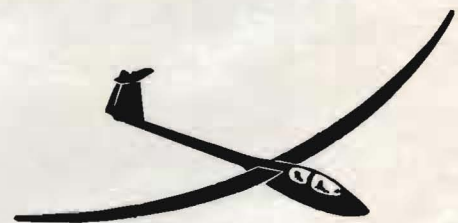
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YOUR LETTERS

DUBIOUS INSURANCE MARKETS

Dear Editor,

Glider owners and club secretaries beware. Insurance has always been particularly price sensitive as most policy holders assume that they are unlikely to need to claim on the basis that accidents usually occur to other people. However, proper protection on a "just in case" basis is considered necessary by the majority of responsible pilots and there are, of course, basic BGA liability limit requirements necessary to protect both unfortunate third parties that may suffer injury or damage and the reputation of the BGA as a responsible aviation body.

There is little point, therefore, in obtaining cover at a rock bottom level of premium if you are running into the possibility of the validity of your cover being in doubt. Unfortunately a number of fraudulent operations have been highlighted in the financial press over recent months and aviation insurance has not escaped being affected by some of these scam operations.

What can you do to minimise or eliminate the possibility of being caught in this way?

1. Obtain written confirmation from your broker that the insurer with whom cover is being placed is authorised by the Department of Trade and Industry (DTI) to carry on insurance business in the UK.
2. At the same time demand the UK address of the insurer concerned and confirmation that their business is carried on from that address and that it is not simply a UK contact point for an insurer operating abroad.
3. An added safeguard is to make sure you arrange your insurance through a properly registered broker who, under the terms of their appointment as such, have an obligation to operate in their clients' best interests at all times. Dealing with an insurance company who is not authorised to carry on insurance business in the UK may well be considered as action not in the client's best interest by The Insurance Brokers' Registration Council. Dealing with an intermediary who is not a registered broker as defined by the Insurance Brokers' Registration Act does not in itself mean that there is anything wrong with the cover proposed or arranged, but you could be more vulnerable in the event of difficulties arising where unregulated intermediaries are involved. Registered brokers have to carry a reasonable level of professional indemnity insurance to protect their clients in the event of a mistake occurring. This essential condition is not compulsory for intermediaries or agents who are not properly registered insurance brokers and, in many instances, such cover is either not taken up or indeed not available in the event of personnel who are not sufficiently qualified or experienced being involved.

If you have any doubts, seek advice from an alternative registered broker before parting with your premium.

There remains plenty of competition within the UK for your business from various insurance brokers dealing with insurers who are properly authorised by the DTI to carry on insurance business in the UK. It is thus possible to obtain competitive terms and, what is more important, real value for money without running

the risk of becoming involved with fringe insurance markets which may not perform when necessary for one reason or another.

You have been warned.

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ONE SIMPLE RULE PLEASE

Dear Editor,

There is considerable confusion about the rules that govern the shape requirements for record triangles. For international and British records below 750km the 28% rule applies (shortest leg minimum length 28% of total). For the larger triangles the 25/45% rule applies (shortest leg 25% minimum, longest leg 45% maximum). This allows slightly less "triangular" triangles, which are easier to fit into countries with airspace such as ours. For UK records the rules were changed in 1975 to allow triangles of over 500km to be 25/45%. This change has been little publicised since its mention in S&G at the time.

This situation has a long and complex history. Could we please have one simple rule? As UK triangles over 500km are allowed to be 25/45%, there is no reason why smaller triangles should not also be included in this rule. Can we please have one rule that defines a triangle?

On another subject, S&G used to print women's Christian names in the badges section. Why not print everyone's forenames to make people more easily recognisable?
TIM MACFADYEN, *Stroud, Glos*

Basil Fairston, BGA Competitions

Committee, replies: To reduce Tim's confusion we have published a clarification to the rules in the BGA News section. This basically states that the rules are as in the current rule book. The Competitions' Committee has agreed a change to the "shape for triangle records" rule that will make the rules the same for British National and UK records and will not conflict with the **Sporting Code**, but this will not come into force until it is published in the next update of the **Handbook for Official Observers** scheduled for next winter.

Finally, I think it is an excellent idea to publish first names in the badges section and we will be doing this from the next issue.

PUTTING THE RECORD STRAIGHT

Dear Editor,

Regarding the report on the Inter-Club League final by Mike Jefferyes in the February issue, p28, I believe Mendip GC were the first to field a different pilot in each Class on each day in the 1993 finals.

Quoting from the League rules:- "...it is intended to encourage competitive cross-country flying on a less formal basis than National and Regional competitions, involving pilots at all levels of cross-country competence."

On this basis we felt that the pilots who got us this far deserved to compete in the finals to encourage them further. Surely this is the spirit of the League? Up against the large clubs who were sporting their big guns (such as a shortly

to be crowned World Champion) on most, if not every, day we did just that, finishing equal 4th and carrying away a small prize for team spirit. Isn't that what it's all about?

Well done Booker for following suit - for a large and very competitive club such as this it was a brave move. We, remember, had little to lose. In the interest of the spirit of the League would it not be possible to introduce a rule to limit any pilot to, say, a maximum of two days' flying in the finals? Also should there not be a rule that only allows pilots who have competed in at least one contest of the series to compete in the finals? Over to the League boss.
PETER TURNER, *Mendip GC*

Dear Editor,

I enjoyed Mike's article but I cannot let the assertion that "Booker, though in 4th place, probably scored a League final first by fielding a different pilot in each Class on each day" pass without comment. At Oxford we have operated this policy in all the finals we have reached. We see it as an opportunity to give the maximum number of people experience of competition flying. I would be surprised if Oxford (and now Booker) were alone in this.

Obviously this can be damaging to the prospects of winning. Believe me, I know - I flew a Std Cirrus against more esoteric competition in the Pundit Class on the last day at Aston Down, although I could have competed as an Intermediate. The reason was so that we could maintain our tradition. I came last on the day, but I enjoyed myself nevertheless, as did eight other Oxford pilots.
JOHN GORDON, *Oxford GC*

Mike Jefferyes replies: Peter is technically correct, Mendip did field a different pilot in each Class on each day of the 1993 final at Nympsfield and are to be applauded. However, one pilot did compete on two days - Bob Merritt came 3rd in the Intermediate Class on Day 1, then came 2nd to Andy Davis in the Pundit Class on Day 2 - more applause!

It is certainly in the spirit of the League to spread the honours at the final between as many pilots as possible, preferably those who participated during the season. The idea of controlling this through the rules was the subject of heated debate in the late 1980s. The conclusions were to leave this as a recommendation only, not a rule, for the following reasons:-

1. The difficulty of arranging a large enough team to travel for what may be many hundreds of miles for one or two contest days per pilot - probably to be rained off! (Camphill have frequently joined us, even as far south as Parham near Brighton.)
2. The big guns can't win on their own, it takes the Intermediates and Novices too. This is a rare chance for many pilots to fly against British team members and World Champions, and just occasionally beat them. The pros and cons were felt to be fairly well balanced.

As to John's letter, Oxford have competed in many finals and would have won many times if scored for team spirit. A check of a few past records show John to be quite correct to say that Oxford are usually represented by nine

What goes up...



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pilots. What a dangerous thing it is to say, in any such publication, that a particular occurrence was the first, the fastest, the tallest, the tastiest, the best, the bumpiest... I'd like to hope that might be the **last** comment, but that would be a dangerous thing to say. God bless the Inter-Club League - and **all** who sail in her.

WHAT HAPPENED TO THE P2?

Dear Editor,

I watched "How do they do that" on BBC 1 with increasing disbelief. What I had earlier read about in *S&G* as a dual record flight appeared on television as a solo act, both visually and by Mr Rollings' constant use of the first person singular.

At best it was extremely discourteous to his P2, at worst it was deliberate deceit. Could Mr Rollings please explain "Why did he do that?"
VALERIE HOWELLS, *Warrington*

Chris Rollings replies: I'm glad to have the chance to set the record straight. As anyone who read my article in the February issue, p17, will be aware my co-pilot was Bryony Hicks. Bryony was invited by the BBC and myself to take part in the programme, but having spent a year towing gliders to get enough hours for a commercial pilot's licence she didn't want to interrupt her CPL studies. The producer of that element of the show chose to edit her out of the several hours of interviews as he felt references to an unseen pilot would be distracting in a relatively short item. In my view this was regrettable, but the decision was an artistic one rather than being based on any sort of...ism

WHY ALL THE NEW METHODS?

Dear Editor,

Every issue of *S&G* produces a new method of improving flying safety. Can anyone tell me what was wrong with the standards of 30-40 years ago, if used responsibly?

How about some self-discipline and forethought?

JOHN BLACKMORE, *Bordon, Hants*

LAUNCH FAILURES

Dear Editor,

The article "Launch failure accidents" (October issue, p279) by Chris Rollings seemed to advocate a manoeuvre which could be hazardous and seemed to be incomplete. The problem is how to lose altitude and land safely after a failed winch launch, from somewhere below circuit height, within whatever space is available. From Mr Rollings' second article (April, p91) and his and Mr Strachan's letters (February, p7) he does not seem to have recognised any danger in:-

"If full brake is selected and the nose lowered very steeply so as to create an increasing airspeed despite having full brake, a much steeper approach results and, despite the somewhat longer float resulting from this increased airspeed, a very much shorter landing is achieved."

No consideration is given to obtaining and maintaining adequate flying speed, to the effects of windspeed, wind gradient, wind shear layers or to pilot workload. Stall speeds are several knots greater with open airbrakes and

increase with increasing *g*. The maximum load allowed with open airbrakes may be considerably less than 3*g*. With a modern deeply reclining seat, a pilot is **much less** sensitive to *g* loading than with an old upright seat and may even pull 3*g* before noticing it. Steeper than normal approaches and rounding out "earlier than normal" were only mentioned. **No** ways of judging the situation are described. Planning for emergencies before take-off is only covered in the second article, six months later.

If a pilot has dived and has then eased back into a normal approach by about 150ft, he will probably touch down safely - but he may not have reduced his landing distance by very much.

Continuing to dive to a much lower level gets progressively more dangerous. Windspeed compensation is more critical in a steep approach. As you pull back, the accelerating force decreases, the airbrakes continue to act and extra drag is generated by the increasing *g* load. You can slow up **very** quickly. An increasing *g* load both flexes the wings and generates additional sink. You can get the visual illusion that you are **not** pulling out of the dive properly. The temptation to pull back too hard may be strong.

If the pilot is flying into the wind shear zone or misjudges the roundout, he can enter a high speed stall and crash. He may get **no stall warning at all**. Two high speed stalls at altitude in simulated high speed approaches convinced me that I wasn't a bold pilot. I'm **not** theorising Mr Rollings. I've tried it and I didn't like it one little bit.

In his letter Mr Rollings states "Full airbrake and the most rapid acceleration that can **safely** be used with the available height..." Could he please explain how to make these decisions which keep us within **safe** flight limits? How do we judge a high speed roundout with open airbrakes in a wind shear zone of unknown strength, with both the airspeed and *g* loadings changing rapidly?

I'm not that enthusiastic about sideslips, but how else do you land a glider with frozen up airbrakes? Adding a sideslip to full airbrakes can dramatically increase your approach angle. If you practise occasionally, you can sideslip confidently whenever you wish. I have been unable to stall and spin from a **full** sideslip in straight flight in any glider. I can stall if the wing is only just far enough down to affect the ASI.

Winch launch failures affect relatively few flights. Would several thousand pilots trying out the totally unrestricted dive and pullout procedure advocated by Mr Rollings, several times, actually reduce the overall accident rate? Mr Strachan suggested "a slightly higher speed than normal for a short time, before returning to the normal approach angle before landing". How does "slight" and "short" give anything greater than "small" additional loss of altitude, when you may have several hundred feet too much?

CHRIS CHAPMAN, *Petworth, Sussex*

Chris Rollings replies: Chris Chapman's letter highlights the problems of trying to inform or educate on flying matters by the written word.

He says that "no considerations were given

to..." and then lists a series of pertinent points. In fact I considered all these points before recommending this method of landing as short as possible. I did not enumerate them in the article because none of them poses an actual, as opposed to theoretical, problem.

The technique I described is applicable to approaches starting from between 200 and 500ft. A launch failure at less than 200ft should not normally pose any difficulty in landing straight ahead on a conventional approach; one above 500ft comfortably allows a turn if landing straight ahead is in doubt. Between those limits an energy dumping approach may be helpful.

"Normal" use of the technique in a K-13 gives the following figures. *G* on pushing over reduced from 1.0*g* to +0.5*g*. Speed at the start of the roundout 80kt, *g* on roundout max +1.5*g*. This was starting from around 300ft.

Deliberately overdoing the control inputs gave +0.25*g* on entry at the same airspeed (80kt) and +2.0*g* on pull out. The Puchacz gave similar figures with about 5kt less airspeed! Starting from 200ft the airspeed reaches about 70kt and the *g* figures are about the same.

Both gliders stall with brakes open at about 60kt and 3*g* (tested) and about 80kt and 5*g* (calculated). A more than adequate safety margin for high speed stalls I would suggest. Less well braked gliders will achieve higher speeds in the dive and the problem recedes still further.

The gain of 30kt from 300ft is enough to cope with any wind shear/gradient launching should be taking place in. Also, as stated earlier, if the wind is that strong there is probably no problem in a normal approach straight ahead.

The question of how steep to approach and when to start the roundout can't easily be answered on paper. "I'll show you" is the best offer I can make to Chris. Almost all pilots seem to err on the cautious side, reducing the effectiveness of the technique, but widening still further the already adequate safety margins on the dangers Chris Chapman perceives.

Last year two people died and three were very seriously injured as a result of (probably unnecessary) turns near the ground following launch failures. I think that widespread use of the technique I have described will reduce the number of such accidents in the future.

NEVER TOO LATE TO LEARN

Dear Editor,

Yes - you can teach old dogs new tricks.

The first seeds of doubt were sown when as CFI I conducted the annual check flights with a recently qualified instructor who very successfully demonstrated an exercise but in a **different way**. The next indication came a week later at the quarterly instructors' meeting when a very reasoned argument to change the winch launching policy was mooted. I was beginning to feel out of touch with the modern thinking of the BGA.

At the CFIs' week at Bicester last year an open invitation was extended to all to attend an instructors' course as an observer - and I decided to accept.

When I contacted the course coach, Chris Pullen, to ask if I could attend his reply was an emphatic "Yes please and you can help me with the flying." There was more than a slight



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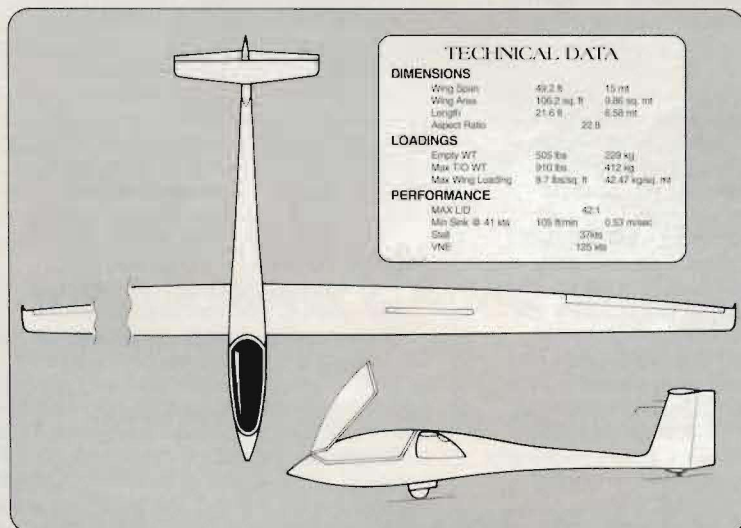
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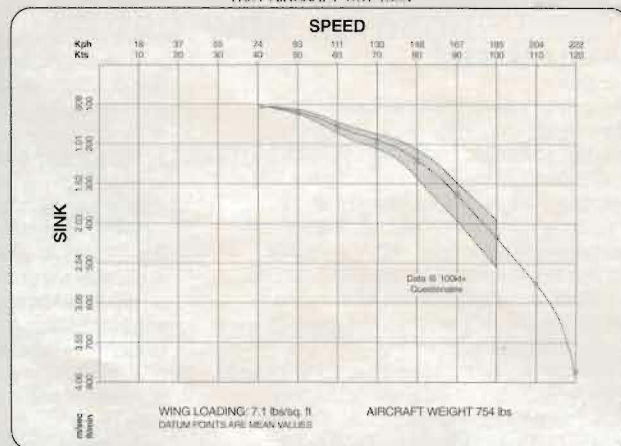
TECHNICAL DATA	
DIMENSIONS	
Wing Span	49.2 ft 15 mt
Wing Area	156.2 sq ft 14.38 sq mt
Length	21.6 ft 6.58 mt
Aspect Ratio	22.0
LOADINGS	
Empty WT	505 lbs 229 kg
Max TO WT	910 lbs 412 kg
Max Wing Loading	9.7 lbs/sq ft 42.47 kg/sq mt
PERFORMANCE	
MAX L/D	42:1
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degree of panic but I did need an annual check!

The course was more beneficial than I could have wished. I re-learned all the usual exercise - pre solo and beyond - but from an entirely new perspective. "I am going to teach you how to teach" was Chris's opening remark - and he did.

The briefing lectures were made more interesting by the use of an overhead projector and also because full participation was required by all to arrive at the real reason for the "exercise".

An additional bonus was to fly the exercise with Chris for I then knew the standard required. This standard I would pass on not only to those on the course but also to my own instructors.

I would urge all CFIs and fully rated instructors to take up this offer to attend an instructors' course so that you too can take back to your clubs the standard required to keep ahead of the game.

CLIVE D. STAINER, CFI of Buckminster GC

WE ARE ON THE INTERNET

Dear Editor,

Following John Keepin's letter about the Internet Web sites (last issue, p71), it should be noted by readers with Internet access that the BGA does in fact have a site which also links to selected articles in S&G. As John points out, there are a number of interesting soaring related sites to visit on the World Wide Web and the following brief list may be helpful in finding links to most of the sites.

- BGA- <http://www.isl.net/BGA/>
- A guide to soaring clubs throughout Europe - http://csrcp://csrcp.tamu.edu/Soaring/clubs_europe.htm].
- Worldwide soaring information - <http://csrcp.edu/Soaring/soaring.htm>]

MIKE SHAILES, Cotswold GC
(<http://fenetre.co.uk/~cotswold>)

LIES, DAMN LIES AND STATISTICS

Dear Editor,

I feel I must take issue with Julian West in his article on GPS accuracy on several counts. (See last issue, p86.)

While Julian may be mathematically correct, the facts do not show the mathematics and statistics to be reliable.

During the Lasham competition of 1995 there were over 40 flight recorders in use over a nine day contest. This makes a minimum of 360 traces taken during this period. Given the 95% figure quoted by Julian there should have been 18 problematical traces.

If I recall correctly there were two.

During the Junior Championships at Bidford (20 flight recorders over eight days) there were two problems whereas statistically there should have been eight. In the case at Bidford where a camera was also carried, the error was over a kilometre, so could not be due to the normal signal degradation.

Ground trials of flight recorders during GFAC evaluation of various devices has shown the errors recorded to be significantly less than the 100 metres frequently quoted. I am sure Ian Strachan will be happy to talk to anyone on this subject.

Julian's assertion that the camera is more

accurate than the GPS must also be fallacious. It is clearly impossible for any photo interpreter to judge a position to within a wingspan or fuselage length!

Two hundred metres may be possible under ideal conditions, but then you have the same accuracy as a GPS, and a GPS does not suffer from poor visibility, sun reflecting off the canopy etc, etc, etc.

I find Julian's idea of flying in such a manner as to "fool" the GPS engine into believing you have been where you have not, a bit far fetched. Who is going to take the risk of a failed flight for such a small advantage? The necessary aerobatics are likely to lose rather than gain advantage.

On the subject of geodetic datums, there are a number of programs available for converting between geodetic datums and between geodetic datums and Ordnance Survey grid positions. There are also papers available (free) from Ordnance Survey on this subject.

GPS will make competitions, badges and records very much simpler, especially when electronic declaration of tasks is introduced.

However, the prudent pilot will take a camera as a back up, as problems can occur for a number of reasons. The correct positioning of the antenna, as with any form of radio communication, is of paramount importance in minimising these problems.

TIM NEWPORT-PEACE, Specialist Systems
(See also GPS Jottings on p171.)

L'HOTELLIER CONNECTIONS

Dear Editor,

Bill Scull in the last issue, p80, fails to put enough emphasis on correctly connected L'Hotellier controls coming undone.

The German authorities make safety pins compulsory because they found in tests that even normal operating conditions are sufficient under unfavourable circumstances to surmount the static friction (ie the lock plates open).

It is really quite simple. If you don't use safety pins the L'Hotellier connections can come undone, even if correctly connected.

This is, of course, a change since the holes were originally referred to as "check holes". Some are too small to take safety pins and must be drilled out.

BILL DEAN, Kings Langley, Herts

We welcome your letters but please keep them as concise as possible and include your full name, address and telephone number. We reserve the right to edit and select.

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SUMMARY

Under certain ideal conditions, getting the best height attainable from a winch launch requires the maximum permitted cable pull to be maintained throughout. At a steady airspeed, this constant pull makes for a launch path with a simple geometrical shape in which the steepness at the start of the launch and the final height depend on the ratio cable - pull/glider weight.

The real effects on this idealised launch path of headwind, aircraft drag and cable sag are introduced in turn, using only simple triangles of force and velocities. Rules of thumb are given to estimate the distortions due to headwind and drag. It is suggested that the consequences of cable sag are nearly equivalent to an increase in the cable pull required. With those adjustments made, the constant pull launch path becomes a good model on which to base an understanding of the way a glider performs on the winch.

FLIGHT ON THE WINCH

This is believed to be the first time the performance of the winch launch has been discussed since an OSTIV paper by Byrne in 1965 on pulley launching at the Dublin Club. The idealised launch height calculation is presented with simplicity and clarity by "Charlie", who served for many years as an engineer officer in the RAF. He has taken to gliding in retirement and flies a PIK-20D at The Soaring Centre

None of the popular books on gliding offers much explanation of flight on the winch. This seems a pity because, of all the phases of gliding, the winch launch is perhaps the hardest to understand. So what follows sets out a simple theory of flight for a glider "on the winch".

The aim

In the launch, the aim is to winch the glider to the greatest height that can safely be achieved using the available length of cable between the winch and the launch point.

Limitations

So as not to overload the glider, its operating manual sets limitations on:-
Maximum airspeed during winching.
Maximum pull on the cable hook.

Simplifications

To begin with, it is helpful to simplify some aspects of a launch by winch.

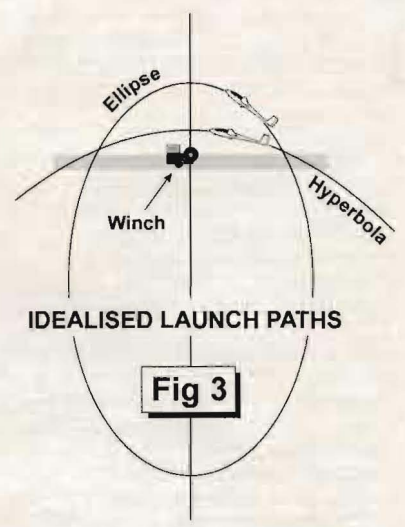
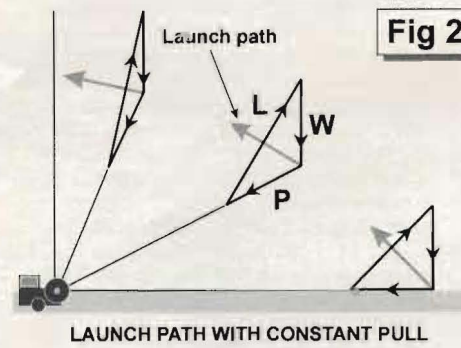
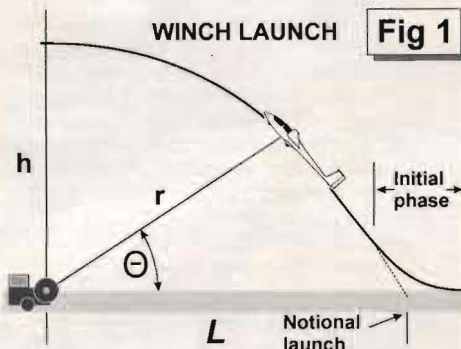
There will be no wind. Although the effects of any headwind are marked, they are best dealt with as a second step.

The cable will be supposed to make a straight line between winch and hook. In practice its weight and air resistance will make the cable sag, but both will be disregarded until later.

The initial acceleration of the glider and its rotation into the climb will be set aside as a separate phase. The launch will be imagined to have started from a notional launch point a little nearer to the winch than the real launch point and to have begun the climb from there. (Fig 1.)

Aircraft drag and g forces will be left out of account. The drag of the glider is small compared with the three main forces acting on the glider (its weight, its lift and the pull of the cable); so are any g forces once the initial acceleration and rotation are complete.

To sum up, the simplifications to start with are:-
No wind; no sag; no drag; no g; and a notional launch point.



The idealised launch

Simplified in those ways, the launch is an idealised one in which all the work done by the winch adds potential energy to the glider; none is lost in overcoming drag, accelerating the glider or lifting the cable, and none gained in exploiting the wind.

- So work done at the winch = potential energy gained by the glider
 - ie Pull x length of cable wound in = glider weight x height reached
 - Say $P \{L - h\} = Wh$. . . L is the length of cable between winch and notional launch.
 - So Idealised height reached
- $$h = \frac{P/W}{1 + P/W} \times L$$
- For example, from a launch in which pull = weight, $P/W = 1$, and the idealised height

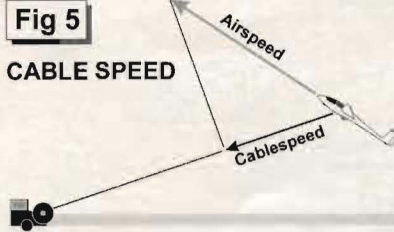
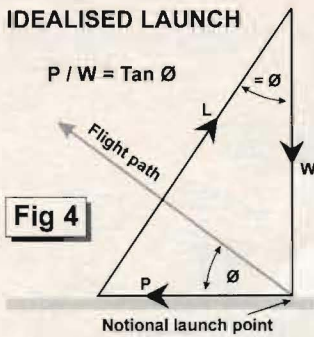
reached is $L/2$, ie half the initial cable length.

This idealised result over-estimates the height which can be reached in practice, but it makes the fundamental point that the best height attainable with a given length of cable depends chiefly on the ratio pull/weight. It makes it clear that, to reach best height, the pull should be the maximum permissible and be sustained throughout the launch. Conversely, anything which adds to the glider's weight (eg waterballast) will reduce the height attainable.

The idealised flight path

During such an idealised launch, the three main forces, weight, pull and lift, will be in balance at each elevation above the winch.

Weight always acts vertically downwards and is the same at every point. Pull always acts towards the winch and, for best height, will be held



constant at its safe maximum.

Lift, which closes the triangle of forces, changes as the glider ascends. If the triangles are drawn at several points in the climb, they show that lift is less low down, more higher up, but is always greater than either weight or pull. Lift also takes up a new direction at each point on the ascent. But lift, by its definition, always acts at right angles to the flight path. So the direction of the flight path is fixed by the ratio of pull/weight and the angle between them. It follows that the flight path is curved and its steepness changes in a particular way as the launch proceeds. (Fig 2.)

So, when a constant pull/weight is held throughout, there is one particular curve up which the glider ascends from the notional launch point. Working out the shape of this theoretical curve is of no practical importance (although it is done at Note 1) but putting a name to it helps to fix ideas.

When pull is greater than weight the curve is part of an ellipse. (Fig 3.) If pull is less than weight, the path is part of a hyperbola - a related but open ended curve. The winch is at a focus of the curve in either case.

It is clear from the triangles of forces that the greater the ratio pull/weight the steeper the ascent. At the notional launch point pull acts horizontally at a right angle to weight. So ascents steeper than 45° at the start need more pull than weight and they are the ones which follow an ellipse. Less pull than weight means a launch starting at less than 45° and taking a hyperbolic flight path. The direct relation between steepness and pull is of great practical importance; if at any point in a launch the steepness is increased, then pull also increases.

At the top of the launch, directly above the winch, lift is always at its greatest and equals the sum of pull+weight. It follows that the greater the pull and the steeper the launch, the greater

Pull/weight	0.5	1.0	1.5
Launch angle	27°	45°	56°
Best height	1000	1500	1800ft

the wing-loading, especially at the top of launch. The shape of the idealised launch path can also be put in terms of the angle of the flight path at launch, Φ , since $P/W = \text{TAN } \Phi$. (Fig 4.)

Eg:- height reached = $\frac{\text{TAN } \Phi}{1 + \text{TAN } \Phi} \times L$

Airspeed

So far nothing has been said about the speed of the glider. In principle all that has been said would be true at any speed but, in practice, the airspeed must be sufficient to support the aircraft and, since lift is greater than weight throughout the launch, the airspeed during the launch needs to be well above the normal stalling speed in level flight. Another consideration is that any gain of speed by the glider takes work

Note 1
In Fig 1 the height reached, $h = r \sin \Theta$
So potential energy gained = $Wr \sin \Theta$
= work done at winch = $P(L - r) \dots$
Hence $r = \frac{P/W}{P/W + \sin \Theta} \times L$. if $P = \text{const}$
This is the locus of an ellipse if $P/W > 1$
... or an hyperbola if $P/W < 1$ (Fig 3)

from the winch to provide the increase in kinetic energy, which detracts from the potential energy realised and hence from the final height attained. So gaining speed during the main ascent seems wrong. On the other hand, since lift increases as the launch proceeds, it makes no sense to have the airspeed reducing towards the top.

So it is reasonable to envisage the "best height" launch needing a steady airspeed throughout, held well up towards the maximum allowed for winching. Indeed, what has already been said about the idealised best height presumed that there was no change in kinetic energy. All the acceleration needed to reach this steady speed is supposed to have been completed in the initial phase.

Cable speed

In still air, the speed at which the cable must be wound in depends upon the required air-speed and the angle between the cable and the flight path. The greater that angle, the slower the cable speed needed for a particular airspeed. So, if the glider is to ascend at a steady airspeed, the cable must be wound in quickly at first (where the angle is least) and then more slowly as the angle approaches 90° overhead the winch. (Fig 5.)

If the glider is also to follow the "best height" flight path, with constant P/W , then the cable speed must be just right at every point in the launch. So achieving the best height calls for teamwork; the pilot controls the attitude of the glider to follow the "best height" profile and the winch-driver adjusts the cable speed appropriately as the launch proceeds. If they both get it right, they will maintain just the intended steady airspeed while sustaining the constant pull/weight throughout, and the glider will indeed attain the best height.

Other flight paths

Of course the pilot may elect to follow a flight path other than the "best height" one. Indeed the steepness of the "best height" ascent can be daunting. For example the permissible pull/weight ratio is as much as 1.5 for some gliders, which implies a still air ascent at 56° from the notional launch point. ($\text{Tan } 56^\circ = 1.5$). While cable sag and other factors moderate this somewhat in practice, for safety a less steep climb will often be preferred, at least for the first part of the ascent. Flattening the launch in this way makes for other changes:-

Cable speed will need to be faster to make up for the reduced angle between the flight path and cable.

Pull will be less and will vary during the launch if the path flown is not a true ellipse/hyperbola.

Lift will be less generally but remains likely to be greatest at the top of launch.

