SAILPLANE & GLIDING

December 1973 — January 1974 30p



CHRISTMAS 1973

A message from Chris Simpson, Chairman BGA



NOW is the time to reflect on the achievements of 1973, and to consider the prospects for 1974.

At the competitive level in 1973 many records have been broken, and in particular Angela Smith has established a new feminine world record for a 500km triangle; Ralph Jones has won two UK National Championships and three Regionals; while more 500km triangles and distances have been flown in the UK than in any previous year.

At the technical level, satisfactory negotiations have been concluded with the authorities which enable all aspects of the self-launching motor glider to be under the primary control of the BGA.

At club level there has been a continuation of the expansion of clubs and club membership and, in particular, of club flying both in quantity and quality.

In January 1974 our team will compete in the World Championships in Australia. No doubt as we celebrate what, for many of us, will be our first New Year's Bank Holiday, we will raise our glasses and drink to their success.

We must, I fear, anticipate that we shall have to fight increasingly difficult battles in 1974 to restrain encroachment on the airspace available to gliders and to retain those sites on which we have little or no security of tenure.

We can again look forward to *The Daily Telegraph* sponsorship of a European Gliding Championship which not only helps to improve our relations with those who glide abroad, but also gives much publicity to the valuable contribution of gliding as a sport.

Finally, and foremost, let us look to the continued expansion of our clubs. Surely our most important objective is to preserve and expand the freedom for the individual to experience the joy and delight of gliding and to savour the friendship of others of like mind?

Let me say thank you to those who, whether professional or amateur, at all levels, strive so incessantly that we may all glide.

A HAPPY CHRISTMAS and a successful NEW YEAR to you all.

SAILPLANE & GLIDING

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CONTENTS

	Facing page
Christmas 1973	
A Glider Pilot's Guide to Wave Forecasting—(Part1)	
Shouldn't Someone Shout "Stop"?	
Fédération Aéronautique Internationale	
Into Those Clouds	
Type Conversions—The "Flight Test" Approach	
Map of the Camp	
"Oxbridge" Winch Designs	
Home Built Tost Winch, Oxford Version	
The Cambridge Winch	
Theory of the Clutch	
On Barratry	
The Good Ship Caroline	
The Golden Road to Samedan	
Watch that Ball	
French International Mountain Gliding Competition 1973	
Not So Long Ago	
Christmas Competition	
Turning Point Photography	
A Veteran P2 on Increasing Respect for the Enemy	
Overseas News	
Provisional Entry List and Previous Placings Waikerie 1974	
Wake Turbulence	
Cloud with a Diamond Lining	
General & BGA News	
National Ladder	
Competition Diary, 1974	
Competition Enterprise	
Handicap List for 1974	
Gliding Certificates	
CIVV Meeting	
Obituary	
Nationals Entry List 1974	
Boomerang Fund	
Book Reviews	
Correspondence	
Club News	
Service News	

	Facing contents page
C. R. Simpson	406
M. P. Garrod	408
I. Dandie	410
Ann Welch	413
A. Bright	415
H. A. Torode	420
R. Bull	422
J. Grace	423
J. Scott	425
B. Trott	426
P. A. Wills	429
Kitty Wills	430
Sue & R. Chesters	432
T. Sogn	433
H. R. Dimock	436
	437
Arm-Chair Pilot	438
F. G. Irving	440
"Simple Simon"	442
A. E. Slater	443
	444
I. Busby	447
J. Joss	448
	448
	449
	450
	453
	454
Ann Welch	454
J. W. G. Meyer	455
	456
	457
A. E. Slater	459
D. B. James, I. W. Strachan, J. Carbó-Nóver	466
	477

Cover picture: Team pilot George Burton on final glide in his Kestrel 19. Photo: By courtesy of "The Times".

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A Glider Pilot's Guide to Wave Forecasting — (Part 1)

By MICHAEL GARROD (Meteorological Office)

ON June 22 1939 N. McClean was launched from Bank Hall Farm, Kirkland, in a Grunau Baby. A fierce north-east wind was blowing, producing a 50mph gale down from Crossfell. A stationary bar of cloud had been sitting over the Eden valley for two days. McClean turned his glider towards the hill in very rough air, but it suddenly became quite smooth. Glancing at his variometer, he saw it rising until it registered 25ft/sec. Some minutes later he reached 10,000ft, achieving a new British gain of height record.

In the years before this famous occasion, the knowledge of wave motion and its applications to gliding was very limited. However, as the performance of gliders improved, it became apparent that wave systems occurred more widely than was generally supposed. Almost every gliding site in the British Isles has, at some time or another, been affected by a wave system, although strong wave motion is confined to the hillier districts.

How can the club glider pilot recognise a situation in which wave is likely to occur at his site?

The first, and most obvious point to consider, is the direction of the surface wind. Wave motion is set going by hills, so clearly the wind must come from the direction of the highest ground in the area.

Secondly, the surface wind must be within 30 degrees of the perpendicular to the general line of the hills.

Having established these two conditions at the surface, consider now the situation required in the upper air. Without plunging into theory, a major factor in wave motion is an increase of wind with height. In addition to this, the wind direction must be fairly constant with height.

Now that the wind conditions are defined, consider the temperature structure. It can be shown, both in theory and in practice, that a layer of stable air is a major factor in wave motion. Stability is most marked with a temperature inversion, or increase of temperature with height.

If we combine these wind and temperature fields, then we can expect to get wave motion.

For the meteorologist it is a simple matter to check for these criteria, but for the average person it is much more difficult. Obtaining the required information on the telephone is time-consuming, both for the pilot and the meteorologist. What can the pilot do to assess for himself the prospects of wave?

Cloud movement

There are many clues to the problem. The surface wind is easily established from observation, as can the direction of the wind aloft by the movement of the clouds. In particular, fast-moving cirrus clouds indicate strong winds aloft, perhaps a jet stream. This is a sure sign of marked wind increase with height. Any directional change will be fairly apparent if cloud is present at more than one level.

Clouds are also an indicator of temperature structure. Cumulus type clouds form in an unstable layer, while stratocumulus, stratus and altocumulus are

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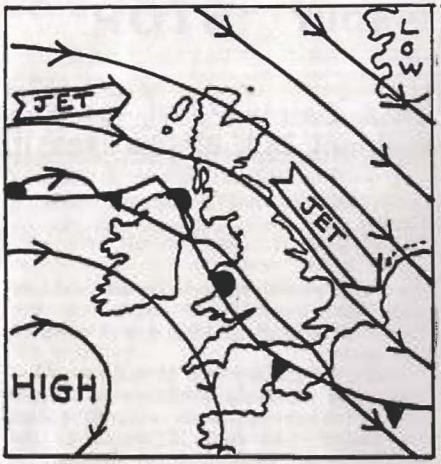


Fig 1 Synoptic situation encouraging wave motion



Fig 2 Synoptic situation inhibiting wave motion

evidence of a stable layer. I have left the obvious until last—the presence of lenticular cloud.

Apart from looking at the sky and assessing the wind and temperature structure, several important clues may be gained from the forecast synoptic chart in the newspaper. The general wind direction at 2,000ft is indicated by the direction of the line of the isobars. The speed, however, may only be inferred from the distance between them.

Another clue, and a major one, is the general pattern of fronts, depressions and anticyclones. It is essential that the wind direction does not change significantly with height, and this condition may be achieved when frontal systems lie approximately parallel to the isobars.

Fig 1 shows such a situation, the preferred zone for wave motion being in the cold air adjacent to the fronts. This is the zone where the upper winds are likely to be at their strongest (indicated by a large arrow marked *"JET"*).

Unfortunately the newspaper chart will not show the region of strong upper winds, but a configuration similar to Fig. 1 will often produce the desired result. Anticyclonic curvature of the isobars is the major factor, not only from the wind aspect but also from stability considerations.

Fig 2 by contrast, shows a situation which will largely inhibit wave motion. A depression with cyclonically curved isobars, typical of the developing type, leads to marked wind directional changes with height, both ahead of and behind the main fronts. On the northern side of the depression the wind reverses direction completely. Only in the warm sector of the depression may one find wave motion.

In my next article I shall explain a fairly straightforward method of assessing the chance of waves, including their strength and wavelength, with only the minimum of basic meteorological data.

As Others See Us

THE opening and closing paragraphs from one of those numerous newspaper articles on gliding which, in fairness, do a great deal in attracting new members.

"There's no snobbery in gliding: it doesn't matter whether you are a milkman or a millionaire. In fact, at the . . . Gliding Club you would be hard pressed to tell the difference—they all walk about in the sort of clothes in which most people do their gardening.

"But beware, it starts as a casual interest, quickly becomes a time-consuming sport, and ends up by being an obsession."

SHOULDN'T SOMEONE SHOUT "STOP"?

Ian Dandie, Chairman of the BGA Safety Panel, focuses attention on one particular accident but emphasises it isn't an isolated incident.

"All clear above and behind—take care of slack—all out"

Another launch had started. (Reverse pulley system). But it was not just as simple as that. The cable snatched due to the tow car changing gear and this, together with rough ground at the launch point, led to the glider bouncing off the ground prematurely. The main wheel then landed back on top of the shock rope, picked it up and wrapped it round the axle.

Nobody at the launch point noticed and the launch continued.

As he went into the climb the pilot felt that the glider had a marked tendency to pitch nose up which made him suspect what had happened. He applied full down elevator and the glider continued to climb. He pulled the release and nothing happened.

An instructor standing 75 yards off the port wing saw two feet or so of cable hanging from the wheel and ran towards the launch point shouting "Stop". By the time the signal was given it was too late to be effective as the car driver was by now watching the glider on the climb.

The launch took the glider to a height of about 700 feet. The tow car crew now got their first clue that something was wrong. They noticed that though the glider's nose had been lowered, the parachute did not fall away as expected.

Diving vertically

The pilot turned downwind and attempted to break the cable by snatching it tight. There was insufficient slack for this to be effective and the pilot found himself diving almost vertically with the cable caught.

The tow car driver's mate now saw that the parachute was rather further back than normal and shouted to the driver to stop. This he did and released the cable.

The pilot had by now turned into wind again and successfully completed a steep spiral braked approach centred round the pulley. The cable tightened as the glider landed causing slight damage. A very good effort on the pilot's part.

The Club Safety Officer sent in an excellent report and his observations are worth quoting in full.

"Primary cause of this accident was cable snatch due to tow car gear change accentuated by rough ground at the launch point causing the glider to become prematurely airborne before landing on the shock rope, which was picked up by the wheel and became securely entangled in the wheel box.

"Had the pilot opened the airbrakes as soon as possible before the speed increased, making a climb inevitable due to the cable attachment position now being well aft of normal, the glider would have stayed on the ground; however, having become airborne, he did realise his predicament and made rational decisions to extricate himself from the extremely dangerous situation in which he now found himself. His attempt to dive the glider and pull up to break the cable could not succeed as a flight path other than vertically downward from a position over the pulley vehicle can only tighten the cable. Having proved this in practice he then correctly deduced that the only course left open was to circle the pulley with a high as possible vertical decent speed, this he achieved by turning tightly with the airbrakes open and, in the circumstances, is to be congratulated for bringing off a good landing.

"From the tow car's crew view point

nothing unusual occurred in the early part of the launch, the up slack and all out signals being normal. When the stop signal was given, both the driver and the observer were watching the glider as it climbed over their heads and continued to do so. At the top of the launch both were distracted by the glider's apparant inability to drop the cable, and there was a certain amount of confusion as to the correct action to take in a very limited time. Had the cable been released by the car as soon as it was seen that a 'hang-up' had occurred then the pilot would have had more room to manoeuvre. As it was their hesitation only aggravated the situation.

"It is difficult to judge the actions of those at the launch point as the glider was positioned on the grass on the left hand side of the runway, therefore the Ottfur and the shock rope were on the far side of the glider, invisable from the runway during the first part of the ground run. Had not an instructor been watching from the other side of the glider it is open to conjecture as to when if at all the stop signal would have been given and if, in fact, it would have influenced what followed.

Made aware of danger

"The first priority to prevent a similar incident in the future must be as far as possible to remove the cause. Second all club members must be made aware of the danger and launch point personnel, tow car drivers, observers, and pilots, briefed as to the correct action to be taken in the event of a 'hang-up'.

"(a) The length of shock rope between the weak link and the Ottfur rings should be run inside a length of hose pipe making it almost impossible for it to be picked up.

"(b) The gap between the wheel and the back of the wheel box is large enough to take the shock-rope on Skylarks, K-6CR and Olympia 460 series, the possibility of the wheel being closely faired in is under investigation. A close fitting fairing would prevent the shock-rope entering the wheel box.

"(c) Pilots of all gliders should be briefed to steer the glider away from the rope on the ground. A small deviation away and to the right (where the Ottfur is on the left of the glider) of the cable makes no difference to the launch, but in the event of a snatch does get the glider away from the cable.

"(d) The flying committee should discuss all aspects of the 'hang-up' situation and set out a procedure to be followed in the event by: pilots, tow car crews, and launch point personnel, and see to it that all members are made familiar with it.

"(e) In the meantime Skylarks and other gliders susceptible to picking up cables in their wheel boxes should take-off from the runway, this will at least eliminate the bump factor from an abortive take-off."

The technical aspects are receiving the Chief Technical Officer's attention as shown in this extract from his "Inspectors Newsheet 9/73".

Wheelbox tangles

"Yet another wheelbox tangle has occurred. The same cause as before: the glider over runs the cable, picks up the shock rope, and this winds up in the wheelbox. The pilot in this case got away with it by a piece of very good airmanship. There are two obvious ways of preventing this, and I am not sure yet which I advocate. I would like opinions on this.

"*Method 1:* Fit over the shock rope a piece of plastic hose pipe, thereby making the whole thing semi-rigid. If you fasten the hose pipe to the rope at the glider end, it minimises the spring-back tendency if the weak link should break, since the rope recoils inside the hose pipe.

"*Method 2:* Use a really thick (about 2" diameter) synthetic rope for the shock rope. This is so stiff and thick that it cannot pick up in the wheelbox.' '

This is not the only incident of this type reported this year and it is to be hoped that by giving it publicity everyone at the launch point will be made more aware of what can happen. Particular care should be exercised if there is a jerk at the start of any type of launch. Even the most junior club member should not be frightened to shout "STOP" if he sees something he thinks not quite right. This could prevent a nasty accident and if nothing is wrong it only gives rise to a slight delay.

This emblem is vaguely familiar to most glider pilots, but here ANN WELCH gives an insight into the purpose and work of FAI

Fédération Aéronautique Internationale

IF one thinks about International controlling and regulatory bodies, it is easy to visualise large concrete and glass structures filled with countless ant-like beings all producing more and more paper to stifle our lives. FAI is not like that at all.

The organisation, which started back in 1905, looks after the achievements of world aeronautical sport from a couple of offices inside the immovably heavy gates of the Aero Club de France in Paris. The myriads of office workers consist of two completely bilingual people with occasional stenographer help; they are Charles Hennecart, Directeur Général, and Sandra Pedrom —who has no hesitation in ticking off the whole of a large international meeting if she thinks that they are being unreasonable in their eleventh hour demands on her office, but kisses them goodbye when they leave.

Between the two of them they take care of international records, diplomas, awards, and registers of people with all three Diamonds, as well as the organisation and administration of some 20 international conferences a year. These may last two or more days, with a few of them scattered about the world anywhere from Chile to Finland. The agendas are always out on time and no papers seem to get forgotten.

Association of Aero Clubs

FAI is basically an association of National Aero Clubs financed by subscriptions. Its council is composed of one representative from each country, who have the status of elected vice-president, and it deals with policy matters and finance, and ratifies the decisions of its 11 Commissions. These are the specialist bodies dealing with gliding, ballooning, aeromodelling, air education etc. Each Commission is made up of a representative from each National Aero Club concerned with the particular activity, and they meet once or twice a year, usually in Paris.

CIVV (Commission Internationale Vol à Voile) is the body for gliding. Its President is Pirat Gehriger, who organised the first World Gliding Competitions after the war (Samedan, Switzerland 1948), became CIVV president soon afterwards and has run the Commission at a cracking pace ever since. Far from being a jolly in Paris, CIVV sessions barely give time to get closer to delectable French cooking than a "biere et sandwich jambon". CIVV has four Vice-presidents. Currently they are Piero Morelli (Italy), B. Janceliewicz (Poland) and myself. Sadly the fourth, Seff Kunz, died this summer (S&G, Oct/Nov p382). He will be hard to replace, particularly as Chairman of the Motor Glider Sub-Committee. The only other Sub-Committee CIVV has at present is for Championship Rules and Classes, with myself as Chairman. CIVV meetings are held each spring and autumn, with the full meeting preceded by a meeting of the Bureau a day earlier.

Delve into difficulties

The purpose of this meeting, which is composed of the President, Vice-presidents, plus the organisers of any forthcoming World Championships, is to sort out the agenda material, delve into difficult items, and in some cases prepare recommendations to put to the vote of the main meeting. If all this were not done, a great deal of expensive delegate time would be wasted, since with any multi-language group of people it is essential to avoid unnecessary verbiage and unthinking red-herrings if the work

is to be sensibly completed in the time available.

One of the reasons that CIVV seems to have so much work to get through is that so much goes on in world gliding. Some of this is surprisingly complex, such as the Standard Class rules, because producing written rules which are comprehensible, will achieve the purpose intended, and which are enforceable by normal intelligent people under the field conditions of a World Championships, is not easy.

Take the case of the new flap rule. It is not that CIVV does or does not want flaps, the difficulty lies in persuading people to accept some simplification in the permitted aircraft configuration in order to achieve a rule that is enforceable. Some people are still saying that CIVV was wrong to abandon the requirement for speed limiting brakes, but this rule became unenforceable when manufacturers together decided to build to their new national airworthiness requirements which were less onerous than those required by CIVV.

The work to maintain top quality championships flying within the financial reach of all countries willing and able to enter is not as simple as it may at first seem. One reason for the class rules problems that arise stems, I believe, from trying to push too much technical progress into too small a class structure. With only two classes in World Championships, and one of these Open Class, there is insufficient flexibility to cope with a sport using such worldwide geographical and weather variables.

Three working days

FAI holds its General Conference once a year in different host countries. There are three working days, but the occasion is usually extended to a week by the activities of national tourist boards. This makes a nice holiday for anyone prepared to spend the time and money. Each National Aero Club sends delegates who represent it, whether they are balloonists, glider pilots, or aeromodellers, and there is no doubt that the working session days where everyone is together, also give valuable opportunities for an international news exchange.

Our own Royal Aero Club has a useful FAI Delegates Committee meeting two to three times a year, started by Kenneth Davies, which brings together people from all our different branches of flying. This is good, because, involved primarily with gliding, as we are, we tend not to hear much about the achievements of others, such as the remarkable record flight of Julian Nott who got to 33,000ft in a hot air balloon.

FAI does not content itself only with down to earth flying and gliding, but also looks after space records, of which there is now quite an impressive list. However, its newest developments are closer to home.

Airspace problems

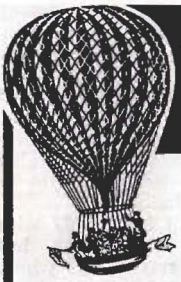
This year it has introduced a Commission for Airspace, with the object of assisting National Aero Clubs to deal with their airspace problems, and John Ellis has been nominated UK representative. In another area, thought is being given to possible record categories for hang gliders; and different again is the pipeline Commission for aircraft home-builders, one of the fastest growing developments in general aviation.

FAI Bulletins

It is only when you read through that aeronautical Guinness book of records —the FAI Bulletin—that you discover the fascinating bones of aviation history —that the longest flight in a dirigible was 6,384.5km by the Graf Zeppelin from October 29—November 1, 1928, or that a free balloon (gas) travelled 3,052.7km in Germany from February 8-10, 1914; that's quite a long time to be cold. On March 31, 1962, a model glider flew 310.3km in Czechoslovakia, and in USA on June 1, 1968, a radio controlled model glider did 116.2km triangle—maybe the pilot is sometimes a disadvantage.

The first speed record ever homologated by FAI was on November 12, 1906, when Santos Dumont achieved all of 37.378km/hr. It is perhaps a pity that FAI is not just a few years older so that it could have inscribed in its meticulous detail who was the first man to fly!

N.B. Since this article was written, Ann has become Chairman of the Royal Aero Club FAI Delegates Committee.



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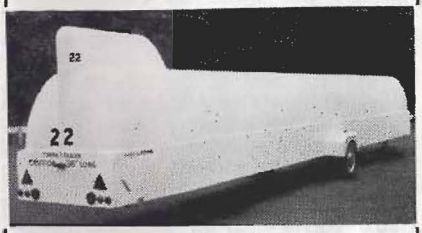
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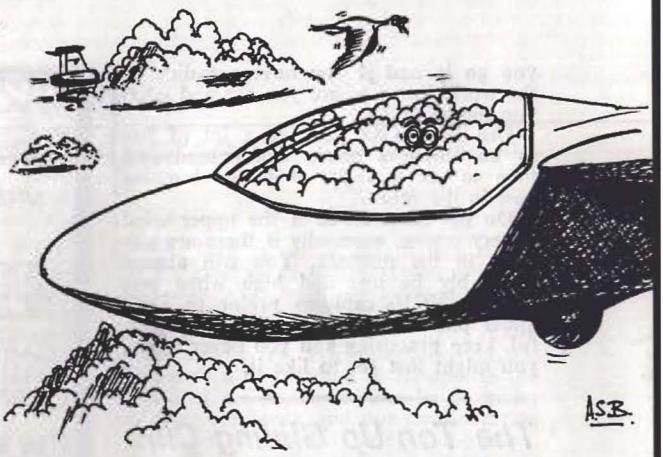
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INTO THOSE CLOUDS



The moment of entering cloud for the first time can be traumatic, comparable with that initial solo flight. Alan Bright tells how he faced the challenge.

I FOUND my very first experience of cloud flying to be one of the most exciting moments of my life. I had carefully avoided going near the smallest scrap of cumulus to avoid being sucked in, but one day while flying at the Long Mynd I changed tactics.

Winding round in a modest five knots, I decided I had no reasonable excuse not to stay in the thermal and go up into the cloud above. I looked up towards the grey base and thought that this was it—I think my heart rate just about doubled.

Switching on the turn and slip and concentrating like never before, I was off, going from ASI to turn and slip, to variometer to ASI, to turn and slip to variometer, quick look out—not in yet—back to the same instrument scanning.

Hello, it felt colder. I looked out and I couldn't see the wing tips any more. I was in and yet why was I only doing 32kts?

So I had to re-think. You don't do 32kts any more, you do 65, gently back, let the trimmer do the work. After that the turn and slip said my wings were level but my head said I was turning right—and I went in circling left.

But what was it the instructor said? "Ignore your senses lad, they tell you wrong, trust your instruments." I trusted them, I just didn't believe them.

After the first 85 gyrations I let the aircraft fly me, instead of the other way round, and things started to settle down.

Soon it became lighter and we sailed into sunlight, marvellous! It was pleasant below cloudbase and quite beautiful at the cloud top, just the bit in the middle was the problem.

Collisions

Having read a few BGA accident reports about aircraft colliding in cloud, gliders emerging from cloud and attempting to penetrate hillsides and descending through a cloud layer to find the base wasn't where it had been a while before, I thought perhaps I should stay in clear air for a while.

Although my hours have now increased I, like most pilots, still have a great deal of respect for large clouds—any *ab-initio* cloud flier is advised to have a lot of respect for small ones too. They can grow a lot faster than one would think.

Practising in clear air can help in getting the feel of instrument flying but before actually having a go, make sure you are carefully briefed by an instructor who knows what he is talking about.

Solo pilots at this stage tend to be left very much to their own devices and should make a point of asking for advice. If in doubt, come out, stick the nose down a bit, open the brakes and wait until you can see something.

Make sure you are above the height recommended by your instructor before

you go in and if you have a radio, let the world know where you are and what you intend doing.

Use 130.4MHz. It's not a lot of fun to be climbing nicely in a cloud and then to see a vague shape go hurtling past in the murk.

Do not enter cloud if the upper wind is very strong, especially if there are airways in the distance. You will almost invariably be lost and high when you emerge. VC10 captains prefer to meet glider pilots on the ground. So be careful, keep practising and you never know, you might just get to like it.

The Ton-Up Gliding Club

Words and Drawing
BY CHARLES HALL



Mr James Chapman from Wisbech, Cambs, became the founder member of the Ton-Up Gliding Club when he flew in the Norfolk Gliding Club's K-13 at Tibenham on September 26 at the age of 102. At 100 he flew in an aeroplane, at 101 it was a trip in a hot air balloon and now, after his glider flight, he is arranging his next adventure—in a helicopter.

