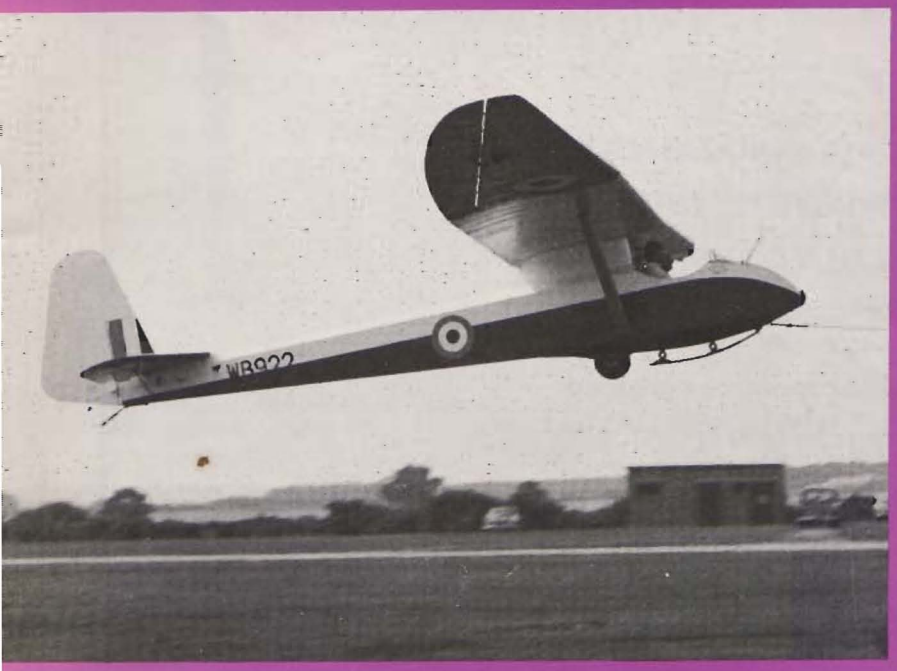
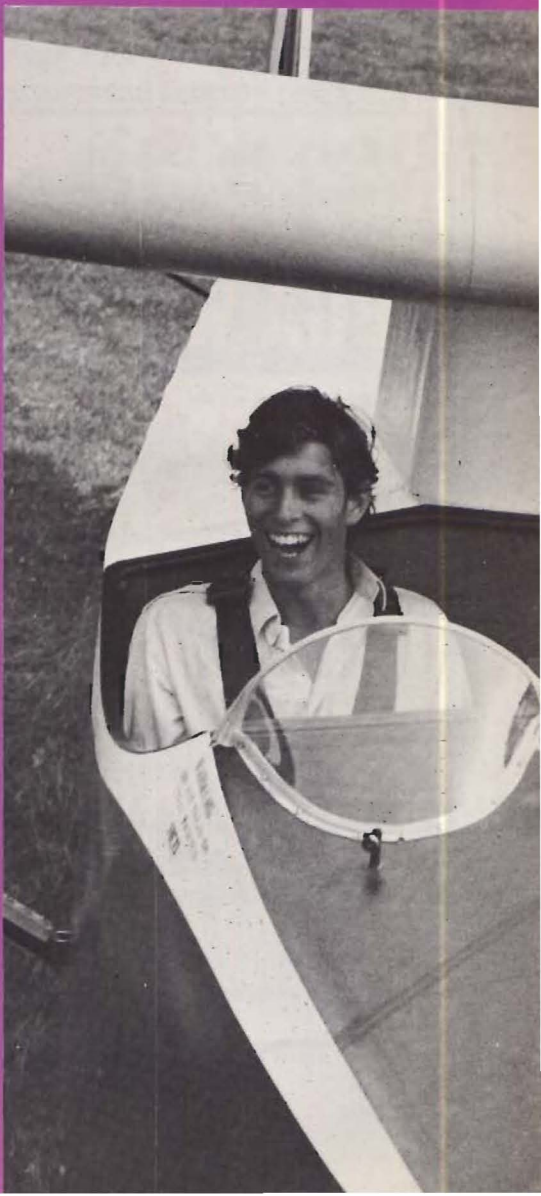
SAILPLANE & GLIDING

December 1976 – January 1977 50p



Prince Andrew
goes solo



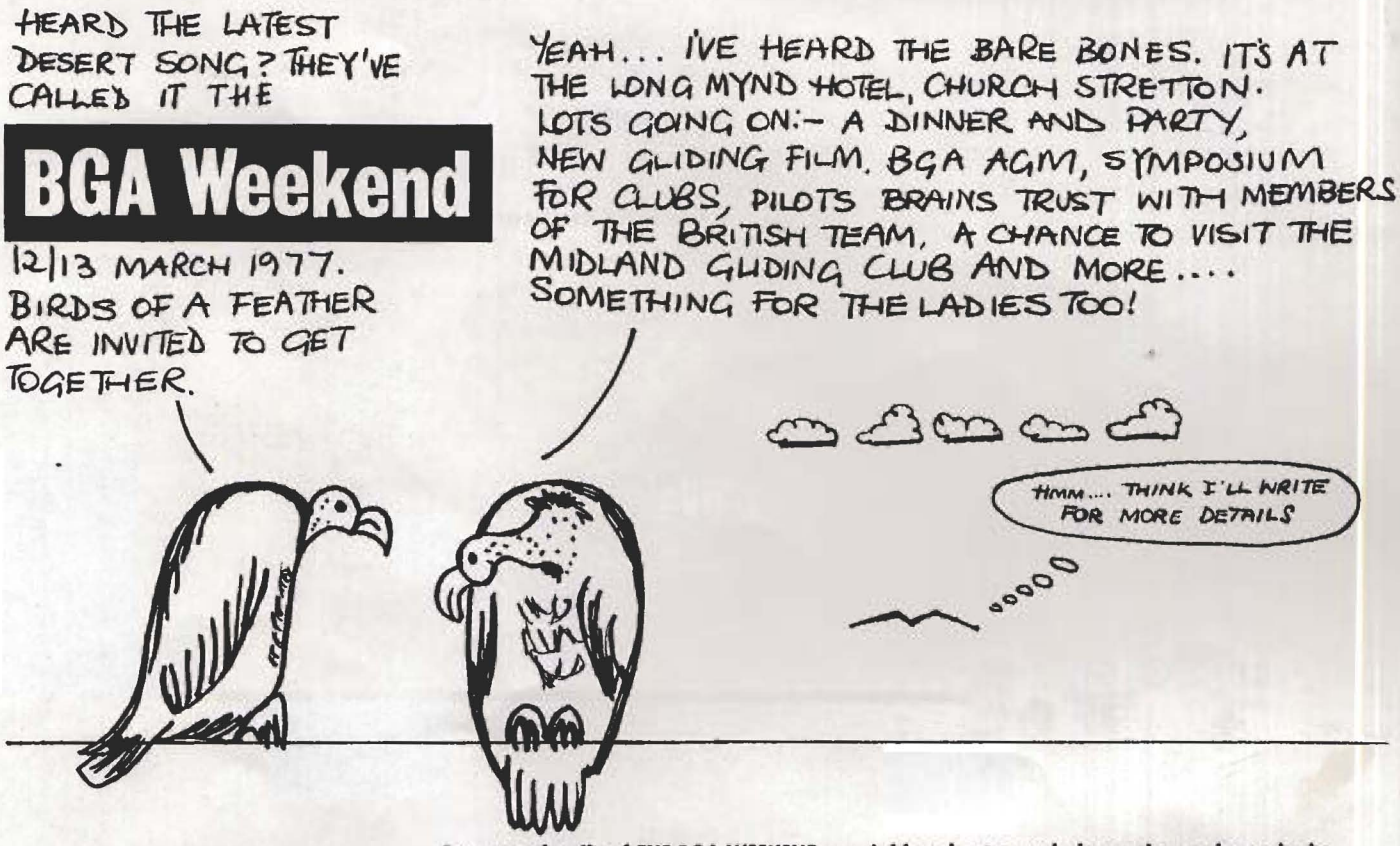


CUT THE COST OF FLYING
INSURE WITH **THE** GLIDING BROKERS

Ring Carol Taylor at THIRSK (0845) 23018 (24hr. Ansafone Service)
or write to:–

MOWBRAY VALE INSURANCE BROKERS
8 CASTLEGATE, THIRSK,
NORTH YORKSHIRE.
Telex 587333

All classes of Insurance transacted
Represented at Lloyds



For more details of THE BGA WEEKEND special hotel rates and alternative package deals
Write to: Marjorie Hobby, 256 Crowmere Road, Shrewsbury, SY2 5LF.

SAILPLANE & GLIDING

Magazine of the BRITISH GLIDING ASSOCIATION

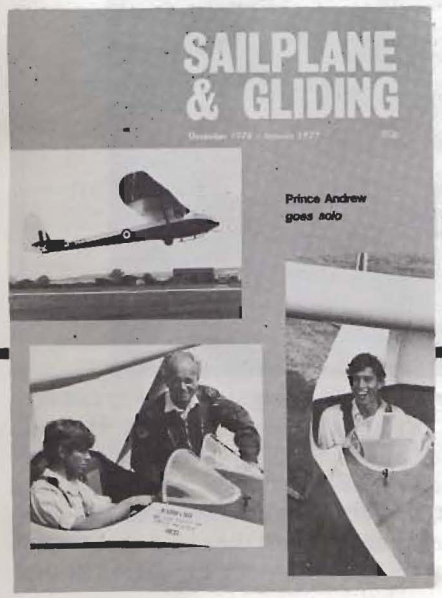
Editor:
Gillian Bryce-Smith, 281 Queen Edith's Way, Cambridge, CB1 4NH. Tel Cambridge 47725.

Consultant Editors:
Alan E. Slater
Rika Harwood, 66 Maisemore Gardens, Emsworth, Hants, Tel 024-34-4580

Subscriptions:
Jenny Rolfe. Tel Market Harborough 7084.

Committee:
A. W. F. Edwards (Chairman), M. Bird, and P. A. Wills

Advertisement Manager:
Peggy Miéville, Cheiron Press, 8/10 Parkway, London, NW1 7AD. Tel 01-267 1285



242 **Getting it Right!** G. E. Burton
244 **Hot-Dogging** N. G. Hackett
247 **It Could Have Been Worse** Rhoda Partridge
248 **Coaching Corner – Advanced Aerobatics** W. G. Scull
252 **Total Energy** J. Firth
253 **Doc Souper** C. E. Hall
Euroglide Sport Class Results
255 **The Saga of Diamond Height (Well Almost!)** R. A. Robertson
258 **Design Philosophy of Vega** G. E. Burton
261 **Fourth International Vintage Rally** A. Munro, C. Wills
262 **On Maintaining the Performance of Tugs and Avoiding Insolvency** R. B. Stratton
264 **Victoriana** S. N. Longland
267 **Sixth German Motor Glider Competition** P. T. Ross
268 **BGA and General News**
Competition Diary
270 **Nationals Entry List 1977**
Gliding Certificates
272 **Overseas News**
273 **Would You Believe a 500 Mile Ridge?** M. Beach
274 **Your Letters** I. Robertson, W. C. Lombard, P. Riedel, Dorothy Souper, M. C. Russell, H. Drew, G. W. Camp, M. Stott, D. B. James, A. E. Slater, R. R. Rodwell, Dee Reeves
277 **Book Reviews** Rika Harwood, F. G. Irving, S. N. Longland
278 **Club News**
282 **Service News**

Cover: Sixteen-year-old Prince Andrew, a corporal in the Gordonstoun School ATC, is photographed by Alan Roberts during and after his first solo at Milltown. Peter Bullivant, Prince Andrew's instructor, is in the bottom left-hand picture.

Volume XXVII No. 6 DECEMBER 1976-JANUARY 1977

Published by British Gliding Association
Kimberley House, Vaughan Way, Leicester. Telephone Leicester 51051

Printed by Creative Packaging, Eli Lilly & Co, Joule Road, Basingstoke, Hants.

Getting it right!

GEORGE BURTON recalls the build up to the World Championships in which he beat the rest of the competitors round a 300km triangle and took third place in the Standard Class.

The British Gliding Team of 1976 had their most successful international competition ever. Not unnaturally there are a lot of "how we dun it" scripts scorching around and Gillian kindly asked me to write a likely tale. The usual question is "how on earth did you manage to beat the rest of the World's pilots by half an hour round a 300km triangle". The answer is that I got two things exactly right – first I used the correct height band for the day and accepted the high risk of landing out when I got low; secondly I turned both turn points exactly according to theory, into wind low, down-wind high. That short description doesn't go far in S & G so to keep in Gilly's good books I will tell the story of how I came to be flying round that triangle – starting about a year ago.

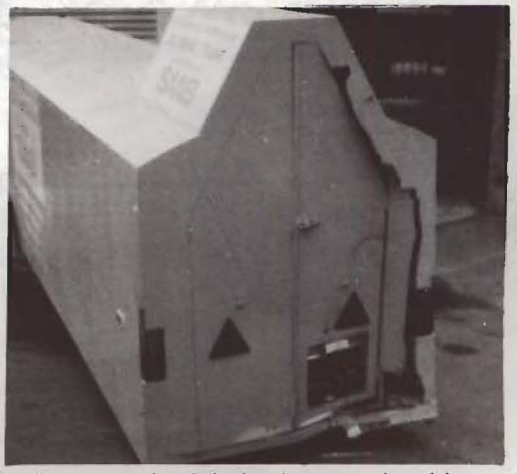
The British Team, you will remember, was selected from a short list of eight by the pilots voting system devised some years ago. The eight had in fact been made to fly a series of competitions in 1975 in order to give the selectors some current form for their choice. The top three places were almost an automatic choice and I was competing with J. Delafield and J. Williamson for the fourth. We were all Open Class pilots by recent performance but had flown Standard at some time. I maintained, and still do, that a good pilot can change from one Class to the other with little or no problems – certainly a few hours in the new ship would sort out any remaining. The result was that I was looking for a Standard Class glider at the end of 1975 – early 1976.

A manufacturer who gets chosen to fly in a world competition is automatically under some pressure to fly his own product. Can you imagine Holighaus flying an ASW-17? This sort of pressure was not new to me as a team pilot – I had to resist similar ministrations in 1968 when I chose to fly the SHK instead of the Slingsby T-14 which was offered: this year Slingsby had no competitive 15m ship so I felt free to make a choice based on performance alone.

In spite of the high speed tasks – in a world competition which has its share of bad weather, the result is often determined by the "poor" days. I felt therefore that I needed a ship with a good unballasted performance and my initial choice was for the DG-100: it has 11m^2 of wing area compared with the 10m^2 of most other Standard gliders and was obviously a good "scratcher". Glasflügel – under its new owner, Holighaus, was obviously upset by this decision and pressed me to fly the Hornet. My team compatriots said – "try the PIK". The Hornet did not fulfil my condition for a good low wing loading performance – with my weight in the cockpit I could not fly it at less than 7.4lb/sq ft. Additionally its wing was identical aerodynamically to a Std Libelle so I did not believe Glasflügel's claim that it had a better performance. I flew it and I also flew the PIK, the latter in comparison with the DG-100. At low speeds the PIK and the DG were almost identical but at high speeds the PIK had a marked advantage.

I opted for the PIK and Holighaus was obviously upset. Ralph Jones was in a similar position to my own of previous years – he almost had no option but to fly the Cirrus but he talked himself into a belief that it would go well if only he could load enough water into it. In my opinion this is a fundamental fallacy with an unflapped glider – if you gain at the top end you lose at the bottom: to add to this it was clear from the start that the Finns were not going to be misled by grubby bits of paper from the BGA saying that this was a special Cirrus capable of carrying x pounds of excess water!

The PIK I was to fly was to be ready for collection just before practice week started at Räyskälä and to make it even more attractive it had a Carbon Fibre Spar! – the technique which Slingsbys pioneered was at last becoming accepted as the *must* for soaring weight. My crew chief in Finland was to be Con Greaves – he had shown his skill at being where I landed in Australia and I was only too happy to have him again. When he picked me up at Helsinki Airport – having driven an empty trailer out – I could see that he was upset. A dockside crane had backed into the trailer on arrival at Turku and it was to be unusable for the competition. However PIK came to the rescue with a loaned



trailer and we were back in business again: this was not the only thing to upset Con through the competition. He had got off to a bad start when the RAFGSA gave contributions to the expenses of the other four RAFGSA members in the team but omitted Con. So far as I was concerned this was discriminatory and I told them so but they said that it was simply that Con had applied too late for his share! In the

competition itself Con did not seem to be quite as fit as he had been in Australia: there is always a "love hate" relationship between two competition pilots when one is crewing for the other and occasionally my sharp tongue would annoy Con to the point of retaliation – my fault and I'm glad he stuck it to the end.

The basic job of the Team Manager so far as I am concerned is to provide the right environment for his pilots to do their job: he should not have to "wet nurse" a convoy of people across Europe. Roger did not succeed in getting the GSA to change their mind on Con's expenses and psychologically it was a bad start for my own team.

Sticking to the spirit of the rules

The practice week was not bad but the weather was cold. The expected arguments about maximum all up weights arose and I thought the Finns solved them in a very sensible and forthright manner. I personally believe in sticking to the spirit of the rules and not trying to find devious routes round them. Roger (Team Manager) was basically of the same viewpoint but stated it as "we must not actually tell lies" in order to get the decisions we wanted. In the competition itself I got off to a slow start which is almost traditional with me. The weather did not help and we had only two days' flying in the first eight. One of them was the day on which Bernie did 400k whilst his nearest rival did 150k. The Standard Class was a no contest but it did raise a point in the rules which needs sorting out. The first ¼ of the field was launched and then a line squall came across the launch. The last competitors were offered launches into pouring rain. The rules should state that all competitors should be offered launches of equal opportunity or the day should be scrubbed.

The two good days we had were the cat's cradle day in which I flew 731km and the 300km triangle day which I won by half an hour. The last day was disaster for Bernie and glory for George. Roger had been given permission by the BGA Executive to order any one of us to help another if it looked by so doing we could increase his chances of winning. Unfortunately what the Executive did not do was to give him the power to control the weather.

George found a thermal and got to a reasonable height to start – Bernie lost all hope of going with him by trying to join him much too low down. George went off with the rest of the field and Bernie was left to accompany myself and the Standard Class who were launched second: for us it was a no contest day, for Bernie – disaster, so near and yet so far. I am sure he will learn from the experience and we shall see him amongst the leaders in the future.

I have highlighted not the "how I dun it" aspects of the World Championships but the events which seem almost secondary to the actual flying because I believe it is these events which set the stage to enable the pilot to do well. We had the best year ever as a British Team so judged on that alone there must have been more things right than wrong. I hope we can continue to learn by the experience and do even better in the future.

SOAR AHEAD WITH A 'BLANIK'

Unsurpassed in Performance and Reliability Fully Aerobatic
Now with Improved Airbrakes



2,000 Blaniks manufactured and production continuing

Get with it—join the 'BLANIK' set and progress in the 70's

Distributor for U.K. and Eire:

Peter Clifford Aviation Limited, Oxford Airport, Kidlington, Oxford

Tel. Kidlington 4262 Telex 837252 Cables: Cliffair, Oxford

Sole Exporter for Czechoslovak Aviation Products:

Omnipol Limited, Washingtonova 11, Prague 1, Czechoslovakia

HOT-DOGGING

NICHOLAS HACKETT, second in the 1975 National Ladder for private owners, writes about a cross-country thermalling technique.

No doubt most of us are familiar with the old clubhouse dictum – "Leave your thermal before the rate of climb falls off below cloudbase."

Until last summer I accepted this as one of the inscrutable truths of thermal soaring, although my somewhat limited knowledge of the theory of thermal development and cloud formation appeared to gainsay the phenomenon. Indeed one property and one effect of cloud formation contradict the assumption immediately. In the first place water vapour is relatively more buoyant than dry air, and secondly the latent heat of condensation can only enhance that buoyancy. In conditions where the cloud has a saturated superadiabatic temperature lapse rate, the effect is increased yet further. Nevertheless, there is no denying the fact that on certain days, in obviously booming conditions, lift appears to fade away just under the base of manifestly healthy and developing cumuli. We know from experience that in clouds of reasonable depth the rate of climb often increases a short distance above cloudbase, sometimes dramatically so, and yet the contradiction of "thermal lag" at cloudbase remains.

Climbing in five knot thermal

Let us therefore imagine ourselves on such a day, climbing towards cloud in a steady five knot thermal. At about 300ft below cloudbase, when we expect the lift to start falling off, we increase our speed during the last circle to the speed-to-fly figure on our calculator, say 82kt, and head off in the desired direction. Nine times out of ten we immediately hit strong sink and probably increase the speed even further to get through it quickly. A loss of height at this one point of 300–500ft may not be exceptional. In other words, the last minute's climb has been lost just getting out of the thermal.

Let us nevertheless continue the flight. In the next thermal we take the lift as previously, but instead of getting out at the pre-appointed time, we stay on for two or three circles in diminishing lift before increasing speed as before and departing. This time, instead of entering strong sink as expected, the following occurs: for a few seconds the rate of sink is negligible, or even non-existent, and at the same time the indicated air speed, or rate of acceleration, is reduced somewhat. A moment later, usually just before the periphery of the cloud, the speed suddenly increases by ten to 15kt, and the vario shows strong lift for maybe five seconds. Cursing either ourselves for bad thermalling, or else the core for changing places, we continue on our way.

These two examples are commonplace, and the interpretation, though varied, is usually on the following lines: "You have fallen through the bottom of the first thermal, and the strong lift encountered on exit was another thermal rising in its wake."

While I would not deny the truth of this in other circumstances, or lower down in the thermal, I would first return and consider the activity within the cloud itself. We know that our thermal slows down below cloudbase, but further up, due to the effects of condensation, the airmass slowly accelerates upwards again, indeed forming a new thermal within the cloud itself. Due to the combination of entrainment, suction, and the effects previously mentioned, cloud thermals can quickly expand in volume as well as increase in speed. We are therefore faced with a situation where a rising and expanding mass of air must be replaced, and we know that for some reason it is not being fed by our original thermal below cloudbase. The answer must lie in that band of lift we encountered at the edge of cloud in the second example.

If this is so, and indeed documented research appears to indicate that suction entrainment into cloud is lateral rather than vertical, then the thermal exit patterns described above become readily understandable, and the air currents encountered at least partly predictable.

Consequently, if our interpretation is correct, we can now formulate a new technique for leaving thermals with a terminal gain rather than loss of height, and likewise a quick way of entering cloud when the direct route is delayed.

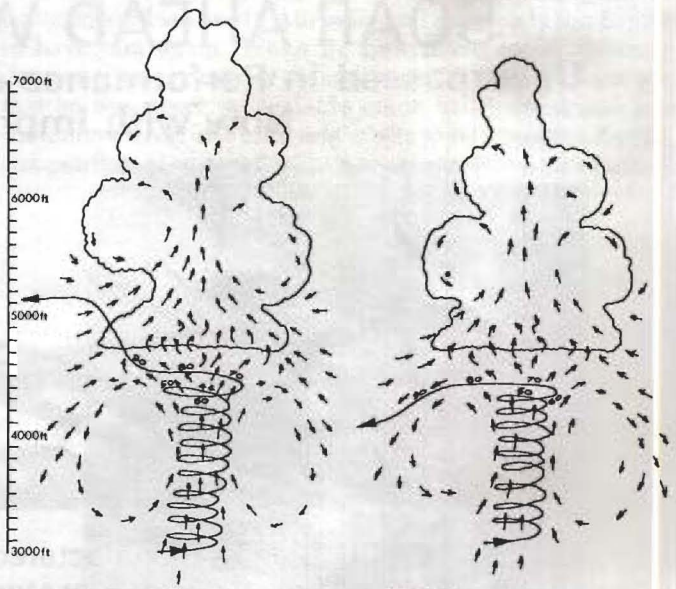


Fig 1a *Fig 1b*

On this basis, I have during the course of last season been using the following method for exiting from thermals when these conditions prevail. The technique is depicted diagrammatically in Fig 1a, while what might be called the standard method is shown in Fig 1b. This sequence of events is as follows:

Thermal up as one would normally until the rate of climb starts to decrease, then circle maybe twice more before

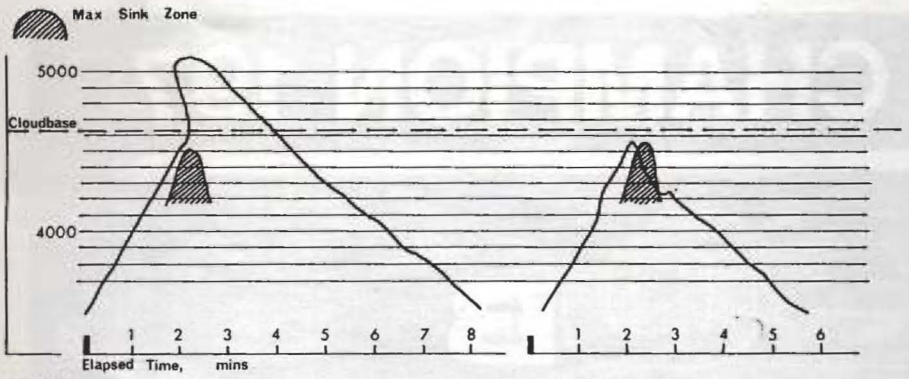


Fig 2a *Fig 2b*

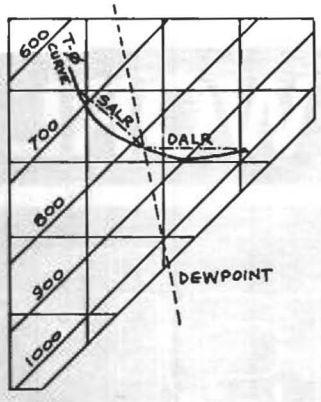


Fig 4

accelerating around the final circuit, aiming to approach the edge of cloud at a little less than maximum rough air speed. When you hit the lift pull right back and climb at about 45 degrees up through the edge of the cloud, rolling out at about best glide angle at the top before gradually feeding back speed until the speed-to-fly is reached again. The gain of height from this happy encounter of kinetic energy with thermal current can be considerable – anything up to 500ft, and moreover as a bonus the zone of maximum sink is overflown. The actual time in cloud is minimal – usually about two to four seconds.

One interesting corollary of this technique is its distinctive "footprint" on the barograph trace as opposed to the normal thermal climb-and-exit pattern. Fig 2 is a scaled representation of the two climbs and may be taken as roughly indicative of the conditions depicted in Fig 1. For ease of interpretation I have shown the so called "maximum sink zones" on the traces. It will be seen in Fig 2a that the climb trace rises at five knots to the top of the zone, where a momentarily shallower rate of ascent is shown as the rate of lift decreases and speed is increased. The sudden surge and backward trace of the needle up through cloudbase is indicative of the strength of the lift, while the gentle curve over the top shows the total absence of airmass sink at that point. This is in total contrast to the sharp sink encountered in Fig 2b, where the differing conditions produce the characteristically sharp point at the top of the climb, followed by a steep descent through the maximum sink zone and the subsequent kink where we enter neutral air and reduce speed again.

Fig 3 shows the barograph trace of an otherwise enjoyable flight in August which was hindered by 150km or so of perverse conditions between the first and second legs. Nevertheless it is a good example of the conditions and techniques discussed, and I have calibrated it accordingly to illustrate the points made. If we take cloudbase as our datum line, the two trace patterns above and below it become immediately apparent.

The gain achieved by this method, be it assessed in height, range or time, is not only the surge height, but the surge height plus the extra climb, plus the sink we would have forfeited had we exited at a lower level. In Fig 1 this may be seen to be 500ft (surge), 200ft (climb), + 300ft (sink) – *ie* 1000ft. I calculate the time required in the example to achieve this height differential to be about 45 seconds.

Other influences ignored

The following points should be noted. In the interests of clarity I have ignored any other influences on the thermal pattern, *ie* variations in the environmental lapse rate, relative humidity, and so on. An idealised representation of the conditions in question might thus be akin to the T-ϕ curve shown in Fig 4. We are therefore considering a situation where, all things being equal, strong thermal conditions throughout the unstable layer are punctuated by the one area of "lag" just below cloudbase.

A final note on safety. This technique is not for busy thermals. Lookout and cloud flying disciplines still apply. People do not expect gliders to enter cloud at an angle of 45 degrees at maximum rough air speed. Beware approaching gliders. Do not enter cloud if it is occupied, neither attempt the exercise if another glider is sharing your thermal anywhere near or above your own level. Considerations of pursuit apart, your abrupt elevation in the general direction of the stratosphere may be unnerving to the uninitiated.

Barograph trace of a 406km flight on August 17, 1975, from Husbands Bosworth via Whitchurch, Ledbury, Hereford and Silverstone. Total time, 6hrs, task time 5hrs 46min. Wind 285°/10, 260°/5.

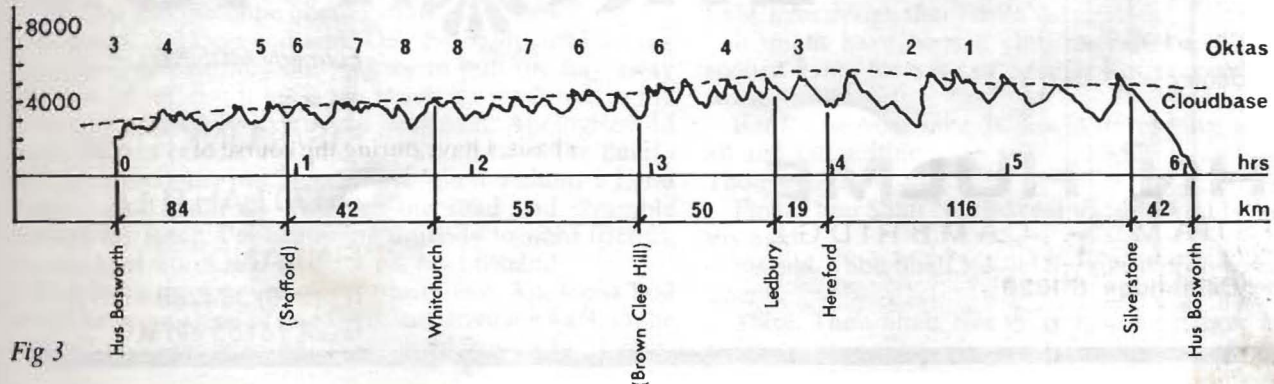


Fig 3

WORLD CHAMPION 1976



- ★ Certain epoxy, cured + 70° C/15 h guarantees the stability of material and form for the life span
- ★ Excellent high speed and low speed characteristics
- ★ Max. speed 292 km/h
- ★ Tight as a bottle
- ★ Flaperons and Schempp-Hirth dive brakes
- ★ Carbon fibre spars, empty weight below 230 kg

NOW the new PIK-20 D

available for fall 1977 deliveries

Contact our dealer

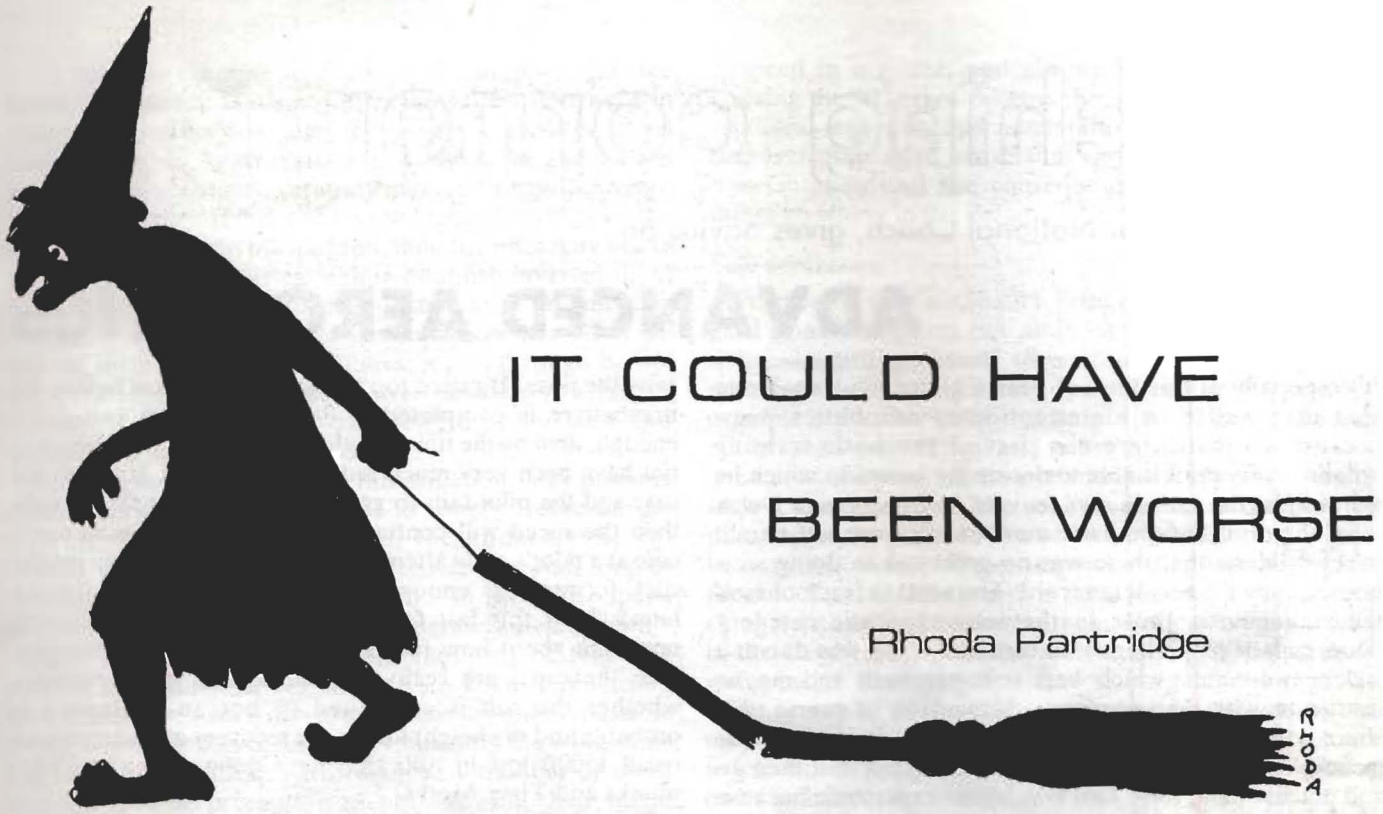
JOHN HULME
BOTTISHAM – CAMBRIDGE

Telephone Cambridge 811323

EIRI AVION

Formerly MOLINO OY

KISÄLLINKATU 8
15170 LAHTI 17
FINLAND
TEL (918) 334280
TELEX 16165 eiri sf



IT COULD HAVE BEEN WORSE

Rhoda Partridge

Shobdon. One of those unreasonably hot June days. Adjust the silver paper on my nose. Pull down my shirt sleeve because I just burnt my arm on the mike stalk and get launched into a Sicilian sky. Don't suppose I'll stay up.