The reduced height attainable is set by the new steepness. As a rule of thumb, the sacrifice of launch height works out in rough proportion to the amount by which the launch angle is moderated - halve the angle and nearly halve the height reached.

The idealised launch

At this point, there is a picture of an idealised winch launch:-

For best height the maximum safe pull must be sustained throughout.

Its shape is an ellipse/ hyperbola whose steepness and the height reached depend on the ratio pull/weight.

Lift is always greater than either pull or weight and reaches its maximum at the top of launch.

A steady airspeed is maintained just within the maximum permitted for winching.

The steeper the launch, the less is the cable speed needed. In all cases, the cable speed reduces progressively to zero at the top.

This idealised launch path is much altered in practice by headwind and cable sag. Nevertheless it provides a useful mental picture of the winch launch and of the importance of the pull/weight ratio. It also sets the limit on the launch height that can be reached in still air.

It remains now to see how the idealised launch is altered by headwind, cable sag and aircraft drag, taking each in turn. Also to consider the initial phase of the winch launch in which the glider accelerates from rest to its launch speed and pitches up to join the selected flight path.

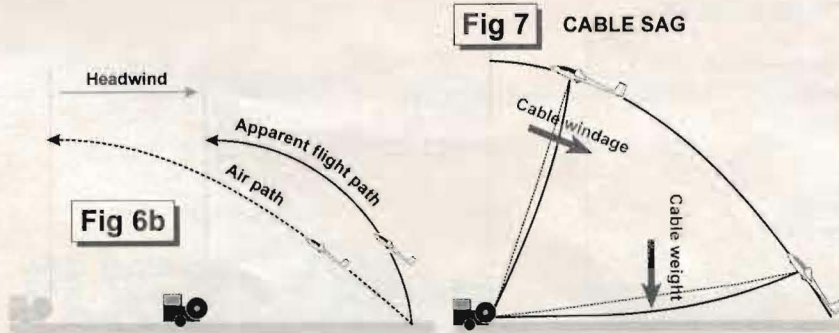
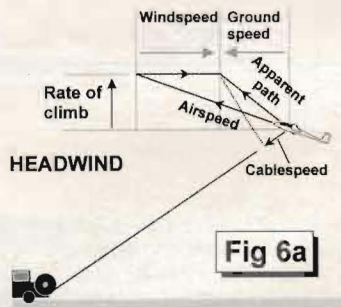
Headwind

In the face of a headwind, airspeed and wind-speed are combined in the motion of the glider as it appears to an observer on the ground. It seems to be flying more slowly than its real airspeed but ascending more steeply. In fact wind-speed has not altered the vertical component of airspeed, the rate of climb, but it has reduced the groundspeed, the horizontal part. (Fig 6a).

With less groundspeed, the glider will take longer against a headwind to traverse from the launch point to overhead the winch; so it spends longer on the cable. But, since its rate of climb is undiminished at any point, it will attain a greater height above the winch as an effect of the headwind.

At the glider, the three main forces - pull, weight and lift - will be in balance exactly as they were in the case of zero headwind. At each elevation above the winch pull will align with the cable, weight will act vertically and lift will close the triangle. So the direction of lift, and hence the direction of airspeed, will remain fixed by the pull/weight ratio. In short, the climbing attitude of the glider is just the same whether there is a headwind or not.

The shape of the into wind flight path as seen from the ground is altered by the wind and the calculation of its new shape is not attempted here. However, it is easy to see that with a very strong wind very little cable would be wound in, so the new flight path would tend towards a circular shape. Examples of how headwinds affect various idealised launch paths are shown (Table 2.)



Each depends on the ratio pull/weight and also on the ratio windspeed/airspeed. Three wind strength ratios are considered; 0 wind (the idealised case); 0.2, (a fresh wind) ; and 0.4, (a strong wind).

Pull/weight	0.5	1.0	1.5
Wind/airspeed = 0	1000	1500	1800ft
= 0.2	1205	1800	2180ft
= 0.4	1520	2275	2750ft

For all but the strongest winds and steepest launches, the extra height gained from the wind is approximated by:-

Best height in zero wind x wind/airspeed.

But the shape of the launch path as viewed from the ground is of little concern to the pilot. Since it is attitude which determines pull/weight, his task is to control the attitude of the glider in the same way whatever the headwind. If he gets that right he is on track for best height; or, if he elects to follow a less steep trajectory, he can be sure that pull is within the safe limit no matter what the headwind.

As he sees it, he flies up the air path in Fig 6b and the main effect of headwind is that he spends longer on the cable and reaches a greater height, very much as if he had launched on a longer cable.

For the winch driver, the main effect of headwind is that less cable speed is required.

It is sometimes suggested that it is advantageous to winch more slowly into a headwind, since the benefits depend on the ratio wind/airspeed. However, the precise control of cable speed needed is seldom achievable, especially in windy conditions. Often the best that can be done is to climb at the preferred attitude and if it happens that airspeed is on the lower limit of what is safe, so much the better for final height.

Cable sag

The idealised launch discounts any weight or drag for the cable. In reality, energy will be expended in raising the weight of the cable to height and in overcoming its windage (the aerodynamic drag across the cable). It follows that not all the work done by the winch will be realised as potential energy by the glider. So, in practice, the glider will not attain the idealised best height for the pull/weight ratio used. Both cable weight and windage depend on the length of the cable, so longer cables bring diminishing gains in the height reached.

The cable joining the glider to the winch will not really form a straight line but will sag downwards and backwards. Low down during the launch this is chiefly due to the weight of the cable; higher up, the windage is the main cause. (Fig 7.) The effect of both is to alter the direction of pull at the glider's hook so that pull no longer

acts directly towards the winch but is inclined at some angle below that line. How large that angle is depends on the two forces acting across the cable but it is reduced by pull which is tending to straighten the cable.

When sag diverts pull through such an angle, the triangle of forces weight, pull and lift is altered. If the pull/weight ratio remains the same, the lift is realigned in such a way that the line of flight is less steeply inclined and the lift force is increased somewhat. So, for the same pull, the launch becomes flatter when the cable sags; also the wing loading increases a little. (Fig 8 Flag A.)

Alternatively, if the same steepness of the flight path is maintained despite the sag, both pull and lift are increased markedly. So, for a given climbing attitude, both pull and wing loading are much increased by cable sag. (Fig 8 Flag B.)

A further practical consequence of sag is that the cable hangs vertically from the glider's hook at some point in the launch before the glider is truly overhead of the winch. Beyond this point the cable can only slow down the glider and it is likely to back release. So sag leads to early cable release and a shortened launch-path.

The effect of cable sag is tedious to calculate and best shown by a few worked examples. In each of them the cable is a typical one - 4.5mm diameter stranded steel, 3000ft long between the notional launch point and winch. The glider's airspeed is 60kt throughout and there is no headwind. Table 3A shows the idealised height attainable at three selected pull/weight ratios and compares it with the height actually reached by each of two gliders - one of 750lbs weight and another of 1100lbs - climbing at the same three pull/weight ratios but affected by cable sag. It also shows the climb angle at notional launch, in brackets.

Pull/weight	0.5	1	1.5
Idealised	1000ft (27°)	1500ft (45°)	1800ft (56°)
750lbs	630ft (17°)	1160ft (35°)	1505ft (47°)
1100lbs	765ft (21°)	1270ft (38°)	1590ft (50°)

The shallow launches in the left hand column are the ones most adversely affected; especially the lighter 750lb glider which reaches little more than half the idealised best height since the cable sags heavily under the low pull forces.

At the other extreme, lower right, the 1100lbs glider has a pull of 1650lbs and correspondingly less sag, so it climbs closer to the idealised height. The flattening of the launches is shown by the figures in brackets

Table 3B shows the increased pull/weight ratios needed to overcome the flattening effects of cable sag and to make good the angle at launch. The figures suggest that pull would become unacceptable, with this cable, for initial climbs

Launch angle	27°	45°	56°
Pull/weight Idealised	0.5 (1000ft)	1.0 (1500ft)	1.5 (1800ft)
750lbs	0.75 (920ft)	1.42 (1430ft)	2.1 (1740ft)
1100lbs	0.68 (940ft)	1.25 (1440ft)	1.8 (1740ft)

much steeper than 45°. With a longer cable yet more pull would be needed, since the sag would be more pronounced. The bracketed figures for height reached show that, starting with same launch angle, the ascents follow flight paths similar to the idealised one but fall a little short of best height. They are not truly elliptic/hyperbolic flight paths but they appear very similar to pilot or onlooker.

In summary, the practical effect of cable sag is that more pull is needed than for an idealised launch at the same steepness; also the wing loading is increased and release occurs early. The effect is very marked if the sag is pronounced. The sag increases with the length of the cable (ie with its weight and air resistance) but is reduced by pull. So, long cables, light gliders and shallow launches are most adversely affected. The bottom line is that because of sag no glider can reach its idealised best height in still air.

Aircraft drag

Approaching the top of a winch launch the lift equals the sum of weight+pull, so allowing pull/weight ratios of 1 or 1.5. The lift at that point will be 2 or 2.5 times what is required in normal flight. It follows that in going for best height gliders are necessarily in high lift flight near the stall, even when climbing at the permitted maximum airspeed for winching.

In normal gliding flight a modern glider has a drag of about 1/30th of its lift. When it is flown in high lift, the drag increases to perhaps 1/10th. So, as a winch launch proceeds the drag of the glider may increase to something over 1/10th of lift. Although that is small compared with lift, such drag alters the idealised launch path appreciably.

In the idealised launch, weight and pull were balanced with lift in a triangle of forces. When drag is included as a 4th force in the diagram, at a right angle to lift, the effect is to rotate lift through a small angle (say 1 in 30). This in turn rotates the flight path. So the effect of drag is to flatten the launch, much as cable sag does. (Fig 9.)

The same conclusion follows by supposing that the energy expended in overcoming aircraft drag detracts from the potential energy gained by the glider during launch and so reduces the height reached.

As an approximation, the reduction of best height due to aircraft drag is equal to the length of cable at launch divided by the effective lift/drag ratio at release. Typically, with a 3000ft cable and lift/drag = 30 near the top, release is about 100ft below the idealised best height. So the ef-

Fig 8 EFFECT OF CABLE SAG

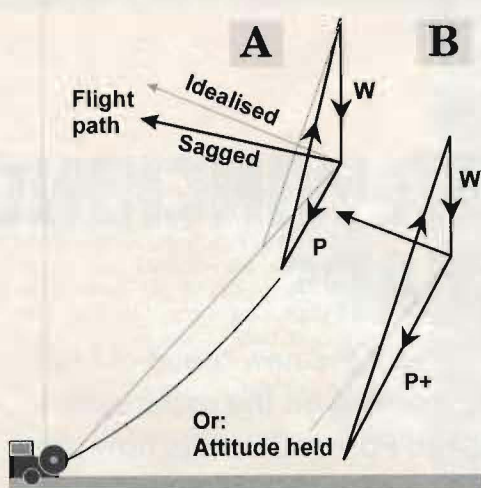
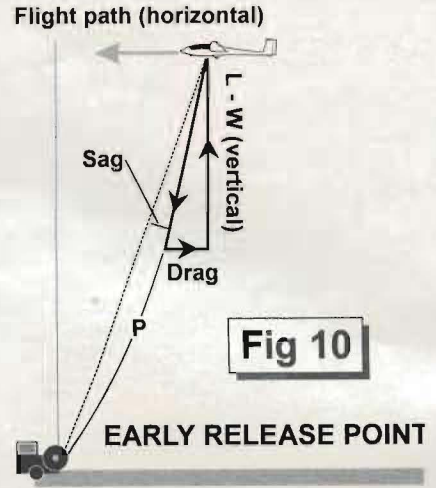
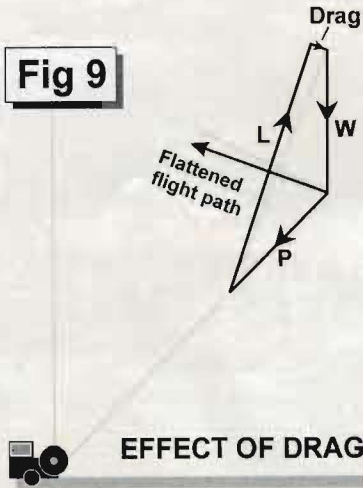


Fig 9



Drawings interpreted by Steve Longland.

Effect of aircraft drag on the launch height attained is not great, certainly not as adverse as that of cable sag, but any undue increase in drag (ascending in the stall or with airbrakes open) has a more marked effect.

As the glider approaches the top of the launch, it reaches a point where the horizontal component of pull is only just equal to the aircraft's drag. Beyond that point, unless released, the glider will slow down, *ie* lose energy. So, allowing for aircraft drag, best height calls for an early release some distance short of the point where pull becomes vertical.

Again as an approximation, that distance is equal to the length of the cable at launch divided by the lift/drag ratio at release; (the same as the reduction in best height). In practice, cable sag will have a greater influence on the actual release point, but aircraft drag does add its small contribution to early release. Fig 10 shows both.

Aircraft drag increases with airspeed but, within the narrow speed range admissible for winch launching, the variation in drag is small. Since drag alters the shape of the launch path very little, the effect of airspeed is even less. So, pull/weight sets the launch path and the speed at which it is flown makes very little difference to the pull. It made none in the idealised case and can now be seen to be much the same in practice.

Initial phase

The initial phase of a winch launch comprises a ground roll, take-off and rotation into a climbing attitude. The aim is to join the intended launch path at the target airspeed as soon as may be done with safety. The urgency is that to reach best height no more cable than necessary should be wound in before the main ascent starts. The danger is that being too precipitate risks a cable break, or a stall, in a steep climb close to the ground.

If the cable speed is well-judged, the glider will join the main launch path at the desired climbing attitude and airspeed. However, the dynamics of this manoeuvre are a topic in themselves and are outside the present scope.

Actual launch path

By way of summary, Table 4 shows the best height attained by a glider winch launched into headwinds of various strengths, allowing for sag. The glider climbs at a steady 60kt and has a weight of 750lbs. The cable is 4.5mm diameter of 3000ft length to the notional launch point.

The initial phase might require an additional 300-500ft of cable and aircraft drag might reduce the final heights by 50-100ft.

Launch angle	3000ft cable		
	27°	35°	47°
Pull/weight	0.75	1.0	1.5
Wind/airspeed			
0	920	1160	1505ft
0.2	1100	1385	1780ft
0.4	1370	1725	2230ft

It was pointed out earlier that the actual zero wind launch paths were very similar in shape to idealised ascents with the same launch angle. That suggests that the final heights reached by both will be about the same. So a simple approximation to the final height will be:-

$$\text{Final height} = \frac{\tan \Phi}{1 + \tan \Phi} \times L$$

... where Φ is the launch angle

Except when there is a lot of sag, this approximation gives a very fair idea of the height that will be reached and it can be adjusted for headwind and drag using the approximations already suggested. But it needs remembering that the actual pull/weight is greater than the idealised value because of the sag.

Control of pull in the launch

Since the actual pull depends not only on the angle at launch but also on the sag, how is a pilot to know how steeply he can launch without ex-

ceeding the limitation on pull?

It is true the pilot has no direct measure of pull. However, the steeper the initial climb the greater the pull, other things being equal. So what it comes to is that the pilot sets up an initial climbing angle which he knows from experience in that situation (*ie* his current glider on the club winch) will give him safe but satisfactory launch performance. Replicating the initial climbing angle will replicate pull and provide a consistent starting point. But if circumstances change the pilot must adjust the initial climb accordingly:-

If he flies the glider at an increased weight (*eg* with waterballast), or if the sag is increased (*eg* if he takes a longer cable than he is accustomed to), the angle of climb needs to be reduced to keep pull to its usual value.

Having set the initial climb appropriately, constant pull requires that the attitude changes correctly throughout. Taking the ellipse/hyperbola as the model, the flight path has to rotate slowly at first, then more rapidly, towards the horizontal at release.

Conclusion

The simple theory of flight set out earlier uses a constant pull launch to explain a glider's performance on the winch and to make sense of the way that it is altered by circumstances. It suggests simple ways to estimate final height, which help to show the relative importance of the factors involved.

The theory comes with a disclaimer; it deals only with the *why* of flight on the winch, not with the practice of *how* it should be done. For that, ask a flying instructor! ☑



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The winching scene in the U.K. has changed considerably since I wrote about winch theory and practice in 1985 and 1987. I suggested then that the absolute minimum power should be about 180bhp and that 240bhp or more was necessary for heavy gliders, possibly with further assistance from torque conversion as well. At that time, 300bhp Continental winches had been available for many years, but although a few UK clubs were using these or other high powered types, it wasn't common.

Partly due to the articles, I have been made privy to the trials and tribulations of certain clubs after their introduction to high power winching. Chance observations at other clubs have also indicated that all is not entirely well at times. In some quarters, it has been said that high powered winches can be operated safely only by very experienced or professional drivers.

When the Bowland Forest GC became the first customer a year ago for the production 340bhp Skylaunch built by D & M Engineering, we were very conscious of the huge step up from "G-PULL", our 180bhp Gardner diesel winch. The BFGC, determined not to join the sufferers, set about a programme to re-train its existing drivers and to train new ones. With some 50% of its members now qualified, the first year's experience has been highly successful, and has entirely refuted the pessimists.

Past problems to learn from

A brief summary of typical problems that have been experienced will serve to illustrate that most are self-inflicted. Solutions have been readily available but sometimes ignored.

1. The torque-control diesel winch type is without question the easiest of all to drive, as the driver only has to make the correct torque selection based on the glider weight, irrespective of wind strength, apply it at a rate giving acceptable initial acceleration and then hold it constant until backing off before the release. The pilot is responsible for controlling the speed by adjusting the climb attitude. Because there is no direct control of engine rpm, the launch can overspeed rapidly if the climb entry does not match the acceleration. To make it work, therefore, a conscious change in technique is required of pilots as well as drivers.

Introduced by one club some years ago without understanding these changes, a period of poor launches and considerable aggravation ensued. A visual torque selection guide was then fitted, which proved to enable even inexperienced but properly briefed drivers to provide excellent launches, though it was rejected by senior drivers. It was replaced by a single mid-torque spring throttle stop, to assist in judgment of the initial power setting.

My own experience of the type is limited to a few launches for a syndicate partner and myself at another club. A lack of adequate communication led to some rather anaemic launches, a problem whose solution was eventually demonstrated by the winch designer, there by chance. He provided a sparkling launch to my partner with 500ft more height simply by selecting the right torque. In the cab, watching the cable speed reduce from 35kt to 4kt without any driver action was a convincing demonstration to me of how

HIGH POWER WINCHING WITHOUT TEARS

There is still a lot of anxiety about the new breed of high powered winches but John, drawing on the experiences during the last year at Bowland Forest GC, tells how they can be operated safely and to everyone's advantage

easy it is to drive such a winch when it is fitted with a device to indicate the torque selected (as this was). It was obvious that any glider pilot could learn to drive it without difficulty.

2. Another club replaced their old diesel winch with a new high powered petrol engine winch. The immense increase in power and acceleration was applied indiscriminately. The launches were snatched off the ground with pilots holding the stick fully forward. With the glider held down and immediately excessively fast, shallow climbs were inevitable as the pilots would not pull up. Launch heights were lower than with the old winch and great was the gnashing of teeth.

An essential part of the solution was to introduce a timed 2 or 3sec movement of the throttle to the nominal power position, preventing an excessively abrupt acceleration, but I understand that launches are still often too fast. Blue weak links are broken by K-8 pilots at inconveniently frequent intervals, something which just shouldn't happen even with full back stick if flown at a sensible (for K-8) 45 to 50kt - or if pilots exercised more caution.

3. Lack of communication caused another problem at a club with a powerful multiple-drum turbo-charged torque converter drive diesel winch. Driving this winch is straightforward. The throttle is opened smoothly over a short period to the appropriate rpm for the wind and the glider type, and is backed off progressively in the later stages of the launch. The lag in proceedings as the torque converter winds itself up allows the driver to set the rpm and then switch attention to the gliders before they leave the ground, which they do very rapidly.

However, I understand that at one Vintage Rally, some pilots of the old gliders with low placard speeds experienced some undesirably exciting launches, clearly because there was no system in operation to cope with their unfamiliar needs. They tell me that on the Continent, they would be asked what speed they wanted before launches on equally powerful winches, and would be served with this almost to the knot. Clearly, launch point to winch communication is vital for such quality of service.

4. In moderately powered diesel winches with a conventional rpm governor, most single-seater launches will depend on speed control by the winch driver in the usual way. Two-seater launches are likely to use all the available torque, so the winch becomes effectively a constant torque device. Airspeed will be completely under the pilot's control almost regardless of the throttle position within a wide range up to maximum.

This was addressed at one club by an rpm gauge marked with cable speed and by a cable speed guide beside the throttle. These enabled the driver to calibrate the day's launches from reference to the rpm during two-seater launches, which were usually at the correct speed, and to set a suitable initial take-off speed. However, many drivers would not use them. Excessive launch speeds for the lighter gliders were commonplace and the rpm gauge an irrefutable but unheeded witness to the fact.

Such winches typically have a rather low acceleration. Snapping the throttle wide open only slams down the tail skid of gliders sitting with the nose on the ground as the cable is snatched tight. It has no effect on the acceleration because the governor has already fully opened the fuel supply at a throttle setting far below the maximum. This kind of take-off also risks the classic "diesel droop" cable sag, occasionally heart-stopping, as the governor shuts off the fuel if the driver backs off to a more reasonable setting too rapidly. A smooth two-second opening results in no discernible loss in performance, improved pilots' temper, and relief to rear fuselages.

5. The respect accorded to placard limits varies enormously around the country. Having a professional driver can help, but it does not guarantee such respect, as visits to two sites I know will demonstrate. One hill top site has been the home of excellent launching for years, while one busy flat site is notorious for hurling everything off at a ferocious pace regardless of type, placard limit or tail wagging requests for less speed - 70kt in a K-8 is no fun. A club with a converted car engine Wild winch successfully used radio (in two-seaters) to get the launch speeds down to the right figures, and improved the launch heights in the process, a point often overlooked by the "speed doesn't matter - you got a launch, didn't you?" school of thought. Another club with imported German secondhand winches corrected their excessive speeds by reference to the winch speed indicators and discussing the launches with the pilots. It can be done, but you've got to want to do it.

6. Forty years ago it was accepted that you "climb gently to 200ft before steepening the climb". Is there a whiff of this old philosophy still hanging around to confuse pilots? A leisurely take-off and rotation is not a fundamental safety requirement but is simply imposed by a low acceleration launch to maintain a safe relationship between speed, attitude and altitude. Pilots accustomed to this may try to impose the same but inappropriate rotation on a high acceleration

HIGH POWER WINCHING

launch, with the results discussed earlier. If pilots insist on retaining the old style with a high powered winch, then winch drivers must be prevailed upon to apply the power sufficiently slowly.

A reverse problem can arise with a pilot taught on a powerful winch. Accustomed to a rapid rotation, the pilot may try to impose this when launched by a low acceleration winch at a different site. This can only happen if the pilot has been encouraged, or allowed by default, to believe that an aft stick pull is necessary to rotate into the climb. This belief was so strong in one local temporary member, from a large club with powerful winches, that we were unable to eradicate it before he left.

For almost all gliders, entry to the climb will happen by itself as the airspeed increases, with the stick held fixed in the position needed to fly smoothly off the ground, that is usually at some point forward of neutral. If it doesn't rotate automatically, there is not enough airspeed. The technique provides an elegant and smooth transition with a safe relationship between the early speed, angle of attack, height and climb angle regardless of whether the take-off and rotation is slow and stately or breathtaking. It feels right from inside the cockpit and looks right from the ground.

General lessons learned

For historical but not necessarily very satisfactory reasons, winch driving in the UK has been neglected as a subject for formal instruction. Considering the potential for unsatisfactory launching or even mayhem at worst, this does seem surprising in retrospect. It is as significant a part of a flight as an aerotow, and nobody would advocate leaving tug pilots to devise their own theories of launching. It is true that winch launching has made an appearance in BGA instructors' courses, and there is a comprehensive chapter on it in the **Instructors' Manual**, but this is entirely directed to the flying task.

Some clubs have the luxury of a full-time highly skilled and conscientious professional driver, or they may rely on a small group of similarly skilled amateurs. This skill, usually based entirely on the previous winch, will not on its own avoid a period of chaos when faced with a new winch of monumentally different power or response characteristics or requiring new techniques. There are always technical and procedural solutions available to assist the skilled, the less skilled and the new driver.

Even with the low powered 70bhp winches I drove forty years ago, launch consistency benefited from an rpm gauge, a device urged for years by Dick Stratton, BGA chief technical officer. With three, four or five times the power now available, getting it wrong (or at least only somewhere near right) with no appropriate driver aid is all too easy. Club managements who are content to put up with less than the best will continue to get it. Only they can put in place the necessary solutions and see that they are applied.

The lessons applied

Having observed the prototype Skylaunch and experienced some excellent launches at the Mynd, and well aware of the risk of applying traditional winch training policy (*ie haphazard*) to



John's photograph of the Skylaunch winch.

such a high powered winch, the BFGC appointed its chairman, John Wood, to be responsible for training all drivers, old and new. Nobody was allowed to drive the Skylaunch until they had been trained to a standard operating method.

To start this process, demonstration and instruction was given by Mike Groves (with Dennis Jones, the "D & M") who is also an experienced professional driver. Very quickly, a few more drivers were cleared to drive and instruct. Over a period of several months, 16 three-driver duty crews were qualified, some of whom had never driven a winch before. Including some non-rotary drivers, over half the membership now contribute to a generally satisfactory service despite most performing only one third of a day's launches once in every eight weeks.

Excellent launches were achieved from the first day. On only the second day of operation, 1700ft was reached by two-seaters and 1900ft by K-8s in a stiff wind from the 850 yard cable run. Heights of 1200ft are readily obtained by the two-seaters in zero wind, a vast improvement on the 800ft achieved before. Weak link breaks are practically unknown. The whole launch is absolutely smooth, the sprung roller boxes eliminating the usual twangs and twitches of the cable. Over-speeding is rarely experienced, but the instant throttle response makes it easy to react to glider speed signals.

Full credit must be given to the design of the winch, in which great attention was given to making its operation as simple as possible. One lever selects either cable drum; one guillotines both cables; one applies both drum brakes; one applies the cable tow-out braking; the engine will not start unless "neutral" is selected and the wheel chocks are down; the three speed automatic gearbox requires only the selection of "drive"; taking up cable slack requires only idle rpm and the throttle is moved to a pre-set position for take-off and early launch.

The throttle pre-set is a spring-loaded stop bar set by two secondary levers in notched slots, one for the wind strength and the other for the glider type. The full throttle range is always available. By opening the throttle smoothly over about 2 or 3secs up to the stop bar, or initially a little beyond for heavier gliders, there is virtually no snatch and the gliders leave the ground very rapidly, cleanly and controllably, typically in less than 2secs and occasionally within their own length. There is no dramatic pitch-up and even the K-8 needs less than about half down elevator to rotate nicely into the climb by itself.

The gear changes up through second to top gear are not felt in the glider. Further up the launch, power must be reduced in the usual way, the only part of the launch that needs a significant element of judgement. The glider type is passed to the winch by ground radio, and generally most drivers will not launch until this is done. The awesome but simply selected power has provided all gliders, from vintage Gull 3 to DG-500 so far, with similar launch profiles but at appropriate launch speeds from 45 to 60kts. One good outcome is that because the K-13 and K-8 now have similar take-offs, early solo pilots converting from one to the other are spared the surprise of finding themselves at 100ft when they expected to be still on the ground, as would happen with the previous winch, for which no briefing ever seemed able to prepare them fully.

To the Skylaunch, all gliders seem alike.

Conclusion

This experience has shown that it is perfectly feasible to step up to a very powerful modern winch with complete safety. When converting from an old to a new winch, whether similar in principle or requiring unfamiliar techniques, and with greatly enhanced power and response, none is so mysterious in its workings that potential driving and piloting problems cannot be foreseen and their solutions prepared in advance. It is necessary to accept that:

- Existing drivers will need some re-training.
- Driver guidance devices of an appropriate kind will help them to adapt.
- Such guidance makes it simple to train new drivers.
- Pilots may need preparation for a major change in take-off performance and possibly in climb control technique.

Below: A view showing the drums.



ASK THE NEW BOY

As I made my way towards North Hill, I mused "Today is going to be a great day". Fifty flights during two five day courses convinced me this was the life. A blue sky with puffy white clouds could have been the reason patients had been dealt with in record time that morning.

Flying on Thursday started at midday. There was a hive of rigging as the car rattled over the cattle grid. Two gliders were at the launch point with cables at the ready.

"Hiya! Gordon!", was the welcoming cry from people I had never seen before. "What a wonderfully friendly club" I thought as I volunteered "anything I can do?"

The smiles broadened. "We're all tied up at the moment so pop-up the other end and launch the first two gliders" was an unconcerned suggestion.

"B-but I don't know how to drive it."

"You've watched enough haven't you?"

"Well I sat beside the driver for a couple of launches."

"Well there you are then."

"How much do I cut back if the launch is too fast?"

"Don't. The pilot will steepen the climb to control the speed."

"That simple?"

"Yes"

I drove to the far end, reassuring myself that if they trusted me with their lives it must be easy.

After pulling every knob I could find the engine burst into life. The engine roared and sipped to my whim. I gave the field telephone a half turn and called "ready for the first launch", hoping the apprehension did not show.

All alone I could not even see the launch point out of sight over the crown of the hill. One "tring". "Up slack K-6" rang out the diplomat's tone of Mike Hamilton.

"All out" and full forward throttle gave a surge of power. The winch seemed to lean forward under the strain. The knots in the cable snatched bits of dry grass and flung them against the wind-screen before clanking round the pulleys.

The K-6 leaped over the horizon, wings whistling; surely too fast but with the nose pointing skywards the engine note decayed and the rest of the launch looked reasonable. The sight of the parachute rushing towards the wind-on gear jolted me out of any premature jubilation.

"Tring." "Cable clear", I announced hoping the next launch would be as simple. The engine struggled all the way for the Capstan. The tractor arrived driven by Derry Rainey, the dentist from Topsham. "Well those launches looked all right." "Oh, it's quite straightforward" I replied, clasping my shaking hands behind my back.

A further eight launches followed with no tan-

gles and no breaks, even on the piano wire used by the club in those days "to save money". So my nervousness evaporated. Launching was as simple as my brief briefing had suggested.

The last gliders climbed away and disappeared. The remaining three sat in the sun and waited. It slowly dawned on us that ten club members had grabbed all the available gliders for the best soaring day of that year.

Their chosen ground crew had all the airs and graces of a professional team but they were only *ab-initio*s from the previous week's course.

I later learned that many considered it dangerous to pull off speed by steepening the climb. I was advised to stay mum about the day's events. Seeing was not believing.

So, sworn to secrecy, I volunteered to learn the skills needed by those who said it was complicated. I enjoyed doing my bit to get others airborne but remained puzzled by the conflict of advice.

One way to resolve this conflict was to study the dynamics of the launch. What better person to ask than the designer, David Clayton? He had made the subject clear thirty years earlier by looking at the factors moving the cable.

The winch pulls one end and the glider the other. Launching is a negative pole-vault.

If the winch pulls harder than the glider the cable speeds up and visa versa. If the winch can pull harder than the glider the winch driver has to be in charge of speed. If the glider is the stronger the pilot controls speed. The latter is more logical as the pilot has the ASI.

If the pull is equal, the cable speed remains constant. The harder they both pull the higher the launch.

A winch pulling 640lbs gave the highest launch that did not unduly risk the universal, 1000lb weak link in use then - 60mph was enough speed for the wood and canvas designs.