Thinking of getting a PPL?

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

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TYPE CONVERSIONS — The "Flight Test" Approach

By H. A. TORODE (CIT Cranfield)

BEFORE a new sailplane type is issued with a certificate of airworthiness it is subjected to a flight test programme to assess its suitability for its proposed role. During this programme, an experienced pilot explores the sailplane's handling qualities and flight envelope in order to substantiate that these characteristics are acceptable.

For this task a test pilot must develop an analytical approach to his own flying whilst carrying out tests which are being done for the first time and, on occasions, carrying a certain amount of risk. These circumstances have some parallels in everyday instruction, and practice in this kind of flying is useful to pilots carrying out air tests for C's of A and also, in the course of daily instruction demonstrations where precise control and reaction is required. In particular this situation is related to the circumstance of a pilot of lesser experience approaching a sailplane type that is new to him, and conceivably more advanced than those types to which he has become accustomed.

This particular situation is more problematic at the present time because of the unrepresentative nature of the current generation of two-seaters. If we were blessed with working club two-seaters with the handling qualities of modern high performance sailplanes, then life would be relatively simple.

Safe transition

Further, more inexperienced pilots are now gaining access to highly developed sailplanes and it is the duty of the instructor to see that the transition can be made with all possible ease and safety. In these circumstances it is extremely easy to crowd a system with rules which are unnecessary for the majority of pilots who are capable of making a rapid and safe transition.

It should be remembered that this situation of rapid advancement is highly desirable and it is up to the instructional system to take up the challenge of seeing that progress is achieved within saftety limits. One powerful aid to this end is in the briefing of the inexperienced pilot to adopt what might be referred to as a "flight test" approach to his exploratory flying.

In any given circumstances the instructor's attitude must be tailored to the mood of his pupil, whether he be under or over confident, and due consideration is also given to his past demonstrated abilities. Discussion with him of his new sailplane and an inquiry into his knowledge of its design features is always worthwhile and gives the instructor the opportunity of guaging the depth of his mental preparation. Clearly, it is highly desirable that the supervisor should have a first hand knowledge of the sailplane, but this is not entirely necessary provided he has an "eye" for sailplane designs.

Instructor's guidance

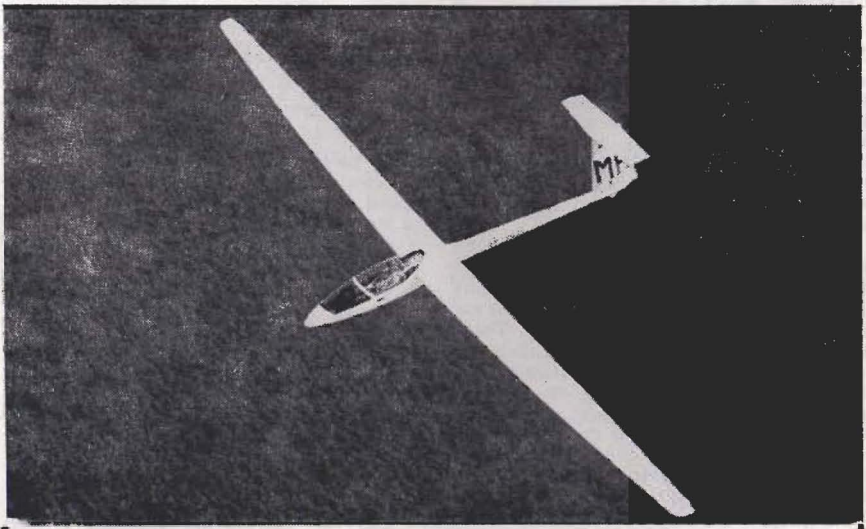
What is vital in these stages is that handling and safety aspects should be concentrated upon, rather than performance flying techniques. In this respect the guidance of an instructor is of much more value than that of a competition pilot who is generally all too ready to explain how to fly to his limits, which are unlikely to be the same as those of our student pilot.

The "eyeball" assessment of a sailplane's qualities is an invaluable aid to the test pilot, particularly when approaching an unflown prototype, when it is the only information to which he can relate his forthcoming flight impressions. This technique is useful to pupil and instructor alike.

As an illustration, consider the fictitious sailplane shown at the end of this article. At face value it looks entirely conventional. However, closer inspection shows that we might expect, for instance, poor approach control from the aft location of the airbrakes, awkward ground control because of the low ground angle, and so forth. A full list of design peculiarities (not necessarily defects) are included under the illustration.

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These sorts of details are always useful talking points during discussions and debriefings.

Cockpit familiarity is also important in the early stages. In a high performance sailplane there are invariably many new controls and the opportunities for pulling the wrong lever are multiplied greatly in a tense situation. Cockpit comfort and a reasonable view of the outside world are also elementary but vital considerations.

Pilot's abilities to cope with an uncomfortable seating position seem to vary widely from person to person, so a dummy run with the sailplane in a representative attitude and the canopy *on* is always a worthwhile exercise. It should go without mention that checks must be made to ensure that the sailplane is within placarded limits. Even so, several new sailplanes, particularly smaller types can be very marginal, especially with such additions as lavish soaring panels and perhaps oxygen equipment. Initial familiarisation flights should be carried out in good weather conditions and a higher tow than usual is recommended.

Several hours needed

However, familiarisation with a new type is not a "one flight" affair, and given a complicated sailplane several hours of flying will be necessary before handling qualities alone will be fully familiar. In the early stages it is of advantage to encourage the pilot to fully investigate his sailplane characteristics. Many pilots naturally gain much pleasure and useful experience by putting their sailplane through its paces, but it is a constant source of surprise to me to find many pilots, some of eminent soaring and cross-country ability, who have not even explored their sailplanes as far as stalling and stalling off turns.

These pilots must be encouraged to conduct these exercises in a safe and preplanned manner, not only to ensure that he can operate the machine with the maximum of safety margins but also to extract the maximum performance potential from the machine. To this end discussion of the various attributes of the machine is worthwhile, not necessarily on a pupil/instructor plane but on a more pilot to pilot level.

However experiences in test flying brings one to realise that in these pilot to pilot comparisons it is extremely easy to gain false impressions of a sailplane through incorrect analysis or non-representative tests. Thus it is worthwhile considering some pertinent examples concerned with assessing handling qualities, which may be of use to the instructor, as talking points during debrief sessions.

In assessing the rolling power of a sailplane a test pilot executes a rolling manoeuvre with maximum co-ordinated control movements from a 45° bank in one direction through to a 45° bank in the opposite direction, and measures the time taken to complete the manoeuvre. This simple test, easily within the scope of the average pilot, is, like many others, open to mis-interpretation if not performed under controlled conditions.

We must firstly stipulate that the pilot carries out the test accurately with co-ordinated rudder movements as required for full aileron deflection and accept his estimate of the 45° bank angles. Secondly, the test must be done at a constant representative speed (1.4 x level flight stalling speed stipulated in BCAR). Comparisons using other airspeeds are clearly meaningless and cross comparison between different sailplanes are not representative unless compared at a given multiple of that aircraft's stall speed.

Also it is assumed that the sailplane reaches its maximum roll rate instantaneously. This is a reasonable assumption for lengthy rolling manoeuvres such as the one mentioned above, but this point leads to another common area of mis-interpretation.

A powerful control is not necessarily a guarantee of adequate controllability. This is because one must also consider the time required for the aircraft to react to this control movement, known as the response time. The power of a control is not necessarily directly related to this initial speed of response, and an entirely effective control system must satisfy criteria for both these qualities.

This is again well demonstrated by considering aileron controls. In some sailplanes (notably older types) the power of this control, as exemplified by the roll test, can be found quite satisfactory but the sailplane can remain a "handful" in rough, turbulent or thermic type air. This is because fast reactions are being used and the aileron and wing response

rate is not capable of reacting sufficiently quickly to the inputs of pilot control movement and turbulence.

Assessments of this sort can be further complicated by control gearing and stick force peculiarities and the test pilot's task in defining a problem in this area can be quite complex.

To take another example, let us consider pitch control. Modern sailplanes have, in general, lower longitudinal trimming forces than older training sailplanes. This is desirable because they make long flights at constantly changing speeds and the low forces reduce pilot fatigue. These low forces may upset the student pilot and lead to an "over-controlling" situation. However, this possibility is not dependant solely upon stick force characteristics; the problem is highly complex and still not fully understood but such parameters as stick gearing, initial rate of response, pivot positions on all flying tails, degrees of mass balance and even structural stiffnesses can enter the picture. The problem may also vary from pilot to pilot depending on how he has learnt to gather the information he uses to fly a glider. A good instructor should be able to tailor his briefings to suit the known abilities of his pupil.

Most pilots gain a large proportion of their control information for handling a sailplane through control forces rather than positions of controls, and these two quantities are not directly inter-related (and are indeed treated quite separately in flight test circles). Such is the predominance of stick forces as a handling "cue" that it is possible to mis-read signifiances into feel impressions. In particular a sailplane that has light longitudinal handling feels "racy" which could be interpreted as higher performance. An unstable sailplane feels really "fast" because it wants to increase speed after a given disturbance and this can be very misleading (quote from first hand experience).

Performance flying is a precision business and a familiarity with handling qualities at all speeds is a pre-requisite for "dolphin" type soaring techniques, requiring constant practice in speed control which is usually gained from attitude information. Note, that although a fast sailplane will adopt new attitudes and speeds more quickly and with less effort on light controls, the pitch attitude to speed relationship is much the same on any sailplane. This is also worth remembering on cable break practice and on landing approaches.

Much has been written already on landing high performance machines with poor brakes and suffice to say here that again familiarity through controlled experiment is the key to success in a tight situation. In particular, one should be familiar with all the approach aids available on the machine, either singly or in combination.

Tail parachutes

Personally I think tail parachutes are an excellent means of producing steep approaches with a minimum of subsidiary airbrake control and could be almost 100% reliable if only more pilots learned the tricks of the parachute trade.

Finally, what about using sideslipping as a last resort? Many modern ships have impressive sideslip performance if only their pilot knows how to use it accurately with good speed control. Try it at altitude before using it on an approach.

With reference to the extension of a flight envelope to its limits, this task falls very much within the compass of the test pilot and certainly there is no sense in the average pilot indulging in high risk manoeuvres. This is not to say that one should not be aware of the ranges of loadings, operating speeds and load factors of ones' sailplane. In this context aerobatics have long been recognised by instructors as advanced coordination and confidence building exercises and there is every reason to employ these techniques with a new sailplane, provided pilot and sailplane are cleared to do so. Spinning also falls into this category and is a must for full familiarity with a sailplane.

The above points have, I hope, highlighted some situations common in test flying that will be helpful to you, as instructors, when approaching a new type or leading others to an understanding of their sailplanes and improvement of their flight techniques. Many people do this sort of thing automatically, even subconsciously, and it is our task as instructors to supervise and, where necessary, encourage the apprehensive to carry out his "test flying" with safety and confidence.

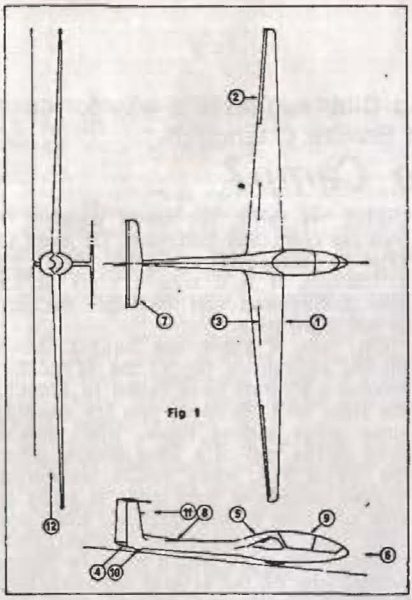


Fig 1

A state of mind

In all, remember that your supervision should be designed to instil a state of mind, and when all is said and done this is identical to the state of mind required for later success in cross-country flying where ability is required to assess a given set of conditions, draw conclusions from that assessment and then act upon them in the manner of careful experimentation. This point of mental approach to the problem is of paramount importance and to show that it is not confined to glider flying, I quote from a recent article on the Empire Test Pilots School of Boscombe Down:

"It is still, naturally, an important aspect of training to develop a student's ability to approach a new type with confidence, but nowadays the necessary attitude of mind is taught rather than assumed."

Notes on Fig 1

Feature	Effect
1 Highly tapered wing.	Stall characteristics unpredictable may drop either wing viciously unless wing is also twisted (washout, view in elevation from wing tip).
2 Narrow chord ailerons.	Probably quite effective but lacking in "feel". Could be ineffective at low speed.
3 Airbrakes set well back on wing. (top surface only)	Probably ineffective.
4 Tail parachute.	Assists item (3), learn to use it.
5 Heavily waisted fuselage.	Possible aerodynamic buffet at low speed. Good for stall warning but may be tiresome and cause loss of performance while thermalling.
6 Low ground angle, and forward wheel	Could be problem on the ground in a cross wind. Lack of aerodynamic control at low speed and possible weathercocking.
7 All flying tail with tab and mass balance.	Stick force probably quite "positive" but may be "out of context" with fast response. Good trimmer?
8 Dorsal strake.	Aerodynamicist "fudge" to increase directional stability, thus this is unlikely to be a highly directionally stable sailplane.
9 Wide cockpit with good forward view and big transparency.	Very good for pilot comfort and view. Possible lack of pitch attitude reference, and markedly different reference from previous experience.
10 Big non-castering tail wheel.	Useful for directional stability on ground (provided it is kept on the ground).
11 Tail pitot.	Likely to mis-read at very low speed, in buffet.
12 Low dihedral angle.	Marked lateral divergence when controls released. "Winds up" in turns, requires "hold off bank".

ROBIN BULL of the Midland Gliding Club suggests a way to make flying simpler for visiting pilots and Bronze C landings.

Map of the Camp?

"GOOD evening, you're very welcome. What have you got in the box? A Four? Very nice. Oh! don't worry, we'll soon find you some tall strong friends. First visit here? You'll want a site check then. I'm on duty in the morning so we can have a ride around together and look at the site. There's quite a lot you'll want to know—here, come and have a cuppa and we'll talk about it."

Half-an-hour later the backs of a couple of old flying lists were covered with scribbles and sketch plans, not very well co-ordinated, but the visiting pilot was keen and seemed to be following. I noticed he picked up the bits of paper and took them away when he went to find a bedroom.

Next morning we flew together and he'd got it all off, pat! (Must have been psychic, to sort any sense out of my sketches.) His partner who arrived later the previous night, was next on the list for his site check. And, my goodness, he'd got it all memorised too, apparently from what the first chap had told him from my scribbles.

A lot to tell

Deep thought. Maybe they're not the only keen visiting pilots. And there *is* a lot to tell and warn visitors about on a big hill site. And we could easily forget to pass on some vital bit of local gen. And furthermore, how much more effective to go over the stuff at leisure on the ground beforehand, systematically, so that in-flight time can be fully utilised recognising the ground features previously described and discussed.

So now we have a tidier, better-thought-out sketch map of the site, with a proper key explaining all the odd bits. Trevor N. got it duplicated, and there's a pile of copies in the sitting room cupboard so any visiting pilot can have his own copy, and perhaps take a couple back to base for other possible visitors to gen up on, before visiting us.

Also, to cog the field into the general map, we made a second sketch on a smaller scale pinpointing the site on the 1,000ft contour shape of the Mynd. Useful, we think, for crews wanting to trail up from any direction. Or even to help a cross-country pilot find his destination, if he'd seen a copy at his base beforehand and included the gen in his flight plan.

Oh! yes, I know our hangar shows plainly enough on top of the Mynd but incoming aircraft have failed to identify the right hill! Anyway, you try spotting some other gliding fields, when you're tired at the end of a long scrape, when the vis is bad, when you're wondering if your calculated final glide is going to give you time to look around, when you can't see the expected hangar/club-house/trailer park which must be hiding behind one of the several coppices/high hedges/folds in the ground that you have in your target area.

An appeal to clubs

So this leads to a suggestion: please could all clubs prepare their own local maps, at least duplicated like ours and available on request. Possibly even someone could publish them, say stapled up in sets, so that cross-country pilots and those intending visiting other clubs could get (or buy) them in advance.

Such maps would of course be complementary to the very welcome club data section recently appearing in the BGA News and might well be included therein. Taking this further, I for one would be glad to be able to buy sets of club data including their sketch maps for personal use, rather than trying to scribble down some extracts from the one and only copy of BGA News which sometimes hangs on the club noticeboard (and it doesn't stay there long does it!)

There's another use too for the local sketch map, Bronze C Landings, which can so easily get snarled up in airborne discussions about which footpath, or which bush the instructor means.

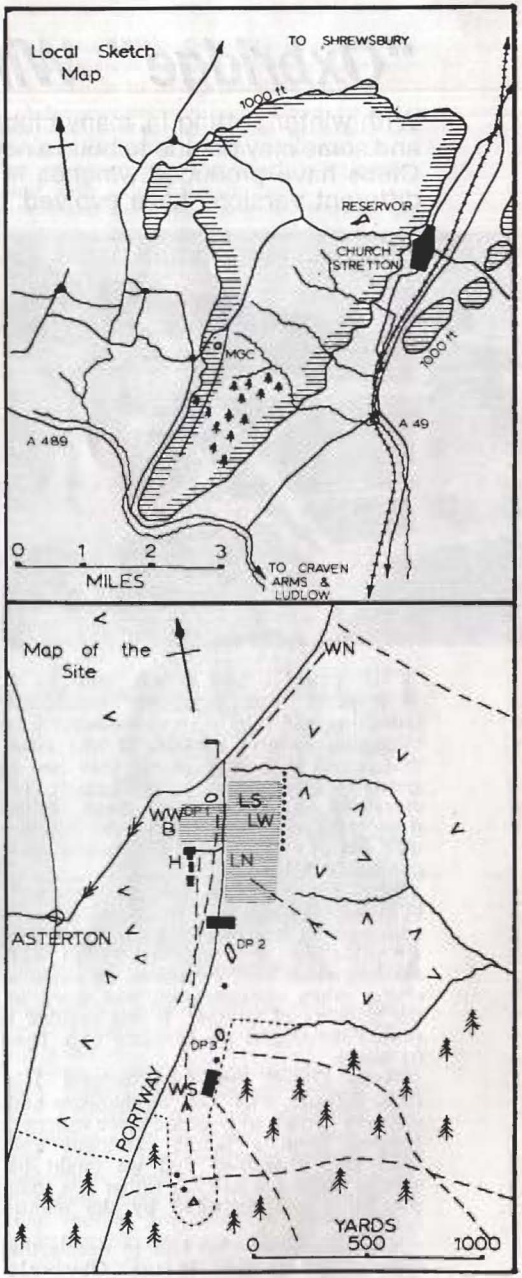
But now in my overall pocket I keep two copies of the map, with red numbers added on showing all the feasible landing patches away from our small operat- rigged haul-back range. How do I know ing field but within reasonable fully-

they are feasible? Well I've walked them all recently and either landed on or done dummy runs at most of them at one time or other.

So, on reaching 2,000ft in the two-seater; "Here, take this map, you've seen it on the noticeboard but this copy has some red numbers on it. Now, tell me what you think of no. 3 as a possible landing point today . . . Good, now no. 7 . . . And no. 10 . . . Yes, OK and which is the best of them all? You think no. 7. Right, take us down and land on no. 7". Not a moment's doubt or argument about which point we're looking at and intend to land on.

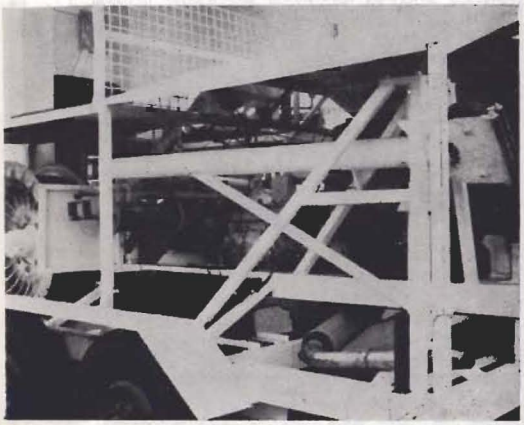
Of course I get the copy back from the victim afterwards, or we'd have all the aspiring Bronze candidates knowing in advance where they might be asked to land, and trudging all over the ground to see for themselves at short range. Which I suppose might make it all a bit too easy, or might on the other hand scare one or two of them rigid. Although come to think of it, the exercise might not do some of them any harm at all.

B	Bunjee point
DP	Dewpond
H	Hangar/Clubhouse
WN	Winch point (N winds)
WW	" " (W ")
WS	" " (S ")
LN	Launch " (N ")
LW	" " (W ")
LS	" " (S ")
ooooo	MGC East boundary
▓▓▓	Bad ground
•	Tumulus (Rocky mound)
▒▒▒	Airfield landing area
>	Steep slope (down)
— — —	Track
———	Road
~~	Stream
-------	Fence
△	Survey point



"Oxbridge" Winch Designs

With winter setting in, many clubs will be reviewing their equipment and some may decide to build a new winch. The Oxford and Cambridge Clubs have produced winches in the last two years and completely different versions have evolved.



Home Built Tost Winch
Oxford Version

By JOSEPH GRACE

THE petrol driven winch, built by a member, was our only means of launching and after several thousand was beginning to give trouble. It was clear that it was in need of more than just a grease-up and another coat of paint. To carry out any work would mean taking it out of service and this would put the club out of action. What was needed was another winch.

Most winches seem to be designed and built by members and their efforts meet with varying degree of success. I was responsible for the maintenance of our existing winch and, I suppose, an obvious choice when consideration was given to the building of another. It was decided I should investigate the building of a Tost 04 winch.

Andy Gough was most helpful. His club, Bicester, uses Tost mechanisms and we were invited to examine these winches. Judging from a works catalogue and price list, it seemed that we might be able to build a winch for rather less than one built and delivered by the manufacturers.

The committee also had to decide the type of power unit to use. Obviously there are good arguments for and against both petrol and diesel; however, Dame Fortune took a hand and provided us with a diesel engine at a very reasonable figure—problem solved.

About 25 people worked on the project with one member, Neville Reeve, outstanding in his efforts. The parts were ordered from Germany and delivered in October 1971. Work had started on the steel frame in September and it was decided to mount the machine on a close-coupled wheel system. By April we had our machine at such a stage that it was transported to the club with only the cab still to build.

The first few launches were, to say the least, unsual, but once I began to get the feel of the new monster, things began to settle down nicely. Teething troubles are inevitable with new equipment and we were not without ours.

We have been able to convert our existing winch drivers to the new one and to teach and produce totally new drivers. There would appear to be no real fumble factors and the life expectancy of the cable has trebled. We have managed to launch a K-13, solo, to 1,950ft, wind speed about 12-15kts, and consistently give launches of 1,500ft.

I should think the new machine will be with us for many years. The total cost was about £1,500 with a lot of thanks to those who made it possible.

Technical data

The Tost 04 winch is a double drum system, the drums of cast aluminium alloy being carried on a modified Mercedes back axle. Each drum is driven independently (or jointly, heaven forbid)

through a gearbox of the dog clutch type. Each gearbox also drives the paying-on gear, the linkage being a standard fan belt and pulley system. The paying-on gear is a scroll gear immersed in oil.

The cable is fed to the drums via an Azimuth pulley block and spooling arm. Our winch is powered by a 5.7 litre six cylinder diesel motor through a five speed gear-box which has a highest ratio of 0.82:1. There is a matching speedometer fitted to the instrument panel and we have found that we can pull the cables in at a speed of about 55kts—a speed, I would think, good enough to take most gliders into the air, even in no wind conditions.

Tost shows a chassis constructed from steel tube, but to obtain a strong welded joint it is necessary to have a good physical joint. We therefore changed the tubing system for one of rectangular hollow section to avoid grinding etc.

Certain dimensions are critical to make the Tost system work and generally the chassis suggested by the designers is to be recommended. The winch is a towable unit with axles of eight feet.

I must point out here that there are strict regulations governing the towing of trailers on the public highway, one of which is concerned with axle length. There is a maximum permitted length of 7ft 6in if it is intended to tow the trailer with an ordinary motor car, but trailers having axles exceeding 7ft 6in, yet not exceeding 8ft 2½in, must only be towed by vehicles of approved weight and design. The current Road Traffic Act will help to clear this problem.