Large areas of sink on tow but release in awkward broken lift and work it up to 3500ft, ventilator and DV scoop blowing desert hot air over my sweating face. Work another thermal over Presteigne and decide to visit the Mynd. Rather pleasant. Hadn't expected it to be so good. Head back towards Shobdon. Not so pleasant. Large areas of sink, like on tow. Oh Lord! I'm not going to have to land out am I? No retrieve fixed and no cash. Well, I won't get over those hills, that's for sure. Maybe I can sneak through the gap. Half way through and I could see I wasn't going to sneak anywhere. Back to what had looked like a landable area when I flew over it a few minutes before. Not looking so landable now. That field by the road? No. Wires. OK then, the hay field on the bank. Slopes up. Right. Here we go. No wind so keep the speed down. Odd. I thought it sloped up. But it's flat, and *BANG*! A searing pain across my back and I'm giving funny dry little coughs. This time, Rhoda, you've really done it. I knew what had happened because I'd done it before in an incipient sort of way at Dunstable. John Jeffries had said, "I let it happen to show you you *must* keep your speed up landing up hill." Some people never learn. A few feet from the ground and the slope doesn't show.

So now what? Legs and arms OK. Probably just hurt my ribs. Clamber painfully out and try to pull the hay away from the wheel. But it hurts too much, so plod over to the farmer who is baling hay in the next field. Apologise and may I use his phone? No phone. "You'll have the devil's own job getting her out. You'll never do it without a Land Rover." Plod painfully down to the road and scramble through the fence. I'm beginning urgently to want friends, whisky, kind words and, most of all, my husband.

Flag down the first vehicle. A transit van. Apologise and would he be an angel of goodness and drive me back to the airfield? A lovely bearded young man from a local commune. "We're not doing too badly. Self-sufficient in temperate zone foodstuffs. But it's terribly hard work." Back at the airfield I find kindness, comfort, coffee and a cigarette. Dave collects me a magnificent crew of four and a Land Rover and off we go. Hideously bumpy tracks and a Land Rover make poor transport for a lady with hurt ribs, but at last it's over and we are sinking blissful pints in a cool pub. A wounded Std Cirrus in her box outside.

Grievous internal injuries

After a horrific hot and sleepless night, re-living the landing, finding no position that eased my ribs and being dive-bombed by huge, furry, globular moths, I went back to the airfield and filled in an accident form. Hours? 800. Field landings? Over 20. Oh the shame! Then drove sadly home to Wales trailing my broken Broomstick. A couple of days later I set off at 4.30am and drove the 200 or so miles to Southern Sailplanes. They were kind and sympathetic and sorrowful. Grievous internal injuries. It would probably take about two months.

Drove sadly home again through the absurdly hot afternoon, pondering. It could have been worse. It could have been me with grievous internal injuries. I might even have damaged my precious back (and it speaks well for the Std Cirrus design that I didn't).

It might have been a club aircraft I'd ill-treated and spoiled flying for a lot of people. Yes, it could have been worse.

But for heavens sake, it should never have happened at all and I'm writing it up well and truly to underline three Thou Shalt Nots.

First. Thou Shalt Not leave it uncomfortably late to pick thy field.

Second. Thou Shalt Not let thy speed drop when landing up hill.

Third. Thou Shalt Not think it wilt not ever happen to thee.

coaching corner

BILL SCULL, Senior National Coach, gives advice on

ADVANCED AEROBATICS

It's especially at this time of year a glider pilot unable to soar may well turn his attention to aerobatics. Now because aerobatics are not part of the basic training syllabus every pilot is able to decide the extent to which he will practise the various manoeuvres. In days of yore it was often the case that the basic manoeuvres were self-taught in solo gliders; that there was no great risk in doing so is borne out by the accident record. The need to teach oneself the manoeuvres, those in the semi-aerobatic category (loop, chandelle, perhaps stall turn and spin), was due to a lack of two-seaters which were semi-aerobatic and maybe instructors with the experience. Nowadays, of course, this is not so and anyone who wants instruction in the *basic* manoeuvres (I stress the basic here) can get it and then go and practise them solo. This is valuable experience because in the solo practice things may go wrong and we learn how to sort them out – usually by doing nothing. I suppose that in relation to the basic training syllabus it represents an extension of the unusual exercise and certainly until you've been upside down with 20kt on the clock, hanging on the straps with the dirt falling from the cockpit floor, your experience is incomplete.

In recent years a change has come about. We now have many gliders which are "supposed" to be suitable for some rather more advanced aerobatics – rolling manoeuvres and inverted flight. The supposed is used advisedly. The gliders in question, ususally European in origin, are designed to meet requirements which include these advanced manoeuvres. However they are given a British certificate of airworthiness in the semi-aerobatic category. Without going into the reasons which have involved the Technical and the Instructors' Committees in lengthy debate, you can perhaps imagine the confusion in a pilot's mind when the glider's handbook says one thing and the placards another. A pilot with this conflict in his mind may well be tempted to try one or two new manoeuvres like flying upside down, or rolling, or a half roll off the top of a loop. He will reason that if he has been able to teach himself loops and chandelles, then he can do the same with these new manoeuvres. There is quite a bit of evidence about to suggest that this is not the case and what every pilot must understand is that when things go wrong in inverted flight or a roll, then they go wrong very much more quickly and with much more serious consequences than in the basic manoeuvres.

Rolling manoeuvres

The first thing that a pilot will learn from his glider's handbook is the entry speed. Having assimilated any other advice about carrying out the manoeuvre, and having summoned the courage or steeled his nerves, he dives to the entry speed. Now the first problem arises; how far to raise the nose? If raised too far speed will be lost before the manoeuvre is completed *ie* 360° roll. If not raised far enough, then by the time the glider is upside down there will not have been very much reduction in speed. If this is the case and the pilot fails to get the stick forward far enough, then the speed will continue to increase. In almost every case at a pilot's early attempts at rolling he will fail to get the stick forward far enough (the causes will be considered later). So if this last factor is probable and the pilot is uncertain about how far to raise the nose before starting, then the cards are really stacked against him; certainly whether the roll is continued or not an overspeed is probable and the height loss in the recovery considerable. (I recall 1500ft lost in rolls that have gone wrong in Chipmunks and Tiger Moths.

The other way in which the manoeuvre goes wrong is when it is started with insufficient speed or the nose is raised too high and the glider runs out of energy somewhere between inverted (180° of roll) and 270°. In this situation the pilot's natural response will be to try and "pull through", *ie* complete a half loop from the approximately inverted position. If late with this action – appreciate that the glider has stalled inverted, the nose is dropping and the speed will build up very quickly – a lot of *g* may be pulled at high speed. In addition the pilot might still have full aileron and rudder applied which will apply critical loads to the empennage. To all this you should add another factor not previously mentioned, disorientation. I tell you it requires many attempts before you can put a roll together so don't try and teach yourself*.

Inverted flight

In one's mind it is easy to think that this really can't be too difficult. Have you ever read a book and thought "I could do that" only to find in practice that you still slice or pull your drives on the golf tee or whatever?

There are two ways of getting your glider inverted, a half loop or a half roll; let's assume for the moment that you have got it there at the right speed (much higher for steady inverted flight than the right way up). First of all you have to hold the glider in the correct attitude, one which you've never seen before, and so you will need to monitor the airspeed. The stick position may surprise you; all right, you were told it would be well forward and it is, but putting it in that position may be difficult. It is only when truly hanging on the straps for the first time that you realise what "straps tight" should mean. It can easily be the case that you can't reach to get the stick in the right position; then your problems really start.

* *The aerobatic aspirant should read Neil Williams' book on aerobatics. In the introduction he says "Finally I had learned the secret of how to slow roll a Tiger accurately but I had paid for it. This one manoeuvre had taken two and a half years to perfect".* ***Aerobatics*** *by Neil Williams, published by Airlife Publications at £5.25.*

To start this example we made the assumption that the speed was correct. If it's not then things can go wrong in various ways. Too slow may require more elevator travel than is available. As you run out of elevator the glider stalls and the recovery almost certainly involves the pull through mentioned earlier. If the speed is too high, which may be the case in the entry from the half roll, then the pilot may fail to get the stick forward far enough to establish inverted flight because the combined problems of stick position and stick force may confuse him. The consequences here may be serious; there are three possibilities; a pull through before the speed increases even more, even so there is a risk of excessive *g*, a roll out or a push forward on the stick and stabilising in inverted flight.

Reduced thinking power in this situation, and possible disorientation, may cause a pilot to simply freeze on the controls. With the stick neutral, the glider's inherent stability will cause it to gradually recover by a half loop of considerable diameter – 2000ft or so – in which the speed will become excessive, 200kt in a moderately clean glider.

Have I discouraged you from thoughts of teaching yourself these manoeuvres? I hope so. Even if practising such manoeuvres isn't disastrous there are other possible consequences such as permanently buckling the wing skins and ruining the soaring performance. A number of clubs take the sensible precaution of not allowing their metal gliders to be aerobatted.

Simple aerobatics are a good way of extending one's experience and improving skill. Advanced aerobatics require specialist instruction and, even if it were possible to get this in gliders, the expense is considerable. The alternative of instruction in aeroplanes is worthy of consideration. The validity of it is, however, in some doubt.

Training in aeroplanes

The difference between the typical training aerobatic aeroplane with its very high drag when compared with the clean glider, should make it obvious that the real risk in the glider of exceeding the never-exceed speed is less likely in the aeroplane. However the need in an aeroplane to monitor engine speed can be likened to monitoring the airspeed in a glider, and closing the throttle is akin to opening the airbrakes. That is the limit of the similarities; attitudes, responses and acceleration will all be different. However practice in aeroplanes should reduce the risk of disorientation and the consequent alarm or fear when things go wrong in the gldier.

Solo aerobatics

Practice of solo aerobatics brings out the showman in most of us. Attendant risk at an early stage of experience is in committing oneself to a sequence and entering a manoeuvre at the incorrect speed. The worst possible example is the slow entry to a loop with the glider running out of speed near vertical and tail-sliding.

Later as one gains experience and the "display" continues to low level, the risks are greater due to inflexibility of planning or the possible loss of face in abandoning it. The beat-up is an outstanding example. Usually done to impress the onlookers, the aim is to pass them low and at high speed, climb, turn and land back near them. Critical in this exercise is the height and position at which the initial dive is commenced. Perhaps you aimed to pass the onlookers at 100kt or so but, due to your error of judgment, you would only pass them with 60kt on the clock. Will you be prepared to lose face by turning in early? The pilot that doesn't is the one who has the accident!

Summary

(1) Aerobatics are fun and extend the pilot – improving his skill.
(2) Advanced aerobatics are very difficult to teach oneself and the risks in doing so are great.
(3) Even if you have received training in aeroplanes (how recent was it?), you should only do advanced manoeuvres in gliders whilst in recent practice and if the C of A permits – never mind what the handbook says.
(4) It is very difficult to visualise the loads that are being, or may be, applied to the glider in advanced, asymmetric manoeuvres and perhaps even to know where to look for possible damage. Consider that it may be the next pilot who suffers the consequences of your irresponsibility.

SCHEIBE TWO-SEATER MOTOR GLIDERS : THE FIRST AND STILL THE BEST

Prices from £9750 + VAT



SF-32 Single Seater



SF-25C-76

The new 1976 models of both side by side two-seaters have improved canopy, increased baggage space and swept back fin and rudder.

SF-25E Superfalke 18m wing, 1 in 28/29 gliding angle. Feathering propeller. Optional folding wing. SF-25C Falke 15.3m wing. Both have Limbach engine with electric starter.

New single-seater SF-32 with fully electric raising and lowering of Rotax engine with electric start. 17m Elfe wings. Glide angle 1 in 37.

SF-28A Tandem Falke two-seater, 1 in 26/27 glide angle.

Demonstrations available at your site without obligation.

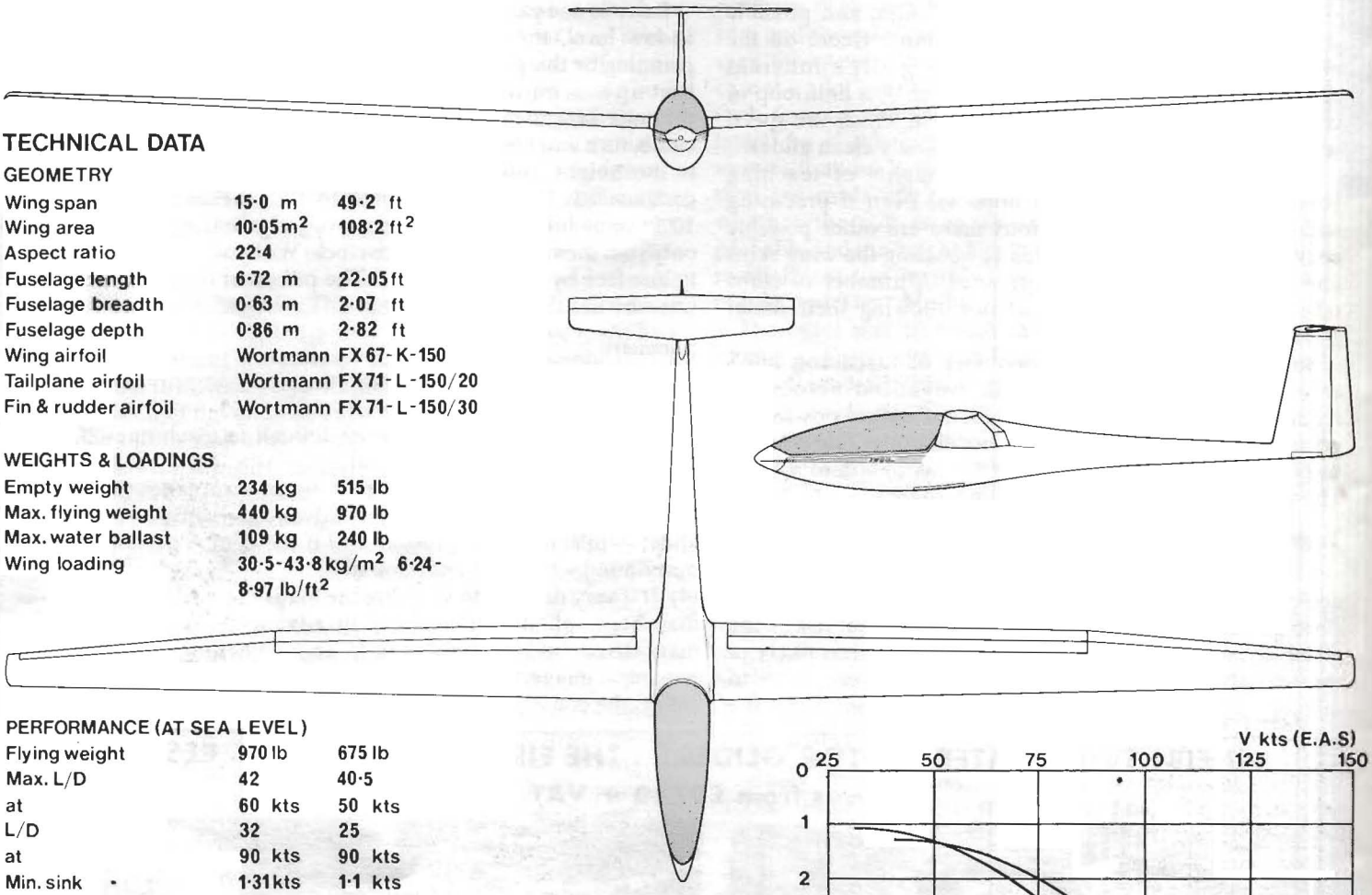
CRYSTAL ENGINEERING LTD., 13 POUND CRESCENT, MARLOW, BUCKS

Telephone Marlow 5740 (automatic answering service)

Vega

COMPETITION HIGH PERFORMANCE SAILPLANE FOR STANDARD CLASS

- Wide range of wing loading
- Carbon fibre main spar standard
- Glide ratio of 42 : 1
- Unique flap/brake system
- Excellent visibility
- Hinged canopy
- Retractable tailwheel and tow hook



TECHNICAL DATA

GEOMETRY

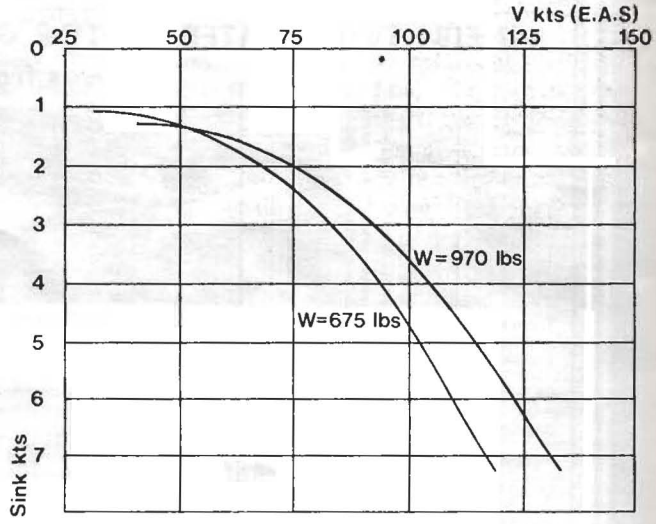
Wing span	15·0 m	49·2 ft
Wing area	10·05 m^2	108·2 ft^2
Aspect ratio	22·4	
Fuselage length	6·72 m	22·05 ft
Fuselage breadth	0·63 m	2·07 ft
Fuselage depth	0·86 m	2·82 ft
Wing airfoil	Wortmann FX 67-K-150	
Tailplane airfoil	Wortmann FX 71-L-150/20	
Fin & rudder airfoil	Wortmann FX 71-L-150/30	

WEIGHTS & LOADINGS

Empty weight	234 kg	515 lb
Max. flying weight	440 kg	970 lb
Max. water ballast	109 kg	240 lb
Wing loading	30·5-43·8 kg/m^2	6·24-8·97 lb/ft^2

PERFORMANCE (AT SEA LEVEL)

Flying weight	970 lb	675 lb
Max. L/D	42	40·5
at	60 kts	50 kts
L/D	32	25
at	90 kts	90 kts
Min. sink	1·31 kts	1·1 kts
at	44 kts	36 kts
Stalling speed	41 kts	34 kts



OPERATIONAL DATA

Max. flying speed	135 kts
Max. rough air speed	105 kts
Max. aero tow speed	80 kts
Max. winch launch speed	70 kts

The VEGA is designed to meet LFSM airworthiness requirements

Since it is our policy to strive for progressive design and performance, we reserve the right to change this specification without prior notice.

26·10·76

VICKERS-SLINGSBY Kirkbymoorside, York YO6 6EZ

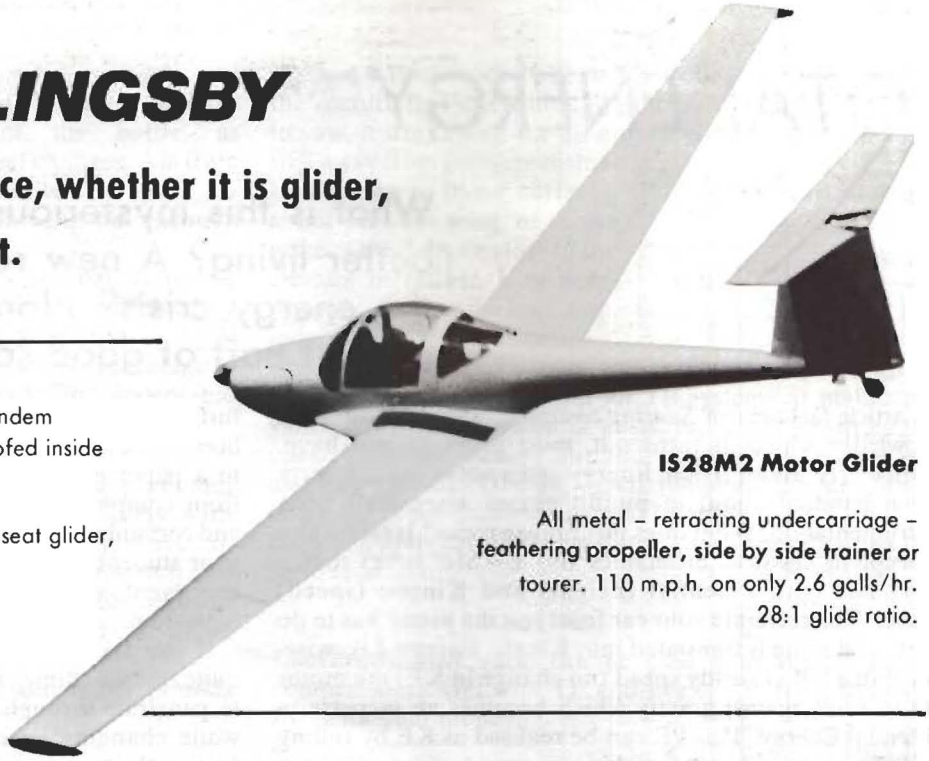
Tel 0751-31751
Telex 57911

VICKERS~SLINGSBY

Offers you the widest choice, whether it is glider, motor glider or instrument.

IS28B2 – high performance, all metal, tandem trainer, superb construction, corrosion proofed inside and out. Fully aerobatic 34:1 glide ratio.

IS29 – high performance, all metal single seat glider, 38:1 glide ratio.



IS28M2 Motor Glider

All metal – retracting undercarriage – feathering propeller, side by side trainer or tourer. 110 m.p.h. on only 2.6 galls/hr. 28:1 glide ratio.

INSTRUMENTS

ALTIMETERS

Wide range of altimeters, including KOLLSMAN, ex-Starfighters, 80,000 ft. yet sensitive enough to detect you walking up stairs!



PARACHUTES

McElfish and also the NEW Thomas thin pack: ideal for modern gliders.





AIRSPEED INDICATORS

The new Winter 6FMS4. 160 knots, 1½ turns, gives the right margin for those hot ships.



ARTIFICIAL HORIZONS

As new Ferranti Mk 6s. Also as new SPERRY Type A.1s – the Sperry equivalent of the J8.

VARIOMETERS

The new Winter STV5. 10 knots. Foster than the PZL. Available in large or small dial.



TURN AND SLIPS

American miniature.

Write for details to—

VICKERS~SLINGSBY Kirkbymoorside, York. Tel: 0751-31751 Telex 57911

TOTAL ENERGY

JOHN FIRTH

What is this mysterious force? A formula for better living? A new religion or a solution to the energy crisis? None of these but an important part of good soaring.

An article last year in *Soaring* assumed quite a lot of basic knowledge which, it turns out, most pilots do not have, particularly about Total Energy (compensation), a term much bandied about in pundit circles when discussing instrumentation. What does this phrase mean? It refers to a concept in classical mechanics (no $E=Mc^2$ here) that a body has both Potential (height) and Kinetic (speed) energy. To accelerate your car from rest the motor has to do work, and some is translated into Kinetic Energy. Likewise, to climb a hill at steady speed (no change in KE) the motor has to work against gravity which becomes an increase in Potential Energy. This PE can be realised as KE by rolling back down the hill again, picking up speed.

A glider in flight, likewise possesses both PE and KE, and can exchange one for the other, almost without loss, as the glider is a very efficient vehicle. One can trade speed for height, or *vice versa,* but only lift can help you increase the sum of the two, the Total Energy.

Why the interest in this quantity? The pilot wishes to find the best lift, not simply to increase his momentary rate of climb by pulling back on the stick. This we all know, is a *bad* thing; it leads to the dreaded stall and spin, thus inducing rapid loss of the coveted Total Energy. There is no easy way of measuring directly what the local air mass is doing; one has to measure the motion of the glider, by means of static (height) and pitot (speed) pressures, and infer from these what the air is doing. The simple vario measures only rate of change of height, and thus of PE.

Total Energy compensation attempts to remove the effects of changes of airspeed (unwanted or unintentional) on the vario display, so that it shows only the equivalent lift or sink as would be seen at a constant airspeed. The whole idea was developed in England in the early 50s, and helped Philip Wills win the World Contest in '52. MacCready did something similar with his famous Ring, and won in 1956.

Is TE just a gadget for contest pilots? By no means; any glider ever used for soaring needs TE compensation for the vario. Most students have trouble with airspeed control, especially when turning and watching the vario in a thermal. If they are further confused by "stick lift", then they will have little chance of learning to fly thermals properly. (The same may also be true for the instructor.) The more air time the students get, per tow, the better pilots they will be, and, if they learn to soar while still dual, the later frustrations as a solo pilot will be reduced.

I firmly believe that clubs should be teaching *soaring,* as well as the basics. If the club loses 90% of its pilots trained to solo, this is 90% wasted effort. Most persons, especially young ones, expect continuing progress. This means first of all, flying, then solo, licence, C badge, cross-country, Diamonds, competition and records. There is always a further achievement to contemplate. If progress stops at a licence, we have taken money from a beginner and led him to a paper qualification which may leave him anywhere from complete insecurity, to dangerous over-confidence, and certainly not as an accomplished pilot. Therefore, train your students to soar, and keep their lifetime interest and reap eventually their contribution to the sport. So much for digression.

If you take your ship wave flying, you will need to fly quite fast sometimes to hold position, and certainly in order to penetrate through sink. If you cannot rely on the vario while changing speed, you will have a very hard time finding the best part of the wave, or even staying up at all.

When you start flying high performance ships, airspeed control becomes even harder. In fact, in order to get the best out of a thermal, one is constantly changing airspeed, and must be able to rely on true readings from the vario. Going cross-country, or just joining a local thermal, you need to know if it is worth using. Is it 6kts or only 3kts? No good trying to decide this if the vario is pegged as you pull up. Good TE compensation will tell you the thermal strength to ± 1kt, as you slow down with a 2*g* pull up from 100kts.

There are four available methods; the original venturi, the diaphragm, the Brunswick tube (or TE) and electronic cleverness? They all rely on the same basic law; that change of airspeed with height follows the same square law as pitot (or venturi) pressure with speed. Seemingly fortuitous, but actually an inevitable result of the fundamental mechanics. The change in pitot pressure will be proportional to the change in KE. Hooray.

Method 1. Apply venturi suction (magnitude equal to the pitot pressure) to the vario, instead of connecting to the Static ports. As the pilot pulls up, the ship climbs, the static pressure falls but the venturi pressure falls *at the same rate.* There is no net change of pressure, and the vario continues to show the inherent sink rate.

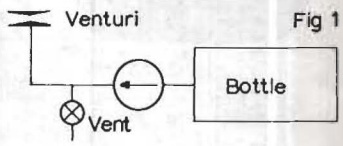


Fig 1

Problems. Venturis are yaw (and pitch) sensitive, and thus depart from the ideal response. Sensitive to rain and ice, they need a tap to vent the vario static in case they get plugged. Significant drag as originally made and mounted. Cost £15 to £25.

Method 2. The diaphragm was invented to take care of above problems and introduces compensating flow on the bottle side of the vario. The diaphragm is moved by the

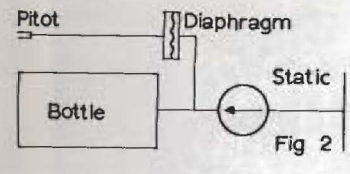


Fig 2

changing pitot pressure and thus changes the effective volume of the bottle, as the airspeed changes. Air from the bottle fills this space instead of flowing out through the vario.

Problems. Can only be set correctly for one height, unless one buys a very special and expensive one. Also affected by static port position (position error). Cost £15 to £150 (Schumann). Needs good static ports on the rear fuselage to work well. Limited range of airspeeds for acceptable operation.

Method 3. Electronic. Anything one can do with pipes and ports, one can do more cleverly and expensively with electronics. Modern electronic air data computers derive an airspeed signal from the pitot-static lines, and process it and apply it to the vario signal producing near perfect, adjustable, and filtered TE compensation. Great if you can afford it.

Problems. Needs rear fuselage statics and many pounds sterling.

Method 4. Brunswick Tube or TE Probe. A development of the venturi, less susceptible to rain and ice, and insensitive to yaw, it works well for all normal airspeeds, if mounted well away from pressure disturbances due to flying surfaces, *ie* not over the wing, or in the wake of the flaps, or close to the elevator or rudder. Low drag, when mounted on the fin, cheap, independent of static ports.

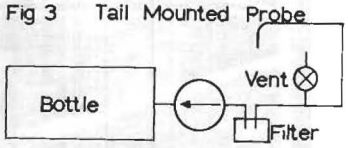


Fig 3 Tail Mounted Probe

Problems. Adds turbulence to the wanted signal, which disturbs fast varios. As with all TE systems, it makes the vario sensitive to horizontal gusts, especially sharp edged ones. A simple addition due independently to Schumann and Firth, prefilters the TE signal, removing the turbulence and some of the problems caused by sharp gusts. Commercially and aptly called a Gust Filter, it only slightly slows the vario response.

Conclusion. Any vario can be used with venturi or TE compensators. Get with TE and live it UP. It means more flying for your money.

DOC SOUPER



If ever you come to Tibenham on a Sunday morning, you may well see a couple of dozen members standing around chatting together, but if you also notice just one person wielding a shovel and attacking the weeds or concrete rubble, that will surely be . . . Doc Souper. Mind you, if you don't pay your flying fees before you leave, you may well be threatened by that same shovel.

Doc, whose 70th birthday was on October 19, is one of our most active members, a solo pilot with Silver C and a PPL, equally at home in Olympia, K-6 and Super Falke, or Cessna and Rallye.

She started flying in 1961, after seeing a glider fly overhead, and now has some 340 gliding hours plus another 140 powered. At present she is trying to organise a special task week for anyone over 65 (see p274).

Doc's other claim to fame is very low-level aerobatics and, to date, she has "rolled" at nought feet a K-6, a Westminster towcar and a 40ft trailer! After her birthday, Doc is off for a holiday in Egypt – ever seen a camel perform a slow-roll?