It was a simple matter to find an engine and cogs to supply these. A fluid coupling allowed the engine revs to build before transferring energy to the cable and simplified kiting in strong winds. All gliders can pull more than this; even the K-8 pulls 900lbs with ease. It was more logical for gliders to control speed.

With the glider in charge nobody needs to know the cable speed. Also when pilots were prepared to take control of speed, lowering the launch height was the only contribution the driver could offer. Why was this simple explanation of

dynamics accepted by so few? Did it have any practical use?

As a pilot I found it paid to adopt an early, controlled, continuous rotation to full climb. I joined the ranks of "the pole benders" and received the occasional reprimand for climbing too soon. Clearly one needs to stop the nose flipping upwards in the early climb but that was a basic flying skill.

As we launched over the top of the hill the driver kept full forward throttle till the glider appeared. The secret was to have the engine slowing by this first sighting. This encouraged the driver to keep the power on.

As a winch driver I needed to ease the stick back until the governor started to bite for reluctant climbers. They had lower launches.

With the correct briefing David Clayton had designed the safest winch in the country. Can his lessons from theoretical physics be applied to the increasing number of glider types with their different weak links?

When the Supacat winch arrived some drivers experienced difficulty in containing the extra power. I persuaded the late Bill Hatch to design a "position of the power lever" indicator. This approximated to pull. There were six lights, one for each 100lb between 500 and 1100.

With both driver and pilot familiar with the Clayton briefing, launching of gliders in varying wind conditions became pleasantly predictable. While crude, the six reference points showed that the ideal pull for glider type, wind and phase of the launch followed a simple pattern

Its use confirmed three advantages expected from theory. The highest launches would be achieved by applying nearly the pulling capacity of the glider for most of the climb. It would be nice to know how much to ease back at the top. Total bliss would be tailoring the pull for glider type and wind conditions for the rotation into climb.

Sadly this was discarded because (surprise, surprise) it did not help the winch driver estimate the speed of the glider half a mile away. A spring-loaded stop set at 800lb replaced the "fairy lights" and this helps drivers judge the energy needed for the first 100ft.

With a single stop the best winch drivers achieve good launches in all conditions. Lesser mortals like myself find it difficult. We need a load indicator and pilots who want to optimise their launches by taking command of speed.

John Gibson comments: Since the limited maximum torque of the old Clayton winch was acceptable for most single-seaters of the time, though somewhat underpowered for two-seaters, it could be treated as a constant torque device at full throttle.

Gordon's early experience confirms that when the pilot at the other end understands the control of airspeed with such a winch and when the correct setting can be selected without confusion, this type is very easy to drive, even for a novice (though a bit more finesse might be expected with further experience!). The belief held by some that it was dangerous to pull up to slow the speed was based on lack of knowledge of the physics involved in this particular winch set-up. Pulling up might not work with a different type - as always, know your winch!

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SOMETHING SPECIAL

Sunshine, wind and showers were forecast for that Bank Holiday Monday so I chose to fly an into wind first leg to Talgarth which would ease a return dash should the rain prove too severe. Thermals start early at Hinton in the Hedges so I was soon on my way in the beautiful ASW-17.

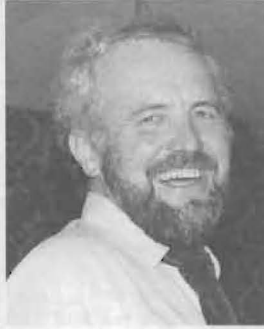
Near Ledbury I stopped to take a long draught of energy. The visibility was outstanding. To the south the Severn wound towards a sparking Bristol Channel. Westward the Welsh hills were arrayed in their late summer colours and to the north the Wrekin acted as a marker to the second intended turn at the Mynd. The enthralling scene was repeated again and again for my sole pleasure.

However, my contentment was soon dispelled by the sight of a rain squall blocking my route to Hay Bluff and its ridge to Talgarth. I elected to try and drive through the downpour but it was a decision I began to regret as below me the tiny fields grew rapidly closer.

Upon bursting out into the sunshine it was impossible to turn on to the ridge due to a distinct lack of height. Indeed clearing the saddle below the bluff looked marginal. A magic carpet of ground effect came to my rescue and I prayed for a safe field landing at Hay on Wye. To my left possible salvation appeared in the form of a small, bald hill lying across the wind. I wound into it to give it a try. There was lift but only enough to maintain height by dint of hard work and continuous figure of eights.

High above, two gliders hung in lift that was out of reach. Disturbingly more rain was about to sweep in and cut off my escape to Hay Common. I wished I had posted off the overdue

In cross-country distance, Douglas has encircled the earth. He has flown more than 30 300kms but is yet to get a third Diamond due, he says, to preferring a cigarette to sniffing oxygen.



insurance cheque and a kind genie must have heard as a tight ragged thermal formed which allowed a cheek sagging climb on to the slope. I ran the ridge in true Talgarth style - low and fast. The clubhouse was turned in rain that rattled like hail on the canopy.

The journey north was one of dodging showers and using friendly slopes to make progress. Towards the Mynd the air took on a different feel. Yes the magic of wave was about! Thoughts of a 70 mile final glide excited my mind but it was not to be as I could not connect immediately and I could not spare the time to persevere.

Reluctantly I turned for home using thermals. Approaching Kidderminster I could see that a huge rainstorm had swept up the Vale of Evesham on a tide of cold sea air.

I wondered if I could glide across it to the dry

Cotswolds and asked "John Willy". He slowly shook his head so I elected to retrace my steps south over the higher ground until the Malvern and Bredon hills could be used as stepping stones across the valley. Over the radio I heard two Nationals pilots, both flying ASH-25s (well they were from Booker) struggling to turn Moreton. As this was not what I wanted to hear I turned off the radio. With increasing difficulty the Malvern hills were eventually gained and a glide to the Cotswolds commenced. When they were reached they were higher than the glider so I ran down the ridge to what looked like a landing at Bidford and a pint with Barry Meeks.

This would have been a pleasant way to end the day but there was a better one as I stumbled on the turbulence of a thermal about to be born near Honeybourne. I waited and was rewarded with a lovely smooth wide staircase home. It must have been the last of the day as not a ripple disturbed the air as I swept rather smugly past Moreton in the Marsh to an exhilarating finish at Hinton.

It may have been just another 300km flight for the mighty ASW-17 but it was one that I shall long remember as something special. ✉

If you have had a flight which had that special factor we would like to hear about it. But please keep it to a maximum of 750 words and include details of your gliding background (where you fly, the type of glider, hours and badges) and also a photo of yourself.

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GENESIS



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OCTOBER WAVE

Tom and Phil, a fellow meteorologist, compare two October days when there were record heights, giving you inspiration and plenty of time to book and plan your wave holiday

On October 8, 1995, Chris Rollings and Bryony Hicks flying from Aboyne gained an absolute altitude of 38 000ft in a DG-500. October has provided a height record before when Alister Kay and Kevin Wilson reached 36 164ft in an ASH-25 on October 12, 1990.

There were several interesting points about the 1995 climb. A comparison with 1990 showed that the general situation was similar for both high climbs. The chief difference was that in 1995 the low level wind was much stronger and the windspeed remained almost constant from about 5000 to 45 000ft. This is uncommon; most wave days have moderate winds low down with much stronger winds aloft.

High tropopauses and high climbs

In 1995 the air was unusually warm at low levels. On October 8 the maximum temperature reached 25.5°C at Prestatyn and 21°C at Inverness. Warm air often produces a high tropopause (this is the boundary where the stratosphere begins). High climbs seem more likely if the tropopause is higher than usual. It was unusually high for the 1990 and 1995 records. In 1995 it was about 45 000ft.

The 1986 world record of 14 938m (49 009ft) in Sierra Nevada wave over the Owens valley was also made on a day when the tropopause (measured upwind at Vandenberg) was even higher at 128mb, about 49 000ft.

Predicting lee waves

There are a number of mathematical models of varying complexity for predicting lee waves. For many years the Met Office has been using a highly simplified version which ignored the stratosphere and used just two deep layers of the atmosphere. This old model was quite useful for routine aviation forecasts but it could not handle the complexities of the real atmosphere. In particular it tended to produce poor results when the lower stable layer was shallow and/or winds were very strong at low level and did not increase much with height. These two problems made it unreliable on October 8, 1995.

Fortunately a new programme has been written which can handle up to 100 layers in the atmosphere including the lower stratosphere. Last year the Met Office began testing the improved wave model. A little note appeared in *S&G* asking for details of any wave climbs so that observations of rate of climb and predictions could be compared. This was just in time to include the record breaking climb. As a result this article was written in collaboration with Bracknell Met who supplied much information.

General situation: Fig 1 shows the surface chart for midday on Sunday, October 8, 1995. The British Isles lay under the warm sector of a frontal depression. An unusually strong south-westerly flow covered the country. A warm front had moved northwards overnight leaving a layer of stratocumulus which was extensive over Scotland at first but broke up during the morning. The cold front west of the British Isles was delayed by wave depressions. Cloud ahead of the cold front extended over the Hebrides and the western Highlands producing several layers extending up to cirrus level. Over most of the Cairngorms there was practically no cloud between the low level stratocumulus and the very high lenticular at 28 000ft near Aboyne.

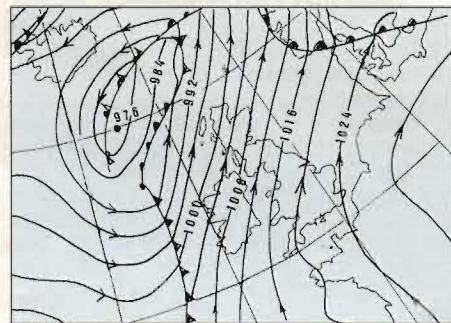


Fig 1. Midday surface chart of October 8, 1995.

Upper flow

The flow aloft is quite well illustrated by the 500mb contours (Fig 2). These show the airflow

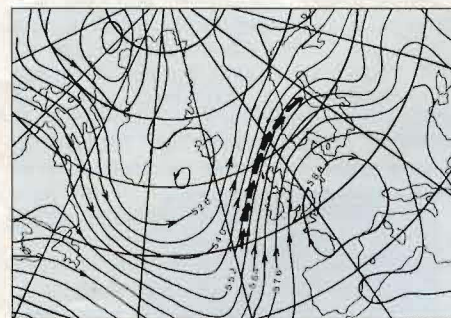


Fig 2. Upper flow at 500mb.

about half way up to the top of the climb. In the standard atmosphere 500mb is equivalent to 5574m (18 289ft) but since the air was warmer than standard the true height was nearer 5730m (about 18 800ft) near Aboyne. The jet stream (marked on the chart with a series of black arrows) was blowing along the front to the west and north of Scotland. The maximum speed in the jet core was probably about 150kt. The Faeroe Islands reported 147kt at 36 000ft but at

Stornoway the peak speed was 230/110kt at about 29 800ft. Speeds decreased over the Highlands; upwind of Aboyne the maximum speeds at Long Kesh (near Belfast) varied between 73 and 77kt.

Effect of a jet on lee waves

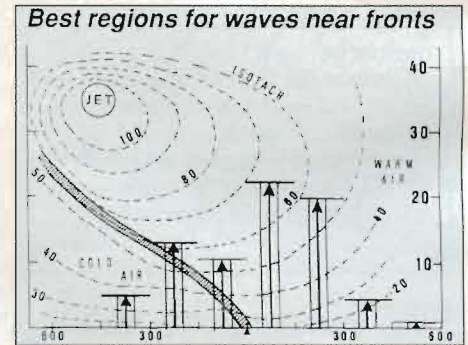


Fig 3. Best regions for waves near fronts.

The majority of high wave climbs have been made on the warm side of a jet stream. Fig 3 shows a cross-section of a jet stream above a frontal surface. The shaded diagonal line marks the frontal surface with cold air below and on the left. The pecked lines round the jet core are isotachs with speeds in knots. The vertical arrows show the number of climbs to Diamond height. The two tallest arrows lie on the warm side of the front well away from the jet core.

The very strong winds in a jet usually reflect wave energy back towards the surface, thus trapping the waves and making possible a long train of lee waves. However, strong vertical wind shears (often found near jets) reduce the wave amplitude. Anyone trying to climb high has a handicap; speed must be increased near the jet but this is just where the lift is dying out.

A remarkable feature of the winds above Aboyne on October 8 was that they were unusually strong at low levels but did not increase much with height. As a result, although 60kt was needed to hold position at the bottom of the climb, an IAS of 45kt was enough to crab sideways along the wave cloud at 38 000ft. The difference between TAS and IAS increases as the air becomes less dense aloft. (See Table 1.)

The actual winds aloft were between 65 and 75kt all the way from 5000-45 000ft. An IAS of

Table 1. Indicated and True Airspeeds (Assuming a Standard Atmosphere)

Mb	Ft	TAS = IAS x 1.16
700	9882	TAS = IAS x 1.33
500	18 289	TAS = IAS x 1.46
400	23 574	TAS = IAS x 1.64
300	30 065	TAS = IAS x 1.76
250	33 999	TAS = IAS x 1.95
200	38 662	TAS = IAS x 2.26
150	44 647	TAS = IAS x 2.76
100	53 083	

45kt gives a TAS of about 85kt near the top of the climb, which is quite enough to fly crosswind along the wave bar.

Temperature profiles

Fig 4 shows a plot of the 0700 temperatures above Long Kesh. This was the nearest station →

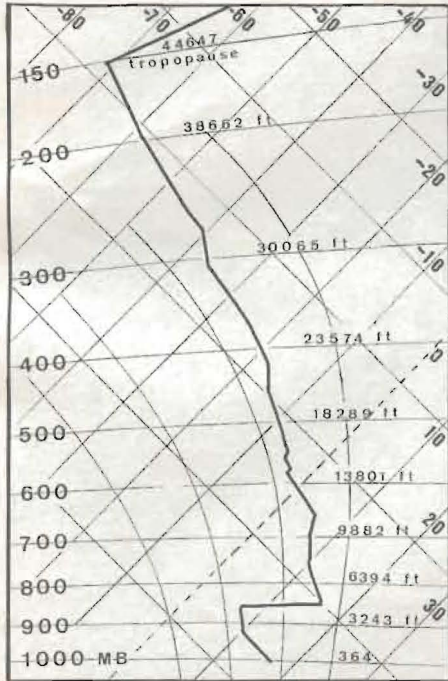


Fig 4. Sounding showing the temperature profile at Long Kesh at 0700GMT upwind of the climb area. There is a shallow inversion at low levels. The inversion at 153mb marks the tropopause.

upwind of Aboyne. There was a very marked inversion between 860 and 850mb (850mb was about 4675ft). Above this level there were only minor variations in the lapse rate; these may have been partly due to waves even further upstream.

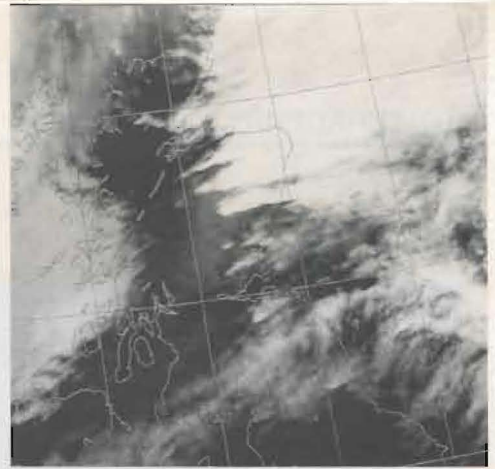
The tropopause was reached at 153mb (about 45 000ft) and shows up as a marked inversion. The weather ship GACA, which was just off the north coast of Ireland, showed similar temperatures but with a less marked inversion top at about 5300ft.

Satellite pictures

Table 2. Upper Wind Profiles					
The mean winds aloft between 05 and 1100GMT were:					
	Long Kesh		Ship GACA		
	54.5N 06.1W		55.4N 07.8W	55.4N 06.9W	
	0700	1100 GMT	0500	1100 GMT	
5000 ft	220/65	215/62	220/62	220/66	
10 000	220/68	215/64	220/65	220/66	
18 000	225/70	215/68	225/78	215/73	
24 000	225/62	225/73	230/74	220/75	
30 000	220/63	215/72	225/80	210/73	
34 000	225/62	210/77	230/82	210/69	
39 000	220/64	210/68	230/86	210/66	
45 000	235/64	220/70	235/88	220/65	

The photographs were supplied by Dundee University. Plate A shows an enlarged infra-red (IR) picture for 0723GMT on October 8. The colder the cloud the whiter it appears. On the left hand side there is high cloud along the west coast of Scotland. This was associated with the cold front west of the Hebrides.

There was a gap over the Great Glen before the next mass of high cloud covering NE Scotland and the North Sea. This high cloud is part of the very deep lenticular whose base was



Left: Photo A. Dundee University's satellite picture at infra-red wavelengths for 0723GMT on October 8, 1995, showing the dense cirrus over NE Scotland where the lenticular had a 28 000ft base and a top above 38 000ft. Right: Photo B. Dundee University's visual image at 1241GMT on October 8, 1995, showing the low level stratocumulus.

reported as 28 000ft with a top above 38 000ft. The westward pointing fingers presumably mark where the wave amplitude was less. Chris Rollings wrote that the rate of climb decreased westwards. This mass of cirrus had faded out almost completely when the next satellite pass came over at 1241GMT.

Plate B is the visual picture for 1241. This shows the low cloud, mostly stratocumulus with tops below 5000ft, which was too warm to show up clearly on an infra-red picture. Over the Grampians the stratocumulus lines lay from WSW to ENE which is roughly parallel to the main mountain ranges.

Faintly visible are short transverse billows lying across the stratocumulus lines. These are presumably caused by the wind shear between 3000 and 5000ft; they do not look like significant waves and the spacing of about 2nm is too short for a standing wave.

A more convincing set of waves appears over the Southern Uplands. They must be in the stratocumulus layer because they do not show up on the infra-red picture. These waves have about 10nm spacing. The satellite pictures give the impression of a rather irregular lee wave system. This is probably because the low level inversion was too shallow and the windspeed was too strong.

Inversion depths and wind profiles

Fig 5 shows three profiles of the windspeed versus height. October 7, 1990 (dotted line) was an excellent cross-country day when a 951km cat's cradle was flown. The most extensive wave patterns almost always occur when there is a deep stable layer with moderate winds at low levels and a marked increase of windspeed with height. On this day the stable layer extended from 5000-14000ft. The wind increased with height to give a maximum of 110kt at 32 000ft. This produced a good distribution of waves for a cross-country flight but rates of climb probably fell to zero below the level of maximum wind.

On October 12, 1990 (pecked line) the stable layer was less deep, only extending from 4000-9000ft, and the wind did not increase so much aloft. The maximum was only 82kt at 40 000ft. This gave good conditions for a high climb to 36 000ft.

On October 8, 1995 (solid black line) the inversion was extremely shallow with its top just below 5000ft. The low level wind was unusually strong (65kt at 5000ft) and did not vary much until the tropopause was reached at 45 000ft. Then speeds decreased in the stratosphere.

Wind profile and lift distribution

On an "easy" wave day with a deep inversion and a big increase of windspeed with height the

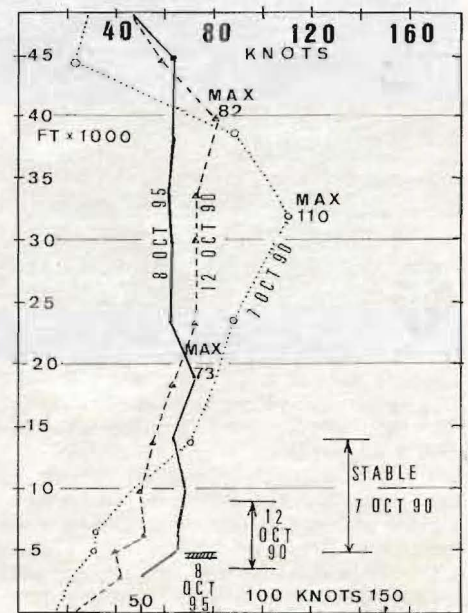


Fig 5. Three profiles of windspeed together with the depths of stable air.



Fig 6. Location of regular radiosonde reporting stations from the UK and Ireland to Thorshavn in the Faeroes.

best lift is often found at the top of the stable layer. Here the wave flow can become quite steep. As the wind increases higher up the wave becomes flatter and the lift decreases. With a jet stream aloft practically all the wave energy is trapped beneath the jet core and reflected back. Jet streams do not favour high climbs but they do tend to produce a long wave train.

If the inversion is not particularly powerful and does not extend high, the pattern of lift tends to spread over a greater depth. As the jet stream weakens the wave energy is no longer trapped; some escapes into the stratosphere. This is sometimes called the "leaky mode" to distinguish it from the "trapped mode". These leaky waves are officially called "vertically propagating waves". They do not extend far downwind but the lift may go up into the stratosphere.

Table 3. Observed rates of climb near Aboyné

Ft	Kt
5000	8
10 000	10
15 000	9
20 000	8 (Richie Toon found 14kt at this level)
25 000	7
30 000	5
35 000	3-4
38 000	1.5

This kind of lift distribution suggests that most of the wave energy was trapped and any upward leakage was small.

Table 4 Predictions from the New Bracknell model:

Time Station	Max vert spd	Wavelength	Decay Scale
0700 Long Kesh	9kt at 9000	11.4nm	321nm
1100 Long Kesh	7.5kt at 7000	8.8nm	2004nm
0500 Ship GACA	11.5kt at 18 000	13.8nm	237nm
0500 Stornoway	16kt at 18 000	17.8nm	90nm
1100 Stornoway	16.5kt at 18 000	17.9nm	127nm
1100 Valentia	12.5 kt at 12 000	12.0nm	341nm
0500 Boulmer	7.5kt at 6000	7.8nm	infinite
1100 Boulmer	6.3kt at 3500	5.4nm	infinite

Wave lift

The predicted vertical velocity is intended as a general guide for the area. For a single location it is necessary to take account of the local topography. In some cases downwind ridges may boost the wave amplitude if they are in phase with the wave or reduce it if in anti-phase. Isolated peaks sometimes set up a Vee-shaped "wake-wave" pattern which angles diagonally downwind like the wake of a ship. These diagonal wake-waves cross the more usual parallel wave bars from a straight ridge. In phase waves are boosted; out of phase waves are suppressed. Wake waves are usually rather shallow features associated with a strong inversion. None were visible on the satellite pictures.

Decay of waves downwind

The decay scale shows how far the wave train extends before the amplitude decays to 1/e. (e=2.71828 the base of Napierian Logs.) A long decay scale suggests most of the wave energy is trapped. This is often good for cross-country flights because the wave train extends much further and provides soarable waves far downwind of the mountains. Some wave trains have been seen to extend from Scotland most of the way to Norway. These waves may have gone even further but their amplitude became too small to produce more cloud bars.

Possible availability of a lee wave programme

A site-specific PC version of the new lee wave programme may be available later this year. Bracknell would like to know how many glider pilots/clubs would be interested in buying such a product if it became available. If you are interested please contact:- Mrs Jill Harmer, Aviation Market Sector Manager, The Met Office, Sutton House, London Road, Bracknell, Berks RG12 2SY, free fax 0800-252356.

Let's Learn From This

This is the first of a series written by the newly formed team of accident investigators (see last issue, p105), drawing attention to some of the more common accidents in an attempt to find out why they happened and how they can be avoided

A LACK OF SUPERVISION

The accident report narrative tells a not unusual tale:

Winch launched to 1000ft. Turned 180° back to field and high key point. Needed to lose 150ft at high key point. Made error in turning downwind and drifted away from field. Lost sight of field after 360° turn and had to land out. Selected field to land and on finals noticed wire fence dividing field, making it too short to land. Glider hit hedge at far end of field. (Pilot report.)

The background.

Age: 56. (We don't learn so fast at this age do we?)
 Total P1: 5hrs 28min, 28 launches.
 Total P2: 15hrs 5min, 121 launches.
 Last six months: 6hrs 17min, 16 launches.
 Previous solo flight: 48 days prior to accident.
 Last dual check: 74 days prior to accident.
 First solo: three years three months prior to accident (less than 2hrs/year!).
 Weather: 15kts crosswind, hazy.

The questions

Why no check/training on the day?
 Was pre flight briefing adequate?
 Was supervision adequate?
 Did anyone ask when his last solo flight or training flight was?

Some answers:

Nice person?
 Works hard for the club?
 Does not need check; we know his ability?
 I flew with him three months earlier.

Do you recognise this scenario at your club? If so, then do something about it.

It hardly seems surprising there was an accident. Would you get in a car with a driver this much out of practice? The club was unable to fly until the glider was repaired, so a small club loses revenue, members and practice.

It is hard to blame the pilot - after all if an instructor lets you fly solo it should be reasonable to assume he is happy with your ability.

How would the authorising instructor feel had this accident resulted in serious injury or death? He might be deemed to have been negligent in a legal process.

SAILPLANE & GLIDING

You can buy the magazine from most Gliding Clubs in Gt. Britain, alternatively send **£16.50**, postage included, for an annual subscription to the British Gliding Association, Kimberley House, Vaughan Way, Leicester. Red leather-cloth binders specially designed to take copies of the magazine and gold-blocked with the title on the spine are only available from the BGA.

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Wind speed and direction

Wind on track

THE FIRST ASH-26E

Frank is a full Cat instructor and normally based at Stratford on Avon GC. He has a Gold badge, two Diamonds and 1400hrs.



I first saw the ASH-26E when I visited the Schleicher factory in January 1994 and although I was not able to test fly it, I was so impressed I immediately ordered one. But as it had already had been such a success in Germany my delivery date was not until September 1995.

Clearly a great deal of thought and attention to detail had been put into this new glider by its designer Martin Heide and a number of new features appealed to me. The concept was for an 18 metre wingspan, which I believe is the optimum for a single-seater, together with a new highly efficient thin wing profile developed from wind tunnel tests to give a glide angle of just in excess of 50:1.

To reduce drag further there are four probes under the flaps feeding trailing edge flap blowholes - although not entirely a new idea, according to Martin and his tests they do work. Ergonomics and comfort were carefully considered and it has a large cockpit with an inflight adjustable backrest.

What also appealed was the reliable Wankel 50hp rotary engine. It is fixed in the fuselage with only the propeller extending on a light but strong pylon, driven by a toothbelt generating plenty of power for self launching.

Type Certification

Naturally I was keen to take delivery as soon as possible and thanks to Peter Hearne I was able to step into his delivery slot for June 1995 and in anticipation sold my Discus in late April.

Little did I realise the lengthy certification problems that lay ahead. By June Schleicher still hadn't been able to get certifications from the LBA (German's equivalent of the CAA) and without that they couldn't issue the necessary export C of A for me to import it into the UK. So Martin Heide spent two weeks just prior to and during the German national holiday going through the paperwork and German certification was finally achieved on August 7.

Being the first E version, once I had the glider in the UK the whole certification process started again, this time with the CAA. It was now the end of August and I had frustratingly missed the tremendous season. One would have thought that both the CAA and LBA, who are equally

pedantic (justifiably) about the structural and safety integrity of the glider world, would get their heads together to avoid this duplication.

It is helpful if you know what you are doing when dealing with the CAA and fortunately, having decided to have my instruments fitted by RD Aviation, Dickie Feakes knew exactly what to do. Schleicher then appointed RD Aviation to gain UK certification, but even with all the competent efforts of Dickie (with the help of Dick Stratton, BGA chief technical officer, and Ray Nimmo, CAA Luton) it still took until November 15 to get an Airworthiness Approval number.

Part of this certification progress involves test flying (already done in Germany) to a CAA schedule and following an aircraft assessment and an engineering survey, a "permit to fly" was issued. Derek Piggott was suggested by the CAA (although a little later the CAA test pilot also said he wanted to fly it - bureaucracy resolved by Ray Nimmo) and he completed this at Bicester under 8/8 cloud with a 3500ft base.

Derek was enormously helpful and drove from London to Bicester at a day's notice.

How well does it fly?

I'm sure Derek is the right person to comment (see the end of the article) but I must admit to some concern whilst waiting for delivery. For a year I had enjoyed some of the best gliding ever in the Discus. However, my doubts were dissipated during my first flight. It is an absolutely marvellous glider and a delight to fly.

Control co-ordination is at its best; visibility is excellent; it has the largest cockpit of any single-seater I've flown and it is very responsive. The roll rate is practically as good as the Discus and even with a somewhat higher wing loading, my initial impressions are that it climbs just as well and probably better with the thermalling flap. A glider without flaps can't possibly match the performance of those with.

It's very fast in the glide, again because of the higher wing loading and two high speed flap setting. Waterballast tanks are optional and probably not necessary for most UK conditions. It is reluctant to drop a wing at the stall and prefers to wallow. Approach control couldn't be better with the landing flap of 38°. Most importantly, it goes a long way.

It can be winched or aerotowed as well as launched under its own power. The engine is not only powerful enough to have you off the ground within 200m on a nil wind day, but will also give a climb rate of 6 to 8kts, which is useful in mountains, and it is much quieter than the Rotax.

STD LIBELLE WINGLETS

It has taken Hansjörg Streifeneder, head of Glasfaser Service at Grabenstetten, Germany, two years to get the LBA approval for his Std Libelle winglets. Built from carbon fibre, the winglets with skids, weigh about 200gm, the same as the original straight wingtip with its small wheel. It is reported that the winglets give better handling on take-off, when soaring and landing. They also improve the aileron response, helping to correct the Libelle's tendency to drop a wing, and they give more stability. And there is no loss in performance at speeds up to 85kt at least. A complete kit for retro-fitting is about 2500DM and installation may cost about 1500DM. Photo and details from Peter Selinger.

Cost

Best ask John Jefferies, Schleicher's UK agent, but when I ordered mine the exchange rate was 2.70DM to the pound. I made the mistake of not buying forward and had to pay a costly premium - I only got 2.22. Suffice to say that with a Cobra trailer and a few accessories the whole kit won't leave much change out of £100 000, but then I think it's worth every bit of my children's inheritance.

One final piece of advice. If you belong to a winch only site make doubly sure you will be able to launch, even on the wire. Planning approval may cause you some problems.

Derek Piggott's comments:

It was a great privilege to be asked to do the CAA/BGA acceptance tests for the first ASH-26E to come into this country. What a beautiful machine!

As is often the case with these tests, I had just about time to read through the Flight Manual and note the limitations and recommendations before climbing aboard for the first flight.

My impressions were mainly of the beautifully simple engine operation and the smooth running and relative quietness of the engine buried in the fuselage. As a glider it is wonderful!

The handling is excellent in every respect, with a docile stall, very effective flaps and airbrakes and, as the tests in Germany show, a really excellent glide performance.

In contrast to some of the early tuck away engine motor soarers, the ASH-26E has plenty of power and should have no problems operating from the hot and high airfields. A great advantage of this engine is that it will run smoothly and happily at less than full power, allowing you to cruise in level flight instead of having to climb and glide to avoid the rough running of a two-stroke engine at low rpm.

I was astonished to learn that the CAA didn't require more than a climb and general handling tests. Certainly if it had been tests for the BGA I would have wanted to fly it at aft C of G to check the handling and, in particular, the stalling and spinning characteristics.

I had some difficulty in raising and locking the wheel up until I was shown that it is only a matter of holding the lever with your hand twisted 180° (palm outwards). I still think it could do with a little bungee assistance, but this was the only suggestion or comment I had to make. Luckily I couldn't afford one so I was spared that anguish.

Thank you Frank for the opportunity to fly the first UK ASH-26E.