The Cambridge Winch

By JOHN SCOTT



I SUPPOSE every club has experienced the winch problem over the years and others are yet to follow. But I doubt whether anyone embarking on this type of project anticipates the problems involved or, indeed, if many of those that sit on the end of the wire have any idea what is really going on down below.

The Cambridge University Club has a chequered winch history—the names given to the first two, the Brute and the Beast, need no further explanation. Subsequently the best of both were amalgamated to produce Beauty, apt perhaps by comparison but in reality a doubtful compliment.

When the club gained the use of Duxford airfield, auto-towing proved slow and expensive. So the committee appointed a team to make proposals for a new winch. The following criteria were laid down: cost should not exceed £700, it should have two drums, it must be road mobile, for economy diesel would be preferable and, most important of all, a 100 per cent guarantee it would work.

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On making a start it was soon apparent that with the variables introduced, one might as well use a fruit machine as a calculator.

The first requirement was to accelerate our glider from rest to say 45mph or 66fps in approximately seven seconds. The torque required at any time during the launch can be deduced from the weight of the aircraft, plus cable, the drum diameter and mechanical losses.

The maximum power needed in our case worked out at 180lbf ft/sec and we were lucky in finding a 5.7 litre BMC fitted in a wrecked lorry chassis. British Leyland were most helpful with engine performance curves and also complete chassis drawings.

Flat torque curve

This engine produces. in common with most diesels. a very flat torque curve from 230lbf/ft at 1.000rpm to 252lbf/ft at 1.750rpm and 230lbf/ft at 2.500rpm.

At this stage it is interesting to compare a petrol engine of similar power. A 3.8 litre Jaguar engine gives 215lbf/ft at 1,000rpm, 240lbf/ft at 3,000rpm and 225lbf/ft at 5.000rpm. The petrol engine therefore has a greater flexibility with a useful revolution range of 4,000rpm compared with the diesel's range of 1,500rpm.

Now let us look at the requirements of the launch itself in relation to the revolution range available. We will assume a cable length of 4,000ft and no wind. By the time the aircraft reaches a release height of 1,000ft, 3,000ft of cable will have been wound-in. But the aircraft will have travelled 4,150ft. During a launch, taking no account of wind gradients, reducing cable weight etc, up to 22½° the ratio of cable wound in to aircraft travelled is fairly linear (1ft cable to 1.08ft aircraft). From then on the ratio increases rapidly; 1.18 to 1 at 45°, 1.239 to 1 at 67½°, 1.383 to 1 up to 90°. With a 1,500ft launch this last figure increases to 1.72 to 1 and with a 2,000ft launch, 2.25 to 1. Thus as we all know, the winch driver reduces speed throughout the launch.

The problem of engine flexibility now becomes apparent as we must transmit the same power to the aircraft at all winding revolutions.

Keeping costs down

With the cost of construction a prime consideration, we decided to use an ex-WD axle on which work had previously been done to enable selection of drive to either side. This has a reduction of 6.1: and calculations of winding speed to engine rpm gave a drum size of 4ft 10in. In this case, a drum width of only 5in was needed to hold the cable.

We wanted to dispense with the usual laying on gear but found that 6ft minimum distance was required between the rollers and drum for a 5/8in circular cable to lay-on without crossing. This would have involved a very cumbersome roller box carrier which would have had to be removed for road use.

So we developed a lifting roller box on a frame pivoted about the drum axle, counter-balanced by two large springs (ex-cattle truck). This folds up for moving and it gives perfectly straight pull-off for laying-out. Also it has the great advantage of following the rising cable during the launch. thus reducing wear on the cable. rollers and consequential power loss through friction.

The revolution range would cope with wind speeds of up to 15kts without the engine rpm falling too low at the top of the launch. For higher wind speeds we

added a second gearbox (ex-Austin lorry) to give a selection of suitable gears to cope with a range of conditions.

By incorporating a Daimler fluid fly wheel (torque convertor) between the engine and the secondary gearbox, we further improved flexibility and it allows a rapid engine acceleration to full torque range.

Driving is very simple and all operations can be carried out from the cab. On "take-up slack", top gear is engaged on the main gearbox and the clutch released. Drive is now transmitted as far as the torque convertor, but at tick-over no further. Slight pressure on the accelerator increases the rpm sufficiently to take-up the slack after which the convertor will slip again. On "all-out", the accelerator is depressed fully and full power is then available.

To make the winch mobile we dumped the whole unit on a BMC FGK lorry chassis and apart from minor improvements, we have had two years service to date, including four trips to the Long Mynd where we were able to make comparison with the Midland Club's super petrol winch. As might be expected, the acceleration of the Jaguar engined winch is marginally better, but there is very little in it and with tax free fuel, can anybody beat 0.85p per launch?

Both writers end their account with a generous offer of help and advice to any club wanting to build a winch.

★ ★ ★

Theory of the Clutch

By B. TROTT

SOME clubs still use winches with manual clutches. Winching is more critical than car driving and the theory of the clutch is worth considering.

Car drivers have a fallacy that the clutch is a variable gear and the position of the pedal determines the ratio of this gear. In fact, the clutch is a friction device which transmits a variable torque. The pressure on the pedal controls the torque which is transmitted.

While the clutch is slipping. the motor and the winch "see" the clutch as something which absorbs or provides torque. The precise torque depends on the pressure between the plates controlled by the winchman, their effective radius and the co-efficient of dynamic friction. Part of the torque applied to the winch is needed to overcome winch friction and the drag on the glider; the remainder of the torque accelerates the winch and glider. When the winch catches up with the motor the clutch grips (static friction).

Revs will fall

Until the winch catches up, the clutch should not be set for more torque than the motor can provide, or the motor revs will progressively fall. The clutch does not engage when the pedal is cleared, but when the plates are synchronised. One should set the correct torque, wait for the clutch to engage itself, and then clear the pedal.

If the motor revs are too low for the throttle setting, the motor becomes unstable. A small decrease in revs will produce a significant decrease in motor torque, and a small increase in revs will produce a significant increase in torque. Small changes in drag can make the motor race or stall. More insidiously, the motor can maintain the average revs but wake up resonances in the system. Similarly a car engine excites the resonances in the transmission if the throttle is opened too far at low revs. This is a possible cause of surging in the cable.

Reduce wear

The starting sequence becomes: 1 "Take-up slack" with minimum revs and torque to reduce clutch wear. 2 On "all-out", first increase the motor revs to the minimum safe value for hauling. 3 As the throttle is opened fully, vary the pressure on the clutch pedal to keep the motor revs constant. 4 Once the winch catches up with the motor, the clutch engages itself. Control passes to the throttle and the clutch pedal can be cleared.

A similar principle applies to starting cars and tractors on mud. To stop a vehicle on poor surfaces, the braking torque should be not quite enough to make the wheels slip. To start on poor surfaces, the clutch torque should be not quite enough to make the driving wheels slip. The clutch slips for longer, but at a lower torque than in a normal start. Here the clutch torque is controlled to suit the limitations of the driving wheels, instead of the limitations of the motor.

KITTY and PHILIP WILLS take to the air minus wings and write of their experiences. Philip begins the story.

On Barratry

AS we were motoring back to Nettlebed on Friday evening, Gill casually said from the back seat "Roger Barrett said if the weather was right he would ring you tomorrow at twelve o'clock to see if you and Kitty would like a fly in his balloon".

Quickly cancelling our alternatives of lunch at Buckingham Palace or a shot at the record time to solve *The Times* Crossword, we grouped expectantly round the phone the following hot summer misty morning. Then I thought I would ring Dunstable myself to make sure it was true, and my heart fell when I got the "number out of order" signal, duly confirmed by Enquiries when I tried them. Had some saboteur been at work? Had Roger in a preparatory warm up ballooned through the wires? We decided to leap into the car and go and see.

At 12.30 we arrived at Dunstable and fortunately found Roger bending over his tiny trailer with its surprisingly small bundle of washing and its basket.

"Hooray," said Roger, "it looks all right, but the wind is rather variable so we may have to go and launch somewhere where there is a bit more cover." I found the word "cover" an important one in the balloonatic world.

Since from the site of the London Gliding Club, the forbidden London TMA was only a mile or two away to the south I could quite see the difficulty if, when we took-off, a light temporary passing thermal should suck us the wrong way for only a minute or so, though the general drift was all right—around five knots from the north-east. However there appeared to be a surprising number of local friendly natives with adequately covered fields, so later on Roger phoned Tim Hervey who fixed us up somewhere near Little Brickhill where we arrived with our faithful team in about three cars around 15.30.

So we drove into a green field entirely surrounded by majestic trees (splendid cover for a balloon but a nightmare for an ancient glider pilot), unzipped our bag, and pulled out about a mile long train of nylon washing, attached by wires to its basket. Then the youngest member of the team produced a couple of paper model hot air balloons, blew them up on a small bunsen burner, and drifted them off into one of the trees, which seemed to cheer everyone but Kitty and me up immensely.

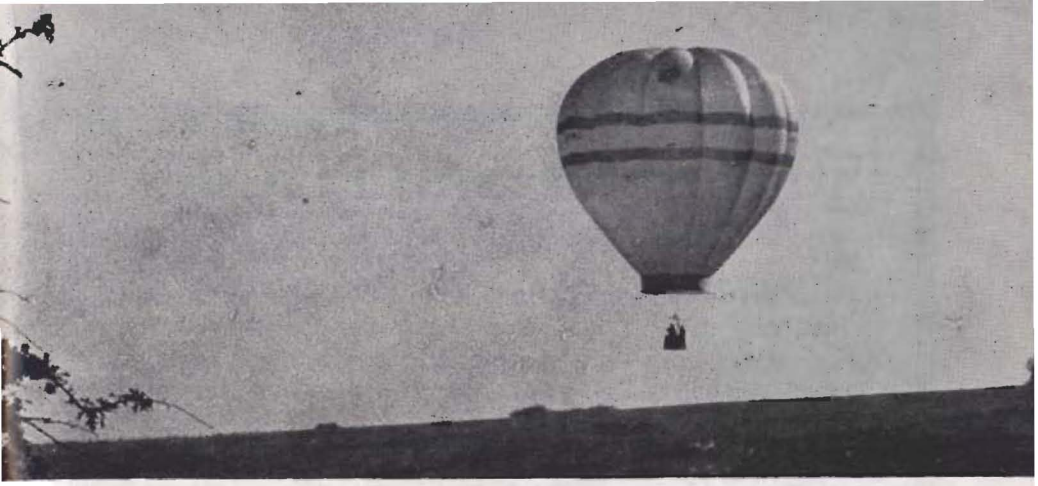
Definitely barratry

Roger then produced two "blood-chits" for us to sign. They were far too long to read, but a rapid run-through made it clear that by signing, we gave full permission to R. Q. Barrett & Partners to commit on us anything from murder to rape, without either us, our heirs or assigns having the smallest come-back. I have often wondered what barratry was, but now it is clear—it is the whole spectrum of things you have to agree that Roger & Partners may do to you without demur if the occasion arises in and around their balloon. We signed.

The balloon was now unrolled flat on the ground, and a heroic team member got inside its mouth and held it open. Roger then directed its giant blow-lamp at him and lighted it. Kitty and I had just come back from Fiji where we saw various fire-walking marvels, but this beat the lot. I don't pretend to understand it, but later that evening the team member concerned confessed that the hairs on his chest had been burnt off. I expect this was arranged just to impress us—there must be some method by which those balloonists who prefer hirsute chests can retain them should they so wish.

A basket full

The envelope billowed and swelled and gradually stood up until it was suspended above the basket, and the three of us climbed in. It was a small basket, and four propane gas cylinders, one in each corner, plus the three of us filled it to the brim. The burner over our heads roared menacingly and a column of vertical flame rushed up into the cavity above. We lifted an inch or so, and our ground team walked us for-



ward a few paces. Roger said "Let go" and we rose away.

It is easier to convey to a non-flyer the sensation of flying in a balloon than that of flying in a heavier than air machine, because in a balloon flying is as one dreams it to be—effortless, silent, and above all windless. Of course, with hot air the silence is rent about once a minute with the howl of ten million dervishes as one lights up, but apart from that all is peace.

Roger explained the form. Focus a tree ahead in the middle distance, line its top up with a hedge beyond it. If the top of the tree is gaining on the hedge you are going down. If the hedge is rising above the top of the tree, you are going up. It is evidently unsporting to carry a simple instrument which would tell you the same thing without any trouble at all.

It is most fun to keep low, around 200ft, but in such an event you must keep a look out for coming cows, and lift well up before you cross them to keep up the milk yield. Another trick is the response rate: you have to switch on the burner and roar away for quite a time before the descent turns into a climb.

A turn at driving

Roger then said he would do a dummy landing, just not touching down, and telling us to hang on to rope loops inside the basket. He did just that. We climbed away again from nought feet, and Roger told me I could drive. Driving consists of keeping a forward lookout, and as the climb turns into a descent you seize a large brass tap overhead on the burner and turn it on. As the descent slows down you turn it off again. Another thing to watch is a small pressure gauge on the gas cylinder in use whose needle tells you how much gas is left. Mine said, comfortingly, 35.

This seemed simple enough until the time I turned it on, and somehow the descent wasn't checked, and we ap-approached a cow-filled field in quite an alarming manner. Came the moment when Roger said "Give it to me, and hold on tight". He cast a swift look round, and gave the gauge on my cylinder a thump, thereupon it flicked from 35 to nought. It had stuck. He rapidly switched to another cylinder and roared again. It seemed a long fight between the roar and the descent, but at about ten feet the roar won the day and we sailed up and on.

We were averaging about 10mph, so every now and then as we crossed a road we saw our car and trailer stationary below us. Came the time when Roger said "I think we can land now. The three things you don't want are: power wires, sheep and cattle, so look ahead".

A little later, he said, "I think that field ahead looks the one," and started letting down. As we got nearer, we saw a line of minor power wires across the middle.

"Never worry," said Roger, "I can easily land beyond them." So on we

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went. A little lower, and we saw a few white spots and then more. Sheep. However, it was getting a bit late to change our minds. Then we drifted over the near hedge, a number of bullocks rose nervously to their feet and cantered after us. Too bad. We landed.

A balloon landing is a surprisingly intimate experience. One moment we were standing face to face at almost zero range, hanging on to our rope handles, then Roger ripped and turned off the gas. The basket grounded, stood upright for a few seconds, then the envelope drifted on, the lifting wires tightened again, and the basket was on its side. Roger was on his back, at the bottom of the heap. I was sprawled across him hanging from the strap above. Kitty appeared to be about to give Roger the kiss of life, her face an inch from his. Everything stopped, except some hysterical giggles. This was a gentle landing. We unspillikinned ourselves, and scrambled out. The envelope lay on the ground collapsing like a pricked balloon, which it was. The team arrived.

"You were lucky," said Tim. "The last time I was with Roger he landed me in a cow pat which went up my sleeve and came out at the back of my neck." I'm glad he didn't tell us before we started, but I'm sure the possibility was covered in Roger's blood-and-mud chit.

P.S. Since writing this article I have looked up the meaning of "Barratry" in the dictionary and it says "Barratry: the practice of exciting or encouraging lawsuits". Not too far off the beam!

* * *

The Good Ship Caroline

Kitty's version of the trip

BALLOONING came right up to my most optimistic expectations.

I did have a love-hate relationship to the idea and the second of these two seemed to grow as we inflated, almost surrounded by magnificent and, I thought, the highest trees in England.

My housewife sense told me that we would inevitably hit off the high one, half right, which was rather a stingy affair without really fulsome branches to catch us, but, coupled with Roger's remark "If we find the balloon too soggy we will make an intermediate landing and throw out Kitty," made me keep quiet.

This remark seemed to me to be meant as an old-fashioned warning, and I wondered what he was expecting, screaming and clutching or just back seat driving, or perhaps just practical, that my 9st 3lb might be just too much.

No pansy padding

Climbing in was consolingly difficult; when in, the basket came up to the top of my bottom, but once in, I rather wished there was a little pansy padding to ease the bumps and bruises which I thought were inevitable—four great gas cylinders with ghastly sharp edges. Then there was the last remark by a crew member—landing will only be like jumping off a 16ft wall—a bedroom window—phew, six feet, I felt, could be my Waterloo—and what about Philip? However, I kept quiet. A complaining person in a laundry basket would be the last straw, I'd have been thrown out *without* an intermediate landing.

Much to my relief, "when light" (the balloon had just lifted us off the ground), Roger said to our very nice crew—"walk it up the hill a bit". Oh how good, I hadn't realised this was possible.

So the tree was minimised, and when the crew let go, we whizzed up and were looking down on the lot in next to no time, and it all went swimmingly. Over beautiful country, at just the right height and speed to have a good look. The sheep ran in liquid white ribbons at the sight of us. The cows mostly stood their ground but put their faces on one side and with their noses in the air looked up with one apprehensive and baleful eye. Come to think of it, that was the only way they could look straight upwards.

We had two almost intermediate landings. The first one, perhaps to see if I was soggy. The second one was unintentional and just coped with in time by Roger's quick reaction and understanding of what could be wrong.

Thank Roger and the Lord.

Then after a quieter time the proper landing was on. We hit, leapt, bumped again and although clinging to my rope handles on my side of the basket, they were either taken out of my hands or possibly, when the floor became vertical to gravity, I found I had no further use for them. I can't remember, things happened rather quickly.

However, our captain of the good ship Caroline was still stationed as during the flight to the leeward of me, which made it inevitable that my landfall was very comfortable.

Thank you so much, "Sir Roger de Barrett", it was a very memorable experience and tremendous fun.

The Golden Road to Samedan

By SUE & RALPH CHESTERS

AFTER making our first happy gliding visit to Zell-am-See years ago, simply because my wife's office girlfriend's grandmother's au pair was a landlady there, there was a feeling of national choice when a pin stuck into a map of the Swiss Alps landed close to Flugplatz Samedan in the High Engadine.

Enquiries uncovered an almost mythological sense of unattainability.

"Well there *is* gliding there but it's a military field and foreigners are not really allowed"—"They only fly for a month and it's terribly dangerous"—"It's impossible to stay there"—"There's only one winch(?!) and about 60 German gliders"—"Are you sure they've started gliding there?"—"Anyway the Julier Pass has snow on it, you won't get over without chains."

With a resulting gentle sense of adventure, a first sortie to the mystery airfield found warm sun and breathtaking fields of alpine flowers on the beautiful and superbly built Julier, which leads south through Graubünden to St Moritz. Also a rather unsmiling speed trap where 29mph (instead of the regulation village 25), earned a £5 spot fine. Only the superb mountain scenery had prevented a much worse one!

St Moritz is near the southern end of the High Engadine valley and Samedan is an ancient little town (mostly about AD 16-1700) clustered against the warm northern side of the wide cow valley. Just below it was our Mecca—one long smooth black runway, modern hangars and, sitting on its own tiny park place, a private Boeing 737. Yes, there was gliding—1.3km away we could see a Blanik waiting to go.

The Site

And so to an introduction by Herr August Risch, the Flugplatzchef, to the facts of Samedan. It is co-operatively run by several nearby towns and is busiest in winter with skiers with their own little jets, etc. As spring advances into April the Swiss Air Force wheel out and dust down their wintered Vampires and take them up amongst the high pastures to shoot at each other for a month. Then on June 1, the shooting having died down, gliding begins.

From June to September the weather is usually very good, the surrounding mountains drying out the air to give a typical 12-14,000ft cloudbase.

June has most alpine flowers and only a few gliders, July and August are very busy, with 20-50 machines and a set of local flying rules designed to prevent bloodshed amongst those waiting their turn to launch on difficult days.

There is one Blanik for checking and hire (at a very reasonable 36S/frs/hr), but no actual training school. All towing is by Thunderbird powered winches, well maintained and driven and fitted with 1.500m of steel rope of the excellent kind which *doesn't ever* break.

Launches are often 10kts crosswind

and sometimes down wind too, but still hauled the K-6, seemingly vertically, to 1,200-2,000ft. They cost 14S/frs each and there are no booking, registration or additional take-off fees. Take-offs are made more interesting by asking the control tower for permission and then waiting (with no take-up-slack), for the *control tower* to tell the winch to pull. One quickly learns not to take one's head off the back rest!

For safety reasons, all home landers have a curfew time of 7pm. Pilot and glider logbooks *must* be in good order, together with C of A and BGA licence papers.

The Flying

The local hillsides are wooded and the nearest, Muottas Muragl, gets a hot southerly "Maloja Wind" on many afternoons, which provides a smooth 6kts up to the real thermals at the top.

The valley is about 6,000ft up and the local mountains are mostly about 12,000ft rising to an eternally beautiful crescent of snowy peaks at nearly 14,000ft. Piz Palü and Piz Bernina crown this crescent and from them glaciers roll down into the giant bowl below. With just a little care and luck, it really is often possible to be soaring Bernina's crest only minutes after a diminutive winch launch.

Local flights with the Engadine pastures within reach, can safely range over the 60km from Maloja to Zernez in the north. The enclosed aerial playground is filled with exciting peaks, comb crests, valleys and bowls to explore and be taught by for many flights.

Winch starts tend to make the flying day start too late for long amateur cross-countries, but Varese is a downhill run by Sondrio and the Italian Lakes and Zell is a challenging 250km away, via the unlandable lower Engadine, Landeck and Innsbruck.

Waves are common and in summer often allow splendid views from 15-20,000ft, so oxygen is an advantage. The sun seems to rise rosily on Piz Palü about 4am at mid year and family days can begin with a long early expedition and a mountain picnic for lunch, taking the glider out of the hangar (58fr per night) for a leisurely noon launch and finishing with an evening picnic after six. It feels almost decadent after the Zell scramble!

Non-Gliding Life

The airfield has no restaurant or quarters, but holiday rooms and flats are everywhere (5-11S/frs per night per person) and almost empty in June. July and August definitely need booking (via the Kurverein office).

Eating out is rather expensive but the old pubs serve good peasant dishes with excellent beer for 3-6S/frs. The little Romansch towns along the valley are beautiful, Zouz perhaps most so and it also has an out-of-this-world patisserie. St Moritz and Pontresina have all the night life that woodworking town Samedan lacks.

For 70S/frs the visitor can get a combined check out and local flight with a landing high on the Piz Palü glacier with Herr Fredy Wyssel in his Maule Rocket.

At the End of the Road

Anyone visiting Samedan can expect a very warm welcome in English from Herr Risch and Herr Hans Schatz in the control tower and good, reasonably priced, flying facilities.

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It is a splendid place for a family holiday and in June quite uncrowded. Complete newcomers to mountain gliding might prefer a first visit to a site with more low hills, but the safe grass valley and the high local soaring mountains make a unique combination. We will look forward one day soon to seeing Bernina's snow above and feeling (head well back!), the next 1*g* start on their winch.

Samedan must certainly have made an impact—three days after this article arrived it was followed by another strong recommendation of the site by Clifford Passmore. He went to Samedan with a friend and a Kestrel 17.

Has anyone else experience of such a gliding site on the Continent where the children can have an enjoyable holiday while the parents, or at least father, fits in some flying? It would be good to hear from those who have found lesser known sites, especially as most of us indulge in a little escapism during the winter months by planning our summer holiday.

WATCH THAT BALL!

By TOROLF SOGN

FLYING instructors tell their pupils (and others) that the familiar ball instrument is a sideslip indicator, in other words, it indicates amounts of sideslip. But they hardly ever explain it that way.

Most suggest that the error in rudder-aileron co-ordination is proportional to the displacement of the ball from the centre, and leave it at that. This is, however, not entirely true.

Let us have another look. But first let us be quite clear about why the instrument is there to begin with. It is not just a spin warning device. During a banked turn a sideslip will cause an increase in the rate of descent if one slips into the turn, and lose speed if one slips out due to the increase in potential height. Both cases will give loss of turn circularity and reduced climb rate in a thermal. So, in order to get the best out of the combination of a good glider and a tasty thermal, accurate flying ballwise is a must.

Normally sideslip is defined as the angle of sideslip, which is the lateral angle between the roll axis and the incoming air; a sort of lateral angle of incidence. This, combined with the airspeed, produces a sideways "lift" called the sideforce, and a drag component, which adds to that already existing. The displacement of the ball is directly proportional to this sideforce divided by the *g*-load.

The latter doesn't vary too much during normal flight. So really the ball instrument can be thought of as a sideforce indicator. The important thing now is the relationship between the sideforce and the sideslip angle. The former shows up on the instrument, the latter determines the behaviour of the aircraft.

The sideforce, being an aerodynamic force, is proportional to the product of the sideslip angle and the square of the airspeed. In other words, at high speeds even small sideslip angles can push the ball right up against the stops, while at low speeds quite the opposite is the case.