C. E. HALL

EUROGLIDE – SPORT CLASS RESULTS (Dunstable, August 21-30)

No.	Pilot	H'cap	Glider	21.8 1	22.8 2	23.8 3 *	24.8 4	25.8 5	26.8 6	Total Points
1	Versteege, A. F.	+ 100	Std Lib	729	855	987	928	898	841	5238
2	Rollings, C. C.	104	PIK 20B	302	939	959	889	952	940	4981
3	Murdoch, I.	90	K-6E	224	859	936	1000	1000	934	4953
4	Wells, M. D.	98	Std Lib	242	*949	786	958	963	880	4778
5	Hood, L. S.	100	Std Cir	236	910	873	946	976	812	4753
6	Stone, A. J.	100	Std Cir	584	792	716	824	869	947	4732
7	White, S. A.	104	PIK 20B	224	901	843	883	911	965	4727
8	Waller, C. J.	100	Std Cir	293	984	719	872	903	763	4534
9	de Bruine, T.	102	DG-100	223	999	699	837	953	797	4508
10	McLuckie, R.	100	Std Cir	218	1000	739	913	895	727	4492
11	Brownlow, J.	+ 100	Astir	249	836	711	701	931	1000	4428
12	Stafford-Allen, P.	100	Std Cir	218	784	837	890	931	756	4416
13	Burton, A. J.	98	Std Lib	113	827	742	926	910	840	4358
14	Dixon, R. T.	96	Std Lib	284	263	1000	911	947	917	4322
15	Harding, R. W.	100	Std Cir	210	899	706	722	858	923	4318
16	Hartley, K. J.	100	Std Cir	280	*238	922	736	931	993	4100
17	Mitchell, J.	90	K-6E	*360	*575	265	828	973	*902	3903
18	Norris, M.	100	Std Cir	249	383	679	863	898	744	3816
19	Wishart, R.	100	Std Cir	70	346	693	868	872	664	3513
20	Strachan, I. W.	88	SF-27M	233	512	711	984	733	0	3173
(20)	Hunt, R. D.	104	PIK 20B	149	–	(645)	(824)	(857)	(743)	149(3069)
21	van Gelder, A.	100	Std Cir	397	391	31	883	898	–	2600
22	St Pierre, A. H. G.	96	Std Lib	281	*354	649	238	691	167	2380
23	Watson, A. J.	98	Std Lib	199	*270	224	0	755	835	2283
24	Kreft/Effert	96	Phoebus 17	221	263	293	–	138	278	1073

+ = Handicap assumed 100; * = penalty; () = Hors Concours

Mike Bird's second article on Euroglide, when he will analyse the results in more technical detail, will be in a future issue.



Agents: **SOARING OXFORD** (P. Curtis, D. Lidbury & P. Pratelli)
90 Oxford Road, Garsington, Oxford OX9 9AE
Telephone 086 736 565 Telex 21792 ref. 908

U.K. REPAIR AGENT FOR THE ASTIR RANGE

CHILTERN SAILPLANES LTD.



INSTRUMENTATION
TRAILER FITTINGS

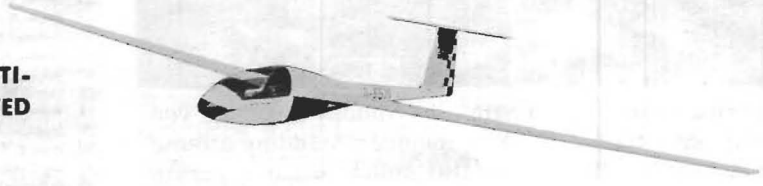
INITIAL & ANNUAL
C's of A – RESPRAYS

REPAIRS TO ALL
TYPES

BOOKER AIRFIELD, NR. MARLOW, BUCKS SL7 3DR
Access from M4 and M40 – TEL.: WORKS 0494-445854 – HOME 0865-890517

The complete welding service to glider pilots

- **ALL WELDING UNDERTAKEN**
- **WELDING EQUIPMENT SUPPLIED – AND SERVICED**
- **CUSTOM BUILT TRAILERS AT COMPETITIVE PRICES BOTH FULLY COMPLETED AND IN KITS**



TEC WELD

WORKS:

TEC WELD
CRAWLEY MILL
CRAWLEY, WITNEY
OXON.
TEL: 0993 71248

STOP PRESS:
ASTIR APPROVED W.I.G. WELDING NOW AVAILABLE FOR ASTIR AND ALL OTHER TYPES

The saga of Diamond height (well almost!)

R. A. ROBERTSON

Going high in gliders has always fascinated me. During those long dark winter evenings my thoughts turn not to 300 or 500km triangles under summer cumulus, but to the quiet solitude of a high climb in wave: of sitting quite alone in the snug cockpit of Std Cirrus 750 in blazing sunshine with no signs of motion except the steady winding upwards of the altimeter. With the clouds below slowly receding and absolute silence except for the gentle hiss of the frosty air slipping over the polished glass-fibre, the pure joy of going high is unassailable. How high have I been? Well, put it this way, I still don't have my Diamond height. Let me tell you why.

August 8, 1975, Nympsfield. My first taste of real altitude was not in my beloved wave but in a big black cu-nim which took me to 17500ft above Nympsfield and then iced me up solid to give a gain of height of 16000ft – 400ft short of Diamond.

March 28, 1976, Nympsfield. As the synoptic chart showed, everything pointed to a good wave day, so I arrived early at Nympsfield and rigged 750 hurriedly. Wave at Nympsfield is often clearly marked by a distinct wave gap over the Severn some five miles upwind to the north-west, and so I towed out to the cloud edge and released at 2200ft. Lift was very scrappy so I daren't go down to get a decent low point. A few gentle S turns under the ragged lead edge gave me about one microknot lift. After 15 minutes of hard scraping, lift increased to half a knot then to one, two, four and eight knots. I was in! Woof! Straight up past cloudbase, on past cloud tops with a reassuring wave gap apparently steady below me.

At 14000ft above site more or less directly over the town of Newent on the Severn Estuary, lift had dropped off to near zero so I decided to jump upwind to the next clearly defined gap over the Forest of Dean. This cost me some 3000ft flying at 100kt but, on reaching the gap, lift returned and we soon passed through 14000ft on the way upwards.

One piece of equipment I find invaluable for wave flying is the Dolphin or airmass indicator. Flying at speeds in excess of 90kts, it is all too easy to miss the smooth wave lift – I dare say at typical wave flying altitudes calibration leaves a lot to be desired, nevertheless it is a great help when pushing.

Anyway, this wave took me to 18400ft above Nympsfield then quit. Looking at my barograph trace as I write this, it's possible to see the way lift slowly dropped off to zero as I approached the crest of the wave. I tried every trick in the book to gain an extra margin but to no avail. After almost an hour at this height, I came to the conclusion that this wave had decided I had gone high enough. Gain this time – 16250ft, only 150ft short. "Ah well, never mind. I'm off to Portmoak next week. I'll crack it for sure there".

April 6, 1976, Portmoak. Well, I thought, at least they will be able to understand me on the radio up here. Again the weather chart showed all the classic signs of a promising wave day – fronts parallel to isobars, anti-cyclonic curvature of isobars.

After hurriedly smoking my barograph and checking over everything, a quick winch launch saw me ridge soaring the Bishop at around 2000ft in a moderate north-west flow. Thermal activity was vigorous with average strengths of 4-6kt with occasional ten knotters.

Now when I was learning the rudiments of wave soaring a few years back, I was always told "The wave will stay good until thermal activity starts. The thermals will then break it up". My experience has been exactly the opposite – certainly on this day (and many others in my book). The *only* way to contact wave was to climb in a strong thermal to cloudbase and push forward to the upwind edge of the cloud. Santilli's article in **Advanced Soaring** seems to fit in almost exactly with my findings.

". . . a giant elevator whisked us upwards into glorious sunshine . . ."

Anyway, I found a good ten knotter about half a mile back from a well defined cloud edge and climbed to cloudbase, 4000ft, and then pushed upwind in zero sink to the edge where, lo and behold, a giant elevator grabbed 750 and whisked us upwards into glorious sunshine. A rolling vista of wave bars unravelled as we travelled silently upwards. Pressing as far north as Perth, I climbed to about 15000ft and from this vantage point I could see a wave bar spreading away to the west towards Crieff where the wave amplitude seemed to be greater. So tracking along the leading edge of the cloud, now several thousand feet below me, I duly arrived north of Crieff over the Turret Reservoir where, some 50km NW of Portmoak in the primary from Ben Chonzie (3048ft), I slowly drifted up to 17500ft over some of the most rugged terrain I have ever flown over.

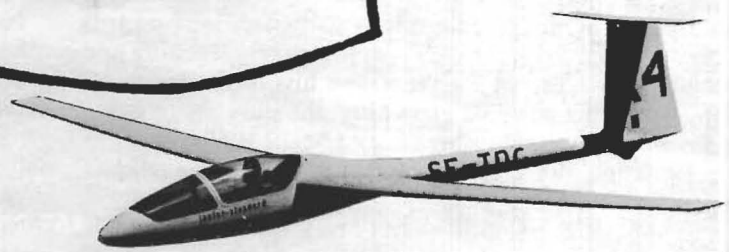
The view was spectacular with about $\frac{4}{8}$ cloud cover and snow peaked mountains separated by deep blue lochs. Heather fires showed the surface wind to be approximately the same direction as I was finding, although I had to fly at 85-90kt to maintain station over the ground. Try as I might, 17500ft was the top of the wave as far as I was concerned and, as I had been airborne for about five hours and Diamond height was in the bag by a healthy 800ft, I was happy and headed back to Portmoak.

Back at the clubhouse, my tame official observer opened the barograph and with a very pained expression declared it unreadable. In my haste to get airborne I had used rather poor quality paper and underdone the smoking. No amount of holding up to the light would enable us to see a complete trace – gloom and despondency reigned.

Next day, April 7, 1976, Portmoak. Conditions were similar to the previous day with the wind a little more northerly, so it was an aerotow on to Benarty Hill. A good low point was needed and then to work. Benarty Hill was working beautifully up to 1500ft over the Loch.

Contacting wave was again achieved by a good thermal climb to cloudbase and pressing forward to the anticipated

Anglo-Polish
SAILPLANES LTD

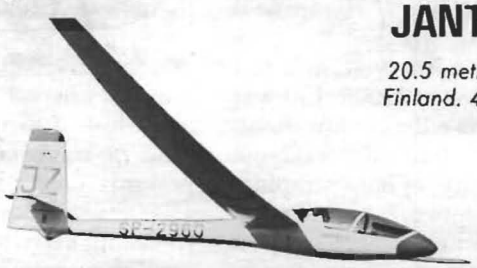


COBRA 15
15 metre sailplane 1:38 glide angle. Supplied with full set of flying instruments. Technical documentation and dust covers. Price on application.

PIRAT 15M
Club machine 1:33 glide angle. Supplied fully instrumented and set of dust covers.

STD JANTAR
Standard Class version of the well proved JANTAR 1; supplied fully instrumented and complete set of dust covers; with full technical documentation. 40:1 Glide Angle.

JANTAR 2A
20.5 metre. 2nd and 3rd, World Championships, Finland. 48:1 glide angle.



BOCIAN 1E
Two-seater Trainer 1:26 glide angle.
Supplied fully instrumented and set of dust covers



OGAR
Two-seater Training Motor Glider Limbach Pusher engine 68 HP Glide angle 1:27 supplied with full set of instruments.
Demonstrator at Booker NOW

PZL INSTRUMENTS STOCKED
Trade enquiries invited

For instrument repairs send direct to:
GLIDER INSTRUMENTS,
5 Glendevon Road,
Woodley, Reading, Berks
Telephone: Reading 696491

Aircraft ex-stock, immediate delivery

ANGLO-POLISH SAILPLANES LTD
WYCOMBE AIR PARK · BOOKER AIRFIELD · MARLOW · BUCKS

Telephone: High Wycombe (0494) 40911
24 hour answering service

Evenings: Bourne End (06285) 23458 and Maidenhead (0628) 39690

lift at the cloud edge which whisked me up to 9000ft over the Loch at 6kt. The wind was considerably lighter than the previous day and so I jumped two wave lengths to Perth and decided to retrace my steps to Crieff. Then, if conditions permitted, I would press further into the mountains in search of that elusive Diamond.

Ben Chonzie's primary took me to only 16000ft (only! – Don't we get blasé?) so I increased speed to 110kt and dived towards the snowy mountain peaks directly upwind to Loch Tay. With the day getting on, I didn't want to waste time tracking along the wave to find an easier crossing point. Arriving over Loch Tay I found what could only be described as a lenticular of classic shape with its top around 9000ft. This was obviously the primary off 3500ft Ben Lawers. Beautiful it was – working it was not!

Nowhere could I avoid the waterfall of air and when the altimeter dropped rapidly through 10000ft I remembered my early hill walking days in the area and the sort of terrain I was sinking towards and turned downwind to the more hospitable south.

Awed by the beautiful view but still lacking the 5000m gain, I sped back downwind to Portmoak throwing a few chandelles and loops as if in defiance of the elements saying "I'll be back next year for the Diamond!" If I remember correctly, nature answered me by stealing all my airspeed at the top of a loop causing all kinds of chaos in the cockpit. I was glad I had 8000 odd feet of air beneath me!

So there I was: three "almosts" in ten days. No Diamond height but probably the most exciting and certainly the most beautiful flying I've ever had. Disappointed? No, not really – after all, if I had made it I wouldn't have an excuse to return next year, would I?

London Sailplanes Ltd.

Tring Road, Dunstable, Beds.

Telephone Dunstable 62068

U.K. Agents for Tost and A. Schleicher

Open Monday to Saturday 9 a.m. to 6 p.m.

C.A.A. welding and re-sprays

Repairs to wood, glass-fibre and steel tube machines

Stocks of most materials for repairs and re-builds

Wide range of instruments in stock

Barograph and A.S.I. Calibration

NORFOLK SAILPLANES

UNDER SUPERVISION OF SENIOR INSPECTOR JOE PODOLSKI

Glider & Motor Glider Repairs & C. of A.

WOOD CONSTRUCTIONS A/C SPECIALISTS

WE CAN COLLECT OR DELIVER

"YELLOW WHEEL" 158 IPSWICH ROAD NORWICH

Telephone Day 53448/Evening 51691

WHY a MOSQUITO?

The Mosquito is the answer to the 15 Metre Unrestricted Class from the Glasflügel-Klaus Holighaus stable, combining the best in glass fibre (GRP) technology with proven "super ship" design ability.

Test flights have confirmed the success of the design and Mosquitos are now in production. The first U.K. ship will arrive in December '76 and will be based at Lasham.

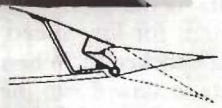
The design incorporates Performance Flap (as Nimbus, Kestrel, etc), but with revolutionary airbrakes/drag flap to give a steep slow descent when landing over obstructions. Once landing flaps have been selected a safety system prevents massive lift loss when the brake/flaps are closed in an undershoot situation.

The ship has a wide range of pilot weights, wing loadings and a high VNE. Typical of Glasflügel, detail finish, engineering and canopy fit are impressive.

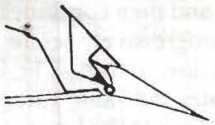
The large comfortable cockpit combined with excellent handling, visibility and control engineering means "low fatigue" – Ideal for successful decision making during long or difficult flights.

A deposit NOW will secure a delivery for 1978 season – still leaving time to compare alternatives as they come off the drawing board and actually fly. If Sterling falls – think of your deposit as an investment. When the Pound recovers, more reason to buy a Mosquito.

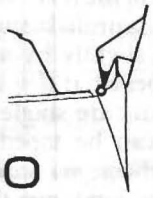




GLIDING & CLIMBING



LANDING



SHORT LANDING

mosquito from

GLASFLÜGEL

further details from

Tony Hanfrey *(Sole U.K. Agent)*

96 QUEEN STREET MAIDENHEAD, BERKS

Phone: Day 0628-26097 Evening 32641

Also at Lasham

There has been considerable interest in the Vega, the new British designed and manufactured glider due to emerge soon. GEORGE BURTON, Managing Director of Vickers-Slingsby, the manufacturers, gives us the following details.

DESIGN PHILOSOPHY OF VEGA

Vega is designed to be the best 15 metre racing class sailplane of all currently available. It borrows ideas from the PIK, the Mosquito and the Jantar and no apology is made for this – they all have good points and Vega compliments them.

Wings

These are almost identical in planform to the PIK and the Mosquito. The reason is they are the closest approximation to an ellipse using only one kink that we can get. They use the PIK-type downward curl on the tip: this does not really affect the aerodynamics but it protects the aileron when on the ground. The thickness/chord ratio is constant at 15%. The PIK thickens up to 17% at the root and I think the Mosquito does also. The reason is that if the spar is in glass then you pay a heavy weight penalty to maintain 15% right through to the root but this problem is overcome by using carbon for the spar.

The clever part of the wing is the trailing edge flap brake. This is similar to the Mosquito in its effect but the operation is completely different. They use two separate levers which means that the pilot has to select his flap position for landing then transfer his hand to the brake lever. In our system one lever does the lot. Starting with the lever fully forward the flaps are in the negative position for high speed flight. As the lever is moved back the flaps go to the down position for low speed and circling flight and the brakes remain locked in. When the pilot wants to land, or in a panic wants to slow down, he merely moves the lever through a gate and then continues pulling back. The brakes then open up progressively while the flaps deflect down further until both are at 60°. The aerodynamic forces on the brake counter the same forces on the flap, and so the forces the pilot feels in the lever are light at all speeds. The effect is like having a controllable tail parachute. The stall speed in fact decreases slightly by about 2kt so that the system is safe even if opened at low speed. The system is speed limiting.

The spars are single boom each side. The fillets on the fuselage can be taped up completely as opposed to the Kestrel where you could not tape the front portion where the canopy went over the wing. Ailerons and flaps are both 17% chord which is as Wortmann designed it when he produced the 67-K150 aerofoil. The ailerons droop and rise in conjunction with the flaps for normal flying but remain at the high lift position when the flaps deflect to 60° for landing. The coupling of all controls is automatic on rigging leaving only the centre pin to be inserted.

Up to 220lb of waterballast can be carried in the wings, contained in lightweight shaped plastic bags. The wings use a foam plastic sandwich construction for the profile. The foam is not water absorbent so that the problems which occurred with balsa are eliminated.

Fuselage

The fuselage plug was made from a Kestrel fuselage – hence it is the same cross section and profile as far back as the maximum cross section area. After this point it waists away very much more gradually until it again reaches the Kestrel cross section about one metre in front of the fin: this, together with the 15% thick wing root and the fillets, avoids any possibility of a root end vortex forming as happened on the prototype Kestrel 17.

The fin is different from the Kestrel. We are using a Wortmann, 15% thick section constant throughout its length with a 30% chord rudder. The spar of the fin goes down in front of the tailwheel well so that the tailwheel cut-out is now in non-structural glass. The result is that the whole structure is lighter than the Kestrel and a pound of weight saved here saves 5lb on the total structural weight. The rudder is now operated by cables direct on to the rudder horn: this saves in complication and weight and in fact saves sufficient for the retractable tailwheel not to be a penalty. The fairings for the rudder horn act as extraction ducts for the cockpit ventilation air.

A lighter and cleaner attachment

The junction between the tailplane and the fin occurs at a point 2in below the tailplane, *ie* a small piece of fin is permanently attached to the tailplane. The reason for this is that we can get a lighter and cleaner attachment because the fairing is now permanently moulded into the junction, and the actual join itself can be taped up to seal it completely.

WINTER BAROGRAPHS

MAIN STOCKISTS:

THERMAL EQUIPMENT LIMITED

Lasham Airfield, Alton, Hampshire

Telephone Herriard 359 or 0256-83 359

The canopy is the same bubble as was used on the Kestrel but it is now one piece and opens forwards and upwards. There is no cross bar so vision is unobstructed. The nose is attached to the canopy, it is non-structural, and the hinge line is right up in the nose. The result is a strong one piece structure which pivots cleanly away from the fuselage. Opening of the canopy is assisted by one of the compressed air struts which are now in common use on car boot lids. The canopy gap is sealed with a PIK-type inflatable tube. The air intake is in the nose with a pitot tube centrally in the orifice, again as on the PIK.

Cockpit adequate for a 6ft 6in pilot

The instrument panel cover is also attached to the canopy so that as you open the canopy you have completely free access to the instruments. The cover also stiffens the canopy which is pretty big and provides an attachment point for the pneumatic cylinder. The canopy is jettisoned by pulling a knob which releases the front hinge. It can then pivot upwards and backwards giving a clear exit for bale out. The instrument panel itself is a pedestal type which is easily removable. The cockpit size is adequate for a 6ft 6in pilot in comfort. We have increased the width by about 1in for the pilot's bottom by thinning down the push rod covers which were used in the Kestrel. The seat back is a simple pan fitting in a ratchet like the Jantar. It is removable completely for the tallest pilots. There is adequate luggage space over the spar junction.

The undercarriage is basically the same geometry as the Kestrel using lighter gauge tubing for its construction. The wheel size is the same as the Kestrel as also is the tailwheel. The retractable tailwheel is coupled by cable to the main undercarriage so that both retract together. The tailwheel door opens up well out of the way to avoid damage on landing but if it does get damaged it is easily removable. The towhook is attached to the undercarriage assembly so that it retracts with the undercarriage. It is in effect a C of G hook so that one will have to be careful not to go up too steeply at the start of the winch launch. There should be no problem on aerotow as the non-steerable tailwheel plus good directional stability with a large rudder should enable side winds to be coped with easily.

The tailplane is a symmetric Wortmann section with 20% elevator. The area is 12·4sq/ft (1·56m^2) and the stability should be good.

The range of wing loadings achievable is from approximately 6·24lb/ft^2 (30·5kg/m^2) up to 8·97lb/ft^2 (43·8kg/m^2). The thin wing together with the high wing loading gives a fantastic performance at high speed. The performance polars are calculated but it is easier to get it right at high speed and a glide ratio of 27.7:1 at 100kt is not achievable by many Open Class ships. The water is jettisonable by operating a knob in the cockpit. With the water gone the low weight achieved by using the carbon spar will give good weak thermalling ability. *(See p251 for technical details.)*

BGA

Christmas Cards



✸ **Packet of 10 cards with envelopes £1-00 (mail orders £1-20)**

✸ Also a limited number of 1977 AVIATION CALENDARS with 12 full colour magnificent photographs at **£2.50** or **£2.80** by post.

✸ The ideal Christmas Gift – a B.G.A. sweat shirt in blue cotton with fleecy lining (S, M or L) **£4.50** each or **£5** by post.

ORDER THESE ITEMS FROM

BRITISH GLIDING ASSOCIATION

SALES DEPT. - FREEPOST - LEICESTER LE1 7ZB

Telephone (0533) 51051

Cleveland Sailplanes

Specialists in REPAIRS, C of A and REBUILDS. Our staff are enthusiasts and fully qualified, so ring us up even if it's just for advice – that's free. We are competent to handle all materials: WOOD, METAL and GLASSFIBRE, MOTOR GLIDER REPAIRS, C of A's.

Call, write or phone for:

- **SPEEDY C of A and REPAIR SERVICE**
- **TRAILERS – WOOD or METAL**
- **AIRCRAFT MATERIALS**
- **NEW SKIDS**

Cleveland Sailplanes

MELMERBY INDUSTRIAL ESTATE
Near RIPON, W. YORKS
Telephone: Melmerby (076 584) 358
Night: Melmerby 297
N.B.—We have NO connection with any other organisation in this area

IRVIN

Introducing the
EB73
LOW-PROFILE PARACHUTE



Also available:
THE IRVIN EB62 & EB69

- All-up weight 6.7 kg (14.87lb)
- IRVIN lightweight 1.24 canopy
- 3-pin side opening pack
- 3-point quickly adjustable harness intergral with pack
- Full packing and servicing instructions supplied with parachute
- Suitable for Aircraft, Gliders & Helicopters

Height losses of less than 80m (260ft) between ripcord pulled and full canopy inflation were recorded during still-air drop tests of the EB73

For Full details write to:
Service Manager, Irvin Great Britain Limited, Letchworth, Herts SG6 1EU.
Tel: 6262 Telex 82198

AIRCRAFT INSURANCE

and

ALL TYPES OF INSURANCE

TRY THE SPECIALISTS

phone, call or write

J. A. Harrison (Brokers) Ltd.

"Security House"
160-161 BROMSGROVE STREET,
BIRMINGHAM B5 6NY
Telephone 021-692 1245 (10 lines)
a Century of SERVICE
For Keenest Rates, Service and Security

SOUTHDOWN AERO SERVICES LTD.

offers YOU a complete gliding service whether your sailplane is made of wood, metal or glass-fibre.

Big stock of aircraft ply, instruments, aerotow rope, etc., etc

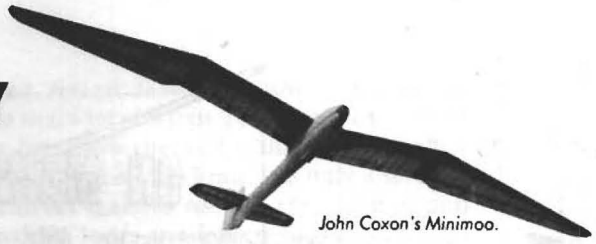
Call in, write or phone—
KEN FRIPP,
SOUTHDOWN AERO SERVICES LIMITED,
LASHAM AIRFIELD, ALTON, HAMPSHIRE.
Telephone: Herriard 359 or 0256-83 359

Stockists for all
PZL Instruments and Equipment

FOURTH INTERNATIONAL VINTAGE RALLY

Dunstable (July 31 – August 7)

Extracts from an account by ANGUS MUNRO and CHRIS WILLS



John Coxon's Minimoo.

Dudley Hiscox, who started gliding during 1930 and is Britain's oldest glider pilot to be still flying, opened the Rally and by the end of the first day 28 gliders had booked in with two reaching the London GC site later.



German Minimoa which was "bought" for a crate of beer in France and restored.

Werner Tschorn's Weihe had a wing tip damaged on the ferry and Jeff Butt, Senior Inspector at Dunstable, completed the repair late on Friday afternoon in time for another session in the workshop that evening – Jost Frei's Weihe had identical damage.

The Vintage GC's cup for *Concours d'Elegance* went to Werner von Arx's Swiss Minimoa and was judged on the Saturday by Roger Barrett, BGA Chairman, Dick Stratton, BGA Chief Technical Officer, and Chris Wills. Gull-winged gliders flew in formation for the benefit of television cameramen and local and hill soaring completed the day's gliding.

On Sunday, August 1, Werner Tschorn from Cologne, flew to Old Warden in superb thermal conditions and Peter Allen took the Grunau to Cranfield, while there were climbs over the site to more than 6000ft. Never have so many vintage gliders been so high at the same time. The Scud 3 surpassed all in climb performance and Bill Kronfeld, son of the famous pioneer, flew the Kranich for two hours.

The weather was similar on Monday, August 2, but with a fresher WSW wind. Two tasks were set, a 95km triangle for the "high-performance machines" and a 65km out-and-return for the Grunau Baby Class. Many pilots battled away all day and Werner Tschorn, airborne for more than seven hours, landed with Jost Frei and John Bacon (Oly 2) at Finmere. Rene Notter (Meise) from Switzerland got back from the first turning point.



Ted Hull and Graham Saw with the recently imported Rhönbussord which flew during the rally for the first time in 12 years.

On Tuesday, August 3, the weather was bleak but in the afternoon Willi Schwarzenbach (Spalinger S-18) made a fine flight up wind with a small loss of height to Leighton Buzzard. The great event of the day was the first flight of the recently imported Rhönbussard (BGA 2077), with short span ailerons, flown by Chuck Bentson on a "pink ticket" (a temporary permit to fly). It was a complete success and the machine proved very controllable laterally.

Wednesday, August 4, brought better weather with light westerly winds and early cumulus. Tommy Gormall and Chris Wills (Kranich), Peter O'Donald (Kite 2) and Martin Breen (Mü 13D) completed a 165km triangle via Blenheim Palace and Bicester.



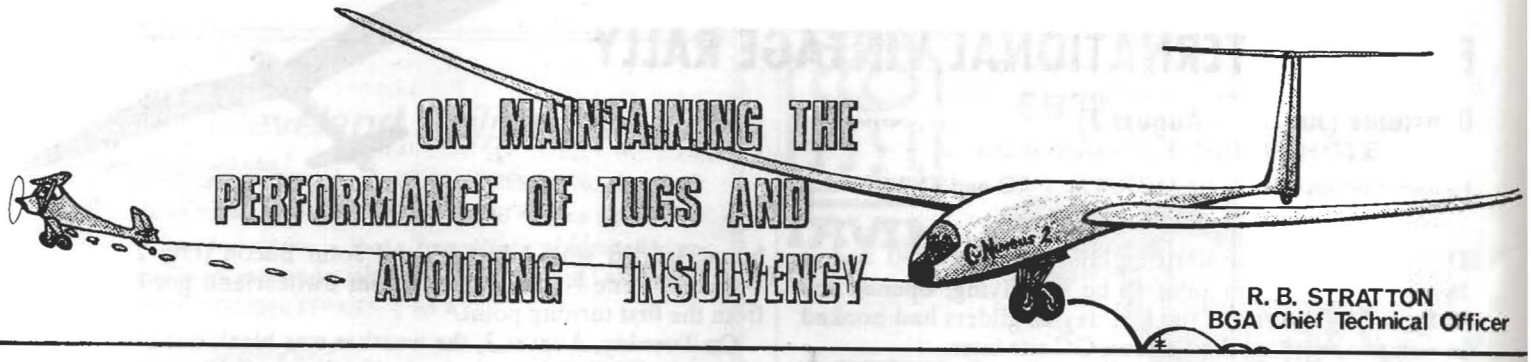
Meise.

On Thursday, August 5, Werner Tschorn flew a 160km triangle, Husbands Bosworth, Silverstone, in 2¾hrs with Jost Frei coming second. Ron Davidson (Petrel) made the fastest time round the smaller triangle set on that day.

A dog leg task on Friday, August 6, to Olney Church and Old Warden, resulted in 20 gliders arriving at Old Warden and there were grateful thanks to the Super Tiger Moth pilot, Geoff Salt (from Redhill to help with the tugging during the Rally), who aerotowed the gliders back. Ted Hull (Rhönbussard BGA 2099) made it back under his own steam in the evening thermals.

Saturday, August 6, was a day of local soaring with a chance to fly each other's aircraft. Geoffrey Stephenson, who flew cross-Channel in a Gull 1 in 1939, was the guest of honour and his wife Beryl presented the prizes.

The Precision Pulley's trophy, presented by the Rally's sponsor for the glider logging the most time in the air – Werner Tschorn's Weihe with more than 25hrs; Brandon trophy for best lady pilot – Gisella Dreskornfeld (German Minimoa team) and the London GC plate for the most meritorious flight – Rene Notter for his flight on the Tuesday. Various other awards were made and the day ended with a barbecue and disco. Throughout the Rally there were lively and enjoyable social functions and the atmosphere of the great event will linger at Dunstable for a long time.



ON MAINTAINING THE PERFORMANCE OF TUGS AND AVOIDING INSOLVENCY

R. B. STRATTON
BGA Chief Technical Officer

From time to time beleaguered gliding club operators contact me about the performance problems of tugs and with one or other of my several hats on, I have become very familiar with the scatter that can occur.

Flight manual performance for American types is always optimistic, because it is based upon a calibrated engine, in an immaculate airframe, of below average weight, tested or corrected for dry conditions in Arizona! British Flight Manuals are factored to allow for normal scatter, arising from deterioration, and are, therefore, more reliable. The Flight Test Dept of the CAA are well aware of these discrepancies, and should be consulted where necessary, if you cannot account for your deviations from published figures.

High humidity will have significant effects upon engine performance, as water vapour displaces air, and the charge density decreases with increased humidity. The secondary effect of reduced charge density is to create an over-rich mixture, to which must be added the further effect of slower burning and slightly reduced BMEP (Brake Mean Effective Pressure!). Overall, 5% of engine power may be lost due to high humidity. At 96°F (35°C) the water vapour content will be eight times greater than at 42°F (5°C), and 10% should be added to scheduled take-off distances in muggy conditions.