YOUTH - Get It And Keep It

The morning session at this year's BGA AGM was devoted to ways of attracting new blood into the movement. Max Bacon, chairman of the BGA Development Committee, who took the meeting, emphasised that membership is falling and there are fewer first solos and Bronze badges - all pointers to the belief that glider pilots are becoming an ageing population. Roger, BGA development officer, reports on this meeting and its conclusions.

The BGA urgently needs to recruit more young people and hang on to them. A confidential questionnaire sent to club chairman in 1995 showed that 80% of clubs replying operated some sort of cadet scheme, but only 48% had taken cadets to first solo and only 31% had kept their cadets beyond two years.

There were many contributory factors such as the increased cost of gliding, competition from other air sports, the effects of the recession and other socio-economic factors. Against that background the Cambridge University GC has been consistently successful with its cadet scheme and Mike Langton, who has run it for the last four years, was invited to explain why of the six cadets recruited each year nearly all had gone solo and 75% were still gliding.

Mike claimed the club's philosophy is that cadets must pay something for their flying if interest is to be maintained. In return for a fixed price flight of £3 in their first year and reductions to encourage soaring in their second and subsequent years, they give up a week's holiday to help run the Gransden Regionals. He believed that the younger applicants are generally the more successful and has been impressed by the way they respond to responsibility and mature in the company of adults.

Ideally, they should be local and able to travel to the club without parental support. Six a year is considered to be the minimum to operate as a team. Much of the success of the CUGC scheme is attributed to the care taken in recruiting and selecting.



A group of cadets at Llewenni Parc. From l to r: Dave, Rod, Henry, Max, Crispin, Georges, Danielle, Trevor and Steve.

Recruiting is via local radio and television, parish magazines, visits and presentations with carefully prepared handouts to local schools, scout and guide groups and the local ATC squadron. A five page application form, which takes over an hour to complete, weeds out the less enthusiastic. While applicants are being interviewed by a small panel, their parents are invited to see how the club operates.

Motivation and enthusiasm are the main qualities sought, together with practicalities such as time available (whether there are examinations in the next year), maturity, responsibility and whether they can afford to fly or are prepared to earn their share of the cost with a part-time job.

To develop team spirit, a ground school is organised where they are given a thorough briefing on operation procedures before venturing on to the airfield. They can then take an active and useful part straightaway.

A bonus is that the scheme has had unexpected benefits. The cadets turn up early so duty instructors also have to be on time. Public relations have improved as a result of advertising and recruiting in the immediate locality. Grant applications tend to be given more favourable consideration when youth and disadvantaged groups are given preferential treatment. Some of the earlier cadets have Silver badges and are progressing to competition flying and Junior Nationals standard. But those who go to university often find it difficult to continue gliding.

Plans to establish an independent and universally recognised association for glider pilots at colleges and universities were described by Henry Morris, who has formed the fledgling National Students GC (NSGC). The organisation began with the creation of the Manchester University GC. Other university clubs then sprang up as key members moved to other universities and the four present clubs became linked under one agreement.

The NSGC has an affiliation with at least one BGA club and aims to extend this so that members may glide anywhere in the UK as one organisation. Individuals are now negotiating to buy "slots" at clubs for the use of NSGC members, hopefully at preferential rates. Members

subscribe £30 a year to the NSGC to form a central fund for this purpose.

The long term aim is to have a fleet of solo gliders for members and for the NSGC to run competitions, initially upgrading the Inter-University task week, and ultimately to have their own site - though this is a long way off.

An independent survey of gliding clubs discovered that 70% were dissatisfied with their attempts at running cadet schemes. There was unacceptable wastage and cadets were hard to keep after going solo. It was found that the perfect time to market gliding to young people was the period between school and university. After that, both time and cash were very limited until the new graduate settled in his first job.

The conclusion from the presentation was that it was vital to take a more global look at the student glider problem to maintain UK pilot membership levels. The NSGC structure and system are up and running and a feasibility study has been made in association with the Manchester Business School. Sites will be contacted on an individual basis for inclusion into the scheme.

Mike Brook commented from the floor that clubs tend to be parochial in outlook and as young people are of necessity extremely mobile, particularly when moving to new jobs from university, a national approach such as the NSGC must be of benefit to the gliding movement. He encouraged clubs to give their support.

The discussion which followed from the audience of almost a hundred produced the following comments:-

- Personally support a cadet and enjoy being an indulgent "grandfather".
- Make an older glider (eg K-8) available free of charge to students.
- Arrange special summer activity weeks for scouts or school groups.
- Refund flying costs to the year's most successful cadet.
- Encourage air cadets to come to BGA clubs.
- Seek commercial sponsorship from local firms and double-up funds through Sportsmatch.
- Produce a BGA starter pack aimed at encouraging young people into gliding. (These will be available shortly.)
- Success depends on people. Everything ultimately depends on the man in charge. That is why it has worked so well at Cambridge. ☑

SILVER DISTANCE

We seldom use accounts of Silver legs unless something unusual occurs, but Steve (on the right) shows the frustrations of gliding in the UK so well, with the release of tension once airborne, we thought it worth printing



There is something slightly bizarre about climbing into an aeroplane you have hardly seen before and expecting to fly half-decent power off approaches into a field. The choice was not mine, however, and checking out for field landings in the club motor glider turned out to be fun and a practical demonstration of the challenges and pitfalls associated with landing out.

I had looked forward to this pre-Silver check ride for some time and it was a fairly tight squeeze as we bounced our way towards the launch point in the little red and white Super Falke. The briefing had been very good and now I just wanted to get on with it. We climbed out towards Benson and shot a few passable field landing approaches and one dreadful one before Management was satisfied and took us home.

The dreadful one involved a hesitant "shall we, shan't we" approach to a bright green narrow field in a valley. I don't know why I picked that particular piece of turf, but as Bernie put on the power and took over it was verbally reinforced, just once more, that one green field among all the big brown ones must surely contain some form of standing crop and should be avoided at all costs. Slightly chastened, we returned to Booker where I was signed off as roughly competent with the current field state which meant I had better get on with it before the farmers dusted off their ploughs.

It was a warm morning and I got held up in a gridlocked Marlow. Nearly all the club gliders were allocated by the time I arrived and I was left with the K-8. No problem. I'd had plenty of time in it at the Mynd so I pulled the little green glider out of the hangar, gave it a wash and brush up and towed it over to the busy launch point. Not that anyone was launching but there was an air of anticipation on the wind. The day looked identical to the last three to me but the launch point resembled a Heathrow holding point.

If I was in the money lending business I would hang around gliding clubs on days like that. I am

sure there is money to be made provided you choose your moment. On the good days, with frustrated aviators lounging on the grass waiting their turn for a club machine, I would wander up and offer them the ready cash to buy the glider of their choice - easy terms, of course.

A nice little fixed gear Pegasus would suit me, nothing complex, with room maybe for a rubber baseball bat to sort out, once and for all, the next loquacious pundit who meandered over to impart his unwanted advice. The monologues start innocently enough: "What are you doing today?" I was standing by a K-8, drawing a 4 1/2 in line on a half-million map and it was high summer, so he knew exactly what I was doing, but everyone else had stopped listening so he settled on another victim - me.

"Silver distance" I innocently replied. "Ah," he blathered, scanning the sky knowledgeable: a bit blue today with top cover coming from the south with a strong sea breeze front from the east and you'd better watch out for a late developing occluded inversion" or something useful like that. My silence eventually prompted him to wander away and motivate someone else.

Then a friendly instructor told me to just sit and relax and think about it until I was absolutely sure I was ready to go. This seemed like good advice so I relaxed in the shade of the dear old K-8's wing and looked at the map again, wondering why the military wanted so much airspace to themselves and what top cover might be.

"Steve."

It was spoken like an accusation so I braced myself for the next onslaught. "This is a club you know, you can't just sit there. Come and help at the launch point - Silver's going to be easy-peasy today".

I unwound from the grass, not bothering to point out the contradictions or that I'd spent the week retrieving gliders from all around the airfield with the club's well used ground equipment, and went and helped out at the crowded launch point.

This, surely, would have been the moment for the financial adviser to have stepped out from

behind the launch point bus and remind me that private owners are formally excused this mental torment. They seem to just turn up, find some poor sap to help them rig and then off they go - I longed to join them but couldn't put my hands on that spare £30 000 at that moment. It was tragic really. But I enjoy the physical activity round the launch point anyway and the long summer of 1995 left me feeling fitter than I had for a long time following a season spent dashing back and forth hooking on cables, running with wings, hauling gliders out of hangars and push starting weary old Ford pick ups with terminally flat batteries.

So I was darting about usefully when my name was called again. "Aren't you ready to go yet? Why aren't you on line - other people could be using the K-8 you know."

It was the same person who had told me to get up and help 30min ago. I'd given up bothering even to explain so I pulled out the K-8 and strapped in - realising during the contortion that I hadn't flown a K-8 for five years. Everything seemed to be in the right place so I decided to sit tight and give it a go. I was just a little heavier than five years ago but surely not any taller, but the canopy touched the top of my head when I pulled it closed.

I adjusted the rudder pedals, shuffled around a bit and then, bent to resemble Quasimodo, took quickly to the air behind the orange striped Piper Cub which clearly made light work of pulling the little K-8 into the summer sky.

The tow gave little time to adjust my seating position so I wobbled along behind, hunched awkwardly over the stick, thinking this wasn't going to be much fun if it took long to cover the 30nm between Booker and Enstone.

I'd spent much of the week flying the K-18 and Junior, gliders which, by comparison, gave me plenty of room. I simply didn't fit the K-8 so I fidgeted and slackened the straps, trying to find the elusive position of minimum discomfort.

I took one last look at the airfield and set off over the scorched, drought ridden countryside. I wanted to go north but the sky was as blue as could be and the only obvious sign of lift was out to the west, directly into wind, a fair way off track and gentle sink all the way.

As you know, when things don't work out you should have a field picked by 1200ft and commit yourself to landing at a 1000ft, so well out past the Stokenchurch mast, out over the prairie farmland of rural Oxfordshire I began to think that the game was finally up when I settled under a developing scrap of cloud. There was lift - it was weak - but I stayed with it, cranking around and around, the vario and altimeter creeping and bleeping along sympathetically.

(After an eventful flight with Steve describing himself at one stage as "a sweaty hunched gargoyle in dark glasses and a silly white hat" he reached Enstone for Silver distance and this qualified him to fly the Pegasus.)

The late afternoon air felt as thick as treacle as I popped the spoilers and swept in over the hedge at Enstone where they glide on a gentler scale. Unless my shaded eyes deceived me, I was sure a pundit was approaching and conditioned training prepared me for the opening line. But I didn't expect "Can I say what a nice landing that was?" And Enstone's Roy Brownrig even wrote it in my logbook - the man's a gent. ✈

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Road retrieves are an integral part of cross-country gliding. (For some pilots more than others.) For a successful flight prior planning, training and current practice are essential for the pilot. They are also the essential ingredients for a successful retrieve by the crew.

Pilots

Pre-season. C of A your trailer as well as your glider. Check the trailer tyres, including the spare, are free from cuts and other defects and have legal tread. Towing a trailer with defective tyres is not only dangerous but also a quick way to collect points on your crew's driving licence. Make sure the wheels run freely and the brakes and electrics work. Do I need to tell you to check that the fittings hold the glider securely? Generally clean, grease and oil as necessary. Take this opportunity to check the weight at the tow hitch. Too heavy will adversely affect the car's steering when braking. Up to 7% of laden weight is a rough guide, unless that is too heavy for you to lift or exceeds the recommendation in your car handbook.

Pre-flight. Don't assume that the rest of us have nothing better to do than retrieve you from the other side of the country on a Saturday night. Persuade someone over 18 with a full driving licence to act as your crew chief before you fly. Now there will be someone to raise the alarm if you don't get back or phone in.

If you have trouble finding a crew chief consider crewing for someone else for a change, or investing in a cross-country soaring course. Avoid "mutual" retrieves - its almost inevitable that you will both land out or you will have to retrieve after the longest, most tiring and dehydrating flight of your life. It has been known for the last pilot in a chain of mutual retrieves to get back to the airfield some time the next day.

Crews

Before setting off on the retrieve make sure you have got the right trailer. Persuade someone else to come along as well. Early solo pilots can often be persuaded that this is essential pre-cross-country training. It is illegal to use helpers as trailer fittings whilst on the move - even if you have forgotten the belly dolly.

Ideally the weight of the trailer with the glider should be no more than 85% of the towcar kerb weight, although up to 100% can be handled with care. The heavier the car and the bigger the engine the better, particularly if the trailer involved has a "reputation".

A passenger side door mirror must be fitted if the interior mirror view is obstructed by the trailer. You must have at least third party insurance for the trailer. Check the tyres, brakes and electrics. The trailer registration plate must be clearly visible and illuminated at night. It should match the car's registration too.

Secure the break-away brake cable. Make sure you have all the trailer fitting and rigging aids properly secured and the trailer doors will stay shut. If you lock the doors don't forget the keys. Plan your route to the glider, avoiding steep hills and narrow roads as much as possible. Trailers are not allowed in the right hand lane of three or four lane motorways, unless

ROAD RETRIEVING

Steve, who is a driving instructor and been on many retrieves, flies from Lasham. He has a Silver badge, Diamond goal, 250hrs on a variety of aircraft and a PPL

other lanes are closed. The national speed limits for trailers are 50mph on single carriageways and 60mph on dual carriageways and motorways, unless signed otherwise.

Try your brakes before you drive off the site to be sure that the trailer brakes are working effectively. Don't even think about towing a trailer with ineffective brakes!

On the road

Towing will expose any weakness or bad habits in your driving style. Sometimes in spectacular fashion. The overall length of your combination is as much as some articulated lorries, and heavier than you are used to. Give yourself time to brake earlier when slowing or stopping.

Drive smoothly avoiding both harsh braking and harsh acceleration. Allow three times the normal distance for stopping or following behind other vehicles. When turning or emerging at junctions take account of the extra length and lack of acceleration. The trailer wheels will cut in but the rear will swing wider on very tight turns. Check your door mirrors for other road users along side the trailer and look well into the new road for obstructions before you start to turn, particularly turning right.

Plan ahead to avoid sudden braking. Avoid braking, accelerating or changing gear on bends. On hills reduce the strain on your gear box by intelligent, frequent and early use of the gears. Reduce speed in high crosswinds, well before going downhill or in poor visibility. Keep both hands on the wheel, particularly when passing or being passed by high sided vehicles. Allow as much space as possible to avoid the effects of their turbulence or buffeting.

Never attempt to correct swerving or snaking by increasing speed, steering sharply or braking hard. The safe technique is to ease off the accelerator, grip the steering wheel firmly to resist the snaking, avoid braking and reduce speed gradually until it subsides.

At all times plan ahead and anticipate hazards by making frequent use of your mirrors and maintaining your concentration. Remember to make full allowance for the extra weight when accelerating or braking.

When returning from a field retrieve the pilot will probably not be the best person to drive, even if it is his or her car and trailer. After 5 or 6hrs in the glider, God knows how long in the field (pub?), de-rigging and carrying out of the field, the pilot is likely to be dehydrated (or hydrated as a newt), tired, hungry and perhaps "emotional". This is not the profile of an alert, attentive, courteous and safe driver.

Reversing

Take great care when reversing. Your view to the rear is very restricted. If possible position a look-out at the rear where you can see him or her. Reverse slowly, giving yourself time to keep a good look-out for other traffic and to assess the effect of your steering movements. In reverse the combination has no directional stability and will want to turn one way or the other, so small corrections will be necessary to keep straight. If you have to reverse from a road into a restricted opening, such as a field gateway, try to arrange to do it to the right. This will give you the best view of the trailer whilst reversing. During the manoeuvre you will probably block the road for a while. If possible station helpers to warn approaching traffic or place warning triangles well up the road in both directions.

Training

As glider pilots we are all careful to ensure that we have regular check flights and that we stay current. It's a shame more people don't show the same responsible attitude to their driving. Crash your glider and you will probably only hurt yourself. Roll a trailer across a busy motorway and it could be a very different and sadder story. As a professional driving instructor I run trailer towing courses for glider pilots. For more information speak to me at Lasham or call Advanced Driving Tuition on 01378 053261 at any time. ☑

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What Have They In Common?

We continue our feature showing how gliding appeals to so many different people for such a variety of reasons

THE JUNIOR

Daniel Jones
aged 13



Hi, I'm Daniel and I have just started flying gliders, mainly because of my dad who is a flying nut. He took up gliding last year and when he joined Kent GC I went along hoping to see him scared. He wasn't, but I was, so I kept saying no when I was offered a flight.

I kept going along and enjoyed some of it, like chasing the sheep off the field in the morning and the food at lunchtime. (We have good caterers at Challock.) After a few weeks I was brave enough to actually sit in an aircraft but it wasn't until a friend of mine had a go I decided to try it.

I suppose what helped as well was that I saw lots of flying and nobody crashed, apart from my dad, but he called them landings!

My first flight was off the winch and I was a bit worried. So much so that when the duty pilot called me over I nearly walked in front of a landing aircraft. Sorry everybody and I deserved what the pilot called me. (A suicide jockey if you must know.)

I now understand what people mean when they say that you never forget your first winch launch. I had been carefully briefed before and

seen lots of winching but the acceleration was still a big surprise. I am not sure I needed a seat belt. I gripped the seat cushion hard enough to stop any movement and no hands too!

I was quite glad when my instructor, Stafford, handed over as soon as we were off the wire so I felt in control immediately. The first thing I noticed was the smoothness of the motion. This I was seriously happy about as I am probably the most car sick a person ever. The most off putting thing was the way the aircraft banked over in the turns, which made me want to look the opposite way to the turn but I expect I will get used to that. I did nearly all the flying but not the take-offs and landings and after the first few minutes I enjoyed every bit of it.

I was lucky enough to fly first on a day when the ridge was working so my first flight was 12min and the second 15 which was all my dad could manage later that day. (Watch out I'm catching you up already!)

I enjoy being at the club but would like to make a small point. The club gives me a year's free membership and half price launches so as a whole junior members are being encouraged, so it is a shame more young people aren't involved. Perhaps all clubs should think about the number of junior members they have and try and encourage more.

I want to get in as much flying as I can this summer (that means as much as my dad can afford). I know I have much to learn but as I cannot go solo until I am 16 I have plenty of time.

THE LEARNER

Ken Jones



I have to admit to starting gliding in a round-about way. All things flying have fascinated me since a small child and no, despite allegations from my family, I did not see the Wright brothers first flight! My opportunity came when I got to that age when life begins, well it certainly did for me because my wife and children bought me some power flying lessons. She claims it was to "get it out of my system" - well it didn't work!

Flying first in a powered aircraft has its advantages but after I had used up the pre-paid time the problem became apparent. COST! There followed a very frustrating time when I could not afford to fly.

Eventually after investigating various forms of flying, including microlights (no cheaper) and motor gliders (none nearby), I decided to take a trial flight at my local gliding club.

A long wait on a warm Saturday afternoon found me in the cockpit of a K-13. From my lofty experience of seven power hours I felt I could cope with what was coming. I can honestly say that I was with the launch all the way until somebody signalled all out! I thoroughly enjoyed the next 5min and it left me wanting more so it must have been a success.

My next contact with gliding waited until last June and took the form of a one week course at Rufforth in Yorkshire. This was enormous fun but it left me a little disappointed as I was then convinced that I had learned little from power flying. A big downer was that I never even got to do a complete circuit without assistance. However I did get a chance to have a try at motor gliding. I now have a wonderful photograph which raises a sweat on all my friends with PPLs. There we are firmly over the middle of York with a stationary prop in front of us. (We were actually in a 7kt thermal at the time.)

After this I joined Kent GC and the day arrived to fly for the first time as a full club member. Here I must make a confession and a public apology. The instructor, wanting to know my previous experience, specifically asked if I had been doing the take-offs from the winch. Before I could think about it some fool using my mouth had said yes. Now the learning curve in this circumstance becomes near vertical and all credit goes to the instructor, Tony, sitting patiently in the back seat with some fool trying to pretend he knew what he was doing up front.

The beauty of my devious scheme was that having done my first launch it was assumed that I would do all from then on, so my duck was broken. Since then I would like to report that my progress has been swift and sure. I would like to report that but the various instructors I have flown with would probably insist they were bought large amounts of beer to stop them laughing.

There have been many high and low points to date; the worst has got to be some terrible landings when I got out of the aircraft to see the instructor checking the undercarriage for damage. The best flight was the day I finally faced my fear of spinning, and thanks to good briefing and clear instruction would now do it any time for fun!

One thing I have discovered is that there is more to gliding than flying - learning to drive the winch has put a new dimension into what I do. How about making some winch training obligatory for everybody? It might even help!

My progress book now has more than half the entries needed for solo filled in and what I am hoping is to complete all the dual syllabus by spring so I can get some good flying in during the summer. The best bits are that I can now actually afford to fly and what I am learning is more extensive than I would have learned sticking to powered aircraft.

So roll on the summer!



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I had declared 500km and was on my way from Sleaf to my first TP at Swindon when I realised I had started too late and was going too slowly - the story of my life. It was time to give up this competition stuff; I am never going to fly a really long distance, so I decided that under the Geriatric Pilots' Rules one is allowed to land at TPs. I would complete the course, but potter around it gently in my own time.

Turning Swindon M4 intersection, I set out cautiously for Lasham, although caution was not really necessary in that hot August weather. I was made very welcome and avoided myself of nosh, bar and bunk. Everyone I met thought that this was a good way to do a 500km, but did I see a look of scorn on the face of one obvious pundit?

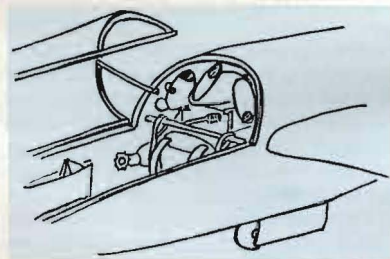
I parked my ASW-20 on the grass outside the hangar overnight, and next morning got an aerotow once soaring seemed to be established. Actually the huge fleet of red K-13s, which were being launched very fast, were not quite soaring, which gave a false impression. I struggled at first at a ceiling of 1800ft above the field and it took an hour for the thermals to reach 4000ft. Then I set out.

My next TP was Compton Abbas. I spent several minutes finding and photographing my nephew's farm nearby; this was in the correct sector, but anyway the Geriatric Pilots' Association is very relaxed about TP photographs. I set off northwards, past Bath and the Cotswold edge to Nympsfield. This was another day of easy flying, with only one slightly low point half an hour out of Lasham.

After another convivial stop-over at Nympsfield, I had only 130km to potter home the next day. The weather was still hot and the thermals would be reliable after noon, so it would be easy. But it wasn't. My 2200ft tow at 1.30pm left me in completely dead sea air to the south of Gloucester. I set off immediately eastwards towards two small clouds and scratched along the Cotswold edge, finding only the briefest burbles of lift. At Birdlip I was down to 200ft above the hill edge. I circled twice around the bowl in front

541 KM (EVENTUALLY) - With toothbrush and Teddy

It was the nice young Scots lady I met at the bar at Lasham who told me that I was doing a Toothbrush and Teddy Trip - this being all the luggage you can fit in a glider



of the Hot Air Balloon pub and the viewpoint, just holding my height and cursing - I was going to have to land at the bottom of the hill, and I had no retrieve organised.

Then I found I was gaining 50ft in each circle. By the time I had shifted my circles a few hundred to the east, I was in the sea breeze front. Then it was easy. The altimeter spun and the vario screamed at 8 or 9kt steady lift up to cloudbase at 7000ft asl. I could see a huge circle of frilly little clouds marking the edge of the sea breeze, probably far beyond Chipstow and right round the Severn valley to the north. I set off at 55kt, at the best angle of glide on course for Sleaf.

After sitting still for what seemed a very long time, in hazy air, somewhere around Kidderminster I did find thermals. Then at Bridgenorth - I think - I met the other side of the sea air and went back to 7000ft.

It was now an easy glide home. My glide calculator indicated lots of height, the GPS told me where to go and I needed my horizon to keep level because of the murk, but I still felt com-

pletely lost. Then I got a glimpse of Telford and another of Shrewsbury. I was home.

I had thoroughly enjoyed pottering around the sky and I had done 541km - well, I had, sort of. But the massive dose of adrenalin at Birdlip was not at all what I had in mind.

Footnote. In the Geriatric Pilots' Association all flights are self-certified and all badges are to your own design. To join the GPA you just have to say to yourself: "I want to join" and immediately you become a lifetime vice-president (like the US Confederate Air Force, where all members are honorary colonels). You do of course have to swear to abide by the Association rules - which you make up as you go along.



The specially designed "Teddy Trip" badge, as encouraged by the Geriatric Pilots' Association rules. Both drawings by Tony.

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REMEMBER - ORGANISE YOUR CREW EARLY!

The British gliding movement (which, at least for this discussion, includes the BGA, RAFGSA clubs and the RAF Air Cadet organisation) goes to considerable efforts to prepare the new pilot to deal with unexpected and emergency situations. These include training in stall/spin/unusual attitude departures (eg the so-called stall reinforcement exercises), winch launch failures of a number of different varieties and off-field landings. The underlying philosophy is that it is better in advance to train the pilot to identify the potential problem and how to deal with it rather than leaving matters to chance. This way the first time the pilot encounters the emergency for real he/she is not dealing with it for the first time. However, there appears to be a significant, and possibly life and equipment threatening, gap in the supposedly seamless system.

On aerotowing a lot of time and effort has, quite rightly, gone into trying to prevent tug upsets in the vertical or pitching plane. Indeed, I have just learned that we also have to be concerned about horizontal upsets (see David Storer's article "Lateral Tug Upsets" in last August's issue, p214) which clearly need attention as well.

However, one area of potential mishap seems to be omitted from the practice of this philosophy. It appears somewhat strange that the pilot is trained in such things as emergency signals and the like on aerotow, but other than perhaps in briefing, never gets the opportunity of practising premature termination of the tow (PTTT) - rope breaks, tug failures, out of position releases, to mention but three - as part of that training. OK - so we may take a look at the suitability of fields just upwind of the airfield, but perhaps not even that; the rest seems to be left to chance and good luck - both poor instructors when the chips are down.

The various training books cover PTTT in relatively sparse detail. However, that's not the whole story. Despite the fact that on aerotow there are at least as many potential causes of upset as there are winch/autotows, PTTT is rarely, if ever, actually demonstrated or carried out as part of aerotow training. Going through my old logbooks and my BGA, RAFGSA and ATC instructor courses which dealt with aerotow training, I was never once asked to do, or shown how to train a student to cope with, a simulated PTTT emergency in practice. Since then I don't ever remember seeing a simulated PTTT. With the lack of detailed guidance in the literature, this is perhaps not too surprising.

Depending on the configuration of the airfield (primarily the length of take-off run), the power of the tug, the weight and performance of the glider and the wind strength and direction, there is some likelihood of PTTT occurring at a height/position from which it is not possible to land safely back on the airfield. For most or all of the time that the tug and glider combination is below, say, normal circuit entry height, following a PTTT it is perfectly possible to land safely back on the airfield if the pilot has been properly trained. On the other hand, it is quite unrealistic to expect a pilot to cope safely if never trained to do so, nor recently practised it.

PTT can conceptually be divided into four distinct situations:

Case 1: PTTT at low level while it is still possible to land ahead on the airfield, when the tug should move to the left and the glider keep clear to its

A THOUGHT ON AEROTOW SAFETY

Dean is convinced there is a gap in pilot training which could be potentially dangerous - there is seldom the opportunity to practise the premature termination of the tow

right while coming to a full stop. (Fig 1.)

Case 2: PTTT at a height/position from which it is not possible to land safely back on the airfield and where an outlanding is the only course which can be safely accomplished.

Case 3: PTT occurring above the lower of the two critical heights, the height above which it is safe to execute a 180° turn and land back on the airfield - minimum 200ft agl, and possibly higher; and

Case 4: PTTT which happens above the higher of the two critical heights when it is safe to fly a mini circuit and land back into wind on the airfield.

The critical heights depend on available field length, wind strength, tug power, glider weight and performance and the like. The Case 4 (mini circuit) procedure should be used from as low a height as possible consistent with safety. A 180° turn and downwind landing may risk running through the downwind fence if the wind is at all strong (the angle of climb on tow into wind is normally greater than the angle of glide downwind, sometimes even with airbrakes open). Case 2 (outlanding) may not be relevant depending on the size of the airfield and other factors already mentioned. Presumably because the risks outweigh the benefits, I am not aware of the simulated Case 2 situation being practised anywhere.

Cases 1 (land ahead on field) and 4 (mini circuit) likely don't require further elaboration, but Cases 2 (outlanding) and 3 (180° turn) probably need a little closer examination. At any height above the maximum from which the glider can safely land more or less straight ahead on the airfield, ie including Case 2, the drill is not too dissimilar from that following a winch launch failure: **pull the release, lower the nose to achieve and maintain the correct airspeed, check height and position, then execute the plan you should have already made prior to take-off.** Despite the advice in the **BGA Instructors' Manual** not to drop the rope, I feel the safer course is to do so immediately.

Bearing in mind that it may be the whole 150+ft towrope and that nose hooks aren't usually designed to back-release, I believe, quite apart from the risk of upset to the glider if the rope snags, that people and objects on the ground are more likely to be injured or damaged by a dragging rope than a free falling one.

In a Case 2 (outlanding) PTTT, once the drill has been completed it is necessary to make an approach and landing into one of the club's pre-designated Case 2 outlanding fields; at least I hope they have been inspected and pre-designated. These may change from time to time as a

result of crop planting, stock and the like. If there are **no** suitable fields, I'm not quite sure what to say. I can only assume that the club's management has decided that the benefits of aerotowing under these conditions and the low probability of a PTTT in the Case 2 height band outweigh the potential risk of injury or death to pilots and severe damage to equipment. Unless this is so, it would appear difficult to justify the continuance of aerotow launching at that site in those conditions. A couple of words of caution :- if you are just on the margin between Case 2 (outlanding) and Case 3 (180° turn) and there is a good safe field ahead, that may be a better option than turning back; and if the wind is very strong, Case 3 may not be a safe option at all. In a Case 2 situation, like any other field landing, the glider should be brought to a full stop with as short a run as possible using full airbrake and wheelbrake - the shorter the ground roll, the lower the probability of damaging the glider by striking a hidden obstruction.

In Case 3 (180° turn) PTTT, first complete the drill. After that, the glider requires to make, at the correct airspeed set up as part of the drill (the same airspeed as would be used for a normal into wind final approach in the prevailing conditions), a co-ordinated medium (40-45°) banked 180° turn to line up with the extended centre line of the runway or other safe landing area on the airfield. (Fig 2.) Once the glider has been lined up with the runway or landing area, the airspeed can be reduced to the minimum permissible approach speed for the glider, but subject to adding any appropriate safety margin to deal with low level turbulence, if anticipated. The glider should then be flown to land clear of all aircraft and other obstructions on the ground. Once firmly settled on the ground, full airbrake and wheelbrake should be applied; in the case of gliders which sit tail down, this should be restricted to the maximum which can be applied without pitching the glider forward on to its nose.

A word here about downwind landings is in order as, except in very light winds, they are done very infrequently. A normal into wind approach is made at a speed which is a calculated amount above the stalling speed or the best L/D speed of the glider (let's say, for sake of example, the approach speed is 50kt.) The ground speed on the into wind approach will be that speed minus the windspeed; in the example, assuming a 15kt wind down the runway, the groundspeed would be 35kt.

However, if the approach is made downwind, the groundspeed will be the approach speed **plus** the windspeed - in the example, 65kt.