This is something to keep in mind when trying to catch a weak thermal near the ground. It also means that gliders are not more difficult to fly at higher speeds, but rather that the ever-present inaccuracies in flying show up to a greater extent.

French International Mountain Gliding Competition 1973

By H. R. DIMOCK

THESE started for me with acute memories of last year's competitions, when on the first day I won with a lead of about half-an-hour, but the second day calamity. On landing in a field, my wing caught a tough weed and caused a ground loop which broke off the fuselage behind the wing.

This year I was over-cautious, taking every anabatic or other thermal to the top, and keeping within gliding distance of an aerodrome or at least a reasonable landing area. It involved large detours following valleys instead of a direct route across inhospitable peaks. However for three weeks every day was a better day than the best day that one could expect in England, as is usual at Vinon.

My crew consisted of wife, daughter, four grandchildren and a godson aged 21. We had the last five days of June to practise flying before the competitions started on July 1. Bathing in the warm local mountain lakes and rivers, and touring the countryside made this a memorable holiday for all of us. My friend Dr. Brennig James came this year, the first Englishman other than myself in seven years.

Day 1. A 304km triangle was set via La Baume and Pont du Roy. I was the last to be launched and it was 13.00hrs before I could start. The first turning point, 92km, was reached in just over an hour, and half way along the second leg was a mountain called Pic de Bure, nicknamed "The Molar", because it looks just like a large tooth sticking out of a gum. This mountain has southerly and westerly faces rising to 9,000ft and if one could reach it one could anticipate soaring to 11,000ft or more. The Molar has a plain of about 15 acres on its top, smooth enough for landing (not advised!). It lies to the NW of Gap Tallard aerodrome. This day however the anabatic wind lifted the Kestrel only high enough to peep over the top.

From 9,000ft I flew various mountain slopes towards the second turning point, but was disheartened at the small amount of uplift available so I flew back to Gap Tallard aerodrome and landed there for safety. Brennig flew a different course in his Diamant and completed the triangle.

Day 2, a triangle of 379km via Val des Pres and Die. This was a glorious day with active thermals under clouds over some of the higher mountains, and the going was picturesque and beautiful. One of the most lovely spots is a ten mile wall with a southerly face, rising to 8,000ft from the floor of the valley by Die. Having been there before I knew that I had only to burn off my height to get to this wall and then climb up it, fly to Die for a photograph, and back to the wall to get enough lift to return over the mountainous range to the valley leading back to Vinon. I was airborne over six hours without having to worry about an outlanding.

The Molar

Day 3, an out-and-return of 508km to the Pont de Thorens, somewhere near Geneva. I flew to The Molar where I rose to 11,000ft and flew towards Grenoble, trying various mountain slopes for lift but getting none. Before the point of no return to Gap was reached I returned via The Molar where I was able to get to 10,000ft again. Since there was no hope now of even getting to the Pont de Thorens, I called up my crew from 70 miles away to come and fetch me from Gap. I then had a wonderful time experimenting with different types of mountain slopes for two hours, always within gliding range of Gap. Gap lies in a very broad valley surrounded by high mountains and is a very beautiful place. Brennig James pushed on and nearly reached the turning point. He flew in bathing trunks only and booked into a hotel to await his crew. We laughed at the thought of him entering the most expensive hotel in his bathing trunks with the white cross of St. Andrew on his chest where his parachute straps shielded him from the sun.

Day 4, a triangle of 234km via Savines and Serres. This time I was low in the Gap Valley for 1¼hrs before managing to get to my Molar, now an old friend.

Today he gave me 10,000ft which was enough to get to Savines and back, and thence to Serres. It was now getting late and I had little hope of getting past the aerodrome at St Auban on the way home against a moderate headwind. However, a cloud near St Auban lifted me to 7,400ft and I arrived at Vinon at 18.30hrs after a long slow glide in still air, never quite sure whether I would make it. Another six hour flight.

On this day my daughter and grandson were invited to fly the course in one of the tug planes from which photographs were being taken. They found me as I flew at The Molar and my daughter was aghast at seeing the shadow of my glider on the vertical wall as I turned at the last moment in the anabatic lift. Some years ago a French pilot quipped that a 15m glider was better than my 18m Diamant because it could fly nearer to the rocks!

Day 5, a short triangle of 159km via Digne and Laragne. The task was short because the met forecast thunderstorms. The weather, however, was near perfect, and most pilots completed the course. I had a very good start but made a wrong decision and took longer than I ought to have done, three hours. I learned that my camera was not working properly for several days, and although forgiven I must lose some marks.

Day 6 was a 340km triangle via Les Alberts and La Baume. It was a lovely day and very spectacular amongst the mountains. I lost a lot of height choosing the wrong side of a valley and getting a downwash, otherwise it was a very thrilling flight amongst snow-capped peaks.

Quite a thermal

Just after the first turning point I hit a thermal to beat all thermals at 5,000ft; it literally flung me up at a colossal rate of climb to 13,000ft where the cloud seemed to explode into being all around, above and below. It was only thin cloud, I could still see the ground, and made my exit at high speed. This thermal was so rough and strong that the ASI actually flickered between 70kts and 25kts, far below stalling speed, but the Kestrel did not stall as one knows stalling. I just corrected the attitude as best I could to keep 40° of bank, but the Kestrel flicked on to its nose, or reared up its head, and the angle of bank flicked from over the vertical on to reverse bank. I have never known anything like it before, not even in thunderstorms in England. There was another incident on this day, but an amusing one. Three of us climbed a large pinnacle by flying round it, flying close to the rocks on the sunny side. On the top of the pinnacle there were several people and our wings were less than a span from them as we soared above. These people must have been surprised to see us there, it would have taken them many hours to climb up such a steep cone.

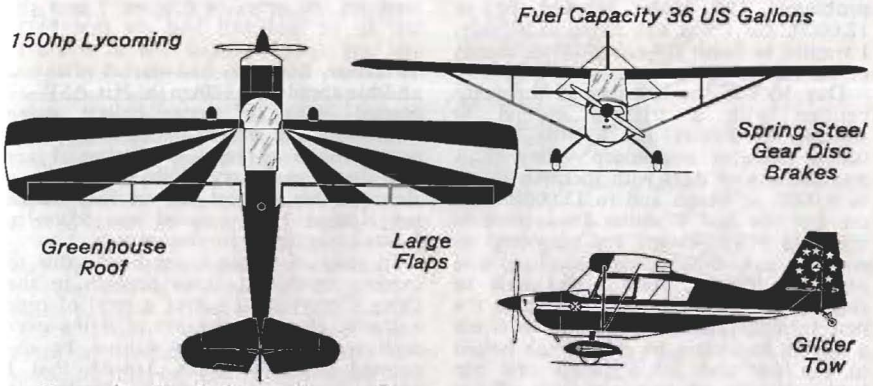
Day 7 was to be an easy task of a 205km triangle via Tallard Village and Rosans, both places well known to me. I made good time to Tallard and three quarters on the way in the unlandable valley towards Rosans, catching up and passing many gliders. Then a cloud which I approached suddenly precipitated and drenched me, so I turned back towards an aerodrome. Here I managed to rise to 9,000ft and dry off. The weather to Rosans was now completely overcast and dead, but I managed to get there and back out of the valley with enough height to get to St Auban and to spare, but not enough to get to Vinon. Rather than accept a field landing I put down at St Auban.

Day 8. Here was a task that I had asked for for years, in England as well as in France, but never set before. The task was twice round a small triangle ($2 \times 110\text{km} = 220\text{km}$) via Aguines and Les Mees. It was a lovely day for such a race, purely thermal above more or less flat country about 2,000ft/asl. Clouds marked thermals, but often big clouds had no thermals. The trick was to watch for new clouds forming, and there expect eight knots lift to cloudbase at 7,000ft. This day I had variometer trouble and radio trouble. My speed was 50mph. Not very fast. On landing I was told that my second camera was giving trouble, and that I had lost a lot of marks. We diagnosed the radio trouble and rectified it.

Day 9 a 278km triangle via Pont de Savines and Luc en Dios. I borrowed another camera, having diagnosed the trouble with the first two cameras. The trouble was that I had had them in a plastic bag and the sun heat caused

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sweating on the lens, and also the action, slowing it down and causing over-exposure. I lost more marks for camera trouble yesterday. The course today was now very familiar and I had no problems. The Molar worked up to 12,000ft, but I was still flying cautiously, I wanted to finish the competition, marks or no marks.

Day 10 was the last day of the competition with a triangle around St Vincent les Fortes and a little hamlet called Orpierre in a deep valley. This was the day of days with thermals rising to 9,000ft at Vinon and to 13,000ft later on. For the first 47 miles I was able to maintain 90kts except for zooming up where I saw other gliders circling, and only lost 1,000ft. Here I was able to ridge fly at 80kts most of the way to the first turning point where I had to climb a 9,000ft mountain to get enough height to nip out and get a photo and nip back again to get height to kick off for the next leg. At one point I was at cloud-base at 13,000ft where there were numbers of swifts darting about. Why should birds bother to fly so high? The second leg was much slower, but the last leg was from 12,000ft at 90-100kts, zooming occasionally, and even faster later on, 40 miles in 25mins. I was the last to be launched and the first back, and my speed worked out at 91km/h. Tavernier, however, had started after me and his speed was 120km/h. His ASW-17 carried 300lbs of water ballast, more than twice the weight of my wife. Next year I hope to have a Nimbus, I am told that it can carry 320lbs of water . . . Rehm in his Kestrel 19 was faster than my Kestrel 17, his speed was 95km/h. I was only third in this race.

In spite of losing many marks due to camera trouble, I came seventh in the Open Competition out of a total of nine entrants. However the joy of flying over such wonderful country cannot be expressed in mere words. I wish that I could have a two seater, side-by-side with my wife and only 150lbs of water ballast.

Not So Long Ago

"IN motorless planes, pilots ride in flying-fox fashion, cruising on upward air streams and lifted by the suction of moving clouds". This romantic description of gliding is from the June 1929 edition of *The National Geographic Magazine* sent to us by Sandy Lindsay.

The 30-page feature on the gliding movement in Germany projects a totally idealistic, sometimes naïve, approach, but emphasises just how far the sport has progressed since those tentative days.

Here are a few of the classic pronouncements.

"Man's dream of flying on outstretched wings is as old as man himself, and for 20 years his planes and dirigibles, propelled by gas engines, have carried him over the earth. But now, in this new glider device, with no artificial power at all, he may also cross mountains and valleys, cruise down rivers and far out to sea, hang on to a cloud and ride it for hours, or even remain almost motionless in air, like a hawk ready to swoop."

Comment is made on the first aerial dashes in gliders by the Wright brothers and Lilienthal and the point made that once the engine and propeller were added, it was left to a few enthusiasts to keep the art of gliding alive for nearly two decades.

"Already, from more recent adventures in gliding machines, it appears that man is coming to share what birds have always known about the air. He finds it will support him, as water carries a swimmer, if he will but handle his glider wings as soaring birds handle theirs. Even wind gusts, squalls, and clouds, which pioneer experimenters with gliders used to dread, are now recognised as useful aids to motorless flying craft."

Tucked away at the bottom of a page is a simple statement:— "One of the most interesting of all upward air currents is that which produces the cumulus cloud. Today the pilots of highly sensitive sail planes "hang" themselves under such a cloud and are carried along and even sucked up by the uprising wind. This current may revolutionise the science of gliding, for it may enable a flyer to travel long distances."

Christmas Competition: Cat's Cradle

Set By The Arm-Chair Pilot

THE map reproduced with permission from *On Being a Bird*, by Philip Wills, shows the sites of 13 gliding clubs in Great Britain in 1953. The Christmas task is to find the shortest route which takes in every site. You may start at any site you wish, then be observed at each of the next 11 sites, and finally land at the 13th. As it is Christmas, you may ignore all airspace restrictions.

When you have done that, here is another problem: The BGA and the Air Traffic Control Authorities have negotiated a peculiar agreement about airspace, as follows. The BGA insisted that it must be possible to get from any club to any other along proposed glider ways; ATCA agreed, but stipulated that the total length of glider ways should be the minimum possible, which the BGA accepted subject to the condition that gliderway junctions should always be situated at gliding sites, for ease of navigation. What network was finally agreed?

The bait for having a crack at our competition is a year's subscription to S&G—and don't forget the next issue will be in the grown-up size. Entries must arrive at 281 Queen Edith's Way, Cambridge, CB1 4NH, by first post on Monday, December 17, in envelopes marked "S&G Christmas Competition".

The Arm-Chair Pilot will then hand them over to his tame computor and leave it to technology to select the winner.



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TURNING POINT PHOTOGRAPHY :

Some Geometrical Thoughts

By FRANK IRVING

TURNING point cameras are usually mounted on the side of the cockpit looking out horizontally with the sailplane in level flight. Some regulations (eg CIVV) prescribe that the wing-tip shall appear in the photograph and others (eg Italian) even prescribe how much wing-tip.

Some of the details of these regulations are designed to discourage cheating but, in any case, it is apparently a convenient method of mounting the camera since the wing-tip can be used as a sight.

As the pilot quickly discovers, aiming the wing tip at the turning point is not all that easy and one has to use considerable angles of bank if one wishes to round the turning point tightly. When turning, the apparent motion of the wing tip relative to the ground is backwards. Imagine the line defining the axis of the camera lens to be produced until it meets the ground. Then, as Nick Goodhart observed at Vrsac, the point of intersection of the camera axis and the ground moves over the ground at a speed which is independent of the angle of bank (see fig 1). In steady turning flight in zero wind, this speed is

$(Hg/V)-V$,

where H=height of the sailplane above the ground

g=gravitational acceleration

V=true airspeed.

If V=50kts and H=3,280ft (1,000m) this speed turns out to be 690kts, equivalent to a Mach number of 1.04! This is not quite as alarming as it may seem, since it is the angular rate of scan which matters, so far as sharpness of the picture is concerned. But it does mean that the pilot has little time to adjust the situation if his initial aim is incorrect.

Some Distance Past

Another consequence of this effect is that if the pilot is coming up to the turning point in straight flight, he must fly some distance past it before initiating his turn in order to take a photograph whilst banked.

Suppose the sailplane is being flown at 50kts (93km/h) at a height of 3,280ft (1,000m). The pilot initiates a turn with a rate of roll (assumed constant) of 0.4 rads/sec. Let us assume that the turn is perfectly harmonised at all angles of bank and let us neglect the loss of height involved in such a manoeuvre. It is then possible to find, by means of a step-by-step calculation, the path of the sailplane in plan view. This is obviously a tightening turn.

Plan position

It is also possible to calculate the locus of the intersection of the camera axis with the ground. These two paths are labelled "sailplane" and "photo" in fig 2. The manoeuvre starts when the sailplane is at 0 and a number of lines are drawn showing the plan position of the camera axis at various times after the manoeuvre has started. These lines are also labelled with the angle of bank.

If the pilot takes a photograph two seconds after the start of the manoeuvre, the sailplane will be at S and the point P on the ground will be in the centre of the photograph. Since the angle of bank is then 46°, the point P (which ideally coincides with the turning point) is just about 1km away from the position of the sailplane and about 270m *behind* the point 0.

One significant feature of this diagram, apart from the great disparity in size between the "sailplane" and "photo" paths, is that the distance of the turning point behind 0 is not at all sensitive to angle of bank. For any practical range of bank angles, the distance lies between about 220m and 290m.

At any instant, the pilot can stop the angle of bank increasing and can then perform a steady turn. The "photo" locus then immediately becomes an arc of a circle whose centre is the centre of the sailplane's turn. For example if, on reaching 46° bank angle, the turn is held steady, the "photo" locus becomes PC and photographs taken more than two

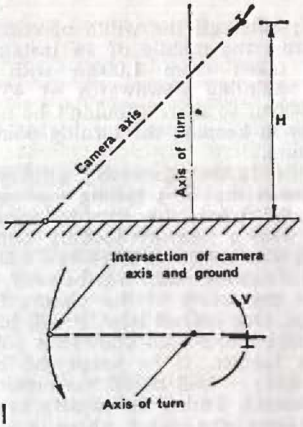


fig 1

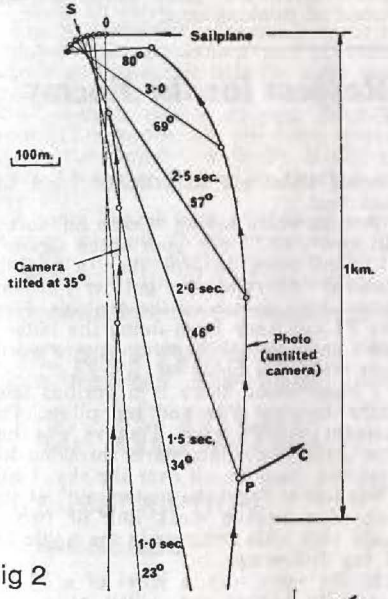


fig 2

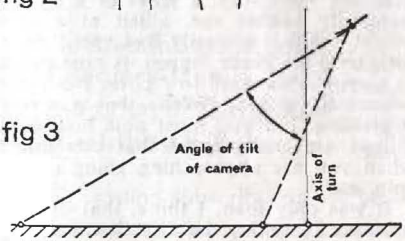


fig 3

seconds after initiating the manoeuvre will have some point on PC in the middle of the picture.

Hence, in very broad terms, and assuming the fairly typical figures of the example, the pilot must fly about 250m *past* the turning point before starting his photographic turn.

Camera Tilting

Further investigation shows that there is a great advantage in tilting the camera downwards. The point on the ground in the middle of the picture is then closer to the instantaneous centre of the sailplane's turn (fig 3). If the tilt is carefully chosen, very little overflying of the turn point is required.

For example, if the camera is tilted downwards at 35°, the maximum overflying distance is only 30m and, if a photograph is taken two seconds after starting the manoeuvre, the figure is only 4m—quite negligible compared with other errors. All these distances lie well within the field of view of the camera at any likely height.

A further advantage of this arrangement is that one can be much closer to the turning point in the lateral sense without having to indulge in large angles of bank. In the example chosen, the turn point must be about 1km away if the camera looks straight sideways, but only 175m away if the camera is tilted downwards at 35°.

Mounting the camera in this fashion usually involves the use of a separate sighting device. However, the process of aiming the camera should be quite simple: one flies straight until the turning point is almost exactly abeam, initiates a turn with increasing bank angle until the turning point appears in the sight and presses the camera release.

This is not all theory. It was prompted by a flight in the syndicate Libelle, which involved checking a new sideways-looking camera installation. It immediately became apparent that a certain amount of practice was required to judge the overflying distance sufficiently accurately. Previously, the syndicate Dart had been fitted with a camera tilted downwards at 30° which, quite by chance, was almost the ideal angle. Photography with this latter arrangement, using a conical sighting ring with roughly the same field of

view as the camera, always seemed to be very simple indeed. Now we know why!

The diagram of fig 2 assumes a height of 1,000m. For greater heights, all distances from successive positions of the sailplane must be scaled in proportion to the height in order to find the "photo" locus. Likewise, the camera tilt angle of 35° is only appropriate to a height of 1,000m although it should be satisfactory over a very wide height range. Even at a height of 2,000m, the overflying distance is only 58m.

To summarise, there seems to be quite a strong argument for tilting turning point cameras downwards at about 35°. Aiming is made simpler and one can be much closer to the turning point without requiring very steep bank angles.

It may be felt that the author has been slightly carried away by mathematical ingenuity: after all the width of countryside across the middle of an Instamatic picture taken from 1,000m with the camera pointing downwards at 45° is about 900m, so there shouldn't be much difficulty in keeping the turning point in the picture.

A little further geometry applied to fig 2 shows that if a rolling manoeuvre is initiated when the turning point is abeam with a sideways-looking camera, then if a photograph is taken two seconds later, the turning point will be only one-sixth of the width of the picture from one edge. One second later, it will be off the picture if the pilot allows the roll to increase further. If he keeps the bank angle steady, it will be off the picture in half-a-second. Tilting the camera as suggested gives the pilot about another second of thinking-time.

A Veteran P2 on Increasing Respect for the Enemy

By SIMPLE SIMON

HAVING read Stephen Longland's reflections about P2s in the June issue with some amusement, I thought is there any hope of the P1s learning from a Veteran P2?

Being blessed with a highly demanding and time consuming job, a considerable diversity of recreational interests and at least the usual amount of psychosomatic incompetence, I have since 1966 managed to accumulate 130 flights and some 19hrs in the air as a P2 without ever being scared by the faintest hint that I might go solo. And in this time I have experienced and liked a great many instructors.

Before I go any further, let me say quite sincerely that I hold in high esteem all instructors. To be able repeatedly to undergo the traumatic effects of allowing a lunatic P2 to come in to land, for the very meagre rewards associated with it, means they must be men of the utmost courage, dedication and kindness.

I am sure that side-by-side is by far the most comfortable learning position for the pupil, who can then tell when the P2 has or hasn't got his great hands and feet on the controls. To the P2, encouragement and development of his flying may be very different when two contrasting styles are experienced from the back seat.

A calm voice saying "Come on, sort it out now", or "Keep your speed steady", is a lot more helpful than a slightly alarmed "All right, I've got her", accompanied by a snatch on the controls. How any P1 can keep from doing the latter I don't know, but those who can are worth their weight in gold.

I have found there is a curious telepathy between P1s and tug pilots. The moment the P1 says "You've got her now", the tug pilots starts throwing his wretched machine all over the sky. Until I was left to "sort the matter out" at the cost of a broken weak link or two, I made very little progress in the noble art of tug following.

In the same way, a jewel of a P1 sat tranquilly behind me, albeit at a safe height, while I clumsily lost speed on a turn until the plane dipped its nose down in a spin. I managed to recover from this adequately to hear "Well—that was very interesting, but you must note how conditions are changing so that you know when you are approaching going into a spin, etc".

It was only then, I think, that the importance of noting the direction and rate

of change on the instrument was brought home to me as almost more important then the actual value reading.

Not all P1s teach the same views. Having read Derek Piggott's instructions with regard to crosswind take-off, I sat with another instructor waiting for take-off and said "Bit of a crosswind from the right, do I use the rudder for the start?"

"Goodness no" was the reply. "Swing into the wind is the way I teach it."

Well I suppose it worked. We just got into the air before the glider hit the corn on the edge of the runway, and all went very smoothly from there on. But one would expect unity in these technical matters.

Logbook keeping is fine if you have a safe place for it, and I have recorded all my flights, but I have seldom known a P1 make an entry.

The "CB SIT CB" mnemonic might be updated and rationalised and it would help if all instructors held the same view regarding these checks, eg P1 A will say "C— controls means all your controls, from SIT onwards you are doing double checks for launch", while P1 B will be upset if Trim or Brakes are checked before SIT.

A more logical train of thought seems to me inherent in the mnemonic Be Scientific it can fly! Written *B. Sc IT CAN FLY*, and it is more memorable.

B Ballast is surely best checked before getting into the plane?

S Straps are next tightened and seating settled.

C Controls—stick and rudder are tested for sense and freedom of movement and for freedom of rear rudder pedals from front cockpit straps and cushions. Every other control should then be checked for free action and correct sense.

I Intrument check. This is almost a chapter on its own yet it frequently reminds one of the choleric consultant to whom a patient was sent by a regimental MO with the laconic note "feet"—no other information given. The report sent back to the MO was equally laconic, "feet present". So it is with instruments. How often has one heard a pilot bemoan the absence of his barograph or the failure of batteries?

T Trim—now we are starting to get "in trim" to fly and Trim is set for the type of launch. Movement and sense having already been checked.

C Canopy — can be closed and checked.

A Airbrakes—recheck and lock.

N Nothing in front—now hook on.

F Flaps set for type of launch.

L Look out behind.

Y You are off.

SAILPLANE & GLIDING

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OVERSEAS NEWS

ANGERS AND AFTER

THE famous "Huit jours d'Angers", now called "Coupe d'Europe", had only three contest days in each Class this year, and the technical discussions which filled the non-flying days were described in our last issue (p347-8). Of the 80 competitors, 51 were from abroad: Belgium 11, Switzerland 10, Italy 10, W. Germany 6, Gt. Britain 5, Holland 3, Yugoslavia 2, Hungary 2, Austria 1, Norway 1.