High induction air temperature (whether due to high ambient OAT, or to intake duct leaks and poor shutter sealing in the Carb-heater box), has a disastrous effect upon engine power, and a 1% loss for every 10°F rise above 59°F (+15°C), is a good rule of thumb assessment. Hot air further reduces the charge density, and richens the mixture.

Loss of Ram Air, whether due to contaminated air cleaner element, or to the selection of alternate air or hot air systems, can lose 15% in the worst case. (The loss of Ram Air alone is worth 3%. Adding hot air, and its side effects on mixture, brings the total loss to nearer 15%.)

Ignition and its effects on power. One magneto out is worth about 3%. Incorrect ignition timing either way will put the engine off-peak.

Fouled, or incorrectly gapped plugs subtract from the total, and fouled plug barrel connectors (or cigarettes) can reduce the HT voltage at the electrode gaps. Check carefully for cracks or signs of flash-over inside the porcelain of the connector. Check that the spring is making a positive contact, and there is no gap between the spring and the plug.

Clean inside the barrel and the cigarette end, and do not expose them to moisture, even from your fingers. The HT voltage of typical USA magnetos is much higher than the old UK types and the temptation to "flash-over" is that much greater too!

Induction leaks, either upstream or downstream of the carburettor, are bad news. The upstream leaks reduce the dynamic intake, and encourage the injection of hot air. Downstream leaks weaken the mixture!

Compression checks. Although there are both pressure gauge and air-flow-meter types of compression testers, there is no real substitute for hand turning the prop, and counting the "pots". Using a pressure test device coupled to a compressed air source, it is possible to check the source of the losses by listening to the crankcase-breather, the induction or the exhaust systems. "Soft-pots" are not good news powerwise, but the effect on static rpm is not always significant.

Blow-by the pistons into the crankcase, raises the oil temperature, the oil consumption and allows oil into the combustion chambers to foul the plugs, and to slightly lower the effective octane rating of the fuel. Blow-by causes maximum power loss at maximum power at take-off or in the climb, when the BMEP is also at maximum.

Propellers: All other things being equal (infrequently), the propeller may have greater impact upon performance than any other factor.

(a) The correct type of propeller is a matter of careful consideration. High static rpm (and high tip-speed), reduces propeller efficiency. Equally, coarse-pitch blades produce low rpm, low BHP, but higher efficiency. (The power required to drive a propeller varies as the cube of the rpm). Propeller science is anything but exact, and very fat rules of thumb have been applied since the theory was evolved in 1909! The environmental considerations of fuel economy and noise have activated the propeller and ducted-propeller designers to unbung their think-tanks and hopefully propulsion efficiencies will increase.

(b) Fine-pitch (high rpm) propellers do not have all the advantages in the glider towing business. High rpm means increased power, fuel consumption, heat and, sometimes, vibration levels. There may be a close relationship between high operating costs and high rpm. The balance between optimum climb performance and optimised engineering costs may be a fine one.

(c) Propeller maintenance. A dirty prop is bad news. One often sees leading edges and trailing faces caked with compressed grass and dead flies. (Motor gliders are particularly susceptible - if you have little performance to begin with, you don't have much to lose.) Propeller blades should be cleaned daily, and inspected in accordance with CAA Notice No. 55, for signs of damage which may lead to blade failure.

"Re-working" propellers may include cropping them

span-wise, as well as changing their camber, and reducing their chord, all within manufacturers limits! The static rpm of the engine/propeller combination seldom seems to change significantly, perhaps because co-incidentally, one compensates for the other, but there is evidence to show that the effect upon aircraft performance is more dramatic.

The only true test is an accurately performed flight test, where the weight, cg, ASI and engine parameters are carefully monitored, and the test conducted in dormant meteorological conditions by a consistent pilot.

Over the years, grossly inaccurate or modestly dishonest climb performance testing has led to scatter of a devastating magnitude, such that subsequent C of A renewal tests are wildly adrift from previous records. Inevitably there is hassle with the CAA! In my opinion, it is better to declare the performance as measured and not to embellish the results in order to avoid the hassle. Hopefully, where public transport operation is not involved, CAA will trade-off honesty for hassle!

Airframes. Overweight and slovenly airframes suffer as much from reduced performance as do human beings. Battered leading edges (so often seen on ex-Army Auster 6s - Terrier to you), gaps in cowlings and fairings, dirt, flies, mud and cow dung, are excellent consumers of fuel, power and performance. Evidence to this effect came my way dramatically having completed C of A performance climbs on 18 or more Chipmunks. The mean average was about 750ft/min corrected to ISA (+15°C). One, however, performed at 840ft/min for apparently the same weight and power. (Static rpm). This one was ex-Queen's Flight, now G-BCGC at Culdrose, which was obviously a very clean airframe, in the total mechanical engineering sense.

So if you want a check list by which to attempt to recover some lost performance you are strongly recommended to *"do"* the following:

(a) Check the intake filter, ducting, and hot/cold shutter systems. Clean or replace the filter regularly - shake-out the greenfly daily. Wash out the flame-traps on Gypsy-engined tugs, which may have become covered with oil and flies.

(b) Check that the mixture settings are correct for the particular engine. A rise of rpm should occur when the mixture is cleaned. Jets erode with fuel flow, and at fuel flows of 7 gallon/hr, a main jet will pass 14000 gallons in 2000hrs! It may not have been flow checked at the last overhaul, or it may have been accepted on top limit. It is only a small hole!

(c) Check for correct ignition timing, and ignition performance. Damaged HT leads and fouled plug-end connectors drain off energy. Contact springs should make good contact in the barrel of the plug.

(d) Check plugs for fouling. Clean and gap as required, and look for signs of incorrect mixture or over oiling on the hot end of the plug.

(e) Check for low compressions, and signs of blow-by. Monitor the oil consumption. If in doubt, test with a pressure tester coupled to an air supply, and listen for the leaks. Accurate diagnosis will pay for the test equipment, if you cannot borrow one from the local garage! Top-overhaul and re-ring as necessary to restore performance.

(f) Clean propellers, all over, for optimum performance. Look before you leap into a change of propeller in favour of high rpm, high-tip speed variants with reduced efficiency. **Wooden propellers,** well and accurately made in USA or Germany (or by your local cottage industry at home) are better vibration wise, do less damage when you bang into something and may not have diminished performance. (Tests with a Hoffman on a Chipmunk, proved this point!)

(g) Clean airframes must be kept clean in both the domestic and mechanical engineering senses and surplus weight in terms of bodies, fuel and "bric-a-brac" should be off-loaded.

(h) Carry out your climb performance tests at accurately known weights and speeds, without slip, and in dormant conditions. Correct them for deviations from ISA (15°C) at the rate of 4ft/min for every 1°C. Add the correction if the temperature is higher and *vice-versa.*

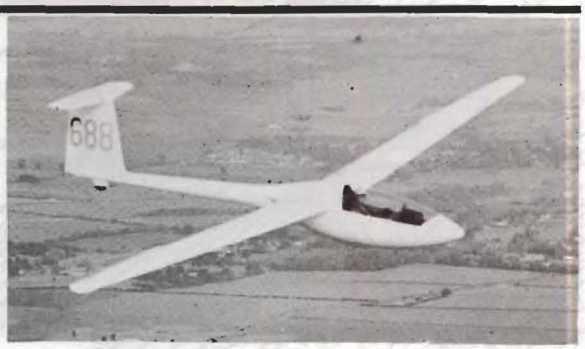
Dont's to avoid both financial and mechanical engineering bankruptcy: Do not waste time in the air or on the ground. Do not aerotow T-21s or other dragsters. (Modernise your glider fleet to match your tug capability). Never use tugs where winching, autotowing, or bungey launching, would be more cost effective. Do not neglect your tug fleet. Do not attempt short-field take-offs on a muggy day!

pik 20

SERIES OF COMPETITION WINNING

Super Sailplanes from FINLAND

EUROGLIDE 1976 1st Chris Rollings PIK20B
3rd Steve White PIK20B



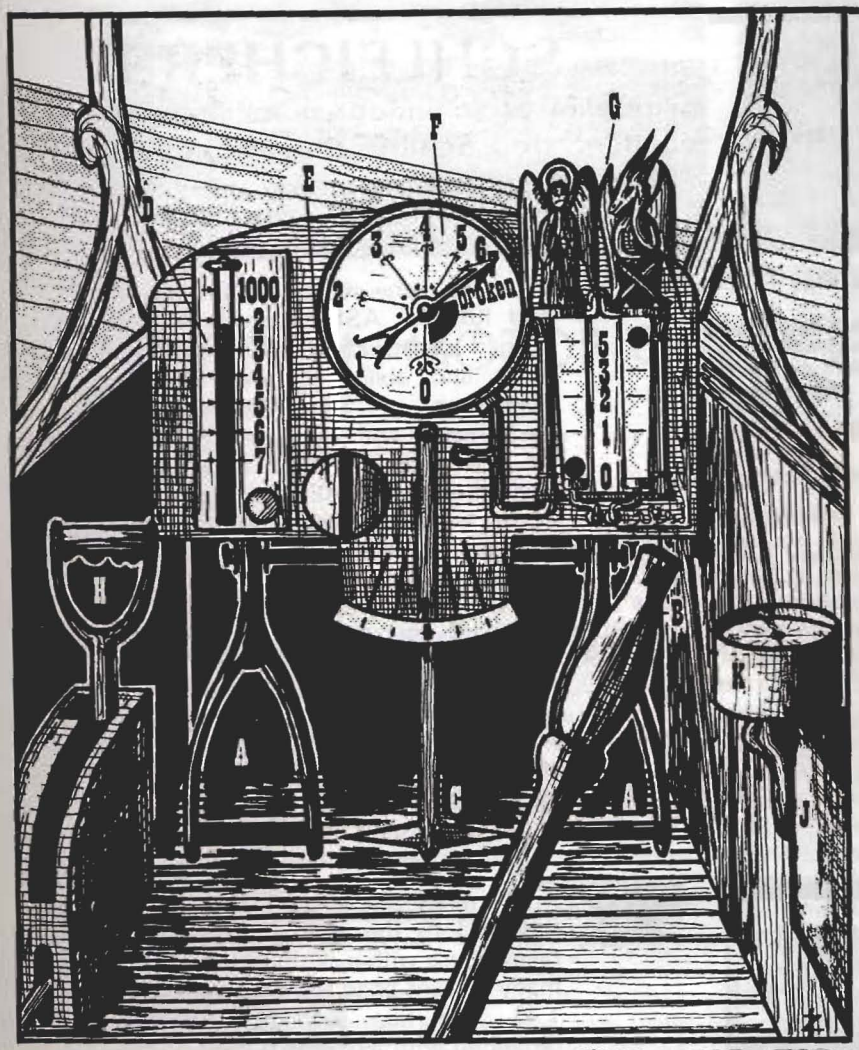
JOHN HULME

BOTTISHAM · CAMBRIDGE

Telephone Cambridge 811323

- C's of A
- Repairs in all materials
- Trailers
- Spares and Accessories
- Diamant Repair Agent


VICTORIANA
Dr Irving Wills' IMPROVED motorless flyer, IMPERIAL PARAGON, is an ESPECIALLY good craft - and I STRONGLY advise you to buy one! This very instant!
V R
When purchasing a motorless flyer, THINK OF ENGLAND !!



ACCOUTREMENT, IMPEDIMENTA & etceteras

- **A** Rudder stirrups
- **B** Attitude lever
- **C** Falling in or out indicator – with excruciatingly sharp points!
- **D** Mercury barometer – with adjustment – to illustrate the flyer's vertical station (feet)
- **E** Knob – decorated with map of the **BRITISH EMPIRE** – releasing the cable attaching the flyer to the machine imparting the required initial degree of elevation
- **F** Horizontal velocity indicator (knots)
- **G** Vertical progress marker (see J)
- **H** Lever operating surfaces to retard the flyer's waywardness when it is descending to alight in, for example, some situation remote from its origins
- **J** Receptacle for navigational charts and uplifting essays and sermons
- **K** Compass

Hic!

Hic!

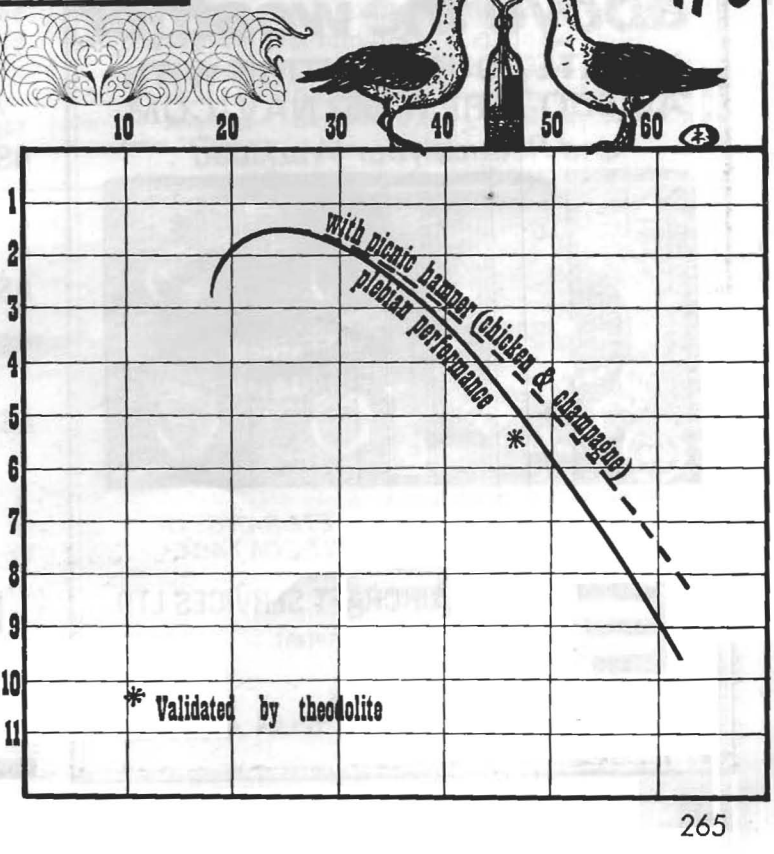
Hic!

!that daring young man

Hic

Within this **EXCELLENT** sportsship a person of moderate means may, with alacrity, utilize sundry vertical motions present in the atmosphere to **REMAIN SERENELY ALOFT**, and, in the selfsame **SPLENDID** contraption, come to preserve that **COOLNESS & PRECISION** of aerial motion which contributes so profoundly to a securing of the essential conditions of **EXACT** manoeuvering and **PERFECT** equilibrium.

Span	39 feet 7inchs
Wing section	Excelsior 59(79C)M
Minimum weight	420 lbs 3 oz
Maximum weight	634 lbs
Optimum glide	16 : 1 at 28 kts
Least descent	160 ft/min at 24 kts
Disequilibrium velocity	19 kts
Tempestuos conditions	47 kts
Maximum survivable	63 kts



NEW, REVISED EDITION

PRIVATE PILOT STUDIES

by S. E. T. Taylor & H. A. Parmar

"This book is directed to the student pilot who is hoping to get his PPL, and it contains more or less everything he will be required to know. It is a mine of information and is presented in a most readable way."

Sailplane & Gliding

"We would recommend every private pilot to read this book."

Pilot Magazine

Contents: 1 Maps and charts; 2 Direction and speed; 3 The navigation computer; 4 A spot of navigation; 5 Magnetism and compasses; 6 Meteorology; 7 Aerad charts; 8 Aviation law; 9 Principles of flight; 10 The power plant; 11 Aircraft loading/Fire Hazard; 12 Playing it safe; 13 Getting the PPL from scratch.

Clothbound 192 pages £3.60 net (£3.86pp)

T. & A. D. POYSER LTD

281 High Street, Berkhamsted, Herts.

Gliding above the weather

LOCATE YOUR POSITION WITH AN EDO-AIRE RT553 NAV/COM

and Reduce your Workload



FOR DETAILS ON THE COMPLETE RANGE OF EDO-AIRE AVIONIC EQUIPMENT CONTACT:—

EAGLE AIRCRAFT SERVICES LTD.

LEAVESDEN AIRPORT
WATFORD
HERTS WD2 7BY

TELEPHONE GARSTON 79611 *TELEX 261502*

SCHLEICHERS

Are pleased to announce its latest range of gliders to match the requirement of discerning club and competition pilots.

ASK-18 From the same stable as the world famous K8 and K6, the ASK-18 combines the simple, rugged construction, docile flying characteristics and ability to soar in the weakest conditions of the K8, with the glide performance and crisp handling of the K6. With its 1:34 glide ratio and excellent glide path control, the ASK-18 is designed to progress pilots from first solos to early competitive flying.

ASW-19 A high performance 15 metre GRP sailplane built to CIVV standard class (no-flap) specification with the serious competition pilot in mind. Excellent circling performance with a flat polar throughout the speed range to get you into the forefront of speed flying.

ASW-20 An entirely new flapped GRP sailplane designed to the new CIVV Open 15 metre racing class with a performance comparable to many current open class machines. Max. glide 1:43 with flap settings automatically co-ordinated with airspeed to give optimum glide performance. Outstanding glide path control.

Also in current production the well known ever popular

ASK-13 Two-seater training sailplane with excellent soaring potential.

ASK-16 Side-by-side motor glider with really good 'engine-off' gliding performance.

ASW-17 Super high performance Open Class sailplane for those who want only the best.

Write for brochures to: THE MANAGER

LONDON SAILPLANES LTD.

Dunstable Downs, Dunstable, Beds.

Telephone Dunstable 63419

Agents for Alexander Schleicher, Segelflugzeubau.



Willibald Collée's Motor Nimbus.



Ogar two-seater from Poland.

Photos: Peter Ross.

SIXTH GERMAN MOTOR GLIDER COMPETITION

Burg Feuerstein, May 29-June 6

PETER ROSS

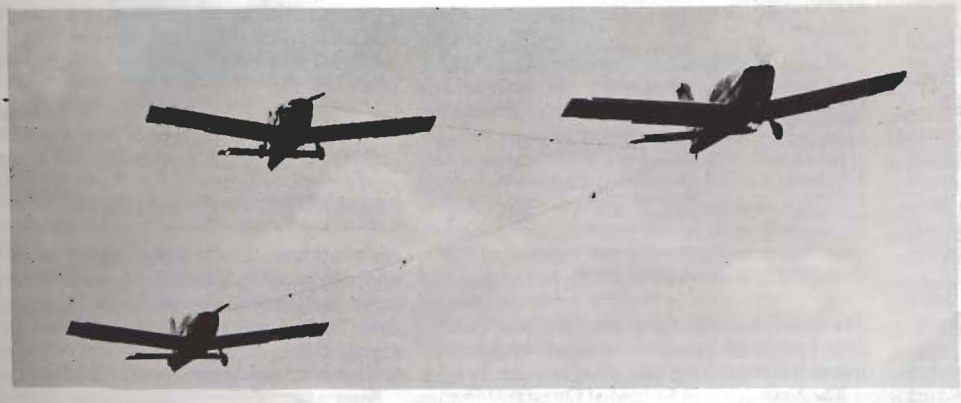
This year the competition was more serious, and there was no Class for the lower performance motor gliders. This ruled out the earlier Scheibe SF-25A, B and C Falkes, and the Fournier/Sportavia RF5 amongst the two-seaters and the RF4 and the Milan amongst the single-seaters. In the Two-seater Class the competition was dominated by the new Scheibe SF-25E Super Falke (with 18m wing) which filled the first four places, other entries coming from SF-28A Tandem Falkes, Schleicher ASK-16S and Sportavia RF-5B Sperbers. Two versions of the Bergfalke IV two-seater sailplane were also entered, the twin-engined version (first seen in 1974) and the completely new retractable engined version which suffered some engine trouble during the contest but put up a world 300km triangle record the day after the competition ended.

In the Single-seater Class the two motor Nimbus dominated the field, but there was keen competition from the new 17m Scheibe SF-32, which had only flown for the first time three days before. Perhaps the most interesting entry was a Schleicher ASW-15 fitted with a retractable Wankel engine which did very well on its first appearance. The rest of the field were made up by the now-familiar SF-27M (with retractable engine) and the Schleicher ASK-14. New motor gliders not in the competition included the Polish Ogar two-seater which has since made its appearance in this country, where the pilots sit side by side in a nose strongly resembling the Caproni Calif.

The other two-seater was the Austrian HB-21, which must be thought of more as a light aeroplane with limited soaring capability. The pusher engine drives a propeller via vee-belts which allows the upper tail boom to pass through the propeller boss.

Competitors were (as in previous years) allowed to use motor during the task, and in fact to land during the course means no points for the day. Use of the engine is carefully timed, using a sealed barograph fitted with an additional needle with a counter-weight which responds to engine vibration. This has been found to be completely "cheat-proof" and supersedes the system in which an electric solenoid is energised by the ignition switch to move a needle up or down the trace. Penalties for engine running mean that it is roughly better to take an hour in thermals to avoid four minutes with engine running.

The results were as follows: Single-seater Class, 1 Collée (Motor Nimbus), 3009pts; 2 Geschwind (ASK-14), 2887pts; 3 Heppt (ASK-14/Wankel), 2664pts. Two-seater Class, 1 Weishaupt (Super Falke), 2519pts; 2 Reuter (Super Falke), 2251pts; 3 God (Super Falke), 2178pts.



The towing ability of the new Rallye 235 GT is adequately demonstrated by the towing of two Rallye Super Trainers each weighing 1,250 lbs.

For details of the Rallye range contact:

Air Touring Services Ltd. BIGGIN HILL AIRPORT, KENT *Telephone:* Biggin Hill (29) 74038

BGA & general news

THE BGA WEEKEND

Our new World Champion, George Lee, and his wife Maren will be guests of honour at the dinner following the BGA AGM on Saturday, March 12, 1977. George is also one of the top pilots who will be taking part in a "Brains Trust" on flying further and faster – your chance to find out everything you always wanted to know about cross-country flying!

The BGA has taken over the whole of the Long Mynd Hotel, Church Stretton, near Shrewsbury, for *THE BGA WEEKEND* on March 12-13, 1977. It will be a weekend packed with activity whatever your interest in gliding.

A symposium on club operations: come and swap ideas on how to run clubs more efficiently.

A brand new film shown first at this year's World Championships (our team said it was the best film on gliding they had ever seen).

Something special for the ladies who are not *quite* as keen on gliding as their men.

Bungey launching at the Midland Gliding Club (wind permitting!).

And what promises to be quite a party to celebrate our World Champion plus all those magnificent flights last summer.

We have negotiated specially low rates for the weekend but there is a limit on numbers, so if you want to make sure you get tickets write *now* for all the details to: Marjorie Hobby, 256 Crowmere Road, Shrewsbury, SY2 5LF.

THE NEXT WORLD CHAMPIONSHIPS

In May I wrote to all clubs asking for an indication of the help that might be forthcoming if the next World Championships were to be held in England. An encouraging response from 25 clubs indicated some 140 helpers. Disappointingly that help will not now be required because the BGA Executive has decided not to bid for the next World Championships. I wish to take this opportunity to thank those clubs that responded to my letter and to outline the factors that led to the Executive's decision.

Last spring the Flying Committee stirred interest in the idea of a British World Championships although a German bid was being made for 1978 or 1979. Generally 1980 is out of favour because of the difficulty of obtaining public funds in an Olympic year. The German bid was understood to be on a "low-cost" basis and we took the view that the falling £ might help us to put in an attractive and competitive bid. A preliminary analysis of needs raised the fundamental question as to whether the UK is big enough for a World Championships. The majority view was that it is. Then major questions included the choice of site, cash flow, contest director, tug fleet and availability of helpers.

This year's World Championships in Finland in July gave us the chance to check the international view of a British bid and of a French bid that by then was a strong possibility. In our favour were favourable exchange rates and George Lee's win. Against us were our weather and the popularity of France as a venue.

After Finland the BGA took the view that a British bid would not succeed against the French and that we should only bid if the French did not. In September a French bid was confirmed.

Keith R. Mansell
(BGA Vice-Chairman)

HEAD OF THE NATIONAL LADDERS

Laurie Beer, Thames Valley, has again come top of the Private Ladder to claim the Enigma trophy. His four point scoring flights in a Std Libelle were of 403, 432, 606 and 410km.

Chris Rollings, Airways, heads the Club Ladder with a 500km in a K-6E and three K-13 flights of 228, 203 and 130km to qualify for the L. du Garde Peach trophy. His eventual score may be about 500pts more, subject to ratification of a UK Restricted Class record by the BGA.

This is the longest list on record, reflecting the superb soaring season, with the most entries (169) coming from the Coventry Club.

Private Ladder

Leading pilot	Club	Pts	Flts
1 L. E. Beer	Thames Valley	9556	4
2 F. J. Sheppard	Airways	8568	4
3 T. E. MacFadyen	Cotswold	8498	4
4 N. Hackett	Coventry	7304	4

Club Ladder

Leading pilot	Club	Pts	Flts
1 C. C. Rollings	Airways	8249	4
2 C. Thomas	Coventry	5806	4
3 C. Batty	Cotswold	4712	4
4 C. Hawes	London	3795	4

COMPETITION DIARY, 1977

The British National Championships and Euroglide have been approved by the BGA Executive as follows:

The Nationals will be held at Dunstable from May 28 to June 7. The London Gliding Club has agreed to take 50 gliders for this competition.

Euroglide will be at Husbands Bosworth from August 20-29, and approximately 45 entries will be allowed with 15 of those entries reserved initially for foreign pilots.

The closing date for entries to Nationals and Euroglide will be January 30, 1977. Entry will be determined from the 1976-77 BGA Rating List. Entry forms are obtainable from the BGA.

Other rated competitions are as follows: early May, Inter-Service Regionals; June 18-26, Western Regionals, Nympsfield; July 16-24, Wycombe Regionals, Booker; and July 30-August 7, Lasham Regionals.

Competition Enterprise, which is unrated, is again being organised by the North Hill Club from June 11-19.

ANNUAL AWARDS

Clubs have been circulated with claim forms for annual awards. Pilots who have made long, high or fast flights should fill in a claim form. It is not necessary to break a record to make a claim, annual awards often go to recipients who have quite modest claims.

For the season ending 1977/78 a revised claims procedure has been agreed by the Executive Committee. Flights which are likely to be eligible for annual awards should be substantiated by photographic evidence of rounding turning points, barograph trace and written pre-flight declaration. The pilot should have this evidence certified by an Official Observer. For speed tasks the pilot's evidence of start and finish times will be acceptable but this should be recorded at the time of barograph certification.

Evidence relating to the flight should be held at club level and not be sent to the BGA. When claims for awards are eventually made, the BGA may require to see the evidence of the particular flight for which the claim is made. By this means clubs should be able to keep a check on flights which are eligible for awards as they occur.

L. Tanner
Chairman, Flying Committee
(Competitions and Badges)

PARACHUTE FIRM'S BIRTHDAY

An American, Leslie Irvin, defied medical advice by jumping from an aeroplane in 1919 to prove the practicability of the free-fall parachute he had invented. Doctors believed that anyone falling through the atmosphere would be unable to open a parachute manually.

Soon after Mr Irvin, the founder of Irvin Great Britain, at Letchworth in 1926, received his company's first order for 300 parachutes. And this summer the firm celebrated their 50th anniversary with an open day which included a fascinating display of parachutes going right back to the early days.

BGA INSTRUCTOR COURSES

BGA Instructor Courses for 1977 have been reduced to seven days because much of the course content is not entirely valid until the newly qualified instructor has some practical experience.

For the past three years the newly qualified instructor has been able to attend one-day regional seminars to discuss instructional problems. These seminars will in future be for a weekend and a formal part of the course. They will be at various clubs to minimise travelling, and instructors will have a wide choice of venues and dates. The programme will be published later.

The following instructor courses have been arranged and anyone wanting a place should book early: C1, Portmoak, February 12-18; C2, Shobdon, March 5-11; C3, Booker, March 19-25; C4, Lasham, March 26-April 1; C5, Booker, April 2-8; C6, Booker, April 16-22; C7, Lasham, April 23-29; C8, Lasham, April 30-May 6; C9 Lasham, May 7-13; C10, Booker, May 14-20; C11, Lasham, May 28-June 3; C12, Husbands Bosworth, June 11-17; C13, Lasham, June 25-July 1; C14, Saltby, July 9-15; C15, Booker, July 30-August 5; C16, Lasham, August 6-12; C17, Lasham, August 13-19; C18, Lasham, August 27-September 2; C19, Husbands Bosworth, September 10-16; C20, Sutton Bank, September 24-30; and C21, Booker, October 8-14.

Bill Scull
Senior National Coach

BRUNT TROPHY

The Brunt Trophy is awarded annually for the best gain of height by a student member of a university gliding club. The flight must have been made during the period October 1, 1975, to September 30, 1976. Claims should be sent to Dr. Anthony Stone, Emmanuel College, Cambridge, to reach him by December 30, 1976. The best claim so far is nearly 18000ft by a member of Imperial College GC.

LET'S KNOW MORE ABOUT YOU

Frequently readers have made the point that they are in doubt where some of the clubs are actually situated and would like to know more about facilities, the possibilities of landing on the site and whether membership is restricted. As the February-March club news contributions are usually sparse, I'm inviting clubs to give the map-reference of their site by road and air and details such as methods of launching, site asl; when they operate, and if accommodation or meals are available.

The following is the kind of information I hope to use as a club directory for future reference.

CAMBRIDGE UNIVERSITY

1. Cambridge Airport, 3m NE City Centre, Tel Teversham 3344.

52°12'N 00°11'E, 50 asl.

Remarks: Grass airfield, single concrete runway. Heavy powered traffic. Aerotows weekends. September-March, everyday April-August. No accommodation or meals.

2. Duxford Airfield, 8m S Cambridge. 52°05'N 00°09'E, 124 asl.

Remarks: Single concrete runway with grass strips along each side. It's very dangerous to land anywhere but on these strips, approx 100 yards wide (south side) 50 yards (north side). Winch and aerotow weekends and weekdays during university term. Occasional powered traffic. No accommodation or meals.

It would be much appreciated if club reports for the February-March issue are kept to the absolute minimum. **[ED]**

Merry Christmas from the BGA to all S&G readers – may 1977 not be too much of an anticlimax! Roger Barrett, BGA Chairman.

COMPETITION NUMBERS

Would the owners of all competition numbers please note that they are due for renewal on January 1, 1977.

The fee for issue or renewal of a competition number will again be £2 next year, and this amount should be remitted to the BGA before March 31 at the latest. Numbers not paid for by April 1, 1977, will be available for re-allocation.

OFFICIAL OBSERVERS

Official Observers with the prefix 76/- to their registration number are reminded that their appointments lapse on December 31, 1976. Applications for renewal should be submitted on the new *GREEN* form already issued to all club secretaries with the October Newsletter.

Appointments and renewals will be for the duration of the current (1975) edition of the FAI Sporting Code, which is likely to be three or four years. This will be reflected with the *SUFFIX* -/75 instead of an annual prefix as in the past.

The fee for registration is £1.50 which will cover the issue of a copy of the Sporting Code and BGA Notes for Official Observers to all on appointment or renewal.

PROVISIONAL BGA SPEED INDEXES FOR 1977

The definitive speed indexes for 1977 will be published in the 1977 BGA Contest Handbook. This list is provisional.

Quoted speed indexes are in direct proportion to cross-country speed extracted from an "average thermal", compared to 34kt which is the 100% datum.

The "average thermal" is strong in the middle and weak at the outside. Compensation for thermalling performance is made by feeding the Min sink point of the glider's performance curve into a graph which gives an achieved rate of climb. For example, a Foka's speed at Min sink is rather high, leading to an achieved rate of climb of about 2kt from the "average thermal". A K-8 in contrast, has a much lower speed for Min sink and so gets right into the middle of the thermal, achieving 2.5kt.

These corrected climb figures are applied to the standard formula for cross-country speed, these speeds compared with the 34kt datum and rounded off to the nearest even percentage for the list of speed indexes. A full explanation was given in S&G, December 1974, pp266-271.

Allowance is also made for ballast capacity on the assumption that on one UK contest day in four, achieved rates of climb will equal 4kt and Max ballast will be used on these days.