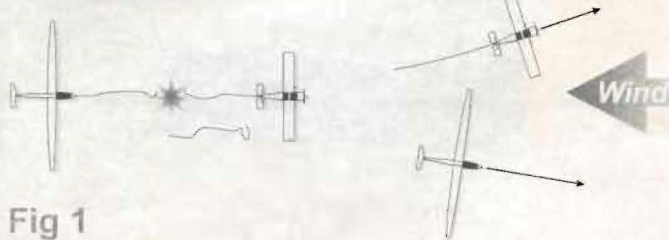


Fig 1

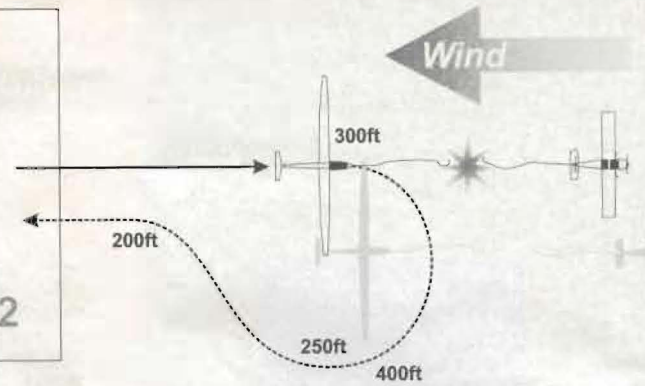


Fig 2

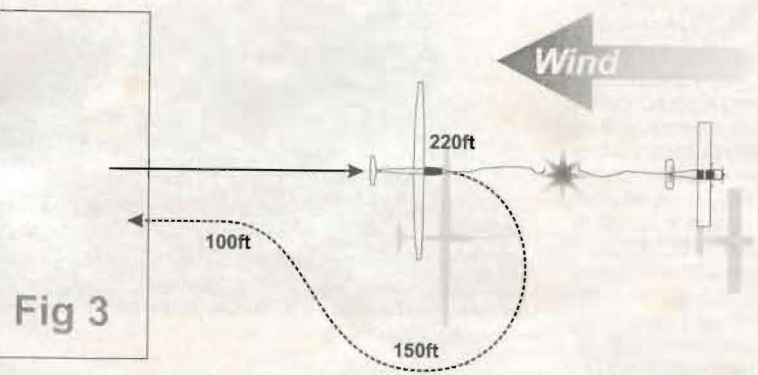


Fig 3

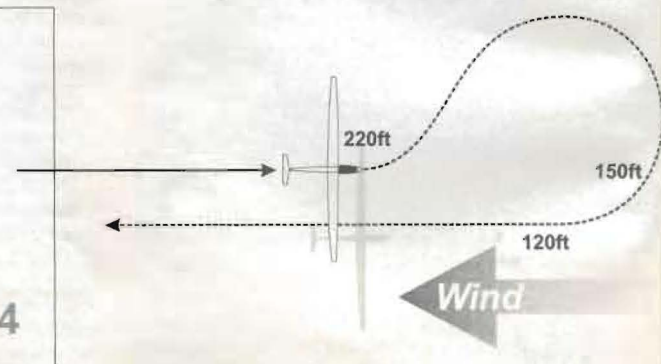


Fig 4

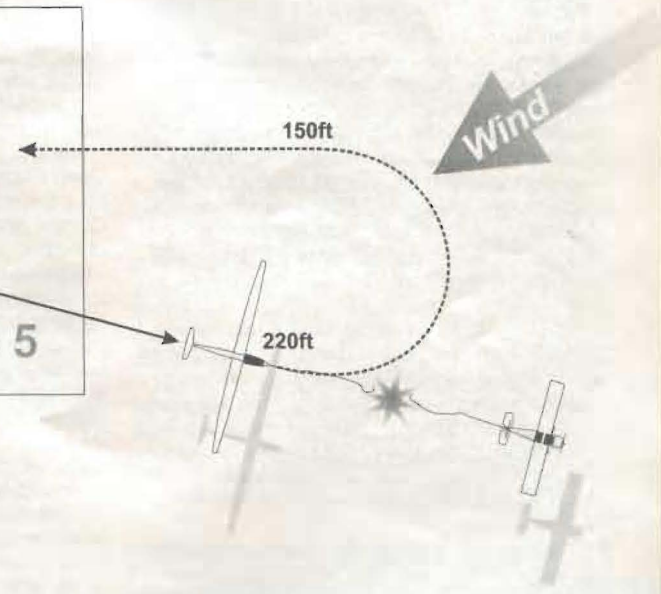


Fig 5

Drawings interpreted by Steve Longland.

Particularly when close to the ground, the unusually high groundspeed (about twice the normal) may delude the unwary pilot. He/she sees the speed as much higher than usual, raises the nose and slows the glider down, risking stalling on the approach or a heavy arrival as a result of the lower airspeed giving insufficient elevator control to round out fully before touchdown.

Landing downwind, effective control will be lost about the time when the groundspeed has reduced to the surface windspeed (in the example, 15kt) and the airflow has ceased going from front to back over the glider's control surfaces. At this point only inertia is preventing the glider from becoming an unguided missile with ineffective controls. This means enough space is needed for it to have room to decelerate from that point to a full stop without the possibility of it reaching anything it could collide with regardless of the direction in which the glider may elect to go. As a departure in this configuration may take the form of a violent groundloop, the premium is on stopping as quickly as possible to give the least time for external forces, especially the tailwind, to take over from the inertia keeping the glider straight and level, hence the advice to brake hard. I have heard the theory advanced that it is possible to retain control using the glider's controls in reverse, but I have yet to see anyone with sufficient presence of mind or fast enough reactions to do so successfully in what is usually a highly charged situation. It is also a good idea to try to cross the upwind boundary at a relatively low height and land in the first (upwind) half of the field, as judging the length of the ground run is often difficult and that part of the field is more likely to be clear of gliders and other potential targets.

Especially just above the lower critical height, if the PTTT occurs close to the extended centre line of the runway (assuming a narrow field) a simple 180° turn may leave the glider not lined up with the runway and requiring a possibly hazardous low level manoeuvre to line up with it. (Fig 3). Assuming obstructions do not make it inadvisable, the safer course is first to turn away from the centreline so that the glider is sufficiently offset from it to be able to make a simple 180° turn to line up with the runway centre line. (Fig 4.) This allows all the turning to be completed earlier while still at a safe height with a good wingtip clearance above the ground and, hopefully, above the worst of any wind gradient.

In a crosswind the tug pilot should be briefed to drift to the downwind side of the extended runway centreline so that a PTTT can be dealt with more easily by requiring only a simple 180° turn towards the wind, resulting in the glider being more or less lined up with the extended centreline of the runway. (Fig 5.) If the tug pilot does not do this, it is essential that the offset manoeuvre is made away from the wind and that the 180° turn is made towards the wind, otherwise the crosswind will cause the glider to be far off-set from the centreline when the turn is completed. All this emphasises the prime importance in the early stages of every aerotow of knowing your position relative to the extended runway centreline, and what the wind is doing.

A word about preparation. After completing the CBSIFTCB pre-take-off vital actions, what about take-off planning checks? I use WASP - WIND strength and direction. AFFECT of wind on tow and circuit. SPEED approach speed following PTTT. PLAN PTTT critical heights; emergency mini circuit.

These are the mechanics. Much more important is the principle. The emergency may happen. Simulated training of this sort can be practised safely. A pilot who is in current practice dealing with such an emergency has a much higher probability of accomplishing a safe recovery when the real emergency occurs. So why isn't it universally practised? Why is there a gap here in the training system? Perhaps it is because the vast majority of British glider pilots train up to solo and beyond on winch or autotow launches and only later convert to aerotow.

Contrast the situation in the USA where well

over 90% of all glider pilots train and go first solo on aerotow. There it is expected that the pupil will demonstrate competence in dealing with simulated rope breaks before being allowed to go solo.

Now is the time to take a closer look at your aerotow operation. Don't just look at what the books and club rules say and perhaps what is taught on instructors' courses. Look and see what is actually done, or not done. When was the last time there was a simulated rope break and downwind landing practised at your club? If the answer is not for a long time, it's time to close the gap in the system. ❏

INTERNET MET PROJECT

There is a study to explore Met Office aviation weather services on the Internet which would supplement MetFAX Aviation and the MIST PC service. The Met Office already has a generic home page (<http://www.meto.govt.uk/>) attracting thousands of users daily, with pilots as a priority for developing specialist services.



Could have been God's.

What distinguishes America from other countries, especially the cynical and worldly Europeans, is a serious belief that everyone is a gentleman who tells the truth, at least till proved otherwise. For example, on my first US visa application years ago was a question which clearly expected a frank and honest answer: "Is it your intention to overthrow the government of the United States by force?" After some thought, I decided the right answer was almost certainly "No", though I knew a chap who still got his US visa after writing on the form "Sole purpose of visit."

The US visa form I filled out this February was different from the 1950's version. It asks: "Are you involved in drug smuggling, gun-running, espionage, terrorism or genocide?" and "Are you entering the US to take part in immoral activities?" A natural response might be to write in answer to the first question "Only at weekends" and to the second "What have you got on offer?" but I chickened out.

What is interesting is that a desire to overthrow the US government is no longer a disqualification for entry, maybe because at least half the US population share that desire, and a few more of the same persuasion coming in disguised as tourists won't make much difference.

Doing their own thing

In gliding it is the passion not only for openness but for unaided individual achievement that is very American. In my first soaring contest in the USA I heard one pilot innocently say "I'm at Sweetwater and doing fine" and a voice boomed out of the sky which could have been God's, but it was a contest committee-man, rebuking the pilot for giving out information that might help some contestants to the disadvantage of others. I was impressed by this sportsmanlike discipline and the blessed radio silence that is the result (the chatter during a British Comp is unbearable, but I can't bring myself to switch off in case I miss something tactically useful) but I also pondered "Is this the way to produce World Champions for the 21st century?"

One disconcerting moment for me in that same first US competition was when we were all

PLATYPUS

struggling halfway down the mountainous first leg of a triangle in weak blue thermals, and suddenly it was announced "the Contest Committee have unanimously agreed to change the task to a POST." Of course I had not read the rules for a POST (pilot selected task, loathed by us Europeans as far too chancy, because you don't know whom to follow), thinking that if one were announced I would have 20 minutes or so on the ground to get up to date with the rule book. It turned out that the Contest Committee then lit off in six different directions. Bereft of ideas, I pressed on with the assigned task and ended up soon after in a horse farm.

The point is, in any other country I would have suspected skulduggery. In fact no other country would entrust a selection of the competing pilots with the authority to make such a decision, especially in mid-air. Whether it gave the Contest Committee some quiet satisfaction to leave the visiting Brit to find his own lift for a change, I don't know; I'd rather not think about that.

Gentle, parfit knight

That brings me to a ferocious article I once read in *Soaring* magazine by a Mr George Moffat, which really made my ears burn. Surely this cannot be the same person as the charming, somewhat shy, man of the same name that I met at the 1996 SSA Convention, twice World Open Class Champion. This article denounced the contemptible practice of "leeching" in Comps, and said that pilots who were not smart enough or brave enough - or honourable enough - to go and find their own thermals should stay away from contests altogether, and stop impeding the progress of the real pilots. His advice has obviously not been heeded, otherwise every contest organiser in the world would have been bankrupted, and Championships, even at the highest level, would have become very lonely events.

So aristocratic was the tone of this piece that I was not surprised to find in the history books several distinguished knights and barons called Moffat across hundreds of years of English and Scottish history. In my mind's eye I see the year 1296: a mounted Crusader, accompanied by his squire, is proceeding along a dusty road in the general direction of Jerusalem, but, as is traditional, pausing *en route* for the occasional duel and the loot, pillage and other customary perks of the job. Suddenly he stops and looks round:

"Squire, what is that rabble trailing half a mile behind us?"

"Those, my lord Moffat, are a bunch of peasants who are waitin' for you to do battle, then just as you are about to enjoy the spoils of victory they'll be all over you trying to pick up what they can get for free, without 'avin' ad to fight for it."

"Ugh, how disgusting! Tell them if they get in my way they'll feel the point of my lance. They're nothing but a lot of, er, um -"

"Leeches, my lord?"

I have just had my spellchecker restored by my secretary after the latest system upgrade. (Upgrade, hah! It destroyed great swathes of files and applications.) I found Word 6 did not accept Brit. "Try Brat? Or Brute? Or Bait?" it suggests wisely. Incidentally, it doesn't recognise "spellchecker".



What is that rabble?

TAIL FEATHERS

In recent years Platypus has spent in this issue ruminates on the gliding

"That's just the word, leeches! I shall issue a proclamation in the next edition of *Jousting*, banning these parasites from all tournaments and crusades."

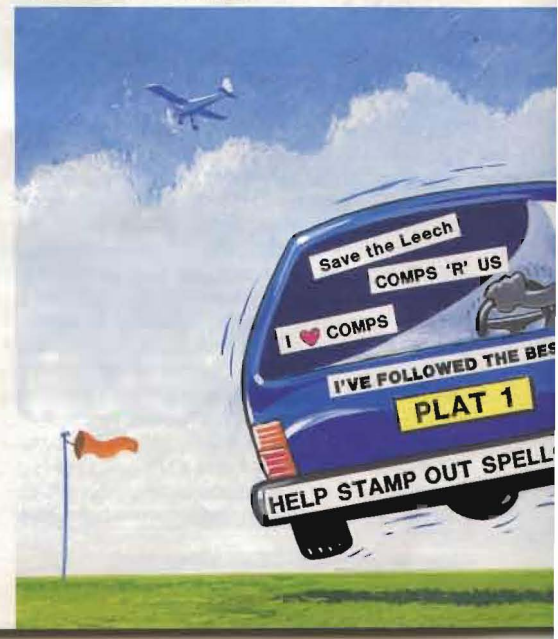
"It won't do no good, my lord. The leeches you have with you always"

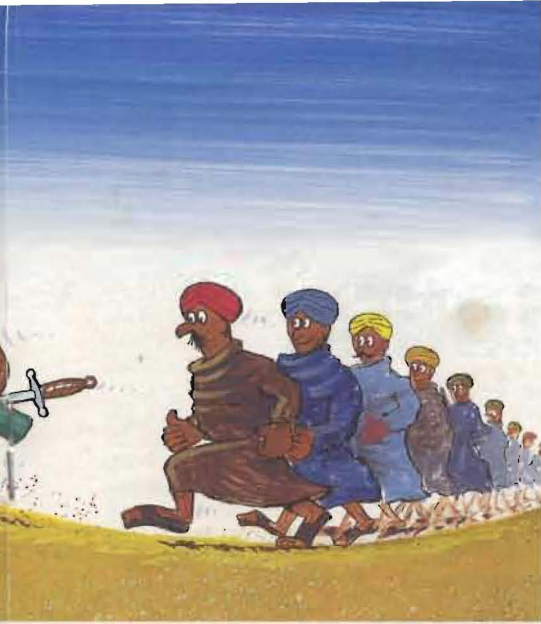
And it came to pass that the squire was right. The leeches have bred like wildfire. They are a very successful life form. Not surprising, really: survival, not heroics, is the name of their game.

Let's hear it for us leeches and hangers-on

Can I say in mitigation that we second and third rate pilots do not go to contests for the joy of grinding the other fellow's face, which is what I know motivates the top guns. We go for a soaring holiday, in which we get what many of us don't get at our home airfield - organised launches, expert weather forecasts, intelligent task setting and, best of all, lots of thermals

Platypus loves Comps.



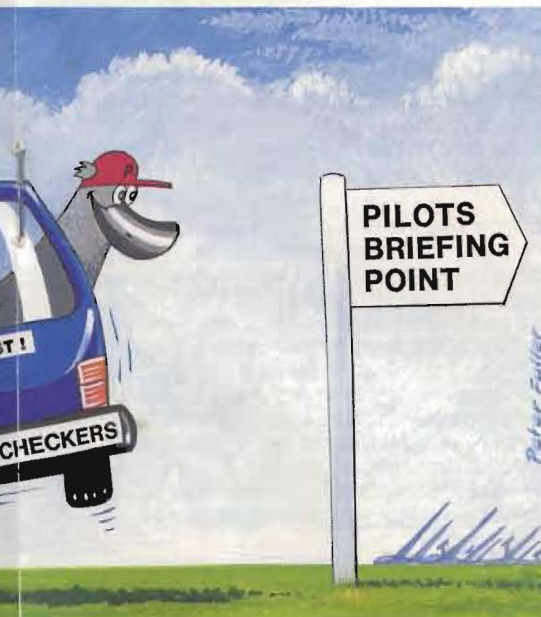


a lot of his flying time abroad and
ing scene worldwide

marked by pilots better than ourselves. We peasants keep the contest from losing money and give the real pilots somebody to triumph over.

The complete cads are at the top

The real problem nowadays - and here I would like an ominous rumble of bass fiddles like the music in Jaws - is the behaviour of top rate pilots to each other in the world at large. I once had an angry letter from a friend in another country who says he was robbed of first place in his National Championships by blatant leeching. In other words he was looted, pillaged (and the rest) not by third-raters but by other highly competent pilots. And I know the same has happened in World Championships. These days it's not the unwashed peasants who bushwhack the nobility, but the princes of soaring. No wonder Hans-Werner Grosse has turned his back on such shenanigans.



It matters not how you play the game, but whether you stitch up the other fellow

Here is a lovely (if that's the right word) example of the modern competition mentality. In a foreign Nationals some while ago they set the first ever 1000km task set in any country. Imagine the excitement! You might think they all would have set off on the very first thermal of the day, to make sure they had any possibility of getting round. You would be wrong. The peasants, and those in old gliders, and the other no-hopers started early, but the experts, the only ones with a real chance - they indulged in gamesmanship, making dummy starts then coming back for another go and generally fooling around watching each other. Not surprisingly, nobody got round. The top pilots ran out of daylight, falling short by just around the amount of time they had wasted before the start.

It's pass-the-bucket time

When I heard of this awful exhibition I said to a senior competition pilot "How stupid of them all!": and he went quite mad. "Don't you see that it's perfectly intelligent behaviour? It doesn't matter if everybody ends up in crocodile-infested swamps in the pitch dark and takes three days to get home: so long as your tactics result in the other guy getting fewer points, you have flown brilliantly. That is what competition flying is all about!" All I could say was "Pass me a bucket, I think I'm going to throw up".

All the same Platypus loves Comps, despite the way they bring out the worst in human nature. (Funny, the spell-checker says "Delete despite, replace with precisely because of." This damn computer is getting ideas above its station. What does it think it is, an editor? *You mean Editor, Ed*).

Grateful thanks to...

When I was a guest at the SSA Convention in Seattle in 1993 my only task was to perform the after-dinner cabaret. In the Huntsville Convention 1996 I did that again (it's the funny accent that does it) and also gave a slide show in one of the working sessions with the title of "Innocent Abroad" which ran lightly across gliding experiences in seven countries. (This doubling of duties had better not be a trend.) The trouble with doing one's holiday snaps for a gliding audience is that you never take your best camera on the best flights: you've got too many other things to think about to worry about keeping an aesthetic pictorial record, and a hefty reflex camera in the cockpit is a positive menace in strong conditions. So I had to cheat a bit: a good third of my slides were borrowed from friends who had visited the same sites in a more leisurely fashion. Now is the time to thank, in alphabetical order, Quiller Barrett, Marion Barritt, Jean-Renaud Faliu, Tony Hutchings and Pete Stammell for the loan of their excellent transparencies.

On the horns of a dilemma

The hospitality of the Americans is justly famous. I thought that as a beneficiary of so much kindness over the years it was time I reciprocated, so at the Huntsville SSA dinner I issued a gen-



Gave a slide show.

eral invitation to hundreds of glider pilots and spouses to visit me in London - though please not all at once. I have now got five people coming at various times and the letters are still flooding in. One in particular requires the honour of a public reply.

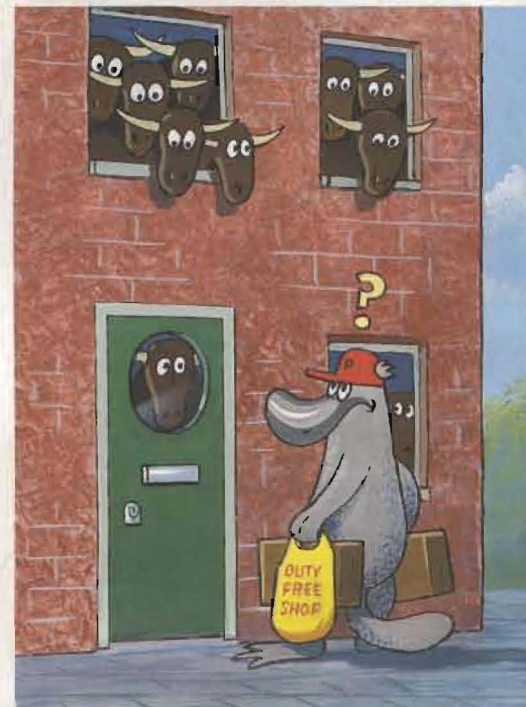
"You will be happy to know that I've blocked off all of June and the first two weeks in July to stay with you. Menu follows, as I am rather a fussy eater. Best, Chuck O".

I have written back:

"Dear Chuck. Will be delighted to have you stay with me. However I said nothing about feeding people. I ought to mention that I feel it is my patriotic duty to eat my way through a mountain of condemned British beef. This carries a one in ten million chance of mad cow disease, or in the case of visitors from Texas and Nevada, mad cowboy disease. Best wishes. Plat."

I forgot to add that guests are welcome to bring their own steak, though preferably not on the hoof, since London town houses are very narrow and would be claustrophobic accommodation for steers brought up in the wide open spaces. ❑

Claustrophobic accommodation for steers.



Reading through the accident statistics, I am struck yet again at the proportion associated with field landings. Of those pilots involved in field landing accidents, several had a respectable total of hours. It may be that their field landing resulted from having to fly on a difficult day in competitions, or it may simply be that the Met turned out other than forecast.

Whatever the background to the incident, it is hard to avoid the conclusion that field landings will always be laced with an element of risk to man and machine. So although pilots should take every opportunity to practise in readiness for the eventual need to land in a field, there seems to be no convincing case for hurrying on the day when a field landing has to be made in earnest.

Recently several writers in *S&G* have reminded us of the usefulness of motor gliders as a means of training for cross-country flying and, in particular, of practising field selection and circuit planning in readiness for that unscheduled arrival on terra firma. This seems like very good advice and likely to keep most CFIs at cross-country minded clubs happy, although I think it would be possible to debate whether motor gliding over the plentiful fields of March (as I have known some do) is a proper rehearsal for the cross-countries of early summer.

I cannot agree with the instructor I met on a gliding week some years ago who said "If you are not landing out on 50% of your tasks, then you are not setting yourself the correct challenges". His remarks were not unusual. In my short time gliding, I have noticed that where cross-country flying is concerned pilots are generally overcautious or incautious. And behind them is the advice to get out there and go for it.

The incautious are liable to land in fields regularly as part of their personal development, and the overcautious are likely to take longer developing cross-country skills and may even be put off altogether. Surely the important thing is to learn to fly safely, to take time to get to know your personal weaknesses and, finally, to enjoy the unique experience of gliding. In addition, we now have to add to that the need to appreciate what some stories suggest is a growing antipathy from landowners towards glider pilots landing on their fields.

From reading some of the *S&G* Classics I have the impression that the likes of Philip Willis were possessed of a greater sense of sheer enjoyment and wonder than many glider pilots today. There does seem to be a tendency nowadays to think that you should take the magnificent experience of gliding in your stride without any show of emotion, and without displaying weakness by admitting to being emotionally out of control whilst up there. Even so, the old spirit does survive and you can recognise it in many ways from the enthusiastic support given the Wolds Two-Seater Comp, the deliberate choice of a K-8 for the odd 300km, through to the enthusiasm of some notable CFIs.

But what, you may ask, do field landings have to do with acquiring a sense of wonderment? Well, everything and nothing really. I don't think you could make a convincing case for saying that field landing accidents would disappear if pilots simply slowed down but if we re-evaluated our goals we could get more pleasure from cross-country flying and in the process reduce

I WANDERED LONELY AS A CLOUD

Mike, a keen Silver badge pilot and member of Oxford GC, finds he is all but grounded by the demands of three small children and says he probably spends more time writing and thinking about flying than actually being airborne. But with most of the soaring season ahead he passes on some of the ideas he has found helpful in the early stages

the chances of ending up in a far away field. So for those who, like me, regard themselves as cross-country novices, here are a few thoughts. I should add that it is always assumed that the committed glider pilot longs to unravel the mysteries of cross-country flying and to fly ever longer tasks. And, most important of all, we should remember that the first priority is to fly safely and competently.

From living room to home base

Instead of declaring a task at your home airfield, why not declare one from the comfort of your own living room? You'll be surprised at how this concentrates the mind. Instead of accepting the advice of various pilots of varying ability on the flightline, you will become inclined to obtain the latest Met forecasts for your task areas(s) as well as checking with Airmet.

This worked beautifully for me on one of my few cross-countries when several experienced pilots flew their last leg into a late forecast advancing layer of stratus and landed out whilst I and a handful of others who had checked with Airmet went the other way and got round - in one case a 500km triangle. I should add that my achievement was a very modest 100km but still...I hardly get out to fly at all at the moment, but it still gives me satisfaction to listen to the weather, watch the sky and then make an educated guess at how a given day will turn out. Slowly but surely my ability to judge the weather is improving and I'm already reaping the benefit of this when I do occasionally get out to fly.

In summary, study the forecast at home. Study the sky *en route* to and over the airfield. For short tasks, set for what you see but if different from the forecast look for contra-indications (eg cirrus, instability etc) and consider the implications.

Go upwind

Instead of flying your first task leg downwind in the weak lift at the start of the day, try flying it into wind instead. Although not a practical strategy for achieving long cross-country flights, this approach can be more prudent for newcomers to cross-country flying. If you can make reasonable progress into wind in the weaker lift at the day's start, you should be pleasantly surprised by your progress flying downwind in stronger conditions later on. And if things don't go so well,

you can beat a wind assisted retreat back to home base, secure in the knowledge that any time you find zero sink to circle in you will be drifting closer to your airfield.

In contrast, I've witnessed several occasions where novice cross-country pilots have been elated by their good progress downwind only to be dismayed and disheartened by their inability to make progress back to anywhere once they start flying into wind. The end result is usually an away landing.

To get the best out of this last idea, try arranging your task to take you closer by your home base around the half way point of the task. Again, most advice seems to suggest this is not a good idea. The reasoning I think is that a pilot might find it too tempting to give up and land back at base. This may be true for some, but my personal experience has been that the half way point helped me assess my progress. Finding it to be satisfactory my morale was greatly boosted and I was spurred on to complete my task. And again this approach increases the opportunities for abandoning an unsatisfactory task and landing back at home base.

Forget early summer

Early summer is the worst time of year to be doing emergency field landings. So why bother getting upset about missing a great day in late May or early June. Surely this is the time to be topping up the training you did in March by hopping into a motor glider and seeing if you can select and circuit into the right one of those now very green fields. Or practising your thermalling skills and strategy more or less within gliding range of home base. Or possibly just sightseeing (see next paragraph).

Enjoy the view

If you can afford to commit to the cost of GPS at the start of your gliding career - well lucky you. If you think that just having a 1:500 000 map in the cockpit will make navigation easy - well unlucky you. For any pilot, but certainly novices, any cross-country that takes in highly visible landmarks for TPs has got to make life easier. Let's hope they don't close Didcot power station. So why not make sightseeing the focus of your task. I've often listened to pilots eulogising about how beautiful this or that cathedral spire looked bathed in sunlight as they rounded their TP. Or

maybe there are neighbouring gliding sites you would like to take a quick peep at (beware dis-used airfields though: they may look great from 2000ft but...).

Using visible landmarks to ease your navigation workload and landable landmarks to reduce your dependency on fields, your overworked brain should find more time to concentrate on staying aloft and, who knows, perhaps even a moment or two to pause and take in the scenery as you pass it by. Have a chat with the club's experienced cross-country flyers about what makes a good line, point or landing feature rather than trying to go it alone.

To fly or not fly the club task

A thorny one this. If your club sets tasks for soarable days, should you blindly follow their suggestion or use your own judgment? You can't expect much sympathy if you go your own way and get it wrong. And yet the task setter is only human and is almost certainly at a more advanced and adventurous stage than you in their cross-country career.

If you have been spending sufficient time reading up on cross-country technique and rehearsing your plans for your next cross-country, then I think that on balance you should not be afraid to cross-examine the reasons behind the setting of the recommended task for the day. If you do that with the correct amount of diplomacy, you should be able to take-off with your alternative task noted and approved by the task setters.

And finally...

When you are obliged to push it, perhaps because you have succumbed to the lure of competition flying, your early days spent flying tasks back to your living room should have imbued you with a well developed sense of what the day is likely to throw at you and a well rehearsed sense of how you are likely to handle it.

Chris Rollings, senior national coach, comments: Mike's article is interesting and contains some very good advice, but also in my view some more questionable suggestions. "Get some field landing in a motor glider" definitely - but before the best day of the year if you possibly can! Don't sit at home waiting for a good day to make you think of field landing checks.

"Make sure you get the best and most up to date weather information" - good idea, but look at the sky too and for short tasks set for what you see! Downwind first is nearly always the best way to go for what is thought of by the pilot as a long task. Into wind first on a long task is usually just a way of saying "I don't want to start yet."

Middle of the task near to home to "increase the opportunities of abandoning the task and landing back home." This results in the abandonment of many tasks that could have been completed.

Field landings are an attendant nuisance and hazard of cross-country flying. Mike's advice will

reduce the number of outlandings you do (if you take it). It will also reduce your cross-country kilometres flown and chances of successful badge flights. Your choice!

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Glide To The Shopping Centre



Faced with the age old question of how to raise the profile of gliding and attract new members we recalled that Northumbria GC had displayed a glider in the Metro Centre car-park with good results. We found that the central atrium of the Bon Accord shopping centre in Aberdeen would be ideal. The management, after a little persuasion, warmed to the idea of having an unusual display and we used the atrium for a week in February. The normal £1000 fee was waived but we had to meet their "all risk" insurance requirements, as well as having our display manned at all times and "looking professional". We initially wanted to have a glider suspended from the central dome but the insurance costs for the public passing underneath the glider changed our minds. To get the illusion of gliders soaring, the local model glider soaring club agreed to loan us 6ft and 8ft wingspan models. We rigged a club single-seater, put up a windsock, had a television showing continuous gliding videos and display boards giving information about gliding and our club.

We had four club members manning the exhibition during the week and six at the weekend, and even then welcomed help from Highland GC members on a shopping trip. The TV and video were loaned in return for publicity for the company, plus two flights. Air BP provided the windsock and our local radio station gave a gliding feature coupled to a competition every morning.

Was it worth the effort? Yes, you only had to see the look on the faces of the children who queued to sit in the glider to know it was. We had over 300 firm requests for additional information on gliding, more than £800 of air experience flights were sold and we gained two new members during the week. The Centre also deemed it a success for them, attracting more customers to the complex and they have invited us back.