Dieter Memmert (W. Germany, Nimbus 2) won for the third time in the Open Class with Bert Zegels (Belgium, Glasflügel 604) 2nd; of the British, George Burton (Kestrel 19) came 11th, Walter Kahn (Kestrel 19) 21st and Brennig James (Phoebus C) 25th. In the Standard Class François Ragot (France, LS1D) won and Peter Teunisse (Holland, Std Cirrus) was 2nd; British pilots: Simon Redman (Std Cirrus) was 24th and William Malpas (Std Cirrus) 33rd among 49 entries. Best British performance, G. Burton 4th on a 282km triangle, 3hr 40min 41sec; winner (Zegels) 3hr 5min 43sec at 84.5km/h; 15 out of 30 completed.

The best French performer in the Open Class at this meeting automatically became Open Class National Champion for the year: he is Jacques Mattern, of Le Plessis, who flew a Nimbus 2 and scored 2,724pts against the winner's 2,871, putting him in 3rd place.

The poor weather at Angers was followed by three days of fine weather, and then began the Championnat de France, whereupon the weather deteriorated once more so that the first week brought only one contest day. However, there were three good days in the second week (August 5, 7 and 8) and, this contest being for Standard Class only, the winner Mazalerat of Val d'Essonne (LS1D) was declared Standard Class National Champion.

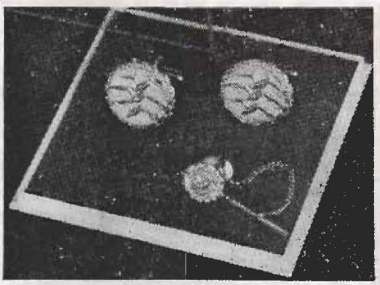
TWO-SEATER INTERNATIONAL

THE world's first international contest confined to two-seaters only was held at Poitiers from August 1 to 12. Scoring was for distance only, with handicaps applied, and of the 12 entries 3 were foreign: two from Germany and one from Poland—Bednarski with an AV-22, a French tailless type, which finished 7th.

The winning machine, an SB-10 entered by Schmal of the Braunschweig Academic Group, had a span of 26m, extendable to 29m by extra wing tips which, however, were not fitted. In six flying days it covered 1,258km (longest flight 375km) and earned 859pts. Second, Requillon of Fontainbleu in ASK-13, 720km, 733pts; 3rd, Bataillou of Val d'Essonne in M-200, 605km, 499pts; 4th, Strempel of Stuttgart in ASK-13, 489km, 433pts. Other types beside those mentioned were: Wassmer 30, CM-7, Breguet 904, C-800, and two more each of ASK-13 and M-200. (*Aviasport & Planeur.*)

MODEL GLIDER'S 454KM

A RADIO-CONTROLLED model glider has flown 454km (282 miles) in 25hr 44min 8sec under the control of Valeri Myakinin of the Soviet Union, according to Novosti Information Service, which gives no other details, but says that particulars have been sent to the FAI for recognition as a world record.



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BD			Argentina	Std Libelle						
			,,	Std Libelle						
ZR		Renner, I.	Australia	Std Cirrus		6-s				
BA		Bradney, M.	,,	Std Libelle		35-s				
	70	Mander, P.	,,		Kestrel 19					
	71	Tabart, A.	,,		Nimbus 2	22-o				
		Schubert, A.	Austria		Kestrel 604	9-o	18-o	4-o		
		Hämmerle, A.	,,		Kestrel 19					
		Wödl, H.	,,	ASW-15		36-s	21-o	1-o	12-s	5-s
		Puch, S.	,,	ASW-15						
		Zegels, B.	Belgium		Kestrel 604	18-o	13-s	10-o		
	00	Smet, H.	,,		Nimbus 2					
SI		Bluekens, M.	,,	Std Cirrus						
BW		Pissoort, J.	,,	Std Libelle		28-s				
			Canada	Std Libelle						
			,,		Kestrel 19					
XZ		Oye, S.	Denmark	ASW-15		43-s				
ZE		Sorensen, O.	,,	Std Libelle						
	49	Wiitanen, M.	Finland		Kestrel 19	2-o	10-o	24-s	13-s	14-s
SP		Nurminen, R.	,,	Std Libelle						
		Mercier, M.	France			11-o	3-o	35-o		
		Penaud, J-C.	,,			—	—	32-s	10-o	
		Cartry, J-P.	,,			5-s	—	—	8-o	
		Ragot, F.	,,			7-s				
	7	Burton, G. E.	Gt Britain		Kestrel 19	6-o	4-o	7-o	5-s	
	19	Delafield, J.	,,		Nimbus 2 (mod)	—	7-o			
LF		Fitchett, B.	,,	Std Cirrus		32-s				
JW		Williamson, J. S.	,,	Std Libelle		—	—	22-s	6-o	8-o
HB		Teunisse, P.	Holland	Std Cirrus						
		Paré, D.	,,	Std Libelle		20-o				
		Teuling, D.	,,		Kestrel 17	4-s				
	40	Cattaneo, M. & Serra, S.	Italy		Calif A-21	30-o	—			
	32	Orsi, Adele	,,		Kestrel 604					
SH?		Piludu, F.	,,	?		—	26-s			
YR?		Perotti, N.	,,	?		42-s	36-s	7-s		
		Fujikura, S.	Japan		Kestrel 19	37-o	38-o			
		Weiss, J.	Malagasy	Std Libelle						
	307		Mexico		Phoebus 17					
			,,		Diamant 16.5					
SH			,,	Std Libelle						
	77	Heginbotham, P.	N.Z.		Nimbus 2	34-o	—	40-o		
	44	Timmermans, A.	,,		Kestrel 19	15-s				
RB		Cameron, A.	,,	Std Libelle		—	—	5-s	11-s	41-s
GB		Gordon, W.	,,	Libelle 301B						
ET		Bulukin, B.	Norway	Std Cirrus		33-s				
		Kluk, S.	Poland		Jantar	3-o				
		Pozniak, H.	,,		Jantar					
		Wujczak, S.	,,	Std Jantar						
		Kepka, F.	,,	Std Jantar		3-s	3-s	—	3-s	
		Orleans de Borbon, A.	Spain	?		26-s				
		Andersson, G.	Sweden	Std Cirrus						
YZ		Pettersson, A.	,,	Std Cirrus		29-o	13-o			
		Ax, G.	,,		Nimbus 2	1-o	15-o	2-o		
		Wlassics, I.	,,		Kestrel 17					
	45	Wetli, R.	Switzerland		Nimbus 2	24-o				
ZO		Frehner, H.	,,	Std Cirrus						
CY		Nietlispach, H.	,,	Std Libelle		40-s	12-s	9-s	20-o	19-o
									(1956 8-ss)	(1954 4Ts)
		Johnson, R. H.	USA		ASW-17	5-o	—	8-o	18-o	4-o
									(1960 15-o)	(1952 24-ss)
		Moffat, G.	,,		Nimbus 2	19-s	1-o	4-s		
		Greene, B.	,,	?		9-s				
		Beltz, T.	,,	?						
		Grosse, H-W.	W. Germ.		?	—	2-o	10-s		
		Holighaus, K.	,,		?					
GA		Ahrens, K.	,,	?						
LS		Reichmann, H.	,,	?		24-s	1-s			
			Yugoslavia	?						
			,,	?						

O=Open Class; S=Standard Class; Ss=Single-seater; Ts=Twoseater.

Previous Placings compiled by Rika Harwood

This list differs slightly from that published by the Organisers' News Bulletin No 9.

Wake Turbulence

By IAN BUSBY



That title does not mean a punch up at an Irishman's funeral, but something far more serious and with far greater catastrophic results. It has for a long time been felt that glider pilots should be made aware of the dangers of turbulence behind the big jets. The following information has been compiled with the help of Mr R. O. Belton, Flight Safety Officer to BOAC, and with material extracted from BOAC Safety Digest, and FAA advisory circular issue No 101.

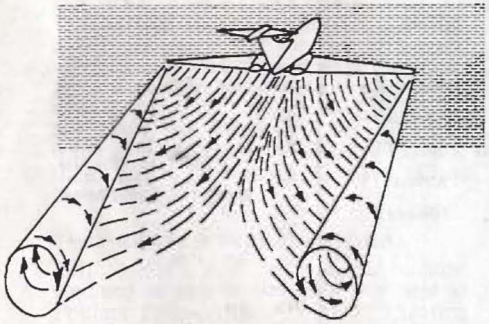


fig 1 The rolling up process

All aeroplanes, even gliders, generate a wake whilst in flight. Maybe some glider pilots have experienced that gentle ripple at the bottom of a loop on passing through their own wake when doing aerobatics on still evenings. It is known that this disturbance is caused by a pair of counter rotating vortices trailing from the wing tips.

Vortices from any aircraft can pose problems to the encountering glider pilot. However, wake from large aircraft can impose rolling moments far in excess of the roll control ability of a modern sailplane.

In fact, turbulence generated within the vortices can cause major structural damage to an aircraft as light as a glider. Recently a Lear jet flown some 3½ miles behind a Lockhead C5A was thrown on to its back and had to be half rolled to regain control.

Vortex generation

Lift is generated by the creation of a pressure differential over the wing surfaces. The lowest pressure occurs over the upper wing surfaces and highest pressure under the wings. This pressure differential triggers the roll up of the airflow aft of the wing resulting in swirling air masses trailing downstream of the wing tips. After the roll up is completed, the wake consists of two counter rotating cylindrical vortices, fig 1.

Vortex strength

The strength of the vortex is governed by the weight, speed and shape of the wing of the generating aircraft. The vortex characteristics of any given aircraft can also be changed by the extension of flaps or other wing configuration changing devices as well as by an alteration in speed. However, as the basic factor is weight, the vortex strength increases proportionately.

During a recent test, peak vortex tangential velocities were recorded at 224ft/sec or about 133kts. Think about that in relationship to your max gust loading! If you glide in the vicinity of the approaches to large civil airports or active air force fields, remember that the greatest vortex strength occurs when the generating aircraft is *heavy*, *clean* and *slow*. Dunstable and Booker pilots you have been warned!

Induced roll

It has already been stated that a wake encounter by a glider could cause structural damage of catastrophic proportions. The hazard is associated with induced rolling moments which can exceed the rolling capability of the encountering aircraft. In flight experiments, aircraft have been intentionally flown directly up the trailing vortex cores of large aircraft.

A Coronado C 990, itself a large aircraft, flown some three miles behind a Galaxy, required full application of its differential spoilers to maintain something like level flight. At three-and-a-half miles a Boeing 727 was forced to peel away. This and other experiments have shown that the capacity of an aircraft to counteract the roll imposed by the wake vortex, primarily depends on the wing span and counter control responsiveness of the encountering aircraft.

Now remember that the wing span of a Boeing 747 is some four times greater than that of a Skylark 4 and the slow roll rate of 18 meter gliders is well known. The pilots of short span aircraft must be especially alert to vortex encounters but whether you are a Phoebus fanatic or a Jumbo Jockey, the wake of large aircraft requires the respect of *all* pilots.

Vortex behaviour

Trailing vortices have certain characteristics which can help a pilot visualise the wake location and take avoiding action. Vortices are a by-product of wing lift and are generated from the moment the aircraft leaves the ground. The circulation is outward, upwards and around the wing tips when viewed from either ahead or behind the aircraft. Tests have shown that the vortex flow field, in a plane cutting through the wake (fig 2) at any point behind the generating aircraft, covers an area about two wing spans in width and one wing span in depth.

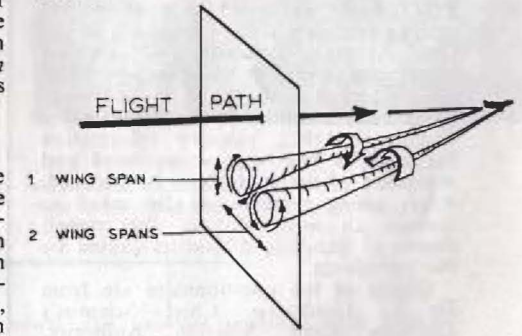


fig 2 Vortex flow field in aircraft wake

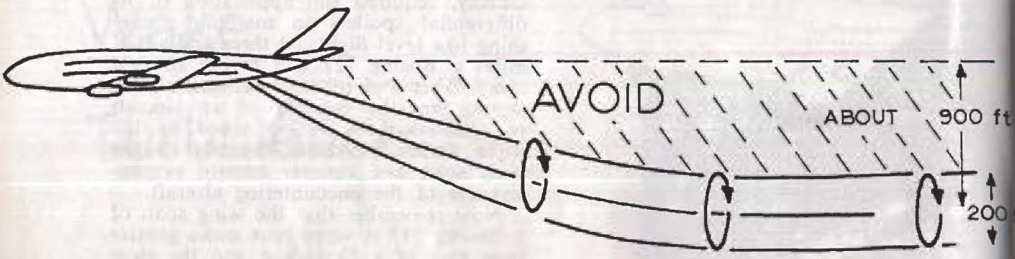


fig 3 SINK RATE 400–500 ft/min

The vortices can then remain, sometimes drifting with the wind, about one wing span apart. The vortices from large aircraft sink at about 400 to 500ft/min. They tend to level off at about 900ft below the flight path of the generator, fig 3. The strength of the vortex will decrease with time and distance behind the generating aircraft. Turbulent conditions will assist in the break-up of the trailing vortices.

Glider pilots finding themselves in the vicinity of a large aircraft should first of all adhere to the correct collision avoidance procedure then aim to stay out of the dangerous vortex area below and behind the aircraft. This may entail flying into wind and maintaining height or, if you are in a slick glass-fibre job, converting some of that high inter-thedmal speed into height. Whatever happens stay well below your maximum rough air speed and keep one hand ready on the airbrake lever.

★ ★ ★

Analysing Wake Turbulence Caused By Large Aircraft

PILOTS are requested to continue reporting turbulent wake encounters to the Civil Aviation Authority. As there has been such excellent co-operation from all concerned with the data collection programme instituted by the Information Circular 84/1972, valuable information for analysis has been accumulated and the scope of the study is to be widened. Pilots giving reports are also asked to include an assessment of the overall degree of handling difficulties caused by the turbulence.

Copies of the questionnaire are from Dr L. Goldstone, Chief Scientist's Division, Civil Aviation Authority, Shell Mex House, Strand, London WC2R 0DP, the AIS and Flight Clearance Office in the Queen's Building, Heathrow and any other CAA AIS Unit in the UK.

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CLOUD WITH A DIAMOND LINING

An account by JOHN JOSS of a spectacular sight at the Pacific Area Soaring Council's wave camp in April. The camp is an annual date where pilots indulge in a veritable orgy of Diamond altitude and distance flying.

DOWN at Minden the "window" was closed. All morning expectant pilots stood around their ships, looking up at the bloated sky, hoping the heavy clag would lift from the surrounding mountain tops. The window pulsed slightly near noon; reports of strong westerly winds of altitude provided the lure of high flights. But the hand that opened also closed, with a nervous intermittence only the foolhardy could ignore. Carl Herold's classic "IFR wave".

Without a sailplane, without weather and work calling in the morning, there seemed no point in lingering. Snow during the night made the South Lake Tahoe (Carson Pass) and other more southerly routes highly problematical, so the Highway 50 (Spooner Summit) return seemed safer. Grinding north up 395, against the grain of so many epic Sierra wave flights, proved the correctness of the decision to leave. There was no way anyone would reach the wave through the impenetrable greyness.

Near the summit, an upward glance disclosed an amazing sight. The window had opened, like a blind being drawn back. Up there, up high, was the classic lenticular. The sun was a tiny silver disk trying to penetrate. At its leading edge the sky was a brilliant, clear blue.

The hiss of high-velocity air up there in the bitter cold was almost audible, tangible. Slowly a second lenticular, looser and less well defined because only the trailing edge was visible, emerged above and downwind from the first. A pause, then a third appeared, at even higher altitude. Towards the south, where Minden nestled in the valley, there was no visible break in the cloud cover.

Later investigation proved that "there were no wave flights today". By the time cameras had been stowed, the window had disappeared in clamorous roll cloud.



WASSERKUPPE EXCHANGE

THE Wasserkuppe Pilots' Association would like to start relations with British soaring clubs. They would like to arrange visits of British glider pilots at the Wasserkuppe in exchange with German pilots at British clubs.

Anyone interested in participating in such a scheme should contact Helmut Sinn, c/o 3000 Hannover, Leuschnerstrasse 18, West Germany.

General & BGA News

RECORD ENTRY FOR NATIONAL LADDER

ALAN PURNELL of the Surrey & Hants Club is at the top of the National Ladder, the longest list on record, with 3,922pts. His final score was achieved by a gain of height of 21,700ft from Portmoak in September.

The club operated class was wide open to challengers and G. Butler Madden won by a hairs breadth from Chris Lovell, both Surrey & Hants.

As well as entries being up on last year, pleasing in view of the rather average weather, one more club has taken part. Over the last four years, 24 clubs have participated for all or part of the time. The largest entry came from the Essex Club (28 pilots) closely followed by the Coventry Club with 27 pilots.

Early entries for the 1973-74 period should be sent to M. P. Garrod, (National Ladder Steward), 2 Burford Court, Rances Lane, Wokingham, Berks RG11 2LJ.

Leading Pilots	Club	Pts	No of flts
1 A. Purnell	Surrey & Hants	3922	4
2 L. E. Beer	Thames Valley	3551	4
3 M. Costin	Coventry	3407	4
4 J. B. Golds-brough	Yorkshire	3398	4
5 D. W. Lilburn	Yorkshire	2727	4
6 S. N. Longland	Cambridge U	2358	4
7 G. S. Neumann	Cambridge U	2206	4
8 H. Johns	Bristol & Glos	2148	4
9 G. Butler Madden	Surrey & Hants	2143*	3
10 C. Lovell	Surrey & Hants	2128*	4
11 R. Aldous	Airways	2096	4
12 P. L. Sears	Cambridge U	2011	4

*Flights in club gliders

GIVE SOMEBODY A GLIDING BOOK FOR CHRISTMAS

★ ★

The BGA has a vast stock of books which make ideal Christmas presents, including the new one from Ann Welch — "Pilots' Weather" at £4.25 (or £4.50 by mail order).

Don't forget to let it be known that you would like a new BGA tie this Christmas! A single glider motif in silver on blue background or gold on black at £1.32 each (or £1.37 mail order).

BRITISH GLIDING ASSOCIATION
Artillery Mansions
75 Victoria Street
London, SW1
Tel. 01-799 7548

COMPETITION DIARY, 1974

THE following dates for BGA competitions in Britain have been announced at the time of going to press:

May 11-19, Wycombe Regionals, Booker; May 25—June 1, Nationals, Dunstable; June 8-16, currently free; June 22-30, Competition Enterprise, (unrated), Devon & Somerset Gliding Club; July 6-14, Lasham Regionals; July 20-28, Midland Regionals, Husbands Bosworth; August 3-11, Northern Regionals, Sutton Bank and August 17-26, Euroglide, Nympsfield.

The structure of the two contests at Nationals level, Nationals and Euroglide, is explained below. Changes from the 1973 structure have been made in the light of the undersubscribed Sport/Club Class at Husbands Bosworth 1973, and the success, for the second year running of the Euroglide concept of running a contest for a mixture of UK and European entries.

BRITISH NATIONALS

This will essentially be a two Class unhandicapped contest for Open and Standard Classes. In addition, any gliders of handicaps 84% to 94% inclusive may, if they wish, fly with the Standard Class using handicapped scores and in this grouping will be called the Sport Class. Gliders of performance worse than 94% will be handicapped at 94%. Standard Class gliders will automatically be scored on two lists, unhandicapped (Standard) and handicapped (Sport). There will be no separate Sport/Club Class Nationals in 1974.

Entry priority will be from the published rating list with a total of 45 gliders in the Championship. Minimum gliders in the Open or Standard Classes will be 15, achieved by limiting entry to any one class to 30.

EUROGLIDE

About 15 European pilots will be invited to fly in this Championship, which will be unhandicapped and consist of Open and Standard Classes. UK pilot entry priority is 20 from the published rating list, plus the top three from the 1974 British Nationals, if not already included.

UK pilots will get a rating for 1975 from this contest which will have equal status with the Nationals for this purpose. Placings will be used which include the European pilots, ie a pilot coming fifth overall in his Class but third amongst the UK competitors, would be rated fifth.

GENERAL

1 Pilots may enter both Nationals and Euroglide if they wish. A pilot may enter Euroglide without entering the Nationals, or *vice versa*. Pilots wishing to fly in only one of these competitions may apply for both, indicating a preference and have the opportunity of withdrawing from their second choice if they secure a place in the competition of their first choice.

2 The four 1974 Nationals-status classes will be merged for the 1975 rating list in an order of precedence depending on the total gliders flying in the particular Class. For the Standard/Sport Class, handicapped scores will be used for rating.

3 Entry forms for Nationals and Euroglide may be obtained from the BGA and must be returned so as to arrive at the BGA office by January 31 at the latest. Entry forms for Regionals may be obtained direct from the clubs concerned.

IAN STRACHAN,
Chairman, Flying Committee.

COMPETITION ENTERPRISE

IT seems there is a real need for a different kind of gliding contest. Following Roger Barrett's article in the August/September issue of S&G, the Executive Committee authorised Philip Wills to try and find out what reaction there would be to a sample contest, based on a somewhat different philosophy from those of today.

He wrote to owners of competition numbers and tried to reach others interested in the idea. And already the response is encouraging.

Philip explains the principles in the letter: "Following the lead of CIVV, our competitions nowadays concentrate mainly on speed flying. Do an important number of pilots miss the previous inclusion of the less clinical tasks? Here, of course, I am referring to such open-ended tasks as free distance, distance along a line and so forth, bringing with them a requirement for pilot-selected take-off and re-lights.

"A Race would, of course, still be set if the weather conditions made it likely to be the best task available on a given day. But the contest would certainly be likely to call for more travelling from the retrieve teams than do the present ones, although of course, one would *not* aim to set free distance on strong windy days when everyone would simply end

BGA
CHRISTMAS CARDS

We think that you will all like our 1973 Christmas Card. It is a beautiful colour photograph of a Kestrel soaring above the Styrian Alps.

The size of the card is $4\frac{3}{8} \times 3\frac{3}{8}$ and the price is 70p for a packet of 10 cards and envelopes. (75p for mail orders).

Order your cards right away to avoid disappointment as they are bound to be a sell-out! Also ask for our latest "What to Buy" leaflet for details of useful Christmas gifts.

BRITISH GLIDING ASSOCIATION
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up on the same beach, or when it would insert 30 or more trailers into the throng of holiday traffic on the A30."

Three possible structures are suggested for such a meeting. A jolly—daily tasks, no marks (or possibly daily prizes) and no rating. An unrated competition—marks and prizes and thirdly, a regional, marks, rating and all. The regional may present problems, but if a sufficiently large number of people show a strong wish for it, the BGA will obviously want to know.

So far, only a few pilots are interested in the jolly, the bulk of enthusiasm coming for the unrated competition with replies indicating a need for two classes, roughly for wood and glass-fibre.

Philips adds: "Of course, there is an unknown gap between the number of pilots who will fill in a form and the actual number who will arrive on The Day, complete with glider, but it seems we have uncovered a real need, and the BGA is keen to satisfy it."

P.S. "We are all looking for a better title than 'Competition Enterprise'. can anyone think of one?"

HANDICAP LIST FOR 1974

THE Skylark 3 and K-6CR are taken as "Datum Gliders" at 100% and all other figures are in inverse proportion to cross-country speed extracted from an "average thermal", compared to the speed of the datum gliders.

The "average thermal" is strong in the middle and weak at the outside. Compensation for thermalling performance is made by feeding the minimum 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 2kts 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 nearly 3kts.

These corrected climb figures are applied to the standard formula for cross-country speed, these speeds compared with that of the datum gliders and rounded off to the nearest even percentage for the list of handicaps. A full explanation was given in Sailplane & Gliding, 1967 page 459.

H'cap %	*Sailplane type*
74	ASW-12*, Kestrel 19*, Nimbus 2 (20m)
78	Kestrel 17*
80	BS-1, Diamant 18
84	Cirrus, Phoebus 17, HP-14 (18m), SHK
86	Diamant 16.5, KH-1
88	Standard Libelle, ASW-15, Standard Cirrus, LS-1, Motor Cirrus*, Phoebus 15*, Cobra 15
90	Dart 17, Foka 5, Torva Sprite*
94	K-6E, Pilatus
96	Olympia 419, Foka 4, Vasama, SF-27M
98	Dart 15, Skylark 4, Pirat
100	**K-6CR, Skylark 3 (Datum gliders),** Olympia 403
102	Olympia 463, M-100s, Fauvette, K-14*, BG-135
106	K-8, Jaskolka
108	Skylark 2, SF-26
110	K-13, Blanik, Eagle, Bocian
112	Sky, Weihe
114	Mucha Standard, Capstan, K-7, K-2
116	SFS-31 Milan*
124	Meise, Olympia 2, Kranich
128	ASK-16*, Tandem Falke*
144	RF-5B Sperber (17m)*
150	SF-25B Falke

NOTES:

(1) Asterisks * signify handicaps based on maker's figures. Later information may influence the Handicapping Committee otherwise.