Speed Indexes	Gliders (***include Ballast)
118%	Nimbus 20m*, Kestrel 22m*, ASW-17*, Jantar*
116%	Kestrel 19m*, ASW-12
114%	Motor Nimbus
112%	Calif A-21
110%	Kestrel 17m
108%	Diamant 18m, BS-1, Nimbus 15
106%	Mosquito*
104%	PIK 20*, Janus
102%	Cirrus 17m, Phoebus 17m, Std Jantar*, DG-100*, Motor PIK$_F$
100%	Std Cirrus*, ASW-15*, LS-1*, SHK, Diamant 16.5, HP-14 18m, Astir CS*, Hornet*
98%	Std Libelle*
96%	Phoebus 15m*, Cobra 15, Motor Cirrus, KH-1
94%	Dart 17, Foka 5, IS-29$_D$, Club Libelle
92%	Pilatus B-4, Torva
90%	K-6$_E$, Foka 4, Vasama, SD 3/15
88%	Dart 15, Olympia 419, SF-27$_M$
86%	Skylark 4
84%	Skylark 3, K-6$_{CR}$, Olympia 403, Std Austria Mk 1, K-18
82%	Pirat, Olympia 463, Fauvette, BG-135
80%	M-100s, K-14
78%	Skylark 2, SF-26, K-8, Jaskolka
76%	Sky, Weihe, Eagle, Blanik, K-13
74%	Mucha Std, Bocian, Bergfalke
72%	K-7, K-2, SFS-31 Milan
70%	Olympia 2, Meise, Kranich
68%	Tandem Falke, ASK-16, RF-5$_B$ Sperber
52%	Falke

Notes on list of speed indexes

1 *** Asterisks indicate that the speed index applies to gliders with the ability to jettison ballast. Reduce the index by two if ballast cannot be carried.

2 Increase the speed index by two if jettisonable ballast can be carried by gliders in the list for which no allowance has been made (*ie* no asterisk).

3 Very large amounts of jettisonable ballast capacity may increase the speed indexes given below for gliders so modified. This will be notified to contest organisers by the Handicapping Sub Committee.

4 Speed Indexes apply in BGA contests at all AUW and CG positions cleared in the glider's C of A and are calculated based on the optimum configuration and AUW for the "average thermal", except for the ballast calculation which is made for Max AUW.

5 Comments should be sent to the BGA for the Handicapping Committee. Changes will only be made as a result of tangible performance evidence such as polar curves, "tested points", from calibrated glides, or well conducted formation runs with known types. Figures are required of Min sink and a high speed point at 70-75kt (130-140km/h).

Ian Strachan
Flying Committee (Competitions and Badges)

NATIONALS ENTRY LIST 1977

The following list has been compiled from the results of 1976 competitions in conjunction with the previous entry list as frozen in January, 1976. It will be used to determine entry priority in the event of any class of British Nationals/Euroglide competitions being over-subscribed on January 31, 1977. This new list has not yet been frozen. In particular it does not include results of certain European competitions because the manner in which these are to be interleaved will be the subject of discussion by the BGA Flying Committee. Any prospective Nationals/Euroglide pilot who believes his position on the list to be incorrect is requested to submit immediately details of his recent competition record to the BGA. A pilot may find himself listed more than once. This may occur, for example, if entry is made to several competitions whose results specify the pilot's name or initials differently. Please be in touch with the BGA if this has happened to you.

A. J. Burton

BGA Flying Committee (Competitions and Badges)

1	CARDIFF, J.	31	KENWORTHY, A. T.	61	BROWNLOW, J.	91	CARLTON, M. R.	121	CARROW, D. D.	151	COOMBE, W. G.
2	DELAFIELD, J.	32	BURTON, G. E.	62	FORSEY, L. K.	92	DAVIES, F. J.	122	WALSH, T.	152	ELLIS, C. A. P.
3	FITCHETT, B.	33	TANNER, L. E. N.	63	GAUNT, T. R.	93	LOVELL, C. D.	123	NORRIS, M.	153	CHISHOLM, J.
4	REDMAN, S. J.	34	MAINWARING, A. J.	64	ROBERTS, D. G.	94	PILCHER, R.	124	COLLINS, P. S.	154	FARMER, A. T.
5	LEE, D. G.	35	WATT, D.	65	HEAMES, C.	95	MULHOLLAND, S.	125	MEDDINGS, E. J.	155	ST. PIERRE, A. H. G.
6	ROLLINGS, C. C.	36	TAYLOR, N.	66	WATSON, A. J.	96	HARDING, R. W.	126	COLE, R. T.	156	TIPNEY, C. J.
7	WILLIAMSON, J. S.	37	BUCHANAN, E. J.	67	FINDEN, D.	97	MACFADYEN, I.	127	ROBERTSON, R. A.	157	MURGATROYD, B. W.
8	LYSAKOWSKI, E. R.	38	WALLER, C. J.	68	WOOD, R. A.	98	SHEFFIELD, R.	128	MASON, E.	158	DIMOCK, H. R.
9	JONES, R.	39	HOWLETT, J.	69	POZERSKIS, P.	99	TORODE, H.A.	129	ARNOLD, A. V.	159	BECK, J.
10	MURDOCH, I.	40	BURNS, ANNE	70	HOYE, J. M.	100	CAWTHORNE, T. R.	130	POPE, M. H. B.	160	HUNT, R. D.
11	GOUGH, A. W.	41	ROUSE, J. E.	71	HOOD, L. S.	101	WARMINGER, A. H.	131	HANFREY, A. W.	161	MANSON, J.
12	GLOSSOP, J. D. J.	42	WHEELER, J. M.	72	GARROD, M. P.	102	HACKETT, N. G.	132	WISHART, R.	162	COUSINS, R.
13	WELLS, M. D.	43	BLEAKEN, L.	73	HARRINGTON, T. C.	103	BACON, G. Mac A.	133	WOODFORD, J. M.	163	TOWNSEND, A.
14	DAVIES, A. J.	44	LILBURN, D. W.	74	MACFADYEN, W.	104	HARTLEY, K. J.	134	CARTER, M. E.	164	JEFFRIES, J. R.
15	GREAVES, C. M.	45	ALDRIDGE, K. R.	75	LIDBURY, D.	105	ROBERTS, PAM	135	CROUCH, R.	165	GREEN, G. D. A.
16	SPRECKLEY, B. T.	46	ODELL, J. H.	76	FOOT, R. A.	106	WATSON, B.	136	GRANT, I. S.	166	WEBSTER, J.
17	ROWLAND, C. D.	47	SEARS, P. L.	77	COWDEROY, R. I.	107	HOY, S.	137	SHADRACH, D.	167	LYNDON, R. J.
18	PIGGOT, A. D.	48	STAFFORD-ALLEN, P. R.	78	KIELY, K.	108	KAY, A. E.	138	FAIRMAN, M.	168	MEYER, W.
19	COCKBURN, D.	49	CAMPBELL, D. R.	79	ROBERTSON, D. J.	109	DAY, C. G.	139	YOUNG, J. R.	169	STAINES, R.
20	GARTON, C.	50	BIRD, M.	80	DUFFIN, E. R.	110	ATKINSON, G. B.	140	STRACHAN, I. W.	170	MORTIMER, R. G.
21	WHITE, S. A.	51	McLUCKIE, R.	81	SHEPHARD, E. G.	111	WHEELER, J.	141	TAYLOR, J. R.	171	FORSET, R. G.
22	SANDFORD, R. A.	52	BROWN, H. F.	82	BURTON, A. J.	112	WALKER, D. B.	142	HARTLEY, K. J.	172	GILDEA, C.
23	CAMP, D. W. G.	53	COLE, R. A.	83	TULL, V. F. G.	113	ZEALLEY, T. S.	143	PARKER, S. J. C.	173	RAMSDEN, P.
24	PHILLIPS, D. M.	54	REDSHAW, P. R.	84	LUSTED, E.	114	MITCHEL, R. U.	144	WALSH, J. H.	174	PAUL, I.
25	WILLS, J.	55	ALDOUS, R. F.	85	BEST, E.	115	BECK, R. J.	145	JURY, A. J.	175	GARDINER, D. K.
26	GIBBONS, J.	56	HOGG, A. J.	86	DIXON, R. T.	116	KING, P. A.	146	COOK, P. G.	176	GORELY, T.
27	STONE, A. J.	57	BLACKMORE, R.	87	PURDIE, P. G. H.	117	EVISON, G.	147	ORME, H.	177	WOOD, D.
28	COLE, P. G.	58	AUSTIN, D. C.	88	DAVIS, A. J.	118	SIMMS, J. A.	148	LAZENBY, P.	178	BURGESS, A. E.
29	RANDAL, M.	59	MACFADYEN, T. E.	89	DOCHERTY, T. P.	119	COSTIN, M. C.	149	FERRETT, R. A. F.	179	ORTH, W. T.
30	SHEARD, P. G.	60	MILLER, A. S.	90	BENOIST, B.	120	GREAVES, D.	150	BUTLER, D.	180	MURPHY, T. J.

GLIDING CERTIFICATES

ALL THREE DIAMONDS

No.	Name	Club	1976
68	V. C. Corr	Shropshire	17.7
69	P. B. E. Thompson	Surrey & Hants	22.7
70	H. R. Dimock	Portsmouth	4.8
71	D. Cockburn	Four Counties	17.7
72	R. A. Sandford	Bristol & Glos	25.7
73	L. E. N. Tanner	Coventry	25.7
74	T. J. Ward	644GS	27.7
75	A. Kay	Thames Valley	22.7
76	A. S. Miller	Four Counties	17.7

DIAMOND DISTANCE

1/125	R. I. Reo	Bicester	6.8
1/126	V. C. Carr	Shropshire	17.7
1/127	T. E. MacFadyan	Cotswold	22.7
1/128	P. B. E. Thompson	Surrey & Hants	22.7
1/129	H. R. Dimock	Portsmouth	4.8
1/130	D. Cockburn	Four Counties	17.7
1/131	F. J. Sheppard	Airways	10.7
1/132	R. A. Sandford	Bristol & Glos	25.7
1/133	N. G. Hackett	Coventry	21.7
1/134	D. A. Vennard	Bristol & Glos	17.7
1/135	D. S. Watt	Airways	10.8
1/136	R. J. Cawderoy	Oxford	22.7
1/137	L. E. N. Tanner	Coventry	25.7
1/138	T. J. Ward	644GS	27.7
1/139	A. Kay	Thames Valley	22.7
1/140	A. S. Miller	Four Counties	12.7
1/141	C. J. Backwell	Southdown	22.7

DIAMOND GOAL

2/716	W. Fearon	Phoenix	26.6
2/717	C. J. Batty	Cotswold	22.7
2/718	J. A. Melville	Derby & Lancs	17.7
2/719	J. E. Morris	Losham	1.8
2/720	J. G. Cherrill	Surrey & Hants	7.8
2/721	D. J. Saunders	Surrey & Hants	17.8
2/722	E. Whipp	Inkpen	27.7
2/723	D. H. Millett	Bristol & Glos	25.7
2/724	A. G. Gordon	Surrey & Hants	27.7
2/725	J. R. Taylor	Surrey & Hants	11.7
2/726	M. W. Durham	Kestrel	11.8
2/727	C. I. Cowley	Buckminster	17.8
2/728	Jane Jones	Landon	8.7
2/729	M. J. Dean	Bicester	18.7
2/730	G. C. Cole	Surrey & Hants	19.8
2/731	M. Day	Surrey & Hants	18.8
2/732	S. C. Bicknell.	Surrey & Hants	16.8
2/733	R. A. Robertson	Bristol & Glos	17.7
2/734	B. A. Roberts	SW District	16.8
2/735	P. D. Turner	Doncaster	17.7
2/736	E. R. Belbin	Airways	4.8
2/737	C. C. Sherlock	Eagle	15.8
2/738	P. G. Sheard	Airways	27.7
2/739	D. J. Williams	Airways	27.7
2/740	R. W. Warren	Scouts	23.7
2/741	D. R. Campbell	Airways	27.7
2/742	E. Drummond	Bristol & Glos	10.8
2/743	J. C. Large	Coventry	24.7
2/744	T. J. Ward	622GS	27.7
2/745	M. V. Boyden	Wrekin	17.7
2/746	J. H. Odell	Kestrel	25.7
2/747	H. J. Purser	Cranfield	11.7
2/748	G. C. Leech	Thames Valley	10.7
2/749	D. Breeze	Cotswold	7.8
2/750	C. Borrensen	Bath & Wilts	17.7
2/751	C. Carter	Cotswold	22.7
2/752	G. E. Gothard	Coventry	17.7
2/753	J. H. Ellis	Coventry	27.7
2/754	Z. Marczynski	Polish AFA	27.7
2/755	P. J. Walker	Coventry	22.7
2/756	M. F. Evans	Lasham	16.8
2/757	K. Hynes	Surrey & Hants	16.8
2/758	K. G. Lawrence	Burton & Derby	5.8
2/759	D. T. Crisp	Four Counties	18.7
2/760	I. H. Murdoch	Stratford-on-Avon	24.8
2/761	L. H. Singleton	Doncaster	5.9
2/762	D. Dooley	Surrey & Hants	18.8
2/763	M. L. Murdoch	London	16.8
2/764	S. G. Olender	Hambletons	19.8
2/765	M. J. Webb	Bonnerdown	17.7
2/766	Janis McGill	Oxford	16.8
2/767	P. H. Steiner	Bicester	22.7
2/768	Linda Walton	Thames Valley	16.8
2/769	V. Luck	Airways	22.7
2/770	H. Hyett	Yeovilton	10.8
2/771	P. J. Caward	Bath & Wilts	17.7
2/772	R. F. T. Lynch	Bath & Wilts	17.7
2/773	G. M. Chinn	Four Counties	24.7
2/774	J. S. Ruskiewicz	Polish AFA	18.7
2/775	P. Ramsden	Ouse	17.7
2/776	D. B. Britton	Bannerdown	10.7
2/777	Jane Randall	Oxford	10.8
2/778	F. J. Davies	Coventry	17.7
2/779	A. C. Swann	Cotswold	17.7
2/780	J. E. F. Kettlety	Bath & Wilts	10.7

DIAMOND HEIGHT

3/283	R. Rathnie	Deeside	10.4

GOLD C COMPLETE

561	A. J. Davis	Bath & Wilts	30.3
562	P. D. Turner	Doncaster	17.7
563	J. A. Melville	Derby & Lancs	17.7
564	J. R. Taylor	Surrey & Hants	11.7
565	D. H. Millett	Bristol & Glos	25.7
566	M. J. Dean	Bicester	18.7
567	G. C. Cole	Surrey & Hants	19.8
568	M. Day	Surrey & Hants	18.8
569	R. A. Robertson	Bristol & Glos	17.7
570	P. G. Sheard	Airways	27.7
571	A. F. Thomson	Swindon	22.7
572	T. J. Ward	644GS	27.7
573	M. V. Boyden	Wrekin	17.7
574	J. H. Odell	Kestrel	27.6
575	D. Breeze	Cotswold	7.8
576	G. E. Gothard	Coventry	17.7
577	J. M. Hoye	Kent	15.8
578	P. Ramsden	Ouse	17.7
579	I. H. Murdoch	Stratford-on-Avon	24.8
580	L. H. Singleton	Doncaster	5.9
581	D. Dooley	Surrey & Hants	18.8
582	S. G. Olender	Hambletons	19.8
583	M. J. Webb	Bannerdown	17.7
584	Janis McGill	Oxford	16.8
585	J. H. K. Jefferson	Shropshire	4.8
586	C. Hyett	Yeovilton	17.8
587	R. F. T. Lynch	Bath & Wilts	17.7
588	G. M. Chinn	Four Counties	24.7
589	J. S. Ruskiewicz	Polish AFA	18.7
590	D. B. Britton	Bonnerdown	11.8

GOLD C HEIGHT

A. J. Davis	Bath & Wilts	30.3
H. T. Boal	Cambridge Univ	26.6
J. R. Taylor	Surrey & Hants	26.6
M. F. Lassan	Aquilo	27.6
D. J. Robinson	Angus	2.8
C. T. Bailey	Chilterns	20.3
J. H. Odell	Kestrel	27.6
J. M. Haye	Kent	15.8
C. Hyett	Yeovilton	17.8

D. J. Dye	Bristol & Glos	7.6
M. Mathiesan	Essex & Suffolk	24.7
D. B. Brittan	Bannerdown	11.8

GOLD C DISTANCE

W. Fearon	Phoenix	26.6
P. D. Turner	Doncaster	17.7
J. A. Melville	Derby & Lancs	17.7
J. R. Taylor	Surrey & Hants	11.7
J. E. Morris	Lasham	1.8
J. G. Cherrill	Surrey & Hants	7.8
D. J. Saunders	Surrey & Hants	17.8
E. Whipp	Inkpen	27.7
D. H. Millett	Bristol & Glos	25.7
A. G. Gordon	Surrey & Hants	27.7
G. O. Day	Norfolk	15.8
M. W. Durham	Kestrel	11.8
C. I. Cowley	Buckminster	17.8
Jane Jones	London	8.7
M. J. Dean	Bicester	18.7
G. C. Cole	Surrey & Hants	19.8
M. Day	Surrey & Hants	18.8
M. O. Breen	Thames Valley	15.8
S. C. Bicknell	Surrey & Hants	16.8
R. A. Robertson	Bristol & Glos	17.7
B. A. Roberts	SW District	16.8
E. R. Belbin	Airways	4.8
C. C. Sherlock	Eagle	15.8
P. G. Sheard	Airways	27.7
D. J. Williams	Airways	27.7
R. W. Warren	Scouts	23.7
A. F. Thomson	Swindon	22.7
B. D. Huband	Swindon	22.7
D. R. Campbell	Airways	27.7
E. Drummond	Bristol & Glos	10.8
J. C. Large	Coventry	24.7
T. J. Ward	644GS	27.7
M. V. Boyden	Wrekin	17.7
J. H. Odell	Kestrel	25.7
H. J. Purser	Cranfield	11.7
G. C. Leech	Thames Valley	10.7
D. Breeze	Cotswald	7.8
C. Borrensen	Bath & Wilts	17.7
C. Carter	Cotswald	22.7
G. E. Gothard	Coventry	17.7
J. H. Ellis	Coventry	27.7
Z. Marczynski	Polish AFA	27.7
P. J. Wolker	Coventry	22.7
M. F. Evans	Lasham	16.8
K. Hynes	Surrey & Hants	16.8
K. G. Lawrence	Burton & Derby	5.8
D. T. Crisp	Four Counties	18.7
P. Ramsden	Ouse	17.7
I. H. Murdoch	Stratford-on-Avon	24.8
L. H. Singleton	Doncaster	5.9
D. Dooley	Surrey & Hants	18.8
M. L. Murdoch	London	16.8
S. G. Olender	Hambletons	19.8
M. J. Webb	Bannerdown	17.7
Janis McGill	Oxford	16.8
P. H. Steiner	Bicester	22.7
Linda Walton	Thames Valley	16.8
J. H. K. Jeffersan	Shropshire	4.8
V. Luck	Airways	22.7
C. Hyett	Yeavilton	10.8
P. J. Coward	Bath & Wilts	17.7
R. F. T. Lynch	Bath & Wilts	17.7
G. M. Chinn	Four Counties	24.7
J. S. Ruskiewicz	Polish AFA	18.7
Jane Randall	Oxford	10.8
F. J. Davies	Coventry	17.7
A. C. Swann	Cotswold	17.7
J. E. F. Kettlety	Bath & Wilts	10.7

SILVER C

4403	E. Duffin	South Wales	20.6
4404	H. M. A. Hayes	London	25.6
4405	N. W. Baker	Scouts	22.6
4406	P. L. Chase	Heron	18.6
4407	M. D. Mitchell	Cambridge Univ	13.6
4408	J. Hough	Bicester	27.6
4409	C. E. Anson	London	24.6
4410	L. Holden	Aquila	26.6
4411	Mary Neal	Stratford-on-Avon	5.6
4412	R. Ashby	Dorset	27.6
4413	J. Giddins	Oxford	27.6
4414	S. L. Carr	London	20.6
4415	E. K. Stephenson	Bicester	29.6
4416	R. C. Gardner	Coventry	6.6
4417	S. Hymers	Four Counties	25.6
4418	P. G. F. Turner	Bicester	27.6
4419	J. E. Gilbert	Surrey & Hants	27.6
4420	K. Brockstone	Essex	10.6
4421	K. Audin	643GS	20.6
4422	P. Turner	Woodspring	4.7
4423	W. J. Stout	Newcastle	26.6
4424	P. Jackson	Cotswold	27.6
4425	E. M. Delahay	Burton & Derby	13.6
4426	P. Johnson	Borders	23.5
4427	P. R. Allen	Cranfield	27.6
4428	A. J. Marrell	Essex	4.6
4429	T. Martin	Cranfield	27.6
4430	Jacqueline Hancock	Bannerdown	4.7
4431	K. J. Mierzejewski	Polish AFA	27.6
4432	S. C. Bicknell	Surrey & Hants	26.6
4433	B. Stott	Wolds	25.4
4434	T. R. Gardner	Cotswold	4.6
4435	R. J. Williams	Imperial College	29.6
4436	D. Sharpe	Swindon	10.6
4437	G. Fellows	Stratford-on-Avon	11.7
4438	F. Taub	London	24.6
4439	R. Whittington	Kent	10.7
4440	H. C. Yorke	Stratford-on-Avon	6.7
4441	W. Ashworth	Upward Bound	10.7
4442	T. Abbott	Clevelands	11.7
4443	A. F. Hawker	Bicester	9.6
4444	B. Gregory	Oxford	20.6
4445	N. Peort	Eagle	10.7
4446	D. P. Lee	Surrey & Hants	11.7
4447	C. J. Hartley	Imperial College	26.6
4448	S. A. Foster	Cambridge Univ	9.7
4449	R. T. Rae	Phoenix	8.6
4450	Joan Weir	Lasham	10.7
4451	P. J. Sawden	Bicester	13.7
4452	C. N. Harris	Burton & Derby	11.7
4453	Wendy Uphill	Two Rivers	9.7
4454	P. Smith	Clevelands	10.7
4455	R. McLindsay	Swindon	6.7
4456	D. E. Starkey	Upward Bound	6.7
4457	D. S. Bramwell	Upward Bound	13.6
4458	J. R. Joffroy	Deeside	12.7
4459	J. Holland	Cotswold	11.7
4460	M. J. Millar	Bicester	6.7
4461	R. S. Hawley	Avro	21.5
4462	P. J. S. King	Buckminster	17.7
4463	E. G. Needham	Cranwell	17.7
4464	Sara Hild	SW District	18.7
4465	Shona Partington	Surrey & Hants	13.6
4466	R. J. Marsh	Bath & Wilts	11.7
4467	D. Driver	Woodspring	10.7
4468	C. J. R. Oswald	Kestrel	10.7
4469	F. Boyce	Staffordshire	17.7
4470	R. M. Grant	SGU	17.7
4471	H. Lucas	Phoenix	5.7
4472	P. Prestan	643GS	17.7
4473	S. R. Evans	Cotswold	18.7
4474	J. W. Thamlinsan	Thames Valley	17.7
4475	B. K. Jennings	Humber	17.7
4476	E. N. Davies	Glasgow & W Scotland	10.7
4477	R. T. F. Lyan	Chilterns	25.7
4478	M. E. Edwards	623GS	22.7
4479	T. Warrall	Doncaster	25.7
4480	K. S. Lines	Surrey & Hants	24.7
4481	K. Stewart	Cairngarm	17.7
4482	P. V. Barnes	Midland	21.7
4483	R. N. Goldup	Cotswold	11.7
4484	N. A. Palmer	Bristal & Glas	17.7
4485	R. Zucker	Yorkshire	25.7
4486	J. C. Frisby	Surrey & Hants	25.7
4487	H. J. Warby	Herefordshire	17.7
4488	Barbara Fairclough	Dunkeswell	16.7
4489	M. Morris	Doncaster	22.7
4490	B. H. Coombes	Surrey & Hants	22.7
4491	Ann Smith	London	7.7
4492	J. N. Hayes	Yorkshire	22.7
4493	K. S. Davis	Essex	13.6
4494	M. J. Hine	Devon & Somerset	27.6
4495	J. Airey	Bicester	14.7
4496	L. F. Goodman	Coventry	27.7
4497	Ann Bradley	Swindon	17.7
4498	J. Bilton	London	27.6
4499	A. R. Snow	Buckminster	25.7
4500	T. W. Burton	Burton & Derby	11.7
4501	P. Street	Cambridge Univ	10.7
4502	A. Stocks	Derby & Lancs	17.7
4503	G. M. Cumner	Cotswold	21.7
4504	W. T. Craig	Ulster	14.7
4505	D. B. Chambers	Buckminster	18.7
4506	D. Strange	Bath & Wilts	10.7
4507	I. M. Wood	Anglia	22.7
4508	R. P. Arnold	Scouts	22.7
4509	J. E. Goldbach	Heron	22.7
4510	H. Bryant	Welland	18.7
4511	R. J. Thorley	Surrey & Hants	10.7
4512	D. M. Halburn	Cambridge Univ	27.7
4513	P. R. Malone	Phoenix	27.7
4514	D. Lewis	Bicester	10.7
4515	D. J. Langrick	Coventry	29.7
4516	R. A. Haak	South Wales	17.7
4517	P. G. Bantus	London	7.4
4518	P. Lloyd	Newcastle	26.6
4519	M. Kemp	Kent	10.7
4520	M. Taylor	Bannerdown	1.8
4521	P. J. May	Surrey & Hants	22.7
4522	G. G. P. Coppen	Surrey & Hants	25.7
4523	R. W. Jeffery	RAE	1.8
4524	A. R. Firth	London	18.7
4525	M. J. Smallridge	Southdown	24.7
4526	J. E. Morris	London	10.6
4527	G. Pigott	SGU	21.7
4528	K. Lywood	Bath & Wilts	10.7
4529	K. J. Cullis	Bath & Wilts	17.7
4530	G. Lowe	Mawgan Vale	10.6
4531	R. C. Farthing	Phoenix	24.7
4532	A. M. Griffiths	Essex	1.8
4533	C. S. F. Turnbull	SGU	1.8
4534	C. S. Smith	Essex & Suffolk	1.8
4535	M. J. Aherne	Clevelands	11.7
4536	R. Fay	Derby & Lancs	4.6
4537	M. J. Williams	611GS	27.7
4538	S. Beaver	Inkpen	28.7
4539	P. G. Becker	Lincolnshire	6.8
4540	R. A. Swann	Kestrel	25.7
4541	J. Sheppard	Southdown	1.8
4542	T. M. Kneale	Portsmouth Naval	4.8
4543	L.Crutchley	Midland	5.8
4544	D. Luddington	Cranfield	25.7
4545	B. E. Niven	Dorset	7.8
4546	T. J. Cardot	Anglia	10.7
4547	J. P. McNamee	Cambridge Univ	4.8
4548	D. H. Lewis	Surrey & Hants	4.8
4549	A. A. M. Wahlberg	Surrey & Hants	7.8
4550	C. Hawes	London	23.7
4551	A. Bray	Cambridge Univ	7.8
4552	D. Chapman	Burton & Derby	5.8
4553	W. J. Dale	Burton & Derby	6.8
4554	D. Bearcraft	Anglia	4.8
4555	J. A. Word	Woodspring	7.8
4556	R. N. Parry	Four Counties	25.7
4557	R. A. Hall	Oxford	25.7
4558	R. M. Cartmel	Oxford	10.7
4559	D. J. Cogman	Norfolk	17.5
4560	E. Johnsan	Surrey & Hants	1.8
4561	J. L. Paris	Herefordshire	6.8
4562	Elizabeth Thompson	SGU	22.7
4563	J. H. Street	Eagle	8.8
4564	P. Thomas	Surrey & Hants	11.8
4565	J. Clifford	Swindon	4.8
4566	R. Dispain	Surrey & Hants	10.8
4567	J. C. Lloyd	Shropshire	18.7
4568	R. A. Greenwood	Phoenix	3.7
4569	P. C. Piggott	Caventry	11.8
4570	P. Parsons	London	10.8
4571	J. R. Lamb	Thames Valley	14.8
4572	C. D. Clarke	Cambridge Univ	12.8

In **1977** there will again be

LASHAM REGIONALS

30th July – 7th August

- BGA Rated Qualifying Competition
- Open to all gliders with Speed Index higher than 83 (Ka6CR performance level and better)
- Up to 50 entries accepted
- May be split into Open and Sports classes if entries merit this

Fully backed by our excellent facilities. An all-inclusive Entrance Fee: **£55 if paid by 1st March**
£60 if later

Application forms from:

The Secretary, Lasham Gliding Society, Lasham Airfield, Alton, Hants

overseas news

Please send news and exchange copies of journals to the Overseas Editor: A. E. Slater, 7 Highworth Avenue, Cambridge, CB4 2BQ, England.

NEW OSTIV VICE-PRESIDENT

During the OSTIV Congress at Räyskälä, which traditionally is held at the same time as World Championships, Dr Manfred Reinhardt of Germany was elected as Vice-President of this Organisation.

He has been closely connected with World Championships ever since 1954 when he first appeared as team member at Camphill. Since 1965 as team manager he has led the German team to victory in 1970 and 1974 and acted for the last time in this capacity in Finland.

Manfred is greatly respected and liked by all who know him and, apart from his many scientific qualifications, his pleasant personality, together with his thoroughness and professionalism in everything he undertakes, makes him ideally suitable to take on this important post.

R.H.

TWO ANNIVERSARIES

Fifty years ago, on August 12, 1926, for the first time in history a glider got away across country from slope lift. Max Kegel, a Kassel policeman, was dragged up into a thunderstorm cloud as it crossed the Wasserkuppe. By the time he had extricated himself and glided on to a landing ahead of the storm, he had covered 55.3km to Gombertshausen – a world record. But, wrote Kronfeld, Kegel's account of his experience was "so eloquent" that nobody dared to emulate him until 1929, when pilots found lift in the clear air in advance of the frontal cloud.

Forty years ago, on August 12, 1936, Louis Rotter, Hungary's first Silver C pilot (No. 19 in the international list) was first to employ the "dolphin" technique on a goal flight from Berlin to Kiel, 323km – a propaganda flight during the Olympic Games in Berlin, made in the hope of getting gliding adopted as an Olympic Sport. Soon after a latish start and some tedious scraping for lift, he realised he must hurry or he would not get there. So for some time, in his home-built and home-designed Nemere sailplane, he flew straight ahead, mostly going at 120-140km/h, with both ailerons up, but slowing to 60km/h in lift, with ailerons in normal position.

Louis Rotter's son, of the same name, came to Britain in 1957 and flies with the Midland Gliding Club. His parents have been allowed (one at a time) to come over and see him and their daughter-in-law and grandchildren.

A.E.S.

ITALIAN CHAMPIONSHIPS

At Rieti only seven contest days could be flown between August 2 and 14. In the Open Class Othmar Fahrafellner (Austria) started in the lead, lost it to Adela Orsi, and regained it on the last day. Final order was Open Class: Fahrafellner (Nimbus 2), A. Orsi (Kestrel 22), A. Garaffini (Nimbus 2), W. Vergani (Kestrel 22), etc. Standard Class: E. G. Peter (Hornet), W. Gross (LS-1F), H. Nietlispach (Hornet). – *Flugsportzeitung*

BUY BRITISH

CROSBY-ANDREASSON BA–4B

The superb fast aerobatic metal biplane as displayed by Peter Phillips



ROLLS ROYCE POWERED

100 HP BA-4B £10,000
130 HP Super BA-4B £10,500

each complete with starter, alternator, battery, cabin heater, disc brakes, fully castoring tailwheel, luggage locker and carrosian proofed throughout.

Inverted fuel and oil system for competition work, fully enclosed sliding canopy and a glider tow hook are optional extras.

150 HP Lycoming version under development.

Constructional plans – £50

Built and Distributed by:
CROSBY AVIATION LIMITED
Archery House, Leycester Rd, Knutsford, Cheshire. TEL: 4254

BUY BRITISH

Buy your AIRCRAFT TYRES from

Watts Tyre

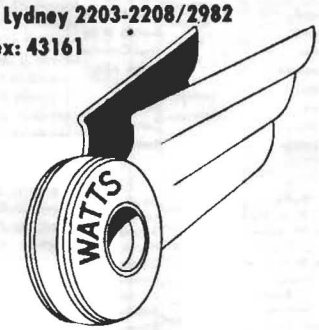
CAA Approval No AI/8425/74

& Rubber Co. Ltd.

AVIATION DIVISION

Head Office: Church Road, Lydney, Glos.