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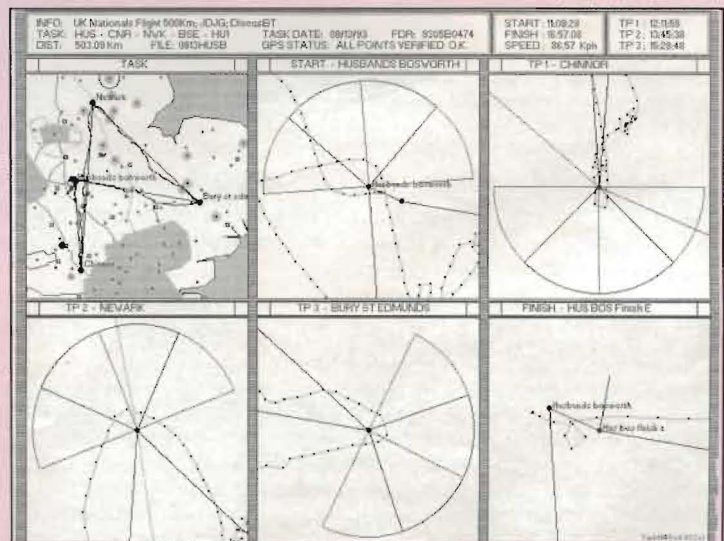
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GLIDING IN THE SERENGETI

Hugh recalls some of the unusual experiences between 1967 and 1973 at the Serengeti Research Institute's small, informal gliding club. It was first mentioned in *S&G* in 1967 when Colin Pennycuick wrote about flying an imported T-31 in Tanzania. Hugh, who managed the Institute, learned to power fly in 1961 to help him as a wildlife biologist and went solo in a Tutor at the Cornish GC in 1964

I acquired a damaged T-31 from the Nakuru GC in Kenya which was repaired by an elderly Sikh who had worked on DH Rapides. Meanwhile Colin, a student of bird aerodynamics and an experienced glider pilot, joined us to research on the energetics of soaring birds. He took a welcome interest in the T-31 as a potential research tool and, luckily for me, in my progress as a glider pilot.

On what was probably the first glider flight in Tanzania, Colin was autotowed and soared the Serengeti thermals for over 2hrs. He was to discover that the vultures' airspeed and L/D ratios were just a little lower than those of the T-31, making it suitable for his initial flight measurements. He equipped the glider with an array of extra instruments, including a torpedo-like pitot which he suspended about 4m below him, clear of the turbulence caused by the aircraft. With a camera mounted on the struts behind his head, he took a timed series of photographs of vultures as he slowly overtook them, with the instrument panel included in each picture.

However, as useful encounters with vultures were infrequent, the answer was a motor glider. Eventually Colin was able to persuade a television company, who wanted his help in making a film about the birds, to go into partnership and buy the ideal machine, a K-14. The film which resulted has been seen by many glider pilots.

I occasionally flew the K-14 when Colin was flying the cameraman in the Piper Cub and vice versa. Colin's work, particularly on bird flight and migration, was recognised in 1992 when he was elected a Fellow of the Royal Society and, recently, an Honorary Companion of the Royal Aeronautical Society.



Colin Pennycuick and Ros and Fenella Lamprey with the T-31 and Super Cub. Photo by Hugh.

Colin left east Africa in 1973. I moved to Kenya the following year and later bought the K-14 which has given me many years of enjoyable soaring in East Africa and, since 1990, in the UK.

(Hugh writes about passing his Bronze badge under Colin's instruction; of climbing in strong lift in the front of a cu-nim and hitting what he thought was a termite nest on landing, only to find it was a sleeping hyena - without damage to the glider.)

The Serengeti Plains are the habitat of a huge number of large animals and it was not surprising we had interesting encounters with them. The airfield is a mile long grass strip mowed by the gazelles and other grazing animals which had to be chased off with cars before aircraft arrived. Glider launching normally kept the animals away but landings sometimes had to be made in the gaps between the herds.

On one occasion a topi antelope ran across the strip and carried the moving wire off into the bush about 200 yards in front of the T-31 as it became airborne. At about 50ft the pilot had to release.

A leopard chased the cable, held on and was winched to 30ft before dropping unharmed

In a similar incident, as I was being launched in a strong breeze, a leopard sprang out of the long grass and chased a ball of grass caught up by one of the repair knots in the wire about 150 yards in front of the glider. We left the ground and I expected the leopard to give up the chase, but it held on to the knot and was lifted by its front paws. When it got to 30ft I decided to descend rather than release and drop the animal from that height. At that moment it let go and after landing neatly on four feet, ran off into the grass and we continued with the launch.

The large areas of short grass on the plains were landable although termite mounds and warthog burrows had to be avoided. I normally carried a small tent and equipment for an overnight camp in case I landed out and Colin could locate me by homing in to a small transmitter of the kind we used to track large animals.

Colin was an official observer and encouraged me to attempt my Silver badge in the K-7, our second glider. As the destination for the Silver distance appeared I found that I was at 11 000ft, climbing in wave which must have originated from the highlands over 200 miles to the east.

The Serengeti region supports large populations of soaring birds, including five species of vulture, resident and migratory hawks, eagles, storks and pelicans, all of which use and largely depend on the thermals.

Hundreds of Ruppell's griffons use invisible lift streets between their Rift valley nesting cliffs and their feeding areas on the plains. On some cloudless days I took advantage of the afternoon processions by following them as they carried full crops of carrion back to their nestlings.

Most of the birds tolerate gliders in their thermals although pelicans and, to a lesser extent, storks, tend to shy away from a close approach. I have had many instances when vultures and eagles have joined me in a thermal.

They normally take timely action to avoid collisions but I have had a kestrel break the leading edge of the K-7's wing between two ribs. And several of the larger birds of prey may be aggressive and sometimes fly straight at the glider or swoop on to it from above.

Although they swerve at the last moment, this can be alarming, especially if they touch the glider with their talons. On one occasion a lapet-faced vulture, the largest species in Africa, made repeated attacks on the top of the T-31's wing, concentrating on a red doped fabric patch which suffered some scratches. As I couldn't see how much damage had been done to the top of the wing I thought it best to land. Sometimes I had the impression they were taking a friendly interest. I remember a young martial eagle appearing beside the cockpit of the K-14 in a thermal, flying alongside a few feet away and looking intently at me through the perspex.

Many in the Serengeti were introduced to gliding and found the experience of the open cockpit and the low sound of the airflow highly exhilarating.

The added enjoyment of watching undisturbed wildlife from the air and having the opportunity to fly with the birds made gliding in the Serengeti a rare privilege.

Sadly, Hugh died recently (see p174) and we use this article by kind permission of his wife. ☑

THE 200KM/H BARRIER BROKEN

James Payne (USA) is claiming the world record for the first 100km triangle in excess of 200km/h. He flew a Discus A from California City on March 22 at 235.3km/h beating Ingo Renner's 1982 record of 195.30km/h.

BGA AGM & DINNER

This year the annual get together was in the same area but at the Stakis Hotel, Northampton from February 24-25. The Saturday morning programme, under the guidance of Max Bacon, chairman of the BGA Development Committee, concentrated on ways of encouraging young people into the sport with presentations by Henry Morris, National Students GC, and Mike Langton, who runs the Cambridge University GC's cadet scheme. (See p153.)

The AGM was better attended and more lively than for many years with a good level of debate, particularly about motor glider training for the new cross-country endorsement.

It was sad to say goodbye to Don Spottiswood after six years as BGA chairman. He was thanked for his "experience and wisdom" by Dick Dixon, the new chairman, who presented him with a decanter on behalf of the Executive. Don was also elected a vice-president.

Chris Hancock, Keith Mansell, Chris Pullen, Paul Rice, Stephen Sampson and Terry Slater were elected on to the committee.

Dick presented BGA diplomas to Tom Bradbury and Harry Middleton.

Tom joined the Met Office in 1941, partly to be near aeroplanes, and got into gliding through the RAFGSA. Since then he has made an outstanding contribution to gliding.

Thousands of soaring pilots have benefited from his knowledge of Met and his ability to present this complex subject so clearly in textbooks, articles and photographs.

Harry is the manager/CFI of The Soaring Centre at Husbands Bosworth and was previous the chairman and CFI. He has been one of the best managers in recent years and much of the success of Husbands Bosworth as a gliding site has been due to his efforts and leadership.

The site also hosts BGA courses and competitions and, the citation adds, "we should like to recognise Harry's contribution on behalf of local, Regionals and Nationals pilots".

With Dick Dixon in the chair, a very useful safety presentation was given by Bill Scull, Chris Pullen and Tim Scorer, an insurance lawyer and chairman of the General Aviation Safety Council, to round off the afternoon.

The dinner was extremely pleasant with light entertainment and a witty speech by Tim Scorer.

The annual award winners were as follows:-
Wakefield (longest distance) and **Seager** (longest two-seater flight), C.J. Pullen (London) and C.C. Rollings (Booker), 1009km in an ASH-25 on July 22; **De Havilland** (maximum height), C.C. Rollings with a flight to 37 730ft in a DG-500 at Aboyne on October 8; **Frank Foster** (fastest 500km), with a flight of 106km/h over 504km in an ASW-24 on April 21 and the **Manio** (fastest 300km) with 113.4km/h over 316.9km in an LS-6wL on August 9, Dave Watt (Booker GC); **Volk** (longest O/R), 509.6km on August 28 in a Nimbus 3DT and the **Enigma**

(National Open Ladder), J.L. Bridge (Cambridge University GC); **Furlong** (longest triangle), Ray Payne (Bristol & Gloucestershire GC) for 700.9km in a Discus bwl on July 22; California in England (**longest flight by a female**), G. Macfadyen (Bristol & Gloucestershire GC) for 524.5km in a Sport Vega on July 22; **Rex Pilcher** (earliest Diamond distance), A.R. Hyett (Heron GC) on April 21; **Firth** Vickers (National Open Ladder runner-up), T. Macfadyen (Bristol & Gloucestershire GC); **L Du Garde Peach** (National Weekend Ladder), Richard Palmer (Bidford GC); **Slingsby** (National Weekend Ladder runner-up), G. R. Glazebrook (Cambridge University GC) and **John Hands** (services to competition gliding), T.A.M. Bradbury (Bristol & Gloucestershire).

DEVELOPMENT NEWS

Northumbria nail-biter

Northumbria GC has succeeded in buying its site at Currock Hill with the aid of a 65% grant from the Lottery Sports Fund (LSF).

This has been an interesting saga and not without its worrying moments. Following a meeting last June the club negotiated to buy the 84 acres of reclaimed coal mine workings from the Coal Board and applied to the Sports Council for a LSF grant.

Great care was necessary. First the sale agreement had to contain causes to protect the club from any possible future pollution claims under the Environmental Protection Act. Secondly, it was important to provide convincing reasons to the Sports Council why the club should buy the site, which it occupied on a secure lease with 13 years still to run.

An excellent development plan produced by Colin Sword (and which with Colin's permissions has provided a blueprint to help several other clubs) supported the application, but time ran out. The Coal Board's solicitors demanded that contracts be exchanged and the sale completed before Christmas, otherwise the deal would be lost. Frantic telephone calls followed as a result of which the Sports Council provided a "without prejudice" letter of permission to proceed and the site was bought, on borrowed funds, on December 15.

It was not until March 11 that the Sports Council announced its decisions to support the project with the maximum level of grant funding. Now at last we can talk about it and with future site security assured, the club can embark upon long term plans for growth and development.

Upgrading the fleet with lottery money

The Lottery Sports Fund (LSF) has awarded eight grants to gliding clubs, five for gliders. Until now the funding for upgrading the club fleet has been uncertain. The Sports Council (SC) has always insisted that replacement aircraft constitute revenue funding and are thus ineligible for grant aid. On the other hand a genuine upgrading should qualify for support. How then do we differentiate between a genuine upgrading and a replacement?

The SC has now clarified its policy. For instance if a club wishes to replace an old K-13 with a brand new K-21 the cost eligible for LSF support is calculated as follows:-

Let x = Cost of "like with like" replacement; *ie*, cost of "as new" K-13 less sale of old K-13.
Let y = Cost of full upgrade;
ie, cost of new K-21 less sale of old K-13.
Then $y - x$ = Cost eligible for LSF support.

If the eligible cost is clearly shown, preferably at the project brief stage, then a major portion of the cost of replacing an old club glider with a new and improved version is eligible for support with up to 65% grant funding.

Roger Coote, BGA development officer

BGA 1000 CLUB LOTTERY

The **March** draw results are: First prize - J.R. Edyvean (£58) with the runners up - Mrs E.A. Dawkins, R.H. Dixon, G. Leat, F. Strathern and T.J. Mitchell - each winning £11.60. **April**: First prize - J. Stanley (£57.75) with the runners up - D. Johnstone, S. Bradford, J. Tait, R. Bickers and C. Bainbridge - each winning £11.55.

CFIs' NEWSLETTER

You may well be interested in the following extracts from the newsletter Chris Pullen, as chairman of the BGA Instructors' Committee, has sent to CFIs.

Cross-country endorsement. Since the BGA AGM this endorsement is now mandatory. All pilots gaining their Bronze badges will need a cross-country endorsement before they deliberately fly cross-country. CFIs may send a cross-country endorsement form for those trained and cleared to fly cross-country before February 24, with their gliding certificate, to the BGA office. The certificate will be endorsed and returned without charge. The offer closes at the end of the year but apply as soon as possible. For the remainder, they will have to get the endorsement the hard way.

CB SIFT CB E. No it's not a typing error. The Instructors' Committee recognise that many clubs use some letter for launch failures. The committee decided on E for Eventualities, so they have formally included it in the pre take-off checks. It will be in the revised edition of **Laws and Rules** and it is hoped it will be in use now. **Forward planning.** The Instructors' Committee is considering changes to the existing four year plan, which finishes at the end of the year, to take us into the year 2000 and would appreciate constructive suggestions.

One concern is the poor instructing ability level from some instructors. There are about 3000 instructors, representing about one in three of the total glider pilots in the country. They are sending fewer people solo and still we train more.

"I wonder" Chris Pullen writes "if we should concentrate more on our efforts on improving the standards of what we've got rather than producing more of the same. An example might be that the coaching operation should run more full rating preparation courses and instructor refresher courses, rather than assistant instructor training courses. What do you think?"

Assistant instructor courses for 1997. The Instructors' Committee proposes to stop the two day theory weekend as part of the assistant instructors' course in 1997. Feedback from candidates indicates that this method of teaching has not been too successful. Instead candidates will be issued with the new **Theory**

Manual before they come on the course. The manual is similar in style to the **BGA Instructors' Manual**, again kindly edited by Steve Longland. It will be published this autumn when you will be able to buy additional copies, like the **Instructors' Manual**, from the BGA office.

Theory knowledge will then be tested as part of the instructors' course. It is probable that the 1997 courses will be extended to nine days to cover the syllabus.

NATIONAL LADDER

You would expect that most of the claims received by the beginning of April would be the result of height gains at Aboyne, Sutton Bank and other hilly regions. However, a special mention must be made of Ed Downham who, despite the complete absence of any discernably soaring weather, has managed to put together a respectable cross-country score.

Open Ladder

Pilot	Club	Pts	Flts
1. L. Tanner	Deeside	2776	1
2. G. Keates	Deeside	2163	1
3. A. Murray	Cambridge	2054	2
4. J. Birch	Cambridge	2063	2

Weekend Ladder

Pilot	Club	Pts	Flts
1. A. Murray	Cambridge	1425	1
2. E. Downham	London	1392	4
3. R. Abraham	London	604	2
4. N. Gough	Four Counties	408	2

John Bridge, National Ladder steward

BGA TURNING POINT BOOKLET

Amendment 3 to the 1994 TP booklet was dated February 27 1996 and sent by the BGA to all clubs. It is available on request.

Electronic copies of the fully amended booklet are available as usual in Word Perfect or ASCII from the TP co-ordinator. Send a formatted 1.4 MB floppy and sae direct to me at Bentworth Hall West, Alton, Hants GU34 5LA or through the BGA office.

New points have been added at Bicester East (BIE), Corby South (COB), Roadford (ROA, N of Plymouth) and Loch Lomond Tarbet (LLT). This brings the number of points in the booklet to 782.

Moved points. At the request of local clubs, OKE (Okehampton) and BAB (Ballachulish Bridge) have been moved to more easily identifiable points.

Corrections and refinements have been made to descriptions, lat/longs and grid references.

In England and Wales this applies to Bangor (BAG), Brent Tor (BRT), Hailsham (HAI), Holsworthy (HOL), and Ringmer (RIN). The Scottish clubs carried out a review and put forward corrections to Arbroath (ARB), Bridge of Avon (BOA), Callander (CAD), Easterton (EAS), Feshiebridge (FES), Gleneagles (GLN), Helensburgh (HEL), Heugh Head (HEU), Inverness (INS), Kinloss (KLS), Keith (KTH), Luncarty (LUN), Kirremuir (KRM), Milton (MLT), New Deer (NED), Rothes (ROH), Rothsay (RSY), St Fillans (STF), Stirling Northwest (SIW), Strachan (STR), Tarfside (TFS) and West Lomond Hill (WLD).

Ian Strachan, BGA TP co-ordinator

NEW OSTIV EDITOR

For 30 years Cedric Vernon has been editing the OSTIV papers and producing *Technical Soaring*, which is OSTIV's official magazine.

Cedric has always been much admired for the way he presented the most complicated papers in a very readable, acceptable format. In recognition of his considerable ability, in 1995 he was the first non American to be given the exceptional service award by the American Soaring Society.

Ladislav Smreck Jr, a senior lecturer at Glasgow University's department of aerospace engineering, is the new editor. Ladislav's father is a well known designer of many Czech post war powered aircraft and some gliders.

NOTICE TO OOs AND PILOTS

From publication of this notice, rules for record flights are to be as laid down in the current **Sporting Code** and current **Handbook for Official Observers**. Changes in rules notified in the BGA News section of S&G are valid until the next update of the OOs' handbook when they will either be incorporated into the handbook or become invalid.

A new UK diploma is being introduced. The UK 1000km two-seater diploma will be awarded for free distance flights of over 1000km starting in the UK with both seats occupied. You will see from the gliding certificates that No.1 has been awarded to Chris Pullen and Chris Rollings for their 1008km flight last July 22.

Basil Fairston, BGA Competitions' Committee

AEROBATIC BLANIK

LET, the Czech Republic manufacturers of the Blanik range, have been given a C of A for their L-13A aerobatic two-seater, Peter Clifford, the UK distributor, tells us.

The fuselage in front of the wing is the same as the L-23 with the latest one-piece canopy. Aft of the wing is the same configuration as the L-13. The span has been reduced by 2.35m from 16.2 to 13.85m. The strengthened wing gives it a 6000hr life on condition the AUW is 500kg. The *g* limits at 500kg are +5.5-4 and at 400kg +6.3-4. It is cleared for the following aerobatics - loops, slow rolls, stall turns, half rolls, half loops, inverted flight and flick rolls. For more details contact Peter on tel/fax 01491 839316

SPREAD SUNSHINE - cause a deluge!

Here's a chance for all to spread a little sunshine. Check whether any of your certificates were signed by Lt Col Naomi Christy - long time BGA development officer. If so please send her a greetings card. Naomi is now a permanent resident in Crispin's Nursing Home, 43a Waverley Lane, Farnham, Surrey GU9 8BH. It would certainly brighten her day to hear a little of your latest news from time to time.

Come to think of it, she would undoubtedly like a card from any gliding enthusiast, so even if you've only recently started in this fantastic sport, send her a few words about your experiences - and get your friends to do the same.

P.S. If you find yourself motoring SE from Farnham railway station and have time to pay her a visit, please call first on 10252 733987.

Donald Scarfe

AEROBATIC BADGE SCHEME

There has been a steady growth of interest in glider aerobatics over the last few years and, in particular, competition level aerobatics. The UK has lagged behind much of the rest of the world in this admittedly specialised, but nonetheless challenging and enjoyable aspect of gliding.

As training of aerobatic pilots has proceeded, it has become evident that some method of recognising levels of achievement would be a good idea. For pilots who regularly compete and are judged at national or international level, this is not a problem, but there are greater difficulties for those who want to measure their progress but do not wish to compete regularly.

The gliding sub committee of the British Aerobatic Association (BAeA) has therefore devised a badge scheme. This allows pilots to measure their progress and also gives useful guidance to competition organisers when assessing whether an entrant is competent to compete at a particular level.

As with the existing cross-country badge system, there are four target levels of achievement. Initially, it had been proposed that these would mirror the Bronze, Silver, Gold and Diamond categories in existence in both the level of achievability and also name.

The former was not a problem - although a great deal of refinement was applied to achieve a reasonable level of parity - but it was felt in discussions with the BGA Executive that adopting the same naming system could be confusing. As a result, the four levels, in ascending order, are entitled Standard, Sports, Intermediate and Unlimited. With the exception of the lowest level, this corresponds to the competition category names, so there is some logic to it all.

For each level, the pilot will have to fly a sequence of aerobatic manoeuvres within the standard 1000m aerobatic box. Competition scoring rules will apply - flying the manoeuvres in the correct direction, not flying outside the box, not flying below the minimum safety height and so on. The flight will be judged by the normal BAeA rules and the final score is computed in the same way. The scoring system for aerobatic flights, both power and glider, has been refined over the last forty or so years, and is highly objective.

A minimum percentage score will be necessary to gain the badge. For the Standard level, the flight can be judged by any suitably qualified aerobatics instructor. For the higher levels, an accredited judging panel must mark the flight, and a number of glider aerobatics judges have now been trained.

Qualifying flights can be achieved either as a supervised club flight, at a training workshop such as the two which are being held at Lasham this summer or in a national or higher level competition.

Pilots interested in finding out more details about the requirements and administration of the scheme should talk initially to their CFIs who are being briefed on the requirements of the scheme.

For additional information contact John Gilbert at 19 Latham Avenue, Frimley, Camberley, Surrey, GU16 5PW.

Chris Pollard

ROYAL AERO CLUB AWARDS



Chris Pullen (left) and Chris Rollings with the Britannia trophy, presented by HRH The Duke of York, president of the Royal Aero Club, at a reception in March at St James's Palace. The trophy is for flying excellence and was in recognition of the first UK 1000km, flown in an ASH-25E last July 22 from Bicester. (See the October issue, p280.) The picture was taken by Belgrave & Portman Photographers.

Wally Kahn from Lasham Gliding Society was awarded a silver medal for his enormous contribution to gliding over 50 years. He soloed in 1945, has Silver badge No. 85 and Gold badge No. 10 (flown in 1952) and in 1975 was the 50th UK pilot to gain all three Diamonds.

AIR LEAGUE SCHOLARSHIPS

The Air League Education Trust is launching its annual flying scholarship competition for those over 17 and under 22 years on June 30. The 26 award winners will be given up to 15hrs flying instruction. The closing date is June 30 and application forms are from The Secretary, The Air League Education Trust, 4 Hamilton Place, London W1V 0BQ.

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SAFETY ADVICE

CIRCUIT PLANNING

- For a given height the starting point for the circuit depends on the (airfield size, wind strength, crosswind component and glider performance.
- Monitor the variometer - if flying through sinking/rising air adjust the circuit accordingly.
- Most pilots have a strong tendency to try and get back to the landing area even when short of height. Training must include landing in different places and, if appropriate, different directions.
- Always try to have an alternative landing area in case your first choice becomes obstructed. Keep a reserve of height for this option.
- Avoid landing close to or towards obstructions, particularly when hangar flying or in the undershoot area to try and get a quick turn-round.
- After a soaring flight **always** check the wind direction and strength.
- Before the approach check that your hand is on the right lever.

BILL SCULL



Paul Radley took this photograph of Tug Willson flying his S-10 from Quesada in Spain, 30 miles from Alicante. Tug runs a very successful holiday operation where Mike Philpott and his family were among the many to enjoy and benefit from Tug's experience and flair as an instructor. Tug advertises a new apartment in S&G which Mike said was most comfortable. He paid tribute to Kay Willson's kindness, raved about the glorious flying in the Stemme and the way Tug introduced him to the varied conditions and spectacular mountain scenery. Tug, a former Cathay Pacific senior training captain, likes to play golf in the morning and fly in the afternoon when conditions start to get really good. For more details contact Tug on tel/fax 010 346 6715196.

SUMMER SPECIAL FROM THE BGA SHOP

JUNE/JULY only a free baseball cap (normally £4.40) with every order valued at £15.00 or more from our current catalogue.



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(ACCESS/VISA accepted)

When did you start gliding?

In 1970 at Wolds GC, winch launching in a T-31.

Your profession?

Regional Manager, West End Region, Sun Alliance Insurance Group - Chartered Insurer.

The name of your club, badges, hours etc?

Southdown GC, all three Diamonds, 2420hrs (1200 solo, 1170hrs instructing).

When did you start working on BGA committees? Which ones and for how long?

When I became an AEI coach in 1987 Berni Morris, then chairman of the Instructors' Committee, invited me to attend meetings. I became a full member of the Instructors' Committee on qualifying as a regional examiner in 1990; chairman of the Instructors' Committee 1991 and BGA vice-chairman in 1995.

Are you happy with the way the sport is progressing?

Over the past few years our sport has been operating in a rapidly changing environment. Negative external influences have been felt in the pressure on our airspace, the environmental aspects of operating our airfields, the perceived threat from the European Union and the dubious benefits of harmonisation of flight crew licensing and so on!

From within the sport, technological developments have seen amazing advancements in the performance of the new generation of gliders and the way in which we use them with the introduction of GPS and associated technology.

It is against this background that our sport will be developing during the run up to the millennium and beyond.

At what might be termed the top end of the sport - the badge hunters, the cross-country enthusiasts and the competition pilots - I do believe that generally speaking our sport is flourishing. We are flying farther and faster and running far more competitions than ever before.

I am, however, worried about the other end of the scale and particularly the need to recruit a far greater number of young people into our sport. It seems that our traditional source of young recruits are increasingly tending to look elsewhere for their flying, to the newer airsports such as paragliding, hang gliding and microlighting. This was a subject debated at the recent BGA AGM and some very good ideas were aired on how to bring more young people into gliding and retain their interest and involvement. I believe that success in this is vital because the young recruit of today is the instructor and the pundit of tomorrow.

Perhaps this shortage of young people is partly to blame for the quite frequent complaint from instructors that they do not seem to be seeing a sufficient number of *ab-initios* although we still seem to do an enormous number of air experience flights each year. We need to find ways of converting more air experience pupils into new members and keeping their interest.

This leaves the middle ground of pilots no longer *ab-initio* but perhaps not aspiring to Diamonds and competitions. I am very conscious that numerically this must be by far the largest group and we have to ensure that our sport continues to provide the infrastructure and the instructional support so that the club pilots can continue to enjoy and contribute to the sport in full measure.



Dick photographed by Derek Eastell.

Getting to Know The New BGA Chairman

Dick Dixon answers the questions we put to him after the BGA AGM in February

Are there any changes you would like to see?

At an operational level I do believe that those of us who carry the responsibility for training current and future glider pilots should constantly strive to improve our own skills so that our "products" - the glider pilots of the future - may be better trained and thus able to pass on a higher quality of instruction to their future pupils. Only in this way can we hope to progressively improve the levels of skill and safety in our sport - and thus the enjoyment of everyone involved.

As will be gathered from my answer to the previous question, I am very keen to see the number of young people coming in to our sport increased and to this end I believe that all clubs should give serious consideration (if they have not already done so) to the setting up of some sort of young people's cadet scheme. You will see some guidelines on p153.

Another change I would like to see is a very substantial reduction in the accident rate, particularly of course serious and fatal accidents. This is a subject which receives an enormous amount of attention within the BGA and around the movement in general. We must redouble our efforts and raise our level of safety consciousness in an all out attempt to achieve an improvement in our safety record.

What are your main ambitions as chairman?

Bearing in mind the changing environment in which we operate, and which I have already mentioned, I feel it is the duty of the BGA to monitor developments, and to take appropriate action to support the clubs large and small and thus all our glider pilots throughout the UK.

It is not, however, always easy to balance sometimes conflicting interests and objectives. In reacting to changing external factors an individual or groups of pilots or clubs are sometimes inconvenienced. But if we are to continue to enjoy the wonderful (and cost effective) privilege of running our own sport under delegation

from the CAA, occasionally compromises will be necessary for the greater good.

During my period in office I will ensure that the BGA will strive to maintain our freedoms, to support our clubs and members to the maximum possible extent and to balance our limited resources so that all participants in our marvellous sport can take from it (and hopefully contribute) according to their individual ambitions and skills.

Acknowledging the various threats and opportunities with which we will be faced, I do believe that we all need to realise that we are numerically a very small interest group. Our 9500 or so strength is numbered against the UK population of over 50 million. In some ways what we do brings us potentially into conflict with other users of the environment, so if we are to continue to flourish and to enjoy our gliding we will need to face out to our local communities in a positive way. We must take the trouble to foster a sympathetic and constructive image on behalf of our clubs and the movement.

What would you like your term in office to be remembered for?

Within the BGA - and this means everybody in the movement - I am convinced that the way to success is for us all to work together towards common objectives. As I have already commented, the BGA exists to facilitate gliding generally, but I sometimes get the impression that the Executive is perceived as operating behind closed doors and with some sort of hidden agenda. This could not be further from the truth, and one of my main aims during my term in office will be to develop open and clear communication between the Executive Committee, the clubs and the members of the BGA. You put us in office and without your support and understanding we can achieve nothing.

Have you any other hobbies?

Yes, photography, walking and running. ➔

MOTOR GLIDER EVENT

York Gliding Centre are having another international motor glider fly-in at Rufforth Airfield from July 13-14. There will be no landing charges. For more details contact the club on 01904 738694

CHINA TO BUILD THE PW-5

An American firm, Apeks Aviation, are forming a partnership with the Xian Aircraft Co in China with plans to produce the PW-5 World Class Glider. Apeks will look after the sales and marketing and the goal is to build the glider within a year of the paper work being finalised.

Over 100 of these gliders have been built in Poland by PZL Swidnik and a market survey predicts that up to 7500 will sold around the world over the next five years.

GLIDING CERTIFICATES

BGA 1000KM TWO-SEATER DIPLOMA

No.	Name	Club	1995
1	Pullen, C.J.		
	Rollings, C.C.	London/Booker	22.07

ALL THREE DIAMONDS

No.	Name	Club	1995
490	Hastings, M.J.	Oxford	24.11
491	Fryer, G.K.	Cotswold	22.7

DIAMOND DISTANCE

No.	Name	Club	1995
1/720	Wright, N.J.	Bidford	22.7
1/721	Fryer, G.K.	Cotswold	22.7

DIAMOND GOAL

No.	Name	Club	1995
2/2427	Binks, A.P.	Kenya (in South Africa)	1.12
2/2428	Campbell, D.	Expat (in USA)	13.6

DIAMOND HEIGHT

No.	Name	Club	1995
3/1311	Hastings, M.J.	Oxford	24.11
3/1312	Edwards, N.A.	Enstone	11.10
3/1313	Rebbeck, J.N.	London (in New Zealand)	16.12

GOLD BADGE

No.	Name	Club	1995
1881	Edwards, N.A.	Enstone	11.10
1882	Hugill, P.A.	Lasham	14.10
1883	Shailes, M.J.	Cotswold	24.10
1884	Campbell, D.	Expat	29.10

GOLD HEIGHT

Name	Club	1995
Fitzgerald, B.	Fulmar	28.1.96
Tucker, G.	Portsmouth Naval	23.10

Edwards, N.A.	Enstone	11.10
Hugill, P.A.	Lasham	14.10
Bruce-Jones, T.	Highland	28.1
Shailes, M.J.	Cotswold	24.10
Tutthill, M.C.	Culdrose	28.9
Seager, D.A.	Bannerdown	2.11
Marshall, G.A.	SGU	17.2.96
Campbell, D.	Expat (in USA)	29.10
Rebbeck, J.N.	London (in New Zealand)	16.12

GOLD DISTANCE

Name	Club	1995
Binks, A.P.	Kenya (in South Africa)	1.12
Campbell, D.	Expat (in USA)	13.6

SILVER BADGE

No.	Name	Club	1995
9977	Chappell, D.C.	Bristol & Glos	21.8
9978	Binks, A.P.	Kenya	1.12
9979	Rebbeck, M.W.	London	28.9
9980	Tucker, J.H.	ESC	11.1.96
9981	Bolton, C.H.	Glyndwr	11.2.96
9982	Wilshire, M.J.	ESC	5.1.96
9983	Waugh, P.J.	Magalies	30.12
9984	Banks, R.	London	17.2.96
9985	Boylan, P.A.	Cotswold	11.4
9977	Chappell, D.C.	Bristol & Glos	21.8

UK CROSS-COUNTRY DIPLOMA

Part 1	Name	Club	1995
	Bowes, G.T.	Staffordshire	21.8
	Dykes, K.A.	Newark & Notts	8.7
	Cooper, A.M.	North Wales	6.8
	Harvey, B.	Buckminster	22.7

GPS JOTTINGS

Edited by Dickie Feakes

In this issue I was going to discuss the accuracy achievable by GPS equipment, but I have been partly pre-empted by Julian West's article in the last issue, p86. While Julian discusses the theoretical accuracy achievable by GPS, he ignores the practical aspects of how GPS fixes are actually assessed in gliding.