(2) Handicaps 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 for the "average thermal".

(3) 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 70-75kts (130-140km/h).

SYMPOSIUM ON MOTORLESS FLIGHT

THE AIAA/MIT/SSA second international symposium on the technology and science of low-speed and motorless flight is on September 11-13, 1974 at Cambridge, Massachusetts. The con-

ference is sponsored by the AIAA, the Massachusetts Institute of Technology and the Soaring Society of America.

The emphasis will be on improving the state-of-the-art of designing, developing and testing flight vehicles optimised for low-speed, low Reynolds number powered or unpowered flight. The conference will include workshop sessions and panel discussions on the progress made since the meeting in October 1972.

New results are wanted, both analytical and experimental, as well as reviews of lessons learned from past experience with low-speed airplane, sailplane, model and bird-flight studies, and papers are solicited for specific sessions.

If anyone is interested and would like more information, please write to me at 281 Queen Edith's Way, Cambridge CB1 4NH, enclosing a s.a.e. for full details.

IRISH BRONZE C

THE attention of all clubs is drawn to a decision by the BGA to recognise the Bronze C award of the Irish Gliding Association as being equivalent to our own endorsement. Holders of the IGA Bronze C should be treated in the same way as any visitor to a club who holds the equivalent BGA qualification.

VINTAGE MEETING

THE FIRST International Vintage Glider Meeting in Germany will be from June 1-9 on the Wasserkuppe. The initiator is the Oldtimer Club Münster and the meeting will be organised by the *Gesellschaft zur Forderung des Segelfluges auf der Wasserkuppe.*

Vintage glider owners interested in taking part should write for an entry form to Mrs Frances Furlong, Hon Secretary of The Vintage Gliding Club of Great Britain, Otford House, Otford, near Sevenoaks, Kent.

BGA CHRISTMAS CARD

THE BGA are indebted to Joachim von Kalckreuth for the beautiful photograph of his Kestrel soaring the Alps which is reproduced on the Christmas card this year. He is the author of *Segeln über den Alpen*, the first book devoted to Alpine soaring.

GROUND LOOPING AND HEAVY LANDINGS

IT has always been the rule that any heavy landing or ground loop, or suspected overstressing of any glider should be followed at once by a proper inspection of the structure to make sure that no damage has been done.

With the advent of glass-fibre gliders into the Movement, with their propensity for ground looping, this is even more important than before.

We have had a report of a Libelle which broke up when wave flying at high altitude in America, and in this case there was a history of its having been ground looped just before it took off for its last flight. We do not know details yet but the Tech Committee, at the Meeting on 24/10/73, suggested that all owners should be reminded of the vital necessity of a proper inspection following any suspected overstressing. In some respects the inspection of glass-fibre structures does seem to present rather more difficulty than other materials and if there is the slightest doubt, expert opinion must be called in.

MOTORGLIDER FEES

THE CAA has agreed to reduce the fees for renewals of Cs of A for motorgliders. In consequence, when applying for a renewal of C of A for a motorglider the fee now required is £5 plus £1 for each 1,000lb of All Up Weight. Thus for a Falke the fee is £7.

R. C. STAFFORD ALLEN, CTO, BGA,
for BGA Technical Committee

BGA GENERAL MEETING

AT the AGM at the Kronfeld Club on November 2, two resolutions were passed: The Operational Regulation stating that all gliders shall be covered by third party insurance is now qualified by the words "to such sum as the Executive Committee shall from time to time decide". For the time being the Executive have set this amount at £50,000.

The annual subscription for the current year was also increased to £1.25 for the first 25 members of a club and 45p each thereafter. The subscription for associate individual members was raised to £2 per annum also from the current year. (All figures plus VAT.)



Type 780 Parachute Assembly. This assembly is SLIM. By using our new low bulk, low porosity 17' (5.2 m) para-conic canopy in this assembly we have available a parachute pack measuring only 19" high (482 mm), 12" wide at top (304 mm), 15½" wide at base (381 mm), 1½" deep at top (38 mm), 3¼" deep at base (82 mm), weight 17½ lbs (8 kgs)





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GLIDING CERTIFICATES

ALL THREE DIAMONDS

No	*Name*	*Club*	*1973*
31	R. Jones	Inkpen	5.6
32	H. Orme	Four Counties	3.7

DIAMOND DISTANCE

No	*Name*	*Club*	*1973*
1/55	R. Jones	Inkpen	5.7
1/56	H.Orme	Four Counties	3.7
1/57	Angela Smith	in South Africa	18.12.72

DIAMOND GOAL

No	*Name*	*Club*	*1973*
2/475	R. D. Hunt	Kent	29.7

DIAMOND HEIGHT

No	*Name*	*Club*	*1973*
3/173	M. C. Costin	Coventry	22.9

GOLD C COMPLETE

No	*Name*	*Club*	*1973*
373	R. F. Aldous	Airways	1.8
374	F. J. Sheppard	Airways	1.9
375	R. D. Hunt	Kent	27.7
376	P. Sand	in Germany	1.8.72

GOLD C HEIGHT

Name	*Club*	*1973*
R. F. Aldous	Airways	1.8
P. J. W. Rowell	Hambletons	5.8
R. W. Stephenson	Clevelands	5.8
W. Smith	Clevelands	5.8
R. B. Witter	Wrekin	22.7
A. S. Rutter	Cranwell	1.9
G. M. Polkinghorne	SGU	17.3
L. N. Nicholson	Yorkshire	1.9

Correction: Oct-Nov issue p353. Published in error Diamond Goal No 2/457 D. E. Hills.

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No	*Name*	*Club*	*1973*
	R. D. Hunt	Kent	1.8
	P. Ramsden	Ouse	2.9
	T. Wilson	Clevelands	1.9
	F. J. Sheppard	Airways	1.9
	R. J. Olender	Hambletons	2.9
	P. B. Linfield	Univ of Aston	1.9
	P. Sand	in Germany	7.8.72
	A. C. Ball	Clevelands	1.9
	J. T. Potter	Clevelands	1.9
	G. McLean	Clevelands	1.9
	A. J. Manwaring	Essex	28.9
	C. G. Corbett	Essex	28.9
	M. N. Sutherland	Yorkshire	1.9

GOLD C DISTANCE

Name	*Club*	*1973*
R. D. Hunt	Kent	27.7
P. Sand	in Germany	1.8.72

SILVER C

No	*Name*	*Club*	*1973*
3460	I. Beckett	Devon/Somerset	3.7
3461	R. N. Pentreath	Heron	23.6
3462	B. A. Kimberley	Bicester	14.5
3463	R. G. Goble	Anglia	8.7
3464	C. R. Ellis	Midland	7.7
3465	R. Birch	Kent	4.7
3466	M. Munday	Enstone	24.6
3467	M. P. Abbey	Bicester	7.7
3468	C. Roney	Cambridge Univ	2.6
3469	P. J. Chodera	Cotswold	1.7
3470	H. Conroy	Lakes	17.6
3471	G. L. Aucott	Enstone	24.6
3472	P. D. Light	Worcestershire	25.7
3473	J. M. Ridge	Thames Valley	26.7
3474	R. M. I. Dare	Kestrel	26.7
3475	A. R. Hancock	Bannerdown	7.7
3476	J. H. Wayman	Peterboro/Spalding.	4.8
3477	R. W. Rushton	Kestrel	4.8
3478	G. Weston	London	5.6
3479	D. R. Gledhill	Bannerdown	4.8
3480	C. Till	Trent Valley	1.8
3481	I. D. Wheatley	Two Rivers	14.7
3482	J. A. Edwards	Heron	7.4
3483	J. Clarke	Doncaster	30.7
3484	G. F. R. Ellis	Cambridge Univ	8.8
3485	A. W. Murray	SGU	8.7
3486	A. W. Carter	Chilterns	11.8
3487	A. D. Joslin	Essex	11.8
3488	D. Puttock	Cornish	25.7
3489	S. W. Frank	Devon & Somerset	7.8
3490	E. J. B. Davern	Essex	11.8
3491	R. D. Pearson	SGU	8.7
3492	P. W. Medhurst	Bicester	5.6
3493	M. A. Bland	Yorkshire	29.6
3494	R. H. Dixon	Wolds	1.8
3495	S. H. Gibson	Cambridge Univ	11.8
3496	C. E. Clist	S.H.A.P.E.	8.7
3497	I. R. Wilson	Wrekin	30.8
3498	D. Yates	London	30.8
3499	D. Appleby	Essex	25.8
3500	R. G. Garner	Enstone	26.8
3501	H. Middleton	Coventry	30.8
3502	D. A. Thorpe	Peterboro/Spalding	2.9
3503	P. Young	London	2.9
3504	C. D. Marsh	Airways	26.8
3505	J. D. Eld	Airways	2.9
3506	W. A. Lee	London	13.6
3507	P. J. Jenkins	Imperial College	6.9
3508	M. C. Alexander	Imperial College	30.8
3509	R. R. Stevens	Bicester	2.9
3510	C. H. Wiggins	Chilterns	2.9
3511	P. N. Kingwill	Fenland	2.9
3512	J. Wesley	S.W. District	7.7
3513	P. F. McElarney	Essex	2.9
3514	L. N. Nicholson	Yorkshire	1.9

No	Name	Club	1973
3515	N. J. Allcoat	Peterborough & Spalding	2.9
3516	J. M. Gardner	Surrey & Hants	11.9
3517	T. Wilson	Clevelands	1.9
3518	G. K. Holloway	R.A.E.	26.8
3519	P. J. Edwards	Ouse	2.9
3520	Margaret Edwards	Ouse	2.9
3521	D. Aldridge	Portsmouth Naval	11.8
3522	A. E. D. Hayes	Cotswold	29.4
3523	A. J. Noble	Peterborough & Spalding	22.9
3524	C. Curtis	Four Counties	24.8
3525	C. E. Heath	Enstone	26.5
3526	A. J. Davis	Bath & Wilts	28.9
3527	P. Sand	in Germany	17.6.69

RHODA CLAIMS TWO UK RECORDS

ON Wednesday, November 7, Rhoda Partridge took her Std Cirrus up to approx. 19,700ft over Aboyne—a gain of 17,700ft. Apart from achieving her Diamond height she is also claiming the two UK feminine records for absolute and gain of height which have been held by Anne Burns since 1959. (Subject to homologation.)

CIVV MEETING
Paris, October 25-26

By ANN WELCH

THE meeting opened with a tribute to the memory of Seff Kunz who, as well as his overall services to gliding, will be remembered as the Organiser of the 1937 International Competitions on the Wasserkuppe and Manager of the German team in Spain 1952, the same year as he became a member of CIVV. Tribute was also paid to Fred Forrer, immediate past President of FAI, who died in October. Fred held balloon, airship, aeroplane, helicopter and glider pilot licences.

The organisation is well up to time and all requests for rented glass-fibre aircraft have been satisfied. General Motors (Holden) Ltd are providing a new car for each team, insured and fitted for towing.

World Championships

71 pilots have entered for the World Championships from 24 countries, of which 28 are Open Class. There is one woman, Adele Orsi (Italy) flying a Kestrel 604. Towing will be by the Australian Air Force using 14 450hp radial engine Winjeels. Their towing speed is fast, 75kts, but a small number of slower aircraft will be arranged if the organisers are informed that gliders are coming not capable of being towed at this speed.

Future Class Structure and Revision of the Sporting Code

In accordance with the Rules, no major alteration can be made to the Championship Class structure in less than four years from the date a decision to change is taken. In practice this means that serious thinking about the structure of World Championships in the 80's has to start now. Sooner in time comes revision of the Code. The time scale schedule is for all proposals for modification, alterations and corrections to be sent to the writer not later than the the next CIVV meeting on March 15.

A consolidated paper will then be prepared and circulated in time for decisions to be taken at the October 1974 meeting. The revised Code will then be reprinted.

OBITUARY

PAUL ZANDER, Assoc. R.Ae.S.

ERICH Paul Zander died on October 17, aged 78 years, after a short illness. Born in Germany, he saw flying service in the Great War, then came to live in England in 1933.

He was an active member of the London Gliding Club and, with Weyl, founded Zander and Weyl at Dunstable where they manufactured and repaired gliders and light aircraft.

During World War II he was engaged on the manufacture and inspection of aircraft, after the war continuing his work in aviation in the Argentine and in Canada.

In 1959 he retired to Mudeford, Hants, where he was able to continue his lifelong passion for sailing. His interest in flying remained unabated throughout his life, and he was an authority on historical matters, particularly pre-1914.

During the last years of his life he was dogged by failing health and it was only the drive of his courageous spirit which enabled him to remain active.

He is remembered by his friends and associates as a brave man with a sense of urgency for life, always tempered by his warm and human personality.

J.W.G.M.

NATIONALS ENTRY LIST 1974

THE following list will be used to determine the priority of entry to the National Competitions in 1974, should applications for these competitions be over-subscribed. This list has been compiled by the rules for the Open/Standard entry list as published in S&G for April/May, 1973. In view of the revised structure of the 1974 Nationals, the Sport/Club entry list is no longer required and will not be published.

In accordance with the rules, this 1974 Entry List has been compiled from the results of the four 1973 Nationals, the 1973 Entry List, the four 1973 Regional Competitions, and the Inter-Services Competition at Spitalgate. The 1973 'Euroglide' results were not used. The rules also allow British competitors in the 1973 Hahnweide (Germany) and Angers (France) Competitions to submit their positions for inclusion in this list. However, these competition results were not available at the time of going to press.

Any pilot who wishes his European competition result to be included in this list, or who believes his position in this list to be incorrect, is asked to write to the BGA, giving details of the competitions in which he competed in 1973, his competition number and full name, as soon as possible.

A. J. R. DEACON,
Flying Committee.

No.	Name
1	Jones, R.
2	Fitchett, B.
3	Lee, D. G.
4	Sandford, R. A.
5	Delafield, J.
6	Williamson, J. S.
7	Jeffries, J. R.
8	Camp, G. W. G.
9	Lysakowski, E. R.
10	Burton, G. E.
11	Burton, A. J.
12	Rollings, C.
13	Piggott, A. D.
14	Garrod, M. P.
15	White, S. A.
16	Farmer, A. T.
17	Goldsbrough, J. B.
18	Welsh, J. H.
19	Glossop, J. D. J.
20	Hood, L. S.
21	Livesay,M. H.
22	Winning, E. J.
23	Day, C. G.
24	Austin, D. C.
25	Waller, C. J. N.
26	Woodier, C. J.
27	Cardiff, J.
28	Bowden, D.
29	Dixon, R. T.
30	Orme, H.
31	Throssell, M. G.
32	James, D. B.
33	Wright, R. D.
34	Pozerskis, P.
35	Lilburn, D. W.
36	Cole, R. A.
37	Brown, H. F.
38	Sears, P. L.
39	Przewlocki, J.
40	St. Pierre, A. H. G.
41	Cook, R. A.
42	Zealley, T. S.
43	Keogh, B.
44	Meddings, E.
45	Dixon, R. J.
46	Tanner, L. E. N.
47	Simms, J. A.
48	McLuckie, R.
49	Foot, R. A.
50	Dobson, B. F.
51	Woodhouse, I. C.
52	Cousins, R.
53	Miller, A. S.
54	Kiely, K.
55	Paul, I.
56	Shephard, E. G.
57	Wilkinson, K. G.
58	Ince, D. H. G.
59	Sheffield, R. J.
60	Stafford-Allen, R. C.
61	Vennard, D. A.
62	Watson, A. J.
63	Butler, D. J.
64	Strachan, I. W.
65	Andrews, P. R.
66	Greaves, C. M.
67	Atkinson, G. B.
68	Lyndon, R. J.
69	Carter, M. E.
70	Harrison, K. A.
71	Purdie, P.
72	Hanson, D. F.
73	Wynch, J. W.
74	Kronfeld, W. J. R.
75	Sheppard, F. J.
76	Staines, R.
77	Hale, R. J.
78	Davis, D. W.
79	Ellis, C. A. P.
80	Aldridge, K. R.
81	Gaunt, N.
82	Goodhart, H. C. N.
83	Cawthorne, T. R.
84	Torode, H. A.
85	Simpson, C. R.
86	Longland, S. N.
87	Burns, Anne
88	Krzystek, T. J.
89	Robertson, D. J.
90	Manson, J.
91	Trenchard, P.
92	Ballard, L.
93	Gough, A. W.
94	Elliot, E. G.
95	Seth-Smith, M. P.
96	Spreckley, B. T.
97	Brownlow, J. B.
98	Dimock, H. R.
99	Warminger, A. H.
100	Aldous, R. F.
101	Grenet, P.
102	Cole, P. H. B.
103	Hogg, A. J.
104	Watson, B. B. C.
105	Tull, V. F. G.
106	Payne, I. H.
107	Dickson, W. W.
108	Thorne, J. V.
109	Gaunt, R. F.
110	Saundby, R. P.
111	Marriott, S. H. C.
112	Knipe, F.
113	Easton, S. J.
114	Wishart, R.
115	Johnson, D.
116	Brindle, G. F.
117	Crawshaw, G. H.
118	Smoker, J.
119	Stoddart, R. C.
120	Rouse, J. E.
121	Wood, R. A.
122	Bacon, G. MacA.
123	Vann, E.
124	Findon, D. E.
125	Oulds, T.
126	Jones, D. R.
127	Allen, D. K.
128	Mawson, J. J.
129	Fay, F. W.
130	Cole, R. A.
131	Millward, G.
132	Sharman, R. C.
133	Pope, M. H. B.
134	Nicholas, A.
135	Newall, R. W. B.
136	Goodman, C. W. S.
137	Chinn, G. M.
138	Brook, G. F.
139	Jarvis, H. R.
140	Cogger, C. B.
141	Wood, M. J.
142	King, P. G.
143	Withall, C. L.
144	Southwood, M.
145	Johnson, A. S.
146	Stevenson, J. N.
147	Saw, G. P.
148	Cooper, R. H.
149	Adams, A. B.
150	Feakes, R.
151	Addis, R. C.
152	Zotov, D. V.
153	Wray, A. J.
154	Watson, A. J.
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JOHN MURRAY



Support the British Gliding Team

AS the printer's ink was drying on the last issue of S&G my remarks about all the team pilots being thoroughly at home in their world champs gliders became out-of-date as John Delafield decided to switch from a Kestrel to a modified Nimbus. He will be flying Anne Burns's glider which, after some plastic surgery that left no scars by Ralph Jones, now boasts a span of more than 21 metres. On a Sunday in October, John D. was soaring the massive Nimbus on the hill at Dunstable while alongside —well, OK at times a *little* below— hovered a red Scud with all its 12.19m span. Maybe the Scud pilot was practicing for Philip Wills's comp next year.

With this extra span John believes he will stand a better chance in the Open Class. George Burton (Kestrel 19) keeps his options open with a chance of winning the 19m Trophy as well as the Open Class.

Bernard Fitchett's Std Cirrus and John Williamson's Std Libelle were due to leave Lyneham at the end of November (courtesy an RAF Hercules) and the two Open gliders are following in December. All four UK pilots are now flying out from Heathrow on December 27 and, Qantas and Trans-Australia permitting, will arrive at Gawler two days later to start practicing in South Australian sunshine (it says here). They will have a skeleton crew (Hugh Campbell, Alan Farmer, Peter King and Jock Wishart) to help them till the main party arrive for the official practice week at Waikerie starting January 5.

We have had some really magnificent contributions to the Boomerang Fund from the sale of draw tickets at clubs— and particularly from some of the smaller ones. Everyone going out to Australia is very grateful to the Fund Representatives who worked so hard selling the tickets. The draw was held at the Kronfeld Club on November 2 and

the winner of our Grand First Prize—an 8-day Isles of Greece cruise for two arranged with Clarksons—was ticket no. 09421 bought by Mrs M. Thornton, 47 Kings Road, Cowplain, Portsmouth, Hants.

Other prize winners included:

No. 88131 (Tape Recorder) K. Clark, Swallow Hole Farm, Saltby, M. Mowbray, Leics.

No. 81849 (Radio) Miss R. Willis, Flat 8, 77 Albemarble Road, Beckenham, Kent.

No. 40772 (Whisky & Gin) R. Staines, c/o East Midlands Gliding Club.

No. 82273 (Autographed copy of *Pilots' Weather* by Ann Welch) J. Westerman, c/o Yorkshire Gliding Club.

No. 88082 (Autographed copy of *Free as a Bird* by Philip Wills) H. Latham, Earnshaw Hall, Sheffield S10 3EG.

No. 47597 (Subscription to S&G) Mr. Platt of Marlow.

This is positively your last opportunity to make sure Peter King, the team treasurer, gets a really happy Christmas. He is still fighting to balance our budget and would very much appreciate receiving donations at the BGA from those pilots who may not yet have got around to gritting their teeth and pulling out their cheque books (make payable to BGA Boomerang Fund please).

Last of all—a very Merry Christmas to you from the Team. And we hope we shall do well enough to give you an exceedingly Happy New Year!

ROGER Q. BARRETT, *Team Manager.*

Further donations to the Boomerang Fund from September 5 to November 5 produced another £433.56, made up by the following contributors, giving us a new total of £2,056.06. The proceeds of the raffle came to £750, thus making the total so far received £2,806.06. Considerable thanks to you all.

Aked, J. S.
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McKelvie, L. J.
McLane, J.
Moore, P.
Partridge, P. J.
Polish Air Force Association
Pollard, R. F.
Pozerskis, P.
Russell, F. K.
South West District Gliding Club
Stephenson, G. & B.
Tait, J.
Thames Valley Gliding Club
Thompson, P. B.E.
Whiteley, K. S.
Wilkinson, G.
Wrekin Gliding Club
Zealley, T. S.

BOOK REVIEWS

Pilots' Weather: A flying manual. By ANN WELCH. Published by John Murray, London. Price £4.25. Obtainable from BGA mail order £4.50, personal callers £4.25.

LIKE the author's "Cloud Reading for Pilots", published in 1943, this book contains a great number of cloud photographs, but the text is very much more extensive and has been brought up to date (for instance, 30 years ago it was thought that rain could only fall from a cloud with a freezing top, jet streams were unknown, and the cause of condensation trails was a war secret).

The book arrived as we were going to press, so there has been no time to read it right through; but its overriding purpose is to prevent pilots—especially private pilots with light aeroplanes but also other power pilots, glider pilots and balloonists—from getting into trouble due to ignorance of weather phenomena. Interspersed with the main text are short stories by pilots of how they ran into trouble for just such reasons, sometimes leading to a prang and sometimes just escaping one. These stories are each enclosed in a thin-lined rectangle and inserted into the main text

in such a way that you must take your eyes off it in order to read them, and then go back to where you think you left off. Yet it would not do to group all the stories into a separate section of the book, as each one is apropos of the accompanying main text.

It is hard to find any emergency that has not been covered: you are even told how to "ditch" in relation to wind and swell. There is a multi-lingual dictionary of terms at the end, but the Index is inadequate. In conclusion, it is a fascinating book—and how different in style and coverage from the Air Ministry's "Handbook of Aviation Meteorology"!

A. E. SLATER

Britain's Weather: its Workings, Lore and Forecasting. By David Bowen. Published by David and Charles, Newton Abbott. Price in UK, £3.25.

APART from some normal textbook chapters on meteorology, this book specialises in British weather and its influence on British human activities. The author is specially interested in weather cycles in British history: for instance, in the seventh century there was a succession of prolonged severe droughts, and again in the tenth century, while in April 1114 the Thames went almost completely dry. There are many other startling pieces of weather history. Then there are local peculiarities: did you know that "Cambridge in winter is far colder than Lerwick in the Shetlands, and the average winter night temperature in the Orkneys and Shetlands is almost the same as it is along the south coast of England"? But we are at least out of the "Little Ice Age" between 1650 and 1850 with its exceptionally severe winters, several of which are described.

There are many other aspects of applied meteorology in the book—war, for instance: the desperate uncertainty of the weather situation the night before D-Day; and, going back in history to the Wars of the Roses, the fog which caused the Lancastrians to fight each other instead of the Yorkists. However, the author's examples of the effects of weather on life of all kinds, both now and in the past, are far too numerous to mention.