Tel: Lydney 2203-2208/2982
Telex: 43161



Our CAA & FAA Approved range includes:

McCreary, Goodyear, Armstrong (Arco), Firestone, Kleber, Dunlop France & Continental.

Our distribution network of 40 Depots will ensure o prompt delivery service.

(In association with Watts Aviation Service Ltd.)

DONCASTER SAILPLANE SERVICES

CAN HELP YOU

MAIN UK AGENTS FOR TOST AND WINTER EQUIPMENT

Sales & Exchanges CURRENT STOCK

SWALLOW, full instruments and trailer £1,850

Ka8b, full instruments, new C of A, long canopy £3,500

New and Used Instruments

ALTIMETERS Mk 19 ASI's
HORIZONS INVERTERS
VARIO's BAROGRAPHS

RELEASE HOOK TEST SERVICE
OTTFUR & TOST HOOKS
RECONDITIONED BY POST

STEEL TUBE WELDING
GLASS-FIBRE REPAIRS

We are now building a new Glass-Fibre Sailplane Repair Centre at our Doncaster Airfield Works.

O.K. BAROGRAPH 8km
'Danum' Transistor Inverters
Small Size. 12v Input, Fused
Matched to all types of horizon
(State type when ordering)

Large Stocks of Ply, Fabric, Tyres, Dope, etc.

The new "Supersafe" Tost Europa Hook now in stock

DONCASTER AIRFIELD, S. YORKSHIRE
Telephone: 0302 57695 and 61713



Photo: George Vakkur

WOULD YOU BELIEVE A 500 MILE RIDGE?

MICHAEL BEACH

You all know how holiday or business trips adjust themselves so that by sheer coincidence you just happen to pass by a gliding club. This strange phenomenon happened to me in the USA recently and my car steered itself to five gliding sites, all within 1000 miles of New York.

As you have no doubt gathered, gliding in the USA is a mainly commercial operation and rather alien to our club orientated ways. However, this does not mean that you get a bad deal - in fact, the style is well suited to visitors and avoids all the pathetic standing about like a lost dog, which I have experienced at some UK clubs - in effect, they mean to *serve* you and get you flying so they can eat.

Expensive but realistic

OK so it's expensive and flying will cost you from $15 per hour upwards, plus launch, but they don't seem to be getting rich on it, and it's probably a realistic figure. Certainly the courtesy with which they take your dollars eases the pain. By visiting several sites I began to get the flavour of their flying. While this hardly gives me authority to make sweeping statements, I was somewhat surprised to see the lack of drive in the average pilot. Although personally considered a very low key pilot in my club, I was amazed initially at the rather stifling effect a commercial operation has apparently created.

For instance, after getting checked out at one site on a fantastic day I noticed on the information board that the out-and-return record was 24 miles. Instantly I stood to attention and decided I must strike a blow for the UK and create a new record. I approached the site owner and asked if I could take the Blanik away - "sure, no trouble at all, providing you agree to pay me for three hours flying a day ($60) until it is repaired if you happen to break it" - now, let me see, that's about £35 per day, £245 *per week*. Suddenly the 24 miles became 1000km.

This was my first experience of American gliding and although enjoying it very much, I would not have wasted your time writing about it unless something more significant had happened when I met George Vakkur. George is an ex-Lasham pilot, and had just landed in his SHK after setting up an Indiana State record. We talked at great length about his seven years gliding in the USA during which he had visited and flown at most sites.

A totally new type of flying

He was most informative and convinced me there was one site that was unique and offered a totally new type of flying. After he'd shown me some photos, I headed down Route 80, and I guess this is what these ramblings are really about.

After a five hour drive from New York City, or Washington, lays the Bald Eagle Ridge where Karl Striedieck has just flown a 1000 *mile* (see S&G August 1976, p178) and which does look truly as if it could turn itself into one of the world's greatest soaring sites. Let's examine it in more detail. Ridge Soaring Inc is a small commercial operation run by Tom Knauff and his assistant, Doris Grove, who are both experienced instructors and dedicated to making a success of their unique site. It is unique in that the ridge is *over 500 miles long* and although during the summer it does not work all that much, Tom reckons that from September to May it is working well on one day in three. Apart from the obvious attraction of this incredible ridge, there have been thermal climbs to 12000ft and wave worked to 18000, although it is generally considered a nuisance! On a good day it is possible to see the turning points for a Diamond goal 75km along the ridge each side of the launch point, and to complete the flight in four hours in a 1-26. Tom tells the story of three pilots arriving with a total cross-country experience of 14 miles; within 24 hours two had their Diamond goal in the same 1-26 glider and all three within 32 hours!

The pundit will see the potential in all this as the ridge, plus wave, plus possible thermals, opens prospects for records that may only be broken by other pilots using the same site. Now this must all look easy, but to judge by photos and discussions it's not without drama. Most of the time speeds are obviously very high. Tom flew 650km in a 1-26 at 90mph all the way - the best comparison I can think of to a 1-26 is a Swallow, so savour that one!

Approximate guide to what it may cost:

1. London to New York could be quite cheap in the off-peak season, perhaps £100 return through advance booking charter.
2. New York to Ridge Soaring Inc is about 250 miles, and you could probably fly to Mid State Airport for another £20 or you can hire a car for a week for around £80. Incidentally, a car is just about essential in the USA.
3. Accommodation - Motels vary from about £6 per night to £15. Food is not included, but is inexpensive and very good. Several motels close to site.
4. Flying, no entrance fees or subscription, but expect to pay about £8 for a site check, and £15 to £20 for a ridge check, glider time runs from around £9 to £14 per hour, plus tow of say £4 to 2000ft.

And the mountains are beautiful!

Now obviously this guide can only give you some very rough idea of what it may cost to soar at one of the better American sites. Certainly it is not intended to imply that only this site is any good, but it is practical to visit it from New York or Washington, and even when it's not working, the Pennsylvanian mountains are beautiful!

Full address: Tom Knauff, Ridge Soaring Inc, Rd. Julian, P.A. 16844. Tel: (814) 355 - 1792.

Julian is eight miles south of Interstate Route 80, along Route 220. It is a 15 minute drive from Mid State airport, or 20 minutes from University Park airport - nearest large town is State College (about seven miles).

The field is a grass strip 3500ft long by 100ft wide, running parallel to the ridge which is NE to SW. It is at the foot of the ridge with no apparent problems. Operation is by aerotow (Super Cub) with another at a nearby field as a possible back-up. Autotows are possible, but only as a last resort. Gliders consist of Schweizer 2-33s, 1-26s, 1-34 and 1-33 - and ***you'll be welcome!***

Obviously prices fluctuate with the value of sterling, but those given in the article refer to July, 1976.

your letters

POLITICS AND GLIDING

Dear Editor,

It's a sad day when politics are allowed to interfere with our sport and it is in danger of sinking to the level of the Olympic organisation.

This has now happened. In May the Rhodesian team was forced to withdraw from the World Gliding Championships. This took place in spite of a specific assurance six months previously from the Finnish Aeronautical Association that the Rhodesians would be allowed to take part.

After rapid preparations, including obtaining the required foreign exchange – no mean feat in this embattled country – you can imagine how they felt on receiving a bald telegram "Your participation cancelled" only three weeks before their departure for Finland.

Was the World Gliding Championships a true World Championships if even one small country was prevented from taking part? It's about time a stand on principle was made against this type of interference before it becomes more general. Let the politicians play politics but *leave our sport alone.*

Randfontein, South Africa IAN ROBERTSON

FLYING GLIDERS ABROAD

Dear Editor,

Barry Rolfe's piece on what we get for 82½p per head from the BGA prompts me to pen a thought I have long cherished. Would it not be nice if one could turn up at a local club in Germany, Holland, Austria, Italy or wherever, show one's *Fédération Aéronautique Internationale* Gliding Certificate and logbook, have a check flight, pay temporary membership fees and fly their aircraft, exactly as foreign pilots may, so far as I know, in the UK?

There have been many occasions, particularly for those of us stationed on the continent, when the ability to fly local clubs' aircraft would have been invaluable. As it is, the procedure for obtaining an Italian licence, for instance, is pretty daunting, to put it mildly. (There isn't that much time in my year!)

I appreciate that there are difficulties, but has the BGA ever made any representations on the above lines? If they succeeded, I personally would be quite happy to subscribe £2 a year to the BGA in sheer gratitude!

HQ BAOR W. C. LOMBARD

A REQUEST FOR YOUR HELP

Dear Editor,

Please may I ask readers for their kind help in saving the Ursinus House, the last remaining historic building on the Wasserkuppe, West Germany, from being torn down. I don't ask for money, only your moral support by writing two letters to the German authorities responsible, protesting against the intended destruction of this building.

The Ursinus House was built entirely from wood in 1925 and became the Wasserkuppe centre for the Rhön-Rossitten Society, an organisation formed in 1924 for the scientific promotion of the art of soaring. Oskar Ursinus was the Editor of the German aviation magazine *Flugsport* and mainly responsible for organising the first gliding and soaring contests on the Wasserkuppe, beginning in 1924. We later called him the Father of the Rhön.

Men like Alexander Lippisch, designer of many famous gliders such as Kronfeld's Wien and Grönhoff's Fafnir, had their design office in the Ursinus House. Guenter Grönhoff, the most famous soaring pilot in 1931/32, lived there until he lost his life in an accident while flying his Fafnir in 1932, and Prof Walter Georgii, the spiritual leader of the development of soaring, stayed in the house whenever visiting the Wasserkuppe. Hans Jacobs designed the Rhönadler (Rhön Eagle) in the Ursinus House. In short, it is a truly historic place and should be saved for future generations.

The German authority that condemned the building has shown little regard for the sentimental value we soaring people attach to the house. They belong to a younger generation and don't remember the pioneering times on the Wasserkuppe. The building has been neglected as it stands in a military area and nobody felt responsible for its upkeep. It is structurally sound and could be put into good shape with a little bit of goodwill, paint and modern building materials.

Please send the first letter to the authority which has power to save the house as a national monument: Hessisches Landes-Amt für Denkmals-Schutz, Biebricher Schloss, Biebrich (Rhein), W. Germany; and a copy of the same letter to the President of the Society for the continuation of soaring on the Wasserkuppe: Landrat Fritz Kramer, Landrats-Amt, Woerth-Strasse 15, D-64 Fulda, W. Germany.

Shortly before his death, Dr A. Lippisch supported our idea by sending a letter to the head of the German NASA. Letters from outside Germany will help a lot, even written from private people. The more letters the better our chances of winning.

Oklahoma, USA PETER RIEDEL

A TASK WEEK FOR THE OVER 65's

Dear Editor,

Seeing a notice about a fun task week on a board at Lasham it struck me that if there are enough of us interested it might be worth organising one at the Norfolk Gliding Club next spring for pilots aged over 65. Joe Podolski, CFI, agreed that it might be an enjoyable week.

I would suggest the last week in April, before our courses start, when the fields are landable in and when we often have good thermals. The qualifications to be a Silver C, and to have a glider and a light heart. Dual flying is welcomed, provided one of the team at least is over 70.

If anyone is interested, please write to me. We have three bunk rooms and there is a guest house for those who need more comfort.

54 Christchurch Road, Norwich NR2 3PQ DOROTHY SOUPER
(Treasurer Norfolk GC)

NOT ENTERPRISING ENOUGH!

Dear Editor,

Enterprising fellow . . . but Guy Ballard will have to try a little harder, I'm afraid. (See Competition Enterprise report, S&G August, p156). I recollect that many years ago, perhaps in the late fifties, "John Jeff" went rather further than this. So I asked him at the Vintage event at Dunstable and it was a flight from Dunstable via Snitterfield, near Stratford, to land at Cranwell. I make that 132 miles, or 212 of your modern kilometres – and a dog-leg at that. Even before that, I think the late Jack Hanks flew a Tutor from Dunstable to somewhere south of London (Kenley?) before something funny happened to the airspace on the way.

By the way, J.J.'s flight was actually in a Cadet, not a Tutor. That's like a Tutor with untapered wings, you "Tupperware" chaps, so it doesn't go quite so well!

Bishop's Stortford MIKE RUSSELL

AN ALTERNATIVE TO "OVERCONVECTION"

Dear Editor,

I sympathise with Mike Garrod's dissatisfaction with the term "over-convect" (see August S&G, p180). What about "stagnate?" Under "stagnant" Chamber's gives ". . . without current; foul, unwholesome, or dull from stillness; inert". These definitions seem to apply rather well to the pilot's reaction to overconvection.

Walton-on-Thames, Surrey HAROLD DREW

OVER-CONDENSE AND GLIDERACING

Dear Editor,

In response to Mike Garrod's plea for a word to replace the misnomer "over-convect", may I suggest "over-condense?" It would be a sufficiently accurate description to be palatable for the meteorologists, yet is a suitably poetic term for the phenomenon which dampens our thermal prospects.

Whilst on the subject of terminology, as long ago as the June 1958 issue

of S&G, Charles Ellis sought clarification of the very title of our sport and suggested the word "skysailing". "Gliding" is indeed a rather mundane word but "skysailing" seems to be increasingly adopted as a synonym for hang gliding. However, it is not too late for us to introduce a more glamorous title such as "sailplaning" or "glidersoaring".

Additionally, that branch of the sport covering cross-countries and competitions should be called "glideracing", an accurate and more descriptive title which would capture greater public interest and might attract much needed commercial sponsorship. Can we start with the "1977 Glideracing Championships?"

Oakley, Bucks GORDON CAMP

A NEAT IDEA FOR KESTREL OWNERS



Dear Editor,

This is a photograph of a Pye Bantam I recently received for recallibration which has an interesting modification. As the set is intended for use in a Kestrel, it is mounted behind the right shoulder of the pilot (about the only place to put it), and as flying with straps secure the pilot cannot turn to see which knob he is grappling with, the three knobs have been modified with distinctive shapes. The on/off loudspeaker control is normally turned on before the pilot gets into the glider and power is controlled by a switch on the panel, *ie*, 10·5 volts via a regulator from the main or emergency batteries.

Ovingham on Tyne MICHAEL STOTT

RECONNAISSANCE ON MARS BY GLIDER

Dear Editor,

Most of us who have seen the Viking 2 lander shots on Mars are struck by the fact that the pictures are remarkably boring, looking like a large number of rock cakes scattered on the surface of a gigantic rice pudding. What is required is some simple means of transportation in order to search for signs of life. In addition the means should be silent and airborne in order to take sunbathing female Martians by surprise.

What could be better for this purpose than a glider? Soaring should be possible because Mars has an atmosphere and probably convection. Even better would be a motor glider since it will be necessary to land from time to time to chat up the Martian girls etc, and I think an SF-27M with Cirrus wings would be just about ideal.

If time permitted I would willingly offer my services as pilot of such a machine provided suitable life support systems and return journey were provided.

Marlow Common, Bucks BRENNIG JAMES

HANDLING THOSE REPORTERS

Dear Editor,

The reporter who, as Frank Eaton relates (S&G August, p180), made a fantastic story out of a mild prang, included one mistake which has been made again and again in gliding history – that of mistaking a dismantled glider for a collection of broken bits resulting from a crash. It started in 1937 with the *Daily Mirror* publishing a photo of a dismantled Falcon 1 under the heading "A Crashed Glider".

Two other instances: in 1938 R. S. Rattray landed in a field beside the Barnet by-pass, dismantled the glider and lifted the sections over a hedge onto the grass verge of the by-pass. A reporter then saw the bits and wrote that the pilot "crashed among the traffic on the by-pass". In 1951 Bill Bedford, on a flight from Farnborough, landed in a field at Old Windsor and dismantled his machine; this time the local reporter actually put words into Bill Bedford's mouth describing how he crashed.

People are apt to assume that such reports are sent in by an employee of their regular newspaper; but in fact they are usually sent by a local man who works for a national news agency, which in turn sends it round to most of the country's newspapers.

Thus, Rattray, who only read the *Morning Post*, forced it to publish an apology by threatening it with a libel action. But this could stick in the average *Morning Post* reader's memory as two separate crash reports. One remedy might be, after identifying the reporter by his persistent silly questions, to make him watch a mock demonstration of how gliders are put together and taken apart. But, above all, avoid the term "forced landing". Sub-editors appear to have a fixed rule that, whenever this expression occurs in the text, the headline must include the word *CRASH*.

Cambridge A. E. SLATER

THE PRESS CAN BE VERY VALUABLE

Dear Editor,

As a reporter with a Silver C, several hundred hours and a gliding club secretaryship, I must protest at Frank Eaton's letter with his dogmatic injunction – *Never, never* talk to the press!

For minority sports such as ours and one particularly subject to pressure on its operating sites and airspace and so-called environmental protest about its very modest noise, the co-operation and understanding of the press can be very valuable. In my club we have elicited its sympathetic support for our attempts to obtain as an *ad hoc* gliding site an ideally situated piece of publicly-owned land which is at present lying waste.

The co-operation of the press – and accurate reporting – is best obtained by friendly frankness and not, as unfortunately sometimes happens even on gliding sites, by tightlipped or disdainful arrogance, and ill-mannered offhandedness.

Every occupation has its share of practitioners who are inept, idle or ignorant and Mr Eaton's club may well have suffered a reporter who was all of these. In gross instances of press malpractice and a refusal to retract one can turn to the Press Council for redress and there's no premium on complaints to editors. But instead of his utterly negative advice, Mr Eaton might contemplate the probable benefits of a positive response. If, after the particular nonsense which provoked his letter had occurred, he had 'phoned the paper and invited a member of the staff – perhaps even the offending twerp – along for a trial flight and an unpatronising introduction to gliding, he might then have found the club would have had at least one person on the paper's staff on whose sympathetic interest they could rely – and whom they could 'phone with their version of events.

But no – Mr Eaton says *never, never* talk to the press. From time to time the ineptitude, idleness or ignorance of a doctor is found to have directly caused or contributed to the death of a patient. Using Mr Eaton's brand of logic, that's a powerful argument for *never, never* consulting a medical practitioner.

Belfast ROB RODWELL

MAKE A FRIEND OF THE PRESS

Dear Editor,

I was sad to read Frank Eaton's letter and horrified at his last line: "Never, never talk to the press". How are the media ever going to get the story right if we don't talk to them?

Make a friend of your local paper. Invite them over to your club and explain about gliding and gliding people. Ring them up when a member makes a notable achievement. Then, if something goes wrong, take them on one side (you are friends at this stage) and ask them not to print. If they insist it's a good story, provide accurate facts – it's the only way.

By saying "no comment" the story grows by the mere fact that you don't want to talk about it. The reporter then writes his own impressions of a situation which he knows nothing about, consequently producing a muddled and inaccurate story. So beware.

A lot can be gained by taking the initiative with the press. Go to them first, don't wait for them to come to you. You'll be surprised what it'll do for your public relations.

Oxford DEE REEVES

SUPER SOARING BOOKS

NEW



£3.00
paperback

SOARAMERICA.
At last! From all over the U.S., the best from SOARING over the years: great record/badge flights.from the finest sites (plus some 'fun' failures) — winning world records from Texas (Scott/Greene), savoring Oregon's spectacular Steens, conquering Mt. Whitney, enjoying Colorado's 'Black Forest', beachcombing Torrey Pines, riding Hawaii's waves and Appalachian ridges, getting shot down on a Florida sports field, beating Louisiana swampland, soaring the 'heartland', the magnificent Mojave, the East Coast, Northern California, Arizona, the Columbia basin. All from some of soaring's best known names! Illustrated with maps, three-views, photographs. — 20 chapters, 240 pages.

NEW



£2.50
paperback

SOARSIERRA.
For every serious pilot, here is the definitive word from the experts on the Sierra Nevada — the world's finest soaring territory. Carl Herold on ship/equipment preparation and pilotage; weather by noted Sierra meteorologist Doug Armstrong; route/site selection from 20-year Sierra veteran Dick Cook; detailed flight physiology and survival data for pilot and crew. Plus great Sierra soaring stories. Illustrated with spectacular mountain photography, detailed weather charts, even a satellite photo of waves from Reno to Colorado! — 10 chapters, 180 pages.



£2.50
paperback

WINNING On the Wind — Moffat
In this World Championship year, this is the soaring book that stands the test of time. 'Must' reading for every pilot. Who says so? "No better single book on the market" (Herold); "This is THE book on competitive soaring" (Piggott). Over 4,000 sold in 32 countries.



£2.50
paperback

ADVANCED SOARING
The world's experts give you their personal instruction, on all the tough problems from first solo to triple diamonds. Lavishly illustrated with cockpit layouts, three views, annotated sectionals and maps, weather charts, polars, barograph traces. 10,000 in print!

Check items desired:

SOARAMERICA: ☐ paperback (£3.00) _____

SOARSIERRA: ☐ paperback (£2.50) _____

ADVANCED SOARING: ☐ paperback (£2.50) _____

WINNING On The Wind: ☐ paperback (£2.50) _____

Set of Lithos (£5.00) ☐ _____

Total _____

Name _____

Address _____

_____

_____

Please add 25p postage/packing per item. Sorry, no C.O.D.
Satisfaction guaranteed or your money back.

The Soaring Press
British Gliding Association
Kimberley House
Vaughan Way, Leicester



11" x 15"
£5.00
Set of 14 Lithos

GOING, GOING . . .
Three-views sold out. But if you hurry, you can still get our set of 14 sensational lithos — the super shots of the great ships from 1-26 to AS-W12.

Book Reviews

SOARAMERICA and **SOARSIERRA** edited by John Joss. Published by The Soaring Press, PO Box 960, Los Altos, Calif 94022, USA. Available from BGA, price £3, plus 25p p&p for **SOARAMERICA,** and £2.50, plus 25p p&p for **SOARSIERRA.**

The first of these two books, a 200pp plus paperback, describes, as the title suggests, soaring in America and deals with the possibilities and opportunities from sites all over the States.

The book is made up from a collection of "how-I-dun-it" type stories, written by well-known and not so well-known American pilots and as well as being informative the often very descriptive tales make fascinating reading. Because of its short stories I thought it would be just the thing to have handy on one's bedside table for an occasional read, but I was wrong, as I found myself reading the book from cover to cover in one go - but then I like reading about what makes other people tick - especially gliding people!

SOARSIERRA - This 140pp paperback deals specifically with soaring in the Sierra Nevada and its forbidding environment where you can measure yourself against mountains which humiliate men.

The book tells you about your sailplane and its need; about your body and how to care for it; about wind, weather, flight planning and survival and how to set about flying in the mountains. Much of the information given will be useful to soaring pilots whether they fly in mountains or not - it will whet your appetite or scare you stiff and put you off for good - it will certainly help to understand the pitfalls and promises locked up in the brutal beauty of mountain regions like the Sierra.

RIKA HARWOOD

A Gaggle of One by Gren Seibels. Published by the Soaring Symposia. Maryland, USA. Price $9.95.

As befits a professional communicator, Gren Seibels has a fine mastery of the felicitous phrase. One could imagine him sitting in the shade of a wing on a hot anticyclonic day entertaining an audience of young pilots with wondrous tales of past triumphs, of stirring deeds, of good plain fun - perhaps a little embellished in the telling - and of Real People.

A Gaggle of One does all of these things very well indeed, to such an extent that one forgives the author when he makes an unhappy excursion into history or technology. There is, for example, the story of the genesis of the glass-fibre sailplane, which leaves one wondering what all those earnest chaps in the Akafliegs had been doing. And what about Professor Hütter. And "Phönix"? And how big was the Hänle kitchen? He can also be forgiven the odd purple passage ("... you wince as the fibreglass spar butts ... creak and groan ..."). This reviewer also an admirer of Glassflügel engineering, winced too.

He can be forgiven because the good bits, of which there are many, are so very good. Two little gems, both perhaps a little apocryphal by now, are A. J. Smith's first encounter with Big Walt and Ben Greene's story on p224.

There are many words about George Moffat and A. J. Smith: indeed, the latter gets a whole chapter which, despite its lighthearted tone and sundry disclaimers, gives the impression that AJ at Championships turns into some sort of soaring monster, demolishing a succession of innocent crews whilst visiting gamesmanship of the most ruthless nature on his rivals. There is, no doubt, some truth in this portrait although this AJ-watcher suspects that he was showing signs of mellowing at Vrsac.

Part of the AJ gambit, not mentioned in this present work, is his tendency to go for a little prowl around the grid just before take-off. He walks quite slowly, doubtless to preserve a cool and neat demeanour, where other pilots are looking sweaty and rumpled. Then, coming upon a rival, as if by accident, gentle observations are made on the rigours of the previous day, the feeble convection to be expected in the near future and so on. About two minutes before take-off, AJ prowls back to his own ship, where a thoroughly alarmed crew packs him neatly into the cockpit - just in time. It is all done rather nicely.

Gren Seibels has not been well served by his printer. You can discern the words very clearly but the photographs are something else. The litho reproduction has succeeded in rendering them in shades of grey of such delicacy as to remove most of the contrast: the effect is one of great gloom and is most unflattering to the complexions of humans, particularly Texan humans. This is a great pity, for the originals were certainly interesting, and probably quite good pictures, too.

One of the most engaging features of this book is its general ethos. Although not stated explicitly, it goes something like this: soaring is a highly civilised occupation which is so attractive to some people that it regulates much of their lives; they delight in one another's company and friendship; a few of them occasionally achieve deeds of heroic proportions. A worthy chronicler transmits some of the joy and goodness of this company to we lesser mortals, and Gren Seibels, judged by this book, ranks as eminently worthy. But I do wish he would go and learn a little gliding history and foreswear groaning spars.

FRANK IRVING

A Gift of Wings by Richard Bach. Published by Heinemann. Price £3.50.

How often does one borrow a book from a public library then, after reading it, rush out and order it from the nearest bookseller? Not often, but this latest book by Richard Bach is well worth it. There are 47 short stories about flying everything from a Great War replica to a jet fighter by way of a seagull and a glider. The book isn't a set of pilot's notes but is concerned with the philosophy of flight and the thoughts of pilots on every subject from instruction to the dangers of having a rigid outlook. The author is a professional writer and an avid pilot - and it shows.

JOHN ELLIS

Gliding by Ann Welch. Published in the **Know The Game** series by EP Publishing Ltd. in collaboration with the BGA at 45p. Available from the BGA at 55p, including p & p.

The **Know The Game** range of booklets has covered every socially acceptable sporting activity from archery to yoga, but not, until now, gliding. Ann Welch's little booklet's no mean feat is to repair this unfortunate omission by covering just about every aspect of gliding, with illustrations and photographs, in 36, 8in by 5in pages. Does this mean that we need never have bought all those other immense and much more expensive books about gliding? Not really! This is a *Reader's Digest* Condensed Book, and as a crammer's introduction to gliding, it is ideal - it is cheap and, therefore, easily dispensed to one's million friends who are interested in gliding, but it won't tell the averagely obsessed glider pilot anything that he hasn't read in less concentrated and hectic form in, for example, that excellent book, **New Soaring Pilot.**

Given the limitations of size, the booklet is well worth 45p, but the "concentration" has its dangers. I quote: "If the pilot flies too slowly the wing will stall - rather as a cyclist will topple off (his cycle)". Surely not!? I know someone who rode their stationary bicycle for over 20 minutes ... and then fell off and sprained an ankle! Pilots attempting to remain fully stalled for as long will sprain more than that.

STEVEN LONGLAND

The Guinness Book of Records - 23rd Edition. Published by Guinness Superlates Ltd at £2.95.

Gliding claims quite a bit of space in this most fascinating of coffee table books and includes a table of "selected" world records. Edited and compiled by Norris D. McWhirter, this edition has been completely revised with new illustrations, many in full colour.

G. B-S.

THE WORLD'S ONLY EXCLUSIVELY

AVIATION BOOKSHOP

OUR NEW and SECONDHAND stocks are devoted entirely to:

• **BOOKS** • **MAGAZINES** • **PLANS**
• **PHOTOGRAPHS** • **CHARTS**

on all aspects of AVIATION and allied subjects:

• **HISTORICAL** • **REFERENCE**
• **MODELLING** • **ENGINEERING**

Send large s.a.e. for 36 page Catalogue

BEAUMONT AVIATION LITERATURE

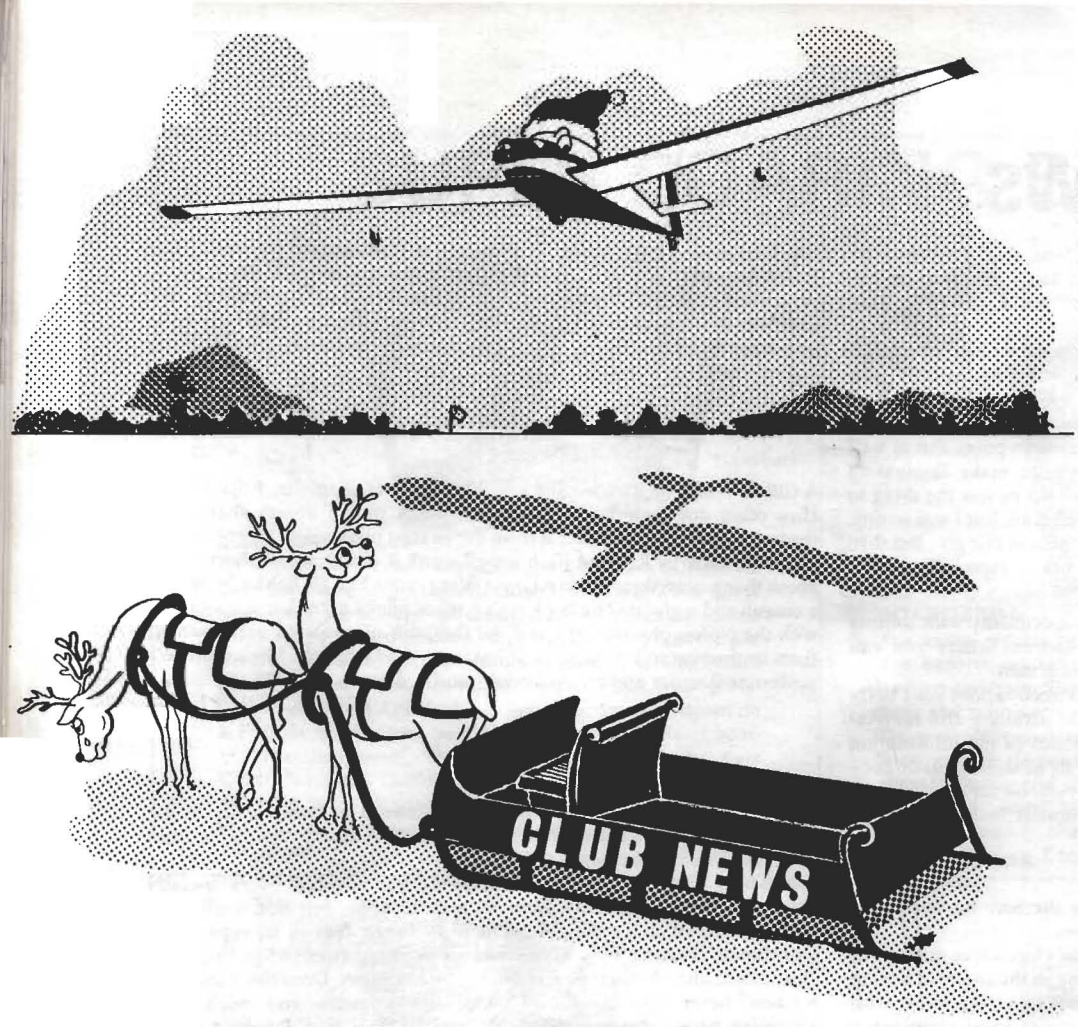
656 HOLLOWAY ROAD, LONDON N19 3PD

Telephone: (01) 272 3630

Open daily 9.30 a.m.-5.30 p.m. including Saturdays

Nearest Tube Station: ARCHWAY

Parking facilities in many sidestreets



Copy and photographs for the February-March issue should be sent to the Editor, S&G, 281 Queen Edith's Way, Cambridge CB1 4NH, tel Cambridge 47725, to arrive not later than December 2 and for the April-May issue to arrive not later than February 9.

October 15, 1976 **GILLIAN BRYCE-SMITH**

BORDERS

The most notable event of 1976 was our first open day in June which was quite successful for a first attempt. The Bocian and K-6 were enthusiastically demonstrated by Colin Golding and Tom Paxton.

It hasn't been an outstanding flying year for us, but Bill Ferguson and Peter Johnson completed their Silver Cs and Ian Lowes went solo on his 16th birthday.