His conclusion that TP photography has higher levels of positional accuracy than GPS is ill founded in the gliding context. While a photograph is potentially capable of achieving good accuracy, in gliding practice this is not the case due, for instance, to a lack of good vertical features in the picture, lack of a pattern of line features (particularly along the observation zone (OZ) boundaries), lack of stereo-pairs and

the substantial facilities of a military photographic interpretation unit.

If you don't believe this, then talk to anyone who has attempted to analyse photographic evidence at a UK Nationals! Particularly those photos near an OZ boundary.

Julian is quite right to say that the basic accuracy of a single fix on GPS units available to civilians is only better than 100m on 95% of occasions or, more critically for TPs, outside 100m on one in 20 occasions. But in gliding we don't use a single fix to determine whether a glider has entered an OZ. We analyse a succession of fixes approaching the OZ and follow the flight path (ie the series of fixes) through and after leaving the OZ. Also, most GPS software automatically refines each fix by applying an averaging algorithm. Both of these methods significantly improve the accuracy over that of a single fix from a static GPS.

As an example, the IGC Flight Recorder Approval Committee tests have so far found an average error of 67.8m from a moving vehicle over a surveyed point, from a sample size of 326 using five makes of flight recorders (loggers) and ten different recorder units. However, the average of the six highest error points was 222m (a chance of one in 54) with a single point maximum of 246m (a chance of one in 326).

These figures indicate that unless you have a read-out of the GNSS lat/long in the cockpit and are certain that the unit will record that you have clearly been in the OZ, you should fly into the OZ by at least 200m and preferably 250.

The theory is similar to that of Julian West's but using actual measurements relevant to gliders in the air. Pilots may cut their TPs close, but sensible pilots will not turn too short!

In the beginning of GPS in 1980, the system was capable of providing two basic levels of accuracy by use of the P code or the C/A code. The military P code enables accuracies better than 3m to be obtained but is not accessible by non-military users who have to be content with the C/A code. Initially the C/A code was capable of achieving accuracies of better than 10m but the US DoD (who funded the system and put up the satellites) decided that this level of accuracy was still too good for non-military uses and so the selective availability (S/A) error system was invented. S/A deliberately degrades the satellite clock signals for civil users so that the accuracy of single fixes when using



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the C/A code is reduced to the 95% probability of better than 100m mentioned earlier.

But it is difficult to beat technology! Differential GPS was then developed in which an accurately surveyed master station is used to calculate the error resulting from the degraded satellite clock. This error is then re-transmitted and when received by a differential capable GPS set, achieves an accuracy of better than 3m! As a result of developments like this, pressure from US tax payers, and the fact that the Russian GLONASS system does not have an S/A degradation, there is now serious talk of the US government abandoning S/A, allowing all non-military users to achieve the higher degree of accuracy. But it may take a few years to persuade the US military.

Because of the geometry of the satellites and their position lines, the GPS altitude calculation has several times the error of the horizontal position. GPS altitude is the slant height of the receiver antenna above the surface of the ellipsoid used (ie the geodetic datum selected in the GPS set), and is only an approximation to altitudes based on mean sea level (msl). This is not the same as the height measured by an altimeter which is based on a pressure level with respect to a datum such as msl (QNH), an airfield (QFE) or a fixed setting such as 1013mb for flight levels. At the lower altitudes, pressure height corresponds closely to true height if an accurate QFE or QNH is set on the sub scale of a good quality altimeter. At heights above 20 000ft, pressure altitude becomes increasingly divergent from true altitude. At these levels GPS altitude above the ellipsoid is closer to true altitude above msl.

Nevertheless, the altimeter remains an ideal instrument to achieve vertical separation from aircraft, since it is measuring the height of an arbitrary pressure level which is common to all the aircraft concerned. Perhaps in a few years time we will be claiming Gold and Diamond heights based on GPS altitude rather than pressure altitude.

Meanwhile we can claim Gold, Diamonds and records based on IGC approved GNSS FR data. But do so with knowledge of the system and, as suggested earlier, do not turn very tight at TPs unless you have a GPS cockpit read-out which shows that it has already registered your presence in the OZ concerned.

International Gliding Commission

Extracts from Tom's report of the meeting held this March in Paris

Brian Spreckley was the alternate delegate with Ian Strachan, chairman of the sub committee approving GPS equipment and **Sporting Code** editor under Tor Johannessen (Norway). Ian gave a presentation on GNSS FR (logger) approval.

Bruno Gantenbrick (Germany) chaired the philosophies working group and proposed a free triangle in Championships where TPs could be chosen after starting. One suggestion was to set fixed and free triangles, leaving the competitors to choose.

Ake Pettersson (Sweden) chaired the discussion on fixed sites for Championships. But there wasn't any support for the idea to limit World Championships to four or five sites. There was also discussion on having an 18 Metre Class for the Worlds and two Classes in two World Championships each year so that smaller sites could be used.

There is a good chance that the structure of both Classes and World Championships will soon change, but obviously both need to be done at the same time.

A small working group will investigate the whole subject of records and the most probable outcome will be a reduction in motor glider, two-seater, feminine and altitude records and an addition of 15m records.


After a lengthy speech by Hans-Werner Grosse (Deutsche Aero Club) a majority agreed to ban record flights that finished in the dark, but a motion by South Africa was accepted that a night flight would only be approved by IGC if local laws and rules had been complied with.

The FAI was on Internet and World Web and would have a section on gliding.

Bruno said that despite rumours, it was 99.9% certain that the 1999 World Championships will be at Bayreuth. There were bids from Australia, Poland and South Africa for the 2001 Championships but no vote was taken.

The 1997 European Championships will be in Slovakia.

The World Air Games will be in Turkey in 1997 at eight sites with gliding at Inonu.

The Lillenthal medal goes to Tor Johannessen and the Pelagia Majewska medal to Adele M. Orsi (Italy). 

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CLUB NEWS



Flying was interrupted at Sherington on April 13 for Tessa Wilson and John Whiting to get married. After the service they came straight out to the airfield for their first flight as a married couple.



Above: James Steele, after going solo at Connel GC, with CFI Malcolm Shaw. Below: Bill Jepson, Burn GC's new DCFI.



Copy and photographs for the August-September issue of *S&G* should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 01223247725, fax 01223 413793. to arrive not later than June 18 and for the October-November issue to arrive not later than August 13.

GILLIAN BRYCE-SMITH *April 17*

ANGLIA (Wattisham)

Nine members went on a wave expedition to Dishforth over the New Year. Shep and Gwyn had a reunion with USAF members Lauren and Mike at El Tiro Gliderport, Tucson, Arizona and flew in a PZL Krosnos.

Andy Hill and Gwyn Thomas gained Diamond heights at Sisteron, France. Carl Marriot and Margaret Jones have gone solo. There was a good attendance at a CAA flight safety meeting at Tibenham.
M.A.T.J.

AQUILA (Hinton in the Hedges)

The K-13 has been refurbished for the new season, resplendent in its red and white finish, and the fuselage of one of our K-8s has been re-covered. Dave Catt's Blanik joins "Nobby" Neil's Bergfalke in the privately owned two-seater fleet.

Membership continues to grow, particularly amongst private owners, which leaves the club fleet under used. But it is an opportunity for local solo pilots who are having difficulty getting in the air. Only twice last season was our single-seater fleet of two K-8s, a Pirat and an Astir in the air at the same time. Members have been known to arrive at noon and be flying by 1pm. Visitors are always welcome.
C.A.

BATH, WILTS & NORTH DORSET (The Park)

At the time of writing, we have just enjoyed our first genuine soaring weather after an abysmal winter. Julian Reynolds, Denis Clack and John Hunter have Bronze legs and Steve Wareham has an AEI rating.

Our new winch should arrive soon. Richard

The Bristol & Gloucestershire GC's cup winners at the annual dinner with the then chairman, Bob Cunningham. From l to r: Richard Starling, Tim Macfadyen, Hywel and Alison Moss and Sid Smith. Photo: Bernard Smyth.



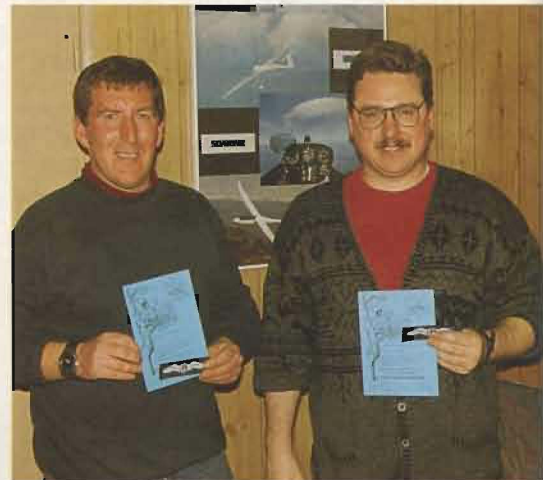
Yerburgh and Paddy are at present making their way through the snow in Poland to retrieve our second rebuilt Bocian from its makers. (There will be an article by Richard in the next issue).
J.L.

BOOKER (Wycombe Air Park)

It was decided at the AGM to charge new members less in their first year which means a £125 reduction in their initial subscriptions.

Ian Busby and Daniel Cooper have joined the committee. Daniel has found two excellent four-stroke golf buggies for airfield retrieving at a very affordable price. Planned fleet improvements include Schuemann varios for the Duo Discus.

The Regionals, which again have a free entry, are almost fully subscribed.
R.N.



Tom McLaren and Mick Moore from Cranwell GC with their certificates for going solo.

BORDERS (Galewood)

At our well attended AGM in March, chairman Andy Bardgett, giving the latest news on the move, hoped that we will have a new clubhouse and hangar this autumn. Now confident of our future, we want to improve our ageing club fleet and are trying for a lottery grant for a glass two-seater. George Brown is now our secretary and

CLUB NEWS

Dave Wilson has joined the committee.

Malcolm Parkes made almost a clean sweep of the annual awards, winning three trophies and sharing a fourth with Rob Collins.
R.C.

BRISTOL & GLOUCESTERSHIRE (Nympsfield)

James Metcalfe replaced Bob Cunningham as chairman at the AGM. Sid Smith has taken over as secretary from Geoff Lloyd, who was elected vice-chairman. There is also a nearly new committee.

Over 50 members attended the annual dinner-dance at which the cups were awarded.
B.F.R.S.

BUCKMINSTER (Saltby)

Following a worrying few weeks when estate work made our access road impassable, our landlords reinstated it to a higher standard with red granite chippings.

Our Nottingham Trent University course week attracted ten pilots. Our July cross-country soaring course is already full. Three of our juniors are sponsored by the BGA. Courses for winch, aerotow and SLMG are being filled. Call Clive Stainer on 01476 860385 for details.
N.R.

BURN (Burn Airfield)

After a lengthy refit, our Motor Falke has returned in its new splendour and is in frequent use by an increasing number of members.

Bill Jepson has been appointed DCFI. The prevailing easterlies have kept our total flying times well below average.

Our revised membership fees are £112, (over 65s half price), trailer sites £22, winch launches £2.75, aerotows to 2000ft £10, club single-seaters 20p/min and the motor glider 60p/min. We do not charge any additional fees for visiting pilots.
P.N.

CAMBRIDGE UNIVERSITY (Gransden Lodge)

We are dropping the University from our name once the formalities have been concluded. We welcome Roger Thorogood as our new administrator. Alistair Murray, Andy Walford and Julian Murfitt are assistant instructors, Martin Boycott-Brown, David Moore, Wendy Hathaway and Tim Mornin are AEIs and Adam Cobb has soloed.

Our fleet has been strengthened by another Junior. Courses and task weeks are now underway, not forgetting our Regionals from August 17 to 26.
K.M.B.S.

CHILTERN (RAF Halton)

Terry Ackerman becomes CFI, with Ian Petman and Pip Barley as deputies. Jed Edyvean is leaving the service after 22 years. Peter Walton achieved Silver height.
D.W.S.

CORNISH (Perranporth)

G-BMBZ, our new (to us) Super Falke, is getting good use - even our local MP, Matthew Taylor, has been for a trial lesson.

During poor weather we completely refurbished one of our K-7/13s, modifying it from a skid to an all wheel aircraft - nose to tail! It will



Mendip GC's 21st anniversary. Chairman Barry Hogarth, I, and safety officer Peter Turner prepare for take-off in the Joe Acreman T-21, recreating the scene from day one. Photo: Keith Simmons.



Above: The Cornish club's new Super Falke with, I to r, Matthew Taylor, instructor Gordon Hunter and CFI John Shaw holding the canopy. Below: L to r: Duncan Bradshaw, Chris Collins, Graham Venning, Jon Smith and Phil Tiller after Graham soloed at Wolds GC. Photo: Mike Fox. ➡



be ready for our seven day week operation in May. John Trick has resoloed after 30 years. Alan Reddington collected his Std Jantar 3 from source on one of the coldest weeks in Europe. S.S.

COTSWOLD (Aston Down)

Brenda Marlow has a Bronze badge and Chris Kent and Vinay Patel have soloed. At the annual dinner-dance in February awards went to Mike Oliver (two), Jim Rodgers, Brenda Marlow and Mike Shailes. Oliver Ward, Junior Nationals Champion, was presented with a white stick to help him distinguish between forward and backward flight with the K-8 and Mike Shailes a flying brick for the heaviest landing.

Holiday courses started on April 15 for all abilities. More information about the club can be found at our Internet site, <http://www.fenetre.co.uk/~cotswold>. M.S.

CRANWELL (RAF Cranwell)

Phil Hall and Paul O'Mara went solo. The K-21 on loan from Brüggem gives us a third two-seater trainer and was invaluable during the successful *ab-initio* course run over Easter by Al Clarke. Two of the four, Mick Moore and Tom McLaren, went solo.

"Tappo" has handed over as CFI to Mick Ferguson. We have a new telephone extension for the clubhouse (01400 261201 ext 6030).

The Red Arrows will be operating out of the South Airfield at Cranwell in future so all visiting aircraft are advised to make radio contact with Cranwell North on 129.975 prior to arrival for joining instructions. By all means call us for an update if you are in the area. Richard Browne has an LS-8. We are in the Inter-Club League. L.F.

CRUSADERS (Kingsfield, Cyprus)

From April Crusaders officially became the latest member of the RAFGSA. We have expanded our fleet to include a Brasov which is a very popular alternative to our all wooden fleet. Our AGM in March was well attended and we were sorry to say goodbye to our CFI, Mark Minary and our chairman, Richard Jones, both returning to the UK. They have devoted a lot of time and effort.

Once again we welcome Avo Mangolin as CFI and Gp Capt Neil Taylor is now chairman. Ron Smith came to Cyprus to make AEIs from Ahmet Salahi, Erdich Ustenler and Hugh Moonie. H.L.M.

DARTMOOR (Bentor)

Obituary - Hugh Lamprey

It is with great sadness that I say farewell to Hugh Lamprey.

I first met Hugh in Nairobi in 1983, just after I had arrived in Kenya and he had bought the K-14 motor glider. I was privileged to help him maintain his K-14 and share the flying for two years under African skies. It was during this period that Hugh helped to re-establish gliding in East Africa at Njoro and achieved Gold height whilst flying the K-14 in thermals over the Rift valley. Flying gliders and light aircraft was an overriding passion in Hugh's life, probably aroused by the influence of his father who was an Army pilot in the RAF in the early 1920s.

Hugh was a very experienced and highly respected bush pilot accumulating over 6000hrs flying during his 37 years in Africa. He was always very proud to tell people that he had first learned to fly properly whilst he was soaring with the birds on the cliffs at Perranporth.

He returned to the UK in 1990 on retirement and his contribution to the conservation of African wildlife and a better understanding of de-certification was recognised in 1992 by the award of an OBE. He brought his beloved K-14 back to the UK and continued to derive tremendous pleasure from flying this and his PIK-20 over Devon for many years from both Eaglescott and Brentor.

Hugh was a true gentleman and a very dear friend. He will always be remembered with affection and will be greatly missed.

Our sympathy goes to his wife Ros, his daughter Fenalla and son Richard.

Alan Jury

(See Hugh's article on p165, published by kind permission of his wife.)

DEESIDE (Aboyne Airfield)

Regretfully the Scottish Regionals had to be cancelled due to lack of entries. However a task week is now planned for the same dates. It is intended to try to run this competition again next year. We ask for your support.

Christian Lyons has gone solo. We were at 13 000ft in February and 16 000ft in March. G.D.

DERBY & LANCS (Camphill)

We are buying a new Skylaunch winch and building a winch workshop. The courses have started successfully.

At the AGM one of our oldest members, Bernard Thomas, was awarded a salver in thanks for all the work he had done for the club.

John Potter is now an AEI. The Grob Acro is fully instrumented and equipped for training in advanced soaring techniques. The extensive work on the T-21 is well underway (see p184).

Midweek flying is popular and visitors are more than welcome. W.T.

DEVON & SOMERSET (North Hill)

We have had several wave days. Our new chairman Joe has worked hard on the much needed retrieve Land Rover which is already giving worthy service. Ian Mitchell, our new technical officer, has a full Cat rating and Chris Heide is an assistant instructor.

We have bought four EW barographs and printers with the Francis Bustard bequest and are replacing our parachutes. CFI Simon Minson led an Easter expedition to Portmoak.

Our courses are filling up rapidly and Competition Enterprise will be held at North Hill from June 29 to July 7. For more information call the club on 01404 841386 - this was a superb event three years ago so do join us. S.C.L.

ESSEX & SUFFOLK (Wormingford Airfield)

Kevin Bye, John Gilbert Jnr and Andy Sanderson are now instructors and Clive Bainbridge, Mike Benson and Andrew Wilson have started AEI courses. Chris Borley, Matt Cade and Richard

Fuller have joined our cadet scheme giving us four. The system seems to work well with each student earning their flights from work around the airfield.

Chris Price has bought a Janus C and Alan de Tortolone a Phoebus C. We have had the pleasure of the BGA Discus at the club and the loan of the ME7.

At our annual prizegiving trophies went to Paul Rice (2), Andy Sanderson, Robert Nunn (who went solo and won the instructors' cup) and Chris and Paul Rice, who shared the 100km triangle trophy. C.B.

FOUR COUNTIES (RAF Syerston)

Since our last report the LS-8 has been cancelled, which now leaves the RAFGSA the task of finding a replacement for the Astir we sold.

Our *ab-initio* week was well supported with only one non-flying day, though the misty conditions allowed only one cadet to go solo - Richard West in the Grob Acro. The other three are returning at the weekends until they go solo.

Bob Grieve has flown his LS-8 for the first time. The Janus was in a towing accident on the way to Sisteron, the trailer coming off worse. Mark Davies achieved his Diamond height. D.M.R.

FULMAR (RAF Kinloss)

Chris Heames, RAFGSA air member, observed our operations and gave MGPPPLs to Angie Veicht (Highland GC), Mark Desmond and Iain Keylock. Jonathan Joynson gained his MGPPPL assistant Cat rating and Simon Hulme and Tim Baxter went solo. Mick Morton was the first this year to complete the cat's cradle and Mick Seaward completed the first hour off the winch.

For the second year running we have an expedition to Oban in May. Air experience evenings are starting soon and we hope our publicity blitz on the station's various clubs will increase our ever expanding membership.

We are thrilled that CFI, John Hull, was made member of the year by the RAFGSA. John took over following the sudden death of Gary Moxham and guided the club through its most distressing period to its present flourishing state. We are all very pleased to see Meryl Moxham back and flying regularly. J.P.

HEREFORDSHIRE (Shobdon)

One of the Booker pilots on a weekend visit got to over 10 000ft in wave. The new tug is performing well and with the arrival of better weather, pilots from nearby clubs are taking day memberships and trial lessons are taking off. R.P.

KENT (Challock)

At our AGM Cyril Whitbread, chairman, Steve Noad, secretary, and Julie Garside, treasurer, were returned to the committee, joined by Shirley Barker and John Northern.

John Whittington, Richard Davies and Stefan Bort have formed an Astir syndicate. It is being fitted with hand controls for the rudder, John being disabled. We have returned to seven day week flying and courses are getting well booked. A.R.V.

KESTREL (RAF Odiham)

Peter Charnell is now CFI and Chris Wick chairman. Our AGM awards (party!) was a great success with trophies going to Paul Hiriart, Rob Martin, Bob and Chas Bickers, Russell Lipscombe and Fiona Macdonald.

Russell Lipscombe and Ian Pattingale have Bronze badges and Paul Hiriart an AEI rating.

We are having a club ladder and are running an *ab-initio* week for servicemen. We have a great facility with a large airfield, two tugs, two Motor Falkes and two winches, so if any of you military chaps want a great day's flying drop in or call Russell Lipscombe on 01932 223113. Civilians are also more than welcome on a temporary membership.

P.H.

LAKES (Walney Airfield)

The spring weather has provided some good thermal conditions, John Martindale being the first pilot of the year to go cross-country.

The Easter weekend was especially good giving several newer members their first experience of thermals. Andrew Tebay seized the chance to complete his Bronze badge.

A.D.

LASHAM (Lasham Airfield)

George Metcalfe, our chairman for five years, has handed over Lasham as a thriving concern to his successor, Patrick Naegeli. We are grateful for all George has done.

We are delighted Wally Kahn was awarded the Royal Aero Club's Silver medal for long service to the UK gliding movement, and to Lasham. He has been a member of important BGA committees, and represented the BGA on the CCPR and the Sports Council. He has been instrumental in raising funds for our clubhouse, re-cladding the WW2 hangar, and the Lasham Trust which is collecting to buy the freehold of the airfield.

After the great success of the 1995 Open Class Nationals at Lasham we owe thanks to our sponsors, GEC Electronics.

Six members have achieved 750km diplomas. Clive Thomas led four members to Benalla, where they found John Williamson as helpful as ever. Two flew their first 300kms.

Judi Jones has taken over as secretary of the Surrey and Hants GC from Graham Ross. A new glider, probably a Discus, will bring the solo fleet up to 12.

A.M.S.

LINCOLNSHIRE (Strubby Airfield)

The social and prizegiving was well attended with trophies awarded to Jeanette Kichen (2), Alan Ely (2), Ray Hearney, Colin Watmough and John Kitchen.

A cold grey March gave way to some very good soaring conditions which allowed Steve Sykes and Ray Hearney to fly Bronze legs and Dave Fenn to fly the first hour of the year by a non Silver pilot.

The AGM at the end of March left the committee and flying charges unchanged. Our flying week is the first week in July and a dawn to dusk day is planned on the longest day. Our air experience evenings are again proving popular with several already booked.

R.G.S.

LONDON (Dunstable)

The majority of our VAT refund has been reserved for the much needed clubhouse renovations. The buildings' committee has come up with a revised and less ambitious scheme of enlargement, and grants and sponsorship are being sought.

After so much unflyable weather, frustrated members have tidied up the site with enormous bonfires of brushwood and derelict gliders.

To resolve the cash flow situation, a scheme is being developed to "mandate" members for a number of hours voluntary work as ground crew each year, or to extract an increased membership fee from them. This partial re-introduction of the feudal system has been greeted with wariness by the bulk of the membership, but is being promoted strongly by our chairman and our manager.

R.C.

MARCHINGTON (Tatenhill)

We now have an extension to the license at Tatenhill Airfield until March 1999, after which we will most likely have to find another site. We have abandoned plans to build a hangar and are renting one from the airfield operator which houses the entire club fleet rigged and stored away from the powered aircraft.

After a pretty dismal winter we have had several excellent days with flights of over 2hrs for C. Turner and many check flights.

It is with much sadness that we report the death of our founder member, John Whiteley.

Des Tait has joined us as a full Cat. Val Roberts, former secretary, has replaced Ken Walls as chairman and Andy Davis is now our secretary. Andy Ray has taken over as editor of the club rag *Glide Angle*.

If arriving by air, we have a new circuit separating powered aircraft from gliders. If the active runway is 26/08 gliders circuit to the north and powered to the south, off 22/04 gliders circuit to the west, powered to the east. We welcome visitors on Wednesdays and weekends.

I.N.R.

Obituary - John Whiteley

John Whiteley died on February 16 of a heart attack aged 81. He started flying at Rearsby where he gained his instructor rating but when that club went all aerotow he and a few colleagues formed the Burton & Derby GC nearer to their homes.

John was the only instructor for the first two years. As there was only the one two-seater, a T-21, this meant John doing every flight - a commitment to gliding seldom equalled.

His patience and high standards resulted in the backbone of the club's membership for many years. He was also an outstanding practical engineer, donating considerable financial and physical help to the ground equipment as well as the management side. His contribution to gliding could never be repaid. Our condolences to his widow Doris and the rest of the family.

Ray Steward

MENDIP (Halesland Airfield)

We celebrated our 21st birthday on March 2 when an unprecedented turn-out of members had the winch and all the club aircraft ready to fly by 9am. Bill Scull was guest of honour and

chairman Barry Hogarth and safety officer Peter Turner opened proceedings in a Bocian with a loop and a chandelle off the first winch launch.

The biting north-easterly did not deter a steady stream of ex-members who kept the instructors busy in two-seaters and the kitchen staff busy in the clubhouse. Joe Acreman aerotowed his T-21 over from North Hill with the hardy Ian Mitchell at the controls and while they thawed out the Turner/Hogarth team took off in a re-creation of day one. Their synchronised arm flapping to assist the climb caused great amusement.

Gliding videos were shown in the clubhouse and the day was rounded off with a party in the evening. We managed around 65 launches.

The first thermals of the year coaxed Stuart Mills into his Skylark-3 for Silver distance. We had an Easter expedition to the Long Mynd.

K.S.S.

MIDLAND (Long Mynd)

The season started inauspiciously with yet more snow giving only one flyable day during a week for schools and colleges funded by the Sports Council. But they showed there is a large constituency of latent young talent out there.

Keith Mansell has retired as our treasurer after nearly 30 years as a club officer, 20 as chairman. He was also CFI for seven years. He has been made president, the first since our founder, Espin Hardwick. Our warmest thanks for his sterling service.

We welcome new caterers, Lorraine Reece and her husband Colin. William Brewis is now an assistant instructor. Flying has been limited by the hardest winter weather for many years. The courses are booking well and on a recent course David Williamson, an airline captain, and his son Tom went solo.

P.A.S.

NORTHUMBRIA (Currock Hill)

We did it! In March we were awarded a National Lottery grant to help buy our site. (See also BGA news.) The grant also means we are refurbishing our hangar and bunkrooms, as well as gaining a new office. We are looking to buy a new winch and we will be visiting other clubs to see the various options. If you can help please contact our CFI.

Easter weekend was fruitful with us doing a lot of work plus there was a good wave day with climbs to 11 200ft and a Bronze leg for Mark Younger.

P.S.

PETERBOROUGH & SPALDING (Crowland Airfield)

With the first thermals attention is focusing on rescuing Snoopy from his winter imprisonment at Tibenham.

Dave Mason has soloed and Sheena Fear is our first female tug pilot. We are eagerly awaiting the completion of a Skylark 2 rebuilding project by Richard Kilham and Dave Mason. Other private gliders expected are a Lak-12, Astir CS and Pirat.

Our annual dinner-dance was in April with trophies being presented to Kevin Fear, Adam Laws, Manuel Williamson, Steve Turner and Shirley Elsdon.



Left: Fulmar GC's CFI John Hull receiving the RAFGSA's member of the year award from Gp Cpt Bob Joseph, station commander of RAF Kinloss. Photo by kind permission of RAF Kinloss. Right: A group of Cotswold GC prizewinners with their trophies: L to r, Mike Shailes, Brenda Marlow, Oliver Ward and Jim Rodgers.

Our task fortnight dates are July 27 to August 11 with the club barbecue on August 10. Visitors are most welcome.
F.R.P.

RATTLESDEN (Rattlesden Airfield)

We bought our latest addition to the club fleet, a K-21, due to fund raising by members and, in particular, Richard Page whose patience and hard work secured us the lottery grant.

The number of syndicate gliders has increased and the site improvements are going well. Weekend courses and group evenings are filling up and we are planning a dawn to dusk flying day to celebrate 21 years at our site.

The AGM was well attended and trophies were presented at the pre season dinner.

Good use has been made of the tug over the winter months. We are planning a social evening to coincide with hosting the Inter-Club League in August, and our continuous efforts to increase funds have been helped along by a healthy VAT refund, thanks to treasurer, Peter Harrison.
H.J.S.

SACKVILLE (Riseley, Beds)

A series of lectures on subjects as diverse as first aid and wave flying has kept spirits alive during the winter. A new windsock that can actually be seen in excess of 500ft should help to reduce the number of downwind landings and we have a new dolly for hangar packing - the JCB is to be

Richard Page sitting in Rattlesden GC's latest addition to the club fleet.



retired. We are applying for permission to store Avgas on site with a high expectation of success. There is a plan for a new clubhouse to be built in 1997/8 and a fund has been started to this end. Despite increase costs, membership and launch fees have been held at the same level as last year.
D.C.W.

SCOTTISH GLIDING UNION (Portmoak)

An enthusiastic committee under the chairmanship of Alan Bauld was elected at the AGM. We have a second tow out vehicle to compliment our custom build Land Rover and are deciding on a third two-seater to complete our all glass fleet. Derek Aspey has designed and constructed a new store for our oxygen re-filling rig and Mike Edwards has thoroughly reviewed all the Scottish TPs for a database on the clubhouse computer.

Kevin Hook is an assistant instructor and Eileen Wilson has a Bronze badge. We hold the Inter-Club League and the BGA soaring course on the same week in July. Our course bookings are up compared with this time last year. For more details on this and our autumn wave season contact the club office on 01592 840543.
G.S.G.

SHALBOURNE (Rivar Hill)

Wednesday flying continued very successfully throughout the winter months thanks to Geoff Nicholls, our professional winch driver. Much to the chagrin of members limited to weekends, the Wednesday (Retired Gentleman's) Club has clocked up the most flights throughout the winter. Plans are now afoot to make Friday an equally successful day.

The Bronze badge winter lectures run by Bob Boyd have been very successful with everyone passing the Bronze paper. An easterly wind in March enabled Alan Wilkinson to fly his first Bronze leg in wave over the ridge. Clive Harder has a Bronze badge and Liz Bertoya is an assistant instructor. Our CFI, Carol Pike, is currently leading a club expedition at Portmoak.
J.R.