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But the author, for all his erudition, does not seem to have found much time to look at the sky. For instance, his descriptions and photographs of cloud types are correct except for strato-cumulus, an extremely common type which he appears never to have seen, for he illustrates it with a photo of a line of ordinary cumulus along a coast and describes it as "a mixture of stratus and cumulus". This is not quite as bad as the sailor who wrote, in a weather book for seamen, that cirro-cumulus is "a mixture of cirrus and cumulus". (Peter Wickham, on being told about this, remarked that it was like describing butterflies as a mixture of butter and flies.) Then, among his diagrams of the sea breeze by day and the land breeze by night, he shows a night sky containing a crescent moon with its convex side uppermost!

Still, in so far as the book contains the fruits of the author's extensive reading at ground level on applied and historical meteorology, it abounds in fascinating information that is well worth reading.

A. E. SLATER

CORRESPONDENCE

BALLAST CARRIED ON COMPETITION GLIDERS

Dear Editor,

It is becoming increasingly apparent that competition gliders are carrying a great deal more ballast than is permitted by airworthiness requirements. I would like to outline some of the arguments involved.

Since the war there has been no appreciable change in circling and climbing performance, but records have fallen repeatedly because there has been a reduction in drag and an increase in wing loading. The Standard British thermal concept of Irving and Goodhart is excellent, since it is clearly nonsense to consider an aircraft's performance without taking its power supply into account. The weakness of their argument is simply that one cannot centre with less than 50m error so that a 25m increase in circle diameter, such as would result from increased circling speed and wing loading, has no appreciable disadvantage. Therefore, there is no reason why glider weights and wing loadings will not increase very considerably in future.

Currently, about 200lbs of water ballast can be carried but this is often supplemented by 80 or 100lbs of lead carried in or near the cockpit. From the structural viewpoint, the contest glider is stressed from +6 to −3g with a 50% margin for luck, but in the average contest flight the pilot rarely puts on more than 1.5g, so that in theory at least a glider weighing 1,000lbs dry could carry about 5,000lbs of water. The snags would be where to put it, how to launch the glider and how to get rid of it symetrically in a hurry. Tail parachutes take care of the risk when 50-100lbs of lead is carried, but in the case of a prang 100lbs of loose lead in the cockpit can do a lot of damage to the pilot.

I personally think that a 1,000lb glider could carry 500lbs of water with advantage, however several conditions must be met. The tug pilot must know about it and know what the take-off and climb characteristics will be like, the tanks must be properly designed and the whole matter must be official and open. The weight of the glider wet and dry must be painted on the side and the officials at the launch point must have the means to check weights at the take-off point. Furthermore, the jettison characteristics must give 25% voiding in two minutes without appreciable asymetrical loads.

Perhaps these remarks may explain how some aircraft at recent contests were notoriously late to pull off the ground, long after the tugs were airborne in fact. I think this tendency is somewhat detrimental to ordinary club flying, since tugs will need to be more powerful and therefore probably more expensive, also larger sites will be required to launch them; however, if better performance is what you are after, fitting larger water ballast bags is the cheapest way of getting it.

Marlow Common, Bucks.

BRENNIG JAMES

LOW VISIBILITY CONTEST FLYING

Dear Editor,

May I make a small correction to your account of the Lasham Euroglide contest as reported in the last edition, first paragraph on page 359? This concerned day 1, when the problem was not so much soarability but *visibility*.

The Open Class were launched after the thermal snifter had been soaring for over an hour. The launch decision was made when the reported air to ground visibility improved to the value that had been agreed by the organisers before the contest to constitute a safe launch condition. This figure was three nautical miles, not as reported.

I only trouble you with this correction in case other organisers are tempted to launch in conditions worse than the 3ml/6km bracket. One must lay down safe criteria well in advance and not improvise on the day when under all sorts of different pressures.

The particular problem on the day in question was not the steadily increasing visibility before launch—but the fact that after launch it worsened again. This is an occurrence that one just cannot anticipate, because normally if it is soarable the vis tends to get better until thermals finally stop. The general problem of launch safety also concerns cloudbase, and organisers may care to see the following table which has been in use since 1967 to define whether a launch is safe or not:

Height agl of cloudbase or top of blue thermals	Minimum safe air to ground visibility down track for safe launch	Maximum safe launch height
Below 1,800ft	Cloudbase not safe	*NOT SAFE*
2,000ft and increasing	5n/ml (9km)	1,800ft (550m)
2,500ft	4n/ml (7km)	2,000ft (610m)
3,000ft or more	3n/ml (6km)	Any height
3,000ft or more	Under 3n/ml (6km)	*NOT SAFE*

Note: If conditions are near to these limits but a rapid improvement seems unlikely, organisers can delete the start line (to avoid congestion, timing from launch), increase the launch height, declare a pilot selected start and/or shorten the task.

Quarrington, Sleaford, Lincs.

IAN STRACHAN,
(Task Setter, Euroglide 73)

"GLIDING SPANISH STYLE"

Dear Editor,

Being a Spanish glider pilot and a subscriber to S&G, I would like to make some comments on Philip Ogilvie's paper, "Gliding Spanish Style", published in the last issue. Firstly, I cannot see a relationship between the title of the paper and its contents. We have not an unusual style of gliding. We glide like everybody glides. In this respect, like many others, we have nothing "different".

There are 42 civilian private aeroclubs in Spain but only two of them, Madrid-Mora and Barcelona, Sabadell-Igualada, have gliding sections. They are not gliding clubs. There are three State gliding schools, none of them military. They have nothing to do with the Army or Air Force. They depend on the section of Sporting Aviation inside the Civilian Aviation Department of the Air Ministry.

To get the C certificate there costs about ten pounds, and this includes the medical examination, flying, bed and food during four weeks. The travel to and from the school is paid by the State. Courses are run from the beginning of March to the end of November with separate courses for the girls. Other courses are also run during the same months for safety in flight, aerobatics and general training. To call the boys and girls at these schools cadets is an utter mistake and shows a complete lack of knowledge on the subject. The aim of these schools is to foment in the youth an interest in gliding.

Speaking now about "poor safety standards and unacceptable high accident rate", I would like to point out that since 1939 the number of fatal accidents in these three schools in all the above-mentioned activities has been eight. About 200 C certificates are given each year and this means roughly 6,800 in total.

In the same period of time at the two gliding sections, only one fatal accident costing two lives has been registered. It was in Igualada last year and involved a two-seater glider with a German pilot. In our section in Mora, we have only had minor accidents as far as the pilots are concerned. All pilots involved are again flying. We fly all weekends during the year as well as the Easter and Christmas holidays and a month in the summer.

It is surprising that it took Mr Ogilvie six months to get the information about the validation of his British C licence. We have foreign pilots who employed only five minutes to get the printed sheet of paper in which the Spanish regulations are given. Most probably he was asking for this information in the wrong place.

Going on to gliding conditions in Mora, I am sorry to say that thermals of five meters per second are very, very uncommon. The airfield is at 850m/asl and cloudbase in summer is at about 3,000m above the ground. We are very happy climbing at two or three metres per second at the peak of the best days. Thermal strengths of three metres per second in January are unfortunately only in the realm of fantasy. From October on we rely almost entirely upon hill or wave soaring.

Mr Ogilvie's point of view that much of Spain is a semi-desert is extremely interesting, but the most important thing in my opinion is that it adds an unexpected and exciting flavour of adventure to our weekly gliding activities. On Friday, for instance, I may now say to my wife "Tomorrow we shall be crossing the Central Desert between the Madrid and the Mora oases. Please remind me to bring the water carafe and the rifle." Just in case.

Madrid, Spain. J. CARBÓ-NÓVER



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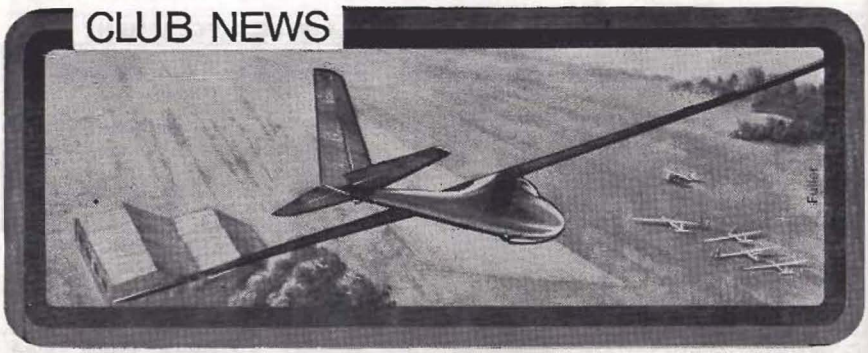
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CLUB NEWS



Copy and photographs for the February/March issue should be sent to the Editor, S&G, 281, Queen Edith's Way, Cambridge CB1 4NH, telephone Cambridge 47725, to arrive not later than December 6.

Copy and photographs for the April/May issue should be sent to the Editor to arrive not later than February 14.

October 17, 1973.

GILLIAN BRYCE-SMITH

ANGUS

THE good soaring conditions we had in the spring, and which promised a good season, have deserted us. Although we have had occasional good days, there has been a lot of unsuitable weather. Our last good weekend was in April, when Les Joiner flew his K-6E from Arbroath, north of the River Tay estuary, to Aboyne, Deeside, and Bob Kerr made the flight in the opposite direction in his Dart. Perhaps only 35 miles as the crow flies, but with high, inhospitable hills to be flown over.

Graham Smith, our CFI since the formation of the club in 1970, has resigned and Les Joiner succeeds him. Graham took on the job to help the club get started and we are very much in his debt.

With Alex Watt taking up a post abroad and Gordon Neill qualifying as an instructor, our instructor position remains the same. Margaret Neill, Gordon's wife, is our first lady member to complete her Bronze C.

The winch engine, which has been making horrible noises for some time, packed up at last. Bill Buchan, our hard-working engineer, put in a first-class engine from a lorry. Bill, with a gang of club members, did a power of work to finish the job within a week.

J.S.

BLACKPOOL & FYLDE

SIX months of flying on our new site have taught us much about it, and put the first difficult conversion period behind us, at least for the majority of our pilots. The ridges have, on the whole, worked better than we had hoped, giving a gratifying number of five hour legs despite a very poor thermal season, which coupled with a generally low cloudbase, has foiled many aspiring cross-country pilots.

John Olssen prevented the year going for a duck however, with a very fine four hour scratch in his Oly 2B which delivered him happily at Ripley for his Silver distance.

Wave has been nibbled at several times, and one evening during the holiday flying fortnight it really made its presence known. From 18.30 until dark it was possible to contact direct from an 800ft winch launch and three aircraft got into the 6-7,000ft bracket.

One of our more successful Swallow pilots was heard to mutter the next morning "I'm not checked out for the ridge so I suppose I'll have to do my second Bronze leg in wave too!"

Site development still progresses, the copse is level, the clubhouse roof is being re-slated, a licence is expected daily, and our hangar should soon have its doors hung, all very satisfying; and our train-

ing programme was enough of a success to allow us to open the doors to some, if not all, of the sky-hungry on our waiting list.

An Army youth team visited us in August and brought such a startling improvement in the launch rate that some members are feeling distinctly guilty. It's wonderful, a duty pilot tells me, what you can do when people *obey!*

We have been a little worried of late by the attentions of some low flying and distinctly inquisitive Jet Provosts since our site appeared on the maps, but this we hope will be cleared up in the near future.

Plans are now afoot for another new winch and a new two-seater to replace our beloved Blanik, whose lack of brakes is causing the Boss some worry.

It is interesting to note that despite a poor thermal year, hours for the six months exceed the 1971/72 yearly total.

D.W.S.

CAMBRIDGE UNIVERSITY

AFTER a summer with plenty of cross-country soaring and gains of Diamond, Gold and Silver legs, a large crowd came to Duxford on October 14 to see a comprehensive display of military aircraft including a Lancaster, Spitfire and Hurricane. Harry Boal, Andrew Hulme, and David Evans put on an excellent display of aerobatics in their respective gliders, which immediately prompted several membership inquiries.

Congratulations to Paul Sears for flying the syndicate Dart 17R to third position in the Western Regionals. He was the most successful of six Cambridge pilots who flew in Regionals for the first time this year.

Now that we have a Super Cub and a Citabria for aerotowing we rarely have to wait long for a launch—in fact we were able to lend the Super Cub to the Deeside club in October when our soaring season was virtually over.

P.A.K.

CORNISH

UNSTABLE north-westerlies have brought several good ridge/thermal days, and some late evening convection has been experienced. Janet Janson climbed to 5,200ft over Truro in September, completing her Silver C, gaining all three legs within three months, and only six months after giving birth to Mark. The Pilatus has started its badge trail, Ian Sincock flying duration and height entirely in thermal, being quite unusual at our sea breeze plagued ridge site. The Swallow has clocked up another five hours, this time in the hands of Stuart Keogh. Carl Knight has just taken delivery of his Cirrus, now making the combined club and private owner fleet up to 11 machines.

We hope to have two tugs on site soon, our own Airdale due back after a long C of A, and a syndicate Airdale as well. Our membership has increased and now the summer courses are over, more midweek club flying is being done. Our CFI has organised a complex winter training programme, including flying from our satelite fields. Film evenings organised by our house committee are proving very popular, and its hoped to refurbish our main clubroom this winter. Contingency plans are being formulated to cope with the rush of visiting pilots, if and when the much publicised nudist camp comes to the beach.

P.H.

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COTSWOLD

WE suppose that most clubs must feel like us that the season has treated us pretty well, but what a pity there were so many inversions, so much industrial haze and so many days of plain grot.

The three club K-7s have been grinding away each weekend with great success and 14 *ab initios* went solo during the year, three as near as possible to their 16th birthdays. Would-be pundits also did their stuff and four Bronze Cs and ten Silver Cs were completed, apart from innumerable Bronze and Silver C legs and one Diamond leg. Indeed, the number of Silver Cs gained exceeded those held within the club at the start of the season.

The club Skylark and K-6E have figured prominently in these results although the number of syndicate aircraft is growing steadily. Next year should see a Kestrel flying from the site whilst several other syndicates are known to be looking at new metal.

Our second diesel tow car is now complete and we hope will help ensure maximum launch capability next year, whilst the new pulley and cable winding vehicle has been a great success for most of the season. Our next new project for the season ahead is likely to be a new clubhouse.

There have been two club expeditions to Shobden so far with more to come and, of course, the annual pilgrimage to Portmoak has taken place. Many are the stories of wave that got away (and some that didn't).

Now a new year lies ahead. It will be interesting to see how much Gold all these Silver pundits can collect.

J.D.H.

COVENTRY

A MODERATE season ended on a very tragic note with the sad death of one of our instructors, Mike Dawson, and one of his young sons in an aeroplane accident whilst towing. All heartfelt sympathies go out to Anne and family. Mike's cheerfulness and enthusiasm will be sorely missed.

A club competition was again held at the Bank Holiday; with typical Bank Holiday weather. Only one out of the three days was flyable and short tasks were set for two classes. The T-21 again beat all and sundry in the "vintage" class, landing about three miles from the goal at RAF Gaydon. Our CFI, Claude Woodhouse, completed the set triangle and won on handicap the "hot ship" class.

Mike Costin managed to gain his Diamond height, climbing to 21,615ft over Dishforth at the beginning of September. However, much to his great disappointment, the barograph had somehow stuck, and all traces had very long flat tops to them. Not to be beaten, Mike gained over 21,000ft in a massive cu-nim over Husbands Bosworth a couple of weeks later, this time with a serviceable barograph. The new tandem motor glider has arrived, bravely flown all the way from Germany by our CFI.

V.M.G.

DERBYSHIRE & LANCASHIRE

BACK to winter again after a much better summer. We have done more cross-country flying than for some years, with several members leaving the nest for the first time. Some of the more experienced members have represented us in various Regionals and 1974 should produce new names near the top of our club ladder.

Our summer courses were again fully booked and enjoyed under the hand of our course instructor Dave Millett. One or two members applied for full club membership.

The Swallow, which has served us faithfully for a number of years, is up for sale and taken out of the training programme. To preserve its good condition, only pundits are now allowed to fly it. One member has spent two years trying to get on to a better performer. Having at last graduated to K-8's, he finds he hasn't sufficient qualifications to get back!

Following an enjoyable trip to Deeside at Easter, another party went at the beginning of October. Flying was uneventful as only one day of circuits was possible, following two days on the ground, spent looking at the most fantastic wave to be seen for some time. On those two days the tug wasn't available!

Peter Boneham and his trailer parted company on the journey when his tow-

bar sheared. His trailer demolished a garden wall and the back of his Rolls Royce. Fortunately his K-13 was only slightly damaged and was still flyable on arrival at Aboyne. He managed an hour on the only flying day and regards it as a very expensive flight.

P.H.

DEVON & SOMERSET

ALTHOUGH the weather has been none too good this summer, we have continued flying as much as possible. Several did their first solos and a number have managed to gain legs or complete certificates. Contact has been maintained with other clubs by groups or individuals visiting for a day or even a week. We too have had visitors, their gliders ranging from an immaculate Sky to a Pirat.

An encouraging feature of the courses which were run through the summer was the number of young pilots taking part and showing great enthusiasm.

Thanks must go to club members Jim Tancock for organising a very successful barbecue, and Sid Dymond for providing a sheep for roasting.

J.A.H.

DONCASTER

THIS season has seen a few changes. There was the arrival of the club M-100s which has complemented the Oly 460 in providing high performance machines for club pilots. It has been cross-country several times giving Eric Collingham his Silver distance and John Ellis half a Gold distance. It has also been the first season for the Libelle, Sky and Regal Eagle, all based at the club. Each has proved very successful in its way.

The Rhönbussard, now in its new livery, and the Skylark I are both flying cross-country and keeping up well with the younger aircraft. Meanwhile, the two club Swallows have brought up a new generation of Bronzes, comprising Bob Issatt, Eric Leroy, Malcolm Ogley and Mike Prendergast.

Special congratulations are due to John Clark who has risen from A and B at the beginning of the year to Silver C with Gold height.

Bernard Thomas, our first CFI, is the guest speaker at our annual dinner-dance on Saturday, October 20.

G.D.W.

DORSET

TWELVE gliders took part in this year's August task week organised by Harry Wolf. Although conditions were never easy, competition was keen and the outcome in doubt up to the last day. Task setting was shared amongst the five best-qualified volunteers but conditions did not offer a lot of scope. Skill was both needed and exercised in this direction, as in the flying. We were again joined by a visiting team from Booker and another from Dunstable, whilst Derek Murray brought his family and this year a Grunau from Peterborough.

Anthony Beckton and Ray Bowden emerged as top scorers at the end of the day with 204pts, flying their Pirat with skill and determination. Tony Brett, Fred Dunmore and Julia Cave came second in their Olympia 2B with 191pts; Robin May and Winsor Lewis achieved third place in their Olympia 2B with 155pts.

Straw fires provided much of the excitement of the week but a flaming pig made the disastrous finale. Our barbecue supper was so much overdone that it needed the local fire brigade to put it out. Luckily the mishap caused no serious damage (unless to the cooks' pride) and we finished laughing, hungrily. This incident was missed by our chairman, Ray Witheridge, who was being retrieved from a Silver distance flight to Radstock. Thanks are due to John and Grace Adams and Norah Nelson for maintaining a canteen service in our coach, to the Swallow pilots' Jim Wadell, John Howard & Co who kept the autotowing going and to Tony Bessant with the Auster. Task weeks are hard work for some, but great fun for many.

M.L.B.

ESSEX

WITH another season at its end we can again report yet more success than previous years. Our launch rate has exceeded last year's figure by almost ten per cent. This is quite an achievement considering most were soaring flights with aircraft remaining aloft for long periods.

Hours flown have also increased, but then we have had a good summer and cross-country kilometres in excess of 6,500 means a new record for our club.

Even so we have not managed a Gold distance but we have gained several Gold heights, the most notable being Steve Mackay's Gold wave climb in "Blacko" (92), the vintage black Oly 2B.

In the Western Regionals, Mike Throssell and Martin Southwood made second place with their SHK (336). Our task weekend during August was a great success with Skylark 4 (343) overall winner. One of the tasks became very interesting—an out-and-return to Whatfield, home of Essex and Suffolk Club. Unknown to us they had set a task to North Weald. Half-way up we met them half-way down — quite a Hoffnung situation.

Our social scene was highlighted by a Thames Riverboat Shuffle. A hundred club members and friends cruised up the Thames whilst wining and dancing during what must have been the finest evening of the summer. This event turned out to be our clubhouse manager's swan song. He has now handed over the job to two other club members.

With the winter upon us, the time for maintenance and repairs arrives and with enthusiasm the club stalwarts set to to get everything ready for next year and the arrival of the "daffodil pilots"—Yes, our club has these too!

P.F.M.

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OUR first attempt at a task weekend, held over the August Bank Holiday was a total success. On the Saturday the target for the day was North Weald when three Silver C distances were achieved, two of them returning by aerotow to Whatfield in the fast gathering gloom. The day was won by our chairman, Mike Lee, with an out-and-return; and was rounded off by a tasty barbecue. On the second day, the set task was Duxford; nett result three Silver C distances, two Bronze hour legs and an out-and-return by B. Bousefield who won the day.

Monday produced no soaring conditions, but two first solos were produced out of the hat. In the past we haven't been very cross-country minded, and retrieves were rare; but a little competitive spirit gave those tottering on the brink that final push to send them away from home with excellent results.

At the end of August with five months of our year elapsed, we had passed the hours total and number of launches completed during the whole of the previous year. This is a reflection of growing membership, more soaring days and the use of our second tug. We now also have a Lycoming Auster based at Whatfield for use in emergency.

Our CFI has been seen running around lately with oxygen bottles and with a glazed look in his eyes. No doubt visions of nugget laden lenticulars. He is taking the lucky few on the club expedition to that height Mecca over the border—Aboyne. We wish them every success.

C.C.S.

HIGHLAND

THIS has been a quiet two months. We welcomed our T-21 back from its enforced visit to Yorkshire; once again it is proving its worth on the training circuit, and we have another new solo pilot, Alisdair Macrae.

Several of our own and Fulmar Club members spent a week at Aboyne recently, taking the Tait's Olympia 2 and

the RAF's K-6CR. The Highland members did not distinguish themselves in the Deeside wave, but Fulmar shared in the glories of the Gold and Diamond studded Monday and Tuesday when John Burn achieved his five hours and Ed Handley his Silver distance. Jeff Howlett reached Gold height but, unfortunately, had a faulty barograph. We were all impressed with an organisation that handled 28 gliders on a small strip without mishap and look forward to returning to such a friendly spot.

R.E.T.

INKPEN

ONCE again our congratulations go to Ralph Jones and Nimbus 82 for rounding off a tremendous season by winning the Open Class Nationals and *Daily Telegraph* Euroglide Competition. A great performance by a great combination.

During September, Peter Gant flew his Cirrus to Nympsfield to claim Silver distance, John Franklow (SHK) completed a five hour thermalling flight for his Silver duration, and Ray Hursthouse (club B-4) gained his Silver height. The last Saturday of the month was our most successful day when "Bas" Dixon (Skylark 3), John Thorne (SHK), Derek Phillips (Std Libelle), and Peter Gant (Std Cirrus) all completed Silver duration flights when the ridge worked well in a strong northerly wind.

On September 15, we were pleased to welcome members of the Swindon and Keevil clubs to our barbeque. Without doubt, the social event of the year was our recent showing of the American film, "The Sunship Game". About 150 people attended including a fair sized contingent from Nympsfield, Swindon and Keevil.

M.Y.

LINCOLNSHIRE

OUR Bocian has been put to good use since its arrival in April. During the summer we have introduced several groups of people to gliding via the Sports Council one-day courses, several taking up gliding as a result.

The soaring season has been below average this year—we only fly weekends, so have seen all the good days go by during the week. The 300km list in the last two copies of S&G will verify this.

The Weihe and Oly 2 visited Aboyne during September and although several climbs to 6,000ft were made, the real wave seemed to be in hiding.

Our air display, held in excellent June weather, was a great success, and our treasurer is smiling again!

Jim Aitken has recently returned from his course to join our instructors' rota.

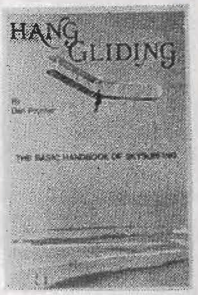
J.R.S.

LONDON

AFTER the fine performance of John Jeffries in the Nationals, there has been no flying news of consequence from the Dunstable area. However, John has recently turned the clock back somewhat and flown once again in the Scud II. This sole survivor from the early thirties has been reconditioned, and must be the oldest vintage glider now operating in England.