The fright of the year goes to Gordon Beal who came out of $\frac{9}{10}$ cloud cover to find lots of North Sea below. Happily he was within gliding range of land.

Colin Golding, CFI since the early days of the club, has handed over to Charlie Donaldson, his natural successor.

A lease has been negotiated for our site and outline planning permission obtained for a new hangar. This is our priority for 1977 as the present building, temporary in 1940, may not last another winter.

J.T.F.

BRISTOL & GLOUCESTER

Our faithful tug engineer, Cyril Pugh, has opted for retirement after many years at Nympsfield. It won't be the same without his cheery face and we wish him and his wife a long and happy retirement.

"Chalky" White, late of Andy Gough's flying circus, is with us part-time for aircraft and glider maintenance. One of his first jobs will be on our Blanik tailplane after a member slipped while ground handling it and sat on the tailplane, buckling a panel on the rear fuselage.

Culminating many years of painstaking work, Mike Garnet had his first flight in his immaculate Scud 2 which lasted over an hour. Following some interesting and highly manoeuvred landings, Mike decided to make things less traumatic and has fitted spoilers. Not content, he has started to rebuild a Gull.

Many Silver and Gold Cs have been completed and there were four 500km triangles.

DOLPHIN The World Champion, says:
"It's simple, it works, and it's good!"

George Lee had the DOLPHIN conversion and Audio System in his ASW-17 in Finland.
Need we say more?

Dolphin conversions from	**£13.50**
Special 2-tone Audio	**£65.00**
Brunswich Total Energy probes	(prices on application)
And JSW Calculators	**£2.50**

Details from JSW SOARING
11 Galaxie Road, Cowplain
Portsmouth, Hants PO8 9AT
or phone John Williamson (0705-595344)
most evenings 6.30-9 pm

During the summer we have had visits from our past Secretary, Mike Cleaver and Roy Gunner, all living the other side of the world. Summer courses were successful and our membership is at near capacity. Following the sad demise of Inkpen, it looks as though the number of private gliders based here will swell by three or four.

By the time this is printed, we will have had our wave weekend at Usk attended by ten gliders.

R.A.R.

CAMBRIDGE UNIVERSITY

An indication of the sort of year we have been having here is given by the fact that hours in club aircraft are up on last year by 8%, whilst launches are down by 6%! We have also flown more cross-country-kilometres than ever before. Badge flights show some increase with all our Gold distances also being Diamond goals. Many more people have ventured cross-country and found it fairly easy, once the Oedipal fixation to the site has been overcome - even the two spinster Swallows have flown 100km triangles. We have had more than usual trouble with our launching equipment, much to our members frustration - but why is it that those who complain loudest often do least to put things right?

The exact definition of "best flight of the year" is arguable, but Caterina Edwards' 300km triangle (Gold distance and Diamond goal) in the well-known Edwards' "Cockle" (Olympia 460) on August 18, in rather second-rate conditions, must count as a front runner.

S.N.L.

COTSWOLD

The cross-country season was rounded off with our late summer task week. Poor weather prevented cross-countries until the end of the week when most of the club gliders attempted the tasks, Gary Foyer going round twice on the Friday in his Cirrus. The Pilatus demonstrator arrived and gave a splendid aerobatic display, some members later having their first flights in a B-4.

Up until 1973 we only had 12 Silver Cs and only one member had flown over 300km. We now have 49 Silvers and there have been 35 flights of more than 300km.

Several members have been successful in competitions. Dave Roberts (Kestrel 19) was 12th in the Nationals, Tim MacFadyen (K-6CR) and Dave Breeze (Pilatus B-4) flew in their first Comp at the Western Regionals and came 6th and 12th, with Larry Bleaken (Kestrel 19) third in the Northerns.

It is becoming standard practice in a northerly wind to take a wire launch to about 2000ft and glide to Nympsfield to join their gliders on the north ridge. We are now looking forward to the delivery of the club's Astir CS in 1977.

P.G.

COVENTRY

As part of the "Sport for All" week we held two open days at HB. The weather was kind and it was a great success. About 2000 visitors were entertained during the weekend, with flying, ballooning and parachuting displays. Films and slides of gliding were shown in the clubhouse and an exhibition of glider design, construction,

accident damage and repair was set up in the club workshop. Over 120 visitors were given air experience flights and the last visitors left well after dark.

The open weekend coincided with a BGA Glider Conversion course run by Brian Spreckley and Bill Scull, at which CFIs from several clubs were given the opportunity to fly and assess new gliders, including the Std, Jantar, K-18, Phoebus and Astir CS.

This combination of events plus club flying gave us what must be a club record of 167 aerotow launches on the Sunday, and this on a field reduced to half width by the visiting multitude.

HB is once again becoming Husbands "Bogsworth" and we are settling in for a winter of repair and renewal. The addition of bunkhouse, lecture room, and showers is to proceed. The club Bocians are to be re-furbished and in our "spare time" the written-off Capstan is to be rebuilt!

C.T.

DERBYSHIRE & LANCASHIRE

Ian Bell, Alan Pennington and Philip Allery have their Cs and are working towards Bronze. Although not a record at Camphill, Andrew Stocks kept the club 463 airborne for 8¼hrs.

John Humpherson (Std Libelle) completed another 300km triangle while visiting Shobdon and, having better luck this time with turning point photographs, gained Diamond goal.

Gail Jackson and John Shipley returned from their courses as instructors. For the very young members, there's now an exciting adventure area with a fireman's lookout and slides, thanks to the efforts of Bernard Thomas.

The new underground fuel tank is installed and the winch house, demolished (with a little help) by its occupant earlier this summer, should soon be completed.

C.D.R.



A Hornet is rigged and flown at Camphill prior to its delivery to Morridge, home of the Staffordshire Club. Photo: C. D. Rogers.

DONCASTER & DISTRICT

The axe of doom is poised above us for the local authority has just passed a recommendation to take over and develop our site. Our lease expires in less than two years' time and then, if the Council has its way, houses, shops and offices will be built on our airfield. We have started a petition to the Council and so far it has been signed by several hundred, including visitors and personalities such as Douglas Bader.

It would be much appreciated if any reader who supports our fight would write to our Secretary. We claim to have one of the oldest flying sites in the country, as the first aviation day organised by a local authority was held here in 1909. Several famous personalities started or furthered their flying careers here, including Hughie Green, Jimmy Edwards and Tony Christie.

The soaring season came to a close with a spectacular list of achievements. Now work parties are steam-cleaning and servicing winches and tractors and repairing the worn surface of the field.

Our membership approaches 200 (not including social members, wives and families) and so we have enrolled three members for instructors' courses in 1977. Our AGM was in September and we have five new committee members. Future social dates include our annual dinner-dance and our Christmas party and pantomime.

P.Y.

DUBLIN

A season that gave Britain such magnificent flying in fact turned out for us to be one of the worst flying years ever. The "glorious" weather resulted in weekend after weekend of deadening inversions – except for the June fortnight of the Nationals when it mostly rained and forced a non-contest to be declared yet again.

Cecily Dobbs completed her Silver C the week before she married fellow instructor and deputy CFI, Dan Begley, and scored a Gold height later in the year at Farranfore. Three other Gold climbs were made inside two hours that morning in the Kerry wave, not to mention Jeremy Bryson's 21000ft Diamond – only the second Diamond height gained in Ireland.

Congratulations to two achievers at opposite ends of the gliding scale: Dave Gordon, our first ever 16th birthday soloist, and Dubliner George Lee, the first Irishman for 20 years to reach the top in any sport.

T.A.W.

DUNKESWELL

We have come to the end of our second very successful year with a total of 512hrs flown, which is up on last year, although we had fewer launches – 4516 of which 4017 were by club aircraft. This summer's excellent weather brought cloudbases to over 8000ft and just under half the 138 flying days were in good soaring conditions, a feature also enjoyed by our many visitors.

Congratulations to Frank Jewell and John Killoran on their Cs, to Frank Buttery and Dave Winter for gaining Bronze legs, to "Mac" MacPherson who went solo, to Pat Pearson, one of our flying doctors, solo again after a long gap and to our Secretary, Barbara Fairclough, who has completed her Silver C and obtained her assistant instructor rating.

A.C.P.

EAST SUSSEX

It's now the end of our second season during which much worthwhile flying has been accomplished. A large number of home grown solos, together with several Bronze and Silver legs, have manifested, and it is particularly pleasing to see club trained pilots setting off on successful cross-countries.

The high standard and rapid development of the club's flying operations is owed to the diligence of our retiring CFI, Richard Pitman, to whom we offer our sincere thanks. Fortunately a new luminary has been found in Brian Murgatroyd who has now been appointed CFI. Brian, a keen cross-country pilot, is already pushing maps and calculators at us in preparation for the next season's epics.

M.R.B.

ENSTONE

We have had more than our fair share of problems this year. First our hangar was demolished and all our club fleet badly damaged during the gales of January 2, then our T-21 and K-7 were damaged again during the season; but we soldiered on and despite everything 1976 has proved to be a very successful year. We have had more first solos and Bronze and Silver legs than ever before and our membership is increasing rapidly. Our open weekend proved to be very successful, both as a public relations exercise and as a financial boost to the club. Because of it our membership was increased by over 20%.

M.W.

N.B. Many thanks to Mary Wales and Martyn Wells for their superb organisation of the open weekend.

P.J.M.

ESSEX & SUFFOLK

Pete Wilby and Brendon Grimsey took their Pirat to the Long Mynd, where they enjoyed bungey launching and ridge soaring, and Eric Richards is taking a party to Portmoak with his Std Cirrus and Mark Matheson's Skylark 4.

We have been busy filling holes on the runway, distributing top soil and laying turf. We are looking forward to the arrival of a large hut for use as a clubroom, thus replacing our caravan. It should enable us to have a more active social side.

The honour of the longest short-distance retrieve must go to Neville Bleach. He landed the Swallow two miles from the site in extremely murky conditions. Retrieve time – 2¼hrs. The Swallow had to be dragged across a ploughed field, de-rigged and taken over a ditch in pieces, rigged and trundled across another field and then stowed in the trailer – all in the dark with the light from one torch.

Membership is at a record high and there have been several syndicate changes with the Swallow and K-6E having new owners. Recently the club was featured by the local radio station.

C.C.S.

HAMBLETONS

We continue to prosper under the new Chairman, John Jones, and the site's new CFI, Bob Beck. Willy Bishop still controls the financial affairs and we have recently acquired our second Blanik. This makes four on the site and three members collected it from the manufacturers in Czechoslovakia. Already it is being put to good use training the new members we have been able to accept without, so far, imposing a waiting list.

Interest in the club is still very high and encouraged by the visitors' nights, which also contributes to the funds for our next acquisition.

On a sadder note, we miss one of our older members, Willy Wintrop, who has been seriously ill. We wish him well and hope to soon see him back on his favourite seat – the T-21 winch.

We had good wave flying for a much longer period this year. There have been several high climbs with a new site record of over 26000ft by Terry Potter (Kestrel 19). The very next day he lost his canopy on take-off. Such is life!

While we didn't break any records on our longest day flights, we started at 04.05, using a shift system until 20.00hrs. It was followed by a party for more than a hundred members and friends.

A.W.

HIGHLAND

In the nick of time before the first of the autumn gales struck, the club obtained permission to use a hard standing in a Forestry Commission plantation at the east end of the strip as a shelter for our still hangarless trailers and equipment.

In August we found ourselves part of an aerial jamboree held to celebrate the Fochabers bi-centenary. An aerobatic display by Jeff Howlett in the Bocian was much admired and we had the pleasure of lending our strip to the Barnstormers, who were also performing.

We have three new solo pilots: Mike Foreman, Mike Rodda and Gerry Robson, and Mike Foreman has already achieved his first Bronze leg. Bill Hill did a rapid 50km to St Fergus for his Silver distance to complete his Silver C. Martin Knight's Silver height, prematurely reported in the last S&G was found, alas, to be about 200ft short.

We have recently acquired a large van which is rapidly being transformed into a mobile clubhouse, and we hope to erect a hangar soon.

R.E.T.

IMPERIAL COLLEGE

Club records were broken yet again in the summer. About a half dozen Silver Cs were completed and our three club gliders flew well over 700hrs.

Ian Parker finished his Gold C and gained a Diamond goal. Tony Crease completed his Gold C with a cloud climb in the club Dart. Rob Williams covered 120km in the K-8 for his Silver distance and a couple of weeks later flew 300km. Unfortunately he landed off track while trying to scrape the last thermal and so couldn't claim. The club aircraft must have made well over a dozen flights of 300km or more by pilots who already had their Gold C.

The club Dart (No. 96) was in Competition Enterprise and the Western Regionals before being sold. No. 96 should soon be on the tail fin of our new Astir CS. The Astir trailer, designed by Frank Irving, was built during the summer by a group of members who made sure it was well anointed with unguents to prevent corrosion.

The annual recruitment drive has started and Imperial College has been plastered with photos of Darts and Astirs in a bid to keep up the membership figures.

A.P.P.

INKPEN

At the time of writing it would appear that Inkpen as an airfield is dead. We are informed that there have been a number of celebration parties in the neighbourhood as a result of the decision from the Dept of the Environment to close down our site.

Anyone who attended the public enquiry would be quite justified in thinking that this decision, admitted unofficially by more than one member of the local planning authority to be among the harshest they have experienced, was in respect of a totally different planning appeal. So one sided is the result that if we as a club had not bothered to make representations at all we could not have fared worse.

Despite this bitter pill the patient, however, is not dead yet and the club will continue for the time being as a weekend only operation under the good auspices of our friends at Thruxton who have made us very welcome. Every possible avenue will be explored to find an alternative site convenient to the greatest number of members who, with few exceptions, have expressed solidarity and a determination to ensure that the Phoenix will rise again from the ashes.

What must be obvious to many people is that this is not just a blow to one gliding club, it is a serious portent for the future of our sport as a whole, having now set a precedent for all future objectors to cite. All club committees should take stock of their own situation and perhaps find some way of uniting against the selfish minority who lurk behind the cover of the genuine conservationist movement. Their activities are insidious and a threat to our survival.

R.G.W.

LINCOLNSHIRE

A thinners fire in the workshop wrote-off a syndicate Weihe and badly damaged the club T-21. Mike Dring has returned successfully from his instructors' course and four others are awaiting their courses. Mick Ward completed his Silver with a flight to Camphill. Phil Becker flew to Spalding but didn't switch on his barograph, so he flew to Saltby the following Saturday to complete his Silver C. A K-6CR has been acquired by Mick Ward and Joan Fries. The club Oly was badly damaged by a visiting pilot who was fortunately unhurt.

G.A.B.

MIDLAND

The return trip at the end of the day to a hill site 1500ft asl can be a real cliff hanger, and has put up the pulse rate of many a Mynd pilot. Peter Orchard and Bob Scarborough finished recent Diamond goal flights with 700ft and 7ft in hand respectively. Jancis Scarborough added a further badge for the family with a Silver distance to Nympsfield in the club K-8. Other new names in the cross-country log include Len Crutchley and Brian Trow.

Dave Stamp is recovering steadily from leg and back injuries received in a 463 accident. Husband and wife crew Norman and Sandra Kimberley sustained much less severe injuries in a K-13 accident in September.

An innovation this season has been the Friday evening club flying sessions. Those several members who arrive at the club early on Friday evenings to begin their weekend have,

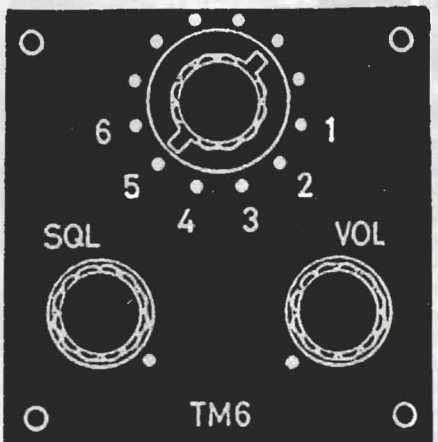
THREE COUNTIES AERO CLUB LIMITED

Blackbushe Airport, Camberley, Surrey

(ON A30 TRUNK ROAD — 45 MINS. FROM LONDON)

Special Courses for Glider Pilots to obtain
Private Pilot's Licence
Silver C conversion from £100
Normal Courses for Private Pilot's Licence
Night Flying—Instrument Flying—R/T
Flying Instructor Courses
Frasca Flight Simulator
Board of Trade Approved Courses 35 hours
Residential Courses available
Licensed Bar. Diners Club Credit Cards accepted
Barclaycards and Access accepted

CFI Derek Johnson **YATELY 873747 (Management) 872152 (Operations)**



T.M.6. GLIDER RADIO

ACTUAL SIZE X7½" LONG
UP TO 6 CHANNELS, NORMALLY SUPPLIED WITH 130.1 AND 130.4

PRICE £156

LONDON SAILPLANES LTD
Telephone Dunstable 62068

thanks to the enterprise of instructor Chris Ellis and various winch-drivers, enjoyed extra training and some interesting flying.

Winter weekend functions at the clubhouse begin with a bonfire party on November 6 and the Christmas lunch is on December 19.

W.J.T.

NORFOLK

We were all set to report an epic flight of 355km by George Day (the original "fundit"), when the previous S&G arrived with stories of 600, 700 and 800km on nearly every page. . . . However, we too have had a particularly good season with a record number of soaring days.

We took advantage of "Sport for All" week to gain a bit of publicity and a few new recruits. For anyone wishing to join in the fun, we have already planned next year's task weeks, May 9-13 and August 29-September 2. Clubhouse accommodation is available.

Finally, our congratulations to the youngest and the oldest of our members, Martin Day solo on his 16th birthday, and Doc Souper, *still* solo on her 70th.

C.E.H.

NORTHUMBRIA

After such a wonderful summer with soaring flights over the Farne islands, it is hard to accept the normal English autumn. While we hope plans for a new high-performance two-seater will soon materialise, our Blanik still provides a first rate service for our pupils.

Once we have a good modern fleet of gliders, hopefully in a few weeks' time, the club can get into top gear for the next phase of our development. This will be to replace the old wooden hut by a new two storey clubhouse with a canteen, showers, changing room and accommodation for summer course members. Hopes are Diamond height high if only prices don't go up faster than a summer thermal!

R.R.H.

OXFORD

Our annual three week flying holiday began with five pilots covering the Cheltenham-Cambridge 300km triangle on the same day (two Kestrels, K-6E, Skylark 4 and Phoebus). Phoebus 640 was flown by Steve Evans to complete his Gold badge. Many other long flights were attempted, some in the task week which followed. Other notable successes include: Phil Gascoigne's Silver C complete, Jane Randle's 300km in Kestrel 79, Ian Putt's five hours and Hugh Putt's 50km. The task week ended with a barbecue evening.

One K-13 was laid up for several weeks after a heavy landing, and we also had serious problems with the winch when both clutch assemblies sheared off. Arrangements for the replacement of the Skylark 3 with a K-8 are at an advanced stage, and there are thoughts about replacing the Skylark 4 next year with an Astir CS.

We have seen feverish activity recently in the calculation of ladder scores. Meanwhile, first solos include Jackie Smith and Will Pope.

P.H.

BRIAN WEARE

Clapper Lane Honiton
Devon EX14 8QQ

PHONE: HONITON 2940

MAJOR or MINOR REPAIRS to all types of Gliders, Motor Gliders, Canopies, for most Ex Stock Trailers.

PFA, BGA, CAA work undertaken

RATTLESDEN

Rattlesden Gliding Group was formed almost a year ago by Ralph Brooker, CFI, Cedric Vigar and Roger Watts. It was months and a lot of graft to make the airfield serviceable before there was any flying, but at last in February, Ralph was launched in his K-6CR for a circuit.

All our launches are by winch and we hope to speed things up by fitting a reverse pulley and using our recently acquired Rover as a towcar. The present fleet consists of a T-21, K-8, K-6CR, K-6E, Skylark and Motor Falke. Ralph also has a K-2 he is rebuilding to give us a second trainer.

We are very pleased with our achievements and the enthusiasm of the members. Roger Watts, John Smith, Mike Thorpe, Trevor Butcher, Bob White, Mick Moyes, Mick Irish and Cindy Lee (our first woman pilot) have gone solo. Roger Watts has one Bronze C leg and Terry Brooker, Doug Wright and Cedric Vigar have gained Silver height. The Rattlesden/RAF Wattisham trophy has logged quite a few flights since its introduction.

On "duff" days we are doing up the old control tower as a clubhouse. We should have an operational bar, kitchen and briefing room by the winter. Freda Brooker, Yvette Watts and Muriel Vigar have kept the logs and done all the paperwork all season.

C.L.

SOUTHDOWN

After some five months waiting for repairs, our Blanik is back on the line. The fantastic weather brought further badge claims in August - eight Silver heights and four Silver distances. Cloudbase was regularly above 6000ft, reaching 8000ft on some days. A reflection on the weather is that our cross-country total has increased from approximately 4000km in 1975 to over 11000km this year.

We had what must rate as one of the quickest Silver height claims when John Wood climbed to 5100ft from a winch launch and then landed, all in 14 minutes.

B.A.B.

SOUTH WALES

The open day in September was a great success despite poor weather. Thanks to our deputy CFI, Eric Fitzgerald, and a host of workers, the event has taken us one step nearer to successful co-existence with the local country community.



"Sport for All". See Norfolk.

The committee has decided to buy the Rallye 180 "India Tango" to continue its duties as tug. A new syndicate Astir CS is displaying its paces, and a PIK 20B is due soon.

By now we should be enjoying the elusive but magnificent wave, provided the field does not become waterlogged.

J.D.S.

STAFFORDSHIRE

The dry summer has provided the ideal opportunity to carry out further drainage improvements on our field. At one stage a fully laden lorry was driven with impunity across land which only months ago had bogged our tractors. Extra land drains have been laid, dykes removed, ditches filled and much of the long tussocky grass has been cut down.

Joe Malkin and Joe Yarwood have both returned from a successful instructors' course at Sutton Bank and are now being put through their paces by the CFI.

Some consternation was caused recently when CFI Arthur Lowens in the K-13 decided during his launch that it would be the last of the day because of a shifting wind. Unable to inform those on the ground and with a willing pupil paying for the flight, he stayed aloft for 3¾hrs before landing to face a near riot!

The syndicate Hornet has finally arrived and been given an airing at Morridge and several other sites.

F.B.

SURREY & HANTS

The summer is now a fond memory. It started after the rains of the spring Bank Holiday and ended with the rains of the August Bank Holiday! The last cross-countries of note were done in the short period of good weather after the August holiday, but after September 10 or so it's been circuits between cu-nims. The Portmoak expedition has not had quite the usual weather but some climbs to 7000-9000ft have been made on a few days.

The main interest now centres around the arrival of the Astir CS ships. It is hoped to keep the rest of the fleet as well, so we shall have a complement of 13 gliders including an extra K-8 in 1977. Such is the popularity of the K-8 fleet that we are adding a fifth one for 1977 - one of the present ones flew 420hrs during 1976.

The press and broadcasting people have been prominently in evidence at Lasham this year. There was a complete Nationwide programme earlier in the summer and Derek Piggott has had several filming commitments including, of course, the antigravity features of his Pirat as he convoluted around the sky to the delight of various cameramen. Our Phoebus 266 features in a BBC South programme about "things we did last summer".

C.I.

ULSTER

October 10 was a day to remember when the obvious wave potential of Ireland's lovely south-west was realised on the last day of a Dublin GC safari to Farranfore, Co Kerry, which four of our members attended with two aircraft. The sky went wild, even as members were preparing to depart. Jeremy Bryson (Kestrel) is claiming his third Diamond for a climb to 21000ft; Bob Rodwell (Oly 2B) likewise Gold height for an ascent to 12500ft and Brian Sloan Silver height for 9500ft in the same aircraft. Three Dublin GC members are also claiming Golds for climbs to 12000ft that day.

The previous day had seen Brian Sloan flying 55km to complete his Silver C. During the safari a number of Parafil cartow launches were made off Inch Beach – it's actually five miles long but that's Ireland – but only one when the Slieve Mish mountain ridge behind it was actually working in a stiff southerly.

After months of intermittent negotiations our hopes of arranging for the long-term use of Aghanloo airfield, near Limavady, have been dashed with an apparently final "no". But despite this our site options, at least for safaris, continue to expand. We have been invited to use the Army's Ballykelly airfield, in the same neighbourhood close to Binevenagh mountain, for two successive weekends late in October, in conjunction with an Army gliding course which we are to assist. We hope this first contact may lead to other things. Meanwhile, St Angelo in Fermanagh was checked out with a recent safari and found to be a delightful site, despite disappointing conditions that particular weekend. Back at base at Newtownards a new club caravan, replacing one destroyed in last winter's biggest storm, is being used after refurbishing efforts led by Mary McCormick and Mike Miskimmin.

Our Skylark 2 syndicate has gone up-market, two members returning from a trip to Germany with a Swiss-registered SHK in tow. The much loved Skylark 2, formerly the club's, has a new home in Northumbria.

R.R.R.

WOLDS

Two crews represented us in the Northerns. John Durman and Bob Fox (Cobra) logged over 1000km during the week and Brian Stott, despite some idiosyncratic navigation by Byron O'Neil, took the club's elderly K-7 some 160km to the Nottingham TP to be met by a shot gun brandishing farmer, two fire engines and an ambulance.

Arthur James successfully completed an instructors' course at Sutton Bank and Laurie Johnson gained his A and B. Our second K-7 is back after an extensive overhaul and C of A awaiting the next flush of *ab-initios* eager to sample the rigours of Yorkshire winter flying.

During a recent open day it was pleasant to entertain members of the local council who enjoyed their flights and seemed impressed by our sense of responsibility and concern for the local community.

G.H.H.



Service News

BICESTER (RAFGSA Centre)

We have said goodbye to "Chalky" White, a staff member at the Centre for four years. He will be remembered for the sheer hard work, often at the expense of his own flying, he put in to keep our large fleet airworthy. Bicester's loss is Nympsfield's gain, as he is starting his own glider repair business based at that site.

Jamie Alan has added a PPL to his Gold C distance, both being achieved at the age of 17.

There are two new privately owned gliders in the fleet, a Pilatus and a Grunau Baby. The proud owners of the latter include Paul Bolton and Rick Horst, both of whom completed their Gold C this summer and regularly fly the World Champion's ASW-17. They consider the Grunau to be the ultimate fun machine! Another addition to the fleet, expected shortly, will be a Super Falke, while the Club Libelle has been sold, to be replaced by an Astir next spring.

T.C.H.

CLEVELANDS (RAF Dishforth)

A great deal has happened since we last appeared in S&G. Barry Nowells, on his retirement from the RAF, has handed over as CFI to Bob Beck. We owe Barry a great deal for his four years' hard work and for leaving us with a good safety-conscious club.

We now have three Chipmunk tugs to replace the Austers, one now being given a C of A by our new tug member, Bill Andrew.

Launches and flying hours are steadily increasing and we now have a Motor Falke which should be invaluable for the training programme.

Visitors are always welcome at Dishforth. Recently RAFGSA members on their way back from Aboyne called in and one got his Diamond height and another Gold height.

Finally a big thank you to all the girls who help to make the club run smoothly by doing such chores as cooking on the bus to log keeping.

J.A.S.

CRANWELL (RAFGSA)

Dick Coles, our CFI, has had a reasonably good summer, notching up approximately one third of the club's total cross-country distance. Liz Fritchley and Ivor King completed both Bronze Legs and Dave Thorne got his Silver height.

Our fleet has been in fine shape and our rebuilt K-4 should soon be making its first flight. We hope to hold our AGM in November.

E.G.N.

CRUSADERS (Cyprus)

Many of the enthusiastic members who spend afternoons servicing the gliders and ground equipment have recently departed and we wish them good luck in the UK. Membership is growing but as many are members of various UN contingents on six month tours, we are rather short of experienced single-seater pilots. John Mooring will soon be returning from an instructors' course at Bicester but we will shortly be losing two of our four instructors, Chris Heames and Tony Clarke, our CFI.

Our thanks to Derek Smith who, as "resident" instructor and aircraft member, has been particularly busy in keeping our fleet of gliders serviceable and tackling several quite difficult repair jobs.

Passers-by at the airfield recently were amused to see the winch driver, in the middle of

SOLID STATE GLIDER RADIO TELEPHONE. ERT.2000.
£162.00 Including V.A.T.



E.R.T. 2000 FEATURES:-

Microphone/Loudspeaker Supplied; Maximum Power Transmitter; Two Crystal Controlled Channels Standard; Extension Loudspeaker; Socket terminated 8 ohms; 8 pin Remote Socket to accept optional extra EA.101 Remote Unit; Antenna Socket to accept Glider Aerial; Power Cable & Fuses supplied ready to connect to Glider accumulator. C.A.A. APPROVED.

VEHICLE DETECTORS FROM £35.00

APPLICATION: Counting vehicles; illuminating drive-ways; activating intruder alarms, opening doors and gates etc.

• • • • •

Protect your Glider, Car, or Trailers in your absence with our detector equipment. Please send for details.

Ask to be put on our mailing list.

ELECTECHNIQUES
SELSLEY, STROUD,
GLOUCESTERSHIRE GL5 5JY.
(045-36-3129)

a hot day, wearing a crash helmet and goggles and driving a winch shrouded in polythene sheeting. The Army had re-oiled our runway and a badly splattered winch driver had demanded protection.

Our best wishes to Patrick Mooring, John's son, who has left our ranks to join the Army Air Corps.

M.H.B.

CULDROSE (RN&RMGSA)

This has been a good year for us with more soaring than in previous years. The year of achievements started last New Year's Eve when Keith Robinson did his five hours along a couple of miles of Cornish cliffs. He went on during the year to complete his Silver C, as did Dan Archer, Paul Williams and Chris Morris.

In all there were three durations, four Silver heights and five Silver distances within the area of Bodmin to Land's End. Nine Bronze legs have been achieved with "Skin" Reynolds, Chris Morris, Dave Squire and Paul Wheatcraft gaining Bronze Cs.

The number of A and B certificates have been disappointing due to the shortage of two-seaters for much of the time but six members have gone solo. Dan Archer and Keith Robinson have attended instructors' courses at Bicester and Paul Williams has become a full cat instructor.

We had an enjoyable weekend at Land's End airfield and it is hoped to spend a club weekend at Bicester during October. There is a winter programme of lectures, films and socials, including a medieval banquet in October and the AGM in November. It is also planned to refabric our second Capstan.

P.W.

EAGLE (Detmold)

We have had an excellent soaring season with many cross-country kilometres recorded. The last achievements were a Diamond goal triangle for Chris Sholock and durations which completed Silver Cs for John Dobson and Paul Roberts. Leigh Hood and John Mitchell represented the Army at Euroglide in August.

We welcome some new faces from gliding clubs, including some Eagle old-timers, Gordon Berry, Malcolm Hook, Mal Parkes and John Harrison. However, we are also saying farewell to our Secretary, Ann Woolf, who is returning to England. Ann has been with us for over seven years, and at times was solely responsible for keeping the club going over various difficult periods. We thank her for her hard and unselfish work and wish her well for the future in the UK.

M.A.H.

FOUR COUNTIES (RAF Syerston)

With the closing of the soaring season we have already had a three week wave expedition to Aboyne, although the weather wasn't kind. We are now flying our K-18, thanks to John Winch installing the instruments, and it is proving to be a worthy replacement for the K-8. We have recently held a successful cheese and scrumpy party.

I.M.L.

HUMBER (RAF Lindholme)

Despite all the obstacles put in our way by RAF Finningley, we are still struggling on. Bill Holton has two Bronze legs and "Chuck" Berry one. Steve Winnard, one of our keenest Scouter members, is the first Scout without any previous flying experience to go solo. Two of our keenest members, Keith Taylor and Mick Adam, have successfully completed instructors' courses, Keith being the Scouts' first instructor.

SPEEDWELL SAILPLANES

SHEPLEY LANE, HAWK GREEN,
MARPLE, CHESHIRE
Telephone: 061-427 2488

Wish all our friends in the gliding world A Very Merry Christmas and A Happy and Highly Soarable New Year

We welcome Malcolm and Sue Norris, late of Weston-on-the-Green. It looks as though we shall be losing our syndicate owned Cobra. It is being sold as a syndicate member has been posted to Odiham.

Our AGM is on October 30 and our Christmas dinner-dance on December 11.

K.M.G.