SHENINGTON (Shenington Airfield)

Tim James has gone solo; Paul Mullis, Dave Gould, Peter Carey and Roger Tyrell have Bronze legs and Anna and Lee Wells have Churchill awards. Our plans to start a cadet scheme have been given local publicity.

John Dean is now DCFI and course manager/instructor midweek, running intensive and

popular *ab-initio* to Bronze courses. In addition, Bruno Brown will be running advanced courses with particular emphasis on theory, stalling/spinning awareness and instructor preparation.

We have the use of a Falke which is kept busy with field landing checks, while aerotow/winch launches are available seven days a week.
T.G.W.

SOUTHDOWN (Parham Airfield)

Regular northerly winds during early spring have given good soaring along the South Downs. Craig Lowrie flew 308km and Kevin Fresson 201km in early February.

A DG-800 demonstrator became a "singular object of desire" for the lucky few who flew her.

During a heavy storm the T-21 was inadvertently launched without a pilot. This was doubly alarming since it was still in its T hangar!

Our new tug master is Bob Woodhead and Chris Berry has a full Cat. Visitors to our club will be sad to learn that Slipper the airfield dog has died after a short illness. She loved gliders and glider pilots and will be sorely missed.
P.J.H.

SOUTH WALES (Usk)

Cotswold GC have again been most generous in allowing us to leave a K-13 in their hangar for the winter, making it possible for us to continue club flying whilst our field was waterlogged. The welcome received and tolerance shown to our members is unparalleled.

Emma Johnstone who soloed at Deeside GC.



Improvements made recently include rewiring and redecorating our clubhouse. We have bought an additional K-8 following an increase in the number of early solo pilots. Hugh Rattray has gone solo and produced two Bronze legs in rapid succession.
M.P.W.

STAFFORDSHIRE (Seighford)

The season started well with Gary Crossland going solo; Glyn Yates gaining a Bronze leg; Barry Stitch a Bronze badge and the first cross-country of the year by Lara Davies and Simon Watson in a K-13.

It was decided at the AGM in March to have half price flying for under 21s. We have been awarded a grant for a K-21 when the Foundation for Sports and Arts has the money available.

Sadly, two of our oldest members have died - Ted Hobby, in January, and Bob Crinean, in March. They were both well respected members and pilots who flew at Morridge as well as Seighford. Our condolences go to both families.
A.K.

STRATFORD ON AVON (Snitterfield Airfield)

The first of our junior development pilots have soloed - Chris Nock (16 years-old) and Alex Dyhouse (17 years-old). They joined in August from Shirley (Birmingham) ATC squadron with several others under training with us. We welcome the opportunity to introduce youth to our sport and hope this is the beginning of many other successes.

Andy Balkwill and Arthur Wills have also gone solo with John Lowe and Lee Ingram completing the new cross-country endorsement. All were achieved in February/March which proves our theory that this is the most productive period for *ab-initios* using spare cable capacity before the "butterflies" come out, or could it be the special £2 launch offer for three months?

We have a full programme of courses, trial lesson evenings and task weeks with our enhanced fleet of three K-13s and a K-21.

We have various plans for site improvement/trailer parks/car-parking/tractor fleet and larger workshops.
H.G.W.

THE SOARING CENTRE (Husbands Bosworth)

At an EGM we voted to continue the clubhouse extension which will include a bar, kitchen and extensive briefing and meeting rooms. It will be completed in time for the 15 Metre Nationals in August.

This puts us at the top of UK clubs with the most up to date fleet and the latest facilities.

We have added a Discus to the club fleet of a Pegasus, Discus and three Juniors.

Harry Middleton is the full time manager/CFI, replacing Peter Burgoyne after his very successful three years.

The first 100km of the season was by Steve Crabb in early February in the club K-8.

We flew many visitors during our successful open weekend, despite poor weather. Our new caravan site with water and electricity is complete. Carl Buzzard and Graham Thomas are new instructors. We have a new Janus on site.
T.W.

TRENT VALLEY (Kirton in Lindsey)

A reunion of 623 Gliding School (ATC) who flew at Kirton from 1950 to 1964 was organised by Cliff Whitwell. Jonathan Baldock, Paul Nock and Janet Nicholson have gone solo; Alex Bogan has a Bronze badge; Andrew Speed a Silver badge and John Williams and Steve Wilkinson are full Cats. We now have a fine club newsletter thanks to the Griffins.
M.P.G.

TWO RIVERS (Laarbruch)

Our new CFI Martin Giltins is unfortunately leaving this summer and Dave Gauntlet is taking his place. The club K-8 is back on line at last.

Our launch fee has been dropped to £2.20. Ernst Fabritius has gone solo and Sarah Smith has a Bronze leg. Emmerich had their fly-in and infamous party. The mini competition is at the end of June.
S.S.

ULSTER (Bellarena)

We are expecting two more private gliders to give us 21 gliders and motor gliders. All can be hangared rigged but, in any case, our trailer park has been enlarged.

After the traditional Easter camp which began with several days' wave, of which visiting Dubliners made good use, we are preparing for our second safari to St Angelo, in the Fermanagh lakeland, in mid-May. The first was 20 years ago.

It will be followed on May 25 by an open day and on June 6 by participation in a World Ocean Day event in the seaside resort of Portrush.
R.R.R.

VALE OF THE WHITE HORSE (Sandhill Farm)

Although Sandhill Farm is not normally thought of as a wave site, our increased use of aerotow launching has given us access to westerly wave and we had some wave soaring in February.

We are competing in the Inter-Club League with Bath, Wilts & North Dorset, Mendip and Shalbourne. We have six tug pilots and offer both winch and aerotow launches every weekend.
J.K.

WELLAND (Lyveden)

Our latest acquisition is an SF-27 and we have a syndicate Twin Astir. Adam Aston has a flying scholarship and Rosemary Amatt has gone solo.

At our AGM Barry Chadwick was thanked for his past services, Michael Neal was elected to the committee and Ken Wells and Peter Willock were re-elected.
R.S.

WOLDS (Pocklington)

We welcome Simon Parker as the new manager, and wish Jon Smith well on leaving the post. We have a larger office and a larger workshop for club and private hire use.

The lottery committee has been working hard and is putting in a bid for two new K-21s and a Discus. Around 50 people and 15 gliders went on the Easter expedition to Portmoak.

We are hoping to make Monday another club day in the winter (open all week in the summer) to add to Wednesdays and Fridays, making us more accessible to members. G. Venning and T. Collinson have soloed and J. Ludrecius, D.

Major and B. Walker have achieved 1hr flights for their cross-country endorsements.

Don't forget your entry to the Two-Seater Comp from August 18-24.
M.R.F.

YORK (Rufforth)

Our tug C of A was completed during a mostly unflyable period in March.

We now have a new optimism generated by our six cross-country instructors. We have had several cross-country ground school sessions as well as cross-country training in two-seaters and lead and follow. Evening group flying and five day courses are booking up well.

We are offering a guaranteed seven-day operation for winch launching, aerotowing and motor gliding for both basic training and club expeditions during the summer season
M.D.C.

Club Directory: The entry for Islanders GC in the Club Directory in the last issue, p96, should be Hall Caine Airfield, Jurby Rd, Nr Ramsey, Isle of Man with the contact: John Melling, secretary, tel 01624 880617, or Brian Goodspeed, tel 01624 814064. They also say they aren't in England! And Enstone Eagles GC's clubhouse tel No. is 01608 677461.

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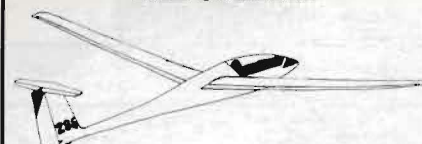
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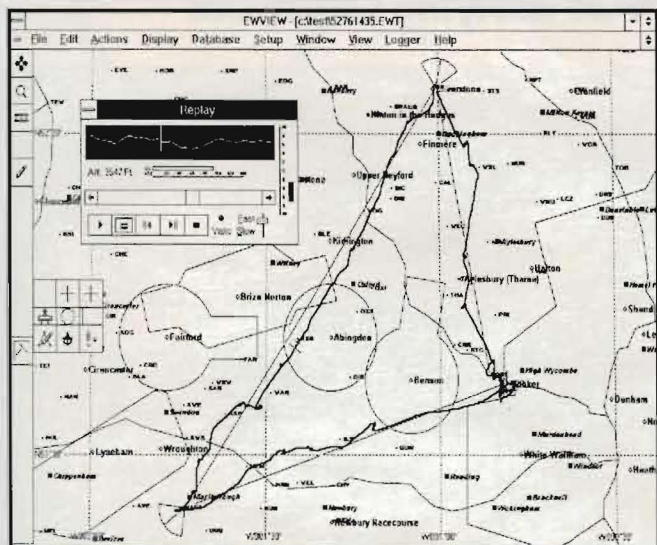
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ALONE

We have several references in this issue to young people and gliding and this was written by Charlie after going solo at Nene Valley GC three days after his 16th birthday

Cable live. All out. In a heartbeat I was off the ground - reaching 50ft I pulled back on the stick, 100ft, kept pulling and at 1200ft, levelled off slightly and waited for the cable to release with a resounding twang. I'd done it, I was aloft in the skies with a happy feeling filling my body. I told my instructor I'd do some turns to get used to the feel of the aircraft. Then suddenly I realised I was talking to myself, for it was only my body inside the two-seater glider. "Calm down" I said. It was a good feeling.

At the far end of the airfield I found an area of weak thermals and managed to resist any height loss for a few glorious minutes before having to think about starting my return to earth. I entered the circuit at about 700ft, the airspeed and angles looked good and I aimed for the road as I had done so many times before, trimmed for 52kt and turned right for the diagonal leg to put me in position for my approach.

"Keep the speed up, don't let the nose rise" I heard my instructor's voice inside my head. Airbrakes out and I could see the ground rushing towards me. I had to make a good landing - the whole club was watching. With a rushing noise underneath my feet, I was down!

The Start Of A T-21 In Flying Condition!



Derby & Lancs GC marked their 60th birthday last year by forming a group dedicated to restoring and flying British vintage gliders. The club, whose training and solo fleets are based on glass, is already home to many vintage and classic gliders including a Skylark, Olympia, Fauvel, Elfe and a K-7. The photograph is of assorted T-21 parts about to be moved into the workshop where it is hoped a T-21, made up from three gliders, will emerge in time for the Slingsby Rally at Sutton Bank in August. This will leave a fuselage, a pair of restorable wings and two wings for spare bits. They will also be working on a T-31 from Ulster. The group has its own workshop, equipped by donations, and would welcome help from aircraft modellers, woodwork enthusiasts, airframe fitters or anyone interested in vintage gliders. For more details contact Ian Dunkley, c/o Derby & Lancs GC, tel 01298 871270.

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DAVID WRIGHT

BGA ACCIDENT SUMMARY

Ref No.	Glider Type	BGA No.	Damage	Date Time	Place	Age	Pilot/Crew Injury	Hrs
94	Olympia 460	1242	Subst	29.6.95 1735	Gransden Lodge	58	Serious	16
After a successful test flight by an instructor the pilot was making his first flight in a glider he had just finished re-building. The glider was seen to rotate with the tailwheel still on the ground and then drop a wing without any corrective action. The wingtip hit the ground and the glider cartwheeled, breaking both the pilot's ankles.								
95	K-13	2234	Minor	25.7.95	Challock	49 P2 51	None None	300 0
As the glider was launched the right wind dropped and touched the ground due either to the wingtip runner, to pilot action or a gusty crosswind. P1 realised this and pulled off quickly but the glider was already moving sideways and this damaged the skid and fuselage.								
96	Citabria Tug	-	Minor	15.7.95	Incident Report	64	None	1330pwr
The tug ran into a very heavy shower at 1500ft while entering the circuit. Despite poor visibility the pilot made a normal approach and landing on the runway before finding the wind had veered from 220 to 330°. With a strong tail/crosswind he lost directional control as the tug slowed down and lifted the tail under heavy braking.								
97	Mosquito	2270	Subst	23.7.95 1220	Marchington	60	None	1407
The experienced pilot decided to make a field landing at an airfield that had been disused since the club left it some three years ago. He found a new road being built across the middle of the airfield and so chose to land shortly after it to prevent running into tall weeds. He undershot and hit the curb which burst the tyre and broke the structure.								
98	Vega	2509	Minor	4.7.95 1340	Cornhill	50	None	83
The pilot had to make a field landing in an area of heavily cropped fields so chose a large cornfield. After a normal approach and landing, possibly with a slight downwind component, the glider groundlooped as one wing caught in the 2ft corn.								
99	Eagle 3	1115	Minor	2.7.95	Milfield	53	None	290
The pilot was flying the Eagle solo when, in turbulence, both canopies flew open. He managed to hold the front one closed but the other, rear-hinged canopy acted like an airbrake increasing the rate of descent. Maintaining 45kt to try and stop it breaking off, he underestimated the rate of descent, landed in a field and groundlooped in the crop.								
100	Junior & Capstan	3842	Subst	29.7.95 1230	Lasham	25	None	10.5
This early solo pilot, on a first flight on type, abandoned a downwind winch launch at 600ft. After a cramped circuit, the glider was late turning finals, overshooting the runway centre-line. While attempting to re-align, the pilot allowed the speed to increase and landed with a wing low, groundlooping into a parked glider.								
101	Not known	-	Minor	-7.95	Incident Report	-	None	-
While reversing out of the car-park the driver failed to notice a glider parked nearby and drove over its wingtip.								

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BGA ACCIDENT SUMMARY

102	Twin Astir	2398	Minor	5.8.95	Hampstead Norris	49 P2 58	None None	530 20
-----	------------	------	-------	--------	------------------	-------------	--------------	-----------

In poor conditions in which he could not climb above 250 ft, the competition pilot flew into an area with few landable fields. Getting low, he started a circuit into a stubble field, but being concerned about a short ground run, diverted to a ploughed field. This field had a sideways slope which caught the wingtip causing a groundloop.

103	ASW-20		Subst	8.5.95	Nympsfield	39	None	372
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After selecting full landing flap, the pilot found that his speed decayed rapidly. In attempting to recover speed, the pilot failed to allow enough time to effect a smooth flare and over corrected causing a PIO (pilot induced oscillation) during which the glider contacted the ground in a nose down attitude.

104	Kestrel 19	1176	W/O	13.8.95	Portmoak (nr)	-	Serious	222
-----	------------	------	-----	---------	---------------	---	---------	-----

The glider was seen to be circling about 300ft above ground, when it lost height very quickly, possibly in a spin, and impacted with the ground almost vertically. The pilot was taken to hospital with a serious back injury, several cuts and abrasions. Full landing flaps were selected and the gear was down at the time of impact.

105	PIK-30	M/G G-	Subst	24.6.95	Feshiebridge (nr)	39	None	5300pwr
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During a field landing the approach was made at an angle to the landing run, leading to a low final correcting turn. As the mainwheel touched down the wingtip caught the ground causing a groundloop. The glider turned through 180° and during the backwards ground run the rear fuselage broke and the tail and wingtip were also damaged.

106	K-7	1148	Subst	21.8.95	Waldershare Park	43 P2 31	None Minor	278 0
-----	-----	------	-------	---------	------------------	-------------	---------------	----------

After a winch failure at 400ft the pilot decided to turn 180° and land slightly uphill but with a 5-6kt tailwind. The glider overran into bushes on the airfield perimeter before stopping. The instructor underestimated the ground run on the hard dry, grass and could have landed in an adjacent cut cornfield which was longer.

107	K-21	-	Minor	1.8.95	Portmoak	33 P2 37	None None	494 13
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On a winch check flight with a visiting solo pilot, the instructor pulled the cable release at 300ft and the P2 landed ahead on a less used part of the airfield. During the ground run, the nose wheel ran over an obscured rabbit hole, cracking the nose wheelbox.

108	Puchacz	-	None	-6.95	Incident Report	86	None	750
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Whilst attempting to land short, this experienced pilot opened excessive airbrake on approach, placing himself too low to safely clear the perimeter hedge. He hit a bush with the right wing but continued to complete a normal landing. No damage was caused.

109	ASW-20	2453	Subst	22.7.95	Husbands Bosworth	44	None	140
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During a long final glide in a competition, the glider encountered strong sink. The pilot left it too late to pick a field and was forced into making a very low, slow turn on to a field landing approach. The glider stalled into the ground, damaging the lower front fuselage and breaking it ahead of the fin.

110	Astir	-	Minor	15.8.95	Lasham	48	None	95
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After releasing from aerotow, the pilot noticed that the airspeed indicator did not work and returned to the field. The glider was flown on with too much speed and bounced, landing heavily. Upon inspection, it was found that the probe had mistakenly been inserted into the tail fin pitot tube when rigged.

111	ASW-19b	2862	Minor	20.7.95	Challock	41	None	60
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The pilot approached at 50kt into a light wind with full airbrake extended. He tried to hold off but could not roundout fully, probably as he was too slow and the glider landed heavily, damaging the undercarriage.

112	Pegasus 90		Minor	20.8.95	North Marston	49	None	130
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At 1500ft the pilot chose an L shaped field, one arm of which contained cattle. At roundout he saw that the glider was landing across ridges and furrows and the underside of the nose hit a ridge. While a retrieve was being organised the cows, which were not fenced in, investigated the glider, causing further damage.

113	Std Cirrus	3675	Minor	6.8.95	Chedworth	55	None	186
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The pilot made a normal approach into a stubble field but with a 90° crosswind. At touchdown he failed to kick off drift and landed sideways, forcing the tyre off the rim and fracturing the wheel.

114	Bocian	-	W/O	-8.95	Incident Report	-	None	-
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The gliders had been left outside overnight, anticipating good weather over the weekend. However, the Sunday morning was stormy and very windy with gusts up to 40kt. The wind lifted the Bocian, turned it upside down and dropped it on to two other parked gliders substantially damaging them and writing itself off.

115	Skylark 3	-	Subst	-8.95	Incident Report	-	None	-
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This glider was damaged by the unsecured glider in report 114/95.

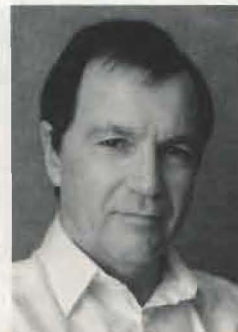
116	SZD Mucha 100	-	Subst	-8.95	Incident Report	-	None	-
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This glider was damaged by the unsecured glider in report 114/95.

WILLIAM PARKER

A First Climb In Classic Wave

William was bitten by gliding as a 17 year-old member of the school Combined Cadet Force but didn't continue until 20 years later when he joined Booker GC. He now has 570hrs, a Gold distance and is an assistant instructor.



To experienced wave pilots 11 000ft is only a couple of rungs up the ladder. It isn't even Gold height from a 3000ft aerotow. And yet for the first time, to look out from two miles high over a cloud sheet 8000ft below, with nothing between the glider and the heavens, the sun low in the west, and through a lattice of wave slots underneath to see the tributaries of the Severn and the Welsh mountains spread out far below is, well, a sight worth waiting for.

In a seven year gliding career I have flown in wave about a dozen times. Mostly it was impossible to read the system and I just beat to and fro for as long as it lasted. Once, at Parham, I caught a glimpse of the top side of the cloud before ignominiously sinking out of sight. Another time I flew in strong wave under a huge impenetrable dome of cloud over the Cerdanya valley. All tantalising tastes of wave flying spiced with pictures in clubhouses of lenticulars standing thousands of feet high.

So this winter the syndicate based our ASW-19 at Shobdon, scrounged an oxygen set and waited for the day. And waited. And waited.

February 17 began to look like the first weekend day with any prospect of a strong north-westerly. But the moist airmass and a forecast drop in the wind dampened our optimism. However, spirits rose on the way there when we saw clear skies to the west and wavy clouds over the Malvern Hills. Alas, at Shobdon the sky was a solid mass of scudding grey cumulus with only

the faintest hint of lighter patches north west towards Radnor. It began to rain.

Over breakfast and briefings from Roy Palmer and John Warby - leading lights in this small but wonderfully friendly club - we reconciled ourselves to a dash along the ridge. Phil King turned up and flew his LS-7 to 3700ft but couldn't find a gap in the cloud.

When the four in our party flew we pulled off at cloudbase and hung on like grim death for half an hour in weak and confusing wave, unpredictable ridge lift and the odd thermal. Late in the day at 4pm I took off into a 15kt wind fully expecting a repeat of my earlier flight. But this time Roy managed to find the makings of a gap and we aerotowed up between the clouds. I released at 3200ft

Although there was cloud overhead and no sign of a gap, between blocks of cloud as big as icebergs there was weak lift. Exploring the cavernous spaces separating them I searched for some sign of an edge to the cloud sheet overhead. Several times I had to open the brakes and descend. I flew along vast canyons of clouds, all the while silently climbing the towering white cliffs alongside. Then I saw the gap.

Pushing upwind I was suddenly in clear air ringed by the smooth edges of the wave slot. The vario continued its slow but regular bleep. Moving out into the gap lift increased until I was averaging 2 to 3kt. This sedate ascent continued, perfectly smooth, incredibly quiet, as the wave slot fell away and I floated on into the upper atmosphere. How remarkable that smoothness is to a flatlander like me, used to the airframe-creaking, vario-shrieking school of climbing.

The gloomy raw day below turned into one of arctic tranquillity. At 10 000ft I went on to oxygen. Here was The Lesson. What "looks okay" on the ground may not "be okay" in the air. (And this comes after a meticulous cockpit check in which my syndicate partner Simon spotted that the four litre valve position was obstructed by the cockpit side wall. A fault simply remedied by rotating the cylinder a few degrees.)

Now having wrestled with the mask I reached for the oxygen tap, only to find that dressed like a moonwalker and strapped in for rotor, I could only just reach the tap with the tips of my fingers. With difficulty I managed it, but how much easier it would have been if I had checked the reach beforehand and moved the cylinder forward an inch or so.

By now it had taken me 50min to climb to 11 300ft and the lift was fading. Five o'clock in February is late in the day. The guys on the ground voiced concern about the light. Quite suddenly the air in the cockpit grew very cold. And so within 1500ft of Gold height I took a last look at the awesome view, relished the final moments of ethereal quiet and hauled open the airbrakes.

There was one final thrill - swooping in over the lip of the wave slot and plunging into the grey world below before heading back to base like a bat out of hell.

We all went to Shobdon with high hopes that day. It was my good luck to launch last just when the sky was about to open up. When I reached the top of my climb I had called the ground. "Well done," said Simon. There was a pause. "Bastard". Now that's what you call syndicate support. ✕

117	K-8	-	None	-8.95	Incident Report	-	None	-
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At 2500ft the pilot opened the airbrakes to descend to circuit height. The airbrake lever snapped off at the link with the pushrod. The pilot was able to land safely using the airbrake pushrod directly. Three other K-8s on site were examined and cracks in various stages of development were found in two of them.

118	Puchacz	-	-	-8.95	Incident Report	55	None	500
						P2 15	None	-

After a successful launch, into a 45° 10-15kt crosswind, the winch driver wound the cable in. At about 100ft above ground the cable parachute veered across the runway towards a parked aircraft. The winch was stopped, but the residual momentum of the parachute carried it on to the aircraft damaging a door and the fin.

119	K-13	3573	Minor	29.8.95	Aston down	51	None	2000
						P2 -	None	?

During a solo pilot's check flight, the P2 rounded out too late and sharply, causing the tailwheel to hit the ground heavily. The sun-hardened and cracked surface damaged the rear fuselage and fin.

120	Motor Falke	M/G	Subst	31.8.95	Tarland	51	None	2500
		G-BMVA		1605		P2 41	None	40

During a field landing exercise, after using carb heat in the descent, the instructor demonstrated an approach into a field. Upon selecting full power there was only a partial response which rapidly became worse despite using carb heat. Avoiding buildings and power wires, the motor glider landed on a road, groundlooping as a tip touched a bank.

121	Not applicable	-	None	-8.95	Incident Report	-	Serious	-
-----	----------------	---	------	-------	-----------------	---	---------	---

On a non flying day due to strong winds, a group attempted parasailing using a car and an out of date parachute. At about 30ft above ground the canopy collapsed due to a gust, causing the pilot, an instructor, to descend rapidly into the ground. He broke a leg and as a result was hospitalised for nearly a fortnight.

122	Super Blanik	3609	Subst	4.7.95	Farnham	64	None	1554
				1445	P2	-	None	770

After a difficult time soaring the pilot elected to land in a large field of standing barley. He made a good approach and successfully held off above the crop for 50 yards and landed normally. Towards the end of the ground run the left wingtip caught in the crop causing a severe groundloop. He had not noticed the field sloped from left to right.

123	K-21	-	Minor	25.8.95	North hill	61	None	583
				1815	P2	-	None	0

On the last flight of the day, due to high gusting winds, the instructor took control for the landing. With visibility restricted by sunshine on a dirty canopy, he misjudged the roundout and flew the glider on rather fast, then bounced, setting up a PIO, hitting the nose and tail wheels several times, damaging the fuselage.

124	Astir CS	3753	Minor	12.8.95	Seighford	50	None	54
				1500				

The pilot flew a high circuit because of the gusty conditions and then made a steep approach. He rounded out too late, causing the glider to land heavily and then bounced back into the air to about 4ft before dropping on to the ground. The undercarriage collapsed during the second impact.

125	K-21	4176	Minor	17.8.95	Portmoak	55	None	30min
				1930				

After a day of 33 flights it was noticed that cracks had appeared around the nose wheel, and the tailwheel tyre had become unservicable. In nil wind conditions groundspeeds on the day were high and the repeated runs over uneven, sun baked ground was considered to be the likely cause of the damage as no hard landings had been seen or reported.

126	Astir	-	Minor	-9.95	Incident Report	52	None	102
-----	-------	---	-------	-------	-----------------	----	------	-----

The glider was towed out to the launch point and the pilot/car driver went off and prepared for the flight. Upon return, he drove the car away to park it, but had forgotten to uncouple the glider. The left wingtip hit a parked Skylark and knocked over a person standing nearby.

127	K-7	3331	Minor	20.8.95	Lyveden	55	None	931
				1038		P2 50	None	54min

After a simulated cable break, the early solo student decided to land ahead. P1 took control after landing as he saw the glider was not going to stop before the end of the runway. After turning to run into a ploughed field, he had to turn again to avoid the winch and crossed a ditch into the next field, damaging the glider.

128	Dart 15	-	None	-9.95	Incident Report	58	None	800
-----	---------	---	------	-------	-----------------	----	------	-----

During the first launch after rigging, the cowling became detached as the glider lifted off. The pilot noticed the extra noise, so closed the DV panel and continued the flight without any other problems. The pilot did not complete thorough checks after his DI.

129	Discus BT	3607	Minor	2.8.95	Fountains Abbey	50	None	580
				1800				

After a long flight the very experienced pilot carried out a steep approach into an up-sloping field. He allowed the speed to decay and was unable to fully roundout in time to prevent a stalled, heavy landing which bent the undercarriage frame.

130	K-18	-	None	-6.95	Incident Report	54	None	2.6
-----	------	---	------	-------	-----------------	----	------	-----

While the pilot was carrying out downwind checks, the canopy release was operated instead of the trim lever. The pilot was unable to resecure the canopy which flew open at about 150ft, after the final turn, but landed safely. The canopy release was found to need adjustment to make it more positive.

131	SZD Junior	3950	Subst	17.7.95	Camphill	39	None	26
				1631				

The pilot was making a normal approach when at about 30 to 40ft the glider lost speed and so he lowered the nose sharply. As the ground was close he closed the airbrakes too sharply and the glider ballooned to about 15ft. He did not think he could now land ahead so made a very low turn, touching a wingtip which groundlooped the glider in. ✕

BGA ACCIDENT SUMMARY

132	K-7	1979	Minor	30.8.95 1800	Lyveden	36	None	1
-----	-----	------	-------	-----------------	---------	----	------	---

As the glider was winch launched the tail skid dropped down as the front mounting failed. During the following landing the skid twisted around causing minor damage to the rudder.

133	K1-3	3656	Minor	18.9.95 1612	Talgarth	53 P2 55	None None	1453 67
-----	------	------	-------	-----------------	----------	-------------	--------------	------------

The instructor was giving a site check to a visiting pilot who made a normal circuit but then used too much airbrake on the approach. P1 did not take over in time to close the brakes and prevent an undershoot. The glider landed heavily and hit a fence panel.

134	Club Astir 3	3192	Minor	5.9.95	Lasham	70	Minor	267
-----	--------------	------	-------	--------	--------	----	-------	-----

The pilot landed normally on a little used but available landing area. He could not see a shallow trench running across his track caused by very dry conditions shrinking ground around a line of drainage pipes. Hitting this the pilot's head hit and cracked the canopy. As is common, there was not much clearance and his straps were a little loose.

135	Bocian	1437	Subst	14.9.95 1446	Kenley P2	42 -	None None	303 0
-----	--------	------	-------	-----------------	--------------	---------	--------------	----------

The pilot attempted to make a full airbrake and sideslip approach to land short on an air experience flight. At 50ft he applied rudder to bring the glider back into line but found he could not check the very high rate of descent. The glider landed very heavily at about 30° to the direction of travel and was substantially damaged.

136	Astir CS77	2318	Minor	8.8.95 1425	Gransden Lodge	50	None	82
-----	------------	------	-------	----------------	----------------	----	------	----

On his second flight of the day the pilot landed rather fast and a little firmly, then bounced back into the air. He made a normal second touchdown and was surprised to find that the undercarriage had collapsed.

137	Astir CS77	2318	Minor	21.7.95 1130	Gransden Lodge	50	None	42
-----	------------	------	-------	-----------------	----------------	----	------	----

The pilot tried unsuccessfully to use weak lift after a 1200ft winch launch. He then made an extra orbit, hit sink and had to position for the cross runway. After a low final turn he did not stabilise the approach speed and "put the glider down" rather than properly holding off. During several severe bounces the undercarriage collapsed.

138	Bocian	-	Minor	28.9.95 1440	Halesland	48 P2 40	None None	960 20min
-----	--------	---	-------	-----------------	-----------	-------------	--------------	--------------

The club member had just attached the winch cable and was walking away ready for the launch when the glider jumped forward. The wing hit his chest knocking him to the ground and causing severe bruising. The winch driver had started the engine, with the handbrake engaged but this hadn't been powerful enough to stop the drum turning.

139	K-8	3548	Subst	17.9.95 1538	Lee on Solent	43	None	4
-----	-----	------	-------	-----------------	---------------	----	------	---

The early solo pilot had a satisfactory check flight then flew solo. During the approach he was distracted from his speed control by parked gliders and a small power box. He landed fast, some 15° off line, and found he could not steer the glider with the rudder as he had pushed the nose skid to the ground, and the glider collided with a K-13.

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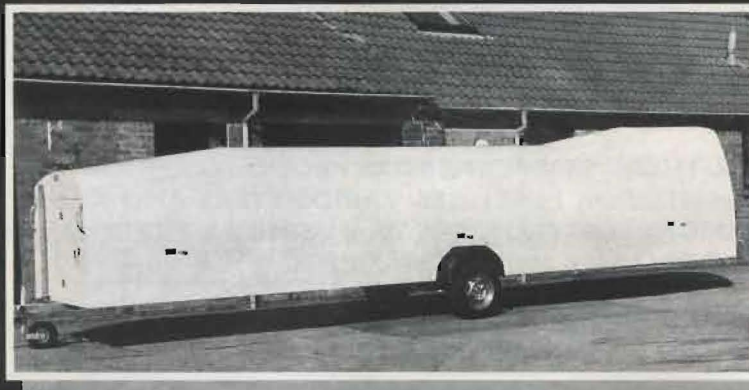
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