Aerotowing has been our primary means of launching this summer, exceeding winch launches by a substantial margin. The plan is to phase out the latter, but not until we have reliable and quiet tugs. The Minerva has proved to be too noisy for the locals, so a

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second Commodore seems to be the best compromise until something else is available. The Condor and a private Cub are supplementing the club fleet.

Geoff Naylor has finally left the area, taking up a new instructing job in Northumberland. In the meantime, Peter Vearie, who has been resident tug pilot for the summer, remains with us for a while as chief tug pilot.

With 1974 on the horizon, we can hope for a somewhat better soaring season than this year. However, the airspace problem remains particularly worrying. Further restrictions seem inevitable, but these may well be the last major change for some years to come.

M.P.G.

MIDLAND

NOT the best of years from the soaring point of view, and the worst year for a long time for "incidents" to the club fleet. We are grateful to the Bert Penfold syndicate for allowing us the use of their 2B after the most recent crunch.

Distances this season nevertheless included a 323km triangle (Mynd, Llandovery, Cirencester) by John Brenner, which he followed with a 201km triangle the next day, and a Gold distance for Don Brown—not quite the declared Mynd, Silverstone, Hereford triangle, but enough.

Chris Ellis flew Oly 460 no. 18 to Nympsfield for Silver distance, and then Graham Courtney used it for a 105km triangle. Trevor Nicholls, anchor-man of the Skylark 3 syndicate, used that hard-worked aircraft to get Silver duration and height in the same flight.

Autumn has brought several enjoyable bungee days at weekends — and also our long-awaited and much discussed (". . . you can't fly gas-stoves . . .") new kitchen. As soon as planning permission was received, Louis Rotter and his men were on the hill and they had the shell up in a very few days.

First of the winter parties was a lively "zider zupper" at the end of October, and December 16 is earmarked for the Christmas lunch.

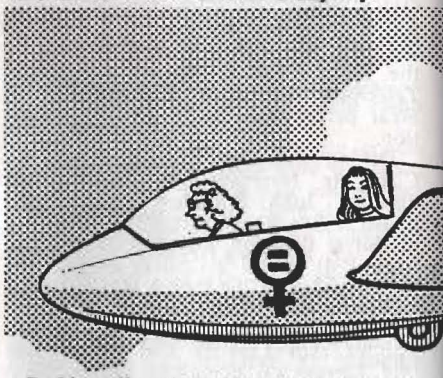
W.J.T.

NORFOLK

GALES and torrential rain made Sunday, September 30, the worst day of 1973. And that was when we chose to hold an open day at Tibenham. Fortunately we had insured for bad weather cancellation and so avoided a total disaster.

We have recently acquired the generator that used to supply the power for Ipswich Town Football Club's floodlights and we have also bought a very efficient gas-heater—all we want now is a new clubhouse in which to install them.

Our youngest pilot succeeded in completing the Bronze by her 18th birthday, so qualifying for the Whitbread award. She then discovered that the deadline was the 19th and not the 18th birthday, but was finally disappointed to learn that the fund was exhausted anyway.



Incidentally, the oldest and youngest pilots of our club are both females—67 year-old Doc Souper and 18 year-old Lynda Hall.

C.E.H.

NORTHUMBRIA

THIS year has not been too good so far in one or two respects. Heavy expenditure on the tug has not been recovered yet because of poor weather and a long grounding caused by the non-availability of a prop following damage to the existing one. The T-21 was a total loss following an unfortunate first solo accident (from which the pilot escaped shaken but otherwise unhurt). However, many good flights have been made during the summer and we are hoping for a kind winter with plenty of wave to enable most of us to catch up with lost flying time.

Following the resignation of Alan Brown, Jeff Naylor had a couple of months or so as our full-time instructor

and we are all hoping to see him back with us next year when our holiday courses start again. By that time our fleet will be in first-class order.

G.D.R.

OUSE

AS envisaged in the BGA's plans for the development of gliding sites, the village of Rufforth has been allocated an area for sports on Rufforth airfield.

To mark our pleasure with this development, we challenged the village to a game of cricket and later—undaunted by the result of the cricket match—to a game of football. After both games members discovered aching muscles which they do not usually use pushing gliders around. We are now considering less exhaustive ways in which to socialise with the new users of RAF Rufforth.

After a poor summer soaring-wise, we have at least been able to improve operationally. During the year ending July, we did over 6,200 on-site launches and nearly 1,000hrs. This was a 38% and 51% improvement respectively on the previous year.

Since the day when one of HM Inspectors indignantly hacked her way out of a clump of brambles, we have known that something must be done about the loos. Much has been done—usually under the cover of darkness—by senior members of the committee, and people are cagey of taking over these offices. At last planning permission has been received for the construction of the real thing, and the brambles will bloom again.

E.R./G.M.

OXFORD

DURING the summer the clubhouse and workshop have been undergoing major repair under the supervision of Bob Collison, who has also done much of the work. It was necessary to remove the cracked rendering and strengthen the crumbly brickwork. The inside of the workshop has also been painted.

On the weekend of September 29 we were visited by aircraft from Booker. Unfortunately the weather did not allow the promised task weekend, but a barbecue was held on the Saturday evening which was a great success. People cooking their steaks and sausages on charcoal fires in the wind and rain, apparently enjoying themselves.

Weekend weather in general has produced unreliable soaring conditions and this has meant no long flights flown this year. Peter Forrest flew the Skylark 2 to Lasham for his Silver C distance, the only person to qualify for this leg this year. Richard Hall was five miles short on this first attempt. First solos have been flown by Steven Emmett, Sue Watkinson, Dick Cartmel, Ray Huntley, Paul Bailey and Martin Smith.

I would like to take this opportunity to thank the Chilterns RAFGSA for their wonderful hospitality during our visit to Abingdon in May.

J.R.

SCOTTISH GLIDING UNION

AS the clubs further south enter their quiet period and lay-up many of their gliders, we in the north start another very busy season. As soon as the summer holiday courses finished at the end of September, the 'Lasham invasion' was on us again.

Lasham very kindly brought with them a Super Cub as both our tugs were out of action. As always the wave performed as soon as the Lashamites arrived, a height of over 21,000ft being gained the first weekend. Since then the wave has worked intermittently, but several people have gained their Gold C heights, as will no doubt appear in the records section. There have also been some good thermal days this October, but suggest that a thermal day is a good day to a Lashamite and you are met by a look of scorn.

Twenty-one holiday courses were held between April and September and 156 places were taken on these courses. Most of this flying was done in T-21s launched by winch, which we find the most successful and enjoyable way to run these courses.

During July the SGU took possession of a brand new Pirat, which some weeks later developed a pulley failure in the control lines to the rudder, which resulted in being unable to control the rudder. As this happened when the aircraft was at 600ft, it was a very noble effort on the part of the pilot to get the aircraft on to the ground without damage.



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Pilot's comment, "the field picked me rather than me picking the field". The manufacturers have been extremely slow to remedy this defect, but the club has enough confidence in the type of machine to have ordered another one since the incident.

K.E.B.

SOUTHDOWN

THE end of August saw Steve Chowen solo and Mark Eastell convert to the Swallow. At the beginning of September Ian Walton went solo and converted to the Swallow on the September course.

The solo course was disappointing, not really soaring weather; however, the following week's course was much better. The seven members who took three gliders to Portmoak in search of wave would have done better at home. Gordon Newberry and Colin Hitchman returned early and had some good soaring flights at Firle on the Friday. We congratulate Gordon on obtaining his full rating and Colin, who earlier in the year converted to the 463 and got his Silver duration.

The course for eight pupil pilots in September was very good, both for flying and company, but hard work for the instructor. Jack Shepherd converted to the 463 on its return from Portmoak and Gerald Green went solo on the course.

After rather more than two years plodding away, the writer has managed to solo or, "gone orff" to quote a friend! This is a decided relief for my husband who has been on the receiving end of "the iniquitous system which existed solely to prevent his wife doing just that!"

S.E.

SURREY & HANTS

IT'S difficult to return to sane club circuits after a splendid fortnight of top class flying. No K-8 pilots have actually been seen emulating the likes of Ralph Jones on final glides, but some of the grass-shaving exploits of Euroglide make for infinitely more interesting bar chat than the little winter huddles at the ends of the runways.

Portmoak has taken its normal toll of the bodies that frequent Lasham in the winter months. Our expedition of four weeks this year got off to a good start

with Alan Purnell reaching 23,200ft on the first day and, incidentally, having a final lunge at the club ladder with that flight (September 29!). Other unmentionables such as W...y*K..n didn't have their barographs switched on, did they...?

C.L.

USK

THE Rallye Commodore 180 tug continues to extend gliding opportunities at Usk, particularly contacting wave. Many members have recently made their first wave flights and on September 2 first timers included John Barry and Malcolm Uphill, while chairman Norman Evans became the 20th club member to exceed 10,000ft in wave. On this occasion slot closure in the afternoon left Malcolm Uphill a 3,000ft cloud descent—another personal first.

Earlier in the year Steve Thomas had disdained tug use to show it can be done with winching by stair-stepping from hill, through thermal, to wave lift for a Gold height. One highlight reminding us of the now waning thermal activity was Lyn Ballard's best wooden glider performance cup from the Dorset regionals.

Club training for the week of September 14 achieved 110 training flights under Eric Fitzgerald's instructorship, and now we are looking forward to the October 15 wave week organised by Ivor Shattock, which has several pieces of exotic flying machinery booked in.

The clubhouse now has a licensed bar, and from the newly fitted kitchen weekend evening meals are becoming available by courtesy of the club ladies.

Obituary

In a tragic gliding accident on Saturday September 8 near the airfield, the club lost one of its keenest members—Nikolai (Nick) Dembizki.

Nick settled in the U.K. in 1948 and joined the club in September 1970. He was always a willing and cheerful worker in all club endeavours and it was thanks to him that the clubhouse interior advanced so rapidly. Having gone solo in June 1972, Nick obviously enjoyed his gliding and was a regular flyer.

All club members join with Nick's many friends at Raglan in extending the deepest sympathy to his wife Eileen.

B.J.E.

VINTAGE

THE Vintage Gliding Club has now over 50 members in Britain, Switzerland and Germany. In the few months that it has been in existence nearly all the vintage gliders that it knows about in Britain are either being restored or are airworthy. Recently a second 1938 Petrel has been brought back from Eire by M. Russel for restoration.

A 1935 Scud 3, which is being rebuilt by M. Garnett should, it is hoped, fly next year while another Scud 3 is being worked on near Dunstable.

The last 1932 Scud 2 has finally returned to Dunstable, after restoration, and has flown. Thus, an unparallelled number of old gliders should be flying again over Britain next summer.

The club has also started a library of three-view drawings of old gliders and photographs taken of them before and after the war. Photocopies of the drawings and prints of the photographs will be available to members at a small cost. In the library are also unique books and documents. These unfortunately cannot be lent out but photocopies of material can be made if required. It is hoped to collect working drawings for the construction of old gliders. So far, the library has already a set of drawing prints for a Kranich.

A movement to restore old gliders has also been started in Germany where, next year, at least a Minimoa, Rhönbussard, Meises and Grunaus will be flying.

C.W.

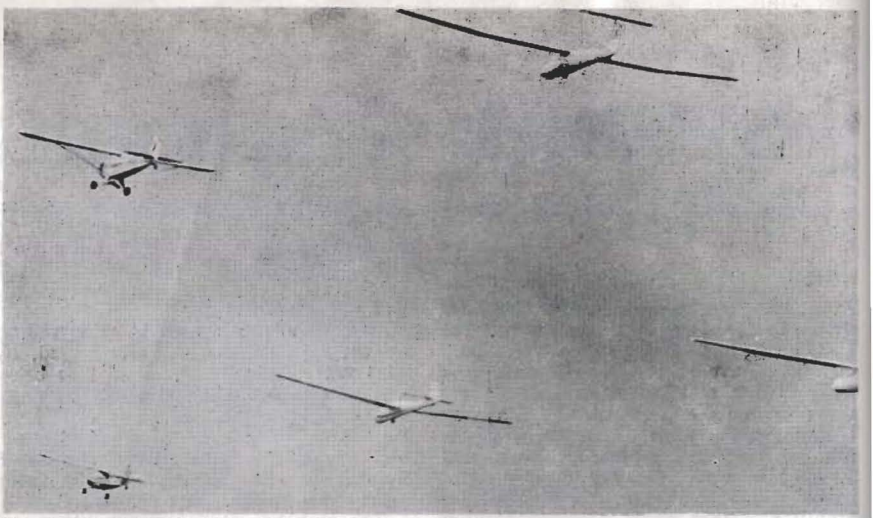
WOLDS

WE have almost completed the negotiations for the lease of our new hangar and its construction is well under way. As well as more space, this will provide us with greatly improved access to our runways and enhance efficiency.

July and August have seen first solos by Chris Dale and Nev Dixon, and several Bronze legs. John Durman flew to Staintondale for a Silver distance and on August 1 Dick Dixon took the Skylark past Sutton Bank to Ingleby Arncliffe to complete his Silver C with a height and distance.

A K-6CR has been purchased by a syndicate of club members and this joins our own fleet which is comprised of two K-7s and a Skylark 2.

R.H.D.



The Bocian, Pirat and Pilatus being towed by a Super Cub and Citabria at the start of an aerobatic programme at Wycombe Air Park's annual air display *Photo:Michael Erdman*

WYCOMBE AIR PARK

OUR annual air display on September 29 was opened in fabulous style by Concorde, flown by Brian Trubshaw. Concorde stayed for about eight minutes, making several low runs over the airfield to the delight of the large crowd who turned out for the event.

Three of our gliders, a Pilatus, a Bocian and a Pirat, piloted by Dennis Neville, Chris Rollings and Vic Minot gave a literally breathtaking aerobatics display, during the only bout of rain we saw all day.

Club gliding continued over that weekend at Weston-on-the-Green, and we would like to thank our hosts at Oxford Gliding Club for making this possible.

The soaring season was ended in style with the third Thames Valley Gliding Club dinner and dance with John Ellis, of Airspace Committee fame as the guest of honour.

J.M.C.W.

YORKSHIRE

THERE has been little cross-country flying since the Northerns, and the weekend weather during the latter part of the summer was suitable for little else other than gentle circuits in the Tutor (that delightful machine coveted by no less than 20 syndicate members). The exception was the weekend of September 1, when six Gold heights were recorded and the air was alive with excited voices.

The westerlies have returned to coincide with an extended visit by members of the Four Counties Aero Club, so we hope their intrepid wave-seekers will meet with success.

The private owner fleet is expanding, latest additions being a beautiful SHK and an ASW-15.

Anyone wishing to spend a week or a fortnight here on a course would be advised to book early for next season as we had a record demand for places this year.

Finally, congratulations to our youngest lady pilot, Fiona Gregson, who has soloed on her 16th birthday.

S.V.G.

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SERVICE NEWS

BANNERDOWN (RAF Colerne)

CONTRARY to popular belief, we are still alive and gliding at Colerne. The fleet has increased with the arrival of three privately owned aircraft — Roy Gaunt and Co, Libelle, Tom Bobbin's SHK and "Yorky" Kitchener, a Blanik. Fred Porton is still busy refurbishing his T-31.

After successfully completing their Silver C earlier in the season, "Tank" Brittain and Trev Alsopp were despatched to Bicester for two weeks, returning with shiny instructors' tickets. Andy Hancock has done very well, solo to Silver C in under four months without four engines.

At the Inter-Services we were represented by Messrs. Elsom, Hartley and Williams, Ken Hartley being placed third in the Club class. Mick Elsom, having his usual trouble with navigation, is thinking of a moving map display at the moment.

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We have had several solos during the season including Geoff Bull, our local farmer, and Paul Coombes, our local Bobby. Plans have started for another expedition to Shobdon in the New Year and there are tentative arrangements for trips further afield. Socially, the club is doing well, with many parties planned for the winter.

We weclome Al Mahoney back from Germany, who quickly became MT member.

P.B.C.

CHILTERNS (Weston-on-the-Green)

THE summer season has not provided all that we expected. As usual, all the good weather seemed to have been mid-week. A few short closed circuit tasks have been accomplished but no 300km or 500km. However, two Diamond heights and one Gold height were gained at Aboyne earlier in the year.

A new syndicate has formed. Their Libelle is due for delivery in December, and the fleet will then consist of K-4, K-8, K-6E, K-13, Cobra, Kestrel 19 and Libelle.

The Kestrel has proved a favourite amongst the pundits, who say it's quite delightful to fly, although the number of levers is quite awe-inspiring at first sight. All we need is the weather.

At the time of writing, the club is at Aboyne. The first two days saw the best wave conditions for years—but the tug was u/s! Still, with two weeks to go, perhaps something will be achieved.

A barbecue was held at Weston in September and well attended by members and visitors from Oxford and Booker. The bar is now in full operation thanks to work by club members and in particular the CFI, Jock Manson.

Latest news from Aboyne, club members achieved five Golds and two Diamonds in two days. The Diamonds went to Malc Norris and Bob Lloyd.

G.M.

CRUSADERS (Cyprus)

AT the time of writing, winter is just beginning to arrive, with the first few showers coming down from the mountains to the coasts, and everything is just beginning to grow again after the long, dry summer. With the cooler, wetter weather also comes the clouds,

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IRVIN

and at long last the classic gliding skies can be seen.

The club has finally seen the arrival of the Blanik, after an adventurous retrieve from the factory in Czechoslovakia. It has taken its place comfortably in the club fleet after a series of test flights by the pundits, including a test on its usefulness in landing in Cyprus fields on its second flying day. Having the Blanik has also taken a load off the K-13, which is still one of the most popular gliders in the club, looking even more delightful in its new colour scheme.

After months of diligent planning the club's expedition to Nakuru in Kenya has had to be shelved, due to last-minute Service commitments. Fortunately, due to the information that has been gathered, it should not be too difficult to reorganise a similar expedition at some future date. Also looking into the future we can see the delivery in December of the motor glider which in the long term will take over nearly all of the *ab-initio* training. This will also be about the same time that the Crusaders Gliding Club will become part of the Adventure Training Centre here in Cyprus, with gliding available mid-week throughout the year, as well as at weekends.

The club welcomes Des Smart, who has recently arrived in Cyprus for his second tour, and has just re-soloed, and also well done to Brian Ward on his recent A and B. Flights of any achievement during the past couple of months have been a bit thin on the ground except perhaps for Pete Bowden's Silver height and John Osborne's Gold height climb to 12,300ft in the OLY 401. John has also at long last completed his Silver badge with a 57km flight along the "Pan Handle" of Cyprus in the Oly 2B.

During the Christmas-New Year period the club is going to lose three of perhaps its hardest working members. Firstly, Phil Allen, who has been aircraft member for the past 2½yrs, and progressed from *ab-initio* to full cat instructor. Secondly, we have Stu Dallimore, ground equipment member for 18 months who, single handed, has kept both winches, tractor and Landrover running almost faultlessly.

Last, but by no means least, we are saying goodbye to our CFI of the last three years, Len Barnes. During these years he has carried out an unenviable task well, sometimes under very trying conditions. One of his major achievements was to bring about aerotowing here in Cyprus for the first time. It was only after many months of boardroom battles with flying clubs in Nicosia that it became possible at rates everyone could afford. He also undertook three major glider repairs during his tour, and his skill in this direction will be sadly missed, along with his BGA inspector's ticket. Lots of luck to you all in UK.

J.R.O.

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EAST MIDLANDS (RAF Swinderby)

SINCE we last appeared in print there have been some changes to our organisation. Our chairman, Gp. Capt. J. E. Kilduff, who was an active member, has left, and we wish him every success in his new appointment. He is replaced by Gp. Capt. D. W. Groocock, and we wish him a happy tour.



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Rick Heselwood has replaced Roger Staines as deputy CFI and Dave Robinson replaces Al Fordham as secretary. However, the committee isn't the only part of the club to be hit by the whims of MoD Records Office. Gordon Parkin and Ray Gilbert leave for Germany and we shall all miss them. Good luck to them both.

This has not been a good summer for us as almost all of our steady members have spent a good slice of the soaring season away. As we all return for our winter convalescence, we expect to push our launch rate higher.

On the last day of September we rejoiced in the knowledge that we had equalled the 1972 total number of launches and exceeded its hours by a very healthy margin.

A.H.

FENLAND

IT appears that Two Rivers, The Wrekin, Eagle, Four Counties and all the other Service gliding clubs have closed down, if the lack of club news in the last edition is anything to go by. I for one would like to know what is happening to my old mates in the gliding world, and I am sure many others feel the same. So how about you club secretaries or other literary members doing your bit for the enlightenment of others? Fenland has been an offender as well, but we hope for the last time.

Colin Elliot has handed over as CFI to Jim Pignot, and the club would like to record their extreme thanks to Colin for the devotion and hard work he has put in over the past years. To Jim we wish the best of luck in his new post.

Andy Miller and Liz married in October and spent their honeymoon in Aboyne together with an escort of half a dozen members of the club. The traditional boots and tin cans were replaced needless to say by a glider fully equipped with oxygen, etc.

Our fleet now consists of a T-21, K-13, K-8, Prefect, SF-26, K-6E and a syndicate Oly 2B. The Prefect and SF-26 are off line at the moment, the SF-26 with quite a serious problem of worn pins. If any body can offer any free advice on how to change them I am sure it would be welcome.

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Hours and launches are well up, but cross-country kilometres are few, mainly because we were without our K-6 for the summer because of a landing accident.

Dave Wood has recently arrived to join our ever-growing band of instructors. All we need now are a few more pupils.

Fenland is always willing for other Service pilots to fly from our site. Accommodation is available for male visitors at the weekend. However, we have to de-rig our gliders due to lack of hangar space, and any visiting gliders would have to be kept in their trailers outside.

D.W.

WREKIN (RAF Cosford)

ONCE again the "overhaul everything" time is upon us, that is if it is ever off, but after a good season there is plenty to be done.

"Tug" Wilson is hard at work instructing and we hope Mike Osborne will soon be helping him for at the time of writing he is undergoing the Andy Gough treatment at Bicester.

With our committee busy searching for a new tug to replace "the best looking Auster in the business," our hope is for a Beagle Airedale.

The longest day of the year went off with 129 winch launches and flying time of 13¾hrs. The first five hours of the season on our ridge was made by Keith Mitchell in his Skylark, completing his Silver C.

We will be sorry to say farewell to our friends in Flying Support, now the sector is closing. In offering them our thanks for their help in the past, we wish them well in the future.

K.M.R.

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INDEX TO ADVERTISERS

Beaumont Aviation Literature	432
Bowker Air Services Ltd	435
Bristol & Gloucestershire Gliding Club	482
British Gliding Association	448, 449
Chiltern Sailplanes Ltd	476
Classifieds	462-465
Cobb Slater Instrument Co Ltd	435
Coventry Gliding Club	465
Cornish Gliding & Flying Club	484
Critchley-Hughes & Co	463
Crossfell Variometers	463
Crystal Engineering Ltd	461, 480
Daltrade Ltd	416
Deeside Gliding Club(Aberdeenshire) Ltd	482
Devonshire Soaring Club	482
DGC Aviation Services Ltd	458
Doncaster Sailplane Services	478
Gliderwork	463
Hang Gliding	471
J. Hardy Instruments Ltd	453
J. A. Harrison (Brokers) Ltd	470
John Hulme	467
Irvin Great Britain Ltd	478
Kent Gliding Club	Inside Back Cover
Lasham Gliding Society	483
Lita-Lamps Ltd	442
London Gliding Club	484
London Sailplanes Ltd	446
McBroom Sailwings Ltd	424
Mowbray Vale Insurance Brokers	431
John Murray	456
Gerald Myers	412
T & A. D. Poyser Ltd	414
RFD-CQ Ltd	452
Sailplane & Engineering Services Ltd	477
Sailplane & Gliding	441
Scottish Gliding Union	Inside Back Cover
Shorgard Airfield Accessories	465
Slingsby Sailplanes	463
Southdown Aero Services Ltd	481
Southern Sailplanes	428
Southern Soaring Centre	Inside Back Cover
Speedwell Sailplanes	479
Strugnell Aviation Services	474
Thermal Equipment Ltd	437
Three Counties Aero Club Ltd	480
Torva Sailplanes Ltd	412
Brian Weare	406
West Wales Gliding Club	Inside Back Cover
World Gliding Championships	458
Yorkshire Gliding Club	484
Yorkshire Sailplanes Ltd	Back Cover

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