PHOENIX (RAF Brüggen)

CFI Kev Kiely and his wife Liz now have an ASW-19, which brings our glider total to 11. An expedition is on its way to Vennebeck, near Minden, for two weeks ridge soaring and we have just had a successful *ab-initio* expedition to Venlo, Holland.



Colin Massey of Phoenix being congratulated on going solo by his father, Wing Cmdr Gordon Massey, OC No. 25 Sqdn and Chairman of the club.

This has been a record year with more than 8000 launches and over 2000 flying hours. Congratulations to the 24 A and Bs, seven Bronze Cs, 36 Silver legs, 13 Silver Cs, to Tim Oulds for his Gold C and Diamond goal and to Ginge Fearon for his Diamond goal. Malcolm Oulds, Chris Allen, John Moffat, Cass Oudendyck, Konnie Drücker, John Hughes, Chris Cross, Al Thompson and Colin Massey have recently gone solo. Colin, aged 16½, achieved solo standard in just two school holidays.

At last we have moved into our new clubroom/bar and our thanks to those whose efforts have made it possible. Since Tom Jones left it's been difficult filling his jobs but Kay Killingray,

all pilots can read—but the BEST PILOTS read

Sailplane & Gliding

The magazine can be obtained from most Gliding Clubs in Gt. Britain, alternatively send £3.90 postage included for an annual subscription to the British Gliding Association, Kimberley House, Vaughan Way, Leicester. Single copies, including postage 65p.

Red leather-cloth binders to take the new format now available
Price £1.50. £1.80 including post or $4.50

OVERSEAS AGENTS
CANADA:
T. R. Beasley, Soaring Supplies, PO Box 621.
St. Laurent, P.Q. Canada, H4L4V9
SOUTH AFRICA:
Peter Eich, PO Box 82707, Southdale 2135, Johannesburg, Transvaal.
HOLLAND:
Aeropress (Ary Ceelen) P Stockmanslaan 53, Eindhoven 4508
AUSTRALIA:
Please apply direct to the British Gliding Association.
USA and all other Countries
Payable in either Sterling or US$ but International Money Orders Preferred.

as Field Treasurer, and Gordon Forsyth, as MT member, are doing splendidly.

The Bryan family are soon to be posted back to the UK, Pete having served us well as deputy CFI for 2½ years. We welcome Bill and Michele Tootell and, finally, wish Angela and Dick Murray success with the airfield catering.

A.M.

SOUTH WEST DISTRICT (RAF Upavon)

Our soaring/practice week for Euroglide proved a great success. In all, over 4000kms were flown and amongst numerous achievements Mal Parkes and Brian Roberts gained their Diamond goals. At Euroglide Leigh Hood, Kestrel, flying our Std Cirrus, came third, and John Mitchell, flying Kestrel's K-6r, finished eighth.

Many of our members are going to Aboyne this month with high hopes of high flying! We are eagerly awaiting our new Astir CS which is due this month. Finally, congratulations to Gerry Sturgess and Brian Roberts who have qualified on their instructors' course.

S.C.H.

TWO RIVERS (RAF Laarbruch)

In the final thermals of the soaring season, Andy Gardiner achieved his Silver distance to Eindhoven and his duration at Kamp Lintfort within the same week. Unfortunately the Dutch Military Police at Eindhoven, assuming he was a spy, impounded the Swallow until full documentation was produced!

We have acquired a second K-8 which proved its worth on the first day by presenting Silver heights to Kevin Chapman, Mal Teasdale and Q. Oswell who, sadly, has since been posted to Güthersloh. Congratulations to Dick Brewster, our most recent solo.

We say farewell to Phil and Ann Andrews on their posting to Northcoates; both instructors, Phil has been CFI for the last two years. Our warmest gratitude to them for their hard work and best wishes for the future. Our second goodbye is to Mick Mahone, off to Abingdon, again with heartfelt thanks for hours in the workshop and on the airfield.

Overall, our season has been highly successful with cross-country hours well up on last year and with the winch and retrieve cars running smoothly, thanks to the efforts of our trusty MT member, Vince Mallon.

A.C.G.

WREKIN (RAF Cosford)

We have had a successful year's flying despite considerable difficulties caused initially by a shortage of instructors and subsequently by a lack of experienced pilots. We have also had some anxiety over the possible effects of an increase in power flying at Cosford with the commencement of operations by the University of Birmingham Air Squadron and an Air Experience Flight.

We can, however, end on an optimistic note with a recent influx of *ab-initio* members from RAF apprentices at Cosford, and we are particularly gratified that we have had an accident free year on the flying scene. It is with light relief that we discount the activities of Andy Lee, who while piloting the cable-retrieve tractor, stepped off and under it whilst it was still moving and broke his leg.

Our annual awards have been made to Martin Platt, for the swiftest progress to Silver C; Mick Boyden, for best progress and the first 300km triangle of the year, and to Chris Waller for the best flight of the year in gaining his Diamond height. The CFI's award was well earned by Andy Bachelor while Dot's pot for service to the club was awarded to Jake Jacobs and Dave Cottle and Den's pot for the first 50km flight went to John Richardson. Dave Wood took the award for the first hour's flight of the year from a winch launch, which he did in March.

We welcome Colin Brown to the committee as our Treasurer.

I.D.M.

Gliderwork

C of A OVERHAULS and REPAIRS

By L. GLOVER senior inspector



Husbands Bosworth Airfield, Near Rugby
Tel: Husbands Bosworth 375

SAILPLANE & ENGINEERING SERVICES LIMITED

The finest workmanship at the right price

REBUILDS, REFINISHING Cs of A etc

Custom built steel frame alum clad trailers

Write or phone:
KEN BLAKE
Holmfield Road, Buxton
Derbyshire
Adjoining A53
Telephone Buxton 4365

15 Meter Glass Fibre flapped A/C

Wing loading	6 to 8.5 lbs per sq ft.
Best glide angle	1 in 42 at 60 kts.
Min. sink	1.1 kts between 35 to 40 kts.
Empty weight	495 lbs.
Water Ballast	242 lbs.
Wing area	108 sq ft.

The DG200 has coupled flaps and ailerons like the Kestrel with powerful top surface airbrakes.

DG 100 15 meter Standard Class A/C

Wing Loading	5.6 to 7.75 lbs per sq ft.
Best glide angle	1 in 39.2 at 60 kts.
Min. sink	1.09 kts at 38 kts.
Empty weight	500 lbs.
Water Ballast	220 lbs.
Wing area	118.4 sq ft.



WORKS NUMBERS CAN NOW BE SECURED FOR THE DG 200 DELIVERY

Sole U.K. Agent . . .

AUSTIN AVIATION

Racing Version DG100 Demonstrator based at Booker. Telephone Ted Lusted, High Wycombe 881714.

122 MAIN STREET · STILLINGTON · Nr. YORK
Telephone Easingwold 810255

For spares and repairs contact Doncaster Sailplanes.

Bristol & Gloucestershire Gliding Club
Welcomes private owners,
beginners and holiday members at their unique site in the Cotswolds
Open 7 days per week
Why not ring the club manager on 045-386 342 or write to:—
Bristol & Gloucestershire Gliding Club
Nympsfield, Stonehouse, Glos. GL10 3TX

CORNISH GLIDING & FLYING CLUB
Gliding courses in modern fleet from May 7th – BGA fully rated instructors – fine soaring – lovely coastal airfield – ideal for a different family holiday.
Details with pleasure from:
The Course Secretary,
Cornish Gliding & Flying Club, Trevellas Airfield, Perranporth, Cornwall.
Telephone Porthleven 294

EAST SUSSEX
GLIDING CLUB
THE BROYLE
RINGMER
Nr. LEWES
Membership Secretary:
48 Ratton Drive, Eastbourne
Telephone 51012

GLIDING COURSES AT SHOBDON
Aerotow and motor-glider
Standard or Intensive
Elementary to Advanced
Combined power/gliding
All details from:
Herefordshire Gliding Club,
Shobdon Airfield,
Leominster, Hfds. HR6 9NR.
Tel: Kingsland 369
(24 hour Ansafone on 496)

IT'S THE ONLY PLACE TO GO!
★ For the novice or pundit
★ ab-initio to advanced training
★ circuits to cross country
★ aerotow or auto launch

WHERE'S THIS – LASHAM!
Derek Piggott, our C.F.I., leads a team of professional instructors second to none
We shall be pleased to send you details, apply:
Manager,
LASHAM AIRFIELD, Nr. ALTON, HANTS
Telephone Herriard 270

ABOYNE
19 77
Visitors please contact:
A. J. MIDDLETON
DEESIDE GLIDING CLUB
DINNET
ABOYNE
ABERDEENSHIRE AB3 5LB
TELEPHONE DINNET 339

RADIO **FOR CAR AND BASE**
PYE AMIODN-G **£120.00** PYE AMIOBN-G **£140.00**
PYE WISAMN-G **£170.00**
All complete, fitted with 130.4, 130.1, 129.9, 128.6
FOR AIRCRAFT
ULTRA 3A4-AG3 **£130.00**
Fitted 130.4, 130.1, 129.9 with Battery Charger, Battery, Aerial Socket for Glider Aerial and Whip Aerial. Above are overhauled and fully approved. Guaranteed for one year. Full after sales service.
AERIALS
Standard £3.50. With Base for hard to get at places £4.25. Trunk Lip Mounting £8.25. Magnetic Mount £13.00. 5/8 Aerial for any of above add £6.50.
R.E.F. Electronics
6 Cherry Tree Way, Penn, High Wycombe, Bucks
Telephone Penn (STD 049481) 4483
(after 1900 hrs for personal attention)

Yorkshire Gliding Club
HOLIDAY COURSES
March/April till September 1977.
Write for brochure and tariff.
The Secretary
Yorkshire Gliding Club
Sutton Bank
Thirsk, Yorks
Tel. Sutton 237

COOK
ELECTRIC VARIOMETER
NEW INDICATOR UNIT GIVES MUCH CLEARER INDICATION & LESS MAGNETIC INTERFERENCE
TOTAL POINTER MOVEMENT INCREASED FROM 90° TO 240°
FITS A 58mm DIAMETER HOLE
CHARACTERISTIC COOK VARIO FAST RESPONSE AND DAMPING RETAINED
METER CONVERSION ON OLD TYPE COOK VARIOMETERS
J. HARDY INSTRUMENTS LTD.
25 Dimple Road, Matlock, Derbyshire Telephone Matlock 3269

It is understood that the British Gliding Association cannot accept responsibility for claims made by advertisers in "Sailplane & Gliding".

classified section

Advertisements, with remittance, should be sent to Cheiron Press Ltd., 8/10 Parkway, London, NW1 Tel 01-267 1285. Rate 20p a word. Minimum £3.00. Box numbers 80p extra. Replies to box numbers should be sent to the same address. The closing date for classified advertisments for the February-March issue is January 6.

FOR SALE

WATERBALLAST BAGS

Do you need new ones or a repair perhops?

Enquiries to:

ACTIC PLASTICS

Leigh Street, High Wycombe,
Bucks, HP11 2QU
Tel High Wycombe 32782

Magnetic mobile aerials £14 & £17
Pye Cambridges 12v £85 & £100
All 130.1 and 130.4MHz

RADIO COMMUNICATIONS LTD.

St. Sampsons, Guernsey, C.I.
(Phone (0481) 47278 9/10am, 6/7pm)

NORVIC RACING ENGINES LTD.
AIRCRAFT ENGINE DIVISION

For Lycoming, Continental and VW base engine overhauls.

Westgate Hangar, The Airfield,
Little Staughton, Bedford MK44 2BN
Tel: Colmworth (023 062) 700



TRAILERS

Joe & Terry Linee

Competitive Prices Send for Quotations.
Higher Bockhampton. Dorchester, Dorset.
Phone: Dorchester 2307

TWO K-8s's. Both with basic instruments including T and S and C of A. One very beautiful £3,500. One less beautiful £3,000ono. Both exclusive of VAT. Write Manager, London Gliding Club, Dunstable, Beds. Tel Dunstable 63419.

K-7 with new improved canopy and full instruments. C of A to May 1977. Immediately available £3500. Secretary, Lasham Gliding Society, Herriard 322 or Dean, Midhurst 4285.

SWALLOW, good condition, C of A until Oct 1977. Dart canopy, basic instruments, good trailer, £1650. Swindon Gliding Club, Tel (0793 82) 2023.

PILATUS 1976 unregistered, retractable wheel, radio, instruments, only £5,500. Phone O'Driscoll, Waterford 4081, Ireland.

PILATUS B4, immaculate condition, fully instrumented, good trailer and equipment. £6200. Phone Porter, Leighton Buzzard 4614 or Falconer, Cheddington 661156.

LIBELLE, complete ship, fully equipped for any task, excellent metal trailer, at present based H.B. Tel Middleton at H.B. 281.

"GENAVE" 10 Channel VHF Radio, fitted with the three gliding frequencies. £175. C. D. Street, Aldershot 850526.

WILL PAY £50 to anyone ordering Schleicher aircraft worth at least DM 30000 through me. 01-794 6688.

OLYMPIA 463, instruments, parachute, Speedwell trailer. Super outfit, £3995. Phone 020125 2426 (days), 025889 498 (evenings).

KESTREL 19. Club Libelle. Std Libelle. Pilatus B-4. Swallow. All with BGA C of A, instruments and trailers. Contact: Andy Gough, Bicester A/F Bic 43030. After 8pm Bic 41573.

GRUNAU 2B. Excellent well cared for, with basic instrumentation. Red/Yellow livery, fitted main wheel and canopy. Resprayed, C of A to June 1977. Ideal first glider. £1000. Contact G. Hill, Nottingham 254470.

STD AUSTRIA with basic instruments, £3300. Phone Roger Bennett, 08456-237 (weekends).

CLUB LIBELLE 204, works number 112, July 1975. With basic instruments and ply covered trailer, £6250 including VAT, view West Midlands. Box No SG 517.

CONVERT your glider to a powered glider with an engine pack. Wright, 75 Cherry Road, Enfield, Middx. Tel 01-804 5990.

T-21, full BGA C of A until end '77. Complete respray. Canopies. Trimmer. Nose Ballast. Basic instruments. Price £1200ono. Contact Pam Davis, Herriard 329, 3 Back Lane, Herriard, Basingstoke.

FOR SALE: Std Cirrus, all normal instruments, oxygen, chute, apen trailer, Italian registration. Slingsby Kestrel 19M, all instr, Pirol, oxygen, Distavia Bertea 360, Bohli Comp. Closed trailer, English registration. Write Mr Marco Gavazzi, Via Frisi 22, 20052 Monza, Italy. Tel 386974.

TRAILER, wooden, fabric covered. As new, 15m x 1160mm wide x 1520mm high. £450 seen Usk, contact Phil Gould.

THAMES VALLEY GLIDING CLUB has for sale a Dart 17R with trailer and a Pirat, both with instruments. Offers, phone Staines 54084.

K-6E. Long body, low launches/hours. Super condition, plus sound trailer, price with basic instruments £4900. Oxygen, A.H. etc extra. Seen at Essex GC North Weald. Tel Mike Audritt, Harlow 32448 (day), 27365 (eve).

DIAMANT 18M, low haurs, basic panel, waterballast, C of A, excellent metal trailer. £5995. Write 37 Gaveston Road, Leamington Spa.

A SHARE AVAILABLE in IS-28M Motor Glider (2 place 1:29 Glide) based Halfpenny Green. Fly where and when YOU want. Self launch, self-retrieve. Phone Geaff Wilson, Business 021-643 4269, Home Stowbridge 2770.

OLYMPIA 2B No 326 (at Enstone), trailer, instruments, £1700. Phone Forrest, Bagshot 72783, evenings.

GLIDER RADIO (130.1 and 130.4) plus car set in good condition. £150. Box No SG 518.

17MOPEN CIRRUS, German built, excellent conditian, full instruments, metal trailer. R. Lynch, 3 Perrys Lane, Seend Cleeve, Melksham, Wilts. Seend 498 (evenings).

1976 HORNET 15M with super air brakes, approx £700 aff new price. Also Pneumatic Castors and Nylon Wheels for glider/trailer fittings. Phone Maidenhead 26097 (day), 32641 (evenings).

MOTOR GLIDER SF-25A, side-by-side two-seater, self-launching, 2½ galls p/hr, Instruments, C of A to Aug '77. £3200 complete or syndicate shares by arrangement. Tel Rickmansworth 79658 or Radlett 6115.

SWALLOW, excellent condition, full panel including T & S and accelerometer. Complete with robust trailer. £1800. Ring Bristol 23453 daytime, or Yatton 833722, after 7pm.

FOR SALE: BAROGRAPH, small Ferranti Mk 6 Horizon, axygen set, altimeter, parachute and spare canopy (24 I/D Irvin). Phone 01-930 4785 or weekends 044-284 2348.

TRAILER. Closed trailer/caravan with all fittings for Blanik. Wired for mains electricity. Needs some attention. £350. R. Baines, Stow, Lincaln. Stow 658 evenings.

FOR SALE: Petrol Expedition Winch mounted on Land Rover chassis, both in good running condition, full MoT, suitable for all gliders, complete with cable, ready to go. £600. Ian Cook, Farnborough, Hants 511482 evenings.

IS-29D. Basic instruments, self-loading Trailer, outfit in good condition, £5500ono. Tel 0342-832758.

STANDARD CIRRUS, 1971, with waterballast and basic instruments including turn-and-bank, 2 varios, with or without trailer. Apply Malmoe Segelflygklubb, Robert Danewid, Bispgatan 106, S-216 22 Malmoe, Sweden.

PIRAT (1974) and trailer. C of A to November 1977. £3975. Seen Lang Mynd. K. R. Mansell, The Manor Hause, Ratlinghope, Shrewsbury SY5 0SR. Linley 630.

BROKEN OLYMPIA 2B. Right wing minor damage mainly trailing edge, needs recover. Left wing broken at ⅓ length from tip. Wing roots, fittings bath wings sound. Extra tail unit. £300ono. A. Veitch, Kilmichael, Drumnadrachit, Inverness-shire.

RADIOS. Pye Cambridge fitted 130.4 £55, plus 130.1 £7 extra. Ultra 3A4 glider radio 130.4 and 130.1 £80. Pye Westminster 130.4, 130.1, 129.9. Ideal air or mobile set £110. All guaranteed six months. Tel 036-283 563.

2 KA-8's, one KA-7, with trailers and instruments (radio in KA-7). One KA-8 like new with large canopy DM13000, the others DM12000. All with new C of A. Can be viewed at the Hook of Holland by appointment. Alan Harris, Liegnitzerstr. 17, D-44 Münster, West Germany. Phone 0251-24291.

OLY 460 Inst, Par, trailer, 250hrs, £3500. Tel Dumfries (0387) 62729 evenings.

AUSTRALIA'S LEADING GLIDING CENTRE
G.C.V.—BENALLA

- *Full Time Training by Staff Instructors*
- *Cross Country Dual Training, January and February.*
- *Open and Standard Class Sailplanes for exclusive hire.*
- *On Site Accommodation.*
- *Accessible to Internal Transport.*
- *Close to International Air Terminals.*

MODERN FLEET

Open	: Kestrel 19m
Standard	: Hornet, Libelle, SuperArrow
Dual	: Brosov IS-28s, Falke Motor Glider
Tugs	: Piper Pawnee

Further details:

GLIDING CLUB OF VICTORIA
PO BOX 46, BENALLA 3672
Telephones: Benalla 057.621058 Melbourne 03.2321098

SKYLARK 2B in good condition with basic instruments, Trailer, £2800ono. Tel (day) Hexham 4688 (evening) Prudhoe 33195.

STANDARD CIRRUS 333. Mark 2 Wings, Waterballast, Trailer. Complete £7250 or Hull only. Stafford Allen, 2 Park Road East, Uxbridge, Middx. Uxbridge 55853.

UNIQUE "CARBON-FIBRE" KESTREL 19c, lightweight wings, superlative handling, easy rigging. David Carrow, Hartley Wintney 2464.

DART 17B, 1967 including trailer and instruments. £5500ono. Tel 0742 660974 or Chesterfield 75531 weekday evenings.

BLANIK fully equipped, 1/7 shares or complete outfit. Jim Moce, Amesbury 3331 ext 2859 business hours.

K-6E. Quarter share at Long Marston. Fully equipped, excellent trailer. Offers around £1300 to Iain Murdoch, Meriden 22842 (evenings).

SWALLOW. Good condition, Dart canopy, basic instruments, trailer. Details G. Leat, 14 Northcote Lane, Honiton.

THERMAL DICE. A great gliding game. £7. **VEGA MODELS** and others 300mm span £7. M. Wells. Evesham 831021.

TERRIER 145hp tug. Approx 200hrs left (plus extension). C of A April 1977. Details Yorkshire Gliding Club Tel 08456 237.

PIRAT (1972). Instruments, no trailer. C of A. £3000+VAT. Details Yorkshire Gliding Club. Tel 08456 237.

DIAMANT 18M. Easy rig. Complete outfit, very good condition. Full panel. Current C of A. Excellent value, give away" at £6500. Tel evenings Ilkley 5999 or Parbold 2155.

KESTREL 17. Complete with instruments, oxygen and trailer. Excellent condition. Tel after 7pm. Ryton 2716.

SKYLARK 2, fitted Dart canopy, full soaring panel, parachute, fitted trailer, £2950. Neal, Wimborne 3378.

NEW PIRAT for sale (repaired after non flying accident before it had flown). Test flying only since then, otherwise better than new. Basic instruments. No VAT. Offers to J. Hulme, Cambridge 811323.

GOLD PLATED PRESENTATION BOXED
"3 GULLS"
Cuff Links and Tie Tack Sets at £2.75 post paid from:
LITA-LAMPS LTD.,
11 Woodcock Hill, Kenton,
Harrow, Middx.

"MERLIN"
ALL-METAL TRAILERS
give your ship the protection of long-life steel and aluminium. We can quote for your exact needs. Also Merlin Trailer Kits.

MERLIN TRAILERS,
Salford House, Welford,
Northampton.
Tel. Welford 460.

WANTED

T-49 CAPSTAN wanted, condition immaterial. Details to Box No SG 520.

SYNDICATE has cash waiting for K-6. Please send full details to Box No SG 521.

SYNDICATE REQUIRE good K-6CR. Money waiting in bank, also EB-62 parachute. Phone Bingham 37004.

WANTED: Medium Performance Single Seat Glider. K-6, K-6E or Pirat. Must be instrumented and in above average condition, with C of A. Up to £5000 available. Box No SG 519.

CHEAP sailplane required. Tel 01-804 5990.

WANTED: Two-seater Motor Glider, preferably Motor Falke. John Selman, Limerick, Ireland 48043/45051.

TRAILER wanted for 15M sailplane. Good condition essential. Dimock, 21 North Cross St, Gosport, Hants.

WANTED Pye Bantam. Top cash offered. 01-788 1960.

YORKSHIRE GLIDING CLUB

requires

TUG PILOT/BARMAN

for Holiday Courses between

APRIL and SEPTEMBER 1977

An opportunity to ACCUMULATE POWER HOURS

Apply the Secretary,
Yorkshire Gliding Club,
Sutton Bank,
Thirsk,
Yorks. YO7 2EY.
Tel: Sutton (08456) 237

COVENTRY GLIDING CLUB

1977 Holiday Courses
April-October

Full-time Assistant or fully rated Instructor required

Details to:
Hon. Course Secretary,
18 Churchill Drive,
Leicester Forest East,
Leics. LE3 3QB

FULLY RATED INSTRUCTOR

required to fly our 1977 SUMMER COURSES May to September inclusive. Suitable applicants might be offered the opportunity to accept FULL TIME EMPLOYMENT

All applications in confidence please to:

James Hempseed (Hon Sec)
Scottish Gliding Union,
Portmoak Airfield, Scotlandwell,
By Kinross, Scotland

HANG GLIDING

BREEN HANG GLIDERS

for the best equipment from novice to expert standard. Find out about the new way to fly by contacting us now. Write or tel to New Road, Crickhowell, South Wales. Tel Crickhowell 810019.

Instruction now available—ONLY £6.00

HANG GLIDING by Bob Mackay

Ideal introduction to this sport. New, improved edition, 50p. From your bookseller or direct from publishers 60p (incl postage).

published by
Thornhill Press, 46 Westgate Street, Gloucester

ADVERTISERS' INDEX

Actic Plastics	286
Air Touring Services Ltd	267
Anglo-Polish Sailplanes Ltd	256
Austin Aviation	284
Beaumont Aviation	277
Breen Hang Gliders	287
British Gliding Association	Inside front cover, 259
Bristal & Gloucestershire Gliding Club	285
Chiltern Sailplanes	254
Classifieds	286-287
Cleveland Sailplanes	260
Peter Clifford Aviation Co Ltd	243
Cornish Gliding & Flying Club	285
Crosby Aviation Ltd	272
Crystal Engineering Ltd	249
Deeside Gliding Club	285
Doncaster Sailplane Services	272
Eagle Aircraft Services Ltd	266
East Sussex Gliding Club	285
Eiri Avion Oy	246
Electechniques	282
Gliderwork	284
Gliding Club of Victoria	287
A. W. Hanfrey (Sailplanes)	257
J. Hardy (Instruments) Ltd	285
Hugh Harris	286
J. A. Harrison (Brokers) Ltd	260
Herefordshire Gliding Club Ltd	285
J. Hulme	263
Irvin Gt Britain Ltd	260
JSW Soaring	278
Kent Gliding Club	288
Lasham Gliding Society Ltd	285
Lasham Regionals	271
J. & T. Linee	286
Lita-Lamps Ltd	287
London Gliding Club	288
London Sailplanes Ltd	257, 280
Mechanical Services Ltd	282
Merlin Troilers	287
Midland Gliding Club	288
Mowbray Vale Insurance Brokers	Inside front cover
Norfolk Sailplanes	257
Norvic Racing Engines Ltd	286
T. & A. D. Poyser Ltd	266
Radio Communications Ltd	286
R.E.F. Electronics	285
Sailplane & Engineering Services Ltd	284
Sailplane & Gliding	283
Schleicher Aircraft	266
Scottish Gliding Union	287, 288
Soaring Oxford	254
The Soaring Press	276
Southdown Aero Services Ltd	260
Southern Sailplanes	Back cover
Speedwell Sailplanes	283
Tec Weld	254
Thermal Equipment Ltd	258
Graham Thomson Ltd	Inside back cover
Thornhill Press	287
Three Counties Aero Club Ltd	280
Vickers-Slingsby	250-251
Brian Weare	281
Watts Tyre & Rubber Co Ltd	272
Wycombe Gliding School	288
Yorkshire Gliding Club	285, 287, 288

KENT

Come and soar the North Downs at Challock

Begin gliding by coming on a weekly training course

Holiday courses for advanced pilots

Ridge site with winch and aerotow facilities. Both for £66.00 – £69.00 per week inclusive of accommodation, instruction and VAT.

For colour brochure, write to The Secretary:—

Kent Gliding Club,
CHALLOCK, ASHFORD, KENT.
Telephone Challock 274 or 307

LONDON GLIDING CLUB

Dunstable Downs, Bedfordshire
Telephone: 0582 63419

Situated at the foot of the Chiltern hills, and within easy reach of London and the Midlands by road (just off the M1). The Club has a comprehensive fleet of dual and solo aircraft, reliable launching equipment including tug aircraft. This famous site has plentiful thermals in summer and hill soaring with favourable winds throughout the year. Resident instructors, catering every day (weekends only in winter), licensed bar, accommodation and other facilities. Visitors welcome.

Write for Course brochures or club membership details to the Manager, or ring 0582 63419.

SCOTTISH GLIDING UNION

Portmoak
Scotlandwell
by Kinross
Scotland

Telephone
Scotlandwell
243

THE WAVE SITE

Excellent Hill, Thermal and Wave soaring in beautiful surroundings

Full accomodation available with catering and bar

Flying 7 days per week all year round Resident Instructor

Aerotow and Motor Falke facilities

Summer Holiday Courses from April to September

Visitors and visiting aircraft welcome

Advance bookings necessary in writing to the Secretary

Fly where the buzzards fly!

Ridge Thermal Wave
Winch or Bungey

Midland Gliding Club Limited

THE LONG MYND

Holiday Courses
April-October

Private Owners Welcome

(Please book in Advance)

Course Secretary
65, Sylvan Avenue, Timperley
Altrincham, Cheshire, WA15 6AD
or phone 061 973 3086
(9am-9pm)

WYCOMBE GLIDING SCHOOL

AIRWAYS FLYING CLUB

THAMES VALLEY GLIDING CLUB

Aero tows and a modern training fleet ensure trouble-free training to a high standard. Modern Club-house, Bar and Canteen. Accommodation available. Our instructors can cater for all your flying requirements.

FOR DETAILS APPLY TO:
THE SECRETARY (SG), WYCOMBE GLIDING SCHOOL, WYCOMBE AIR PARK, BOOKER, MARLOW, BUCKS.
Tel. High Wycombe 29263

YORKSHIRE GLIDING CLUB

WAVE FLYING
THERMAL SOARING
GOOD FACILITIES
all at Sutton Bank

Details from the SECRETARY

YORKSHIRE GLIDING CLUB
SUTTON BANK
THIRSK
YORKSHIRE
Telephone SUTTON 237

CERTIFIED OXYGEN EQUIPMENT



A8A Regulator

MASKS

SK-6 mask, with tubing, flow-indicator, and connector; for use with A8A regulator $13.50

SK-24901 mask, professional quality, with inhalation/exhalation valve, A13 type facepiece, tubing, flow-indicator, and connector; for use with A8A regulator $49.50

Sierra 659 "Posifit" mask, with inhalation/exhalation valve, for use with A14A regulator; includes hose and MC-3 connector for H-2 bailout $79.50



A14A Regulator

HIGH-PRESSURE CYLINDERS

Volume	Weight	Length	Diameter	Price
11 cu. ft.	7 lbs.	22 in.	3½ in.	$39.50
15 cu. ft.	9 lbs.	17 in.	5¼ in.	49.50
22 cu. ft.	12 lbs.	22 in.	5¼ in.	49.50
30 cu. ft.	15 lbs.	20 in.	6¾ in.	79.50
38 cu. ft.	18 lbs.	23 in.	6¾ in.	79.50
48 cu. ft.	23 lbs.	28 in.	6¾ in.	99.50

H-2 bailout cylinder and valve, complete 35.00

HIGH-PRESSURE REGULATORS

A8A — Continuous-flow, for use to 30,000 feet ..... $ 54.50

A14A — Diluter-demand pressure breathing, for use to 40,000 feet 89.50

A14A — With pressure gauge and flow indicator blinker 110.00

CONTINUOUS-FLOW SPECIAL

A8A regulator ..... $ 54.50
22 cu. ft. cylinder 49.50
High-pressure line 22.50
SK-6 mask 13.50

List: $140.00

Save $20.50 with our package price of $119.50

Add $36.00 for optional SK 24901 mask.

Add $15.50 for cylinder mount brackets, if required.

HIGH-ALTITUDE SPECIAL

A14A regulator, with gauge and blinker $110.00
Regulator outlet hose, with fittings 12.50
38 cu. ft. cylinder 79.50
High-pressure line 22.50
Sierra 659 Posifit mask 79.50
H-2 bailout, complete 35.00

List: $339.00

Save $49.50 with our package price of $289.50

Add $15.50 for cylinder mount brackets, if required.

MINI-PAK SPECIAL

Ideal as back-up for your primary system, or may be used for short climbs. Complete outfit includes A8A regulator, 7 cu. ft. cylinder, and SK-6 mask: $99.50

FOR THE FINEST IN NEW AND EX USAF OXYGEN EQUIPMENT CONTACT:

GRAHAM THOMSON LTD

3200 AIRPORT AVENUE
SANTA MONICA, CALIFORNIA 90405
(213) 390-8654

Shipped freight collect
Prices and specifications subject to change without notice.

SOUTHERN SAILPLANES

Membury Airfield, Lambourn, Berks

(RALPH JONES) **Telephone Lambourn (0488) 71774**

WISH YOU ALL A MERRY CHRISTMAS AND A PROSPEROUS NEW YEAR



high performance
low empty weight
high all-up weight

WRITE TO US FOR DETAILS

From Schempp-Hirth : The Nimbus 15

new flap brake system
giving safe, short landings

combined flap/trim
system reduces pilot
fatigue



C's of A and Repairs

At Membury we have over 6,000 square feet of heated workshop space devoted to aircraft work